Abridged List of

Publications of the Meteorological Office

Publications may be ordered directly from the Sale Offices of Her Majesty's Stationery Office at the addresses shown on page 4 of cover, or through any bookseller

1. HANDBOOKS, TEXTBOOKS, TABLES

Averages of bright sunshine for Great Britain and Northern Ireland, 1921-50. M.O.572. 1953. 8vo. 2*s*. (2*s*. 1½*d*.)

Averages of temperature for Great Britain and Northern Ireland, 1921-50. M.O.571. 1953. 8vo. 2*s*. (2*s*. 1½*d*.)

A Century of London Weather. By W. A. L. Marshall. M.O.508. 1952. 8vo. 15*s*. (15*s*. 4*d*.)

Climatological Atlas of the British Isles. M.O.488. 1952. 4to. 52*s*. 6*d*. (53*s*. 7*d*.)

Cloud Atlas for Aviators. M.O.450. 3rd edition 1943, reprinted 1952. Post 4to. 2*s*. 6*d*. (2*s*. 7½*d*.)

Cloud Forms according to the International Classification. Definitions and descriptions approved by the International Meteorological Organization with photographs of clouds. M.O.233. 6th edition 1949, reprinted 1953. 8vo. 2*s*. 6*d*. (2*s*. 7½*d*.)

Handbook of Statistical Methods in Meteorology. By C. E. P. Brooks, D.Sc., and N. Carruthers, B.Sc. M.O.538. 1953. 8vo. 25*s*. (25*s*. 8*d*.)

Handbook of Weather Messages. 2nd edition. 8vo.

Part I.—Transmission schedules and station index numbers. M.O.510a. (in the press)

Part. II.—Codes and specifications. M.O.510b. 1954. 4*s*. 6*d*. (4*s*. 9*d*.)

Part III.—Coding, decoding and plotting. M.O.510c. 1954. 4*s*. 6*d*. (4*s*. 8*d*.)

Amendment Lists issued as necessary and priced separately.

Instructions for the preparation of Weather Maps with tables of the Specifications and Symbols. M.O.515. 2nd edition 1954. 8vo. 1*s*. 9*d*. (1*s*. 10½*d*.)

Measuremen tof Upper Winds by means of Pilot Balloons. M.O.396. 3rd edition 1944, reprinted 1954. 8vo. 2*s*. 6*d*. (2*s*. 8*d*.)

Meteorological Air Observer's Handbook. M.O.470. 1945. 8vo. 4*s*. 6*d*. (4*s*. 9*d*.)

Meteorological Glossary (continuation of the "Weather Map"). M.O.225ii. 3rd edition 1939, reprinted 1953. 8vo. 12*s*. 6*d*. (13*s*.)

Meteorological Handbook for Pilots and Navigators. M.O.448. 2nd edition 1942, reprinted 1952. 8vo. 3*s*. 6*d*. (3*s*. 8*d*.)

Meteorology for Aviators. By R. C. Sutcliffe, Ph.D. M.O.432. 1940, reprinted 1953. 8vo. 10*s*. (10*s*. 6*d*.)

Meteorology of Airfields. By C. S. Durst, B.A. M.O.507. 1949, reprinted 1950. 8vo. 2*s*. (2*s*. 2*d*.)

A Short Course in Elementary Meteorology. By W. H. Pick, B.Sc., F.C.P., F.Inst.P. M.O.247. 5th edition 1938, reprinted 1953. 8vo. 4*s*. 6*d*. (4*s*. 8*d*.)

Weather Map. An introduction to modern meteorology. M.O.225i. 3rd edition 1939, reprinted 1953. (see "Meteorological Glossary" in continuation of the "Weather Map"). 8vo. 4*s*. (4*s*. 2*d*.)

2. JOURNALS

Marine Observer. 8vo. Published quarterly. New series commencing July 1947. Each 5s. (5*s*. 2*d*.) (Annual subscription, 21*s*. including postage.)

Meteorological Magazine. 8vo. Published monthly. New series commencing January 1947. Each 2*s*. (2*s*. 1½*d*.) (Annual subscription, 25*s*. including postage.)

Prices in brackets include postage

M.O. 578

AIR MINISTRY

METEOROLOGICAL OFFICE

THE OBSERVATORIES' YEAR BOOK 1938

Comprising the meteorological and geophysical results obtained from autographic records and eye observations at the Lerwick, Aberdeen, Eskdalemuir, Valentia, and Kew observatories, and the results of soundings of the upper atmosphere by means of registering balloons

LONDON: HER MAJESTY'S STATIONERY OFFICE
1955

Decimal Index
551.506.1
551.506.7
551.594(058)
55.034(058)
55.038(058)
551.510.42(058)

Obs. Yearb., 1938,
London, 1955

PREFACE

The *Observatories' Year Book* was published for the years 1922 to 1937 in continuation of Part III Section II and Part IV of the *British Meteorological and Magnetic Year Book* for the period 1908 to 1921.

Publication of the *Observatories' Year Book* was necessarily suspended during the 1939-45 war. Restrictions on supplies and printing since the war have resulted in a regrettably long delay in resumption of publication. In face of the formidable accumulation of arrears, and taking changed requirements into account, it has been decided to adopt an abridged form as outlined below.

It is intended that the General Introduction to the Meteorological Tables and the parts of the Sectional Introductions which deal with site, instruments, procedure and tabulation included in this volume for 1938 shall serve as standards of reference for several years to come; and that only important departures from these standards, together with any requisite additional information, shall be included in the relevant parts of the volumes for the years after 1938. The space devoted to the discussion of observations is reduced. Monthly tables of individual hourly values of meteorological elements are discontinued, but summaries of daily mean values (or totals), monthly means (or totals) of hourly values and some maximum and minimum values are given. The diary of cloud, weather and visibility is also discontinued. No major changes are made in the aerological, atmospheric electrical, magnetic or seismological tables.

The present volume, 1938, contains geophysical data for the observatories at Lerwick, Eskdalemuir, Valentia (which was transferred to the Irish Meteorological Service in October 1937) and Kew, meteorological data for Aberdeen, Eskdalemuir, Valentia and Kew, and in addition an aerological section giving the results of soundings of the upper atmosphere by means of sounding balloons.

Manuscript tabulations of hourly values of the meteorological elements are available at the observatories. Requests for information from these tabulations should be addressed to the Director, Meteorological Office, Air Ministry, Victory House, Kingsway, London, W.C.2; or, for Valentia Observatory, to the Director, Meteorological Service, Department of Industry and Commerce, 44 Upper O'Connell Street, Dublin.

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British Meteorological and Magnetic Year Books, 1917–1921
Part IV. Hourly values from autographic records

1917
P. 62, Table LXVII, Eskdalemuir, Declination, Year 1917; *for* "17°16·3′" *read* "17°17·1′".
P. 63, Table LXVIII, 1917, Declination, Eskdalemuir; *for* "17°16·3′" *read* "17°17 1′". Values for British observatories for 1917-19, 1917, Declination, Eskdalemuir; *for* "17°16·3′" *read* "17°17·1′".
P. 80, Table I, D, 1917; *for* "17°16·3′" *read* "17°17·1′".

1918
P. 49, Table LXVII, Eskdalemuir, Declination, Year 1917; *for* "17°16·3′" *read* "17°17·1′".
P. 50, Table LXVIIIa, 1917, Declination, Eskdalemuir; *for* "17°16·3′" *read* "17°17·1′".
P. 64, Table I, D, 1917; *for* "17°16·3′" *read* "17°17·1′".

1919
P. 49, Table LXVII, Eskdalemuir, Declination, Year 1917; *for* "17°16·3′" *read* "17°17·1′".
P. 50, Table LXVIIIa, 1917, Declination, Eskdalemuir; *for* "17°16·3′" *read* "17°17·1′".

1920
P. 47, Table LXVII, Eskdalemuir, Declination; Year 1920, *for* "16°49·7′" *read* "16°48·7′"; Year 1917, *for* "17°16·3′" *read* "17°17·1′".
P. 48, Table LXVIIIa, 1920, Declination, Eskdalemuir; *for* "16°49·7′" *read* "16°48·7′".
P. 62, Table I, D, 1920; *for* "16°49·7′" *read* "16°48·7′".

1921
P. 47, Table LXVII, Eskdalemuir, Declination; Year 1920, *for* "16°49·7′" *read* "16°48·7′"; Year 1917, *for* "17°16·3′" *read* "17°17·1′".
P. 48, Table LXVIIIa, 1920, Declination, Eskdalemuir; *for* "16°49·7′" *read* "16°48·7′".
P. 62, Table I, D, 1920; *for* "16°49·7′" *read* "16°48·7′".

Observatories' Year Books, 1922–1937

1922
P. 97, Table 98 (February), 6h., 18th; *for* "936·2" *read* "963·2".
P. 98, Table 99 (March), 16h., 23rd; *for* "998·2" *read* "988·2".
P.102, Table 108 (December); 5h., 18th, *for* "060·1" *read* "960·1"; 19h., 31st, *for* "768·0" *read* "968·0".
P.105, Table 115 (April); 3h., Mean, *for* "72·3" *read* "72·3"; 5h., Mean. *for* "72·1" *read* "72·1".
P.332, Table 478, 1920, Declination, Eskdalemuir; *for* "16°49·7′" *read* "16°48·7′".

1923
P. 97, Table, Harmonic coefficients of the diurnal inequality of atmospheric pressure – Eskdalemuir; *for* values for March, Year and Equinox *read*

"

	c_1 1923	α_1 1923	c_2 1923	α_2 1923	c_3 1923	α_3 1923	c_4 1923	α_4 1923
Mar.	·10	15	·35	151	·05	334	·04	46
Year	·155	171	·233	142	·033	25	·012	318
Equinox ..	·256	167	·237	143	·033	24	·033	16

"

P.122, Table 113 (March); *for* values for 16th and means at 3h., 4h., 5h., 6h. and Mean *read*

"

Day	3.	4.	5.	6.	Mean
16	998·6	998·7	998·7	998·8	1000·0
Mean	987	**987**	987	987	988
(Station level)	·77	·**69**	·75	·89	·25
Mean	1017	1017	1017	1017	1017
(Sea level)	·10	·09	·09	·25	·50

"

15h., Mean (Sea level); *for* "1016·82" *read* "**1016·82**".
P.126, Table 121 (November), Mean 22nd; *for* "972·2" *read* "982·2".
P.127, Table 123; *for* values for station level and sea level at 3h., 4h., 5h. and 6h. *read*

"

	3.	4.	5.	6.	Mean
Station level	981·04	980·92	980·88	980·91	981·28
Sea level	010·05	009·91	009·87	009·88	010·13

".

P.127, Table 124; *for* values for March and Year *read*

"

	Mean	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.
Mar.	988·25	+0·13	−0·06	−0·16	−0·27	−0·27	−0·14	+0·03	+0·19	**+0·35**	**+0·35**	+0·34	+0·25	+0·01	−0·23	−0·45	**−0·50**	−0·43	−0·25	−0·01	+0·11	+0·19	+0·23	+0·23	+0·22
Year	981·28	+0·07	−0·06	−0·23	−0·36	**−0·39**	−0·36	−0·23	−0·07	+0·06	+0·17	+0·17	+0·09	+0·04	−0·03	−0·08	−0·11	−0·07	0·00	+0·12	+0·21	+0·28	**+0·29**	+0·26	+0·21

".

P.127, Table 125, March, Minimum; 16th, *for* "988·6" *read* "998·6"; Mean, *for* "984·41" *read* "984·73".
P.131, Table 133 (August), 10h., Mean; *for* "86·30" *read* "86·3".
P.134, Table 139; 7h., December, *for* "+0·15" *read* "−0·15"; 8h., March, *for* "−0·37" *read* "−1·40"; 9h., March, *for* "−1·40" *read* "−0·37"; 23h., November, *for* "+0·58" *read* "−0·58".

1924
P.121, Table 125, November, Maximum, Mean; *for* "991·07" *read* "990·77".
P.124, Table 130 (May), 21h., Mean; *for* "78·0" *read* "80·0".
P.124, Table 131 (June), 24h., 5th; *for* "72·8" *read* "82·8".

1925
P.129, Table 122 (October); 10h., Mean (Station level), *for* "981·05" *read* "982·05"; 11h., Mean (Station level), *for* "981·05" *read* "982·05".
P.130, Table 124 (December), 23h., 24th; *for* "987·1" *read* "978·1".
P.138, Table 141, 22h., July; *for* "−·175" *read* "−1·75".

1926
P.147, Line 4 of text; *for* "9′·3" *read* "9′·5".
P.176, Table 191, 8h., April; *for* "−·072" *read* "−0·72".

1927
P.163, Line 11 of text; *for* "9′·3" *read* "9′·5".
P.176, Table 170 (April); 19h., 27th, *for* "085·2" *read* "985·2"; 20h., 27th, *for* "085·7" *read* "985·7"; 21h., 27th, *for* "086·2" *read* "986·2"; 22h., 27th, *for* "087·1" *read* "987·1"; 23h., 27th, *for* "087·8" *read* "987·8"; 24h., 27th, *for* "088·0" *read* "988·0"; Mean, 27th, *for* "084·3" *read* "984·3".

1927—*continued*

P. 180, Table 178 (December); 22h., Mean (Station level), *for* "986·12" *read* "**986·12**"; 23h., Mean (Station level), *for* "**086·12**" *read* "**986·12**".
P. 188, Table 196; March, Minimum, 22nd, *for* "87·0" *read* "76·0"; August, Maximum, 6th, *for* "83·5" *read* "93·5".

1928

P. 174, Line 33 of text; *for* "9′·3" *read* "9′·5".
P. 192, Table 170 (April); 21h., 15th, *for* "982·0" *read* "983·0"; Mean, 27th, *for* "987·8" *read* "981·8".
P. 196, Table 178 (December), Mean, 13th; *for* "978·9" *read* "987·9".
P. 197, Table 181; April, Minimum, 15th, *for* "821·1" *read* "982·1"; June, Minimum, 1st, *for* "955·5" *read* "995·5".

1929

P. 170, Line 33 of text; *for* "9′·3" *read* "9′·5".
P. 186, Table 170 (April), 24h., 11th; *for* "001·7" *read* "000·7".
P. 187, Table 171 (May); 15h., Mean (Station level), *for* "**984·87**" *read* "984·86"; 16h., Mean (Station level), *for* "984·75" *read* "**984·75**".
P. 191, Table 181, December, Maximum; 4th, *for* "965·9" *read* "966·1"; 19th, *for* "006·0" *read* "000·6".
P. 198, Table 196, February, Minimum, 28th; *for* "**69·9**" *read* "**59·9**".

1930

P. 170, Line 33 of text; *for* "9′·3" *read* "9′·5".
P. 189, Table 175 (September), Mean; Mean (Station level), *for* "984·8" *read* "984·83"; Mean (Sea level), *for* "10133·18" *read* "1013·18".
P. 190, Table 177 (November), Mean, 9th; *for* "998·0" *read* "988·0".
P. 191, Table 181; January, Maximum, 17th, *for* "987·7" *read* "990·4"; January, Maximum, Mean, *for* "976·58" *read* "976·66"; March, Maximum, 27th, *for* "984·0" *read* "994·0"; October, Maximum, 23rd, *for* "964·7" *read* "974·7"; November, Maximum, 2nd, *for* "996·4" *read* "966·4".
P. 198, Table 196, February, Maximum, 1st; *for* "86·0" *read* "76·0".

1931

P. 170, Line 25 of text; *for* "9′·3" *read* "9′·5".
P. 183, Table 167 (January); 3h., 14th, *for* "997·7" *read* "991·7"; 3h., Mean (Station level), *for* "979·97" *read* "979·78"; 3h., Mean (Sea level), *for* "1009·30" *read* "1009·11"; Mean, Mean (Station level), *for* "980·23" *read* "980·22"; Mean, Mean (Sea level), *for* "1009·51" *read* "1009·50".
P. 184, Table 169 (March), 19h., 27th; *for* "984·2" *read* "994·2".
P. 187, Table 175 (September); 16h., Mean (Station level), *for* "992·91" *read* "**992·91**"; 17h., Mean (Station level), *for* "**992·93**" *read* "992·93".
P. 189, Table 179, 3h.; Station level, *for* "983·99" *read* "983·98"; Sea level, *for* "1012·97" *read* "1012·95".
P. 189, Table 180; *for* values for January *read*

"

	Mean	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.
Jan.	980·22	−0·23	−0·36	−0·37	−0·49	−0·57	−0·53	−0·39	+0·07	+0·33	+0·48	+0·51	+0·44	+0·17	+0·06	+0·09	+0·13	+0·09	+0·11	+0·20	+0·21	+0·09	+0·05	−0·02	−0·04

".

3h., Year, *for*"−0·21" *read* "−0·23"; 4h., Year, *for* "−**0·32**" *read* "−**0·31**"; 21h., Year, *for* "+0·21" *read* "+0·22".
P. 189, Table 181, January, Minimum; 1st, *for* "959·5" *read* "959·1"; Mean, *for* "974·45" *read* "974·44".
P. 192, Table 187 (June), 24h., 29th; *for* "88·0" *read* "80·0".
P. 194, Table 191 (October), 4h., Mean; *for* "**78·95**" *read* "**77·95**".

1932

P. 177, Line 5 of text; *for* "9′·3" *read* "9′·5".
P. 192, Table 170 (April), 15h., 24th; *for* "864·7" *read* "984·7".
P. 197, Table 181, November, Minimum, Mean; *for* "982·83" *read* "982·63".
P. 248, Table 269; *for* "Eskdalemuir (X)" *read* "Eskdalemuir (H)".
P. 248, Table 270; *for* "Eskdalemuir (−Y)" *read* "Eskdalemuir (D)".

1933

P. 85, Table 68, November; *delete* "17 Eskdalemuir, glow and streamers".
P. 178, Line 5 of text; *for* "9′·3" *read* "9′·5".
P. 189, Table 167 (January), Mean, 3rd; *for* "976·1" *read* "965·6".
P. 195, Table 181, January, Minimum, 22nd; *for* "007·4" *read* "007·3".
P. 201, Table 193 (December), 19h., Mean; *for* "75·6" *read* "74·6".

1934

P. 179, Line 5 of text; *for* "9′·3" *read* "9′·5".
P. 192, Table 169 (March), Hour G.M.T.; *for* "23. 23. Mean" *read* "23. 24. Mean".
P. 192, Table 170 (April), 24h., 14th; *for* "970·1" *read* "980·1".
P. 196, Table 178 (December), 2h., Mean (Station level); *for* "969·13" *read* "969·83".

1935

P. 183, Line 5 of text; *for* "9′·3" *read* "9′·5".
P. 197, Table 172 (June), 24h., 7th; *for* "964·5" *read* "965·4".
P. 201, Table 181; May, Maximum, 17th, *for* "958·8" *read* "985·8"; July, Minimum, 10th, *for* "987·7" *read* "987·1".

1936

P. 85, Table 68; March, *for* "25" *read* "24"; May, *for* "Nil" *read* "12 Lerwick†"; September, *insert* "23 Lerwick†".
P. 85; *insert* footnote "†These two displays were not seen from the Observatory."
P. 177, Line 7 of text; *for* "9′·3" *read* "9′·5".
P. 195, Table 175 (September), 8h., 23rd; *for* "988·8" *read* "998·8".
P. 197, Table 181, February, Maximum, 6th; *for* "008·9" *read* "998·9".
P. 198, Table 182 (January), 6h., Mean; *for* "74·2" *read* "73·2".

1937

P. 36, Line 34; *for* "1937 ... ... −0·42" *read* "1937 ... ... −0·36".
P. 41, Line 21 of text; *for* "last thirteen years" *read* "last fourteen years".
P. 42, Line 10 of text; *for* "these fourteen years" *read* "these fifteen years".
P. 87, Table 68; January, *insert* "21 Kirkwall 21·00"; November, *insert* "1 Stour Head 01·30–02·30 from NE to NW"; November 2, *delete* "Stour Head 01·30–02·30 from NE to NW"; November 24, *delete* "Stour Head"; November 27, *insert* "Stour Head".
P. 173, Line 17 of text; *for* "H cot I" *read* "H tan I".
P. 178, Line 6 of text; *for* "9′·3" *read* "9′·5".
P. 198, Table 178 (December), 5h., Mean (Station level); *for* "982162" *read* "982·62".
P. 199, Table 181; September, Maximum, 1st, *for*"991·2" *read* "981·2"; November, Maximum, 11th, *for* "975·5" *read* "995·5"; December, Minimum, 28th, *for* "998·7" *read* "008·7".
P. 257, Table 284 (April), Terrestrial Magnetic Elements, Horizontal Force, Range, 25th; *for* "54" *read* "754".

GENERAL INTRODUCTION

LIST OF OBSERVATORIES

	Latitude N.	Longitude W.	Local mean noon G.M.T.	Height* above M.S.L.
	o ′	o ′		m.
Lerwick, Shetland Isles	60 08	1 11	12h. 5m.	81·7
Aberdeen	57 10	2 06	12h. 8m.	24·1†
Eskdalemuir, Dumfries-shire ..	55 19	3 12	12h. 13m.	242·0
Valentia, Cahirciveen, Co. Kerry	51 56	10 15	12h. 41m.	9·1
Kew, Richmond, Surrey	51 28	0 19	12h. 1m.	5·5

* The height given is that of the site of the rain-gauge. The heights of other meteorological instruments are shown in the appropriate tables.

† The site of the rain-gauge was altered on June 1, 1928 to a height of 11·4 m. and on April 1, 1933 to a height of 24·1 m.

NORMAL VALUES AND MONTHLY SUMMARIES

Monthly and annual normals of pressure, dry-bulb temperature, and rainfall for each hour of the day and for the period of 45 years, 1871-1915, are published for the observatories, Aberdeen, Valentia, Kew and Falmouth in *Hourly values from autographic records, 1917* (Part IV of the *British meteorological and magnetic year book, 1917*), and in previous volumes of that series. Corresponding normals of wind speed and sunshine* are published there for the same observatories for the period of 35 years, 1881-1915, while corresponding normals of relative humidity are also published there for the period of 30 years, 1886-1915. For Eskdalemuir the same publication gives hourly averages for the months and for the year, referred to the period 1911-1915.

It should be noted, however, that the normal hourly values in the case of wind, rainfall and sunshine refer to periods of 60 min. centred at exact hours G.M.T., and are therefore not directly comparable with the values printed in this volume which refer to periods of 60 min. ended at exact hours G.M.T.

Summaries giving additional mean values and frequencies of occurrence of various meteorological phenomena will be found in the *Monthly weather report* and its Annual Summary. The latter also contains special summaries of the tabulations of the anemographs.

INTRODUCTION TO THE METEOROLOGICAL TABLES

The elements dealt with in the following meteorological tables for the observatories at Aberdeen, Eskdalemuir, Valentia and Kew are:—— barometric pressure, air temperature, humidity, rainfall, sunshine, wind, minimum night temperature on the grass, temperature in the ground, and (at Kew Observatory) solar radiation.

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* The normals of hourly values of sunshine for Aberdeen for all months except February are incorrect, owing to an error in computation. The published values except February, should be increased by one-third.

NOTES ON THE INSTRUMENTS AND TABULATION OF THE RECORDS

A detailed description of the barograph, thermograph, and Beckley rain-gauge used for obtaining the records of pressure, temperature, humidity, and rainfall is given in the Reports of the Meteorological Office for the years 1867 and 1869; for a description of other instruments in use reference may be made to the "Observer's handbook", the "Handbook of meteorological instruments" and to the article on meteorological instruments in the "Dictionary of applied physics", Vol. III. The following notes are supplementary and are given partly for reference and partly as containing information necessary for the interpretation of the tables.

Barometer.— The record of barometric pressure is obtained photographically from a mercury barometer.

By means of a source of light, a condenser and an objective arranged as in the ordinary optical lantern, an image of the space above the mercury in the tube, reduced to very small width by means of a diaphragm, is projected upside down upon a sheet of photographic ("bromide") paper carried upon a cylinder which is rotated by means of clockwork and makes one revolution about its vertical axis in rather more than 48 hr. The image is in the form of a vertical line of light, the upper edge of which is defined by the position of the mercury in the barometer tube, while the lower edge is defined by a plate actuated by a zinc rod. The purpose of the zinc rod is to provide an automatic compensation for temperature changes, the arrangement being such that any shortening of the line of light due to a rise of temperature and consequent expansion of mercury in the tube is balanced by an equal lengthening due to movement of the plate carried on the zinc rod.

The barogram is, therefore, a continuous photograph of a narrow illuminated vertical line and appears as a horizontal ribbon, the depth of which is constantly varying with the rise or fall of the mercury in the tube of the barometer.

A time-scale is recorded upon the barogram by means of a shutter actuated by the clock. This shutter cuts off the light for the space of four minutes every two hours, thus producing interruptions which appear on the record as narrow white spaces corresponding with intervals of four minutes centred at the half hours, 1h.30m., 3h.30m., etc. Until 1918 these time-breaks occurred at the even hours, 2h., 4h., 6h., etc., but it was found that when the edge of the record was not critically sharp owing to various causes, a systematic error was introduced when measuring the records, whereby the values at the even hours were slightly in excess of those at the odd hours where no time-break existed. From 1918 onwards the clock was so arranged that the time-breaks should occur half an hour before the even hours; by this means both even and odd hour values are measured at points on the trace which are unaffected by any systematic difference.

Control readings of a standard barometer are taken three times a day by different observers. The control readings are first corrected for index error, temperature and gravity, and then compared with the corresponding readings of the barogram. The differences between the control readings and the corresponding tabulated values are then found and a correction derived therefrom is applied to all the tabulated values. This correction, known as the "residual correction", is so applied as to run smoothly throughout the whole length of each record—a period of 48 hr.—and alterations in the amount of the correction occur, where necessary, in steps not exceeding 0·1 mb.*

The scale value of the barograms is found from a comparison of a series of such standard and curve readings. The indications of a curve are converted into numerical values by measuring the ordinates with a tabulating instrument, graduated according to the ascertained scale value.

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* At Valentia and Kew the rule is to apply the same correction for the whole chart.

Thermometers.—The air temperature and humidity data at each observatory are derived from records obtained photographically from two mercury thermometers. One thermometer is used as a dry-bulb thermometer and the other as a wet-bulb thermometer.

Each thermometer has a large cylindrical bulb four inches long and a very long stem. The latter is bent twice at right angles to enable the bulb to be exposed outside the building in a louvered screen attached to the north wall of the observatory.* The column of mercury in the vertical portion of the stem inside the building is broken at a convenient point by a small air space which moves up or down the stem with rise or fall of temperature. The record is obtained by passing a reflected beam of light through the air space and photographing its image upon a moving sheet of bromide paper in the same manner as described in the case of the barometer. A base line is traced on the paper by a pencil of light passing through a small aperture in the brass frame carrying the recording thermometer. The time-scale is automatically recorded upon the curves, a time-break occurring half an hour before each even hour.

Two large standard thermometers with very open scales graduated in degrees Absolute and having bulbs similar to those of the thermograph are mounted in the screen side by side and close to the thermograph bulbs. One of the thermometers is arranged as a dry bulb, the other as a wet bulb. Control readings of these thermometers are made three times a day for comparison with the corresponding readings obtained from the thermograms.

The scale value of the curves is found by a comparison of the readings of the standard thermometers, corrected for any errors they may have, with the corresponding measurements of the curves. The curves are measured by means of a plate of glass ruled with lines corresponding with the ascertained scale value of the record, both for temperature and for time. The scale is graduated so as to read degrees vertically and hours horizontally.

Two alternative methods of reading the curves have been adopted:—

(*a*) At Kew the scale is set by the base line and after hourly readings have been obtained for the whole record comparisons are made with the control readings. The residual correction so determined (normally the same for the whole record of 48 hr.) is applied to the tabulations.

(*b*) At Aberdeen, Eskdalemuir and Valentia, the practice is to adjust the glass scale so that the readings at the control hours on the trace are made to show general agreement with the corresponding eye readings of the standard thermometers. The temperature equivalent of any part of the curve can then be read off. The base line photographed on the record serves as a useful check.

Rainfall.—This element is recorded by a Beckley self-registering rain-gauge, in which the rain as it falls is collected in a receiver supported on a float in a vessel of mercury. As the rain passes into the receiver, the float gradually sinks, carrying with it a pen which records its position upon a chart wrapped round a clock-driven cylinder. The displacement of the mercury by the float is arranged so as to give a uniform scale throughout. When five millimetres (two tenths of an inch) of rain have entered the receiver a siphon comes into action, and, by discharging its contents, causes the float to rise till the pen is brought back to the zero line, from which the record begins again.

The collecting funnel of the Beckley rain-gauge has an area of approximately 100 square inches. Each gauge stands on level ground and its distance from every other

* At Eskdalemuir the screen stands in the open.

object is greater than twice the height of the object. The height of the rim of the Beckley rain-gauge above the surface of the surrounding ground varies from 0·4 m. to 0·6 m. at the different observatories. Details are given at the head of the tables of hourly values. A check gauge with funnel 8 inches in diameter is installed near by.

The records obtained from the Beckley self-registering rain-gauge are, if necessary, subjected to a proportional correction whereby they are brought into agreement with the amount of rainfall as recorded by the check rain-gauge which is read twice daily, at 7h. and 18h.

Rate of rainfall.— The instantaneous rate of rainfall is registered by means of the Jardi recorder a description of which is given in *British Rainfall 1930*, Part IV, p. 284. In this instrument, rain-water collected by a funnel, 1 m. in diameter, enters a chamber at the bottom of which is a hole through which passes a tapering spindle attached to a float. When water enters the chamber the float rises and thereby opens the hole in the bottom of the chamber to an extent which increases as the float rises, until a position is reached when the rate of outflow is equal to the rate of inflow. The equilibrium position of the float is therefore a measure of the rate of rainfall, and the record is obtained by recording the movements of the float on a suitably graduated chart.

Sunshine.——The record of sunshine is obtained from a Campbell Stokes recorder in which instrument the sun's rays are focussed through a 4-in. spherical lens of crown glass upon a strip of blue card, which is scorched, or burned right through, according to the intensity of the sun's rays. Three different patterns of card are used at different seasons of the year. The cards are exposed in a metal bowl, and the focussed image of the sun leaves its mark behind it as it travels along the surface of the card with the apparent motion of the sun through the heavens. The intensity of the burn is not measured, but the record is regarded as that of "bright" sunshine whenever the card has been distinctly scorched. When measuring the duration of sunshine which is represented by intermittent burns, an allowance is made for the extension of the trace by the charring of the card.

Wind speed and direction.——The hourly values of wind speed and direction which appear in this volume are derived from the records of Meteorological Office pressure-tube anemographs, a description of which will be found in the "Observers' handbook". In the case of Aberdeen, hourly values from the pressure-tube anemograph on the Glebe site were included for the first time in the volume for 1935. A description and illustration of the instrument will be found in the Aberdeen sectional introduction to that volume. At Eskdalemuir records of pressure-tube anemographs have always been used, but at the older observatories the data printed in volumes previous to that of 1926 were obtained from Robinson cup anemographs. At Kew a new pressure-tube anemp-graph, erected on the dome in the position formerly occupied by the Robinson cup anemograph, but with its vane 3 m. higher than the original height of the cups, was brought into use from January 1, 1931. At Valentia Observatory a new pressure-tube anemograph, with 1-in. connecting pipes, was brought into use from January 1, 1932. The new instrument was erected alongside the old instrument, and a comparison extending over the period May 1931 to January 1932 showed that the new instrument recorded higher velocities than the old. In hourly mean values the difference was nearly uniform and equal to 0·4 m./sec. or 1 m.p.h. In gust velocities the increase was approximately 12 per cent. of the velocity recorded by the old instrument. At Eskdalemuir a new pressure-tube anemograph with 1-in. connecting pipes was brought into use from August 11, 1933. The diameter of the connecting pipes of the old instrument was ½ in. Particulars of the exposure of the instruments at each observatory will be found in the sectional introductions.

The relation between the values of wind speed recorded by the cup and pressure-tube anemographs at the several observatories was briefly discussed in the General Introduction to the volume for 1926. The following table gives, for the various wind directions, the mean values of wind speed recorded by the pressure-tube anemographs, expressed as percentages of the corresponding values recorded by the cup anemographs:—

AVERAGE VALUES OF THE QUANTITY $100 \times \frac{\text{SPEED BY PRESSURE-TUBE ANEMOGRAPH}}{\text{SPEED BY CUP ANEMOGRAPH}}$

AT THE THREE OBSERVATORIES, ARRANGED ACCORDING TO THE DIRECTION OF THE WIND.

NORTH = 360°, EAST = 90°, SOUTH = 180°, WEST = 270°

Wind direction in degrees from North	Aberdeen (to 1929)	1935	Valentia (to 1931)	Kew 1926-30	1931	Wind direction in degrees from North	Aberdeen (to 1929)	1935	Valentia (to 1931)	Kew 1926-30	1931
10	131	110	103	99	114	190	138	120	137	96	107
20	132	110	103	100	113	200	132	120	134	99	107
30	130	110	104	103	114	210	124	110	128	99	104
40	117	90	103	103	110	220	115	105	115	100	104
50	115	90	104	104	109	230	108	110	102	100	104
60	115	85	105	99	103	240	110	110	90	100	103
70	119	80	105	99	102	250	112	110	88	101	106
80	113	85	104	97	99	260	114	130	85	101	107
90	110	65	102	101	103	270	128	120	82	101	108
100	126	65	98	104	106	280	124	110	81	103	111
110	121	85	97	102	103	290	110	100	83	101	111
120	118	95	98	100	102	300	99	90	88	96	108
130	118	100	100	104	105	310	100	100	92	93	103
140	125	105	103	102	105	320	108	105	95	96	107
150	128	120	107	98	102	330	111	110	97	99	115
160	137	130	114	92	99	340	120	110	98	98	116
170	133	130	123	92	103	350	138	100	99	103	119
180	135	135	134	95	106	360	135	100	102	104	122

Details in regard to the comparison of the new and old pressure-tube anemographs at Kew will be found in the sectional introduction for the year 1931.

Minimum night temperature on the grass.— This is the temperature determined by a minimum thermometer exposed freely over the surface of the grass. The stem of the thermometer is enclosed in an outer glass jacket, but the spirit bulb is freely exposed to the air. The thermometer is supported on two small Y-shaped pieces of wood so that it lies horizontally, with its bulb about one or two inches above the ground, which is covered with short grass. When snow has fallen the thermometer is supported so as to lie just above the surface of the fallen snow, but not touching it.

The thermometer is laid out at 18h. each day, having been kept in an upright position, bulb downwards, inside the Stevenson Screen during the day-time, so that any spirit that may have condensed in the upper part of the stem may be able to run down and join the main spirit column.

Earth temperature.— At each observatory the earth temperature is read daily at 9h. at depths of 30 cm. and 122 cm. below the surface. For this purpose use is made of Symons' earth thermometers, in which the bulb is embedded in paraffin wax for the purpose of introducing sufficient "lag" to ensure that the reading will not change appreciably during the process of drawing up the thermometer in order to take the reading. The thermometers are supported at the correct depth in steel tubes sunk into the ground. At Aberdeen discontinuities have occurred on several occasions in recent years owing to changes of site (see sectional introduction).

NOTES ON THE TABLES

General.— Detailed monthly tables of hourly values of atmospheric pressure, temperature, humidity, rainfall, sunshine and wind as published before 1938 are not included in this volume. The data are available in manuscript. The diary of cloud, visibility and weather is also omitted.

Maximum and minimum values are underlined. Interpolated values are printed within brackets.

Standard of time.—The observations are referred to Greenwich Mean Time except as regards sunshine, for which element local apparent time is used.

Units.—In accordance with the practice introduced in 1911, as a consequence of certain resolutions of the Gassiot Committee of the Royal Society, the values in the tables are expressed throughout in units based upon the C.G.S. System; tables for conversion to other units are given in the *British meteorological and magnetic year book (Part IV)* for 1913 and are also to be found in the "Computer's handbook".

Daily mean values.—The daily means of pressure, temperature, and relative humidity are obtained by adding half the sum of the values for the initial and final midnights to the sum of the 23 intermediate hourly values and dividing by 24.

For wind speed the hourly values determined from the autographic records are means for periods of 60 min. between the exact hours 0h. and 1h., 1h. and 2h., etc. The daily mean is therefore obtained by dividing the sum of the 24 hourly values by 24.

A note on the computation of the mean values for the day, diurnal inequalities and the correction for non-cyclic change will be found at the end of this Introduction.

Annual values.—Unless otherwise stated the mean values or the totals for the whole year given in the tables are computed as the means or sums of 365, in leap year 366, daily values*. The annual values of pressure at sea level are computed from the annual means at station level and the annual means of air temperature. A corresponding procedure is adopted in computing the monthly values of pressure at sea level. The values of vapour pressure for the year are the means of the monthly mean values; before 1938 the annual values of vapour pressure were computed from the annual means of air temperature and relative humidity.

Atmospheric pressure.— All pressures recorded in this volume are expressed in millibars, one millibar being equal to 1000 dynes per square centimetre. The following are the values of physical constants used in evaluating the data:—

Density of mercury = 13·5955 gm./cm.^{3} at 0°C.
Intensity of gravity at sea level (lat. 45°) = 980·617 cm./sec./sec.
1 in. = 25·4000 mm.

Hence a pressure of 1000 mb. corresponds with a reading of 750·076 mm. on a mercury barometer at temperature 0°C. in latitude 45° and is equivalent to 29·5306 in. under standard conditions of temperature (mercury at freezing point, scale at 62°F.) in latitude 45°.

The true pressure in millibars can only be obtained from the reading of a barometer after the latter has been suitably corrected for *(a)* index error, *(b)* temperature, and *(c)* gravity. These corrections have been applied to the barometer readings in obtaining

* At Eskdalemuir the annual values for the years 1922 to 1926 were computed as the means or sums of 12 monthly values.

the pressure values published in this volume. The corrections for index error (including those for capillarity) are given in the certificates issued by Kew Observatory or the National Physical Laboratory in respect of the standard barometers at each observatory. The corrections for temperature are equivalent to those published in the "International meteorological tables" (Gauthier-Villars, Paris, 1890). The correction for the variation of gravity from its standard value at sea level in latitude 45°, quoted above, is in accordance with the formula adopted in the "International meteorological tables", namely

$$g_{z,\varphi}/g_{0,45^\circ} = (1-0{\cdot}00259\cos 2\varphi)\,(1-5h/4r)$$

where h = height of the station above M.S.L.,
r = earth's radius, both expressed in the same units,
and φ = latitude of station.

Except at Eskdalemuir, the correction for the variation of gravity with height, contained in the second factor of the above equation, is insignificant.

Unless otherwise stated, all pressure values refer to the level of the observatory, as given in the headings of the tables. The reduction to sea level, wherever made, is effected by tables drawn up for each observatory in accordance with the following scheme:—

If p is pressure at station level, and p_o is pressure at sea level, the correction required to reduce p to sea level is $p_o - p$ where

$$\log_e(p_o/p) = \bar{g}h\,(1-3\bar{w}/8p)/K\bar{T}$$

h = height of station in centimetres
e = base of Napierian logarithms
K = gas constant for dry air = $10^9/348{\cdot}4$ C.G.S. units *
$\bar{T}$ = mean Absolute temperature of the air column between station level and mean sea level
$\bar{w}$ = mean value of water vapour pressure in the column
$\bar{g}$ = mean value of the acceleration of gravity in the air column. Even at Eskdalemuir, the highest station, the effect on the correction of the variation of gravity with height is, in this case, negligible, so that
g = $980{\cdot}617\,(1-0{\cdot}00259\cos 2\varphi)$.

The factor $(1-3\bar{w}/8p)$ in the above formula is practically unity except at Eskdalemuir. Its value for that observatory was discussed in the introduction to the Eskdalemuir section for the year 1928.

In the same way, the value of $\bar{T}$ at each observatory differs inappreciably from the value of air temperature at the observatory, except in the case of Eskdalemuir (see introduction to Eskdalemuir section for details)

Hence at all observatories except Eskdalemuir, no corrections are applied for the effects of water vapour, or of change of air temperature in the column of air between the station and sea level.

The scheme for correcting barometer readings outlined above was introduced for Eskdalemuir at the beginning of 1927 and for the other observatories on January 1, 1928.

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* This value depends on a coefficient of expansion of dry air of 1/273 and on the density of dry air at pressure 1013·23 mb. and temperature 273°A, viz., 1293·052 gm./m.^{3}

The tables contain daily, monthly and annual mean values of pressure at exact hours obtained from the photographic barograms, and also the maximum and minimum instantaneous values recorded each day. Monthly and annual means of the hourly values after reduction to mean sea level, using the corresponding mean values of air temperature, are also given.

Temperature.— The scale on which temperatures are recorded is such that the freezing point of water under atmospheric pressure is 273°A precisely. Other temperatures differ by 273·0° from readings on the Centigrade scale.

To convert temperature published in this volume to the scale on which the Absolute temperature of the melting point of ice under one atmosphere is 273·16°K, a correction of +0·16° is to be added to each reading.

The tables contain daily, monthly and annual means of temperature at exact hours obtained from the photographic thermograms and also the maximum and minimum temperature recorded each day.

Humidity.— When the temperature of the wet bulb is above 273°A, values of relative humidity at exact hours are deduced from the corresponding values of dry- and wet-bulb temperatures obtained from tabulations of the photographic thermographs, complete saturation being taken as 100. Until the end of the year 1925 the reduction was effected from tables based on Glaisher's hygrometric factors*, but from January 1, 1926, tables have been employed which proceed from Regnault's formula

$$x = f - Ap\ (t - t'),$$

where x = vapour pressure under the conditions of observation
f = saturation vapour pressure at the temperature (t') of the wet bulb
p = pressure of the air
t = temperature of the dry bulb in Absolute (Centigrade) degrees
t = temperature of the wet bulb in the same units
A = a constant.

The tables used in this volume for determining the hourly values of relative humidity when the wet bulb is above the freezing point are "Jelineks Psychrometer-Tafeln" (6th edition, Leipzig, 1911)†.

No allowance for variation of pressure p is made and the standard value used in Jelinek's tables, i.e. 755 mm. of mercury (1006·57 mb.), is adhered to. Similarly no allowance is made in the adopted value of the constant A for the speed of the air flowing past the wet bulb, though it is well known that A is not independent of the ventilation. A is regarded as fixed and equal to 0·0008. In view of the well marked diurnal variation of wind speed, the diurnal variation of humidity, derived in this manner, is subject to slight modification.

When the wet-bulb reading does not exceed 273°A, the above method of reduction is not followed, but values of relative humidity are derived from the record of the hair hygrograph. To these values are applied appropriate corrections based on a comparison

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* Glaisher's "Hygrometical tables", 7th edition, London, 1885.

† These tables give values which are in almost exact agreement with those given by "Hygrometric tables" published by the Meteorological Office for general use at second and third order stations. The latter tables are not suited to the purposes of this Year Book, because in them temperature is expressed in Fahrenheit degrees, whereas the absolute Centigrade scale of temperature is used at the observatories.

between the readings of the record of that instrument and the corresponding values of humidity computed from dry- and wet-bulb readings during neighbouring periods when the wet-bulb readings exceeded 273°A.

The normal hourly values of relative humidity for the period 1886-1915, published for certain observatories in *Hourly values from autographic records 1917*, were derived from tables based on Glaisher's factors. The application of the new tables to the normal hourly values of dry- and wet-bulb temperature gives results for normal relative humidity which are only slightly different from those which have been published. At Kew Observatory in winter the difference is negligible; in July it does not exceed 1 per cent. at any hour, in October it does not exceed 2 per cent. at any hour. The effect is greatest in April, when the published normal values of average relative humidity are reduced by 3 per cent. at noon and at 16h. and by smaller amounts at other hours.

Of greater importance is the effect on the values of absolute minimum humidity. Under the old system, entries of relative humidity less than 30 per cent. seldom occurred; under the new system, such entries may occur not infrequently.

The tables contain the daily, monthly and annual means of relative humidity in percentages and vapour pressure in millibars at exact hours. For vapour pressure, the daily means and the monthly means for individual hours are computed from the corresponding mean values of relative humidity and temperature, in conjunction with a table of saturation vapour pressure over water*. The mean vapour pressure so computed for each day is somewhat greater than the mean hourly vapour pressure for the day, by an amount depending on the range of temperature; while the mean vapour pressure so computed for each hour is normally somewhat less than the true mean vapour pressure for the hour. The true monthly mean of vapour pressure is therefore intermediate between the mean of the daily values and the mean of the hourly values. The means of vapour pressure at each hour given for the year are means of the corresponding monthly means of vapour pressure, and are about 0·2 mb. greater than means computed (as before 1938) from the corresponding annual means of temperature and relative humidity, but about 0·1 mb. less than the true mean values. Reference may be made to a paper by E.J. Sumner and G.A. Tunnell on the computation of true mean vapour pressure from temperature and hygrometric data†.

Rainfall.— Tables are given showing the amount of precipitation in millimetres, the duration in hours and the maximum instantaneous rate of precipitation during the period 0h. to 24h. Greenwich Mean Time each day. The monthly and annual total amounts and total durations for the 60-min. periods between exact hours†† are also given, together with notes on special features of the rainfall of the year.

The duration of rainfall is regarded as the number of hours during which rain falls at a rate of not less than 0·1 mm./hr.

When the maximum rate of precipitation has been estimated from the Beckley-gauge record, instead of from the Jardi record, the reading is entered within brackets.

The entry " ··· " is used to denote that no measurable rain occurred, and, in respect of duration, to denote that the rate of fall was less than 0·1 mm./hr.

If slight precipitation of various forms extends over some hours and the amounts collected in some or all of the hours are less than 0·1 mm., entries of (0·1) on the

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* The saturation vapour pressures used are those employed in the preparation of "Hygrometric tables". They are equivalent to those published by Scheel and Heuse in *Annalen der Physik*, 1910.

† *Met. Mag., London*, 78, 1949, p. 258 and p. 295.

†† For the years 1904 to 1920 it was the practice to tabulate rainfall for the periods of 60 min. centred at the exact hours; the reversion to the method in use before 1904 occurred on January 1, 1921.

tabulation sheets, on which the published tables are based, are allocated evenly among the hours concerned in such a way that their sum is equal to the aggregate fall during the period. When it is impossible to determine the hourly amounts of precipitation, e.g. during snowfall or on occasions when the record has failed, the normal procedure is to consider each case on its merits and to assign hourly values derived from estimates made by the observers as soon as possible after the event.

Sunshine.— For each day are given the total duration of bright sunshine recorded by the Campbell Stokes instrument and the percentage this represents of the "possible" duration for the day. The tables give also the monthly and annual totals of bright sunshine for each of the 60-min. intervals between exact hours*, according to local apparent time, from sunrise to sunset. The values for the months and the year of percentage of possible duration of sunshine are obtained by comparing the total recorded sunshine for the period with the total "possible" for the period.

The "possible" for each day is computed as the period of time beginning and ending at the instants when the centre of the sun is apparently on the horizon, due allowance being made for atmospheric refraction. Even on a clear day the sun, when at an altitude less than 2½° to 3° above the horizon, fails to make a scorch on the card of the Campbell Stokes recorder.

In the tables of hourly totals a distinction is made between *(a)* sunshine not possible, and *(b)* sunshine possible but none recorded. If sunshine is not possible the symbol "—" is used; if more than 3 min. of "possible" sunshine falls in the interval between exact hours according to local apparent time, and if no sunshine were recorded, the symbol "···" is printed. In the tables of daily duration the symbol "···" denotes that no sunshine was recorded.

Wind.—The tables contain the mean wind speed and the highest instantaneous speed recorded each day, the monthly and annual means of the hourly mean speed and the monthly distribution of wind speed. Values of speed are expressed in metres per second (1 m./sec. = 2·2369 m.p.h.); those of direction are given in degrees from true north.

Values of hourly mean wind speed refer to the 60-min. interval between consecutive exact hours of Greenwich Mean Time†, and are determined from the anemograph records by use of a suitable engraved glass scale. When the record shows that the instrument is 'sticking' in very light winds, e.g. less than 1 m./sec., it is usual to adopt 0·5 m./sec. as the speed for evaluating daily and monthly mean values.

Minimum night temperature on the grass.—Values are given for each day of the year together with monthly and annual mean values. The interval to which the reading refers is from 18h. the previous day to 7h. on the day to which it is entered.

NOTE ON THE COMPUTATION OF THE MEAN FOR THE DAY, DIURNAL INEQUALITIES AND THE NON-CYCLIC CORRECTION

Hourly values presented in, or used in preparing, the tables in this publication are mainly of two types *(a)* instantaneous readings at exact hours and *(b)* means (or other quantities) for periods of 60 min. beginning and ending at exact hours. Let x_n denote the value at hour n and let $[x]_n$ denote the mean for 60 min. ending at hour n. The main tables of hourly values contain entries ranging from $n = 0$ or 1 (according to the element) to $n = 24$.

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* Before January 1, 1921, sunshine was tabulated for the periods of 60 min. centred at exact hours.

† Before May 1, 1915, it was the practice to take the direction at the exact hour whilst wind speed referred to 60-min. intervals centred at exact hours. Thereafter until January 1, 1932, both wind speed and direction were tabulated for periods of 60 min. centred at the exact hours. At a meeting on December 17, 1931, the Gassiot Committee resolved that hourly values of terrestrial magnetism, potential gradient and wind speed and direction should be brought into accordance with the practice decided upon for Polar Year stations by the International Commission for the Polar Year 1932-1933, namely that hourly mean values should refer to periods of 60 min. between exact hours of standard time (see also Introduction to *Hourly values from autographic records, 1913*, p. xv).

The mean for the day is clearly represented exactly by

$$[x]_D = \tfrac{1}{24}\left\{[x]_1 + [x]_2 + \cdots + [x]_{24}\right\}$$

or, in other words, for (*b*) type tabulations the daily mean is the simple average of the 24 hourly values. In the case of (*a*) type tabulations we arrive at the daily mean by writing, as an approximation,

$$[x]_n = \tfrac{1}{2}\left\{x_{n-1} + x_n\right\}.$$

Substituting in the above formula we obtain

$$[x]_D = \tfrac{1}{24}\left\{\tfrac{1}{2}(x_0 + x_{24}) + x_1 + x_2 + \cdots + x_{23}\right\}.$$

The diurnal inequality is derived from monthly or group means of hourly values by subtracting the mean for the whole day from the mean hourly values; thus the diurnal inequality at hour *n* may be represented by

$$\delta x_n = \bar{x}_n - [\bar{x}]_D.$$

In the case of (*b*) type tabulations the sum of the 24 diurnal inequalities is clearly equal to zero. For (*a*) type tabulations the sum of the 24 diurnal inequalities from $n = 1$ to $n = 24$ is $\frac{1}{2}(\bar{x}_{24} - \bar{x}_0)$ and this is not, in general, equal to zero.

The non-cyclic change is defined as the average increase of the variable from one midnight to the next, and is therefore equal to $\bar{x}_{24} - \bar{x}_0$. For (*b*) type tabulations the value of the non-cyclic change is not derivable directly from the tabulations, and it is necessary to estimate its value from readings in the form $[\bar{x}]_n$.

The estimate is obtained by means of the approximations

$$\bar{x}_{24} = \tfrac{1}{2}\left\{[\bar{x}]_{24} + [\bar{x}]_{25}\right\} \text{ and } \bar{x}_0 = \tfrac{1}{2}\left\{[\bar{x}]_0 + [\bar{x}]_1\right\},$$

$[\bar{x}]_{25}$ being the mean value for the hour following the second midnight.

The correction for the non-cyclic change is applied by assuming that the non-cyclic change is the result of a linear rise or fall; the correction applicable at hour *n* is therefore

$$\frac{12 - n}{24}\left\{\bar{x}_{24} - \bar{x}_0\right\}.$$

It will be seen that the application of the correction brings the value $\bar{x}_{24}$ into equality with $\bar{x}_0$; consequently the sum of the corrected diurnal inequalities for (*a*) type tabulations now becomes equal to zero.

For (*b*) type tabulations we assume that the correction appropriate to the inequality for the hour ending *n*h. G.M.T. is the value corresponding to $n - \frac{1}{2}$ in the above formula,

$$\text{i.e. } \frac{25 - 2n}{48} \times (\text{the non-cyclic change})$$

$$\text{or } \frac{25 - 2n}{48}\left\{\frac{[\bar{x}]_{24} + [\bar{x}]_{25}}{2} - \frac{[\bar{x}]_0 + [\bar{x}]_1}{2}\right\}$$

$$\text{i.e. } \frac{25 - 2n}{96}\left\{[\bar{x}]_{24} + [\bar{x}]_{25} - [\bar{x}]_0 - [\bar{x}]_1\right\}.$$

Before the volume for 1936 all published values of diurnal inequalities and values of mean range and average departure derived from them were corrected for non-cyclic

change. Following a resolution of the Commission for Terrestrial Magnetism and Atmospheric Electricity approved by the Conference of Directors at Warsaw in 1935, it has been decided to print from January 1, 1936, values of diurnal inequalities for magnetic elements uncorrected for non-cyclic change. The published values of mean range and average departure are therefore derived from the uncorrected diurnal inequalities as now published.

Correction for non-cyclic change continues to be made in deriving diurnal inequalities of meteorological and atmospheric electrical elements.

M.O. 578

THE OBSERVATORIES' YEAR BOOK 1938

Comprising the meteorological and geophysical results obtained from autographic records and eye observations at the Lerwick, Aberdeen, Eskdalemuir, Valentia, and Kew observatories, and the results of soundings of the upper atmosphere by means of registering balloons

LERWICK

Decimal Index
55.038(058)
551.506.1
551.594(058)

Obs. Yearb., 1938,
London, 1955

LERWICK OBSERVATORY

Latitude	60°08'N.
Longitude	1°11'W.
G.M.T. of Local Mean Noon ..	12h. 5m.
Height of site above M.S.L. ..	80 to 90 metres.

INTRODUCTION

Because of the need to obtain magnetic records as far north as possible in the British Isles the establishment of an observatory in the Shetland Islands was included in the programme of the Meteorological Office in 1919. It was found possible to take over for this purpose the buildings of a radio station built by the Admiralty in 1913 near the town of Lerwick.

The Observatory was opened on June 7, 1921 when the first instalment of instrumental equipment arrived. Buildings for the magnetic instruments were constructed in the following months, but several months elapsed before the magnetograph house was in a fit state for the installation of the instruments.

Autographic records of the earth's magnetic elements have continued since January 1923, and of atmospheric electrical potential gradient since 1925. Auroral observations, mainly visual, are made. Regular meteorological observations and records are maintained, but have not been published in the Year Book. Upper air soundings by radio-sonde were instituted in 1940 and supplemented later by radio or radar measurement of upper winds.

SITE

The Observatory is situated on a ridge of high ground about a mile and a half (2·4 Km.) to the south-west of Lerwick and adjoins the main road between Lerwick and Scalloway. The site slopes upwards from west-north-west to east-south-east, the average height above M.S.L. being about 280 ft. (85 m.). The ground to the east and south-east rises slightly for about ¼ mile (0·4 Km.) then slopes sharply down to the sea. In other directions there is a downward slope for about ¼ mile extending to the Loch of Trebister on the south-west, to Sandy Loch on the north-west, and to the Burn of Sound on the north-north-west; beyond these and distant about ¾ mile (1·2 Km.) from the Observatory are small hills — Munger Hill to the south is about 320 ft. (97 m.) above M.S.L., Shurton Hill to west-north-west rises to 576 ft. (176 m.), and Stany Hill to the north, to about 400 ft. (122 m.). In clear weather it is possible to see the Outer Skerries, 25½ miles (41 Km.) north-east by north, and Sumburgh Head, 20 miles (32 Km.) south by west; the horizon in other directions is limited to a few miles.

The average depth of soil in the vicinity is about a foot, and outcrops of sandstone occur in many places. The surrounding country is barren and desolate, the vegetation being chiefly coarse grass, stunted heather and moss, with occasional patches of bare black peat. The Observatory ground is of a very uneven nature and owing to lack of proper drainage is frequently waterlogged. Views of the station and a map of the surrounding country are shown in Figs. 1, 2 and 4 and the arrangement of buildings and situation of instruments are set out on a site plan in Fig. 3.

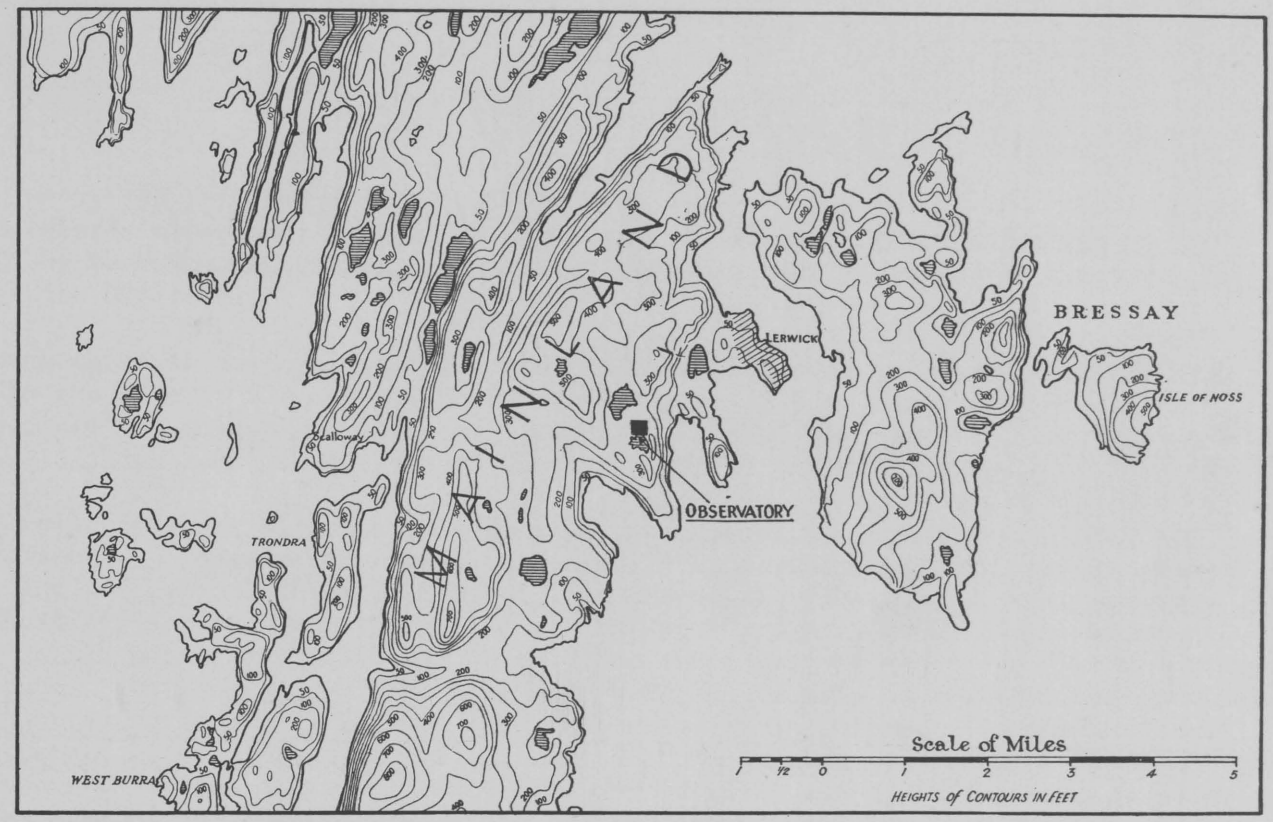

FIG. 1.—CONTOURED MAP OF SURROUNDINGS OF LERWICK OBSERVATORY.

FIG. 2–GENERAL VIEW FROM SOUTH-EAST, 1953

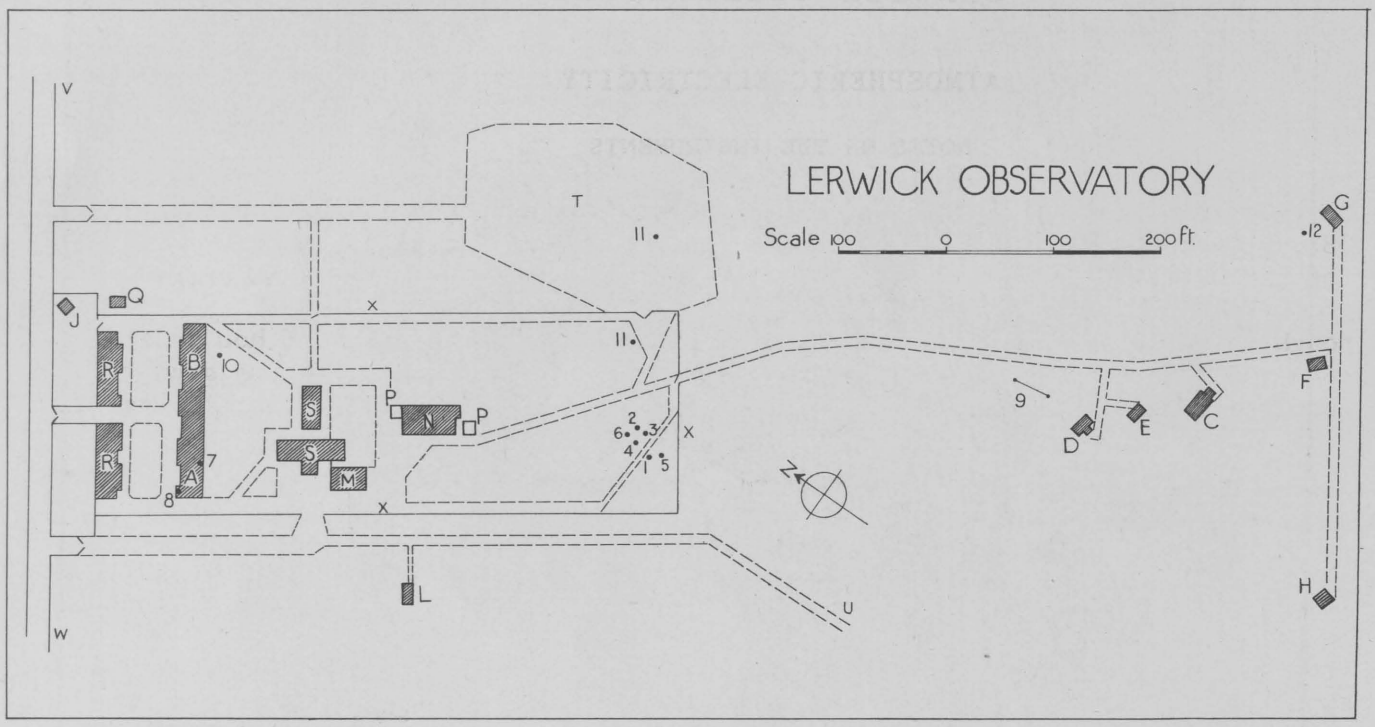

FIG. 3—SITE PLAN, 1938-48

FIG. 4—VIEW FROM NORTH-WEST SHOWING INSTRUMENTS AND HUTS, SEPTEMBER 1953

A—MAIN OBSERVATORY OFFICE
B—RADIO-SONDE OFFICE
C—MAGNETOGRAPH HOUSE
D—OLD ABSOLUTE HUT
E—NEW ABSOLUTE HUT
F—SUPPLEMENTARY HUT
G—EAST HUT
H—WEST HUT
J—AURORA HUT
K—BALLOON FILLING SHED
L—RADAR VAN FROM 1947
M—GENERATOR SHED FROM 1947
N—STATION WORKSHOP
P—WATER TANKS
Q—TRANSFORMER HOUSE
R—MARRIED QUARTERS
S—ARMY HUTS
T—RADIO-SONDE LAUNCHING GROUND
U—PATH TO WIND PUMP
V—ROAD TO LERWICK
W—ROAD TO SUMBURGH
X—BOUNDARY IRON FENCE
1—STEVENSON SCREEN
2—GRASS MINIMUM THERMOMETER
3—RAIN-GAUGE
4—RECORDING RAIN-GAUGE
5—SUNSHINE RECORDER
6—THEODOLITE PILLAR
7—PRESSURE-TUBE ANEMOGRAPH
8—ELECTROGRAPH
9—SITE FOR ABSOLUTE POTENTIAL GRADIENT OBSERVATIONS
10—RADIO-SONDE SCREEN
11—RADIO-SONDE LAUNCHING MASTS
12—OZONE SPECTROPHOTOMETER 1940-43
13—NIGHT-SKY RECORDER
14—RADIATION RECORDER

ATMOSPHERIC ELECTRICITY

NOTES ON THE INSTRUMENTS

The records of potential gradient are obtained from a Benndorf electrograph (No. 108, by L. Castagna, Vienna) which since 1926 has been installed in the west corner of the Office Block.

Though there is distortion of the equipotential surfaces by adjacent houses etc., and though the site is a comparatively large distance (236 m.) away from the ground where absolute determinations are made, yet the values of the reduction factor suggest that these disadvantages are less serious than might be anticipated.

The collectors are of polonium deposited on a copper rod, about 4 cm. long by 0·5 cm. diameter; these are recoated periodically by arrangement with the Government Chemist, and a fresh collector is brought into use on the first day of each quarter. The collector is screwed into the end of a tube which projects about 120 cm. through a window in the north-west wall, at 190 cm. from the corner of the building and 476 cm. above ground. The inner end of the tube passes through a hole in a wooden box in which it is supported horizontally by two metal rods embedded in sulphur. A number of small 2-volt electric bulbs are kept burning inside the box in order to improve the insulation of the supports for the collector rod during wet weather, and a similar bulb is placed inside the case of the electrometer. The rod is connected to the base of the acid pot of the Benndorf electrometer by a fine wire. A detailed description of this instrument is to be found in the *Physikalische Zeitschrift, Leipzig* for 1906 (p. 98), whilst the general principal is described in Mathias' "Traité d'electricité atmosphérique et tellurique" (p. 54), and in Chauveau's "Electricité atmosphérique" (p. 61).

The record consists of a series of dots made once a minute on a long roll of paper as it is unwound from a drum by clockwork, exact hours being indicated by dots near the edge of the sheet. Timing is taken from electric clock No. 1,031, governed by the Observatory standard, Shelton No. 35. The needle of the electrometer is earthed at least once daily, and a zero line is obtained by connecting up these earth marks; owing to the constancy of the perpendicular distances between the zero line and the line through the hour marks, further intermediate positions of the zero are easily obtained. The scale value has been about 24 v./m./mm., which permits a range from + 1550 to - 1550 v./m. in the open to be recorded.

Combined tests of the insulation of the system and scale value of the record are made daily, the procedure being to remove the collector and to charge the needle, which is connected to a Wulf electrometer. The rate of leak is obtained for a period of four minutes with a positive charge and for the same interval with a negative charge. Considering the climatic difficulties the behaviour of the instrument in the matter of insulation has been very satisfactory. The rate of leak has been in general small, the average during 1938 being such that the instrument would lose half its potential in 38 minutes. Tests of the rate of rise of potential of the Benndorf recorder with a polonium collector were made in September 1930. It was found that the potential rose from zero to half the final value in about four seconds except in somewhat rarely occurring conditions which have been mentioned in earlier Year Books (1937, p. 30). Normally the rates of leak and the rates of charging are such that it can safely be asserted that the instrument records the potential of the point near the collector. It has been found that the scale value remains reasonably steady, and may, for all practical purposes, be taken as constant across the full width of the sheet. During 1938 it was maintained at about 24 v./mm. The factor by which the recorded potential must be multiplied for conversion into potential gradient in the open is obtained from absolute measurements above a levelled piece of ground near the old site of the electrograph. An insulated wire, stretched horizontally between two stout wooden posts about 9 m. apart, carries at its centre a

burning fuse exactly 1 m. above the ground. A Wulf electrometer, usually No. 5225, is connected to one end of the wire and twenty to thirty readings are obtained from the electrometer at half-minute intervals. The reduction factor is reduced from the mean of these values, and the corresponding mean potential at the collector is recorded by the Benndorf electrograph. Smoothed monthly means of the factors so obtained are employed in reduction of the records. The calibration of the Wulf electrometers is checked periodically, using a Gambrell potentiometer and standard cells. There was no change in any essential part of the apparatus or in the observational technique throughout the year 1938 and the exposure factor remained about 1·3.

A small variation of this factor with the season and with wind direction has been discussed in earlier Year Books (1937, p. 31).

On June 28, July 4 and September 12, 1928, measurements were made of the potential gradient above fairly smooth ground near sea level. The determinations on the two earlier dates were taken at Point of Trebister, 2¼ Km. south-south-east of the Observatory, those on the third near the Sands of Sound, 1 Km. to the east. In all, ten series of observations were obtained. The mean electrograph exposure factor computed therefrom works out at 1·36, a value in close agreement with the standard determinations.

IDENTIFICATION NUMBERS OF INSTRUMENTS USED IN 1938

Benndorf electrograph (L. Castagna, Vienna)	108
Wulf bifilar electrometer (Günther & Tegetmeyer, Brunswick) ..	5225
" " " " " " ..	2965

NOTES ON THE TABLES

Except when the autographic record is lacking or unreliable an electrical character figure is assigned to each day in accordance with the following scheme:—

0, denotes a day during which, midnight to midnight, no negative potential was recorded.

1, denotes a day with excursions to the negative not amounting in the aggregate to more than 3 hr.

2, denotes a day with negative potential amounting in the aggregate to more than 3 hr.

a, denotes that the range of potential in the open did not exceed 1,000 v. in any of the 24 hourly periods of the day.

b, denotes that this range was exceeded in at least 1, but in fewer than 6, of these periods.

c, denotes that this range was exceeded in 6 or more of the hourly periods.

Table 4 contains the character figures assigned and also the duration of the negative potential gradient for each day, month and the year. If the autographic record was defective when there was no precipitation it is assumed that the potential gradient remained positive. If, however, precipitation fell when part of the record was lacking, no estimate is made unless the part of the record missing was small enough and the conditions of precipitation sufficiently continuous to permit a reasonably reliable estimate of the duration of negative gradient to be made.

The autographic records are measured to determine the mean potential gradient in sixty-minute intervals ending at 3h., 9h., 15h. and 21h. G.M.T. on all days, and at each hour G.M.T. on a days.

The values for the hours ending at 3h., 9h., 15h. and 21h. are given in Table 1. Estimated values, enclosed within brackets, are given on occasions when the record was defective. A dash is entered against hours for which no value can be given with any degree of assurance. The letter Z indicates that the value of potential is indeterminate, the limits of registration having been exceeded. Two sets of mean values are given: (a) the means of all positive values — hours when the trace passed off the sheet (positive) being included in these means, the upper limit of registration being taken as the value for the interval not recorded; (b) the means for all days on which all four hours were completely recorded or could be estimated. The reduction factors used in converting the potential at the collector to potential gradient in volts per metre in the open are also given.

The diurnal inequalities of the potential gradient on 0a days for the months, seasons and year are given in Table 2, along with the mean values of potential gradient, the values of the non-cyclic change and the number of days used. The inequalities and means for the seasons and year are the means of the corresponding entries for the appropriate group of months (Winter: January, February, November, December; Equinox: March, April, September, October; Summer: May, June, July, August). Table 3 contains the corresponding data for 1a and 2a days together.

TERRESTRIAL MAGNETISM

NOTES ON THE INSTRUMENTS

Up to April 20, 1934, the standard records of declination (D) and horizontal force (H) were obtained from the Munro Magnetographs, which were in use at Falmouth until 1912, and those of vertical force (V) from the Watson quartz fibre instrument, which at the end of 1929 had replaced a Munro variometer.

Early in 1934 a complete magnetograph set of the la Cour type was received. This set had been used by the British Polar Year Expedition at Fort Rae, Canada, during 1932-33. It was installed in the magnetograph house and was adopted as the standard on April 20, 1934, the former standard set becoming the auxiliary.

The la Cour set consists of H, D and V variometers. The H and D magnets are about 1 cm. in length, and each is supported by a single quartz fibre. A description of the H variometer is given in *Publikationer fra det Danske Meteorologiske Institut, Communications Magnétiques,* No. 11 (le variomètre de Copenhague). The V magnet is larger; it is supported by knife-edges resting on agates, and is enclosed in a sealed vessel. A description of this instrument is given in *Publikationer fra det Danske Meteorologiske Institut, Communications Magnétiques,* No. 8 (la balance de Godhavn).

The recording apparatus is so designed that the three elements are recorded on one sheet of photographic paper with a single electric lamp as source of light. Time marks are made by a second lamp, the circuit of which is closed by a clock for about 10 sec. every five minutes. The width of paper is 10 cm. for each element, but the effective width is increased by a number of small prisms which reflect light from the lamp into the variometers, producing a series of light-spots at intervals of slightly less than 10 cm.

Scale values of H and V are measured by passing a current through Helmholtz-Gaugain coils placed over the variometers, the resulting deflexions being recorded on the

photographic paper. The current is measured by a small milliammeter (Weston, No. 55896), which is periodically calibrated. It is thought that the scale values adopted are accurate within 1 per cent.; these were about 4·2 γ/mm. for H and 5·3 γ/mm. for V. The scale value of D depends only on the geometry of the system, with a small correction for torsion, and was 0·95/mm. until March 30, 1937, when the variometer was moved to make it 1·00/mm.

The H and V variometers are capable of accurate compensation for temperature, and the temperature coefficient of both the H and V records was zero throughout the year.

In July 1935 a la Cour quick-run magnetograph set was installed in the magnetograph house; this magnetograph also had been used by the British Polar Year Expedition. The variometers are similar to those of the standard set, but the time-scale is twelve times as great.

The internal dimensions of the chamber in which the magnetographs are housed are 4·9 m. by 3 m. The concrete walls are 76 cm. thick. The diurnal variation of temperature within the chamber is, for most days of the year, negligibly small, and no corrections for this diurnal variation have been applied to the diurnal inequalities or other data published in this volume. From the magnetograph house temperatures for each day given in the tables, however, it will be noted that the day-to-day change of temperature is sometimes considerable. The average day-to-day change in degrees Absolute over each of the twelve months of 1938 and for the year as a whole was as follows:—

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
0·32	0·31	0·28	0·41	0·44	0·32	0·22	0·46	0·23	0·31	0·40	0·47	0·35

There were 17 occasions on which the change reached or exceeded 1°A.

The standard records of declination, horizontal force and vertical force have been tabulated hour by hour. The values are read off by means of graduated glass scales, a value being the mean for 60 min. between exact hours G.M.T.

Base-line values of the magnetograph records are obtained from the results of absolute observations, two routine observations of horizontal force, four of declination and four of dip being made each week.

Horizontal force and declination are determined with the Kew-pattern unifilar magnetometer, L.3951, with magnets 3951A and C (Cambridge Instrument Co.) on the centre pillar (No. 2) of the absolute hut. The azimuth of the fixed mark used in the observations of declination has been taken as 8° 43' 2" east of south (but see the notes in the following section). In the deflection experiment with the unifilar magnetometer, deflection observations are made at three distances, 25, 30 and 35 cm., to obtain the P and Q correction for distribution of magnetism in the magnets. The mean annual values of the P and Q correction from March 1923 to 1938 are given in Table I.

The mean value of $\log_{10}(1 + P/25^2 + Q/25^4)$ employed in the reduction of all observations for 1938 was the mean of the values derived up to the end of 1937, namely, $\bar{1}\cdot99860$. If the 1938 value is added, the mean for the total available period becomes $\bar{1}\cdot99863$. The adoption of this latter value would increase the hourly values, monthly means, etc., as given in the tables, of H by 0·5γ and of V by 1·6γ.

Since 1935 the base-line values for V have been derived from dip (inclination) observations made with the earth inductor, lent by the Royal Observatory, Greenwich, which was used at Fort Rae during the Polar Year Expedition 1932-33. A correction of 11" has been added to the inductor observations. This correction is based on comparison observations at Abinger Observatory.

TABLE I

Year	P	Q	$\log_{10}(1 + P/25^2 + Q/25^4)$
1923*	-2·40	-30	$\bar{1}$·99830
1924	-1·24	-481	99860
1925	-1·17	-892	99820
1926	+1·23	-1727	99893
1927	+2·23	-2200	99910
1928	+0·22	-1412	99858
1929	-0·54	-969	99855
1930	-1·21	-853	99821
1931	-1·04	-911	99826
1932	+1·37	-1866	99887
1933	-0·12	-1098	99869
1934	+2·98	-2397	99940
1935	+0·67	-1490	99881
1936	-1·49	-650	99824
1937	-0·36	-1320	99828
1938	+2·13	-2110	99913

* March to December only.

Determinations of vertical force were made about four times weekly with a Copenhagen balance magnetometer (B.M. No. 8) which was obtained in December 1936. This instrument is described in *Bulletin de L'Institut Royal Colonial Belge*, Tome VII, No. 3, 1936. The values of V obtained with the B.M. led to variometer base-line values about 30γ less than those derived from the dip observations using the inductor, though the difference between the two sets of base-line values fluctuated.

The base-line values adopted for the H, D and V variometer records are obtained from a smooth curve drawn fairly through points each representing the base-line value deduced from the variometer curve mean ordinates at the time of the absolute observation, allowance being made for discontinuities in the records. During 1938 about half the differences between the deduced and adopted values lie within 2γ for H, 0·1′ for D and 4γ for V.

NOTES ON THE MEASUREMENT OF V, H AND D AT LERWICK

In view of the long break in publication of the *Observatories' Year Book*, it is desirable here to summarize a review, made mainly in 1947, of the procedure for determining vertical and horizontal force, and to refer to the effects of the redetermination in 1948 of the azimuth of the fixed mark used in measuring declination.

Vertical force and inclination.— From the first complete year of observations (in 1923) until 1934, a dip circle was in use. The uncertainties associated with the observations with this instrument are indicated in the *Observatories' Year Book*, 1934, p. 35. With the object of eliminating these uncertainties an earth inductor was borrowed from the Royal Observatory, Greenwich. This instrument was adopted as the standard in July 1935. From comparisons between the values of inclination obtained from the inductor and the dip circle, flat corrections were applied to the base-line values of V for the whole of 1934 and the first part of 1935. The result was to introduce a discontinuity of +3′ in inclination or +144γ in V from January 1, 1934. The inductor gave satisfactory service until April 1937, but thereafter difficulty in operation and uncertainty about the results were experienced.

A Copenhagen balanced magnet magnetometer (B.M. No. 8), for the measurement of vertical force, was acquired in December 1936, and, after early difficulties with clamping, temperature measurement, and illumination had been surmounted, was found to give consistent results and to be very convenient in use. Comparison with the standard instrument for vertical force at Abinger Observatory in December 1938 and January 1939 indicated that no change in the constants of B.M. No. 8 had occurred since 1936. After some uncertainty in 1939 as to the temperature coefficient of the instrument appeared to have been resolved, the B.M. No. 8 was adopted as standard, in place of the inductor, with effect from January 1940.

Comparison observations made at Abinger Observatory in February 1943 and September 1945 suggested that changes had occurred in the values of the constants of B.M. No. 8. Further series of comparative observations were made with the instrument at Abinger Observatory in August-September 1946.

The conclusions reached from the results of the instrumental comparisons and from consideration of uncertainties involved were as follows:—

(a) The constant z_0 of B.M. No. 8 retained the value 46,415 at Abinger and 46,453 at Lerwick from September 1936 to January 1939.

(b) From January 1939 to September 1946 the value of z_0 increased at a rate of 4γ a year.

(c) From 1936 to 1946 the temperature coefficient of B.M. No. 8 retained the value of 13·3γ per degree Centigrade at Abinger and 12·1 at Lerwick.

(d) The temperature lag of B.M. No. 8 is very marked, as was shown by tests during rising and falling temperature. This lag has been taken into account in the corrections given below.

Horizontal force.— In October 1939 a Smith portable coil magnetometer, which had been reconstructed to operate as a Schuster-Smith coil magnetometer, was adopted as the standard instrument for determining horizontal force in place of the unifilar magnetometer, L.3951, which had been used since 1923. The new standard instrument yielded values of H 11γ smaller than the values obtained from the unifilar magnetometer. Prior to being sent to Lerwick the reconstructed coil magnetometer gave results 13γ smaller than the Schuster-Smith coil magnetometer at Eskdalemuir. It was decided at the time to add 11γ to the values of H obtained from the new standard instrument at Lerwick, to avoid a discontinuity with published results obtained from the unifilar instrument.

Observations made with a quartz horizontal magnetometer, Q.H.M. 89, at Lerwick and Abinger in August-September 1946 indicated that the Lerwick coil magnetometer (without the additive correction of 11γ) gave values of H smaller by 5γ than the values given by the Abinger Schuster-Smith coil, i.e. values of H obtained by adding 11γ to the values given by the Lerwick coil magnetometer were 6γ greater than values which would be given by the Abinger standard.

Declination.— The azimuth of the fixed mark used in measuring magnetic declination was re-determined in 1948 by the Ordnance Survey. The value of azimuth found was 8° 38·6′ east of south. The azimuth used since 1923, namely 8° 43′ 02″ east of south, was based on a determination made in October 1922. The mark was transferred to a pillar in December 1922. From consideration of five determinations made at intervals from 1923 to 1948 it is concluded that (i) the original determination (1922) was in error by about 3½′ in relation to the mark when established on the pillar, and (ii) an apparently uniform small drift of about 1′ occurred between 1923 and 1948. Values of westerly declination previously published are therefore too large by amounts ranging from 3·5′ in 1923 to 4·0′ in 1936-38.

Corrections.— From a survey of the information available, it seemed desirable to assimilate the standards of H and V at Lerwick to those of Abinger from January 1, 1934, the date on which the change from dip circle to earth inductor (for determination of inclination and thence vertical force) was made effective. Corrections consistent with this procedure and those resulting from the revised azimuth of the fixed mark mentioned in the preceding paragraph are set out below.

Corrections

	H γ	D ′	V γ	N γ	W γ	I ′	T γ
1923-24	..	-3·5	..	..	..	..	..
1925	..	-3·6	..	..	..	..	..
1926-27	..	-3·6	..	+4	-15	..	..
1928-29	..	-3·7	..	+4	-15	..	..
1930-32	..	-3·8	..	+4	-16	..	..
1933	..	-3·9	..	+4	-16	..	..
1934-35	-6	-3·9	-28	-2	-17	-0·2	-29
1936	-6	-4·0	-28	-2	-18	-0·2	-29
1937	-6	-4·0	-27	-2	-18	-0·2	-28
1938	-6	-4·0	-28	-2	-18	-0·2	-29

Monthly corrections to V(γ)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1937	-28	-28	-28	-28	-27	-27	-25	-24	-25	-27	-27	-28
1938	-29	-26	-21	-24	-30	-29	-31	-28	-33	-32	-30	-28

The correction of -28γ to V in 1934 has the effect of reducing to +116γ the discontinuity of +144γ introduced by the change from dip circle to earth inductor on January 1, 1934.

The individual entries of H, D and V in the four tables given in this volume (1938) for each month have not been corrected according to the foregoing, but the appropriate corrections are shown for each month. The values of the elements given in Table 66 and elsewhere in the volume have been corrected.

NOTES ON THE TABLES

The hourly values of H, D and V, obtained as described above, appear in three of the four monthly tables. The variations in D, being expressed in minutes, may be readily converted to units of force (γ) of the component perpendicular to the magnetic meridian by multiplying by a factor which for 1938 is approximately 4·19. The mean value for the day is computed as the mean of the twenty-four hourly values.

The letters q and d, affixed to dates, denote the five quiet and the five disturbed days as selected at De Bilt.

In the fourth table for each month are given:—

(i) The values and times of the daily maximum and minimum and the values of the absolute daily range for each of the elements H, D and V.

(ii) The value of $HR_H + VR_V$ for each day, where R_H and R_V denote the absolute ranges in force for a calendar day of the horizontal and vertical components.

(iii) The daily magnetic character figures, assigned according to the international scheme wherein 0, 1, 2, respectively, denote quiet, moderately disturbed, and highly disturbed conditions.

(iv) The daily values of temperature in the magnetic chamber.

Mean diurnal inequalities of H, D and V on all days and on international quiet and disturbed days are given, for the months, seasons and year, in Tables 53 to 61.

In calculating diurnal inequalities in the present year the non-cyclic change* has not been eliminated, but the values of the non-cyclic change are given, as in former years, in Table 64. The values of the range of the mean diurnal inequalities of the several elements in the three categories of days are brought together in Table 62. The "Average departures", or mean values of the 24 hourly constituents of the inequalities irrespective of sign, are given in Table 63.

The mean values of $HR_H + VR_V$ are summarized in Table 65.

In earlier years Table 66 gave, for the months and year, the mean values of H, D, V, N, W, I and total force T on all days. Since 1934 the table has been extended to give in addition the mean values of the primary elements, H, D and V on the internationally selected groups of quiet and disturbed days. For all days the means of N, W, I and T are derived from the corresponding values of H, D and V.

NOTES ON THE RESULTS

In comparing the values of the magnetic elements in 1938 with those in earlier years the corrections mentioned in an earlier paragraph should be borne in mind.

Comparing the mean values for all days of 1938 with those for 1937 it is noted that H decreased by 10γ; D (west) decreased by 10·8′ and V increased by 24γ. The ranges between the extreme values recorded during 1938 were H, 2468γ; D, > 4°25·6′; V, 1790γ. These values for H and D are the largest at Lerwick since records commenced in 1923, while the range in V is the largest since 1926.

Table II summarizes the magnetic character figures assigned locally, the international mean character figures and the mean values of the numerical index of disturbance $(HR_H + VR_V)\ 10^{-4}$ for all, q and d days. Comparative totals and means are given for several earlier years.

The values of mean absolute daily range for the months and seasons are brought together in Table III, where, for convenience of comparison, the ranges of declination in angle have been converted to units of force of the component perpendicular to the magnetic meridian.

The frequency distribution of absolute daily range is shown in Table IV.

The mean diurnal inequalities for all days, international quiet and disturbed days, for the months, seasons and the year are given in Tables 53-61 and corresponding inequality ranges in Table 62. The average values of the diurnal inequality ranges for the year and the seasons for the period 1927-37 (not the values of the range of the representative mean diurnal inequalities for this period) are given in Table V along with the values for 1938 expressed as a percentage of the average values. The table may be compared with a similar table in the Eskdalemuir Section.

In Table VI the range of the mean diurnal inequality at Lerwick is compared with that at Eskdalemuir for international quiet days (q) and disturbed days (d).

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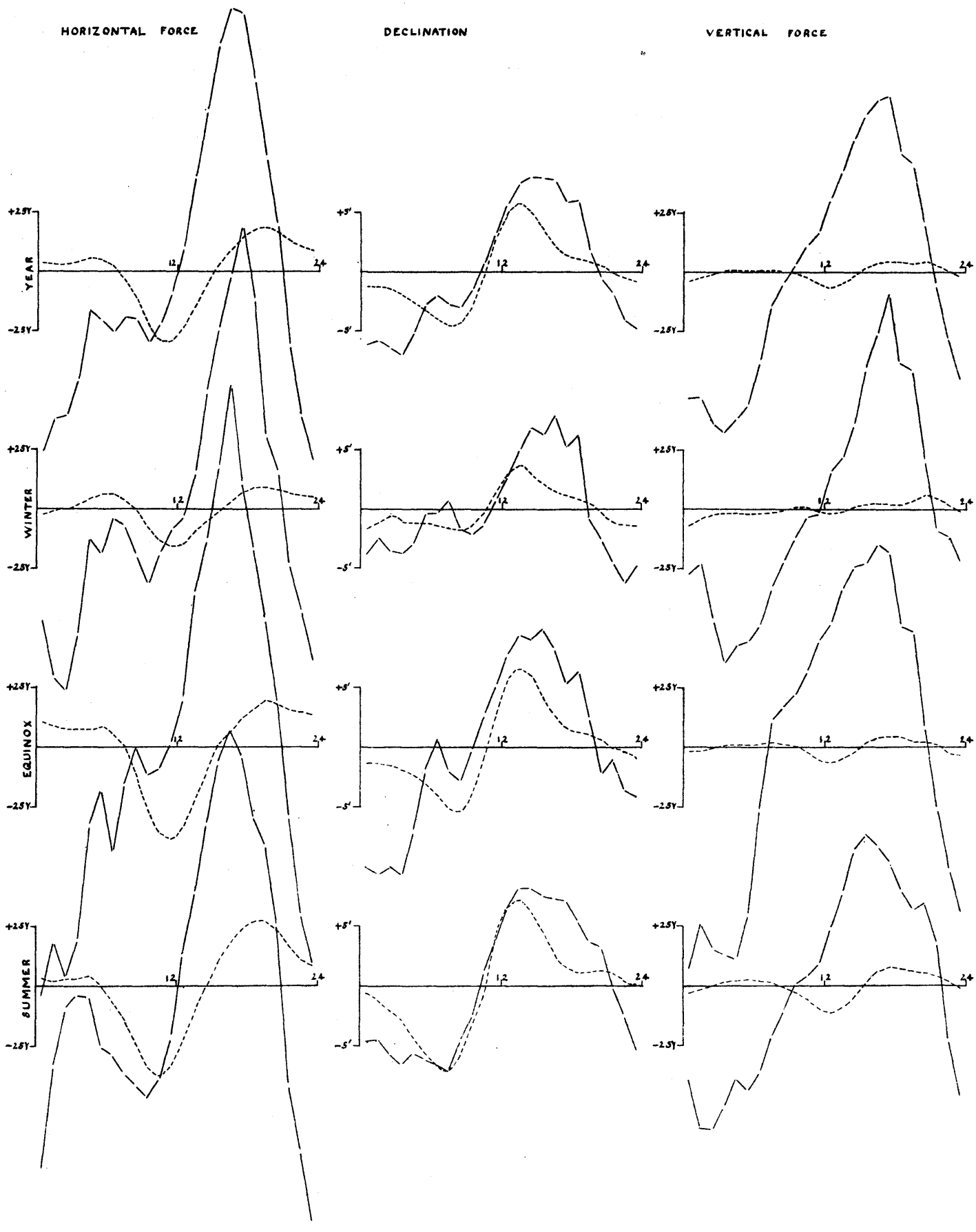
* See General Introduction p. 10.

Plate I

DIURNAL VARIATION OF THE MAGNETIC ELEMENTS
LERWICK 1938

To face p. 22

QUIET DAYS ------- DISTURBED DAYS ———



To face p. 23

VECTOR DIAGRAMS ILLUSTRATING DIURNAL VARIATION OF MAGNETIC FORCE

LERWICK 1938

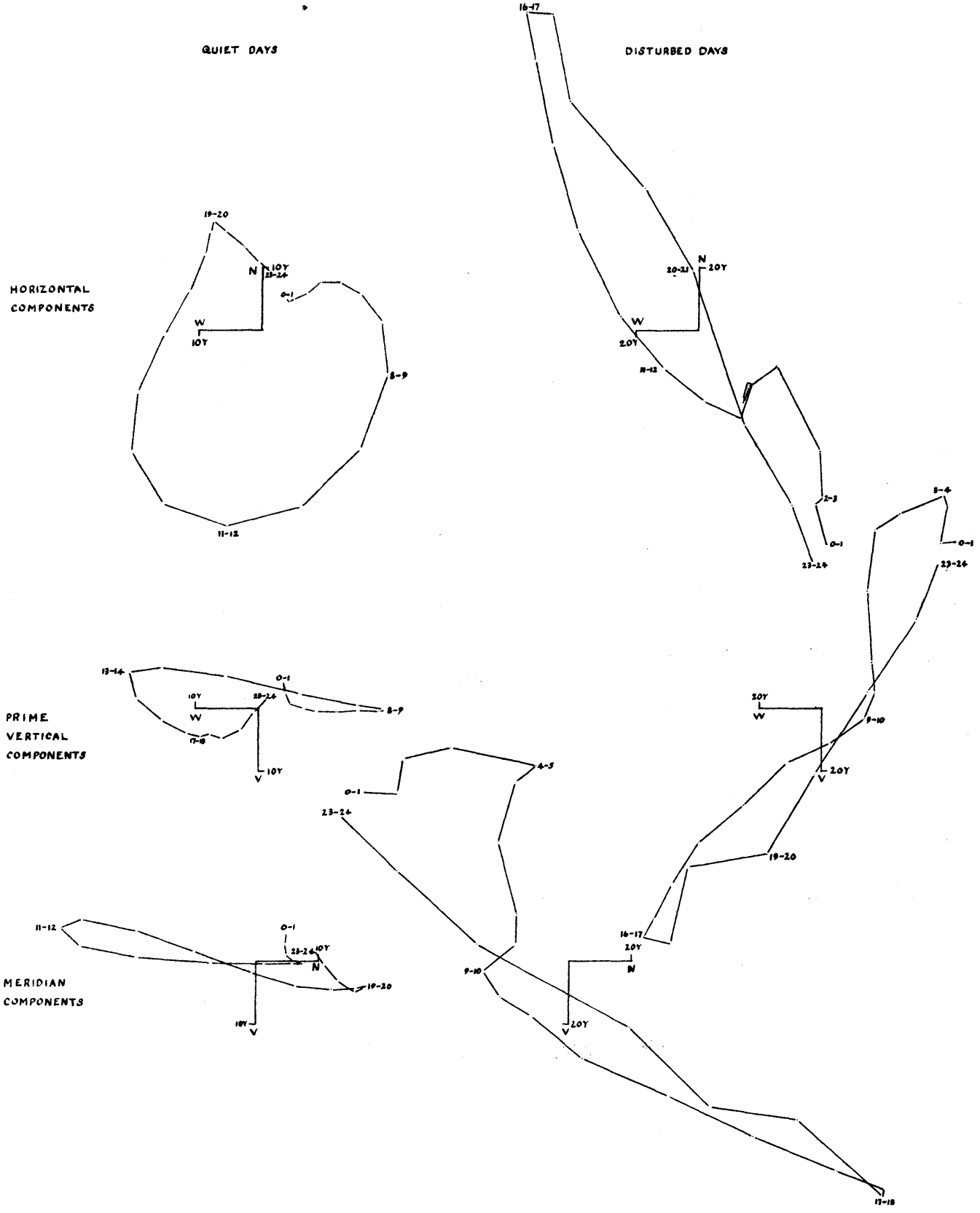


TABLE II

	Magnetic character figures			Mean character figures		Mean value of $\frac{HR_H + VR_V}{10000\gamma^2}$		
	Number of 0 days	1 days	2 days	Lerwick	International	All days	q days	d days
January	4	21	6	1·06	1·08	1573	363	4632
February	10	14	4	0·79	0·79	882	161	2423
March	15	11	5	0·68	0·65	928	195	2614
April	12	14	4	0·73	0·80	1249	230	4459
May	15	9	7	0·74	0·76	1253	242	3820
June	17	13	0	0·43	0·59	582	265	1274
July	16	12	3	0·58	0·73	891	303	2433
August	18	8	5	0·58	0·73	879	226	2011
September	15	8	7	0·73	0·83	1250	265	4241
October	16	10	5	0·67	0·81	1098	216	3361
November	21	8	1	0·33	0·67	716	132	2212
December	21	5	5	0·48	0·66	745	87	2351
Year								
1938	180	133	52	0·65	0·76	1004	224	2986
1937	119	197	49	0·81	0·73	843	229	2269
1936	133	206	27	0·71	0·65	603	173	1506
1935	100	245	20	0·78	0·67	564	175	1482
1934	168	173	24	0·61	0·56	465	155	1151
1933	157	169	39	0·59	0·64	563	166	1413
1932	97	230	39	0·84	0·71	644	182	1602
1931	121	212	32	0·75	0·66	589	196	1394
1930	64	235	66	1·01	0·83	1063	250	2515
1929	113	214	38	0·80	0·67	..	..	..
1928	126	211	29	0·74	0·63	..	..	..

TABLE III - ABSOLUTE DAILY RANGE AND MEAN MONTHLY VALUES

	Mean absolute daily range						Mean daily range expressed as percentage of yearly mean					
	1938			Mean 1927-37			1938			Mean 1927-37		
	H	D	V	H	D	V	H	D	V	H	D	V
	γ	′	γ	γ	γ	γ	%	%	%	%	%	%
January	296	202	245	66	76	65	142	167	163	56	83	66
February	164	115	138	108	98	100	78	94	92	91	107	102
March	186	113	141	130	101	118	89	93	94	109	110	120
April	251	142	190	155	102	120	120	116	127	130	111	122
May	319	140	170	164	97	109	153	115	113	138	105	111
June	123	81	87	133	84	89	59	66	58	112	91	91
July	218	106	123	130	84	90	104	87	82	109	91	92
August	214	111	122	124	87	91	102	91	81	104	95	93
September	279	134	181	122	97	112	133	110	121	103	106	114
October	186	124	177	138	110	125	89	102	118	116	120	127
November	115	93	118	81	84	83	55	76	79	68	91	85
December	152	103	112	75	83	78	73	84	75	63	90	80
Winter	182	128	153	82	85	82	87	105	102	69	93	84
Equinox	225	128	172	136	102	119	108	105	115	114	111	121
Summer	219	109	125	138	88	94	105	89	83	116	96	96
Year	209	122	150	119	92	98	..	..	..	..	..	..

TABLE IV - FREQUENCY DISTRIBUTION OF ABSOLUTE DAILY RANGE

Range	Number of cases, 1938			Percentage distribution					
				H		D		V	
	H	D	V	1938	1927-37	1938	1927-37	1938	1927-37
γ				%	%	%	%	%	%
0 - 9	0	0	2	0·0	0·0	0·0	0·0	0·5	2·2
10 - 19	4	2	29	1·1	2·3	0·5	0·8	7·9	11·5
20 - 29	6	4	39	1·6	5·8	1·1	3·7	10·7	14·0
30 - 39	20	15	41	5·5	8·1	4·1	5·9	11·2	10·2
40 - 49	13	15	24	3·6	8·6	4·1	9·4	6·6	8·0
50 - 59	23	39	20	6·3	10·8	10·7	13·4	5·5	6·3
60 - 69	30	54	16	8·2	10·5	14·8	13·9	4·4	5·2
70 - 79	38	35	13	10·4	10·2	9·6	10·0	3·6	3·9
80 - 89	34	42	11	9·3	7·6	11·5	8·1	3·0	3·1
90 - 99	35	27	9	9·6	5·6	7·4	6·1	2·5	3·2
100 - 109	17	17	10	4·7	4·0	4·7	4·6	2·7	2·8
110 - 119	15	16	10	4·1	2·7	4·4	3·3	2·7	2·8
120 - 129	8	8	11	2·2	2·6	2·2	3·2	3·0	2·4
130 - 139	5	6	5	1·4	1·6	1·6	3·2	1·4	2·0
140 - 149	5	8	12	1·4	1·6	2·2	2·3	3·3	1·9
150 - 159	4	5	1	1·1	1·4	1·4	1·4	0·3	1·7
160 - 169	4	3	8	1·1	1·4	0·8	1·6	2·2	1·5
170 - 179	7	3	7	1·9	1·1	0·8	1·1	1·9	1·1
180 - 189	5	10	5	1·4	0·9	2·7	1·0	1·4	1·1
190 - 199	4	6	3	1·1	0·9	1·6	0·8	0·8	1·0
200 +	88	50	89	24·1	12·3	13·7	6·2	24·4	14·1
Days omitted	0	0	0	..	..	..	..	..	..

TABLE V - AVERAGE RANGE OF DIURNAL INEQUALITY 1927-1937, WITH 1938 AS PERCENTAGE OF THIS

		All days			International quiet days			International disturbed days		
		V	H	D	V	H	D	V	H	D
		γ	γ	′	γ	γ	′	γ	γ	′
Year	1927-37	41·1	43·2	8·48	8·0	34·3	7·84	110·4	89·1	12·35
	1938(%)	127	146	123	141	140	132	129	214	122
Winter	1927-37	32·0	19·9	7·08	6·0	13·9	4·22	97·0	61·6	12·85
	1938(%)	169	238	115	220	178	128	161	318	110
Equinox	1927-37	53·1	47·1	9·84	9·8	37·9	8·84	136·3	110·0	14·99
	1938(%)	118	129	123	104	152	136	130	210	138
Summer	1927-37	39·9	67·2	11·64	13·3	53·5	11·45	112·4	121·1	13·59
	1938(%)	121	127	124	144	122	123	110	169	112

TABLE VI - RATIO OF RANGE OF INEQUALITY AT LERWICK TO THAT AT ESKDALEMUIR (1938)

Type of day	Element	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
q	D	1·03	0·98	0·91	0·97	1·11	1·06	1·05	1·06	1·02	0·95	0·93	1·04
d	D	1·05	1·20	1·18	1·09	0·88	1·06	1·32	1·13	1·64	1·25	1·18	1·32
q	H	1·29	1·05	1·09	1·13	1·20	1·19	1·24	1·06	1·11	0·95	0·93	0·90
d	H	2·87	3·75	2·94	2·31	1·59	1·14	1·72	2·19	4·92	2·26	2·80	3·78
q	V	2·52	0·72	0·52	0·68	0·66	0·77	1·02	0·73	0·75	0·88	1·67	0·53
d	V	0·80	1·49	1·82	2·17	1·83	1·88	1·53	1·43	1·33	1·36	2·37	1·41

Magnetic disturbances.— Particulars of the principal magnetic disturbances recorded at Lerwick during the year are given in Table VII. In the Eskdalemuir Section will be found a similar list which deals with the same disturbances as recorded at that Observatory. Within the limit of accuracy of measurement and registration "sudden commencements" appear to occur simultaneously at the two Observatories.

TABLE VII - PRINCIPAL MAGNETIC DISTURBANCES RECORDED AT LERWICK, 1938

No.	From	To	Horizontal Force					Declination					Vertical Force				
			Max.	Time	Min.	Time	Range	Max.	Time	Min.	Time	Range	Max.	Time	Min.	Time	Range
	d. h. m.	d. h.	γ	d. h. m.	γ	d. h. m.	γ	′	d. h. m.	′	d. h. m.	′	γ	d. h. m.	γ	d. h. m.	γ
1	Jan. 12 15	Jan. 13 22	657	12 18 24	135	13 3 23	522	67·4	12 18 13	4·8	13 3 19	62·6	1061	12 18 58	542	13 4 33	519
2*	Jan. 16 22 37	Jan. 19 23	1283	17 15 58	-227	17 2 17	1510	128·4	17 16 0	-9·7	17 21 50	138·1	1111	17 12 53	223	17 16 0	888
3	Jan. 20 5	Jan. 22 22	874	22 17 23	-94	22 9 43	968	76·8	22 17 26	-58·9	22 9 48	135·7	1148	22 9 39	505	22 17 25	643
4*	Jan. 25 11 51	Jan. 26 20	1097	25 17 46	-822	26 1 5	1919	177·7	25 18 10	-35·3	26 0 55	213·0	1376	26 0 19	262	25 17 55	1114
5	Feb. 6 3	Feb. 11 9	994	8 18 5	32	10 3 41	962	66·6	8 20 56	-9·2	8 21 5	75·8	1081	8 17 31	527	10 4 28	554
6	Feb. 14 2	Feb. 14 23	962	14 17 52	318	14 12 11	644	53·4	14 18 22	6·6	14 17 51	46·8	995	14 16 13	746	14 2 38	249
7	Mar. 5 7	Mar. 6 4	975	5 18 7	55	6 2 25	920	75·7	5 16 26	5·6	5 20 4	70·1	1080	5 17 8	600	6 2 20	480
8	Mar. 21 11	Mar. 24 12	560	22 13 37	-164	23 23 10	724	58·9	23 20 59	-18·5	24 2 28	77·4	944	22 14 0	338	24 1 5	606
9	Mar. 25 18	Mar. 26 24	494	26 17 58	-440	26 1 18	934	44·5	26 13 15	-36·4	26 1 17	80·9	917	26 17 44	434	26 1 11	483
10	Apr. 13 8	Apr. 15 18	571	13 21 5	-168	13 22 41	736	62·5	13 23 10	-10·2	14 4 26	72·7	930	13 17 31	402	13 23 8	528
11*	Apr. 16 5 48	Apr. 19 24	1531	16 8 1	-804	16 7 5	2335	182·6	16 6 21	<-110·0	16 7 47	>292·6	1954	16 6 19	164	16 6 14	1790
12	May 3 15	May 6 20	875	4 15 31	210	5 3 33	665	61·6	4 15 37	-3·6	4 2 57	65·2	1017	4 15 55	535	4 2 25	482
13*	May 11 15 54	May 13 2	1090	11 17 57	-937	11 21 55	2027	119·2	11 17 59	-91·3	12 0 5	210·5	1234	11 23 49	267	12 23 54	967
14	May 14 2	May 17 24	640	14 14 37	-113	14 23 51	753	61·0	14 22 4	-21·3	15 1 8	82·3	959	14 15 17	551	14 23 30	408
15	May 28 4	May 30 15	781	29 16 6	300	29 23 29	481	66·4	29 16 11	17·6	28 6 23	48·8	984	29 14 14	648	29 23 40	336
16	June 12 18	June 14 3	504	13 16 41	285	13 7 8	219	44·5	13 14 57	10·7	13 5 50	33·8	863	13 16 32	661	13 4 3	202
17	July 4 12	July 5 20	563	4 19 5	-14	4 21 26	577	47·9	4 16 20	17·4	4 21 54	30·5	907	4 18 45	668	4 21 23	239
18	July 9 20	July 11 2	644	10 18 12	272	11 0 44	372	48·4	11 0 24	14·8	9 23 35	33·6	919	10 19 5	635	10 0 32	284
19	July 13 6	July 16 24	1070	15 16 22	-432	15 22 56	1502	68·3	15 22 58	-12·5	15 21 47	80·8	1034	15 14 33	516	14 2 28	518
20	July 30 5	July 31 2	514	30 19 54	175	30 7 35	339	59·5	30 21 9	14·3	30 6 25	45·2	868	30 11 29	658	30 5 44	210
21	Aug. 1 8	Aug. 3 3	644	1 17 4	-47	1 23 44	691	51·4	2 3 32	3·1	1 23 56	48·3	966	1 17 8	434	2 4 11	532
22	Aug. 3 16	Aug. 5 21	590	4 16 53	-361	3 23 34	951	78·1	3 21 47	-24·3	3 22 56	102·4	949	5 17 46	367	3 23 25	582
23	Aug. 10 3	Aug. 11 24	725	11 15 37	304	11 10 35	421	55·5	11 14 47	17·2	10 6 34	38·3	988	11 15 11	761	11 1 42	227
24*	Aug. 22 13 52	Aug. 23 21	539	22 16 34	221	23 9 34	319	52·9	23 10 24	16·8	23 6 8	36·1	909	22 20 47	718	23 3 43	191
25	Sept. 13 18	Sept. 17 18	905	14 16 42	-620	15 2 56	1525	67·9	15 5 6	-52·1	15 2 54	120·0	1036	14 16 32	199	15 2 26	837
26	Sept. 26 7	Sept. 28 21	651	26 17 50	-749	28 1 51	1400	49·9	27 22 35	-92·5	28 3 23	142·4	1116	28 2 5	218	28 3 19	898
27	Sept. 30 10	Oct. 4 24	559	30 19 12	-402	30 20 41	961	92·8	30 20 40	-17·8	1 3 52	110·6	922	30 19 5	357	1 4 16	565
28	Oct. 7 6	Oct. 8 22	937	7 15 54	-41	8 4 54	978	143·8	7 18 17	-20·0	7 20 17	163·8	1018	7 13 36	177	7 17 49	841
29	Oct. 23 5	Oct. 28 24	593	26 16 40	-65	24 23 13	658	55·1	26 22 8	-7·1	26 21 37	62·2	1024	26 17 40	540	26 22 7	484
30	Nov. 8 7	Nov. 10 5	567	8 15 56	-159	8 23 37	726	57·9	8 16 34	-14·5	8 23 22	72·4	1022	9 16 0	467	8 23 54	555
31	Nov. 17 6	Nov. 18 2	516	17 15 3	311	17 20 55	205	47·7	17 16 7	3·9	17 21 0	43·8	1023	17 15 19	671	17 22 25	352
32	Dec. 2 14	Dec. 4 2	772	2 18 52	119	3 2 8	653	80·2	2 19 16	-3·7	2 21 16	83·9	1051	3 17 52	676	3 4 16	375
33	Dec. 9 4	Dec. 11 2	783	10 18 31	342	11 1 26	441	72·8	10 18 41	10·2	10 23 26	62·6	1045	10 15 36	766	10 2 36	279
34	Dec. 16 16	Dec. 20 24	961	16 18 23	104	17 0 19	857	61·0	16 18 28	-13·1	17 0 17	74·1	1051	16 18 24	648	18 0 17	403

Where the beginning of a disturbance has been marked by a "sudden commencement", the serial number is followed by an asterisk (*), and the time entered in the second column is that of the sudden commencement, estimated to the nearest minute. In other cases, the exact hour nearest the time at which disturbance may be regarded as having begun is entered in the second column. To the tabulated values of maximum and minimum, the following have to be added:— H, 14000γ; D, 12°; V, 46000γ.

REMARKS ON THE AUTOGRAPHIC RECORDS, 1938

The Lerwick mean character figure for the month is shown in brackets after the name of the month.

JANUARY (1·06).— This month was very active magnetically, there being three major storms and almost continuous minor disturbance.

There was little of note until the 12th, the quietest spell being from the 9th to the 11th. A small disturbance began at about 12d. 16h. with rises in all three elements. After maxima between 18h. and 19h., some irregular oscillations prolonged the disturbance until 13d. 7h.

The first major disturbance began with a "sudden commencement" at 16d.22h.37m. (initial movements difficult to follow, but probably +180γ, -90γ in H; +2·5′, -25·8′, +16·3′ in D; +11γ, -42γ, +61γ, -100γ in V). After a maximum at 23h.13m. H fell to a deep bay from 17d.1h. to 17d.4h. A lull in the activity ensued, but from 14h. to 17h. H was violently disturbed again, with a series of very high peaks. The two periods of greater disturbance were also apparent in the D and V traces. A particularly sudden swing of 80′ in D and 300γ in V occurred between 15h.55m. and 16h.3m., during which period H also reached its maximum of 15283γ. Although the storm had practically subsided by 17d.23h., conditions were never quiet for more than a few hours at a time before the next big storm set in at 5h. on the 22nd. This was characterized by the extraordinary rapidity rather than the amplitude of the oscillations, which at times made the traces very difficult to follow. The most violent period was between 8h. and 11h. but the storm continued until 22h.

Conditions became increasingly quiet until a "sudden commencement" at 25d.11h.51m. (-13γ, +35γ in H; +4·0′, -14·8′ in D; -5γ, +14γ in V) which was the beginning of the largest of the three disturbances. H rose irregularly to its maximum of 15097γ at 17h.46m., and then fell 1100γ in the next 35 min. From 25d.22h. to 26d.3h. it was about 400γ below normal, with a minimum of 13178γ at 1h.5m. After being 150γ above normal for an hour, V began a fall of 700γ at 17h.30m., the minimum being reached at 17h.55m. Peaks occurred in this element at 19h.50m., 20h.50m. and 21h.50m., and after a comparative lull for an hour and a half it rose 600γ in 13 min. to its maximum of 47376γ at 26d.0h.19m. The most notable features in the D trace were broad peaks from 25d.17h.40m. to 25d.18h.40m., 25d.20h.30m. to 25d.22h.10m. and 26d.1h. to 26d.1h.30m., the absolute range being 213′.

After 26d.5h. conditions were much quieter, but there were further minor disturbances from 29d.19h. to 29d.24h. and from 31d.19h.23m. (a small movement, less abrupt than a "sudden commencement") until 31d.22h.

Aurora was seen from one or more places in Scotland on January 1,3,4,5,7,8,10,12, 16-19,21,22,24,25 (very brilliant), 26,28-31.

FEBRUARY (0·79).— After five days of feeble magnetic activity a moderate disturbance began suddenly at 6d.3h.9m., culminated in a sharp peak in H at 18h.35m., and then gradually died out. Disturbance was renewed after but a brief quiet spell at 8d.15h. The most active period was from 17h. to 22h., when peaks in H and V were followed by a fairly steep fall and other more irregular movements. The D trace showed more pronounced oscillations, especially between 20h. and 22h., with one outstanding swing of 75·8′ between 20h.56m. and 21h.5m.

Minor disturbance continued with periods of greater activity from 10d.1h. to 10d.8h. and 11d.1h. to 11d.9h., until a final outburst on the 14th. On that day a very sharp maximum in H occurred at 17h.52m. The disturbance died out quickly, and from 14d.23h. until the 23rd conditions were very quiet, the only really quiet spell of the month. The remaining six days of the month were marked by moderate activity.

Aurora was seen from one or more places in Scotland on February 1,5-9,23,28.

MARCH (0·68).— The minor disturbance, prevalent at the end of February, slowly diminished from the 1st to the 4th. It was renewed, however, about 4d.19h., and developed thereafter into a moderate storm. The activity increased steadily after 5d.13h. with H and V rising and fairly regular oscillations of about 20′ in D. After a violent swing of 60′ at 20h. there was a quieter period, but troughs occurred in all three elements between 6d.2h. and 6d.3h. Disturbance ceased fairly abruptly at 6d.3h.20m.

From the 6th to the 22nd quiet conditions prevailed, there being only very slight departures from the normal daily variations. The period 17th to 21st was particularly quiet.

Another disturbed period began gradually during the 21st and lasted until the 27th. There was considerable activity from 22d.22h. to 23d.3h., and again from 23d.18h. to 23d.24h., but no outstanding movements took place. A more violent but very brief disturbance occurred between 26d.0h. and 26d.3h. during which time H fell 800γ to its minimum of 13560γ at 1h.18m., and recovered equally rapidly to its normal value. The month ended quietly.

Aurora was seen from one or more places in Scotland on March 1,4-7,9,21,23-26.

APRIL (0·73).—Although there was no large disturbance in the first twelve days of the month, there were almost continuous slight irregularities to the normal daily variations. The quietest day was the 5th, and the most irregular period between 10h. and 22h. on the 11th. After several hours of small rapid oscillations the first storm of the month began suddenly at 13d.11h.43m. The rapid oscillations then became superimposed on larger, slower movements, with H and V tending to rise. At 21h. H began to fall and thereafter executed several troughs and bays until 14d.9h., V was also subnormal during this period with pronounced minima at 13d.23h.8m. and 14d.4h.56m. The rapid oscillations and minor disturbance continued with but a few breaks until the evening of the 15th.

The most violent storm yet recorded at Lerwick began abruptly with a "sudden commencement" at 16d.5h.48m. (initial movements confused, but probably about +101γ, -123γ in H; +38′ in D; +44γ, -78γ in V). Between 16d.6h. and 16d.8h. the la Cour H and D records are illegible, while the limits of the supplementary records were exceeded at times and parts of the traces were not recorded owing to the rapid movement of the light spot. H fell over 1000γ after the "sudden commencement", forming a deep trough from 6h.15m. to 6h.22m. A second equally deep trough occurred between 7h.0m. and 7h.10m., and during the next hour the element increased over 2300γ to its maximum value of 15531γ at 8h.1m. The lowest recorded was 13196γ at 7h.5m., but it seems probable that the true minimum occurred between 6h.13m. and 6h.22m. when the movement of the spot was not recorded. At the beginning of the storm V oscillated very rapidly from 5h.47m. to 6h.7m., and then fell to its minimum of 46164γ at 6h.14m. In the next 5 min. it increased almost 1800γ to its maximum of 47954γ at 6h.19m. There were further high peaks at 7h.12m., 7h.21m. and 7h.36m., after which the disturbance moderated. After rising 10′ almost instantaneously at 5h.47m., D continued to rise in steps until its maximum of 15° 2·6 at 6h.21m. It then fell 4° 13′ in 10 min. and proceeded to oscillate rapidly about a very low mean. After a smaller peak at 7h.20m. it fell to its minimum between 7h.45m. and 7h.52m., the lowest recorded being 10° 10′ at 7h.47m. After 9h. there were oscillations with periods of about 5 min. and amplitudes of 170γ in H, 30′ in D and 50γ in V, which persisted until 15h. There was another short spell of more vigorous disturbance from 20h.30m. to 23h., with a trough in H and larger oscillations in V and D.

A moderate storm occurred between 23d.6h. and 24d.5h. H was slightly subnormal at first, but rose steadily from 10h. until its maximum at 15h.37m. A bay occurred between 21h.20m. and 22h.20m., which was also apparent in the V trace. Considerable minor activity continued until 26d.17h.

From 26d.17h. until the end of the month, conditions were very similar to those at the beginning of the month, with slight irregularities to the otherwise very quiet daily curves.

Aurora was seen from one or more places in Scotland on April 2,3,5,6,7,13,15,16, 18,23,24,28.

MAY (0·74).—This was another month with no really quiet day, the slight irregularities so noticeable in April continuing unabated.

After two days which were quiet, apart from these slight irregularities, there were moderate disturbances on the three following days. The first of these, from 3d.15h. to 4d.10h., was fairly normal with peaks in H and V at about 18h. and the usual bays between midnight and 4h. on the 4th. The second began in the early afternoon of the 4th, the largest fluctuations being in H; there was a fairly sharp maximum at 15h.31m., and a secondary one at 19h.54m., but the bay from 2h.30m. to 3h.50m. on the 5th was quite shallow. The movements in V were very similar, but with a smaller amplitude. The third disturbance, beginning at 5d.15h. had no outstanding features.

Quieter conditions prevailed from 6d.20h. until the 11th. At 11d.15h.54m. a "sudden commencement" (-24γ, +76γ in H; -2·0′, +5·5′ in D) marked the beginning of a severe storm. After its maximum of 15090γ at 17h.57m., H fell 850γ in 16 min., falling thereafter in jumps until it reached the very low minimum value of 13063γ at 21h.55m. There was a lull between a second deep trough at midnight and a shallower one at 12d.14h. On the afternoon of the 12th H rose to a second peak, but later fell very steeply to its minimum of 13139γ at 23h.57m. Between 23h.48m. and 23h.57m. the decrease was nearly 1000γ. V was above normal during the first part of the storm, with an initial peak at 11d.17h.50m., and a series of peaks between 20h.30m. and 12d.0h.20m. It was then much less severely disturbed until the final sudden fall to its minimum at 12d.23h.54m. In the next 10 min. it increased 653γ, but by 13d.2h. it was fairly quiet. The chief features in the D trace were the sharp maximum at 11d.17h.59m. and the very low minimum of 10°28·7′ at 12d.0h.5m. The final period of great activity was not so well marked as in H and V. The ranges for the whole disturbance were: H 2027γ, 967γ and D 3°30·5′.

After a brief quiet spell, disturbance was renewed on the morning of the 14th. The subsequent perturbations were typical of a disturbed day, with peaks in H and V between 14h. and 16h. and bays from 22h. to 15d.6h. For an hour at midnight there were rapid oscillations in H and D, and to a lesser extent in V. Conditions were quieter by 15d.9h. and continued so with occasional minor disturbance until the 28th, the quietest day being the 20th. A moderate disturbance between 29d.7h. and 30d.2h. was very similar to that of April 23-24, with H subnormal at first, a peak at 29d.16h. and a bay from 29d.22h. to 30d.1h. The last day of the month was quiet.

JUNE (0·43).— June was characterized by the persistence of very slight irregularities but total lack of major disturbance.

The largest disturbance was on the night of the 2nd-3rd, the only notable feature being a sharp trough in H and V and a peak in D shortly after midnight. An abrupt rise of 67γ in H at 7d.22h.2m. was followed by some mild disturbance which continued for several days. A similar movement of 61γ in H at 12d.17h.56m. was followed by considerable activity, which died away by 14d.3h. From the 14th until the end of the month there was nothing of note, the nearest approach to a perfectly quiet day being the 23rd.

JULY (0·58).— With one major storm and frequent smaller disturbance, July showed a big increase of activity compared with June.

There was an isolated trough in H and V at 1d.23h. with a small hump in D, but by 2d.1h. conditions were normal again. A small movement resembling a "sudden commencement" at 4d.12h.3m. was followed by several hours of moderate disturbance, the greatest activity being from 21h. to 22h., when a deep trough in H coincided with smaller rapid movements in V and D. Nothing further of note occurred until the 9th, when a small disturbance began which lasted until the early hours of the 11th.

The largest storm of the month began in the early hours of the 13th. After the usual period of moderate activity, more violent disturbance developed at about 15d.14h. H and V rose to peaks at 14h.30m. and 16h.20m., the former being the greater in V and the latter the greater in H. The usual deep night bay in H lasted from 15d.20h. until 16d.3h., with

a minimum of 13568γ at 15d.22h.56m. After a shallow bay at 15d.19h. V rose to another series of peaks, but became subnormal again with irregular oscillations between 15d.23h. and 16d.3h. The most disturbed period in the D trace was from 15d.21h.40m. to 16d.2h. 20m., the general impression being of small rapid oscillations superimposed on larger slower movements. After 16d.3h. only very minor disturbance was apparent, with a final peak in H at 16d.18h.52m.

A small disturbance took place on the 30th. The month ended quietly.

AUGUST (0·58).— Conditions were disturbed at the beginning of the month, but the last three weeks were fairly quiet.

Disturbance began gradually at 1d.8h. with small oscillatory movements in all three elements. Peaks in H and V and a depression in D at about 1d.17h. were followed by bays in H and V from 1d.22h. to 2d.5h., with deeper troughs at 1d.23h.40m. and 2d.4h.10m. The remainder of the 2nd was quieter, with the normal daily variation greatly enhanced. After some 5 hr. of preliminary activity, a severe disturbance began abruptly at 3d.21h. 35m. As in the great storm of April 16, there was violent disturbance from the beginning. H had an initial fall of 610γ in 20 min., but recovered temporarily at 22h.10m. It then fell in steps to its very low minimum of 13639γ at 23h.34m. V also fell very rapidly after the onset of the storm, and was subnormal most of the time, the minimum being 46367γ at 23h.25m. D rose 39′ to its maximum of 13° 18·1′ at 21h.47m., but fell 80′ in the next 10 min. and remained below normal for the rest of the storm.

Severe disturbance was over by 4d.2h. but moderate activity continued throughout the 4th and 5th, with the usual night bays in H and V and peaks in the afternoon. It was quieter from 6d. to 9d.; there was another minor disturbance on the 11th, with peaks in H and V and also in D from 12h. to 18h., but little of note after 22h.

Quiet conditions prevailed until the 22nd, the period 15d.-17d. being particularly quiet. A beautiful "sudden commencement" at 22d.13h.52m. (-9γ, +108γ in H; -3′, +14′ in D) was followed by several hours of slight disturbance with a shallow trough in H at 24d. 9h.35m. The last few days of the month were fairly quiet.

SEPTEMBER (0·73).— This was a month of almost continuous slight irregularities, and of frequent large disturbances.

From 1d. to 13d. conditions were fairly quiet, the 2nd and 6th being the quietest days. The first storm of the month began with a rapid movement at 13d.18h.37m. (-9γ, +68γ in H). After the initial rise, H steadied and began to fall shortly after 20h. It executed several bays between 13d.22h. and 14d.4h., with a partial recovery between 1h.30m. and 2h.30m. V followed a very similar course, while there was a depression in D at 13d.21h.15m. and a peak at 14d.3h.5m. Activity diminished after 14d.5h., but was renewed with even greater intensity at 14d.16h., the disturbance which followed lasting until 16d.4h. H rose to a peak of 14905γ at 14d.16h.42m. and then fell irregularly, the changes becoming increasingly more rapid. At 14d.22h. small oscillations became superimposed on the main movements, this change being also noticeable in V and D. Between 15d.2h. and 15d.4h. the swings were unusually sudden, with several changes of 500γ in only a few minutes. The minimum of 13380γ was reached at 15d.2h.56m. Further high peaks occurred on the afternoon of the 15th, but the night bay of the 15th-16th was comparatively shallow. V was not so greatly disturbed as H, the respective ranges being 837γ and 1525γ. The most active period was again from 15d. 2h. to 15d.4h., with a sharp minimum of 46199γ at 2h.26m. Between 2h.2m. and 2h.7m. there was also a swing of 100′ in D, but this was the only outstanding movement in this element.

There was nothing of note between 16d.4h. and the 23rd, but on that date there was a mild disturbance following a small movement which may have been a "sudden commencement" at 4h.35m. A very disturbed period began shortly after 26d.7h. The first storm, which

lasted until 27d.1h., was fairly typical, with nothing of particular interest. On the following night, however, a very severe storm developed shortly after 27d.22h., the most active period being from midnight to 28d.4h., when there was a bay 600γ deep in H with a minimum of 13251γ at 28d.1h.51m. The bay in V was not so regular, being interrupted by a peak at 28d.2h.5m., when the high value of 47116γ was attained. The oscillations in D were more rapid than in H and V, and there were distinct troughs at 28d.1h.50m., 28d.2h.50m. and 28d.3h.23m., the last giving the minimum of 10° 27·5′.

By 28d.6h. the magnetic field was more normal, but oscillations with a period of about 10 min. and ranges up to 140γ in H and 20′ in D continued throughout the morning. Minor disturbance was still present when another large storm began abruptly at 30d.10h. 20m. (-5′, +12′ in D). After several hours of increasing activity H fell 600γ between 20h.30m. and 20h.40m. It recovered from 21h. to 23h., but there were further bays centred at midnight and October 1d.4h. V and D also showed these three periods of rapid change, the trough in V at 30d.20h.38m. being 400γ deep, and the bay at October 1d.4h. over 400γ below normal. The storm had moderated by October 1d.8h.

Aurora was seen from one or more places in Scotland on September 13-17,19,21,24-28, 30.

OCTOBER (0·67).— This was again a month of considerable minor disturbance.

The storm with which the month opened continued as minor activity until the 4th, after which there were three quiet days before the next large disturbance. A small movement which may have been a "sudden commencement" at 7d.6h.14m. was the first sign of activity, and violent disturbance set in 7 hr. later. There were high peaks in H between 13h. and 20h. followed by an irregular fall to a bay from 7d.23h. to 8d.7h. After a peak from 7d.13h. to 7d.15h. V fell in steps to its very low minimum of 46177γ at 7d.17h.49m. For the rest of the storm it was not so greatly disturbed, the only feature being another bay from 8d.5h. to 8d.7h. The movements in D were mainly oscillatory, with one outstanding swing of 110′ in 7 min. up to the maximum of 14° 23·8′ at 18h.17m. Short-period oscillations became superimposed on the other movements at about 8d.1h., and were still in evidence when the storm moderated at 8d.8h.

Smaller irregularities continued for several days, but conditions were quiet after the 12th, 14d. being especially so. There was a mild disturbance on the 24th-25th beginning with an isolated peak in H at 24d.15h. Bays in all three elements followed at 24d.22h., and lasted until 25d.4h. Another storm of slightly greater intensity appeared on the 26th, with the usual rises in H and V in the afternoon. There were bays centred at 26d.22h., accompanied by a swing of 60′ in D. Slightly disturbed conditions prevailed until the 29th, but the end of the month was quiet.

Aurora was seen from one or more places in Scotland on October 1,3,7,8,10,11,13,16-20,25-28,30.

NOVEMBER (0·33).— This was a very quiet month, with no severe disturbance and only spasmodic minor activity.

There was little departure from the normal diurnal variation until the 8th, although the curves were never smooth. A mild disturbance began with rises in H and V on the afternoon of the 8th. After about 16h. there was a gradual fall which accelerated at 22h. to form fairly deep troughs between 23h. and 24h. Further minor disturbance on the 9th had no outstanding features, and by 10d.5h. quiet conditions had become established. These continued until the afternoon of the 14th when there was another slight disturbance. There were peaks in H and V from 18h. to 21h. and a smaller peak in D from 18h. to 19h., but by midnight, the traces were quiet again. Further minor activity broke out on the 17th, 21st and 24th, but otherwise conditions were fairly quiet for the remainder of the month.

Aurora was seen from one or more places in Scotland on November 1,2,7,8,14,15,17, 18,20-27,29.

DECEMBER (0·48).— December was another quiet month, with only minor disturbance.

After a quiet opening to the month, the first disturbance began gradually at 2d.14h. with rises in H, V and D. A broad peak in H developed after 17h., but by 20h. it was falling towards the usual night bay. The minimum of 14119γ occurred in a fairly sharp trough at 3d.2h.8m. A somewhat similar disturbance occurred on the following day between 3d.13h. and 4d.2h., but quiet conditions continued after that until the 9th. Another small disturbance between 10d.14h. and 11d.2h. was marked by two sharp peaks in H at 10d. 15h.10m. and 10d.18h.31m. and almost simultaneous peaks in D.

It was again quiet from 11d. to 16d. Disturbance was renewed at 16d.16h., and although it was only moderate there was an exceptionally sharp peak in H, culminating in the maximum of 14961γ at 18h.23m. H increased 484γ in 3 min. prior to this and fell 519γ in the next 6 min. There were simultaneous swings of +122γ, -342γ in V and smaller ones in D. Minor activity continued until the 23rd, the only noteworthy feature being another very sharp peak in H at 18d.16h.54m. The last week of the year was very quiet.

Aurora was seen from one or more places in Scotland on December 2,3,9,10,14,16-20, 22,27.

AURORA

From the beginning of September until the end of April a watch for aurora was maintained until 22h. G.M.T. each evening, observations of the northern horizon and of the general meteorological conditions being made at intervals of 15 to 20 min. The records form what is called the auroral log, a brief summary of which is given in Table 67. When any auroral display is observed, a second observer is called and detailed observations are maintained until the display subsides. These detailed observations have consisted in noting and making descriptions of the phenomena seen during the display. The descriptive notes are entered in a second log reserved for records of actual aurora displays. Extracts from this latter log may be obtained by anyone requiring the detailed information.

A general auroral table for Scotland (Table 68) is also included. This table has been compiled from the records of all stations at which climatological observations or weather logs are maintained. The observers at these stations, whilst noting occasions of aurora which they may happen to observe, do not in general maintain a special watch.

POTENTIAL GRADIENT (reduced to level surface)

Mean values for periods of sixty minutes, ending at exact hours, Greenwich Mean Time

1 LERWICK 1938

DAY	JANUARY, Factor 1·28				FEBRUARY, Factor 1·28				MARCH, Factor 1·28			
	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.
	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.
1	97	137	168	187	Z±	117	162	143	-52	Z-	>259	65
2	150	100	125	175	Z±	Z-	285	146	-97	55	19	32
3	203	190	122	94	102	119	132	-208	75	123	130	117
4	87	97	125	125	111	199	118	165	>308	Z±	97	29
5	90	94	>374	106	55	-171	93	199	97	146	130	78
6	109	106	62	144	Z±	143	175	147	45	84	6	49
7	281	131	Z±	Z±	110	189	320	342	6	23	220	126
8	31	134	140	Z±	185	159	246	69	78	-188	91	113
9	53	125	Z±	287	148	111	>221	140	Z±	>356	81	100
10	Z±	69	(125)	>250	Z±	74	(129)	78	49	55	65	78
11	Z±	303	234	>-31	55	78	145	136	78	-3	253	136
12	Z±	Z±	<-203	128	Z±	>1001	107	97	49	130	285	791
13	200	156	Z±	<156	39	65	120	126	123	175	113	201
14	>686	Z±	<187	168	58	52	126	129	580	619	622	363
15	<-1342	<94	237	193	65	78	103	97	133	94	162	156
16	106	119	84	Z±	61	74	129	136	87	126	-207	146
17	100	>187	100	119	78	81	113	207	6	-45	133	-16
18	81	100	94	<-780	94	68	113	97	71	162	159	-389
19	340	103	140	156	58	65	129	142	156	117	168	259
20	-56	106	140	303	32	26	136	123	110	146	52	130
21	178	Z±	225	>499	13	-3	113	116	65	87	81	100
22	109	106	218	278	94	110	149	194	52	87	168	-162
23	62	106	140	137	90	39	197	113	139	211	55	130
24	-100	125	119	100	45	65	107	213	6	159	-16	(292)
25	87	>162	>530	66	187	255	252	161	152	Z±	162	>680
26	Z±	>1030	-	-	323	504	439	485	58	>518	<32	168
27	134	-	>265	122	32	-10	113	-58	130	130	126	188
28	-87	25	-	-	87	107	29	52	120	-324	52	162
29	(125)	Z±	178	75					81	71	100	84
30	>390	>281	<31	125					107	91	143	36
31	94	-94	-456	109					188	126	130	113
(a)	165	167	173	171	92	157	161	156	112	162	141	176
(b)	100	98	82	164	90	98	156	138	97	95	125	127
Mean		(a) 169	(b) 111			(a) 141	(b) 121			(a) 148	(b) 111	

DAY	APRIL, Factor 1·28				MAY, Factor 1·33				JUNE, Factor 1·35			
	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.
	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.
1	94	Z±	(>194)	>162	91	98	205	163	195	186	144	224
2	-130	130	97	Z±	101	127	98	147	128	186	<-256	-13
3	104	356	130	139	127	114	150	179	141	147	202	42
4	65	152	110	104	147	150	121	140	118	179	154	240
5	75	113	-23	207	101	127	114	75	208	230	112	170
6	91	62	130	181	143	104	88	137	144	294	64	480
7	100	104	136	266	>701	137	>505	78	413	176	224	483
8	91	97	94	117	98	91	121	-359	336	294	528	<-499
9	91	149	110	194	88	>176	98	117	192	208	163	291
10	107	113	146	201	Z±	104	91	124	128	144	-32	163
11	214	288	356	376	111	212	274	173	74	154	128	48
12	269	87	91	253	-68	183	212	<-1304	112	93	147	128
13	237	45	81	146	254	196	212	427	266	227	122	154
14	146	117	165	156	98	127	293	606	93	147	96	3
15	110	-42	191	126	372	166	170	<-130	109	109	131	160
16	<62	155	<-16	Z±	49	124	75	130	144	250	38	160
17	-31	112	100	103	98	160	156	183	106	109	144	179
18	53	118	124	124	121	91	(98)	114	(160)	(160)	234	176
19	87	121	109	-6	59	108	114	140	368	-192	192	256
20	118	152	171	53	81	91	150	140	Z±	147	80	125
21	152	106	103	121	108	81	117	143	29	230	160	192
22	50	72	118	112	111	202	143	205	96	96	77	64
23	44	96	140	196	130	-440	>401	<-822	64	-16	96	128
24	233	218	140	168	<-603	39	0	-114	86	131	64	-80
25	115	121	118	215	<-293	117	88	209	109	93	144	90
26	109	159	171	109	160	209	<-212	78	38	13	80	115
27	87	-62	62	103	190	137	<215	306	77	-256	(-480)	544
28	81	118	118	121	117	62	49	-98	(384)	(160)	176	<-704
29	62	81	109	109	<-1288	16	(65)	274	125	173	118	77
30	87	118	109	140	98	280	443	372	-48	154	112	138
31					121	117	134	274				
(a)	112	129	133	159	149	132	167	197	159	166	146	186
(b)	109	121	126	153	112	133	158	165	136	125	101	178
Mean		(a) 133	(b) 127			(a) 161	(b) 142			(a) 164	(b) 135	

The potential gradient is reckoned as positive if the potential increases upwards. For indeterminate potential gradient the notation Z is used.

(a) Mean of all positive readings. (b) Mean from all complete days using both positive and negative readings.

POTENTIAL GRADIENT (reduced to level surface)

Mean values for periods of sixty minutes, ending at exact hours, Greenwich Mean Time

1 LERWICK 1938

DAY	JULY, Factor 1·31				AUGUST, Factor 1·28				SEPTEMBER, Factor 1·23			
	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.
	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.
1	71	(102)	95	136	139	136	208	172	47	111	126	476
2	206	169	62	49	136	127	112	121	<-1095	210	99	175
3	105	62	83	139	94	145	227	172	-15	128	146	207
4	<-293	-437	-15	160	166	175	236	127	96	137	99	155
5	228	286	317	120	160	214	130	230	114	102	93	210
6	<-1463	-185	117	203	196	181	172	233	292	234	96	93
7	95	145	253	120	254	145	175	175	108	123	108	216
8	123	<-832	169	631	166	453	196	251	91	123	126	117
9	(308)	(246)	<-585	231	233	163	148	187	108	128	91	117
10	209	277	123	277	160	166	211	142	99	96	<-263	166
11	83	314	151	296	169	175	202	320	128	117	-58	102
12	145	157	139	154	305	181	278	60	102	93	137	149
13	123	185	299	739	85	151	118	127	70	96	234	64
14	579	545	453	240	106	106	106	133	102	102	114	123
15	206	154	151	179	91	103	100	121	99	102	82	172
16	191	280	228	34	15	-278	121	139	58	93	123	105
17	-15	179	132	231	151	166	<-453	57	50	44	70	0
18	139	145	139	154	100	115	109	127	102	108	96	120
19	126	157	305	293	-115	187	103	115	76	99	88	91
20	246	142	142	151	(121)	(151)	136	121	29	73	184	272
21	114	145	126	163	97	39	85	91	146	96	327	327
22	142	151	305	496	42	79	136	227	266	385	610	599
23	345	136	102	216	160	208	172	211	228	231	321	590
24	120	203	132	209	163	317	516	420	>511	374	146	572
25	228	188	86	403	456	308	115	190	315	<-759	321	172
26	474	283	102	604	136	106	145	248	146	161	327	120
27	197	416	394	(462)	169	157	205	136	105	488	587	380
28	-	-	-139	148	66	121	106	109	566	677	391	342
29	154	179	407	468	109	233	-468	187	453	161	342	377
30	277	308	216	249	109	109	127	184	175	383	111	263
31	182	246	185	234	60	72	121	187				
(a)	201	214	193	264	147	166	166	172	167	182	200	229
(b)	191	214	197	262	138	151	145	175	144	177	191	223
Mean	(a) 218		(b) 216		(a) 163		(b) 152		(a) 195		(b) 184	

DAY	OCTOBER, Factor 1·18				NOVEMBER, Factor 1·21				DECEMBER, Factor 1·24			
	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.
	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.
1	199	210	196	185	<-673	<224	>434	<90	108	188	0	182
2	187	139	207	<-284	>792	>99	<111	254	96	105	68	102
3	99	116	<-256	133	27	60	(60)	161	Z±	87	93	142
4	-80	148	190	196	90	102	<-1271	-161	68	93	139	-448
5	<-128	-270	<-1065	-596	-203	39	81	-209	<-263	130	182	155
6	85	Z±	77	139	<-164	78	66	51	-83	83	121	77
7	43	-23	<-99	Z±	21	-90	149	135	-117	77	151	164
8	65	-51	45	<-51	84	99	117	158	-15	-62	207	Z±
9	99	-71	-68	116	45	90	84	-27	19	77	121	133
10	74	37	68	128	209	254	141	188	-426	263	362	253
11	51	97	108	82	200	155	233	152	213	74	284	179
12	31	102	-327	369	84	320	239	84	164	87	121	179
13	148	142	-131	-710	-138	245	147	218	216	423	247	192
14	20	99	77	80	413	45	141	111	151	161	-300	256
15	80	139	148	429	81	54	111	141	201	210	87	59
16	-554	82	114	125	224	206	117	99	46	74	87	43
17	48	-57	Z±	193	75	Z±	141	96	83	68	96	105
18	<-71	9	-48	142	269	135	126	-179	74	87	114	130
19	80	99	108	119	81	Z±	<269	<194	77	139	216	>1298
20	74	74	239	542	>807	72	102	155	62	179	139	Z±
21	267	386	426	202	69	120	173	120	93	108	349	247
22	156	133	244	239	45	66	66	179	90	108	151	247
23	153	114	247	301	84	126	167	90	49	-198	-46	111
24	182	153	190	48	138	<-224	120	<-299	62	124	99	99
25	54	28	133	142	117	60	158	45	68	77	31	40
26	125	148	99	102	9	-9	60	383	182	155	155	510
27	80	91	102	97	111	141	117	158	-15	74	90	247
28	60	62	57	28	87	111	>347	173	-15	43	90	167
29	-114	-20	128	230	138	66	147	<15	105	-612	0	479
30	<-994	88	165	-	129	117	<-598	147	62	216	185	439
31	-	-	-	<-369					173	278	99	284
(a)	103	117	153	182	170	123	151	144	107	135	141	233
(b)	56	107	112	145	92	111	131	106	64	94	112	172
Mean	(a) 139		(b) 105		(a) 147		(b) 110		(a) 154		(b) 111	

Annual means	(a)	140	154	160	189
	(b)	111	127	136	167
		(a) 161		(b) 135	

The factor used for converting the potential at the collector to potential gradient in volts per metre in the open is given for each month.

POTENTIAL GRADIENT (reduced to level surface): DIURNAL INEQUALITIES

The departures from the mean of the day are adjusted for non-cyclic change†

2 LERWICK — 0a days only* — 1938

	Hour G.M.T. 0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	Non-cyclic change†	No. of days used	Mean values
	volts per metre																								v./m.		v./m.
Jan.	Nil																									0	
Feb.	-37	-41	-52	-71	-56	-57	-43	-31	-29	-23	-8	+4	+14	+28	+35	+48	+69	+59	+64	+59	+43	+29	+10	-12	-6	10	146
Mar.	-196	-126	-47	-55	-65	-45	-111	-59	-1	-49	+35	+6	+35	-15	+63	+61	+77	+101	+157	+177	+173	+157	-68	-203	+56	2	384
Apr.	0	-4	-11	-26	-33	-47	-35	-29	-9	-12	-23	-11	-14	-8	+4	0	+29	+29	+33	+37	+42	+51	+31	+6	+2	8	151
May	-29	-40	-50	-47	-51	-24	+4	-2	-12	-11	+4	+5	-8	+15	+21	+34	+40	+22	+29	+19	+31	+27	+11	+11	-5	9	148
June	+13	-4	+6	+11	-5	0	+14	+44	+27	+10	-8	-26	-27	-29	-35	-15	-16	-17	-3	+12	+23	+21	-3	+5	-12	4	145
July	+27	-11	-6	+9	+5	+18	+8	-5	0	-37	-70	-58	-51	-35	-19	-25	-13	+3	+4	+13	+54	+95	+68	+28	+56	12	216
Aug.	+7	-3	-10	-21	-21	-14	+11	-9	+1	-3	-7	+8	+15	+8	+9	+2	+4	-3	-11	-1	+8	+14	+9	+6	-12	16	194
Sept.	-11	-25	-35	-51	-63	-55	-23	+21	+21	+26	-10	-14	-6	0	+29	+12	+32	+17	+4	+20	+23	+50	+33	+4	+76	8	189
Oct.	+9	-21	-40	-24	-23	-30	-14	-34	-13	+11	+1	+4	+22	+20	+25	+22	-5	+6	+13	+3	+4	+16	+20	+29	-107	3	151
Nov.	-48	-19	+25	+109	+35	+27	+25	-4	-1	+49	+23	-11	-11	-7	-20	-13	-6	+15	-3	+1	-17	-33	-55	-61	+13	2	133
Dec.	-28	-70	-47	+9	-6	+12	-6	-4	+52	+64	+33	+22	+34	+5	0	+12	-6	-7	-9	-10	-8	-13	-22	-6	-22	3	156
Year	-27	-33	-24	-14	-26	-20	-15	-10	+3	+2	-3	-6	0	-2	+10	+13	+19	+20	+25	+30	+34	+38	+3	-18	+4	77	183
Winter	-38	-43	-25	+16	-9	-6	-8	-13	+7	+30	+16	+5	+12	+9	+5	+16	+19	+22	+17	+17	+6	-6	-22	-26	-5	15	145
Equinox	-49	-44	-33	-39	-46	-44	-46	-25	-1	-6	+1	-4	+9	-1	+30	+24	+33	+38	+52	+59	+61	+69	+4	-41	+7	21	219
Summer	+5	-15	-15	-12	-18	-5	+9	+7	+4	-10	-20	-18	-18	-10	-6	-1	+4	+1	+5	+11	+29	+39	+21	+13	+7	41	176

3 LERWICK — 1a and 2a days only* — 1938

	Hour G.M.T. 0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	Non-cyclic change†	No. of days used	Mean values
	volts per metre																								v./m.		v./m.
Jan.	-25	-36	-31	-30	-28	-27	-66	-31	-11	-10	-4	+14	+17	+15	+5	+13	+3	-1	+36	+62	+47	+43	+37	+7	-87	5	119
Feb.	+1	-27	-47	-47	-38	-26	-24	-37	-35	+11	+4	+32	+35	+23	+37	+77	+86	+49	+73	+27	-66	-89	-51	+30	-22	4	149
Mar.	+29	+24	-2	+5	-14	-51	-48	-26	-55	-32	-134	-81	-56	-48	+22	+81	+67	+46	+21	+50	+34	+73	+55	+40	+1	5	113
Apr.	+14	-8	-19	-7	+5	-9	+8	-6	-27	-18	-11	-4	-5	-32	-29	+38	+25	+17	+10	+12	+6	+11	+15	+13	+13	6	117
May	-4	+3	-20	-3	-90	-99	-20	+15	+12	+2	+39	+25	+21	+9	-9	-3	+5	+5	+26	+8	+29	+15	+19	+15	+35	4	132
June	+68	+27	+37	+17	+15	+54	+17	+27	+45	+8	-32	+2	-5	-19	-6	-19	-34	-29	-34	-29	-48	-34	-53	+25	+115	5	125
July	-26	-48	-11	+21	+5	+13	+30	+36	+9	+22	+6	-13	-12	-31	-6	-10	+9	-9	-22	-17	-4	+19	+16	+22	-67	9	177
Aug.	-11	-30	-33	-40	-30	-20	-2	+10	+11	+21	+1	+5	-9	+14	+5	-10	-24	-2	+19	+35	+37	+24	+13	+16	+25	8	121
Sept.	+2	-17	-26	-50	-35	-35	-18	-22	-4	-2	-9	-11	-16	-6	+6	-1	+8	+39	+27	+39	+23	+64	+27	+18	+30	9	171
Oct.	-28	-35	-47	-41	-44	-60	-71	-65	-53	-45	-69	-79	-62	-23	-1	+37	+98	+166	+174	+133	+67	+53	+4	-13	+63	4	149
Nov.	-12	+11	+38	-7	-15	-31	-77	-104	-46	-28	-23	-17	-23	+15	+47	+57	+46	+37	+50	+33	+17	+23	+6	+3	-34	5	101
Dec.	-19	-17	-20	-15	-18	-11	+2	-3	+4	+9	+4	-16	-14	-5	+8	+3	-3	+31	+3	+7	+31	+45	+1	-7	-55	4	103
Year	-1	-13	-15	-16	-24	-25	-22	-17	-13	-5	-19	-12	-11	-7	+7	+22	+24	+29	+32	+30	+14	+21	+7	+14	+1	68	131
Winter	-14	-17	-15	-25	-25	-24	-41	-44	-22	-5	-5	+3	+4	+12	+24	+37	+33	+29	+41	+32	+7	+5	-2	+8	-49	18	118
Equinox	+4	-9	-23	-23	-22	-39	-32	-30	-35	-24	-56	-44	-35	-27	-1	+39	+49	+67	+58	+59	+33	+50	+25	+15	+27	24	137
Summer	+7	-12	-7	-1	-25	-13	+6	+22	+19	+13	+3	+5	-1	-7	-4	-11	-11	-9	-3	-1	+3	+6	-1	+19	+27	26	139

Winter: January, February, November, December
Equinox: March, April, September, October
Summer: May to August

* For explanation of 0a, 1a, 2a days see p. 16.

† See p. 10.

Day	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient
		hr.		hr.		hr.		hr.		hr.		hr.
1	1b	0·7	1b	1·2	1b	1·6	2c	3·9	0a	···	1b	0·8
2	1a	0·5	1c	2·7	2b	6·6	2c	4·6	0a	···	1b	2·0
3	1a	0·5	1b	2·5	1b	0·3	1c	1·3	0a	···	1b	2·2
4	1a	0·4	1b	0·7	2c	3·1	1b	1·6	0a	···	1a	0·7
5	1b	1·3	2c	3·3	1b	0·9	1a	0·5	1a	0·1	1b	1·4
6	1a	0·6	1c	0·8	1c	0·9	1b	0·9	1b	0·7	1b	2·7
7	2c	3·1	0a	···	1a	2·7	1c	1·0	1c	1·9	1b	0·9
8	1b	1·5	1a	0·7	2a	6·7	0a	···	2c	4·1	1b	1·6
9	1c	1·7	1b	2·3	1c	1·1	0a	···	1c	2·5	1a	0·5
10	2c	4·3	1c	2·6	1b	0·7	0a	···	1b	0·9	2b	3·7
11	2c	4·2	2b	3·6	1a	1·3	0a	···	1b	0·9	1a	0·2
12	2c	3·5	1c	0·9	0a	···	0a	···	2b	6·6	1b	1·0
13	2c	3·2	1a	0·7	1a	0·2	1a	0·1	1b	0·5	0a	···
14	1c	0·8	0a	···	0a	···	0a	···	1a	0·9	1b	0·9
15	2c	8·0	0a	···	1a	0·9	1b	1·3	1b	1·3	0a	···
16	1c	2·0	0a	···	2b	6·5	1c	1·9	0a	···	0a	···
17	1c	0·8	0a	···	2b	7·4	1b	1·6	0a	···	0a	···
18	2c	10·3	0a	···	2b	5·5	1b	0·4	1b	0·6	1a	0·1
19	1b	2·8	0a	···	1b	0·7	1a	1·0	1a	1·0	2b	4·6
20	2b	3·3	0a	···	2b	3·1	1b	0·9	0a	···	1b	0·7
21	1c	1·5	2b	3·5	1b	0·1	1b	0·3	0a	···	1b	2·4
22	1b	0·6	1b	0·9	1b	2·5	1a	0·1	1a	1·9	1b	0·3
23	1a	0·2	0a	···	1a	2·4	1a	0·1	2c	9·8	1b	1·9
24	2b	6·7	1b	1·2	1b	3·0	1b	0·8	2c	15·9	2a	3·1
25	2c	4·5	1a	0·3	1c	1·8	1b	0·4	2c	4·6	1a	1·3
26	1c	(1·3)	0a	···	1c	1·1	0a	···	2c	8·3	1b	1·6
27	1c	(2·7)	2a	3·2	2b	4·0	1b	0·7	2b	5·1	2b	8·2
28	2c	(8·3)	2b	4·1	2b	4·1	1b	0·3	2b	5·9	1b	1·4
29	1c	1·7			1b	1·8	1a	0·1	2c	8·2	1b	1·2
30	1c	1·5			2b	4·7	0a	···	0a	···	2b	4·0
31	2b	8·7			1b	0·7			1a	0·3		
Total	43	91·2	23	35·2	39	76·4	24	23·8	31	82·0	31	49·4
No. of days used	31	31	28	28	31	31	30	30	31	31	30	30
Mean	1·39	2·9	0·82	1·3	1·26	2·5	0·80	0·8	1·00	2·6	1·03	1·6

Day	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient
		hr.		hr.		hr.		hr.		hr.		hr.
1	1a	1·3	0a	···	1b	0·7	0a	···	2c	6·3	1b	1·0
2	1a	0·1	0a	···	1b	1·7	1b	2·0	1c	2·9	2c	3·3
3	1a	0·2	0a	···	1a	1·4	2c	4·0	1b	2·2	1b	2·0
4	2b	3·4	0a	···	0a	···	1b	2·7	2b	10·5	2b	4·4
5	1a	0·3	1a	0·1	0a	···	2c	17·1	2b	11·6	2c	3·2
6	2c	13·0	0a	···	1a	0·6	2b	4·5	1b	2·5	2b	3·6
7	1a	0·3	0a	···	0a	···	2c	9·5	2a	4·4	2b	4·7
8	2c	5·3	0a	···	0a	···	2c	4·8	1a	0·1	2b	4·1
9	1b	2·8	0a	···	0a	···	2b	6·7	1a	1·8	2c	3·1
10	1a	0·1	0a	···	2b	3·1	2c	5·1	1b	0·4	1b	2·6
11	0a	···	0a	···	1b	2·7	1b	2·4	1a	0·1	1b	2·1
12	0a	···	0a	···	1a	0·1	1b	3·0	1b	1·4	1b	1·2
13	0a	···	0a	···	1b	1·6	2b	8·7	1b	1·1	0a	···
14	0a	···	1a	0·3	1b	0·7	1a	0·2	1a	0·2	2b	3·8
15	0a	···	1a	0·1	1b	0·9	1b	1·2	0a	···	1a	1·1
16	1a	1·3	1b	2·9	1b	1·2	2b	4·9	0a	···	1a	1·5
17	2b	3·9	1b	1·9	1a	0·9	2c	4·4	1b	2·5	1a	0·7
18	0a	···	1b	0·7	0a	···	2c	4·8	2c	6·6	0a	···
19	0a	···	2a	3·9	1a	0·1	0a	···	2c	3·7	1b	1·4
20	0a	···	1a	0·4	1b	2·1	1a	0·4	1b	0·9	1b	1·0
21	0a	···	1b	0·8	1a	0·1	1b	2·1	1b	1·1	1b	1·3
22	0a	···	1a	0·1	0a	···	1b	1·7	1b	2·9	1a	0·1
23	1a	0·3	0a	···	1a	0·1	1a	0·9	1c	2·8	2b	7·2
24	0a	···	0a	···	1c	2·8	0a	···	1c	2·7	0a	···
25	0a	···	0a	···	2b	4·4	1c	2·8	2c	5·6	2b	5·2
26	1b	0·2	0a	···	1a	0·2	2c	5·1	2c	3·1	1b	1·4
27	0a	···	1a	0·1	0a	···	1b	0·3	1b	2·8	1c	2·3
28	2b	4·5	1b	0·3	1b	0·3	1a	1·3	1b	0·8	1b	0·7
29	1b	0·3	2b	3·7	0a	···	2b	7·2	1b	1·3	2b	8·2
30	1a	0·6	1a	0·1	1a	0·5	(2c)	(5·4)	2b	3·8	1c	1·2
31	1b	1·4	1a	0·1			(2c)	(6·2)			1b	1·9
Total	23	39·3	17	15·5	23	26·2	43	119·4	37	86·1	39	74·3
No. of days used	31	31	31	31	30	30	31	31	30	30	31	31
Mean	0·74	1·3	0·55	0·5	0·77	0·9	1·39	3·9	1·23	2·9	1·26	2·4

Annual values: Character 0 1 2 — No. of days used 79 199 87

Mean character figure 1·02(365 days)

Duration: Total 718·8 hr. — No. of days 365 — Mean 1·97 hr.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

5 LERWICK (H) — 14,000 γ (·14 C.G.S. unit) + — JANUARY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	412	413	411	407	407	407	411	414	412	405	414	415	418	420	420	421	424	427	429	424	425	414	408	408	415
2	412	408	409	411	413	414	422	421	419	410	399	395	409	415	399	403	410	415	406	416	426	419	418	411	412
3	407	416	415	413	415	418	424	421	416	410	410	408	407	409	410	392	395	407	410	431	410	409	415	413	412
4	413	412	411	418	420	411	417	427	423	418	411	404	410	398	395	408	408	405	405	407	401	395	403	380	408
5 Q	358	398	404	402	407	406	400	411	408	388	391	399	403	406	405	405	408	412	414	416	418	418	417	416	406
6	415	414	415	417	420	423	422	422	419	412	412	410	411	407	407	415	419	429	412	412	415	418	419	412	416
7	401	420	406	407	408	412	416	418	418	417	417	412	411	417	417	394	412	414	415	410	405	394	410	380	410
8	383	413	353	335	343	386	403	388	391	391	389	391	397	401	402	405	406	408	410	409	410	401	400	385	392
9	349	353	337	383	391	408	417	422	416	415	404	397	396	398	401	409	411	414	418	416	416	416	414	411	400
10 Q	407	406	408	408	408	416	417	416	417	410	404	401	400	402	409	407	411	416	419	419	420	418	415	414	411
11 Q	414	411	413	416	416	416	419	420	418	418	412	405	403	407	411	411	412	423	422	418	416	414	409	408	414
12	409	412	412	413	414	419	425	419	418	423	413	409	406	413	421	437	454	479	608	472	437	467	488	379	435
13	358	326	266	221	260	368	400	405	389	375	389	400	394	397	397	397	391	405	401	399	400	395	401	402	372
14 Q	403	403	404	402	409	411	414	407	393	397	396	389	390	400	396	406	411	412	413	414	405	410	409	418	405
15	412	412	412	418	422	420	409	400	399	408	406	397	394	397	404	409	414	414	413	416	417	411	431	415	410
16 D	414	412	412	413	415	423	425	425	419	409	405	404	404	423	426	447	457	443	439	438	462	448	481	581	434
17 D	462	1	129	-14	279	309	406	315	241	347	415	416	536	579	910	989	1006	595	457	397	388	351	307	327	412
18	343	349	339	333	330	355	361	363	367	368	362	357	372	391	411	416	439	405	511	465	457	397	317	366	382
19	356	380	377	375	375	381	383	376	357	360	354	380	381	386	425	443	462	434	419	382	384	386	388	389	389
20	394	396	394	392	382	352	379	389	386	380	382	373	373	393	404	413	408	409	443	442	463	455	409	353	399
21	376	391	389	354	324	383	390	393	338	322	337	348	376	408	447	436	443	456	429	413	408	408	359	276	383
22 D	288	282	263	365	401	331	382	378	280	73	387	552	454	444	456	558	597	458	469	382	344	376	342	340	383
23	333	325	342	350	356	360	357	357	352	342	341	356	355	359	359	367	373	377	384	382	389	381	373	351	359
24	348	332	340	356	372	373	381	379	369	368	374	363	365	374	390	391	400	414	408	403	414	390	404	378	379
25 D	385	378	374	374	379	383	385	384	384	380	379	382	390	431	469	446	671	922	443	98	333	239	-28	37	376
26 D	-10	-186	-115	131	366	362	371	364	357	352	342	369	369	389	411	420	386	385	398	373	371	374	378	375	306
27	375	373	375	381	385	389	389	384	367	376	372	376	379	387	391	383	387	403	415	393	395	394	402	392	386
28	390	391	393	391	399	402	403	405	399	392	383	376	376	389	384	397	401	405	408	410	401	384	389	399	394
29	400	402	401	400	399	413	403	403	400	393	382	363	385	393	399	402	406	411	413	418	392	389	306	361	393
30 Q	385	394	392	396	406	407	410	405	402	399	393	391	393	405	410	413	413	413	420	412	408	396	401	398	403
31	388	395	401	403	405	405	407	405	390	400	412	402	403	408	415	439	437	398	405	425	374	257	333	378	395
Mean	374	356	349	364	385	392	402	398	386	379	390	395	399	408	426	435	447	439	428	404	407	394	381	379	396

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −29γ.

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

6 LERWICK (D) — 12° + — JANUARY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	37·8	40·4	39·1	40·5	40·3	40·7	39·1	38·7	39·4	40·4	41·1	42·5	44·0	43·6	42·8	42·4	43·4	43·7	45·9	45·0	43·2	34·6	36·4	39·4	41·0
2	41·1	40·0	39·8	43·0	41·1	40·5	40·1	39·8	40·5	40·7	41·8	42·4	43·5	47·8	47·0	45·4	44·4	44·4	43·2	38·2	37·2	36·6	39·2	37·1	41·5
3	40·0	37·5	39·4	39·9	41·3	40·8	40·0	39·3	39·6	40·4	41·8	41·7	43·2	45·5	45·7	44·2	45·3	47·2	41·0	33·8	36·2	38·4	40·0	39·9	40·9
4	39·9	39·5	38·5	35·6	38·7	38·9	40·3	41·2	40·9	42·0	43·7	44·9	44·5	49·8	44·8	48·8	45·4	42·8	41·1	37·8	21·8	28·2	36·4	37·3	40·1
5 Q	44·4	39·5	38·1	37·9	39·3	39·0	40·9	41·3	42·3	42·4	40·8	42·2	43·1	43·8	42·4	41·8	41·8	41·9	41·7	41·0	40·5	40·1	39·8	40·9	41·1
6	40·8	40·8	40·6	40·5	40·8	40·8	40·7	40·4	40·4	41·3	41·9	43·1	44·2	42·8	43·1	44·0	47·3	44·3	40·2	43·0	40·8	37·3	39·1	37·8	41·5
7	38·6	29·2	31·3	35·2	36·0	37·2	38·7	40·4	41·1	41·7	42·5	42·9	44·7	45·5	47·2	50·2	45·1	49·5	35·3	20·0	38·1	32·1	39·9	47·2	39·6
8	36·5	36·2	21·6	29·8	39·9	44·8	51·4	45·8	46·9	45·0	43·9	42·2	42·5	42·5	41·3	40·6	40·9	41·2	41·1	40·3	38·2	34·7	32·8	29·0	39·5
9	25·6	29·8	40·8	34·6	36·7	36·6	38·8	38·7	38·4	38·8	42·0	42·5	43·3	44·2	44·0	43·4	44·8	43·4	42·3	41·4	40·0	39·9	39·3	39·8	39·5
10 Q	39·7	40·9	37·4	37·6	39·9	40·9	40·5	40·0	40·0	40·8	42·2	43·1	44·3	44·6	43·8	43·1	42·6	42·0	41·8	41·5	38·9	39·8	39·1	39·2	41·0
11 Q	37·6	37·7	39·4	40·4	40·7	41·2	40·7	40·2	39·6	40·7	41·3	41·9	44·7	46·3	45·8	45·9	43·1	44·5	43·6	43·4	42·1	39·8	39·0	39·9	41·6
12	40·3	41·1	40·7	40·4	40·6	39·9	39·4	39·2	40·6	40·5	41·6	43·3	45·5	46·8	46·8	46·2	53·8	61·9	64·1	40·3	36·8	39·0	28·8	23·6	42·5
13	27·3	21·3	23·5	19·8	36·4	46·3	46·9	41·5	38·7	42·5	43·5	41·0	43·4	44·5	45·3	44·0	42·8	43·6	39·9	32·1	32·0	38·3	40·0	41·1	38·2
14 Q	42·0	42·0	42·0	43·3	40·5	40·2	39·9	40·1	41·3	43·0	43·5	44·1	45·8	48·5	46·8	43·3	42·4	42·1	41·5	41·2	41·3	38·0	40·2	40·5	42·2
15	40·2	40·3	42·0	39·7	39·3	38·8	41·2	43·9	42·4	41·5	41·9	41·5	44·6	45·7	44·8	43·9	43·6	44·1	43·4	29·0	37·0	40·1	34·8	37·6	40·9
16 D	40·3	40·4	41·1	41·1	41·0	41·0	40·8	40·3	40·2	41·5	41·9	41·6	44·2	46·5	45·0	46·4	44·8	43·0	44·8	42·1	39·8	39·4	36·8	63·3	42·8
17 D	78·0	73·3	49·8	39·3	34·7	39·1	35·8	35·5	38·0	38·0	34·2	26·8	10·5	20·3	41·3	37·8	51·3	49·0	40·1	35·4	35·5	27·8	38·5	38·4	39·5
18	39·4	38·5	37·0	37·8	39·1	38·5	38·0	36·6	35·5	36·0	38·2	38·1	37·8	41·5	40·1	34·3	38·6	45·8	41·3	44·4	42·0	36·8	29·3	37·4	38·4
19	39·1	38·3	38·9	36·5	36·3	38·2	37·4	37·1	38·7	42·6	41·8	40·2	41·9	45·0	41·4	44·2	34·8	39·4	43·2	41·3	39·5	39·2	39·0	39·4	39·7
20	39·0	39·6	39·4	39·5	40·9	46·7	42·9	39·0	38·7	36·2	38·3	41·1	39·9	44·3	47·4	37·5	43·5	41·4	40·0	34·1	43·4	40·5	38·9	37·6	40·4
21	38·1	38·6	39·0	40·8	34·9	36·4	36·9	40·5	44·3	41·9	39·4	47·4	46·8	47·0	44·4	41·7	44·9	31·3	38·8	42·0	37·8	39·8	37·9	30·1	40·0
22 D	23·5	27·8	28·0	30·2	35·8	44·8	33·3	35·6	15·8	1·3	-6·2	12·3	32·8	29·3	39·3	34·4	38·0	42·3	45·8	38·8	38·5	32·4	31·0	36·5	30·1
23	36·7	43·0	38·5	37·0	37·4	36·2	37·0	36·5	35·6	36·7	36·6	41·8	43·1	43·7	43·9	41·2	40·7	40·9	39·2	38·8	23·4	35·2	34·8	28·1	37·7
24	24·0	28·1	27·0	21·5	27·9	35·8	35·6	37·4	35·8	36·8	39·7	45·0	43·0	43·9	44·7	44·2	43·7	41·5	40·9	42·8	38·3	38·0	36·3	35·8	37·0
25 D	26·7	22·3	28·0	36·4	37·0	37·4	37·9	37·1	36·4	37·2	38·7	40·1	39·6	47·4	54·7	49·0	52·5	71·7	81·7	17·7	51·7	64·7	10·7	25·7	40·9
26 D	13·7	49·7	21·7	31·9	38·2	42·1	43·0	39·6	38·3	37·7	38·4	38·9	40·4	44·7	45·2	41·6	43·4	42·1	33·7	40·7	39·8	36·0	36·9	37·2	38·1
27	37·4	38·4	39·0	38·1	38·2	38·0	37·2	37·6	37·7	37·7	40·4	42·1	42·6	44·0	43·2	42·6	41·9	39·8	30·1	36·1	37·8	37·6	35·7	35·3	38·7
28	36·0	37·7	38·9	38·4	38·4	39·7	38·8	37·6	37·0	38·2	39·5	41·7	42·6	45·9	43·1	42·4	40·5	40·6	40·7	40·9	33·4	29·9	35·6	37·3	38·9
29	38·2	36·8	37·9	37·5	38·0	43·8	38·0	39·0	37·6	39·3	41·4	42·8	43·4	45·4	44·2	42·6	41·2	40·7	40·7	41·8	35·9	33·9	35·7	24·5	39·2
30 Q	34·5	39·4	45·4	37·3	38·6	38·9	37·8	37·6	37·6	38·3	40·1	42·1	43·6	45·0	43·6	43·2	42·4	41·7	41·7	39·7	36·6	38·0	37·8	38·1	40·0
31	30·1	32·3	36·7	38·8	37·5	37·7	38·4	39·0	40·6	41·3	40·6	43·4	45·7	45·7	47·4	46·7	46·2	47·6	43·5	45·7	36·7	18·2	32·1	32·8	39·4
Mean	37·0	38·1	36·8	36·8	38·2	40·0	39·6	39·2	38·7	38·8	39·2	40·8	41·9	43·9	44·5	43·1	43·7	44·3	43·0	38·4	37·9	36·9	35·9	37·0	39·7

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

7 LERWICK (V) 46,000 (·46 C.G.S.Unit) JANUARY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	791	818	818	821	817	806	813	817	817	819	816	818	821	824	825	825	825	824	826	830	843	855	841	837	823
2	833	831	828	826	821	828	824	822	820	821	823	824	825	829	842	854	845	841	851	842	825	830	833	835	831
3	816	812	822	822	821	822	819	819	821	821	821	821	820	825	832	850	856	858	867	832	831	835	829	827	829
4	826	826	820	807	798	807	813	815	817	816	817	819	820	858	932	896	850	841	835	859	871	856	839	809	835
5 Q	753	792	819	821	822	819	824	822	822	828	826	820	818	820	825	827	828	827	827	826	825	823	824	824	819
6	823	823	823	823	822	821	821	821	820	819	818	817	817	824	829	825	839	915	883	857	846	838	840	849	834
7	845	803	804	809	813	812	818	818	818	818	817	817	817	821	829	858	867	869	892	885	827	831	825	823	831
8	812	808	783	791	748	749	772	806	820	834	835	833	829	828	829	828	828	829	831	833	836	845	841	800	815
9	787	786	737	717	731	758	785	800	807	815	818	819	820	823	830	831	828	827	828	832	832	828	827	826	803
10 Q	824	820	817	816	815	811	816	819	820	823	823	820	820	820	820	822	823	823	825	827	829	827	827	825	821
11 Q	820	821	820	817	817	817	817	818	818	819	821	820	816	818	823	825	832	826	829	836	845	846	842	835	825
12	831	826	823	821	819	816	815	816	817	818	822	822	819	820	824	823	825	903	1031	1024	940	922	871	730	849
13	722	748	731	648	607	659	759	802	843	857	848	845	841	841	844	854	868	869	874	860	826	828	825	823	801
14 Q	819	818	819	819	815	813	813	815	822	820	826	831	833	839	849	837	832	830	826	826	835	831	819	822	825
15	824	821	817	810	816	816	816	809	810	813	817	822	827	836	835	834	834	838	841	846	840	843	805	784	823
16 D	796	812	819	820	818	813	811	809	809	814	820	827	831	837	851	877	938	935	898	892	871	845	775	730	835
17 D	822	892	674	600	759	730	798	852	788	767	832	857	1011	1016	937	873	862	997	959	924	879	801	765	822	842
18	836	857	862	855	842	841	844	848	849	847	850	850	854	854	861	910	939	881	929	938	961	865	753	810	864
19	791	828	842	847	838	842	841	842	847	844	844	850	868	873	903	917	969	934	875	853	840	835	831	830	858
20	830	831	832	830	829	778	751	783	804	814	820	834	848	860	873	890	862	875	864	874	918	928	891	823	843
21	803	827	834	808	730	798	824	824	839	852	858	840	840	885	952	932	933	937	908	906	895	840	786	669	846
22 D	693	675	633	714	774	800	821	869	941	994	1010	884	924	907	910	963	923	843	952	912	884	893	856	858	860
23	846	826	838	847	838	842	856	858	861	864	867	862	857	857	859	859	854	854	857	859	869	851	843	787	850
24	739	728	757	790	811	836	840	835	842	840	840	840	839	840	848	851	853	859	868	876	898	901	876	848	836
25 D	839	849	837	822	823	834	834	840	845	845	844	841	849	840	865	894	978	808	665	915	835	904	978	939	855
26 D	1179	1084	1041	901	904	891	906	898	884	878	885	896	887	876	891	898	883	879	866	862	869	873	863	858	911
27	855	854	854	853	849	848	846	848	854	853	852	853	849	846	854	882	866	856	872	860	862	862	850	832	855
28	836	842	845	843	834	838	839	839	838	840	840	841	849	844	858	850	845	843	841	842	852	858	856	850	844
29	848	848	842	837	831	797	803	819	827	829	836	844	834	830	835	839	839	839	838	837	866	765	769	767	830
30 Q	812	815	816	824	832	834	831	832	831	832	834	833	832	834	836	838	839	839	840	870	896	878	862	845	839
31	833	828	831	835	834	833	829	827	830	827	828	829	831	837	846	879	927	916	870	845	821	607	767	823	831
Mean	821	824	814	806	807	807	819	827	832	833	839	836	846	847	856	863	867	865	863	867	860	847	833	817	838

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −29γ.

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS
MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

8 LERWICK JANUARY, 1938

Day	Terrestrial Magnetic Elements																		HR_H+VR_V §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force					Declination						Vertical Force									
	Maximum 14,000 γ +		Minimum 14,000 γ +		Range	Maximum 12° +		Minimum 12° +		Range		Maximum 46,000 γ +		Minimum 46,000 γ +		Range					
	h m	γ	h m	γ	γ	h m	′	h m	′	′		h m	γ	h m	γ	γ					
1	0 0	435	3 56	401	34	18 25	47·6	21 25	29·4	18·2		21 13	871	0 0	772	99		512	1	76·6
2	19 57	439	14 46	387	52	13 53	48·5	21 33	33·7	14·8		15 12	856	4 20	818	38		253	1	76·8
3	19 5	457	15 12	387	70	0 19	48·4	19 0	26·2	22·2		18 34	877	0 39	801	76		457	1	76·7
4	14 40	438	24 0	337	101	13 37	56·3	20 53	3·0	53·3		14 20	946	4 37	794	152		856	1	76·9
5 Q	21 15	420	0 6	330	90	0 38	48·4	3 0	34·8	13·6		9 57	832	0 25	733	99		593	0	77·1
6	17 41	480	13 46	393	87	16 50	49·1	17 56	31·5	17·6		17 40	991	12 16	814	177		953	1	77·1
7	20 35	481	23 47	321	160	15 20	58·6	19 15	13·5	45·1		18 44	928	23 43	783	145		909	1	76·5
8	1 34	438	3 14	264	174	6 16	53·9	2 37	14·8	39·1		21 38	852	5 0	714	138		897	1	76·6
9	7 32	428	2 36	283	145	2 27	50·8	0 3	19·1	31·7		20 0	834	2 39	700	134		836	1	76·5
10 Q	20 54	42	13 10	395	33	13 11	44·9	2 55	35·8	9·1		20 32	832	5 27	809	23		156	0	76·4
11 Q	8 32	426	12 20	400	26	13 14	46·7	0 39	35·3	11·4		21 5	848	12 48	813	35		201	0	76·2
12	18 24	663	23 59	309	354	18 13	71·4	22 48	14·1	57·3		18 58	1090	23 59	699	391		2340	2	76·2
13	20 4	437	3 23	141	296	5 5	61·5	3 19	8·8	52·7		18 36	883	4 33	571	312		1886	1	76·2
14 Q	21 47	424	14 18	384	40	13 35	49·7	21 36	33·4	16·3		14 20	853	7 5	811	42		255	0	76·6
15	22 58	459	13 20	391	68	13 0	47·4	19 23	22·0	25·4		21 25	852	23 8	770	82		482	1	76·8
16 D	23 13	677	12 32	391	286	23 57	84·7	22 38	17·1	67·6		17 2	956	22 56	688	268		1666	1	77·0
17 D	15 58	1289	2 17	-221	1510	16 0	132·4	21 50	-5·7	138·1		12 53	1140	16 0	252	888		6330	2	77·0
18	18 30	594	4 18	271	323	19 5	56·5	16 58	16·8	39·7		16 54	1046	22 41	726	320		1963	1	76·3
19	17 57	668	0 11	310	358	18 4	57·8	17 59	12·8	4 ·5		16 12	1040	0 6	742	298		1911	1	76·0
20	18 29	505	23 52	315	190	18 53	50·8	19 8	18·2	32·6		21 2	942	20	745	197		1196	1	76·6
21	21 28	480	23 24	198	282	21 56	54·5	17 34	20·3	34·2		14 14	979	23 30	618	361		2095	1	77·4
22 D	17 23	880	9 43	-88	968	17 26	80·8	9 48	-54·9	135·7		9 39	1177	17 25	534	643		4403	2	77·8
23	20 39	398	23 42	306	92	1 30	47·6	20 15	18·2	29·4		20 10	873	23 54	755	118		684	1	77·9
24	2 40	446	2 56	322	124	22 39	49·5	0 4	19·6	29·9		20 55	915	1 45	721	194		1087	1	78·7
25 D	17 46	1103	22 9	-68	1171	18 10	181·7	19 7	-16·8	198·5		21 54	1278	17 55	291	987		6305	2	78·8
26 D	14 28	445	1 5	-816	1261	1 17	99·7	0 55	-31·3	131·0		0 19	1405	841	0 6	564		4456	2	78·7
27	18 45	427	8 33	350	77	13 14	45·1	18 43	26·2	18·9		15 37	893	844	13 19	49		340	1	77·7
28	19 17	416	14 25	368	48	13 26	47·7	21 7	23·2	24·5		14 39	853	833	4 40	30		209	1	76·6
29	19 24	422	22 31	189	23	22 24	60·7	23 3	11·1	49·6		20 55	892	707	22 29	185		1202	1	76·6
30 Q	18 26	424	2 53	371	53	2 34	49·4	0 19	32·1	17·3		20 23	905	791	0 0	114		610	1	76·0
31	21 4	535	21 36	68	467	20 36	69·7	21 12	-22·6	92·3		17 9	943	507	21 27	436		2712	2	75·4
Mean	-- --	534	-- --	238	296	-- --	63·0	-- --	14·2	48·8		-- --	955	710	-- --	245		1573	1·06	76·9
No. of Days Used	-- --	31	-- --	31	31	-- --	31	-- --	31	31		-- --	31	31	-- --	31		31	31	31

§ For explanation see p. 21.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

9 LERWICK (H) — 14,000γ (·14 C.G.S.unit) + — FEBRUARY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	397	389	391	390	390	400	394	398	398	396	392	394	398	384	386	409	399	404	402	405	411	393	381	400	396
2	379	382	373	378	391	398	405	405	399	389	393	390	393	396	392	394	401	408	410	409	405	399	402	408	396
3	399	412	396	394	393	399	397	393	396	383	395	396	400	388	398	411	434	412	403	408	405	396	399	401	400
4	404	388	391	396	404	404	399	400	399	397	399	393	388	397	403	406	406	410	407	402	407	403	408	415	401
5	403	399	388	398	402	401	406	412	416	402	388	392	401	403	406	416	418	417	412	416	414	415	413	409	406
6 D	411	408	410	430	445	354	385	408	396	385	374	364	369	381	392	433	510	490	526	461	473	387	369	327	412
7	344	362	332	375	385	388	393	400	402	395	396	404	403	380	402	409	400	402	405	404	405	410	408	408	392
8 D	403	404	402	406	408	410	415	413	405	403	397	392	395	399	412	454	541	888	820	701	569	382	351	347	463
9 D	276	328	304	320	322	282	349	390	381	379	367	380	378	405	444	396	433	414	418	401	397	409	405	400	374
10 D	392	379	375	212	327	314	374	395	402	398	386	387	381	374	376	382	390	390	396	399	400	398	397	401	376
11	386	347	303	359	346	318	278	332	345	361	366	372	373	374	388	405	394	404	401	397	401	403	400	397	369
12	398	398	398	401	403	408	403	402	402	383	384	379	379	396	381	387	399	403	407	406	404	401	402	392	397
13	381	382	371	408	414	416	413	417	410	387	366	359	371	377	389	395	409	405	404	416	424	430	419	422	399
14 D	401	405	410	412	416	415	419	414	389	356	359	370	354	458	498	486	522	637	454	410	379	361	361	369	419
15 Q	378	381	385	385	385	388	388	385	382	374	365	356	354	362	371	381	386	389	396	399	402	401	403	401	383
16 Q	400	399	399	401	405	406	405	403	399	381	371	361	362	369	380	393	401	404	407	405	407	408	405	399	395
17	404	406	407	408	410	412	411	406	402	390	379	375	373	379	390	400	408	410	414	412	415	416	415	410	402
18	420	414	412	420	410	416	417	417	404	394	390	382	380	389	394	401	408	413	413	412	412	412	410	422	407
19 Q	412	407	408	411	413	413	413	409	403	394	387	385	385	391	396	399	404	407	410	412	415	414	417	418	405
20 Q	416	416	416	416	416	416	421	409	408	398	390	385	391	392	406	411	408	410	413	414	415	417	418	418	409
21	419	416	416	418	420	421	417	416	417	401	393	387	385	395	402	404	410	413	415	416	416	417	417	416	410
22 Q	417	416	416	416	416	416	415	414	413	405	394	388	388	393	402	405	406	412	417	414	418	414	406	414	409
23	418	416	409	418	427	428	439	431	424	414	397	394	405	415	415	436	422	411	415	419	416	410	419	406	417
24	410	409	408	408	409	405	400	410	405	401	393	388	393	400	400	408	410	417	420	414	419	416	405	406	406
25	414	410	411	413	413	413	414	414	410	396	394	388	402	406	417	430	443	464	447	467	396	411	409	406	416
26	402	403	408	407	405	407	412	411	408	404	398	395	385	389	402	409	408	406	415	400	408	414	363	417	403
27	415	412	408	403	408	413	412	411	406	396	388	386	385	400	380	396	406	416	409	417	418	417	410	399	405
28	412	407	398	410	407	396	401	414	404	389	385	385	387	393	402	409	422	423	429	422	427	403	371	378	403
Mean	397	396	391	393	400	395	400	405	401	391	385	383	384	392	401	409	421	439	432	423	417	406	399	400	403

Corrections to be applied to all values: H, −6γ; D, −4·0′; V. −26γ.

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the exact hours of Greenwich Mean Time

10 LERWICK (1) — 12° + — FEBRUARY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	37·3	38·0	38·1	37·5	38·7	39·5	39·0	38·5	38·1	39·0	39·5	41·9	44·7	47·0	44·6	43·3	42·7	40·7	42·6	42·4	35·6	28·3	32·1	33·9	39·3
2	29·1	32·6	34·9	32·3	35·0	37·2	36·9	39·4	38·5	37·8	41·5	43·2	41·9	45·2	42·9	41·9	39·7	40·9	42·5	44·4	41·5	37·6	37·1	36·7	38·8
3	32·6	25·9	32·4	35·7	34·9	39·1	38·7	42·5	39·5	39·1	38·9	42·2	45·4	43·7	44·2	44·5	32·0	40·2	42·1	35·7	36·6	36·9	37·6	35·8	38·2
4	35·2	30·0	36·4	38·2	39·1	37·9	38·0	39·6	39·7	38·9	40·7	42·5	43·0	45·4	46·1	37·9	43·0	43·1	39·3	31·8	37·9	38·8	38·3	35·4	39·0
5	34·5	33·1	32·8	38·4	36·8	37·5	38·3	36·5	36·1	37·0	39·4	42·6	45·7	46·1	45·8	44·6	45·0	44·1	42·9	40·6	40·8	39·1	38·5	38·0	39·8
6 D	34·8	34·4	37·9	41·2	37·4	39·7	35·1	31·4	36·2	36·5	39·8	41·8	45·6	45·7	44·4	49·1	53·6	42·8	40·1	24·6	41·4	31·1	28·8	31·8	38·5
7	34·9	23·5	32·5	38·3	39·3	37·5	37·4	37·1	37·2	37·7	40·2	44·6	45·7	43·9	44·1	45·6	40·8	40·2	39·5	36·6	36·3	38·3	37·8	37·7	38·6
8 D	39·2	40·0	40·5	41·1	41·3	39·4	38·3	38·8	40·0	38·0	38·8	40·6	43·1	43·1	44·6	46·9	53·3	29·1	48·1	49·2	30·1	24·6	33·3	40·3	40·1
9 D	43·6	40·0	37·8	29·3	40·1	42·0	40·1	42·2	38·8	35·6	36·1	39·2	42·5	44·8	47·0	45·2	49·1	34·3	33·4	38·8	38·6	39·2	38·8	35·6	39·7
10 D	36·5	34·6	34·1	24·3	19·6	35·0	43·8	39·4	35·3	35·8	38·2	41·8	42·7	41·9	40·4	40·3	38·6	37·0	38·1	39·1	39·4	38·4	37·4	36·5	37·0
11	33·9	29·5	22·7	23·9	22·7	37·5	34·4	46·9	42·9	42·4	39·5	40·3	43·4	44·4	44·8	44·6	41·7	39·4	38·3	39·8	40·6	39·9	39·7	39·3	38·0
12	39·4	39·7	39·9	39·4	38·6	37·8	38·7	38·1	37·2	38·5	40·6	40·6	42·4	46·2	45·0	45·1	43·4	41·8	41·4	40·9	40·4	36·3	36·7	35·4	40·1
13	37·2	41·3	45·1	39·0	38·3	37·3	37·6	37·4	37·7	36·6	40·7	43·8	48·5	48·7	45·7	44·9	43·8	42·5	40·3	35·6	35·3	33·1	37·9	40·4	40·4
14 D	38·4	38·3	42·9	37·7	38·7	43·1	43·7	45·8	39·2	40·6	44·4	46·3	44·0	46·9	43·3	44·3	38·6	36·9	37·6	39·7	39·1	38·3	38·6	38·3	41·0
15 Q	37·9	38·8	38·7	38·5	38·1	37·8	37·5	37·0	36·6	36·6	38·0	40·1	41·7	43·0	42·6	42·0	40·7	39·6	39·9	39·7	39·1	38·9	38·4	38·9	39·2
16 Q	38·3	39·4	39·8	39·6	38·7	38·4	37·6	37·1	35·9	34·6	36·0	39·9	42·7	43·5	42·7	41·5	40·8	40·8	40·5	40·3	40·2	39·5	36·8	33·9	39·1
17	37·7	39·5	39·0	38·7	38·6	38·4	38·4	40·0	40·4	38·7	38·9	41·0	43·3	44·1	43·5	42·6	41·7	41·2	40·7	40·9	40·3	39·9	38·6	38·3	40·2
18	36·8	39·2	39·4	39·2	37·6	37·9	37·4	38·1	37·9	37·3	39·6	42·0	43·1	46·0	45·2	42·0	41·1	40·5	40·7	40·6	40·0	39·2	38·5	38·1	39·9
19 Q	36·7	39·3	40·2	38·8	38·5	38·1	37·7	37·2	36·1	35·6	37·2	39·9	42·0	43·0	42·4	41·5	41·6	41·3	41·0	40·7	40·6	38·8	40·0	40·0	39·5
20 Q	39·7	39·5	39·1	38·8	38·7	38·7	37·8	40·0	38·1	36·5	38·4	41·1	45·6	46·2	44·7	44·2	42·4	41·3	40·6	40·6	40·5	40·2	40·3	40·0	40·5
21	39·9	39·7	39·5	39·3	39·2	38·7	38·4	37·9	37·2	37·4	38·8	40·9	42·2	43·5	43·3	42·6	41·9	40·7	40·8	41·1	40·7	40·4	40·3	39·9	40·2
22 Q	39·7	39·5	39·6	39·1	38·6	38·3	37·9	37·5	36·6	36·3	37·7	40·2	42·1	43·8	44·4	43·2	41·7	40·6	41·0	41·9	41·1	39·2	35·4	36·4	39·7
23	37·1	32·8	29·7	33·7	36·7	39·3	40·7	37·8	37·3	37·1	38·4	40·4	45·5	49·7	52·5	53·3	47·7	44·1	45·1	43·6	41·0	38·0	30·6	30·7	40·1
24	33·8	38·6	39·3	38·4	36·5	36·7	42·5	42·0	41·6	38·3	38·8	40·9	42·0	43·7	43·5	42·9	42·4	41·5	36·8	40·3	41·8	37·6	33·1	38·5	39·6
25	38·3	38·5	38·8	39·2	39·0	38·3	37·8	37·9	37·1	38·0	39·9	43·7	47·3	48·6	52·1	52·6	55·9	53·6	46·0	43·1	33·6	38·2	39·3	39·0	42·3
26	38·4	39·8	37·7	36·5	38·1	37·4	37·8	37·4	37·1	38·3	39·7	44·8	47·2	45·9	47·8	47·7	49·0	45·6	39·3	33·6	39·0	37·8	37·6	34·9	40·3
27	38·5	38·7	38·3	40·4	38·3	38·2	37·1	37·0	36·5	36·7	38·1	42·2	44·6	49·3	47·5	45·7	42·2	36·9	34·0	41·5	42·2	38·7	26·0	33·6	39·3
28	38·1	36·2	41·1	31·8	30·9	33·4	40·7	39·3	39·3	37·5	38·9	43·5	45·2	46·3	46·2	45·7	44·2	43·1	43·6	43·9	24·6	26·6	33·1	29·2	38·4
Mean	37·1	36·4	37·4	36·7	36·7	38·2	38·5	38·9	38·0	37·6	39·2	41·9	44·0	45·3	45·0	44·5	43·5	40·9	40·6	39·7	38·5	36·9	36·5	36·7	39·5

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

11 LERWICK (V) 46,000 γ (·46 C.G.S. Unit) + FEBRUARY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	852	856	851	846	840	838	838	837	837	838	841	839	849	867	874	870	863	856	848	848	871	855	852	824	850
2	797	824	826	798	809	820	821	822	826	830	830	833	839	842	844	850	850	844	844	852	858	862	856	847	834
3	845	818	801	821	823	806	797	799	801	816	823	831	836	842	851	864	884	868	871	859	839	845	835	818	833
4	801	803	820	830	836	836	834	832	831	833	834	833	834	833	847	871	851	846	853	859	844	841	835	819	836
5	797	799	790	792	811	821	822	826	827	823	823	820	821	827	838	842	839	842	853	855	847	838	838	837	826
6 D	836	833	828	816	797	736	610	710	775	811	824	835	842	845	845	845	950	986	938	883	931	875	836	788	832
7	801	795	762	794	832	838	843	840	841	844	840	838	854	865	854	851	851	850	853	853	845	835	834	828	835
8 D	823	822	823	822	821	822	823	825	827	828	831	831	826	823	819	821	886	1024	886	936	814	692	787	803	834
9 D	745	756	732	675	670	696	765	772	810	823	844	858	874	896	918	881	870	913	895	892	870	851	844	832	820
10 D	826	771	769	658	576	616	657	747	811	830	837	843	849	853	845	840	841	850	848	846	844	843	840	823	794
11	812	769	661	600	613	663	673	769	814	832	850	853	848	850	852	865	873	872	873	858	843	837	834	832	798
12	825	831	832	831	832	828	826	822	824	826	824	829	833	843	854	846	840	838	838	843	850	857	840	817	835
13	806	797	790	815	826	825	827	823	825	835	839	837	839	856	864	859	862	863	852	844	823	819	821	826	832
14 D	813	796	788	804	814	812	788	793	804	813	821	829	864	913	931	952	976	951	913	932	890	850	829	833	856
15 Q	835	839	842	842	842	842	840	840	839	838	837	840	840	839	839	842	842	842	837	837	837	836	832	832	839
16 Q	828	831	835	837	837	837	837	836	837	842	842	839	837	836	838	837	838	838	836	834	832	832	833	829	836
17	825	829	832	835	835	834	832	829	826	828	827	825	825	824	827	830	832	832	832	835	832	829	826	819	829
18	808	817	823	814	821	823	826	827	832	832	831	832	829	829	839	845	843	841	837	834	831	830	828	817	829
19 Q	815	819	821	826	827	829	829	829	829	827	826	823	822	821	822	826	828	829	829	829	829	830	826	823	826
20 Q	824	824	825	826	826	825	820	821	821	822	820	817	814	823	827	831	831	828	827	827	827	826	824	823	824
21	821	822	823	822	823	825	826	825	825	824	820	820	816	817	818	821	824	826	825	826	825	825	825	824	823
22 Q	823	822	822	822	822	823	825	826	826	825	820	816	816	814	816	823	827	827	826	831	829	829	830	822	823
23	813	787	777	786	795	803	793	803	811	817	822	820	818	823	829	843	870	860	855	863	867	861	828	806	823
24	804	815	821	823	823	820	807	797	803	813	820	823	825	826	831	831	828	828	832	830	827	834	844	836	823
25	819	823	825	824	823	821	820	819	820	822	820	814	812	818	827	851	888	926	897	887	856	849	841	835	839
26	832	812	821	823	827	827	823	825	825	824	825	823	830	830	836	847	859	875	878	870	846	832	758	767	830
27	812	823	826	815	818	821	822	823	826	827	826	824	825	828	841	846	845	849	852	842	846	856	842	834	832
28	823	805	774	750	786	799	770	788	803	806	811	814	822	830	837	838	842	838	832	843	853	786	774	743	807
Mean	816	812	805	798	800	803	800	811	821	826	829	830	834	840	845	849	858	866	856	855	847	834	828	819	828

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −26γ.

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS
MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

12 LERWICK FEBRUARY, 1938

Day	Terrestrial Magnetic Elements																					HR_H+VR_V / 10,000γ² §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force							Declination						Vertical Force										
	Maximum 14,000 γ			Minimum 14,000 γ			Range	Maximum 12° +			Minimum 12° +			Range	Maximum 46,000 γ +			Minimum 46,000 γ +			Range			
	h	m	γ	γ	h	m	γ	h	m	′	′	h	m	′	h	m	γ	γ	h	m	γ			°A
1	23	37	467	334	23	51	133	23	46	49·1	21·9	22	16	27·2	20	37	889	772	23	44	117	740	1	75·3
2	23	57	417	356	2	52	61	13	39	47·3	25·0	0	6	22·3	21	6	870	773	0	7	97	542	1	75·3
3	16	35	476	373	13	20	103	12	43	48·3	19·7	16	32	28·6	16	23	902	794	2	1	108	653	1	75·5
4	23	27	432	368	14	59	64	13	54	47·4	28·6	1	21	20·8	15	32	874	792	0	58	82	476	1	76·0
5	8	11	421	385	2	36	36	12	37	49·8	31·2	2	9	18·6	19	0	863	780	2	40	83	440	0	76·7
6 D	18	35	751	254	5	33	497	18	40	62·8	2·8	19	18	60·0	16	58	1038	592	6	7	446	2803	2	76·6
7	15	40	461	271	0	24	190	15	45	50·6	14·3	1	14	36·3	15	45	879	753	2	30	126	864	1	76·6
8 D	18	5	1000	258	24	0	742	20	56	70·6	−5·2	21	5	75·8	17	31	1107	569	20	54	538	3586	2	76·7
9 D	14	16	461	205	0	10	256	0	8	65·1	18·8	3	42	46·3	14	15	923	653	3	50	270	1633	1	77·0
10 D	0	55	433	38	3	41	395	12	29	50·1	5·1	4	20	45·0	12	55	859	553	4	28	306	2001	2	77·0
11	17	52	413	178	6	5	235	7	47	50·6	16·6	4	28	34·0	18	29	879	569	4	5	310	1789	1	76·4
12	17	59	412	375	12	0	37	13	35	47·9	32·8	23	44	15·1	21	32	864	804	23	57	60	334	0	75·7
13	21	48	439	348	11	45	91	13	44	53·2	27·6	21	20	25·6	17	21	869	785	2	22	84	524	1	75·6
14 D	17	52	968	324	12	11	644	18	22	57·4	10·6	17	51	46·8	16	13	1021	772	2	38	249	2092	2	75·1
15 Q	22	54	407	352	11	26	55	13	28	43·6	34·6	8	20	9·0	3	33	844	827	24	0	17	159	0	75·0
16 Q	21	28	411	356	11	55	55	13	28	44·4	32·4	23	29	12·0	10	35	843	826	0	10	17	159	0	75·3
17	22	34	422	365	12	14	57	13	10	44·6	36·8	0	7	7·8	19	40	836	811	24	0	25	199	0	75·9
18	23	36	440	374	11	56	66	12	56	48·9	35·0	9	3	13·9	15	20	847	803	0	25	44	301	0	76·3
19 Q	0	0	420	383	12	18	37	13	45	43·3	34·9	9	13	8·4	21	27	834	809	0	0	25	170	0	76·7
20 Q	23	51	426	383	11	28	43	12	35	47·4	35·8	9	43	11·6	16	9	833	811	12	37	22	165	0	76·8
21	8	8	423	382	12	24	41	13	43	44·1	35·9	8	7	8·2	9	33	828	815	12	46	13	120	0	76·8
22 Q	20	52	422	385	12	0	37	14	44	44·8	34·2	22	20	10·6	22	4	834	813	14	5	21	151	0	76·9
23	6	24	450	392	11	36	58	14	44	56·2	19·6	22	33	36·6	16	46	888	769	2	28	119	641	1	76·8
24	18	23	430	382	11	33	48	13	55	46·4	29·6	22	8	16·8	22	51	848	794	7	34	54	322	1	76·5
25	19	27	680	349	19	48	331	17	10	61·8	16·6	19	33	45·2	19	24	1000	781	19	45	219	1502	1	76·3
26	18	43	428	325	22	38	103	16	23	50·0	24·6	19	32	25·4	18	30	901	726	22	37	175	967	1	76·8
27	21	59	439	374	14	25	65	13	7	51·8	22·8	22	20	29·0	22	16	860	798	0	0	62	384	1	77·7
28	21	4	444	335	23	5	109	13	30	49·4	11·6	20	44	37·8	20	17	882	705	23	57	177	985	1	78·2
Mean	--	--	493	329	--	--	164	--	--	51·0	23·3	--	--	27·7	--	--	890	752	--	--	138	882	0·79	76·3
No. of Days Used	--	--	28	28	--	--	28	--	--	28	28	--	--	28	--	--	28	28	--	--	28	28	28	28

§ For explanation see p. 21.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

13 LERWICK (H) 14,000 γ (·14 C.G.S.Unit) + MARCH, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 D	335	328	386	379	382	400	405	411	402	391	385	393	386	412	450	436	427	436	423	436	401	399	406	398	400
2	384	386	410	407	410	405	402	399	384	393	392	386	388	397	399	410	416	416	417	418	410	409	406	412	402
3	413	410	412	407	402	409	410	415	414	402	392	385	384	392	403	400	405	405	410	417	414	417	419	419	407
4	417	415	414	412	409	414	418	417	409	406	394	388	388	396	402	407	410	410	420	418	413	415	427	427	410
5 D	396	411	408	406	408	416	414	408	409	406	417	391	393	424	457	571	718	765	735	505	390	401	385	354	458
6	380	329	199	376	389	393	402	395	367	379	388	379	383	386	391	395	401	416	419	405	308	412	396	393	383
7	400	391	398	402	402	409	399	399	401	402	388	380	382	406	427	444	430	413	406	409	413	409	407	402	405
8	403	408	403	399	406	408	403	405	407	402	390	379	376	390	399	405	408	411	416	416	413	412	416	406	403
9	409	410	410	409	408	405	410	413	411	405	396	385	385	392	398	402	410	418	427	420	417	423	408	412	408
10 Q	411	413	412	412	414	414	415	413	407	397	385	375	372	379	392	403	413	417	420	425	426	421	424	424	408
11	424	422	421	420	418	419	419	416	409	394	386	387	391	395	403	412	411	419	421	418	423	416	420	425	412
12	403	412	420	415	411	423	419	421	413	403	395	388	389	396	430	429	415	415	414	417	419	416	416	419	412
13	419	417	417	414	412	410	410	408	402	391	388	384	384	383	396	407	412	413	416	422	423	423	426	420	408
14	424	422	416	404	419	424	430	416	402	385	377	384	367	381	400	406	416	419	423	419	411	416	422	423	409
15	425	407	406	405	406	415	421	410	401	397	374	363	374	403	395	402	409	421	416	420	420	413	416	416	406
16 Q	416	415	413	413	415	416	417	411	400	382	373	363	370	383	397	405	398	406	415	425	423	428	425	424	406
17	422	421	435	414	414	418	422	414	396	379	365	360	362	373	389	402	405	415	420	422	420	420	422	425	406
18 Q	430	421	418	420	420	419	420	421	412	392	374	367	370	383	396	406	413	420	424	430	429	430	428	427	411
19 Q	425	424	423	423	422	423	418	418	407	388	370	360	360	371	384	400	412	418	420	425	426	427	427	426	408
20 Q	424	423	422	422	423	423	422	417	405	388	375	372	370	381	394	409	416	420	424	427	430	432	427	420	411
21	421	421	416	418	421	422	423	417	405	390	381	382	389	403	399	408	422	436	430	433	436	429	453	416	415
22 D	408	402	373	391	424	412	330	369	354	338	374	394	398	512	455	464	448	466	457	443	407	383	356	223	399
23 D	284	356	244	350	364	314	299	359	365	307	350	355	359	371	384	393	416	446	497	475	417	323	155	122	346
24 D	116	40	94	98	172	177	200	233	282	354	365	356	364	386	378	394	395	405	406	405	408	402	405	389	301
25	393	396	399	394	397	397	401	405	389	385	377	364	377	382	395	416	446	427	425	428	408	358	306	318	391
26	278	-52	308	398	406	405	401	394	382	378	382	379	373	420	412	441	463	476	457	414	400	382	379	395	378
27	389	379	382	401	403	405	402	395	385	374	365	362	371	382	391	397	400	403	413	421	429	412	408	409	395
28	408	408	406	395	408	411	411	407	394	376	370	371	375	389	405	412	415	420	424	423	416	418	419	427	405
29	417	414	415	412	412	412	409	402	385	370	358	366	366	386	417	418	461	461	487	423	416	409	409	410	410
30	412	412	410	407	409	405	405	398	384	364	358	363	378	392	403	408	410	413	417	420	421	420	424	422	402
31	421	420	420	420	420	418	416	405	387	368	351	352	368	389	408	418	420	425	428	431	432	426	417	416	407
Mean	391	377	384	395	401	401	399	400	393	383	379	375	377	395	405	417	427	434	436	426	417	410	402	394	401

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −21γ.

MAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

14 LERWICK (D) 12° + MARCH, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1 D	29·5	31·2	27·5	30·2	34·3	33·4	38·0	36·7	34·8	35·6	37·9	43·1	45·3	49·9	50·6	47·6	44·6	38·2	41·6	29·6	35·2	33·6	30·5	38·6	37·4
2	39·3	41·6	38·8	37·7	36·4	36·9	37·5	38·7	41·3	40·7	40·3	41·9	43·8	44·2	43·8	43·2	42·0	41·6	41·2	41·4	39·7	36·7	36·6	39·5	40·2
3	38·4	38·2	39·5	34·7	34·9	34·9	36·1	35·7	36·0	37·5	39·5	41·8	44·9	46·7	47·7	46·0	43·3	40·5	37·6	38·0	39·1	39·4	39·3	39·4	39·5
4	39·0	38·7	38·7	38·3	39·5	38·4	37·6	37·5	36·7	36·1	37·8	40·3	43·0	45·7	45·9	45·7	45·0	42·7	41·6	38·0	33·5	36·9	39·3	33·7	39·6
5 D	39·3	37·0	37·6	36·6	36·9	36·3	34·0	35·6	40·7	38·1	39·7	44·0	49·7	52·6	56·7	60·6	69·6	58·8	53·1	45·6	33·1	32·4	36·4	40·3	43·5
6	31·4	24·8	24·6	29·7	30·2	33·5	33·2	34·5	36·1	38·6	41·6	42·7	44·5	44·3	44·5	43·3	41·6	41·0	42·3	39·7	42·1	37·6	31·6	35·8	37·1
7	36·9	38·7	37·1	37·2	36·8	36·5	38·0	39·1	38·6	37·8	39·5	41·5	45·5	50·1	49·5	48·8	49·7	45·6	41·6	39·9	39·9	39·5	37·6	38·0	41·0
8	36·3	36·3	36·2	36·4	35·7	34·6	36·0	36·8	36·4	37·0	38·7	41·7	44·1	47·0	47·8	46·1	43·7	41·7	41·8	41·8	41·9	40·0	32·1	35·9	39·4
9	37·5	38·3	37·7	37·3	36·8	37·4	37·7	36·9	36·2	36·0	37·3	40·1	44·7	46·6	47·0	45·2	42·9	41·1	40·2	42·2	41·3	40·5	35·0	36·2	39·7
10 Q	36·5	36·9	37·7	38·1	38·4	38·3	38·0	37·7	36·6	36·7	38·6	41·3	44·1	45·0	45·3	43·4	42·0	41·7	41·4	41·6	41·2	40·8	40·0	39·4	40·0
11	39·3	39·0	38·7	38·3	37·9	37·2	37·2	36·5	35·6	36·4	38·9	41·8	44·5	44·8	44·3	43·0	41·3	40·7	39·9	40·3	40·1	38·7	36·0	34·6	39·4
12	26·8	33·8	37·5	34·1	36·0	34·1	32·2	34·8	34·3	35·9	39·3	44·0	47·1	48·9	52·3	47·6	41·1	40·6	42·3	41·4	40·8	39·8	38·7	39·4	39·3
13	39·6	39·4	39·3	38·9	38·8	37·4	36·6	35·7	35·2	36·4	39·4	43·0	45·3	44·7	44·8	42·7	41·6	41·6	41·6	41·3	40·6	39·9	40·1	40·6	40·2
14	32·8	35·5	36·7	42·6	39·5	36·0	36·6	39·3	38·8	41·9	42·1	48·4	47·7	48·7	48·4	44·8	41·7	40·8	40·4	40·3	35·1	38·2	39·5	40·3	40·7
15	32·4	37·4	39·7	38·5	42·2	37·7	36·6	34·6	33·5	36·3	39·7	45·8	48·4	47·8	48·2	44·4	41·1	38·5	37·7	37·4	35·0	37·8	39·8	40·1	39·6
16 Q	40·0	40·2	39·9	38·4	37·6	36·8	36·4	35·2	34·4	34·7	38·8	42·6	45·7	47·0	46·2	43·1	40·6	40·8	40·4	39·7	39·3	37·6	39·2	38·7	39·7
17	39·5	40·7	38·2	36·4	37·1	36·8	36·2	36·1	34·4	34·4	38·6	42·6	45·8	48·4	48·5	45·3	41·6	40·4	41·1	40·8	39·6	39·5	39·6	39·6	40·1
18 Q	38·2	38·6	39·0	38·3	37·7	37·0	36·5	35·6	35·0	35·5	37·6	41·6	45·3	47·1	46·3	44·3	42·2	40·6	40·3	39·7	40·3	40·6	40·2	39·7	39·9
19 Q	39·5	39·1	38·6	38·1	37·6	37·2	37·4	36·0	34·0	33·7	37·5	40·7	43·6	45·5	46·2	44·9	42·8	41·6	41·2	40·7	40·3	40·2	39·8	39·7	39·8
20 Q	39·4	38·6	38·5	37·6	37·3	36·6	36·1	35·1	33·8	33·7	36·4	41·1	45·2	47·2	46·4	44·4	42·4	41·6	41·5	40·9	40·5	40·9	39·6	38·7	39·7
21	37·3	34·2	35·4	36·6	36·8	36·4	35·4	33·6	32·4	33·5	36·9	42·3	46·7	48·8	47·0	44·7	42·3	41·2	41·3	40·9	41·1	36·6	39·1	31·3	38·8
22 D	34·7	34·7	40·0	35·9	35·4	38·6	51·1	48·8	39·4	38·8	46·7	46·7	50·1	53·2	50·6	52·9	44·9	44·3	44·2	44·6	44·5	37·8	33·6	17·5	42·0
23 D	16·1	13·6	27·6	22·8	25·4	28·5	35·6	36·2	36·3	35·4	40·0	41·6	43·9	44·8	43·5	40·9	40·1	41·8	43·9	33·9	31·6	34·8	24·6	26·6	33·7
24 D	-0·7	1·2	-9·2	13·2	32·6	36·7	49·7	50·5	37·1	35·4	39·7	42·4	44·2	42·8	41·8	40·2	39·4	40·1	39·9	39·8	40·8	36·2	32·0	36·9	33·4
25	37·0	35·3	36·3	34·1	35·0	34·1	34·4	34·8	35·0	35·6	38·9	43·2	44·9	45·4	45·0	42·8	35·6	38·8	36·3	33·1	37·6	21·8	25·7	23·4	36·0
26	21·6	9·6	15·1	30·3	34·0	35·3	35·5	34·2	34·1	36·2	41·1	44·1	45·8	45·9	44·8	46·0	43·2	40·3	40·7	37·9	38·2	39·7	37·5	35·8	36·1
27	35·6	39·5	36·2	36·6	36·0	35·5	34·9	33·7	33·0	34·1	37·7	41·5	43·8	44·8	43·7	41·2	39·5	39·3	39·5	39·4	36·3	37·1	38·9	38·7	38·2
28	38·2	38·4	34·6	36·4	34·7	33·9	33·4	32·6	32·6	34·8	38·8	43·4	45·1	45·2	44·2	42·0	40·7	40·5	40·4	40·5	40·8	41·0	40·2	37·5	38·7
29	35·1	36·4	36·1	36·1	36·0	35·7	34·7	32·5	32·2	33·9	37·1	43·2	46·1	46·8	47·8	44·6	45·1	42·6	39·6	39·8	40·6	39·9	39·4	39·4	39·2
30	38·9	38·6	38·4	38·9	38·7	36·7	35·3	33·1	34·0	35·9	39·8	43·7	45·7	45·7	43·6	41·0	39·6	39·8	40·5	40·2	39·9	39·7	39·7	39·6	39·5
31	38·5	38·4	38·1	37·7	37·0	36·1	34·6	32·1	30·7	32·4	36·0	40·6	44·3	45·9	45·0	42·8	41·1	39·9	40·5	40·7	40·4	38·9	37·1	37·9	38·6
Mean	34·3	34·3	34·5	35·4	36·2	36·0	36·9	36·5	35·5	36·1	39·1	42·7	45·4	46·8	46·7	45·0	43·0	41·6	41·1	39·7	39·0	37·9	36·7	36·5	39·0

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

15 LERWICK (V) 46,000 γ (·46 C.G.S.Unit) + MARCH, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 D	683	686	729	787	739	749	769	797	814	825	825	827	834	835	888	915	889	896	892	865	817	818	826	805	813
2	748	736	779	815	820	821	819	815	813	802	805	811	820	833	843	847	845	831	831	832	839	845	836	806	816
3	813	819	805	785	801	811	815	815	816	818	820	822	822	822	826	827	835	836	831	826	825	821	818	815	819
4	818	821	823	825	823	821	820	819	821	818	816	812	810	814	820	826	829	830	825	837	840	836	841	827	824
5 D	767	790	816	826	827	822	818	813	803	808	806	808	812	830	869	969	1026	1028	930	966	843	822	836	777	851
6	786	757	667	747	767	784	788	795	809	803	808	815	814	812	818	829	834	835	864	880	862	852	846	819	808
7	818	820	804	822	827	825	823	817	816	817	821	821	820	820	847	870	887	904	880	862	864	837	834	826	836
8	816	818	821	821	805	808	817	819	820	822	820	819	819	817	819	827	833	837	832	832	831	832	830	828	823
9	826	823	824	823	823	825	816	816	820	821	821	819	814	816	815	820	822	827	830	838	845	835	844	843	825
10 Q	832	823	821	818	816	819	820	821	822	820	818	815	817	818	817	818	818	818	819	820	821	825	822	821	820
11	821	820	820	819	819	817	816	816	817	817	814	811	813	813	815	818	821	820	823	829	822	820	820	795	817
12	788	800	811	818	812	774	780	794	809	816	814	814	820	825	827	854	881	845	827	821	821	822	821	821	816
13	821	822	822	820	820	819	818	817	817	816	817	820	823	825	822	821	817	816	816	816	817	818	818	811	819
14	785	794	800	793	786	803	806	811	811	818	817	817	829	823	837	836	831	826	822	824	833	825	817	810	815
15	792	808	808	805	805	808	811	817	819	816	820	825	831	841	843	842	838	840	841	830	820	817	817	818	821
16 Q	820	819	818	821	822	822	821	821	821	822	821	820	816	816	820	830	832	822	820	817	820	815	814	812	820
17	814	812	788	800	812	816	817	820	823	823	820	818	816	815	819	826	834	827	825	822	821	817	815	814	817
18 Q	806	812	817	820	821	820	817	817	817	817	814	809	805	805	810	815	816	817	817	817	817	813	814	813	814
19 Q	814	816	817	820	821	820	817	815	816	813	809	808	806	805	809	811	815	816	816	815	815	814	813	813	814
20 Q	813	813	815	817	817	817	817	821	822	820	814	807	805	806	808	811	812	812	813	815	814	812	815	817	814
21	809	803	810	813	815	816	817	820	821	814	810	803	800	803	813	816	817	822	827	823	820	827	803	772	812
22 D	767	774	749	726	764	782	763	736	764	788	812	859	879	917	923	899	905	900	909	904	898	868	831	727	827
23 D	697	744	738	737	749	735	690	758	802	850	843	833	829	823	824	829	831	851	898	902	734	709	633	609	777
24 D	515	614	521	573	593	632	614	694	759	819	864	850	839	843	841	847	840	835	832	833	831	846	836	828	754
25	818	800	798	797	810	818	827	830	838	851	850	846	846	837	836	840	855	849	851	838	812	737	663	632	812
26	628	665	697	779	817	824	830	832	832	828	825	845	853	853	857	855	890	917	919	894	864	816	788	808	821
27	808	743	758	793	806	812	819	830	836	836	832	828	827	830	831	831	828	826	823	825	825	826	827	827	818
28	826	820	811	815	808	815	817	820	823	825	821	818	819	820	822	825	824	823	826	827	829	826	823	806	820
29	809	820	822	825	825	822	822	826	827	827	825	816	817	815	820	823	826	872	942	908	856	837	828	827	835
30	828	830	830	829	821	825	826	826	824	827	827	825	825	827	828	831	830	825	822	821	821	822	821	822	826
31	823	825	826	826	826	826	826	827	828	826	824	815	808	808	814	820	822	821	820	819	818	821	823	823	821
Mean	784	789	786	797	801	803	802	809	815	820	821	821	822	825	832	840	845	846	846	844	828	820	812	799	817

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −21γ.

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS
MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

16 LERWICK MARCH, 1938

Day	Terrestrial Magnetic Elements																						HR_H+VR_V §	Magnetic Character of Day	Temperature in Magnet House
	Horizontal Force							Declination						Vertical Force											
	Maximum 14,000 γ +			Minimum 14,000 γ +			Range	Maximum 12° +			Minimum 12° +			Range	Maximum 46,000 γ +			Minimum 46,000 γ +			Range			
	h	m	γ	γ	h	m	γ	h	m	′	′	h	m	′	h	m	γ	γ	h	m	γ	10,000γ²	(0-2)	°A
1 D	19	36	484	259	0	44	225	14	18	55·4	7·7	19	34	47·7	15	14	949	630	0	54	319	1817	1	78·5
2	19	40	421	362	0	47	59	12	25	44·8	35·0	4	35	9·8	21	52	847	725	1	17	122	856	0	78·7
3	2	54	429	380	12	55	49	14	50	48·5	32·6	3	43	15·9	17	18	837	779	3	33	58	342	0	78·8
4	22	13	452	382	11	15	70	22	18	48·3	28·3	23	44	20·0	22	29	857	800	23	59	57	368	1	79·2
5 D	18	7	981	274	23	35	707	16	26	79·7	9·6	20	4	70·1	17	8	1101	694	18	5	407	2923	2	79·3
6	17	55	437	61	2	25	376	12	40	46·2	10·5	2	43	35·7	19	15	889	621	2	20	268	1795	1	79·4
7	15	5	453	376	11	3	77	16	34	51·7	34·9	0	11	16·8	17	35	910	798	2	26	112	635	1	79·2
8	22	20	424	370	12	8	54	14	15	48·3	29·9	22	17	18·4	17	0	837	800	4	35	37	251	0	78·9
9	21	20	436	382	11	46	54	14	51	47·6	31·1	22	6	16·5	23	6	850	813	12	45	37	251	0	78·9
10 Q	19	50	428	367	12	16	61	14	15	45·4	36·0	9	4	9·4	0	0	837	815	4	26	22	191	0	79·0
11	20	33	439	382	11	12	57	13	13	45·1	24·6	23	58	20·5	20	29	833	776	23	59	57	349	0	78·8
12	14	48	464	379	12	30	85	14	45	55·5	23·3	0	5	32·2	16	13	889	759	5	36	130	730	1	78·7
13	22	17	429	378	12	56	51	12	32	46·9	34·6	8	50	12·3	13	2	827	779	24	0	48	298	0	79·1
14	6	12	437	360	12	28	77	11	55	52·3	30·6	0	18	21·7	14	49	843	768	4	5	75	462	1	79·5
15	0	27	444	356	11	36	88	14	10	49·9	27·6	0	25	22·3	13	54	846	783	0	28	63	422	1	79·9
16 Q	21	34	434	360	11	18	74	13	30	47·4	33·2	9	27	14·2	18	20	835	811	23	9	24	219	0	79·9
17	2	5	442	354	10	53	88	14	18	49·5	33·6	8	32	15·9	16	45	836	784	2	17	52	370	0	79·9
18 Q	0	19	437	364	11	23	73	12	44	47·6	34·3	8	28	13·3	4	36	821	803	0	24	18	189	0	79·8
19 Q	19	47	428	357	11	52	71	14	40	46·3	32·6	9	13	13·7	4	45	821	805	13	20	16	177	0	79·9
20 Q	21	5	436	367	12	29	69	13	26	47·5	33·3	8	54	14·2	8	33	824	803	12	50	21	197	0	80·0
21	22	43	486	375	11	18	111	13	16	50·5	29·0	23	39	21·5	21	24	833	767	23	45	66	469	1	79·4
22 D	13	37	566	133	23	36	433	13	53	59·8	2·6	23	58	57·2	14	0	965	683	23	34	282	1944	2	79·2
23 D	19	33	549	-158	23	10	707	20	59	62·9	2·8	24	0	60·1	19	31	937	452	23	0	485	3288	2	79·1
24 D	22	12	430	-23	1	20	453	7	36	61·3	-14·5	2	28	75·8	10	45	882	359	1	5	523	3100	2	79·4
25	16	46	460	271	23	48	189	14	28	46·4	10·4	21	35	36·0	16	18	860	616	23	46	244	1414	1	79·7
26	17	58	500	-434	1	18	934	13	15	48·5	-32·4	1	17	80·9	17	44	938	455	1	11	483	3805	2	78·8
27	20	46	443	359	11	54	84	13	6	45·2	31·5	20	44	13·7	9	37	837	720	1	46	117	669	1	78·0
28	23	23	436	367	11	14	69	12	5	45·8	32·	8	10	13·7	20	34	830	800	23	35	30	239	0	77·3
29	18	29	499	355	10	41	144	14	21	49·4	30·9	8	48	18·5	18	57	965	803	0	0	162	965	1	77·3
30	22	49	426	356	10	45	70	12	57	46·4	31·3	7	5	15·1	3	50	833	818	4	27	15	171	0	78·0
31	20	5	436	337	10	43	99	13	51	46·3	30·3	8	35	16·0	8	46	829	806	12	59	23	251	0	78·1
Mean	--	--	470	284	--	--	186	--	--	50·5	23·1	--	--	27·4	--	--	871	730	--	--	141	928	0·68	79·0
No. of Days Used	--	--	31	31	--	--	31	--	--	31	31	--	--	31	--	--	31	31	--	--	31	31	31	31

§ For explanation see p. 21.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

17 LERWICK — 46,000 γ (·46 C.G.S.Unit) + — APRIL, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	422	419	417	417	419	419	414	402	384	369	363	368	375	388	405	421	422	420	436	427	430	427	429	429	409
2 Q	427	428	426	426	424	424	421	411	393	372	360	361	373	388	404	413	421	427	430	436	436	428	419	420	411
3	421	422	428	423	424	425	427	420	403	385	373	364	368	374	393	396	406	436	438	428	430	429	428	425	411
4	422	419	417	422	431	427	426	422	400	367	349	340	378	397	416	423	427	425	436	440	438	423	419	416	412
5 Q	415	415	416	417	416	420	419	410	396	378	366	365	370	387	404	416	420	425	428	432	430	428	427	426	409
6	426	426	418	407	423	426	424	394	357	355	373	361	364	361	378	396	409	421	433	439	433	436	435	415	405
7	363	342	350	335	346	412	426	419	403	385	374	374	359	386	376	405	413	421	428	424	430	420	417	420	393
8	416	416	416	414	415	417	414	405	386	369	351	343	360	379	389	401	421	424	430	427	427	431	420	419	404
9	418	419	417	415	416	419	415	405	390	365	356	374	408	433	395	391	410	410	428	429	427	424	431	429	409
10	419	409	406	417	422	423	420	412	395	376	356	355	373	399	418	461	448	432	428	422	420	417	417	418	411
11	420	419	419	420	422	424	420	410	395	374	378	385	385	403	424	459	481	504	441	426	419	412	411	422	420
12	419	419	419	416	416	414	413	405	386	371	366	367	367	379	390	398	403	408	418	422	440	427	423	423	405
13 D	421	415	405	405	411	415	410	398	390	387	374	380	377	424	439	424	501	478	480	473	485	485	144	72	399
14 D	191	174	170	299	248	318	365	365	365	402	374	370	361	375	404	450	486	417	424	427	424	407	399	406	359
15	402	326	385	408	396	403	403	392	368	354	355	348	379	365	403	443	451	423	416	418	426	437	424	395	397
16 D	399	406	400	407	406	399	-193	132	597	365	363	342	369	337	516	507	470	487	421	406	382	252	337	359	369
17 D	353	348	351	345	355	351	341	330	350	349	348	377	377	381	437	479	493	470	420	429	386	368	345	323	379
18	359	342	346	371	365	372	370	360	361	354	358	357	370	394	395	419	466	437	454	446	404	370	361	361	383
19	337	328	364	376	389	388	399	394	381	363	343	350	348	382	388	430	425	428	448	433	417	413	400	393	387
20	399	404	405	405	400	397	403	402	388	372	359	353	365	388	414	429	427	430	428	427	419	411	411	412	402
21	407	402	393	399	404	408	408	405	382	364	357	356	361	376	395	401	402	427	443	441	428	418	419	406	400
22	365	389	386	377	399	403	398	395	385	370	368	367	398	401	408	408	432	471	502	478	456	437	415	400	409
23 D	398	409	415	420	416	404	394	378	323	317	332	378	448	529	547	614	556	546	465	487	422	186	303	356	418
24	322	357	361	344	366	392	385	382	375	363	355	362	372	386	396	423	424	444	449	436	427	415	409	399	389
25	397	405	394	385	360	371	379	390	380	360	354	369	382	401	406	445	482	492	482	448	403	382	385	377	401
26	378	380	398	402	402	399	392	380	369	358	354	366	362	385	387	405	399	418	428	434	433	430	430	423	396
27	417	416	415	410	408	406	405	396	385	369	362	360	373	389	404	413	427	423	419	421	418	418	416	418	404
28 Q	419	415	411	409	413	410	405	398	388	375	364	366	376	390	404	418	421	440	439	436	428	424	422	420	408
29 Q	419	414	415	415	416	413	408	402	391	378	371	372	381	391	403	415	420	426	432	434	431	426	424	423	409
30 Q	422	422	420	419	417	416	410	402	388	371	363	362	374	390	405	434	428	427	439	438	435	431	426	425	411
Mean	393	390	393	397	398	404	384	387	388	368	361	363	375	391	411	431	440	441	439	435	426	406	398	394	401

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −24γ.

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes anding at the hours of Greenwich Mean Time

18 LERWICK (D) — 12° + — APRIL, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	36·7	36·9	37·5	37·0	36·4	35·4	33·7	31·7	30·7	32·3	36·3	42·8	46·7	48·4	47·9	46·7	45·6	43·9	43·7	42·4	40·5	40·3	39·6	39·3	39·7
2 Q	38·7	38·6	38·4	37·7	36·9	36·1	34·8	32·5	30·9	32·3	36·4	41·8	46·2	48·3	46·9	44·4	42·6	41·2	41·2	40·6	40·2	41·2	38·7	37·7	39·3
3	38·5	39·6	37·5	35·7	36·5	35·6	34·0	32·4	31·0	31·5	36·5	42·6	48·0	50·1	48·6	46·2	43·1	41·0	40·0	40·0	39·9	39·8	40·4	38·6	39·5
4	38·1	39·6	36·8	38·3	37·4	33·2	32·4	32·0	32·6	35·8	40·3	35·7	50·2	51·3	47·2	45·4	43·3	39·7	39·5	40·8	40·7	40·2	39·2	38·3	39·9
5 Q	37·7	37·4	37·3	36·6	36·3	36·0	34·2	33·1	33·8	35·6	38·7	42·4	45·3	46·1	44·6	42·8	41·0	39·6	39·1	38·7	38·9	39·2	38·7	38·3	38·8
6	37·6	38·5	38·4	36·4	33·6	32·2	31·2	28·3	29·6	40·8	42·6	44·2	48·3	49·8	48·4	46·3	43·3	41·0	40·5	32·6	35·6	37·2	35·3	35·1	38·6
7	38·3	29·9	22·2	19·8	17·0	25·6	33·5	30·8	31·2	32·7	36·8	43·5	47·3	48·6	48·1	46·7	42·0	39·5	39·5	40·3	40·4	39·3	37·6	37·7	36·2
8	36·5	37·1	36·0	36·3	35·6	34·3	32·3	31·0	31·4	35·3	39·1	44·3	45·8	47·4	46·3	43·7	41·8	38·3	38·2	39·9	37·7	36·8	38·6	39·9	38·5
9	39·3	38·3	38·1	36·9	36·3	35·5	33·7	32·6	32·3	35·3	38·4	44·3	47·7	44·9	45·0	46·6	44·6	42·2	40·0	34·5	36·0	40·6	39·1	33·4	39·0
10	36·6	37·4	40·3	38·6	37·1	36·1	34·3	32·6	32·6	35·7	41·7	47·6	49·8	49·7	46·8	41·3	38·6	39·1	40·0	40·6	41·5	40·6	40·3	39·6	39·9
11	39·1	38·8	38·3	37·5	37·7	36·2	35·0	34·3	35·1	39·1	41·6	46·9	47·7	48·5	45·6	42·2	40·1	36·6	36·0	38·2	37·7	34·4	36·6	40·3	39·3
12	40·3	39·6	38·7	38·3	36·6	34·7	33·1	31·7	33·9	36·6	40·2	43·0	44·1	43·3	43·4	41·6	38·3	36·5	36·3	37·2	39·7	40·3	39·3	39·4	38·6
13 D	39·0	38·4	37·2	37·7	36·8	34·9	33·0	33·0	31·9	34·4	38·5	41·5	45·4	48·0	49·0	49·5	48·6	42·4	41·8	42·3	44·5	43·6	34·6	39·1	40·2
14 D	26·4	28·3	22·8	15·6	6·1	30·3	41·0	44·6	39·6	42·4	42·6	46·0	48·7	47·1	44·6	45·8	42·6	39·8	41·4	41·3	41·3	38·3	39·0	37·6	37·2
15	38·2	43·7	38·3	34·9	35·3	34·5	31·5	29·4	24·3	27·6	33·0	40·4	46·1	48·0	49·6	46·6	39·3	38·7	39·0	40·4	40·4	38·7	39·4	37·0	38·1
16 D	36·5	40·1	39·5	34·8	33·6	35·5	34·6	-5·2	9·1	25·0	25·7	30·0	38·8	45·0	47·9	46·7	43·3	39·2	40·2	39·7	44·5	52·0	42·5	38·4	35·7
17 D	36·0	35·2	35·0	34·2	32·8	30·6	28·5	27·4	25·5	27·8	31·7	36·5	42·9	45·1	43·9	42·9	41·2	36·7	36·4	39·1	43·8	38·5	36·1	42·5	36·3
18	43·6	34·6	35·4	37·5	36·2	34·8	35·0	29·9	30·7	31·8	35·0	40·3	44·2	46·5	45·5	44·9	38·8	39·7	37·5	37·6	36·8	34·6	33·7	29·2	37·2
19	21·6	23·6	31·1	35·9	33·6	31·6	31·3	28·4	27·6	29·3	33·5	37·7	41·5	45·5	45·5	44·6	42·1	38·7	36·8	39·4	34·5	33·1	33·4	37·1	34·9
20	37·9	36·7	36·8	36·5	35·5	34·9	32·5	30·0	29·0	30·5	35·1	39·6	44·8	47·8	47·5	44·9	43·0	40·8	39·2	39·0	40·1	36·8	36·9	36·1	38·0
21	36·6	36·3	37·1	38·3	35·4	31·9	30·8	29·6	30·8	32·5	35·8	39·3	43·7	46·0	45·6	43·3	40·5	40·6	40·0	34·7	35·3	37·8	37·2	30·1	37·1
22	32·1	35·4	31·5	33·6	36·0	32·6	32·5	32·5	32·9	35·9	39·8	43·4	48·6	50·3	49·9	45·5	45·8	48·9	48·2	40·7	42·0	34·0	35·5	36·5	39·3
23 D	34·0	30·0	33·0	34·1	34·2	36·4	38·8	39·1	42·0	40·7	39·3	40·8	38·5	41·0	45·9	42·6	47·7	43·5	45·5	42·5	41·0	45·3	34·7	39·7	39·6
24	39·1	35·8	32·2	35·0	36·5	36·1	32·9	32·6	32·2	34·1	36·2	38·9	43·2	44·8	44·7	43·6	41·8	40·5	38·0	35·3	34·4	38·2	37·2	36·6	37·5
25	37·6	36·9	37·2	28·4	29·8	29·3	31·0	31·8	32·7	34·1	37·6	40·1	42·8	42·6	41·1	41·2	40·2	38·5	40·6	35·1	36·5	32·3	33·1	31·3	35·9
26	29·4	30·0	33·1	34·3	34·4	32·8	31·1	29·6	31·6	35·0	39·5	41·7	44·7	46·6	44·8	43·1	41·3	40·2	39·8	39·8	39·5	39·1	39·3	38·7	37·5
27	38·1	37·3	36·2	35·0	34·2	32·7	32·5	31·5	31·2	33·8	37·0	41·6	45·6	46·4	44·6	42·8	41·7	40·4	39·3	39·0	39·0	38·3	38·4	37·5	38·1
28 Q	35·3	35·7	35·5	36·6	35·3	33·2	31·5	30·8	30·1	33·7	37·8	41·0	44·4	45·7	44·2	42·8	41·7	41·6	40·4	39·6	39·3	38·6	38·3	38·1	38·0
29 Q	37·6	37·0	35·8	35·0	33·8	31·3	29·9	29·0	30·4	33·7	37·1	40·1	42·9	43·5	42·4	41·2	39·9	39·6	39·4	39·2	39·3	38·7	38·8	37·4	37·2
30 Q	37·1	36·4	35·8	35·3	34·1	32·5	30·9	30·1	30·5	33·9	37·7	41·0	44·0	44·7	44·4	43·1	41·9	39·0	37·8	37·6	37·7	38·1	39·1	39·5	37·6
Mean	36·5	36·1	35·4	34·7	33·7	33·6	33·1	30·6	30·9	34·0	37·4	41·6	45·3	46·7	46·0	44·3	42·2	40·2	39·8	38·9	39·3	38·9	37·7	37·3	38·1

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

19 LERWICK (V) 46,000 γ (·46 C.G.S.unit) + APRIL, 1938

G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	819	822	826	827	827	827	828	830	828	822	815	810	808	813	819	824	829	825	821	824	824	822	818	818	822
2 Q	820	821	823	823	824	823	825	827	827	823	815	805	801	804	812	816	817	816	815	814	816	819	823	820	818
3	818	815	795	811	817	819	819	819	818	814	810	808	811	814	828	833	833	831	840	838	828	824	820	819	820
4	819	811	802	797	788	796	807	813	817	819	816	812	812	829	844	835	838	842	837	832	829	830	828	823	820
5 Q	820	819	820	821	822	822	825	826	826	823	819	814	812	814	817	818	822	823	824	824	823	821	820	816	820
6	814	808	792	791	770	765	766	791	810	813	808	808	806	816	816	824	830	828	827	864	845	834	821	759	809
7	730	695	707	707	725	771	797	814	823	828	828	831	843	849	881	866	867	850	842	836	835	838	839	829	810
8	821	816	820	823	823	826	829	829	832	830	829	827	821	818	819	824	830	847	847	838	830	813	797	807	825
9	817	820	820	821	821	822	828	832	833	836	832	825	829	868	861	829	821	823	826	842	835	829	817	801	829
10	794	805	807	812	816	817	817	820	820	817	821	824	827	834	846	865	871	854	845	837	829	826	823	824	827
11	826	828	829	828	823	826	828	829	830	830	824	824	828	828	832	858	876	922	927	883	847	814	809	818	840
12	822	826	830	831	830	832	824	819	817	818	815	818	834	846	838	833	838	834	829	826	818	819	815	814	826
13 D	816	814	819	823	825	826	828	827	824	821	823	817	817	822	834	845	867	939	915	898	879	838	676	615	825
14 D	661	662	655	670	626	654	769	790	806	835	843	850	855	883	889	903	932	894	861	845	835	834	830	820	800
15	817	777	762	808	828	832	835	838	833	831	828	830	838	848	839	860	878	861	842	830	823	816	788	778	826
16 D	752	767	784	811	819	827	1138	1420	1148	934	921	961	961	926	902	916	945	961	928	913	900	878	817	833	923
17 D	848	850	854	860	866	867	866	864	859	860	856	849	850	855	864	868	876	896	890	866	828	804	791	762	852
18	743	714	730	782	804	825	833	842	847	847	846	843	843	849	858	854	859	862	857	842	841	788	736	747	816
19	728	706	756	798	816	825	839	849	852	852	853	853	849	842	839	848	865	875	862	842	845	842	833	812	828
20	787	814	828	833	835	840	842	846	846	845	840	833	827	826	837	851	856	857	858	861	844	826	834	826	837
21	824	816	814	805	813	821	830	834	837	837	835	831	827	831	835	842	847	841	844	858	851	843	831	796	831
22	768	742	755	774	780	802	817	824	826	824	823	817	814	823	833	843	838	834	878	890	873	842	819	818	819
23 D	754	781	820	826	827	824	818	819	824	824	849	885	938	997	973	961	940	927	917	900	878	696	757	789	855
24	751	754	767	792	807	811	826	839	846	851	853	860	858	851	844	854	870	872	870	842	817	827	830	830	830
25	830	824	809	770	750	760	782	801	816	830	836	841	846	865	867	858	873	897	893	877	845	795	793	798	827
26	790	791	808	827	836	838	840	840	835	832	831	824	832	836	851	854	846	837	829	828	831	833	831	833	831
27	837	838	838	838	836	833	833	834	831	836	833	826	824	824	826	827	827	832	834	835	833	832	833	831	832
28 Q	831	832	834	834	831	832	833	831	824	827	829	825	825	831	840	843	841	835	838	838	835	832	831	831	833
29 Q	833	835	834	834	834	833	834	832	827	827	826	823	824	826	827	825	825	825	827	827	827	828	827	828	829
30 Q	830	831	833	832	833	833	832	829	826	823	821	816	817	825	831	836	849	857	849	841	836	832	827	826	832
Mean	797	794	799	807	808	814	833	847	840	834	833	833	836	843	847	850	857	860	856	850	839	823	810	804	830

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −24γ.

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS: MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

20 LERWICK APRIL, 1938

Day	Terrestrial Magnetic Elements: Horizontal Force Maximum 14,000 γ +			Horizontal Force Minimum 14,000 γ +			Horizontal Force Range	Declination Maximum 12° +			Declination Minimum 12° +			Declination Range	Vertical Force Maximum 46,000 γ +			Vertical Force Minimum 46,000 γ +			Vertical Force Range	HR_H+VR_V / 10,000γ² §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	h	m	γ	h	m	γ	γ	h	m	′	′	h	m	′	h	m	γ	h	m	γ	γ			°A
1	16	2	451	11	4	359	92	14	16	49·2	30·2	8	35	19·0	16	35	833	11	26	806	27	258	0	78·8
2 Q	20	46	444	10	46	358	86	13	40	48·8	30·6	8	53	18·2	8	19	830	12	55	803	27	250	0	78·8
3	18	22	445	11	53	354	91	13	47	51·6	30·5	8	23	21·1	18	50	845	2	30	792	53	379	0	78·7
4	19	13	442	11	28	331	111	13	0	52·4	30·7	6	58	21·7	14	45	848	4	46	785	63	455	0	78·2
5 Q	19	42	434	10	57	363	71	13	4	46·3	32·7	7	33	13·6	7	30	827	12	47	812	15	172	0	78·0
6	22	42	457	8	46	341	116	12	59	51·0	24·5	7	56	26·5	19	50	885	23	58	738	147	855	1	78·0
7	6	5	436	4	13	299	137	13	24	50·5	11·1	3	56	39·4	14	40	886	1	6	680	206	1161	1	78·7
8	21	48	445	11	27	337	108	13	20	47·8	28·9	8	22	18·9	17	57	855	22	10	793	62	446	0	78·4
9	13	30	447	10	58	348	99	12	17	50·2	30·6	7	57	19·6	13	45	879	24	0	793	86	545	1	77·7
10	15	34	481	11	28	347	134	13	9	51·3	30·5	8	30	20·8	15	53	875	0	10	788	87	600	1	77·6
11	16	44	536	10	0	365	171	13	0	49·4	27·6	21	13	21·8	18	2	938	22	0	792	146	929	1	78·0
12	20	5	465	12	5	349	116	11	57	45·8	30·4	7	4	15·4	13	13	848	23	43	809	39	350	0	78·9
13 D	21	5	574	22	41	-162	736	23	10	66·5	1·4	22	55	65·1	17	31	954	23	8	426	528	3531	2	79·8
14 D	16	34	523	1	35	18	505	8	31	55·7	-6·2	4	26	61·9	16	7	950	4	56	508	442	2796	2	80·4
15	16	13	481	1	35	272	209	14	56	51·3	20·0	8	57	31·3	16	33	883	1	33	719	164	1069	1	80·4
16 D	8	1	1537	7	5	-798	2335	6	21	186·6	<-106·0	7	47	>292·6	6	19	1978	6	14	188	1790	11739	2	80·7
17 D	16	3	539	23	3	305	234	20	47	50·5	22·9	7	19	27·6	17	58	902	23	58	741	161	1090	1	79·9
18	18	55	492	1	55	314	178	13	16	48·8	24·0	24	0	24·8	17	20	865	1	23	703	162	1014	1	78·7
19	18	40	477	0	39	308	169	13	45	46·6	18·5	0	10	28·1	17	41	876	1	28	693	183	1099	1	78·5
20	20	18	439	11	24	351	88	14	5	49·0	28·5	8	10	20·5	18	55	862	0	25	779	83	515	1	79·0
21	18	37	449	11	56	350	99	14	12	46·5	25·4	23	46	21·1	19	27	862	23	46	783	79	513	1	79·7
22	19	14	536	0	35	351	185	13	56	51·4	25·3	21	35	26·1	19	11	927	1	11	732	194	1174	1	80·3
23 D	15	37	728	21	35	42	686	21	48	70·1	25·1	21	26	45·0	13	29	1016	21	46	556	460	3141	2	80·7
24	18	9	467	0	20	286	181	13	50	46·5	29·5	20	18	17·0	16	58	879	1	1	736	143	930	1	80·8
25	18	16	510	4	17	335	175	18	18	45·9	24·6	3	54	21·3	17	47	911	4	53	745	166	1029	1	81·0
26	19	43	436	9	43	343	93	13	21	47·2	25·7	1	6	21·5	15	58	858	0	56	786	72	471	0	80·7
27	16	57	440	11	39	352	88	13	1	47·0	30·4	8	2	16·6	3	4	841	12	21	822	19	216	0	81·0
28 Q	17	15	445	11	7	360	85	13	20	46·4	29·2	8	23	17·2	16	10	844	12	7	823	21	220	0	81·3
29 Q	19	31	436	10	35	369	67	13	7	43·9	28·3	7	31	15·6	1	17	837	12	2	821	16	171	0	81·0
30 Q	18	45	442	11	22	356	86	13	0	45·3	29·7	7	53	15·6	17	7	858	12	2	812	46	339	0	80·6
Mean	--	--	514	--	--	263	251	--	--	54·7	20·5	--	--	34·2	--	--	915	--	--	725	190	1249	0·73	79·5
No. of Days Used	--	--	30	--	--	30	30	--	--	30	30	--	--	30	--	--	30	--	--	30	30	30	30	30

§ For explanation see p. 21.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

21 LERWICK (H) — 14,000 γ (·14 C.G.S.unit) + — MAY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1Q	425	423	418	417	418	418	412	403	388	373	368	372	383	395	407	414	422	433	442	449	446	433	422	418	412
2	414	417	418	412	419	415	407	397	382	368	360	369	378	420	413	399	421	430	436	436	436	437	437	428	410
3	423	423	422	424	403	390	391	386	380	367	346	352	359	378	399	439	490	535	495	460	427	419	380	344	410
4 D	284	297	297	290	311	378	389	366	357	365	363	370	379	447	514	714	510	510	496	497	458	416	379	414	409
5	417	405	331	293	404	415	415	404	392	380	362	366	375	391	405	466	526	519	512	450	420	412	393	352	409
6	382	387	403	397	379	389	417	409	398	382	373	368	365	408	427	412	417	428	424	416	414	415	416	416	402
7	413	411	411	411	408	408	403	394	385	376	372	372	374	393	408	442	473	433	414	414	414	416	417	417	407
8 Q	419	419	419	418	418	413	415	411	402	392	385	387	395	398	399	419	424	440	430	429	439	442	425	421	415
9	417	414	418	420	420	419	414	408	396	388	383	386	395	406	409	415	432	445	452	448	443	443	430	419	417
10	422	419	416	423	428	423	416	406	404	396	388	389	403	405	415	431	440	442	438	439	433	431	427	424	419
11 D	427	427	413	429	427	431	428	420	399	390	389	401	407	417	438	467	516	701	382	395	132	-236	-111	23	355
12 D	-119	297	411	344	295	59	144	170	280	356	365	359	394	427	480	514	563	522	442	438	400	381	299	161	333
13	-73	361	390	393	393	397	390	379	365	355	354	356	379	390	422	424	414	412	410	410	416	414	403	393	373
14 D	389	389	380	390	412	400	385	393	367	354	356	392	473	504	587	416	381	408	436	428	419	359	225	118	389
15	23	148	303	323	274	335	391	385	370	365	359	369	414	413	409	444	465	488	418	402	399	403	406	392	362
16	393	393	381	363	321	324	345	362	363	366	384	368	374	415	455	469	431	439	443	448	419	402	401	400	394
17	361	336	337	319	367	402	376	375	376	367	374	367	399	403	414	426	443	457	468	456	433	422	403	405	395
18	404	400	394	397	389	388	396	382	383	382	385	379	378	386	403	419	435	445	440	436	429	421	416	412	404
19	410	410	412	412	417	415	412	405	392	379	376	376	386	407	434	442	453	442	435	436	440	422	415	410	414
20 Q	408	403	403	405	408	410	407	405	403	396	393	392	398	387	388	401	413	425	432	435	427	424	418	410	408
21	414	415	412	411	414	416	413	399	389	371	366	368	377	399	412	422	429	426	431	433	431	430	427	429	410
22	429	427	421	416	411	417	416	407	397	385	378	381	388	391	410	449	418	434	439	440	434	425	420	417	415
23 Q	412	413	418	419	419	416	411	403	391	386	375	373	384	396	414	426	433	443	446	444	435	431	428	430	414
24	433	429	427	425	424	419	411	402	386	375	378	377	403	413	402	424	531	514	467	451	460	454	395	403	425
25	450	419	419	427	430	420	415	410	399	383	376	383	390	406	421	436	436	442	444	439	439	439	419	417	419
26 Q	416	416	423	424	414	407	412	401	395	389	381	385	393	400	414	425	435	428	429	429	426	424	424	426	413
27	424	424	422	418	417	417	414	408	402	389	377	378	380	393	417	433	443	477	477	459	453	443	439	431	422
28	426	427	424	424	427	427	408	382	411	404	396	398	398	400	410	433	443	444	457	459	471	432	431	438	424
29 D	430	420	382	405	388	380	355	328	321	335	347	392	422	518	582	616	669	539	440	424	409	419	379	351	427
30	365	405	406	412	414	410	393	358	330	327	351	371	401	410	396	417	434	438	440	451	442	424	410	407	401
31	399	391	394	403	408	406	398	387	380	375	369	366	374	389	392	410	428	436	453	462	448	430	415	410	405
Mean	362	392	398	396	396	392	394	385	380	375	372	376	391	410	429	447	457	464	444	439	422	401	387	379	404

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −30γ.

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

22 LERWICK (D) — 12° + — MAY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1 Q	39·7	39·2	38·0	36·1	34·1	32·0	30·9	29·2	31·4	35·5	39·4	42·3	43·6	43·2	41·9	40·7	40·1	40·1	40·3	39·9	38·9	38·7	36·4	35·7	37·8
2	36·4	36·2	35·8	34·7	32·9	31·5	30·3	29·2	31·1	35·5	41·0	45·5	49·2	49·0	43·7	42·2	40·9	39·0	38·7	38·9	39·5	39·6	37·1	36·0	38·1
3	35·8	35·8	36·5	35·8	39·0	47·6	40·0	34·5	34·7	35·6	39·2	46·4	49·7	49·3	48·6	48·3	46·1	49·1	43·5	38·9	39·1	41·3	33·8	29·8	40·8
4 D	24·3	17·8	12·6	17·9	34·3	34·2	28·5	31·6	36·4	36·4	37·2	40·0	44·2	47·9	43·5	50·4	49·5	53·4	51·9	49·8	42·4	41·4	42·1	37·5	37·7
5	36·7	36·6	38·2	33·4	33·7	31·2	29·2	29·0	30·0	32·1	36·4	40·6	42·9	43·6	43·1	43·6	43·7	39·4	42·0	38·8	37·5	39·1	41·2	37·2	37·5
6	29·6	31·9	33·5	33·7	35·0	36·7	35·8	30·7	31·2	34·2	37·3	42·7	45·5	48·5	47·7	45·0	42·1	41·1	40·5	39·3	38·3	37·7	37·2	36·9	38·0
7	36·5	36·3	35·7	35·0	34·3	32·9	31·7	30·4	34·1	34·7	36·7	40·4	43·3	44·3	43·2	42·2	37·7	38·5	39·4	39·5	39·4	39·1	38·4	38·2	37·6
8 Q	37·9	38·0	36·8	36·4	36·0	37·9	34·3	30·8	31·4	34·3	36·6	40·1	42·8	43·7	44·1	42·4	41·2	39·8	38·6	37·8	38·2	37·4	38·0	38·7	38·1
9	38·1	37·1	36·8	35·9	34·6	32·8	31·4	31·0	31·4	33·3	36·8	40·5	42·0	42·3	41·3	39·8	38·4	38·3	38·9	38·5	38·5	40·0	39·9	35·0	37·2
10	36·1	42·4	37·3	33·8	33·1	36·6	33·6	30·6	32·7	35·9	37·7	39·6	42·9	43·7	43·0	41·5	39·5	38·3	38·2	37·0	38·6	39·7	39·2	37·9	37·9
11 D	38·7	39·4	37·7	35·7	29·5	30·0	29·5	30·0	33·5	37·8	41·7	42·9	46·5	47·0	45·0	43·3	45·4	58·4	49·4	51·0	56·9	14·4	26·9	22·9	38·9
12 D	-6·1	17·4	27·9	27·0	25·0	15·4	41·9	33·9	27·9	33·2	38·7	41·2	44·7	44·6	40·5	42·2	45·8	45·3	41·4	35·9	33·1	35·8	37·2	12·4	32·6
13	33·1	30·3	32·5	31·5	30·4	29·1	28·5	28·5	29·3	32·9	37·6	41·5	44·5	43·3	41·9	39·5	37·5	37·2	36·3	36·3	36·4	34·4	38·0	36·1	35·3
14 D	35·5	34·5	32·2	24·1	27·1	28·7	30·0	28·9	28·1	33·4	34·4	37·3	44·1	53·5	52·4	41·0	43·6	42·1	38·5	35·7	36·7	32·9	38·4	27·6	35·9
15	30·8	8·9	27·4	36·5	37·3	38·4	31·5	29·1	29·2	30·7	35·3	38·1	42·2	44·7	44·9	44·5	43·1	40·2	38·6	39·3	39·5	40·1	36·2	36·4	36·0
16	38·6	34·9	36·0	39·1	37·5	39·4	36·6	37·6	28·5	32·9	32·1	36·1	39·1	41·9	41·5	39·5	40·0	41·0	37·9	33·2	36·8	37·5	37·8	36·7	37·2
17	35·2	31·6	32·4	32·8	34·9	32·1	33·4	34·4	33·5	31·6	33·3	36·1	40·0	40·8	40·9	40·3	40·4	36·7	40·6	37·2	37·1	37·3	40·5	38·9	36·3
18	36·3	34·3	35·8	34·2	31·1	32·6	30·9	29·5	32·2	31·8	34·9	40·0	42·8	43·6	41·7	39·9	39·0	38·2	36·5	37·7	38·6	38·7	39·2	38·6	36·6
19	37·9	37·5	36·8	34·4	32·4	31·1	30·3	29·8	31·6	35·4	38·4	42·5	43·4	44·3	43·3	41·0	35·7	38·9	37·7	37·2	36·2	38·2	38·7	37·3	37·0
20 Q	37·0	35·4	34·5	33·9	32·7	30·6	29·6	29·4	30·6	33·9	36·9	40·2	42·4	42·7	42·4	40·7	38·8	37·6	36·3	36·5	37·0	37·1	38·3	38·6	36·4
21	36·5	38·4	38·4	35·8	32·3	31·0	29·7	27·3	28·0	32·1	35·0	40·5	42·8	43·9	43·9	43·4	41·9	39·8	39·2	39·1	38·9	38·2	37·1	36·7	37·1
22	36·4	36·0	35·5	33·4	34·0	32·9	32·0	30·3	30·7	32·2	35·9	40·0	43·3	43·1	42·9	42·0	39·4	39·6	39·5	39·7	39·1	38·7	38·1	35·3	37·1
23 Q	35·1	34·3	33·4	34·0	33·2	31·3	30·2	30·2	31·2	33·5	37·4	40·1	41·8	41·6	41·3	40·3	39·4	39·6	41·1	40·1	39·5	38·8	38·1	37·4	36·8
24	36·9	36·1	35·0	33·4	31·6	29·8	29·4	30·0	31·0	33·3	36·0	38·3	40·9	41·7	41·7	41·1	44·3	37·4	37·4	41·8	44·6	40·3	35·6	36·0	36·8
25	31·9	30·7	30·4	29·5	26·8	26·6	29·1	31·5	34·3	38·1	41·5	42·5	42·2	41·5	41·5	40·6	40·0	39·2	40·1	39·2	38·4	38·1	36·8	36·7	36·1
26 Q	36·2	36·0	35·3	35·4	34·5	31·3	33·4	31·8	31·9	34·5	37·2	40·0	42·3	42·5	42·1	40·2	39·6	39·4	39·9	39·5	38·5	37·4	36·7	36·6	37·2
27	36·0	35·5	35·2	37·1	37·3	32·4	31·3	32·1	32·7	33·3	36·0	39·5	42·8	43·6	43·4	43·1	41·2	40·4	36·2	38·0	40·8	41·2	42·1	39·3	37·9
28	39·0	37·4	35·7	33·8	30·3	26·9	25·4	34·4	40·6	41·2	40·1	41·4	43·7	44·1	43·7	43·1	41·5	39·6	40·2	40·2	41·2	37·3	37·7	38·9	38·3
29 D	40·2	35·3	28·4	23·5	32·2	39·1	34·0	32·9	33·2	34·9	36·5	38·9	44·0	45·9	45·4	42·7	54·4	43·2	38·9	38·7	39·8	36·4	35·0	32·3	37·7
30	31·9	34·1	32·8	31·6	30·7	28·9	26·0	27·5	31·0	35·6	39·2	42·9	44·8	47·1	47·6	44·4	42·0	38·5	36·5	37·4	34·4	36·8	39·1	39·3	36·7
31	36·9	31·0	30·5	29·9	31·1	31·2	31·7	33·7	37·8	38·2	40·1	42·0	45·5	46·5	43·9	43·0	42·0	40·5	39·0	36·9	38·6	38·4	37·2	35·1	37·5
Mean	34·4	33·8	33·6	32·9	32·9	32·3	31·6	31·0	32·0	34·4	37·3	40·6	43·5	44·8	43·6	42·3	41·7	40·9	39·8	39·0	39·1	37·8	37·7	35·2	37·2

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

23 LERWICK (V) — 46,000 γ (·46 C.G.S.unit) + — MAY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 Q	828	830	836	840	841	839	838	834	829	823	820	816	813	813	817	825	829	829	826	826	832	833	829	819	828
2	828	829	831	826	824	829	829	827	824	816	810	810	812	827	860	853	842	844	839	833	829	825	821	813	828
3	807	815	826	830	825	773	759	772	784	798	809	812	826	831	831	834	880	940	928	899	884	834	736	733	824
4 D	681	642	581	620	696	738	802	819	821	824	834	827	825	849	914	987	990	920	895	897	881	845	794	813	812
5	832	821	787	725	773	817	835	843	842	837	842	837	832	836	838	847	884	898	911	894	872	850	774	687	830
6	739	788	808	817	819	804	805	827	836	840	839	835	834	833	847	859	857	844	837	836	836	835	834	835	827
7	835	835	835	835	835	835	839	838	834	829	830	831	831	832	836	844	866	872	851	837	834	831	833	833	838
8 Q	831	830	831	831	829	826	823	827	826	826	825	821	817	825	828	828	829	832	837	837	835	831	835	835	829
9	835	835	834	834	834	835	834	831	828	827	822	819	820	823	828	831	833	831	833	837	835	833	824	819	830
10	810	808	786	819	826	821	820	823	819	817	819	817	816	818	821	827	834	840	842	845	839	834	834	831	824
11 D	830	815	806	787	800	815	822	826	828	824	823	817	820	826	832	843	852	890	784	814	995	1037	968	1069	855
12 D	825	794	856	869	871	767	675	741	768	804	841	849	855	880	925	928	913	889	922	880	857	847	760	581	830
13	706	760	833	855	864	865	867	864	858	853	852	853	858	868	873	889	889	875	863	859	857	853	827	813	848
14 D	804	796	745	744	783	814	818	814	822	821	827	847	930	921	930	962	889	866	881	884	856	822	723	641	831
15	664	637	719	745	746	744	809	841	853	855	860	856	857	874	877	881	881	873	881	866	854	841	830	830	820
16	824	838	847	829	799	780	796	808	832	852	855	859	856	877	902	935	914	885	885	867	857	857	846	822	851
17	762	715	716	761	768	813	832	831	836	842	845	842	833	845	857	867	861	864	848	846	831	836	817	816	820
18	821	827	832	832	832	830	830	843	835	834	836	832	831	833	835	840	845	849	858	854	848	845	840	833	837
19	836	837	838	838	841	843	844	841	840	837	833	829	825	825	833	849	859	859	852	849	849	845	839	834	841
20 Q	828	832	838	840	840	842	842	839	835	829	823	821	823	832	835	837	839	841	843	842	842	841	837	829	835
21	832	831	828	827	832	837	838	840	832	831	829	829	825	824	830	837	846	850	850	847	843	839	838	838	835
22	837	837	838	840	838	833	834	838	836	834	832	827	826	834	836	841	857	845	838	835	839	841	837	836	837
23 Q	837	837	835	837	839	839	837	837	832	827	824	823	821	818	820	826	830	829	830	833	836	836	837	834	831
24	833	836	836	836	837	836	835	832	824	819	813	817	816	826	832	829	831	889	885	854	832	820	751	729	827
25	760	809	832	834	824	831	830	824	824	824	823	822	825	827	830	829	829	831	834	837	837	837	842	840	826
26 Q	840	838	833	828	824	817	808	811	817	825	823	816	816	818	820	824	826	830	832	832	833	835	834	835	826
27	837	838	836	831	820	822	829	830	827	824	820	823	825	829	835	840	842	841	858	857	844	838	829	821	833
28	824	824	834	839	838	834	834	830	800	805	810	815	818	828	830	830	839	839	832	829	826	840	840	829	828
29 D	808	784	749	724	724	719	748	778	794	815	842	854	889	943	987	994	961	968	928	891	865	841	803	727	840
30	746	817	835	849	849	850	850	849	847	839	832	830	840	870	894	894	881	876	874	864	863	849	839	835	849
31	827	814	809	814	828	837	843	844	835	829	827	830	833	835	839	843	847	852	855	859	852	848	844	837	837
Mean	803	802	808	811	816	816	820	826	826	828	830	830	834	843	854	863	864	864	856	853	851	845	822	814	832

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −30γ.

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS: MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

24 — May, 1938

Day	Terrestrial Magnetic Elements																				HR_H+VR_V §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force						Declination						Vertical Force										
	Maximum 14,000 γ+			Minimum 14,000 γ+			Range	Maximum 12° +			Minimum 12° +			Range	Maximum 46,000 γ+			Minimum 46,000 γ+			Range	10,000γ²		
	h	m	γ	γ	h	m	γ	h	m	′	′	h	m	′	h	m	γ	γ	h	m	γ			°A
1 Q	19	33	455	365	10	47	90	12	55	44·0	28·0	7	44	16·0	4	15	843	812	12	32	31	275	0	80·4
2	22	23	444	356	10	29	88	12	52	50·6	28·1	7	14	22·5	14	45	866	807	11	5	59	403	0	81·0
3	17	55	567	336	23	41	231	17	54	56·6	27·6	23	30	29·0	17	56	975	709	23	55	266	1578	1	81·0
4 D	15	31	881	227	0	36	654	15	37	65·6	0·4	2	57	65·2	15	55	1047	565	2	25	482	3198	2	81·1
5	16	49	576	216	3	33	360	18	57	61·1	27·5	23	27	33·6	18	50	933	655	23	8	278	1819	1	81·6
6	16	28	439	351	12	19	88	13	48	49·6	27·4	0	42	22·2	15	55	865	719	0	7	146	810	1	81·8
7	16	44	484	365	12	16	119	13	27	45·0	28·4	7	44	16·6	17	2	877	828	9	44	49	400	0	81·5
8 Q	21	36	450	378	12	21	72	14	6	44·6	30·1	7	49	14·5	18	27	841	812	12	47	29	240	0	80·3
9	18	46	461	380	10	55	81	13	9	43·3	30·6	7	13	12·7	19	25	839	810	24	0	29	253	0	79·1
10	16	36	450	382	10	39	68	1	51	52·1	29·4	7	49	22·7	19	52	847	771	2	20	76	454	0	78·3
11 D	17	57	1096	-931	21	55	2027	17	59	123·2	-47·1	23	54	170·3	23	49	1264	737	18	10	527	5385	2	78·1
12 D	17	22	633	-855	23	57	1488	18	14	68·4	-87·3	0	5	155·7	18	19	963	297	23	54	666	5260	2	78·7
13	14	25	430	-540	0	0	970	0	12	53·2	16·4	0	1	36·8	0	4	950	604	0	29	346	3016	2	79·9
14 D	14	37	646	-107	23	51	753	22	4	65·0	12.1	23	56	52·9	15	17	989	581	23	30	408	2993	2	81·0
15	17	15	530	-56	0	56	586	16	6	46·3	-17·3	1	8	63·6	15	46	888	591	1	37	297	2234	2	81·6
16	15	33	487	291	4	45	196	14	18	44·0	25·2	8	49	18·8	15	20	943	770	5	25	173	1092	1	81·9
17	18	43	477	293	1	54	184	15	1	42·8	26·6	1	43	16·2	15	40	871	698	2	23	173	1075	1	82·0
18	17	32	451	367	12	10	84	13	19	44·2	27·6	4	50	16·6	18	50	861	818	0	0	43	322	0	81·9
19	16	37	465	373	11	10	92	13	22	44·9	28·6	7	47	16·3	17	5	863	823	12	49	40	319	0	81·7
20 Q	19	6	438	384	13	56	54	14	19	43·1	29·1	7	15	14·0	21	2	845	819	11	56	26	200	0	81·3
21	16	22	438	359	10	5	79	13	56	45·1	24·8	8	25	20·3	18	20	853	822	12	58	31	259	0	81·4
22	15	47	470	374	10	5	96	12	48	44·2	28·5	7	37	15·7	16	32	862	825	11	56	37	311	0	81·7
23 Q	18	21	450	369	11	2	81	12	57	42·3	29·4	6	17	12·9	5	35	841	817	13	24	24	229	0	82·1
24	16	48	554	364	22	35	190	20	57	45·4	28·4	5	52	17·0	17	49	912	711	23	5	201	1215	1	82·0
25	0	19	470	373	10	36	97	12	16	43·1	23·7	4	45	19·4	22	11	849	746	0	0	103	622	1	81·4
26 Q	16	34	448	378	11	31	70	13	0	42·7	29·5	5	6	13·2	0	7	841	806	6	44	35	265	0	81·3
27	18	18	492	374	11	35	118	13	41	44·4	30·4	5	48	14·0	19	1	865	816	4	38	49	399	0	81·0
28	20	23	480	338	7	24	142	13	6	45·1	21·6	6	23	23·5	7	25	857	796	8	20	61	489	1	81·1
29 D	16	6	787	306	23	29	481	16	11	70·4	22·4	3	34	48·0	14	14	1014	678	23	40	336	2265	2	80·8
30	19	30	454	321	8	26	133	14	7	50·2	23·6	6	56	26·6	15	20	897	714	0	0	183	1048	1	80·9
31	19	20	473	365	10	44	108	13	15	47·2	29·2	1	37	18·0	19	6	863	807	2	33	56	418	0	81·8
Mean	--	--	528	210	--	--	319	--	--	51·9	18·2	--	--	33·7	--	--	904	734	--	--	170	1253	0·74	81·0
No. of Days Used	--	--	31	31	--	--	31	--	--	31	31	--	--	31	--	--	31	31	--	--	31	31	31	31

§ For explanation see p. 21.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

25 LERWICK (H) — 14,000 γ (·14 C.G.S.unit) — JUNE, 1938

Hour G. M. T.	0-1.	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
1	404	406	409	417	417	408	401	380	389	373	382	376	377	384	395	409	416	428	443	460	450	430	420	418	407
2 D	415	417	406	412	418	423	418	404	389	373	384	389	380	397	418	468	484	469	465	475	456	359	369	371	413
3	293	405	429	429	423	412	396	380	372	362	361	370	379	392	406	419	431	440	445	449	445	439	412	405	404
4 Q	412	415	413	409	418	415	407	395	383	365	353	368	384	395	409	427	443	446	449	443	437	433	429	428	411
5	431	423	407	418	417	407	403	396	379	363	366	373	384	388	401	422	450	451	459	465	445	438	435	432	415
6	431	426	424	429	432	426	416	408	398	384	375	379	388	401	435	418	434	450	462	466	467	443	432	428	423
7	425	427	424	423	424	420	412	402	390	377	376	379	386	388	399	415	439	449	457	448	442	435	475	469	420
8 D	461	458	444	453	399	405	416	418	407	386	395	400	411	388	403	414	446	480	505	523	485	455	436	429	434
9	417	403	413	418	416	423	423	414	405	394	392	401	402	406	416	426	440	444	448	448	443	434	429	431	420
10	421	418	418	415	416	412	409	401	389	376	370	409	418	430	458	473	497	529	520	495	468	437	414	409	433
11 D	386	382	375	352	373	406	403	386	374	370	365	390	384	415	451	434	450	473	480	473	450	440	421	405	410
12 D	333	381	390	379	321	323	347	349	356	356	359	392	424	424	421	443	434	440	481	479	459	434	434	439	400
13 D	412	373	348	336	395	367	350	345	348	335	351	370	433	425	429	445	484	459	439	439	444	432	417	415	400
14	405	402	403	411	407	400	388	382	378	380	385	384	387	392	401	408	417	418	417	420	424	423	423	422	403
15 Q	414	412	411	412	414	415	411	406	398	385	376	382	401	420	423	423	425	431	443	448	443	431	419	412	415
16	413	411	411	414	414	411	404	396	373	371	371	383	394	404	440	444	461	462	455	454	442	443	428	407	417
17	409	405	413	416	420	414	405	396	390	388	386	388	391	405	409	418	426	438	479	479	464	443	423	415	417
18	411	406	411	415	418	415	414	405	386	378	379	382	386	393	391	409	421	440	450	458	453	444	438	434	414
19	418	415	420	427	427	424	419	415	402	389	381	383	395	403	415	430	446	433	451	449	447	436	429	425	420
20	427	426	427	429	431	430	423	416	397	376	368	371	382	396	411	426	439	448	454	451	452	449	440	435	421
21	431	435	423	421	418	417	405	411	418	401	395	398	395	410	434	448	456	458	463	450	445	443	440	439	427
22	430	426	425	415	423	418	403	403	402	385	387	401	404	409	426	437	443	451	451	442	438	431	431	420	421
23 Q	419	417	416	416	418	416	410	409	398	385	382	384	390	401	413	422	429	434	446	441	438	427	424	423	415
24	421	420	422	426	427	425	417	407	396	387	390	401	413	426	419	421	429	450	457	457	448	437	428	417	423
25	412	415	413	416	421	419	411	403	392	382	380	385	398	415	404	418	432	439	435	440	445	437	427	423	415
26	422	424	422	420	426	422	415	407	405	397	397	401	398	413	424	427	442	455	462	461	451	444	430	419	424
27 Q	416	420	419	420	425	422	410	401	389	380	377	385	401	415	420	425	431	438	443	450	449	443	429	428	418
28 Q	422	419	420	423	424	421	412	402	394	388	384	390	398	408	413	423	436	444	454	465	455	440	430	425	420
29	422	418	424	427	427	423	411	396	399	395	392	393	406	421	427	449	464	494	515	494	462	440	422	418	431
30	416	420	419	407	416	420	409	398	384	376	380	378	398	415	421	440	451	456	457	449	443	445	441	440	420
Mean	412	414	413	413	414	412	406	398	389	379	377	385	396	406	418	429	443	452	459	459	450	435	427	423	417

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −29γ.

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

26 LERWICK (D) — 12° + — JUNE, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	35·1	35·1	33·8	32·5	33·1	30·4	29·0	29·3	32·5	33·3	34·0	38·4	42·7	43·2	43·5	42·6	41·1	40·1	39·5	39·3	38·6	37·5	38·1	37·3	36·7
2 D	36·2	36·1	36·7	32·4	30·2	28·4	29·0	28·4	29·2	32·0	37·1	41·8	44·7	45·6	46·7	47·8	46·9	44·0	42·9	42·4	38·3	37·4	31·8	39·8	37·7
3	33·9	31·5	35·8	34·1	32·2	30·4	28·8	29·2	30·9	32·9	37·7	41·5	43·1	43·3	42·2	40·3	39·0	38·8	39·1	39·6	39·8	39·7	36·5	34·8	36·5
4 Q	37·2	36·5	37·3	38·4	32·3	28·6	27·3	28·1	31·1	34·3	39·1	41·4	42·1	42·2	42·2	41·5	39·7	38·4	38·5	38·8	39·0	38·4	38·2	38·1	37·0
5	37·7	40·4	37·2	29·4	22·9	23·0	25·1	27·9	29·1	31·1	36·0	39·4	42·5	43·8	44·4	43·4	42·2	41·2	40·5	40·3	39·6	38·5	38·1	38·4	36·3
6	40·6	40·8	38·6	33·7	30·2	28·4	28·5	31·4	34·2	35·2	37·2	39·4	42·2	44·1	44·1	40·1	40·1	40·3	40·1	40·0	36·9	41·5	41·3	40·1	37·9
7	39·2	38·2	35·9	33·9	31·0	29·5	29·5	31·5	33·1	36·3	38·6	41·3	41·8	42·4	41·3	40·9	40·0	39·3	39·1	38·6	39·2	39·2	39·3	39·8	37·5
8 D	39·7	40·4	31·3	35·7	41·1	28·2	31·7	30·4	32·1	31·2	37·8	39·5	42·0	42·5	42·1	41·8	44·3	40·9	41·1	33·8	39·1	39·2	37·0	36·5	37·5
9	38·1	38·8	36·4	34·6	34·1	31·1	29·4	29·4	29·5	31·5	34·3	37·9	40·8	43·1	43·0	41·9	42·1	41·2	39·1	38·4	38·2	37·3	37·0	38·2	36·9
10	35·9	35·6	34·4	32·3	30·0	26·8	26·0	27·4	29·3	33·2	40·9	44·3	46·8	47·9	48·0	42·5	40·7	39·5	41·3	38·2	38·9	36·6	31·4	31·6	36·6
11 D	31·7	26·0	23·3	24·9	27·6	27·2	26·1	30·6	32·2	35·3	39·3	42·1	44·1	43·6	45·0	42·0	39·3	39·9	38·2	35·1	37·9	32·3	35·0	39·3	34·9
12 D	37·8	27·4	34·1	40·4	42·8	43·3	35·3	27·3	30·2	30·2	34·3	38·8	41·5	43·2	43·5	40·6	39·2	39·3	44·7	43·1	38·4	39·3	37·8	35·5	37·8
13 D	32·4	33·5	25·5	27·9	25·3	27·3	28·1	28·5	34·3	36·3	41·3	43·0	43·3	45·8	46·7	46·3	40·4	42·9	43·0	40·0	38·6	40·3	38·4	39·1	37·0
14	38·3	33·1	27·7	28·3	29·7	28·8	29·0	29·1	29·7	31·3	33·4	36·6	39·3	41·8	41·2	39·5	38·1	37·0	36·8	36·6	36·9	36·5	37·3	36·0	34·7
15 Q	37·1	37·4	35·3	32·6	30·9	30·3	30·2	30·0	30·4	33·0	35·2	38·8	41·2	41·7	41·0	40·3	40·6	39·7	38·0	37·7	37·1	37·3	37·1	37·4	36·3
16	35·5	34·0	33·0	31·9	31·3	30·6	30·3	30·3	33·5	37·4	38·9	40·9	43·0	45·5	47·0	43·3	41·6	40·5	38·5	38·0	36·9	36·8	29·0	27·9	36·5
17	29·9	32·4	31·1	28·4	29·3	29·2	27·3	27·6	31·2	35·1	38·0	40·8	44·3	46·1	44·4	42·8	41·7	40·2	40·3	35·5	35·2	35·8	34·3	34·5	35·6
18	35·1	32·7	33·0	32·9	32·3	30·3	28·7	27·8	29·7	30·7	33·3	37·4	41·1	43·2	44·8	43·3	41·3	40·0	38·5	38·5	38·4	38·1	35·3	34·5	35·9
19	33·9	35·5	34·3	32·5	31·7	30·2	29·5	28·3	28·8	31·2	35·3	39·2	42·6	44·5	44·7	45·0	44·8	41·2	39·1	37·5	36·3	36·5	36·7	36·6	36·5
20	36·3	35·4	35·0	34·2	32·8	30·7	28·9	27·8	28·7	30·7	33·3	35·8	38·7	41·7	43·0	42·1	41·4	40·4	38·8	37·9	38·8	39·6	38·4	38·5	36·2
21	35·4	32·8	38·2	35·3	36·6	38·2	38·8	38·0	35·3	35·0	37·2	40·3	42·1	44·5	44·3	42·9	43·0	42·3	41·4	40·3	38·7	39·0	37·8	35·4	38·9
22	34·3	34·6	32·9	34·0	32·7	30·8	29·5	31·9	32·9	33·7	34·0	36·1	39·6	39·9	40·2	39·4	39·3	38·4	38·2	37·3	37·3	37·2	37·8	36·6	35·8
23 Q	37·0	36·7	35·5	34·3	33·0	32·4	31·2	30·0	29·5	30·9	34·2	37·4	38·6	39·1	38·8	38·4	37·5	37·5	37·2	38·0	38·0	38·1	37·6	37·4	35·8
24	36·7	36·3	35·9	34·6	34·1	33·2	32·3	30·9	31·2	33·7	36·6	40·3	40·2	40·8	40·2	40·6	39·6	41·1	40·8	38·3	38·3	39·5	39·2	37·0	37·1
25	35·2	37·1	30·9	30·2	29·4	29·8	29·7	30·8	32·1	35·1	37·3	39·4	41·9	42·8	40·5	39·4	39·2	38·8	38·1	38·5	37·8	36·7	39·0	36·6	36·1
26	35·9	34·7	33·9	31·9	29·6	28·0	27·3	28·0	30·1	33·3	35·2	36·6	37·9	39·1	41·5	40·8	38·3	37·7	38·1	38·6	38·4	36·2	35·5	34·8	35·1
27 Q	32·8	34·4	33·5	31·4	31·5	29·7	29·6	30·1	32·9	36·2	39·7	43·5	46·2	46·1	44·7	42·0	39·8	39·1	38·9	38·3	38·4	36·8	36·5	36·0	37·0
28 Q	35·4	33·4	32·9	31·6	30·1	29·1	27·8	26·8	28·7	30·8	35·7	40·7	44·0	44·9	44·1	42·7	40·2	38·0	38·8	34·9	35·3	36·0	35·4	34·9	35·4
29	35·4	35·6	36·1	33·1	32·2	30·0	27·9	28·7	30·8	32·9	36·2	41·1	45·1	46·0	44·9	44·9	43·6	44·2	40·2	36·1	38·3	38·8	38·0	37·1	37·4
30	35·2	33·3	33·1	31·5	29·4	26·4	25·3	27·4	30·5	34·1	35·4	39·2	42·8	45·4	45·2	44·2	41·4	39·2	38·3	38·2	38·5	38·3	38·0	36·3	36·1
Mean	35·8	35·0	33·8	32·6	31·6	30·0	29·2	29·4	31·1	33·3	36·5	39·8	42·2	43·5	43·4	42·1	40·9	40·0	39·5	38·3	38·0	37·8	36·8	36·5	36·6

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

27 LERWICK (V) — 46,000 γ (·46 C.G.S.unit) + — JUNE, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	826	820	826	838	845	852	852	854	845	838	829	825	826	838	840	840	845	845	841	845	848	845	843	840	839
2 D	839	835	825	821	832	831	832	838	839	833	830	822	824	831	837	839	863	892	883	860	849	781	753	734	830
3	849	757	807	834	852	855	858	855	849	846	836	825	822	824	830	839	842	845	845	847	852	851	833	815	828
4 Q	813	823	827	815	821	838	841	842	844	844	835	822	820	826	829	833	839	841	841	843	843	843	841	839	833
5	837	824	783	753	766	803	815	824	831	833	834	837	837	836	833	832	838	845	840	839	841	840	840	838	825
6	831	807	809	822	832	838	837	838	842	842	834	826	820	822	826	856	859	854	849	850	858	854	847	842	837
7	841	837	836	836	836	837	837	839	843	841	836	833	829	827	831	836	841	849	847	846	843	841	816	824	837
8 D	823	805	810	817	798	721	740	774	804	825	825	824	827	842	837	846	838	839	843	873	866	856	855	847	822
9	844	839	838	841	838	836	835	835	831	828	826	819	817	822	826	829	832	831	828	830	831	832	833	826	831
10	827	830	830	832	827	828	826	825	819	819	817	820	830	840	847	873	894	888	871	865	857	849	840	828	841
11 D	777	756	732	710	714	736	750	780	802	807	805	802	820	826	835	861	866	856	855	843	815	812	817	803	799
12 D	709	740	723	724	735	743	766	810	830	847	845	846	849	837	832	856	857	843	823	827	815	784	809	809	802
13 D	795	763	734	712	703	720	767	784	794	804	807	826	853	866	858	862	883	863	849	853	850	839	845	826	811
14	752	747	794	820	834	841	842	838	831	826	815	800	801	811	817	827	832	832	832	832	832	833	832	830	819
15 Q	823	813	819	831	838	841	842	843	841	835	831	822	815	816	824	834	839	838	838	836	838	839	837	824	832
16	821	825	828	833	834	838	836	834	832	818	808	798	804	814	823	853	866	867	861	848	842	831	810	810	831
17	807	808	794	804	817	831	834	828	827	825	817	817	819	818	826	832	834	833	832	856	857	850	846	838	827
18	828	827	831	833	836	839	838	840	840	835	834	823	814	815	819	820	828	833	838	839	839	840	838	828	831
19	827	828	826	827	833	838	832	828	831	828	823	814	812	812	812	815	817	829	836	837	839	839	836	834	827
20	832	832	833	833	833	832	833	834	834	834	822	808	802	804	812	817	824	831	834	838	833	829	833	831	827
21	830	833	822	808	794	787	789	784	789	809	825	843	854	864	866	864	859	863	860	860	854	849	844	840	833
22	836	833	829	826	817	821	833	834	837	841	833	825	829	830	835	843	842	840	842	842	840	840	834	836	834
23 Q	837	836	836	835	836	836	834	833	836	831	829	829	832	831	832	833	834	834	836	844	843	844	842	840	836
24	840	840	839	837	836	835	835	839	840	833	829	820	816	819	826	829	833	829	832	835	840	839	836	837	833
25	834	815	808	819	818	822	824	825	828	826	824	823	824	825	835	836	834	829	833	829	826	834	829	822	826
26	828	832	833	834	833	832	828	825	823	821	813	814	818	825	832	832	829	835	837	837	832	834	834	833	829
27 Q	832	823	818	824	825	825	825	824	820	817	819	818	820	824	830	835	841	840	835	835	838	836	835	829	828
28 Q	826	834	836	835	835	834	834	834	833	830	822	812	811	815	821	826	833	836	835	840	845	841	836	834	831
29	832	832	824	831	836	840	839	830	819	816	814	812	809	808	819	835	854	863	874	849	850	850	843	837	834
30	839	841	842	837	825	819	829	834	831	831	829	824	823	824	832	834	842	851	847	846	841	837	832	829	834
Mean	815	815	813	814	816	818	823	827	829	829	825	821	823	826	831	839	845	846	844	844	842	836	832	827	828

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −29γ.

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS: MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

28 LERWICK — JUNE, 1938

Day	Terrestrial Magnetic Elements																HR_H+VR_V §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force					Declination					Vertical Force								
	Maximum 14,000 γ +		Minimum 14,000 γ +		Range	Maximum 12° +		Minimum 12° +		Range	Maximum 46,000 γ +		Minimum 46,000 γ +		Range				
	h m	γ	γ	h m	γ	h m	′	′	h m	′	h m	γ	γ	h m	γ		10,000γ^2		
1	19 23	467	364	12 15	103	12 56	44·6	27·5	6 58	17·1	7 30	856	819	1 42	37		321	0	82·9
2 D	16 29	496	282	21 45	214	24 0	52·0	26·6	22 14	25·4	17 17	900	593	24 0	307		1745	1	83·7
3	19 42	457	124	0 14	333	0 0	52·0	26·4	0 32	25·6	6 33	860	538	0 9	322		1987	1	83·3
4 Q	17 59	452	351	10 20	101	3 13	44·0	26·6	6 34	17·4	9 34	846	804	0 0	42		342	0	83·3
5	19 19	475	356	10 19	119	14 58	44·9	21·7	4 54	23·2	17 12	846	745	3 51	101		644	1	83·8
6	20 27	478	370	10 33	108	0 44	45·3	27·5	5 56	17·8	15 37	862	805	2 9	57		423	0	84·0
7	22 5	499	374	9 39	125	13 29	42·6	28·8	6 10	13·8	17 48	853	809	22 30	44		386	1	84·0
8 D	19 44	543	342	9 34	201	1 34	45·5	18·8	9 8	26·7	19 37	891	710	5 26	181		1136	1	84·0
9	16 44	459	390	10 44	69	14 58	44·0	23·7	6 25	20·3	0 58	847	815	11 42	32		249	0	83·8
10	18 14	539	350	10 5	189	13 28	48·9	23·7	6 5	25·2	16 47	899	812	10 42	87		679	1	85·1
11 D	19 50	496	337	4 9	159	24 0	48·3	20·1	2 9	28·2	16 42	876	702	3 24	174		1043	1	85·9
12 D	19 19	509	288	0 22	221	0 4	49·3	23·5	7 5	25·8	15 48	871	685	0 23	186		1188	1	85·6
13 D	16 41	510	291	7 8	219	14 57	48·5	14·7	5 50	33·8	16 32	892	690	4 3	202		1260	1	85·5
14	23 23	429	376	9 10	53	0 3	43·6	26·3	2 25	17·3	6 26	848	731	1 20	117		624	0	85·1
15 Q	18 55	454	373	10 46	81	13 4	42·2	29·5	7 33	12·7	7 10	843	810	1 55	33		271	0	84·9
16	16 42	472	362	10 15	110	14 29	48·2	26·3	23 11	21·9	16 0	872	796	11 29	76		514	1	84·0
17	20 2	490	382	11 26	108	13 33	46·5	26·4	6 14	20·1	19 50	864	790	2 42	74		502	1	83·9
18	19 19	462	376	9 25	86	14 35	45·1	27·1	7 24	18·0	8 26	842	812	12 40	30		264	0	84·1
19	16 36	464	378	10 48	86	15 6	46·1	27·3	7 36	18·8	21 0	839	808	15 10	31		269	0	84·9
20	18 46	459	365	10 19	94	14 21	43·2	27·5	7 41	15·7	20 3	838	801	12 20	37		308	0	85·0
21	17 14	474	348	12 1	126	14 29	46·4	31·6	1 32	14·8	14 46	872	780	8 5	92		612	1	85·1
22	18 2	457	379	9 44	78	13 1	41·2	26·3	6 12	14·9	9 16	844	815	4 33	29		248	0	84·8
23 Q	18 34	448	381	10 49	67	13 50	39·3	29·4	8 20	9·9	19 34	844	829	11 25	15		166	0	84·4
24	17 45	462	382	9 34	80	17 45	41·7	30·2	8 11	11·5	8 30	843	813	12 22	30		255	0	84·6
25	20 46	446	378	10 10	68	13 16	43·5	28·6	4 37	14·9	15 29	838	799	1 56	39		281	0	84·5
26	18 57	466	391	10 53	75	14 41	42·8	26·3	6 22	16·5	19 13	840	812	10 27	28		239	0	84·0
27 Q	19 25	454	369	10 37	85	12 57	46·6	28·1	6 5	18·5	16 40	842	814	11 45	28		253	0	84·0
28 Q	19 37	470	382	10 40	88	13 6	45·2	25·8	7 15	19·4	20 52	846	810	11 50	36		295	0	83·8
29	18 54	543	389	11 24	154	13 16	46·3	26·3	6 45	20·0	18 49	897	806	13 30	91		648	1	83·9
30	16 41	462	368	11 13	94	15 8	46·8	23·9	6 4	22·9	17 46	855	816	5 29	39		318	0	84·0
Mean	-- --	476	353	-- --	123	-- --	45·5	25·9	-- --	19·6	-- --	859	772	-- --	87		582	0·43	84·3
No. of Days Used	-- --	30	30	-- --	30	-- --	30	30	-- --	30	-- --	30	30	-- --	30		30	30	30

§ For explanation see p. 21.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

29 LERWICK (H) — 14,000 γ (·14.C.G.S.unit) + — JULY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	438	431	426	422	397	420	417	401	362	327	348	378	389	405	448	462	498	516	503	483	459	414	350	303	417
2	421	417	423	420	395	339	387	392	391	379	377	378	378	386	407	430	461	466	452	441	436	432	427	424	411
3 Q	423	417	418	420	417	406	405	412	403	385	376	377	382	387	406	434	452	456	450	449	439	434	429	426	417
4 D	424	425	416	409	403	404	393	381	387	378	364	382	446	461	416	499	492	497	552	537	452	244	412	440	426
5	442	445	441	433	412	422	424	419	402	387	377	383	385	418	392	448	460	459	459	433	426	420	417	421	422
6	423	429	434	421	392	397	390	384	382	378	381	387	406	412	423	442	480	485	473	441	430	423	416	414	418
7	415	413	415	415	414	405	403	402	389	380	384	385	398	398	404	424	437	441	443	441	448	434	420	419	414
8	420	414	411	410	413	413	404	396	401	401	387	394	390	397	411	409	434	440	442	450	442	438	426	419	415
9	419	417	417	420	421	419	411	408	397	387	379	373	390	405	414	434	451	465	468	465	467	441	434	409	421
10 D	356	393	399	427	416	379	383	409	415	414	402	384	379	395	377	414	449	535	602	545	487	456	433	427	428
11	367	405	417	411	427	424	422	413	404	395	389	389	397	405	412	429	444	448	446	441	438	431	424	424	417
12	420	417	422	421	420	418	410	397	383	373	376	380	391	407	423	441	456	452	454	448	443	437	434	429	419
13	429	429	430	430	434	421	413	405	399	390	384	392	402	407	419	408	423	438	437	448	458	454	453	416	422
14	396	388	306	392	380	395	404	387	371	359	362	392	423	395	424	446	451	462	468	479	471	444	428	417	410
15 D	415	410	405	408	421	417	411	387	321	312	338	374	397	472	721	736	863	647	460	316	291	138	-53	-93	396
16 D	-32	89	323	392	399	381	376	360	321	317	362	398	441	404	389	453	472	479	497	439	432	422	398	400	371
17	398	395	386	390	394	393	382	394	381	370	369	372	371	374	391	405	419	429	449	441	424	415	411	408	398
18	407	406	407	408	410	408	410	399	387	374	366	368	378	378	414	417	437	432	440	447	438	429	422	412	408
19	390	394	401	410	413	415	412	399	396	380	380	387	379	386	406	428	431	438	445	437	429	427	422	418	409
20	418	420	420	417	417	409	417	407	390	388	381	381	387	403	415	430	424	456	461	461	449	438	424	408	418
21	400	399	413	420	421	416	408	410	405	397	397	392	399	415	434	448	467	465	472	450	443	434	431	422	423
22	421	423	424	423	423	420	406	395	390	378	378	384	405	423	441	448	469	481	442	438	435	428	429	423	422
23	422	417	416	415	415	412	410	400	389	370	363	368	386	395	404	433	445	448	454	451	448	433	413	413	413
24	417	416	416	420	423	417	401	388	375	370	371	376	391	405	420	438	452	462	459	448	444	435	430	429	417
25 Q	427	415	416	420	420	414	404	393	378	366	364	373	381	399	407	433	440	436	437	437	434	429	424	422	411
26 Q	422	421	421	422	423	417	406	395	384	380	382	391	406	421	432	433	444	456	456	450	440	424	419	417	419
27 Q	416	419	422	423	428	418	400	388	377	373	381	393	409	425	445	450	458	447	442	435	435	434	421	417	419
28 Q	419	418	420	422	421	414	402	390	380	376	378	384	398	417	421	422	423	430	436	435	439	435	432	424	414
29	422	422	422	426	426	421	413	407	393	381	374	386	395	397	381	420	455	455	450	454	458	447	446	417	419
30 D	412	422	384	414	428	291	221	209	268	317	352	354	352	396	375	378	408	418	421	463	486	420	356	352	371
31	354	375	400	397	396	391	388	378	375	373	369	364	369	379	386	400	416	429	434	431	428	421	416	416	395
Mean	397	403	409	415	414	404	398	390	381	373	374	381	394	405	421	442	462	463	461	449	440	416	406	397	412

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −31γ.

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

30 LERWICK (D) — 12° + — JULY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	38·3	35·7	36·4	39·9	39·5	30·0	24·8	25·2	24·7	29·3	38·4	40·4	45·6	48·4	46·8	45·2	43·3	36·4	40·9	39·9	40·2	38·2	35·3	35·3	37·4
2	27·5	32·5	30·3	32·2	33·8	44·8	41·5	35·3	28·8	32·9	32·7	36·7	40·3	42·1	42·8	43·4	40·8	38·8	38·0	38·0	36·8	36·8	37·2	37·3	36·7
3 Q	36·2	34·9	33·3	32·7	31·3	33·3	32·2	30·4	29·5	31·8	35·1	38·5	39·2	40·8	42·5	42·7	42·3	41·1	39·2	37·4	37·0	37·0	36·9	36·4	36·3
4 D	36·0	36·4	36·5	36·8	35·8	33·4	29·8	30·6	31·8	33·4	37·3	38·4	41·9	43·8	45·7	47·9	49·6	48·5	45·1	37·3	38·2	31·5	31·5	36·1	38·0
5	37·4	35·2	34·4	32·9	31·2	25·0	25·0	26·4	29·3	32·9	34·8	35·9	38·5	40·3	41·0	42·4	45·0	44·8	43·6	39·7	38·5	38·6	37·7	37·7	36·2
6	36·1	34·3	33·0	32·2	35·1	34·2	33·0	33·8	33·7	34·0	34·7	38·6	40·0	40·7	40·2	41·3	41·4	39·4	37·4	37·3	38·4	37·5	38·1	37·3	36·7
7	37·1	35·2	34·0	32·9	32·6	33·3	30·3	27·5	26·2	28·9	32·2	36·5	40·7	44·8	45·4	44·3	40·9	37·6	36·8	36·9	38·0	38·3	37·5	37·7	36·1
8	36·3	36·9	34·4	35·5	34·3	30·2	30·4	32·3	31·1	31·6	33·4	34·8	38·1	42·6	42·1	42·4	41·8	39·4	37·5	35·9	34·9	36·8	37·6	36·9	36·1
9	36·3	35·9	34·5	32·3	32·3	31·9	31·7	28·3	27·9	29·2	32·4	37·3	41·1	42·1	41·7	41·1	37·5	36·9	38·0	38·9	36·5	38·7	37·8	22·4	35·1
10 D	25·7	24·9	39·5	34·4	38·9	38·1	34·7	33·1	37·4	38·8	38·9	40·6	45·1	44·9	45·0	44·1	43·4	44·2	43·1	37·6	39·6	39·2	39·4	40·0	38·8
11	39·3	40·4	41·4	36·8	33·3	30·5	26·1	24·6	26·3	30·0	32·5	35·0	37·6	37·8	37·8	37·3	36·9	34·8	33·9	34·2	34·6	35·0	84·9	34·5	34·4
12	34·4	33·8	33·7	33·2	32·6	30·2	29·2	29·0	30·2	31·6	33·8	37·5	41·7	44·2	46·4	47·1	44·0	40·6	38·7	38·3	37·7	37·1	35·9	35·1	36·5
13	33·8	33·0	32·0	30·6	28·5	26·7	24·7	24·5	26·1	28·7	33·4	37·0	39·0	41·0	42·1	39·8	39·5	40·1	37·9	37·5	39·4	38·5	39·2	29·5	34·3
14	24·6	27·2	41·0	40·5	24·5	24·7	23·2	25·6	28·3	34·2	37·5	42·5	45·3	44·6	45·5	44·4	42·2	39·8	37·3	37·5	38·6	36·9	36·2	37·2	35·8
15 D	34·8	35·9	36·4	36·0	31·7	32·2	30·6	32·0	38·0	29·5	33·5	39·0	43·2	41·8	36·5	51·6	57·8	54·5	44·7	42·3	45·0	35·5	39·0	29·0	38·8
16 D	44·0	40·4	30·5	29·3	28·9	25·7	22·1	22·7	25·2	29·0	36·0	37·8	38·7	40·1	43·3	44·7	41·4	44·1	40·5	44·5	37·5	37·2	38·0	35·0	35·7
17	34·7	34·4	32·1	33·5	32·0	30·5	32·0	27·0	26·2	27·5	32·6	35·2	37·8	38·8	38·6	38·2	37·7	36·5	35·6	33·9	35·5	35·7	35·1	34·6	34·0
18	33·5	32·5	32·2	31·7	30·2	29·4	28·4	28·5	28·6	30·8	35·1	40·2	44·2	44·3	43·7	42·0	40·4	38·9	39·2	38·9	38·4	38·3	37·9	36·9	36·0
19	40·2	30·0	29·1	29·7	29·3	28·7	27·0	27·0	27·0	30·5	34·5	39·2	41·2	43·0	43·3	41·0	38·2	37·2	36·1	35·7	35·7	36·1	37·0	36·3	34·7
20	38·2	35·2	35·0	35·0	33·2	32·2	28·8	31·0	30·4	30·5	32·2	36·5	41·4	43·2	42·8	41·5	40·2	38·2	36·8	36·1	35·6	35·7	32·2	33·8	35·6
21	34·0	37·0	36·0	32·1	30·6	30·8	30·5	30·5	31·0	33·8	36·3	37·3	38·2	40·3	40·9	40·6	40·1	38·0	38·0	38·0	38·0	37·4	37·0	37·3	38·0
22	35·5	33·8	33·8	34·0	32·5	28·9	29·0	29·0	29·0	34·2	36·8	39·0	40·3	41·8	41·9	41·3	40·4	38·3	35·8	37·0	37·1	37·2	37·9	37·0	35·9
23	36·8	36·8	36·0	34·8	31·0	29·9	25·5	26·0	27·2	29·8	33·5	37·9	41·3	43·4	42·2	41·5	39·3	34·8	35·3	37·8	38·9	38·2	35·8	35·7	35·4
24	36·5	32·6	30·9	30·3	28·1	26·6	27·2	29·3	31·9	33·6	36·2	41·0	43·6	44·9	43·2	40·8	38·3	35·0	37·0	37·8	38·5	37·6	37·2	37·0	35·6
25 Q	36·3	33·8	34·1	32·0	30·1	28·2	27·9	27·5	28·0	30·5	34·7	38·0	42·8	45·2	44·2	42·0	38·0	35·2	34·0	35·6	37·0	37·0	36·6	36·3	35·2
26 Q	35·9	35·8	34·0	32·5	30·6	27·9	26·2	26·8	27·5	32·5	36·6	40·7	42·4	44·9	43·9	41·8	38·0	35·4	35·9	37·0	37·6	37·2	36·8	35·7	35·6
27 Q	34·0	33·1	31·9	31·5	30·0	27·9	26·2	27·7	31·5	34·5	38·0	41·0	43·6	43·3	42·5	39·3	36·4	34·6	35·2	36·0	36·5	35·8	33·7	34·6	34·9
28 Q	34·5	33·1	32·0	31·3	29·7	27·2	26·1	27·2	30·6	35·3	39·1	42·9	46·6	47·0	42·2	39·6	37·9	36·0	35·4	36·2	36·4	36·4	36·0	35·4	35·6
29	34·9	33·8	32·6	31·8	30·1	28·0	26·8	27·4	29·0	33·2	39·8	43·8	49·0	48·7	47·0	44·0	39·8	35·6	34·9	36·3	38·0	37·7	37·0	31·5	36·3
30 D	36·2	34·5	36·0	28·2	33·2	43·5	27·5	30·7	32·5	37·2	39·0	40·9	45·0	45·2	43·0	41·0	40·3	38·5	36·0	37·4	42·0	41·0	32·0	27·6	37·0
31	27·8	26·2	28·0	27·6	28·2	28·0	28·0	26·6	26·0	26·5	30·6	35·8	38·3	40·8	42·0	40·7	39·2	38·2	38·7	37·3	36·5	35·3	34·8	34·3	33·1
Mean	35·0	34·0	34·0	33·0	31·7	30·7	28·6	28·5	29·4	31·8	35·2	38·6	41·7	43·1	42·8	42·4	41·0	39·1	38·0	37·6	37·8	37·1	36·4	34·3	35·9

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

31 LERWICK (V) — 46,000 γ (·46 C.G.S.unit) + — JULY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	829	817	815	805	774	747	788	812	823	823	816	827	844	845	850	859	868	893	874	870	861	825	760	679	821
2	783	809	816	834	833	763	762	794	825	834	841	834	845	848	849	844	851	859	856	853	852	850	844	841	830
3 Q	839	841	842	841	837	838	836	839	842	839	841	836	830	830	826	825	831	841	848	851	851	846	842	838	839
4 D	837	835	834	825	804	791	803	812	815	823	822	818	824	863	914	893	884	882	912	866	845	783	820	853	840
5	841	837	829	836	824	816	834	841	849	844	838	837	845	860	889	890	889	878	862	859	851	846	843	839	849
6	837	838	838	836	819	799	812	809	805	819	836	838	852	869	885	877	878	879	882	865	853	854	852	848	845
7	847	848	850	848	850	838	843	847	852	843	838	835	833	839	844	837	843	852	853	850	843	835	840	843	844
8	842	842	831	828	821	828	834	829	821	826	836	843	855	858	867	871	863	866	859	851	852	852	850	847	845
9	847	846	845	845	844	841	836	836	836	830	832	828	828	834	844	846	860	864	864	857	847	842	819	786	840
10 D	705	736	754	791	811	774	794	798	807	813	819	831	840	847	867	858	851	845	900	930	873	874	865	849	826
11	761	768	808	814	833	840	845	852	853	854	851	843	839	844	843	840	844	845	844	844	843	843	841	839	835
12	840	843	843	843	843	837	838	840	839	830	827	829	828	827	826	828	835	843	837	835	835	833	837	845	836
13	849	853	855	857	859	857	851	849	843	831	823	816	814	822	823	825	831	832	839	839	830	826	820	783	834
14	777	711	644	708	751	798	826	839	847	844	837	830	839	856	837	836	850	863	872	864	858	857	856	840	818
15 D	819	796	789	802	824	834	832	830	833	821	839	893	874	924	1010	948	940	901	813	794	858	962	909	807	861
16 D	754	730	790	830	855	869	875	878	886	885	889	870	883	900	886	869	892	887	876	818	860	862	822	820	854
17	851	846	837	845	836	843	850	857	861	861	857	853	847	843	846	850	854	857	864	873	867	858	854	851	853
18	849	850	850	851	852	850	848	851	850	845	840	843	844	840	837	850	856	860	856	855	855	850	845	847	849
19	824	807	832	841	846	844	841	848	847	854	852	850	855	849	831	830	839	845	847	853	851	846	844	842	842
20	840	839	839	839	834	827	819	831	831	831	834	833	840	841	850	861	863	857	860	864	865	857	849	832	843
21	824	820	805	823	832	840	842	841	841	841	841	834	834	851	855	870	885	899	891	885	874	868	853	845	850
22	843	842	842	846	844	846	845	843	842	840	838	839	841	849	857	864	872	884	889	869	857	852	844	844	851
23	840	833	830	828	824	819	823	832	839	846	848	849	844	851	851	850	857	871	872	859	852	848	842	839	844
24	834	833	838	842	845	847	847	844	840	831	825	825	830	835	845	857	869	872	864	854	849	847	844	842	844
25 Q	840	841	840	843	847	847	844	840	840	841	837	837	838	840	844	845	859	866	862	852	847	844	844	845	845
26 Q	845	847	847	848	848	847	846	843	837	828	826	828	829	838	858	882	890	885	873	863	858	852	845	843	850
27 Q	844	846	847	846	842	840	836	832	828	826	825	820	823	828	838	846	848	853	849	842	837	835	837	837	838
28 Q	838	841	843	845	845	843	840	836	831	821	820	820	818	826	833	839	843	847	844	843	840	838	836	836	836
29	837	839	842	844	846	846	841	833	824	817	811	812	819	832	839	848	869	887	888	867	850	844	826	810	840
30 D	816	780	740	742	773	731	743	743	776	837	857	882	865	873	888	876	871	878	877	869	852	811	741	761	816
31	769	821	857	866	868	868	870	868	858	852	857	854	850	851	853	854	855	856	853	852	854	853	850	847	851
Mean	823	820	822	829	831	826	830	834	836	836	837	838	840	849	858	857	863	866	864	856	852	848	838	828	841

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −31γ.

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS: MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

32 LERWICK — JULY, 1938

Day	Terrestrial Magnetic Elements																		HR_H+VR_V §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force					Declination				Vertical Force											
	Minimum 14,000 γ +		Minimum 14,000 γ +		Range	Maximum 12° +		Minimum 12° +		Range	Maximum 46,000 γ +		Minimum 46,000 γ +		Range						
	h m	γ	h m	γ	γ	h m	′	′	h m	′	h m	γ	h m	γ	γ				10,000γ^2		
1	17 27	522	23 5	147	375	13 10	49·6	22·1	8 24	27·5	17 24	903	23 2	619	284				1869	1	83·8
2	17 15	474	5 25	310	164	5 34	47·1	23·4	0 27	23·7	17 3	863	5 52	724	139				887	1	83·7
3 Q	17 30	461	10 47	372	89	15 54	43·0	28·4	8 26	14·6	20 4	853	15 26	823	30				268	0	83·7
4 D	19 5	569	21 26	− 8	577	16 20	51·9	21·4	21 54	30·5	18 45	938	21 23	699	239				1950	2	83·9
5	1 0	467	14 33	355	112	16 26	46·2	21·7	6 6	24·5	14 35	898	5 9	807	91				587	1	84·4
6	16 15	504	9 0	373	131	16 17	44·5	29·9	3 24	14·6	14 44	895	5 30	795	100				657	1	85·3
7	20 13	454	9 37	377	77	14 5	45·9	25·3	7 54	20·6	17 21	854	12 17	829	25				228	0	85·1
8	19 43	455	10 50	383	72	13 44	44·2	28·3	5 49	15·9	15 10	877	4 11	819	58				375	0	85·2
9	19 56	496	11 19	370	126	13 35	42·6	18·8	23 55	23·8	17 54	868	24 0	747	121				747	1	85·2
10 D	18 12	650	0 33	322	328	17 55	48·0	20·0	1 23	28·0	19 5	950	6 6	666	284				1801	1	85·0
11	18 13	456	0 44	278	178	0 24	52·4	24·1	7 19	28·3	9 33	855	0 50	667	188				1136	1	85·0
12	16 33	465	10 10	370	95	15 5	48·5	28·0	7 25	20·5	4 11	844	14 56	820	24				249	0	85·4
13	20 8	491	23 53	376	115	14 30	43·6	20·6	24 0	23·0	4 55	863	23 49	765	98				625	1	85·6
14	20 10	492	2 29	208	284	2 10	62·0	18·0	2 1	44·0	18 57	876	2 28	547	329				1949	1	86·3
15 D	16 22	1076	22 56	-428	1502	22 58	72·3	-8·5	21 47	80·8	14 33	1065	23 16	651	414				4101	2	86·7
16 D	18 52	634	0 45	-252	886	0 57	71·2	10·3	1 24	60·9	18 50	938	1 1	603	335				2844	2	86·8
17	18 45	457	6 19	364	93	13 55	39·0	25·5	8 37	13·5	19 39	876	2 27	830	46				349	0	87·1
18	19 23	456	11 17	361	95	12 9	45·2	27·3	6 52	17·9	16 53	862	14 19	833	29				273	0	87·0
19	18 33	449	12 8	372	77	0 30	47·0	25·0	7 11	22·0	19 51	856	1 8	796	60				392	0	87·0
20	18 17	468	11 0	374	94	13 40	44·2	27·3	6 35	16·9	16 3	869	6 28	815	54				388	0	86·7
21	18 19	479	11 2	388	91	14 3	42·3	29·0	8 25	13·3	17 31	901	2 19	800	101				604	0	86·9
22	17 29	499	11 1	373	126	13 43	42·7	27·2	8 18	15·5	18 13	899	10 14	837	62				471	0	87·0
23	17 48	465	10 15	360	105	13 43	44·0	24·2	6 32	19·8	18 20	875	5 50	815	60				432	0	87·1
24	17 49	470	10 55	367	103	13 8	45·5	26·0	5 10	19·5	17 39	876	10 31	823	53				396	0	87·1
25 Q	16 27	441	10 8	361	80	13 38	45·6	27·1	7 16	18·5	17 33	866	1 5	832	34				274	0	87·2
26 Q	17 53	459	9 11	377	82	13 28	45·5	25·2	8 16	20·3	16 22	892	10 35	826	66				427	0	87·3
27 Q	16 44	464	9 29	373	91	12 45	44·6	24·3	6 27	20·3	17 40	854	11 53	818	36				299	0	87·0
28 Q	17 11	441	9 40	374	67	12 57	48·5	25·4	6 17	23·1	17 47	849	12 10	817	32				246	0	87·4
29	16 41	472	10 52	364	108	13 4	50·0	25·3	6 31	24·7	18 35	891	23 5	790	101				629	1	87·3
30 D	19 54	520	7 35	181	339	21 9	63·5	18·3	6 25	45·2	11 29	899	5 44	689	210				1471	1	87·1
31	18 36	436	0 36	339	97	14 40	42·2	20·8	1 1	21·4	7 17	871	0 0	754	117				688	1	87·2
Mean	-- --	505	-- --	287	218	-- --	48·5	22·9	-- --	25·6	-- --	886	-- --	763	123				891	0·58	86·0
No. of Days Used	-- --	31	-- --	31	31	-- --	31	31	-- --	31	-- --	31	-- --	31	31				31	31	31

§ For explanation see p. 21.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

33 LERWICK (H) — 14,000 γ (·14 C.G.S.unit) + — AUGUST, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	421	415	417	413	418	416	411	401	406	394	385	378	392	401	440	447	518	560	461	421	466	412	369	186	415
2	262	294	279	203	254	417	417	402	391	382	374	374	375	396	442	457	516	534	522	483	436	411	387	353	390
3 D	307	319	381	413	425	422	410	392	374	359	354	348	351	363	379	394	423	458	460	460	460	317	194	-107	361
4 D	-73	190	387	406	405	368	358	345	322	316	352	374	406	506	480	496	573	508	473	475	421	395	359	275	380
5	216	324	264	186	295	336	382	363	358	350	348	351	388	411	530	507	528	521	483	463	432	409	395	382	383
6	333	344	375	359	365	404	398	377	366	365	357	362	380	390	423	433	426	439	450	453	445	425	415	415	396
7	403	400	402	402	387	410	414	393	369	361	352	363	372	388	415	483	431	455	456	437	425	416	416	417	406
8	415	414	413	410	404	405	408	404	391	380	376	374	382	382	388	408	414	421	437	440	430	422	419	416	406
9	420	417	412	414	416	414	413	405	393	379	375	377	391	396	405	406	414	420	422	432	431	425	421	414	409
10	411	409	413	417	421	412	400	400	394	379	377	377	383	397	421	429	449	438	432	433	433	433	429	423	413
11 D	419	417	417	426	442	444	428	415	395	350	324	361	563	584	614	693	610	528	493	463	445	426	401	373	460
12	375	383	388	394	404	395	377	362	349	343	345	362	375	391	408	405	411	396	411	412	412	416	412	408	389
13	408	406	405	403	404	403	393	382	375	367	368	372	378	382	392	404	411	420	427	424	423	418	414	414	400
14	412	410	410	408	405	401	396	388	379	370	369	378	387	384	392	406	422	433	433	432	422	420	413	414	403
15 Q	408	405	404	405	410	410	407	399	387	379	378	378	394	407	419	424	428	427	429	430	425	422	415	415	409
16 Q	413	414	414	410	409	408	403	396	389	383	371	368	372	372	381	395	409	425	430	434	430	427	423	417	404
17	417	419	420	421	419	415	411	404	389	378	376	377	385	411	415	398	413	430	434	442	439	432	426	417	412
18 Q	416	417	416	414	417	417	415	410	401	389	378	377	388	410	419	417	421	438	445	443	439	432	433	428	416
19	426	427	425	423	421	422	425	415	398	379	366	369	374	391	404	432	436	448	435	430	434	426	422	422	415
20 Q	421	419	420	421	420	418	412	408	401	386	377	375	383	402	417	422	427	433	431	434	435	432	428	430	415
21	429	428	426	425	422	419	412	400	387	375	374	379	402	384	403	422	464	481	478	446	417	413	409	411	417
22 D	411	412	413	396	399	403	405	396	383	375	367	374	389	416	478	455	511	447	461	490	499	472	437	433	426
23 D	425	413	433	432	430	405	400	394	380	307	341	394	413	418	408	410	402	401	417	415	418	413	412	411	404
24	413	412	410	405	400	393	384	377	370	367	368	372	375	391	397	410	414	417	422	432	436	434	434	404	402
25	383	404	394	400	402	401	388	376	362	353	350	358	378	398	413	420	430	428	446	435	424	423	415	408	400
26	412	408	409	410	408	403	392	376	358	351	360	373	390	395	403	408	422	422	421	431	430	426	427	422	402
27 Q	418	419	421	419	418	412	402	389	375	363	365	370	378	396	408	420	425	430	438	446	439	432	430	424	410
28	422	422	422	419	416	412	404	390	374	362	362	366	381	386	410	426	427	450	453	466	456	446	438	432	414
29	421	430	422	424	426	422	417	402	389	365	357	358	371	386	405	413	423	459	482	467	453	434	433	435	416
30	422	416	427	428	383	416	421	412	395	374	362	363	376	400	395	400	417	445	454	456	436	425	420	419	411
31	420	415	417	430	420	410	402	396	385	372	368	366	389	395	410	412	417	423	433	433	432	432	431	432	410
Mean	381	394	402	398	402	408	403	393	380	366	364	370	388	404	423	434	446	450	447	444	436	421	409	385	406

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −28γ.

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

34 LERWICK (D) — 12° + — AUGUST, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	35·2	37·6	35·1	33·1	30·7	27·7	24·1	25·7	25·7	28·6	36·2	37·9	40·3	43·8	46·1	44·0	39·7	29·1	35·1	38·1	40·3	38·3	39·6	37·9	35·3
2	27·4	20·1	23·4	40·9	24·7	22·4	24·6	25·9	29·2	31·9	33·5	36·3	37·3	37·9	38·5	37·9	37·7	34·7	34·7	35·0	37·4	34·7	33·2	31·5	32·1
3 D	36·9	27·6	25·9	27·0	25·8	24·9	23·6	24·7	25·9	30·7	33·8	36·7	39·5	41·2	41·0	39·7	37·1	37·0	36·1	37·2	37·6	44·9	12·4	-1·6	31·1
4 D	10·9	29·1	29·5	26·4	25·9	26·9	33·1	23·8	30·4	36·0	37·2	42·1	43·6	44·8	47·9	49·7	42·7	44·9	43·6	40·4	38·0	38·4	32·2	34·5	35·5
5	30·1	31·2	30·9	26·7	20·6	22·7	22·8	21·7	28·6	27·4	31·6	35·6	39·8	43·6	40·2	41·7	37·0	40·5	39·3	37·7	37·1	35·8	34·2	34·3	33·0
6	37·0	36·6	32·8	33·0	32·7	26·8	24·2	23·5	24·4	26·9	32·4	37·2	42·5	44·1	41·4	37·1	33·1	32·3	34·0	33·6	36·4	37·1	36·5	33·9	33·7
7	36·6	34·4	32·0	30·6	31·0	28·3	29·8	31·5	33·4	37·8	40·2	42·0	43·5	43·4	42·6	38·1	34·9	35·0	33·6	35·0	37·2	36·9	36·7	35·9	35·9
8	35·3	34·9	34·9	34·4	33·5	30·6	29·1	28·8	29·9	32·7	37·8	40·9	42·7	41·9	38·9	35·7	33·1	32·6	33·9	32·9	35·3	36·3	36·9	35·9	35·0
9	35·8	34·7	33·6	31·9	29·8	28·4	28·5	28·4	29·1	32·1	35·3	40·3	43·4	42·4	40·3	37·9	35·6	33·7	34·1	35·4	35·8	36·3	35·3	33·7	34·7
10	33·8	33·3	31·4	31·9	24·9	25·3	25·0	28·3	26·6	32·7	35·6	39·9	42·7	44·2	44·8	42·0	40·6	38·6	37·3	37·5	34·8	34·4	35·1	35·4	34·8
11 D	41·0	37·8	31·3	28·2	26·9	30·9	34·0	35·4	38·8	35·3	29·8	35·7	39·9	49·6	54·6	47·6	39·9	40·1	45·8	44·6	45·1	43·4	31·7	34·1	38·4
12	34·4	32·1	27·7	26·6	25·0	25·5	26·8	29·1	30·4	34·4	38·6	40·4	42·5	42·0	39·9	38·4	36·3	34·7	36·3	36·0	35·4	35·5	35·2	34·8	34·0
13	34·4	34·8	33·6	33·4	31·9	27·6	26·3	25·5	27·9	32·3	36·5	40·4	42·8	43·8	41·8	38·4	35·9	34·5	35·0	35·1	33·7	34·7	34·7	34·2	34·5
14	33·3	32·4	31·8	30·5	29·3	28·2	28·3	29·0	30·2	33·2	36·7	39·3	41·8	42·0	40·5	39·1	37·7	36·5	35·5	36·2	35·3	36·3	36·5	33·0	34·7
15 Q	32·4	32·0	31·0	30·6	30·3	29·6	30·0	29·9	30·8	33·3	36·2	39·6	41·6	41·5	40·0	37·6	35·5	34·1	34·2	35·7	35·5	36·2	35·1	34·5	34·5
16 Q	33·7	32·5	32·3	31·3	30·2	27·6	27·0	26·8	27·1	29·2	33·3	37·5	40·6	42·1	41·4	39·6	37·4	35·1	34·5	35·4	35·6	34·6	34·3	33·4	33·9
17	32·9	32·3	32·4	31·5	30·4	28·8	28·3	28·7	30·4	33·9	38·3	42·5	45·9	46·4	44·7	41·1	38·2	36·3	35·7	35·9	35·5	35·0	33·6	33·4	35·5
18 Q	33·4	31·8	32·4	32·5	30·9	30·7	30·5	30·4	31·3	33·5	35·5	38·6	40·9	41·3	40·4	39·0	38·1	37·0	36·1	35·7	36·3	36·9	36·7	35·4	35·2
19	34·0	34·3	33·8	33·5	32·2	28·4	27·5	27·0	27·2	30·2	33·3	38·0	42·9	44·6	42·3	40·3	36·9	34·8	34·2	36·2	37·2	37·3	36·8	35·8	34·9
20 Q	34·5	33·7	33·0	32·4	31·8	30·9	30·4	29·3	30·0	32·7	37·6	40·8	42·6	43·1	40·8	38·6	36·8	35·8	35·6	35·4	35·5	35·8	35·2	34·9	35·3
21	34·5	34·0	33·0	31·7	30·0	27·5	26·3	27·2	27·9	30·8	36·1	41·6	46·9	46·1	44·3	41·0	39·7	38·3	37·6	36·3	36·5	37·6	31·9	31·5	35·3
22 D	33·3	32·8	32·4	32·7	31·3	28·2	27·4	27·8	29·8	34·1	37·9	40·6	40·5	40·7	46·5	42·9	43·2	40·5	41·6	43·7	37·2	34·7	30·4	32·5	35·9
23 D	32·1	35·7	32·4	32·3	27·2	24·8	24·4	26·9	34·1	36·0	52·2	49·0	45·9	43·4	40·8	36·2	34·3	32·7	33·8	34·5	35·0	35·3	35·0	34·0	35·3
24	33·6	33·2	32·5	31·9	30·7	28·8	27·9	28·5	30·0	32·8	36·3	40·3	40·8	41·2	39·0	36·9	34·1	34·3	36·3	36·7	37·6	35·9	36·3	28·6	34·3
25	22·0	28·6	32·0	33·6	26·0	23·7	25·1	25·8	28·7	33·1	37·5	41·1	43·8	42·9	39·2	36·1	35·0	34·0	33·4	33·1	35·6	35·7	36·1	35·7	33·2
26	33·5	32·0	31·7	30·9	28·4	26·3	25·9	27·0	28·7	32·7	37·4	42·3	44·4	43·9	41·5	37·3	34·8	33·8	34·3	35·3	34·0	36·3	35·6	30·1	34·1
27 Q	30·9	31·7	31·5	30·5	31·0	29·5	28·1	27·4	29·0	33·5	37·0	41·6	43·9	45·3	43·7	40·8	37·4	35·9	36·1	36·9	36·8	36·7	33·5	34·1	35·1
28	33·6	32·8	32·0	30·8	29·5	28·1	27·1	26·9	27·2	30·9	34·3	37·9	41·0	41·9	42·0	42·0	38·6	38·7	37·6	39·4	36·8	32·4	29·4	31·7	34·3
29	31·4	31·4	29·2	30·6	28·9	28·9	28·7	28·1	28·3	32·4	36·2	40·8	43·5	44·1	42·5	40·5	38·2	37·0	32·4	33·5	35·5	35·7	35·1	36·3	34·5
30	32·2	31·8	28·7	27·5	34·9	31·7	28·0	26·9	28·5	31·7	35·3	38·3	40·5	43·3	40·0	37·9	35·9	35·8	32·7	33·2	36·5	36·3	33·6	32·8	33·9
31	32·7	33·0	34·8	31·6	30·7	32·1	32·2	31·2	32·6	33·5	35·7	39·4	42·8	43·5	42·6	39·2	36·5	34·7	34·8	34·8	34·7	35·7	35·4	34·7	35·4
Mean	32·7	32·6	31·6	31·3	29·3	27·8	27·6	27·6	29·4	32·5	36·2	39·8	42·3	43·2	42·3	39·8	37·2	35·9	36·0	36·3	36·5	36·4	34·0	32·8	34·6

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

35 LERWICK (V) 46,000 γ (·46 C.G.S. unit) + AUGUST, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	840	827	822	833	842	845	845	849	843	846	851	848	847	860	875	917	963	974	924	878	860	870	775	663	854
2	668	668	617	559	569	771	838	860	861	868	882	860	864	874	893	912	914	927	909	890	869	798	794	781	809
3 D	744	703	780	823	844	851	858	865	867	859	849	842	839	839	842	849	850	861	872	873	870	778	529	548	810
4 D	814	701	778	845	861	850	807	830	850	872	864	868	912	930	932	938	909	918	914	903	873	855	828	713	857
5	696	760	731	689	720	774	800	845	848	855	865	866	870	882	927	938	941	949	900	882	848	852	842	832	838
6	786	804	832	833	816	831	846	855	855	857	860	859	850	850	854	870	882	881	875	875	861	855	845	812	848
7	814	825	833	838	831	826	827	839	849	852	853	846	849	857	850	876	924	910	903	882	861	853	850	849	854
8	850	851	852	854	849	843	842	844	846	845	846	845	844	853	854	854	855	855	850	853	855	850	846	845	849
9	841	844	849	849	850	847	844	844	848	850	845	840	838	842	845	849	847	848	845	842	844	843	840	839	845
10	843	844	845	842	844	839	834	828	828	827	821	821	817	817	822	829	830	841	843	839	842	839	838	838	834
11 D	813	792	801	816	828	830	826	821	828	839	847	852	938	951	978	985	976	923	901	909	899	884	871	861	874
12	855	848	866	865	860	859	861	862	861	859	857	853	854	858	859	863	862	858	848	850	848	845	845	846	856
13	846	846	845	848	843	844	845	845	840	838	832	830	832	834	839	847	853	851	848	846	846	842	839	839	842
14	840	843	844	846	845	843	840	837	834	828	827	825	826	835	838	840	846	851	853	852	850	844	838	820	839
15 Q	829	836	840	842	840	840	844	843	841	844	840	832	828	830	837	845	851	855	854	849	847	844	843	840	841
16 Q	840	840	842	845	845	846	850	849	843	838	839	837	835	835	839	843	841	842	844	844	843	842	839	838	842
17	838	837	837	839	841	841	840	842	837	831	826	824	822	826	843	865	865	857	852	850	851	849	841	833	841
18 Q	819	823	831	836	840	841	844	849	853	856	855	845	836	835	845	853	847	845	849	853	850	845	842	841	843
19	840	839	838	836	831	830	832	835	838	836	830	824	836	832	836	843	855	870	876	861	850	849	845	840	841
20 Q	839	840	840	840	840	840	840	842	840	840	838	834	830	828	832	838	839	843	844	842	841	840	840	840	839
21	841	841	840	841	843	843	844	842	845	845	838	829	828	832	830	832	838	868	892	887	876	854	847	848	847
22 D	847	848	845	845	838	839	841	845	846	841	843	843	841	840	835	866	874	906	866	859	922	892	838	823	853
23 D	817	801	773	761	769	799	823	836	833	867	836	822	829	837	849	854	856	851	845	846	844	845	846	848	829
24	849	851	852	853	853	854	852	848	847	845	843	841	841	841	846	848	851	849	844	839	838	840	840	835	846
25	825	822	820	821	829	839	841	845	846	845	843	841	841	849	853	856	857	861	855	859	851	846	846	839	843
26	833	846	849	848	852	852	849	848	843	833	825	825	824	831	839	843	843	847	846	843	844	841	834	828	840
27 Q	833	837	841	845	847	850	851	851	849	845	840	838	835	834	836	840	846	847	844	841	841	840	834	835	835
28	838	841	843	846	848	849	848	847	845	838	831	833	832	835	834	832	835	834	841	840	852	855	838	826	840
29	822	809	826	837	842	845	845	845	839	841	838	829	829	832	843	852	853	849	860	862	862	863	851	832	842
30	794	777	773	772	772	786	823	837	843	848	848	843	837	835	849	851	851	849	858	860	854	851	847	845	829
31	841	836	819	807	823	833	838	838	839	841	839	837	838	843	846	845	846	848	847	850	849	845	843	841	839
Mean	819	815	819	821	828	832	839	844	845	846	843	840	843	848	855	864	868	870	865	860	856	847	829	817	842

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −28γ.

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS: MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

36 LERWICK AUGUST, 1938

Day	Terrestrial Magnetic Elements																		HR_H+VR_V §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force						Declination						Vertical Force								
	Maximum 14,000 γ +			Minimum 14,000 γ +			Maximum 12° +			Minimum 12° +			Maximum 46,000 γ +			Minimum 46,000 γ +					
	Range			Range			Range			Range			Range			Range			10,000γ²		
	h m	γ		h m	γ		h m	′		h m	′		h m	γ		h m	γ				°A
1	17 4	650		23 44	691		23 37	53·6		23 56	46·5		17 8	994		23 36	467		3181	2	87·6
2	17 13	549		4 4	579		3 32	55·4		1 38	41·5		17 55	932		4 11	470		3034	2	87·7
3 D	20 8	480		23 34	835		21 47	82·1		22 56	102·4		18 52	876		23 25	481		3453	2	87·8
4 D	16 53	598		0 4	847		14 57	52·7		0 5	62·8		15 54	962		23 45	387		3031	2	88·1
5	16 22	586		3 10	575		17 49	58·5		4 49	43·3		17 46	977		0 3	359		2508	2	88·8
6	20 3	479		0 35	164		13 26	44·6		7 33	23·0		16 18	890		0 42	127		830	1	89·6
7	15 25	500		10 38	154		13 1	44·1		5 4	17·8		16 40	935		0 10	128		821	1	89·8
8	19 46	450		11 17	82		12 54	43·6		6 35	15·9		17 10	858		12 23	19		207	0	90·1
9	19 30	436		10 13	62		12 43	44·6		6 10	16·9		9 40	850		12 25	14		155	0	91·1
10	16 45	462		11 36	98		14 19	46·3		6 34	25·1		17 56	851		12 21	40		328	0	91·6
11 D	15 37	731		10 35	421		14 47	59·5		4 20	34·6		15 11	1016		1 42	227		1668	1	92·0
12	18 4	439		9 55	103		13 1	43·7		5 30	20·9		2 52	869		1 30	31		293	0	92·5
13	18 30	434		9 46	70		13 25	44·5		7 50	21·6		16 27	855		10 58	26		223	0	92·5
14	17 33	442		10 1	76		13 7	43·5		5 53	15·6		18 4	855		23 12	41		301	0	91·8
15 Q	19 26	433		11 20	58		12 35	41·8		7 34	12·6		17 14	856		0 4	32		234	0	91·0
16 Q	19 6	436		11 25	69		13 34	42·5		5 58	16·4		6 39	851		12 17	16		174	0	90·0
17	19 20	444		11 16	72		13 7	47·0		6 54	19·9		15 28	870		12 26	50		338	0	89·3
18 Q	18 58	450		10 44	75		12 45	41·6		6 54	11·6		9 14	856		0 46	44		314	0	88·4
19	17 56	457		10 26	95		13 23	45·3		7 34	19·4		18 15	879		11 20	58		399	0	87·4
20 Q	17 31	439		11 38	67		13 6	43·2		7 58	15·2		18 1	846		13 25	19		185	0	86·8
21	17 32	495		11 14	127		12 47	48·3		7 27	22·9		18 39	895		12 33	70		511	1	86·4
22 D	16 34	545		10 38	179		14 40	49·9		6 3	23·7		20 47	937		14 7	122		829	1	86·0
23 D	14 34	497		9 34	271		10 24	56·9		6 8	36·1		9 35	892		3 43	146		1673	1	86·0
24	19 16	477		10 45	116		12 35	42·9		23 59	26·6		5 32	855		23 7	27		293	1	85·9
25	18 50	466		10 28	116		12 49	44·5		0 5	29·1		17 29	864		0 55	53		415	0	86·0
26	19 55	437		9 35	87		12 50	45·1		5 49	20·4		4 51	854		12 44	32		275	0	86·4
27 Q	19 41	449		9 46	88		13 10	45·9		7 17	19·1		7 30	851		0 4	21		225	0	86·7
28	19 25	474		11 3	118		15 20	44·9		22 34	18·5		21 7	868		23 54	44		376	0	86·6
29	18 58	503		11 26	149		13 23	44·5		18 42	20·1		19 50	869		1 31	70		543	0	86·1
30	19 24	461		4 23	105		13 36	44·6		7 41	19·9		18 51	865		1 55	116		694	1	85·7
31	18 40	436		11 50	75		12 47	44·1		4 20	15·2		19 45	851		3 34	47		328	0	85·0
Mean	-- --	488		-- --	214		-- --	48·1		-- --	26·9		-- --	886		-- --	122		879	0·58	88·4
No. of Days Used	-- --	31		-- --	31		-- --	31		-- --	31		-- --	31		-- --	31		31	31	31

§ For explanation see p. 21.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

37 LERWICK (H) — 14,000 γ (·14 C.G.S.unit) + — SEPTEMBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 Q	434	425	420	420	413	413	414	410	396	386	374	371	376	396	404	410	418	450	437	437	431	432	429	427	413
2	422	421	421	423	424	421	419	416	412	400	392	386	380	385	386	409	420	430	438	442	441	435	433	432	416
3	432	429	427	427	423	421	425	413	392	365	370	377	374	396	410	415	424	446	437	432	431	425	420	415	414
4	416	416	415	415	418	417	408	399	387	384	380	382	383	387	403	434	413	435	443	439	433	424	420	433	412
5	428	419	400	410	420	429	424	411	395	377	363	361	379	412	418	446	402	400	417	420	418	418	416	418	408
6 Q	417	418	419	420	421	421	413	402	388	375	370	379	393	404	408	409	411	416	426	430	432	432	433	434	411
7	432	428	425	425	420	407	412	409	401	387	370	374	385	405	408	416	458	415	419	425	428	426	423	428	414
8	429	412	410	411	418	417	415	406	393	382	371	374	392	405	410	428	429	420	431	429	431	428	428	425	412
9	424	425	424	423	423	423	420	410	398	382	381	389	385	378	403	423	417	435	434	431	427	417	421	415	413
10	417	412	416	418	416	414	409	408	384	370	371	390	389	406	416	430	434	422	429	437	427	424	425	424	412
11	423	423	418	410	422	419	414	401	383	370	374	386	390	391	407	405	418	422	435	425	421	408	425	416	409
12	416	410	401	409	418	424	403	402	401	385	374	380	386	401	420	422	435	421	432	421	419	417	419	422	410
13	418	411	412	404	379	428	429	419	400	388	385	388	394	404	418	418	420	419	446	474	465	355	100	172	389
14 D	153	384	319	119	378	408	401	393	391	377	372	380	389	411	456	492	709	632	469	280	351	100	-55	-80	339
15 D	-148	39	-140	85	230	183	221	291	303	372	395	463	594	704	721	785	637	404	425	387	311	355	319	350	345
16	315	188	250	373	394	400	397	393	381	365	359	355	359	374	382	376	399	405	421	434	418	400	357	379	370
17	365	384	389	361	357	396	399	391	379	373	368	370	385	386	395	412	400	398	409	412	413	409	407	405	390
18	403	401	396	399	401	401	401	397	394	382	369	360	362	371	359	379	394	398	409	411	410	409	413	406	393
19 Q	407	406	406	407	407	405	402	399	394	384	372	369	371	378	384	395	401	417	418	424	412	409	411	410	399
20	420	414	413	416	419	419	417	412	395	377	368	361	353	362	371	385	399	412	420	419	419	418	417	419	401
21	417	417	417	417	417	417	411	407	396	386	376	373	387	395	386	402	418	417	424	428	426	421	390	400	406
22	408	415	415	413	415	419	401	393	379	359	364	373	379	373	375	401	407	416	418	419	418	417	415	413	400
23	412	409	418	410	410	418	417	406	397	388	376	364	366	371	374	384	393	404	416	424	421	418	419	413	401
24 Q	411	413	413	408	410	412	411	404	390	374	363	366	375	381	401	413	412	414	425	427	426	416	411	414	404
25 Q	413	412	412	414	412	413	411	406	392	376	367	366	369	375	391	402	412	412	426	423	425	427	427	425	405
26 D	414	403	409	418	428	425	422	407	347	344	353	375	362	426	406	467	511	579	504	435	363	325	278	183	399
27 D	339	374	377	381	389	391	395	369	343	347	357	357	369	401	427	420	420	430	417	413	413	395	281	253	377
28 D	68	-212	-293	-138	227	376	387	393	380	367	366	374	375	403	392	410	420	399	395	394	398	395	396	393	294
29	392	387	391	394	395	378	362	391	386	372	363	380	374	403	399	411	408	401	398	401	410	411	392	395	391
30	397	396	395	392	392	390	395	389	384	376	384	381	411	374	444	391	405	398	469	478	198	333	319	49	373
Mean	370	369	360	369	397	404	402	398	385	376	372	377	386	402	412	426	435	429	430	422	405	397	373	363	394

Corrections to be applied to all values: H. −6γ; D, −4·0′; V, −33γ.

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

38 LERWICK (D) — 12° + — SEPTEMBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1 Q	34·9	33·6	32·5	32·2	31·8	31·1	29·9	27·7	29·4	31·9	35·6	37·9	41·0	43·3	41·6	38·9	37·0	37·1	36·2	36·9	35·6	36·1	36·6	35·3	35·2
2	33·2	33·0	31·7	30·9	31·4	30·3	29·6	29·2	28·2	29·4	31·3	33·6	37·5	40·1	39·9	40·2	39·1	38·5	37·5	36·9	36·1	35·5	34·4	34·6	34·3
3	34·5	33·7	31·4	31·2	31·4	34·7	34·7	31·6	29·9	34·0	35·3	38·0	43·0	41·6	41·8	39·0	35·2	32·5	34·3	35·5	36·0	35·8	33·2	31·9	35·0
4	31·3	33·4	32·0	30·5	30·0	29·5	28·7	28·0	29·8	32·2	36·1	38·6	40·5	41·0	40·4	40·0	37·6	37·8	35·8	37·4	37·7	35·8	36·2	33·1	34·7
5	33·9	25·9	27·3	32·0	32·7	29·8	27·9	27·5	29·0	32·1	37·1	41·4	44·5	46·6	43·4	40·0	37·4	34·3	34·1	35·9	35·5	34·3	34·9	34·5	34·7
6 Q	34·4	33·8	33·6	33·4	32·7	31·4	29·9	29·7	30·6	32·6	35·8	39·1	41·3	41·8	40·6	38·7	36·9	35·4	35·9	36·4	35·9	34·8	35·0	34·1	35·2
7	33·2	32·5	32·3	31·7	30·3	29·0	29·4	28·4	29·4	30·6	32·9	36·6	39·5	41·9	40·4	38·6	39·6	34·9	35·7	35·8	35·2	34·5	34·2	33·7	34·2
8	32·1	29·9	28·9	25·9	27·3	28·3	28·9	27·9	29·0	31·7	34·9	37·8	39·1	41·0	38·0	37·1	35·9	34·6	35·0	34·9	32·3	34·9	35·2	34·6	33·1
9	34·2	33·8	33·1	32·9	32·4	31·6	30·6	30·2	31·3	34·3	35·9	40·0	41·4	40·7	39·7	38·9	36·9	36·4	35·8	32·3	31·5	32·2	30·5	30·9	34·5
10	31·1	31·3	31·5	29·9	31·3	31·9	31·7	31·9	32·3	33·0	35·2	40·1	40·7	41·3	38·9	36·5	35·6	34·9	35·5	35·5	33·1	30·4	32·8	32·5	34·1
11	33·5	34·3	34·1	35·9	30·4	28·2	27·4	27·4	28·5	31·2	34·9	40·7	44·2	43·3	42·9	39·8	37·6	35·4	31·8	31·2	32·5	29·0	29·5	29·1	33·9
12	33·1	31·4	34·7	34·3	29·9	29·2	31·1	33·6	31·6	32·4	35·4	38·9	40·6	41·8	41·8	38·8	36·2	35·3	33·3	31·9	29·4	31·9	31·4	30·0	34·1
13	28·9	30·6	30·2	31·0	40·2	31·3	28·4	29·2	30·2	33·7	34·7	35·3	38·2	40·7	42·0	40·5	38·4	36·3	37·5	36·8	19·7	9·4	18·9	18·0	31·8
14 D	18·7	26·7	33·8	24·9	13·6	26·6	27·0	27·4	29·5	32·8	35·2	37·5	39·0	40·2	35·8	40·9	45·0	45·4	41·8	38·7	24·0	11·1	16·1	12·9	30·2
15 D	11·6	1·9	-8·6	0·9	31·9	48·1	47·3	43·1	21·4	26·9	30·6	30·7	32·9	42·5	46·4	52·9	45·5	41·8	39·2	34·6	6·9	31·9	28·0	33·3	30·1
16	29·4	32·9	28·0	22·2	26·6	28·1	28·9	28·7	28·8	30·0	31·9	35·0	37·5	39·6	40·2	38·8	38·1	36·6	36·8	35·6	36·7	34·5	36·7	31·7	33·1
17	27·0	27·1	21·8	25·2	32·8	32·7	32·7	30·6	30·6	31·2	32·6	35·4	39·0	41·0	40·5	38·8	37·3	36·6	35·7	35·1	34·7	33·2	33·1	33·2	33·2
18	32·9	33·4	34·3	33·0	31·7	29·8	29·1	29·0	28·4	29·9	31·5	34·5	37·6	40·3	38·3	38·2	36·8	34·2	34·0	34·1	33·8	33·8	33·4	31·4	33·5
19 Q	29·4	31·6	32·3	32·0	31·7	31·3	30·6	29·4	30·1	31·0	32·4	35·5	38·0	39·5	39·4	38·1	36·8	35·6	34·6	35·0	34·8	33·8	33·1	33·8	33·7
20	35·9	32·4	32·6	33·1	32·5	31·4	30·0	28·4	28·9	30·4	32·2	35·8	38·9	39·9	40·0	38·7	36·9	35·5	34·2	33·7	33·9	33·7	33·4	33·5	34·0
21	33·6	33·3	33·0	32·7	32·5	31·3	29·7	28·6	29·0	30·4	33·2	35·0	38·2	40·0	38·4	38·3	37·7	35·4	35·8	35·7	34·5	31·3	22·2	24·5	33·1
22	28·4	31·5	30·7	30·4	30·6	30·2	28·9	28·5	25·8	31·4	35·5	37·9	40·2	40·4	39·2	39·5	37·3	35·7	34·9	35·2	34·3	33·4	33·3	32·9	33·6
23	32·7	31·9	30·5	27·8	29·6	26·1	27·0	26·8	27·3	28·5	30·9	35·0	39·7	41·8	41·3	39·0	37·0	35·7	35·6	35·7	35·4	34·8	30·2	31·7	33·0
24 Q	31·7	32·6	32·1	31·5	31·3	30·5	29·2	28·2	27·9	29·5	33·3	38·0	40·9	41·1	41·0	38·8	37·1	36·4	36·4	37·6	37·4	32·9	33·9	32·5	34·2
25 Q	32·5	32·6	32·4	31·9	31·7	31·0	29·5	28·2	28·3	30·9	35·0	39·2	42·2	42·9	42·2	40·9	39·2	37·8	37·2	36·2	35·8	35·3	31·8	31·6	34·8
26 D	29·2	29·5	31·2	30·5	31·2	30·6	29·5	27·0	26·4	33·0	39·5	40·1	41·6	41·5	38·0	43·0	37·6	43·1	37·2	31·5	24·8	23·5	25·0	15·8	32·5
27 D	22·5	30·2	31·1	28·4	29·7	30·8	28·7	29·6	33·0	32·9	34·2	37·2	40·5	41·6	41·1	39·3	37·2	35·2	37·0	33·0	28·8	33·1	35·3	20·8	33·0
28 D	12·0	-35·5	-34·0	-26·0	19·2	31·5	30·8	29·5	32·0	33·0	34·2	35·1	38·2	39·6	37·0	35·4	36·6	35·0	33·9	33·5	30·1	31·0	32·2	33·3	24·1
29	32·1	32·3	32·2	30·7	30·5	33·9	37·5	31·8	33·1	31·5	30·8	34·3	37·4	34·6	35·4	33·4	32·3	33·5	31·5	32·8	32·8	31·4	33·0	32·8	33·0
30	33·7	33·4	32·8	32·2	30·6	30·3	29·1	28·5	27·6	29·1	31·1	35·5	41·0	40·3	44·4	37·7	38·1	37·0	36·2	26·0	44·5	28·5	28·6	11·5	32·8
Mean	30·1	28·5	28·0	27·8	30·3	31·0	30·5	29·5	29·2	31·4	34·0	37·0	39·8	41·1	40·3	39·3	37·7	36·5	35·7	34·8	32·5	31·4	31·4	29·7	33·2

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

39 LERWICK (V) 46,000γ (·46 C.G.S.unit) + SEPTEMBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 Q	834	828	837	840	843	841	840	837	836	836	838	838	835	835	840	848	851	851	862	854	852	847	843	841	842
2	840	841	840	840	837	845	844	839	839	838	839	840	841	840	841	841	846	847	847	847	846	847	845	842	842
3	838	834	835	837	840	837	831	832	839	841	838	844	860	871	879	883	882	879	867	857	851	846	838	823	849
4	833	837	839	841	845	846	849	851	849	843	841	842	843	843	849	860	876	864	861	861	860	856	848	798	847
5	774	795	809	822	824	830	833	838	840	843	844	839	829	823	848	882	904	889	860	846	843	845	846	846	840
6 Q	845	845	845	844	845	846	847	848	848	848	844	839	838	838	837	839	840	839	836	836	837	839	839	839	842
7	841	843	843	841	843	844	832	832	835	835	835	830	828	832	843	845	844	862	848	842	839	840	840	837	840
8	822	813	804	813	827	833	836	839	840	836	835	831	829	841	853	866	874	869	852	851	846	839	836	838	838
9	840	840	841	841	841	841	842	843	840	836	830	831	841	845	844	851	861	860	859	862	840	831	825	827	842
10	824	827	823	831	840	842	844	840	844	842	840	840	851	854	857	868	873	865	848	846	850	848	837	833	844
11	835	831	828	815	817	836	840	841	839	836	829	828	836	848	856	866	867	866	870	870	854	830	790	813	839
12	816	823	824	815	836	836	838	831	830	836	840	840	845	848	853	866	878	881	871	866	859	847	817	776	840
13	789	808	821	828	789	788	817	822	825	827	833	835	833	830	833	840	858	864	851	856	808	690	633	737	809
14 D	718	773	799	633	729	819	849	854	847	846	853	864	873	870	904	912	1004	1015	978	886	895	864	859	742	849
15 D	633	596	538	610	525	560	640	707	845	928	953	971	975	948	998	969	980	986	935	888	704	730	726	717	794
16	734	719	697	760	801	827	846	855	858	861	859	857	853	852	861	861	858	862	867	891	895	887	794	753	829
17	780	781	804	811	812	829	846	858	865	866	862	856	855	859	870	878	882	869	858	856	854	855	852	851	846
18	850	845	824	813	824	839	846	851	853	855	852	850	847	847	851	847	853	854	851	851	851	852	847	839	845
19 Q	837	843	846	845	846	847	848	847	848	849	850	849	848	845	841	839	840	843	849	849	858	856	853	847	847
20	822	829	840	839	840	842	845	846	847	846	843	838	838	835	835	837	838	840	843	846	847	849	849	847	841
21	847	848	846	846	845	844	845	844	845	845	843	838	836	840	845	843	846	856	851	851	854	852	844	834	845
22	836	842	845	846	846	843	842	837	837	844	834	836	839	843	843	845	856	855	854	848	845	843	845	846	844
23	847	845	826	833	840	840	837	840	840	840	842	840	837	837	843	849	851	849	844	843	846	846	849	846	842
24 Q	845	845	847	848	846	846	846	845	845	845	845	840	839	839	843	856	862	859	853	852	852	855	850	845	848
25 Q	845	845	847	848	848	848	848	845	843	840	835	834	837	844	851	854	856	856	856	860	853	849	824	813	845
26 D	813	809	805	810	818	824	832	838	846	831	848	905	909	956	971	976	1010	1000	968	907	829	705	745	713	861
27 D	750	808	811	810	828	847	859	864	862	869	878	873	876	898	922	941	941	924	927	911	917	850	634	562	848
28 D	680	704	554	557	692	791	861	876	878	876	871	868	864	876	886	878	878	902	883	874	866	866	856	852	820
29	847	852	848	851	853	855	840	835	840	857	876	899	893	903	907	909	911	898	886	876	863	843	835	839	867
30	848	852	854	853	852	855	859	861	863	862	856	854	849	860	878	904	876	862	878	923	791	779	775	739	849
Mean	809	813	807	807	816	827	836	840	846	849	850	852	853	857	866	872	880	879	870	864	847	833	816	805	841

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −33γ.

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS: MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

40 LERWICK SEPTEMBER, 1938

Day	Terrestrial Magnetic Elements																				HR_H+VR_V §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force						Declination						Vertical Force										
	Maximum 14,000 γ +		Minimum 14,000 γ +			Range	Maximum 12° +		Minimum 12° +			Range	Maximum 46,000 γ +		Minimum 46,000 γ +			Range					
	h	m	γ	γ	h	m	γ	h	m	′	′	h	m	′	h	m	γ	h	m	γ			
1 Q	17	23	457	367	10	55	90	13	49	43·7	26·9	7	21	16·8	18	16	863	821	1	10	42	327	0	84·6
2	18	59	446	374	12	45	72	15	12	40·7	27·8	8	48	12·9	16	58	849	837	10	57	12	160	0	84·7
3	17	22	452	359	9	46	93	12	12	44·3	28·5	8	49	15·8	17	3	885	813	23	28	72	471	0	85·0
4	19	4	450	375	11	15	75	13	25	42·0	27·2	7	34	14·8	16	26	880	776	24	0	104	595	1	85·2
5	14	59	468	353	11	15	115	13	57	48·8	22·6	1	55	26·2	16	56	911	762	0	17	149	863	1	85·3
6 Q	22	56	444	368	10	45	76	13	8	42·4	29·4	7	0	13·0	8	5	849	835	23	0	14	175	0	85·3
7	16	32	476	364	10	13	112	13	49	42·6	26·9	7	3	15·7	17	23	867	825	12	43	42	358	0	85·3
8	18	47	446	366	10	37	80	12	57	42·2	25·3	3	45	16·9	16	46	877	801	2	30	76	471	0	85·5
9	17	32	451	370	13	11	81	12	42	42·6	26·8	20	11	15·8	19	50	869	822	23	51	47	337	0	85·8
10	19	9	441	366	9	56	75	12	21	42·8	27·9	21	17	14·9	15	49	873	820	2	20	53	356	0	85·9
11	22	19	443	369	9	54	74	12	45	45·1	23·9	21	52	21·2	18	58	881	761	22	30	120	669	1	85·5
12	16	4	446	371	10	34	75	14	5	42·4	24·0	24	0	18·4	17	18	885	747	23	40	138	754	1	84·9
13	19	59	522	54	22	13	468	4	30	44·5	−1·3	21	16	45·8	19	57	894	605	21	57	289	2027	2	84·7
14 D	16	42	911	-207	22	56	1118	3	7	69·1	−1·8	23	18	70·9	16	32	1069	558	3	23	511	4000	2	84·3
15 D	15	14	902	-614	2	56	1516	5	6	71·9	−48·1	2	54	120·0	14	32	1047	232	2	26	815	5997	2	83·6
16	19	51	453	124	1	51	329	22	46	43·8	20·0	3	19	23·8	20	32	904	669	2	14	235	1574	1	83·0
17	16	5	427	334	4	11	93	13	44	44·0	17·2	2	48	26·8	16	21	886	766	1	27	120	696	1	83·1
18	22	51	427	355	14	24	72	13	50	41·1	28·1	8	31	13·0	17	14	858	811	3	6	47	324	0	83·1
19 Q	19	50	428	364	11	56	64	13	55	40·0	27·9	7	50	12·1	21	0	861	832	0	15	29	228	0	83·0
20	0	5	427	344	12	48	83	14	18	41·0	26·0	7	40	15·0	8	20	850	813	0	39	37	293	0	83·0
21	20	9	439	364	10	59	75	13	37	40·7	21·2	22	42	19·5	20	50	861	829	23	50	32	258	0	83·5
22	5	34	430	347	9	44	83	12	37	43·0	24·2	8	13	18·8	16	47	861	831	10	15	30	260	0	84·0
23	19	30	429	356	11	31	73	13	51	42·7	22·9	6	1	19·8	22	18	852	819	2	39	33	259	1	84·3
24 Q	18	34	428	359	11	11	69	12	33	42·2	27·4	8	12	14·8	16	30	864	836	12	5	28	230	0	84·9
25 Q	23	22	436	361	11	47	75	14	0	43·6	27·5	7	59	16·1	19	2	861	806	23	30	55	385	0	85·0
26 D	17	50	657	73	22	56	584	15	30	46·8	−4·2	20	57	51·0	17	20	1038	655	21	26	383	2633	2	85·1
27 D	14	58	458	63	23	3	395	22	35	53·9	3·3	23	4	50·6	15	16	948	505	23	0	443	2642	2	85·0
28 D	7	35	459	-743	1	51	1202	13	36	42·6	−88·5	3	23	131·1	2	5	1149	251	3	19	898	5934	2	85·1
29	21	13	444	350	6	46	94	6	37	41·9	20·2	21	7	21·7	16	1	917	830	22	6	87	542	1	85·1
30	19	12	565	-396	20	41	961	20	40	96·8	0·3	23	32	96·5	19	5	954	457	20	38	497	3710	2	85·2
Mean	--	--	489	210	--	--	279	--	--	46·9	14·7	--	--	32·3	--	--	905	724	--	--	181	1250	0·73	84·6
No. of Days Used	--	--	30	30	--	--	30	--	--	30	30	--	--	30	--	--	30	30	--	--	30	30	30	30

§ For explanation see p. 21.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

41 LERWICK (H) — 14,000 γ (·14 C.G.S.unit) + — OCTOBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 D	44	337	324	70	243	332	379	382	374	366	365	367	368	384	386	395	393	397	402	410	428	380	292	290	338
2	368	357	346	324	331	383	394	389	382	375	370	368	389	408	438	420	415	438	420	396	403	407	418	392	389
3	376	360	379	382	384	390	390	384	381	374	366	374	367	377	389	401	422	415	414	400	378	294	282	358	377
4	375	386	391	403	403	399	397	397	393	375	356	369	365	394	389	393	400	406	410	411	413	414	415	411	394
5 Q	408	408	408	408	408	409	405	397	384	369	363	360	366	376	386	388	394	401	407	411	414	414	415	415	396
6	414	413	414	416	421	424	423	412	398	380	371	366	380	388	386	405	405	416	410	415	413	416	418	416	405
7 D	417	417	417	422	427	422	432	395	374	374	358	379	429	646	744	905	735	638	578	553	381	356	229	129	465
8 D	194	116	260	267	112	167	188	355	364	347	340	341	331	358	360	375	405	396	391	398	381	386	381	381	316
9	354	355	384	394	393	395	397	384	367	368	342	356	379	381	399	390	395	397	400	402	404	422	382	398	385
10	389	378	394	383	383	401	404	398	386	368	360	365	373	393	404	409	403	400	406	408	401	412	400	406	393
11	389	400	406	404	407	420	405	402	394	376	365	368	384	393	415	419	398	397	406	401	406	405	404	405	399
12	404	404	404	406	407	408	403	395	387	375	368	368	374	385	394	404	409	411	413	419	418	423	409	413	400
13	414	413	414	414	414	413	408	401	384	368	360	359	366	382	398	406	411	417	421	413	410	423	418	419	402
14 Q	417	415	416	418	418	418	418	415	400	380	367	361	365	378	394	405	412	415	417	418	420	421	419	418	405
15 Q	418	416	416	417	419	420	418	412	398	383	375	367	371	382	388	399	412	416	413	418	415	410	414	411	405
16	407	401	402	415	412	415	419	410	398	389	364	348	351	378	404	409	421	395	406	402	393	384	369	355	394
17	375	395	404	407	407	407	408	404	396	380	367	375	383	379	391	396	409	413	413	414	416	416	417	418	400
18	415	414	411	410	410	415	415	411	403	391	386	386	387	396	406	412	420	419	419	409	414	421	424	413	409
19	412	397	419	414	405	403	410	411	404	396	392	397	397	392	408	409	408	414	415	417	421	418	408	416	408
20	416	412	411	413	418	404	411	411	401	388	383	383	384	395	398	398	415	418	415	422	415	407	410	410	406
21 Q	406	405	405	403	405	406	406	401	396	393	386	383	379	386	400	405	411	402	406	414	414	413	425	414	403
22	411	411	410	411	412	413	408	397	388	381	382	386	395	401	410	405	411	417	419	421	413	422	409	413	406
23	414	413	414	419	419	422	423	405	390	392	391	375	383	384	404	413	401	409	405	398	403	396	418	397	404
24	412	411	410	403	398	409	411	400	381	354	357	359	369	390	436	428	396	388	392	395	392	385	345	76	379
25 D	243	327	264	352	399	407	408	396	379	357	341	359	427	413	378	388	382	387	402	397	421	402	382	391	375
26 D	370	368	357	375	399	401	383	393	383	368	362	369	393	461	478	449	496	501	412	385	354	213	327	371	390
27	376	355	269	385	396	393	382	360	369	362	358	370	397	380	407	421	408	404	402	410	396	392	387	368	381
28	356	372	361	366	372	397	402	402	381	374	373	373	390	420	390	414	414	399	399	404	384	387	388	392	388
29	389	379	380	392	403	409	400	386	391	376	363	358	367	375	383	384	392	415	419	389	395	394	393	398	389
30	394	392	396	402	404	407	407	402	388	370	363	364	372	380	388	391	394	400	405	408	410	410	408	407	394
31 Q	408	408	405	403	405	410	407	404	396	390	387	387	390	395	400	401	403	407	410	416	414	410	407	406	403
Mean	374	382	384	384	388	397	399	397	387	375	367	369	380	398	411	421	419	418	414	412	405	395	388	378	393

Corrections to be applied to all values: H, −6γ; D, −4·0′; V. −32γ.

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

42 LERWICK (D) — 12° + — OCTOBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1 D	22·1	22·4	24·3	5·0	6·3	17·1	24·0	23·7	25·8	31·1	32·0	33·1	34·1	35·2	34·5	34·2	33·1	32·7	30·8	27·3	24·8	29·2	26·1	29·3	26·6
2	28·1	24·7	30·3	30·8	30·2	29·8	28·3	27·5	27·6	30·0	32·5	35·0	38·6	38·4	36·1	38·1	33·7	26·9	28·0	33·3	34·1	33·1	31·2	25·8	31·3
3	24·6	29·3	30·9	29·9	31·0	31·7	31·3	30·9	29·2	30·5	33·1	36·6	36·6	36·9	36·8	36·7	27·9	30·9	35·4	33·8	24·1	23·7	24·0	25·7	30·9
4	32·4	35·5	30·8	26·9	30·3	30·7	29·2	28·4	29·5	32·3	36·5	38·8	37·9	38·8	40·4	38·8	37·4	33·8	29·9	32·8	33·9	33·6	32·3	30·6	33·4
5 Q	32·0	32·0	32·0	32·0	31·9	31·5	30·6	29·2	28·2	28·7	31·9	35·7	37·4	37·0	37·1	36·4	35·6	34·4	34·4	34·5	33·9	33·4	32·8	32·7	33·1
6	32·8	32·8	32·4	32·3	32·6	33·0	32·9	30·8	28·9	29·7	32·2	35·9	39·3	39·2	36·9	36·0	35·2	35·1	34·8	33·8	33·5	33·0	32·6	32·2	33·7
7 D	33·1	33·2	33·2	33·9	33·1	34·6	34·5	32·4	34·0	39·8	40·7	43·0	42·9	36·0	40·0	51·5	55·6	36·5	79·5	63·0	21·5	36·5	23·8	17·4	38·7
8 D	10·9	13·5	25·2	15·6	11·5	24·1	31·0	25·1	25·9	32·1	36·1	40·3	40·4	41·3	41·2	38·4	29·6	29·2	32·8	20·4	33·8	31·6	31·5	30·6	28·8
9	34·7	35·4	33·3	32·0	31·3	30·7	30·5	31·0	31·0	33·5	37·7	37·2	38·1	39·3	38·6	34·7	30·3	32·6	32·6	31·9	28·0	22·7	27·4	28·0	32·6
10	28·7	34·4	29·4	29·6	33·7	29·5	27·3	26·5	26·5	29·4	33·2	37·4	39·6	40·6	37·0	36·2	33·7	34·7	33·7	33·3	27·5	30·2	30·1	31·1	32·2
11	33·6	33·8	29·4	26·8	30·1	27·5	30·0	33·5	33·4	35·8	40·2	43·9	44·7	43·6	41·9	40·1	39·7	34·2	33·5	32·1	33·2	33·0	32·9	32·8	35·0
12	32·1	31·9	31·8	31·8	31·7	31·0	29·9	28·4	27·8	29·9	33·5	37·6	40·2	40·4	38·5	36·2	34·6	35·5	35·2	35·0	30·4	27·1	28·7	31·8	33·0
13	32·7	32·7	32·4	32·0	32·1	31·0	29·9	28·4	27·1	29·0	32·5	36·3	38·7	39·9	39·7	37·8	36·3	36·7	35·9	33·1	30·5	29·1	29·9	32·0	33·2
14 Q	33·3	33·5	33·0	32·8	32·0	31·9	30·6	28·3	27·2	28·3	31·1	35·2	38·4	39·9	39·1	37·5	35·9	35·2	34·8	34·0	33·2	32·9	32·2	31·8	33·4
15 Q	32·2	32·6	32·2	32·2	32·0	31·7	31·1	29·8	28·9	31·3	35·0	39·1	41·0	43·3	42·3	39·4	37·5	35·6	36·0	33·8	32·2	28·5	28·5	29·9	34·0
16	28·4	28·5	28·1	27·2	27·5	28·3	29·5	28·9	27·8	30·5	33·8	39·0	43·1	42·9	42·1	39·7	41·4	39·2	35·7	32·4	29·3	25·4	23·1	20·0	32·2
17	29·3	28·4	32·2	33·0	32·7	31·3	30·4	29·8	30·1	32·1	34·8	36·7	39·8	38·1	37·2	35·0	34·2	33·2	35·4	34·1	33·1	32·7	32·6	32·8	33·3
18	32·1	31·7	31·8	31·2	30·9	31·1	30·9	30·8	30·7	31·6	34·4	36·2	37·0	37·5	36·6	35·6	34·9	35·8	35·4	34·9	32·5	30·7	28·0	25·9	32·8
19	24·0	26·7	28·6	25·3	25·7	31·0	31·6	30·2	30·9	32·5	35·4	39·3	40·6	38·8	39·3	38·7	37·0	37·4	35·7	35·0	34·1	31·3	30·0	28·2	32·8
20	31·1	30·3	31·9	30·4	29·0	29·0	36·9	39·4	33·2	32·3	34·9	36·0	37·9	39·0	38·9	34·8	34·3	36·8	35·2	18·6	26·5	32·4	32·7	31·9	33·1
21 Q	32·0	32·1	31·4	30·9	30·9	30·5	31·2	30·8	30·9	33·4	35·5	37·4	38·5	36·3	37·0	35·6	35·3	34·9	33·7	33·9	32·9	31·8	32·9	31·2	33·4
22	31·7	31·7	30·6	30·9	31·0	30·2	30·0	30·6	30·3	31·9	34·7	37·4	40·1	39·2	38·7	35·8	34·1	35·2	35·1	34·4	27·7	23·1	30·8	32·3	32·8
23	32·2	35·0	32·7	32·8	31·9	30·9	30·3	31·0	33·1	35·3	38·4	41·1	47·0	44·7	45·4	43·0	36·7	33·1	30·0	29·9	29·0	26·2	31·0	32·1	34·7
24	27·2	32·1	31·8	29·2	33·8	31·8	31·3	30·7	30·8	34·0	37·4	41·1	43·4	44·7	43·0	38·7	40·3	34·7	32·0	31·7	27·3	24·0	20·5	13·4	32·7
25 D	9·3	26·3	22·7	29·8	28·2	29·5	30·7	30·0	32·1	34·8	35·9	43·0	44·1	44·8	39·3	39·1	35·2	34·3	28·9	28·5	26·1	33·0	29·1	26·4	31·7
26 D	27·1	37·2	37·0	33·8	33·3	33·1	33·7	32·8	34·6	33·6	33·5	37·7	40·8	40·9	38·1	40·2	33·6	36·2	25·5	26·1	22·2	14·0	25·5	28·1	32·4
27	30·1	25·9	32·8	27·0	30·2	36·4	36·2	32·8	31·1	36·0	37·5	37·4	36·7	38·5	42·2	38·2	25·4	32·5	33·2	25·6	31·8	29·8	29·7	19·8	32·4
28	13·5	28·1	33·9	31·7	33·4	30·3	30·5	32·1	33·2	32·4	36·0	38·4	39·8	37·4	38·0	30·0	26·2	35·6	31·5	27·0	24·8	27·7	29·3	27·4	31·1
29	30·8	33·0	33·8	32·8	31·3	30·8	30·8	30·0	28·9	29·0	30·9	33·3	35·1	36·7	36·4	34·3	33·6	27·7	28·5	30·7	30·3	28·0	30·3	30·8	31·6
30	32·3	37·8	32·8	31·4	31·1	31·0	30·7	30·0	29·1	30·1	32·3	35·4	37·2	37·3	37·1	35·6	34·2	33·9	33·1	32·8	32·8	32·5	32·0	31·2	33·1
31 Q	30·6	30·1	30·0	30·1	31·2	31·5	30·9	30·1	29·2	29·4	31·5	34·0	34·8	35·2	35·1	34·3	33·9	33·5	33·6	33·6	33·7	33·4	33·2	29·2	32·2
Mean	28·5	30·7	31·1	29·4	29·7	30·4	30·9	30·1	29·9	31·9	34·7	37·7	39·5	39·4	38·9	37·4	35·0	34·1	34·5	32·3	30·0	29·5	29·5	28·5	32·7

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

43 LERWICK (V) — 46,000 γ (·46 C.G.S.unit) + — OCTOBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 D	793	696	768	633	430	591	802	839	851	859	870	874	872	871	870	866	867	864	868	866	821	805	750	737	794
2	750	771	803	796	783	785	823	843	852	856	863	868	865	871	884	893	897	882	886	867	860	842	791	779	837
3	796	807	800	824	824	833	844	853	861	860	859	856	855	850	850	852	878	888	878	869	849	783	714	753	835
4	774	773	802	818	813	820	837	844	847	851	851	851	869	870	866	858	857	864	869	861	853	851	847	848	841
5 Q	861	851	851	851	850	850	851	855	857	856	851	846	841	845	847	853	858	857	853	850	848	848	848	848	851
6	850	851	851	848	843	843	842	849	855	856	851	844	844	855	858	856	856	858	860	854	850	846	845	846	850
7 D	846	847	847	842	835	834	827	841	843	842	858	875	913	985	948	887	718	564	393	760	783	833	862	926	821
8 D	818	847	763	762	694	552	639	773	844	877	890	931	930	907	898	895	923	895	882	867	846	856	849	836	832
9	824	812	825	847	855	856	856	859	862	871	871	852	846	856	870	888	892	878	869	862	863	824	809	818	853
10	814	778	803	829	833	845	850	855	860	862	860	859	860	869	894	898	890	888	887	886	884	799	830	837	853
11	827	787	814	827	831	830	836	833	836	841	846	852	863	877	887	905	919	914	901	887	864	855	853	851	856
12	854	854	855	856	856	856	858	857	855	855	852	850	849	851	856	860	860	858	855	855	855	835	842	843	853
13	845	849	850	851	852	853	855	856	859	858	855	849	846	845	847	850	850	850	852	861	860	846	833	828	850
14 Q	834	840	843	845	846	848	849	852	855	859	853	849	845	844	845	847	847	848	848	848	846	846	845	845	847
15 Q	843	842	841	843	843	845	846	850	853	852	846	846	846	849	852	854	855	857	864	864	863	860	847	863	851
16	825	812	801	814	838	843	845	850	852	847	849	849	847	860	890	892	893	909	907	909	888	870	826	785	854
17	772	795	822	841	846	848	848	849	853	857	859	853	851	852	853	851	854	855	854	852	849	847	846	844	844
18	845	844	844	843	842	838	838	841	844	849	849	849	847	846	848	849	845	848	849	856	852	838	827	827	844
19	830	830	818	824	830	832	833	840	841	842	842	845	848	849	846	848	845	844	847	846	849	844	819	797	837
20	801	827	833	836	833	830	813	813	827	838	845	852	857	857	860	871	861	852	859	860	845	844	842	839	841
21 Q	844	846	845	846	845	844	842	844	844	845	845	847	854	859	854	854	854	859	854	848	846	846	827	833	847
22	842	844	845	844	844	842	843	844	848	848	847	845	844	845	849	852	848	844	843	842	855	843	842	843	845
23	844	841	839	841	844	839	838	844	845	839	838	848	860	866	868	886	887	876	881	870	864	845	775	762	847
24	790	822	837	839	840	836	840	843	848	856	858	861	866	881	927	949	931	906	869	858	858	857	800	627	850
25 D	627	721	740	763	821	837	838	843	848	854	866	867	895	939	892	890	899	899	876	848	808	722	696	735	822
26 D	768	782	783	756	772	782	805	826	838	851	872	886	879	914	968	941	989	1014	883	825	815	709	724	795	839
27	798	795	727	770	793	776	793	825	851	868	860	881	942	908	894	929	931	908	895	881	834	828	800	779	844
28	736	792	795	803	817	838	846	845	851	855	862	861	879	917	894	903	907	894	893	857	835	838	832	817	849
29	831	833	825	834	842	844	849	859	865	867	864	859	853	855	859	868	863	858	858	878	876	860	844	843	854
30	816	758	795	831	843	846	848	852	856	854	848	844	846	847	848	853	853	852	848	848	848	849	850	848	841
31 Q	846	843	843	844	845	845	848	850	852	851	847	846	845	842	843	847	847	847	846	846	848	851	853	853	847
Mean	811	813	815	819	816	818	832	843	850	854	856	861	863	870	873	876	870	865	852	857	849	833	818	816	843

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −32γ.

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS: MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

44 LERWICK — OCTOBER, 1938

Day	Terrestrial Magnetic Elements: Horizontal Force: Maximum 14,000 γ +			Horizontal Force: Minimum 14,000 γ +			Horizontal Force: Range	Declination: Maximum 12° +			Declination: Minimum 12° +			Declination: Range	Vertical Force: Maximum 46,000 γ +			Vertical Force: Minimum 46,000 γ +			Vertical Force: Range	$HR_H + VR_V$ §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
																						10,000γ²		
	h	m	γ	γ	h	m	γ	h	m	′	′	h	m	′	h	m	γ	γ	h	m	γ			°A
1 D	20	15	471	-329	0	24	800	0	15	53·3	-13·8	3	52	67·1	0	11	933	389	4	16	544	3698	2	85·3
2	14	14	457	308	3	51	149	13	35	40·3	21·2	1	20	19·1	16	15	902	741	0	48	161	968	1	85·0
3	16	54	440	193	22	23	247	11	53	38·0	16·8	22	6	21·2	17	10	893	686	22	21	207	1325	1	85·0
4	22	53	421	349	12	18	72	14	9	41·0	25·0	3	42	16·0	12	45	873	744	0	1	129	708	0	84·6
5 Q	23	3	417	357	11	46	60	12	50	37·8	28·0	8	35	9·8	16	50	860	840	12	25	20	180	0	84·1
6	5	5	430	354	11	19	76	12	43	40·8	27·9	8	52	12·9	18	57	862	840	6	45	22	212	0	83·4
7 D	15	54	943	65	23	16	878	18	17	147·8	-16·0	20	17	163·8	13	36	1050	209	17	49	841	5200	2	83·0
8 D	17	4	419	-35	4	54	454	6	33	47·0	-9·0	6	18	56·0	1	47	957	513	5	36	444	2732	2	82·6
9	21	31	444	336	10	49	108	13	33	41·1	16·4	21	3	24·7	15	46	895	802	22	4	93	591	1	82·1
10	21	2	453	357	10	44	96	13	6	42·6	21·3	21	0	21·3	15	6	904	764	1	42	140	793	1	81·9
11	15	32	426	362	10	58	64	13	3	45·5	26·0	3	11	19·5	17	0	924	776	1	28	148	785	0	81·5
12	21	14	437	365	10	13	72	13	10	41·1	23·0	21	40	18·1	16	18	861	827	21	27	34	263	0	81·2
13	21	59	440	357	10	34	83	14	26	40·4	26·6	2	27	13·8	19	50	867	823	23	16	44	326	0	81·0
14 Q	22	8	424	359	11	54	65	13	26	40·2	27·0	8	36	13·2	9	20	859	832	0	22	27	220	0	81·6
15 Q	19	42	421	362	11	17	59	14	5	43·5	27·1	21	40	16·4	18	55	867	826	24	0	41	277	0	81·8
16	16	42	433	341	22	40	92	16	58	49·1	16·1	23	5	33·0	17	14	918	776	23	45	142	797	1	81·9
17	17	52	424	357	0	0	67	12	48	42·0	27·0	1	33	15·0	10	10	860	763	0	33	97	550	0	82·0
18	21	26	435	379	10	24	56	13	47	38·1	24·5	23	59	13·6	19	28	859	820	22	55	39	264	0	82·0
19	2	46	431	384	13	21	47	13	1	42·9	22·9	0	56	20·0	21	10	857	789	23	51	68	386	0	81·7
20	19	55	433	374	12	24	59	7	46	41·9	14·7	19	35	27·2	15	47	876	788	0	5	88	497	1	81·0
21 Q	22	22	432	373	13	10	59	12	30	39·8	29·0	2	58	10·8	13	16	864	823	22	33	41	277	0	31·2
22	21	23	432	377	9	54	55	12	47	42·1	20·1	21	8	22·0	20	48	865	838	21	40	27	205	0	81·8
23	22	28	454	361	11	47	93	12	46	49·8	23·3	22	17	26·5	15	56	898	732	22	44	166	911	1	82·0
24	14	49	567	-59	23	13	626	14	43	48·6	0·9	23	24	47·7	14	50	992	590	23	34	402	2782	2	82·0
25 D	21	4	483	173	0	0	310	13	26	54·0	-1·3	0	9	55·3	13	18	958	597	0	20	361	2135	1	82·2
26 D	15	40	599	60	21	45	539	22	8	59·1	-3·1	21	37	82·2	17	40	1056	572	22	7	484	3041	2	82·0
27	15	53	444	225	2	11	219	14	44	45·4	9·9	19	9	35·5	15	53	972	687	2	37	285	1649	1	81·3
28	15	54	435	340	0	1	95	12	28	42·4	11·3	0	3	31·1	13	18	928	721	0	28	207	1106	1	81·0
29	18	8	434	354	10	55	80	13	50	37·0	22·8	17	44	14·2	19	31	884	822	2	33	62	406	0	80·5
30	20	15	411	359	10	55	52	1	25	41·8	28·2	8	55	13·6	8	39	858	741	0	40	117	623	0	80·5
31 Q	19	25	417	385	11	15	32	12	26	35·9	27·6	24	0	8·3	22	49	855	838	1	38	17	126	0	80·5
Mean	--	--	462	276	--	--	186	--	--	46·8	16·8	--	--	30·0	--	--	903	726	--	--	177	1098	0·65	82·2
No. of Days Used	--	--	31	31	--	--	31	--	--	31	31	--	--	31	--	--	31	31	--	--	31	31	31	31

§ For explanation see p. 21.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

45 LERWICK (H) — 14,000 γ (·14 C.G.S.unit) + — NOVEMBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	406	407	411	408	407	406	405	403	396	392	388	390	405	407	387	397	399	404	409	412	414	415	417	414	404
2	415	415	416	417	415	413	410	409	404	391	386	384	380	394	419	413	404	403	406	412	414	416	414	409	407
3 Q	410	409	409	409	412	412	411	407	400	390	383	386	391	397	398	393	401	408	409	412	415	406	411	411	404
4	411	408	407	407	410	411	410	409	406	396	387	389	390	399	404	400	400	407	409	411	411	410	409	411	405
5	412	413	412	409	412	413	413	410	401	390	387	387	394	401	403	398	392	405	409	412	414	413	412	412	405
6	415	409	409	407	411	409	418	414	403	390	380	379	382	386	393	401	403	406	407	408	415	399	408	411	403
7	411	409	410	411	412	412	413	411	397	384	379	379	386	390	394	397	403	407	410	405	408	393	397	408	401
8 D	407	409	406	396	420	420	411	407	398	388	385	389	401	422	450	496	468	407	410	421	407	379	286	74	394
9 D	254	278	319	353	390	372	369	380	376	361	357	352	364	390	398	500	448	478	491	411	405	396	395	393	386
10	344	327	313	368	384	388	390	385	375	365	360	362	368	375	380	384	389	393	396	399	398	394	398	403	377
11	393	392	393	394	399	401	400	400	396	387	380	380	380	385	386	389	398	403	403	403	399	399	406	403	395
12 Q	404	402	404	406	407	409	411	409	403	388	381	380	383	391	397	402	407	412	413	415	415	414	413	413	403
13 Q	410	410	407	407	409	409	410	406	399	388	379	377	383	390	395	401	407	409	413	415	415	414	413	412	403
14	411	411	411	410	411	413	415	415	408	397	390	389	393	401	416	422	424	454	536	559	546	449	413	373	428
15	370	382	386	387	391	392	392	390	390	382	374	370	374	385	392	401	407	411	409	406	409	401	386	397	391
16	394	397	395	396	398	403	404	405	399	394	389	384	390	397	398	401	407	412	414	416	414	417	415	432	403
17 D	402	404	404	404	409	414	418	418	416	407	394	392	416	415	422	452	410	432	438	399	359	343	346	386	404
18	384	388	389	398	404	403	399	399	396	390	381	373	377	390	391	392	398	397	398	394	391	390	387	394	392
19	390	395	386	398	407	410	407	406	394	387	359	368	382	387	391	395	402	399	397	391	398	401	403	403	394
20	401	405	406	408	412	412	407	414	401	370	367	370	378	389	393	403	403	407	403	409	405	406	404	406	399
21 D	409	408	410	408	412	415	417	412	407	394	370	375	389	412	411	409	406	434	414	398	375	381	396	403	403
22	399	395	390	367	394	405	392	372	384	377	374	373	379	387	386	385	393	398	398	395	390	398	399	394	389
23	390	386	380	392	393	403	408	391	393	398	382	382	379	389	391	386	395	405	403	404	403	390	389	397	393
24	400	402	398	400	408	415	390	398	395	391	388	383	390	398	382	411	424	479	387	383	373	369	356	367	395
25	371	390	374	394	391	394	398	400	398	395	382	373	379	382	384	398	391	386	398	405	406	403	395	398	391
26 D	401	392	398	397	402	409	384	354	386	373	368	369	377	379	390	405	396	417	402	400	398	387	394	386	390
27	388	387	398	403	399	407	406	404	400	391	377	371	384	391	395	399	405	406	408	407	407	407	404	412	398
28 Q	406	406	405	408	411	413	414	408	402	395	391	390	384	391	391	398	406	406	410	414	414	413	412	409	404
29	411	410	412	413	415	418	421	418	409	390	384	385	390	396	404	406	409	413	416	415	413	429	403	401	408
30 Q	409	407	407	410	413	414	414	413	406	398	387	387	391	395	404	409	413	414	418	419	415	415	413	412	408
Mean	394	395	395	399	405	407	405	402	398	388	380	379	385	394	398	408	407	414	415	412	408	402	396	391	399

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −30γ.

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

46 LERWICK (D) — 12° + — NOVEMBER, 1938

Hour G . M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	27·4	28·7	29·2	29·1	30·0	30·8	30·8	30·2	29·3	30·0	33·0	37·0	40·6	40·7	39·8	35·9	34·8	33·9	33·1	33·0	32·7	32·3	32·1	32·0	32·8
2	32·0	31·9	31·3	31·9	31·7	31·2	31·0	30·2	29·3	29·7	32·7	34·9	34·7	35·5	39·0	38·9	38·7	35·1	33·9	33·3	32·6	32·6	32·0	31·8	33·2
3 Q	30·9	31·0	31·0	31·2	31·1	30·9	30·8	30·8	29·6	30·4	33·1	35·1	37·0	37·3	35·5	33·9	34·0	34·1	34·0	33·0	32·6	29·3	30·3	31·7	32·4
4	31·4	31·1	31·3	31·1	31·1	30·6	30·2	30·4	30·2	30·6	31·7	34·8	35·1	36·7	36·8	35·1	34·1	34·6	35·8	33·8	27·0	29·8	30·9	30·8	32·3
5	32·9	32·8	31·8	32·1	31·1	30·4	30·5	30·6	30·7	31·9	33·9	34·9	36·1	37·2	36·1	35·1	32·3	33·0	34·1	33·4	32·9	32·4	32·0	31·4	32·9
6	31·2	31·6	31·3	31·7	31·1	30·4	29·9	30·8	31·1	31·7	34·0	36·7	39·1	38·8	36·8	36·5	36·0	35·6	35·0	34·0	29·2	29·7	30·7	30·5	33·1
7	30·9	31·7	31·7	30·9	30·9	30·9	31·7	30·9	29·8	31·5	34·2	36·7	38·5	38·7	37·8	36·7	35·9	35·7	36·5	34·0	27·1	28·2	28·1	30·5	32·9
8 D	31·4	33·7	31·3	35·4	33·6	30·9	32·8	32·9	32·4	35·1	38·5	40·1	44·0	44·9	47·4	48·0	46·6	36·7	35·0	30·7	28·5	25·4	21·0	11·5	34·5
9 D	16·0	12·1	28·0	30·1	31·0	31·3	29·8	35·9	33·7	29·0	34·1	38·4	40·5	42·0	41·0	42·4	26·0	45·6	49·1	33·0	28·4	26·9	29·3	23·1	32·4
10	16·0	19·2	28·3	27·3	30·1	30·8	30·7	31·0	30·8	31·1	32·3	34·2	33·9	34·5	34·0	33·5	33·1	33·0	32·7	32·1	31·8	30·3	28·8	28·9	30·3
11	29·7	29·7	29·3	30·3	30·9	31·0	30·9	30·8	30·5	30·9	32·0	34·0	34·6	35·7	35·5	34·8	34·3	34·0	29·1	30·7	31·5	28·8	29·5	29·7	31·6
12 Q	29·5	31·3	32·2	32·0	31·3	31·0	30·7	30·7	30·5	31·0	32·5	34·3	35·1	35·0	34·8	34·8	34·7	34·6	33·9	33·5	32·7	32·1	31·9	31·7	32·6
13 Q	31·1	31·2	31·2	30·2	30·7	30·8	30·5	30·7	30·1	30·7	32·0	34·3	35·5	36·1	35·9	35·0	34·7	34·2	33·5	32·9	32·3	32·0	31·7	31·6	32·5
14	32·0	31·8	32·2	32·1	31·9	31·7	31·3	30·6	30·1	30·0	31·5	33·9	35·4	36·5	38·9	40·1	43·0	52·0	57·5	42·0	35·1	28·2	27·8	21·7	34·9
15	21·9	24·4	29·4	28·9	30·0	29·7	30·0	30·0	29·5	29·9	30·8	32·3	34·0	34·8	34·5	34·1	34·1	34·5	34·8	34·5	34·1	32·1	25·6	26·8	30·9
16	27·6	28·5	29·3	29·9	29·7	30·0	30·4	30·5	30·2	31·2	32·8	33·7	35·1	35·1	34·8	34·9	34·1	34·0	33·5	32·4	32·0	31·9	30·9	28·3	31·7
17 D	26·3	26·6	28·3	27·8	26·9	27·6	27·9	28·7	29·6	32·0	33·5	34·3	40·7	40·8	43·1	29·1	44·7	38·3	30·4	27·1	20·0	26·2	23·6	28·3	30·9
18	33·4	32·9	32·8	33·9	32·2	33·4	32·3	31·9	32·0	34·0	33·7	38·7	37·3	34·0	35·7	34·1	33·0	32·8	29·6	28·7	18·2	25·4	28·0	31·9	32·1
19	35·0	37·0	37·1	33·1	30·2	30·0	31·3	32·0	30·3	32·7	33·0	34·6	35·7	36·0	35·9	34·5	33·3	32·2	31·5	29·6	31·1	30·9	30·2	31·2	32·9
20	33·3	32·2	31·1	30·9	30·6	30·8	32·6	32·4	32·2	33·3	35·2	37·5	37·7	38·8	37·6	34·9	36·7	37·7	34·9	32·3	31·5	30·5	30·2	30·9	33·6
21 D	31·9	31·8	31·6	31·0	31·0	31·3	31·1	31·3	31·8	34·1	35·2	39·0	40·1	42·7	39·6	39·1	38·9	30·0	26·8	26·6	29·2	16·4	26·7	30·0	32·4
22	31·3	30·3	29·5	27·0	25·1	30·3	33·2	39·1	36·2	33·4	33·8	35·2	36·8	36·0	36·9	35·0	31·8	30·9	31·3	31·1	29·4	29·8	28·4	25·4	32·0
23	26·9	25·5	23·5	25·4	27·9	30·0	33·2	35·0	31·2	32·9	32·6	34·0	34·3	35·4	36·1	33·4	30·7	31·5	32·3	31·8	31·0	26·6	22·0	29·4	30·5
24	30·3	31·7	33·0	32·0	30·0	30·4	34·3	34·7	33·8	31·9	35·4	35·5	36·2	35·6	35·7	36·0	33·0	34·0	26·7	28·7	25·8	21·0	20·3	22·9	31·2
25	26·1	31·6	29·7	29·3	30·5	30·1	31·0	31 7	30·0	32·4	33·7	36·1	36·4	36·0	35·0	34·2	26·7	32·4	32·4	31·0	31·2	30·7	28·3	28·8	31·5
26 D	31·3	31·2	30·4	26·7	29·4	30·0	35·0	49·1	38·0	33·1	33·0	36·3	36·9	37·0	38·2	35·8	32·0	28·0	31·7	28·1	26·1	27·9	29·0	31·1	32·7
27	28·0	31·2	30·8	31·2	31·7	31·6	31·8	30·8	30·0	30·1	30·9	32·9	33·7	35·4	34·3	32·1	32·5	32·4	31·3	31·8	31·5	31·1	30·0	30·9	31·6
28 Q	31·3	31·4	31·7	31·8	31·6	32·1	32·2	30·9	30·6	31·2	33·3	36·0	36·8	35·8	35·2	34·0	33·0	31·4	30·9	31·2	31·2	31·1	31·0	31·2	32·4
29	31·7	31·4	34·0	30·4	30·2	30·2	29·0	29·1	29·6	29·1	30·5	32·5	34·4	34·5	34·9	33·9	33·3	33·3	32·1	32·0	31·1	28·2	26·8	28·9	31·3
30 Q	28·2	27·2	31·3	31·3	31·0	30·7	30·2	30·2	30·0	30·7	31·2	33·2	34·4	34·3	34·2	33·5	33·9	33·5	32·9	32·7	31·9	31·8	31·3	31·1	31·7
Mean	29·2	29·8	30·8	30·5	30·5	30·7	31·2	32·1	31·1	31·5	33·1	35·4	36·7	37·1	37·0	35·6	34·7	34·6	33·9	32·0	30·0	29·0	28·6	28·8	32·3

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

47 LERWICK (V) — 46,000 γ (·46 C.G.S.unit) + — NOVEMBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	849	848	840	838	838	842	845	848	850	848	848	847	846	852	862	852	848	846	845	843	843	844	845	847	846
2	845	843	842	842	841	841	842	842	843	847	849	848	847	842	846	858	867	857	849	846	846	843	847	848	847
3 Q	847	847	846	843	841	841	840	841	842	847	848	849	848	848	853	851	847	845	847	846	846	850	848	847	846
4	846	847	847	847	843	842	842	841	841	841	842	841	841	842	845	851	853	848	848	852	856	847	844	840	845
5	837	838	838	840	840	838	837	840	843	846	847	848	847	847	852	856	862	854	848	844	842	843	843	842	845
6	836	837	838	840	837	837	834	834	837	842	848	848	849	854	855	858	858	855	853	854	848	848	847	842	845
7	842	843	843	845	842	842	836	832	839	845	847	848	848	850	852	853	853	853	854	864	862	858	857	847	848
8 D	838	829	822	812	797	809	820	822	828	832	836	847	860	887	940	977	988	961	926	908	891	881	804	654	857
9 D	639	748	789	782	769	783	810	818	827	842	850	860	891	909	923	998	964	966	1000	928	891	874	874	869	859
10	833	799	778	818	837	845	853	856	859	863	864	863	858	857	858	860	858	858	856	855	853	857	853	847	847
11	849	852	853	853	853	854	853	851	854	854	853	850	848	847	853	858	857	857	858	855	855	853	846	842	852
12 Q	840	843	843	848	848	849	848	848	850	853	854	851	848	847	845	846	848	848	848	848	848	848	847	845	848
13 Q	843	843	841	842	845	847	847	848	853	853	852	850	848	846	845	847	847	847	848	847	848	846	846	844	847
14	842	842	841	842	842	842	842	844	848	851	850	848	847	842	840	842	848	885	1020	1045	992	946	913	869	876
15	827	840	858	861	859	858	855	856	861	864	865	864	861	857	855	853	851	850	851	857	859	872	860	866	857
16	866	861	856	852	849	846	846	847	849	852	852	854	852	846	846	847	846	845	845	846	847	847	848	828	849
17 D	839	847	845	842	838	835	834	835	836	840	842	841	838	848	889	982	946	968	959	902	828	799	750	821	859
18	819	827	834	838	836	841	843	844	848	852	854	856	865	866	857	857	854	855	856	860	862	845	842	838	848
19	831	819	798	820	835	836	835	835	842	846	854	858	853	852	852	852	849	850	853	860	853	849	846	835	842
20	832	833	838	838	836	834	834	832	840	847	847	848	852	858	884	884	878	878	877	860	853	851	847	846	851
21 D	842	843	842	842	841	838	836	836	835	838	842	848	847	863	918	901	897	968	928	897	795	787	820	841	856
22	846	846	825	788	769	817	822	826	825	841	848	851	859	871	879	880	873	863	859	857	855	846	836	826	842
23	804	765	780	775	781	812	822	831	838	840	846	848	848	849	861	874	879	872	857	847	846	822	821	836	831
24	836	835	841	836	836	831	831	825	830	840	844	846	852	859	884	890	929	958	949	889	879	867	833	808	859
25	819	830	844	831	848	852	852	849	851	849	850	851	859	867	867	874	906	893	870	858	851	846	844	841	854
26 D	838	839	782	796	826	833	836	813	804	835	847	858	880	874	872	877	903	883	868	873	874	861	847	831	848
27	809	835	836	841	847	847	849	847	849	852	854	853	849	849	851	856	854	855	853	852	848	844	842	836	846
28 Q	836	841	841	841	841	840	839	842	847	849	848	847	848	846	848	851	848	852	852	847	846	844	841	841	845
29	837	836	830	831	831	831	831	833	838	847	847	843	841	841	842	844	842	844	844	847	850	831	844	849	840
30 Q	842	842	841	841	841	841	841	841	842	842	844	842	841	840	840	841	840	840	841	842	847	846	844	842	842
Mean	830	833	832	832	833	837	839	839	842	847	849	850	852	855	864	872	873	875	875	868	857	850	843	836	849

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −30γ.

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS: MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

48 LERWICK — NOVEMBER, 1938

Day	Terrestrial Magnetic Elements																		HR_H+VR_V §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force					Declination					Vertical Force										
	Maximum 14,000 γ +		Minimum 14,000 γ +		Range	Maximum 12° +		Minimum 12° +		Range	Maximum 46,000 γ +		Minimum 46,000 γ +		Range						
	h m	γ	h m	γ	γ	h m	′	h m	′	′	h m	γ	h m	γ	γ				10,000γ²		°A
1	22 55	418	14 39	381	37	13 20	43·3	0 9	27·0	16·3	14 33	863	3 35	837	26				175	0	80·2
2	14 20	427	12 28	376	51	16 35	41·5	8 50	29·0	12·5	16 10	869	13 50	840	29				209	0	80·0
3 Q	20 48	418	10 23	380	38	13 4	38·3	21 8	27·1	11·2	15 0	854	6 23	839	15				125	0	79·4
4	21 40	417	10 56	384	33	14 8	37·7	20 46	23·6	14·1	20 20	860	23 56	839	21				146	0	79·2
5	21 0	417	11 6	384	33	13 22	37·8	5 35	25·0	12·8	16 53	867	0 25	837	30				188	0	79·0
6	20 53	427	11 6	375	52	12 58	40·9	20 28	24·6	16·3	20 10	860	0 42	828	32				225	0	78·9
7	20 44	420	10 28	378	42	12 50	39·3	20 40	22·1	17·2	20 29	870	7 10	831	39				243	0	79·7
8 D	15 56	573	23 37	-153	726	16 34	61·9	23 22	-10·5	72·4	16 53	1020	23 54	497	523				3493	2	80·0
9 D	16 7	561	0 0	150	411	18 24	57·0	1 0	1·3	55·7	16 0	1052	0 0	503	549				3161	1	79·4
10	23 7	413	2 1	257	156	11 27	36·5	0 33	12·9	23·6	9 57	864	2 21	762	102				702	1	78·8
11	22 29	411	10 58	376	35	13 33	36·6	18 47	27·0	9·6	18 55	859	0 0	848	11				101	0	79·4
12 Q	20 15	417	11 21	380	37	13 3	35·7	0 3	28·3	7·4	10 5	853	0 35	838	15				123	0	80·1
13 Q	21 5	416	11 26	375	41	13 49	36·7	6 19	29·9	6·8	8 40	853	2 20	838	15				129	0	81·0
14	18 54	606	23 9	349	257	18 25	66·7	22 53	16·9	49·8	18 49	1077	14 26	838	239				1489	1	81·5
15	21 40	432	0 28	362	70	21 48	40·1	0 10	20·4	19·7	21 30	895	0 47	816	79				471	0	81·4
16	23 28	482	11 31	381	101	12 43	36·9	23 28	25·2	11·7	0 23	868	23 39	803	65				449	0	81·0
17 D	15 3	522	20 55	317	205	16 7	51·7	21 0	7·9	43·8	15 19	1053	22 25	701	352				1942	1	81·0
18	7 44	410	12 45	364	46	11 37	40·7	20 21	13·0	27·7	13 0	871	0 36	804	67				380	0	81·1
19	5 41	414	10 48	348	66	1 47	42·6	19 37	27·8	14·8	19 12	862	2 36	790	72				432	0	80·7
20	7 35	418	10 5	358	60	14 19	41·5	21 51	29·0	12·5	15 7	893	0 57	829	64				386	0	80·2
21 D	17 46	485	20 57	286	179	14 14	49·9	21 9	4·2	45·7	17 46	1005	20 49	736	269				1517	1	79·2
22	5 55	417	3 36	320	97	7 45	43·4	4 0	21·0	22·4	15 0	888	4 3	739	149				837	1	78·7
23	0 53	418	22 0	370	48	13 47	38·0	22 21	18·2	19·8	16 15	881	1 12	756	125				654	0	77·9
24	17 17	573	22 16	345	228	17 0	43·2	22 56	15·5	27·7	17 14	1003	23 38	790	213				1325	1	77·2
25	20 28	409	0 32	347	62	11 56	38·2	16 37	20·0	18·2	16 35	923	1 1	782	141				749	0	77·0
26 D	17 10	462	7 36	339	123	7 35	52·8	17 10	13·7	39·1	17 4	925	2 40	761	164				945	1	77·0
27	23 44	429	11 14	366	63	13 22	36·7	0 21	25·5	11·2	15 10	856	0 5	798	58				362	0	77·1
28 Q	5 55	418	12 36	379	39	12 20	37·4	8 37	29·6	7·8	18 0	854	0 0	828	26				178	0	77·0
29	21 24	450	10 31	383	67	2 18	37·3	21 8	22·3	14·4	20 59	852	21 40	822	30				236	0	77·0
30 Q	19 10	422	11 5	384	38	14 33	34·8	1 5	24·0	10·8	0 2	849	0 48	838	11				106	0	77·8
Mean	-- --	449	-- --	335	115	-- --	42·5	-- --	20·1	22·4	-- --	903	-- --	786	118				716	0·33	79·3
No. of Days Used	-- --	30	-- --	30	30	-- --	30	-- --	30	30	-- --	30	-- --	30	30				30	30	30

§ For explanation see p. 21.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

49 LERWICK (H) — 14,000 γ (·14 C.G.S.unit) + — DECEMBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 Q	409	409	409	411	412	412	412	412	409	405	402	402	404	406	409	415	419	423	424	424	423	421	418	415	413
2 D	415	414	416	417	418	419	419	421	415	399	396	403	403	409	420	425	451	604	716	653	498	319	405	375	443
3 D	289	301	239	326	339	369	378	370	364	353	358	373	391	407	430	457	507	563	508	539	501	415	388	415	399
4	410	377	379	373	376	384	386	387	385	384	379	376	380	383	387	391	398	401	404	404	409	404	403	399	390
5	396	390	387	393	396	402	404	403	401	394	391	387	372	384	394	401	406	403	403	405	409	409	408	404	398
6	403	409	408	409	410	409	407	406	401	395	394	393	396	399	401	406	409	409	411	404	404	406	401	404	404
7	405	405	407	405	408	406	406	408	404	401	400	392	392	395	400	404	410	406	410	416	417	415	413	410	406
8 Q	409	407	409	410	413	417	417	415	412	404	400	398	398	401	404	410	413	417	418	417	415	416	416	414	410
9	413	413	414	414	417	423	430	430	428	420	412	409	410	415	420	424	441	434	426	428	423	407	387	379	417
10 D	389	378	379	389	395	403	402	403	401	395	383	379	394	404	418	526	440	470	602	424	430	469	451	418	423
11	376	362	369	371	376	378	379	381	382	383	375	373	375	379	387	396	398	402	403	401	401	401	397	393	385
12	393	392	390	389	394	395	394	392	396	394	387	385	378	376	400	400	395	403	404	403	401	403	401	393	394
13	392	395	398	395	396	406	406	400	402	398	395	390	393	397	400	405	404	411	417	429	398	398	402	406	401
14	399	392	397	394	396	397	400	401	401	399	392	389	389	393	402	410	413	406	406	399	390	393	398	400	398
15	398	398	395	387	401	406	401	402	402	401	401	401	400	400	395	402	408	408	411	404	411	411	409	402	402
16 D	398	403	406	407	408	413	413	414	405	414	412	403	400	402	403	405	428	437	504	454	395	379	350	250	404
17	225	359	375	350	379	391	395	384	360	371	379	375	375	378	384	403	412	399	403	400	393	388	389	375	377
18 D	273	380	383	390	405	400	404	386	383	394	389	373	369	381	443	433	500	530	463	465	424	328	366	380	402
19	383	386	387	393	387	384	388	384	367	373	370	366	371	380	390	394	467	423	440	430	411	395	356	361	391
20	358	379	385	371	393	402	403	401	390	386	386	386	384	384	390	384	400	419	406	388	381	359	369	396	387
21	395	394	395	397	402	403	406	400	391	394	394	385	378	387	387	393	396	399	404	406	404	403	404	404	397
22	404	406	395	409	415	405	363	365	361	374	385	401	413	402	393	388	384	387	386	390	389	385	379	385	390
23	383	393	398	396	395	396	396	395	393	391	391	385	386	384	390	395	397	399	401	402	404	401	415	401	395
24 Q	396	398	396	403	406	407	407	401	397	395	393	396	396	395	396	400	404	404	407	406	404	401	398	396	400
25	400	400	404	404	406	408	407	408	407	404	402	406	408	404	398	399	405	407	410	408	405	404	404	407	405
26 Q	406	406	405	409	412	412	412	411	410	409	408	405	405	407	410	413	413	414	417	416	414	413	412	412	410
27	409	409	409	409	408	409	410	410	409	406	404	402	403	405	409	413	415	418	419	418	415	413	407	396	409
28	401	406	406	406	407	411	411	412	410	409	406	402	406	412	415	410	410	414	419	418	415	410	409	412	410
29	414	413	413	413	417	417	418	417	413	407	398	399	403	407	409	409	409	412	413	413	411	409	405	398	410
30	401	405	406	405	407	409	412	411	409	405	405	405	406	409	415	418	409	406	413	414	409	409	406	405	408
31 Q	404	406	408	408	411	413	414	414	412	410	406	401	402	407	409	411	413	415	417	416	413	410	410	408	410
Mean	385	393	392	395	400	403	403	401	397	396	393	392	393	397	403	411	419	427	435	426	413	400	399	394	403

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −28γ.

MAGNETIC DECLINATION
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

50 LERWICK (D) — 12° + — DECEMBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1 Q	31·0	31·5	31·4	31·4	30·9	30·7	30·8	30·7	30·7	31·1	32·5	33·6	33·9	33·8	34·0	33·9	33·0	32·9	32·8	32·7	31·9	31·2	31·0	30·8	32·0
2 D	30·9	31·8	31·8	32·0	32·2	31·9	31·4	30·7	30·6	32·5	34·8	36·4	39·6	42·6	46·1	47·8	49·3	51·8	60·7	54·9	35·1	16·6	24·0	19·6	36·5
3 D	14·0	15·0	14·9	13·1	17·0	26·0	33·9	36·5	32·1	32·5	32·8	35·0	38·0	42·5	48·0	52·1	55·2	52·9	40·6	37·0	30·3	30·1	28·0	28·2	32·7
4	17·6	23·3	26·3	26·0	31·4	28·5	29·0	29·2	29·4	30·4	31·0	32·4	32·6	33·0	33·0	32·2	32·1	32·7	32·1	31·3	31·1	31·9	30·8	29·9	29·9
5	30·5	30·4	29·3	26·0	26·6	25·7	27·9	29·0	29·2	30·1	32·5	36·6	37·3	39·5	37·2	35·3	37·2	33·7	32·3	30·9	30·2	29·9	29·9	29·7	31·5
6	29·5	29·1	30·4	30·7	29·8	30·2	30·9	30·2	29·9	30·2	31·7	32·3	33·6	33·7	33·8	33·4	33·5	32·4	33·0	30·7	24·5	25·2	27·9	30·1	30·7
7	30·2	29·9	29·8	30·3	29·0	29·9	30·0	29·9	29·9	30·9	31·9	32·0	32·9	33·4	33·7	33·5	32·9	31·0	27·1	31·5	31·6	31·3	31·1	30·7	31·0
8 Q	31·1	31·1	31·3	31·3	31·0	30·4	30·3	30·0	29·6	29·6	30·8	32·3	33·6	34·0	34·5	33·9	32·9	32·6	32·3	32·0	31·5	31·2	30·9	30·8	31·6
9	31·2	31·5	31·7	31·7	31·4	31·8	31·8	30·9	30·5	29·1	29·8	31·0	32·4	34·5	35·2	34·8	35·8	37·0	35·9	34·3	29·6	26·9	27·0	25·2	31·7
10 D	28·1	28·4	27·2	29·9	28·9	29·6	30·4	30·8	29·2	29·9	30·4	31·2	34·3	35·4	35·1	40·9	40·5	34·9	46·5	27·3	28·3	29·9	30·2	23·0	31·7
11	28·2	27·6	32·1	32·0	29·5	30·3	29·6	29·3	29·2	29·1	31·3	31·6	32·9	33·8	34·1	33·6	32·6	32·3	31·5	30·6	30·2	27·5	30·4	29·3	30·8
12	29·3	28·1	29·3	28·3	29·2	26·7	28·4	29·4	29·4	28·8	31·4	33·6	35·2	35·3	36·6	35·3	33·0	31·3	31·0	30·8	30·0	29·8	29·5	28·2	30·7
13	27·0	26·9	29·1	28·9	28·2	28·7	29·4	29·9	30·1	30·1	31·9	33·8	33·9	34·7	34·1	33·8	34·1	33·6	37·3	29·9	27·2	29·7	28·4	27·2	30·7
14	28·9	28·0	27·5	28·4	28·2	28·6	29·5	30·3	30·2	31·0	30·8	34·0	33·7	35·3	35·6	34·9	38·6	39·5	34·0	25·9	25·3	28·4	29·6	30·7	31·0
15	30·8	30·5	30·4	31·2	29·2	28·3	29·8	31·9	30·3	29·4	30·5	31·9	33·5	34·9	34·1	33·8	33·5	33·3	33·5	33·8	30·8	30·5	30·6	30·5	31·5
16 D′	29·4	29·4	29·2	30·2	29·8	28·7	29·8	29·9	32·5	36·0	34·9	33·6	32·2	35·8	34·6	34·6	39·9	36·9	37·4	32·8	17·9	22·6	22·7	9·6	30·4
17	20·9	26·0	31·7	29·6	36·0	36·5	36·0	33·0	31·4	31·9	34·5	34·0	36·9	36·2	34·3	30·9	25·8	32·0	30·4	24·6	19·9	28·4	28·2	30·0	30·8
18 D	21·9	20·6	25·2	27·0	29·2	30·9	31·2	35·1	30·9	32·8	33·2	34·3	32·9	36·0	29·6	32·1	33·6	33·4	36·0	30·7	22·1	26·5	21·9	27·0	29·8
19	30·7	31·4	31·3	31·4	32·4	36·4	37·5	36·5	33·0	33·6	33·4	36·2	37·2	38·3	38·5	39·2	33·9	39·0	38·0	26·1	26·0	21·8	17·5	16·3	32·3
20	18·9	29·0	30·8	32·5	32·0	32·9	32·3	31·2	31·4	31·8	32·7	33·2	34·1	35·9	34·8	34·2	38·1	38·7	34·9	28·9	24·8	25·7	19·3	23·6	30·9
21	28·4	29·8	30·7	30·9	30·9	32·8	33·5	31·9	30·4	29·4	32·0	32·8	33·3	32·8	31·6	32·6	32·2	31·9	31·3	30·9	30·4	29·1	30·0	30·3	31·2
22	30·8	30·0	29·6	24·5	29·0	39·9	43·3	33·9	30·2	36·0	33·9	36·5	34·8	37·6	37·1	33·8	32·3	30·8	30·7	28·0	28·1	26·9	27·0	27·4	32·2
23	30·9	27·6	28·3	28·5	30·0	29·9	29·6	29·5	29·4	30·5	31·2	31·1	33·3	32·6	31·1	32·1	32·0	31·6	31·1	30·8	30·9	30·1	27·7	29·0	30·4
24 Q	29·5	29·0	28·5	29·9	29·6	30·2	29·8	29·9	30·2	31·8	32·2	33·0	33·5	33·7	33·4	32·8	32·6	32·5	32·4	31·6	29·5	28·9	29·4	29·9	31·0
25	29·3	31·0	30·4	29·3	28·7	28·8	29·7	29·8	30·4	31·5	31·9	31·9	32·8	32·7	32·9	32·4	32·2	31·9	31·7	31·3	30·9	30·3	30·0	30·4	30·9
26 Q	30·1	29·9	30·1	29·7	29·8	30·4	30·2	30·0	30·4	31·7	32·4	32·6	32·8	33·0	32·2	32·7	32·3	32·2	32·6	32·0	31·2	30·5	30·5	30·3	31·2
27	30·0	30·0	30·1	30·2	30·5	30·6	30·4	30·1	30·8	32·0	32·0	32·5	32·9	32·7	32·3	32·0	32·0	32·0	31·9	31·9	31·8	30·7	29·8	28·3	31·1
28	27·2	29·7	28·5	28·4	29·5	29·7	30·4	30·3	30·8	31·5	31·9	33·2	33·7	36·7	36·6	38·9	36·4	34·0	32·8	32·7	31·9	30·0	28·2	29·1	31·8
29	30·1	30·0	29·9	30·4	30·4	30·9	31·2	31·0	31·6	32·2	32·4	32·9	34·5	34·8	33·0	32·1	32·1	32·6	32·2	31·2	30·5	30·3	26·5	25·5	31·2
30	27·3	29·1	30·4	29·1	30·3	30·9	30·8	30·8	30·9	31·7	32·3	33·2	33·9	33·6	33·5	34·0	34·4	37·7	34·0	32·2	30·4	30·7	29·8	28·3	31·6
31 Q	26·9	29·9	30·8	31·6	31·0	31·1	30·7	30·1	30·0	30·8	31·6	32·2	33·4	33·5	32·7	32·2	32·3	31·9	31·4	30·8	30·6	30·9	30·6	27·4	31·0
Mean	27·7	28·6	29·3	29·2	29·7	30·6	31·3	31·0	30·5	31·3	32·1	33·3	34·2	35·2	34·9	35·0	35·0	34·9	34·5	31·6	28·9	28·5	28·0	27·2	31·3

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

51 LERWICK (V) 46,000 γ (·46 C.G.S.unit) + DECEMBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 Q	843	842	840	839	838	838	839	840	842	840	838	837	834	836	837	837	837	836	837	837	839	841	842	843	839
2 D	842	840	838	836	835	834	834	834	837	839	836	836	841	845	855	883	939	1001	938	942	895	826	908	890	867
3 D	865	873	783	731	729	736	756	785	810	835	844	857	864	871	896	945	1017	1055	1032	982	918	926	896	909	871
4	870	858	860	855	847	846	858	859	859	861	861	863	864	864	862	859	855	853	854	857	858	854	855	857	858
5	857	859	860	857	851	851	853	849	849	853	854	858	870	874	873	867	866	864	857	853	851	850	851	854	858
C	847	833	842	847	845	844	843	842	844	844	844	847	847	847	850	851	850	849	848	854	854	847	848	847	846
7	847	847	848	848	847	845	843	842	843	841	841	842	843	844	847	849	848	852	852	842	841	843	843	844	845
8 Q	844	845	844	845	844	843	843	842	842	840	842	842	843	842	843	847	847	845	843	842	842	840	839	840	843
9	841	842	843	844	844	841	837	837	835	837	838	838	837	838	841	847	845	869	925	957	930	916	887	841	859
10 D	840	836	807	814	827	835	843	842	844	842	844	846	847	852	873	1014	949	979	925	903	871	844	899	898	870
11	879	853	860	866	864	865	865	864	862	864	865	864	860	858	859	859	861	862	860	861	861	863	854	856	862
12	854	850	852	849	850	848	848	854	854	853	851	853	858	858	856	863	865	863	859	860	861	857	852	839	854
13	805	826	842	846	848	846	844	850	850	849	851	853	850	850	850	850	854	857	862	877	865	888	884	870	853
14	865	856	844	843	845	850	850	853	852	851	854	851	848	848	852	853	859	873	885	908	900	875	860	857	860
15	850	847	848	845	838	837	841	837	841	843	847	847	847	847	849	848	847	852	854	867	867	870	867	867	850
16 D	864	859	854	850	848	844	842	840	840	831	834	842	843	845	848	848	857	953	914	923	881	863	838	759	855
17	762	783	841	813	778	747	791	821	849	859	871	875	883	889	883	899	920	896	882	865	857	865	856	794	845
18 D	710	772	796	810	825	835	838	842	846	857	857	866	886	884	923	963	961	946	960	955	914	790	813	839	862
19	847	852	854	850	846	840	827	826	845	854	862	867	875	889	911	940	984	986	1008	976	941	892	813	750	981
20	770	813	828	829	824	842	844	844	848	852	853	853	854	862	870	886	905	946	978	920	884	834	806	825	857
21	842	850	853	852	847	843	838	839	846	848	851	858	861	857	867	860	854	850	848	846	846	849	847	845	850
22	843	835	826	809	810	787	788	781	828	866	876	897	915	886	885	886	888	888	886	885	870	856	851	818	853
23	810	821	844	847	848	848	852	852	848	848	848	848	847	851	858	854	856	854	852	850	846	848	836	834	846
24 Q	844	847	851	849	849	848	847	847	847	848	848	847	844	848	853	852	852	852	850	848	851	849	848	843	848
25	838	838	838	846	847	846	845	844	842	842	844	844	844	846	852	854	852	852	850	850	848	847	844	842	846
26 Q	842	841	843	842	843	844	844	843	842	842	844	843	843	843	842	843	845	846	847	847	848	846	844	842	844
27	842	842	841	842	842	842	842	842	841	841	842	843	843	842	841	841	842	842	843	844	844	845	848	850	843
28	848	844	843	843	840	838	840	840	840	843	843	843	839	839	840	845	848	849	848	850	851	853	853	846	844
29	841	840	838	838	836	837	837	839	839	842	845	843	838	838	840	841	842	842	842	843	845	844	846	842	841
30	835	832	832	833	833	834	836	838	838	838	834	836	836	838	836	836	846	856	853	850	854	850	848	843	840
31 Q	841	839	837	837	837	837	837	837	837	837	839	840	838	837	835	834	834	835	835	836	838	838	837	834	837
Mean	836	839	840	837	836	835	837	839	843	846	848	851	853	854	859	869	875	884	882	878	867	855	852	843	852

Corrections to be applied to all values: H, −6γ; D, −4·0′; V, −28γ.

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS: MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

52 LERWICK DECEMBER, 1938

Day	Terrestrial Magnetic Elements																				HR_H+VR_V §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force						Declination						Vertical Force										
	Maximum 14,000 γ +			Minimum 14,000 γ +			Maximum 12° +			Minimum 12° +			Range	Maximum 46,000 γ +			Minimum 46,000 γ +			Range			
	h	m	γ	γ	h	m	γ	h	m	′	′	h	m	′	′	h	m	γ	γ	h	m	γ			°A
1 Q	19	20	431	399	10	54	32	11	56	34·6	30·3	23	48	4·3	0	0	845	833	12	7	12	102	0	77·9
2 D	18	52	778	224	21	56	554	19	16	84·2	0·3	21	18	83·9	17	28	1033	786	21	8	247	1954	2	77·5
3 D	19	43	641	125	2	8	516	17	6	68·6	4·7	3	13	63·9	17	52	1079	704	4	16	375	2498	2	77·5
4	0	29	456	366	4	24	90	20	26	34·7	2·0	0	35	32·7	0	1	919	815	0	45	104	617	1	77·4
5	16	15	418	362	12	49	56	12	55	41·4	24·9	5	16	16·5	13	12	875	848	4	48	27	207	0	77·4
6	18	21	415	392	12	8	23	12	19	35·8	21·8	21	19	14·0	20	14	857	829	1	14	28	164	0	77·4
7	20	20	419	389	11	57	30	13	46	34·2	25·3	18	23	8·9	18	1	855	840	9	52	15	113	0	77·5
8 Q	17	47	420	396	11	58	24	14	20	34·6	29·0	9	26	5·6	15	53	848	839	9	48	9	77	0	78·0
9	16	43	449	367	22	53	82	17	54	38·5	23·3	20	47	15·2	19	53	961	833	8	32	128	717	0	78·5
10 D	18	31	789	363	23	10	426	18	41	76·8	14·2	23	26	62·6	15	36	1073	794	2	36	279	1919	2	78·1
11	16	12	409	348	1	26	61	14	13	34·8	23·8	8	31	11·0	0	8	902	848	1	34	54	341	0	78·1
12	15	15	409	370	13	20	39	14	25	37·8	25·7	5	22	12·1	16	36	867	831	24	0	36	224	0	78·6
13	19	38	453	379	20	40	74	18	53	39·6	18·3	19	47	21·3	19	45	895	790	0	41	105	598	0	79·3
14	16	41	420	379	20	48	41	17	11	42·5	20·2	19	57	22·3	19	35	919	835	2	39	84	452	0	79·7
15	21	24	415	383	3	16	32	13	34	35·3	27·9	5	23	7·4	21	44	873	834	7	29	39	229	0	80·0
16 D	18	23	967	179	23	46	788	18	28	65·0	-1·1	20	8	66·1	18	24	1079	738	23	41	341	2731	2	80·0
17	16	30	428	110	0	19	318	5	2	45·2	-9·1	0	17	54·3	15	52	936	681	0	23	255	1651	1	79·6
18 D	16	54	922	164	0	28	758	17	5	61·1	3·9	0	46	57·2	15	57	1010	676	0	17	334	2655	2	79·0
19	16	31	581	307	22	29	274	18	5	50·3	1·5	22	41	48·8	16	31	1053	734	23	16	319	1888	1	78·3
20	18	9	438	317	21	0	121	17	44	44·2	6·9	22	20	37·3	18	24	1001	755	0	5	246	1325	1	77·3
21	23	59	410	362	12	13	48	6	30	34·8	26·6	0	14	8·2	14	32	870	832	0	0	38	297	0	76·2
22	12	9	444	345	6	45	99	6	55	51·6	23·5	3	1	28·1	12	3	963	740	7	6	223	1187	1	74·7
23	22	26	438	373	0	51	65	0	45	36·9	22·2	22	25	14·7	14	20	859	804	1	7	55	351	0	74·1
24 Q	18	43	409	392	10	19	17	12	7	34·0	27·2	21	18	6·8	14	30	853	840	24	0	13	85	0	74·4
25	18	20	412	393	15	5	19	14	16	33·7	27·8	0	27	5·9	15	12	855	835	2	26	20	121	0	74·7
26 Q	19	25	420	401	2	48	19	18	52	33·3	28·9	3	48	4·4	20	27	849	840	0	12	9	69	0	75·1
27	18	59	421	391	23	15	30	12	31	33·0	25·0	23	23	8·0	23	19	853	839	14	49	14	109	0	76·4
28	19	0	422	397	0	0	25	15	42	40·1	25·0	0	5	15·1	22	19	856	838	5	5	18	120	0	76·7
29	5	23	418	396	10	50	22	13	34	36·2	23·9	23	4	12·3	22	22	848	835	4	30	13	93	0	76·4
30	15	58	421	398	0	0	23	17	40	39·9	26·4	24	0	13·5	17	27	858	830	2	31	28	164	0	76·8
31 Q	23	5	419	400	12	0	19	12	50	33·9	24·7	0	7	9·2	0	15	843	827	23	10	16	102	0	76·2
Mean	--	--	493	341	--	--	152	--	--	43·4	18·5	--	--	24·9	--	--	916	803	--	--	112	745	0·48	77·4
No. of Days Used	--	--	31	31	--	--	31	--	--	31	31	--	--	31	--	--	31	31	--	--	31	31	31	31

§ For explanation see p. 21.

Departure from mean of the 24 hourly values
(uncorrected for non-cyclic change)

MONTH AND SEASON	Hour 0-1	G. M. T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
53 LERWICK — HORIZONTAL FORCE (ALL DAYS) — 1938																								
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	-23·0	-40·5	-47·2	-32·9	-11·7	-4·1	+5·0	+1·5	-10·5	-17·2	-6·5	-1·9	+2·3	+11·4	+29·4	+38·4	+51·0	+42·6	+31·2	+7·1	+10·2	-2·1	-15·2	-17·3
February	-5·7	-8·3	-11·8	-9·2	-3·0	-7·6	-2·7	+2·0	-1·6	-11·4	-17·3	-19·5	-18·3	-10·2	-1·7	+7·0	+18·9	+35·9	+29·1	+21·0	+14·5	+3·1	-3·1	-2·3
March	-10·2	-23·9	-16·4	-5·8	+0·1	+0·6	-1·6	-0·3	-8·0	-17·3	-22·2	-28·1	-23·5	-6·0	+4·2	+16·1	+28·4	+33·2	+35·7	+25·4	+16·1	+9·0	+1·0	-6·5
April	-7·5	-10·5	-7·8	-3·2	-2·5	+3·2	-16·7	-13·6	-12·1	-32·8	-40·0	-37·6	-25·5	-9·4	+10·8	+30·5	+39·0	+40·6	+38·1	+34·8	+25·5	+5·5	-2·4	-6·4
May	-41·1	-11·9	-6·0	-8·0	-7·6	-11·3	-10·1	-18·3	-23·5	-29·0	-31·7	-27·4	-12·8	+6·1	+25·0	+43·6	+53·4	+60·0	+40·5	+35·5	+18·7	-2·8	-16·3	-25·0
June	-5·5	-2·9	-3·8	-3·6	-2·9	-5·0	-11·5	-19·4	-28·4	-38·5	-39·8	-31·6	-20·9	-11·1	+0·6	+12·3	+26·1	+34·6	+42·4	+41·9	+32·6	+18·4	+10·4	+5·6
July	-14·8	-8·9	-3·6	+3·1	+1·3	-8·6	-14·5	-21·7	-31·8	-39·6	-38·4	-30·9	-18·8	-6·9	+9·0	+29·4	+49·3	+51·3	+49·1	+37·2	+28·1	+4·2	-7·7	-15·8
August	-25·4	-12·0	-4·4	-8·2	-4·1	+1·3	-2·8	-13·7	-26·0	-40·0	-42·5	-36·2	-17·8	-2·7	+16·8	+27·7	+40·0	+44·0	+41·2	+37·7	+30·0	+15·3	+2·7	-20·9
September	-24·3	-24·7	-34·3	-24·5	+2·5	+9·6	+7·8	+4·2	-8·7	-18·3	-22·5	-17·2	-7·9	+7·9	+18·4	+32·3	+40·8	+34·8	+35·6	+27·7	+10·4	+2·6	-21·1	-31·1
October	-19·7	-11·6	-9·8	-9·5	-5·2	+4·0	+5·3	+3·7	-6·0	-17·9	-26·3	-24·3	-13·7	+5·0	+17·9	+27·1	+25·6	+24·3	+21·0	+18·8	+11·1	+1·9	-5·9	-15·8
November	-4·8	-4·0	-3·6	+0·4	+6·2	+8·0	+6·1	+3·1	-1·2	-11·1	-19·5	-20·2	-13·8	-5·4	-0·9	+9·0	+7·8	+14·5	+15·4	+12·8	+9·1	+2·5	-2·6	-7·6
December	-17·5	-9·7	-10·4	-7·6	-2·7	+0·5	+0·4	-1·5	-5·5	-7·2	-9·8	-11·2	-10·0	-6·4	+0·6	+8·1	+15·7	+24·3	+32·1	+22·7	+10·6	-3·0	-3·7	-9·0
Year	-16·6	-13·9	-13·2	-9·1	-2·5	-0·8	-2·8	-6·2	-13·6	-23·4	-26·4	-23·7	-15·1	-2·3	+10·8	+23·5	+32·8	+38·7	+34·3	+26·9	+18·1	+4·5	-5·3	-12·7
Winter	-12·7	-15·1	-18·2	-12·3	-2·8	-0·8	+2·2	+1·3	-4·7	-11·7	-13·2	-13·2	-9·9	-2·7	+6·9	+15·6	+23·3	+29·3	+26·9	+15·9	+11·1	+0·1	-6·1	-9·1
Equinox	-15·4	-17·7	-17·1	-10·7	-1·3	+4·3	-1·3	-1·5	-8·7	-21·6	-27·7	-26·3	-17·7	-0·6	+12·8	+26·5	+32·9	+33·2	+32·6	+26·7	+15·8	+4·7	-7·1	-14·9
Summer	-21·7	-8·9	-4·5	-4·2	-3·3	-5·9	-9·7	-18·3	-27·4	-36·8	-38·1	-31·5	-17·6	-3·7	+12·9	+28·3	+42·2	+47·5	+43·3	+38·1	+27·3	+8·8	-2·7	-14·0
54 LERWICK — DECLINATION (ALL DAYS) — 1938																								
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
January	-2·76	-1·67	-2·95	-2·97	-1·51	+0·29	-0·18	-0·51	-1·03	-0·96	-0·50	+1·05	+2·17	+4·17	+4·80	+3·38	+3·98	+4·60	+3·23	-1·35	-1·86	-2·84	-3·88	-2·72
February	-2·48	-3·09	-2·09	-2·80	-2·82	-1·32	-0·98	-0·61	-1·53	-1·94	-0·36	+2·33	+4·51	+5·81	+5·52	+4·96	+3·99	+1·31	+1·05	+0·15	-1·02	-2·84	-3·08	-2·87
March	-4·72	-4·71	-4·52	-3·68	-2·80	-3·09	-2·18	-2·57	-3·58	-2·93	+0·05	+3·64	+6·41	+7·79	+7·65	+5·92	+3·95	+2·53	+2·12	+0·68	0·00	-1·16	-2·31	-2·49
April	-1·64	-1·99	-2·65	-3·36	-4·39	-4·53	-5·04	-7·52	-7·17	-4·12	-0·71	+3·54	+7·17	+8·61	+7·91	+6·21	+4·10	+2·16	+1·75	+0·85	+1·21	+0·77	-0·40	-0·76
May	-2·78	-3·60	-3·50	-4·28	-4·28	-4·83	-5·54	-6·19	-5·18	-2·70	+0·16	+3·49	+6·39	+7·48	+6·46	+5·17	+4·59	+3·75	+2·64	+1·84	+1·96	+0·34	+0·53	-1·92
June	-0·72	-1·57	-2·80	-3·92	-4·90	-6·55	-7·31	-7·12	-5·43	-3·30	0·00	+3·21	+5·86	+6·90	+6·89	+5·56	+4·32	+3·48	+2·95	+1·71	+1·49	+1·26	+0·21	-0·02
July	-0·94	-1·89	-1·91	-2·89	-4·22	-5·22	-7·34	-7·43	-6·56	-4·12	-0·72	+2·65	+5·74	+7·13	+6·84	+6·49	+5·11	+3·15	+2·02	+1·62	+1·89	+1·15	+0·50	-1·05
August	-1·96	-2·04	-3·05	-3·31	-5·36	-6·83	-7·04	-7·04	-5·21	-2·16	+1·61	+5·21	+7·65	+8·61	+7·63	+5·19	+2·54	+1·27	+1·35	+1·72	+1·86	+1·80	-0·62	-1·82
September	-3·17	-4·71	-5·24	-5·44	-2·90	-2·19	-2·76	-3·69	-3·98	-1·83	+0·75	+3·78	+6·59	+7·85	+7·11	+6·08	+4·44	+3·25	+2·45	+1·57	-0·76	-1·82	-1·82	-3·56
October	-4·10	-1·98	-1·60	-3·25	-2·91	-2·25	-1·78	-2·52	-2·75	-0·70	+2·03	+5·05	+6·83	+6·76	+6·20	+4·79	+2·40	+1·47	+1·86	-0·34	-2·69	-3·18	-3·14	4·19
November	-3·02	-2·49	-1·42	-1·72	-1·77	-1·55	-1·03	-0·12	-1·13	-0·73	+0·89	+3·12	+4·44	+4·81	+4·79	+3·39	+2·41	+2·38	+1·83	-0·28	-2·25	-3·28	-3·64	-3·45
December	-3·67	-2·79	-2·04	-2·18	-1·63	-0·77	-0·09	-0·33	-0·89	-0·06	+0·79	+1·90	+2·82	+3·89	+3·59	+3·68	+3·68	+3·52	+3·14	+0·26	-2·51	-2·85	-3·35	-4·11
Year	-2·66	-2·71	-2·81	-3·32	-3·29	-3·24	-3·44	-3·80	-3·70	-2·13	+0·33	+3·25	+5·53	+6·66	+6·28	+5·07	+3·79	+2·74	+2·18	+0·70	-0·22	-1·04	-1·75	-2·41
Winter	-2·98	-2·51	-2·13	-2·42	-1·93	-0·84	-0·57	-0·39	-1·15	-0·92	+0·21	+2·10	+3·49	+4·67	+4·67	+3·85	+3·51	+2·95	+2·26	-0·31	-1·91	-2·90	-3·49	-3·29
Equinox	-3·41	-3·35	-3·50	-3·93	-3·25	-3·01	-2·94	-4·07	-4·37	-2·39	+0·53	+4·00	+6·75	+7·75	+7·22	+5·75	+3·72	+2·35	+2·05	+0·69	-0·56	-1·35	-1·92	-2·75
Summer	-1·60	-2·27	-2·81	-3·80	-4·69	-5·86	-6·81	-6·96	-5·59	-3·07	+0·26	+3·64	+6·36	+7·53	+6·96	+5·60	+4·14	+2·91	+2·24	+1·72	+1·80	+1·14	+0·15	-1·20
55 LERWICK — VERTICAL FORCE (ALL DAYS) — 1938																								
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	-16·0	-13·3	-23·3	-31·2	-30·1	-30·7	-18·2	-10·3	-5·8	-4·6	+1·6	-1·1	+9·1	+9·7	+19·0	+25·1	+29·9	+27·6	+26·0	+29·6	+22·9	+9·1	-4·9	-20·1
February	-11·9	-16·3	-23·4	-30·3	-28·2	-25·4	-28·6	-17·5	-7·8	-2·4	+0·5	+1·5	+5·1	+11·4	+16·7	+20·5	+29·9	+37·4	+27·3	+26·9	+18·2	+5·7	-0·1	-9·2
March	-33·4	-28·4	-30·9	-19·7	-16·4	-13·5	-14·4	-8·1	-1·4	+3·1	+4·1	+4·2	+5·3	+7·7	+14·7	+22·6	+27·7	+28·9	+29·0	+26·8	+11·4	+3·4	-4·9	-17·8
April	-32·5	-36·2	-31·1	-22·8	-21·3	-15·4	+3·1	+17·2	+9·9	+4·2	+2·9	+3·2	+6·2	+13·3	+17·0	+20·7	+27·1	+30·2	+26·0	+19·9	+9·6	-7·2	-19·3	-25·7
May	-29·0	-30·8	-24·3	-21·0	-16·3	-16·8	-13·0	-6·5	-6·0	-4·8	-2·7	-2·9	+1·3	+10·2	+21·5	+30·5	+31·3	+31·8	+23·4	+20·5	+19·0	+12·6	-10·0	-18·0
June	-13·7	-13·8	-15·1	-14·2	-12·2	-10·0	-5·4	-1·5	+0·6	+0·5	-3·3	-7·3	-5·6	-1·9	+2·5	+10·6	+16·4	+17·5	+15·7	+15·8	+13·6	+8·1	+4·1	-1·4
July	-18·3	-20·5	-19·3	-12·1	-9·9	-14·8	-10·4	-7·2	-4·8	-4·4	-3·7	-2·7	-0·6	+7·9	+16·6	+18·1	+21·7	+25·0	+23·0	+15·4	+11·3	+7·3	-3·0	-12·6
August	-22·9	-26·6	-22·7	-21·0	-14·5	-10·5	-2·8	+1·9	+2·6	+4·0	+0·8	-2·4	+0·8	+5·5	+12·7	+21·5	+25·6	+27·7	+22·5	+17·9	+14·1	+4·6	-13·4	-25·4
September	-32·5	-27·9	-34·0	-33·9	-25·6	-13·9	-5·2	-1·4	+4·2	+7·3	+8·2	+10·4	+11·3	+15·4	+24·8	+30·5	+38·6	+37·6	+29·1	+22·2	+5·5	-8·4	-25·5	-36·8
October	-32·2	-30·3	-27·5	-23·6	-27·3	-24·8	-11·2	-0·1	+7·2	+11·1	+12·8	+18·1	+20·2	+27·5	+30·2	+32·7	+27·2	+22·5	+8·9	+14·5	+6·0	-10·0	-24·6	-27·3
November	-19·0	-15·9	-17·6	-17·0	-16·3	-12·5	-10·7	-10·6	-7·7	-2·6	-0·2	+1·0	+3·1	+8·0	+14·5	+23·1	+23·9	+25·8	+26·2	+18·4	+7·3	+0·6	-8·7	-13·6
December	-16·0	-13·2	-12·8	-15·1	-16·8	-17·9	-15·5	-13·5	-9·3	-5·9	-4·0	-1·5	+0·6	+1·4	+6·4	+17·1	+22·6	+31·6	+29·1	+26·0	+14·3	+2·7	-0·4	-9·9
Year	-23·1	-22·7	-23·5	-21·8	-19·6	-17·2	-11·0	-4·8	-1·5	+0·5	+1·4	+1·7	+4·7	+9·5	+18·4	+22·8	+26·8	+28·6	+23·9	+21·2	+12·8	+2·4	-9·1	-18·1
Winter	-15·7	-14·7	-19·3	-23·4	-22·9	-21·6	-18·3	-13·0	-7·7	-3·9	-0·5	0·0	+4·5	+7·1	+14·1	+21·5	+26·6	+30·6	+27·1	+25·2	+15·8	+4·5	-3·0	-13·2
Equinox	-32·7	-30·5	-30·9	-25·0	-22·7	-16·9	-6·9	+1·9	+5·0	+6·4	+7·0	+9·0	+10·7	+16·0	+21·7	+26·6	+30·1	+29·8	+23·3	+20·9	+8·1	-5·5	-18·6	-26·9
Summer	-21·0	-22·9	-20·3	-17·1	-13·2	-13·0	-7·9	-3·3	-1·9	-1·2	-2·2	-3·8	-1·0	+5·4	+13·3	+19·7	+23·7	+25·5	+21·1	+17·4	+14·5	+8·1	-5·6	-14·3

Departures from the mean of the 24 hourly values
(uncorrected for non-cyclic change)

MONTH AND SEASON	Hour 0-1	G.M.T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
56 LERWICK — HORIZONTAL FORCE (QUIET DAYS) — 1938																								
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	-14·0	-5·1	-3·2	-2·5	+1·8	+3·7	+4·6	+4·5	+0·2	-4·9	-8·2	-10·3	-9·6	-3·3	-1·2	+1·1	+3·6	+7·9	+10·2	+8·5	+6·0	+3·9	+2·8	+3·5
February	+4·4	+3·6	+4·6	+5·6	+6·8	+7·5	+8·2	+3·8	+0·8	-9·8	-18·8	-25·2	-24·2	-18·8	-9·2	-2·4	+0·8	+4·1	+8·4	+8·6	+11·2	+10·6	+9·6	+9·8
March	+12·4	+10·5	+8·8	+9·3	+10·0	+10·3	+9·6	+7·3	-2·6	-19·3	-33·4	-41·3	-40·0	-29·3	-16·2	-4·1	+1·6	+7·5	+11·8	+17·7	+18·0	+18·9	+17·4	+15·5
April	+10·6	+9·1	+7·8	+7·5	+7·5	+6·8	+2·9	-5·1	-18·6	-34·9	-45·0	-44·5	-35·0	-20·5	-5·8	+9·5	+12·3	+19·2	+23·9	+25·5	+22·2	+17·7	+13·8	+13·1
May	+3·4	+2·2	+3·6	+4·0	+2·8	+0·3	-1·2	-8·0	-16·8	-25·4	-32·2	-30·8	-22·0	-17·4	-8·2	+4·4	+12·8	+21·3	+23·2	+24·6	+22·0	+18·2	+10·8	+8·4
June	+0·7	+0·6	-0·1	0·0	+3·8	+1·9	-6·0	-13·4	-23·5	-35·4	-41·5	-34·2	-21·1	-8·2	-0·3	+8·0	+16·8	+22·7	+31·0	+33·4	+28·5	+18·8	+10·3	+7·2
July	+5·4	+1·9	+3·4	+5·3	+5·8	-2·3	-12·6	-20·5	-31·6	-40·1	-39·8	-32·5	-20·8	-6·3	+6·2	+18·3	+27·4	+28·9	+28·2	+25·1	+21·4	+15·1	+9·0	+5·1
August	+4·7	+4·2	+4·5	+3·2	+4·2	+2·5	-2·8	-10·2	-19·9	-30·6	-36·7	-37·0	-27·5	-13·2	-1·7	+5·0	+11·4	+20·1	+24·0	+26·8	+23·1	+18·4	+15·3	+12·2
September	+9·9	+8·3	+7·5	+7·3	+6·1	+6·3	+3·7	-2·3	-14·5	-27·5	-37·3	-36·3	-29·7	-19·7	-8·9	-0·7	+4·3	+15·3	+19·9	+21·7	+18·7	+16·7	+15·7	+15·5
October	+9·0	+8·1	+7·7	+7·4	+6·7	+10·3	+8·4	+3·5	-7·5	-19·4	-26·7	-30·7	-28·2	-18·9	-8·7	-2·8	+4·1	+5·9	+8·2	+13·1	+13·1	+11·2	+13·7	+10·5
November	+3·4	+2·4	+2·0	+3·6	+6·0	+7·1	+7·6	+4·2	-2·4	-12·6	-20·2	-20·4	-18·0	-11·6	-7·4	-3·8	+2·4	+5·5	+8·2	+10·6	+10·4	+8·0	+8·0	+7·0
December	-3·9	-3·5	-3·4	-0·5	+2·1	+3·5	+3·7	+1·9	-0·8	+4·1	-6·9	-8·3	-7·7	-5·5	-3·2	+1·1	+3·7	+5·9	+7·9	+7·1	+5·0	+3·5	+2·1	+0·3
Year	+3·8	+3·5	+3·6	+4·2	+5·5	+4·8	+2·2	-2·9	-11·4	-22·0	-28·9	-29·3	-23·7	-14·4	-5·4	+2·8	+8·4	+13·7	+17·1	+18·6	+16·6	+13·4	+10·7	+9·0
Winter	-2·5	-0·7	0·0	+1·5	+4·2	+5·5	+6·0	+3·8	-0·5	-7·9	-13·5	-16·1	-14·9	-9·8	-5·3	-1·0	+2·6	+5·9	+8·7	+8·7	+8·1	+6·5	+5·6	+5·1
Equinox	+10·5	+9·0	+7·9	+7·9	+8·1	+8·4	+6·1	+0·9	-10·8	-25·3	-35·6	-38·2	-33·3	-22·1	-9·9	+0·5	+5·6	+12·0	+15·9	+19·5	+18·0	+16·1	+15·1	+13·7
Summer	+3·5	+2·2	+2·9	+3·1	+4·1	+0·6	-5·7	-13·0	-22·9	-32·9	-37·5	-33·6	-22·9	-11·3	-1·0	+8·9	+17·1	+23·3	+26·6	+27·5	+23·7	+17·6	+11·3	+8·2
57 LERWICK — DECLINATION (QUIET DAYS) — 1938																								
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
January	-1·55	-1·28	-0·73	-1·89	-1·39	-1·16	-1·23	-1·35	-1·03	-0·14	+0·39	+1·49	+3·11	+4·48	+3·29	+2·27	+1·27	+1·26	+0·87	+0·17	-1·31	-2·04	-2·01	-1·47
February	-1·13	-0·30	-0·12	-0·63	-1·08	-1·34	-1·89	-1·84	-2·94	-3·67	-2·14	+0·64	+3·23	+4·30	+3·76	+2·89	+1·84	+1·12	+1·01	+1·04	+0·70	-0·27	-1·42	-1·76
March	-1·12	-1·16	-1·09	-1·74	-2·12	-2·66	-2·96	-3·92	-5·07	-4·98	-2·06	+1·82	+4·94	+6·52	+6·25	+4·18	+2·16	+1·42	+1·12	+0·68	+0·49	+0·18	-0·08	-0·60
April	-0·21	-1·16	-1·63	-1·94	-2·90	-4·37	-5·92	-7·08	-7·05	-4·34	-0·65	+3·08	+6·37	+7·48	+6·31	+4·68	+3·24	+2·01	+1·40	+0·96	+0·89	+0·98	+0·53	+0·02
May	-0·06	-0·66	-1·64	-2·06	-3·14	-4·61	-5·56	-6·96	-5·94	-2·90	+0·26	+3·30	+5·34	+5·50	+5·12	+3·62	+2·58	+2·07	+2·00	+1·52	+1·18	+0·64	+0·26	+0·16
June	-0·40	-0·61	-1·40	-2·63	-4·74	-6·27	-7·08	-7·29	-5·78	-3·25	+0·48	+4·07	+6·12	+6·51	+5·86	+4·69	+3·22	+2·25	+1·58	+1·25	+1·26	+1·03	+0·66	+0·47
July	-0·15	-1·39	-2·46	-3·53	-5·19	-6·83	-7·81	-7·61	-6·10	-2·61	+1·17	+4·69	+7·39	+8·71	+7·54	+5·55	+3·03	+0·93	+0·41	+0·91	+1·38	+1·15	+0·47	+0·15
August	-1·21	-2·45	-2·75	-3·33	-3·95	-5·13	-5·59	-6·03	-5·15	-2·35	+1·13	+4·83	+7·13	+7·87	+6·47	+4·29	+2·25	+0·79	+0·51	+1·03	+1·15	+1·25	+0·17	-0·33
September	-2·05	-1·79	-2·06	-2·43	-2·79	-3·57	-4·81	-5·99	-5·38	-3·45	-0·21	+3·31	+6·05	+7·09	+6·32	+4·45	+2·77	+1·83	+1·43	+1·79	+1·26	-0·05	-0·55	-1·17
October	-1·21	-1·16	-1·50	-1·63	-1·62	-1·80	-2·31	-3·58	-4·34	-3·01	-0·22	+3·06	+4·79	+5·12	+4·90	+3·41	+2·42	+1·50	+1·27	+0·74	-0·04	-1·23	-1·30	-2·26
November	-2·11	-1·88	-0·83	-1·01	-1·17	-1·20	-1·43	-1·85	-2·15	-1·50	+0·11	+2·27	+3·45	+3·40	+2·81	+1·93	+1·75	+1·26	+0·73	+0·35	-0·17	-1·04	-1·07	-0·85
December	-1·67	-1·10	-0·76	-0·61	-0·92	-0·82	-1·03	-1·24	-1·20	-0·39	+0·52	+1·36	+2·05	+2·22	+1·98	+1·71	+1·24	+1·04	+0·91	+0·44	-0·44	-0·85	-0·90	-1·54
Year	-1·18	-1·25	-1·41	-1·95	-2·58	-3·30	-3·97	-4·55	-4·34	-2·72	-0·10	+2·81	+5·00	+5·77	+5·05	+3·62	+2·31	+1·46	+1·10	+0·91	+0·53	-0·02	-0·44	-0·77
Winter	-1·61	-1·14	-0·61	-1·03	-1·14	-1·13	-1·39	-1·52	-1·83	-1·43	-0·28	+1·44	+2·96	+3·59	+2·96	+2·20	+1·53	+1·17	+0·88	+0·50	-0·31	-1·05	-1·35	-1·41
Equinox	-1·32	-1·32	-1·57	-1·93	-2·36	-3·10	-4·00	-5·14	-5·46	-3·95	-0·79	+2·77	+5·54	+6·56	+5·95	+4·18	+2·65	+1·69	+1·31	+1·04	+0·65	-0·03	-0·35	-1·00
Summer	-0·61	-1·28	-2·06	-2·89	-4·25	-5·66	-6·51	-6·97	-5·74	-2·78	+0·76	+4·22	+6·49	+7·15	+6·25	+4·54	+2·77	+1·51	+1·13	+1·18	+1·24	+1·02	+0·39	+0·11
58 LERWICK — VERTICAL FORCE (QUIET DAYS) — 1938																								
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	-20·3	-12·8	-7·8	-6·5	-5·8	-7·2	-5·7	-4·8	-3·4	-1·5	0·0	-1·2	-2·1	+0·2	+4·6	+3·9	+4·8	+3·0	+3·5	+11·0	+20·0	+15·1	+8·8	+4·2
February	-4·2	-2·5	-0·5	+1·0	+1·3	+1·7	+0·6	+0·9	+0·9	+1·2	-0·5	-2·5	-3·8	-2·9	-1·1	+2·2	+3·7	+3·3	+1·4	+2·1	+1·3	+1·0	-0·5	-3·7
March	+0·5	+0·2	+1·2	+2·7	+3·0	+3·2	+1·9	+2·8	+3·2	+1·9	-1·6	-4·6	-6·7	-6·4	-3·6	+0·5	+2·2	+0·6	+0·5	+0·4	+1·0	-0·7	-0·8	-1·2
April	+0·5	+1·3	+2·5	+2·5	+2·5	+2·3	+3·5	+2·7	-0·3	-1·7	-4·3	-9·7	-10·5	-6·3	-0·9	+1·3	+4·5	+4·9	+4·3	+2·5	+1·1	+0·1	-0·7	-2·1
May	+3·0	+3·5	+4·8	+5·4	+4·8	+2·7	-0·2	-0·2	-2·0	-3·9	-6·8	-10·4	-11·8	-8·7	-5·8	-1·8	+0·8	+2·3	+3·8	+4·2	+5·8	+5·3	+4·6	+0·6
June	-5·6	-6·0	-4·6	-3·8	-0·8	+2·9	+3·4	+3·4	+3·0	-0·4	-4·6	-11·2	-12·2	-9·4	-4·6	+0·4	+5·4	+5·9	+5·2	+7·8	+9·2	+8·8	+6·4	+1·4
July	-0·4	+1·6	+2·3	+3·0	+2·2	+1·4	-1·2	-3·6	-5·9	-10·6	-11·8	-13·4	-14·0	-9·2	-1·7	+5·8	+12·6	+16·8	+13·6	+8·6	+5·1	+1·4	-0·8	-1·8
August	-9·3	-6·1	-2·5	+0·3	+1·1	+2·1	+4·5	+5·5	+3·9	+3·3	+1·1	-4·1	-8·5	-8·9	-3·5	+2·5	+3·5	+5·1	+5·7	+4·5	+3·1	+0·9	-1·7	-2·5
September	-3·4	-3·5	-0·2	+0·3	+1·0	+0·9	+1·2	-0·3	-0·6	-1·1	-2·2	-4·7	-5·2	-4·5	-2·2	+2·5	+5·2	+4·9	+6·6	+5·5	+5·8	+4·5	-2·8	-7·7
October	-4·9	-4·1	-3·9	-2·7	-2·7	-2·1	-1·3	+1·7	+3·7	+4·1	-0·1	-1·7	-2·3	-0·7	-0·3	+2·6	+3·7	+5·1	+4·5	+2·7	+1·7	+1·7	-4·5	-0·1
November	-3·9	-2·2	-3·0	-2·5	-2·2	-1·8	-2·5	-1·4	+1·4	+3·3	+3·8	+2·4	+1·1	0·0	+0·8	+1·7	+0·6	+1·0	+1·7	+0·6	+1·6	+1·3	-0·2	-1·6
December	+0·6	+0·7	+0·8	+0·3	0·0	-0·1	-0·2	-0·3	-0·2	-0·7	0·0	-0·3	-1·8	-0·9	-0·2	+0·5	+0·8	+0·7	+0·2	-0·1	+1·4	+0·7	-0·2	-1·7
Year	-4·0	-2·5	-0·9	0·0	+0·4	+0·5	+0·3	+0·5	+0·3	-0·5	-2·3	-5·1	-6·5	-4·8	-1·5	+1·8	+4·0	+4·5	+4·3	+4·1	+4·8	+3·3	+0·6	-1·3
Winter	-7·1	-4·2	-2·6	-1·9	-1·7	-1·9	-1·9	-1·4	-0·3	+0·6	+0·8	-0·4	-1·7	-0·9	+1·0	+2·1	+2·5	+2·0	+1·7	+3·4	+6·1	+4·5	+2·0	-0·7
Equinox	-1·8	-1·5	-0·1	+0·7	+0·9	+1·1	+1·3	+1·7	+1·5	+0·8	-2·1	-5·2	-6·2	-4·5	-1·7	+1·7	+3·9	+3·9	+4·0	+2·8	+2·4	+1·4	-2·2	-2·8
Summer	-3·1	-1·7	0·0	+1·2	+1·8	+2·3	+1·6	+1·3	-0·3	-2·9	-5·5	-9·8	-11·6	-9·1	-3·9	+1·7	+5·6	+7·5	+7·1	+6·3	+5·8	+4·1	+2·1	-0·6

Departure from mean of the 24 hourly values
(uncorrected for non-cycle change)

MONTH AND SEASON	Hour 0-1	G.M.T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
59 LERWICK — HORIZONTAL FORCE (DISTURBED DAYS) — 1938																								
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	-74·4	-204·7	-221·2	-128·5	-14·2	-20·7	+11·6	-9·1	-46·0	-70·1	+3·4	+42·3	+48·4	+70·9	+152·2	+189·7	+241·2	+178·3	+59·0	-44·7	-2·8	-24·7	-85·8	-50·3
February	-32·2	-24·1	-28·6	-52·9	-25·3	-63·8	-20·5	-4·9	-14·2	-24·7	-32·2	-30·3	-33·4	-5·5	+15·6	+21·3	+70·3	+155·0	+113·9	+65·5	+34·8	-21·5	-32·2	-40·1
March	-73·1	-73·4	-79·9	-56·1	-30·9	-37·0	-51·3	-24·9	-18·5	-21·6	-2·7	-3·1	-0·9	+40·2	+43·9	+70·7	+99·9	+122·8	+122·7	+71·9	+23·7	+0·8	-39·5	-83·7
April	-32·6	-34·6	-36·8	-9·8	-17·8	-7·6	-121·6	-64·8	+20·0	-21·0	-26·8	-15·6	+1·4	+24·2	+83·6	+109·8	+118·2	+94·6	+57·0	+59·4	+34·8	-50·8	-79·4	-81·8
May	-100·2	-20·5	-5·9	-10·8	-15·9	-52·9	-42·2	-47·1	-37·7	-22·4	-18·5	+0·3	+32·6	+80·1	+135·9	+163·0	+145·3	+153·5	+56·8	+53·9	-18·9	-114·6	-144·7	-169·1
June	-9·9	-9·2	-18·7	-25·0	-30·2	-28·5	-24·6	-31·0	-36·5	-47·4	-44·5	-27·2	-4·9	-1·6	+13·1	+29·4	+48·2	+52·9	+62·6	+66·4	+47·5	+12·6	+4·1	+0·4
July	-83·5	-50·6	-13·1	+11·6	+15·0	-24·1	-41·6	-49·2	-56·1	-50·8	-34·9	-20·0	+4·5	+27·2	+57·1	+97·6	+138·4	+116·7	+108·0	+61·6	+31·1	-62·4	-89·3	-93·2
August	-108·2	-55·8	+0·3	+8·6	+14·2	+2·4	-5·8	-17·6	-35·1	-64·6	-58·4	-35·8	+18·4	+51·4	+65·9	+83·6	+97·8	+62·4	+54·8	+54·6	+42·7	-1·4	-45·4	-129·0
September	-185·8	-153·4	-216·7	-178·0	-20·6	+5·6	+14·2	+19·6	+1·7	+10·4	+17·6	+38·8	+66·8	+118·0	+129·3	+163·8	+188·4	+137·8	+91·0	+30·8	-3·9	-37·0	-107·2	-131·2
October	-123·3	-63·9	-52·5	-79·7	-60·9	-31·2	-18·9	+7·3	-2·1	-14·5	-23·7	-13·9	+12·7	+75·5	+92·3	+125·5	+105·3	+86·8	+60·1	+51·7	+16·1	-29·5	-54·7	-64·5
November	-20·6	-16·9	-7·7	-3·6	+11·5	+10·9	+4·6	-0·9	+1·5	-10·6	-20·3	-19·7	-5·8	+8·5	+19·1	+57·2	+30·5	+38·5	+35·8	+10·7	-6·3	-18·0	-31·7	-66·7
December	-61·4	-38·9	-49·5	-28·4	-21·1	-13·3	-11·2	-15·3	-20·5	-23·2	-26·5	-27·9	-22·8	-13·5	+8·7	+35·0	+51·1	+106·7	+144·4	+92·8	+35·5	-32·2	-22·1	-46·5
Year	-75·4	-62·2	-60·9	-46·1	-16·3	-20·7	-25·8	-19·8	-20·3	-30·0	-22·3	-9·3	+9·7	+39·8	+68·1	+95·5	+111·1	+108·8	+80·5	+47·9	+19·5	-31·8	-60·7	-79·8
Winter	-47·1	-71·1	-76·7	-53·3	-12·3	-19·2	-3·9	-7·5	-19·8	-32·1	-18·9	-8·9	-3·4	+15·1	+48·9	+75·8	+98·3	+119·6	+88·3	+31·1	+15·3	-24·1	-42·9	-50·9
Equinox	-103·7	-81·3	-96·5	-80·9	-32·5	-17·5	-44·4	-15·7	+0·3	-11·7	-8·9	+1·5	+20·0	+64·5	+87·3	+117·5	+127·5	+110·5	+82·7	+53·5	+17·7	-29·1	-70·2	-90·3
Summer	-75·5	-34·0	-9·3	-3·9	-4·2	-25·3	-28·5	-36·2	-41·3	-46·3	-39·1	-20·7	+12·7	+39·3	+68·0	+93·4	+107·4	+96·4	+70·5	+59·1	+25·8	-41·5	-68·8	-97·7
60 LERWICK — DECLINATION (DISTURBED DAYS) — 1938																								
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
January	-1·84	+4·41	-4·56	-2·51	-0·95	+2·60	-0·13	-0·67	-4·54	-7·15	-8·88	-6·35	-4·78	-0·65	+6·84	+3·55	+7·71	+11·34	+10·93	-3·35	+2·78	+1·77	-7·50	+1·93
February	-0·76	-1·81	-0·62	-4·55	-3·85	+0·58	+0·93	+0·25	-1·36	-1·97	+0·20	+2·67	+4·32	+5·21	+4·68	+5·89	+7·37	-3·24	+0·19	-0·99	-1·54	-4·95	-3·88	-2·71
March	-14·25	-14·49	-13·32	-10·29	-5·11	-3·33	+3·65	+3·53	-0·36	-1·37	+2·77	+5·53	+8·61	+10·63	+10·62	+10·41	+9·69	+6·61	+6·51	+0·67	-0·98	-3·07	-6·61	-6·06
April	-3·42	-3·41	-4·30	-6·52	-9·10	-4·27	-2·62	-10·02	-8·18	-3·75	-2·24	+1·16	+5·06	+7·43	+8·46	+7·70	+6·88	+2·51	+3·26	+3·18	+5·22	+5·73	-0·42	+1·68
May	-9·96	-7·67	-9·19	-10·90	-6·93	-7·07	-3·76	-5·09	-4·73	-1·40	+1·15	+3·51	+8·16	+11·23	+8·81	+7·38	+11·19	+11·93	+7·48	+5·63	+5·23	-4·36	-0·63	-10·01
June	-1·44	-4·31	-6·82	-4·73	-3·60	-6·11	-6·96	-7·95	-5·40	-3·99	+0·96	+4·05	+6·12	+7·15	+7·80	+6·71	+5·02	+4·41	+4·98	+1·89	+1·46	+0·71	-1·00	+1·05
July	-2·32	-3·24	-1·88	-4·72	-3·96	-3·08	-8·72	-7·84	-4·72	-4·08	-0·72	+1·68	+5·12	+5·50	+5·04	+8·20	+8·84	+8·30	+4·22	+2·16	+2·80	-0·78	-1·68	-4·12
August	-4·41	-2·85	-4·94	-5·93	-7·83	-8·11	-6·75	-7·53	-3·44	-0·83	+2·93	+5·57	+6·83	+8·69	+10·92	+7·97	+4·19	+3·79	+4·93	+4·83	+3·34	+4·09	-6·91	-8·55
September	-11·16	-19·40	-19·27	-18·22	-4·84	+3·56	+2·70	+1·36	-1·51	+1·76	+4·78	+6·16	+8·48	+11·12	+9·69	+12·34	+10·42	+10·14	+7·86	+4·30	-7·05	-3·84	-2·64	-6·74
October	-11·17	-5·14	-3·19	-8·04	-9·18	-3·99	-0·88	-2·86	-1·19	+2·62	+3·97	+7·76	+8·79	+7·98	+8·95	+9·02	+5·78	+2·11	+7·84	+1·40	-5·99	-2·80	-4·47	-5·30
November	-5·19	-5·49	-2·85	-2·37	-2·19	-2·35	-1·33	+3·01	+0·53	+0·09	+2·29	+5·05	+7·87	+8·91	+9·29	+6·31	+5·07	+3·15	+2·03	-3·47	-6·13	-8·01	-6·65	-7·77
December	-7·35	-7·17	-6·56	-5·77	-4·79	-2·79	-0·87	+0·39	-1·16	+0·53	+1·01	+1·89	+3·19	+6·25	+6·46	+9·29	+11·49	+9·77	+12·03	+4·29	-5·48	-7·07	-6·85	-10·73
Year	-6·11	-5·86	-6·44	-7·05	-5·19	-2·86	-2·06	-2·79	-3·01	-1·63	+0·69	+3·22	+5·63	+7·45	+7·98	+7·90	+7·80	+5·90	+6·02	+1·71	-0·53	-1·88	-4·10	-4·78
Winter	-3·79	-2·51	-3·60	-3·80	-2·95	-0·49	-0·35	+0·75	-1·63	-2·13	-1·35	+0·81	+2·65	+4·93	+6·82	+6·26	+7·91	+5·25	+6·29	-0·88	-2·59	-4·57	-6·22	-4·83
Equinox	-10·00	-10·61	-10·02	-10·77	-7·06	-2·01	+0·71	-2·00	-2·81	-0·19	+2·32	+5·15	+7·73	+9·29	+8·93	+9·87	+8·19	+5·34	+6·37	+2·39	-2·20	-0·99	-3·53	-4·11
Summer	-4·53	-4·47	-5·71	-6·57	-5·58	-6·09	-6·55	-7·10	-4·57	-2·57	+1·08	+3·70	+6·51	+8·14	+8·14	+7·57	+7·31	+7·11	+5·40	+3·63	+3·21	-0·09	-2·55	-5·41
61 LERWICK — VERTICAL FORCE (DISTURBED DAYS) — 1938																								
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	+5·2	+1·8	-59·8	-89·2	-45·0	-47·1	-26·6	-7·0	-7·2	-1·0	+17·6	+0·4	+39·8	+34·6	+30·2	+40·4	+56·2	+31·7	+7·4	+40·4	+7·0	+2·6	-13·2	-19·2
February	-18·4	-31·5	-39·0	-72·0	-91·4	-90·9	-98·4	-57·6	-21·6	-6·1	+4·4	+12·2	+24·0	+38·9	+44·6	+40·8	+77·6	+117·7	+69·0	+70·8	+42·8	-4·9	+0·2	-11·2
March	-118·5	-82·6	-93·7	-74·5	-69·9	-60·2	-73·5	-44·7	-15·9	+13·8	+25·7	+31·1	+34·3	+45·4	+64·7	+87·5	+93·9	+97·8	+87·9	+39·7	+20·3	+8·4	-11·9	-55·1
April	-85·0	-76·4	-64·8	-53·2	-58·6	-51·6	+32·6	+92·8	+41·0	+3·6	+7·2	+21·2	+33·0	+45·4	+41·2	+47·4	+60·8	+72·0	+51·0	+33·2	+12·8	-41·2	-77·0	-87·4
May	-43·8	-67·3	-86·0	-80·6	-58·6	-62·9	-60·4	-37·8	-26·8	-15·9	0·0	+5·4	+30·4	+50·3	+84·2	+109·4	+87·6	+73·1	+48·6	+39·8	+57·4	+44·9	-23·8	-67·2
June	-24·4	-33·1	-48·2	-56·1	-56·5	-62·8	-41·9	-15·7	+0·8	+10·3	+9·4	+11·1	+21·6	+27·5	+26·8	+39·9	+48·5	+45·6	+37·7	+38·3	+26·0	+1·5	+2·8	-9·1
July	-53·0	-63·9	-57·8	-41·3	-25·8	-39·5	-29·8	-27·1	-15·8	-3·5	+6·0	+19·5	+18·0	+42·1	+73·8	+49·5	+48·4	+39·3	+36·4	+16·1	+18·4	+19·1	-7·8	-21·3
August	-37·5	-75·5	-49·1	-26·5	-16·5	-10·6	-13·5	-5·1	+0·3	+11·1	+3·3	+0·9	+27·3	+34·9	+42·7	+53·9	+48·5	+47·4	+35·1	+33·5	+37·1	+6·3	-62·1	-85·9
September	-115·9	-96·8	-133·3	-150·7	-116·3	-66·6	-26·5	-6·9	+20·9	+35·2	+45·9	+61·5	+64·7	+74·8	+101·5	+100·5	+127·9	+130·6	+103·5	+58·5	+7·5	-31·8	-70·7	-117·5
October	-51·4	-43·2	-47·6	-70·6	-111·4	-102·7	-39·6	+2·6	+23·0	+34·8	+49·4	+64·8	+76·0	+101·4	+93·4	+74·0	+57·4	+25·3	-41·4	+11·4	-7·2	-36·8	-45·6	-16·0
November	-56·4	-34·4	-39·6	-40·8	-41·4	-36·0	-28·4	-30·8	-29·6	-18·2	-12·2	-4·8	+7·6	+20·6	+52·8	+91·4	+84·0	+93·6	+80·6	+46·0	+0·2	-15·2	-36·6	-52·4
December	-40·8	-29·0	-49·4	-56·8	-52·2	-48·3	-42·4	-36·4	-29·6	-24·2	-22·0	-15·6	-8·8	-5·6	+14·0	+65·6	+79·6	+121·7	+88·8	+76·0	+30·8	-15·2	+5·8	-8·0
Year	-53·3	-52·7	-64·0	-87·7	-62·0	-56·6	-37·4	-14·5	-5·0	+3·3	+11·2	+17·3	+30·6	+42·5	+55·8	+66·7	+72·5	+74·7	+50·4	+46·1	+21·1	-5·2	-28·3	-45·7
Winter	-27·6	-23·3	-46·9	-84·7	-57·5	-55·6	-48·9	-32·9	-22·0	-12·4	-3·1	-1·9	+15·7	+22·1	+35·4	+59·5	+74·3	+91·2	+61·5	+58·3	+20·2	-8·2	-10·9	-22·2
Equinox	-92·7	-74·7	-84·9	-87·3	-89·1	-70·3	-26·7	+10·2	+17·3	+21·9	+32·1	+44·7	+52·0	+66·7	+75·2	+77·3	+85·0	+81·4	+50·3	+48·2	+8·3	-25·3	-51·3	-69·0
Summer	-39·7	-59·9	-60·3	-51·1	-39·3	-43·9	-38·4	-21·4	-10·4	+0·5	+4·7	+9·2	+24·3	+38·7	+56·9	+63·2	+58·3	+51·3	+39·5	+31·9	+34·7	+17·9	-22·7	-45·9

RANGE OF MEAN DIURNAL INEQUALITIES FOR THE MONTHS, YEAR AND SEASONS OF 1938

NOTE.- The ranges are derived from the diurnal inequalities printed in Tables 53 to 61

62 LERWICK 1938

	All Days			Quiet Days			Disturbed Days		
	H	D	V	H	D	V	H	D	V
	γ	′	γ	γ	′	γ	γ	′	γ
January	98·2	8·68	61·1	24·2	6·50	40·3	462·4	20·22	145·4
February	55·4	8·90	67·7	36·4	7·97	8·3	208·8	12·32	216·1
March	61·8	12·51	62·4	60·2	11·59	9·9	206·5	25·12	216·3
April	80·6	16·13	65·4	70·5	14·56	15·4	237·8	18·48	180·2
May	101·1	13·67	62·6	56·8	12·46	17·6	332·1	22·83	195·4
June	82·2	14·21	32·6	74·9	13·80	21·4	113·8	15·75	111·3
July	90·9	14·56	45·5	69·0	16·52	30·8	231·6	17·56	137·7
August	86·5	15·65	54·3	63·8	13·90	15·0	226·8	19·47	139·8
September	75·1	13·29	75·4	59·0	13·08	14·3	405·1	31·74	281·3
October	53·4	11·02	64·9	44·4	9·46	10·0	248·8	20·19	212·8
November	35·6	8·45	45·2	31·0	5·60	7·7	123·9	17·30	150·0
December	49·6	8·00	49·5	16·2	3·89	3·2	205·8	22·76	178·5
Year	63·1	10·45	52·1	47·9	10·32	11·3	190·7	15·01	142·4
Winter	47·5	8·16	54·0	24·8	5·42	13·2	196·3	14·13	155·9
Equinox	60·9	12·12	62·8	57·7	12·01	10·2	231·2	20·64	177·7
Summer	85·6	14·48	48·4	65·0	14·12	19·1	205·1	15·24	123·5

AVERAGE DEPARTURE

Arithmetical averages of diurnal inequalities in Tables 53-61 taken regardless of sign

63 LERWICK 1938

	All Days			Quiet Days			Disturbed Days		
	H	D	V	H	D	V	H	D	V
	γ	′	γ	γ	′	γ	γ	′	γ
January	19·2	2·31	17·5	5·2	1·55	6·6	83·1	4·49	26·3
February	11·0	2·47	16·8	9·0	1·71	1·9	39·7	2·69	45·3
March	14·0	3·39	15·7	15·5	2·46	2·1	49·7	6·60	58·4
April	19·0	3·69	17·5	17·5	3·16	3·0	50·1	4·85	49·6
May	23·6	3·73	16·8	13·5	2·80	4·3	68·5	6·81	52·6
June	18·7	3·64	8·8	15·3	3·29	5·3	28·1	4·36	29·0
July	21·8	3·69	12·0	17·2	3·62	6·2	55·7	4·32	32·2
August	21·4	3·87	13·5	15·0	3·24	3·9	46·4	5·66	31·9
September	19·5	3·66	20·4	14·7	3·03	3·2	86·1	7·89	77·7
October	13·6	3·12	19·9	11·9	2·27	2·6	52·8	5·35	51·1
November	7·9	2·32	12·5	8·0	1·51	1·8	19·1	4·47	39·7
December	9·6	2·27	12·7	4·0	1·12	5·6	39·5	5·55	40·2
Year	15·6	3·04	14·4	11·5	2·38	2·5	48·4	4·52	41·0
Winter	11·0	2·31	14·8	6·0	1·44	2·2	41·0	3·47	36·5
Equinox	15·8	3·40	18·0	14·6	2·69	2·3	56·9	5·52	55·9
Summer	20·7	3·70	12·4	15·1	3·23	4·0	47·7	5·15	35·9

NON-CYCLIC CHANGE

64 LERWICK 1938

	All Days			Quiet Days			Disturbed Days		
	H	D	V	H	D	V	H	D	V
	γ	′	γ	γ	′	γ	γ	′	γ
January	-1·2	-0·06	+1·8	+15·7	+0·75	+20·4	-6·3	+3·16	+44·6
February	-1·1	-0·20	-4·4	+5·8	+0·56	-1·4	-24·9	-1·52	-7·1
March	+2·0	+0·26	+3·5	+2·5	+0·23	-3·9	-6·2	+2·58	+52·2
April	+0·2	+0·08	+0·2	+1·9	+0·45	-2·1	-26·8	+1·83	-5·0
May	-0·6	-0·15	+0·1	+4·1	-0·20	-1·6	-135·3	-3·94	-61·9
June	+1·1	+0·07	-0·1	+4·8	+0·68	+4·8	-22·8	+0·94	-27·9
July	-0·7	-0·08	+0·5	-0·7	-0·41	-1·4	-9·6	+1·77	+5·4
August	+0·5	0·00	-0·2	+5·5	+0·93	+7·0	-26·1	-0·89	-4·9
September	-12·9	-0·60	-2·4	+4·6	+0·36	-7·7	+28·6	+3·06	+6·9
October	+11·6	+0·37	+2·7	-0·2	-1·03	+2·5	+89·5	+5·93	+26·0
November	+0·1	+0·09	-0·3	+3·2	+1·05	+0·2	-18·0	-1·82	-5·0
December	-0·1	-0·10	-0·2	+3·0	+0·09	-1·7	-18·9	-4·16	+16·2
Year 1938	-0·1	-0·03	+0·1	+4·2	+0·19	+1·3	-14·7	-0·58	+3·3
Winter	-0·6	-0·07	-0·8	+6·9	+0·33	+4·4	-17·0	-1·09	+12·2
Equinox	+0·2	+0·03	+1·0	+2·2	-0·00	-2·8	+21·3	+3·35	+20·0
Summer	+0·1	-0·04	+0·1	+3·4	+0·25	+2·2	-48·5	-0·53	-22·3

MEAN VALUES OF $HR_H + VR_V$

(Unit $10{,}000\gamma^2$)

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HR_H	VR_V	Sum	Mean Character Figure
426	1147	1573	1·06
236	646	882	0·79
267	660	928	0·68
361	887	1249	0·73
459	794	1253	0·74
177	405	582	0·43
314	577	891	0·58
308	571	879	0·58
402	848	1250	0·73
268	830	1098	0·65
165	551	716	0·33
220	526	745	0·48
300	703	1004	0·65
262	717	979	0·67
325	806	1131	0·70
315	587	901	0·58

MEAN MONTHLY AND ANNUAL VALUES OF TERRESTRIAL MAGNETIC ELEMENTS

For all, a, quiet, q, and disturbed, d, days for H, D and V and for all days for N, W, I and T

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	Horizontal force a	q	d	Declination (west) a	q	d	Vertical force a	q	d	North component all days	West component all days	Inclination (north) all days		Total force all days
	14000γ+			12°+			46000γ+							
	γ	γ	γ	′	′	′	γ	γ	γ	γ	γ	°	′	γ
January	390	401	376	35·7	37·2	34·3	809	797	832	14044	3138	72	54·7	48970
February	397	394	403	35·5	35·6	35·3	802	804	801	14050	3138	72	54·2	48966
March	395	403	375	35·0	35·8	34·0	796	795	783	14049	3136	72	54·1	48960
April	395	404	379	34·1	34·2	33·8	806	802	827	14050	3132	72	54·3	48969
May	398	407	376	33·2	33·2	32·5	802	800	803	14054	3129	72	54·1	48966
June	411	410	405	32·6	32·3	33·0	799	803	784	14067	3129	72	53·1	48967
July	406	410	392	31·9	31·5	33·7	810	811	808	14063	3126	72	53·7	48976
August	400	405	400	30·6	30·8	31·2	814	813	816	14059	3119	72	54·1	48978
September	388	401	346	29·2	30·6	26·0	808	812	802	14048	3111	72	54·8	48969
October	387	396	371	28·6	29·2	27·7	811	817	790	14048	3108	72	54·9	48971
November	393	398	389	28·2	28·3	28·6	819	815	826	14054	3108	72	54·7	48981
December	397	403	408	27·3	27·4	28·2	824	814	837	14058	3105	72	54·5	48987
Year	396	403	385	31·8	32·2	31·5	809	807	809	14054	3123	72	54·2	48972

The corrections specified in the Introduction are incorporated in Table 66.

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Night commencing		Month	Night commencing		Month	Night commencing		Month	Night commencing		Month
		JANUARY			MARCH (Contd.)			SEPTEMBER (Contd.)			NOVEMBER (Contd.)
											clouds from 21h 50m to 22h 20m.
1	(W)	Glow 20h onwards.HA at times	7 b-c ..		Cloudy,becoming overcast at 20h	16	(W)	Glow all evening,very cloudy	8 b	(W)	Feeble arch at 19h 24m.Activity increasing after 22h 30m with curtains,bands and arches. Corona at 23h 17m and brilliant draperies immediately afterwards Draperies with pink edges at times.Pulsating aurora started at 23h 41m and activity still persisting at 0h 30m on the 9th.
2	c ..	Very cloudy				18	c ..	Cloudy			
3	(W)	Glow through breaks in cloud all evening	8 cb-b ..		Cloud dispersing,moonlight	19	(W)	Glow seen in break of cloud sheet between 20h and 20h 15m			
4	(W)	Glow above cloud bank after 20h	9 b	(W)	Faint glow after 20h 45m. Moonlight	21	(W)	Glow seen shortly before 22h when sky suddenly cleared Arch observed at 24h			
5	(W)	Glow 19h 45m onwards	10 b-cb-b..		Variable cloud						
7	(W)	Glow from 20h 15m to 21h 30m.	13 c ..		Slight breaks in cloud between 21h and 22h						
8	c ..	Cloudy, moonlight	14 b ..		Fine,but haze and bright moonlight	22	a ..	Mainly fine			
9	c ..	Very cloudy				24	(W)	Glow at 21h 20m.Sky overcast most of evening	12	c ..	Overcast apart from a few breaks 21h to 22h
12	b (W)	Glow seen 19h to 19h 20m during temporary break in cloud, moonlight	15 cb ..		Cloudy. Bright moonlight						
			16 cb ..		Variable cloud.Moonlight	25	(W)	Extensive glow, Rayed band seen at 22h 20m	13	a ..	Fine
15	cb ..	Cloudy, moonlight	19 c-a-c ..		Cloudy becoming fine 19h,and cloudy again 22h	26	(W)	Glow from 20h onwards.Some bright bands and rays at 22h 30m. Pulsating and flaming aurora passing south of zenith between 23h and 23h 30m.	14	(W)	Glow started at 18h 30m followed by extensive aurora passing south of zenith at times but lacking in well defined phenomena.
16	b (W)	Glow 18h 30m to 20h 45m. Bright moonlight	20 a ..		Fine						
17	c	Very cloudy	21	(W)	Glow seen at 20h 35m developing into bright rayed arch 20h 45m.No activity after 21h				15	a (W)	Weak glow most of evening
19	c ..	Variable cloud							17	(W)	Glow all evening.A few rays at 20h 45m,and segments of an arch at 21h 45m.
21	c ..	Variable cloud									
22	(W)	Much activity 17h 20m to 17h 30m.Corona and red coloration seen.Faint glow 19h 15m to 20h 30m.	23 c ..		Overcast until 21h, then a few breaks	30	(W)	Arch at 19h 10m with some rays Weak glow until 20h 10m. Fine display of coronae, bands,and pulsating and flaming aurora accompanied by a blood red patch in the west, until sudden onset of fog at 21h 05m.	20	a (W)	Glow all evening
			24	(W)	Glow after 20h 45m,becoming arch 21h 30m to 21h 50m				21	a (W)	Glow from 17h 30m.Activity commencing 19h 35m with arch and a few rays. Some pulsating aurora at 20h 53m
23	a-c ..	Cloudy until 20h,then overcast	25	(W)	Bright Aurora,mainly obscured by cloud						
24	c-a-c ..	Variable cloud until 21h. then overcast	26	(W)	Weak glow seen below cloud bank				22	(W)	Glow from 18h, obscured by cloud at 21h.
25	a (W)	Exceptionally brilliant display.First seen at 17h 30m. Multi-coloured rays, glows, bands,arches and coronae in profusion.Last seen as pulsating surfaces at 5h on the 26th.	27 ca-a ..		Fine after 21h			OCTOBER			
			29 c ..		Overcast early,clearing at 21h				24	(W)	Some rayed bands 17h 05m to 17h 25m. Cloud increased after 19h but activity seen behind it all evening
			30 a-c ..		Cloudy,becoming overcast 21h, clearing later	1 cb ..		Very cloudy. Overcast after 21h			
						2 cb ..		Very cloudy. Overcast at times			
						3	(W)	Some rays at 19h 30m followed by arch.Glow seen through clouds remainder of evening	26	(W)	Glow seen behind cloud after 21h.
26	(W)	Variable cloud. Glow seen in clear intervals			APRIL				27	b-c ..	Cloud increasing, moonlight
			1 c ..		Cloudy, becoming overcast 21h	4 b ..		Cloudy	28	cb-c ..	Cloudy, moonlight
27	c ..	Overcast after 20h	2	(W)	Glow seen after dusk in clear intervals	6 b-c ..		Cloudy early; overcast after 20h.	29	b-c ..	Overcast from 20h to 21h, otherwise cloudy
28	(W)	Glow seen in clear intervals after 20h 30m.	3	(W)	Weak glow seen at times. variable cloud	7 b	(W)	Band with rays at 19h 46m followed by very bright coronas and curtains.Cloud obscured aurora from 20h 49m to 21h 45m when further brilliant curtains and coronae were seen.Sky again obscured from 23h.	30	b ..	Cloudy, moonlight
29	(W)	Glow from 20h to 20h 30m and after 21h 30m.	4 ca ..		Cloudy						
30	(W)	Glow all evening	6 ca ..		Mainly cloudy						DECEMBER
			7	(W)	Glow after 21h 45m,moonlight				1	b ..	Cloudy, moonlight
		FEBRUARY	8 cb ..		Cloudy, moonlight				2	b (W)	Glow all evening.Some rayed bands at 18h
			9 b ..		Fine, moonlight				3	(W)	A moderate display,commencing with rayed bands at 16h 35m. Corona seen 20h 30m and pulsating aurora at 21h 02m. after which cloud obscured display
1	(W)	Glow seen between clouds 20h onwards	10 b ..		Fine, moonlight						
			11 b ..		Cloudy, moonlight	8 cb ..		Cloudy. Bright moonlight			
2	a-c ..	Fine,becoming cloudy,overcast after 20h.	14 c ..		Very cloudy	10 b	(W)	Segments of arches seen at 19h 35m and at times between 20h and 21h			
			15 c ..		Very cloudy						
3	c ..	Overcast after 19h.	16	(W)	Bright glow behind cloud after 20h 45m. Some pale pulsating and flaming aurora mainly from the East to the zenith.Feeble corona at 22h, dying down to glow with occasional rays	11 a-cb ..		Cloudy, Moonlight later	5	cb ..	Variable cloud, bright moonlight
5	cb-b ..	Variable cloud				14 c ..		Overcast all evening,apart from a few breaks between 21h and 22h	6	cb ..	Very cloudy
6	(W)	Arch,rayed and double at times seen from 20h 40m. Cloud increasing after 21h.							7	cb-c ..	Very cloudy, becoming overcast at 21h
7	cb ..	Very cloudy				16 a	(W)	Glow persisting from 19h all evening	9	(W)	Glow from 17h 30m, obscured by cloud at 19h 30m. Overcast remainder of evening.
9	b (W)	Glow at 20h 50m. Bright moonlight	17 c ..		Very cloudy	17 a-ca ..		Some cloud, increasing after 21h	10	a (W)	Rays first seen at 17h 45m. Very bright arch 18h 39m and a red glow 18h 50m. Indefinite aurora extended south of zenith at times. Pulsating aurora across zenith 19h 05m until 21h 30m, when it was killed by bright moonlight and cloud.
10	cb ..	Variable cloud all evening	18 ca ..		Cloudy						
11	cb ..	Overcast until 19h, then variable cloud	19 ca ..		Cloudy	18 a	(W)	Feeble glow at 19h 30m, obscured by cloud at 20h 30m.			
			21 c ..		Cloudy						
12	cb ..	Variable cloud.Bright moonlight	22 c ..		Very cloudy	19 a	(W)	Glow from 19h. Some activity between 21h and 21h 40m.			
			24 a ..		Fine						
13	cb-b ..	Overcast until 19h, then cloudy. Bright moonlight	25 c ..		Very cloudy	20 c-a	(W)	Overcast until 20h, then fine. Glow seen at 23h with some activity at 23h 35m.			
			28 b-c ..		Cloud increasing at 22h						
14	b ..	Cloudy. Bright moonlight	29 c ..		Very cloudy						
15	c ..	Very cloudy until 20h, then overcast	30 b ..		Fine	25	(W)	Arch at 18h.A few rays at times.Bright rayed band 21h to 21h 15m. Cloudy later	14	c ..	Overcast until 21h,then cloudy
									17	(W)	Faint glow in cloud break 21h 45m. Overcast rest of evening
16	c ..	Small breaks in clouds between 19h and 20h			SEPTEMBER	26	(W)	Glow at 19h 40m becoming bright at 21h. Arches and bands at 21h 20m followed by flaming aurora,with a corona from 22h to 22h 07m.Cloud obscured aurora after 23h.	18	(W)	Glow seen through cloud breaks all evening, some activity at 16h 50m.
19	c-a ..	Cloudy.Fine after 19h	1 a ..		Fine						
20	b-a ..	Fine	2 a ..		Fine				20	a (W)	Glow all evening
21	ca ..	Cloudy	3 a ..		Fine				21	a ..	Fine
27	c ..	Very cloudy until 20h,then overcast.	4 a ..		Fine				22	(W)	Glow through break in cloud at 21h 30m.
			7 b-cb ..		Variable cloud,moonlight	27	(W)	Glow all evening through breaks in clouds	24	c ..	Very cloudy, becoming overcast at 21h.
			8 c ..		Very cloudy						
		MARCH	10 c-b ..		Overcast,clearing after 20h. Bright moonlight	28 b	(W)	Rayed band from 19h 40m to 19h 50m followed by glow.	26	ca ..	Variable cloud
									27	(W)	Glow after 21h 10m.
1	(W)	Glow with few faint rays 19h 20m to 19h 35m, overcast after 20h.	13 b	(W)	Glow after 21h. Several parallel arches at 22h 15m Moonlight	30	(W)	Very cloudy, but glow seen through breaks	29	ca ..	Variable cloud
									30	cb ..	Cloudy, moonlight
3	c ..	Overcast until 21h, clearing slightly	14 b	(W)	Moderate glow after dusk.Very cloudy.Arches seen through clouds at times			NOVEMBER	31	cb ..	Variable cloud, moonlight
5	(W)	Rayed arch at 19h 15m. Very bright active arch at 20h, becoming quieter at 20h 15m Glow persisting remainder of evening	15 b	(W)	Glow at 19h 50m. Arch developing into draperies at 20h 05m with pink coloration at lower edge.Cloud increased at 20h 20m but glow seen behind it remainder of evening	1 c ..		Overcast until 21h, then very cloudy			
						2 b	(W)	Weak glow seen through breaks in cloud. Moonlight			
						3 b ..		Some cloud, moonlight			
6	(W)	Glow after 20h 45m. Some rays between 1h 12m and 1h 20m on the 7th				6 cb ..		Cloudy, bright moonlight			
						7	(W)	Glow seen through rift in			

In the interests of brevity there have been omitted from the table above all dates on which the sky throughout the evening remained completely overcast and on which, therefore, no opportunity arose of determining whether or not aurora occurred. The nights on which aurora was actually seen are indicated by the symbol (W). The nights on which aurora was not seen despite at least an occasional interval of more or less clear sky, are indicated by the symbol .. ; in the latter case also, remarks on the weather are added to assist the reader in judging how far the fact of no observation of aurora may be taken as indicating that there was not actual aurora.

The letters a, b, c, have the following significance.

a = Conditions favourable for seeing aurora.
b = Unfavourable for faint aurora (moonlight, mist, Cs,etc.,) but not such as to mask bright aurora
c = Cloudy, but aurora not seen in clear intervals
ca.cb= have been used for "cloudy, with conditions a or b in the intervals."
Changing conditions have been indicated by a hyphen, e.g., a-c.

A full description is available of the auroral phenomena observed.

68 OTHER SCOTTISH STATIONS 1938

Night commencing	Month
	JANUARY
4	A.; Eskdalemuir; Copinsay
7	Kirkwall; Wick, 23·30; A.; Montrose; Newport; Eskdalemuir
8	Duntuilm
10	Craigston (Barra)
16	A.
17	A.
18	B.
19	Wick, 18·05; Montrose; Copinsay
21	Kirkwall; Wick, 21·00; G.C.
22	Kirkwall.
24	B.
25	B.; D.; Kirkwall; Wick, from 19·50; Stornoway; Duntuilm; Tiree; Colonsay; Craigston; Inverness; Banff, from 19·00; Nairn; Forres; G.C. from 18·00 A.; Arisaig; Logie Coldstone; Stonehaven, 19·00-22·00; Craibstone; Aberlour; Kettins, 18·00-20·00, and from 21·30; Perth from 19·00; Montrose; Arbroath; Carnoustie, W and NE, 19·00-22·00; Dundee; Leuchars 17·55; Balfron; Dunfermline, 19·05-24·00, most intense Sand SW, silvery streamers to SW; Kingsbarns; Milnathort; Edinburgh; North Berwick; Dunbar; West Linton; St. Abbs Head, ceased at 21·00; Marchmont; Swinton House; Boghall; Troon; Greenock; Paisley, 18·30-22·30, Helensburgh; Rothesay; Auchincruive; Douglas; Dalry; Garelochhead; Millport, between 18·30 and 21·00; Ayr, 19·30-21·30; Abbotsinch; Kilmarnock; Dungavel; Dumfries; Eskdalemuir; Ruthwell; Eshaness; North Unst, 19·00-22·30; Bressay; Sumburgh Head, 21·20-22·10; Fair Isle South and North; North Ronaldshay 18·00-22·00; Noup Head; Start Point, 18·15-24·00; Copinsay; Pentland Skerries; Stroma, 18·00-22·25; Dunnet Head, 18·00-23·00; Holburn Head, 19·00-21·00; Tarbetness; Chanonry; Covesea Skerries, 19·00 to 06·30 on 26th; Kinnaird Head, 20·00 to 03·00 on 26th, Rattray Head, 18·00 to 04·00 on 26th; Buchanness; Dunscansby Head, 18·30 to 04·30 on 26th; Girdleness, 18·50; Todhead, 18·00 to 02·00 on 26th; Montroseness, 18·00 to 04·00 on 26th; Bell Rock, in NW; Isle of May, 17·00 to 01·30 on 26th; Bass Rock, 18·00 to 01·30 on 26th; Fidra 19·00 to 01·00 on 26th; Barnsness, 19·00 to 03·00 on 26th; Butt of Lewis; Tiumpan Head, 18·30-20·00; Rudh-Re, 19·30 to 03·00 on 26th; Stour Head, 16·30-21·00; Stornoway, from 18·00 in NE; Glas Island, 17·00-23·00 from NW to SE; Monach, 19·00-24·00; Ushenish, 18·40-19·30; Kyleakin, 18·30-19·45; Skerrywore, 20·00-21·00; Neist Point, 19·00-24·00; Sound of Mull, 18·30-20·00; Lismore, 19·00-21·30; Rhinns of Islay, 18·15-21·00; McArthurs Head, 19·15-21·30; Mull of Kintyre, 19·00-24·00; Sanda, 18·00 to 21·00; Devaar, 19·00-21·00; Pladda; Holy Island, 18·00-24·00; Ailsa Craig, 19·00-24·00; Corsewall; Killantringan, 18·00 to 01·00 on 26th.
26	Wick; A.
29	G.C.; A.
31	Duntuilm; A.; Kettins; Dundee, 20·20; Leuchars, 18·25; Edinburgh, 23·30; Tiree; Abbotsinch; Eskdalemuir.
	FEBRUARY
1	A.
5	A.
6	Wick; Stornoway; G.C.; A.; Kettins; Balfron; Tiree; St. Abbs Head; Eskdalemuir; Ailsa Craig.
7	Kirkwall; Fort Augustus; Perth
8	D.; Wick; Fortrose; G.C.; Fort Augustus; A.; Balfron; Edinburgh, 20·00.
9	Kirkwall.
23	G.C.
28	G.C.
	MARCH
1	D.; Kettins, 18·00; Eskdalemuir.
4	D.; Wick, Tiree; Copinsay.
5	D.; Kirkwall; Kettins.
6	Wick.
7	D.; Fort Augustus, 20·00-20·30.
21	D.; Tiree; Eskdalemuir; Ailsa Craig, 21·00-22·30.
23	Wick.
25	B.; D.; Wick; G.C.; Arbroath, 21·00; Abbotsinch; Eskdalemuir; Rudh Re; Tiumpan Head; Ushenish; Barnsness.
26	B.; D.; St. Abbs Head; Eskdalemuir.
	APRIL
5	B.
6	B.
13	B.
15	B.
16	A.; Arbroath, 21·00; Edinburgh, 21·00; Paisley, 20·50-21·30; Rothesay, 21·00; Wolfelee; Eskdalemuir; Holy Island 22·00-23·30.
18	B.; A.
23	Wick, 22·00 to 01·00 on 24th, Rothesay.
24	A.
28	A.
	MAY
3	Stornoway, 23·00 to 02·30 on 4th
4	Wick; St. Abbs Head.
7	Wick; Rothesay.
9	Rothesay.
	JUNE
	Nil.
	JULY
	Nil.
	AUGUST
3	Wick; Sumburgh Head, 23·30 01·00 on 4th; Copinsay; Noup Head; Barnsness, 23·00 to 01·00 on 4th.
4	Wick; Rhuvaal, 23·30-24·00; Copinsay.
5	Wick.
20	A.
22	A.; St. Abbs Head.
23	Copinsay
24	Duntuilm, 23·30
29	A.
30	Wick; Tiree.
	SEPTEMBER.
13	Noup Head.
14	B.; Wick; A.; Kettins; Tiree; Leuchars; Strathy; Balfron; Abbotsinch; Carluke; Paisley, 21·45; St. Abbs Head; Eskdalemuir; Noup Head; Rudh Re; Sanda, brilliant display, 21·45 to 02·00 on 15th; Tiumpan Head.
15	B.; Kirkwall; Wick; A.; Stornoway; St. Abbs Head; Rattray Head, 20·00-22·00; Sanda, 22·05-23·00.
16	Wick
17	A.
21	Noup Head, 21·00-23·00;
26	B.; Wick; Stornoway; G.C.; Eskdalemuir; Noup Head, 22·30-24·00; Tiumpan Head, 19·00-24·00; Rudh Re, 21·00-24·00; Glas Island, 23·30; Rhuvaal, 20·30 to 02·00 on 27th.
27	Wick.
28	Wick.
30	D.; Wick; Stornoway; Strathy; Noup Head, 22·00-24·00; Stour Head, 20·30-24·00; Rudh Re 23·00-24·00; Tiumpanhead, 21·00-24·00; Monach; St. Abbs Head; Ushenish.
	OCTOBER
1	Wick; Fort Augustus; Skallary (Barra); Craigston.
7	D.; Kirkwall, 20·00; G.C.; Leuchars; Eskdalemuir; St. Abbs Head.
8	Wick.
10	A.
11	G.C.
13	A.
16	Kirkwall; A; Eskdalemuir.
17	B.
25	D.; Kirkwall, 20·00; Wick; A; Kettins; Balfron; Eskdalemuir.
26	B.; Kirkwall, 21·00; G.C.; Fort Augustus, 19·00-20·00; Kettins; Leuchars; Balfron; Edinburgh, 21·15; Eskdalemuir; Ailsa Craig, 21·30-22·00.
27	Kirkwall, 20·00; Fort Augustus; Duntuilm.
	OCTOBER (Continued)
28	B.; D.; Wick; Fort Augustus; Eskdalemuir.
	NOVEMBER
1	Wick.
8	B.
14	B.; D; Kirkwall; Wick; Fort Augustus; G.C.; A.; Kettins; Leuchars; Tiree; Eskdalemuir; St. Abbs Head.
15	D.; G.C.
17	B.; D.; Kirkwall; Wick; G.C. Montrose, 22·05-22·15; Kettins; Eskdalemuir; St. Abbs Head.
18	Rothesay
20	B.; D.
21	D.; Wick; G.C.; A.
23	Rothesay.
24	Wick; G.C; Eskdalemuir; St. Abbs Head.
25	St. Abbs Head.
26	D.; G.C.; A.
27	Wick.
29	D.
	DECEMBER
2	Wick; G.C.; A.; Kettins; Strathy; Noup Head.
3	B.; D.; Kirkwall; Duntuilm; Wick; G.C.; A.; Kettins; Balfron; Edinburgh; Eskdalemuir.
10	B.; D.; Kirkwall; G.C.; Duntuilm Wick; Fort Augustus; Strathy; Fortrose; Eskdalemuir; Swinton; St. Abbs Head.
14	D.; Kirkwall; Fort Augustus.
16	Butt of Lewis, 20·00; Rhinns of Islay, 22·30 to 01·00 on 17th.
18	G.C.; Fortrose; Eskdalemuir; Sound of Mull, 21·30-22·00
19	Kirkwall; G.C.; Fort Augustus; Balfron; Rothesay; Eskdalemuir; Stour Head, 20·00-24·00; Sound of Mull, 22·00
20	Sound of Mull, 17·30-22·00.

Note.- For brevity, stations which figure frequently in the above Table are represented by their initials, viz., D- Deerness, B- Baltasound, A- Aberdeen, G.C.- Gordon Castle.

M.O. 578

THE OBSERVATORIES' YEAR BOOK 1938

Comprising the meteorological and geophysical results obtained from autographic records and eye observations at the Lerwick, Aberdeen, Eskdalemuir, Valentia, and Kew observatories, and the results of soundings of the upper atmosphere by means of registering balloons

ABERDEEN

Decimal Index
551.506.1

Obs. Yearb., 1938,
London, 1955

ABERDEEN OBSERVATORY

Latitude	57°10′N.
Longitude	2°06′W.
G.M.T. of Local Mean Noon	12h. 8m.

Heights of instruments	above M.S.L.	above ground
	m.	m.
Barometer	26·0	..
Thermometer bulbs, north wall screen	..	12·5
Rain-gauge site	24·1	..
Beckley rain-gauge rim	..	0·6
Sunshine recorder	..	20·7
Pressure-tube anemograph	37	13
Robinson cup anemograph	36	23

INTRODUCTION

SITE

The Observatory, which was established in 1868 is housed on the top floor of the Cromwell Tower of King's College in Old Aberdeen. The College lies on a plain gradually rising from the sea from which it is distant about 1·6 Km. (1 mile). There are no serious irregularities of surface in the vicinity excepting the two river valleys of the Don and the Dee. To the north at a distance of about 1 Km. the Don flows eastwards to the sea; the Dee flows into the sea at a distance of about 3 Km. to the south-east of the College. Between the College and the sea is a golf course covered for the most part with grass, but during the last eight years the town has been gradually expanding to the north-eastward of the Observatory; this growth was very rapid during 1933 and 1934 with the result that there now exists an inhabited area stretching almost 1 Km. (½ mile) between the Observatory and the sea in the north-east quadrant. Westwards is the High Street of the Old Town and beyond this is another street. Further west grass pasture extends for about 1 Km. To the southward and south-westward lies the main area of the city of Aberdeen.

Because of the aforementioned developments and of their possible further extension under new town-planning schemes, it became necessary in 1933 to seek another site for the pressure-tube anemograph situated at Ladymill, east of the Observatory. This instrument was therefore dismantled, and a new pressure-tube instrument, with one-inch pipes, was erected at a new site on the Glebe situated to the north-west of the Observatory, and at a distance of about 350 m. therefrom. To this site were also removed the Stevenson screen, rain-gauges, etc. from the Athletic Ground site north-east of the Observatory, because the surroundings of this latter site were likewise becoming unsatisfactory. All the outdoor instruments are therefore now grouped together. The change of site was made on March 31, 1933.

Plans and photographs appearing in the present volume were taken in 1935.

To face p.68

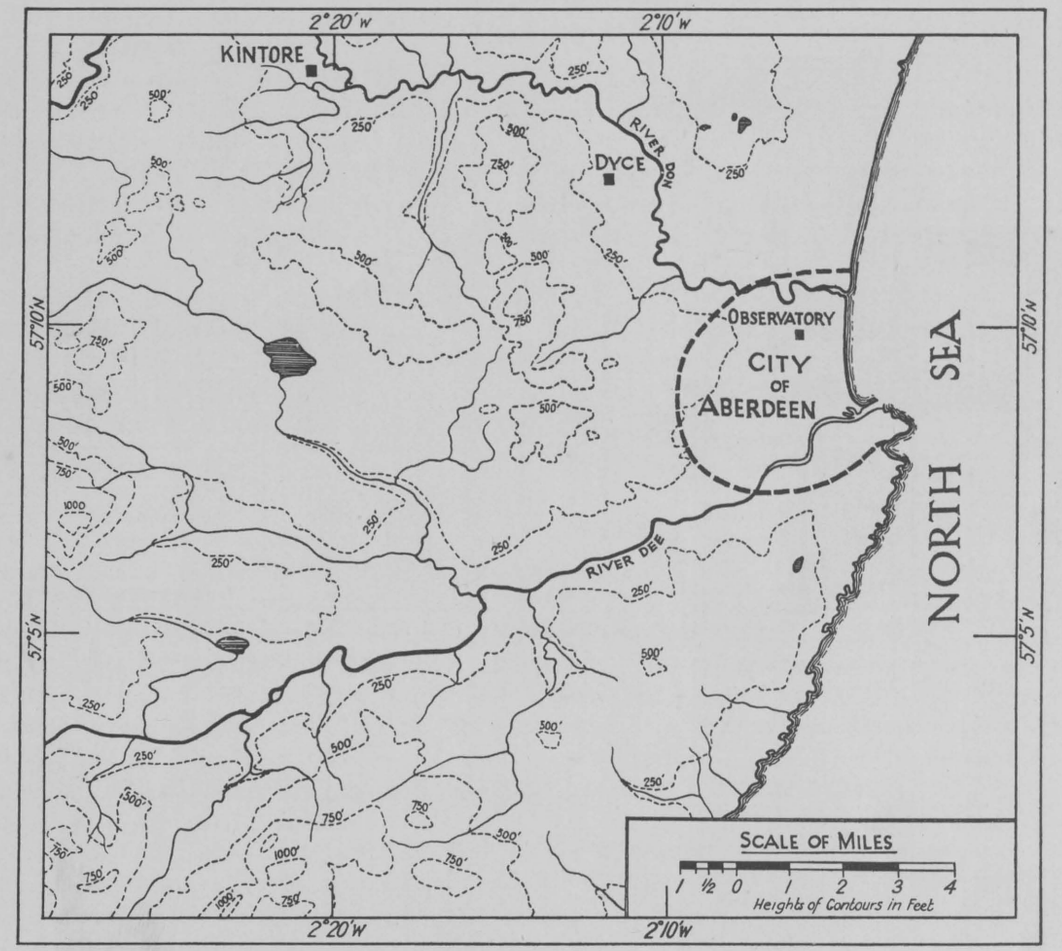

FIG. 5.—CONTOURED MAP OF SURROUNDINGS OF ABERDEEN OBSERVATORY.

FIG. 6.—AERIAL PHOTOGRAPH FROM W.S.W., 800 FEET.

A.—OBSERVATORY TOWER. B.—INSTRUMENT ENCLOSURE.

C.B.H. 24871 - Wt. 2013 - Dd. BM.4001 -250 - 7/54

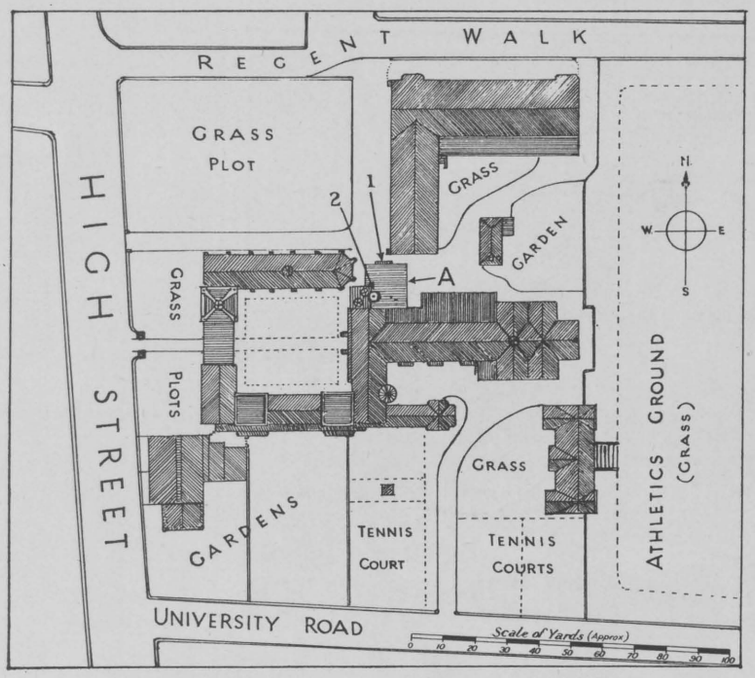

FIG. 7.—PLAN SHOWING SURROUNDINGS OF OBSERVATORY TOWER, KING'S COLLEGE.

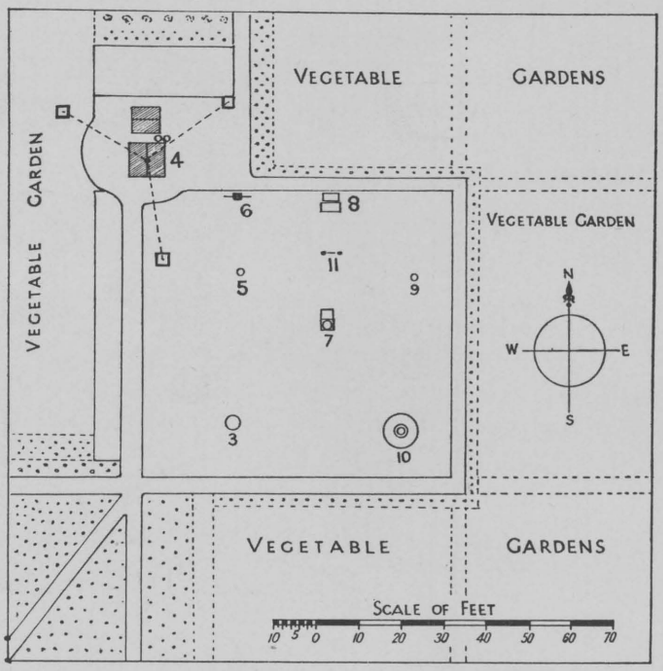

FIG. 8.—PLAN SHOWING ARRANGEMENT OF INSTRUMENTS IN THE ENCLOSURE.

FIG. 9.—VIEW OF OBSERVATORY TOWER FROM N.W.

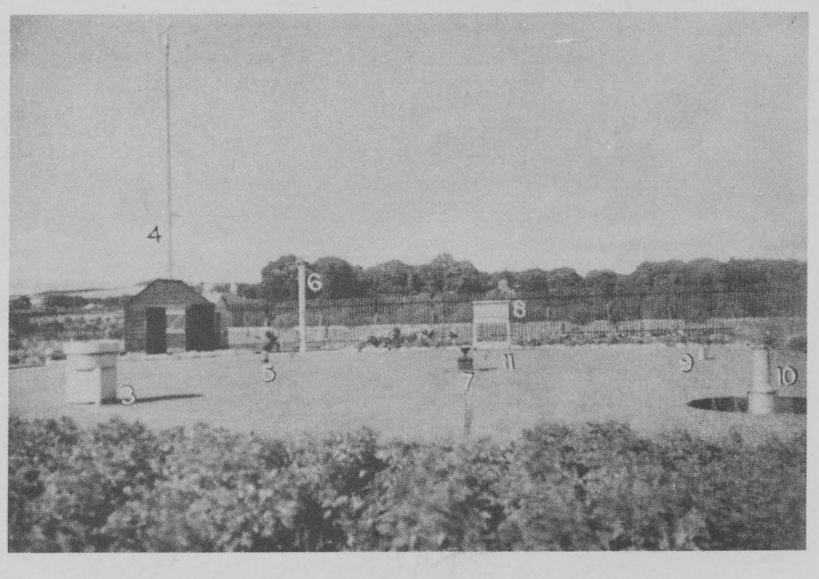

FIG. 10.—VIEW OF ENCLOSURE FROM S

A.—OBSERVATORY TOWER.
1.—NORTH WALL SCREEN.
2.—SMALL CIRCULAR TOWER ON TOP OF OBSERVATORY TOWER ON WHICH ARE SITUATED THE ROBINSON CUP ANEMOGRAPH AND CAMPBELL STOKES SUNSHINE RECORDER.
3.—JARDI RATE OF RAINFALL RECORDER.
4.—DINES PRESSURE TUBE ANEMOMETER.
5.—CHECK RAINGAUGE, 8 INCH.
6.—BESSON COMB NEPHOSCOPE.
7.—BECKLEY SELF RECORDING RAINGAUGE.
8.—STEVENSON SCREEN.
9.—TELEGRAPHIC RAINGAUGE, 8 INCH.
10.—HELLMANN-FUESS SNOWGAUGE.
11.—EARTH THERMOMETERS AND SUPPORT FOR GRASS MINIMUM THERMOMETER.

Change of value adopted for height of station above mean sea level.—The numerous changes of late years call for some remarks upon the adopted values for the heights of station and instruments above mean sea level. Before January 1, 1925, the value for the station height was 14·0 m., and that for the height of the barometer cistern was 26·8 m. From January 1, 1925, however, following a careful re-determination of these heights the values were altered to 13·4 m. for the height of the station and 26·0 m. for that of the barometer cistern. The change of site of the rain-gauge enclosure in June 1928 altered the value of the station height to 11·4 m., at which figure it remained until March 31, 1933, when the removal of instruments to the Glebe site on April 1, 1933 again altered it to 24·1 m. The actual heights of the barometer cistern, of the north-wall screen thermometer bulbs, and of the Robinson cup anemograph and the Campbell-Stokes sunshine recorder have remained unaltered throughout.

METEOROLOGY

The elements dealt with in the following tables are: atmospheric pressure, air temperature, humidity, rainfall, sunshine, wind, earth temperature and minimum night temperature on the grass. As mentioned in the General Introduction to this volume, the detailed monthly tables of hourly values of pressure, temperature, humidity, rainfall, sunshine and wind published until 1937 are not included. Tabular summaries of daily mean values (or totals), monthly means (or totals) of hourly values and certain maximum and minimum values are given. Hourly values of the elements mentioned are available in manuscript form. The diary of cloud, visibility and weather is also discontinued.

The instruments from which values of the above elements have been obtained and the methods of tabulating the records are described in the General Introduction to this volume. The following additional information refers especially to Aberdeen.

NOTES ON THE INSTRUMENTS

Pressure and temperature.—The photo-barograph, standard Fortin barometer and thermograph are housed in the Observatory room. The pressure scale value of the photo-barogram is 1 mb. = 1·18 mm. on the paper, when the paper is at normal atmospheric humidity. In similar circumstances the time scale is 1 hr. = 9·3 mm. The records of the photo-barograph are standardized by means of control readings taken from the standard barometer. Up to the end of 1928 this instrument was Fortin standard barometer M.O.273, but from January 1, 1929, it was replaced by Fortin standard barometer M.O.1149. The National Physical Laboratory certificate of this latter barometer shows a standard temperature varying from 286°A. at 1050 mb. to 287°A. at 910 mb.; corresponding corrections have been applied to control readings.

The recording thermometers are placed in the north-wall screen already referred to. The scale value of the wet-bulb–thermograph record is 1°A. = 3·20 mm. on the paper; for the dry-bulb thermograph the scale value varies slightly with the temperature, but is approximately 1°A. = 3·4 mm. The time scale is 1 hr. = 9·23 mm. The reading of the photo-thermograms is done by means of glass measuring scales, the records being standardized by control readings from standard thermometers M.O.1698 (dry bulb) and M.O.1697 (wet bulb). These thermometers have corrections varying at different parts of the scale, of between -0·1°A. and +0·2°A.; these corrections have been applied to the control readings. The heights of the barometer cisterns and of the bulbs of the thermometers are given at the top of the appropriate tables.

It may be here emphasized that the bulbs of the thermometers in the north-wall screen are at the considerable height of 12·5 m. above the ground, and that readings

from these thermometers are exclusively used for this publication (except as noted below under humidity) and for the corresponding summaries printed in the *Monthly weather report**.

Rainfall.—The recording instrument in use is Beckley rain-gauge No. 2 with an area of 653 cm.^{2} (101·1 in.^{2}). The procedure adopted in tabulating the records is similar to that described in the General Introduction and calls for no comment. Control was by check gauge M.O.266 during the year 1938.

Humidity.—On those occasions when the temperature of the wet bulb has been 273°A. or under, the relative humidity has been obtained from the records of a hair hygrograph. The instrument is in the north-wall screen beside the bulbs of the photo-thermograph and the standard thermometers. Before September 16, 1934, this was not the case. Until March 31, 1933, the hair hygrograph was placed in the Stevenson screen at the Athletic Ground site, where its height was 13·2 m. below that of the thermometer bulbs in the north-wall screen, and from April 1, 1933 to September 15, 1934, the hygrograph was accommodated in the Stevenson screen at the Glebe site, and was at a height 0·5 m. below the level of the thermometer bulbs in the north-wall screen.

Sunshine.—The sunshine recorder (Campbell-Stokes type) is exposed on a small circular tower on the Observatory roof on which the Robinson cup anemograph is erected. It is rigidly held by lead flaps soldered to the lead roof. The actual diameter of the sunshine sphere is 4·02 in. and the focal length 2·97 in., these figures being slightly in excess of the standard values (diameter 4·00 ±0·01 in., focal length 2·95 ±0·01 in.). The exposure is excellent; the only obstruction is a flagpole to the east of angular diameter about 1°, which may obstruct 0·1-hr. record about 7h. between April and September. This loss has been allowed for, whenever practicable, in tabulating records. In computing the percentage duration of sunshine the actual possible values for each day of the year 1938 have been employed, a procedure similar to that adopted from 1926 onwards.

Wind speed and direction.—It was decided that from January 1935, the values for all the tables dealing with wind speed and direction should be tabulated from the records of the pressure-tube anemograph, which is installed on the Glebe site, instead of, as formerly, from the records of the cup anemometer situated on the Observatory tower. No adjustments have been made to the values recorded by the pressure-tube anemograph to allow for the effect of the unsatisfactory exposure of the instrument to winds coming from directions between 35° and 115°. In this sector the "effective height" of the anemograph vane above ground is only 8 ft. as compared with the standard "effective height" of 33 ft.

In consequence of this new procedure the values of wind speed shown in the tables for 1935 to 1938 are not directly comparable with those shown in previous volumes of the *Observatories' Year Book* and derived in the manner described on p. 90 of the volume for 1934.

On the very few occasions when records from the pressure-tube anemograph have been defective, the required values have been taken directly from the records of the cup anemometer without any adjustment for exposure.

Earth temperature.—Readings have been made at 9h. G.M.T. of earth temperature at nominal depths of 1 ft. and 4 ft. below the surface of the grass.

The thermometers and the method of exposure are of the standard type described in the "Observer's handbook". The depths of the thermometer bulbs below the grass-covered surface of the ground are 30 and 122 cm.

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* The temperatures for Aberdeen published in the *Daily weather report* and summaries from them given in the *Weekly weather report* are from different thermometers, namely those in the Stevenson screen with their bulbs only 1·3 m. above ground.

The continuity of the earth temperature readings was somewhat seriously affected by a change of instruments and several changes of site between 1928 and 1933. Details of the changes are given in the volume for 1931 and in the volume for 1933.

Minimum temperature on the grass.—The grass minimum thermometer is exposed in the enclosure on two wire pegs about 4 cm. above the grass. It is set at 18h. and read at 7h., the reading being entered to the day of observation. The instrument in use is the glycol-ether minimum thermometer, M.O.60385/35, which has a correction of -0·2°F. at 12°F., -0·1°F. at 32°F., and 0·0°F. at 52°F.

IDENTIFICATION NUMBERS OF INSTRUMENTS USED IN 1938

Standard Fortin barometer	M.O.1149
Standard dry-bulb thermometer ..	M.O.1698
Standard wet-bulb thermometer ..	M.O.1697
Recording Beckley rain-gauge ..	2
Jardi rate-of-rainfall recorder	M.O.4
Hellman-Fuess snow-gauge	100532
Control rain-gauge	M.O.266
Glass for rain-gauge	M.O.1739/34 M.O.1736
Hair hygrograph	M.O.51/33
Campbell-Stokes sunshine recorder	M.O.32
Robinson cup anemograph	M.O.50
Pressure-tube anemograph	M.O.1040
Earth thermometers	M.O.6, M.O.11
Grass minimum thermometer	M.O.60385/35

REVIEW OF THE METEOROLOGICAL RESULTS

The most noteworthy feature of the year 1938 was its general warmth especially in the spring which was also very dry though dull. The wet and dull July and the very bright and dry August may also be mentioned.

The mean temperature for the year was 282·2°A., 1·1°A. above the normal. The extremes recorded in the north-wall screen were 296·7°A. on September 12 and 268·6°A. on December 21. The lowest reading of the grass minimum thermometer was 264·6°A. on December 20.

The total rainfall for the year, 748 mm., was exactly equal to the normal, although the distribution amongst the months was very different from normal.

The sunshine total (1,335 hr.) was also practically equal to the normal.

The highest wind speed recorded in a gust was 31 m./sec. on January 15.

The results of the harmonic analysis of the diurnal inequalities of pressure are set out in the accompanying table. Average values of the various coefficients for the period 1871-1926 computed by Dr. A. Crichton Mitchell* are given for comparison. Dr. Mitchell gave the phase angles in local apparent time and in volumes of the *Observatories' Year Book* earlier than 1935 they were so quoted; the angles have now been converted to local mean time.

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* Mitchell, A. Crichton; Diurnal variation of pressure and temperature at Aberdeen 1871-1926. *Quart. J.R. Met. Soc., London*, 55, 1929, p. 197.

HARMONIC COMPONENTS OF THE DIURNAL INEQUALITY OF ATMOSPHERIC PRESSURE ABERDEEN, LONGITUDE 2°06′W.

Values of c_n, α_n in the series $\Sigma c_n \sin(15nt + \alpha_n)$, t being local mean time reckoned in hours from midnight

	c_1		α_1		c_2		α_2		c_3		α_3		c_4		α_4	
	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926
	mb.	mb.	°	°	mb.	mb.	°	°	mb.	mb.	°	°	mb.	mb.	°	°
January	1·15	0·09	195	169	0·26	0·23	156	146	0·12	0·13	12	348	0·05	0·05	175	211
February	0·28	0·16	186	173	0·20	0·27	127	143	0·06	0·10	1	346	0·04	0·03	344	84
March	0·37	0·16	86	156	0·28	0·29	159	147	0·05	0·05	333	330	0·01	0·03	354	27
April	0·10	0·15	147	155	0·28	0·28	155	151	0·02	0·02	100	188	0·03	0·04	26	359
May	0·14	0·10	141	136	0·22	0·24	141	145	0·05	0·06	157	166	0·04	0·02	316	333
June	0·32	0·06	154	104	0·20	0·22	135	141	0·08	0·07	134	155	0·02	0·01	214	331
July	0·27	0·09	132	135	0·17	0·21	139	142	0·06	0·07	158	155	0·02	0·01	317	339
August	0·08	0·11	208	161	0·22	0·23	159	144	0·06	0·04	173	165	0·06	0·03	309	333
September	0·09	0·12	253	147	0·32	0·29	156	151	0·02	0·03	355	346	0·05	0·05	338	345
October	0·53	0·15	194	187	0·24	0·27	153	156	0·11	0·07	5	0	0·06	0·03	24	34
November	0·03	0·13	305	201	0·31	0·23	160	159	0·12	0·10	6	4	0·04	0·01	122	186
December	0·08	0·16	37	169	0·20	0·21	154	147	0·11	0·12	2	357	0·07	0·05	220	205
Arithmetic mean	0·29				0·24				0·07				0·04			
Year	0·22	0·12	176	162	0·24	0·25	151	148	0·04	0·03	20	359	0·01	0·01	305	338
Winter	0·34	0·13	193	178	0·24	0·23	151	149	0·10	0·11	6	353	0·02	0·03	193	194
Equinox	0·16	0·14	172	162	0·28	0·28	156	151	0·04	0·03	3	345	0·03	0·04	7	6
Summer	0·19	0·09	149	139	0·20	0·22	144	143	0·06	0·06	153	159	0·03	0·02	303	334

"Winter" comprises the four months January, February, November, December; "Equinox" the months March, April, September, October; and "Summer" May to August.

PRESSURE AT STATION LEVEL

Maximum, minimum and daily mean values in millibars for each day 0h. to 24h. Greenwich Mean Time
The initial 9 or 10 of the values is omitted, i.e. 1005·61 is printed 05·61

69 **ABERDEEN**: H_b (height of barometer cistern above M.S.L.) = 26·0 m. 1938

DAY	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
1	29·5	28·4	28·9	81·7	59·4	67·9	19·3	88·2	08·2	17·4	07·8	14·1	23·0	21·3	22·3	01·8	95·1	99·3
2	33·0	29·2	31·4	02·1	81·7	95·7	19·1	13·7	16·8	07·8	91·2	97·5	23·8	22·3	22·9	02·8	00·2	01·1
3	33·6	30·6	32·5	07·8	00·7	05·3	18·8	15·3	17·2	22·5	98·5	12·5	25·8	23·5	24·4	06·7	02·8	04·7
4	30·6	26·2	28·7	10·6	06·0	08·5	28·4	15·7	24·8	21·3	13·0	17·9	26·0	23·5	24·9	06·8	02·6	05·4
5	26·2	14·7	20·3	16·8	06·1	09·8	27·7	20·1	22·3	13·8	10·1	12·1	24·2	19·2	22·5	03·4	00·0	01·4
6	14·7	92·9	06·0	29·2	16·8	24·6	25·6	23·3	24·4	15·0	12·5	13·3	19·2	12·2	14·6	03·5	98·5	01·1
7	92·9	86·3	87·8	29·0	21·1	25·3	25·3	18·8	23·1	22·9	14·2	17·7	19·7	15·6	18·2	06·9	95·8	01·7
8	87·9	79·8	85·8	21·1	11·7	15·0	18·8	04·5	09·9	28·6	22·7	25·6	19·4	06·4	14·2	10·8	06·8	08·7
9	79·8	68·6	72·7	13·2	01·9	06·1	10·2	02·2	04·7	34·9	28·5	31·7	14·1	04·3	09·0	11·1	09·5	10·4
10	85·5	68·1	76·5	25·1	98·4	08·2	22·0	10·1	16·3	37·8	34·7	36·4	18·4	14·0	16·9	17·2	10·1	12·6
11	89·5	84·6	86·2	30·7	13·7	24·9	30·4	21·8	25·8	38·8	37·2	37·8	17·7	08·6	12·9	18·8	15·8	17·5
12	96·0	88·5	92·7	26·0	09·6	16·8	32·1	30·4	31·2	37·3	31·4	34·3	08·6	03·1	05·9	23·2	16·6	20·3
13	91·7	79·8	85·8	30·3	26·0	28·5	30·6	20·7	26·1	31·4	24·9	27·6	04·1	01·7	02·8	23·7	21·8	22·7
14	98·5	77·6	93·5	33·9	30·3	32·1	20·8	07·6	13·7	24·9	22·8	23·5	03·5	00·5	01·4	23·3	15·6	18·7
15	85·6	63·2	71·2	33·8	32·3	32·9	08·7	00·0	04·4	23·6	20·7	22·6	06·1	99·3	01·0	23·2	16·5	19·8
16	89·5	83·3	86·6	34·6	32·0	33·0	09·0	92·4	99·3	27·9	19·5	23·2	13·8	06·1	11·5	24·0	21·8	23·0
17	07·7	87·8	99·3	36·9	34·1	35·2	10·2	06·4	09·0	31·2	27·9	30·1	13·8	10·4	12·2	23·5	18·2	21·2
18	07·4	84·0	96·6	38·1	36·8	37·3	10·0	00·5	05·8	30·3	24·7	27·7	12·5	09·7	10·9	18·2	02·9	10·7
19	04·0	82·1	93·9	38·9	36·7	38·0	03·9	97·5	01·0	24·7	22·9	23·8	16·0	11·5	13·3	08·7	00·2	03·7
20	05·0	98·2	03·0	38·6	34·5	36·7	03·7	94·0	98·8	26·3	24·1	25·2	21·3	16·0	19·0	14·5	08·2	11·4
21	16·8	94·3	05·7	34·5	25·5	29·9	09·1	98·8	02·4	26·3	22·2	24·2	21·5	20·4	21·0	13·1	04·5	07·4
22	17·9	06·9	13·5	28·4	24·8	26·3	11·2	08·9	09·8	22·2	18·2	19·9	23·2	20·2	22·0	15·4	09·5	12·6
23	22·1	07·4	16·6	28·4	24·9	27·3	08·9	06·7	08·0	19·6	17·5	18·6	20·2	06·0	10·4	15·5	10·4	14·1
24	11·7	04·4	07·5	24·9	18·1	21·9	06·7	96·8	01·4	19·5	16·7	18·7	08·5	04·9	06·6	10·5	99·5	03·7
25	05·7	91·6	99·9	18·1	06·6	11·4	01·5	98·9	00·0	20·8	19·4	19·9	08·4	03·0	06·5	01·6	91·3	95·1
26	04·6	93·6	97·1	06·6	99·6	03·2	07·7	01·5	05·7	21·6	19·3	20·5	03·0	96·2	98·5	07·0	99·8	04·4
27	04·1	93·1	99·8	14·2	01·6	09·0	11·9	01·0	04·7	21·2	18·0	19·1	99·1	94·7	95·9	99·8	76·3	84·3
28	93·1	66·6	77·3	04·7	88·2	97·0	12·6	05·8	09·5	22·9	21·0	21·8	99·0	94·2	97·3	88·4	77·7	83·9
29	82·0	63·3	73·3	-	-	-	08·1	06·4	07·0	22·9	21·6	22·0	94·2	91·3	92·5	95·6	78·0	88·3
30	99·1	82·0	92·5	-	-	-	07·7	04·2	06·0	22·1	21·2	21·7	99·4	90·5	93·4	99·6	95·0	96·6
31	96·5	68·1	79·8	-	-	-	12·9	06·5	08·8	-	-	-	03·0	95·0	00·1	-	-	-
Mean	04·59	91·14	98·14	22·79	13·54	18·13	15·25	07·05	11·16	24·58	19·48	22·04	13·24	07·92	10·48	10·62	03·37	06·86

DAY	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
1	06·1	99·6	03·1	26·2	20·2	24·6	16·1	12·6	14·4	09·3	06·2	08·3	84·4	76·4	82·0	79·1	72·5	74·9
2	09·7	06·1	08·6	26·4	25·3	25·9	16·0	14·4	15·5	06·2	80·6	93·1	92·8	82·5	87·2	94·7	79·0	87·3
3	09·1	02·4	05·7	26·0	23·2	24·5	15·2	10·2	12·3	82·6	56·3	76·0	01·5	92·7	98·3	12·7	94·7	04·4
4	02·4	97·2	99·2	23·4	20·1	22·0	20·6	15·2	18·5	78·0	54·2	63·7	04·1	89·7	95·3	12·2	95·1	03·7
5	00·9	96·9	98·3	20·3	13·1	17·0	20·2	11·1	16·2	86·7	78·0	81·5	08·9	04·1	07·0	97·0	93·6	95·2
6	09·5	00·9	05·1	14·8	12·1	13·2	11·1	06·2	07·7	97·5	86·7	93·4	07·0	03·0	05·5	98·3	93·8	96·2
7	10·3	04·7	08·9	15·4	14·0	14·7	20·6	06·4	13·7	91·7	75·7	82·8	03·0	97·7	00·3	94·3	91·2	93·1
8	04·7	97·4	99·3	14·7	13·5	14·1	23·8	20·5	22·0	97·4	85·7	93·8	11·2	00·9	06·6	93·9	85·7	89·8
9	05·8	98·4	01·9	16·2	14·0	14·8	25·5	23·4	24·7	90·7	79·4	83·8	11·6	08·6	10·2	90·0	79·4	86·7
10	05·5	99·8	03·4	16·2	15·1	15·8	24·8	15·7	19·5	97·3	89·3	91·8	09·4	06·2	08·0	92·0	79·3	85·9
11	99·8	96·5	97·6	15·5	11·2	13·6	18·0	11·2	15·7	09·3	97·3	02·3	06·3	97·4	02·2	95·2	90·5	92·6
12	06·3	98·5	02·1	11·8	09·9	10·7	11·3	05·8	09·0	09·3	98·0	02·4	98·2	91·6	95·8	03·0	91·8	94·6
13	06·4	04·0	05·6	11·7	10·2	10·9	08·5	05·3	06·5	01·4	84·1	94·0	98·0	88·9	94·1	04·8	01·4	03·4
14	08·9	01·6	04·1	11·9	11·1	11·5	14·7	06·8	11·9	09·7	92·5	01·4	22·1	95·6	10·7	11·8	01·4	05·1
15	16·0	08·9	12·7	11·6	97·4	07·2	17·7	14·3	16·5	09·6	01·6	07·4	25·5	22·1	24·4	11·7	05·5	08·8
16	16·7	15·1	15·9	97·4	86·3	89·9	17·3	01·9	09·2	01·6	95·3	97·5	25·1	15·0	20·2	20·6	05·7	15·6
17	15·2	13·1	14·2	02·7	86·2	95·7	02·0	96·2	98·4	98·6	93·3	95·5	15·1	07·9	10·7	26·2	20·6	24·5
18	17·4	14·2	16·4	01·8	85·8	95·3	08·9	97·0	04·5	98·5	97·1	97·6	11·4	85·4	01·8	30·2	25·9	28·4
19	15·8	10·3	11·9	87·8	83·1	85·3	08·4	99·2	04·4	17·1	97·3	08·5	96·1	87·0	92·2	29·7	22·6	26·5
20	15·7	09·1	11·5	00·8	84·4	90·1	99·2	97·1	97·7	17·6	16·4	17·1	95·9	85·1	92·3	22·6	15·9	18·9
21	17·3	15·0	16·3	11·4	00·8	07·1	00·7	96·6	97·8	17·1	12·1	14·4	85·1	81·0	82·0	17·0	14·7	15·8
22	15·0	11·1	12·3	16·5	11·3	13·8	08·1	00·7	05·2	12·1	09·2	10·3	85·8	82·7	84·4	16·4	14·9	15·7
23	13·0	11·1	12·1	16·3	12·5	14·9	07·7	06·0	06·8	12·0	08·4	10·5	83·7	59·7	69·5	24·5	16·0	19·9
24	12·6	06·8	09·4	15·9	11·3	13·6	08·2	05·7	07·0	11·2	09·0	09·8	94·7	72·9	87·7	28·9	24·5	27·2
25	06·8	05·6	06·3	19·5	15·6	17·4	09·7	04·9	06·6	10·1	07·8	09·4	94·6	82·8	87·3	28·7	16·0	23·9
26	05·8	01·4	03·3	19·8	16·1	18·8	13·9	09·6	11·2	07·8	96·4	99·9	98·2	82·3	87·7	16·0	07·0	11·0
27	08·2	04·3	06·9	16·1	08·2	10·8	16·5	13·8	15·2	13·4	99·1	08·4	00·5	84·1	93·1	11·9	06·1	08·1
28	04·3	98·3	01·5	12·0	10·4	11·0	14·1	02·0	08·5	12·1	07·9	10·0	87·6	84·3	86·1	13·2	06·3	11·1
29	06·8	96·4	02·9	12·0	11·1	11·6	08·9	00·1	04·0	11·9	94·4	05·8	95·7	86·0	92·0	06·3	91·4	96·7
30	03·9	96·1	99·5	13·8	11·4	12·6	09·8	08·5	09·2	99·9	93·2	97·6	92·0	75·7	79·2	92·5	90·2	91·6
31	20·2	03·8	10·3	13·5	12·2	12·8	-	-	-	01·8	83·4	97·8	-	-	-	96·2	90·3	94·2
Mean	09·55	04·02	06·66	13·53	08·29	11·00	13·25	07·28	10·33	03·85	93·09	98·89	01·52	90·98	96·46	08·76	00·74	04·71
												Annual	11·70	03·81	07·81			

PRESSURE AT STATION LEVEL

Monthly and annual means of hourly values in millibars at exact hours Greenwich Mean Time

70 ABERDEEN: H_b = 26 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean
	millibars																									
Jan.	98·99	98·57	98·09	97·76	97·44	97·35	97·25	97·39	97·74	98·10	98·35	98·49	98·54	98·41	98·48	98·58	98·65	98·77	98·79	98·65	98·42	98·14	97·82	97·53	97·05	98·14
Feb.	17·92	17·89	17·75	17·60	17·48	17·39	17·44	17·55	17·88	18·00	18·17	18·25	18·34	18·28	18·36	18·26	18·30	18·35	18·48	18·55	18·67	18·66	18·63	18·61	18·62	18·13
Mar.	11·17	11·12	11·12	10·93	10·84	10·81	10·84	10·90	11·06	11·07	11·11	11·02	10·93	10·83	10·72	10·61	10·81	10·92	11·27	11·52	11·75	11·93	12·03	12·09	11·97	11·16
Apr.	22·03	21·85	21·71	21·53	21·51	21·58	21·77	21·97	22·11	22·24	22·33	22·26	22·18	22·16	22·08	21·92	21·90	21·96	22·06	22·18	22·38	22·39	22·35	22·40	22·33	22·04
May	11·16	10·98	10·78	10·62	10·45	10·39	10·50	10·51	10·62	10·60	10·59	10·55	10·49	10·44	10·37	10·30	10·20	10·12	10·16	10·24	10·41	10·53	10·51	10·39	10·31	10·48
June	07·15	06·96	06·67	06·54	06·37	06·40	06·42	06·52	06·63	06·63	06·73	06·80	06·78	06·82	06·87	06·93	06·99	06·97	06·96	07·02	07·22	07·38	07·47	07·39	07·30	06·86
July	06·67	06·55	06·40	06·25	06·21	06·18	06·25	06·31	06·40	06·40	06·47	06·45	06·54	06·57	06·67	06·67	06·70	06·68	06·83	06·95	07·16	07·34	07·42	07·37	07·34	06·66
Aug.	11·11	11·03	10·92	10·81	10·75	10·77	10·92	11·06	11·18	11·20	11·19	11·14	11·06	11·04	11·03	10·96	10·84	10·75	10·85	10·94	11·15	11·22	11·19	11·06	10·87	11·00
Sept.	10·40	10·36	10·23	10·06	09·97	09·97	10·13	10·38	10·58	10·72	10·68	10·66	10·59	10·41	10·22	10·11	10·05	10·04	10·17	10·34	10·48	10·55	10·52	10·39	10·26	10·33
Oct.	99·30	99·09	98·88	98·55	98·40	98·31	98·25	98·53	98·73	98·96	99·13	99·16	99·17	99·03	98·99	98·98	98·95	99·13	99·30	99·21	99·15	98·97	98·85	98·70	98·49	98·89
Nov.	96·72	96·59	96·46	96·33	96·23	96·21	96·35	96·47	96·69	96·84	96·95	96·88	96·65	96·33	96·15	96·01	96·13	96·24	96·44	96·49	96·52	96·47	96·50	96·53	96·48	96·46
Dec.	04·51	04·48	04·52	04·52	04·45	04·35	04·41	04·49	04·68	04·91	05·04	04·97	04·74	04·49	04·43	04·50	04·60	04·70	04·76	04·84	04·95	05·10	05·09	05·12	05·12	04·71
Annual	08·01	07·86	07·70	07·53	07·42	07·38	07·45	07·58	07·76	07·88	07·97	07·96	07·91	07·80	07·77	07·72	07·75	07·79	07·91	07·98	08·09	08·13	08·10	08·03	07·91	07·81

PRESSURE REDUCED TO MEAN SEA LEVEL

Monthly and annual means of hourly values in millibars at exact hours Greenwich Mean Time

71 ABERDEEN: H_b = 26 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean
	millibars																									
Jan.	02·18	01·77	01·29	00·95	00·64	00·54	00·45	00·59	00·94	01·30	01·55	01·68	01·73	01·59	01·66	01·77	01·85	01·97	01·99	01·85	01·62	01·34	01·02	00·73	00·24	01·33
Feb.	21·19	21·16	21·02	20·87	20·75	20·66	20·71	20·83	21·15	21·26	21·44	21·50	21·59	21·53	21·60	21·51	21·55	21·61	21·74	21·81	21·93	21·92	21·89	21·88	21·89	21·39
Mar.	14·37	14·33	14·33	14·14	14·05	14·02	14·05	14·11	14·27	14·26	14·30	14·20	14·10	13·99	13·88	13·78	13·98	14·09	14·45	14·71	14·94	15·13	15·23	15·29	15·17	14·35
Apr.	25·29	25·11	24·97	24·79	24·77	24·84	25·04	25·23	25·35	25·47	25·56	25·48	25·40	25·38	25·30	25·14	25·12	25·19	25·29	25·42	25·63	25·64	25·60	25·66	25·59	25·28
May	14·37	14·20	14·00	13·84	13·67	13·61	13·71	13·71	13·82	13·79	13·78	13·73	13·67	13·62	13·54	13·47	13·38	13·29	13·34	13·42	13·60	13·73	13·72	13·60	13·52	13·68
June	10·31	10·12	09·84	09·71	09·54	09·57	09·57	09·66	09·77	09·77	09·86	09·92	09·90	09·94	09·99	10·05	10·11	10·09	10·09	10·15	10·36	10·53	10·63	10·55	10·46	10·00
July	09·81	09·69	09·55	09·40	09·36	09·33	09·39	09·44	09·52	09·52	09·58	09·57	09·65	09·68	09·78	09·78	09·80	09·79	09·94	10·07	10·29	10·47	10·56	10·51	10·48	09·79
Aug.	14·26	14·19	14·08	13·98	13·92	13·94	14·09	14·21	14·32	14·33	14·31	14·26	14·18	14·16	14·15	14·09	13·96	13·88	13·98	14·07	14·29	14·37	14·34	14·21	14·02	14·14
Sept.	13·57	13·53	13·39	13·23	13·13	13·14	13·30	13·55	13·74	13·87	13·82	13·79	13·73	13·55	13·35	13·24	13·18	13·17	13·31	13·49	13·63	13·70	13·68	13·55	13·43	13·48
Oct.	02·46	02·25	02·04	01·71	01·56	01·47	01·42	01·69	01·89	02·11	02·28	02·30	02·31	02·15	02·12	02·10	02·08	02·27	02·45	02·36	02·30	02·12	02·00	01·85	01·65	02·04
Nov.	99·89	99·75	99·63	99·49	99·40	99·38	99·52	99·65	99·87	00·01	00·12	00·04	99·80	99·48	99·30	99·16	99·29	99·40	99·60	99·66	99·69	99·64	99·67	99·70	99·65	99·62
Dec.	07·74	07·71	07·75	07·75	07·67	07·58	07·64	07·71	07·91	08·14	08·27	08·19	07·96	07·70	07·65	07·71	07·82	07·92	07·98	08·07	08·17	08·33	08·32	08·35	08·35	07·94
Annual	11·21	11·06	10·90	10·73	10·61	10·58	10·64	10·77	10·95	11·06	11·14	11·13	11·07	10·97	10·93	10·89	10·91	10·96	11·08	11·16	11·27	11·31	11·29	11·23	11·11	10·98

The initial 9 or 10 of the value is omitted, i.e. 1001·42 is printed as 01·42

The monthly and annual values of pressure reduced to mean sea level are computed from the corresponding monthly and annual means of pressure at station level and of temperature. See General Introduction to the Meteorological Tables, 1938.

TEMPERATURE

Monthly and annual means of readings in degrees Absolute at exact hours Greenwich Mean Time

72 ABERDEEN: North Wall Screen on Tower: h_t = 12·5 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean
	degrees Absolute																									
Jan.	77·86	77·82	77·88	78·01	78·05	77·97	77·85	77·83	77·67	77·98	78·38	78·84	79·14	79·25	79·30	78·93	78·59	78·22	78·08	77·88	77·79	77·70	77·73	77·79	77·82	78·19
Feb.	77·59	77·37	77·21	77·17	77·00	76·95	77·00	77·01	77·07	77·45	78·12	78·66	79·10	79·28	79·26	79·18	78·97	78·65	78·45	78·33	78·25	78·01	77·99	77·91	77·82	78·00
Mar.	81·11	81·03	80·81	80·66	80·63	80·62	80·54	80·70	81·17	81·90	82·49	83·15	83·91	84·24	84·46	84·43	84·16	83·56	83·09	82·69	82·08	81·71	81·45	81·20	81·13	82·16
Apr.	79·44	79·21	79·05	79·01	78·94	78·76	79·00	79·64	80·48	81·32	81·93	82·32	82·67	82·81	82·70	82·87	82·41	81·86	81·53	81·04	80·41	80·15	79·84	79·51	79·25	80·70
May	80·27	79·99	79·75	79·62	79·52	79·73	80·31	81·18	81·80	82·24	82·81	83·15	83·47	83·58	83·76	83·57	83·30	83·35	83·02	82·64	81·98	81·55	80·98	80·54	80·37	81·76
June	83·51	83·28	83·17	82·95	83·00	83·39	84·15	85·01	85·57	86·07	86·59	86·87	87·14	87·52	87·42	87·42	87·14	86·88	86·73	86·26	85·65	84·76	84·30	83·97	83·61	85·37
July	85·19	84·96	84·67	84·58	84·50	84·74	85·42	86·37	87·09	87·38	87·88	88·12	88·45	88·50	88·58	88·53	88·52	88·28	88·03	87·57	86·98	86·53	86·10	85·65	85·25	86·78
Aug.	85·25	84·94	84·76	84·45	84·29	84·22	84·65	85·59	86·54	87·40	88·02	88·47	88·78	88·81	88·49	88·48	88·23	88·01	87·82	87·30	86·64	86·15	85·78	85·41	85·18	86·60
Sept.	84·38	84·23	84·00	83·99	83·93	83·83	83·80	84·11	84·85	85·72	86·58	86·96	87·19	87·24	87·28	87·23	87·08	86·79	86·39	85·80	85·38	85·08	84·97	84·66	84·48	85·48
Oct.	81·70	81·57	81·56	81·52	81·45	81·35	81·17	81·12	81·61	82·15	82·98	83·55	84·14	84·45	84·69	84·56	84·24	83·59	82·98	82·56	82·32	82·06	81·82	81·78	81·64	82·54
Nov.	80·22	80·29	80·00	80·08	79·93	79·80	79·75	79·64	79·59	80·06	80·52	81·10	81·53	81·73	81·76	81·62	81·26	80·83	80·66	80·32	80·22	80·18	80·05	80·01	80·00	80·46
Dec.	77·33	77·21	77·18	77·27	77·28	77·19	77·28	77·12	77·10	77·21	77·54	77·97	78·10	78·37	78·33	78·29	78·04	77·97	77·79	77·60	77·58	77·45	77·30	77·29	77·18	77·57
Annual	81·18	81·01	80·86	80·80	80·73	80·74	80·93	81·30	81·74	82·27	82·85	83·29	83·66	83·84	83·86	83·79	83·52	83·19	82·91	82·53	82·13	81·80	81·54	81·33	81·16	82·16

The initial 2 or 3 of the readings is omitted, i.e. 275·00 degrees Absolute is printed 75·00

Add 0·16° to obtain temperature in degrees Kelvin where T (°K.) = t (°C.) + 273·16

Maximum, minimum and daily mean values in degrees Absolute for each day 0h. to 24h. Greenwich Mean
The initial 2 or 3 of the values is omitted, i.e. 275·0° is printed 75·0°. Add 0·16° to obtain temperature in degrees Kelvin where T (°K.) = t (°C.) + 273·16

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DAY	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.
1	79·2	76·8	77·9	80·0	74·7	77·1	82·7	76·3	79·2	85·5	80·8	82·5	82·0	76·3	79·7	84·7	78·6	81·9
2	78·9	77·0	77·9	80·8	76·4	78·3	86·9	76·8	83·3	89·1	74·3	82·6	82·4	73·7	79·5	82·0	79·7	81·1
3	79·9	77·3	78·4	86·2	80·3	83·4	85·5	81·6	83·6	80·1	73·9	76·7	82·7	77·0	80·6	85·9	81·7	83·3
4	79·2	77·0	78·2	84·4	82·0	83·3	86·2	80·9	83·5	83·4	76·7	79·9	84·8	75·9	80·5	86·2	81·0	83·7
5	80·0	76·6	78·8	82·8	76·9	80·1	86·7	79·1	83·2	87·9	79·4	83·4	82·2	77·0	80·1	89·6	82·0	85·5
6	79·9	77·1	78·7	79·9	74·3	76·6	82·3	79·6	80·7	89·6	82·1	86·1	88·2	75·7	81·6	87·0	82·1	84·7
7	78·1	76·0	76·6	79·2	74·0	77·4	86·4	78·0	82·2	82·6	77·1	80·1	79·2	73·7	76·9	90·3	83·7	86·9
8	78·3	74·5	76·8	79·4	75·4	78·1	85·1	76·0	80·8	79·6	75·9	77·6	84·3	73·8	79·0	89·1	83·5	86·3
9	79·5	77·8	78·6	81·2	74·3	77·2	87·1	80·0	83·7	80·7	75·4	78·0	80·8	73·4	78·9	90·4	82·2	86·6
10	78·8	72·4	76·9	77·7	73·9	75·7	83·2	78·7	80·6	82·6	74·0	78·6	81·5	71·9	77·9	86·8	82·0	83·9
11	76·8	72·5	74·8	82·7	74·2	77·1	85·9	79·4	82·2	84·2	73·9	79·5	89·6	79·1	84·1	85·1	81·1	83·3
12	78·8	74·0	76·4	80·6	74·2	77·3	85·4	80·1	82·7	86·1	75·8	81·4	88·8	83·2	85·2	88·1	79·5	84·4
13	79·8	77·0	78·3	76·3	73·7	74·9	87·7	81·5	84·1	84·0	80·5	82·0	90·6	83·2	86·6	93·9	83·5	88·2
14	80·7	76·9	78·6	77·6	73·3	75·1	83·4	79·7	81·5	83·9	80·6	81·9	87·8	83·1	84·9	88·9	83·0	86·0
15	81·5	78·0	80·1	77·5	73·7	75·3	85·7	80·0	82·7	85·1	80·3	82·5	91·3	83·7	86·5	87·3	82·7	84·7
16	78·3	74·3	75·9	79·0	74·9	76·9	87·7	79·7	83·6	82·2	74·7	80·1	85·9	80·5	82·1	90·0	83·1	86·9
17	77·8	74·9	76·3	78·5	76·6	77·7	85·2	79·6	81·9	77·8	73·4	75·7	82·5	80·0	81·2	88·0	83·6	85·9
18	80·4	74·2	77·9	78·9	74·7	77·3	85·5	81·3	82·9	81·7	76·4	78·9	82·4	77·8	80·1	87·0	82·7	85·2
19	81·0	78·2	79·6	79·8	77·2	78·4	84·6	80·2	82·4	83·6	77·7	80·4	82·6	76·9	80·1	90·7	82·4	86·8
20	83·0	79·2	81·8	80·0	74·0	77·5	85·4	79·3	81·7	85·0	79·0	82·1	83·0	78·9	81·1	90·3	81·0	86·0
21	83·9	77·0	80·2	78·8	70·4	75·6	82·3	75·9	79·5	86·1	78·6	82·9	84·2	77·9	81·8	93·3	84·8	88·2
22	86·2	77·1	80·4	80·0	75·5	77·6	84·3	72·3	79·3	83·8	79·2	81·3	87·9	81·8	83·7	89·2	83·2	86·3
23	86·3	80·3	82·7	78·4	76·5	77·5	84·1	79·9	82·0	84·4	70·7	82·3	84·2	81·0	82·3	87·9	82·1	85·2
24	85·5	80·9	82·5	77·6	75·3	76·4	85·9	79·3	83·3	86·8	78·4	82·6	84·3	79·3	81·9	92·8	83·5	87·9
25	84·2	76·4	80·4	81·3	75·0	78·7	79·4	74·0	77·0	83·9	76·3	80·6	85·2	77·7	81·4	90·2	83·7	86·7
26	78·0	74·1	76·3	82·3	79·9	80·9	78·6	73·6	75·8	83·9	80·6	81·9	84·8	81·5	83·1	87·3	82·7	85·0
27	75·8	72·8	74·5	83·2	77·3	79·7	83·7	74·6	79·8	84·9	78·6	82·1	87·0	82·1	84·0	90·1	84·0	85·8
28	85·6	75·3	79·3	86·8	80·0	83·1	88·4	79·1	83·1	83·2	77·0	80·2	82·1	80·9	81·2	90·0	82·2	85·4
29	78·5	73·6	75·7	-	-	-	89·5	83·4	86·1	79·8	76·8	78·2	86·3	80·5	82·7	88·2	81·8	84·3
30	75·7	73·4	74·4	-	-	-	91·6	83·3	87·4	81·0	76·7	79·1	86·2	78·2	82·9	87·6	80·8	84·9
31	83·4	74·0	78·5	-	-	-	90·7	82·5	86·9	-	-	-	85·9	80·1	83·0	-	-	-
Mean	80·4	76·0	78·2	80·4	75·7	78·0	85·4	78·9	82·2	83·7	77·5	80·7	84·9	78·6	81·8	88·6	82·3	85·4

DAY	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.
1	88·8	80·8	85·4	90·9	82·9	87·7	85·7	79·0	81·8	87·7	80·9	85·3	83·9	75·9	79·1	78·4	75·5	76·6
3	86·5	82·8	84·8	90·9	83·0	87·5	87·1	78·7	83·4	86·5	81·0	84·3	81·2	75·6	78·0	80·0	75·2	77·5
3	88·9	83·5	85·3	89·4	82·3	86·8	87·2	82·4	84·4	85·7	80·4	83·1	83·6	77·6	80·7	78·5	73·2	76·4
4	87·9	81·5	84·9	89·9	82·8	87·1	87·8	82·8	85·1	84·8	80·8	82·9	89·7	81·2	85·4	81·1	72·0	78·1
5	86·9	80·7	84·1	89·6	86·5	87·7	88·8	83·5	85·9	85·2	77·8	81·1	87·0	82·2	84·5	79·6	75·6	77·6
6	88·1	81·1	84·7	90·5	87·1	88·2	86·9	84·5	85·6	85·6	77·5	81·5	88·9	85·4	86·9	82·2	77·2	79·9
7	87·1	80·0	84·2	91·2	87·2	89·0	88·2	83·5	86·2	84·8	78·5	82·7	87·3	81·2	85·1	83·1	81·2	82·1
8	89·2	84·1	86·3	91·4	87·2	89·3	89·3	83·3	85·7	86·3	78·0	82·2	81·8	78·4	80·2	81·6	77·4	79·5
9	86·9	83·7	84·8	90·8	87·9	89·1	87·6	81·0	84·9	87·2	80·4	83·3	84·2	79·6	82·3	81·2	74·2	77·9
10	89·8	83·7	86·6	91·7	88·0	89·7	93·7	78·6	87·0	85·5	79·1	81·8	83·7	82·7	83·3	81·1	76·1	78·9
11	89·6	83·0	86·5	92·6	86·5	89·7	88·3	85·7	86·9	84·4	79·2	81·4	84·5	83·0	83·7	82·4	80·6	82·0
12	88·3	84·8	86·2	92·3	86·0	88·3	96·7	87·3	92·5	87·7	79·3	83·9	85·9	84·0	85·0	83·3	80·4	82·6
13	90·6	84·7	87·7	88·6	84·0	86·7	91·3	81·6	86·5	89·5	83·6	85·2	86·6	84·5	85·3	82·3	79·7	81·7
14	92·1	85·0	88·9	90·1	82·6	86·7	84·9	79·0	82·0	86·9	82·1	84·3	85·4	79·5	83·0	82·6	77·8	81·4
15	89·1	82·0	86·4	89·3	83·9	87·1	85·9	78·9	82·4	86·2	82·0	84·5	83·5	78·2	80·7	82·5	77·8	81·1
16	87·6	82·4	85·2	92·1	86·6	88·6	87·3	78·5	83·4	85·5	80·7	83·6	83·3	77·4	81·6	82·5	80·1	81·4
17	88·2	83·7	86·1	88·5	84·1	86·3	88·6	84·9	87·3	85·9	79·3	82·6	84·7	80·7	83·1	80·1	77·1	78·4
18	89·2	84·0	86·7	89·1	83·7	86·2	86·1	82·1	84·4	84·0	77·3	80·6	83·5	79·5	81·6	77·2	73·7	75·9
19	93·9	82·3	88·5	89·3	81·9	85·9	85·7	81·4	83·9	84·5	79·1	81·6	80·2	76·2	78·3	76·3	72·7	74·6
20	91·3	85·6	88·1	88·8	80·8	84·6	86·2	83·2	85·3	87·3	81·7	84·1	79·7	73·4	77·1	74·4	69·0	72·3
21	89·1	84·5	86·7	86·8	79·3	83·3	88·8	82·7	85·8	85·7	83·3	84·6	78·6	72·7	75·4	72·2	68·6	69·5
22	92·1	85·2	88·4	87·0	76·8	82·8	88·6	84·8	86·6	84·9	83·6	84·1	77·5	71·5	74·3	75·6	69·2	72·9
23	89·6	84·7	87·2	88·1	81·9	85·7	88·9	86·2	87·3	84·8	82·9	83·8	78·7	73·7	76·2	77·3	74·4	75·8
24	89·0	84·3	86·4	90·1	86·3	87·5	89·2	86·3	87·4	86·1	82·8	84·3	78·9	75·3	77·1	75·4	69·4	73·0
25	91·5	85·3	88·6	90·4	86·1	87·4	91·9	84·5	87·8	84·4	77·0	81·6	78·3	74·9	76·7	75·6	79·0	73·3
26	91·6	83·7	88·4	89·4	84·5	86·8	90·1	81·3	85·7	81·0	76·3	78·6	77·4	74·0	76·2	83·6	75·3	79·2
27	90·9	83·8	87·9	91·4	81·3	85·9	88·1	82·1	85·0	82·8	77·9	80·6	80·8	73·0	77·3	80·4	76·7	79·1
28	91·6	85·1	88·1	88·5	80·6	85·0	86·6	85·1	85·8	83·1	74·7	79·1	79·8	75·8	77·6	80·0	76·0	77·9
29	89·4	84·3	87·0	86·5	79·1	83·9	87·7	80·5	85·6	82·3	75·3	79·7	81·1	77·8	79·4	81·6	76·4	79·5
30	92·5	87·4	89·7	86·2	78·4	82·5	87·2	77·0	82·8	82·9	78·3	80·8	80·0	76·5	78·6	77·3	73·6	75·4
31	94·8	84·6	90·2	85·8	76·5	81·9	-	-	-	83·6	78·4	81·2	-	-	-	75·2	71·1	73·2
Mean	89·7	83·6	86·8	89·6	83·4	86·6	88·3	82·3	85·5	85·3	79·7	82·5	82·7	78·0	80·5	79·5	75·0	77·6
									Annual	84·9	79·3	82·2						

MEAN RELATIVE HUMIDITY AND VAPOUR PRESSURE FOR EACH DAY

Mean percentages from readings at exact hours 0h. to 24h. Greenwich Mean Time; vapour pressure from daily mean temperature and relative humidity

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DAY	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.
	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.
1	82·9	7·2	77·1	6·3	70·4	6·7	71·7	8·5	81·9	8·0	86·2	9·8	79·6	11·5	73·3	12·3	88·3	10·0	91·2	13·1	71·6	6·7	84·1	6·7
2	87·8	7·6	66·3	5·9	64·7	8·1	67·9	8·1	82·2	8·0	94·7	10·2	83·9	11·6	81·9	13·5	78·0	9·8	90·4	12·1	67·5	5·9	73·9	6·2
3	96·5	8·7	70·0	8·8	63·1	8·1	73·2	5·8	74·5	7·8	84·5	10·6	86·5	12·4	84·9	13·4	87·5	11·8	81·1	10·0	75·6	7·9	84·5	6·6
4	88·7	7·8	79·0	9·9	58·8	7·5	68·9	6·9	77·2	8·0	87·9	11·3	79·1	10·9	86·2	13·9	82·5	11·6	75·3	9·2	81·9	11·8	89·5	7·9
5	83·0	7·7	81·4	8·2	64·3	8·0	72·0	9·1	78·4	7·9	75·3	10·9	83·1	11·0	95·3	15·9	83·8	12·5	70·6	7·6	88·8	12·1	82·3	7·0
6	85·0	7·8	70·3	5·6	91·2	9·6	64·3	9·7	73·0	8·2	85·3	11·7	82·1	11·3	99·3	17·2	93·2	13·6	73·5	8·2	86·8	13·8	85·3	8·5
7	89·1	7·0	88·6	7·4	88·4	10·3	64·7	6·5	66·6	5·4	71·9	11·4	90·9	12·1	92·5	16·8	87·3	13·3	73·6	8·9	85·7	12·1	85·2	9·8
8	83·1	6·7	84·1	7·4	76·4	8·1	60·0	5·1	61·2	5·7	75·8	11·6	90·6	13·8	89·3	16·6	80·5	11·8	71·6	8·3	85·0	8·6	82·9	8·0
9	80·4	7·3	77·1	6·4	76·7	9·9	69·3	6·0	64·5	6·0	67·6	10·5	75·5	10·5	96·2	17·6	79·4	11·1	78·4	9·8	91·6	10·7	81·0	7·0
10	84·6	6·8	80·7	6·0	78·1	8·2	70·1	6·4	65·0	5·6	77·0	10·0	75·3	11·7	93·8	17·8	79·7	12·7	69·9	7·9	91·4	11·4	91·7	8·5
11	86·6	6·0	74·6	6·1	90·6	10·5	70·6	6·8	69·9	9·2	79·5	10·0	82·9	12·8	91·0	17·3	83·0	13·2	71·9	7·9	94·5	12·2	94·3	10·8
12	84·7	6·6	72·7	6·0	93·1	11·2	71·4	7·9	82·4	11·7	82·2	11·1	81·8	12·4	90·5	15·7	69·1	15·7	87·4	11·4	91·7	12·9	90·3	10·8
13	79·6	7·1	81·8	5·7	82·8	10·9	78·5	9·0	70·8	11·0	72·8	12·6	78·0	13·1	83·6	13·1	81·5	12·6	82·4	11·7	91·0	13·0	90·3	10·2
14	80·1	7·3	84·2	6·0	78·5	8·7	73·4	8·4	88·0	12·3	74·6	11·2	69·6	12·6	78·2	12·3	79·8	9·2	65·4	8·8	75·2	9·2	92·5	10·2
15	82·9	8·4	79·2	5·7	78·3	9·4	61·5	7·3	85·8	13·3	66·4	9·1	76·0	11·7	82·8	13·3	71·1	8·4	76·9	10·4	83·9	8·8	88·5	9·6
16	82·9	6·2	87·9	7·1	70·0	9·0	60·5	6·1	89·2	10·3	68·7	10·9	82·4	11·7	76·5	13·6	88·6	11·2	78·7	10·1	91·7	10·3	92·4	10·2
17	75·4	5·8	92·1	7·9	73·9	8·4	70·7	5·2	81·6	8·9	72·5	10·8	76·5	11·5	62·8	9·6	92·6	15·1	74·1	8·9	87·4	10·8	74·9	6·7
18	85·2	7·4	85·4	7·1	83·7	10·2	69·2	6·5	72·2	7·3	85·0	12·1	74·3	11·6	83·9	12·7	84·1	11·3	73·5	7·7	81·5	9·1	64·6	4·9
19	74·0	7·2	84·9	7·6	81·3	9·6	73·4	7·6	73·5	7·4	63·4	10·0	86·0	15·2	69·0	10·3	80·8	10·5	75·7	8·5	75·5	6·7	75·7	5·2
20	87·6	9·9	84·4	7·1	76·7	8·6	61·7	7·1	67·3	7·3	58·2	8·7	83·2	14·3	69·5	9·5	93·0	13·3	83·6	11·0	84·5	6·9	80·6	4·7
21	69·4	7·1	82·1	6·1	84·8	8·2	69·8	8·5	78·0	8·8	61·1	10·6	80·1	12·6	81·3	10·2	87·5	12·9	87·4	11·9	76·9	5·6	89·7	4·2
22	82·7	8·5	86·3	7·3	72·4	6·9	81·0	8·9	89·6	11·5	52·4	8·0	79·6	13·9	84·8	10·3	86·8	13·5	86·4	11·4	79·6	5·3	84·7	5·1
23	69·7	8·4	69·6	5·9	85·7	9·8	81·3	9·5	88·2	10·3	64·7	9·2	82·4	13·3	85·9	12·6	91·5	14·9	90·6	11·7	88·9	6·8	84·0	6·3
24	68·6	8·1	76·2	5·9	81·6	10·2	72·6	8·7	73·4	8·4	80·2	13·6	89·7	13·8	90·3	14·9	91·7	15·0	88·3	11·8	71·0	5·8	93·4	5·7
25	69·8	7·2	88·3	8·1	68·5	5·6	74·2	7·7	69·7	7·7	73·0	11·4	80·5	14·3	89·2	14·6	82·5	13·9	86·0	9·6	84·0	6·7	85·9	5·4
26	72·0	5·6	92·5	9·9	64·5	4·8	84·5	9·6	90·0	11·1	82·7	11·6	83·9	14·7	81·6	12·9	87·4	12·8	81·3	7·4	84·8	6·5	87·7	8·3
27	77·9	5·3	75·5	7·4	67·3	6·6	82·7	9·6	86·4	11·3	83·1	12·3	79·3	13·4	86·5	12·9	96·4	13·5	88·0	9·2	84·9	7·0	75·7	7·1
28	78·1	7·5	76·4	9·4	72·9	9·0	71·0	7·2	90·6	9·9	66·5	9·6	79·1	13·6	77·9	10·9	98·0	14·5	85·1	8·0	75·1	6·4	88·9	7·7
29	72·9	5·4			68·8	10·4	66·0	5·8	89·1	10·7	77·8	10·4	84·0	13·4	79·2	10·3	92·6	13·5	83·3	8·2	77·6	7·5	83·8	8·1
30	66·6	4·5			67·3	11·1	70·8	6·7	80·7	9·8	78·5	10·9	89·9	17·1	81·2	9·6	92·1	11·2	81·2	8·6	82·1	7·5	78·1	5·7
31	84·0	7·6			65·1	10·3			71·0	8·7			78·0	15·3	82·3	9·4			83·3	9·1			77·4	4·8
Mean*	80·4	7·2	80·3	7·1	75·5	8·8	70·9	7·5	77·8.	9·0	75·0	10·7	81·4	12·9	83·9	13·3	85·7	12·5	80·2	9·6	82·9	8·9	84·3	7·4

* Mean of the column.

RELATIVE HUMIDITY

Monthly and annual means of values at exact hours Greenwich Mean Time

75 ABERDEEN: h_t = 12·5 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean*
	per cent.																									
Jan.	81·6	82·9	83·3	82·3	81·9	82·1	83·0	81·9	82·0	79·9	78·3	76·8	76·8	76·4	76·2	78·0	78·7	80·2	80·4	80·7	81·4	82·3	81·5	81·0	81·1	80·4
Feb.	81·9	81·4	81·6	82·4	84·1	83·6	82·8	83·1	83·5	82·7	79·6	77·9	76·3	74·7	74·7	74·7	75·8	78·7	79·7	79·7	81·3	82·8	81·8	82·4	81·9	80·3
Mar.	78·3	78·0	79·7	79·4	79·0	78·7	79·1	79·9	79·1	76·5	75·0	73·9	69·9	68·5	67·4	67·4	69·0	71·9	73·7	75·9	77·1	77·8	78·0	78·6	78·1	75·5
Apr.	76·3	76·9	77·7	76·8	76·6	77·1	77·1	76·2	71·9	68·5	65·7	64·6	63·7	62·7	63·2	61·9	64·2	66·9	68·1	69·8	73·7	73·2	73·6	75·0	76·4	70·9
May	82·5	84·0	84·4	85·0	85·3	85·0	83·6	79·9	77·1	75·5	72·9	72·1	72·0	71·6	71·5	72·3	73·2	72·2	73·5	74·5	77·2	78·6	80·7	82·3	82·9	77·8
June	83·0	83·4	83·0	84·2	83·7	82·3	81·0	77·8	73·1	70·8	68·1	67·8	67·4	66·6	66·1	66·4	68·1	69·1	69·8	71·5	74·1	79·0	80·7	82·4	83·1	75·0
July	88·5	88·8	89·5	88·8	88·7	88·5	86·6	82·7	79·3	78·0	75·6	74·0	72·8	73·7	74·5	74·9	75·1	76·3	77·0	79·0	81·9	84·5	87·3	87·6	88·5	81·4
Aug.	89·5	90·3	90·5	91·2	91·3	91·7	90·5	88·2	84·5	81·5	77·1	75·3	74·2	74·6	76·8	77·5	77·2	79·2	80·0	81·9	85·5	87·3	88·4	89·0	89·5	83·9
Sept.	90·1	89·9	90·4	89·6	89·3	88·7	89·3	89·2	87·1	83·3	79·9	80·0	78·4	78·6	79·1	79·2	80·7	81·7	84·4	87·7	89·3	90·5	89·8	90·1	90·4	85·7
Oct.	83·5	84·7	85·6	85·4	85·5	86·6	86·8	87·1	84·6	82·1	79·2	75·9	73·9	71·4	69·8	70·9	72·1	74·7	77·7	79·7	80·9	82·1	82·2	82·2	83·1	80·2
Nov.	83·8	83·6	84·9	84·6	84·3	83·7	83·5	83·9	84·2	83·3	82·6	80·9	78·6	79·4	80·7	81·6	82·0	82·8	82·6	83·6	83·5	84·1	83·9	83·9	83·9	82·9
Dec.	85·8	86·5	86·6	85·8	84·9	85·8	85·0	85·7	85·4	85·6	85·2	83·3	82·4	81·7	81·5	81·9	82·8	83·5	83·8	84·9	82·7	83·6	84·8	84·1	85·9	84·3
Annual	83·8	84·2	84·8	84·6	84·6	84·5	84·0	83·0	81·0	79·0	76·6	75·2	73·9	73·3	73·5	73·9	74·9	76·4	77·6	79·1	80·7	82·1	82·7	83·2	83·8	79·9

VAPOUR PRESSURE

Monthly mean values at exact hours Greenwich Mean Time computed from corresponding mean values of temperature and relative humidity

76 ABERDEEN: h_t = 12·5 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean*
	millibars																									
Jan.	7·0	7·1	7·2	7·2	7·2	7·1	7·2	7·1	7·0	7·0	7·0	7·1	7·3	7·3	7·3	7·3	7·2	7·1	7·1	7·0	7·0	7·0	7·0	7·0	7·0	7·1
Feb.	7·2	6·8	6·7	6·8	6·8	6·8	6·7	6·8	6·8	6·9	7·0	7·1	7·2	7·1	7·1	7·1	7·2	7·2	7·2	7·1	7·2	7·2	7·1	7·1	7·1	7·0
Mar.	8·7	8·4	8·4	8·3	8·3	8·2	8·2	8·4	8·6	8·7	8·9	9·2	9·1	9·1	9·1	9·1	9·1	9·2	9·1	9·1	8·9	8·8	8·6	8·6	8·5	8·7
Apr.	7·5	7·3	7·3	7·2	7·1	7·1	7·2	7·5	7·4	7·5	7·5	7·6	7·7	7·6	7·6	7·5	7·6	7·6	7·6	7·5	7·6	7·4	7·3	7·3	7·3	7·4
May	8·4	8·5	8·3	8·3	8·3	8·4	8·6	8·7	8·7	8·8	8·8	8·9	9·1	9·2	9·2	9·2	9·2	9·1	9·0	8·9	8·9	8·8	8·7	8·6	8·5	8·8
June	10·6	10·4	10·3	10·3	10·3	10·4	10·7	10·9	10·6	10·7	10·6	10·7	10·9	11·1	10·9	10·9	11·0	11·0	11·0	10·9	10·8	10·9	10·8	10·8	10·6	10·7
July.	12·6	12·4	12·3	12·1	12·0	12·2	12·5	12·7	12·7	12·8	12·8	12·7	12·8	13·0	13·2	13·2	13·2	13·2	13·2	13·1	13·1	13·1	13·2	12·8	12·6	12·8
Aug.	12·7	12·6	12·5	12·3	12·2	12·2	12·4	12·8	13·1	13·4	13·2	13·2	13·3	13·4	13·5	13·6	13·4	13·5	13·5	13·3	13·4	13·2	13·0	12·8	12·7	13·0
Sept.	12·1	12·0	11·9	11·8	11·7	11·5	11·6	11·8	12·1	12·3	12·4	12·7	12·7	12·8	12·9	12·8	13·0	12·9	13·0	13·0	12·8	12·8	12·6	12·4	12·3	12·4
Oct.	9·5	9·4	9·5	9·5	9·5	9·5	9·4	9·4	9·5	9·5	9·7	9·7	9·8	9·7	9·6	9·7	9·6	9·5	9·5	9·5	9·5	9·5	9·3	9·3	9·3	9·5
Nov.	8·5	8·6	8·5	8·5	8·4	8·3	8·2	8·2	8·2	8·4	8·6	8·7	8·7	8·9	9·1	9·1	9·0	8·8	8·7	8·6	8·5	8·5	8·4	8·4	8·4	8·6
Dec.	7·2	7·1	7·1	7·1	7·0	7·1	7·1	7·0	7·0	7·1	7·2	7·2	7·2	7·3	7·3	7·3	7·2	7·3	7·2	7·2	7·0	7·0	7·0	7·0	7·1	7·1
Year†	9·3	9·0	9·0	9·0	8·9	8·9	9·0	9·1	9·1	9·2	9·3	9·4	9·4	9·5	9·6	9·6	9·5	9·5	9·5	9·4	9·4	9·3	9·2	9·1	9·1	9·3

* Mean of values ½(0 + 24),1,2...23.

† Mean values for the year are means of monthly values.

RAINFALL

Amount in millimetres, duration in hours and maximum rate of fall for each day 0h. to 24h. Greenwich Mean Time

77 ABERDEEN: H_r (height of receiving surface above M.S.L.) = H (height of station above M.S.L.) + h_r (height of receiving surface above ground) = 24·1 + 0·6 m. 1938

DAY	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate
	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.
1	...	...	...	4·3	2·2	18	0·3	0·8	3	0·5	0·5	2	...	...	...	1·9	1·5	3
2	0·5	1·9	3	...	...	...	...	...	...	3·6	1·6	19	...	...	...	24·0	17·5	13
3	0·6	4·4	1	...	...	...	...	...	...	5·6	3·2	15	...	...	...	1·5	2·2	6
4	0·1	0·3	...	0·1	0·2	...	...	...	...	0·2	0·2	2	...	...	...	1·6	2·1	13
5	...	...	...	1·4	2·0	5	0·5	0·9	(3)	...	...	...	...	...	...	0·5	0·3	7
6	3·6	3·4	9	...	...	...	0·6	3·1	...	...	...	...	0·5	0·4	6	0·8	0·8	4
7	0·7	0·9	2	...	...	...	0·4	2·8	...	0·2	0·2	11	0·3	0·5	...	2·3	2·1	15
8	0·9	1·1	3	...	...	...	...	...	...	...	...	...	0·2	0·4	...	...	...	...
9	3·6	6·0	6	0·4	0·9	...	1·3	3·1	(2)	...	...	...	0·3	0·4	...	2·1	0·4	72
10	1·4	3·1	14	6·4	4·4	11	0·7	5·9	...	...	...	...	...	...	...	8·2	2·1	59
11	0·1	0·3	...	0·2	0·5	...	...	...	...	...	...	...	0·1	0·3	...	0·1	0·3	...
12	...	...	...	6·1	4·2	16	...	...	...	...	...	...	0·8	0·9	...	0·1	0·3	...
13	11·4	3·9	17	1·3	2·0	4	...	...	...	...	...	...	...	...	...	...	...	...
14	10·3	3·7	9	0·3	0·6	...	...	...	...	...	...	...	0·1	0·2	1	0·2	0·4	...
15	3·2	3·5	2	...	...	...	...	...	...	...	...	...	3·2	0·6	93	...	...	...
16	4·6	4·8	(2)	1·1	3·1	5	0·1	0·1	4	...	...	...	23·8	9·0	14	...	...	...
17	...	...	...	2·6	4·8	9	...	...	...	0·8	1·0	...	...	...	...	...	...	...
18	1·8	1·6	7	...	...	...	...	...	...	...	...	...	0·9	1·2	1	...	...	...
19	...	...	...	0·3	2·5	...	0·3	2·5	3	0·6	0·8	...	0·5	0·7	6	2·0	0·6	29
20	0·1	0·4	...	...	...	...	1·1	3·1	(3)	...	...	...	...	...	...	...	...	...
21	...	...	...	...	...	...	0·6	4·0	1	0·7	0·4	22	0·2	0·2	...	...	...	...
22	...	...	...	1·0	0·8	10	1·1	3·6	4	0·7	0·9	8	5·9	8·1	7	...	...	...
23	...	...	...	...	...	...	3·7	6·3	8	0·1	0·3	...	8·1	5·9	21	0·7	0·9	4
24	...	...	...	...	...	...	1·5	0·6	26	0·1	0·2	6	1·5	1·4	11	12·4	5·8	28
25	0·1	0·2	...	0·3	3·0	...	0·5	1·7	3	0·4	1·4	5	2·0	2·9	2	0·8	0·6	16
26	...	...	...	0·2	2·0	...	...	...	...	0·6	1·4	17	2·0	3·9	...	3·2	4·9	6
27	0·6	1·0	1	1·7	1·5	9	0·1	0·2	3	5·5	1·4	40?	1·2	1·4	4	11·9	9·2	29
28	3·0	3·3	10	...	...	...	0·1	0·3	(3)	...	...	...	1·0	3·8	...	3·4	5·7	12
29	6·0	3·9	9				...	...	...	...	...	...	3·7	4·2	21	3·8	3·1	40?
30	...	...	...				0·3	0·3	...	0·1	0·2	...	1·0	0·9	14	5·1	2·3	38
31	6·4	4·4	8				0·1	0·5	...				6·7	4·8	10			
Total	59·0	52·1	-	27·7	34·7	-	13·3	39·8	-	19·7	13·7	-	64·0	52·1	-	86·6	63·1	-

DAY	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate
	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.
1	0·6	1·1	7	...	...	...	7·5	3·4	17	5·0	1·5	28	0·3	1·9	...	2·3	1·8	5
2	0·4	0·7	8	...	...	...	...	...	...	4·8	4·3	8	...	...	...	...	...	...
3	19·5	4·1	86	...	...	...	5·1	10·3	11	22·2	5·4	18	4·3	7·2	4	...	...	...
4	...	...	...	...	...	...	0·3	0·2	8	3·4	3·7	13	10·8	4·3	8	3·6	4·7	6
5	0·8	0·3	38	5·3	2·1	82	0·1	0·4	...	...	...	...	3·5	5·9	(2)	...	...	...
6	6·8	3·2	63	0·5	4·1	...	16·1	5·2	30	...	...	...	...	...	...	...	...	...
7	18·5	9·3	22	0·3	1·5	...	7·4	3·5	15	6·4	3·0	24	1·1	3·1	8	...	...	...
8	13·2	4·0	32	1·6	0·4	19	...	...	...	0·7	0·8	6	1·5	2·6	1	0·4	0·7	...
9	0·1	0·2	2	...	...	...	...	...	...	1·6	1·3	4	5·4	10·1	8	10·9	4·4	10
10	0·1	0·1	...	...	...	...	1·5	0·9	9	...	...	...	...	...	...	...	...	...
11	9·3	2·0	41	0·1	0·4	...	...	...	...	...	...	...	2·8	2·9	4	4·5	2·1	38
12	4·1	0·7	54	0·2	1·0	...	...	...	...	4·8	2·2	11	1·6	2·2	6	7·4	5·1	5
13	...	...	...	2·3	0·6	22	18·0	8·7	7	1·0	2·5	2	2·6	4·7	7	1·0	0·9	5
14	2·2	1·4	12	...	...	...	5·5	0·9	66	...	...	...	...	...	...	4·6	5·3	3
15	...	...	...	1·2	2·2	...	...	...	...	...	...	...	...	...	...	0·5	0·3	4
16	...	...	...	0·8	0·3	18	11·1	8·3	6	0·1	0·3	...	...	...	...	21·4	17·0	22
17	0·5	0·6	4	0·1	0·2	...	4·4	3·1	8	...	...	...	2·0	1·2	6	5·1	7·3	1
18	0·1	0·1	2	4·7	8·0	5	0·5	0·4	...	...	...	...	5·1	4·0	7	0·9	1·1	...
19	3·9	3·4	10	0·7	0·8	6	0·7	0·3	7	...	...	...	...	...	...	6·6	4·6	?
20	2·3	2·2	7	1·1	1·1	6	3·3	2·7	8	0·2	0·3	...	...	...	...	8·4	2·8	?
21	...	...	...	4·3	1·5	20	...	...	...	1·2	1·3	2	...	...	...	5·2	5·2	?
22	...	...	...	...	...	...	...	...	...	2·1	3·2	2	...	...	...	0·3	0·6	...
23	...	...	...	...	...	...	0·9	1·1	...	0·7	0·6	2	18·4	9·6	12	4·9	6·1	?
24	2·6	0·3	57	0·2	0·5	...	0·2	0·1	...	6·6	6·5	5	...	...	...	1·6	2·1	...
25	1·3	0·8	21	0·7	0·9	4	0·4	1·0	...	5·5	6·5	4	2·4	2·2	5	1·5	2·2	...
26	13·3	4·0	23	...	...	...	...	...	...	5·7	3·8	29	0·7	1·0	4	2·6	2·9	(2)
27	0·7	1·3	2	2·7	3·1	17	0·2	...	...	5·4	4·8	17	0·5	1·9	...	0·8	0·6	(3)
28	10·4	6·0	44	1·6	0·7	9	3·2	3·2	28	0·5	0·8	1	...	...	...	1·2	6·6	...
29	2·8	4·6	?	...	...	...	0·3	0·6	...	...	...	...	...	...	...	2·1	0·9	61
30	3·4	6·4	?	0·2	0·2	1	...	...	...	1·9	0·6	17	4·9	4·6	5	...	...	...
31	0·4	0·2	...	...	...	...				...	...	...				...	...	...
Total	117 3	57 0	-	28 6	29 6	-	86 7	54 3	-	79 8	53 4	-	67 9	69 4	-	97 8	85 3	-

RAINFALL

Monthly and annual totals of amounts in sixty-minute periods between exact hours Greenwich Mean Time

78 ABERDEEN: H_r = 24·1 m. + 0·6 m. 1938

	Hour G.M.T. 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	0-24
	millimetres																								
Jan.	1·7	5·3	7·0	1·8	1·0	0·3	0·2	1·5	0·6	1·5	1·4	1·6	2·1	1·1	2·0	2·3	1·4	2·0	4·0	2·3	3·5	5·8	5·9	2·7	59·0
Feb.	0·3	2·5	0·7	0·6	0·2	0·5	2·8	3·6	1·8	···	1·9	1·2	0·8	2·2	1·2	0·8	0·5	1·8	0·6	1·2	0·8	0·9	0·7	0·1	27·7
Mar.	0·5	0·7	0·9	0·7	1·4	1·6	0·9	0·2	0·5	0·2	0·3	0·1	0·1	0·1	0·1	0·1	0·5	0·3	0·3	1·7	0·2	0·6	0·3	1·0	13·3
Apr.	0·9	0·1	0·2	···	0·2	0·1	2·5	1·4	0·4	0·2	1·3	0·2	2·6	2·5	0·2	0·3	2·1	2·3	0·1	0·1	···	···	0·2	1·8	19·7
May	2·4	2·4	1·2	7·8	8·1	7·9	5·6	2·5	1·5	2·4	1·1	0·3	1·3	0·1	4·0	1·4	2·7	0·9	0·8	0·7	1·6	3·4	2·0	1·9	64·0
June	5·6	7·3	6·1	8·1	5·0	3·8	2·8	3·7	0·8	1·5	2·0	1·8	5·3	3·6	5·9	7·6	4·3	0·4	1·2	2·0	1·4	1·2	2·1	3·1	86·6
July	7·2	8·4	8·9	7·6	4·9	2·2	2·2	1·8	1·2	2·2	0·6	3·0	9·2	1·6	1·6	0·6	13·0	9·6	2·9	6·1	6·8	6·2	7·0	2·5	117·3
Aug.	1·4	4·0	0·1	0·2	0·9	1·3	0·9	0·9	0·8	···	···	0·4	0·8	1·0	0·9	0·9	5·5	1·3	0·6	0·5	1·0	4·7	0·1	0·4	28·6
Sept.	1·1	2·5	3·6	1·1	1·0	0·3	0·3	2·1	1·6	0·7	2·0	3·7	5·6	3·7	6·1	9·5	4·5	11·2	3·3	6·6	6·4	1·8	3·6	4·4	86·7
Oct.	2·0	7·3	2·8	3·5	6·1	3·2	5·3	2·8	1·5	2·1	0·9	2·3	0·5	···	0·9	0·1	0·5	3·9	3·7	8·0	10·3	6·3	1·6	4·2	79·8
Nov.	2·6	5·2	4·5	3·2	2·3	3·1	2·5	3·1	3·6	4·5	4·1	3·6	4·2	3·1	1·3	0·6	1·3	2·7	2·8	1·6	1·3	2·1	2·6	2·0	67·9
Dec.	4·6	5·6	3·5	2·7	2·8	1·8	3·3	3·8	4·1	4·6	4·9	6·2	4·9	4·4	4·4	3·3	2·9	3·5	3·6	5·5	5·0	5·7	4·2	2·5	97·8
Annual	30·3	51·3	39·5	37·3	33·9	26·1	29·3	27·4	18·4	19·9	20·5	24·4	37·4	23·4	28·6	27·5	39·2	39·9	23·9	36·3	38·3	38·7	30·3	26·6	748·4

RAINFALL

Monthly and annual totals of durations in sixty-minute periods between exact hours Greenwich Mean Time

79 ABERDEEN: H_r = 24·1 m. + 0·6 m. 1938

	Hour G.M.T. 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	0-24
	hours																								
Jan.	3·1	4·1	2·6	2·1	1·1	0·4	0·6	0·8	0·9	1·6	1·6	1·2	1·6	1·0	3·0	1·5	2·9	3·8	4·7	2·8	2·7	2·2	3·2	2·6	52·1
Feb.	1·4	2·9	2·1	1·5	0·2	0·7	2·0	2·6	1·6	···	0·8	1·6	1·7	1·7	1·1	0·2	0·4	2·0	1·5	2·0	1·2	1·8	2·7	1·0	34·7
Mar.	2·0	1·7	2·7	2·7	3·6	3·0	2·6	0·9	1·0	1·6	1·0	0·5	0·3	0·1	1·0	1·0	1·4	1·2	1·5	2·1	0·6	2·5	2·0	2·8	39·8
Apr.	1·4	0·1	0·4	···	0·2	0·2	1·0	1·0	0·2	0·3	1·3	0·2	1·0	0·8	0·2	0·5	1·5	1·5	0·1	0·2	···	···	0·1	1·5	13·7
May	3·3	2·9	2·5	4·1	3·6	4·2	5·4	3·4	1·8	1·0	1·3	0·5	0·8	0·1	1·5	2·1	2·6	1·6	0·5	1·1	1·1	2·3	2·2	2·2	52·1
June	4·3	4·2	3·5	4·2	3·7	1·9	1·3	2·6	2·3	2·0	1·9	3·0	2·7	2·1	2·1	3·0	2·4	1·2	2·6	1·5	1·8	2·3	3·0	3·5	63·1
July	3·6	3·0	3·1	1·9	1·9	1·4	2·9	2·5	1·2	2·0	1·3	2·0	1·8	1·1	1·8	1·4	3·1	4·6	2·4	2·1	3·4	3·4	2·3	2·8	57·0
Aug.	1·1	1·2	0·8	0·9	2·5	4·4	3·0	2·3	1·1	···	···	0·4	0·3	1·3	1·5	0·5	1·8	1·4	1·3	1·1	0·1	1·7	0·4	0·5	29·6
Sept.	1·6	2·0	2·0	1·6	2·7	1·0	1·4	2·2	2·1	1·0	1·3	1·9	3·1	3·3	3·8	3·3	3·9	4·7	1·7	2·3	3·3	1·2	0·9	2·0	54·3
Oct.	1·5	3·1	1·7	3·0	3·9	2·8	3·4	2·5	2·4	2·7	1·1	2·1	1·3	···	0·8	0·3	0·7	2·6	2·2	3·0	3·6	3·3	2·2	3·2	53·4
Nov.	3·0	3·4	3·0	2·2	2·3	2·6	3·6	4·5	4·5	3·9	3·2	2·6	3·4	1·9	1·5	1·6	1·6	3·6	3·5	2·5	2·5	2·9	3·4	2·2	69·4
Dec.	4·2	4·3	3·2	3·8	2·7	2·4	3·6	3·6	3·6	3·6	3·6	4·3	2·9	2·4	2·9	4·5	3·5	4·7	5·0	3·5	3·1	4·8	2·8	2·3	85·3
Annual	30·5	32·9	27·6	28·0	28·4	25·0	30·8	28·9	22·7	19·7	18·4	20·3	20·9	15·8	21·2	19·9	25·8	32·9	27·0	24·2	23·4	28·4	25·2	26·6	604·5

80 ABERDEEN

NOTES ON RAINFALL

1938

Dry Periods

The following definitions are adopted by the British Rainfall Organization
An "absolute drought" is a period of at least 15 consecutive days to none of which is credited 0·2 mm. of rain or more
A "partial drought" is a period of at least 29 consecutive days, the mean daily rainfall of which does not exceed 0·2 mm.
A "dry spell" is a period of at least 15 consecutive days to none of which is credited 1·0 mm. of rain or more

"Absolute drought": No occasions
"Partial drought": No occasions
"Dry spells": April 4–26; April 28–May 14
During the 86 days February 18–May 14 the total fall was 38·8 mm., only 25 per cent. of the normal value

Wet Periods

The following definitions are adopted by the British Rainfall Organization
A "rain spell" is a period of at least 15 consecutive days to each of which is credited 0·2 mm. of rain or more
A "wet spell" is a period of at least 15 consecutive days to each of which is credited 1·0 mm. of rain or more

"Rain spells": May 21–June 7; December 11–29

Rainfall Duration

Hours	0·1-1·0	1·1-2·0	2·1-6·0	6·1-12·0	>12·0
Number of days	92	32	90	18	2

Continuous or Heavy Falls

The longest continuous fall was 21 mm. in 13 hr. 42 min. on June 2

Heavy Falls in short periods

On July 3, 10 mm. fell in 30 min.

Rate of Rainfall (Jardi recorder)

The highest instantaneous rate of rainfall was 93 mm./hr. on May 15. On 10 occasions during the year the rate recorded 50 mm./hr.

81 ABERDEEN: h_s (height of recorder above ground) = 20·7 m. 1938

DAY	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible
	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%
1	···	···	3·1	37	2·9	28	3·5	27	12·4	81	4·7	27	7·9	45	13·7	85	4·5	32	6·1	53	6·0	66	4·1	58
2	4·0	60	6·4	76	3·8	36	9·6	73	10·4	67	···	···	···	···	12·9	80	11·1	80	3·1	27	6·6	73	3·4	48
3	···	···	5·4	64	7·4	69	5·8	44	6·2	40	3·3	19	1·2	7	12·4	77	2·8	20	2·6	23	1·2	13	5·1	73
4	0·5	7	···	···	4·8	45	2·5	19	11·9	76	1·0	6	8·6	49	8·6	54	3·4	25	0·4	4	6·4	73	0·7	10
5	···	···	···	···	5·3	49	1·5	11	4·1	26	9·9	57	6·8	39	···	···	3·0	22	7·4	66	0·7	8	3·9	57
6	···	···	7·2	83	···	···	7·6	57	3·1	20	1·9	11	2·7	15	···	···	···	···	8·0	72	4·9	56	···	···
7	0·5	7	0·4	5	3·6	33	7·5	56	8·0	50	12·4	71	1·7	10	9·7	61	3·9	29	8·1	74	1·0	12	···	···
8	4·0	58	0·1	1	0·1	1	1·7	13	4·7	30	9·7	55	5·8	33	11·8	75	11·2	84	7·0	64	2·7	32	···	···
9	···	···	4·5	51	···	···	8·5	62	4·2	26	11·9	67	2·4	14	5·8	37	7·0	53	6·6	61	···	···	1·3	19
10	1·7	24	2·6	29	1·0	9	12·0	87	9·7	60	1·9	11	0·7	4	10·3	66	9·5	72	5·0	46	···	···	0·3	4
11	0·1	1	0·1	1	0·3	3	11·8	85	4·0	25	0·9	5	2·1	12	11·7	75	1·1	8	5·4	50	···	···	···	···
12	0·1	1	3·2	35	3·2	28	10·1	73	1·8	11	3·9	22	0·1	1	1·5	10	6·7	52	0·8	8	···	···	···	···
13	3·8	54	2·6	28	6·1	53	···	···	7·9	49	7·4	42	2·6	15	0·7	5	2·0	15	2·0	19	1·7	21	···	···
14	1·0	14	1·9	20	8·8	76	···	···	···	···	1·6	9	9·8	57	5·2	34	6·2	48	6·2	59	4·1	51	···	···
15	···	···	2·4	26	1·5	13	0·5	4	3·4	21	11·0	62	6·1	35	4·7	31	8·9	70	···	···	5·3	66	0·8	12
16	···	···	2·5	26	7·0	60	8·8	62	···	···	2·6	15	···	···	6·7	44	···	···	5·8	56	···	···	···	···
17	5·1	69	0·1	1	3·4	29	3·1	22	···	···	1·4	8	1·9	11	12·1	80	0·1	1	6·8	67	0·7	9	···	···
18	···	···	···	···	0·7	6	1·5	10	2·5	15	4·4	25	4·1	24	···	···	···	···	3·4	33	0·1	1	···	···
19	3·5	47	···	···	···	···	4·0	28	2·4	14	8·5	48	0·1	1	8·1	54	0·5	4	6·4	63	5·7	73	0·8	12
20	···	···	4·9	50	3·2	26	0·1	1	4·4	26	8·4	47	1·9	11	8·2	55	···	···	1·1	11	4·7	61	0·8	12
21	5·8	76	5·8	59	1·8	15	5·6	38	9·0	54	12·5	70	8·3	49	6·6	45	6·9	56	2·7	27	4·9	64	1·9	29
22	···	···	1·2	12	9·4	77	···	···	1·2	7	8·0	45	13·0	77	12·7	86	4·0	33	···	···	5·6	74	···	···
23	1·6	21	···	···	···	···	···	···	···	···	9·8	55	3·2	19	3·6	25	0·3	2	···	···	···	···	···	···
24	6·0	77	···	···	1·0	8	5·4	36	5·2	31	3·6	20	0·1	1	0·4	3	0·4	3	0·1	1	3·4	45	0·3	5
25	4·6	58	···	···	4·8	38	0·4	3	8·3	49	4·2	24	12·8	77	0·8	6	6·7	56	0·6	6	0·6	8	···	···
26	1·9	24	0·1	1	6·7	53	0·9	6	0·7	4	1·8	10	8·1	49	10·2	71	6·7	56	2·0	21	1·1	15	0·9	14
27	4·1	51	6·5	63	8·2	65	0·6	4	4·5	26	0·9	5	12·3	74	0·7	5	0·1	1	3·0	32	···	···	3·0	45
28	2·3	28	1·0	10	0·8	6	4·2	28	···	···	7·2	40	3·5	21	5·9	42	···	···	···	···	3·4	47	···	···
29	3·8	47			1·3	10	1·6	10	2·4	14	1·6	9	2·5	15	4·9	35	1·9	16	4·0	43	2·0	28	2·0	30
30	5·8	71			3·8	29	2·2	14	9·5	55	5·6	31	1·6	10	3·3	23	5·8	50	4·9	53	1·5	21	4·4	67
31	4·2	51			2·6	20			4·9	28			8·5	52	5·4	39			0·4	4			3·7	56
Mean	2·08	-	2·21	-	3·34	-	4·03	-	4·74	-	5·40	-	4·53	-	6·41	-	3·82	-	3·55	-	2·48	-	1·21	-
											Annual mean	3·66	-										

DURATION OF BRIGHT SUNSHINE

Monthly and annual totals between exact hours Local Apparent Time

82 ABERDEEN: h_s = 20·7 m. 1938

	Hour L.A.T. 3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	Total	Per cent. of possible
	hours																			%
Jan.	-	-	-	-	···	1·5	9·1	11·7	13·6	11·9	10·5	5·5	0·6	···	-	-	-	-	64·4	28
Feb.	-	-	-	···	0·5	3·4	7·5	9·6	10·2	9·4	7·9	7·3	5·7	0·5	···	-	-	-	62·0	24
Mar.	-	-	···	0·9	4·7	7·1	7·5	10·7	13·8	15·4	14·4	13·8	11·0	3·7	0·5	···	-	-	103·5	28
Apr.	-	···	1·5	7·3	9·3	10·8	10·4	11·6	11·7	11·9	11·9	11·6	8·2	7·8	5·9	1·1	···	-	121·0	28
May	···	2·2	7·0	9·1	9·7	10·2	9·7	10·6	11·6	12·4	11·5	11·9	11·6	11·5	7·6	7·8	2·4	···	146·8	29
June	···	4·5	9·1	9·6	12·5	12·8	12·9	10·8	12·2	13·0	11·6	10·4	11·7	9·6	9·6	7·3	4·4	···	162·0	31
July	···	1·6	5·8	8·7	11·2	11·0	13·0	10·0	9·2	10·7	10·7	10·0	10·0	8·7	8·8	8·1	2·9	···	140·4	26
Aug.	···	1·3	6·4	10·4	14·1	15·4	15·8	13·8	17·4	17·6	16·3	15·5	15·0	15·6	13·4	9·4	1·2	···	198·6	42
Sept.	-	-	0·4	4·2	10·2	13·4	13·4	13·2	12·6	11·8	9·6	8·6	7·6	6·2	3·4	0·1	-	-	114·7	30
Oct.	-	-	-	0·1	4·4	8·3	12·8	13·1	13·1	14·4	16·2	14·2	9·2	4·1	···	-	-	-	109·9	34
Nov.	-	-	-	-	···	2·1	10·5	15·0	12·5	13·2	9·8	8·7	2·4	0·1	-	-	-	-	74·3	31
Dec.	-	-	-	-	-	···	3·1	6·4	8·0	9·1	6·6	4·2	···	-	-	-	-	-	37·4	18
Annual	···	9·6	30·2	50·3	76·6	96·0	125·7	136·5	145·9	150·8	137·0	121·7	93·0	67·8	49·2	33·8	10·9	···	1335·0	30

WIND

Mean speed and highest instantaneous speed recorded each day (0h. to 24h. Greenwich Mean Time) by the pressure-tube anemograph

83 **ABERDEEN:** H_a(height of anemograph above M.S.L.) = height of ground above M.S.L. + h_a(height of anemograph above ground) = 24 m. + 13 m. 1938

DAY	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust
	metres per second																							
1	3·9	9	9·1	24	6·2	24	2·5	11	2·0	7	2·7	10	1·7	10	3·8	14	1·6	8	1·4	7	5·9	25	2·7	13
2	4·0	10	7·0	23	6·1	24	7·5	25	3·6	11	6·2	18	1·4	6	2·2	9	2·7	8	3·7	15	4·4	14	2·9	11
3	2·5	9	5·0	17	6·7	22	8·6	27	2·5	8	4·9	14	1·4	11	1·9	7	1·7	9	5·6	25	2·5	12	2·1	11
4	4·1	11	5·6	17	5·3	20	5·1	16	2·2	8	2·8	12	1·9	11	1·3	5	2·4	11	6·3	25	3·1	17	4·6	23
5	2·5	10	4·1	16	4·6	18	3·6	14	2·1	7	3·3	16	1·9	7	1·7	12	2·5	10	2·2	11	2·1	11	2·0	11
6	3·3	11	2·4	8	1·7	7	6·6	20	4·7	18	6·2	21	1·8	10	0·6	4	3·1	9	2·1	15	4·2	13	4·2	14
7	2·3	8	4·3	14	1·7	8	7·5	25	6·1	19	6·1	21	2·0	10	1·1	5	3·6	11	5·9	25	4·1	17	5·8	21
8	2·3	12	4·3	14	3·0	16	4·8	13	3·9	15	4·5	17	2·3	11	1·4	8	4·7	14	3·2	15	2·7	9	3·5	16
9	8·4	21	3·9	17	3·3	15	2·3	8	4·9	15	2·9	17	7·5	21	1·0	5	2·4	10	4·3	18	3·8	12	3·8	18
10	3·1	(17)	7·6	25	2·0	9	3·4	13	3·9	11	3·0	11	2·6	10	0·7	5	1·3	7	3·6	15	3·9	15	1·5	12
11	3·1	12	5·1	21	0·8	5	1·9	5	4·8	16	2·8	10	2·1	9	0·8	5	1·5	9	2·7	13	5·7	17	4·5	12
12	3·5	15	10·7	28	1·9	10	3·0	9	4·3	14	1·8	10	2·3	9	1·6	10	6·0	19	3·1	13	6·3	19	5·5	16
13	7·3	25	5·2	17	2·5	10	4·4	11	4·9	17	3·6	15	3·3	14	1·9	7	3·2	16	4·4	23	4·3	16	6·3	19
14	6·3	18	1·9	8	4·4	16	3·9	10	4·6	13	3·7	16	4·2	13	2·1	6	2·4	10	4·	18	3·0	13	5·0	16
15	6·8	31	2·0	7	6·2	21	2·5	9	2·3	13	6·0	19	0·8	6	2·2	13	3·2	11	3·	13	1·0	7	6·5	22
16	3·3	12	3·2	9	7·2	25	6·5	19	3·6	12	2·9	13	2·9	11	4·4	(15)	3·0	13	4·9	17	4·1	14	9·2	25
17	5·1	15	2·5	9	6·0	19	5·5	19	2·7	7	2·3	7	1·5	7	8·5	24	3·4	13	3·7	15	4·1	15	9·5	23
18	5·5	19	2·2	8	4·9	16	5·8	15	4·1	15	2·8	11	3·0	9	2·6	13	2·8	11	1·5	7	5·5	21	9·6	25
19	4·4	17	2·9	9	3·9	15	5·0	15	5·8	17	4·2	20	0·8	8	3·3	16	1·9	7	2·6	12	5·6	17	3·8	19
20	5·6	28	2·0	7	4·2	17	2·1	7	2·2	7	4·3	16	1·4	9	4·3	16	2·6	11	3·4	14	3·2	12	2·3	14
21	6·3	21	2·1	9	1·9	7	2·7	12	5·3	17	5·9	23	2·0	8	2·2	9	1·7	10	4·5	13	2·2	8	3·9	9
22	5·8	21	2·8	11	3·3	15	3·7	12	1·7	9	3·5	14	3·6	13	2·3	8	4·9	15	5·1	17	0·9	7	4·6	12
23	3·9	19	1·6	9	4·7	13	3·1	10	3·5	12	3·0	9	1·8	9	4·9	17	4·4	15	2·9	12	5·9	23	2·9	11
24	7·2	24	4·3	13	5·3	17	3·1	12	6·7	19	2·3	12	2·3	10	3·6	15	2·6	9	3·8	13	4·2	20	1·0	5
25	7·3	27	5·0	17	5·8	23	3·0	11	3·6	11	4·1	13	3·3	12	1·1	7	1·9	10	1·5	8	3·2	15	3·2	15
26	4·8	16	5·3	16	5·9	21	2·0	7	4·6	15	2·3	9	2·4	13	2·0	8	0·8	5	3·3	20	3·4	14	1·9	14
27	5·0	13	5·9	19	6·6	22	1·9	9	3·9	13	5·3	21	4·1	13	1·3	14	1·2	6	4·6	17	4·0	20	7·6	21
28	6·3	27	6·8	24	3·6	13	4·1	12	4·3	11	5·8	21	3·5	13	1·6	8	1·6	7	1·4	7	5·6	19	2·3	9
29	8·9	25			3·3	15	5·5	17	2·4	9	4·2	17	5·2	17	2·7	9	2·7	13	4·0	18	6·2	19	3·2	15
30	5·6	18			4·8	20	3·9	13	1·8	9	2·1	11	3·7	14	2·1	6	1·5	7	3·3	16	5·7	23	3·7	16
31	6·3	22			4·8	20			3·6	13			3·7	13	1·7	8			4·0	23			2·4	10

WIND

Monthly and annual means of mean wind speed between exact hours Greenwich Mean Time

84 **ABERDEEN:** H_a = 24 m. + 13 m. 1938

	Hour G.M.T. 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
	metres per second																								
Jan.	4·7	4·6	5·2	5·4	5·3	4·8	4·7	4·4	4·5	5·0	5·4	5·5	5·3	5·4	5·4	4·8	4·7	4·6	4·6	4·8	5·0	5·3	5·5	4·8	5·0
Feb.	4·4	4·4	4·3	4·5	4·7	4·8	4·8	4·5	4·2	4·6	4·5	5·1	5·1	5·1	4·7	4·5	3·8	3·8	4·1	4·1	4·2	4·1	4·3	4·1	4·5
Mar.	3·5	3·3	3·6	3·2	3·4	3·4	3·1	3·4	4·2	4·4	5·1	5·7	6·0	5·9	6·1	5·9	5·4	4·6	4·4	4·0	4·1	3·5	3·2	3·3	4·3
Apr.	3·2	3·4	3·7	3·6	3·6	3·5	3·9	4·2	4·9	5·2	5·3	5·6	5·4	5·1	5·1	5·0	5·0	4·5	4·0	3·5	3·1	3·2	3·3	3·2	4·2
May	3·0	3·0	2·9	3·1	3·0	3·1	3·5	3·9	4·2	4·1	4·3	4·5	4·8	4·7	4·8	4·7	4·5	4·1	4·0	3·6	3·2	3·3	3·0	2·9	3·8
June	2·5	2·6	2·8	2·9	3·1	3·4	3·6	4·3	4·7	4·7	5·1	5·2	5·2	5·4	5·2	5·0	4·6	4·4	4·0	3·3	3·0	2·6	2·4	2·3	3·8
July	1·6	1·8	2·0	2·0	2·0	1·9	2·1	2·6	2·9	3·2	3·6	3·6	3·8	3·9	3·9	3·7	3·4	3·0	2·7	2·5	2·1	2·1	1·8	1·5	2·7
Aug.	1·6	1·6	1·8	1·8	1·9	1·8	1·9	2·1	2·6	2·7	2·9	3·0	3·4	3·4	3·4	3·3	3·3	3·0	2·3	2·0	1·8	1·8	1·7	1·6	2·4
Sept.	2·1	2·1	2·2	2·1	2·5	2·6	2·6	2·6	3·1	3·5	3·6	3·7	3·7	3·4	3·1	3·1	2·8	2·4	2·1	1·9	1·9	2·0	2·1	2·2	2·6
Oct.	2·8	2·8	3·0	3·1	2·5	2·4	2·4	2·7	3·1	3·6	4·2	4·5	4·7	4·8	4·8	4·4	3·9	3·7	3·9	3·9	3·9	3·6	3·5	3·2	3·6
Nov.	4·1	4·1	4·3	4·0	3·6	3·5	3·6	3·6	4·2	4·3	4·3	4·4	4·7	4·7	4·3	4·1	3·7	3·6	3·7	3·9	3·9	3·7	4·0	3·8	4·0
Dec.	3·9	4·0	3·9	4·0	4·2	4·1	4·1	4·4	4·2	4·1	4·4	4·9	4·8	4·9	4·7	4·6	4·4	4·4	4·3	4·2	4·1	3·9	3·9	3·9	4·3
Annual	3·1	3·1	3·3	3·3	3·3	3·3	3·3	3·5	3·9	4·1	4·4	4·6	4·7	4·7	4·6	4·4	4·1	3·9	3·7	3·5	3·4	3·3	3·2	3·1	3·7

DISTRIBUTION OF WIND SPEED, EXTREME VELOCITIES AS RECORDED BY PRESSURE-TUBE ANEMOGRAPH

85 **ABERDEEN:** H_a = 24 m. + 13 m. 1938

	DISTRIBUTION OF WIND SPEED								EXTREME VELOCITIES				
	More than 17·1 m./sec.		10·8 to 17·1 m./sec.		5·5 to 10·7 m./sec.	1·6 to 5·4 m./sec.	Less than 1·6 m./sec.	No record	Highest hourly wind			Highest gust	
	Dates of occurrence	Duration	No. of days	Duration	Duration	Duration	Duration	Duration	Veer from N.	Speed	Hour ended	Speed	Date
		hr.		hr.	hr.	hr.	hr.	hr.	°	m./sec.	day h.	m./sec.	day h. m.
Jan.	-	0	4	12	290	391	51	0	300	15	15 21	31	15 21 0
Feb.	-	0	2	13	186	402	71	0	340	15	12 12	28	12 6 55
Mar.	-	0	4	9	231	393	111	0	320	13	27 13	25	16 13 45
Apr.	-	0	4	10	182	444	84	0	320	13	3 6	27	3 13 45
May	-	0	0	0	149	518	77	0	330	9	6 15	19	24 11 50
June	-	0	1	2	158	440	120	0	310	11	28 6	23	21 13 45
July	-	0	1	2	63	447	232	0	320	11	9 11	21	9 14 15
Aug.	-	0	1	6	51	391	296	0	310	12	17 10	24	17 12 50
Sept.	-	0	0	0	53	438	229	0	290	9	12 14	19	12 15 50
Oct.	-	0	4	8	132	470	134	0	290	13	4 15	25	4 14 15
Nov.	-	0	3	9	185	410	116	0	310	12	23 21	25	1 1 40
Dec.	-	0	4	12	212	385	135	0	170	13	18 3	25	16 7 40
Year	-	0	28	83	1892	5129	1656	0	300	15	Jan. 15 21	31	Jan. 15 21 0

86 ABERDEEN 1938

DAY	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.
	degrees Absolute																							
1	76·0	77·4	75·6	77·2	77·9	77·2	81·0	79·3	81·0	80·7	83·8	82·0	85·7	84·3	88·6	86·2	86·1	86·8	85·6	85·7	81·3	83·1	78·0	80·4
2	76·2	77·4	75·9	77·2	77·7	77·5	81·1	79·7	81·4	80·7	84·0	82·1	86·2	84·4	88·5	86·4	85·8	86·7	85·6	85·6	80·7	83·0	77·6	80·4
3	76·4	77·4	75·9	77·1	78·0	77·5	80·7	79·7	82·0	80·8	83·5	82·3	86·2	84·5	88·7	86·3	86·0	86·5	85·3	85·6	80·1	82·9	77·3	80·2
4	76·7	77·4	76·5	77·1	78·3	77·6	79·9	79·8	81·9	80·8	83·7	82·3	86·4	84·5	88·6	86·4	86·1	86·4	85·0	85·6	80·3	82·8	77·0	80·1
5	76·7	77·5	77·3	77·1	78·4	77·7	80·0	79·9	82·3	80·8	83·8	82·4	86·4	84·5	89·0	86·4	86·3	86·3	84·3	85·5	81·0	82·5	77·3	80·0
6	76·8	77·5	77·1	77·1	78·6	77·7	80·7	79·8	82·0	81·0	84·5	82·5	86·7	84·6	89·0	86·4	86·6	86·1	83·8	85·5	81·6	82·6	77·1	79·9
7	76·8	77·5	76·5	77·3	78·9	77·9	81·1	79·9	81·7	81·0	84·5	82·5	86·5	84·6	89·1	86·6	86·5	86·2	83·9	85·4	82·2	82·5	77·5	79·8
8	76·5	77·5	76·2	77·2	79·1	78·0	80·6	79·9	81·1	81·0	84·9	82·6	86·7	84·7	89·0	86·8	86·6	86·1	83·6	85·1	82·2	82·5	78·2	79·8
9	76·2	77·5	76·3	77·3	78·9	78·0	80·2	80·0	81·3	81·0	85·0	82·8	86·9	84·9	90·2	86·9	86·7	86·1	83·5	85·0	81·8	82·5	78·2	79·7
10	76·5	77·5	76·2	77·3	79·0	78·1	80·1	80·0	81·1	81·0	85·2	82·9	86·2	84·9	90·4	87·0	86·4	86·2	83·5	84·9	81·8	82·5	78·0	79·8
11	76·2	77·5	75·9	77·3	79·1	78·1	80·0	80·0	81·2	81·1	85·0	83·0	86·3	85·0	90·9	87·1	87·0	86·1	83·0	84·8	82·0	82·4	77·8	79·6
12	75·7	77·5	76·0	77·2	79·8	78·2	80·1	80·0	81·8	81·0	84·7	83·0	86·7	85·0	91·0	87·2	87·2	86·1	82·8	84·7	82·2	82·5	78·6	79·7
13	75·5	77·5	76·0	77·1	80·1	78·5	80·8	80·0	82·5	81·0	85·1	83·1	86·8	85·0	90·4	87·3	87·8	86·2	83·0	84·5	82·6	82·4	79·1	79·7
14	75·7	77·5	75·7	77·2	80·2	78·6	81·0	80·0	83·0	81·0	85·8	83·2	87·0	85·0	89·7	87·5	87·2	86·2	83·3	84·4	82·8	82·5	79·3	79·8
15	76·0	77·3	75·5	77·1	79·9	78·7	81·0	80·1	83·1	81·1	85·5	83·2	87·1	85·0	89·5	87·7	86·2	86·2	83·1	84·3	82·6	82·6	79·2	79·7
16	76·3	77·2	75·4	77·0	80·0	78·9	81·1	80·1	83·5	81·2	85·3	83·3	87·2	85·1	89·5	87·6	85·6	86·0	83·3	84·4	81·6	82·6	79·2	79·7
17	75·9	77·3	76·0	77·0	80·0	78·9	80·7	80·1	83·1	81·4	85·5	83·3	87·0	85·2	89·1	87·8	85·5	86·1	83·0	84·2	81·7	82·6	79·5	79·7
18	75·5	77·2	76·1	77·0	80·0	79·0	80·3	80·2	83·1	81·5	85·6	83·4	87·1	85·2	88·3	87·5	85·9	85·9	82·4	84·1	81·5	82·5	79·0	79·9
19	75·9	77·2	76·2	77·0	80·2	79·0	80·3	80·2	82·9	81·6	85·6	83·5	87·2	85·3	88·1	87·5	85·7	86·0	82·5	84·0	81·3	82·5	78·2	79·9
20	76·0	77·0	76·6	77·0	80·0	79·0	80·5	80·1	82·7	81·6	85·6	83·6	87·8	85·5	87·9	87·4	85·8	85·9	82·3	84·0	80·5	82·5	77·6	79·7
21	77·0	77·1	76·5	77·0	80·0	79·0	80·6	80·1	82·7	81·7	85·7	83·8	87·8	85·5	87·5	87·4	85·8	85·9	82·7	83·9	79·9	82·2	77·3	79·6
22	76·8	77·1	76·1	77·0	79·8	79·2	81·0	80·2	82·9	81·8	85·8	83·8	88·0	85·5	87·0	87·2	85·9	85·8	83·0	83·9	79·0	82·1	77·0	79·7
23	77·0	77·1	76·4	77·1	79·8	79·2	81·1	80·2	83·2	81·8	85·9	84·0	88·1	85·5	87·0	87·1	86·0	85·7	83·1	83·7	78·1	82·0	76·7	79·4
24	77·3	77·2	76·5	77·1	80·0	79·3	81·4	80·4	83·0	81·8	86·0	84·0	88·1	85·5	87·1	87·0	86·1	85·8	83·2	83·7	77·9	81·8	76·5	79·3
25	77·5	77·2	76·3	77·1	80·0	79·4	81·5	80·3	82·8	81·8	86·4	84·0	88·0	85·8	87·4	87·0	86·2	85·8	83·3	83·7	77·8	81·5	76·1	79·1
26	77·2	77·4	76·7	77·1	79·3	79·4	81·5	80·6	83·0	81·9	86·3	84·0	88·2	85·9	87·7	86·9	86·2	85·8	82·7	83·7	77·8	81·3	76·0	79·0
27	76·6	77·5	77·2	77·1	78·6	79·4	81·7	80·5	83·1	81·9	86·3	84·0	88·4	86·0	88·0	86·9	86·0	85·8	82·0	83·8	77·5	81·0	76·2	78·9
28	76·0	77·4	77·5	77·2	78·9	79·4	81·7	80·5	83·4	81·9	85·9	84·1	88·4	86·0	87·5	86·8	86·2	85·8	81·6	83·6	77·5	80·9	76·5	78·7
29	76·1	77·4			79·5	79·3	81·2	80·5	83·0	82·0	86·0	84·3	88·1	86·0	87·5	86·9	86·3	85·7	81·4	83·5	77·7	80·8	76·9	78·7
30	75·9	77·5			80·1	79·3	81·0	80·6	83·0	82·0	85·6	84·3	88·0	86·1	87·0	86·8	85·9	85·7	81·3	83·3	77·9	80·5	77·0	78·8
31	75·5	77·5			79·9	79·3			83·9	82·1			88·5	86·2	86·5	86·8			81·1	83·2			76·3	78·7
Mean	76·3	77·4	76·3	77·1	79·4	78·6	80·8	80·1	82·5	81·4	85·2	83·2	87·2	85·2	88·6	87·0	86·3	86·1	83·2	84·4	80·4	82·2	77·6	79·6
											Year		82·0	81·9										

MINIMUM TEMPERATURE "ON THE GRASS" DURING THE INTERVAL 18h. TO 7h. GREENWICH MEAN TIME

87 ABERDEEN 1938

DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
	degrees Absolute											
1	75·2	72·9	77·1	77·7	72·3	76·9	78·3	78·7	76·1	81·9	75·5	71·9
2	75·2	74·6	72·7	78·6	71·6	79·5	80·7	78·3	76·9	74·6	72·0	68·0
3	75·6	73·6	79·7	73·0	76·1	80·7	82·7	77·4	80·8	77·6	71·9	69·4
4	75·4	77·7	76·2	72·9	72·4	77·4	77·8	78·8	80·9	79·5	79·6	65·7
5	73·2	80·5	72·8	75·2	71·8	79·1	77·9	81·3	81·1	71·8	79·5	71·9
6	77·1	68·6	78·2	82·4	70·7	78·3	77·4	87·0	83·1	70·6	81·9	70·5
7	73·2	67·2	78·3	75·9	73·2	82·9	77·5	87·3	83·7	80·3	85·7	78·3
8	73·6	74·7	70·3	74·6	72·3	79·0	83·7	84·7	81·6	71·0	78·7	78·1
9	68·7	68·0	79·6	73·5	77·1	76·9	81·8	85·5	78·0	80·6	(77·4)	71·0
10	76·6	72·2	72·9	68·8	67·1	77·9	81·7	84·2	74·5	73·6	80·2	72·3
11	66·0	71·6	78·2	69·5	76·1	79·1	77·9	85·2	83·6	72·4	81·8	69·6
12	68·7	74·7	76·3	70·9	81·3	74·9	83·2	81·5	85·5	74·6	81·7	80·8
13	74·3	71·3	78·1	77·9	80·3	80·1	83·7	84·7	86·9	80·2	83·8	76·3
14	74·3	70·5	72·5	79·7	82·4	77·9	85·1	79·4	77·6	79·8	79·5	80·7
15	77·9	69·1	76·3	79·0	81·6	81·6	77·1	81·3	74·6	77·4	73·3	72·0
16	73·6	73·1	81·3	78·1	80·6	78·1	79·9	85·2	73·6	81·3	71·9	80·4
17	72·2	75·2	75·7	71·8	77·9	83·4	82·3	82·9	85·2	74·7	81·5	77·8
18	70·3	69·8	77·6	73·0	77·6	76·7	82·6	81·1	80·2	72·1	74·6	75·1
19	76·9	76·2	80·8	75·7	74·9	83·6	78·4	81·3	80·2	74·6	75·1	71·3
20	74·6	75·5	76·9	75·8	77·3	74·7	86·9	77·3	79·7	75·4	73·6	64·6
21	80·2	66·1	74·7	73·5	72·2	82·1	82·9	76·4	80·8	80·8	67·4	68·2
22	74·1	72·4	66·9	76·3	80·4	79·2	82·1	75·0	79·1	82·2	65·4	65·9
23	79·7	74·4	78·6	79·4	80·7	78·1	82·1	75·8	84·1	81·7	65·8	71·8
24	78·6	74·8	80·7	78·6	77·2	82·2	80·4	84·7	84·6	80·2	74·2	71·7
25	78·3	71·3	72·8	73·0	74·1	82·4	81·3	82·8	84·7	80·8	71·6	66·9
26	72·3	78·6	71·8	78·5	79·1	80·2	84·1	82·2	75·8	70·6	69·2	73·2
27	69·1	75·8	69·9	75·3	80·8	82·8	78·5	77·7	79·9	75·2	66·3	76·4
28	72·9	75·7	76·5	74·2	79·9	81·8	85·5	76·8	85·0	69·7	73·1	71·9
29	72·1		78·2	73·3	80·6	80·3	78·5	81·5	85·1	71·2	74·3	77·4
30	70·2		79·1	74·6	74·2	76·9	85·2	74·2	73·2	72·8	74·9	71·7
31	70·3		81·3		75·7		87·0	74·1		73·0		66·9
Mean	73·9	73·1	76·2	75·4	76·4	79·5	81·4	80·8	80·5	76·2	75·4	72·5
						Year	76·8					

The initial 2 or 3 of the readings is omitted, i.e. 275·0 degrees is printed 75·0.

The minimum "on the grass" refers to the interval from 18h. on the previous day to 7h. on the day to which it is entered.

Add 0·16° to obtain temperature in degrees Kelvin where T (°K.) = t (°C.) + 273·16.

M.O. 578

THE OBSERVATORIES' YEAR BOOK 1938

Comprising the meteorological and geophysical results obtained from autographic records and eye observations at the Lerwick, Aberdeen, Eskdalemuir, Valentia, and Kew observatories, and the results of soundings of the upper atmosphere by means of registering balloons

ESKDALEMUIR

Decimal Index
55.038(058)
551.506.1
551.594(058)

Obs. Yearb., 1938,
London, 1955

ESKDALEMUIR OBSERVATORY

Latitude	55°19′N.
Longitude	3°12′W.
G.M.T. of Local Mean Noon	12h.13m.

Heights of instruments	above M.S.L.	above ground
	m.	m.
Barometer	237·3	..
Thermometer bulbs	..	0·9
Rain-gauge	242·0	..
Beckley rain-gauge rim	..	0·4
Sunshine recorder	..	1·5
Pressure-tube anemograph	250	15

INTRODUCTION

Early in the twentieth century the increasing artificial magnetic disturbance at Kew Observatory, Richmond, due to the westward extension of the electric tramways from London, made desirable the establishment of a magnetic observatory in a locality unlikely to be affected, at least for a number of years, by any system of electric power or traction. A committee of the Royal Society of London selected a site in the parish of Eskdalemuir, Dumfriesshire, for the new Observatory. The nearest towns or industrial centres are Langholm and Lockerbie, distant approximately 26 and 29 Km. (16 and 18 miles) by road, and there is no point of railroad within 14 Km. (9 miles) of the Observatory. . Installation of the instrumental apparatus commenced in the summer of 1908, the Observatory at that time forming a part of the then recently established National Physical Laboratory.

Although the Observatory was established primarily in the interests of the study of terrestrial magnetism the field of geophysical work undertaken has been considerably wider, and has included, almost from the beginning, meteorology, atmospheric electricity (mainly atmospheric potential gradient) and seismology. In the earliest years Milne, Wiechert, Omori and Galitzin seismographs were in operation, but seismological observations ceased in October 1925, when the three-component installation of Galitzin seismographs was transferred to Kew Observatory. In 1910 Eskdalemuir passed from the control of the National Physical Laboratory to that of the Meteorological Office. In consequence of this change the meteorological work assumed increased importance, and from the beginning of 1914 the Observatory has served as a telegraphic reporting station of the Meteorological Office.

Summaries of the results of observations made in 1909-10 were published in the Report of the Observatory Department of the National Physical Laboratory 1909-10.

SITE

Eskdalemuir Observatory, some 5½ Km. (3½ miles) north-north-west of Eskdalemuir Parish Church, occupies a site of about 10 acres on a rising shoulder of moorland which is bounded on the east by the road leading north to Ettrick and Selkirk, on the west by the small Davington Burn, and at the southern extremity by the small hamlet of Davington.

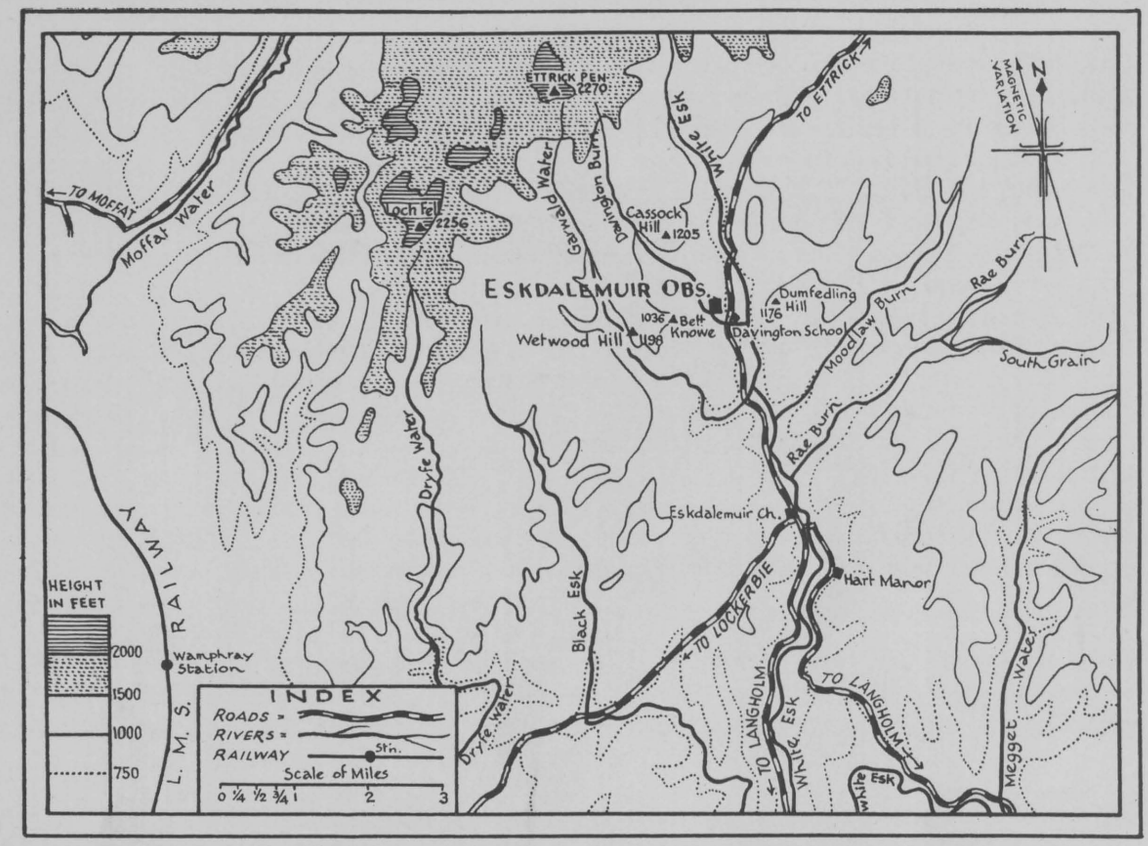

FIG. 11.—CONTOURED MAP SHOWING SURROUNDINGS OF ESKDALEMUIR OBSERVATORY.

FIG. 12—AERIAL VIEW FROM EAST-SOUTH-EAST, 500 FT., 1948

To face p. 85

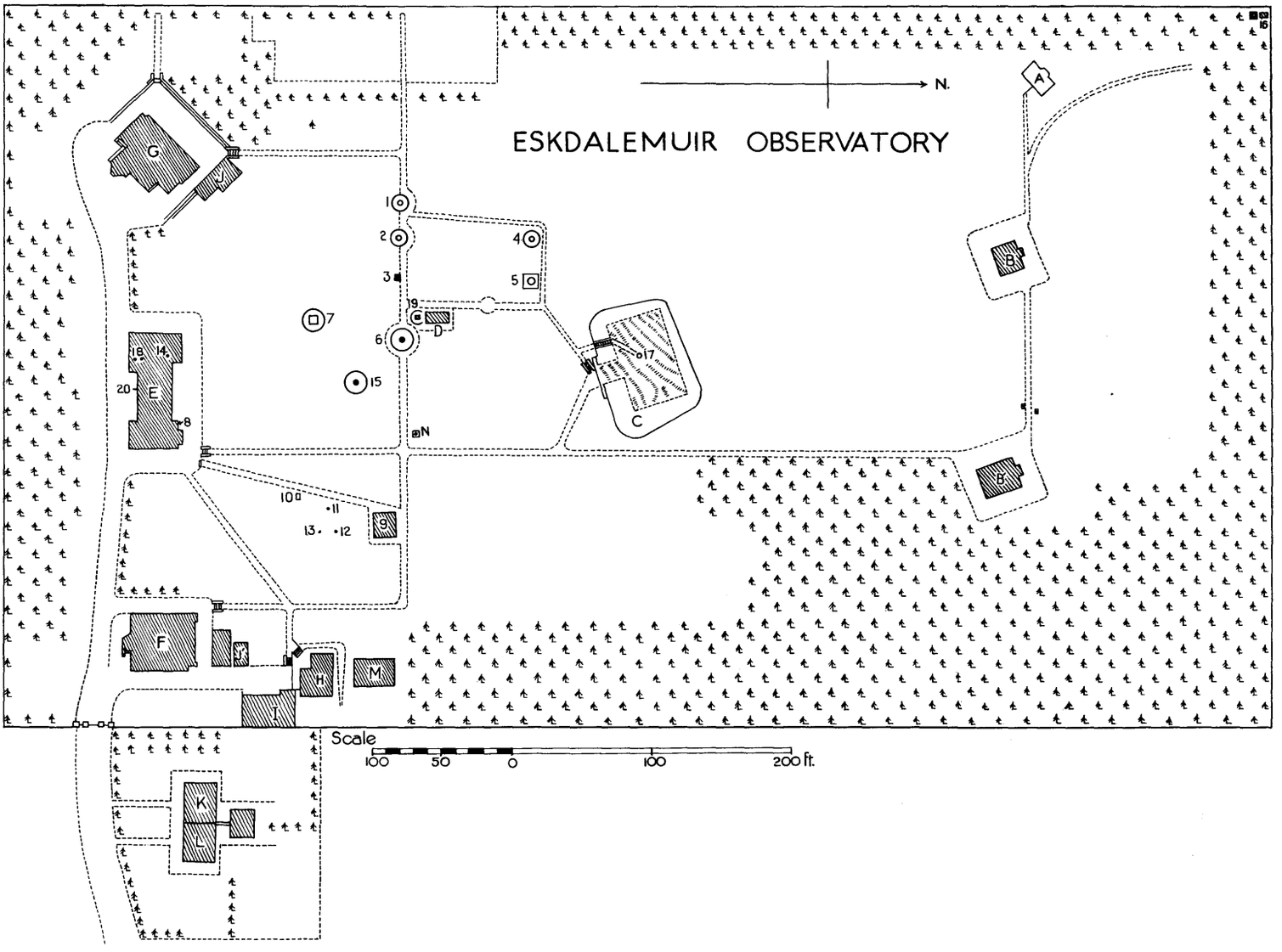

FIG. 13—SITE PLAN

A—WATER RESERVOIR
B, B'—HUTS FOR MAGNETIC OBSERVATIONS
C—UNDERGROUND MAGNETOGRAPH HOUSE
D—HOUSE FOR OZONE OBSERVATIONS
E—MAIN OBSERVATORY BUILDING
F, G—RESIDENCES
H—HANDYMAN'S COTTAGE
I—GARAGE BLOCK
J, J'—GARAGES
K, L—NEW RESIDENCES ERECTED 1927-28
M—WORKMEN'S BOTHY
N—FLAGSTAFF
1—METEOROLOGICAL OFFICE TILTING-SIPHON RAIN RECORDER
2, 3—STANDARD RAIN-GAUGES
4—HELLMAN FUESS SNOW-GAUGE
5—JARDI RATE-OF-RAINFALL RECORDER
6—THEODOLITE STAND
7—PIT FOR POTENTIAL GRADIENT OBSERVATIONS
8—ELECTROGRAPH
9—LOUVERED THERMOMETER HUT
10—STEVENSON SCREEN
11—GRASS MINIMUM THERMOMETER
12, 13—EARTH THERMOMETERS
14—METEOROLOGICAL OFFICE PRESSURE-TUBE ANEMOGRAPH
15—BESSON COMB NEPHOSCOPE
16—CLOUD SEARCHLIGHT
17—CAMPBELL STOKES SUNSHINE RECORDER
18—SOLARIMETERS
19—NIGHT-SKY RECORDER
20—ATMOSPHERIC POLLUTION RECORDER

The hillside in the immediate vicinity of the Observatory slopes generally from north-west to south-east. The mean height above sea level of the Observatory site is about 244 m. (800 ft.). Cassock Hill, about 2 Km. (slightly more than a mile) distant to the north-west, is 367 m. (1,205 ft.), while the bench mark at Davington School, 0·4 Km. (¼ mile) to the south-east, is 213 m. (699 ft.) above M.S.L. To the east the ground slopes fairly rapidly to the valley bottom, the level of the Ettrick road at a point about 0·4 Km. (¼ mile) east of the underground magnet house being 208 m. (682 ft.). The river White Esk is rather less than 0·8 Km. (½ mile) to the east. Immediately beyond the river, and almost due east of the Observatory, Dumfedling Hill rises to a height of nearly 366 m. (1,200 ft.) above M.S.L. Some 8 Km. (5 miles) to the north is a high ridge, following approximately the boundary between Dunfriesshire and Selkirkshire, the highest point of which is Ettrick Pen (north-north-west) 698 m. (2,269 ft.) above M.S.L. Rather more than 0·8 Km. (½ mile) to the west, and beyond Davington Burn, the ground rises to 317 m. (1,040 ft.), and reaches nearly 366 m. (1,200 ft.) 0·8 Km. (½ mile) further on. To the south and south-south-east the Observatory commands a view of the White Esk Valley as far as Hart Manor, 6½ Km. (4 miles) distant, and beyond that the upper slope of Cauldkine Hill, about 16 Km. (10 miles) distant, is visible. The surrounding country is mainly open grass-covered hills and moorland.

Within the Observatory grounds the surface soil is peaty, and in places is more or less boggy at all seasons. Some 0·6 m. (2 ft.) or less below the surface a clay-like formation containing soft rock is encountered. The local geological formation is described as "rock of the Tarannon Llandovery series traversed by igneous dykes".

The general features of the immediate surroundings and the lay-out of the buildings are shown in the accompanying photograph, plan and map. Owing to the delay which has occurred in the publication of this volume, the illustrations include some details which were erected after 1938. The aerial photograph was taken in November 1948. The site plan includes a hut (I) erected in 1940 for use in measurements of atmospheric ozone, and solarimeters (c) which were not brought into use until 1950. The underground magnetograph house (C) is constructed throughout of non-magnetic material. Within the outer shell of stone and concrete, and separated therefrom and from each other by corridors and vaultings, are two similar rooms of approximate internal dimensions:– length, 7·6 m. (25 ft.); width, 6·1 m. (20 ft.); height, 3·0 m. (10 ft.). The ceilings of the rooms are slightly below the undisturbed level of the surrounding ground. The roof portion of the outer containing shell is covered with a thick layer of earth which forms a mound.

METEOROLOGY

The elements dealt with in the following tables are:– atmospheric pressure, air temperature, humidity, rainfall, sunshine, wind, earth temperature and minimum night temperature on the grass. As mentioned in the General Introduction to this volume, the detailed monthly tables of hourly values of pressure, temperature, humidity, rainfall, sunshine and wind published until 1937 are not included. Tabular summaries of daily mean values (or totals), monthly means (or totals) of hourly values and certain maximum and minimum values are given. Hourly values of the elements mentioned are available in manuscript form. The diary of cloud, visibility and weather is also discontinued.

NOTES ON THE INSTRUMENTS

Brief descriptions of the recording instruments and of the methods of tabulating the records, with notes on the information contained in the tables, are given in the General Introduction to the tables. The following particulars, which refer especially to Eskdalemuir, are to be regarded as amplifying the information contained therein. References to full accounts of other instruments used at Eskdalemuir appear below.

Pressure.– The Fortin barometer, which, after repair, was re-introduced as standard in January 1933 and superseded the standard Kew-pattern barometer, was used throughout the year. The two barometers are close together in the north-west ground-floor room which has a small daily range of temperature. The photographic mercury barograph is situated in the east room of the underground magnet house. The daily range of temperature there is normally less than 0·05°C., the annual range being about 4°C. The scale value of the records is 0·85 mb. = 1 mm. on the paper and the time scale is 1 hr. = 9·2 mm. As in former years, daily records of pressure were also obtained from a Dines float barograph*, and weekly records from an aneroid barograph.

Temperature.– The photographic thermograph and the standard mercury thermometers, dry bulb and wet bulb, are situated in a wooden hut, provided with louvered sides and double roof, which is some 60 m. (200 ft.) north-north-east of the main building. The installation is similar to that described in the General Introduction, except that a special enclosure is provided inside the hut to accommodate the optical and photographic arrangements. The scale values of the thermograph records are 1°A. = 3·064 mm. and 2·438 mm. on the paper for the dry- and wet-bulb records respectively, while the time scale is 1 hr. = 9·2 mm. Auxiliary records of temperature are obtained from a weekly psychrograph of the bimetallic type. This instrument is situated in the hut which contains the photographic thermograph.

Humidity.– In addition to the dry- and wet-bulb thermographs described above there is a Richard hair hygrograph which is also situated in the louvered hut. As is stated in the General Introduction, the records from this instrument are utilized when the wet-bulb reading does not exceed 273°A. On the records obtained in 1938 a change of 10 per cent. in relative humidity is represented by about 0·8 cm., the time scale being 1 hr. = 11·4 mm.

Rainfall.– The chief autographic instrument is a Beckley self-registering rain-gauge, which is described in the General Introduction. The time scale of the record is 1 hr. = 9·2 mm. and the rain scale has a magnification of 3·35. The original instrument, which had been in use at Eskdalemuir since 1908 and was originally installed at Fort William in July 1890, has been replaced by one of later date. The conical part of the gauge funnel is surrounded by a cylindrical copper casing lined with asbestos on the inner side, and of diameter equal to that of the funnel, namely 11·27 in. (28·6 cm.). The gauge is now heated as occasion demands by means of an oil lamp, to melt snow which may be collected. The gauge is surrounded by a circular turf wall or dyke, the top of which is on a level with the rim of the gauge, the external and internal diameters of the dyke being 3·5 m. (11·5 ft.) and 2 m. (7 ft.) respectively.

A standard 8-in. (20·3-cm.) rain-gauge is situated some 7·5 m. (24·5 ft.) to the east of the Beckley gauge and is surrounded by a turf dyke of similar dimensions. Readings of amounts of rain received in the 8-in. gauge are made at 7h. and 18h. G.M.T. It is customary to adjust the indications of the recording gauge to agree with the readings of the standard check gauge.

Auxiliary autographic records of precipitation are obtained by means of a Hellman-Fuess snow-gauge which is situated in a pit 2·4 m. (8 ft.) wide and almost due north of the 8-in. standard gauge. The pit is surrounded by a low wall of earth and turf, the top of the wall being approximately level with the rim of the gauge. The records so obtained are used only in the event of failure or uncertainty of the Beckley autographic record. Records of the rate of rainfall are obtained by means of a Jardi rate-of-rainfall recorder situated in a pit similar to that containing the Hellman-Fuess snow-gauge and situated to the east of it. Until May 2, 1936 the rim of the gauge was approximately 0·8 m. (2·5 ft.) above the surrounding low wall of earth and turf, and subsequently 0·2 m. (0·5 ft.) above it.

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* Dines, L.H.G.; The Dines float barograph. *Quart. J.R. met. Soc., London*, **55**, 1929, p. 37.

Sunshine.– The record of sunshine is obtained from a Campbell-Stokes recorder. On April 2, 1936 the recorder, which is fixed on a stone pillar, was moved to the top of the underground chambers. It has a reasonably free exposure, the chief obstacles being hills to the east and west. The elevation of hills between 70° and 110° east of south varies from 2·5° to 5°, while between 50° and 135° west of south the high ground varies in elevation from 3° to 4·4°, being generally about 3·5°. As sunshine can be recorded when the sun is 3° above the horizon only in the most favourable circumstances, the loss of record occasioned by the neighbouring high ground is relatively small and is confined mainly to the beginning of the day during a few weeks centred about the equinoxes.

Wind.– A Meteorological Office pressure-tube anemograph, furnished with direction recorder, is situated in the main building. The head is 15 m. (50 ft.) above a tangent plane to the slope of the hillside and approximately 7 m. (23 ft.) above the general level of the roof of the building. In August 1933, the anemograph was replaced by one in which the suction and pressure effects are transmitted to the speed recorder by means of copper pipes of 2·5 cm. internal diameter, instead of by compo tube of 1·3 cm. internal diameter. Apart from the surrounding hills, the exposure of the head is free in all directions save to the west where at a distance of some 40 m. (130 ft.) is a rather large building, the height of which is somewhat greater than that of the main building. With winds from nearly due west the direction records show markedly greater turbulence than with other winds.

Earth temperature.– Readings have been made at 9h. G.M.T. of the earth temperature below the surface of the grass lawn a few yards south of the thermometer hut. The thermometers and the method of exposure are of the standard type described in the "Observer's handbook". The depths of the thermometer bulbs below the grass-covered surface of the ground are 30 cm. (1 ft.) and 122 cm. (4 ft.). In December 1930, two thermometers graduated in degrees Absolute were installed at 30 cm. and 122 cm. respectively alongside the thermometers graduated in degrees Fahrenheit, the latter being retained as spares. The Fahrenheit pair were replaced as standards by the Absolute pair at the beginning of 1931. Comparative readings are available up to April 1937.

Minimum temperature on the grass.– The thermometer used for readings of grass minimum temperature is of the spirit type with index, and when exposed, between 18h. and 7h. G.M.T., is supported at a height of 4 cm. (1½ in.) above close-cropped grass a few metres from the louvered thermometer hut.

IDENTIFICATION NUMBERS OF INSTRUMENTS IN USE IN 1938

The corrections which have been applied to the observations during 1938 are given below. In all cases the corrections are those given in the certificate of examination issued by the National Physical Laboratory.

Standard Fortin barometer	M.O. 1716/27	Corrections	880 mb. −0·10 mb. 910-1050 mb. −0·05 mb.
attached thermometer	No. 5592	Corrections	273°A. −0·1°A. 278-283°A. −0·2°A. 288°A. −0·4°A. 293°A. −0·3°A. 298-303°A. −0·2°A.
Standard dry-bulb thermometer ..	M.O. 19123	Corrections	263°A. +0·2°A. 268°A. +0·1°A. 273-283°A. 0·0°A. 288-303°A. −0·1°A.
Standard wet-bulb thermometer ..	M.O. 1695	Corrections	253-263°A. 0·0°A. 273°A. −0·1°A. 283-313°A. 0·0°A.

Maximum thermometer	M.O.50156/34	Corrections	12-72°F. −0·1°F. 92°F. −0·2°F. 112°F. −0·1°F.
Minimum thermometer*	M.O.60248/33	Corrections	2°F. −0·2°F. 12°F. 0·0°F. 32-92°F. −0·2°F.
Hair hygrograph	M.O.59		
Recording Beckley rain-gauge ..	M.O.4		
Jardi rate-of-rainfall recorder	M.O.1		
Control rain-gauge	M.O.336/30		
Glass for control rain-gauge ..	M.O.1732		
Campbell-Stokes sunshine recorder	M.O.99		
Meteorological Office pressure-tube anemograph	1019, 1081		
Grass minimum thermometer	M.O.7	Corrections	263°A. −0·2°A. 273°A. 0·0°A. 283°A. −0·1°A. 293°A. +0·1°A. 303°A. 0·0°A.
Earth thermometer 1 ft.	M.O.24009	Corrections	Nil
Earth thermometer 4 ft.	M.O.4	Corrections	260-310°A. +0·1°A.

NOTE ON THE REDUCTION OF BAROMETER READINGS

The Fortin barometer, M.O.1716/27 by Casella, London, has been used as the standard since January 1, 1929 except during the period July 14, 1931 to January 14, 1933 when it was under repair. Before this date, from December 16, 1913 and during the absence of the Fortin, a Kew-pattern barometer M.O.1320 by J. Hicks, London, was the standard instrument.

Reduction of pressure at station level.— The corrections for index error (including those for capacity and capillarity) as given in the National Physical Laboratory certificates are reproduced above. The corrections for temperature for the barometer are those given in the "International meteorological tables" for a Fortin barometer.

The corrections for the variation of gravity as obtained from the expression,

$$g = 980{\cdot}617\ (1-0{\cdot}00259\cos 2\varphi)\ (1-5h/4r)$$

where φ = latitude
h = height of station
r = earth's radius,

are as follows:—

at reading of	900	920	940	960	980	1000	1020	1040	mb.
	+0·78	+0·80	+0·81	+0·83	+0·85	+0·87	+0·88	+0·90	mb.

Reduction to mean sea level.— The correction to reduce pressure at station level to pressure at sea level is calculated according to the "International meteorological tables" with certain minor modifications which are set out in the *Observatories' Year Book, 1928*. In the same volume is given a copy of the table of corrections actually in use.

NOTES ON THE METEOROLOGICAL SUMMARIES

The extreme temperatures recorded during the year were 297·2°A. (75·6°F.) on August 11 and 264·8°A. (17·2°F.) on January 10. December 10 with a mean temperature of 269·0°A.

* No. 60409/35 from May 19, 1938.

(24·8°F.) was the coldest day of the year and August 10 with 291·2°A. (64·8°F.) was the hottest. There were four ice days, i.e. days with maximum temperature below 273°A.; these occurred from December 18 to 21.

The total rainfall for the year, 1977·3 mm. (77·85 in.), was appreciably above normal. Snow fell on 40 days.

The total duration of bright sunshine, 1145·5 hr., was near the normal.

The highest gust of wind during the year was 38·8 m./sec. (87 m.p.h.) recorded during a snowstorm on January 29; the highest hourly speed 20·8 m./sec. (47 m.p.h.) occurred on January 25.

The results of the harmonic analysis of the diurnal inequalities of pressure are set out in the accompanying table. For purposes of comparison the corresponding data* derived from the mean inequalities for the period 1911-1920 are also given.

HARMONIC COEFFICIENTS OF THE DIURNAL INEQUALITY OF ATMOSPHERIC PRESSURE
ESKDALEMUIR, LONGITUDE 3°12′W.

Values of c_n, α_n in the series $\Sigma c_n \sin(15nt + \alpha_n)$, t being local mean time reckoned in hours from midnight

	c_1		α_1		c_2		α_2		c_3		α_3		c_4		α_4	
	1938	1911-20	1938	1911-20	1938	1911-20	1938	1911-20	1938	1911-20	1938	1911-20	1938	1911-20	1938	1911-20
	mb.	mb.	°	°	mb.	mb.	°	°	mb.	mb.	°	°	mb.	mb.	°	°
January	0·90	0·09	187	346	0·15	0·23	128	152	0·06	0·13	30	345	0·09	0·05	217	214
February	0·13	0·12	148	215	0·35	0·27	148	138	0·09	0·08	356	341	0·04	0·04	63	68
March	0·13	0·13	111	185	0·32	0·30	146	145	0·03	0·05	328	335	0·06	0·05	334	25
April	0·15	0·21	352	92	0·38	0·30	153	155	0·06	0·02	145	156	0·04	0·05	336	356
May	0·12	0·23	97	53	0·27	0·27	150	147	0·09	0·07	158	160	0·05	0·03	316	330
June	0·42	0·15	240	54	0·16	0·23	134	146	0·11	0·08	167	161	0·02	0·02	336	326
July	0·19	0·17	166	69	0·20	0·21	151	141	0·08	0·08	155	156	0·04	0·02	315	300
August	0·09	0·11	315	115	0·27	0·24	161	148	0·08	0·06	188	157	0·07	0·05	315	331
September	0·12	0·12	196	88	0·27	0·31	158	152	0·00	0·01	256	111	0·05	0·05	330	345
October	0·78	0·11	215	76	0·32	0·31	151	159	0·10	0·06	53	8	0·06	0·04	303	33
November	0·21	0·13	142	183	0·27	0·24	154	168	0·10	0·10	27	9	0·03	0·01	154	146
December	0·08	0·14	92	97	0·23	0·21	171	147	0·16	0·12	11	4	0·07	0·07	231	213
Arithmetic mean	0·28	0·14			0·26	0·26			0·08	0·07			0·05	0·04		
Year	0·19	0·09	193	91	0·26	0·26	151	150	0·02	0·02	77	42	0·03	0·02	299	342
Winter	0·30	0·04	172	165	0·24	0·24	152	151	0·10	0·11	15	355	0·04	0·02	206	189
Equinox	0·19	0·11	211	104	0·32	0·31	152	153	0·03	0·02	66	4	0·05	0·04	325	9
Summer	0·11	0·15	216	67	0·23	0·24	151	146	0·09	0·07	166	159	0·04	0·03	318	324

"Winter" comprises the four months January, February, November, December; "Equinox" the months March, April, September, October; and "Summer" May to August.

ATMOSPHERIC ELECTRICITY

NOTES ON THE INSTRUMENTS

Photographic records of atmospheric electrical potential gradient have been obtained by means of an electrograph in which, since February 1, 1936, a polonium collector has been used, the potential being registered by a Dolezalek quadrant electrometer. The collector is screwed to a boom projecting through a pipe in the north wall of the main building about 122 cm. (4 ft.) above the position of the water-dropper previously in use.

* Mitchell, A. Crichton; On the diurnal variation of atmospheric pressure at Eskdalemuir and Castle O'er, Dumfries-shire. *Quart. J.R. met. Soc., London*, 50, 1924, p. 127.

The boom is supported on sulphur insulators in a box inside the building. When making scale tests the collector is screwed off the boom; otherwise in all essential details the electrograph arrangements, the method of making scale tests and the method of reducing the curve readings to potential gradient in the open are as described in the *Observatories' Year Book, 1928*, p. 160. Insulation tests are made each day, using an eye-reading method. The system is charged and the fall in potential during a two-minute interval is measured by noting the change in position of the spot of light on a scale placed in front of the recording drum. The insulation gave trouble from time to time during the year.

The scale value of the record remained at about 2·0 v./m./mm. throughout the year. The number of determinations of the reduction factor (i.e. the ratio of the potential at 1 m. above the ground in the open to the potential at the collector) was about six a month, each determination being based on fifteen or more readings (at intervals of half a minute) of the potential in the open. The monthly reduction factors finally adopted were obtained by a smoothing process, the adopted value for a given month being $\frac{1}{4}(a + 2b + c)$ where a, b, c, are the unsmoothed monthly mean factors for the three successive months centred in the given month.

All determinations of scale value and reduction factor were obtained with the same Wulf quartz-thread electrometer (No.3040). This instrument was calibrated in April and September by means of a high-tension battery, the potentials of which were measured by a potentiometer and standard cell. The results obtained from these measurements were almost the same as those of the previous calibration in September 1937.

NOTES ON THE TABLES

As far as possible an electrical character figure is assigned to each day and values of potential gradient are tabulated for 2-3h., 8-9h., 14-15h. and 20-21h. G.M.T. of all days, while values for all hours are tabulated on days classified as 0a, 1a, or 2a. The character figures are given in Table 110. The significance of the symbols is as follows:–

0, denotes a day during which, midnight to midnight, no negative potential was recorded.

1, denotes the existence of negative potential at one or more times during the same period, but with a total duration of less than 3 hr.

2, denotes negative potential extending in the aggregate over 3 hr. or more during the same period.

a, denotes that within the 24 periods of 60 min. for which an estimate of the mean potential gradient has to be made in the process of tabulation there was in no case a range of potential gradient in the open exceeding 1,000 v./m.

b, denotes that a range of 1,000 v./m. or more was reached in 1 hr. at least but in fewer than 6 individual hours.

c, denotes that a range of 1,000 v./m. or more was reached in at least 6 individual hours.

In addition to the electrical character for each day, Table 110 contains the daily, monthly and annual values of duration (in hours and tenths) of negative potential gradient. On days of defective record when negative potential may have occurred dashes are entered. During periods of defective record the sign of the gradient has been assumed positive when no precipitation was observed. If precipitation was recorded for less than an hour during such defective periods an approximate value of the duration of negative potential for that hour has been assigned, and the total for the day given in brackets. When, during highly oscillatory gradients, there was uncertainty as to the times of change of sign, half the total duration of doubtful sign is accounted negative.

Table 107 contains the values of electrical potential gradient at 2-3h., 8-9h., 14-15h. and 20-21h. G.M.T.; the value for a given hour represents the mean for the period of 60 min. between exact hours, instead of centring at the exact hour as it did in years before 1932. Blanks indicate that the trace was in some way defective. If it is possible to assign an approximate value of the potential gradient on such days, this value is given in brackets. The reduction factors, used in converting the potential at the collector to potential gradient in volts per metre in the open, are also given. The mean values of potential gradient given at the foot of the columns in Table 107 are of two kinds, (a) the mean of all the positive values in the column and (b) the algebraic mean derived from the days on which all 4 hr. were represented. The mean values for the month, as derived from the (a) and (b) values respectively, are shown in the last line, and the means for the year are given at the foot of the December table. It is to be expected that the mean derived from the values at 2-3h., 8-9h., 14-15h., 20-21h., on a sufficiently large number of days, will approximate closely to the mean derived from all hourly values of all days.

In Table 108 are given, for 0a days, the mean diurnal inequalities for the months, seasons and year, the number of such days, the values of the non-cyclic change, and the corresponding mean values of potential gradient. The inequalities and the mean values, for the year and seasons, are the means of the inequalities and means respectively, for for the constituent months. Similar data for 1a and 2a days combined appear in Table 109. In these tables Winter denotes January, February, November, December; Equinox, March, April, September, October; and Summer, May to August.

TERRESTRIAL MAGNETISM

NOTES ON THE INSTRUMENTS

In December 1935 a la Cour magnetograph set of standard type was installed in the west chamber of the underground magnet house alongside the la Cour set of the quick-run type. The new set was adopted as the standard from January 1, 1936; the former standard magnetographs of Adie type situated in the east chamber (recording changes in H, D and V) were continued in operation as the auxiliary set.

The la Cour set consists of H, D and V variometers. The H and D magnets are about 1 cm. in length, and each is supported by a single quartz fibre.

A description of the H variometer is given in *Publikationer fra det Danske Meteorologiske Institut, Communications Magnétiques*, No. 11 (le variomètre de Copenhague). The V magnet is larger; it is supported by knife edges resting on agates, and is enclosed in a sealed vessel. A description of this instrument is given in *Publikationer fra det Danske Meteorologiske Institut, Communications Magnétiques*, No. 8 (la balance de Godhavn).

The three elements are recorded on one sheet of photographic paper, with a single electric lamp as source of light. Time marks are made by a second lamp, the circuit of which is closed by a clock for about 2 sec. every 5 min. The width of paper allows 10 cm. for each element, but the effective width is increased by a number of small prisms which reflect light from the lamp into the variometers, producing a series of light-spots at intervals of slightly less than 10 cm.

Scale values of H and V are measured by passing a current through Helmholtz-Gaugain coils placed over the variometers, the resulting deflexions being recorded on the photographic paper. The scale value of H is about 4·1 γ/mm. and of V about 5·9 γ/mm. The scale value of D is computed from the distance between the mirror and the recording drum and is 0·94′/mm.

The diurnal range of temperature in the chambers of the magnet house is normally negligible. Temperature is ascertained daily at 10h. by the thermometers within the

instrument cases. The daily values for the west chamber appear in Tables 114, 118, etc.; the monthly means of the readings during 1938 were as follows:–

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
283·3	283·2	283·6	284·9	285·5	285·9	286·4	286·8	286·9	286·8	285·3	284·4

The annual range of temperature in the west chamber during 1938 was 4·0°C., the mean range for the 25 years 1911-35 in the east chamber being 4·3°C. Heating by electric radiators, thermostatically controlled, was introduced on November 27, 1936.

The constants of the la Cour magnetographs were as follows:–

	Horizontal force	Declination	Vertical force
Time scale – 1 hr. equivalent to	15 mm.	15 mm.	15 mm.
Time marks	Every 5 min. and the minute before and after the hour.		
Error of time mark	Not more than ± 30 sec.		
Angular equivalent of 1 mm. on paper, radians	0·00050	0·00054	0·00056
Temperature coefficient	Nil	Nil	Nil
Mean azimuth of magnet	76°	346°	346°
Scale values, γ/mm. on the paper	4·07	4·51 (0·94′)	5·89 (Jan.–Sept.) 5·90 (Oct.–Dec.)

A description of the auxiliary instruments in the east chamber is given in the *Observatories' Year Book, 1935*. The records are used only to fill in gaps in the standard records. Determinations of the scale value are made once a month.

Since November 1936 the illumination for the auxiliary set has been obtained from the public electricity supply through a small transformer. The illumination for the la Cour set is provided from the large storage battery formerly in use; this set can be maintained in operation even in the event of the break-down of the transmission lines which connect the Observatory to the public electricity supply.

The la Cour magnetograph of the quick-run type, recording H, D and V, installed in the west chamber of the underground magnet house in connexion with the second International Polar Year 1932-33, has continued in use since then. It gives a time scale of 3 mm./min.

The routine absolute observations of the magnetic elements are made in the east magnetic hut; as a rule two complete sets of observations are obtained every week, and determination of declination and horizontal force every week-day. Declination is determined by means of the Kew unifilar magnetometer (which was employed by Rucker and Thorpe in their magnetic surveys of the British Isles, 1886-1892) placed on Pier No. 5. Determinations of horizontal force are in general made daily with a Schuster-Smith Coil magnetometer placed on a pillar erected specially for it, and also about twice each month throughout the year with the Kew-pattern unifilar magnetometer mentioned above. From September 29 to December 5 the H observations were taken with a modified Smith Coil magnetometer, during the absence for overhaul and recalibration of the potentiometer belonging to the standard Schuster-Smith Coil. Inclination (dip) is measured by means of the Schulze inductor on Pier No. 6.

In determining declination four readings are taken, two with the magnet erect, two with the magnet inverted. A correction is applied to the mean of the observations for the observed torsion in the silk suspending fibre. The fixed mark is about 0·8 Km. (½ mile) distant from Pier No. 5, and its bearing is 8° 12′ 30″ west of south.

The procedure of determining horizontal intensity with the Kew magnetometer is outlined in the *Observatories' Year Book, 1936*. Though bi-monthly observations of horizontal force with this magnetometer have been continued, the standard from January 1, 1934 has been the Schuster-Smith Coil. This instrument was installed at the Observatory in February 1931, and a first series of comparative observations extended from October 1931 until June 1933 when the potentiometer was returned to the makers in order that certain alterations might be made. After recalibration at the National Physical Laboratory the potentiometer was returned to the Observatory and the coil was brought into daily use.

A complete description of the Schuster-Smith Coil and of the method of observing with it is given in the *Philosophical transactions of the Royal Society*, A, 223, 1922, p. 175. Essentially the instrument consists of a Helmholz-Gaugain system of two coils of wire accurately wound on a hollow marble cylinder, and a small magnet suspended at the centre of the coil system. Current from a 100-v. storage battery (kept solely for this purpose) can be passed through the coils and can be very accurately adjusted and measured by means of a potentiometer and a Weston cell. The basis of the method is that a horizontal magnetic field slightly greater than the earth's field and approximately opposed to it is set up through the coil. The coil is then rotated in azimuth until the resultant field, as indicated by the alignment of the small magnet at the centre, is found to be exactly at right angles to the earth's field. In this position if α is the angle between the direction of the earth's field and that set up by the coils, F the constant of the coil system (i.e. the field due to unit current through the coil) and I the current, then

$$H = FI \cos \alpha.$$

The replacement of the Elliott No. 60 Kew magnetometer by the Schuster-Smith Coil as standard involved a discontinuity of −14γ in H and correspondingly −38γ in V from January 1, 1934. This decrease in H has been established by a long series of intercomparisons between the old and new standards. Of the total amount of 14γ it has been estimated that 10γ is accounted for by departure of the monent of inertia of the magnet system of the Elliott magnetometer from the value as originally determined, and as used up to and including the year 1933 in the reduction of the results of absolute observations. When the most recent determinations of the moment of inertia are incorporated the values of H determined by the Elliott magnetometer are lowered by 10γ. If this change came in gradually throughout a period of about twenty-five years it would affect the calculated secular changes to the extent of less than ½γ a year. The remaining 4γ of fall between the Elliott determinations, corrected as described above, and the determinations made by the Schuster-Smith Coil is to be regarded as the net change arising from instrumental differences.

On the basis of a short series of observations made at Eskdalemuir in January 1933 by an officer from the Royal Observatory, Greenwich, using Kew magnetometer Casella No. 181 as a travelling standard, it was deduced that the Eskdalemuir Schuster-Smith Coil read about 5γ lower than the Abinger Coil; this means that the Elliott No. 60 determinations, corrected for the revised moment of inertia of magnet, apparently read only 1γ different from the Abinger Coil. These results are, however, subject to some uncertainty and it was decided that the Eskdalemuir Coil, without any correction, should be used from January 1, 1934 as the absolute standard for Eskdalemuir. Thus, as already indicated, changes of −14γ in H and −38γ in V must be kept in mind in comparing the published results for 1933 and earlier years with the results for 1934 and later years.

The Schulze inductor * consists essentially of a coil of insulated wire which can be rotated continuously and rapidly about an axis which coincides with a diameter of the

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* For description of, and discussion of method of observation with, earth inductors see papers by:-

Wild, H.; Induktions-Inklinatorium. *Met. Z., Wien*, 12, 1895, p. 41.

Venske, O.; Über die Genauigkeit von Inklinationsmessungen nebst anschliessenden Bemerkungen über Verbesserungen am Erdinduktor. *Ber. preuss. met. Inst. 1924, Berlin*, 1925, p. 91.

Dorsey, N.E.; The theory of the earth inductor as an inclinometer. *Terr. Magn. atmos. Elect., Baltimore*, 18, 1913, p. 1.

coil. This axis is capable of rotation about a horizontal and vertical axis. The inclination and azimuth of the coil axis are read off on a vertical and horizontal scale respectively. The windings of the coil are connected through a commutator to a Broca galvanometer. To determine magnetic inclination, the coil is set with its axis in the magnetic meridian, rotated steadily at the rate of about 360 rev./min. and the inclination of the axis of rotation adjusted until the galvanometer deflection is the same in magnitude and sign whether the sense of rotation is positive or negative. In this position the rotation axis of the coil coincides with the direction of the earth's field and the inclination to the horizontal may be read off from the vertical circle. Two series of settings are made, one with the vertical circle facing east, the other with the circle facing west.

The base-line values of the magnetograph records are deduced from the results of the absolute observations, any of the latter obtained during times of considerable disturbance being excluded.

In the case of horizontal force, H, and declination, D, the equivalent of the mean curve ordinate at the time of the absolute observation is subtracted from the result of the absolute observation to give the base-line value. In the case of vertical force, V, the value of H at the time of the absolute observation of inclination, I, is computed from the record of H variometer. The absolute value of V is H tan I, and from this the base-line value for V is determined. The values for H, D and V thus obtained are the "deduced" base-line values. The base-line values finally "adopted" are obtained from a curve drawn smoothly through points plotted from the "deduced" values, due allowance being made for discontinuities in the records. In 1938, about half the differences between the values deduced and the values adopted were within 2γ for H, 0·1′ for D and 6γ for V.

The hourly readings are obtained from the magnetograms by means of a ruled glass scale. The reading for any given hour (G.M.T.) is that ordinate estimated to be the mean reading for 60 min. between exact hours. The product of this ordinate and the scale value is added to the adopted base-line value, and the sum so obtained is the hourly value printed in the tables.

IDENTIFICATION NUMBERS OF INSTRUMENTS IN USE IN 1938

Unifilar magnetometer, Kew pattern (with collimator magnets, 60a and "no number", and mirror magnet, 60c)	Elliott, No.60
Schuster-Smith Coil magnetometer* (with Standard Cell No. L34635 and potentiometer No. L35968)	Cambridge Instrument Co., No.37629
Dip Inductor	Schulze, No.103.

NOTES ON THE TABLES

The hourly values of H, D and V, obtained as described above, appear in three of the four tables for each month. The mean value for the day is computed as the mean of the 24 hourly values. The letters q and d denote the 5 quiet and the 5 most disturbed days as selected at De Bilt.

In the fourth table for each month are given:–

(i) The values and times of the daily maximum and minimum and the values of the absolute daily range for each of the elements H, D and V.

* The modified Smith Coil magnetometer, No. L45434, with Potentiometer No. L45376, was in use from September 29 to December 5 (see p. 92).

(ii) The value of $HR_H + VR_V$ for each day, where R_H, R_V denote the absolute ranges in force for a calendar day of the horizontal and vertical components. (This measure of magnetic activity was adopted in 1932 by the International Commission for Terrestrial Magnetism and Atmospheric Electricity. In volumes of the *Observatories' Year Book* before that of 1932 the values of the quantity $R_N'^2+R_W'^2+R_V'^2$ were used).

(iii) The daily magnetic character figures, assigned according to the international scheme, wherein 0, 1, 2, respectively, denote quiet, moderately disturbed, and highly disturbed conditions.

(iv) The daily values of temperature in the underground magnetograph chamber.

Mean diurnal inequalities of the components N, W, V, H, D, and I on all days and on international quiet and disturbed days are given, for the months, seasons and year, in Tables 159 to 176. Before 1936 the non-cyclic change* was eliminated from the diurnal inequalities. The figures are now published without this correction. The inequalities of N, W, and I have been computed from those of H, D, and V, by means of the formulae:

$$\delta N = \cos D.\ \delta H - \frac{\pi}{180 \times 60} H \sin D.\ \delta D$$

$$\delta W = \sin D.\ \delta H + \frac{\pi}{180 \times 60} H \cos D.\ \delta D$$

$$\delta I = \frac{180 \times 60}{\pi} \cos I \left(\frac{\delta V \cos I - \delta H \sin I}{H} \right)$$

in which δD and δI are expressed in minutes of arc, and H, D, and I for any given month are the respective mean values for that month as published in Table 180. The ranges of the mean diurnal inequalities of the several elements on the three different types of day are brought together in Table 177, and the values of the non-cyclic change of H, D, and V are given as in former years in Table 178, though the inequalities, as stated above, are published without adjustment for non-cyclic change.

The results of harmonic analysis of the mean diurnal inequalities of N, W, and V for the months, seasons† and year are to be found in Tables 181 and 182, in which are given the values of a_n, b_n, c_n, and α_n, in the two equivalent series $\Sigma\ (a_n \cos 15nt^\circ + b_n \sin 15nt^\circ)$ and $\Sigma c_n \sin (15nt^\circ + \alpha_n)$. In the former series t is reckoned in hours from midnight G.M.T., whilst the published values of α_n refer to local mean time. The harmonic coefficients have been computed from the inequalities as given in Tables 159-176 but for this purpose the non-cyclic change has been eliminated. A correction has been applied where necessary, on account of the fact that the hourly values are not instantaneous but mean values; the factors by which the coefficients have to be multiplied (see Report of the British Association, 1883, p. 98) are 1·00286 for a_1, b_1, c_1; 1·01152 for a_2, b_2, c_2; 1·02617 for a_3, b_3, c_3; and 1·04720 for a_4, b_4, c_4. The values were obtained to 2 decimal places and finally were rounded off to 0·1γ.

The mean values of $HR_H + VR_V$ are summarized in Table 179.

In the years before 1934 Table 180 supplied for the separate months and year the mean values of N, W, V, T, D, I and H derived from all days. Since 1934 the table has

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* See General Introduction p. 10.

† The seasons are defined for this purpose as follows:- "Winter", January, February, November, December; "Equinox", March, April, September, October; "Summer", May to August.

included also the mean values of the primary elements H, D, and V on the internationally selected groups of quiet and disturbed days.

NOTES ON THE RESULTS

Comparing mean values on all days of 1938 with those for 1937 it is noted that H decreased by 2γ, D(west) decreased by 9·8′ and V increased by 33γ. The changes in the deduced quantities N, W, I and T are +8γ, −47γ, +0·9′, +30γ. If these changes are compared with those for previous years the discontinuities introduced on January 1, 1934 in H and V and the components derived from them must be kept in mind.

The ranges between the extreme values recorded during 1938 were H, 2007γ; D, 7°19′; V, 1548γ. The range of 7°19′ in declination is equivalent to a range of about 2110γ in the component of force perpendicular to the magnetic meridian.

Table I summarizes the magnetic character figures assigned locally, the international mean character figures and the mean values of the numerical index of disturbance $(HR_H + VR_V)10^{-4}$ for all, q and d days. Comparative totals and means are given for several earlier years.

TABLE I

	Magnetic character figures			Mean character figures		Mean value of $\frac{HR_H + VR_V}{10{,}000\gamma^2}$*		
	Number of 0 days	1 days	2 days	Eskdalemuir	International	All days	q days	d days
January	5	21	5	1·00	1·08	1002	179	4029
February	11	13	4	0·75	0·79	442	150	1175
March	16	10	5	0·65	0·65	486	215	1229
April	12	14	4	0·73	0·80	727	246	2437
May	12	12	7	0·84	0·76	790	261	2495
June	16	14	0	0·47	0·59	391	268	673
July	16	13	2	0·55	0·73	504	275	1224
August	19	7	5	0·55	0·73	534	229	1195
September	18	6	6	0·60	0·83	635	237	1963
October	16	11	4	0·61	0·81	527	181	1512
November	21	8	1	0·33	0·67	314	97	750
December	21	6	4	0·45	0·66	373	85	1144
Year								
1938	183	135	47	0·63	0·76	560	202	1652
1937	116	205	44	0·81	0·73	454	198	1137
1936	144	198	24	0·67	0·65	335	177	698
1935	130	212	23	0·71	0·67	298	150	624
1934	167	178	20	0·60	0·56	261	138	542
1933	156	175	34	0·67	0·64	300	135	658
1932	126	208	32	0·74	0·71	327	139	701
1931	137	208	20	0·68	0·66	345	185	679
1930	94	230	41	0·85	0·83	556	195	1246
1929	118	213	34	0·75	0·67	..	..	..
1928	96	246	24	0·80	0·63	..	..	..

* $\frac{NR_N + WR_W + VR_V}{10{,}000\gamma^2}$ in 1930 and 1931.

The values of mean absolute daily range for the months and seasons are brought together in Table II where for convenience of comparison the ranges of declination in angle have been converted to units of force of the component perpendicular to the magnetic meridian.

TABLE II – ABSOLUTE DAILY RANGE AND MEAN MONTHLY VALUES

	Mean absolute daily range						Mean daily range expressed as percentage of yearly mean					
	1938			Mean 1916–26			1938			Mean 1916–26		
	H	D	V	N	W	V	H	D	V	N	W	V
	γ	′	γ	γ	γ	γ	%	%	%	%	%	%
January	229	170	139	69	73	39	181	157	178	80	88	81
February	84	101	67	69	76	38	66	93	86	80	92	80
March	101	101	71	95	94	57	80	93	91	110	113	119
April	169	158	100	98	88	54	133	146	128	114	106	113
May	194	124	105	102	88	59	153	114	134	119	106	123
June	105	82	48	92	85	46	83	76	61	107	102	96
July	124	96	67	86	82	43	98	89	86	100	99	90
August	127	100	72	98	88	55	100	92	92	114	106	115
September	133	109	93	100	92	63	105	101	119	116	111	131
October	119	104	74	94	93	57	94	96	95	109	112	119
November	67	78	45	62	66	34	53	72	58	72	80	71
December	69	78	58	60	64	33	54	72	74	70	77	69
Winter	112	107	77	65	70	36	88	99	98	76	84	75
Equinox	131	118	85	97	92	58	103	109	109	113	111	121
Summer	137	101	73	95	86	51	108	93	93	110	104	106
Year	127	108	78	86	83	48	..	..	..	..	..	..

TABLE III – FREQUENCY DISTRIBUTION OF ABSOLUTE DAILY RANGE

Range	Number of cases, 1938			Percentage distribution					
				H	N	D	W	V	
	H	D	V	1938	1916–26	1938	1916–26	1938	1916–26
γ				%	%	%	%	%	%
0 – 9	0	0	5	0·0	0·0	0·0	0·0	1·4	6·3
10 – 19	0	1	44	0·0	1·7	0·3	0·9	12·1	20·2
20 – 29	9	5	72	2·5	4·9	1·4	4·5	19·7	24·8
30 – 39	11	13	61	3·0	7·8	3·6	7·5	16·7	14·3
40 – 49	20	21	36	5·5	9·9	5·8	10·6	9·9	8·1
50 – 59	25	26	30	6·8	12·2	7·1	12·0	8·2	4·8
60 – 69	46	37	17	12·6	12·9	10·1	13·1	4·7	4·2
70 – 79	43	59	9	11·8	10·3	16·2	12·4	2·5	3·1
80 – 89	42	44	14	11·5	8·1	12·1	8·6	3·8	2·3
90 – 99	32	36	4	8·8	6·5	9·9	7·5	1·1	2·1
100 – 109	17	23	8	4·7	5·3	6·3	4·7	2·2	1·1
110 – 119	17	18	6	4·7	4·0	4·9	3·5	1·6	1·2
120 – 129	19	9	8	5·2	3·5	2·5	2·7	2·2	0·8
130 – 139	11	11	4	3·0	2·6	3·0	2·2	1·1	0·8
140 – 149	9	10	0	2·5	1·7	2·7	2·2	0·0	0·3
150 – 159	7	9	1	1·9	1·3	2·5	1·2	0·3	0·7
160 – 169	4	7	2	1·1	1·2	1·9	0·9	0·5	0·5
170 – 179	4	5	3	1·1	0·8	1·4	1·0	0·8	0·4
180 – 189	3	7	4	0·8	0·6	1·9	0·7	1·1	0·5
190 – 199	4	2	2	1·1	0·5	0·5	0·6	0·5	0·3
200 +	42	22	35	11·5	4·4	6·0	3·1	9·6	3·1
Days omitted	0	0	0	..	..	..	..	..	..

The frequency distribution of absolute daily ranges recorded in 1938 is shown in Table III, which contains also the percentage distribution for 1938 and for the period 1916-26.

The average values of the diurnal inequality ranges for the year and seasons for the period 1916-26 (not the values of the range of the representative mean diurnal inequalities for this period) are given in Table IV, along with the 1938 values expressed as a percentage of the average values. The units employed are 1γ for force and 1′ for declination.

TABLE IV - AVERAGE RANGE OF DIURNAL INEQUALITY 1916-26, WITH 1938 VALUE AS PERCENTAGE

		All days					International quiet days					International disturbed days				
		N	W	V	H	D	N	W	V	H	D	N	W	V	H	D
Year	1916-26	36·6	38·7	21·9	35·6	8·26	33·7	37·5	12·0	33·4	8·10	46·1	54·4	64·5	47·5	11·28
	1938(%)	125	130	139	132	126	128	126	133	129	125	133	122	157	140	109
Winter	1916-26	22·1	27·7	15·9	18·3	6·31	18·4	19·7	5·0	15·3	4·48	31·5	51·1	53·9	28·9	10·82
	1938(%)	113	130	191	125	123	133	136	168	160	128	137	142	202	191	121
Equinox	1916-26	41·5	44·2	27·2	39·0	9·57	39·0	42·3	13·0	38·4	9·10	53·9	65·6	81·0	53·3	13·82
	1938(%)	127	131	133	132	129	137	133	132	137	137	129	119	161	137	111
Summer	1916-26	54·0	55·6	26·5	56·1	11·33	46·6	53·7	19·9	47·7	11·18	75·4	67·2	68·1	82·6	12·66
	1938(%)	123	122	131	124	122	117	118	124	117	119	131	116	118	132	116

Irregular changes in declination.– In connexion with the supply of declination data to mine surveyors it has been the practice to classify the hourly periods between the exact hours G.M.T. into four groups according to the range in declination within each period. The range limits, which were adopted in consulation with representative mine surveyors, are:– less than 5′, between 5′ and 15′, between 15′ and 30′, and greater than 30′. The range is less than 5′ in about 85 per cent. of the hourly periods. The actual frequencies of occurrence of hourly ranges in the last three of the four divisions mentioned are set out below. A range of 30′ is equivalent to a change of 144γ in the component of horizontal force perpendicular to the magnetic meridian.

Number of cases per month, 1938

Range interval	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
5 –15′	158	139	111	118	90	57	84	99	93	143	78	79	1249
15 –30′	43	17	15	11	14	2	10	10	17	19	12	12	182
> 30′	24	6	1	6	6	0	0	1	4	5	0	2	55

Hourly distribution, 1938
Hour (G.M.T.) ending at

Range interval	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5 – 15′	70	54	46	48	43	42	42	38	45	39	68	70	53	40	35	42	45	50	54	59	76	62	63	65
15 – 30′	10	6	8	9	6	8	7	6	3	5	1	4	1	4	4	10	12	12	8	11	10	15	13	9
> 30′	2	1	1	1	0	2	2	2	2	2	1	0	0	0	2	1	2	5	6	4	7	6	2	4

Principal disturbances.– Particulars of the principal magnetic disturbances recorded during the year are given in Table V. Corresponding information for the same disturbances is given in the Lerwick Section. The magnetograms for the most highly disturbed days are not reproduced in this volume, but photographic copies may be obtained on application to the Director, Meteorological Office, Air Ministry, Kingsway, London, W.C.2.

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DIURNAL VARIATION OF THE MAGNETIC ELEMENTS
ESKDALEMUIR 1938

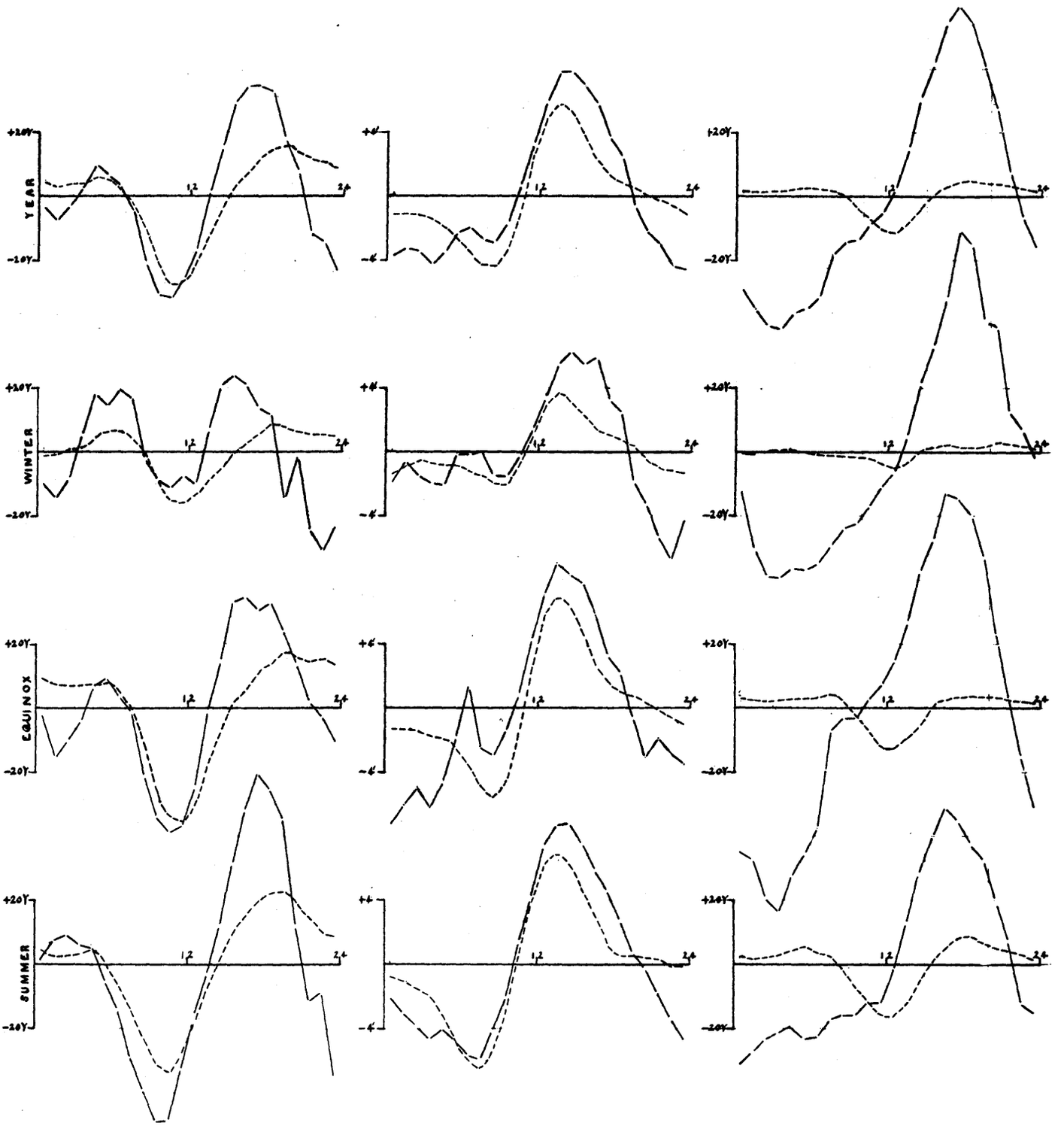
QUIET DAYS - - -

DISTURBED DAYS ——

HORIZONTAL FORCE

DECLINATION

VERTICAL FORCE



To face p. 99

VECTOR DIAGRAMS ILLUSTRATING DIURNAL VARIATION OF MAGNETIC FORCE

ESKDALEMUIR 1938

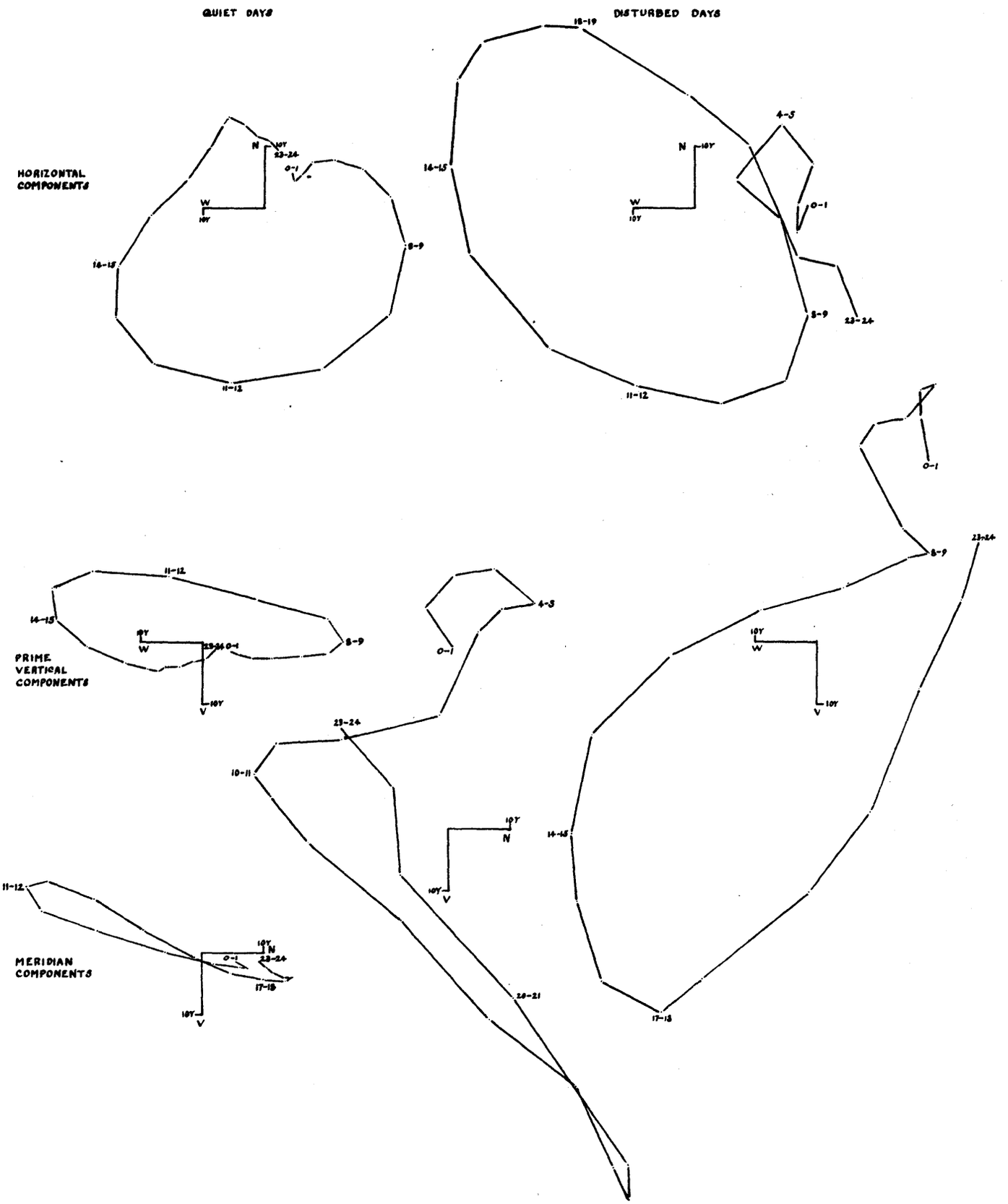


TABLE V - PRINCIPAL MAGNETIC DISTURBANCES RECORDED AT ESKDALEMUIR, 1938

No.	From	To	Horizontal force					Declination					Vertical force				
			Max.	Time	Min.	Time	Range	Max.	Time	Min.	Time	Range	Max.	Time	Min.	Time	Range
	d. h. m.	d. h.	γ	d. h. m.	γ	d. h. m.	γ	′	d. h. m.	′	d. h. m.	′	γ	d. h. m.	γ	d. h. m.	γ
1	Jan. 12 15	Jan. 13 22	580	12 22 34	425	13 3 25	155	41·2	12 8 15	2·2	13 0 7	39·0	1059	12 19 1	844	13 4 35	215
2*	Jan. 16 22 37	Jan. 19 23	1273	17 15 53	320	17 8 8	953	56·9	17 16 0	−8·5	17 21 48	65·4	1517	17 16 1	861	17 1 46	656
3	Jan. 20 5	Jan. 22 22	971	22 9 13	−134	22 8 56	1105	48·6	22 5 41	−36·6	22 9 32	85·2	1299	22 17 10	890	22 2 8	409
4*	Jan. 25 11 51	Jan. 26 20	1061	25 18 5	−175	25 22 42	1236	137·4	25 19 55	−46·9	25 22 16	184·3	1365	26 0 29	300	25 19 58	1065
5	Feb. 6 3	Feb. 11 9	627	8 17 58	395	8 22 3	232	51·2	8 18 1	−13·2	8 20 48	64·4	1291	8 18 8	842	10 4 10	449
6	Feb. 14 2	Feb. 14 23	554	14 6 12	399	14 12 15	155	33·6	14 13 40	4·1	14 18 3	29·5	1140	14 17 56	932	14 7 23	208
7	Mar. 5 7	Mar. 6 4	660	5 18 5	425	5 20 14	235	51·2	5 16 13	−3·1	5 20 4	54·3	1234	5 18 12	877	6 2 25	357
8	Mar. 21 11	Mar. 24 12	627	23 20 23	277	24 1 23	350	37·1	22 13 52 24 7 37	−14·5	24 2 20	51·6	1022	22 18 18 23 19 5	731	24 3 11	291
9	Mar. 25 18	Mar. 26 24	554	26 17 58	310	26 1 26	244	28·8	26 13 15	−4·8	26 1 9	33·6	1032	26 17 50	759	26 1 38	273
10	Apr. 13 8	Apr. 15 18	664	13 16 1	387	14 8 43	277	37·6	14 12 44	−4·5	14 4 35	42·1	1013	14 16 50	836	14 5 0	177
11*	Apr. 16 5 48	Apr. 19 24	1262	16 7 45	−410	16 6 12	1672	271·9	16 6 15	−113·5	16 7 50	385·4	1848	16 7 50	680	16 6 18	1168
12	May 3 15	May 6 20	728	4 15 29	449	5 10 16	279	37·1	4 15 37	−2·7	4 2 55	39·8	1082	4 15 55	879	4 2 43	203
13*	May 11 15 54	May 13 2	1045	11 17 57	−734	11 23 48	1779	56·2	11 17 59	−167·1	11 23 49	223·3	1312	11 23 48	673	11 22 4	639
14	May 14 2	May 17 24	607	14 14 24	347	14 23 33	260	38·7	14 13 28	−3·3	15 0 10	42·0	1062	14 14 53	812	15 0 25	250
15	May 28 4	May 30 15	702	29 16 5	425	29 8 20	277	39·0	29 16 9	4·2	28 6 22	34·8	1087	29 16 47	903	29 5 45	184
16	June 12 18	June 14 3	636	12 18 0	414	13 8 33	222	28·3	13 12 37 14 57	0·2	13 5 50	28·1	996	13 17 10	890	13 4 58	106
17	July 4 12	July 5 20	654	4 17 58	423	5 14 32	231	32·0	4 16 18	2·2	4 21 19	29·8	1029	4 19 10	943	4 21 30	86
18	July 9 20	July 11 2	703	10 17 53	455	10 14 6	248	30·1	11 0 24	3·1	10 0 37	27·0	1028	10 19 24	913	10 0 30	115
19	July 13 6	July 16 24	773	15 16 28	363	15 21 20	410	40·4	15 16 17	−5·6	15 21 48	46·0	1179	15 16 38	820	16 0 46	359
20	July 30 5	July 31 2	603	30 19 38	372	30 7 24	231	32·2	30 5 24	7·1	30 21 42	25·1	1002	30 20 23	889	30 7 50	113
21	Aug. 1 8	Aug. 3 3	602	1 17 0	430	1 23 50	172	27·9	1 14 26	0·1	2 21 5	27·8	1065	1 17 17	789	2 4 7	276
22	Aug. 3 16	Aug. 5 21	695	3 21 40	307	3 23 59	388	37·1	3 21 44	−11·4	3 22 52	48·5	1054	4 16 40	759	3 23 39	295
23	Aug. 10 3	Aug. 11 24	615	11 17 2	406	11 10 11	209	37·6	11 13 52	4·1	10 8 47	33·5	1134	11 16 25	941	10 13 13	193
24*	Aug. 22 13 52	Aug. 23 21	662	22 13 56	312	23 9 33	350	34·2	23 10 22	3·1	24 23 58	31·1	1002	22 20 50	927	23 3 33	75
25	Sept. 13 18	Sept. 17 18	643	13 18 43	201	15 2 49	442	38·0	15 15 20	−37·4	15 20 15	75·4	1190	15 14 0	607	15 2 52	583
26	Sept. 26 7	Sept. 28 21	648	27 22 8	66	28 1 50	582	28·3	26 13 6	−30·9	28 1 50	59·2	1120	26 17 57	615	28 2 58	505
27	Sept. 30 10	Oct. 4 24	632	30 20 32	229	30 20 46	403	46·3	30 20 42	−11·9	1 4 22	58·2	1060	30 19 15	767	1 4 1	293
28	Oct. 7 6	Oct. 8 22	1044	7 18 24	287	8 6 18	757	81·9	7 18 19	−16·1	7 20 4	98·0	1323	7 16 23	803	8 5 32	520
29	Oct. 23 5	Oct. 28 24	617	25 21 8	369	24 23 15	248	30·7	25 13 0	−6·6	25 0 6	37·3	1074	26 16 48	879	24 23 40	195
30	Nov. 8 7	Nov. 10 5	535	9 0 1	412	8 23 47 9 11 58	123	32·1	8 16 33	−10·3	8 23 23	42·4	1082	9 16 10	879	9 0 3	203
31	Nov. 17 6	Nov. 18 2	556	17 12 18	448	17 20 55	108	28·1	17 12 19	−4·6	17 20 43	32·7	1058	17 15 19	950	17 22 30	108
32	Dec. 2 14	Dec. 4 2	538	2 17 47	416	2 21 58	122	39·7	2 19 15	−13·8	2 21 16	53·5	1177	2 19 37	922	3 4 13	255
33	Dec. 9 4	Dec. 11 2	578	10 18 41	399	10 18 53	179	37·6	10 18 46	−0·4	10 20 42 23 27	38·0	1150	10 20 28	960	10 3 33	190
34	Dec. 16 16	Dec. 20 24	610	16 18 28	377	18 17 32	233	26·9	18 17 27	−14·5	16 20 8	41·4	1148	18 17 4	917	17 0 33	231

Where the beginning of a disturbance has been marked by a "sudden commencement", the serial number is followed by an asterisk(*), and the time entered in the second column is that of the sudden commencement, estimated to the nearest minute. In other cases, the exact hour nearest the time at which disturbance may be regarded as having begun is entered in the second column. To the tabulated values of maximum and minimum the following have to be added:— H, 16000γ; D, 13°; V, 44000γ.

REMARKS ON THE AUTOGRAPHIC RECORDS, 1938

The year was more disturbed than 1937. The absolute annual range in each element was the greatest ever recorded at Eskdalemuir. On the whole January was the most disturbed month, but the individual storms with the largest ranges occurred in April and May.

In the following notes, the dates of sunspots are taken from *The Observatory* (February 1939). The Eskdalemuir mean character figure for the month is shown in brackets after the name of the month.

JANUARY (1·00).— There was slight disturbance almost continuously throughout the first half of the month; the quietest period was from 9d. 10h. until 12d. 5h., the most disturbed, the night of the 12th–13th. A large sunspot group passed the sun's central meridian at 11·5d.

A large disturbance began with a "sudden commencement" at 16d. 22h. 37m. (initial movements not distinctly traceable in H, but probably of the order of +250γ, −120γ; +6′, −29′, +21′ in D; zero in V). Conditions were very disturbed until the end of the 17th, especially between 13h. and 17h., when there were several high peaks in H and V; the absolute

maximum of H for the year occurred during this period. A large group of spots passed the sun's meridian at 18·4d. The disturbance had practically died away by the end of the 19th, but was renewed on the morning of the 20th and became very great at about 22d. 5h. 30m.; after this there were large and rapid movements in H and D until nearly 12h. The disturbance died away during the rest of the 22nd.

At 25d. 11h. 51m. a "sudden commencement" (−8γ, +41γ in H; +2·9′, −12·9′ in D; zero in V) marked an increase of activity. During the following night there was an intense disturbance in all elements from 25d. 18h. until 26d. 3h. The absolute minimum of V for the year occurred during this period which was one of the most disturbed of the year. After 26d. 3h. there was continuous minor activity until the evening. There was no large sunspot near the central meridian, but brilliant aurora was seen from many places in Europe on this night. On the 31st there was intense disturbance after a small movement similar to, but less abrupt than, a "sudden commencement", at 19h. 23m.

FEBRUARY (0·75).– There was some disturbance almost continuously throughout the first half of the month, but after the end of the 14th conditions were quieter. A small movement, less abrupt than a "sudden commencement", at 6d. 3h. 9m. marked the beginning of a disturbance which lasted until the morning of the 11th. The most disturbed period was the evening of the 8th, from 16h. until 22h. A large group of sunspots passed the central meridian at 10·2d.

The 14th was considerably disturbed. The next eight days were quiet, but slight disturbance broke out again in the early hours of the 23rd, and continued for the remainder of the month.

MARCH (0·65).– The 2nd, 3rd and 4th were moderately quiet. After considerable disturbance on the afternoon of the 5th, conditions were generally quiet until about midday on the 21st; a disturbance then began to develop, which lasted until the afternoon of the 24th, the most disturbed period being 23d. 19h. to 24d. 8h. Disturbance was renewed on the night of the 25th–26th, after which conditions were quiet until the end of the month.

APRIL (0·73).– There was slight activity at times on each of the first five days of the month. Conditions were rather more disturbed from the 6th to the 12th, and considerably disturbed on the 13th and 14th. A large group of sunspots passed the central meridian at 14·1d.

Intense disturbance began abruptly with a large "sudden commencement" at 16d. 5h. 48m. (initial movements, somewhat confused in H, but probably −19γ, +192γ, −225γ; −15′, +37′ in D; +6γ, −24γ in V). This lasted some 2 hr., during which the absolute maximum of D and of V for the year occurred. After 16d. 8h., when V was falling rapidly, the disturbance became less intense, but large and rapid oscillations in H and D continued until about 16d. 14h. The succeeding days were moderately disturbed until the afternoon of the 26th, the most disturbed day being the 23rd. The last four days of the month were quiet.

MAY (0·84).– There was moderate disturbance from the afternoon of the 3rd until the afternoon of the 6th. Conditions were then quieter until the 11th, when a "sudden commencement" at 15h. 54m. (−40γ, +68γ in H; −2·1′, +4·7′ in D; very small in V) marked the beginning of a very large disturbance. The most intense disturbance took place between 11d. 20h. 30m. and 12d. 0h. 30m.; and the absolute minimum of H and of D for the year, and the maximum of V for this storm, occurred almost simultaneously in this period. It may be noted that the range in V, though great, was only about a third of that in H and half that in D. Great activity continued during the 12th until 19h. At about midnight there was a deep minimum in H and V, after which the storm came to an end. A large sunspot group passed the central meridian at 10·4d.

The 14th and 15th were rather disturbed. From the afternoon of the 18th until the early hours of the 28th conditions were quiet, except on the 24th. A large sunspot group passed the central meridian at 23·8d. Moderate disturbance occurred on the 29th.

JUNE (0·47).– Conditions were generally quiet throughout the month, apart from the 8th–13th inclusive, which were slightly disturbed. Activity began abruptly at 7d. 22h. 2m. with a rapid rise of 105γ in H, and continued for the next 4 days, a similar and practically equal movement at 12d. 17h. 56m. initiated a further short period of activity.

JULY (0·55).– Several periods of moderate disturbance occurred during this month. The first began with a small abrupt movement at 4d. 12h. 3m. and lasted until the evening of the 5th. Then, apart from some activity on the 10th, conditions were fairly quiet until the 13th, when disturbance began to develop. This reached its height on the afternoon of the 15th, decreasing in intensity after 16d. 2h., but with a recurrence of agitation in the afternoon. The 17th–29th and 31st were quiet, but a small disturbance took place on the 30th. Large groups of spots passed the sun's central meridian at 7·2d., 10·7d. and 15·1d.

AUGUST (0·55).– The first five days of the month were rather disturbed, the 6th–9th less so. Activity of a small order began in the early hours of the 10th, increasing 24 hr. later to a disturbance of moderate intensity on the afternoon of the 12th. From the afternoon of the 13th conditions were quiet until the morning of the 21st.

After a "sudden commencement" at 22d. 13h. 52m. (–28γ, +173γ in H; –2·6′, +12·2′ in D; very small in V) there was considerable activity until the afternoon of the next day. Conditions were quiet from the 25th until the end of the month.

SEPTEMBER (0·60).– The first twelve days of the month were fairly quiet. Increased activity followed a rapid movement (but less abrupt than a "sudden commencement") of –4γ, +94γ in H at 13d. 18h. 37m., and continued until 14d. 5h. From the afternoon of the 14th until the end of the 15th conditions were very disturbed. The 18th–25th were generally fairly quiet. On the 23rd a small movement, which was perhaps a "sudden commencement", at 4h. 36m. was followed by a slight increase of activity. There was some disturbance on the 26th after about 7h. 20m.; this continued during the 27th, and reached considerable intensity in the early hours of the 28th, after which there was great activity of small range until the afternoon of the 29th. A large group of spots crossed the sun's central meridian at 27·7d. Disturbance began again on the morning of the 30th, and reached considerable intensity during the night.

OCTOBER (0·61).– Disturbance was less after 1d. 6h., and died away during this and the next two days. At 7d. 6h. 14m. there was a small movement which may have been a "sudden commencement". This was followed at first by activity of a very small order, but a large disturbance developed in the afternoon, the most disturbed period being 7d. 14h. to 7d. 20h. Disturbance decreased after 8d. 7h., and died away during this day. The 11th–22nd were mainly quiet. On the 23rd–28th there was continuous disturbance, though not of great intensity. The last two days of the month were quiet. A large sunspot group passed the central meridian at 11·9d.

NOVEMBER (0·33).– The month was mainly quiet, but small disturbances took place on the 8th–10th, 17th, 21st–22nd and 24th–26th. Large sunspot groups passed the central meridian at 10·8d., 15·7d. and 28·8d.

DECEMBER (0·45).– Small disturbances took place on the 2nd–3rd, 10th and 16th–22nd. The periods 4th–8th and 23rd–31st were very quiet.

PRESSURE AT STATION LEVEL

Maximum, minimum and daily mean values in millibars for each day 0h. to 24h. Greenwich Mean Time
The initial 9 or 10 of the values is omitted, i.e. 1005·61 is printed 05·61

88 **ESKDALEMUIR**: H_b (height of barometer cistern above M.S.L.) = 237·3 m. **1938**

DAY	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
1	04·3	03·0	03·6	65·1	46·8	53·4	99·3	74·1	88·1	94·8	88·7	92·7	94·9	93·2	93·9	75·5	71·2	73·6
2	06·7	04·0	05·5	82·5	65·1	76·9	02·2	98·1	99·8	88·7	74·2	79·5	95·4	92·4	93·7	81·1	68·7	74·4
3	06·8	04·8	06·0	90·2	82·5	87·2	01·7	98·5	00·0	00·3	77·9	90·4	97·0	94·8	95·7	83·7	80·7	82·6
4	04·8	01·8	02·8	90·1	87·1	88·8	08·2	98·5	05·3	99·8	92·3	96·5	97·8	95·7	96·8	83·2	77·7	80·7
5	02·3	92·4	97·5	93·1	85·4	87·5	07·4	00·4	03·0	93·3	87·7	90·3	97·3	93·8	95·7	79·5	76·9	78·2
6	92·4	69·6	83·3	03·6	93·1	99·9	01·5	00·3	01·0	94·5	91·4	93·3	94·2	86·4	89·9	78·7	75·3	77·4
7	69·6	62·0	64·3	03·3	96·2	99·9	01·5	96·8	00·1	98·0	91·7	95·1	94·2	89·1	92·5	84·2	72·5	79·5
8	65·7	52·8	61·8	96·2	88·4	91·3	96·8	86·3	90·8	01·7	98·0	99·7	94·3	86·4	91·0	87·3	84·1	85·8
9	52·8	41·2	44·0	91·4	81·3	84·6	86·7	81·5	83·9	09·2	01·5	05·1	87·6	83·0	84·7	88·7	86·9	87·6
10	61·8	42·9	51·3	01·1	76·9	86·0	97·9	86·7	92·3	12·5	09·2	11·0	92·4	87·6	90·5	92·9	86·6	88·9
11	68·1	61·3	64·0	07·2	94·5	03·2	04·4	97·9	01·1	12·8	10·6	11·8	92·0	86·7	89·9	94·7	91·3	93·1
12	74·4	62·9	70·4	99·6	87·6	93·1	06·5	04·3	05·8	11·8	05·1	08·2	86·7	79·9	83·0	98·3	91·3	94·7
13	73·1	58·8	66·7	03·0	99·6	01·7	05·8	97·3	02·0	05·1	99·8	01·9	81·4	79·1	80·3	99·0	97·9	98·4
14	78·7	53·4	70·7	05·6	02·5	03·8	97·3	86·3	90·1	99·8	97·1	98·4	79·1	74·7	76·5	98·1	93·3	96·1
15	68·0	35·4	49·1	05·6	04·2	04·8	87·6	80·1	83·9	98·7	95·8	97·3	80·0	74·1	76·5	98·3	92·6	95·1
16	68·5	55·4	62·1	05·0	02·9	03·6	87·4	75·6	80·1	02·4	95·2	97·8	86·2	80·0	83·5	98·8	97·3	98·2
17	85·1	66·1	77·5	07·3	03·1	04·7	89·2	87·0	88·0	06·1	02·3	04·4	85·8	82·5	84·3	98·1	91·4	94·9
18	84·9	62·9	73·5	08·6	07·3	07·8	87·0	80·8	84·6	05·8	00·4	03·2	87·1	81·4	83·8	91·4	79·5	85·3
19	83·0	62·9	74·1	10·3	07·0	08·3	80·8	78·3	79·4	00·4	97·4	98·7	90·0	87·0	88·1	87·9	78·8	82·9
20	84·8	79·9	82·8	10·2	07·6	09·1	79·5	72·9	75·7	01·8	98·9	00·5	95·1	89·8	92·4	92·8	87·3	90·7
21	96·1	77·3	87·1	07·6	00·8	04·1	84·4	73·1	77·2	01·6	96·8	99·4	96·4	94·8	95·4	91·0	85·2	87·5
22	96·6	90·2	93·6	00·9	99·3	00·0	88·2	84·4	86·9	97·1	92·8	94·3	98·1	93·3	96·4	91·1	88·8	89·8
23	98·5	89·7	95·1	01·0	98·2	99·9	88·4	86·7	87·6	94·5	92·3	93·3	93·3	82·4	85·8	91·0	84·9	88·7
24	93·6	86·7	90·5	98·2	92·8	95·6	87·4	76·8	81·3	94·6	93·1	94·0	84·9	82·1	83·8	84·9	77·6	81·3
25	88·0	74·7	81·7	92·8	83·5	87·2	79·5	77·4	78·2	95·8	93·7	94·8	84·1	78·2	81·8	79·2	71·3	74·7
26	86·1	72·2	76·7	83·5	75·2	78·9	85·1	79·5	83·0	95·0	93·4	94·3	78·2	71·6	73·7	83·4	75·3	81·1
27	82·3	72·4	77·7	91·9	75·6	86·3	89·0	78·7	82·8	94·2	92·2	93·2	73·2	69·8	71·3	75·3	59·2	64·4
28	73·5	50·6	60·5	85·4	74·3	79·9	90·8	87·7	89·4	96·6	94·0	95·5	72·7	70·4	71·5	69·4	51·5	62·2
29	63·2	49·4	56·4				88·4	86·9	87·9	96·4	94·0	95·1	71·3	64·9	69·4	73·9	53·0	67·0
30	77·6	58·8	70·7				89·6	85·8	88·1	94·4	92·8	93·9	78·9	63·5	69·6	76·5	72·6	74·4
31	73·3	50·6	60·9				90·8	87·7	89·3				79·8	66·9	74·8			
Mean	82·73	69·23	76·19	97·87	89·96	93·85	93·24	86·65	89·89	99·92	95·01	97·45	87·72	82·44	85·04	86·93	80·02	83·64

DAY	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
1	82·2	76·5	79·1	00·3	96·3	99·3	90·5	87·7	89·0	84·5	81·3	83·3	65·6	58·6	63·7	59·8	50·7	53·0
2	85·1	82·1	83·9	99·8	97·7	99·1	91·7	89·9	90·6	81·7	57·4	66·8	73·1	64·8	68·2	72·0	59·8	67·4
3	84·8	79·7	82·7	99·0	95·8	97·5	91·2	87·3	89·4	65·7	36·0	54·8	79·2	72·3	77·1	88·1	72·0	80·6
4	79·7	71·5	74·7	96·5	92·6	94·3	95·7	90·9	94·0	60·6	33·3	47·5	83·7	68·8	75·4	87·6	72·0	79·9
5	76·4	70·9	73·0	92·7	87·1	89·7	95·4	87·5	92·6	65·6	57·3	60·4	88·6	83·7	86·5	76·3	70·7	73·4
6	84·7	76·4	80·6	88·5	86·3	87·3	87·5	80·3	82·7	76·1	65·6	72·0	88·4	82·5	86·7	77·2	73·6	75·7
7	84·7	74·2	80·5	88·6	86·0	87·8	93·1	80·1	85·4	70·0	56·4	63·2	82·5	77·7	79·8	73·6	69·5	70·9
8	74·2	70·8	72·3	86·5	84·8	85·4	98·3	92·9	95·9	77·2	61·9	72·1	83·2	78·1	80·7	69·5	62·6	64·9
9	85·4	73·3	80·5	89·2	86·2	87·6	99·9	97·7	99·1	70·8	57·0	63·4	84·4	82·3	83·5	65·7	53·6	60·9
10	85·0	78·4	82·0	90·0	88·1	89·1	99·6	94·5	97·0	77·6	69·6	72·4	83·8	80·9	82·7	64·1	55·0	60·3
11	78·4	73·2	74·8	89·2	85·3	87·3	94·6	89·7	92·5	86·8	77·6	81·1	80·9	71·6	75·2	67·1	62·1	65·0
12	82·8	75·2	78·2	86·0	84·8	85·3	92·2	89·1	90·9	86·8	77·7	80·7	73·2	68·8	71·3	78·3	63·7	68·8
13	84·2	81·2	83·1	86·3	84·9	85·4	89·6	80·3	86·2	79·8	69·7	74·4	76·4	66·4	71·7	78·7	74·9	76·8
14	85·6	79·3	81·9	87·1	85·6	86·3	90·6	80·8	86·7	88·3	75·2	82·3	96·6	76·4	88·1	87·0	75·5	80·1
15	89·3	85·6	87·4	87·0	74·7	83·1	93·9	90·6	92·7	88·4	79·1	85·4	00·3	97·5	98·9	86·9	76·4	81·1
16	90·6	89·0	90·0	74·7	66·3	69·6	93·2	80·2	86·4	79·1	74·1	75·9	98·0	89·9	93·9	92·7	76·6	83·1
17	91·2	89·7	90·5	81·6	66·5	76·0	80·2	73·2	75·6	76·0	70·4	73·5	90·2	86·6	88·5	97·2	92·7	95·7
18	93·4	90·1	92·0	80·8	55·9	74·3	81·9	74·5	78·6	75·2	72·2	73·8	90·7	65·7	80·2	99·4	96·4	98·3
19	93·0	88·2	90·3	66·7	62·1	64·2	81·7	74·2	78·1	93·9	72·4	85·4	74·6	69·5	72·9	99·1	93·5	96·7
20	90·0	86·4	87·9	78·3	62·3	69·7	74·2	71·6	72·5	95·0	93·2	94·0	74·2	61·0	67·9	93·5	87·0	89·5
21	91·4	89·8	90·5	85·8	78·3	82·8	76·2	72·5	73·9	93·2	86·6	90·0	61·0	57·3	58·9	87·9	86·1	87·0
22	89·8	86·4	87·8	90·6	85·7	87·8	81·7	76·2	79·9	86·6	81·8	83·4	63·1	58·5	61·3	88·4	86·7	87·5
23	87·1	86·0	86·6	91·2	88·4	89·9	81·6	78·9	80·2	87·9	83·0	85·7	59·1	31·2	45·3	96·4	88·0	91·6
24	86·1	81·8	83·2	91·1	87·6	89·2	83·0	80·9	82·2	87·9	85·8	87·1	73·1	57·2	67·6	02·6	96·4	99·9
25	82·3	79·9	81·4	93·5	90·8	92·0	85·2	80·2	82·7	85·8	83·4	84·6	72·6	60·1	65·1	02·9	95·9	00·9
26	82·8	77·7	79·6	94·4	92·3	93·5	87·8	84·1	85·4	84·9	73·8	77·6	77·2	57·7	65·4	95·9	85·5	90·2
27	83·5	74·8	81·3	92·3	85·1	87·8	89·4	87·6	88·4	88·3	75·2	82·2	78·6	63·4	71·7	88·0	84·8	86·3
28	83·0	72·3	78·2	86·6	85·3	86·0	87·8	76·8	82·0	87·4	84·6	86·0	66·5	64·2	65·5	90·4	84·5	87·9
29	82·6	75·3	79·0	86·4	85·0	85·7	82·8	75·2	78·9	87·0	72·8	82·0	74·4	66·2	71·6	84·5	70·7	76·2
30	82·1	75·5	77·9	87·9	85·3	86·5	83·2	81·3	82·4	79·1	71·3	76·2	67·4	54·9	57·1	70·8	68·0	69·4
31	96·3	82·1	88·5	88·0	86·5	87·1				80·3	63·5	76·3				73·5	67·6	71·2
Mean	85·41	79·78	82·56	88·28	83·53	86·02	88·46	82·89	85·73	81·53	70·94	76·57	78·72	69·13	74·08	83·71	75·89	79·68
									Annual	87·78	80·36	84·13						

PRESSURE AT STATION LEVEL

Monthly and annual means of hourly values in millibars at exact hours Greenwich Mean Time

89 **ESKDALEMUIR:** H_b = 237·3 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean
	millibars																									
Jan.	77·10	76·68	76·37	76·12	75·88	75·65	75·51	75·47	75·71	76·02	76·21	76·28	76·33	76·39	76·44	76·60	76·65	76·75	76·57	76·40	76·30	76·25	76·03	75·76	75·43	76·19
Feb.	93·73	93·65	93·53	93·29	93·10	93·20	93·24	93·44	93·70	93·92	94·01	94·14	94·05	93·84	93·66	93·62	93·63	93·76	94·06	94·25	94·37	94·47	94·53	94·54	94·51	93·84
Mar.	89·83	89·82	89·79	89·55	89·35	89·40	89·47	89·62	89·82	90·03	90·01	89·97	90·03	89·87	89·71	89·70	89·59	89·64	89·83	90·12	90·30	90·49	90·52	90·49	90·37	89·89
Apr.	97·61	97·46	97·26	97·15	97·08	97·14	97·42	97·63	97·77	97·90	97·85	97·79	97·61	97·48	97·29	97·17	97·01	96·97	97·05	97·23	97·53	97·77	97·74	97·77	97·72	97·45
May	85·68	85·52	85·33	85·10	84·96	85·01	85·10	85·24	85·28	85·25	85·20	85·09	84·97	84·96	84·87	84·76	84·67	84·56	84·54	84·72	84·94	85·21	85·16	85·07	84·94	85·04
June	83·35	83·20	83·04	82·96	82·96	83·16	83·34	83·49	83·65	83·77	83·90	83·91	84·06	84·16	84·18	84·10	83·91	83·75	83·69	83·70	83·64	83·82	83·78	83·66	83·52	83·64
July	82·44	82·30	82·11	82·03	81·93	82·03	82·14	82·30	82·40	82·49	82·52	82·49	82·55	82·59	82·67	82·71	82·60	82·60	82·72	82·84	82·98	83·25	83·20	83·17	83·08	82·56
Aug.	86·16	86·02	85·97	85·86	85·83	85·91	86·07	86·23	86·37	86·36	86·30	86·22	86·17	86·06	85·97	85·92	85·67	85·61	85·64	85·79	86·07	86·27	86·11	86·03	85·90	86·02
Sept.	85·89	85·79	85·66	85·49	85·40	85·41	85·49	85·69	85·87	85·98	85·97	85·89	85·88	85·80	85·69	85·62	85·50	85·54	85·62	85·80	85·93	86·02	85·91	85·83	85·67	85·73
Oct.	76·64	76·36	76·13	75·81	75·61	75·55	75·71	76·15	76·53	76·88	77·05	77·08	77·07	76·98	77·07	77·08	77·00	76·92	76·93	76·90	76·86	76·72	76·55	76·35	76·06	76·57
Nov.	74·53	74·36	74·15	73·94	73·79	73·74	73·79	73·78	74·06	74·21	74·28	74·24	74·01	73·88	73·86	73·74	73·83	74·04	74·18	74·25	74·23	74·33	74·38	74·41	74·31	74·08
Dec.	79·63	79·57	79·55	79·56	79·41	79·29	79·38	79·48	79·66	79·93	80·07	79·88	79·62	79·33	79·27	79·41	79·57	79·66	79·79	79·93	79·99	80·04	79·98	80·01	80·00	79·68
Annual	84·29	84·14	83·99	83·82	83·69	83·70	83·80	83·95	84·14	84·31	84·36	84·32	84·27	84·19	84·13	84·11	84·05	84·06	84·13	84·23	84·34	84·46	84·40	84·33	84·20	84·13

PRESSURE REDUCED TO MEAN SEA LEVEL

Monthly and annual means of hourly values in millibars at exact hours Greenwich Mean Time

90 **ESKDALEMUIR:** H_b = 237·3 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean
	millibars																									
Jan.	06·06	05·63	05·29	05·02	04·76	04·53	04·38	04·34	04·59	04·93	05·07	05·10	05·11	05·13	05·20	05·39	05·48	05·61	05·45	05·29	05·20	05·19	04·96	04·67	04·33	05·06
Feb.	23·27	23·20	23·06	22·81	22·64	22·75	22·78	22·98	23·23	23·40	23·42	23·49	23·33	23·08	22·89	22·86	22·89	23·10	23·49	23·73	23·87	23·96	24·02	24·05	24·05	23·28
Mar.	18·89	18·87	18·85	18·61	18·39	18·44	18·51	18·65	18·83	18·98	18·88	18·77	18·79	18·60	18·41	18·41	18·33	18·41	18·69	19·06	19·28	19·50	19·55	19·55	19·43	18·81
Apr.	27·21	27·10	26·93	26·86	26·81	26·88	27·11	27·14	27·05	26·99	26·88	26·77	26·51	26·31	26·09	25·96	25·81	25·84	26·03	26·39	26·86	27·21	27·26	27·34	27·36	26·72
May	14·65	14·49	14·33	14·11	13·99	14·02	14·02	14·02	13·93	13·78	13·67	13·49	13·35	13·31	13·19	13·08	13·03	12·96	13·01	13·28	13·65	14·03	14·03	13·97	13·87	13·71
June	11·81	11·70	11·56	11·53	11·54	11·70	11·80	11·85	11·92	11·96	12·05	12·01	12·14	12·22	12·24	12·14	11·94	11·81	11·80	11·87	11·91	12·17	12·19	12·09	11·99	11·92
July	10·82	10·70	10·53	10·46	10·38	10·44	10·47	10·53	10·51	10·54	10·52	10·43	10·48	10·50	10·58	10·62	10·50	10·52	10·70	10·88	11·12	11·49	11·51	11·52	11·47	10·71
Aug.	14·52	14·41	14·39	14·31	14·31	14·43	14·54	14·57	14·56	14·41	14·24	14·10	13·99	13·83	13·75	13·70	13·44	13·44	13·55	13·81	14·23	14·52	14·42	14·37	14·27	14·15
Sept.	14·41	14·36	14·23	14·08	14·00	14·01	14·06	14·17	14·22	14·21	14·12	13·98	13·94	13·84	13·70	13·66	13·55	13·65	13·81	14·10	14·30	14·42	14·35	14·31	14·16	14·05
Oct.	05·15	04·87	04·61	04·25	04·05	03·96	04·13	04·62	04·97	05·28	05·38	05·37	05·31	05·21	05·31	05·34	05·31	05·28	05·35	05·35	05·31	05·21	05·05	05·87	05·56	04·97
Nov.	03·08	02·91	02·71	02·52	02·37	02·32	02·38	02·37	02·65	02·73	02·75	02·65	02·38	02·23	02·22	02·10	02·26	02·50	02·66	02·75	02·73	02·85	02·91	02·96	02·87	02·58
Dec.	08·70	08·64	08·65	08·68	08·52	08·41	08·50	08·62	08·79	09·05	09·15	08·91	08·62	08·30	08·24	08·40	08·61	08·71	08·86	08·99	09·06	09·11	09·07	09·11	09·09	08·75
Annual	13·12	12·98	12·83	12·67	12·55	12·56	12·63	12·73	12·84	12·92	12·91	12·82	12·73	12·62	12·55	12·54	12·50	12·56	12·68	12·86	13·03	13·21	13·18	13·13	13·02	12·79

The initial 9 or 10 of the value is omitted, i.e. 1001·42 is printed as 01·42

The monthly and annual values of pressure reduced to mean sea level are computed from the corresponding monthly and annual means of pressure at station level and of temperature. See General Introduction to the Meteorological Tables, 1938.

TEMPERATURE

Monthly and annual means of readings in degrees Absolute at exact hours Greenwich Mean Time

91 **ESKDALEMUIR:** Louvred Hut: h_t = 0·9 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean
	degrees Absolute																									
Jan.	76·18	76·20	76·40	76·49	76·58	76·52	76·62	76·63	76·54	76·37	76·85	77·25	77·73	77·99	77·80	77·60	77·34	76·97	76·76	76·57	76·53	76·22	76·22	76·22	76·21	76·77
Feb.	75·45	75·34	75·45	75·47	75·33	75·25	75·26	75·37	75·49	76·01	76·69	77·29	77·84	78·20	78·18	78·16	77·90	77·20	76·52	76·10	75·94	76·10	76·08	75·93	75·65	76·36
Mar.	78·66	78·67	78·65	78·60	78·64	78·67	78·70	78·81	79·07	79·69	80·52	81·00	81·48	81·78	82·04	81·91	81·67	81·25	80·52	79·79	79·45	79·31	79·08	78·83	78·76	79·87
Apr.	75·90	75·49	75·25	74·80	74·56	74·57	75·02	76·72	78·95	80·75	81·30	81·80	82·55	83·17	83·37	83·41	83·26	82·59	81·60	79·86	78·41	77·36	76·70	76·30	75·64	78·90
May	78·36	78·28	78·02	77·84	77·66	77·88	78·74	80·01	81·29	82·44	83·04	83·63	83·90	84·10	84·36	84·42	83·91	83·53	82·82	81·97	80·66	79·63	79·10	78·82	78·51	81·02
June	82·39	81·99	81·76	81·21	81·14	81·62	82·44	83·43	84·38	85·14	85·63	86·10	86·27	86·55	86·62	86·72	86·75	86·42	85·92	85·23	84·28	83·57	82·99	82·77	82·34	84·22
July	82·82	82·57	82·38	82·18	82·08	82·38	83·24	84·21	85·39	86·09	86·60	87·17	87·21	87·45	87·46	87·52	87·52	87·38	86·79	86·19	85·23	84·37	83·72	83·22	82·92	85·05
Aug.	83·98	83·66	83·31	83·10	82·84	82·53	82·96	84·22	85·73	87·05	88·13	88·81	89·33	89·78	89·73	89·59	89·65	88·94	88·24	87·15	85·83	85·09	84·47	84·10	83·79	86·17
Sept.	82·45	82·05	81·88	81·74	81·58	81·60	81·91	82·76	84·02	85·22	86·05	86·59	86·92	87·09	87·25	86·99	86·90	86·27	85·52	84·54	83·92	83·64	83·25	82·83	82·69	84·30
Oct.	80·10	80·02	80·26	80·53	80·50	80·67	80·67	80·45	80·68	81·25	81·92	82·35	82·87	82·92	82·79	82·67	82·15	81·62	81·08	80·81	80·74	80·37	80·14	80·02	80·07	81·15
Nov.	79·23	79·10	78·94	78·79	78·74	78·72	78·63	78·63	78·72	79·29	79·88	80·39	80·71	80·89	80·79	80·71	80·09	79·90	79·77	79·60	79·56	79·34	79·28	79·19	79·02	79·53
Dec.	75·92	75·75	75·61	75·39	75·37	75·37	75·35	75·25	75·34	75·46	75·87	76·35	76·52	76·79	76·64	76·52	76·16	76·08	75·93	75·97	75·92	75·94	75·72	75·68	75·79	75·87
Annual	79·31	79·12	79·02	78·87	78·78	78·84	79·16	79·73	80·50	81·26	81·90	82·42	82·80	83·08	83·11	83·04	82·80	82·37	81·82	81·18	80·57	80·10	79·75	79·51	79·31	80·79

The initial 2 or 3 of the readings is omitted, i.e. 275·00 degrees Absolute is printed 75·00

Add 0·16 to obtain temperature in degrees Kelvin where T (°K.) = t (°C.) + 273·16

TEMPERATURE

Maximum, minimum and daily mean values in degrees Absolute for each day 0h. to 24h. Greenwich Mean Time
The initial 2 or 3 of the values is omitted, i.e. 275·0° is printed 75·0°. Add 0·16° to obtain temperature in degrees Kelvin where T (°K.) = t (°C.) + 273·16

92 **ESKDALEMUIR**: Louvred Hut: h_t (height of thermometer above ground) = 0·9 m. 1938

DAY	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.
1	77·4	73·5	75·7	76·6	73·0	75·5	80·1	74·5	77·8	84·0	80·6	82·0	85·3	72·6	78·7	85·4	77·1	82·3
2	79·5	72·4	75·9	81·5	74·5	77·6	82·3	75·4	78·4	82·1	74·9	79·4	85·3	72·4	79·3	82·2	77·1	79·7
3	77·9	73·1	76·5	81·8	80·6	81·3	80·3	76·0	78·2	81·7	71·5	76·5	85·3	76·4	80·4	87·5	78·5	83·4
4	78·5	75·0	76·4	81·2	79·1	80·2	83·4	76·3	80·0	82·0	73·2	77·8	87·2	70·5	81·0	85·1	81·9	82·9
5	79·8	73·3	76·9	79·5	75·4	78·3	82·5	77·4	79·6	87·0	77·5	81·7	86·8	69·6	79·3	87·0	80·4	83·3
6	77·9	76·4	77·2	79·0	69·5	73·8	83·6	79·2	81·1	85·5	81·5	82·6	90·1	68·8	81·1	85·4	82·6	84·3
7	76·8	73·5	75·8	80·1	69·8	75·2	81·5	77·4	80·0	84·2	73·2	79·7	82·6	73·0	77·9	87·8	82·3	85·1
8	76·2	72·6	75·0	77·5	72·2	75·0	80·3	76·5	78·3	82·6	71·2	76·4	84·3	68·7	77·6	87·1	82·5	84·1
9	77·2	73·4	75·2	80·6	72·3	76·9	84·7	80·0	82·1	80·7	69·2	74·6	85·2	75·2	79·1	87·6	80·9	83·8
10	74·1	64·8	71·3	80·3	73·2	76·5	84·0	82·1	82·7	82·7	67·3	75·1	85·0	74·8	78·9	87·6	79·3	83·2
11	76·5	67·2	73·5	81·6	69·9	75·0	88·8	77·0	83·3	87·4	67·3	77·2	87·1	75·7	82·4	85·3	78·3	81·9
12	77·6	74·3	76·1	81·2	73·2	77·2	86·2	75·9	81·5	90·0	69·6	79·7	84·5	81·7	82·9	89·2	81·0	84·7
13	81·4	76·3	78·2	76·3	71·7	73·5	87·1	73·2	79·8	86·3	72·1	79·3	85·4	81·7	82·9	94·8	78·4	87·5
14	81·6	77·0	78·3	76·6	71·3	73·4	85·3	71·3	78·2	86·6	71·6	78·8	86·3	82·4	84·5	90·0	76·1	83·7
15	80·4	75·6	78·2	75·1	70·1	73·1	80·9	78·8	79·8	87·3	71·7	79·1	86·5	83·4	84·6	92·5	79·5	87·0
16	82·3	74·3	77·0	76·7	73·3	74·7	82·6	74·2	80·0	85·9	69·3	78·1	84·0	79·9	81·8	91·9	76·0	85·2
17	77·8	74·4	75·8	77·0	74·0	75·4	82·0	74·7	78·7	80·0	69·5	74·7	80·4	79·0	79·7	94·6	76·3	87·3
18	80·0	74·8	77·6	78·0	73·5	75·9	81·5	79·9	80·6	81·3	68·2	75·8	81·1	77·0	79·0	92·5	81·1	87·6
19	80·0	76·3	77·8	79·2	75·7	77·3	81·5	80·1	80·8	84·4	71·4	78·8	84·2	73·2	79·0	88·2	80·9	84·6
20	80·4	78·7	79·7	78·0	73·6	76·2	81·3	75·0	79·6	83·6	68·9	78·1	85·6	70·7	79·3	86·7	80·6	83·7
21	82·0	73·7	78·0	78·5	70·9	74·2	82·4	73·2	77·4	85·5	76·7	81·0	88·9	72·0	82·0	90·1	81·7	84·3
22	82·3	73·8	78·4	79·5	66·6	74·3	81·2	68·6	75·7	83·2	75·4	80·3	90·4	81·5	85·2	88·7	77·6	83·6
23	82·5	79·3	80·9	77·4	73·8	75·3	82·3	77·9	79·3	84·3	78·4	81·0	84·3	79·8	82·1	85·4	75·5	82·6
24	81·2	79·3	80·2	76·7	69·3	73·2	83·0	78·4	80·3	87·1	77·8	81·8	88·2	79·1	82·7	90·7	84·7	87·5
25	81·4	75·6	78·4	83·0	70·6	78·1	79·5	73·0	76·6	85·3	74·2	80·6	84·4	77·8	81·4	87·5	83·2	85·0
26	76·5	73·5	75·2	83·1	79·0	81·5	79·1	71·4	74·9	86·2	73·7	80·2	83·3	79·6	81·8	87·0	80·5	83·9
27	75·6	71·9	73·7	82·0	75·6	78·6	83·5	74·9	79·5	83·9	70·7	79·3	87·4	77·6	82·9	87·4	82·6	84·7
28	83·0	74·9	79·7	82·3	79·5	80·8	82·9	78·9	81·3	84·3	75·8	80·4	81·7	77·4	80·0	85·9	81·3	83·1
29	76·7	72·9	74·7				84·7	81·9	83·3	82·8	74·3	78·5	85·0	76·4	81·4	87·0	81·4	83·7
30	76·3	72·0	74·0				84·4	82·6	83·7	81·6	74·5	77·9	88·2	78·8	82·7	86·1	78·3	82·8
31	81·7	73·7	78·7				85·1	82·0	83·3				83·1	76·7	80·1			
Mean	79·1	74·1	76·8	79·3	73·3	76·4	82·8	76·7	79·9	84·3	73·0	78·9	85·4	76·2	81·0	88·1	79·9	84·2

DAY	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.
1	89·4	76·7	83·4	94·5	77·4	86·5	86·7	72·4	78·9	88·2	76·1	82·3	83·2	74·7	77·7	78·2	74·2	76·2
2	88·4	74·7	83·1	93·6	81·6	88·1	87·7	72·2	80·8	83·3	77·6	81·1	80·0	74·0	77·4	79·4	74·1	76·8
3	87·7	77·7	83·6	92·6	81·2	87·7	86·4	80·0	82·9	84·8	79·9	81·5	83·1	77·6	80·5	78·3	70·2	75·2
4	86·0	76·1	81·5	93·7	81·1	87·2	87·8	77·7	83·2	83·1	77·9	81·1	87·4	83·0	85·6	81·9	70·0	75·8
5	86·4	74·6	81·0	90·1	85·2	87·4	86·1	76·7	82·0	81·3	77·6	79·5	87·3	83·7	85·4	78·2	74·3	76·7
6	88·6	78·7	83·2	95·9	84·7	90·2	86·8	81·7	84·2	83·5	75·9	80·3	85·4	84·1	84·9	80·9	77·5	79·5
7	86·0	77·3	82·8	95·6	87·8	90·9	90·2	81·3	85·0	84·5	77·8	81·0	85·2	83·7	84·3	81·6	78·6	80·6
8	90·4	83·0	86·4	92·6	88·2	89·9	92·2	80·3	85·9	83·6	77·4	80·7	84·1	79·1	81·9	78·6	73·1	75·4
9	87·2	81·6	83·8	94·0	87·8	90·1	89·5	78·3	83·8	87·1	79·2	82·8	86·0	79·0	81·4	79·7	70·5	75·3
10	88·7	82·3	84·6	96·7	85·9	91·2	90·8	79·8	85·3	83·5	78·2	80·6	84·1	78·3	81·3	79·9	75·5	77·7
11	88·6	82·3	84·9	97·2	84·0	90·7	90·5	84·6	87·4	83·7	77·7	80·0	85·3	79·3	83·2	81·2	76·9	79·8
12	89·1	80·6	84·4	93·1	83·5	87·8	92·2	86·7	89·2	86·9	79·3	84·2	86·3	82·7	84·8	83·0	79·1	81·3
13	86·9	79·0	84·1	88·2	82·0	85·7	90·7	86·9	88·5	88·1	82·9	84·7	86·8	83·7	85·2	81·5	77·6	80·2
14	89·6	82·7	86·1	92·1	77·4	85·3	87·8	74·3	82·2	84·8	78·2	82·1	83·9	79·7	82·3	81·8	75·6	79·6
15	89·6	82·9	85·9	90·9	78·2	85·4	85·2	71·9	79·8	86·0	82·2	83·7	84·1	76·3	79·5	80·0	73·7	77·4
16	87·6	81·4	85·1	87·9	84·9	86·1	85·7	78·7	82·8	84·0	81·3	82·7	82·5	75·2	79·3	81·1	76·0	79·8
17	87·2	77·7	84·0	88·7	83·0	85·3	86·9	85·6	86·3	84·1	77·2	81·8	83·7	78·2	81·9	78·6	71·9	75·1
18	91·3	82·3	87·2	86·2	83·5	85·0	88·5	82·1	85·3	82·9	77·9	80·2	83·1	78·3	80·7	72·1	70·1	71·2
19	88·3	81·9	85·9	87·6	78·8	83·7	86·2	80·9	83·3	83·4	78·4	81·1	80·0	74·9	77·4	72·2	67·7	70·0
20	88·2	80·8	85·6	87·0	78·6	82·2	85·7	76·9	82·6	85·8	80·7	83·2	78·0	71·1	75·6	70·7	67·0	69·0
21	91·1	75·5	84·2	88·1	76·4	82·9	88·5	76·3	82·7	86·9	80·0	82·7	77·1	69·9	74·0	70·5	66·9	69·1
22	91·6	76·9	85·2	88·7	76·3	82·9	89·3	83·2	85·8	84·3	79·0	81·2	76·4	70·0	73·1	73·1	69·1	71·0
23	93·0	81·6	88·1	92·0	76·8	84·9	90·7	84·9	87·9	83·8	79·6	81·8	77·2	74·0	75·3	75·0	72·6	74·1
24	91·6	83·2	87·3	88·3	85·0	87·3	88·9	85·1	86·6	84·1	81·9	83·1	76·2	73·1	74·9	75·3	71·8	73·5
25	91·3	83·5	86·9	90·7	82·7	86·6	89·3	78·2	84·7	83·8	73·4	80·4	77·8	72·7	75·8	74·8	70·1	72·5
26	89·7	83·6	85·8	91·0	82·4	86·7	90·7	77·7	84·8	80·1	72·9	76·7	78·0	72·1	75·7	81·4	74·7	77·9
27	89·9	84·2	86·3	87·5	82·5	85·4	87·3	82·1	85·3	81·3	75·0	78·7	81·7	71·3	76·4	80·0	76·3	78·3
28	89·3	84·2	86·1	88·9	78·8	84·6	86·3	79·7	84·0	80·5	72·5	76·6	78·4	74·0	76·4	81·3	74·3	78·2
29	88·3	83·2	85·9	87·2	75·4	81·1	86·8	80·6	83·9	81·1	74·2	78·2	79·1	76·0	77·3	81·3	75·5	79·0
30	88·7	86·4	87·4	86·8	77·4	81·5	87·6	80·2	83·9	82·5	77·7	80·4	78·5	75·4	76·9	75·9	72·3	74·6
31	89·7	81·5	86·6	87·9	74·9	80·8				82·2	79·3	81·1				73·2	68·6	71·1
Mean	89·0	80·6	85·1	90·8	81·4	86·2	88·3	79·9	84·3	84·0	78·0	81·1	82·0	76·8	79·5	78·1	73·1	75·9
									Annual	84·30	76·95	80·79						

MEAN RELATIVE HUMIDITY AND VAPOUR PRESSURE FOR EACH DAY

Mean percentages from readings at exact hours 0h. to 24h. Greenwich Mean Time; vapour pressure from daily mean temperature and relative humidity

93 ESKDALEMUIR: Louvred Hut: h_t = 0·9 m. 1938

DAY	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.
	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.
1	72·8	5·4	81·8	6·0	76·1	6·6	87·7	10·1	62·3	5·7	75·8	8·9	76·9	9·7	76·7	11·9	88·4	8·2	84·5	9·9	83·0	7·1	88·5	6·8
2	75·1	5·7	78·8	6·7	83·5	7·5	86·0	8·3	68·3	6·5	84·4	8·3	81·3	10·0	78·2	13·4	77·5	8·2	90·9	9·8	84·7	7·1	87·1	7·0
3	87·4	6·9	87·2	9·5	88·2	7·8	64·2	5·0	70·3	7·2	68·8	8·7	82·0	10·5	75·4	12·6	86·8	10·6	83·2	9·2	90·0	9·3	82·8	5·9
4	81·7	6·4	92·8	9·4	78·5	7·9	76·2	6·6	54·3	5·8	89·0	10·9	85·6	9·5	84·8	13·7	77·5	9·6	80·9	8·7	89·4	13·0	95·9	7·2
5	82·1	6·6	91·0	8·1	83·5	8·1	85·5	9·6	58·5	5·6	79·6	10·0	85·5	9·2	94·1	15·4	92·0	10·6	83·0	8·0	90·8	13·1	88·5	7·1
6	89·7	7·4	75·7	4·9	85·8	9·3	82·6	9·9	67·5	7·3	93·8	12·6	83·4	10·4	89·3	17·5	93·3	12·4	85·8	8·8	94·1	13·1	92·3	8·9
7	87·4	6·5	90·4	6·5	88·2	8·8	68·2	6·7	54·9	4·8	77·5	10·9	91·9	11·1	86·1	17·7	86·1	12·1	80·2	8·6	89·8	12·0	92·5	9·6
8	94·1	6·6	92·0	6·5	95·0	8·5	68·2	5·3	61·0	5·2	85·9	11·3	78·4	12·1	92·0	17·7	65·8	9·8	83·7	8·8	93·0	10·6	90·2	6·6
9	91·3	6·5	88·7	7·2	84·1	9·7	72·3	5·0	76·3	7·2	78·0	10·1	76·1	9·9	89·3	17·4	80·4	10·4	84·6	10·3	94·0	10·4	90·0	6·5
10	92·7	5·0	73·0	5·7	88·2	10·6	69·6	4·9	67·0	6·2	74·8	9·3	85·5	11·7	84·1	17·6	85·7	12·3	82·8	8·6	87·2	9·5	93·9	8·0
11	90·5	5·7	74·1	5·2	82·9	10·4	72·3	6·0	66·7	7·9	81·3	9·3	84·3	11·7	75·7	15·3	86·8	14·2	84·9	8·5	85·7	10·7	91·9	9·1
12	93·5	7·1	65·9	5·4	88·1	9·8	70·6	6·9	95·5	11·7	77·1	10·6	78·4	10·6	81·8	13·8	86·4	15·9	93·7	12·5	92·6	12·8	87·0	9·5
13	81·1	7·2	70·6	4·5	82·7	8·2	75·4	7·2	92·1	11·2	71·5	11·8	92·5	12·2	83·7	12·3	85·2	15·0	89·0	12·2	93·5	13·3	90·4	9·2
14	89·9	8·0	82·6	5·2	80·5	7·1	76·1	7·0	94·8	12·9	74·8	9·6	81·3	12·3	79·5	11·4	76·6	8·9	77·0	8·9	87·5	10·3	90·7	8·8
15	82·5	7·3	76·5	4·7	95·4	9·4	74·0	7·0	90·5	12·4	66·3	10·6	82·7	12·3	85·0	12·2	75·8	7·5	87·0	11·2	92·0	8·9	84·3	7·1
16	91·3	7·4	87·9	6·1	86·5	8·7	66·6	5·9	91·5	10·4	77·1	11·0	78·0	11·0	90·0	13·6	94·8	11·5	85·8	10·3	93·2	8·9	91·0	9·0
17	79·7	6·0	79·2	5·8	93·1	8·5	61·7	4·3	93·3	9·2	72·9	11·9	85·8	11·3	74·1	10·6	97·5	14·9	84·6	9·6	92·4	10·5	83·9	6·0
18	94·3	8·0	81·7	6·2	95·0	9·9	66·2	4·9	81·0	7·6	73·8	12·3	78·5	12·7	93·7	13·1	92·3	13·2	86·9	8·8	89·7	9·4	69·2	3·7
19	86·2	7·4	89·3	7·4	95·7	10·1	63·8	5·9	64·0	6·0	73·3	10·0	95·8	14·3	79·0	10·2	92·3	11·6	81·1	8·8	80·3	6·7	85·4	4·2
20	97·2	9·5	84·2	6·5	87·2	8·5	72·8	6·4	75·7	7·2	78·9	10·2	86·5	12·6	79·0	9·2	95·7	11·4	88·3	11·0	93·2	6·9	88·0	4·0
21	80·7	7·0	82·8	5·5	84·8	7·1	77·0	8·3	67·3	7·7	83·6	11·2	76·5	10·2	73·5	9·0	90·7	10·9	85·1	10·2	94·7	6·2	85·4	3·9
22	91·1	8·2	84·1	5·6	89·0	6·6	81·2	8·6	75·5	10·7	71·7	9·2	84·1	12·0	73·3	8·9	83·4	12·3	84·6	9·2	96·7	5·9	76·8	4·1
23	95·3	10·2	77·6	5·6	92·7	8·9	76·0	8·2	84·8	9·8	91·7	11·0	82·6	14·2	81·1	11·3	82·3	13·9	91·7	10·4	87·6	6·3	88·7	5·9
24	85·6	8·7	80·4	5·0	95·2	9·7	68·3	7·7	69·1	8·3	91·0	15·0	87·1	14·2	92·2	15·0	91·6	14·3	95·1	11·8	87·0	6·1	86·2	5·5
25	83·0	7·4	88·7	7·8	69·1	5·5	59·1	6·2	77·0	8·5	84·3	11·8	83·5	13·3	83·8	13·1	92·2	12·7	91·0	9·4	89·6	6·7	90·0	5·3
26	84·5	6·1	96·3	10·7	74·3	5·2	77·9	7·9	92·4	10·5	84·2	11·0	86·6	12·8	84·6	13·3	87·8	12·2	86·8	6·9	85·2	6·3	92·8	8·0
27	81·6	5·2	79·7	7·3	75·7	7·3	77·7	7·4	82·9	10·1	88·1	12·1	85·5	13·1	91·2	13·1	96·0	13·7	83·3	7·6	94·0	7·3	74·2	6·6
28	85·2	8·4	92·7	9·8	91·0	10·0	65·7	6·8	89·7	9·0	87·0	10·8	80·6	12·2	74·8	10·2	96·2	12·6	93·4	7·4	79·0	6·2	85·0	7·5
29	80·2	5·5			87·5	11·0	57·2	5·2	76·8	8·5	76·0	9·8	95·0	14·1	85·4	9·2	88·5	11·5	92·8	8·2	84·6	7·0	86·8	8·1
30	80·3	5·3			84·5	10·9	72·2	6·3	71·5	8·6	85·6	10·4	98·0	16·1	84·5	9·4	81·4	10·6	83·5	8·6	87·0	7·0	82·2	5·6
31	93·1	8·5			88·5	11·1			84·9	8·6			92·6	14·4	82·3	8·7			89·7	9·7			81·3	4·3
Mean*	86·5	7·0	83·1	6·6	86·0	8·7	72·4	6·9	76·0	8·3	79·9	10·7	84·6	12·0	83·2	12·8	86·9	11·8	86·3	9·4	89·4	9·0	86·8	6·7

* Mean of the column.

RELATIVE HUMIDITY

Monthly and annual means of values at exact hours Greenwich Mean Time

94 ESKDALEMUIR: h_t = 0·9 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean*
	per cent.																									
Jan.	88·2	88·6	88·3	87·8	87·3	87·6	86·8	87·3	86·9	89·0	87·5	85·6	83·8	82·7	83·4	84·3	84·3	85·8	85·7	86·3	86·6	87·3	87·0	87·7	88·2	86·5
Feb.	85·4	85·4	85·3	85·4	86·0	86·2	85·8	86·2	85·3	84·9	82·6	80·1	77·7	76·5	75·5	77·5	78·6	80·8	82·5	84·6	85·5	85·4	84·6	85·2	85·7	83·1
Mar.	90·0	90·6	89·8	90·8	90·4	90·9	90·5	89·8	89·8	89·0	86·1	83·2	80·6	77·9	75·5	76·7	78·3	79·9	83·9	87·9	88·5	88·2	89·5	89·8	90·0	86·1
Apr.	85·0	86·8	87·1	88·9	88·3	88·8	87·4	84·3	73·8	63·1	63·9	58·9	55·8	54·0	53·9	54·1	53·9	56·9	61·9	70·4	75·4	78·9	82·3	84·0	84·9	72·4
May	87·7	88·3	88·5	89·0	88·7	89·0	86·3	82·3	75·8	70·7	67·7	65·5	63·5	62·8	61·2	61·5	63·2	64·5	66·8	70·5	76·9	82·3	85·7	86·7	87·8	76·0
June	89·8	90·7	92·4	92·3	92·6	90·1	88·4	83·3	77·4	73·5	72·8	69·5	69·3	68·0	69·9	69·2	67·9	69·5	73·2	77·1	80·9	84·2	87·8	88·7	90·1	79·9
July	92·9	93·1	93·3	94·5	94·5	93·8	91·5	88·6	83·7	80·8	78·4	74·7	75·2	74·3	75·1	74·9	76·5	75·3	78·5	81·8	87·1	88·9	90·5	92·4	92·9	84·6
Aug.	90·9	91·4	91·8	92·6	91·9	92·2	92·1	89·5	85·3	79·6	75·2	72·2	70·6	69·6	70·4	71·5	72·2	75·7	79·9	84·0	87·7	88·2	89·9	91·3	91·1	83·2
Sept.	91·8	92·0	92·7	93·5	93·6	94·0	93·3	91·3	89·4	85·2	81·9	79·4	77·5	77·3	77·6	78·0	79·0	82·8	86·0	88·2	89·7	89·6	90·6	91·4	91·7	86·9
Oct.	91·4	91·5	91·7	92·3	91·0	90·1	89·5	89·3	87·6	86·3	84·3	81·7	78·4	76·5	78·3	79·2	81·3	82·7	85·0	86·6	87·8	88·9	89·2	90·5	91·3	86·3
Nov.	90·1	90·2	90·2	90·8	90·4	90·2	91·6	92·3	92·7	91·7	90·4	88·7	87·0	86·7	86·0	85·3	87·6	87·4	88·1	89·0	89·2	90·2	89·4	90·1	89·9	89·4
Dec.	87·1	86·8	87·3	88·7	88·0	88·0	87·0	87·3	87·0	87·3	85·5	84·9	85·1	84·5	83·7	84·0	85·7	87·1	88·4	88·3	88·4	89·3	87·9	86·9	87·4	86·8
Annual	89·2	89·7	89·9	90·6	90·2	90·1	89·2	87·7	84·6	81·8	79·7	77·0	75·4	74·2	74·2	74·7	75·7	77·4	80·0	82·9	85·3	86·8	87·9	88·7	89·3	83·5

VAPOUR PRESSURE

Monthly mean values at exact hours Greenwich Mean Time computed from corresponding mean values of temperature and relative humidity

95 ESKDALEMUIR: h_t = 0·9 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean*
	millibars																									
Jan.	6·8	6·8	6·9	6·9	6·9	6·9	6·9	6·9	6·8	6·9	7·0	7·1	7·2	7·2	7·2	7·2	7·0	7·0	6·9	6·8	6·8	6·7	6·7	6·7	6·8	6·9
Feb.	6·2	6·2	6·2	6·2	6·2	6·2	6·2	6·2	6·2	6·4	6·6	6·6	6·7	6·8	6·7	6·8	6·8	6·7	6·5	6·5	6·5	6·5	6·4	6·4	6·3	6·4
Mar.	8·2	8·3	8·2	8·3	8·2	8·3	8·3	8·3	8·4	8·7	8·9	8·9	8·9	8·8	8·7	8·7	8·8	8·7	8·7	8·7	8·5	8·4	8·4	8·3	8·3	8·5
Apr.	6·4	6·4	6·3	6·2	6·0	6·1	6·2	6·7	6·9	6·7	7·0	6·7	6·6	6·7	6·8	6·8	6·7	6·8	6·9	7·3	6·8	6·6	6·6	6·5	6·3	6·6
May	7·8	7·9	7·7	7·7	7·6	7·7	7·9	8·3	8·3	8·4	8·3	8·4	8·3	8·3	8·2	8·3	8·2	8·2	8·1	8·1	8·1	8·0	8·1	8·0	7·9	8·1
June	10·6	10·4	10·4	10·1	10·0	10·1	10·5	10·5	10·4	10·4	10·6	10·5	10·6	10·6	10·9	10·9	10·7	10·7	10·9	11·0	10·8	10·7	10·8	10·7	10·6	10·6
July	11·3	11·1	11·0	11·0	10·9	11·1	11·4	11·8	12·0	12·2	12·2	12·1	12·2	12·2	12·4	12·4	12·6	12·3	12·4	12·4	12·4	11·9	11·7	11·5	11·3	11·9
Aug.	11·9	11·7	11·5	11·4	11·2	11·0	11·3	11·9	12·6	12·8	12·9	13·0	13·1	13·3	13·4	13·5	13·7	13·7	13·8	13·6	13·0	12·4	12·2	12·1	11·8	12·5
Sept.	10·9	10·6	10·6	10·5	10·4	10·5	10·6	11·0	11·8	12·1	12·3	12·4	12·3	12·4	12·6	12·5	12·5	12·6	12·5	12·0	11·7	11·5	11·3	11·1	11·0	11·7
Oct.	9·2	9·2	9·3	9·6	9·4	9·4	9·4	9·2	9·2	9·4	9·6	9·6	9·5	9·3	9·5	9·5	9·4	9·2	9·2	9·2	9·3	9·1	9·0	9·1	9·2	9·3
Nov.	8·6	8·5	8·4	8·4	8·3	8·3	8·4	8·4	8·5	8·8	9·0	9·1	9·2	9·2	9·1	9·0	8·8	8·7	8·7	8·7	8·7	8·6	8·5	8·5	8·4	8·7
Dec.	6·6	6·5	6·4	6·4	6·4	6·4	6·3	6·3	6·3	6·4	6·4	6·6	6·7	6·8	6·6	6·6	6·6	6·6	6·7	6·7	6·7	6·7	6·5	6·4	6·5	6·5
Year†	8·5	8·5	8·4	8·4	8·3	8·3	8·4	8·6	8·8	8·9	9·1	9·1	9·1	9·2	9·2	9·2	9·2	9·1	9·1	9·0	8·9	8·8	8·7	8·6	8·5	8·8

* Mean of values ½(0 + 24),1,2...23.

† Mean values for the year are means of monthly values.

RAINFALL

Amount in millimetres, duration in hours and maximum rate of fall for each day 0h. to 24h. Greenwich Mean Time

96 ESKDALEMUIR: H_r (height of receiving surface above M.S.L.) = H (height of station above M.S.L.) + h_r (height of receiving surface above ground) = 242·0 m. + 0·4 m. 1938

DAY	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate
	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.
1	···	···	···	24·2	12·2	5	1·3	2·3	3	0·5	0·3	···	···	···	···	5·0	3·2	4
2	···	···	···	3·5	3·0	2	0·2	0·8	···	17·6	10·1	9	···	···	···	24·7	9·2	7
3	···	···	···	3·0	5·2	3	···	···	···	···	···	···	···	···	···	···	···	···
4	···	···	···	3·2	1·8	3	0·1	0·5	···	1·1	1·0	2	···	···	···	14·8	11·8	4
5	0·1	···	···	3·1	3·9	3	0·3	0·8	···	2·3	3·4	2	···	···	···	1·8	1·6	24
6	5·1	2·8	7	···	···	···	···	···	···	0·1	0·3	···	···	···	···	37·8	19·3	24
7	0·8	1·4	···	···	···	···	···	···	···	0·4	1·1	···	···	···	···	10·5	6·7	9
8	1·2	1·6	1	1·5	3·0	1	···	···	···	···	···	···	···	···	···	···	···	···
9	5·0	6·3	···	11·7	5·9	4	2·1	9·7	1	···	···	···	0·6	1·0	4	2·1	0·9	21
10	1·6	4·0	···	2·5	5·0	3	0·8	2·8	···	···	···	···	···	···	···	0·5	0·8	17
11	5·9	5·2	21	0·5	0·7	···	···	···	···	···	···	···	0·5	1·3	3	1·2	2·9	1
12	2·3	1·4	5	0·3	0·5	···	···	···	···	···	···	···	25·1	13·6	24	0·5	2·8	···
13	10·4	3·4	10	0·1	···	···	···	···	···	···	···	···	6·8	7·9	13	···	···	···
14	14·3	6·9	9	1·1	0·8	···	1·1	0·6	4	···	···	···	16·8	12·8	9	···	···	···
15	13·4	9·7	4	0·1	···	···	12·4	14·4	3	···	···	···	4·5	4·6	10	···	···	···
16	27·0	9·9	11	1·0	2·1	···	16·1	10·7	16	···	···	···	12·4	4·9	20	···	···	···
17	0·2	0·4	1	···	···	···	0·2	0·9	···	···	···	···	9·8	9·2	11	···	···	···
18	10·5	10·6	3	···	···	···	2·7	4·1	2	···	···	···	0·5	4·8	···	···	···	···
19	7·8	7·0	9	0·3	···	···	18·8	14·8	4	···	···	···	···	···	···	5·5	3·2	20
20	9·4	8·4	3	···	···	···	12·6	10·3	(3)	···	···	···	···	···	···	0·7	0·5	1
21	18·6	6·4	10	···	···	···	4·0	6·6	(2)	···	···	···	···	···	···	4·7	3·9	3
22	0·7	1·5	···	0·1	···	···	···	···	···	0·7	0·8	···	1·1	3·8	1	···	···	···
23	5·5	8·0	3	···	···	···	···	···	···	···	···	···	8·5	7·2	10	5·0	6·3	1
24	5·4	2·2	3	···	···	···	7·3	7·7	3	···	···	···	0·7	1·3	1	6·9	6·1	14
25	27·5	8·4	24	13·8	12·1	4	0·6	1·4	···	···	···	···	2·6	2·4	4	11·8	4·4	15
26	5·4	6·0	···	26·4	18·3	4	3·8	7·0	···	0·3	0·6	1	27·0	19·8	12	10·4	5·5	3
27	4·3	2·2	(3)	2·8	4·4	2	1·4	2·8	···	···	···	···	4·7	4·7	3	39·8	16·3	34
28	21·3	8·9	27	14·7	12·4	4	5·2	4·8	5	···	···	···	19·3	17·7	5	28·5	11·2	33
29	7·2	6·6	···				2·8	6·2	1	···	···	···	2·6	4·8	4	6·3	4·4	15
30	2·0	1·5	···				1·4	4·1	1	0·3	1·5	1	1·1	0·5	16	17·9	4·7	66
31	21·4	11·4	20				2·9	9·7	1				12·6	7·4	7			
Total	234·3	142·1	-	113·9	91·3	-	98·1	123·0		23·3	19·1	-	157·2	129·7		236·4	125·7	-

DAY	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate
	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.
1	0·4	0·4	···	···	···	···	3·3	2·1	16	4·9	3·0	(3)	24·5	8·1	15	10·6	3·2	12
2	0·4	0·3	(2)	···	···	···	···	···	···	2·5	3·8	2	13·1	6·4	12	3·9	4·2	12
3	5·6	2·2	51	···	···	···	10·5	8·9	10	46·3	14·1	52	8·5	5·6	2	1·4	1·5	1
4	5·7	2·5	23	···	···	···	···	···	···	12·7	7·8	23	12·7	8·1	9	19·9	11·4	15
5	17·3	2·5	79	9·8	4·1	23	1·4	3·3	1	5·7	3·7	12	2·4	5·8	1	4·2	6·2	(2)
6	5·3	2·3	39	1·6	1·2	16	9·4	11·8	10	5·8	4·3	26	6·1	11·1	2	11·7	7·6	3
7	14·7	10·9	18	···	···	···	0·5	0·8	···	21·8	7·3	28	2·9	5·7	1	5·0	8·0	5
9	1·5	0·7	23	0·5	0·7	1	···	···	···	13·6	6·6	19	27·8	22·5	4	1·7	3·4	(2)
9	3·6	3·8	2	···	···	···	···	···	···	19·3	10·0	22	15·2	8·3	8	11·9	5·1	31
10	2·5	3·1	2	···	···	···	···	···	···	4·9	2·9	7	···	···	···	2·7	4·6	4
11	4·8	5·3	9	···	···	···	0·1	···	···	6·3	4·6	12	5·4	2·7	6	6·6	5·0	(4)
12	···	···	···	0·5	0·3	2	···	···	···	30·9	14·7	22	26·5	11·7	46	2·4	2·1	3
13	9·8	4·5	5	···	···	···	3·3	2·9	3	10·7	9·0	44	32·5	11·8	55	2·9	3·7	2
14	19·4	6·9	12	···	···	···	0·9	1·3	2	1·1	0·2	14	2·4	2·3	25	2·4	4·3	9
15	···	···	···	8·1	6·2	12	···	···	···	0·2	0·2	(1)	···	···	···	1·5	3·8	1
16	···	···	···	8·1	7·2	26	15·2	14·0	11	21·2	5·4	40	1·1	2·9	···	1·2	2·3	(2)
17	0·9	3·3	···	2·8	3·1	1	42·6	19·6	24	9·6	5·0	3	8·9	7·3	2	0·1	···	···
18	···	···	···	22·7	17·9	13	3·7	4·6	2	6·4	5·9	2	24·7	6·6	48	···	···	···
19	···	···	···	3·6	1·3	38	1·3	5·0	···	0·8	0·7	2	0·1	···	···	···	···	···
20	0·4	1·9	···	2·7	1·0	19	7·8	6·0	3	···	···	···	2·6	1·3	18	4·4	7·4	···
21	···	···	···	···	···	···	9·9	1·9	71	5·0	4·1	5	4·0	6·4	(2)	2·2	3·7	···
22	···	···	···	···	···	···	2·8	3·0	28	1·3	4·7	1	0·2	0·4	···	···	···	···
23	···	···	···	2·9	4·5	7	0·6	0·4	5	···	···	···	20·1	11·7	···	0·4	1·5	···
24	0·2	0·2	3	3·0	6·8	1	1·3	1·6	(3)	3·5	5·7	2	16·6	9·7	···	0·1	···	···
25	7·0	5·9	10	···	···	···	3·0	2·6	14	8·7	10·6	2	7·4	4·8	21	4·4	7·5	···
26	19·0	8·0	29	···	···	···	···	···	···	5·9	5·2	(3)	0·1	···	···	4·3	7·7	(2)
27	11·9	9·5	29	0·5	1·5	···	···	···	···	17·9	6·8	13	15·2	6·6	11	···	···	···
28	0·5	1·6	···	···	···	···	0·1	···	···	0·3	1·5	···	3·3	2·1	2	1·0	1·8	1
29	45·5	17·4	17	8·1	2·6	43	0·8	1·2	(2)	1·3	2·4	(2)	0·6	0·9	2	8·5	5·1	8
30	45·2	19·4	12	1·8	1·1	2	0·7	1·7	1	4·7	4·4	(2)	11·8	6·8	4	1·8	3·6	···
31	3·7	4·3	18	···	···	···				5·7	4·0	14				···	···	···
Total	225·3	116·9	-	76·7	59·5	-	119·2	92·7	-	279·0	158·6	-	296·7	177·6	-	117·2	114·7	-

RAINFALL

Monthly and annual totals of amounts in sixty-minute periods between exact hours Greenwich Mean Time

97 **ESKDALEMUIR:** H_r = 242·0 m. + 0·4 m. 1938

	Hour G.M.T. 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	0-24
	millimetres																								
Jan.	16·7	14·4	13·1	11·5	13·9	12·7	6·6	6·6	8·9	10·2	8·5	11·1	6·9	6·7	6·2	5·7	4·8	10·6	12·1	15·4	8·2	7·8	5·4	10·3	234·3
Feb.	2·6	0·9	2·6	3·6	4·5	4·8	4·3	8·9	5·4	4·4	8·6	5·5	5·5	7·7	4·7	5·2	3·7	2·4	3·6	4·4	4·7	6·2	5·7	4·0	113·9
Mar.	4·7	4·5	3·4	4·7	3·8	3·9	2·0	3·5	2·2	5·7	4·7	5·9	4·2	4·2	3·9	2·9	2·4	3·0	4·7	4·5	4·7	4·7	4·5	5·4	98·1
Apr.	0·3	1·0	0·6	0·1	0·6	0·8	1·3	5·8	1·2	0·5	1·9	1·2	1·1	1·4	2·4	2·1	0·3	···	···	···	0·3	0·3	···	0·1	23·3
May	8·0	9·1	4·9	9·6	6·4	8·3	8·9	8·4	6·5	7·1	7·2	7·2	10·7	5·6	6·0	3·4	7·4	5·8	7·1	4·6	3·6	3·4	2·6	5·4	157·2
June	9·0	15·8	19·0	13·4	12·2	12·9	12·5	8·2	10·7	8·6	2·9	4·8	5·1	5·5	7·4	12·8	9·9	8·7	16·3	10·4	3·4	10·1	7·9	8·9	236·4
July	8·2	8·5	10·5	19·0	10·7	9·0	7·3	6·0	7·8	10·7	5·6	6·3	4·3	23·5	10·9	8·2	5·6	9·6	4·8	13·2	12·5	10·6	6·3	6·2	225·3
Aug.	1·5	0·4	1·4	2·0	1·1	0·5	0·9	1·3	0·9	1·5	4·6	1·1	4·1	2·3	10·8	1·6	2·8	3·9	8·9	8·8	5·6	3·3	5·3	2·1	76·7
Sept.	3·8	6·4	8·2	6·5	7·9	9·1	6·7	4·3	4·2	6·3	6·8	10·1	3·8	2·8	7·3	2·6	2·2	1·3	0·5	1·0	1·9	6·9	3·2	5·4	119·2
Oct.	16·5	19·6	22·6	22·7	17·7	12·5	12·9	12·4	9·3	10·0	7·8	6·2	5·7	6·7	10·3	8·9	8·7	7·4	11·9	11·7	10·0	5·3	9·8	12·4	279·0
Nov.	18·1	19·2	23·4	19·3	16·4	14·8	17·4	10·5	7·1	9·7	9·6	7·9	6·9	4·4	4·9	8·4	10·9	16·9	10·4	13·5	12·7	14·3	8·7	11·3	296·7
Dec.	4·7	4·4	6·3	5·3	5·1	1·9	1·3	3·9	1·5	2·9	3·5	3·7	3·2	2·5	4·1	8·7	10·1	6·7	6·0	4·1	5·4	9·6	5·4	6·9	117·2
Annual	94·1	104·2	116·0	117·7	100·3	91·2	82·1	79·8	65·7	77·6	71·7	71·0	61·5	73·3	78·9	70·5	68·8	76·3	86·3	91·6	73·0	82·5	64·8	78·4	1977·3

RAINFALL

Monthly and annual totals of durations in sixty-minute periods between exact hours Greenwich Mean Time

98 **ESKDALEMUIR:** H_r = 242·0 m. + 0·4 m. 1938

	Hour G.M.T. 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	0-24
	hours																								
Jan.	7·1	7·1	6·9	6·2	6·5	4·7	5·1	5·5	7·7	6·7	6·1	7·2	6·5	4·5	4·6	4·2	5·6	6·7	6·1	6·7	4·7	3·9	4·9	6·9	142·1
Feb.	2·0	1·5	2·7	3·2	3·5	4·5	4·6	4·0	3·7	3·9	4·8	3·2	4·6	5·3	5·2	6·0	4·0	3·5	3·0	4·8	3·8	3·2	3·3	3·0	91·3
Mar.	7·1	5·8	6·1	6·9	6·7	5·7	5·1	6·2	4·2	4·9	5·8	4·5	2·9	2·0	4·7	3·9	3·0	2·3	3·5	7·0	6·4	5·3	6·0	7·0	123·0
Apr.	0·8	0·9	1·1	0·6	1·5	0·8	1·7	2·4	1·3	0·4	2·0	1·0	0·7	0·9	1·0	0·6	0·3	···	···	···	0·3	0·5	···	0·3	19·1
May	5·1	4·8	5·1	6·7	7·9	8·0	8·1	6·7	6·4	3·8	5·5	6·1	7·4	6·6	5·7	3·5	4·0	5·3	4·3	3·4	3·6	3·0	3·5	5·2	129·7
June	8·3	8·1	7·8	7·7	6·3	7·7	5·1	4·2	4·9	4·3	2·6	4·8	4·3	2·5	3·1	4·2	5·6	4·2	3·4	4·6	3·0	6·0	5·9	7·1	125·7
July	3·3	3·8	4·6	6·6	6·1	7·0	7·1	5·8	4·2	4·2	4·2	3·5	3·7	5·1	4·6	3·9	2·3	4·1	4·0	5·8	5·7	7·0	5·8	4·5	116·9
Aug.	1·8	1·0	1·4	1·0	1·0	1·2	1·6	2·3	1·7	2·3	3·0	2·0	4·3	2·7	2·5	1·6	1·5	4·0	3·4	4·5	4·2	4·1	4·3	2·1	59·5
Sept.	3·3	4·5	5·7	6·4	6·1	5·2	6·1	3·2	3·5	5·3	4·3	4·7	3·6	3·2	3·4	3·3	2·6	3·0	0·5	1·3	1·5	2·9	3·6	5·5	92·7
Oct.	9·3	10·3	12·0	12·4	11·3	9·0	6·0	4·8	4·2	5·9	5·6	5·6	6·1	4·4	3·1	4·4	3·3	4·1	5·0	6·4	6·7	4·7	6·7	7·3	158·6
Nov.	7·1	8·6	9·4	10·2	11·4	9·3	12·0	11·8	8·5	5·3	5·3	5·9	6·8	4·8	4·8	5·3	6·7	7·1	6·4	6·5	5·8	6·4	6·5	5·7	177·6
Dec.	7·0	6·0	7·5	4·9	4·3	4·0	3·9	3·8	2·4	2·1	1·7	4·9	5·1	1·7	3·4	5·4	5·5	6·2	5·0	5·3	5·7	8·2	4·4	6·3	114·7
Annual	62·2	62·4	70·3	72·8	72·6	67·1	66·4	60·7	52·7	49·1	50·9	53·4	56·0	43·7	46·1	46·3	44·4	50·5	44·6	56·3	51·4	55·2	54·9	60·9	1350·9

99 **ESKDALEMUIR** **NOTES ON RAINFALL** 1938

Dry Periods

The following definitions are adopted by the British Rainfall Organization
An "absolute drought" is a period of at least 15 consecutive days to none of which is credited 0·2 mm. of rain or more
A "partial drought" is a period of at least 29 consecutive days, the mean daily rainfall of which does not exceed 0·2 mm.
A "dry spell" is a period of at least 15 consecutive days to none of which is credited 1·0 mm. of rain or more

"Absolute drought": No occasions
"Partial drought": April 3–May 11
"Dry spell": April 6–May 11

Wet Periods

The following definitions are adopted by the British Rainfall Organization
A "rain spell" is a period of at least 15 consecutive days to each of which is credited 0·2 mm. of rain or more
A "wet spell" is a period of at least 15 consecutive days to each of which is credited 1·0 mm. of rain or more

"Rain spell": January 6–February 5; June 23–July 11; September 29–October 19; October 24–November 9; November 27–December 16
"Wet spell": November 30–December 16

Rainfall Duration

Hours	0·1–1·0	1·1–2·0	2·1–6·0	6·1–12·0	>12·0
Number of days	33	28	99	69	20

There were 116 days on which no duration of rainfall was registered
The day with the greatest duration was November 8, when the duration was 22·5 hr., the amount falling being 27·8 mm.

Notable Falls of the Year

The greatest amount in a 60-min. period was 14·4 mm. which was recorded between 13h. and 14h. on July 5; on this occasion 5 mm. of rain fell in 6 min. and 10 mm. in 14 min.
Falls of 5 mm. in 1 hr. or less occurred on 22 days.

Details of the greatest continuous falls are as follows

	June 26–27	July 13–14	July 29–30	September 16–17	November 8–9	November 12–13
Amount (mm.)	40	29	79	47	25	41
Duration of rainfall (hr.)	13·9	10·7	25·4	20·2	15·7	12·4

Rate of Rainfall (Jardi recorder)

The highest instantaneous rate of rainfall was 79 mm./hr. at 13h. 5m. on July 5. The maximum rate exceeded the 50 mm./hr. three times on July 5, twice on June 30 and September 21 and once on July 3, October 3 and November 13.

100 ESKDALEMUIR: h_s = 1·5 m. 1938

DAY	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible
	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%
1	···	···	···	···	6·7	63	···	···	13·0	86	5·1	30	9·2	53	11·8	74	1·6	12	6·8	59	3·3	36	0·2	3
2	3·7	52	5·2	60	0·8	7	···	···	9·7	64	1·4	8	4·9	28	7·9	50	10·0	73	···	···	3·3	36	2·8	38
3	···	···	···	···	1·6	15	10·2	78	11·1	73	10·0	59	3·0	17	8·7	55	2·0	15	2·3	20	0·2	2	2·6	35
4	3·7	51	···	···	3·8	35	3·0	23	13·1	85	0·6	4	2·4	14	12·0	76	3·3	24	0·7	6	0·5	6	···	···
5	3·1	43	···	···	4·9	45	6·0	45	14·0	91	7·1	42	0·7	4	1·0	6	0·3	22	0·3	3	···	···	2·4	33
6	···	···	7·5	84	···	···	4·6	34	12·3	79	···	···	3·9	23	4·8	31	···	···	3·9	35	···	···	···	···
7	0·3	4	1·2	13	0·1	1	5·1	38	9·7	62	12·4	72	···	···	4·9	31	3·2	24	4·9	44	···	···	···	···
8	0·1	1	···	···	0·3	3	7·9	58	12·2	78	2·5	15	5·5	32	1·4	9	11·0	83	1·8	16	···	···	···	···
9	···	···	2·4	26	1·8	16	6·4	47	1·7	11	6·2	36	5·7	33	1·5	10	4·8	36	1·6	15	0·9	10	2·0	28
10	0·1	1	5·9	64	···	···	11·8	86	5·8	37	7·2	42	···	···	6·8	44	8·1	62	4·5	41	0·3	3	···	···
11	0·6	8	4·1	44	4·9	43	11·1	81	8·2	52	···	···	1·8	11	11·2	73	1·7	13	4·1	38	0·6	7	···	···
12	···	···	5·7	61	···	···	11·4	83	···	···	1·4	8	3·8	22	3·9	26	2·8	22	···	···	···	···	···	···
13	0·2	3	3·4	36	6·0	52	8·8	63	0·1	1	12·7	73	0·2	1	0·9	6	0·8	6	0·8	8	···	···	1·9	27
14	···	···	4·6	48	7·0	60	8·7	62	···	···	8·7	50	5·9	35	11·1	74	2·6	20	5·6	53	0·7	8	0·5	7
15	···	···	1·7	18	···	···	7·7	55	0·2	1	12·6	73	1·1	7	5·2	35	4·7	37	2·1	20	3·0	36	1·1	16
16	···	···	···	···	4·2	36	11·3	80	···	···	7·5	43	···	···	2·9	19	···	···	2·9	28	···	···	···	···
17	4·9	63	0·2	2	0·5	4	9·5	67	···	···	13·5	78	1·7	10	10·3	69	···	···	5·5	53	0·1	1	···	···
18	···	···	1·5	15	···	···	1·9	13	0·7	4	4·6	27	10·0	60	···	···	0·1	1	1·7	17	0·2	2	0·1	1
19	2·1	27	0·5	5	···	···	8·0	56	6·2	38	7·9	46	···	···	5·1	35	···	···	1·4	14	2·2	27	2·3	33
20	···	···	···	···	0·3	2	1·6	11	2·6	16	1·6	9	···	···	7·3	50	···	···	2·6	26	1·4	17	3·7	53
21	2·1	26	4·4	44	1·2	10	0·7	5	9·5	58	4·4	25	12·9	78	9·4	64	3·6	29	3·7	37	···	···	2·9	41
22	···	···	1·8	18	5·0	41	···	···	6·7	41	8·2	47	8·7	53	5·1	35	2·0	16	0·1	1	2·1	26	1·0	14
23	0·6	7	···	···	0·3	2	0·1	1	3·0	18	1·2	7	3·2	19	3·8	26	0·4	3	···	···	0·1	1	···	···
24	···	···	6·6	64	···	···	4·6	31	8·2	49	1·1	6	···	···	···	···	0·3	2	···	···	1·0	13	3·2	46
25	4·0	49	···	···	5·5	44	4·9	33	1·8	11	7·1	41	5·9	36	1·7	12	4·9	41	···	···	0·5	6	···	···
26	1·0	12	···	···	5·6	45	5·4	36	···	···	3·4	20	5·7	35	5·1	36	3·9	33	1·5	15	2·9	38	···	···
27	3·7	45	3·9	37	3·2	25	3·7	25	0·8	5	1·3	7	4·3	26	0·1	1	···	···	1·2	12	···	···	4·3	61
28	···	···	···	···	···	···	6·8	45	···	···	0·4	2	3·8	23	2·5	18	0·5	4	0·1	1	2·0	26	···	···
29	3·6	43			···	···	11·6	77	6·9	41	7·7	44	0·1	1	3·9	28	3·1	26	0·4	4	1·3	17	1·6	23
30	5·1	60			···	···	4·5	30	8·1	48	3·6	21	···	···	2·8	20	3·0	26	4·8	51	1·2	16	6·1	86
31	0·3	4			···	···			1·1	7			0·4	3	3·8	27			···	···			4·2	59
Mean	1·26	-	2·16	-	2·05	-	5·91	-	5·38	-	5·38	-	3·38	-	5·06	-	2·62	-	2·11	-	0·93	-	1·38	-
											Annual mean		3·14	-										

DURATION OF BRIGHT SUNSHINE

Monthly and annual totals between exact hours Local Apparent Time

101 ESKDALEMUIR: h_s = 1·5 m. 1938

	Hour L.A.T. 3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	Total	Per cent. of possible
	hours																			%
Jan.	-	-	-	-	···	1·4	5·0	6·4	8·7	7·8	5·9	3·9	0·1	···	-	-	-	-	39·2	16
Feb.	-	-	-	···	0·4	7·5	8·9	8·9	7·8	9·2	7·9	5·6	4·3	0·1	···	-	-	-	60·6	23
Mar.	-	-	···	0·5	1·9	3·9	6·1	5·5	9·0	7·8	9·9	7·6	7·1	4·1	0·3	···	-	-	63·7	17
Apr.	-	···	3·0	12·4	15·9	16·1	12·3	11·8	14·0	15·6	15·4	16·8	16·5	14·4	10·4	2·7	···	-	177·3	42
May	···	0·7	5·1	9·0	10·9	13·2	13·7	13·5	12·7	13·0	14·2	15·4	12·0	10·8	10·6	10·8	1·1	···	166·7	33
June	···	1·9	7·5	9·4	12·5	13·4	11·8	13·4	11·4	12·8	10·8	9·8	12·3	12·1	11·2	8·3	2·8	···	161·4	31
July	···	0·6	3·5	4·8	7·3	8·0	8·7	8·2	9·3	8·5	8·4	7·9	8·0	7·6	6·5	6·2	1·3	···	104·8	20
Aug.	-	···	2·6	6·9	10·6	13·1	15·4	14·3	15·8	16·5	15·1	12·0	11·4	9·9	9·6	3·7	···	-	156·9	34
Sept.	-	-	···	3·6	5·6	9·4	10·0	9·1	8·0	7·9	7·3	6·3	6·9	3·7	0·9	···	-	-	78·7	21
Oct.	-	-	-	···	2·0	6·5	7·9	8·0	10·0	10·1	7·8	6·1	4·6	2·3	···	-	-	-	65·3	20
Nov.	-	-	-	-	···	0·6	3·5	4·7	5·4	5·9	3·0	3·9	0·8	···	-	-	-	-	27·8	11
Dec.	-	-	-	-	-	0·2	5·5	7·3	7·9	8·9	8·6	4·3	···	-	-	-	-	-	42·9	19
Annual	···	3·2	21·7	46·6	67·1	93·5	108·8	111·1	120·0	124·0	114·3	99·6	84·0	65·0	49·5	31·7	5·2	···	1145·3	26

WIND

Mean speed and highest instantaneous speed recorded each day (0h. to 24h. Greenwich Mean Time) by the pressure-tube anemograph

102 ESKDALEMUIR: H_a(height of anemograph above M.S.L.) = height of ground above M.S.L. + h_a(height of anemograph above ground) = 235 m. + 15 m. 1938

DAY	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust
	metres per second																							
1	2·7	10	15·4	32	9·0	27	5·7	21	6·4	19	4·6	16	2·0	10	1·1	7	1·3	11	1·2	9	10·6	29	6·3	21
2	2·7	8	10·1	30	9·1	26	11·6	27	7·3	20	10·6	23	2·6	11	2·4	8	1·6	10	3·6	14	7·5	23	5·8	16
3	3·1	8	12·8	28	11·4	24	8·8	23	8·1	20	6·5	15	4·1	13	2·7	8	4·1	14	10·2	30	6·8	19	4·7	22
4	3·2	11	15·8	30	7·5	21	5·2	18	6·1	17	5·4	15	1·6	11	3·9	12	1·6	12	11·9	33	11·3	25	4·5	18
5	2·6	16	11·4	27	8·4	19	7·2	25	3·6	11	7·3	19	0·8	11	3·2	10	2·7	11	6·9	19	7·3	19	4·3	16
6	5·6	16	1·5	9	5·5	13	7·0	28	4·1	16	11·3	23	2·2	12	0·7	7	2·2	9	6·6	19	10·2	22	8·5	23
7	3·1	15	1·7	10	4·7	10	6·3	23	4·7	14	12·5	31	3·6	14	3·0	11	5·0	16	11·1	29	13·2	25	11·4	23
8	2·3	11	3·7	21	8·0	18	2·2	11	3·6	13	9·1	19	2·1	9	4·8	14	3·4	13	7·7	20	4·4	17	2·3	12
9	4·7	12	7·9	23	13·1	33	2·5	10	5·2	16	5·8	17	7·6	21	2·6	9	1·9	9	9·1	22	2·8	15	4·0	16
10	1·9	8	12·2	26	5·4	18	1·3	8	2·1	8	4·6	17	6·0	18	2·9	10	2·6	9	8·7	23	0·7	6	1·8	10
11	4·5	16	5·1	23	2·9	12	1·0	8	8·6	23	2·3	11	5·3	14	2·5	11	4·4	18	5·6	19	2·9	14	3·6	16
12	4·1	14	13·1	29	1·0	7	2·0	9	10·0	20	1·3	7	3·1	13	2·1	12	7·0	22	7·9	23	9·7	25	6·8	20
13	9·7	31	7·9	18	2·9	13	2·6	10	9·9	20	2·0	11	6·1	17	2·5	9	8·7	21	7·6	23	13·3	33	6·0	15
14	8·5	25	4·7	12	8·0	27	1·5	9	5·1	16	4·3	21	6·5	16	1·6	7	2·5	13	8·4	22	4·8	22	4·4	14
15	9·7	32	3·8	13	14·6	28	1·1	9	2·7	11	5·9	21	1·1	7	4·5	18	1·4	9	8·1	21	0·6	5	5·5	22
16	6·4	20	7·2	17	11·6	29	3·0	14	5·2	16	1·7	9	3·0	13	8·6	21	7·2	20	9·4	21	2·2	8	4·6	19
17	6·7	18	8·0	22	9·0	20	3·8	13	5·1	15	1·8	9	3·6	13	7·8	23	10·2	21	8·7	22	6·0	16	5·6	19
18	9·7	23	7·5	20	14·7	27	3·1	11	5·0	13	3·7	13	2·8	11	9·4	22	4·3	13	3·2	13	7·8	26	8·6	21
19	7·6	22	8·6	20	14·9	28	3·2	11	3·9	11	8·3	20	3·8	13	6·3	25	2·9	11	3·5	14	9·1	20	4·3	16
20	9·5	25	4·9	12	10·7	29	1·7	9	2·3	11	7·3	21	3·5	11	6·3	20	1·7	7	5·1	15	2·2	12	4·8	11
21	10·0	28	2·0	8	1·2	9	3·3	15	3·8	14	7·0	19	1·8	8	2·0	12	4·0	16	2·7	10	1·6	10	4·8	13
22	8·8	22	2·3	10	3·5	11	2·7	11	2·9	11	3·6	12	1·9	11	0·8	8	6·2	16	1·4	7	1·3	8	7·9	17
23	10·0	25	4·1	10	7·4	17	2·0	10	4·4	20	1·6	7	1·1	7	3·7	11	5·3	16	0·8	5	8·0	28	4·8	14
24	12·9	26	2·7	9	11·0	25	3·1	13	5·8	17	6·1	16	2·1	11	5·3	15	3·0	11	5·5	13	6·6	21	1·7	7
25	13·3	33	4·3	14	8·6	22	3·5	12	3·8	12	8·8	26	2·5	9	0·6	7	2·3	11	2·4	9	6·3	19	2·4	13
26	9·3	23	7·7	19	5·2	19	2·2	10	7·2	21	6·5	15	3·8	13	1·2	8	1·2	5	6·1	18	5·8	25	4·9	19
27	7·3	17	10·1	21	7·2	24	0·9	8	4·1	14	11·7	29	5·1	13	4·2	14	2·3	11	6·4	23	6·8	24	7·8	22
28	12·2	31	13·0	28	7·3	18	3·6	11	1·3	6	9·2	28	5·8	18	1·6	9	2·3	12	1·2	9	8·7	24	2·6	13
29	12·3	39			7·8	20	5·9	18	5·9	18	7·6	21	9·2	25	1·1	9	3·8	13	2·9	11	8·6	20	7·0	21
30	6·7	20			10·7	23	6·4	16	5·3	17	6·4	15	10·7	25	1·1	8	1·8	8	5·6	15	10·3	22	6·0	18
31	13·4	33			11·7	28			4·6	12			6·0	14	1·1	7			8·4	27			3·0	19

WIND

Monthly and annual means of mean wind speed between exact hours Greenwich Mean Time

103 ESKDALEMUIR: H_a = 235 m. + 15 m. 1938

	Hour G.M.T. 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
	metres per second																								
Jan.	6·8	6·9	7·6	7·0	7·0	6·9	6·7	7·0	6·9	7·0	7·4	7·9	8·0	7·5	7·6	7·2	7·3	7·6	8·0	7·6	7·1	7·0	6·9	7·1	7·2
Feb.	7·2	7·0	7·2	7·5	7·5	7·7	7·5	7·3	7·5	7·3	7·7	7·8	8·3	8·4	8·3	8·5	8·1	7·3	6·8	6·5	6·9	7·2	7·1	6·9	7·5
Mar.	7·4	7·1	7·3	7·3	7·3	7·1	7·3	7·5	7·6	8·5	9·2	9·3	9·7	10·3	10·4	10·2	9·3	9·0	8·7	7·8	7·5	7·2	6·7	7·1	8·2
Apr.	3·2	3·2	3·0	2·9	2·8	2·8	2·8	3·4	4·0	4·8	4·8	4·8	4·9	4·9	4·9	4·7	4·8	4·6	4·0	3·7	3·3	3·1	3·0	3·0	3·8
May	3·4	3·2	3·1	3·3	3·5	3·7	4·3	5·1	5·9	6·4	6·6	6·8	7·0	7·1	7·0	7·2	6·8	6·6	5·8	4·9	3·9	3·6	3·7	3·5	5·1
June	5·1	5·1	5·1	5·1	5·1	5·3	5·7	6·4	6·8	7·2	7·6	7·9	7·7	7·4	7·4	7·3	6·9	6·3	6·4	6·1	5·6	4·8	4·9	4·8	6·2
July	2·8	3·0	2·9	2·8	2·9	2·7	3·0	3·5	4·3	4·9	5·0	5·5	5·6	5·6	5·0	4·8	4·8	4·9	4·3	4·0	3·3	3·0	2·9	2·5	3·9
Aug.	2·6	2·6	2·8	2·6	2·5	2·4	2·5	2·8	3·4	3·7	4·2	4·5	4·5	4·6	4·5	4·5	4·5	4·1	3·3	2·7	2·4	2·5	2·1	2·3	3·3
Sept.	3·1	3·0	2·8	2·5	2·6	2·7	2·8	2·9	3·6	4·5	4·9	4·8	5·0	5·0	4·8	4·6	4·3	3·8	3·3	3·2	3·2	3·1	3·3	3·3	3·6
Oct.	4·7	4·9	5·3	5·3	5·8	5·8	5·7	5·9	5·9	6·3	7·0	7·7	8·3	8·1	7·3	6·6	6·2	5·7	5·7	5·7	5·8	5·5	5·3	5·1	6·1
Nov.	6·8	6·6	6·1	6·1	6·2	5·8	6·0	6·2	6·1	5·8	6·8	7·2	7·3	7·0	7·4	7·2	7·2	6·7	6·8	6·8	6·6	6·4	6·4	6·5	6·6
Dec.	5·2	5·0	4·8	4·8	4·4	4·6	4·5	4·7	5·1	5·3	5·8	5·9	6·1	6·4	5·9	5·4	5·3	5·2	4·9	5·0	4·9	5·1	5·2	4·9	5·2
Annual	4·8	4·8	4·8	4·7	4·8	4·8	4·9	5·2	5·6	6·0	6·4	6·7	6·9	6·9	6·7	6·5	6·3	6·0	5·7	5·3	5·0	4·9	4·8	4·7	5·5

DISTRIBUTION OF WIND SPEED, EXTREME VELOCITIES AS RECORDED BY PRESSURE-TUBE ANEMOGRAPH

104 ESKDALEMUIR: H_a = 235 m. + 15 m. 1938

	DISTRIBUTION OF WIND SPEED								EXTREME VELOCITIES				
	More than 17·1 m./sec.		10·8 to 17·1 m./sec.		5·5 to 10·7 m./sec.	1·6 to 5·4 m./sec.	Less than 1·6 m./sec.	No record	Highest hourly wind			Highest gust	
	Dates of occurrence	Duration	No. of days	Duration	Duration	Duration	Duration	Duration	Veer from N.	Speed	Hour ended	Speed	Date
		hr.		hr.	hr.	hr.	hr.	hr.	°	m./sec.	day h.	m./sec.	day h. m.
Jan.	25,29,31	8	17	163	283	226	64	0	200	21	25 5	39	29 9 15
Feb.	1,3,4,5,12	23	14	152	219	199	79	0	240	20	4 1	32	1 8 10
Mar.	9,15,16, 18,19,20	25	23	204	315	119	81	0	260	19	9 13	33	9 12 35
Apr.	-	0	5	31	153	323	213	0	250	17	2 4	28	6 11 35
May	-	0	6	37	297	290	120	0	210	16	11 16	23	11 15 35
June	7,27	2	13	94	308	214	102	0	200	19	7 5	31	7 4 25
July	-	0	2	19	201	316	208	0	210	15	30 11	25	29 21 15
Aug.	-	0	4	17	135	336	256	0	250	15	19 1	25	19 0 20
Sept.	-	0	4	25	140	340	215	0	200	13	17 6	22	12 1 5
Oct.	7	2	14	101	292	234	115	0	190	18	7 6	33	4 10 55
Nov.	13	4	18	137	289	164	126	0	200	20	13 8	33	13 7 10
Dec.	-	0	10	30	335	274	105	0	210	14	7 10	23	{6 13 5 {7 13 20
Year	18 days		64	130	1010	2967	3035	1684	0	200	21	Jan. 25 5	39	Jan. 29 9 15

TEMPERATURE IN THE GROUND AT DEPTHS OF 30 CM.(1ft.) AND 122 CM.(4ft.) AT 9h. GREENWICH MEAN TIME

105 ESKDALEMUIR 1938

DAY	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.
	degrees Absolute																							
1	77·0	79·3	77·1	79·1	78·6	78·8	80·3	79·4	81·2	80·7	83·0	81·6	85·2	83·3	87·1	84·5	85·9	85·2	85·5	84·8	81·9	83·3	78·7	81·9
2	76·9	79·4	77·0	79·1	78·3	78·7	81·0	79·6	81·0	80·7	83·2	81·6	85·3	83·3	87·5	84·5	85·4	85·2	85·3	84·9	81·4	83·3	78·7	81·8
3	76·8	79·4	77·1	79·1	78·1	78·8	80·6	79·7	81·1	80·8	82·9	81·6	85·4	83·3	87·8	84·5	85·5	85·1	85·0	84·8	81·0	83·2	78·6	82·1
4	76·9	79·4	77·8	79·0	78·2	78·8	79·9	79·9	81·2	80·7	83·1	81·8	85·5	83·2	88·1	84·6	85·3	85·1	84·5	84·8	81·1	83·2	78·1	81·8
5	77·0	79·3	78·2	79·0	78·6	78·9	79·8	80·0	81·3	80·7	83·4	81·9	85·3	83·3	88·2	84·6	85·3	85·1	84·0	85·0	81·9	83·6	78·1	81·5
6	77·0	79·4	78·2	78·9	78·8	78·9	80·1	80·0	81·7	80·8	83·8	81·7	85·0	83·4	88·1	84·6	85·4	85·1	83·5	85·1	82·3	83·1	78·3	81·6
7	77·2	79·4	77·8	79·1	79·0	78·9	80·8	80·0	81·7	80·7	84·0	81·7	85·1	83·3	88·7	84·7	85·5	85·1	83·2	84·9	82·9	83·1	78·9	81·4
8	77·1	79·3	77·4	79·1	79·0	78·9	80·6	80·1	81·7	80·7	84·3	81·7	85·0	83·3	89·2	84·8	85·7	85·0	83·0	84·4	83·0	83·1	79·2	81·4
9	77·0	79·2	77·0	79·1	79·0	78·9	80·2	80·1	81·7	80·7	84·4	81·9	85·7	83·4	89·1	84·9	85·8	85·0	82·8	84·5	82·9	83·1	79·0	81·2
10	77·0	79·2	77·2	79·1	79·6	79·0	79·7	80·0	81·6	80·7	84·5	81·9	85·5	83·4	89·2	84·9	86·0	85·1	82·8	84·4	82·5	83·1	78·6	81·1
11	76·8	79·2	77·0	79·1	79·9	79·0	79·7	80·1	81·8	80·7	84·6	82·0	85·5	83·4	89·4	85·1	86·3	84·9	82·8	84·3	82·4	83·1	78·7	81·1
12	76·6	79·2	76·8	78·9	80·2	78·9	80·0	80·0	82·2	80·7	84·7	82·1	85·6	83·4	89·6	85·1	86·6	84·9	82·7	84·3	82·3	82·9	79·0	81·1
13	76·7	79·2	76·8	79·0	80·4	79·0	80·3	80·0	82·3	80·7	84·7	82·1	85·5	83·5	89·3	85·1	86·8	84·9	83·1	84·2	82·7	82·9	79·2	81·1
14	77·0	79·2	76·4	78·9	80·2	79·3	80·5	80·0	82·5	80·8	85·6	82·4	85·6	83·5	88·7	85·2	86·8	84·9	83·4	84·1	83·0	82·9	79·5	81·1
15	77·3	79·3	76·2	78·9	80·0	79·3	80·7	80·0	82·9	80·9	85·6	82·3	85·9	83·6	88·8	85·3	86·2	85·0	83·3	84·0	82·9	82·9	79·3	81·1
16	77·6	79·3	76·1	78·8	80·0	79·3	81·0	80·0	83·1	80·9	85·8	82·4	86·0	83·6	88·7	85·3	85·7	84·9	83·4	84·0	82·4	82·9	79·1	81·1
17	77·6	79·3	76·0	78·8	79·8	79·3	80·8	80·0	82·8	80·9	85·9	82·5	86·0	83·7	88·3	85·3	85·6	84·9	83·5	83·9	82·1	83·0	79·2	81·0
18	77·2	79·0	76·0	78·7	79·7	79·3	80·1	80·0	82·2	81·1	86·6	82·5	85·9	83·7	87·8	85·3	85·6	84·9	83·2	83·9	82·1	83·0	78·8	81·0
19	77·3	79·0	76·3	78·9	79·8	79·3	79·8	80·1	82·0	81·1	87·0	82·6	86·5	83·7	87·4	85·3	85·8	84·9	83·1	83·8	81·8	82·8	78·0	80·9
20	77·6	79·0	76·9	78·7	80·0	79·4	80·0	80·2	81·8	81·1	86·3	82·7	86·6	83·7	86·9	85·4	85·6	84·9	82·8	83·8	81·3	82·9	77·4	80·8
21	78·0	79·1	76·7	78·5	79·9	79·4	80·1	80·2	82·0	81·2	85·8	82·8	86·4	83·8	86·5	85·4	85·2	84·9	83·0	83·8	80·7	82·8	77·2	80·8
22	77·8	79·2	76·8	78·5	79·7	79·5	80·3	80·2	82·7	81·2	85·5	82·9	86·6	83·8	86·4	85·4	85·3	84·9	83·0	83·8	80·2	82·7	76·9	80·7
23	78·0	79·2	76·7	78·5	79·4	79·4	80·5	80·2	83·4	81·2	85·4	83·0	87·0	83·8	86·5	85·3	85·4	84·9	83·0	83·7	79·8	82·7	76·8	80·6
24	78·3	79·1	76·7	78·5	79·5	79·4	80·9	80·3	83·3	81·3	85·3	83·0	87·5	83·9	86·8	85·3	85·7	84·9	83·0	83·6	79·6	82·6	76·7	80·6
25	78·6	79·1	76·6	78·5	79·6	79·4	81·2	80·2	83·3	81·3	85·8	83·1	87·4	83·9	87·0	85·3	85·8	84·9	83·1	83·7	79·1	82·6	76·7	80·4
26	78·5	79·1	76·9	78·8	79·7	79·4	81·3	80·2	83·0	81·3	85·8	83·1	87·8	84·0	87·0	85·3	85·8	84·9	82·9	83·6	78·9	82·4	76·7	80·4
27	77·8	79·1	77·8	78·7	78·9	79·4	81·3	80·3	83·0	81·3	85·8	83·1	87·7	84·1	87·3	85·3	85·8	84·9	82·1	83·6	78·8	82·4	76·5	80·3
28	77·3	79·1	78·2	78·7	79·1	79·4	81·3	80·2	83·0	81·4	85·5	83·1	87·6	84·1	87·1	85·1	85·7	84·9	81·7	83·7	78·8	82·3	76·6	80·3
29	77·4	79·1			79·6	79·3	81·4	80·3	82·8	81·4	85·3	83·2	87·3	84·2	86·9	85·3	85·7	84·9	81·5	83·7	78·7	82·2	77·0	80·1
30	77·2	79·2			80·0	79·3	81·2	80·5	82·9	81·4	85·1	83·3	87·4	84·3	86·5	85·2	85·6	84·9	81·5	83·5	78·7	82·0	77·2	80·0
31	77·0	79·1			80·6	79·4			83·0	81·5			87·2	84·4	86·1	85·2			81·7	83·4			77·0	80·0
Mean	77·3	79·2	77·0	78·9	79·5	79·2	80·5	80·1	82·3	81·0	85·0	82·4	86·2	83·7	87·8	85·1	85·4	84·6	83·1	84·1	81·2	82·9	78·1	81·0
											Year		82·0	81·8										

MINIMUM TEMPERATURE "ON THE GRASS" DURING THE INTERVAL 18h. TO 7h. GREENWICH MEAN TIME

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DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
	degrees Absolute											
1	70·1	72·8	75·3	79·8	68·8	73·7	73·9	73·7	69·9	75·7	75·2	73·0
2	68·1	72·9	72·5	78·8	69·1	77·2	72·5	79·6	71·2	72·6	73·0	72·9
3	71·0	78·0	73·4	72·0	72·2	76·9	81·7	78·7	76·3	77·1	75·4	71·0
4	72·8	79·6	78·0	68·4	75·2	80·3	75·3	78·9	74·5	80·5	80·7	66·7
5	72·2	78·4	73·0	75·9	65·9	78·8	72·1	85·6	73·7	76·6	83·3	74·8
6	74·8	68·8	78·9	79·9	65·8	81·2	76·9	84·5	82·8	73·0	84·0	71·9
7	74·0	66·4	77·0	76·0	74·2	83·6	75·6	87·4	79·0	80·8	82·9	79·5
8	70·1	69·9	76·1	68·0	64·9	80·8	80·7	87·5	75·7	75·8	81·9	72·4
9	75·1	69·1	78·2	67·0	73·7	78·4	80·7	88·0	74·6	79·2	78·7	66·5
10	72·5	72·8	80·9	64·5	72·6	77·3	79·7	85·3	75·3	76·9	74·4	72·8
11	67·1	67·8	79·8	64·8	73·2	76·9	82·8	79·9	81·1	76·1	76·0	73·4
12	73·0	75·2	74·8	67·1	81·1	80·4	79·5	81·0	84·9	75·5	81·0	79·4
13	75·2	70·8	73·0	69·1	81·4	75·0	74·4	82·2	86·2	81·1	84·9	75·3
14	76·9	68·6	68·6	68·8	81·9	73·3	84·2	74·1	79·6	79·2	81·1	80·1
15	76·7	68·3	77·2	69·2	82·9	81·9	80·5	74·3	69·0	75·7	73·6	71·1
16	73·8	71·7	79·2	67·5	82·7	73·7	78·9	83·9	76·7	80·7	71·0	77·7
17	72·2	72·2	71·6	67·2	78·9	74·3	75·3	81·2	84·9	80·5	80·8	72·3
18	72·3	71·1	79·0	64·9	77·6	79·0	82·5	80·2	84·6	73·9	75·7	69·4
19	75·0	74·5	80·1	69·7	72·6	83·1	79·9	79·7	81·4	76·8	73·3	67·5
20	75·8	74·0	78·9	65·1	67·8	78·5	84·9	76·6	77·8	76·3	71·5	65·1
21	79·2	69·4	74·4	76·1	69·3	78·6	72·2	73·2	73·2	76·3	65·8	63·4
22	71·2	64·8	65·9	72·8	81·4	75·3	74·1	74·0	81·2	77·7	70·8	67·8
23	80·1	72·2	76·6	77·7	80·0	73·0	79·4	74·3	81·6	76·8	67·6	68·8
24	77·9	69·2	77·4	77·0	77·0	84·5	85·1	*	84·4	79·5	73·0	71·3
25	78·3	66·6	74·7	71·4	74·6	83·7	78·9	81·0	83·7	80·8	70·4	70·7
26	73·3	79·2	69·2	71·0	78·6	78·4	83·2	77·8	75·0	68·8	72·3	72·9
27	69·1	75·1	74·0	67·4	80·0	83·2	81·1	80·9	78·1	73·8	67·5	75·3
28	73·0	77·6	77·0	77·2	76·2	79·8	83·6	82·0	76·5	69·6	71·8	70·9
29	72·4		80·6	72·8	78·2	80·5	82·3	72·0	83·0	71·3	73·7	77·6
30	70·7		82·0	73·0	74·9	79·4	86·2	74·7	77·2	73·8	74·2	72·4
31	70·6		81·6		74·2		85·4	72·0		77·8		65·0
Mean	73·4	72·0	76·1	71·3	75·1	78·7	79·5	79·5	78·4	76·5	75·5	71·9
						Year	75·7					

The initial 2 or 3 of the readings is omitted, i.e. 275·0 degrees is printed 75·0.

The minimum "on the grass" refers to the interval from 18h. on the previous day to 7h. on the day to which it is entered.

Add 0·16° to obtain temperature in degrees Kelvin where T (°K.) = t (°C.) + 273·16.

* Grass minimum not put out.

POTENTIAL GRADIENT (reduced to level surface): VOLTS PER METRE
Mean values for periods of sixty minutes, ending at the exact hours, Greenwich Mean Time

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Month	JANUARY Factor 4·92				FEBRUARY Factor 5·00				MARCH Factor 4·37			
Hour G.M.T.	2-3h	8-9h	14-15h	20-21h	2-3h	8-9h	14-15h	20-21h	2-3h	8-9h	14-15h	20-21h
Day	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m
1	215	405	290	445	Z-	Z+	Z-	175	50	115	155	215
2	170	115	115	165	135	175	135	10	90	20	115	365
3	110	90	130	415	45	50	Z-	Z-	115	205	165	145
4	365	370	380	445	40	75	90	140	135	150	190	345
5	170	465	245	255	30	20	-115	-15	355	115	125	235
6	Z-	Z-	165	Z±	120	145	105	190	65	190	95	225
7	Z-	130	Z-	205	115	95	290	235	145	80	195	315
8	280	410	470	255	75	70	55	300	205	355	275	50
9	75	475	Z+	190	250	Z-	155	255	155	95	105	120
10	215	Z±	-	-	-135	135	Z±	260	140	125	100	495
11	-	-	Z±	315	405	345	240	110	330	115	260	170
12	220	Z-	235	360	115	105	135	180	230	105	260	420
13	Z-	175	155	105	115	125	220	245	70	155	255	440
14	75	135	255	Z-	240	Z+	185	200	265	440	220	170
15	80	Z-	Z-	155	240	235	150	225	160	170	95	25
16	115	Z-	Z-	475	85	45	Z-	175	Z-	225	125	240
17	120	145	205	255	100	85	135	125	170	175	175	195
18	255	145	115	Z-	130	70	145	115	60	160	90	225
19	Z-	Z-	160	Z-	125	95	85	130	25	25	Z-	265
20	40	85	155	50	80	60	105	100	-125	Z-	180	Z-
21	Z-	95	230	350	70	70	130	205	5	-335	130	155
22	205	190	135	85	290	135	245	265	175	360	180	330
23	65	185	325	130	170	75	155	280	185	-	85	210
24	45	80	140	170	125	160	315	385	165	130	Z-	55
25	Z-	-115	175	115	320	80	Z-	Z-	85	-15	Z±	Z-
26	140	85	Z±	275	65	20	45	Z±	90	125	85	Z-
27	145	175	330	285	125	95	175	155	-20	90	110	150
28	Z-	130	100	Z-	125	Z-	Z-	105	130	75	130	105
29	Z±	Z-	Z±	225					30	85	70	50
30	145	185	215	310					20	55	55	110
31	Z-	85	75	Z-					10	110	90	100
(a)	155	198	209	251	144	107	157	190	131	150	147	212
(b)	160	223	241	251	137	118	147	177	129	134	152	215
Mean	(a) 203		(b) 219		(a) 149		(b) 145		(a) 160		(b) 157	

Month	APRIL Factor 4·95				MAY Factor 4·87				JUNE Factor 4·71			
Hour G.M.T.	2-3h	8-9h	14-15h	20-21h	2-3h	8-9h	14-15h	20-21h	2-3h	8-9h	14-15h	20-21h
Day	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m
1	120	160	70	235	60	95	95	170	390	225	150	25
2	125	Z-	Z-	Z-	145	115	85	190	Z±	Z±	Z-	290
3	145	205	200	305	95	70	190	155	200	140	120	170
4	145	80	155	370	115	185	150	215	-45	Z-	380	80
5	-150	235	195	115	135	155	160	130	140	140	135	160
6	130	130	160	130	70	245	180	270	Z-	135	Z-	-25
7	145	130	150	405	30	155	105	80	Z-	160	155	140
8	585	215	160	225	110	105	135	120	65	110	130	160
9	255	125	150	530	115	0	120	95	180	Z-	120	165
10	410	160	215	325	35	60	110	235	185	150	185	220
11	185	265	205	235	95	145	125	135	200	225	145	75
12	305	185	250	215	Z-	Z-	Z-	215	95	205	150	285
13	150	145	210	300	Z-	185	115	25	410	170	225	325
14	320	185	200	295	Z-	135	70	50	125	165	245	235
15	285	235	215	160	25	75	Z-	20	245	265	195	180
16	280	340	145	305	45	Z+	95	70	365	130	75	215
17	130	130	160	235	95	45	50	Z-	205	170	215	145
18	90	135	130	245	Z-	95	125	85	190	255	150	215
19	-	-	160	65	230	195	140	135	165	155	100	Z-
20	110	70	95	155	85	150	115	135	105	105	-5	195
21	200	130	95	50	135	155	175	190	190	50	165	245
22	125	235	75	130	180	335	165	220	135	140	130	300
23	120	80	110	40	100	130	130	205	65	125	-	-
24	145	210	160	245	-10	120	145	210	-	-	40	150
25	440	235	225	205	225	115	Z±	375	Z-	55	65	140
26	280	225	160	305	Z-	Z-	Z-	-60	130	150	60	65
27	55	220	135	100	175	10	125	290	Z-	Z-	Z-	50
28	20	160	155	195	95	Z+	Z-	Z-	Z-	70	Z-	Z-
29	10	100	145	110	35	175	125	245	Z±	195	75	200
30	0	60	80	100	25	150	160	145	205	175	Z±	310
31					145	225	Z-	-75				
(a)	190	171	157	218	104	134	128	163	190	155	148	182
(b)	180	171	157	224	98	137	137	179	199	164	145	189
Mean	(a) 184		(b) 183		(a) 132		(b) 138		(a) 169		(b) 174	

Note:- The Potential Gradient is reckoned as positive if the potential increases upwards. For Indeterminate Potential Gradient the following notation is used: Z+, Indeterminate, positive value; Z-, Indeterminate, negative value; Z± Indeterminate in magnitude and sign
(a) Mean of all positive readings (b) Mean from all complete days using both positive and negative readings

POTENTIAL GRALIENT (reduced to level surface): VOLTS PEE MFTHE
Mean Values for periods of sixty minutes, ending at the exact hours, Greenwich Mean Time

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Month	JULY Factor 4·59				AUGUST Factor 4·59				SEPTEMBER Factor 4·64			
Hour G.M.T.	2-3h	8-9h	14-15h	20-21h	2-3h	8-9h	14-15h	20-21h	2-3h	8-9h	14-15h	20-21h
Day	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m
1	480	180	120	220	285	120	110	265	70	130	Z-	290
2	170	190	Z-	80	120	140	145	340	235	340	165	290
3	120	90	80	190	220	165	240	350	10	Z-	Z-	325
4	35	-35	Z±	120	195	205	160	285	160	185	115	235
5	135	175	Z±	Z-	185	230	Z-	110	35	65	140	430
6	210	155	Z±	-20	410	370	90	Z±	175	270	100	480
7	205	Z-	120	65	340	375	145	235	80	110	110	40
8	190	220	130	70	Z-	Z+	120	340	130	140	170	180
9	Z-	140	100	120	(270)	(230)	90	320	140	220	140	345
10	(50)	15	85	80	355	175	110	210	110	320	260	640
11	(10)	30	70	130	205	275	105	Z+	290	205	160	250
12	185	135	50	230	70	110	65	465	125	105	70	105
13	260	175	35	95	30	65	85	165	55	90	105	115
14	Z-	185	165	320	145	235	155	215	130	100	180	305
15	160	140	80	95	175	280	160	-190	330	150	(110)	340
16	240	175	40	140	235	90	Z-	±10	80	120	65	65
17	120	130	110	230	Z-	145	60	175	Z-	Z-	145	155
18	170	150	180	295	65	-25	Z-	-270	140	370	70	160
19	330	165	195	205	110	155	Z-	265	20	215	80	130
20	200	125	120	285	55	195	Z±	200	130	215	270	275
21	210	160	180	235	120	150	150	260	125	325	150	Z+
22	115	175	160	270	90	110	85	180	90	390	195	300
23	45	210	100	90	145	105	245	335	235	225	165	195
24	180	180	130	110	275	190	230	240	215	120	150	175
25	185	330	155	Z±	40	35	195	325	50	420	145	(65)
26	Z±	95	Z±	355	80	135	95	130	(20)	70	185	400
27	100	170	155	Z-	190	170	160	250	315	195	180	40
28	140	110	80	330	130	125	165	440	(55)	(60)	-	-
29	95	250	-160	Z-	395	205	Z±	295	-	-	160	35
30	Z-	Z-	140	485	150	220	10	105	(60)	(50)	170	115
31	115	200	170	360	165	95	155	185				
(a)	165	159	118	200	181	176	133	252	129	193	146	231
(b)	175	146	111	193	171	164	141	243	140	195	146	236
Mean	(a) 161		(b) 156		(a) 185		(b) 180		(a) 175		(b) 179	

Month	OCTOBER Factor 4·65				NOVEMBER Factor 4·69				DECEMBER Factor 4·77			
Hour G.M.T.	2-3h	8-9h	14-15h	20-21h	2-3h	8-9h	14-15h	20-21h	2-3h	8-9h	14-15h	20-21h
Day	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m
1	Z-	230	185	335	Z-	Z±	215	110	Z±	125	Z-	Z-
2	245	135	55	40	Z±	Z±	120	-45	Z-	Z-	250	385
3	Z-	85	-100	Z-	115	165	110	5	80	100	225	285
4	Z-	-30	Z+	Z±	Z-	190	90	135	185	275	30	Z-
5	40	120	Z-	Z±	35	240	-5	120	Z-	145	190	230
6	85	65	-35	60	75	95	235	145	65	35	Z-	85
7	Z-	55	110	115	140	120	100	160	55	35	Z-	115
8	Z+	100	105	-85	-90	70	40	150	255	285	190	15
9	Z-	150	Z-	Z±	80	110	185	445	250	Z-	205	140
10	105	10	Z-	Z-	310	430	295	225	240	245	495	(670)
11	Z-	Z-	Z-	175	190	55	210	Z-	65	215	90	Z-
12	Z-	-45	Z-	65	175	205	225	Z-	65	145	Z-	320
13	(35)	(55)	75	125	Z-	45	160	125	320	195	370	-55
14	-10	Z±	130	195	Z-	145	155	235	(95)	(25)	(185)	445
15	125	120	120	120	100	190	165	235	580	355	410	Z-
16	Z±	280	115	155	315	405	80	135	85	220	335	400
17	Z-	100	145	345	Z±	210	250	(180)	420	10	230	265
18	Z-	40	105	Z	75	140	Z-	Z-	160	115	235	280
19	95	200	195	350	85	120	100	165	120	175	255	335
20	(150)	(95)	250	350	120	155	235	280	85	Z+	145	200
21	315	330	320	Z±	75	285	Z-	Z-	Z±	80	(750)	Z+
22	Z-	610	250	355	330	355	375	560	Z±	665	Z+	520
23	175	45	130	55	Z-	Z±	Z±	185	210	25	285	285
24	100	115	220	295	Z±	Z±	Z±	360	115	120	200	360
25	Z-	105	270	Z+	310	Z-	190	Z+	240	175	295	-75
26	240	Z-	165	165	155	155	165	225	145	310	540	145
27	Z-	Z±	120	570	150	250	Z-	240	(35)	(65)	195	285
28	215	330	415	405	160	175	305	60	265	100	210	200
29	290	350	420	255	110	220	225	400	95	215	135	200
30	365	145	140	Z-	Z-	35	165	Z-	95	145	190	Z+
31	Z-	285	150	195					95	120	-	-
(a)	172	166	182	225	155	183	183	212	170	169	266	280
(b)	151	151	183	205	136	200	174	221	180	149	274	253
Mean	(a) 186		(b) 173		(a) 183		(b) 183		(a) 221		(b) 214	

Annual Means (a)	157	163	165	218
(b)	155	163	167	215
(a) 176			(b) 175	

The factor used for converting the potential at the collector to potential gradient in volts per metre in the open is given for each month.

POTENTIAL GRADIENT (reduced to level surface): DIURNAL INEQUALITIES (in volts per metre)
The departures from the mean of the day are adjusted for non-cyclic change †

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MONTH AND SEASON	Hour 0 to 1	G.M.T. 1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	Non Cyclic Change†	No.of Days Used	Mean Values
	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m		v/m
Jan.	-16	-4	-73	-26	-25	+8	+19	-37	-44	-63	-92	-103	-78	-59	-59	-26	+17	+81	+112	+120	+91	+125	+87	+50	-3	4	287
Feb.	-3	-16	-21	-31	-42	-49	-41	-35	-23	-11	+6	+9	+11	-3	-3	+21	+19	+16	+43	+73	+48	+30	0	+6	+13	6	156
Mar.	-5	-10	-27	-37	-30	-36	-52	-38	-28	-11	-12	+1	-10	-14	-24	-18	+3	+43	+73	+106	+93	+26	+6	-11	-2	8	197
Apr.	+61	+47	+23	+2	-3	+1	-14	-19	-29	-40	-50	-42	-34	-26	-30	-25	-21	-5	-18	+4	+27	+61	+66	+66	-15	18	188
May	-21	-6	-22	-32	-34	-23	-20	-13	+18	+10	+2	-12	-8	-10	+2	+6	+11	+17	+16	+41	+47	+38	+12	-17	+1	10	143
June	+5	+17	+18	+26	+24	+8	+7	-15	-14	-12	-17	-25	-29	-30	-25	-23	-21	-1	+15	+35	+41	+22	-7	+8	-16	9	195
July	+21	-18	-74	-48	+10	-6	-43	-36	-55	-49	-18	-15	-8	-10	-34	-28	-21	+24	+58	+43	+65	+64	+121	+52	-102	4	196
Aug.	+14	-5	-8	-26	+11	+5	+8	+6	-31	-41	-38	-46	-48	-39	-41	-28	+2	+17	+44	+63	+52	+50	+49	+28	+26	7	191
Sept.	-23	-2	+12	+17	-3	+40	+41	+52	+22	-33	-57	-40	-30	-16	-27	-20	-2	-25	+4	+9	+44	+37	+3	-5	-27	4	171
Oct.	+66	+8	-13	+132	-13	+30	-26	+12	+48	-19	-215	-137	-159	-102	+76	+279	+113	+63	-113	-36	+10	-22	+8	+18	+228	1	316
Nov.	-52	-48	-9	-12	+8	-18	-19	-23	+6	-25	+57	-53	-66	-103	-50	+29	+114	+132	+119	+98	+30	-18	-36	-56	+173	3	317
Dec.	-48	+1	-40	-86	-52	-20	-86	-134	-118	-75	-85	-61	+42	+126	+20	+94	+92	+61	+75	+156	+64	+50	+58	-42	-103	2	213
Year	0	-3	-19	-10	-12	-5	-19	-23	-21	-31	-43	-44	-35	-24	-16	+22	+25	+34	+36	+59	+50	+39	+31	+8	-	-	214
Winter	-30	-17	-36	-39	-28	-20	-32	-57	-45	-43	-29	-52	-23	-10	-23	+29	+61	+73	+87	+112	+56	+47	+27	-11	-	-	243
Equinox	+25	+11	-1	+29	-12	+9	-13	+2	+3	-26	-83	-55	-58	-39	-1	+54	+23	+19	-13	+21	+43	+25	+21	+17	-	-	218
Summer	+5	-3	-21	-20	+3	-4	-12	-15	-21	-23	-18	-25	-23	-22	-25	-18	-7	+11	+33	+45	+51	+43	+44	+18	-	-	181

109 ESKDALEMUIR * 1a and 2a Days Only 1938

MONTH AND SEASON	Hour 0 to 1	G.M.T. 1 to- 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	Non Cyclic Change†	No.of Days Used	Mean Values
	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m	v/m		v/m
Jan.	-123	-124	-111	-81	-44	-91	-78	-54	-22	+46	+2	+16	+30	+38	+51	+162	+229	+237	+118	+48	-35	-49	-61	-99	-136	2	191
Feb.	-21	+21	+25	-6	-18	-3	0	-34	-19	+4	+7	+12	-2	0	+15	+1	-2	+23	+26	+28	+15	-1	-33	-33	-4	6	144
Mar.	-3	-10	-28	-4	-12	-21	-23	-5	-12	-20	-4	+2	+3	0	-9	+11	+18	+23	+40	+30	+42	+10	-22	-11	+31	11	144
Apr.	+11	-20	-31	-5	+15	-1	+28	+8	+19	-1	-36	-39	-30	-18	-11	+6	+3	+15	+29	+16	+18	+1	+27	+3	+22	8	105
May	-39	-51	-39	-69	-61	-43	-21	+9	+25	+27	+26	+23	+23	+13	+12	+10	+26	+18	+30	+33	+14	+40	+12	-13	-24	4	110
June	+31	+11	+4	+1	+13	-5	-7	-7	+12	-2	-41	-24	-93	-44	-50	-17	-43	+12	+36	+53	+53	+28	+40	+42	+58	2	105
July	+52	+28	+6	+8	+47	+71	+78	+63	-16	-34	-49	-43	-73	-66	-76	-87	-58	-78	-71	+6	+27	+83	+92	+61	+23	8	183
Aug.	+58	-65	-59	+36	-39	-57	-26	-24	-57	+8	-47	-65	-52	-26	-27	-22	-40	+17	+66	+80	+98	+92	+71	+68	-27	4	187
Sept.	-17	-44	-35	-73	-71	-20	+33	+84	+60	+23	-1	-12	-38	-53	-27	-6	+12	-40	+30	+73	+67	-1	+27	+25	+74	6	192
Oct.	+104	-147	-150	-222	-149	-200	-121	-25	+12	-32	-93	-39	+46	+100	+181	+167	+64	+10	-63	-28	+116	+219	+194	+55	-400	1	282
Nov.	-35	-38	-40	-10	-12	+8	+44	+78	+47	+9	+14	-6	-5	-17	-37	-18	-11	+8	+17	+37	+17	-17	-13	-11	-40	5	157
Dec.	-67	-49	-39	-22	-52	-50	-46	-71	-96	-120	-85	-102	-35	-40	+31	+56	+114	+96	+141	+173	+95	+104	+66	+5	+57	3	210
Year	-4	-41	-41	-37	-32	-34	-12	+2	-4	-8	-25	-23	-19	-9	+4	+24	+26	+28	+33	+46	+44	+42	+33	+8	-	-	167
Winter	-61	-47	-41	-30	-31	-34	-20	-20	-23	-15	-15	-20	-3	-5	+15	+50	+83	+91	+75	+71	+23	+9	-10	-35	-	-	175
Equinox	+24	-55	-61	-76	-54	-61	-21	+15	+20	-7	-33	-22	-5	+7	+33	+45	+24	+2	+9	+23	+61	+57	+57	+18	-	-	181
Summer	+25	-19	-22	-6	-10	-9	+6	+10	-9	-0	-28	-27	-49	-31	-36	-24	-29	-8	+15	+43	+48	+61	+54	+39	-	-	146

† See page 10.
* For explanation of 0a and 2a Days see page 90.
Winter comprises Jan; Feb; Nov; Dec.
Equinox, Mar; Apr; Sept; Oct.
Summer, May to Aug.

MONTH	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
Day	Character	Duration of Negative Pot.Grad.	Character	Duration of Negative Pot.Grad.	Character	Duration of Negative Pot.Grad	Character	Duration of Negative Pot.Grad.	Character	Duration of Negative Pot.Grad.	Character	Duration of Negative Pot.Grad.
		Hours		Hours		Hours		Hours		Hours		Hours
1	0a	...	2c	6·4	1b	2·3	1a	0·1	0a	...	2b	3·0
2	0a	...	1b	2·0	1a	0·9	2c	9·1	0a	...	2c	14·7
3	0a	...	2c	3·3	1a	0·1	0a	...	0a	...	0a	...
4	0a	...	1b	1·9	0a	...	1b	1·6	0a	...	2c	6·1
5	1b	1·3	2b	7·8	0a	...	1a	2·1	0a	...	1b	1·1
6	2c	6·9	0a	...	0a	...	0a	...	0a	...	2c	13·2
7	2c	3·7	1a	0·1	1a	0·2	0a	...	1a	0·8	2b	3·1
8	2b	3·2	1b	1·4	1a	0·1	0a	...	1a	0·1	1a	0·1
9	2c	5·6	2c	6·4	0a	...	0a	...	1b	2·3	2b	4·1
10	(2b)	(1·1)	2c	4·0	1a	0·3	0a	...	0a	...	1b	1·1
11	(2c)	(0·3)	1a	1·3	1a	0·2	0a	...	1a	0·7	1b	2·9
12	2b	3·4	1a	0·1	0a	...	0a	...	2c	8·3	0a	...
13	2c	3·9	1b	0·4	0a	...	0a	...	2b	4·2	0a	...
14	2c	6·6	1b	0·4	1b	0·7	0a	...	2b	5·2	0a	...
15	2c	9·1	0a	...	2b	9·5	0a	...	1b	2·2	0a	...
16	2c	9·9	2c	5·5	2c	9·1	0a	...	2b	3·6	0a	...
17	1b	0·2	0a	...	0a	...	0a	...	2c	5·8	0a	...
18	2b	5·0	1a	0·1	1a	0·5	0a	...	1b	2·1	0a	...
19	2c	4·7	0a	...	2c	12·4	0a	...	0a	...	1c	3·5
20	1b	2·4	1a	1·0	2c	8·2	0a	...	1a	0·3	1a	1·8
21	2c	5·6	0a	...	2b	(6·5)	0a	...	0a	...	(1a)	0·5
22	1a	0·3	1b	0·4	0a	...	2b	3·7	0a	...	0a	...
23	1a	0·9	1a	0·1	1a	0·1	1a	0·9	1b	2·7	(1b)	-
24	1b	2·8	0a	...	1b	1·8	1a	0·2	1b	2·3	(2b)	(0·7)
25	2c	7·3	2c	10·1	1c	2·0	0a	...	2c	4·1	2b	3·1
26	2c	3·1	2c	6·3	2b	4·9	1a	0·8	2c	19·4	(1a)	0·5
27	1b	2·2	1a	0·4	1a	1·5	1a	0·7	2b	4·3	2c	11·9
28	2c	8·3	2c	5·9	1b	1·5	1a	0·1	2c	12·7	2c	10·0
29	1c	2·2			1a	0·7	0a	...	2b	4·1	1b	2·8
30	1b	0·8			1a	2·2	1a	1·7	1b	0·5	2c	5·0
31	2c	7·2			1a	0·9			2c	6·1		
Total	---	108·0	---	65·3	---	66·4	---	21·0	---	91·8	---	89·2
No. of Days Used	---	31	---	28	---	31	---	30	---	31	---	29
Mean	---	3·5	---	2·3	---	2·1	---	0·7	---	3·0	---	3·1

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Character	Duration of Negative Pot.Grad	Character	Duration of Negative Pot.Grad	Character	Duration of Negative Pot.Grad.	Character	Duration of Negative Pot.Grad.	Character	Duration of Negative Pot.Grad.	Character	Duration of Negative Pot.Grad.
		Hours		Hours		Hours		Hours		Hours		Hours
1	1b	1·5	0a	...	2c	3·4	1b	2·3	2c	7·4	2c	5·5
2	1b	1·4	0a	...	0a	...	1a	2·8	2c	6·9	1c	2·7
3	1b	1·8	0a	...	2b	5·3	2c	14·9	2b	4·3	1b	1·7
4	2c	4·9	0a	...	0a	...	2c	9·4	2b	3·3	2c	6·9
5	2c	3·9	2b	4·1	1a	0·5	2c	5·0	1a	1·7	2b	3·2
6	2c	4·5	2c	3·1	1b	1·5	2c	6·6	1a	0·1	2c	6·5
7	2c	9·6	1b	0·3	1a	0·3	2c	7·3	1a	1·7	2b	4·3
8	1b	1·4	1c	2·5	0a	...	2c	5·0	2b	11·7	1b	2·6
9	2b	3·8	0a	...	0a	...	2c	7·8	0a	...	2c	5·8
10	(1b)	1·0	0a	...	1a	0·1	2c	5·4	0a	...	1b	2.6
11	(2b)	3·3	1b	0·6	0a	...	2c	6·2	2b	3·3	2c	6·7
12	1a	0·8	1b	0·7	0a	...	2c	8·7	2c	7·6	2b	3·2
13	2b	3·2	1a	0·1	1a	0·7	1b	2·1	2c	8·6	2b	3·8
14	2c	5·1	0a	...	1a	0·2	1b	0·9	1b	0·7	1b	0·9
15	0a	...	2b	4·2	0a	...	1a	0·1	1a	0·3	2b	3·3
16	1a	0·5	2c	3·6	2b	5·0	2c	5·0	1a	0·1	1b	1·7
17	1b	0·4	1b	1·0	2c	12·0	2b	4·0	1b	1·4	2b	3·7
18	0a	...	2c	11·9	1a	0·4	2c	5·9	2c	6·7	0a	...
19	1a	0·1	1c	2·7	1a	1·1	1a	0·7	1b	0·7	1a	0·3
20	1a	0·3	1b	1·7	1a	0·7	(0a)	...	2b	3·1	1c	1·9
21	0a	...	1a	0·1	1b	2·1	1b	2·7	2c	9·2	1c	(1·9)
22	0a	...	0a	...	1b	0·9	1b	1·5	0a	...	1b	0·4
23	1a	0·4	0a	...	1a	0·4	1b	2·6	2c	8·7	1a	1·3
24	1a	0·1	1a	0·1	1a	0·1	1b	0·5	2c	6·2	1a	0·1
25	1b	1·0	1a	0·2	1a	0·3	2b	5·9	1c	2·9	2b	3·2
26	2c	6·7	0a	...	0a	...	2c	6·0	1b	0·2	1b	1·3
27	2b	5·9	1a	0·1	0a	...	2c	7·0	2c	6·8	0a	...
28	1a	0·2	1a	0·3	(1a)	-	0a	...	1b	2·5	0a	...
29	2b	9·5	1b	2·9	(1b)	-	1a	0·1	1b	0·9	2b	4·0
30	2c	12·7	1b	2·1	1b	1·7	1b	2·4	2c	6·7	1b	1·1
31	1a	0·3	0a	...			1b	1·4			(1a)	-
Total	---	84·3	---	42·3	---	36·7	---	130·2	---	113·7	---	80·6
No. of Days Used	---	31	---	31	---	28	---	31	---	30	---	30
Mean	---	2·7	---	1·4	---	1·3	---	4·2	---	3·8	---	2·7

Annual Values Character Frequency ... 0 88 1 155 2 122 Duration ... Total. 929·5 hours No. of Days 361 Mean 2·57 hours

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

111 ESKDALEMUIR (H) — 16,000 γ (·16 C.G.S.unit) + — JANUARY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	506	508	508	504	507	509	507	507	503	498	508	511	513	515	516	515	517	523	521	519	512	502	499	502	510
2	507	502	505	511	511	511	518	516	515	506	495	491	506	509	491	495	507	510	500	514	519	511	511	506	507
3	517	510	511	510	512	515	519	516	511	504	506	504	502	506	501	480	487	499	502	528	502	503	511	509	507
4	508	507	512	515	520	507	514	523	517	514	508	503	508	468	453	479	498	496	500	476	461	466	487	491	497
5 Q	488	490	497	495	501	501	495	507	505	483	487	500	503	503	501	501	502	507	510	511	512	513	514	511	501
6	510	510	511	513	516	520	519	518	515	507	505	506	506	501	503	510	506	469	509	505	510	507	508	498	508
7	499	516	499	501	503	506	510	514	512	513	511	507	508	510	506	479	506	504	490	488	476	475	496	497	501
8	483	511	470	477	483	510	516	488	487	482	479	481	487	492	494	496	499	503	505	503	502	488	490	490	492
9	479	469	499	505	503	505	511	514	507	505	498	491	490	492	491	502	506	509	512	510	512	511	510	507	502
10 Q	504	504	504	503	504	516	514	512	514	504	501	501	501	502	506	505	507	511	515	514	514	515	510	509	508
11 Q	510	506	510	512	514	514	518	518	521	514	505	503	506	505	505	506	506	518	517	511	508	506	505	504	510
12	506	509	510	510	512	517	523	518	518	516	509	506	510	514	515	527	536	521	492	462	493	503	526	479	510
13	483	448	445	453	486	514	496	490	468	454	476	483	482	486	485	482	473	487	481	483	491	492	498	499	481
14 Q	502	501	502	501	507	508	510	504	490	493	489	485	486	493	486	505	507	507	510	510	498	506	509	514	501
15	509	508	512	514	518	515	510	506	499	503	499	491	490	491	502	504	507	505	505	506	510	502	523	510	506
16 D	509	507	507	510	514	522	523	523	514	501	494	495	499	511	514	522	506	510	517	513	520	515	571	649	519
17 D	529	409	390	403	450	466	500	431	392	458	494	470	439	580	710	685	597	465	429	424	445	470	438	432	479
18	437	437	433	429	438	451	456	454	453	450	443	437	449	473	483	474	478	501	514	477	466	478	453	458	459
19	467	470	466	469	470	474	476	470	452	458	445	455	454	457	482	480	495	486	495	479	483	483	486	488	473
20	490	492	491	492	487	483	504	488	482	476	478	459	458	473	475	486	494	490	510	494	499	498	491	488	487
21	482	484	486	478	469	483	490	498	446	423	430	451	464	454	461	473	486	498	502	493	494	510	486	469	475
22 D	440	457	449	481	489	452	448	468	285	249	342	460	423	411	444	460	458	474	441	435	427	452	432	433	430
23	436	444	432	445	452	449	448	446	440	425	419	436	441	445	447	457	465	469	477	472	474	476	469	476	452
24	470	460	459	460	462	465	477	473	463	462	471	464	461	469	478	481	489	493	493	486	481	466	489	481	473
25 D	466	465	470	474	475	477	481	479	476	471	469	474	482	522	538	517	561	688	644	330	538	41	-32	62	440
26 D	86	98	127	322	399	421	428	438	440	439	416	440	450	469	479	500	471	469	489	465	460	463	471	466	406
27	470	468	472	474	480	484	482	478	463	469	469	466	477	487	482	464	482	493	494	485	481	486	496	489	479
28	487	487	489	489	495	497	499	500	493	485	477	472	470	485	476	494	498	499	502	506	489	469	481	493	489
29	493	493	497	498	502	523	500	499	493	484	472	460	484	493	495	497	500	504	509	514	473	484	477	472	492
30 Q	482	493	503	491	500	503	506	504	500	493	489	489	492	505	510	511	509	507	512	491	481	477	496	495	497
31	490	493	495	499	499	502	504	502	489	498	510	497	502	504	506	503	498	485	502	529	469	462	452	470	494
Mean	476	473	473	482	490	494	497	494	479	475	477	480	482	491	498	500	502	503	503	488	490	475	476	479	487

MAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

112 ESKDALEMUIR (D) — 13° + — JANUARY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	18·3	21·4	20·2	21·2	20·7	21·1	20·2	19·6	19·7	20·8	21·4	23·2	24·6	24·4	23·2	22·5	23·3	23·9	25·2	23·8	23·0	17·4	17·9	20·2	21·5
2	21·3	20·4	20·4	22·4	21·3	21·3	20·8	20·5	20·4	20·9	22·7	23·0	24·4	27·7	26·5	25·4	24·3	24·3	23·6	19·8	18·4	18·4	19·8	18·4	21·9
3	21·1	19·2	20·2	20·7	21·4	21·3	20·4	19·6	19·6	20·2	21·9	22·2	23·6	26·1	25·8	24·5	25·2	26·4	21·4	16·6	18·4	19·8	20·3	20·3	21·5
4	20·3	20·2	19·8	17·7	19·5	20·0	21·3	21·3	21·2	21·5	23·1	25·9	25·0	29·4	26·2	28·4	25·1	23·4	22·0	19·3	6·4	12·0	18·2	19·4	21·1
5 Q	24·1	20·3	19·6	19·4	20·4	20·2	21·6	21·2	21·3	22·0	20·9	22·2	23·0	24·3	23·0	22·3	22·5	22·4	22·1	21·4	20·9	20·4	20·4	21·1	21·5
6	21·2	21·2	21·2	21·3	21·4	21·4	21·2	21·0	20·5	21·2	22·1	23·2	24·4	23·6	24·0	24·1	26·0	24·3	21·6	23·3	21·3	19·4	20·1	19·3	22·0
7	20·4	11·4	14·5	17·4	17·9	18·4	19·7	21·1	21·4	21·9	22·4	23·2	24·9	25·7	26·9	28·6	25·8	28·0	17·5	6·5	17·5	14·9	20·3	25·0	20·5
8	18·4	17·7	8·3	18·6	23·1	24·8	28·1	25·4	26·1	24·9	24·0	22·4	23·0	23·2	22·5	21·4	21·6	21·7	21·7	21·2	19·7	17·3	15·4	11·9	20·9
9	9·8	13·9	21·9	17·3	18·3	18·4	19·7	19·7	19·1	19·6	22·0	22·6	23·8	24·6	24·4	24·1	24·7	23·3	22·9	21·9	21·1	20·5	20·2	20·6	20·6
10 Q	20·2	21·3	19·2	19·6	21·2	21·4	21·1	20·6	20·3	20·6	22·1	23·3	24·6	25·0	24·2	23·3	23·0	22·4	22·2	22·0	20·3	20·9	20·2	20·1	21·6
11 Q	18·6	19·1	20·1	21·0	21·2	21·4	21·3	21·1	20·3	20·2	21·4	21·7	24·4	26·0	26·1	25·8	23·3	24·0	23·4	23·2	17·6	20·6	19·9	20·5	21·8
12	20·8	21·2	21·0	20·7	20·8	20·4	20·0	19·8	21·0	20·0	21·8	22·9	25·3	26·5	26·6	26·1	30·7	36·6	38·1	22·1	19·2	19·2	9·8	7·9	22·4
13	6·3	7·1	10·7	11·0	19·7	25·9	26·1	22·2	20·4	24·0	23·3	21·2	23·0	25·0	25·7	24·2	22·4	23·4	20·3	15·7	14·9	19·6	20·5	21·3	19·7
14 Q	22·0	22·2	22·3	23·3	21·3	21·1	20·5	20·3	20·9	21·2	23·2	24·1	26·1	28·6	26·9	23·9	23·0	22·9	22·0	21·4	21·4	19·6	20·6	21·2	22·5
15	20·9	21·1	22·6	20·5	20·2	19·9	21·5	23·1	21·8	21·0	21·4	21·3	24·6	26·4	25·9	24·1	23·9	24·1	23·4	14·2	19·3	21·2	16·4	18·6	21·6
16 D	20·9	21·2	21·7	21·9	22·0	21·4	21·1	20·2	20·0	21·4	22·3	22·3	24·3	26·6	25·5	25·8	24·8	23·8	24·5	22·1	19·6	18·6	15·9	36·1	22·7
17 D	41·8	41·8	36·0	27·8	23·7	23·2	18·3	19·4	23·5	21·8	16·5	12·0	4·1	14·9	23·3	22·2	24·1	24·8	19·4	17·2	17·0	11·4	17·5	20·2	21·7
18	20·6	20·4	20·1	20·9	22·1	21·0	20·4	18·9	17·6	17·5	19·6	20·0	20·2	22·5	22·2	17·2	20·6	24·2	19·1	23·9	22·0	15·8	11·7	18·3	19·9
19	19·1	19·8	20·0	19·2	19·0	19·8	19·2	18·5	19·7	23·0	23·0	22·5	23·9	26·1	23·6	24·8	16·4	20·1	21·7	21·9	20·4	20·2	20·1	20·2	20·9
20	19·8	20·5	20·3	20·5	22·0	25·3	22·0	19·5	19·4	17·8	19·2	21·9	21·8	26·1	27·9	20·3	24·0	22·3	20·1	15·1	23·4	20·8	19·6	18·6	21·2
21	19·4	19·6	19·7	22·1	17·8	17·9	18·5	20·7	25·6	24·7	23·4	27·2	27·8	27·8	27·1	24·3	25·3	14·9	19·4	22·1	19·8	17·6	18·9	11·3	21·4
22 D	9·8	13·6	13·2	14·4	18·4	26·0	19·4	19·4	7·9	6·2	8·1	9·1	21·2	20·7	26·9	20·3	22·0	14·5	24·4	18·4	19·2	14·0	14·7	18·7	16·7
23	18·1	22·2	20·1	19·0	19·1	17·8	18·3	17·2	16·5	17·3	18·0	22·5	24·3	24·5	25·0	23·0	22·1	21·4	20·9	20·6	10·1	17·4	17·2	16·0	19·5
24	7·8	11·0	9·6	7·2	12·5	17·7	17·4	18·3	16·7	17·6	20·0	24·8	23·1	24·2	25·2	24·7	24·0	22·0	21·2	23·0	19·4	19·5	17·5	17·1	18·4
25 D	11·5	8·8	12·8	18·3	18·4	18·6	19·2	18·5	17·7	18·3	20·1	21·5	21·4	25·7	32·2	29·0	33·0	34·9	31·6	-4·1	36·5	24·3	-22·9	6·2	18·8
26 D	31·6	55·1	18·3	20·6	22·3	23·1	23·0	20·7	20·2	19·6	20·1	21·2	22·2	26·6	26·0	22·3	23·2	22·1	16·7	21·4	21·1	18·5	18·9	19·0	23·1
27	18·9	19·6	20·3	20·1	19·6	19·4	18·5	19·1	19·1	19·0	20·8	22·4	23·3	24·8	24·0	23·4	23·0	21·1	14·5	18·4	19·5	19·2	17·5	17·0	20·1
28	17·9	19·2	20·1	19·6	19·7	20·4	20·1	18·9	18·3	18·5	19·7	21·7	23·5	26·2	24·2	23·2	21·4	21·3	21·4	21·4	16·5	13·7	17·8	18·5	20·1
29	19·2	18·4	19·3	18·8	19·2	22·1	19·5	20·1	18·0	19·0	21·3	23·2	23·9	25·3	24·9	23·3	22·1	21·3	21·4	22·1	17·6	16·3	17·7	9·3	20·1
30 Q	16·4	19·6	23·2	19·4	20·0	20·1	19·3	19·2	18·5	19·0	20·9	23·0	24·6	26·1	24·4	23·3	22·6	22·1	22·2	20·5	18·1	18·8	19·2	19·3	20·8
31	14·5	15·2	18·6	20·2	19·4	19·4	19·6	19·8	21·3	21·4	21·0	23·2	25·3	25·8	26·4	26·1	25·8	26·3	23·7	25·6	18·9	2·5	14·4	14·5	20·4
Mean	19·1	20·1	19·2	19·4	20·1	21·0	20·6	20·2	19·8	20·1	20·9	21·9	23·2	25·2	25·4	23·9	23·8	23·5	22·2	19·4	19·3	17·8	16·6	18·3	20·9

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

113 ESKDALEMUIR (V) 44,000 γ (·44 C.G.S.unit) + JANUARY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	937	941	941	941	940	934	938	939	939	940	940	939	941	945	948	945	944	937	937	944	950	960	956	954	943
2	950	950	947	945	942	944	943	942	939	941	943	944	944	946	954	959	953	952	956	955	949	950	951	952	948
3	944	943	944	943	941	941	940	941	942	941	940	940	940	943	950	960	962	960	963	954	950	950	949	949	947
4	948	947	945	940	933	936	938	938	938	936	937	936	936	957	989	979	960	958	953	963	982	973	962	950	951
5 Q	927	937	947	947	946	943	944	943	941	941	942	939	937	938	946	945	949	947	947	946	945	944	946	946	943
6	946	945	945	944	944	943	943	941	940	939	941	943	944	947	950	949	954	979	973	962	957	956	956	960	950
7	960	949	945	944	944	942	944	944	942	940	944	945	942	947	954	960	964	965	978	981	967	963	956	952	953
8	951	950	941	932	917	912	918	934	941	951	955	955	954	955	956	955	955	954	954	955	956	960	962	951	947
9	941	940	922	909	908	917	927	933	938	940	941	940	940	944	950	951	951	951	951	951	951	950	950	947	939
10 Q	945	945	945	945	944	940	942	944	944	944	945	944	940	943	946	947	949	950	950	950	950	948	950	947	946
11 Q	946	945	945	944	944	944	944	944	941	940	942	941	935	939	945	947	951	948	950	952	957	957	956	951	946
12	950	945	945	944	944	943	941	941	941	940	945	944	937	941	946	951	948	963	1020	1046	1010	1001	983	947	959
13	934	937	924	878	856	867	908	934	951	960	964	967	958	957	958	966	973	972	974	973	961	957	954	951	943
14 Q	949	948	946	945	945	945	945	946	946	946	952	952	951	954	962	957	953	952	952	952	956	956	951	951	950
15	951	948	945	941	943	944	945	941	941	941	946	948	948	952	956	953	953	953	957	962	957	960	952	939	949
16 D	940	943	945	945	943	941	941	940	940	941	948	949	948	952	960	971	992	992	981	979	977	972	949	929	955
17 D	971	905	882	889	933	923	941	965	942	931	956	966	1006	1118	1230	1180	1303	1163	1073	1024	1007	981	959	969	1009
18	974	982	982	980	973	975	975	976	979	980	982	982	981	984	990	1017	1017	992	1009	1007	1017	996	965	973	987
19	961	970	973	974	971	969	969	968	966	963	967	972	979	983	1004	1014	1038	1010	992	976	969	965	964	963	978
20	963	964	964	963	961	938	925	937	942	946	950	959	966	970	985	996	982	982	985	988	998	1004	992	969	968
21	960	966	969	957	929	949	957	954	958	959	966	959	961	981	1015	1014	1013	1021	1007	996	995	984	961	929	973
22 D	929	918	899	917	936	943	954	976	1007	1006	1033	1102	1074	1095	1069	1110	1113	1162	1073	1039	1015	1015	999	994	1016
23	989	977	981	985	981	983	987	989	989	988	990	988	986	985	987	987	985	983	984	985	991	982	980	962	984
24	946	939	943	956	964	971	971	970	969	965	965	961	965	965	973	980	982	983	987	987	995	1002	993	986	972
25 D	982	982	976	967	966	970	970	971	974	971	971	970	965	959	970	987	1024	1177	1147	912	1029	1023	1088	1047	1000
26 D	1177	877	881	936	1001	1008	1018	1012	1006	1003	1007	1012	1010	1008	1018	1020	1005	999	995	988	990	992	989	987	997
27	983	982	982	982	980	978	977	977	977	976	972	975	972	973	980	996	988	982	990	986	986	985	980	972	980
28	973	973	974	973	970	971	971	970	971	971	970	968	970	970	977	974	973	973	971	972	978	985	981	977	973
29	975	975	973	970	966	949	953	959	961	961	963	966	960	960	964	968	970	968	967	967	982	984	954	955	965
30 Q	963	962	959	963	965	966	965	962	960	960	963	960	958	962	969	969	968	967	967	978	993	990	982	976	968
31	972	967	966	966	966	965	963	960	960	959	958	954	955	961	967	983	1004	995	982	971	996	936	961	976	968
Mean	962	950	948	947	948	948	952	955	956	955	959	962	961	969	980	984	990	990	985	974	978	974	969	962	965

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS:
MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

114 ESKDALEMUIR JANUARY, 1938

Day	Terrestrial Magnetic Elements																				Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force							Declination					Vertical Force									
	Maximum 16,000 γ +			Minimum 16,000 γ +			Range	Maximum 13° +			Minimum 13° +		Range	Maximum 44,000 γ +			Minimum 44,000 γ +			Range	$HR_H + VR_V$ / 10,000γ² §	
	h	m	γ	γ	h	m	γ	h	m	′	′	h	m	′	h	m	γ	γ	h	m	γ			
1	18	1	528	486	21	12	42	18	26	26·0	14·5	21	27	11·5	21	19	963	933	5	38	30	204	0	83·3
2	20	10	533	475	14	37	58	13	32	28·0	16·4	21	33	11·6	15	10	962	938	9	0	24	204	1	83·3
3	19	4	557	471	15	11	86	17	50	27·7	11·8	19	28	15·9	18	36	967	939	0	40	28	268	1	83·3
4	7	37	531	407	14	1	124	13	37	33·0	-5·7	20	50	38·7	14	53	995	932	4	30	63	488	1	83·3
5 Q	8	1	515	470	9	56	45	0	2	26·1	17·3	0	0	8·8	16	32	949	923	0	44	26	191	0	83·3
6	5 1	47 10)	523	423	17	36	100	17	22	27·8	17·3	18	3	10·5	17	53	998	937	9	26	61	439	1	83·3
7	23	32)	547	445	15	48	102	15	21	34·3	2·9	19	14	31·4	18	43	990	940	9	40	50	393	1	83·4
8	1	36	548	454	2	36	94	3	58	30·2	6·1	2	43	24·1	22	42	967	905	5	0	62	433	1	83·4
9	2	26	523	455	0	40	68	2	29	26·9	6·3	0	45	20·6	15	33	952	904	4	18	48	328	1	83·4
10 Q	5	25	519	494	13	10	25	13	42	25·7	18·2	2	55	7·5	20	36	951	939	12	41	12	95	0	83·3
11 Q	8	33	528	492	16	0	36	14	35	26·7	17·1	0	40	9·6	21 21	10) 20)	957	934	12	40	23	162	0	83·3
12	22	34	580	437	18	59	143	18	15	41·2	3·0	23	17	38·2	19	1	1059	935	12	36	124	793	2	83·3
13	5	32	534	425	3	25	109	5	2	36·2	2·2	0	7	34·0	18	39	978	844	4	35	134	782	1	83·3
14 Q	21	52	523	469	14	18	54	13	37	29·9	16·8	21	38	13·1	14	28	964	945	5	30	19	174	0	83·3
15	23	0	553	482	13	11	71	13	29	27·6	9·1	19	22	18·5	19	44	963	939	7	31	24	225	1	83·3
16 D	22	55	759	478	17	0	281	23	59	49·7	-2·1	22	38	51·8	16	40	998	920	22	56	78	814	1	83·3
17 D	15	53	1273	320	8	8	953	16	0	56·9	-8·5	21	48	65·4	16	1	1517	861	1	46	656	4517	2	83·3
18	17	0	571	410	3	11	161	4	18	28·5	6·8	16	58	21·7	16	57	1033	959	22	39	74	598	1	83·3
19	18	1	648	434	11	0	214	13	55	28·6	3·9	17	58	24·7	16	16	1057	954	0	13	103	815	1	83·3
20	18	37	567	432	12	6	135	15	2	29·9	8·0	18	30	21·9	21	36	1005	922	6	16	83	596	1	83·2
21	21	32	574	388	10	30	186	13	35	31·3	7·3	17	33	24·0	17	27	1028	912	23	28	116	828	1	83·2
22 D	9	13	971	-134	8	56	1105	5	41	48·6	-36·6	9	32	85·2	17	10	1299	890	2	8	409	3659	2	83·3
23	23	22	513	405	10	16	108	11	51	26·1	6·3	20	15	19·8	20	12	994	953	24	0	41	362	1	83·2
24	17	57	518	447	2	58	71	15	8	26·8	5·3	0	3	21·5	21	35	1004	935	1	46	69	427	1	83·2
25 D	18	5	1061	-175	22	42	1236	19	55	137·4	-46·9	22	16	184·3	18	12	1360	300	19	58	1060	6799	2	83·3
26 D	15	22	525	-420	1	22	945	1	18	123·0	-37·8	0	51	160·8	0	29	1365	742	1	8	623	4356	1	83·3
27	18	45	513	444	8	32	69	13	12	26·3	10·9	18	42	15·4	15	40	1000	971	13	0	29	244	1	83·2
28	19	15	513	455	14	16	58	13	27	27·8	9·5	21	8	18·3	21	8	988	968	11	58	20	186	1	83·3
29	22	18	550	423	22	40	127	22	30	30·5	1·3	23	5	29·2	20	53	993	941	22	31	52	443	1	83·2
30 Q	2	19	522	469	21	34	53	13	48	26·8	15·0	0	18	11·8	20	35	996	955	2	40	41	271	1	83·2
31	19	28	579	354	21	36	225	19	56	32·4	-16·4	21	10	48·8	20	53	1032	896	21	32	136	982	2	83·3
Mean	--	--	603	375	--	--	229	--	--	38·0	2·6	--	--	35·4	--	--	1041	902	--	--	139	1002	1·00	83·3
No. of Days Used	--	--	31	31	--	--	31	--	--	31	31	--	--	31	--	--	31	31	--	--	31	31	31	31

§ For explanation see p. 95.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

115 ESKDALEMUIR (H) — 16,000 γ (·16 C.G.S.unit) + — FEBRUARY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	476	476	480	484	485	493	489	493	490	486	478	485	474	462	474	496	489	497	498	498	484	484	465	501	485
2	473	477	480	493	493	494	502	501	497	489	490	489	493	493	490	486	494	505	506	501	496	493	493	501	493
3	493	509	497	491	493	506	504	501	494	480	492	489	489	485	489	493	508	495	490	502	497	489	498	502	495
4	505	487	489	493	501	501	497	501	498	490	493	490	489	498	489	498	504	505	498	498	503	498	505	517	498
5	505	498	497	501	498	498	505	509	514	501	485	490	502	500	500	510	513	513	504	513	510	510	509	505	504
6 D	505	501	507	535	546	493	530	501	485	473	460	452	453	473	485	517	477	473	504	487	474	465	473	462	489
7	480	476	466	476	477	485	489	497	494	486	490	493	481	464	496	499	497	494	497	498	502	506	504	505	490
8 D	502	503	502	508	510	510	517	514	509	502	492	491	498	498	514	546	546	548	549	486	517	488	440	468	507
9 D	465	472	469	480	481	448	472	501	483	480	447	453	445	456	485	482	501	474	489	481	493	505	501	496	477
10 D	500	495	499	468	509	492	510	485	485	482	477	469	469	462	469	477	482	481	490	493	494	495	494	502	487
11	489	485	493	513	481	466	461	460	465	466	460	465	462	460	473	480	476	483	481	489	498	498	496	495	479
12	498	496	497	497	498	506	502	505	503	491	489	483	480	485	472	485	497	500	501	499	497	493	498	495	494
13	493	498	497	506	511	511	512	517	513	482	461	457	468	469	480	486	497	497	500	509	525	529	517	520	498
14 D	514	509	522	509	516	525	526	525	489	464	465	469	419	473	489	491	493	497	465	456	469	471	474	476	488
15 Q	479	481	482	481	482	485	485	480	478	468	457	452	452	461	469	477	483	485	493	497	497	498	501	498	480
16 Q	497	497	498	499	503	504	504	501	493	475	461	455	456	469	480	493	500	502	505	504	505	505	501	495	492
17	502	505	505	507	509	510	510	509	506	493	476	474	477	484	494	502	507	510	513	510	513	514	513	510	502
18	515	511	511	522	507	513	517	514	500	491	485	473	480	485	489	498	506	509	511	511	510	510	507	521	504
19 Q	509	506	509	509	512	513	513	509	505	498	488	485	485	492	497	501	503	506	509	511	513	513	517	517	505
20 Q	514	514	514	515	517	517	519	513	511	498	489	489	498	492	504	509	509	511	513	514	515	516	517	517	509
21	517	514	515	517	520	520	517	517	518	504	497	489	489	496	502	505	509	513	515	516	517	517	516	517	511
22 Q	515	515	515	514	515	515	515	515	513	506	499	493	493	498	505	504	505	511	514	512	517	514	505	514	509
23	520	521	510	518	526	533	546	534	523	513	496	497	506	509	515	520	502	505	509	508	509	505	514	509	515
24	506	506	506	506	507	507	513	519	509	501	492	488	497	500	497	504	509	513	513	515	517	510	497	506	506
25	515	509	511	513	513	514	515	517	510	500	501	497	506	506	513	511	517	507	522	512	480	509	508	507	509
26	505	509	506	505	502	506	511	511	507	505	501	493	505	511	498	497	494	493	502	489	509	511	512	514	504
27	510	509	509	510	506	511	510	511	505	497	490	487	486	494	480	493	505	508	509	517	514	511	509	498	503
28	518	505	531	510	502	502	517	518	505	493	493	496	493	494	501	505	517	519	528	517	513	507	482	498	507
Mean	501	499	501	503	504	503	507	506	500	490	482	480	480	485	491	499	501	502	505	502	503	502	499	502	498

MAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

116 ESKDALEMUIR (D) — 15° + — FEBRUARY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	18·8	19·4	19·6	19·5	20·1	20·8	20·2	19·8	19·5	19·6	20·0	22·8	25·0	27·0	24·8	23·2	23·3	21·4	23·0	22·9	18·4	12·0	15·6	15·5	20·5
2	12·6	15·1	17·2	15·7	16·7	18·8	18·4	20·1	19·4	18·6	22·5	23·9	22·6	25·1	23·9	23·3	21·4	21·6	23·1	24·3	22·1	19·6	18·8	18·6	20·1
3	15·7	10·4	14·7	17·4	16·8	19·4	18·9	21·5	19·5	20·1	20·4	23·0	25·8	24·3	24·6	25·1	15·6	20·5	21·9	17·5	17·6	18·4	18·9	16·6	19·4
4	16·4	13·2	18·5	19·5	20·3	19·6	19·3	20·6	20·2	19·7	21·3	22·4	24·0	26·0	26·5	20·5	23·1	23·1	20·1	15·7	19·5	19·8	19·3	16·6	20·2
5	15·5	15·6	15·8	19·4	18·4	18·7	19·4	18·3	17·3	17·0	19·5	22·5	26·5	26·8	26·3	25·1	24·8	23·3	23·1	21·5	21·2	19·9	19·4	18·8	20·6
6 D	17·2	16·6	19·2	22·0	18·7	20·8	14·1	14·4	17·0	17·0	20·9	22·5	26·7	26·9	25·5	29·5	30·9	23·3	17·5	10·0	22·0	12·9	11·8	13·9	19·6
7	15·6	8·6	15·2	19·7	21·1	20·1	20·3	19·2	19·0	18·6	20·8	25·0	26·7	25·0	25·9	26·0	22·3	21·3	20·5	18·6	13·3	19·5	19·0	19·0	20·2
8 D	19·8	20·4	21·0	21·5	21·7	20·5	19·7	20·0	20·5	18·6	19·6	20·8	23·5	23·9	25·1	27·2	32·6	21·1	27·4	31·6	7·9	7·0	13·5	19·6	21·0
9 D	21·4	20·4	20·1	13·7	21·4	25·1	23·1	22·1	19·7	16·6	17·0	20·5	23·8	26·0	27·7	26·0	27·6	16·4	15·8	19·9	20·0	20·3	19·7	17·3	20·9
10 D	17·1	17·3	16·5	13·0	2·3	15·2	22·2	19·2	16·7	16·7	19·3	23·0	24·1	23·5	22·5	22·2	20·8	19·4	20·3	20·8	20·9	20·3	19·4	18·3	18·8
11	16·8	14·5	11·0	8·0	8·9	21·2	21·3	28·6	26·0	24·0	19·9	21·4	24·4	25·8	26·3	25·6	23·1	20·7	19·4	20·5	21·2	20·5	20·3	20·1	20·4
12	20·2	20·3	20·6	20·4	19·7	19·0	19·4	18·8	18·5	19·1	20·3	20·3	22·6	26·8	25·5	26·0	24·2	22·4	21·4	21·4	21·1	18·4	18·3	17·4	20·9
13	18·5	21·3	26·0	20·0	19·7	18·8	18·9	18·6	18·0	16·3	20·7	24·0	28·7	28·8	26·5	26·2	24·8	23·1	21·1	17·6	16·9	15·5	18·7	20·6	21·2
14 D	19·6	19·4	22·2	18·5	18·5	23·1	22·3	24·0	18·1	20·4	23·9	26·2	26·5	30·2	24·9	25·7	19·6	20·8	15·4	20·4	19·9	19·6	19·4	19·5	21·6
15 Q	19·2	19·9	19·9	19·8	19·4	19·2	18·6	18·0	17·4	16·6	18·3	20·6	23·0	24·4	24·1	23·2	21·9	21·2	20·9	20·7	20·1	19·8	19·2	19·8	20·2
16 Q	19·1	20·1	20·6	20·7	19·9	19·5	18·7	18·3	17·1	15·2	16·7	20·2	23·3	24·6	24·3	23·1	21·9	21·4	21·2	21·1	21·0	20·3	18·3	16·5	20·1
17	18·7	20·2	20·0	19·8	19·8	19·5	19·5	20·7	20·3	18·4	18·9	20·9	23·5	24·8	24·2	23·2	22·3	21·4	21·1	21·4	21·2	20·6	19·5	19·3	20·8
18	17·8	19·8	20·1	19·8	19·3	19·2	18·6	18·5	18·5	17·4	19·3	21·4	23·2	26·1	25·8	23·2	22·1	21·3	21·3	21·2	20·7	20·2	19·5	18·9	20·5
19 Q	17·8	19·9	20·5	19·9	19·5	19·3	18·6	18·5	16·8	15·8	17·5	19·8	21·9	23·3	23·1	22·3	22·1	22·1	21·4	21·3	21·3	20·1	20·4	20·3	20·1
20 Q	20·1	20·1	19·8	19·5	19·4	19·5	18·4	20·3	18·6	16·8	18·3	20·8	25·2	25·9	24·9	24·2	22·3	21·8	21·1	21·1	21·1	20·6	20·5	20·3	20·9
21	20·1	19·9	19·9	19·8	19·8	19·5	19·1	18·9	18·4	18·1	18·4	20·6	22·4	23·9	24·1	23·3	22·4	21·4	21·4	21·4	21·2	21·1	20·6	20·4	20·7
22 Q	20·2	20·1	20·1	19·7	19·5	19·2	18·7	18·5	17·6	17·2	18·3	20·3	22·2	24·1	25·0	24·1	22·5	21·4	21·4	21·9	21·4	20·3	17·2	17·7	20·4
23	18·4	14·9	12·8	15·9	17·7	20·3	20·5	18·4	18·3	17·3	18·6	20·4	25·0	30·8	31·4	31·5	26·7	24·2	24·9	23·5	21·3	19·3	13·6	13·7	20·8
24	15·6	19·4	19·8	19·3	18·2	18·3	21·7	20·9	20·2	18·4	19·4	21·1	22·4	24·1	24·0	23·5	22·6	21·4	18·3	20·6	22·0	19·5	15·8	19·4	20·2
25	19·1	19·5	19·7	19·9	19·7	19·3	18·9	19·0	18·0	18·6	19·7	22·5	26·9	28·7	30·8	30·8	33·3	30·8	25·8	21·4	16·7	19·5	19·7	19·6	22·4
26	19·3	19·8	18·6	17·6	19·0	18·6	18·7	18·4	18·3	18·9	20·0	24·6	27·0	26·7	28·3	27·7	28·1	25·6	20·2	16·2	20·2	19·1	19·6	16·6	21·1
27	19·4	19·5	19·5	20·9	19·5	19·0	18·2	17·8	17·1	16·8	17·9	21·4	24·2	28·8	27·7	26·9	23·2	19·4	16·5	21·3	21·5	18·9	9·8	16·3	20·1
28	18·3	16·6	20·2	12·9	13·3	15·6	19·6	18·3	18·3	18·1	19·3	23·2	24·3	26·1	26·7	25·9	24·1	22·8	22·6	23·2	9·0	9·5	13·9	11·5	18·9
Mean	18·2	17·9	18·9	18·3	18·2	19·5	19·5	19·6	18·7	18·1	19·5	22·0	24·5	26·0	25·7	25·2	23·9	21·9	21·0	20·7	19·5	18·3	17·8	17·9	20·5

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

117 ESKDALEMUIR (V) 44,000 γ (·44 C.G.S. unit) + FEBRUARY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
1	961	960	977	974	971	969	968	966	966	967	971	969	973	981	983	983	981	978	973	971	983	989	987	977	976
2	966	971	968	956	956	959	958	956	956	957	955	956	959	961	967	971	972	970	967	971	973	977	977	975	965
3	976	968	955	960	960	952	947	944	945	951	958	960	963	967	973	981	997	985	981	978	971	972	969	964	966
4	957	955	958	960	964	964	961	960	957	959	959	959	959	960	971	984	974	970	973	975	967	966	965	960	964
5	952	952	947	943	951	954	954	955	955	954	953	953	954	960	967	969	967	966	970	971	967	966	966	966	959
6 D	966	966	961	953	945	920	870	900	927	944	948	952	955	960	960	969	1014	1039	1040	1019	1020	1003	990	968	966
7	961	963	943	948	963	967	968	967	966	966	963	960	967	974	974	973	972	973	975	975	970	965	965	961	966
8 D	960	959	959	957	956	956	955	955	956	960	956	958	954	953	951	957	994	1161	1222	1101	1073	971	979	978	991
9 D	936	943	934	910	898	899	924	931	948	954	961	968	976	987	1003	990	990	1010	1003	997	984	973	971	970	961
10 D	969	950	942	895	852	854	871	913	944	958	957	960	965	967	968	970	973	973	971	968	967	967	966	959	945
11	954	942	897	868	869	877	875	907	924	935	952	954	955	961	970	981	984	986	987	980	973	969	968	966	943
12	964	964	964	964	965	963	960	956	955	955	954	958	960	965	971	968	968	970	968	970	972	976	973	965	965
13	958	951	943	953	958	959	958	956	957	963	958	954	953	961	970	973	979	980	973	972	966	963	960	960	962
14 D	958	953	942	948	951	947	937	936	942	941	944	944	963	991	1040	1046	1070	1070	1048	1021	999	979	971	968	980
15 Q	970	971	971	971	971	971	970	969	968	967	963	961	959	957	960	965	967	967	967	966	967	967	967	967	967
16 Q	966	966	965	966	966	966	965	965	968	971	966	964	960	960	962	965	966	966	965	963	963	964	966	966	965
17	964	964	965	965	964	964	962	960	960	961	957	953	950	951	956	959	961	960	960	960	960	960	960	959	960
18	954	955	958	954	955	955	955	957	962	961	960	957	954	956	966	970	969	967	964	962	961	960	961	957	960
19 Q	955	955	955	959	959	960	958	955	955	954	952	951	950	951	955	958	959	959	959	958	958	960	957	957	956
20 Q	959	959	960	960	960	958	955	951	954	955	950	945	944	951	958	962	964	961	960	958	959	958	958	957	957
21	955	956	956	957	956	956	956	955	955	955	949	948	946	949	954	955	958	959	956	955	955	955	956	955	954
22 Q	955	955	955	956	956	956	956	956	956	955	950	946	943	944	946	954	958	959	959	960	959	959	962	958	955
23	954	945	941	942	943	943	938	941	946	949	951	948	945	949	954	963	975	972	972	976	978	977	969	958	955
24	954	954	955	957	958	955	948	942	943	945	949	949	949	954	960	961	961	961	964	961	959	962	971	965	956
25	957	956	956	956	955	955	954	954	954	950	946	940	937	946	954	968	980	992	991	995	982	975	968	965	962
26	962	955	956	958	959	959	957	956	955	951	949	944	946	948	952	964	971	978	981	981	969	967	942	941	958
27	952	955	955	951	953	955	955	955	955	954	951	948	948	951	959	965	966	973	972	962	962	967	967	960	958
28	954	948	934	927	938	942	927	932	937	942	943	943	946	950	956	961	965	964	959	962	976	954	949	942	948
Mean	960	958	953	949	948	948	945	948	952	955	954	954	955	959	966	971	977	985	985	978	975	969	966	962	961

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS:
MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

118 ESKDALEMUIR FEBRUARY, 1938

Day	Terrestrial Magnetic Elements																				HR_H+VR_V §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force						Declination						Vertical Force										
	Maximum 16,000γ +			Minimum 16,000γ +			Range	Maximum 13° +		Minimum 13° +			Range	Maximum 44,000γ +			Minimum 44,000γ +			Range			
	h	m	γ	γ	h	m	γ	h	m	′	h	m	′	′	h	m	γ	h	m	γ	γ	10,000γ²		°A
1	23	40	550	439	22	8	111	13	7	27·9	8·5	2	13	19·4	21	12	998	964	23	48	34	336	0	83·3
2	18	28) 7 5)	513	464	0	32	49	13	38	26·6	9·7	0	13	16·9	21	10	978	953	10	17	25	193	1	83·3
3	16	33	550	465	16	14	85	12	43	28·4	8·0	16	32	20·4	16	30	1001	943	7	47	58	400	1	83·3
4	23	30	541	449	14	59	92	14	8	27·8	11·0	1	19	16·8	15	32	988	954	1	0	34	305	1	83·2
5	0	1	524	483	10	29	41	12	36	29·6	14·1	0	39	15·5	19	5	973	943	3	28	30	203	0	83·2
6 D	5	59	566	416	5	36	150	16 16	0) 30)	34·4	-3·7	19	16	38·1	18	40	1078	864	6	39	214	1208	2	83·2
7	15	39	555	436	12	15	119	12	15	29·7	3·6	1	15	26·1	15	8	977	942	2	30	35	353	1	83·2
8	17	58	627	395	22	3	232	18	1	51·2	-13·2	20	48	64·4	18	8	1291	941	24	0	350	1954	2	83·2
9 D	21	28	518	423	5	18	95	5	12	33·6	8·1	3	43	25·5	17	40	1013	889	5	31	124	714	1	83·2
10 D	0	59	538	408	3	29	130	12	28	31·6	-5·2	4 4	19) 27)	36·8	17	40	974	842	4	10	132	808	2	83·2
11	3	46	528	437	5	54	91	6	0	33·7	5·2	4	9	28·5	18	25	988	854	4	0	134	752	1	83·2
12	8	6	514	465	14	4	49	13	42	28·4	15·6	23	42	12·6	21	30	978	953	10	20	25	193	0	83·2
13	20	39	553	437	11	43	116	15	44	32·3	12·0	21	26	20·3	17	12	984	940	2	34	44	389	1	83·2
14 D	6	12	554	399	12	15	155	13	40	33·6	4·1	18	3	29·5	17	56	1140	932	7	23	208	1190	2	83·2
15 Q	22	50	503	448	12	21	55	12	55	25·0	15·6	9	40	9·4	3	20	972	956	13	15	16	163	0	83·2
16 Q	21	29	509	452	11	52	57	13	28	25·7	13·7	9	58	12·0	9	20	972	959	13	0	13	152	0	83·2
17	22	33	524	465	12	12	59	13	10	25·0	17·5	8	32	7·5	0	1	966	949	12	27	17	173	0	83·2
18	23	36	535	465	11	52	70	12	56	28·4	15·6	9	3	12·8	16	0	971	952	12	52	19	200	0	83·2
19 Q	23	45	518	481	12	1	37	13	45	23·9	15·4	9	14	8·5	5 21	20) 21)	960	948	13	0	12	115	0	83·2
20 Q	23	50	529	485	13	8	44	12 13	34) 53)	26·7	16·2	9	43	10·5	15	58	965	942	12	20	23	176	0	83·2
21	8	7	525	485	11	55	40	13 14	45) 28)	24·6	16·8	9	8	7·8	17	30	960	945	12	34	15	133	0	83·2
22 Q	20	47	522	491	11	58	31	14	44	25·7	16·8	9	25	8·9	22	27	963	942	12	40	21	145	0	83·1
23	6	15	557	487	16	35	70	14	42	34·4	6·7	22	34	27·7	16	42	979	936	6	19	43	308	1	83·1
24	7	27	526	481	10	56	45	13	55	26·4	13·5	22	8	12·9	22	35	972	942	7	30	30	209	1	83·1
25	19	35	582	449	19	54	133	17	15	35·9	4·5	19	33	31·4	19	32	1024	933	12	6	91	628	1	83·1
26	21	59	533	466	19	26	67	12	44	29·2	10·9	19	32	18·3	18	28	989	932	22	40	57	367	1	83·2
27	21	58	530	469	14	4	61	13	8	30·9	7·8	22	50	23·1	18	11	976	946	11	50	30	236	1	83·2
28	21	3	552	472	22	59	80	13	30	28·9	1·5	20	45	27·4	20	42	979	923	2	53	56	383	1	83·1
Mean	—	—	538	454	—	—	84	—	—	30·0	8·9	—	—	21·0	—	—	1000	933	—	—	67	442	0·75	83·2
No. of Days Used	—	—	28	28	—	—	28	—	—	28	28	—	—	28	—	—	28	28	—	—	28	28	28	28

§ For explanation see p. 95.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

119 ESKDALEMUIR (H) — 16,000 γ (·16 C.G.S.unit) + — MARCH, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 D	509	488	492	485	509	517	506	506	492	480	480	489	480	504	497	500	501	505	498	521	500	495	497	512	498
2	518	512	506	504	509	504	503	502	494	503	493	487	486	490	490	502	509	514	514	514	506	504	506	521	504
3	511	511	523	513	502	507	511	516	513	502	488	481	481	495	504	502	505	503	510	515	513	517	520	518	507
4	517	515	514	513	513	515	519	518	513	510	494	493	494	498	504	506	509	512	522	513	510	509	519	524	511
5 D	520	509	505	506	509	518	514	514	519	505	518	498	501	511	520	519	539	561	513	472	472	473	485	501	508
6	493	472	478	489	483	498	503	494	468	485	490	480	482	491	493	493	498	509	495	493	500	504	489	497	491
7	499	500	503	500	500	509	502	505	506	504	487	482	485	505	511	518	503	493	500	506	513	510	506	505	502
8	505	506	502	502	512	508	504	509	509	502	489	480	477	488	498	505	504	509	515	514	514	513	513	505	503
9	509	510	509	509	509	509	514	515	513	508	495	490	492	497	505	505	513	515	522	517	513	518	498	505	508
10 Q	510	512	511	513	515	515	517	517	513	501	489	480	480	481	493	506	514	520	522	526	526	521	526	525	510
11	525	522	522	521	520	520	522	521	514	500	493	494	496	500	507	513	513	518	517	516	526	517	521	534	515
12	510	509	521	516	518	535	519	522	512	505	498	493	492	498	526	505	498	514	517	518	520	515	517	521	512
13	520	518	518	515	513	511	511	511	507	501	493	489	489	490	502	511	517	516	518	522	524	523	526	526	511
14	526	524	518	521	521	523	533	518	506	490	481	488	488	489	493	506	515	518	521	517	510	521	523	525	511
15	523	507	513	511	515	517	522	510	501	498	476	465	471	499	497	501	509	513	509	517	520	513	518	517	506
16 Q	517	517	517	514	516	517	519	513	501	482	476	465	476	490	503	509	505	511	517	525	523	526	526	525	508
17	523	529	539	514	513	518	522	513	495	478	463	460	466	483	498	509	506	518	521	522	521	521	522	526	507
18 Q	530	521	520	521	521	522	523	525	513	493	477	474	481	497	505	513	521	523	526	530	530	531	529	529	515
19 Q	526	525	525	525	524	526	524	525	509	493	478	466	465	477	490	507	517	522	524	528	528	529	528	527	512
20 Q	525	522	523	523	525	526	526	519	506	493	483	480	477	487	502	514	521	526	527	530	531	533	528	521	515
21	523	519	516	519	523	525	526	520	509	497	485	486	494	509	505	513	526	533	528	533	537	528	564	530	519
22 D	525	511	523	524	531	529	500	509	474	452	464	448	448	498	469	500	493	514	506	507	485	478	473	448	492
23 D	485	458	472	484	483	472	474	465	465	387	442	448	454	469	484	489	509	521	523	506	546	469	472	425	475
24 D	425	325	408	396	456	443	457	420	399	427	421	452	456	472	469	480	489	501	502	504	505	493	498	489	454
25	497	500	502	495	498	495	499	500	480	469	458	439	465	478	491	509	520	515	511	524	509	498	469	473	491
26	485	371	477	490	493	493	489	485	477	473	472	454	461	494	499	522	517	509	497	489	492	505	494	495	485
27	500	517	496	502	501	503	498	486	474	464	458	458	469	480	490	497	500	502	513	517	523	512	508	509	495
28	509	512	506	501	509	511	510	505	489	474	469	471	475	493	506	513	517	520	520	519	515	518	520	531	505
29	514	513	513	511	511	513	510	504	485	472	458	465	469	492	517	522	555	530	518	500	515	511	513	513	505
30	513	513	511	510	514	507	509	504	489	469	461	467	482	497	509	511	511	516	519	520	520	520	525	522	505
31	521	520	521	521	520	519	517	506	489	472	452	461	481	498	513	524	523	526	529	530	532	527	518	517	510
Mean	510	500	507	505	509	510	510	506	495	484	477	474	477	492	500	507	512	516	515	515	515	511	511	510	503

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

120 ESKDALEMUIR (D) — 13° + — MARCH, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1 D	11·3	13·1	10·9	14·7	16·7	15·7	18·6	17·2	15·4	16·0	17·7	23·2	25·4	30·1	30·5	27·0	24·5	19·6	21·4	11·9	16·2	15·1	12·9	18·8	18·5
2	19·4	20·9	19·2	18·7	17·5	17·9	18·3	18·7	20·5	19·8	19·5	21·2	24·2	24·9	24·6	24·1	22·8	22·1	21·3	21·4	20·3	18·1	17·8	19·8	20·5
3	19·2	18·8	19·4	15·7	16·7	16·7	17·5	16·7	16·7	17·7	20·2	22·4	25·8	27·2	28·1	26·1	24·2	21·4	19·3	19·0	19·6	20·1	19·4	19·5	20·3
4	19·5	19·4	19·4	18·9	20·0	19·1	18·3	18·5	17·5	16·5	17·0	19·7	23·1	25·5	25·9	25·9	25·2	23·2	22·1	19·1	15·7	17·5	19·3	15·8	20·1
5 D	19·3	18·1	18·5	18·0	18·3	17·5	15·2	16·6	19·6	17·6	19·5	22·5	28·6	31·9	35·5	39·6	45·0	40·1	27·8	23·1	13·0	14·7	17·5	19·6	23·2
6	13·7	10·2	12·6	12·4	12·9	15·0	15·2	15·5	17·3	18·7	20·4	22·1	24·4	24·6	25·0	24·3	23·0	21·7	21·4	20·9	22·2	19·0	14·6	17·2	18·5
7	17·7	19·8	17·7	18·3	18·0	17·6	18·8	19·5	19·3	17·9	19·9	22·1	25·2	29·5	29·1	28·2	28·0	25·1	22·3	20·7	20·5	20·3	18·4	18·6	21·4
8	17·3	17·3	17·4	17·6	17·3	15·7	17·1	18·0	16·9	16·7	18·2	20·7	24·1	26·5	27·6	26·7	24·1	22·2	22·1	21·8	21·7	21·1	15·6	17·5	20·1
9	18·6	19·0	18·7	18·4	18·0	19·6	18·5	18·4	17·2	16·4	17·3	20·0	24·2	26·1	26·1	25·8	23·2	21·4	20·4	21·9	21·4	20·4	16·7	17·7	20·2
10 Q	17·5	17·7	18·4	18·6	19·0	19·2	18·6	18·5	17·4	16·8	18·6	21·4	24·2	25·8	26·1	24·6	22·7	21·9	21·4	21·4	21·3	21·2	20·3	19·8	20·5
11	19·6	19·5	19·4	19·1	18·6	18·1	17·8	17·3	15·7	15·6	18·8	21·4	24·3	25·2	25·2	24·1	22·1	21·2	20·5	20·4	20·1	19·4	17·7	16·7	19·9
12	10·1	16·4	19·0	20·5	21·4	15·2	14·2	16·2	15·6	16·0	18·3	23·1	26·2	28·4	31·6	27·2	22·2	21·3	22·2	21·4	21·2	20·4	19·5	20·1	20·3
13	19·7	19·6	19·5	19·3	19·3	18·1	17·5	16·7	15·8	16·5	19·5	22·8	25·4	25·2	25·2	23·3	21·9	21·5	21·7	21·3	20·5	20·2	20·2	20·2	20·5
14	14·4	16·0	17·5	22·3	13·7	17·2	16·9	18·6	17·6	19·8	20·4	27·1	27·2	28·8	29·0	26·0	22·4	20·9	20·4	20·1	16·6	18·8	19·5	20·0	20·7
15	13·6	18·3	20·2	19·3	22·2	18·4	17·5	15·6	14·2	15·6	20·1	25·9	29·2	28·8	28·7	25·5	22·3	19·4	18·7	17·8	16·2	18·3	19·9	19·9	20·2
16 Q	20·2	20·4	20·3	18·9	18·5	18·0	17·5	16·1	14·7	14·2	18·4	22·5	26·8	28·1	27·5	24·6	21·4	21·2	21·0	19·8	19·5	18·5	19·2	18·7	20·3
17	19·4	20·3	17·5	17·4	18·3	18·1	17·4	16·3	14·3	13·9	17·5	22·3	26·9	28·9	29·2	26·4	22·9	21·2	21·3	20·8	20·1	19·9	19·9	19·9	20·4
18 Q	18·7	19·1	19·6	19·3	18·8	18·3	17·7	16·5	15·2	14·9	17·4	22·0	26·1	27·8	27·7	25·9	23·2	21·4	20·8	20·1	20·4	20·5	20·3	19·9	20·5
19 Q	19·6	19·5	19·3	18·7	18·5	18·0	18·3	16·8	14·5	13·1	16·5	20·3	24·1	26·7	27·3	26·2	24·3	22·3	21·4	21·1	20·4	20·4	20·1	20·0	20·3
20 Q	19·5	19·0	19·1	18·4	18·2	17·6	17·2	15·8	14·1	13·7	16·6	21·4	26·0	28·1	27·8	25·8	23·0	21·5	21·4	21·1	20·6	20·9	20·0	19·4	20·3
21	18·5	15·8	16·8	17·7	17·9	17·5	16·6	14·8	13·0	13·4	17·3	22·4	26·8	29·0	27·3	25·0	22·4	21·4	21·3	21·1	20·9	17·7	19·8	13·8	19·5
22 D	15·6	15·8	21·3	17·5	16·6	19·5	31·5	26·1	18·5	19·1	25·1	27·1	30·7	35·1	30·7	32·5	24·8	23·0	21·4	22·1	23·0	19·2	16·0	3·4	22·3
23 D	2·0	1·6	11·1	7·3	8·2	11·9	17·3	16·5	16·7	16·8	20·8	21·4	24·4	26·0	25·2	22·4	21·1	21·2	21·3	14·2	12·0	14·9	10·4	10·7	15·6
24 D	-W·0	-2·7	-3·6	5·4	15·6	23·2	29·1	30·3	20·3	17·5	21·1	22·2	24·8	24·7	23·3	22·2	20·3	20·3	20·2	20·3	20·7	17·7	14·7	18·4	17·5
25	18·3	16·7	17·1	15·8	16·4	16·1	16·6	16·6	16·1	15·9	19·2	23·1	25·4	25·9	25·9	23·9	17·0	18·9	17·2	14·0	17·2	6·1	10·4	7·7	17·4
26	6·3	3·9	5·8	14·1	16·7	17·5	17·1	16·1	15·2	17·1	20·7	25·0	26·6	27·1	25·8	26·3	22·4	19·3	18·0	17·7	19·3	20·2	18·7	17·7	18·1
27	16·7	18·9	16·7	16·9	16·2	16·0	15·9	15·0	14·0	14·5	18·4	21·9	24·6	25·8	24·8	22·5	20·2	19·7	19·8	19·6	16·9	17·7	19·2	19·1	18·8
28	18·8	18·9	15·9	17·8	15·6	15·2	14·8	13·3	12·7	14·1	18·4	23·4	25·1	26·1	25·3	23·4	21·4	20·7	20·3	20·3	20·5	20·6	20·1	17·3	19·2
29	16·0	17·5	16·9	17·0	16·9	16·8	15·8	13·2	12·0	12·8	16·3	22·7	26·3	27·4	28·5	24·9	24·6	21·6	18·3	20·0	20·8	20·2	19·6	19·4	19·4
30	19·2	18·9	18·8	19·5	18·9	17·7	16·1	13·9	13·8	15·2	19·7	24·5	27·1	27·2	25·4	22·5	20·3	20·1	20·7	20·3	19·9	19·8	19·8	19·6	20·0
31	18·8	18·7	18·7	18·3	17·7	16·9	15·4	12·3	10·4	11·4	14·6	20·3	24·4	26·3	26·1	23·6	21·4	20·0	20·5	20·6	20·1	19·1	18·0	18·7	18·8
Mean	15·9	16·3	16·7	17·2	17·5	17·4	17·9	17·1	15·9	16·0	18·8	22·5	25·7	27·4	27·3	25·7	23·4	21·8	20·9	19·8	19·3	18·6	17·9	17·6	19·8

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

121 ESKDALEMUIR (V) 44,000 (·44 C.G.S.unit) + MARCH 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 D	921	909	923	942	925	925	929	941	950	954	955	951	954	957	982	1000	992	1000	991	989	966	968	968	968	956
2	935	926	939	953	955	955	954	950	948	945	948	945	950	958	964	967	965	962	961	962	965	969	968	955	954
3	955	956	952	942	945	949	949	949	950	952	952	952	951	950	956	961	962	963	961	959	956	956	955	955	954
4	955	955	955	955	954	954	954	954	955	955	954	946	944	947	949	956	960	959	956	964	967	967	966	965	956
5 D	941	944	952	956	956	954	951	945	939	944	938	938	939	954	972	1003	1073	1079	1137	1060	1017	995	978	956	980
6	956	946	898	933	935	940	943	943	943	940	940	944	946	949	953	963	968	968	980	983	977	976	979	969	953
7	964	962	956	962	963	962	958	952	951	950	949	946	945	950	965	980	989	996	988	980	972	969	968	966	964
8	962	961	962	961	954	955	956	956	956	956	952	945	945	946	953	959	966	968	966	963	962	962	965	963	958
9	962	961	960	960	959	958	954	955	956	956	949	943	939	945	947	952	958	962	966	966	968	966	973	971	958
10 Q	966	962	960	957	956	956	955	955	952	950	946	942	940	945	950	954	956	954	955	956	956	956	956	956	954
11	955	954	953	953	953	953	952	953	952	947	942	938	937	940	945	951	956	956	958	962	957	957	957	949	951
12	943	947	949	952	950	934	933	939	947	949	943	939	942	948	955	973	979	970	961	958	957	957	999	957	952
13	956	956	955	955	954	955	952	951	949	945	944	945	947	950	951	955	955	952	952	952	953	955	956	954	952
14	945	945	945	940	938	945	947	951	950	950	948	940	944	943	956	963	963	962	959	959	963	960	956	954	951
15	950	950	948	946	945	949	952	957	960	955	952	948	947	956	961	968	986	969	969	966	961	957	957	957	956
16 Q	956	956	955	956	956	956	956	956	957	956	951	946	940	943	950	960	959	955	954	956	956	956	955	955	954
17	954	952	943	945	948	950	953	956	956	955	945	938	934	936	940	950	960	957	956	956	955	953	955	955	950
18 Q	951	951	952	952	954	953	952	954	955	952	949	939	937	937	943	948	951	950	950	951	950	950	952	951	949
19 Q	952	952	953	953	954	952	950	951	951	948	938	933	932	933	936	944	949	950	950	950	950	949	950	951	947
20 Q	952	952	952	953	952	952	952	956	956	950	941	934	933	933	936	944	949	948	948	949	949	950	952	954	948
21	952	950	951	950	950	951	952	956	953	947	939	932	932	936	943	949	951	956	956	953	951	956	946	942	948
22 D	939	942	927	916	928	933	916	907	917	924	931	947	964	986	1011	1005	1014	1011	1016	1006	1006	1000	989	940	961
23 D	935	951	913	929	934	921	891	917	939	952	955	950	949	950	952	956	963	978	1008	1011	950	940	898	836	941
24 D	845	779	816	783	829	844	839	879	916	945	966	970	970	977	978	977	976	970	968	968	967	973	974	969	920
25	965	959	956	953	956	957	963	966	968	968	963	960	959	959	964	972	988	982	984	980	972	952	921	910	962
26	904	805	887	943	960	965	970	970	965	959	949	952	955	966	976	981	1002	1022	1026	1010	992	974	957	962	961
27	961	938	938	949	955	956	962	970	971	965	957	952	950	953	958	964	963	962	962	964	966	965	964	963	959
28	963	962	959	959	956	958	962	963	963	960	951	950	952	955	961	962	962	962	962	963	964	963	963	957	960
29	957	960	962	962	962	962	963	966	965	957	949	939	939	939	949	956	963	985	1015	1003	980	972	966	964	964
30	963	963	963	962	957	960	961	962	960	956	952	950	949	951	957	961	961	957	956	957	958	959	960	960	958
31	960	960	960	959	959	960	962	963	960	953	946	937	934	937	943	952	955	955	953	955	956	957	962	961	954
Mean	948	941	942	945	947	948	947	950	952	951	948	945	945	949	957	964	970	972	975	971	965	963	959	952	954

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS:
MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

122 ESKDALEMUIR MARCH, 1938

Day	Terrestrial Magnetic Elements																				HR_H+VR_V §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force						Declination						Vertical Force										
	Maximum 16,000 γ+			Minimum 16,000 γ+			Range	Maximum 13° +			Minimum 13° +			Range	Maximum 44,000 γ+			Minimum 44,000 γ+			Range	10,000γ²		
	h	m	γ	h	m	γ	γ	h	m	′	′	h	m	′	′	h	m	γ	γ	h	m	γ			°A
1 D	19	38	578	14	26	114	14	18	34·5	-2·2	19	33	36·7	15	13	1003	902	1	2	101	641	1	83·1
2	0	16	541	12	56	61	13	22	26·0	16·6	4	35	9·4	21	59	972	925	1	42	47	312	0	83·2
3	2	53	544	10	59	66	13	55) 14	48) 28·9	13·8	3	37	15·1	17	6	964	941	3	11	23	212	0	83·2
4	23	48	547	11	14	60	15	47	26·8	12·4	23	46	14·4	21	42	969	942	12	15	27	220	1	83·1
5 D	18	5	660	20	14	235	16	13	51·2	-3·1	20	4	54·3	18	12	1234	935	8	30	299	1731	2	83·1
6	17	53	528	2	23	78	12	39	26·4	3·5	2	48	22·9	19	14	986	877	2	25	109	618	1	83·1
7	15	4	528	11	0	51	14	10	30·6	16·7	0	9	13·9	17	34	998	945	12	3	53	322	1	83·2
8	22	22	521	12	1	50	14	27	27·7	14·1	22	18	13·6	17	12	968	943	11	59	25	195	0	83·2
9	21	10	533	12	26	44	14	50	27·1	14·6	22	8	12·5	22	40	974	939	12	20	35	230	0	83·2
10 Q	19	46	529	12	15	58	14	12	26·5	16·6	9	2	9·9	0	1	968	939	12	28	29	222	0	83·2
11	23	15	546	11	0	57	13	48) 14	30) 25·4	10·1	24	0	15·3	19	38	962	935	12	0	27	215	0	83·2
12	14	45	554	10	3	73	14	46	34·3	8·4	0	4	25·9	16	34	980	932	5	34	48	336	1	83·2
13	23	58	546	12	57	65	12	30	27·0	15·2	8	52	11·8	0	1	957	943	10	16	14	170	0	83·2
14	0	1	544	12	16	87	14	11	31·7	12·9	0	18	18·8	20	46	967	930	4	0	37	310	1	83·1
15	0	27	537	12	21	79	13	20	30·2	9·5	0	27	20·7	18	4	973	944	4	42	29	260	1	83·1
16 Q	21	33	530	11	17	70	13	30) 13	40) 28·6	13·1	9	25	15·5	16	0	962	939	12	30	23	218	0	83·3
17	2	3	550	10	35	94	14	18	30·5	13·6	9	35	16·9	16	34	961	934	12	20	27	276	0	83·4
18 Q	0	13	537	11	20	68	13	42	28·7	14·7	8	29	14·0	8	4) 9	3) 956	936	12	28	20	202	0	83·5
19 Q	19	47	531	12	6	67	14	50	27·7	12·9	9	16	14·8	4	20	955	932	12	41	23	214	0	83·6
20 Q	21	7	538	12	28	64	13	38	28·2	13·3	9	10	14·9	8	10	956	931	13	0	25	218	0	83·7
21	22	43	624	11	18	144	13	17	30·5	12·7	8	58	17·8	21	30	957	929	11	40	28	364	1	83·9
22 D	5	18	563	11	38	142	13	52	37·1	-2·1	23	38	39·2	18	18	1022	904	7	30	118	764	2	84·0
23 D	20	23	627	23	28	276	13	57	27·0	-6·6	1	14	33·6	19	5	1022	790	23	26	232	1497	2	84·1
24 D	22	15	617	1	23	240	7	37	37·1	-14·5	2	20	51·6	13	56	980	731	3	11	249	1514	2	84·1
25	19	27	538	11	40	128	14	29	26·9	0·7	21	34	26·2	16	45	989	904	23	48	85	593	1	84·3
26	17	58	554	1	26	244	13	15	28·8	-4·8	1	9	33·6	17	50	1032	759	1	38	273	1629	2	84·2
27	1	13	536	11	40	80	13	6	26·3	13·1	9	0	13·2	8	10	973	929	1	58	44	330	0	84·3
28	23	23	539	11	13	73	13	20	26·4	12·2	8	31	14·2	20	10	965	949	11	10	16	192	0	84·4
29	16	23	565	10	32	111	14	15	31·0	10·6	8	49	20·4	19	0	1022	937	11	32	85	565	1	84·5
30	22	49	526	10	42	69	13	8	27·7	12·5	7	51	15·2	0	1	964	948	12	50	16	186	0	84·5
31	20	6	537	10	41	100	13	53	26·9	9·8	8	32	17·1	7	15	965	933	12	12	32	309	0	84·5
Mean	--	--	550	--	--	101	--	--	29·8	8·7	--	--	21·1	--	--	986	915	--	--	71	486	0·65	83·6
No. of Days Used	--	--	31	--	--	31	--	--	31	31	--	--	31	--	--	31	31	--	--	31	31	31	31

§ For explanation see p. 95.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

123 ESKDALEMUIR (H) — 16,000 γ (·16 C.G.S.unit) + — APRIL, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	521	517	517	517	518	519	513	502	485	474	468	477	482	489	507	525	522	525	539	526	529	527	529	529	511
2 Q	528	529	527	526	526	525	522	515	500	480	469	473	485	500	510	521	526	530	533	537	534	528	518	519	515
3	522	530	531	521	525	527	529	523	506	489	474	465	467	481	493	505	509	533	528	525	530	530	529	526	512
4	523	526	521	531	535	525	524	520	502	469	456	449	482	493	509	526	522	522	532	536	534	522	518	517	512
5 Q	515	514	516	517	517	521	517	511	498	481	468	469	477	492	508	519	522	524	526	530	529	528	528	529	511
6	526	530	526	513	530	533	532	502	464	476	481	489	473	469	485	500	513	523	531	514	529	534	535	542	510
7	509	498	497	485	487	515	529	521	506	489	480	465	455	476	464	505	507	519	525	524	526	515	516	521	501
8	514	518	513	513	514	517	517	506	487	472	453	446	466	485	494	502	518	513	522	525	526	533	523	520	504
9	518	518	517	513	515	517	513	502	486	465	460	473	492	493	490	504	517	515	526	521	526	525	533	530	507
10	521	513	513	519	522	526	522	514	502	486	465	464	477	498	513	538	528	521	521	520	522	519	520	520	511
11	522	521	520	520	526	524	519	509	498	480	485	485	489	505	521	529	556	539	498	515	517	521	513	526	514
12	522	522	520	518	518	517	520	513	493	482	473	473	468	480	489	497	502	510	517	520	542	527	526	527	507
13 D	525	521	511	509	513	513	509	502	494	489	474	481	483	515	528	529	570	535	550	550	564	559	498	452	516
14 D	465	472	462	476	460	486	487	504	483	493	460	452	450	442	481	509	526	505	525	530	522	505	502	508	488
15	518	512	513	511	501	505	501	489	472	454	445	441	456	460	499	515	522	517	516	519	525	536	529	510	499
16 D	513	517	505	506	509	506	506	506	497	434	399	347	387	428	542	537	505	505	475	476	473	410	456	456	475
17 D	447	448	450	445	452	445	438	426	440	430	426	453	462	473	513	549	554	533	500	523	502	493	477	482	473
18	507	492	478	484	477	476	476	460	461	452	456	452	465	483	487	515	550	527	538	537	506	500	498	491	490
19	481	477	477	489	494	489	494	489	473	456	432	440	442	461	485	514	510	513	537	530	513	509	502	506	488
20	511	502	503	505	501	498	504	501	485	467	453	452	466	489	506	517	522	525	521	519	524	513	510	511	500
21	510	506	502	514	510	510	509	508	485	468	458	457	469	477	494	500	503	528	537	528	522	518	519	517	502
22	498	509	502	489	514	505	501	499	493	478	473	476	502	505	509	509	534	571	562	537	529	526	517	509	510
23 D	523	508	508	517	515	510	509	493	452	436	436	453	468	493	512	554	546	554	526	534	498	489	474	498	500
24	493	492	486	472	486	480	486	479	472	455	443	449	464	481	497	512	509	526	526	530	526	513	509	501	491
25	502	511	511	505	493	489	493	498	484	463	453	464	472	474	498	533	546	545	539	524	502	505	490	489	499
26	491	492	495	497	497	497	490	481	474	466	460	473	465	487	485	504	505	522	531	535	533	530	530	523	498
27	518	516	515	511	510	509	506	500	493	476	469	469	481	498	511	521	531	522	519	519	518	518	518	521	507
28 Q	519	516	513	513	515	511	505	501	495	476	472	470	481	489	502	517	520	539	535	534	528	526	524	524	509
29 Q	522	518	519	518	520	516	511	507	500	488	478	478	485	498	510	521	524	530	533	535	532	529	528	528	514
30 Q	526	526	525	524	522	520	515	506	493	480	473	476	485	496	510	532	526	525	535	536	533	530	529	529	515
Mean	510	509	506	506	507	508	507	500	486	470	460	460	470	484	502	519	525	527	527	526	523	517	513	512	503

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

124 ESKDALEMUIR (D) — 13° + — APRIL, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	17·2	17·7	18·0	17·8	17·2	16·3	14·9	12·2	10·5	12·0	16·1	21·7	26·3	28·6	28·6	27·1	25·4	23·9	23·2	21·8	20·1	19·9	19·6	19·2	19·8
2 Q	18·9	18·8	18·5	17·9	17·5	16·7	15·3	13·0	10·9	11·8	16·0	21·8	26·5	28·7	28·3	25·7	23·0	21·7	21·2	20·8	20·1	20·6	19·2	18·5	19·6
3	19·0	19·8	17·2	17·1	17·7	17·2	15·9	13·6	11·8	11·9	16·4	22·4	28·0	30·3	29·2	26·9	23·9	21·8	20·0	20·3	20·0	20·1	20·1	19·0	20·0
4	18·7	19·8	17·3	18·5	17·8	15·2	15·1	13·3	12·7	15·3	20·2	25·4	30·5	31·2	28·4	26·5	23·7	20·7	20·0	20·7	20·6	20·2	19·2	19·1	20·4
5 Q	18·6	18·3	18·1	17·8	17·5	17·3	15·7	13·7	13·6	14·6	18·3	22·6	25·7	27·0	25·8	23·7	21·8	20·4	20·0	19·5	19·4	19·6	19·1	18·9	19·5
6	18·1	18·9	18·5	17·3	15·0	13·2	12·1	10·6	12·5	20·4	20·0	23·0	27·8	29·9	28·6	27·3	24·7	21·9	20·9	14·3	16·4	18·5	17·0	15·5	19·3
7	19·4	12·3	7·6	7·1	4·9	10·4	15·3	12·3	11·6	13·0	17·2	23·1	27·2	28·7	28·5	27·5	23·6	20·6	19·6	20·1	20·1	19·9	18·3	18·2	17·8
8	17·3	17·5	17·2	17·3	17·0	16·0	14·2	12·3	12·1	15·3	18·9	23·7	26·1	27·5	27·0	24·8	22·6	19·2	19·1	20·2	19·0	17·9	19·0	20·1	19·2
9	19·5	18·7	18·5	17·7	17·3	17·2	15·6	14·2	12·7	15·5	19·0	25·3	28·5	27·8	26·1	26·5	24·0	22·0	20·4	15·8	17·6	20·6	19·8	15·1	19·8
10	17·2	18·3	20·8	19·4	18·1	17·3	15·5	13·6	12·6	15·0	20·9	27·7	30·4	30·6	27·7	22·9	19·1	19·2	19·9	20·4	21·3	20·8	20·2	20·0	20·4
11	19·5	19·2	18·9	18·1	18·4	17·3	16·2	15·2	15·3	18·0	21·7	26·7	27·6	29·3	27·0	23·5	20·7	16·2	16·6	19·0	18·3	15·9	17·2	20·1	19·8
12	20·1	20·0	19·4	19·1	18·1	17·3	15·1	12·7	14·3	16·1	19·3	22·6	25·0	24·6	24·8	23·2	20·4	18·1	17·3	17·8	20·0	20·2	19·4	20·0	19·4
13 D	19·1	18·9	18·5	18·9	18·1	16·7	15·0	13·9	12·2	14·3	18·9	22·6	26·2	28·9	29·6	29·3	28·1	23·0	21·2	21·7	22·8	21·1	21·2	15·4	20·7
14 D	11·8	16·0	7·1	4·3	1·8	14·5	22·2	23·3	19·2	20·9	20·9	25·8	28·5	28·3	27·3	26·7	23·6	20·3	21·4	21·4	20·9	18·9	19·3	18·2	19·3
15	19·2	25·4	18·3	16·3	17·6	16·2	13·6	11·3	6·7	7·8	13·7	20·4	27·4	29·8	30·8	27·5	21·2	20·0	19·2	20·0	20·1	18·9	18·1	17·7	19·1
16 D	16·6	19·6	19·9	16·5	16·1	17·2	41·6	-10·1	2·9	11·7	8·7	13·4	20·9	27·5	29·2	25·6	22·7	19·7	18·5	18·2	21·8	30·1	21·0	19·0	18·7
17 D	17·3	17·1	16·8	16·7	15·2	13·9	12·0	10·7	8·7	10·3	13·7	18·3	23·3	26·7	26·1	23·0	20·4	16·1	16·6	18·0	21·8	18·0	17·2	22·6	17·5
18	21·1	15·8	16·8	18·6	18·3	17·4	16·9	11·9	12·4	12·6	15·7	20·4	25·5	27·8	26·8	25·6	20·0	19·3	17·1	15·9	15·8	15·2	14·8	12·2	18·1
19	7·4	7·4	14·4	18·0	15·6	14·2	13·3	10·5	8·9	10·2	14·3	18·9	22·9	26·7	26·7	25·4	22·6	19·4	17·3	18·1	16·0	15·1	14·7	17·3	16·6
20	18·2	17·7	18·0	17·7	17·0	17·2	15·1	12·0	10·1	11·1	15·8	20·2	25·5	28·6	28·6	26·1	23·7	21·7	20·0	19·4	19·4	17·5	17·4	16·9	19·0
21	17·2	16·8	17·9	19·0	16·2	14·1	13·4	11·5	11·5	13·3	16·4	20·4	24·9	27·0	26·7	24·5	21·9	21·2	20·0	15·4	15·8	18·2	17·3	12·5	18·0
22	14·3	16·3	14·2	17·0	16·8	14·2	13·6	13·4	13·3	15·3	19·2	23·2	28·6	29·5	28·9	25·5	25·4	26·9	25·2	18·9	19·8	14·7	16·3	17·0	19·5
23 D	14·7	12·4	15·2	15·5	15·4	17·2	18·2	18·1	21·6	20·9	21·2	23·5	23·8	26·6	28·6	24·7	24·4	20·1	22·2	17·3	17·3	19·9	19·0	20·2	19·9
24	20·0	16·1	14·7	17·9	18·2	16·4	13·8	13·4	13·3	14·4	17·2	20·9	24·5	25·7	25·5	24·4	22·4	20·9	18·1	16·2	15·2	18·3	17·6	17·5	18·4
25	18·1	17·7	17·3	10·6	12·4	12·7	13·4	12·6	12·8	14·8	18·1	20·7	23·8	24·7	23·0	22·1	20·9	19·0	18·0	14·5	16·1	13·4	15·1	13·7	16·9
26	10·8	12·6	15·3	16·1	15·9	14·3	12·5	11·0	12·2	14·5	18·4	20·9	24·6	27·3	25·6	23·3	22·0	20·6	20·3	19·9	19·6	19·6	19·4	19·2	18·2
27	18·7	18·1	17·3	16·4	15·5	14·3	14·1	12·6	11·8	14·2	18·1	21·9	26·1	27·4	25·6	23·3	21·8	20·6	19·6	19·3	19·3	19·0	18·9	18·1	18·8
28 Q	16·7	17·0	16·9	17·8	16·3	15·1	13·2	12·2	11·3	13·9	19·3	23·1	25·7	27·2	25·5	24·5	22·8	21·5	20·5	19·7	19·4	19·1	18·6	18·4	19·0
29 Q	18·3	17·8	16·7	16·2	15·5	13·4	11·9	10·5	11·1	13·7	17·7	21·2	23·8	25·1	24·1	22·3	20·6	20·0	19·6	19·5	19·5	19·3	19·0	18·3	18·1
30 Q	18·0	17·5	17·1	16·6	15·8	14·3	12·8	11·8	11·9	14·4	17·7	20·8	24·5	26·0	25·1	23·7	22·3	20·2	18·3	17·7	18·0	18·2	19·3	19·5	18·4
Mean	17·4	17·3	16·7	16·5	15·8	15·5	15·6	12·2	12·1	14·2	17·6	22·1	26·0	27·8	27·1	25·1	22·7	20·5	19·7	18·7	19·1	19·0	18·4	17·9	19·0

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

125 ESKDALEMUIR (V) 44,000 γ (·44 C.G.S.unit) + APRIL, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	958	957	958	958	959	958	962	964	960	951	942	934	932	938	946	953	956	953	952	956	957	957	956	956	953
2 Q	956	956	956	956	956	956	957	961	960	950	938	926	924	930	940	949	951	950	949	950	951	953	957	957	950
3	955	953	946	950	952	952	955	956	953	946	939	930	927	933	946	952	957	963	967	965	958	957	956	956	951
4	956	951	949	945	940	944	950	954	952	949	941	934	939	948	962	964	970	972	966	963	962	962	962	960	954
5 Q	958	957	957	957	957	957	960	960	954	946	943	940	940	945	952	956	957	957	956	956	956	954	955	953	953
6	952	951	943	945	936	932	931	938	945	942	939	938	934	943	952	957	962	962	961	978	969	963	962	943	949
7	932	921	923	920	920	933	942	950	954	952	948	945	949	955	970	973	980	978	973	967	967	967	966	962	952
8	961	958	958	959	960	962	963	963	961	954	945	940	937	940	947	956	964	973	971	965	963	958	950	951	957
9	954	956	956	957	957	958	963	966	964	958	951	944	944	962	963	955	957	957	961	969	967	960	957	952	958
10	946	948	947	950	952	952	955	957	954	944	933	928	935	950	961	979	983	977	971	966	962	960	959	958	955
11	958	958	958	957	957	957	962	963	957	951	944	944	946	951	963	981	988	1012	1009	989	978	967	957	956	965
12	956	957	958	958	959	963	962	961	957	950	946	941	944	951	957	958	963	963	963	962	957	957	956	953	956
13 D	954	953	954	955	956	959	964	964	961	953	946	938	929	937	948	953	971	999	997	990	983	979	911	875	955
14 D	904	893	877	897	885	870	915	924	929	947	951	950	958	973	984	994	1009	997	980	972	969	969	968	964	945
15	961	933	931	950	956	958	963	963	955	940	941	941	946	952	957	972	985	979	970	963	961	958	951	947	956
16 D	938	937	941	951	954	956	895	1235	1123	1021	1030	1051	1048	1028	1039	1047	1051	1062	1042	1031	1021	964	980	987	1014
17 D	992	990	990	989	989	990	991	988	989	993	990	982	978	979	992	1004	1012	1021	1008	999	978	969	964	944	988
18	933	918	925	944	952	963	967	973	971	969	968	964	964	970	977	979	990	989	988	985	981	964	942	945	963
19	937	927	938	949	958	963	968	975	975	973	971	968	964	963	966	976	987	992	988	979	976	975	971	963	967
20	951	958	964	967	967	967	970	973	972	966	957	952	947	951	964	976	980	981	981	981	977	967	969	967	967
21	964	961	958	952	954	958	963	964	963	958	954	948	944	949	958	964	969	970	976	983	979	972	968	958	962
22	948	935	937	941	941	949	953	955	954	949	946	940	934	943	954	963	964	967	993	1006	996	987	974	967	958
23 D	946	950	960	963	963	958	952	950	944	940	948	958	986	1023	1040	1070	1062	1054	1024	1023	1008	944	936	956	982
24	933	940	943	947	950	956	963	968	969	965	963	962	963	962	965	975	983	987	992	980	969	967	970	969	964
25	969	966	960	944	931	935	943	951	957	957	957	956	960	973	977	981	995	1006	1014	1007	987	967	961	961	967
26	957	955	958	966	970	971	971	970	961	953	952	948	947	951	963	967	966	967	967	966	965	965	965	966	962
27	967	968	968	968	967	966	968	966	962	958	957	953	950	953	959	959	962	963	966	968	966	964	966	965	963
28 Q	964	964	964	963	963	964	964	964	958	953	958	951	949	956	964	967	966	967	969	969	967	963	963	963	962
29 Q	963	963	963	963	963	964	965	964	959	949	946	946	946	953	956	957	957	958	961	962	961	959	961	961	958
30 Q	962	961	961	961	961	963	962	958	953	947	941	934	935	944	951	957	963	967	969	967	964	963	959	958	957
Mean	953	950	950	953	953	954	957	970	964	956	953	950	950	957	966	973	979	981	979	977	972	964	959	956	961

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS:
MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

126 ESKDALEMUIR APRIL, 1938

Day	Terrestrial Magnetic Elements																				HR_H+VR_V §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force							Declination						Vertical Force									
	Maximum 16,000 γ+			Minimum 16,000 γ+			Range	Maximum 13° +			Minimum 13° +			Range	Maximum 44,000 γ+			Minimum 44,000 γ+			Range			
	h	m	γ	γ	h	m	γ	h	m	′	′	h	m	′	h	m	γ	γ	h	m	γ			°A
1	15	58	554	465	11	2	89	14	16	30·1	10·3	8	52	19·8	7	22	965	931	12	27	34	300	0	84·5
2 Q	20	46	545	468	10	33	77	13	36	29·4	10·3	8	51	19·1	7	50	962	922	12	4	40	307	0	84·7
3	1	53	542	452	11	50	90	13	47	32·0	11·3	8	56	20·7	18	35	969	926	12	30	43	342	0	84·7
4	4	39	544	440	11	29	104	13	59	32·4	12·1	7	54	20·3	17	18	973	933	11	20	40	352	0	84·7
5 Q	19	43	533	465	10	57	68	13	39	27·3	13·3	8	6	14·0	7	28	962	938	12	10	24	220	0	84·7
6	22	42	579	448	8	45	131	13	8	30·6	7·3	7	55	23·3	19	48	985	930	5	50	55	463	1	84·7
7	6	5	545	448	12	38	97	13	23	30·2	3·4	3	53	26·8	16	25	980	914	3	50	66	456	1	84·8
8	21	51	555	440	11	26	115	13	22	28·3	9·7	8	18	18·6	18	0	975	935	12	20	40	370	0	84·8
9	23	57	540	450	9	53	90	12	55	30·5	11·6	7	58	18·9	19	53	974	939	12	10	35	306	1	84·8
10	15	34	558	454	11	26	104	13	8	31·8	10·9	8	30	20·9	16	2	986	927	11	19	59	437	1	84·9
11	16	45	607	465	11	33	142	13	20	29·6	10·6	21	12	19·0	17	50	1016	940	10	57	76	575	1	84·9
12	20	4	583	452	12	3	131	12	36	26·5	12·0	7	3	14·5	6	50	964	940	11	30	24	324	0	84·9
13 D	16	1	642	420	23	26	222	14	8	34·0	6·4	22	55	27·6	17	42	1003	839	23	9	164	1102	2	84·9
14 D	8	47	579	387	8	43	192	12	44	37·6	-4·5	4	35	42·1	16	50	1013	836	5	0	177	1112	2	85·0
15	1	4	554	429	11	33	125	14	50	32·1	2·4	8	58	29·7	16	28	987	923	2	5	64	493	1	84·9
16 D	7	45	1262	-410	6	12	1672	6	15	271·9	-113·6	7	50	385·4	7	35	1848	680	6	18	1168	8003	2	85·0
17 D	15	53	605	410	7	40	195	13	56	28·6	6·8	8	25	21·8	17	31	1023	933	24	0	90	726	1	85·0
18	19	0	583	435	9	43	148	13	15	30·2	7·3	24	0	22·9	16	54	993	916	1	30	77	590	1	85·0
19	18	42	566	421	10	48	145	13	42	28·0	5·2	0	9	22·8	17	30	993	924	1	22	69	549	1	85·0
20	20	44	537	447	11	22	90	14	0	29·9	9·8	8	32	20·1	19	45	982	948	0	33	34	302	1	85·0
21	18 17	27 43)	541	456	11	18	85	13	40	27·4	9·5	23	46	17·9	19	27	985	944	12	43	41	324	1	85·0
22	17	47)	595	471	11	3	124	12	49	30·9	9·4	21	34	21·5	19	19	1015	932	12	4	83	578	1	85·1
23 D	15	56	611	422	9	50	189	14	21	32·1	7·3	21	30	24·8	15	50	1087	880	21	58	207	1241	2	85·0
24	19	52	542	425	10	51	117	13	50	27·0	12·1	8	10	14·9	18	14	997	928	0	40	69	503	1	85·0
25	18	17	570	442	10	49	128	12	58	26·5	9·5	3	27	17·0	19	0	1017	928	4	28	89	611	1	85·1
26	18	33	538	444	12	59	94	13	20	27·8	9·6	0	27	18·2	6	0	972	945	12	5	27	276	0	85·2
27	16	57	542	457	11	37	85	13	0	27·6	11·5	8	12	16·1	3	0	969	949	11	52	20	230	0	85·1
28 Q	17	13	546	469	11	40	77	13	22	27·4	10·2	8	21	17·2	18	40	970	948	12	10	22	226	0	85·2
29 Q	19	31	537	477	10	35	60	13	36	25·3	9·9	7	31	15·4	6	15	967	945	11	35	22	198	0	85·3
30 Q	16	17	539	469	11	20	70	14	0	26·5	11·3	8	7	15·2	18	0	970	933	11	55	37	281	0	85·3
Mean	--	--	586	417	--	--	169	--	--	37·7	4·8	--	--	32·9	--	--	1017	917	--	--	100	727	0·73	84·9
No. of Days Used	--	--	30	30	--	--	30	--	--	30	30	--	--	30	--	--	30	30	--	--	30	30	30	30

§ For explanation see p. 95.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

127 ESKDALEMUIR (H) 16,000 γ (·16 C.G.S.unit) + MAY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 Q	529	526	521	520	520	518	513	503	489	479	478	483	496	507	515	518	526	538	546	547	540	534	526	519	516
2	516	519	522	520	522	517	513	502	487	477	469	477	488	520	514	511	527	528	538	536	535	538	538	531	514
3	526	522	522	527	517	534	518	501	495	473	456	465	468	485	500	538	550	562	543	527	513	533	514	485	511
4 D	483	486	489	477	492	513	499	478	474	469	465	472	481	510	529	610	494	556	571	559	531	514	518	513	508
5	516	521	501	497	513	513	509	498	487	475	460	462	470	484	501	542	565	560	549	522	509	513	534	509	509
6	496	492	504	501	489	512	522	506	495	477	472	467	469	505	514	501	518	530	526	519	516	517	517	517	503
7	513	512	512	512	511	510	506	498	493	486	478	477	481	493	509	533	549	522	516	519	518	519	520	519	509
8 Q	522	522	521	522	525	524	521	516	513	503	493	494	502	504	513	528	532	541	528	526	536	541	526	524	520
9	521	518	520	521	522	521	517	511	503	498	496	500	504	511	517	518	531	545	550	542	542	543	537	522	521
10	527	534	525	521	530	529	517	511	511	504	491	498	511	517	524	531	536	535	533	533	533	533	526	525	522
11 D	529	534	526	538	525	528	523	516	500	495	494	507	510	524	540	564	586	740	619	575	231	27	312	-13	476
12 D	394	473	464	417	402	301	372	335	400	438	442	449	466	473	490	528	579	581	507	508	490	481	473	438	454
13	385	475	476	480	482	484	476	467	458	449	442	443	462	475	503	500	499	502	503	501	505	504	509	502	478
14 D	499	494	514	503	508	498	488	495	463	459	447	447	471	512	565	461	487	508	508	502	508	506	477	420	489
15	405	440	471	480	450	483	488	467	454	449	444	454	482	484	490	516	535	556	501	499	499	508	509	492	481
16	499	493	488	492	467	473	470	479	459	462	462	455	467	485	500	504	501	528	521	530	508	499	505	512	490
17	514	489	494	468	495	501	475	476	473	482	462	463	488	484	495	504	530	538	558	548	528	517	509	510	499
18	506	500	499	500	492	500	493	478	487	482	482	482	479	487	503	516	528	536	526	528	521	518	515	511	503
19	510	511	512	512	515	512	509	500	488	477	465	468	483	501	524	526	536	529	530	528	530	518	515	509	509
20 Q	510	501	502	504	508	508	506	504	503	498	492	491	493	484	488	499	509	521	525	530	523	523	520	516	507
21	515	519	516	512	512	516	511	501	501	487	484	479	484	499	510	521	523	523	529	529	530	529	526	528	512
22	528	527	521	516	516	519	513	504	497	487	478	483	492	490	512	540	508	532	540	543	532	524	521	516	514
23 Q	512	512	517	518	519	518	516	505	497	493	495	475	495	504	520	527	535	545	546	541	532	529	528	530	517
24	533	529	526	524	524	521	512	503	495	491	495	491	510	507	507	528	613	573	541	545	564	560	537	533	528
25	546	513	513	525	528	519	513	509	501	488	484	487	491	509	523	536	536	537	541	532	533	536	516	516	518
26 Q	516	517	524	525	516	512	515	505	497	490	487	495	505	512	524	528	532	528	530	528	524	523	523	525	516
27	524	525	523	524	527	519	511	506	502	496	489	488	487	496	512	530	536	564	556	545	548	564	543	532	523
28	531	529	524	524	528	528	504	495	516	509	503	501	499	496	514	535	536	544	552	556	569	523	531	541	525
29 D	541	532	509	524	512	516	475	451	442	450	447	475	482	527	541	564	602	532	508	508	512	518	507	513	508
30	490	503	503	506	509	507	493	465	439	440	463	480	491	492	488	503	521	525	529	537	531	518	512	512	498
31	508	500	504	505	507	503	495	484	483	482	472	474	478	488	495	511	527	534	548	552	539	525	515	511	506
Mean	505	509	508	507	506	505	500	489	484	478	474	477	487	499	512	525	535	545	536	532	517	508	512	494	506

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

128 ESKDALEMUIR (D) 13° + MAY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1 Q	19·5	19·3	18·7	17·7	16·4	14·3	12·6	10·6	11·4	14·6	18·9	21·8	23·8	24·0	22·4	21·2	20·7	20·8	20·5	19·8	18·8	18·5	17·1	16·2	18·3
2	17·2	17·1	16·7	16·5	14·8	13·6	12·1	10·9	11·8	15·4	20·0	25·3	28·8	30·3	25·9	24·3	21·8	19·6	19·3	19·2	19·3	19·3	17·6	16·7	18·9
3	16·5	16·9	17·7	17·2	20·2	24·1	18·5	14·8	14·7	15·7	19·3	25·3	29·1	29·3	28·7	28·7	26·3	26·2	21·2	16·7	18·4	20·3	13·8	12·4	20·5
4 D	11·2	6·7	1·6	6·5	18·5	15·0	10·7	12·9	16·5	16·0	17·3	20·8	25·3	29·9	27·9	30·9	28·4	31·0	29·7	26·3	20·4	20·9	20·3	18·3	19·3
5	17·8	17·9	20·9	17·4	15·0	13·7	11·9	11·1	10·9	11·6	16·1	20·3	22·5	24·5	24·4	24·0	23·1	18·5	19·7	17·0	18·2	20·1	19·5	16·7	18·0
6	12·9	15·0	15·8	16·0	17·6	18·6	16·6	12·4	12·5	14·8	18·4	22·4	25·9	28·9	28·7	26·0	23·5	22·0	21·1	20·5	19·5	19·1	18·5	18·3	19·4
7	17·8	17·7	17·5	16·8	16·5	15·0	14·1	12·8	14·7	15·1	17·2	21·3	24·3	25·6	24·3	23·4	19·9	20·0	20·5	20·4	20·3	19·8	19·3	19·2	18·9
8 Q	18·6	18·8	18·0	18·0	17·7	18·7	15·8	13·0	13·6	15·9	17·7	20·6	23·5	24·9	24·8	23·1	21·6	20·8	19·7	19·1	18·9	17·8	18·6	19·5	19·1
9	19·0	18·6	18·4	17·7	16·9	14·8	13·7	12·9	12·9	14·8	18·4	21·4	23·2	23·2	22·2	20·8	19·4	18·8	19·3	19·2	19·4	20·4	19·7	16·5	18·4
10	17·0	22·2	18·3	16·2	15·8	17·5	14·8	11·8	12·6	15·7	17·7	20·4	22·9	23·7	24·0	22·5	20·6	19·3	18·8	17·9	19·3	20·2	19·4	18·9	18·6
11 D	19·3	19·0	18·9	17·2	12·0	12·6	11·4	11·4	14·3	18·1	21·8	23·3	26·7	27·4	25·8	24·5	25·2	30·7	19·2	17·0	13·4	-5·2	0·0	-38·3	15·2
12 D	6·8	8·7	11·5	11·5	10·6	6·8	18·3	16·1	10·1	14·2	20·0	22·2	25·1	26·0	23·7	22·8	23·0	20·2	19·9	15·3	13·7	16·8	17·9	8·7	16·2
13	20·0	13·4	15·6	15·3	14·4	12·7	11·8	10·7	10·7	13·4	18·8	22·7	25·9	25·4	23·8	21·7	19·8	18·8	17·3	17·4	17·5	16·1	18·3	17·7	17·5
14 D	16·8	17·3	14·5	8·9	10·9	11·6	12·6	10·8	9·6	12·9	16·4	21·0	28·6	34·0	31·4	23·7	24·3	22·0	18·7	16·3	17·2	14·8	17·9	15·1	17·8
15	17·2	4·8	14·4	18·6	19·8	20·1	13·1	10·5	11·0	12·5	16·3	19·8	23·8	25·7	26·4	25·4	23·6	19·5	18·8	19·8	20·0	20·1	17·0	17·8	18·2
16	18·5	16·6	18·1	20·1	20·0	21·9	19·0	19·1	12·6	15·4	14·2	17·9	20·7	23·5	23·9	21·9	21·5	21·8	18·1	14·2	17·0	18·1	18·7	17·7	18·8
17	16·2	15·0	15·2	16·7	17·0	14·1	15·0	16·1	14·4	12·9	15·1	17·2	21·7	22·5	22·7	21·8	21·7	18·1	19·9	16·1	16·2	17·3	20·1	19·0	17·6
18	17·1	16·1	17·9	16·2	14·1	15·2	12·4	11·1	12·3	12·4	16·3	21·6	24·1	24·6	22·7	21·4	19·9	18·9	17·1	18·1	18·7	19·0	19·1	18·9	17·7
19	18·4	18·8	18·0	16·2	15·1	13·3	12·5	11·8	12·4	15·3	18·8	22·7	24·3	24·6	23·9	21·9	17·5	17·8	18·0	17·9	16·4	18·5	18·9	18·1	18·0
20 Q	17·4	16·7	16·7	16·2	15·5	13·4	11·7	11·4	12·0	13·7	16·6	20·0	22·6	23·0	22·7	21·7	20·2	18·9	17·5	17·4	18·0	18·1	18·9	19·3	17·5
21	17·5	19·1	18·9	17·0	14·5	13·2	12·0	9·4	,8·4	11·0	14·2	19·0	22·1	23·9	23·9	23·8	22·8	20·8	19·9	19·6	19·4	18·9	18·0	17·8	17·7
22	17·4	17·2	17·0	15·6	16·2	15·1	13·8	12·4	12·3	13·0	17·2	20·9	23·6	24·3	24·3	23·2	20·3	20·0	19·1	19·4	19·0	19·0	18·5	16·6	18·1
23 Q	16·5	16·1	15·4	16·2	15·3	13·3	12·1	11·7	12·5	14·3	18·2	20·9	21·9	21·8	21·6	20·6	19·9	20·0	21·0	20·1	20·0	19·4	19·1	18·7	17·8
24	18·1	17·3	16·4	15·3	14·2	11·9	11·5	11·2	11·7	12·9	15·8	18·2	21·2	22·0	21·5	21·0	22·5	16·4	17·5	20·9	23·0	19·1	16·4	16·1	17·2
25	12·5	12·8	13·4	12·9	10·1	9·6	10·7	12·0	14·8	17·3	20·9	22·3	22·2	22·1	22·0	21·0	19·8	19·6	20·2	20·0	19·2	19·1	17·7	17·7	17·1
26 Q	17·4	17·3	16·9	17·1	15·7	13·3	14·3	13·4	13·7	15·6	18·0	20·2	22·1	22·7	22·4	20·8	19·6	19·4	20·4	20·0	19·1	18·6	18·0	18·0	18·1
27	17·3	17·0	16·5	18·8	17·8	13·4	12·4	13·3	13·6	13·5	16·4	20·3	22·3	24·3	24·6	23·7	21·8	20·5	16·5	18·0	20·2	20·8	21·5	19·2	18·5
28	19·0	18·1	17·2	16·1	13·1	9·5	7·7	15·3	18·2	19·7	19·8	16·4	23·6	24·6	24·6	23·7	21·8	19·4	19·6	19·6	20·2	17·7	18·3	19·0	18·4
29 D	19·7	15·8	11·1	7·2	13·2	17·3	15·1	15·2	14·6	16·7	19·0	22·0	26·9	29·0	29·0	24·7	28·6	20·9	19·0	18·9	20·1	17·1	15·5	13·3	18·7
30	14·5	16·2	15·4	14·5	13·5	11·7	8·7	8·8	12·5	16·3	19·9	22·8	25·7	27·5	28·4	25·6	22·8	20·0	17·5	17·3	15·4	16·9	19·0	19·4	17·9
31	17·3	13·8	13·5	13·3	13·5	13·3	13·3	14·8	17·6	17·2	19·9	22·8	26·7	28·3	25·9	24·2	23·1	21·3	19·9	17·2	18·1	18·2	17·4	16·4	18·6
Mean	16·9	16·0	16·0	15·5	15·4	14·5	13·2	12·6	12·9	14·8	17·9	21·1	24·2	25·5	24·8	23·4	22·1	20·7	19·5	18·6	18·5	17·9	17·7	15·4	18·1

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

129 ESKDALEMUIR — 44,000 γ (·44 C.G.S. unit) + — MAY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 Q	958	958	961	963	965	968	966	965	955	943	940	937	931	934	942	949	952	955	956	957	958	959	962	958	954
2	961	960	959	957	957	957	957	956	952	943	931	928	932	943	961	961	963	967	966	961	958	957	957	955	954
3	953	954	958	959	956	930	924	929	930	934	935	931	935	946	955	963	987	1011	1028	1019	997	976	945	941	958
4 D	921	910	883	885	887	906	937	944	940	944	947	942	944	958	993	1037	1052	1018	1002	998	1004	984	961	962	957
5	967	965	948	939	939	959	970	974	967	958	953	950	951	956	961	971	997	1014	1019	1013	995	978	953	920	967
6	932	947	954	958	955	949	953	961	959	958	952	946	947	951	963	970	971	970	969	966	965	965	964	964	958
7	965	965	965	965	965	967	967	965	963	955	951	949	948	954	959	971	984	984	975	967	965	964	964	964	964
8 Q	963	963	964	964	963	960	958	958	954	947	946	941	938	945	948	952	955	963	968	967	965	964	964	963	957
9	963	963	964	964	966	970	967	961	955	948	941	936	937	944	950	959	982	964	965	968	964	962	961	959	958
10	954	949	941	954	958	959	958	958	954	948	938	932	931	935	941	954	963	968	971	971	968	964	965	964	954
11 D	961	953	948	941	947	953	958	959	956	951	952	944	941	948	956	964	970	1005	994	1016	921	891	839	1109	957
12 D	834	932	1000	1001	987	921	854	887	906	943	966	971	984	1011	1046	1058	1071	1064	1040	1031	1013	993	965	899	974
13	811	939	971	981	984	990	993	993	987	977	973	972	976	984	991	1000	1000	995	988	985	984	984	973	968	975
14 D	964	958	936	932	948	959	959	958	960	954	942	953	983	1004	1040	1037	998	988	998	1000	988	981	927	882	969
15	829	853	899	911	911	904	952	970	976	977	980	975	977	982	986	997	1003	1008	997	985	979	974	974	972	957
16	966	971	973	961	948	935	947	952	966	973	981	981	978	982	1000	1017	1011	1001	1000	997	990	982	977	989	977
17	946	921	912	924	929	952	962	963	964	964	963	960	957	964	974	982	981	985	983	987	978	974	984	962	960
18	964	965	964	964	964	962	964	968	966	964	959	952	951	957	960	968	977	980	982	980	976	973	971	970	967
19	970	970	970	970	972	975	973	971	967	959	954	949	950	953	966	979	984	985	978	977	977	973	971	970	969
20 Q	966	968	970	970	971	975	972	969	965	958	952	950	951	954	957	962	968	971	975	973	970	969	967	964	965
21	965	964	963	963	966	969	968	966	958	950	947	947	947	949	957	962	970	972	971	970	968	965	966	965	962
22	964	965	965	969	967	965	966	966	965	958	951	946	942	949	955	964	972	971	968	967	969	967	965	965	963
23 Q	965	965	965	966	968	970	968	963	956	948	944	942	945	947	949	954	960	963	963	964	964	964	962	961	959
24	962	964	964	964	966	966	964	959	955	944	937	937	937	945	951	955	970	998	997	978	966	965	947	932	959
25	936	953	962	964	962	962	959	954	950	944	940	936	941	948	954	958	959	963	964	965	966	964	967	965	956
26 Q	965	964	961	959	960	958	949	947	949	949	942	935	934	936	945	954	958	959	962	962	964	964	964	964	954
27	964	964	964	960	958	961	964	964	957	945	936	934	936	941	948	957	962	969	980	976	967	964	961	959	958
28	958	958	962	964	965	964	965	958	941	932	931	931	935	945	949	956	960	962	961	959	959	968	967	962	955
29 D	954	947	936	925	916	907	921	929	935	937	946	951	970	1000	1039	1052	1072	1072	1029	1005	984	979	970	945	972
30	945	962	970	974	976	977	977	974	968	959	959	955	959	974	982	993	997	995	994	993	991	982	974	971	975
31	969	965	962	962	965	967	970	971	965	959	954	952	952	953	958	965	971	975	978	984	980	976	973	971	967
Mean	945	953	955	956	956	955	957	959	956	952	950	947	950	958	969	978	984	987	985	982	974	969	959	960	962

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS:
MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

130 ESKDALEMUIR — MAY, 1938

Day	Terrestrial Magnetic Elements																				$HR_H + VR_V$	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force						Declination						Vertical Force										
	Maximum 16,000 γ+			Minimum 16,000 γ+			Range	Maximum 13° +		Minimum 13° +			Range	Maximum 44,000 γ+			Minimum 44,000 γ+			Range			
	h	m	γ	h	m	γ	γ	h	m	′	′	h	m	′	γ	h	m	γ	γ	h	m	γ	γ	10,000γ^2 §		°A
1 Q	19	0	557	10	47	84	12	53	24·2	9·6	7	40	14·6	5	42	989	930	12	50	39	314	0	85·2
2	18	30	541	10	29	76	13	12	30·7	10·0	7	12	20·7	17	35	969	928	11	30	41	309	1	85·3
3	17	30	574	10	29	127	5	16	29·9	11·9	23	10	18·0	18	3	1034	923	6	35	111	708	1	85·4
4 D	15	29	728	10	3	268	15	37	37·1	-2·7	2	55	39·8	15	55	1082	879	2	43	203	1353	2	85·3
5	18	56	598	10	16	149	16	50	26·1	10·4	8	41	15·7	18	44	1023	900	3	34	123	798	1	85·4
6	16	21	542	12	19	90	13	48	30·0	11·0	8	23) 29)	19·0	15	52	974	924	0	1	50	374	1	85·4
7	16	26	559	12	16	86	13	20	26·1	11·0	7	46	15·1	16	54	987	947	12	39	40	322	0	85·4
8 Q	21	39	549	12	20	64	13	27	25·4	12·7	7	48	12·7	19	5	969	935	12	30	34	259	0	85·3
9	18	43	558	9	54	64	13	10	24·2	12·3	8	13	11·9	5	40	970	935	12	22	35	263	0	85·4
10	14	54	561	10	40	72	1	50	28·8	10·3	7	50	18·5	19	50	972	929	12	2	43	312	1	85·4
11 D	17	57	1045	23	48	1779	17	59	56·2	-167·1	23	49	223·3	23	48	1312	673	22	4	639	5804	2	85·4
12 D	17	38	658	0	1	684	24	0	31·9	-10·1	0	2	42·0	0	1	1106	776	0	23	330	2611	2	85·4
13	22	8	523	0	3	317	0	1	33·4	9·7	1	10	23·7	16	13	1003	733	0	11	270	1735	2	85·4
14 D	14	24	607	23	33	260	13	28	38·7	6·0	3	40	32·7	14	53	1062	840	24	0	222	1426	2	85·4
15	17	8) 15)	581	0	53	224	13	49) 40)	27·6	-3·3	0	10	30·9	17	20	1013	812	0	25	201	1272	2	85·4
16	19	21	556	12	7	110	14	29	25·7	10·6	8	28	15·1	15	50	1018	934	3	23	84	558	1	85·4
17	18	28	569	9	37	120	15	1	24·4	11·0	8	46	13·4	19	30	989	911	2	20	78	548	1	85·4
18	17	32	543	7	11	72	13	6	25·3	10·7	6	48	14·6	18	41	982	951	11	45	31	258	0	85·5
19	16	32	549	10	41	86	13	21	25·0	10·6	7	47	14·4	17	0	987	947	11	48	40	322	0	85·5
20 Q	19	6	532	13	55	49	13	36	23·4	11·1	7	13	12·3	5 18	40) 40)	975	948	12	0	27	202	0	85·5
21	21	13	536	11	12	64	15 12	17 52)	25·0	6·1	8	25	18·9	18	11	974	946	11	0	28	232	0	85·5
22	15 17	50 33)	557	10	42	84	13	12)	24·6	10·6	7	37	14·0	16	32	974	941	12	20	33	287	0	85·6
23 Q	18	18)	552	11	0	87	12	35	22·0	11·4	7	19	10·6	5	30	970	942	11	20	28	270	0	85·6
24	16	49	606	13	22	141	13	0	25·4	10·9	7	33	14·5	17	51	1005	929	23	32	76	574	1	85·6
25	0	19	564	9	39	87	12	18	23·1	7·7	5	18	15·4	22	9	970	934	0	1	36	306	1	85·7
26 Q	16	32	548	9	52	65	13	20	22·8	12·6	5	8	10·2	0	1	965	931	12	3	34	260	0	85·6
27	17	8	577	12	50	94	13	40	25·1	11·6	5	48	13·5	18	57	982	934	11	58	48	371	1	85·7
28	20	37	580	7	23	136	14	16	26·3	4·2	6	22	22·1	21	30	970	929	10	58	41	408	1	85·7
29 D	16	5	702	8	20	277	16	9	39·0	6·2	3	33	32·8	16	47	1087	903	5	45	184	1283	2	85·7
30	19	58	541	8	29	111	14	5	30·0	6·6	6	56	23·4	16	46	999	940	0	10	59	448	1	85·7
31	19	20	560	11	9	89	13	16	28·7	12·1	6	57	16·6	19	30	985	950	12	20	35	304	0	85·7
Mean	--	--	589	395			194	--	--	28·6	2·8	--	--	25·8	--	--	1009	904	--	--	105	790	0·84	85·5	
No. of Days Used	--	--	31	31			31	--	--	31	31	--	--	31	--	--	31	31	--	--	31	31	31	31	

§ For explanation see p. 95.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

131 ESKDALEMUIR (H) 16,000γ (·16 C.G.S.unit) + JUNE, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	512	515	515	514	516	506	499	479	473	477	486	482	487	483	499	514	525	532	544	552	540	525	520	519	509
2 D	516	521	517	515	520	524	514	499	484	473	467	476	482	495	516	560	563	548	549	566	552	517	503	522	517
3	495	512	523	520	512	503	488	477	472	467	472	484	491	501	511	519	528	536	541	544	538	532	516	512	506
4 Q	513	515	519	523	517	514	509	499	487	470	466	482	492	498	511	527	540	540	544	537	535	530	527	527	513
5	529	535	530	529	521	508	504	493	478	466	466	473	483	488	505	525	544	545	555	559	543	536	532	532	516
6	539	532	528	525	527	522	516	506	492	481	480	487	496	506	531	502	527	541	555	556	551	537	532	529	521
7	527	529	523	522	523	522	512	500	486	476	479	481	489	494	501	515	531	540	548	542	540	535	585	570	520
8 D	564	564	541	552	527	546	535	520	510	485	492	498	502	478	498	507	546	571	593	596	560	547	527	522	533
9	514	508	512	515	516	526	524	511	506	495	498	508	511	513	522	521	536	547	547	545	542	532	529	538	521
10	523	522	520	516	519	515	510	500	492	474	481	509	516	527	551	546	561	588	587	567	550	524	511	510	526
11 D	522	519	524	495	506	523	507	486	474	474	473	496	489	519	535	517	527	557	556	551	544	531	518	526	515
12 D	499	515	525	508	476	472	465	453	454	445	458	484	507	511	519	520	522	538	587	572	572	550	535	541	509
13 D	525	527	499	495	534	495	476	461	461	450	462	464	510	501	516	527	547	542	539	531	533	526	512	522	506
14	539	527	502	503	502	496	487	479	478	478	490	499	498	498	503	510	518	519	520	521	522	519	522	521	506
15 Q	520	520	513	511	513	515	508	502	492	483	479	490	510	518	522	520	523	529	540	542	536	526	519	519	515
16	516	511	512	514	515	511	505	496	474	479	483	497	502	509	535	526	547	544	544	544	535	539	528	510	516
17	511	513	521	516	519	512	507	500	496	491	489	494	494	506	507	514	523	535	572	556	544	530	517	515	516
18	514	507	511	515	518	516	514	501	485	479	476	484	488	498	500	515	523	539	543	552	548	539	533	533	514
19	518	519	523	527	526	525	522	517	503	496	490	495	503	509	524	535	555	535	547	544	542	533	528	525	523
20	529	527	527	530	532	531	524	514	498	479	482	487	499	510	520	532	542	545	551	547	553	550	542	540	525
21	532	535	532	531	531	535	524	532	528	510	491	491	487	495	523	534	546	547	556	543	542	540	539	535	527
22	530	528	524	523	530	517	502	502	498	485	489	498	500	507	520	528	536	546	542	533	533	528	531	521	519
23 Q	520	519	519	518	518	517	516	511	503	496	492	493	495	506	516	522	524	532	540	537	533	524	524	524	517
24	523	522	523	527	527	527	518	506	496	492	498	514	520	531	522	523	527	551	555	551	542	536	529	520	524
25	518	529	516	519	523	520	515	508	497	490	488	493	506	520	507	519	531	539	535	543	544	536	531	527	519
26	525	526	525	520	527	525	518	512	508	506	507	507	503	515	528	528	539	548	555	555	547	538	529	522	526
27 Q	519	528	524	522	527	519	511	502	494	486	480	494	506	515	521	524	528	535	543	546	544	538	528	529	519
28 Q	524	519	520	524	526	522	511	499	490	485	485	498	507	511	517	530	535	540	547	555	544	533	529	527	520
29	526	526	528	527	527	524	511	503	504	502	498	499	516	529	531	547	555	577	592	574	543	530	520	519	529
30	518	520	520	516	527	524	507	494	484	478	478	482	498	516	527	543	551	548	554	546	543	544	540	540	521
Mean	522	523	521	519	520	517	509	499	490	482	483	491	500	507	518	525	537	544	553	550	543	533	528	527	518

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

132 ESKDALEMUIR (D) 13° + JUNE, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	16·7	16·6	15·9	14·8	15·3	12·9	11·4	11·5	13·3	13·6	14·8	18·4	22·8	24·2	24·9	24·0	21·7	20·5	20·0	19·0	18·5	18·0	18·7	18·3	17·7
2 D	17·3	17·3	17·7	14·4	13·2	11·1	10·8	10·5	11·1	14·0	18·3	22·1	25·2	26·6	27·6	28·4	26·5	24·6	22·4	20·9	17·2	16·2	12·4	17·9	18·5
3	15·4	14·1	17·2	16·2	14·9	12·6	10·7	10·3	11·8	14·2	18·6	22·8	24·4	24·8	24·2	22·5	20·6	19·5	19·3	20·0	20·0	19·3	17·2	16·2	17·8
4 Q	18·0	17·6	18·4	19·2	14·3	11·3	9·6	9·7	12·1	15·4	19·0	21·1	22·8	23·1	23·4	23·1	20·9	19·3	18·8	19·0	19·3	19·1	19·0	19·1	18·0
5	18·3	20·1	17·1	11·2	5·8	6·6	8·3	10·4	10·6	11·7	17·1	20·7	23·6	24·6	25·1	24·7	23·5	21·7	20·3	19·9	19·5	18·8	18·8	18·8	17·4
6	20·2	19·9	18·3	15·6	13·2	11·0	10·5	12·6	15·0	16·0	17·4	20·4	23·0	25·4	25·4	21·8	21·7	20·7	19·7	19·1	16·9	20·4	20·8	19·9	18·5
7	19·7	18·9	17·1	16·2	13·2	11·3	10·5	11·7	13·3	16·2	18·8	21·3	22·8	23·0	22·0	21·8	20·6	19·9	19·1	18·8	19·1	19·2	19·7	20·0	18·1
8 D	19·7	19·9	13·4	17·2	21·8	11·2	13·0	11·4	12·5	13·5	17·8	20·2	23·6	23·5	22·8	22·8	24·2	20·8	20·3	14·2	18·0	19·5	17·5	17·2	18·2
9	18·1	19·7	17·9	16·6	16·1	13·0	11·2	10·5	10·5	11·9	15·2	18·6	20·8	22·7	23·5	22·7	22·8	20·9	18·9	18·4	18·4	17·5	17·4	18·0	17·6
10	17·0	17·2	16·0	14·7	12·3	9·0	8·0	9·4	11·1	14·2	20·8	24·5	26·7	27·2	27·7	23·9	21·8	18·3	18·5	16·1	16·5	15·4	13·1	13·7	17·2
11 D	14·2	10·6	9·1	9·4	9·6	6·9	6·7	10·8	12·9	16·1	19·9	23·7	25·4	24·5	25·5	23·5	20·8	20·3	17·1	15·2	16·5	13·1	16·1	19·5	16·1
12 D	19·4	12·3	15·1	18·2	23·0	24·6	15·6	10·6	12·5	13·3	16·7	19·9	22·7	24·6	24·9	21·9	21·0	20·1	22·8	19·8	17·1	17·9	17·1	16·5	18·6
13 D	14·0	14·2	10·9	12·2	8·4	10·5	9·7	9·5	13·8	15·5	20·8	22·5	24·5	25·5	26·6	26·5	21·8	21·9	22·5	20·2	18·9	19·4	18·6	18·8	17·8
14	18·0	14·1	11·5	11·7	12·4	11·3	11·2	10·5	9·8	11·6	15·2	17·8	20·3	22·5	21·8	20·8	19·4	18·0	17·1	17·2	18·0	17·4	17·9	16·9	15·9
15 Q	17·9	18·2	17·1	15·2	13·9	13·1	12·5	11·7	12·3	13·4	16·1	19·9	21·9	22·7	22·2	21·8	21·8	20·5	18·3	17·6	17·1	17·2	17·3	18·0	17·4
16	16·4	15·8	15·2	14·5	13·8	12·8	12·4	11·3	13·3	16·6	17·7	20·4	23·6	25·5	27·1	24·5	22·7	20·8	18·9	18·0	17·1	17·0	11·6	11·4	17·4
17	12·6	14·3	12·5	11·4	11·9	11·4	9·2	9·5	11·8	14·9	17·4	20·7	24·5	26·2	25·3	24·2	23·0	20·8	19·9	15·9	15·3	16·4	15·3	16·0	16·7
18	16·2	14·5	15·2	15·1	14·5	12·5	10·9	9·5	10·8	11·0	14·2	17·9	21·0	23·8	25·0	23·9	22·3	20·8	19·1	18·8	18·5	18·2	16·3	15·9	16·9
19	15·4	16·7	16·0	14·8	14·2	12·4	11·4	10·4	10·6	12·3	16·0	19·8	23·5	25·2	25·1	25·2	24·9	21·0	19·5	17·9	17·2	17·2	17·2	17·3	17·5
20	17·2	16·8	16·4	16·2	14·5	12·5	11·0	10·0	10·3	11·3	13·9	16·0	19·3	22·6	23·5	22·2	21·9	20·7	19·3	18·8	19·1	19·3	18·3	18·8	17·1
21	16·1	14·6	18·9	17·0	17·9	18·0	18·3	16·9	15·2	15·3	18·2	20·8	22·5	24·9	25·4	23·6	22·7	21·9	21·0	20·0	19·0	19·3	18·4	16·6	19·3
22	15·4	16·1	14·9	16·4	14·2	12·2	11·2	12·4	12·6	14·1	14·4	16·9	20·2	20·4	20·8	20·1	19·5	18·3	18·2	17·3	17·6	17·6	18·0	17·3	16·5
23 Q	17·9	17·6	17·0	16·1	15·3	14·4	12·9	11·9	12·0	12·5	15·6	18·1	19·7	20·1	20·1	19·5	18·7	18·3	17·8	18·3	18·2	18·5	13·1	18·0	16·9
24	17·7	17·2	17·2	16·4	15·8	14·5	13·2	11·9	11·7	13·2	16·1	19·2	20·3	21·7	21·5	21·1	20·1	20·8	20·4	18·8	18·3	19·4	19·0	17·7	17·6
25	16·4	17·0	12·9	12·7	11·7	11·8	11·0	12·0	12·8	15·3	18·2	20·8	23·6	24·7	22·5	20·9	20·2	19·5	18·9	18·9	17·9	17·2	19·3	17·1	17·2
26	17·0	16·3	16·0	15·1	12·6	10·8	9·6	9·8	11·7	14·1	15·1	17·2	18·8	20·0	22·5	21·8	19·0	18·0	17·8	18·0	17·4	16·4	16·3	16·3	16·1
27 Q	15·0	16·0	14·9	13·5	13·5	11·5	11·0	11·1	13·2	16·7	20·2	23·8	26·5	26·7	25·9	23·5	20·9	20·2	18·9	18·0	18·4	17·2	17·2	16·9	17·9
28 Q	16·4	15·5	15·3	14·2	12·9	11·4	9·8	8·6	10·4	12·4	16·7	21·1	24·9	25·8	25·4	23·8	21·6	19·5	17·6	15·8	15·4	16·4	16·2	16·2	16·8
29	16·9	17·2	17·1	15·2	14·3	12·2	10·0	10·6	11·5	13·1	16·8	21·6	25·2	25·6	25·4	25·2	23·7	22·7	19·3	14·4	17·2	18·0	18·0	17·8	17·9
30	16·4	15·5	15·3	14·2	12·4	9·5	7·9	8·9	10·5	13·3	16·3	20·3	24·4	26·6	26·4	25·3	22·6	20·0	18·9	18·6	18·9	18·8	18·6	17·0	17·4
Mean	16·9	16·4	15·6	14·9	13·9	12·1	11·0	10·9	12·0	13·9	17·1	20·3	22·9	24·2	24·3	23·2	21·8	20·3	19·4	18·1	17·9	17·8	17·3	17·3	17·5

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

133 ESKDALEMUIR (V) 44,000 γ (·44 C.G.S.unit) + JUNE, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	965	962	963	967	971	974	972	971	970	967	957	947	942	949	953	958	964	965	967	974	975	972	970	968	964
2 D	969	965	962	959	964	964	964	964	957	951	946	942	944	949	953	957	974	988	988	983	925	965	956	945	960
3	911	940	955	968	977	981	980	971	965	957	948	941	944	948	955	965	972	975	976	976	976	976	976	965	962
4 Q	962	964	964	958	962	965	964	964	962	954	944	941	945	948	952	960	967	972	972	970	970	967	965	965	961
5	964	961	947	936	936	947	952	958	957	952	954	952	953	957	956	958	964	970	970	970	969	967	965	964	957
6	961	952	952	959	967	970	967	965	965	957	947	941	941	944	953	970	973	977	976	977	981	974	970	966	963
7	965	965	965	968	970	970	970	970	964	957	948	947	948	947	951	958	967	974	975	971	968	966	954	955	962
8 D	957	951	957	957	948	918	922	935	947	948	948	943	948	957	962	968	968	975	977	990	986	977	976	972	958
9	970	965	965	969	970	971	967	967	960	957	948	941	944	948	952	959	963	959	962	964	962	962	963	959	960
10	959	960	960	963	962	965	961	955	948	946	941	942	948	955	964	981	996	1006	1006	1004	996	988	978	971	969
11 D	954	937	917	908	909	918	922	926	933	930	932	932	942	951	962	974	983	983	986	984	971	968	962	955	947
12 D	920	929	919	909	910	916	929	948	954	960	962	959	962	965	963	973	978	975	965	976	976	956	960	958	951
13 D	954	938	927	913	900	900	915	924	924	924	933	942	959	972	976	978	992	990	980	979	977	972	972	967	950
14	940	934	950	961	966	971	971	966	962	958	948	937	940	942	949	955	963	966	965	964	965	965	966	966	957
15 Q	962	959	959	965	968	970	971	971	972	969	957	946	942	949	960	966	969	971	971	970	971	970	968	962	964
16	960	961	963	965	966	967	965	960	954	942	932	925	932	941	951	966	979	982	981	976	973	968	960	959	959
17	958	956	950	953	958	965	965	959	951	948	948	947	942	942	950	959	965	965	970	983	985	979	972	967	960
18	965	964	964	965	966	969	969	969	964	957	952	944	936	941	942	949	956	960	967	969	967	966	966	961	959
19	962	960	959	960	965	965	961	959	958	951	940	935	936	942	943	948	950	960	964	963	965	965	963	960	956
20	959	960	961	962	964	965	965	965	960	952	941	933	932	937	943	953	960	964	966	966	961	959	960	959	956
21	960	961	956	952	946	942	939	935	937	941	947	955	965	971	979	981	982	983	982	981	976	972	969	967	962
22	966	964	963	960	959	962	965	965	966	962	960	955	952	955	961	966	968	971	972	971	969	966	965	965	964
23 Q	965	965	965	966	968	968	966	966	963	958	956	953	955	959	965	967	966	965	968	971	971	969	966	966	964
24	965	965	965	966	966	969	968	967	962	953	948	942	943	948	953	958	962	960	960	965	969	966	965	965	960
25	964	954	953	956	958	958	958	956	956	949	945	945	948	956	965	965	965	963	960	960	964	965	963	959	948
26	959	960	960	963	965	965	963	961	956	946	942	942	946	954	958	955	959	966	969	969	966	966	964	963	959
27 Q	963	958	954	956	958	957	954	953	948	942	940	935	939	950	958	962	965	966	966	967	966	966	96ℓ	960	956
28 Q	959	960	963	963	965	965	965	962	962	955	942	935	937	942	946	953	959	965	968	971	972	970	965	964	959
29	960	959	957	959	963	966	965	960	953	948	947	943	941	936	942	953	967	978	991	992	982	977	971	967	962
30	966	967	969	966	962	959	960	958	953	953	948	948	948	947	954	960	969	972	971	971	965	964	963	962	961
Mean	958	957	955	956	957	958	959	959	956	951	947	943	945	950	956	963	969	972	973	974	971	969	966	963	959

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS:
MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

134 ESKDALEMUIR JUNE, 1938

Day	Terrestrial Magnetic Elements: Horizontal Force Maximum 16,000 γ+			Horizontal Force Minimum 16,000 γ+			Horizontal Force Range	Declination Maximum 13° +		Declination Minimum 13° +			Declination Range	Vertical Force Maximum 44,000 γ+			Vertical Force Minimum 44,000 γ+			Vertical Force Range	$HR_H + VR_V$ §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	h	m	γ	γ	h	m	γ	h	m	′	′	h	m	′	h	m	γ	γ	h	m	γ	10,000γ²		°A
1	19	7	560	467	8	4	93	14	40	25·3	10·0	6	56	15·3	19	50	976	941	12	22	35	310	0	85·7
2 D	19	0	584	462	10	35	122	14	58	29·9	9·0	22	15	20·9	18	18	993	906	24	0	87	592	1	85·8
3	19	43	549	463	9	53	86	13	5	24·9	9·6	7	29	15·3	6	10	982	888	0	13	94	564	1	85·8
	16	34)						14	35)															
4 Q	17	59)	547	460	10	3	87	15	20)	23·6	8·8	6	33	14·8	18	10	975	941	11	19	34	297	0	85·9
5	19	20	571	457	10	8	114	15	0	25·5	4·9	4	46	20·6	18	28	971	934	3	50	37	354	1	85·9
												5	56)											
6	18	48	564	478	10	30	86	14	30	25·9	9·6	6	5)	16·3	20	25	982	940	11	45	42	331	0	85·8
7	22	4	637	474	9	38	163	12	45	23·3	9·8	6	9	13·5	18	45	975	946	11	8	29	399	1	85·8
8 D	18	40	639	421	9	36	218	4	46	26·1	3·0	9	9	23·1	19	38	998	913	6	1	85	742	1	85·8
9	16	41	568	490	9	16	78	14	59	25·4	5·8	6	23	19·6	5	8	973	940	11	36	33	277	0	85·8
10	18	12	606	448	9	33	158	14	29	28·2	6·0	6	5	22·2	17	57	1009	939	10	40	70	575	1	85·8
11 D	19	52	581	462	8	58	119	14	15	26·7	5·7	5	2	21·0	18	57	989	906	3	22	83	569	1	85·8
12 D	18	0	636	426	7	7	210	5	35	27·6	7·2	7	5	20·4	19	57	988	906	3	10	82	715	1	85·9
								12	37)															
13 D	16	40	579	414	8	33	165	14	57)	28·3	0·2	5	50	28·1	17	10	996	890	4	58	106	748	1	85·9
								0	1)															
14	0	1	571	475	9	10	96	13	23)	22·7	9·2	8	19	13·5	6	24	972	930	1	17	42	347	0	85·9
15 Q	18	53	552	478	10	30	74	13	5	22·9	11·4	7	32	11·5	8	24	972	942	12	30	30	257	0	85·9
								14	15)															
16	18	30	564	467	8	49	97	14	29)	27·7	9·7	6	59	18·0	18	12	983	924	11	46	59	425	1	85·8
17	18	31	579	486	11	16	93	13	49	26·6	8·6	6	14	18·0	19	51	989	940	13	6	49	373	1	85·9
18	19	20	556	472	10	34	84	14	23	25·5	8·9	7	20	16·6	6	0	971	935	12	20	36	301	0	85·9
19	16	34	576	487	10	47	89	15	7	26·5	9·6	7	35	16·9	5	32	966	934	11	36	32	291	0	85·8
20	21	8	563	475	9	35	88	14	38	23·5	9·6	7	13	13·9	19	5	967	929	12	15	38	316	0	85·9
	17	10)																						
21	18	20)	564	439	12	0	125	14	28	27·3	13·0	8	48	14·3	17	28	985	934	7	40	51	435	1	85·9
22	17	43	548	481	9	43	67	13	0	21·1	8·4	6	11	12·7	18	20	973	949	12	2	24	219	0	85·9
23 Q	18	32	543	491	10	48	52	15	23	20·3	11·5	7	38	8·8	20	20	972	952	11	59	20	176	0	85·9
	17	45)													5	45)								
24	18	59)	561	490	9	35	71	13	53	22·3	11·0	8	30	11·3	20	15)	970	941	12	0	29	247	0	85·9
25	19	51	550	485	10	10	65	13	28	25·1	10·6	6	27	14·5	15	24	966	942	11	10	24	218	0	86·0
												6	21)											
26	19	52	563	496	12	34	67	14	40	23·6	9·0	7	39)	14·6	19	9	971	941	11	40	30	246	0	86·0
27 Q	19	23	555	471	10	22	84	13	46	27·4	9·6	6	5	17·8	19	14	969	932	11	41	37	305	0	86·0
28 Q	19	38	559	479	10	11	80	13	5	26·3	7·8	7	13	18·5	20	42	972	933	12	8	39	307	0	86·0
								13	26)															
29	18	58	626	494	11	23	132	13	35)	25·7	8·7	6	44	17·0	18	50	999	935	13	39	64	505	1	86·0
30	15	24	564	466	10	9	98	13	10	27·5	6·9	6	4	20·6	19	12	972	946	13	31	26	279	1	86·0
Mean	--	--	574	468	--	--	105	--	--	25·4	8·4	--	--	17·0	--	--	979	931	--	--	48	391	0·47	85·9
No. of Days Used	--	--	30	30	--	--	30	--	--	30	30	--	--	30	--	--	30	30	--	--	30	30	30	30

§ For explanation see p. 95.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

135 ESKDALEMUIR (H) — 16,000 γ (·16 C.G.S.unit) + — JULY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	542	535	531	542	531	540	515	498	462	438	458	474	483	500	535	555	574	580	571	555	541	524	509	502	521
2	516	521	519	519	509	505	515	495	486	478	466	477	472	486	504	532	551	553	544	537	531	529	527	524	512
3 Q	523	516	516	522	522	514	514	511	502	490	481	476	480	491	511	540	549	553	547	544	536	533	529	527	518
4 D	524	529	524	524	523	522	505	496	490	482	476	489	532	524	488	556	565	576	596	604	555	510	509	532	526
5	543	547	548	536	527	527	515	505	490	485	475	472	470	494	470	528	544	551	558	531	529	524	520	529	517
6	530	531	535	527	515	515	505	502	498	486	481	483	488	494	502	531	547	559	548	532	528	519	519	516	516
7	517	515	515	515	517	514	505	500	486	483	486	486	501	501	511	535	535	535	537	540	547	536	519	519	515
8	519	518	515	519	520	518	507	505	507	505	489	489	479	489	505	512	533	534	538	542	534	532	526	521	515
9	522	518	519	521	526	523	516	509	499	493	487	486	497	503	509	530	538	551	554	554	567	543	550	541	523
10 D	518	506	527	528	527	518	501	519	517	514	501	482	473	483	473	517	544	613	614	570	554	534	522	530	524
11	525	522	525	519	526	522	514	506	493	486	482	485	490	497	506	524	535	540	543	538	535	529	525	526	516
12	521	519	523	521	522	522	511	497	482	478	481	482	494	513	534	550	558	550	551	545	543	540	533	530	521
13	529	527	529	527	526	523	516	507	499	499	493	499	509	508	526	521	532	541	538	543	562	558	562	542	526
14	514	538	532	543	495	505	501	489	465	457	471	491	510	495	533	547	542	550	547	563	554	530	522	521	517
15 D	524	526	523	518	522	523	522	506	452	432	437	449	486	497	591	642	716	664	628	541	484	442	421	426	520
16 D	477	445	474	496	486	473	464	440	404	392	429	474	493	469	485	534	532	554	563	553	515	510	515	497	486
17	496	505	500	501	506	501	496	486	477	467	465	464	463	472	489	505	518	523	538	526	519	514	510	508	498
18	507	506	506	508	510	513	508	497	487	481	468	465	477	485	514	517	531	533	542	545	535	529	524	516	509
19	517	501	500	506	513	518	518	502	490	473	470	481	474	487	518	535	531	535	539	528	526	527	523	520	510
20	522	523	522	524	526	526	528	510	501	497	486	488	489	497	510	526	523	550	550	546	538	534	526	519	519
21	507	517	523	522	524	521	516	515	509	501	499	500	501	504	523	532	547	539	550	534	535	530	534	528	521
22	523	523	523	523	525	522	510	503	499	491	487	492	501	510	527	534	548	554	526	532	531	527	531	526	519
23	527	524	521	521	520	519	511	503	486	470	468	471	489	494	509	534	539	534	539	547	545	533	521	522	514
24	522	520	516	518	521	513	500	490	481	479	481	489	502	510	521	533	540	546	549	545	542	533	531	533	517
25 Q	531	516	520	521	520	513	506	496	481	471	470	477	486	504	517	534	529	525	528	533	533	529	526	523	512
26 Q	525	525	522	522	522	518	506	497	490	490	492	498	509	518	524	523	532	542	545	542	534	523	522	522	518
27 Q	520	522	522	526	529	520	502	492	481	480	485	500	517	529	546	549	551	537	535	533	535	534	522	521	520
28 Q	525	521	522	524	523	513	502	492	484	484	484	492	510	520	522	526	529	529	533	535	538	534	532	526	517
29	525	526	525	527	527	523	518	513	504	493	485	496	501	503	496	523	544	538	537	551	557	545	553	521	522
30 D	527	538	531	532	545	475	430	405	421	431	439	439	467	476	454	479	505	515	523	553	549	524	487	492	489
31	484	480	490	489	491	487	482	474	472	465	457	452	463	465	479	494	505	522	528	527	523	514	512	513	490
Mean	519	518	519	521	519	514	505	495	484	476	475	481	491	497	511	532	544	549	550	544	537	527	521	518	514

MAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

136 ESKDALEMUIR (D) — 13° + — JULY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	18·4	16·5	17·2	20·4	20·3	11·2	6·8	6·5	6·4	11·6	19·1	20·7	25·4	27·6	27·3	25·5	22·9	18·0	19·0	17·9	18·0	16·2	16·1	17·0	17·7
2	11·2	14·6	13·2	14·2	16·1	23·6	19·1	15·2	11·2	13·6	15·2	17·9	21·0	22·7	24·2	23·8	21·8	19·7	18·2	18·1	17·6	17·2	17·9	17·9	17·7
3 Q	17·1	16·3	15·5	15·2	14·3	15·4	13·2	11·6	10·6	12·3	16·0	19·9	20·6	21·9	23·5	23·7	22·9	21·3	19·6	17·9	17·5	17·6	17·6	17·3	17·5
4 D	17·0	17·2	17·8	18·1	17·1	14·5	11·4	12·7	12·5	14·2	17·2	18·5	23·9	26·0	26·6	27·6	28·3	27·0	22·7	15·4	14·9	7·8	13·3	17·1	18·3
5	18·1	16·6	15·6	15·2	14·2	8·4	7·6	8·5	9·8	12·4	14·4	17·2	19·9	22·7	23·5	24·6	25·5	24·0	22·2	19·4	18·8	18·8	18·1	18·2	17·2
6	17·1	16·0	15·1	14·2	17·1	15·1	13·4	13·3	12·8	13·5	15·1	19·0	21·8	22·0	22·3	22·6	21·9	19·8	17·2	17·1	18·1	18·0	18·6	18·0	17·5
7	18·0	16·6	16·0	15·4	14·7	14·2	11·4	8·6	8·5	10·5	14·1	17·9	21·7	25·5	27·3	25·6	22·2	19·7	18·0	17·2	17·2	17·9	17·1	18·0	17·2
8	17·1	17·9	16·2	17·1	16·1	12·3	11·4	12·9	11·6	12·5	14·8	16·2	19·9	23·6	24·3	24·3	23·5	20·8	18·8	16·5	15·8	17·1	18·0	18·0	17·4
9	17·2	17·1	16·2	15·1	14·4	13·4	12·5	9·6	9·4	10·6	13·8	18·3	21·9	23·1	23·3	23·7	20·1	18·1	18·0	18·3	16·2	18·0	17·8	7·0	16·4
10 D	8·6	8·7	20·1	15·5	19·6	17·7	15·2	13·3	16·2	17·1	17·8	21·2	26·0	25·7	26·1	25·4	23·7	23·3	19·9	16·4	17·2	18·3	19·0	20·2	18·8
11	20·7	20·0	21·8	18·2	15·3	12·3	8·4	6·9	7·9	11·0	14·4	17·1	19·1	20·1	19·9	19·0	18·0	16·1	14·5	14·9	15·3	15·8	15·9	15·9	15·8
12	15·8	15·6	15·6	15·3	14·7	12·2	11·3	10·5	10·9	11·6	14·3	18·3	22·5	25·4	26·7	26·8	24·9	21·0	19·0	18·2	18·0	17·8	17·0	16·4	17·5
13	15·8	15·4	14·7	13·9	11·7	9·3	7·8	7·2	7·8	9·8	14·0	17·6	20·8	22·4	22·1	19·9	19·9	20·2	18·4	17·8	19·1	18·8	18·6	11·5	15·6
14	8·7	11·3	19·7	17·0	8·6	7·8	5·6	7·0	9·9	14·5	17·1	22·4	25·9	24·9	25·5	24·5	22·8	20·6	17·2	16·7	17·0	16·0	16·9	17·9	16·5
15 D	15·8	16·9	16·9	17·8	13·7	13·4	12·4	12·4	17·2	12·5	16·0	20·9	22·9	26·5	24·6	28·4	29·2	25·4	17·1	16·4	16·1	11·2	8·8	13·3	17·7
16 D	18·0	18·6	14·6	12·4	11·9	8·8	5·2	5·6	9·1	13·5	19·6	20·1	20·9	22·5	24·4	24·6	22·7	22·9	19·8	20·4	16·7	17·2	17·4	16·0	16·8
17	16·2	16·0	14·7	15·7	13·8	12·5	13·4	8·7	7·8	9·5	14·2	17·0	19·8	20·9	21·0	20·6	19·4	17·8	17·0	15·2	16·1	16·7	16·2	16·0	15·7
18	15·2	14·4	14·4	14·2	13·3	12·5	11·0	10·6	9·7	10·9	15·2	20·0	24·5	24·9	24·7	23·6	21·3	19·9	19·3	18·8	18·4	18·4	17·9	17·3	17·1
19	19·9	12·4	12·7	13·1	12·4	11·6	9·8	9·5	9·5	11·2	16·3	20·4	22·6	24·2	24·2	21·8	19·6	18·4	17·1	16·9	17·0	17·1	17·5	17·2	16·3
20	17·0	16·2	16·3	16·8	15·3	14·2	10·6	12·9	11·8	10·5	12·5	17·5	21·9	24·1	23·6	22·7	21·8	19·1	17·2	16·8	16·5	16·4	13·6	14·8	16·7
21	15·2	17·9	16·2	14·2	12·6	12·4	12·5	11·9	13·0	14·0	16·2	17·5	18·5	21·4	21·9	21·9	21·0	19·0	18·1	18·0	18·0	17·7	17·1	17·6	16·8
22	16·3	15·4	15·6	16·0	14·7	10·9	10·9	10·7	10·7	14·3	17·0	19·2	21·8	23·5	23·6	22·3	21·0	18·8	16·9	17·4	17·5	17·7	17·8	17·6	17·0
23	17·2	17·2	17·1	16·6	13·5	12·1	8·1	8·0	8·7	10·7	15·0	19·0	22·7	24·6	24·2	23·3	20·7	16·6	16·0	17·8	17·9	17·6	16·2	16·9	16·6
24	17·0	14·6	13·4	13·2	11·2	9·1	9·2	11·4	13·0	14·4	17·8	22·0	24·8	25·5	24·1	21·9	19·5	16·1	16·7	17·8	18·6	18·0	17·6	17·5	16·9
25 Q	16·6	15·2	15·4	14·5	12·6	11·0	10·2	9·5	9·7	11·6	15·7	19·7	23·7	26·1	26·1	23·9	20·0	17·1	15·3	16·2	17·2	17·2	17·1	17·1	16·6
26 Q	16·7	16·7	15·6	14·8	13·1	10·5	7·9	8·1	9·7	13·5	16·8	21·2	23·9	25·4	25·0	22·8	19·3	16·3	15·9	16·6	17·2	17·2	17·1	16·6	16·6
27 Q	15·5	15·1	14·0	13·9	12·5	9·6	7·6	9·0	12·3	15·2	18·8	21·4	24·6	25·0	24·1	20·5	17·9	16·2	16·0	16·7	17·0	16·0	14·8	15·8	16·2
28 Q	15·8	14·8	14·3	13·7	12·4	9·6	8·1	9·0	12·5	16·2	20·3	24·2	26·2	27·5	24·8	21·1	18·6	16·5	16·0	17·0	16·9	16·8	16·4	16·3	16·9
29	16·0	15·4	14·3	13·8	12·4	10·3	8·9	9·0	9·9	13·4	19·3	23·1	27·9	29·1	27·3	25·2	21·8	17·1	15·4	16·3	17·6	17·2	16·6	12·5	17·1
30 D	16·7	14·3	17·9	10·7	13·8	24·6	17·3	20·5	17·8	18·9	20·3	23·0	25·3	25·9	24·4	21·9	21·0	19·3	17·4	17·6	18·5	16·5	12·4	8·6	18·5
31	10·7	10·9	11·5	11·4	11·4	10·8	10·0	7·9	7·3	8·4	11·8	16·1	19·3	21·8	22·4	21·7	20·9	19·7	18·8	17·2	16·6	16·1	15·5	15·4	14·7
Mean	16·0	15·5	15·8	15·1	14·0	12·6	10·6	10·3	10·8	12·7	16·1	19·5	22·6	24·3	24·3	23·4	21·7	19·5	17·8	17·3	17·2	16·8	16·5	16·0	16·9

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

137 ESKDALEMUIR (V) — 44,000 γ (·44 C.G.S.unit) + — JULY, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	961	959	957	950	938	926	943	948	949	945	942	942	947	957	970	979	987	1003	999	999	995	982	954	913	960
2	949	957	959	965	964	930	928	940	951	952	956	954	956	960	961	965	976	981	980	977	973	972	969	967	960
3 Q	967	967	970	970	970	969	967	969	966	961	957	950	952	951	949	952	962	967	974	976	973	969	966	964	964
4 D	966	964	964	960	954	948	949	950	952	949	947	944	948	965	981	996	997	996	1012	1013	1013	967	976	977	970
5	970	967	963	966	962	959	969	972	970	962	955	954	959	966	976	982	989	988	982	979	973	970	969	967	970
6	966	967	966	968	963	951	954	950	945	944	954	959	966	975	983	983	995	998	1002	988	982	978	973	972	970
7	972	972	973	974	975	970	971	972	969	961	960	954	949	954	957	957	967	978	982	974	973	971	971	970	968
8	969	968	966	963	960	963	966	963	960	957	959	961	966	966	970	972	976	982	983	983	980	977	972	971	969
9	970	969	970	972	972	972	970	967	960	960	956	950	949	956	965	970	980	983	983	980	974	972	961	954	967
10 D	924	931	928	944	954	940	947	950	954	946	949	951	953	961	972	973	974	979	1015	1024	1006	996	984	977	964
11	947	944	956	961	970	968	974	979	979	978	971	956	953	960	966	969	974	975	972	972	972	970	966	966	967
12	966	966	966	966	967	965	966	966	961	950	946	945	950	952	953	953	960	967	969	967	964	962	963	964	961
13	965	966	966	966	966	966	965	963	956	948	941	937	940	943	949	954	956	961	966	968	960	956	956	952	957
14	950	931	888	905	922	940	955	956	956	956	947	942	949	959	961	964	972	979	987	986	926	983	978	971	953
15 D	963	952	946	948	957	961	959	954	954	946	951	966	968	984	1047	1085	1140	1087	1042	986	973	931	877	846	976
16 D	861	871	929	967	980	986	991	994	989	980	989	988	993	997	987	991	1009	1006	1008	992	996	991	974	989	977
17	977	977	972	972	969	977	974	980	979	978	972	966	967	963	966	973	979	982	989	991	986	979	978	978	976
18	977	977	977	977	977	977	977	977	976	969	956	951	954	957	964	972	977	980	978	979	978	974	972	972	972
19	963	960	968	973	973	972	972	972	972	973	972	968	967	962	962	968	974	982	982	978	974	972	970	970	971
20	969	969	969	969	967	960	960	967	966	960	957	956	956	963	972	979	983	984	989	987	985	979	975	969	970
21	964	960	954	961	967	970	970	967	963	960	960	954	954	964	969	978	992	1003	1003	997	990	984	977	971	972
22	969	968	968	971	970	974	972	968	967	960	957	950	954	966	977	980	988	996	997	986	979	974	972	970	972
23	967	964	963	963	966	963	961	963	970	966	960	957	957	962	966	972	979	990	992	982	978	976	972	968	969
24	967	966	967	970	974	974	972	966	960	950	948	943	942	949	960	972	983	989	984	977	973	972	968	967	966
25 Q	966	966	964	967	972	973	970	967	965	956	956	952	951	953	960	967	978	983	982	976	971	969	968	967	967
26 Q	968	968	969	970	973	973	970	967	960	953	950	949	951	956	969	981	988	995	990	982	979	976	972	969	970
27 Q	970	969	969	969	970	969	966	964	956	950	952	949	948	953	966	977	978	980	979	970	966	966	966	966	965
28 Q	966	966	967	967	968	970	967	964	956	949	949	946	947	951	967	968	970	972	971	966	966	964	964	965	963
29	964	964	966	967	970	972	967	960	950	938	931	929	930	944	949	960	978	990	990	978	971	968	960	959	961
30 D	958	947	930	930	934	912	904	895	901	925	959	967	961	979	992	996	996	995	990	989	997	980	959	963	957
31	957	968	979	983	983	983	984	981	977	977	979	973	970	973	973	972	978	982	979	977	977	975	973	973	976
Mean	960	959	960	963	965	962	963	963	961	957	956	954	955	961	970	976	985	988	989	983	978	973	966	962	967

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS
MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

138 ESKDALEMUIR — JULY, 1938

Day	Terrestrial Magnetic Elements: Horizontal Force — Maximum 16,000 γ+			Horizontal Force — Minimum 16,000 γ+			Horizontal Force — Range	Declination — Maximum 13° +			Declination — Minimum 13° +			Declination — Range	Vertical Force — Maximum 44,000 γ+			Vertical Force — Minimum 44,000 γ+			Vertical Force — Range	$HR_H + VR_V$ § 10,000γ²	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	h	m	γ	γ	h	m	γ	h	m	′	′	h	m	′	h	m	γ	γ	h	m	γ			°A
1	16	9	591	421	9	9	170	13	50	28·2	4·4	8	23	23·8	17	20	1005	899	23	11	106	757	1	86·0
2	17	16	562	458	10	31	104	15	7	25·3	8·7	8	13	16·6	17	22	983	918	5	50	65	484	1	86·0
3 Q	17	23	558	474	11	40	84	14	55	24·2	9·6	8	27	14·6	19	42	977	948	14	20	29	269	0	86·1
4 D	17	58	654	430	14	1	224	16	18	32·0	2·2	21	19	29·8	19	10	1029	943	21	30	86	756	1	86·3
5	1	0	590	423	14	32	167	16	27	26·5	5·7	6	8	20·8	16	32	990	953	11	19	37	442	1	86·4
6	17	30	577	472	11	1	105	16	5	25·1	11·7	3	22	13·4	18	23	1003	943	9	10	60	442	1	86·4
7	20	7	554	482	11	15	72	14	16	27·5	7·6	7	53	19·9	18	19	983	948	12	30	35	276	0	86·4
8	19	43	547	473	12	38	74	13	40	24·9	10·4	5	49	14·5	17	55	984	956	9	42	28	248	0	86·4
9	19	57	611	482	10	50	129	14	57	23·9	3·9	23	34	20·0	17	50	984	940	24	0	44	411	1	86·3
10 D	17	53	703	455	14	6	248	12	30	27·5	3·1	0	37	24·4	19	24	1028	913	0	30	115	925	1	86·3
11	0	23	570	477	11	14	93	0	24	30·1	6·7	7	19	23·4	8	0	980	925	0	48	55	400	1	86·4
12	16	31	569	477	9	8	92	14	53	28·3	9·6	7	25	18·7	18	43	970	943	11	30	27	273	0	86·4
13	20	7	611	485	11	44	126	14	29	23·8	6·6	7	25	17·2	4 19	50) 23)	967	936	11	29	31	347	1	86·4
14	19	48	579	449	9	12	130	2	9	34·9	4·6	6	6	30·3	18	50	990	864	2	28	126	781	1	86·3
15 D	16	28	773	363	21	20	410	16	17	40·4	-5·6	21	48	46·0	16	38	1179	843	23	3	336	2186	2	86·4
16 D	19	1	649	380	9	45	269	1 13	43 52)	27·3	3·2	7	47	24·1	18	56	1025	820	0	46	205	1364	2	86·4
17	18	44	545	458	11	50	87	14	9)	21·6	7·7	8	46	13·9	19	30	992	961	13	40	31	283	0	86·4
18	19	22	554	460	11	16	94	12	56	25·4	9·6	8	35	15·8	17	44	982	950	11	30	32	299	0	86·4
19	18	33	545	462	12	8	83	13	20	24·8	7·7	7	10	17·1	17	50	984	955	1	0	29	267	0	86·4
20	18	12	558	482	12	12	76	13	44	24·8	9·5	6	30	15·3	18	24	989	954	11	34	35	282	0	86·4
21	18	19	558	491	11	0	67	14	2	23·0	10·6	8	20	12·4	18	0	1006	950	11	55	56	362	0	86·4
22	17	27	572	483	11	0	89	13	45	24·2	9·1	8	14	15·1	18	10	1000	950	11	50	50	372	0	86·4
23	20	1	556	464	10	0	92	13	40	25·0	7·8	7	16	17·2	18	15	994	954	12	0	40	332	0	86·5
24	17	48	557	477	11	48	80	13	4	26·2	8·6	6	0	17·6	17	40	990	940	12	0	50	357	0	86·4
25 Q	15	40	538	468	9	55	70	13	37	26·6	9·2	7	14	17·4	18	9	984	950	11	50	34	268	0	86·4
26 Q	19	0	548	484	9	10	64	14	1	26·1	7·0	8	16	19·1	17	40	996	946	11	12	50	331	0	86·4
27 Q	16	40	558	478	9	0	80	12	44	25·7	6·4	6	27	19·3	18	3	982	947	12	30	35	289	0	86·5
28 Q	17	12	543	483	9	3	60	13	10	27·9	7·7	6	18	20·2	17	24	972	945	11	30	27	220	0	86·4
29	20	6	563	473	10	51	90	13	4	29·8	7·8	6	30	22·0	17	56	993	925	11	56	68	454	1	86·5
30 D	19	38	603	372	7	24	231	5	24	32·2	7·1	21	42	25·1	20	23	1002	889	7	50	113	888	1	86·5
31	18	40	531	450	11	38	81	14	40	22·7	6·6	8	18	16·1	6	30	986	955	0	28	31	273	1	86·6
Mean	—	—	582	458	—	—	124	—	—	27·0	6·9	—	—	20·0	—	—	998	931	—	—	67	504	0·55	86·4
No. of Days Used	—	—	31	31	—	—	31	—	—	31	31	—	—	31	—	—	31	31	—	—	31	31	31	31

§ For explanation see p. 95.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

139 ESKDALEMUIR (H) 16,000 γ (·16 C.G.S.unit) + AUGUST, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	523	525	518	512	514	514	512	498	510	485	473	470	487	487	514	505	535	562	525	519	553	509	517	488	511
2	476	482	497	484	485	509	505	489	479	470	464	464	484	474	501	517	561	566	573	551	522	529	498	485	502
3 D	494	489	488	509	516	514	501	483	466	457	454	455	461	472	481	496	521	549	549	549	549	550	546	387	497
4 D	399	454	508	497	495	492	496	455	426	430	445	447	448	504	503	514	584	550	537	531	509	501	492	497	488
5	476	486	484	472	464	471	486	448	452	442	435	441	448	480	540	533	541	552	557	537	521	509	500	496	490
6	483	489	493	484	496	509	492	472	459	454	454	464	484	497	518	522	514	522	534	538	537	521	518	525	499
7	509	505	505	506	500	517	517	493	468	463	457	468	475	476	513	545	497	529	530	529	525	520	521	521	504
8	517	517	514	515	512	511	511	501	485	477	469	471	481	485	497	511	516	519	534	532	527	524	523	520	507
9	525	520	516	517	517	516	514	504	491	478	477	483	492	499	508	512	518	521	523	532	530	526	524	517	511
10	515	515	516	528	519	521	504	505	492	484	485	487	499	517	533	535	556	536	529	532	530	531	528	524	518
11 D	539	532	519	528	541	549	536	524	499	454	418	436	499	517	536	569	552	564	558	532	523	513	491	469	517
12	476	487	482	492	504	495	475	459	447	441	444	459	472	487	504	502	504	496	512	513	513	516	511	509	487
13	506	506	508	508	513	504	493	484	478	472	474	474	483	488	495	504	510	519	527	523	520	519	516	515	502
14	513	512	512	511	512	508	503	493	484	477	475	479	491	488	499	512	521	531	528	528	520	520	519	519	506
15 Q	508	507	506	508	514	512	508	500	489	479	479	491	505	516	525	527	524	523	524	529	526	524	516	517	511
16 Q	516	516	516	513	513	509	500	495	493	488	475	475	475	479	484	500	516	528	528	532	530	529	524	519	506
17	519	520	523	522	521	519	513	504	491	484	481	482	491	510	508	493	513	529	533	539	536	530	525	520	513
18 Q	521	517	519	515	519	521	519	512	500	483	473	479	495	516	516	517	526	539	543	539	539	534	536	529	517
19	528	529	528	528	528	524	524	513	499	484	478	480	488	497	507	528	526	532	520	530	536	528	524	525	516
20 Q	524	521	521	521	524	523	516	512	504	492	487	484	495	512	520	524	526	529	531	533	536	533	530	532	518
21	531	529	528	526	524	520	512	501	483	471	472	484	503	492	512	526	556	560	552	526	513	520	511	512	515
22 D	512	512	516	502	504	503	504	495	486	480	472	479	495	520	565	537	580	524	556	576	542	545	539	539	520
23 D	533	544	556	552	532	499	491	489	483	399	476	519	520	522	508	512	500	504	519	515	519	513	513	512	510
24	513	512	508	504	499	492	487	479	473	471	472	478	483	500	504	515	515	519	521	532	539	536	537	512	504
25	495	508	506	512	504	497	488	475	460	455	455	465	487	503	515	520	529	520	537	528	524	524	516	515	502
26	514	508	512	513	509	505	491	473	459	456	468	480	499	501	510	513	522	521	520	531	527	528	529	521	505
27 Q	517	519	522	519	518	512	500	483	470	459	464	478	486	504	518	525	528	531	539	547	538	532	531	525	511
28	524	523	523	520	518	514	505	490	476	463	462	466	483	490	516	535	533	555	555	565	551	537	535	533	515
29	525	536	520	524	527	523	512	500	492	466	460	462	474	490	503	508	521	553	565	551	542	529	532	540	515
30	532	531	531	535	510	522	519	508	491	470	462	466	478	498	486	498	514	538	542	546	531	523	516	516	511
31	519	518	527	531	516	510	506	497	486	472	468	466	487	494	505	510	514	518	528	527	527	529	528	528	509
Mean	509	512	514	513	512	511	505	491	480	466	465	472	485	497	511	518	528	534	536	535	530	525	521	512	508

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

140 ESKDALEMUIR (D) 13° + AUGUST, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	15·9	17·0	15·2	14·1	12·8	9·7	6·3	6·6	8·2	10·5	16·5	18·3	21·2	24·9	27·0	25·9	22·6	11·4	15·4	18·2	18·3	15·6	17·4	14·2	16·0
2	12·5	7·0	9·7	16·5	9·9	6·1	6·8	7·7	9·7	12·1	13·9	17·4	18·8	19·6	20·7	20·1	18·2	19·4	13·5	13·3	15·2	14·4	14·2	13·2	13·7
3 D	17·0	11·0	9·7	10·4	9·2	8·0	6·6	7·6	9·5	12·2	15·3	18·4	21·7	22·8	22·9	22·0	19·1	18·1	17·0	17·0	16·4	20·8	2·5	-4·6	13·8
4 D	9·0	12·5	13·2	10·0	9·5	10·7	14·3	7·5	14·3	19·0	18·9	22·5	24·9	26·2	27·8	29·3	21·9	21·8	20·4	16·6	16·1	18·0	13·2	12·4	17·1
5	15·6	14·1	14·0	13·1	6·8	7·6	5·1	3·9	8·9	9·2	12·5	16·3	20·7	25·5	23·8	23·0	18·9	19·3	17·1	16·2	14·5	16·3	15·9	16·0	14·8
6	18·1	18·2	15·0	16·1	15·2	9·4	6·7	6·0	6·6	9·9	15·4	19·8	24·1	25·4	22·9	19·3	15·8	14·5	14·6	14·3	16·1	17·0	16·6	14·3	15·5
7	17·1	15·5	14·0	13·4	14·0	11·1	10·6	12·3	13·6	17·2	19·6	21·9	24·6	24·8	24·0	20·6	16·7	16·8	14·4	15·6	17·2	17·2	17·2	16·7	16·9
8	16·2	16·1	15·9	15·7	15·1	12·2	11·0	9·9	11·0	13·5	18·8	21·9	23·8	22·9	20·4	17·2	15·2	14·0	14·4	13·4	15·6	16·6	17·2	16·5	16·0
9	16·4	15·6	15·2	13·9	12·2	10·5	9·9	9·5	10·6	13·3	17·1	20·8	24·3	24·2	22·5	19·9	17·0	15·5	14·9	16·2	16·2	16·8	16·0	15·1	16·0
10	15·1	14·8	13·3	13·6	8·7	7·6	7·5	10·0	7·9	12·7	16·2	21·0	23·0	24·3	24·9	22·9	21·9	19·1	17·7	18·0	16·0	15·7	15·9	16·2	16·0
11 D	19·3	16·3	12·2	11·4	10·4	11·7	13·2	14·3	17·0	16·1	15·4	20·9	28·8	30·4	34·8	29·5	18·8	15·6	21·9	22·1	22·6	21·8	14·1	15·7	18·9
12	15·4	13·6	11·4	10·8	8·7	8·3	8·6	10·6	11·8	15·3	18·8	21·7	23·7	23·5	21·8	19·8	18·0	16·2	16·8	16·9	16·2	16·3	16·1	15·9	15·7
13	15·3	15·4	15·1	15·0	13·3	9·6	8·5	7·6	9·4	13·2	17·2	20·9	24·5	24·7	23·5	20·3	17·9	15·8	16·0	15·8	14·7	15·5	15·6	15·5	15·8
14	14·3	14·1	13·4	12·6	11·7	10·4	9·7	10·3	11·2	13·0	16·9	20·6	23·7	23·6	21·8	20·4	18·6	17·1	15·9	16·3	16·0	16·6	16·6	14·1	15·8
15 Q	13·9	13·6	13·2	12·9	12·4	11·7	12·0	11·4	11·7	13·9	17·9	20·5	22·6	22·8	21·8	19·5	16·8	15·6	15·3	16·3	16·1	16·7	15·9	15·4	15·8
16 Q	14·4	14·1	13·9	13·4	12·5	10·5	9·3	8·6	8·7	10·6	14·2	17·9	20·9	22·6	22·8	21·8	19·3	17·0	15·4	16·2	16·4	15·7	15·2	14·6	15·3
17	14·2	13·9	14·0	13·3	12·5	11·3	10·5	10·4	11·1	14·1	18·3	22·7	26·3	26·6	25·4	22·6	19·4	17·7	16·4	16·3	16·0	15·7	14·2	14·2	18·5
18 Q	13·0	12·5	13·7	14·2	13·4	13·2	12·4	12·1	12·4	14·2	16·7	20·5	22·5	22·5	21·9	20·1	19·1	17·7	16·5	16·1	16·5	17·1	17·0	15·9	16·3
19	15·1	15·3	14·7	14·4	13·5	11·1	9·6	8·6	8·6	11·1	14·2	18·8	22·7	24·7	22·7	20·6	17·2	16·0	15·2	16·5	17·1	17·2	17·1	16·2	15·8
20 Q	15·3	14·8	14·3	14·1	13·7	12·6	12·3	11·4	11·7	14·2	19·0	22·5	23·8	24·0	22·2	19·8	18·0	16·7	16·3	16·2	16·2	16·5	16·1	16·0	16·6
21	15·3	15·2	14·4	13·3	12·3	10·5	8·6	8·7	9·0	11·2	17·1	22·7	27·4	25·5	24·5	21·8	20·0	17·9	16·1	15·2	16·7	17·6	14·1	13·7	16·2
22 D	14·8	14·3	14·1	15·0	13·3	10·6	9·5	9·7	11·7	15·2	18·9	22·0	22·7	22·8	26·8	23·6	22·6	20·1	21·2	21·8	16·5	15·2	12·2	14·3	17·0
23 D	13·3	17·1	12·5	12·6	9·5	7·1	7·0	8·7	14·5	19·7	31·3	26·6	25·8	24·5	21·8	18·1	16·0	14·3	15·2	15·7	16·2	16·3	16·1	15·6	16·5
24	15·3	14·9	14·2	13·7	12·7	11·0	10·2	10·4	11·7	14·1	17·2	21·5	22·7	23·5	20·9	19·0	16·2	16·0	17·2	18·0	18·0	17·0	17·0	11·5	16·0
25	7·5	11·3	13·7	15·1	9·5	7·4	7·7	7·5	9·7	14·1	19·0	23·5	25·7	25·5	22·3	18·9	17·0	15·2	14·4	14·1	16·2	16·5	16·9	17·0	15·2
26	14·5	14·1	13·6	12·9	11·3	9·4	8·0	8·5	9·6	13·2	18·9	23·6	26·4	26·2	23·9	19·9	17·1	15·9	15·9	16·5	15·2	16·9	16·1	12·5	15·8
27 Q	13·2	13·5	13·3	12·6	13·2	11·7	10·5	9·6	10·6	14·5	18·1	22·7	25·3	26·5	25·3	21·9	18·9	17·0	16·8	17·2	17·1	17·0	15·0	15·3	16·5
28	15·1	14·1	13·8	12·8	11·7	10·7	9·4	8·5	8·1	11·2	15·1	19·0	22·7	23·5	23·5	22·6	19·7	19·2	18·1	19·7	16·5	14·2	11·5	13·2	15·6
29	13·1	11·9	11·6	12·9	11·6	11·4	10·4	8·0	10·1	12·8	17·1	21·7	24·6	25·6	24·7	22·8	20·4	18·2	14·1	14·1	15·8	16·1	16·0	16·3	15·9
30	12·4	12·4	9·8	9·5	17·3	13·0	10·5	8·9	9·7	12·4	16·0	19·1	21·8	24·7	21·9	20·0	18·1	16·7	13·6	14·0	16·3	16·9	15·0	14·4	15·2
31	14·2	14·3	15·3	12·5	12·6	14·1	13·6	12·5	13·2	14·3	17·0	20·4	24·5	24·8	24·0	20·8	18·0	16·1	15·9	15·7	16·0	16·4	16·1	15·5	16·6
Mean	14·6	14·1	13·5	13·3	12·0	10·3	9·6	9·3	10·7	13·5	17·4	20·9	23·7	24·5	23·7	21·4	18·5	16·8	16·2	16·4	16·4	16·7	15·2	14·3	16·0

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

141 ESKDALEMUIR (V) — 44,000 γ (·44 C.G.S.unit) + — AUGUST, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	970	967	962	967	972	976	977	977	970	968	973	967	964	967	977	997	1022	1056	1025	990	985	990	961	913	979
2	909	915	898	854	829	926	960	973	974	976	973	970	974	979	990	1000	1014	1032	1032	1020	1006	972	962	956	962
3 D	942	920	946	961	972	979	981	983	979	966	960	954	953	957	963	971	973	979	984	986	988	954	856	789	954
4 D	792	875	936	967	977	972	953	960	964	963	965	975	995	1020	1028	1027	1048	1038	1052	1022	1008	991	984	945	977
5	890	937	925	877	900	919	943	936	967	967	971	972	974	977	1007	1020	1032	1038	1025	1005	997	985	979	973	967
6	954	949	966	965	954	968	978	981	977	973	967	964	961	966	975	987	992	996	994	993	987	981	976	963	974
7	980	963	966	967	966	966	967	970	972	971	966	960	961	966	968	990	1005	1006	1005	990	979	976	973	973	974
8	974	974	974	975	974	972	972	973	973	967	962	956	959	966	969	976	980	979	978	979	978	973	972	972	972
9	969	970	971	971	972	972	972	972	972	967	964	956	953	956	962	967	969	972	971	969	971	970	969	969	968
10	969	970	971	967	972	968	966	964	960	956	948	946	943	947	946	954	959	964	966	963	967	967	966	967	961
11 D	956	947	949	955	960	960	954	951	951	950	950	956	1003	1056	1065	1102	1124	1083	1035	1015	1005	999	1003	997	997
12	990	986	990	989	985	984	984	984	980	972	970	971	973	977	983	984	984	983	974	977	977	976	975	976	980
13	974	974	974	975	972	974	977	972	966	962	958	949	949	954	961	970	978	979	975	973	973	972	971	970	969
14	971	972	972	972	972	971	969	967	960	950	949	949	947	954	962	967	970	976	978	977	975	972	970	963	966
15 Q	966	967	970	971	970	971	972	971	968	966	966	956	956	961	969	974	979	982	978	972	972	971	971	969	969
16 Q	971	972	972	972	972	973	977	974	967	962	959	954	951	950	956	965	968	972	971	969	967	966	967	966	966
17	966	966	966	966	967	967	970	970	965	954	947	944	943	951	962	976	978	978	977	974	973	972	971	968	965
18 Q	963	962	965	966	968	970	972	973	976	976	972	964	960	966	975	979	977	977	976	974	971	967	966	966	970
19	966	966	966	965	963	965	965	965	963	956	945	939	942	947	950	963	976	986	985	976	972	970	968	966	964
20 Q	966	966	966	966	967	968	967	966	963	956	953	953	949	950	959	963	967	969	967	966	965	963	964	962	963
21	962	961	961	962	965	966	967	967	963	956	949	941	937	942	947	956	967	984	999	1000	988	974	972	971	965
22 D	987	988	987	987	986	988	972	974	967	956	950	946	950	961	965	978	986	992	977	977	998	995	977	967	970
23 D	962	949	940	931	934	943	952	959	952	953	938	943	955	963	972	977	977	976	972	971	970	970	972	972	958
24	972	972	972	972	972	973	972	971	967	964	959	956	956	957	963	967	971	969	966	966	966	966	967	971	967
25	973	967	961	958	964	969	969	971	968	964	955	950	951	962	974	979	980	981	978	978	973	971	972	970	968
26	967	971	972	971	973	973	974	973	965	955	944	942	943	950	958	965	969	971	968	967	968	968	966	966	964
27 Q	967	967	967	968	968	972	973	974	970	967	961	951	949	951	955	961	967	968	967	967	966	966	964	965	965
28	966	967	967	968	969	970	971	971	962	951	950	950	950	955	960	958	961	961	962	962	968	974	968	962	963
29	961	955	960	962	965	967	967	966	960	957	948	941	942	949	961	969	971	974	981	980	978	977	973	965	964
30	953	945	942	939	932	938	955	964	967	961	958	950	945	950	964	967	972	973	978	980	974	971	969	968	959
31	967	965	957	954	957	961	962	963	962	959	955	948	947	955	962	967	968	972	968	968	968	965	966	965	962
Mean	956	958	960	959	960	965	968	969	967	962	958	954	956	963	971	980	987	989	986	981	978	974	967	960	968

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS:
MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

142 ESKDALEMUIR — AUGUST, 1938

Day	Terrestrial Magnetic Elements																				HR_H+VR_V §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force						Declination						Vertical Force										
	Maximum 16,000 γ+			Minimum 16,000 γ+		Range	Maximum 13° +			Minimum 13° +			Range	Maximum 44,000 γ+			Minimum 44,000 γ+			Range	10,000γ²		
	h	m	γ	h	m	γ	h	m	′	′	h	m	′	h	m	γ	γ	h	m	γ				°A
1	17	0	602	430	23	50	172	14	26	27·9	2·4	7	55	25·5	17	17	1065	881	23	49	184	1110	2	86·5
2	17	11	586	435	4	9	151	14	34	21·1	0·1	21	5	21·0	18	0	1038	789	4	7	249	1367	2	86·6
3 D	21	40	695	307	23	59	388	21	44	37·1	-11·4	22	52	48·5	20	23	990	759	23	39	231	1677	2	86·7
4 D	16	52	619	314	0	1	305	14	47	31·8	-0·8	0	1	32·6	16	40	1054	761	0	1	293	1819	2	86·7
5	17	20	582	427	0	11	155	13	43	28·9	1·2	7	39	25·7	17	50	1048	866	3	10	182	1073	2	86·7
6	20	2	566	444	10	3	122	13	25	25·7	4·1	7	33	21·6	17	20	997	944	1	25	53	439	1	86·7
7	15	12	564	452	10	20	112	13	10	25·5	9·9	6	24	15·6	16	50	1007	959	11	55	48	401	1	86·7
8	19	45	541	463	11	16	78	12	55	24·6	8·8	7	31	15·8	19	54	982	955	11	28	27	250	0	86·7
9	19	25	538	472	10	12	66	12	40	25·1	8·9	7	27	16·2	17	30	974	952	12	10	22	208	0	86·7
10	16	45	569	472	10	47	97	14	19	26·4	4·1	8	47	22·3	4	48	974	941	13	13	33	308	0	86·8
11 D	17	2	615	406	10	11	209	13	52	37·6	8·8	4	20	28·8	16	25	1134	947	2	0	187	1185	1	86·7
12	18	2	551	434	9	48	117	13	2	24·9	5·9	6	30	19·0	0	15	992	966	11	14	26	310	0	86·8
13	18	30	535	471	9	13	64	13	4	25·6	5·6	7	43	20·0	17	30	979	947	11	53	32	250	0	86·8
14	17	33	539	467	11	50	72	13	7	25·0	9·6	6	2	15·4	18	10	979	944	12	33	35	276	0	86·8
15 Q	16	28	531	474	9	58	57	13	33	23·2	10·8	7	34	12·4	17	10	983	954	12	20	29	224	0	86·8
16 Q	19	7	535	472	11	8	63	14	8	23·4	7·9	7	30	15·5	6	40	977	949	13	3	28	230	0	86·8
17	19	20	543	475	15	10	68	13	5	27·4	9·4	6	54	18·0	16	30	979	942	12	26	37	278	0	86·8
18 Q	17	47	547	472	10	42	75	13	40	22·7	11·6	7	51	11·1	15	25	979	960	12	20	19	209	0	86·9
19	20	31	540	475	10	23	65	13	20	25·3	7·8	7	33	17·5	18	6	990	937	11	42	53	345	0	86·9
20 Q	20	26	540	483	11	39	57	13	5	24·6	10·7	8	4	13·9	17	42	972	948	12	30	24	202	0	86·9
21	17	31	571	467	9	58	104	12	49	28·2	7·0	7	28	21·2	19	0	1002	936	12	21	66	468	1	87·0
22 D	13	56	662	467	10	9	195	13	57	31·2	8·8	6	0	22·4	20	50	1002	944	11	30	58	582	1	87·0
23 D	14	30	602	312	9	33	290	10	22	34·2	4·1	6	8	30·1	14	37	979	927	3	33	52	712	1	87·0
																			11	54)				
24	19	16	597	463	10	41	134	13	13	24·6	3·1	23	58	21·5	24	0	974	954	12	56)	20	311	0	87·1
25	18	48	558	453	10	17	105	12	58	26·9	2·8	0	3	24·1	17	15	983	949	11	50	34	326	0	87·0
26	19	55	536	455	8	50	81	12	50	26·9	7·0	7	28	19·9	6	45	975	940	11	54	35	291	0	86·9
27 Q	19	41	551	458	9	55	93	13	10	27·3	9·4	7	18	17·9	7	10	976	948	12	3	28	279	0	86·9
28	17	32	579	458	11	0	121	15	20	26·0	7·8	8	27	18·2	21	5	975	949	10	30	26	317	0	87·0
												7	12)						11	3)				
29	18	55	595	456	10	5	139	13	48	26·2	7·6	7	42)	18·6	18	44	985	939	12	12)	46	436	0	87·0
30	19	25	550	456	10	4	94	13	40	26·5	7·3	7	58	19·2	19	3	982	925	4	57	57	411	1	87·0
31	21	19	532	457	10	2	75	12	47	25·4	11·2	3	42	14·2	17	35	973	944	12	14	29	254	0	87·0
Mean	--	--	570	443	--	--	127	--	--	26·9	6·2	--	--	20·8	--	--	997	924	--	--	72	534	0·55	86·8
No. of Days Used	--	--	31	31	--	--	31	--	--	31	31	--	--	31	--	--	31	31	--	--	31	31	31	31

§ For explanation see p. 95.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

143 ESKDALEMUIR (H) — 16,000 γ (·16 C.G.S.unit) + — SEPTEMBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 Q	535	521	519	518	514	514	514	514	501	494	479	475	483	503	505	509	515	541	527	533	527	533	531	527	514
2	521	522	520	523	524	523	526	523	518	508	498	483	475	482	485	508	518	528	534	539	538	535	535	531	517
3	534	531	525	527	523	527	528	514	491	470	470	474	469	488	501	506	510	532	527	528	529	527	523	519	511
4	515	517	512	514	515	512	502	495	488	489	487	486	488	492	498	519	503	530	536	531	531	523	523	549	511
5	538	519	507	515	522	529	520	507	494	478	468	474	494	523	511	519	483	495	518	521	516	518	516	518	508
6 Q	518	518	520	521	520	519	512	501	486	475	475	486	498	514	516	515	516	518	529	531	535	532	536	538	514
7	535	530	527	527	523	512	517	512	500	486	477	482	494	507	507	519	551	507	522	524	527	523	524	529	515
8	536	523	520	512	516	515	512	502	490	482	475	482	501	502	506	518	518	514	531	527	531	530	530	527	513
9	527	528	527	527	525	526	519	507	495	486	488	494	490	490	507	519	514	531	531	523	532	523	523	519	515
10	522	518	520	518	517	517	512	511	486	473	477	491	491	503	511	516	523	519	531	534	525	527	527	526	512
11	527	529	526	527	524	519	515	502	485	475	482	485	487	491	507	507	516	519	525	519	519	514	536	518	511
12	519	514	516	519	519	526	507	512	507	490	475	481	486	503	518	513	519	512	523	514	516	519	526	542	511
13	519	514	516	511	518	535	531	525	508	499	490	488	494	507	523	520	515	517	549	556	556	524	466	466	514
14 D	496	508	510	494	490	498	498	491	490	477	462	463	474	498	514	547	563	538	498	463	438	446	409	417	487
15 D	417	429	386	492	511	465	447	457	357	379	380	406	463	559	562	591	530	452	496	498	507	488	477	504	469
16	468	457	467	489	492	493	486	486	474	457	457	449	457	465	473	477	498	501	511	506	493	493	510	506	482
17	482	497	493	477	481	497	498	489	476	471	465	466	477	481	484	499	493	501	511	513	514	509	507	506	491
18	504	506	511	509	503	500	499	497	490	480	467	461	461	467	460	483	493	501	510	511	510	510	515	510	494
19 Q	506	506	506	509	506	506	504	502	494	485	470	469	473	478	489	500	508	517	515	523	510	511	512	514	501
20	534	514	515	518	520	521	517	512	500	488	477	469	460	478	483	495	507	514	519	518	521	519	519	520	506
21	519	518	519	518	518	519	514	511	498	493	485	483	496	498	494	507	518	515	523	527	522	522	497	502	509
22	510	515	517	514	518	522	505	497	481	465	477	481	489	482	485	505	504	517	517	521	519	518	517	515	504
23	515	513	524	510	513	522	519	506	499	489	476	469	474	481	482	490	497	507	518	524	521	519	517	514	504
24 Q	514	516	515	511	514	514	513	505	492	476	469	476	484	496	509	514	513	516	526	527	526	518	517	515	507
25 Q	515	515	515	517	515	517	514	510	497	483	477	476	478	482	495	506	513	517	526	522	528	529	531	532	509
26 D	522	517	521	526	532	527	525	511	449	454	445	443	440	449	449	484	489	485	478	480	474	491	469	466	484
27 D	485	486	492	490	489	489	492	466	449	440	443	448	456	473	489	480	484	509	499	502	517	506	546	482	484
28 D	433	278	306	320	441	469	473	476	454	447	449	458	466	481	470	489	497	481	489	493	495	495	498	497	452
29	494	489	495	497	497	494	484	505	493	468	441	447	449	466	476	482	489	493	494	501	509	517	498	498	487
30	501	500	499	498	498	499	497	490	482	473	478	478	506	473	515	481	508	505	537	495	457	485	485	412	490
Mean	509	502	501	505	510	511	507	501	484	474	469	471	478	490	497	507	510	511	518	517	515	513	511	507	501

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

144 ESKDALEMUIR (D) — 13° + — SEPTEMBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1 Q	15·2	14·2	14·1	13·9	13·7	13·1	11·5	9·5	11·0	13·1	15·6	18·2	21·8	24·4	22·7	20·4	18·8	18·0	17·0	17·8	16·9	16·7	17·0	16·0	16·3
2	14·3	14·1	13·4	12·6	13·3	12·7	12·4	12·1	10·9	11·1	12·5	14·6	18·0	21·0	21·2	21·7	20·6	19·8	18·3	17·5	17·2	16·7	15·5	15·4	15·7
3	15·1	14·2	13·2	13·2	13·9	16·2	15·2	12·3	10·8	14·5	16·1	19·9	24·4	23·6	23·1	20·7	17·1	14·1	15·0	16·1	16·4	16·5	14·2	13·1	16·2
4	13·3	14·6	13·5	12·9	12·5	11·6	10·5	9·4	10·8	13·1	16·1	18·9	20·8	21·4	21·8	21·8	19·2	19·0	17·0	17·6	18·0	16·3	16·3	13·4	15·8
5	14·1	8·7	11·5	14·3	14·1	11·6	9·6	8·6	9·8	12·5	17·1	21·0	24·6	26·4	24·5	21·8	19·3	17·0	15·4	16·6	16·3	15·5	16·0	15·8	15·9
6 Q	15·7	15·2	15·1	15·0	14·5	13·6	11·9	11·4	11·7	13·3	16·3	20·8	22·6	23·3	22·0	19·9	18·1	17·1	17·1	17·3	17·1	16·1	16·1	15·4	16·5
7	14·4	14·1	13·9	13·4	12·4	11·7	11·8	10·2	10·8	11·7	14·1	18·3	21·7	23·9	22·4	20·5	20·1	16·1	17·1	17·0	16·3	15·7	15·3	15·1	15·7
8	13·2	11·9	11·3	9·2	10·5	11·3	11·0	9·5	9·9	12·4	16·0	19·0	20·8	22·0	19·8	18·9	17·1	16·1	16·1	15·9	14·4	15·9	16·0	15·6	14·7
9	15·5	15·2	14·5	14·2	14·1	13·3	12·4	11·4	11·7	14·2	16·4	21·0	22·6	22·0	21·3	20·8	18·6	17·9	16·5	13·5	13·1	13·7	12·5	13·0	15·8
10	13·1	13·3	13·3	12·4	13·6	13·6	13·3	12·4	12·7	13·2	15·6	21·1	21·9	22·2	20·9	18·8	17·0	15·8	16·1	16·1	14·6	12·8	14·2	14·3	15·5
11	15·0	15·3	15·3	17·1	12·2	11·0	9·7	8·7	9·4	11·4	16·0	21·7	25·5	25·1	24·5	21·0	19·3	16·9	13·3	12·5	13·3	11·6	11·3	11·5	15·4
12	13·8	13·2	16·2	15·4	12·3	11·4	13·1	14·1	11·5	12·4	16·0	19·9	21·8	23·0	22·7	20·3	18·1	17·1	14·9	13·5	11·5	13·3	12·4	11·3	15·4
13	11·4	12·5	12·6	13·7	21·7	13·2	11·4	11·0	11·1	13·4	15·0	16·9	19·9	22·5	23·8	21·8	19·9	18·1	18·8	18·0	2·0	-3·7	3·0	3·6	13·8
14 D	5·9	10·4	17·1	6·7	2·1	10·2	10·0	9·9	10·6	12·4	15·5	18·9	21·1	22·0	18·3	21·9	22·5	18·2	17·0	13·0	5·6	-1·7	3·1	2·0	12·2
15 D	3·1	0·0	1·5	-0·8	15·2	26·0	29·0	21·7	8·9	14·5	16·6	20·3	22·6	26·4	27·4	27·6	23·6	21·7	18·3	11·5	0·1	13·2	11·5	15·1	15·6
16	12·4	16·2	13·3	7·6	9·5	10·5	10·8	10·4	10·2	11·0	13·4	16·1	18·8	20·8	21·0	19·9	19·6	18·0	17·4	15·5	16·2	16·1	15·8	12·3	14·7
17	9·8	8·6	6·1	10·6	16·0	14·4	14·1	12·4	11·7	12·2	13·9	16·3	20·5	22·2	22·0	20·7	18·9	18·3	17·0	16·1	15·8	14·9	14·9	14·8	15·1
18	14·3	14·5	15·1	14·1	13·0	12·3	11·3	11·2	10·4	10·6	12·5	15·3	19·1	21·6	19·9	20·0	18·9	16·8	15·7	15·4	15·3	15·3	14·9	13·6	15·0
19 Q	11·8	13·3	14·0	13·9	13·4	13·3	12·5	11·7	11·7	12·3	14·1	17·0	19·6	20·8	20·9	19·5	18·1	17·0	16·0	16·0	15·5	15·3	14·8	15·2	15·3
20	16·0	13·6	14·2	14·4	13·9	13·3	12·4	10·8	9·7	10·9	12·5	16·1	19·8	21·8	21·9	20·1	18·8	17·0	15·8	15·2	15·2	15·2	15·1	15·1	15·4
21	15·1	14·9	14·4	14·2	14·1	12·8	11·8	10·8	10·5	11·1	13·2	15·4	19·7	21·2	19·9	19·6	18·4	16·4	16·7	16·4	15·5	13·3	6·1	7·9	14·6
22	11·2	13·4	12·6	12·4	12·7	12·0	10·3	10·2	7·5	12·9	15·2	18·8	20·9	21·1	20·5	20·3	18·3	17·2	16·2	16·2	15·5	15·1	14·8	14·4	15·0
23	14·1	13·5	11·4	10·4	12·3	8·8	9·9	9·0	8·8	10·1	11·7	15·6	20·7	22·9	22·4	20·9	18·9	17·6	17·0	16·4	16·1	16·0	12·5	14·1	14·6
24 Q	13·5	14·2	14·1	13·4	13·3	12·5	11·4	9·8	9·2	10·7	14·3	19·5	22·5	23·0	22·7	20·6	18·3	17·4	17·2	17·8	17·6	15·1	15·5	14·4	15·8
25 Q	14·1	14·2	14·2	14·0	13·9	13·1	11·5	9·6	9·4	11·4	15·7	20·8	24·1	24·9	24·2	22·3	20·0	18·8	18·0	17·1	16·9	16·3	12·4	12·5	16·2
26 D	11·3	11·4	13·1	12·4	12·5	12·1	11·4	8·7	8·6	14·2	20·1	23·5	24·7	25·6	21·9	25·0	20·6	22·1	14·4	9·1	6·0	6·8	9·7	6·7	14·7
27 D	7·6	12·4	12·4	11·2	12·3	13·3	11·4	11·3	14·1	14·1	16·0	18·8	21·9	23·6	23·6	21·0	19·2	16·8	17·1	15·2	11·2	13·6	14·1	1·1	14·7
28 D	3·0	-13·0	-11·6	-7·5	13·3	14·0	12·4	11·3	11·4	12·5	14·2	16·0	19·2	21·0	19·1	17·9	17·6	17·1	15·5	15·5	12·4	13·3	14·1	14·7	11·4
29	13·6	14·4	13·4	12·8	12·5	15·3	19·2	13·3	13·3	12·4	12·4	16·2	19·5	17·1	17·2	16·1	14·7	15·4	14·1	14·4	14·3	12·5	14·1	14·1	14·7
30	14·7	14·4	14·2	13·6	12·5	12·8	11·5	10·8	10·0	11·0	13·3	16·4	21·7	20·7	25·2	19·0	19·4	18·0	15·3	5·6	14·1	8·6	8·6	3·9	14·0
Mean	12·5	12·1	12·2	11·7	13·0	13·0	12·5	11·1	10·6	12·4	14·9	18·4	21·4	22·6	22·0	20·7	19·0	17·6	16·4	15·2	13·7	13·2	13·1	12·2	15·1

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

145 ESKDALEMUIR (V) 44,000 γ (·44 C.G.S.unit) + SEPTEMBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 Q	961	960	963	966	967	967	966	961	956	955	951	948	944	947	942	961	967	973	976	973	972	968	966	966	961
2	965	963	964	965	966	967	965	964	962	955	955	957	955	955	956	960	965	967	968	968	967	967	966	965	963
3	962	961	961	961	962	962	962	963	961	957	951	952	959	969	978	985	990	990	984	978	973	970	968	962	968
4	964	964	965	967	968	972	974	974	968	961	955	952	954	955	965	975	978	976	977	975	974	974	971	955	967
5	943	948	952	955	955	960	965	966	963	961	955	948	942	941	956	978	985	983	975	969	968	968	968	967	961
6 Q	967	967	967	967	967	970	973	973	971	962	955	953	955	957	957	960	961	962	961	961	961	962	963	964	963
7	964	965	964	963	964	967	961	961	961	955	950	948	949	951	960	961	968	971	964	964	964	966	967	965	961
8	960	956	950	952	957	961	966	967	965	961	956	950	950	960	967	974	981	979	973	971	968	966	965	966	963
9	965	964	963	962	962	965	967	968	963	958	952	948	949	950	955	964	970	972	973	976	971	964	961	961	963
10	961	961	957	960	962	963	967	967	967	961	957	953	960	969	974	984	984	977	968	967	969	971	967	964	966
11	963	961	960	952	954	961	965	966	958	952	953	951	954	959	968	973	978	978	984	984	979	973	952	956	964
12	956	958	958	952	961	962	962	957	956	956	956	955	957	962	970	978	985	985	983	980	979	973	963	946	965
13	947	951	957	959	941	939	952	954	953	950	955	955	954	951	954	961	971	973	967	973	978	942	901	919	952
14 D	905	945	944	844	919	957	970	972	969	968	972	976	981	985	1001	1008	1073	1105	1075	1038	997	962	912	892	974
15 D	838	866	754	749	792	801	845	879	947	985	1014	1039	1092	1115	1138	1157	1143	1062	1043	1036	968	948	944	929	962
16	933	901	900	941	955	964	975	980	980	979	977	972	973	974	980	979	981	985	988	1001	1006	998	972	950	969
17	955	954	960	960	954	962	972	978	979	979	975	972	973	074	981	987	990	984	981	980	979	979	978	976	973
18	976	973	964	959	962	970	975	978	978	978	978	967	961	962	964	965	973	976	977	977	976	975	973	971	971
19 Q	971	972	973	973	973	973	973	974	973	968	967	962	961	960	958	961	965	970	973	973	978	977	974	971	970
20	960	963	967	966	967	967	970	971	967	962	960	954	949	947	950	956	961	967	970	972	973	973	971	969	964
21	971	970	970	969	969	970	972	972	971	967	960	956	956	958	961	963	969	975	974	974	977	979	979	974	969
22	969	969	968	969	968	968	968	968	966	960	957	953	953	959	961	968	974	974	974	972	971	970	971	971	967
23	971	969	962	962	963	964	964	966	968	968	962	955	951	951	956	961	964	968	968	968	969	970	974	974	965
24 Q	972	969	969	969	968	968	972	973	972	967	962	956	957	956	962	973	974	973	973	973	974	975	974	974	969
25 Q	973	970	969	968	968	968	969	970	968	959	951	945	948	956	963	969	974	973	974	975	974	974	968	962	966
26 D	960	959	953	952	955	956	962	967	966	952	955	974	983	1009	1022	1028	1053	1079	1077	1059	1027	970	962	921	988
27 D	949	962	962	962	965	974	981	984	978	976	980	979	978	988	1005	1021	1021	1018	1015	1010	994	986	904	889	978
28 D	870	755	645	726	866	938	974	986	992	991	990	987	982	990	997	1002	1004	1004	998	992	991	989	984	981	943
29	980	981	979	980	980	976	969	968	969	974	984	991	991	1000	1003	1010	1014	1007	998	992	987	981	975	975	986
30	977	979	980	979	979	980	981	981	981	979	968	965	966	969	991	994	988	982	991	1038	979	970	974	932	979
Mean	954	951	943	944	953	959	965	967	968	965	964	962	965	969	977	984	990	990	987	986	978	971	962	956	967

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS:
MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

146 ESKDALEMUIR SEPTEMBER, 1938

Day	Terrestrial Magnetic Elements																				Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force							Declination						Vertical Force							HR_H+VR_V §	
	Maximum 16,000 γ+			Minimum 16,000 γ+			Range	Maximum 13° +			Minimum 13° +		Range	Maximum 44,000 γ+			Minimum 44,000 γ+		Range		10,000γ²	
	h	m	γ	γ	h	m	γ	h	m	′	′	h	m	′	h	m	γ	γ	h	m	γ			°A
1 Q	0	43	547	472	11	32	75	13	48	24·7	9·1	7	20	15·6	18	8	978	944	12	7	34	277	0	86·9
2	22	49	544	470	12	46	74	15	10	22·2	10·6	8	48	11·6	18	20	988	953	13	18	15	·189	0	86·9
					9	47)																		
3	0	40	544	462	12	17)	82	12	11	24·7	9·8	8	48	14·9	17	2	994	951	10	50	43	328	0	86·9
4	23	31	560	478	11	10	82	15	28	23·5	8·7	7	34	14·8	16	0	980	944	24	0	36	297	0	86·9
5	0	1	555	454	16	54	101	13	57	28·2	7·8	1	34	20·4	16	51	986	938	13	2	48	383	1	86·9
6 Q	22	57	553	472	10	30	81	13	4	23·6	11·2	7	8	12·4	7	20	974	952	11	11	22	233	0	86·9
7	16	30	571	466	10	14	105	13	49	24·7	9·4	7	2	15·3	17	10	974	947	11	11	27	294	0	86·0
8	18	46	547	472	10	37	75	13	10	23·1	8·6	7	20	14·5	16	58	983	949	11	40	34	277	0	86·9
												8	25)											
9	17	31	558	471	9	2	87	12	40	24·1	9·6	20	3)	14·5	19	50	980	946	12	0	34	297	0	86·9
10	19	3	540	471	9	55	69	12	20	23·9	11·0	7	51	12·9	16	10	985	950	11	22	35	271	0	86·9
					9	48)						7	53)											
11	22	19	566	474	9	53)	92	12	30	26·5	8·5	21	49)	18·0	19	0	986	948	22	33	38	323	0	86·9
12	23	35	587	474	10	38	93	13	30	23·5	8·6	23	32	14·9	16	18	985	938	23	47	47	364	0	86·9
13	18	43	643	421	22	9	222	4	18	24·7	-9·4	21	18	34·1	20	8	997	889	22	57	108	851	1	86·9
14 D	15	49	616	385	22	25	231	3	1	30·3	-7·9	3	47	38·2	17	20	1112	820	3	24	292	1692	2	86·9
15 D	15	18	642	201	2	49	441	15	20	38·0	-37·4	20	15	75·4	14	0	1190	607	2	52	583	3346	2	86·9
16	22	47	538	436	2	3	102	14	6	22·8	6·3	3	42	16·5	20	32	1006	888	1	55	120	707	1	86·9
17	20	32	519	458	11	29	61	13	45	24·7	3·4	2	47	21·3	16	11	991	950	1	20	41	285	1	86·9
								13	30)															
18	22	53	531	454	14	8	77	13	38)	22·0	9·7	8	48	12·3	7	50	979	958	3	44	21	221	0	86·9
19 Q	19	50	527	463	11	55	64	13	57	21·5	10·4	7	50	11·1	21	0	978	957	14	30	21	200	0	86·9
20	0	23	543	453	12	48	90	14	12	233	8·6	7	40	14·7	7	20	973	944	13	12	29	279	0	86·9
21	20	10	543	475	10	53	68	13	38	21·9	5·7	22	25	16·2	22	15	980	955	12	48	25	224	0	86·9
22	5	34	534	453	9	42	81	12	37	23·6	5·9	8	13	17·7	18	10	975	951	11	58	24	242	0	86·9
															22	18)								
23	5	43	535	460	11	31	75	13	20	23·5	6·0	6	0	17·5	22	38)	975	950	13	30	25	236	1	86·9
24 Q	18	34	531	469	11	10	62	12	37	23·6	8·8	8	12	14·8	21	52	979	955	11	35	24	210	0	86·9
25 Q	23	22	543	471	11	40	72	13	49	25·4	8·8	8	0	16·6	19	5	978	945	11	32	33	267	0	86·9
26 D	5	5	539	416	8	40	123	13	6	28·3	-13·1	20	55	41·4	17	57	1120	915	23	30	205	1123	2	86·9
															15	25)								
27 D	22	8	648	433	11	2	215	22	14	24·7	-6·4	23	4	31·1	17	5)	1024	858	23	8	166	1100	2	86·9
28 D	7	39	528	66	1	50	462	13	26	24·6	-30·9	1	50	55·5	16	50	1014	615	2	58	399	2554	2	87·0
29	21	13	542	424	10	40	118	6	37	22·8	5·8	21	7	17·0	16	20	1015	967	7	10	48	411	1	87·0
30	20	32	632	229	20	46	403	20	42	46·3	-2·2	20	55	48·5	19	15	1060	861	20	42	199	1559	2	87·1
Mean	--	--	560	427	--	--	133	--	--	25·5	2·8	--	--	22·7	--	--	1004	911	--	--	93	635	0·60	86·9
No. of Days Used	--	--	30	30	--	--	30	--	--	30	30	--	--	30	--	--	30	30	--	--	30	30	30	30

§ For explanation see p. 95.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

147 ESKDALEMUIR (H) — 16,000 γ (·16 C.G.S.unit) + — OCTOBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 D	436	497	477	449	481	448	457	469	462	457	451	449	454	473	477	489	487	493	495	506	530	497	477	481	475
2	503	483	481	477	481	505	498	489	482	472	461	460	484	493	518	501	497	522	511	497	506	514	534	507	495
3	485	485	501	491	500	497	494	484	479	473	462	473	472	482	493	502	502	505	511	503	481	459	473	492	487
4	505	511	502	506	511	502	498	495	490	473	456	464	456	485	490	498	502	505	506	514	517	517	518	513	497
5 Q	512	511	511	512	513	513	509	499	486	474	466	467	478	486	493	493	496	502	510	517	518	519	520	519	501
6	518	517	517	521	526	529	529	510	495	480	475	476	488	493	496	514	509	517	512	518	517	519	522	520	509
7 D	521	522	522	529	533	531	545	500	481	482	458	468	484	526	578	651	658	651	772	608	444	440	419	389	530
8 D	432	407	472	456	395	484	419	451	444	415	407	371	403	436	455	467	468	492	486	494	492	489	492	490	451
9	485	489	496	497	496	497	500	486	462	455	440	463	484	488	494	481	488	497	501	505	501	529	488	504	489
10	502	510	501	492	497	503	506	497	480	463	458	461	476	485	489	500	498	496	502	501	497	529	502	509	494
11	513	522	510	509	516	524	512	514	498	479	468	471	481	489	503	505	490	492	499	504	514	512	509	510	502
12	509	509	509	510	512	514	510	500	492	476	471	472	481	494	501	509	512	517	519	524	521	527	512	516	505
13	518	517	519	518	518	517	512	505	487	468	461	465	477	492	505	514	519	524	525	516	518	525	525	522	507
14 Q	523	521	522	525	525	525	525	518	501	479	468	462	470	488	501	512	518	521	523	525	526	526	525	521	510
15 Q	523	523	523	524	525	525	525	517	502	488	480	472	474	487	493	505	516	521	517	521	517	515	521	519	510
16	512	518	517	515	513	518	524	515	501	496	469	457	460	477	492	496	507	490	496	492	493	489	493	485	497
17	505	505	508	510	512	513	514	510	501	482	473	483	492	486	498	501	509	516	517	520	521	521	525	526	506
18	523	521	517	516	517	523	524	520	512	496	492	492	496	505	510	516	525	524	525	516	521	529	533	519	515
19	517	507	522	516	509	513	516	517	512	504	501	503	504	500	513	512	514	522	520	524	529	526	521	528	515
20	525	516	521	518	525	513	529	525	505	496	487	488	488	501	502	500	519	522	518	521	520	515	518	518	512
21 Q	513	512	512	511	513	513	516	510	503	500	496	493	484	494	505	512	514	506	514	521	522	522	537	521	510
22	516	517	516	516	517	518	512	501	491	484	487	492	504	506	515	509	517	524	524	526	515	525	515	517	511
23	520	525	523	528	526	530	532	508	497	497	491	474	482	487	507	500	500	509	504	504	503	505	549	516	509
24	516	513	514	509	508	515	516	504	487	460	463	462	467	478	493	484	476	488	500	502	494	491	483	438	490
25 D	471	480	460	497	499	509	516	498	480	456	439	460	489	469	479	482	476	482	499	500	533	549	520	503	489
26 D	488	495	504	508	515	513	493	495	488	470	455	463	483	503	499	497	489	472	509	496	471	463	490	487	489
27	496	482	486	504	517	517	489	467	462	459	459	443	440	463	484	476	478	492	491	504	513	502	509	499	485
28	487	481	491	489	487	502	507	509	487	472	467	471	466	487	485	491	497	489	496	503	495	491	499	500	490
29	497	494	496	500	508	514	506	489	488	474	462	460	473	480	488	483	495	514	516	487	497	504	502	504	493
30	515	528	500	505	509	512	513	507	489	476	471	475	483	489	496	497	499	507	512	515	516	515	514	513	502
31 Q	516	513	509	509	512	517	513	510	503	495	492	492	496	503	508	506	509	513	517	522	520	517	516	511	509
Mean	503	504	505	505	507	511	508	501	489	476	467	468	476	488	499	503	506	510	518	513	508	509	508	503	499

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

148 ESKDALEMUIR (D) — 13° + — OCTOBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′		′	′	′	′	′	′	′	′	′	′	′	′
1 D	12·2	7·7	10·6	9·8	-2·5	-0·3	8·6	7·6	8·5	12·4	14·1	15·2	17·0	17·2	16·9	16·2	15·2	14·5	13·2	10·7	7·5	11·5	11·4	13·2	11·2
2	10·5	8·6	13·3	14·6	14·2	11·4	10·5	9·4	9·6	11·3	14·2	17·0	19·7	20·1	18·0	18·3	15·3	9·5	10·4	14·9	15·5	14·3	11·7	8·4	13·4
3	8·5	13·0	12·3	13·0	13·6	13·3	13·3	12·4	11·2	12·2	15·2	18·9	19·2	19·4	18·8	13·2	12·3	13·3	16·2	14·4	6·9	8·6	9·5	9·8	13·5
4	13·2	14·1	12·2	9·5	12·0	12·0	11·7	10·5	10·7	12·7	17·0	19·9	20·3	21·1	21·9	20·8	19·1	16·1	13·1	14·8	15·4	15·2	14·1	12·7	15·0
5 Q	13·6	13·6	13·5	13·5	13·5	13·4	12·6	11·4	10·4	10·4	13·4	17·0	19·7	19·7	19·5	18·7	17·9	16·5	16·1	15·9	15·3	15·0	14·3	14·2	15·0
6	14·2	14·2	14·1	14·1	14·1	14·5	14·2	11·7	10·4	10·6	13·3	17·8	20·9	20·8	18·9	18·1	16·8	16·4	16·1	15·3	15·1	14·8	14·2	13·7	15·2
7 D	14·3	14·7	14·6	15·1	14·2	15·4	14·5	14·1	15·9	18·8	21·1	24·7	25·5	26·2	22·7	34·8	28·5	23·2	32·3	24·4	-1·7	11·4	4·8	4·8	18·1
8 D	1·6	4·8	10·5	3·9	3·2	13·1	17·7	7·8	8·6	13·1	16·9	22·5	23·0	23·0	22·8	20·2	12·8	12·4	14·3	6·4	14·9	13·3	13·3	12·6	13·0
9	16·8	17·0	14·6	13·7	13·4	13·0	12·3	12·1	12·1	14·5	18·2	18·3	20·0	20·8	20·6	16·9	13·3	14·6	14·5	13·4	11·2	5·8	10·4	10·7	14·5
10	11·3	15·2	11·4	13·1	16·0	12·2	10·5	8·6	7·9	9·9	14·9	19·0	21·7	22·0	19·7	18·4	15·5	16·3	15·7	14·7	10·9	11·1	12·5	13·3	14·2
11	15·1	13·6	11·6	10·5	13·2	10·6	12·8	14·3	12·6	14·4	19·8	24·3	25·8	25·0	23·6	20·9	20·0	16·6	15·2	14·2	14·6	14·4	14·2	14·2	16·3
12	13·8	13·5	13·4	13·5	13·4	13·1	12·2	10·5	9·2	10·6	14·1	18·8	21·7	22·0	20·6	18·3	16·3	17·0	16·7	16·2	12·4	9·6	11·5	13·4	14·7
13	14·1	14·2	14·1	13·6	14·0	13·1	11·8	10·3	8·0	10·2	14·2	18·0	20·8	22·6	21·1	20·0	17·8	17·9	17·0	15·2	13·1	11·3	11·6	13·1	14·9
14 Q	14·2	14·6	14·4	14·4	14·0	14·0	12·6	10·4	8·5	8·8	11·9	16·1	19·9	21·7	21·2	19·6	17·2	16·8	16·2	15·5	14·7	14·4	13·6	13·4	14·9
15 Q	13·7	13·9	13·8	13·8	13·6	13·3	12·9	11·4	10·3	11·3	15·3	19·9	22·6	24·6	23·8	21·1	18·9	17·0	17·1	15·6	14·5	11·6	11·0	11·5	15·5
16	10·3	11·2	10·3	8·8	10·6	11·2	11·8	10·7	9·4	11·4	15·2	20·1	24·2	24·6	23·5	20·9	20·8	19·8	17·0	14·3	11·4	8·8	6·9	4·0	14·1
17	11·3	10·6	13·6	14·3	14·2	13·4	12·5	11·7	11·8	14·1	16·4	18·9	21·8	19·9	19·2	16·9	15·6	14·5	16·2	15·3	14·5	14·2	14·1	14·1	15·0
18	13·5	13·2	13·2	12·9	12·5	12·9	12·6	12·4	11·7	12·5	16·0	18·1	19·0	19·1	18·0	16·9	16·0	16·2	16·2	15·7	14·1	12·7	10·5	8·9	14·4
19	7·7	9·6	9·8	8·0	8·7	13·3	13·2	12·2	12·3	13·1	16·4	19·9	21·3	20·0	20·2	19·7	17·6	18·0	16·4	16·1	15·3	12·8	11·7	10·6	14·3
20	11·7	12·3	13·3	12·1	11·3	11·1	16·5	17·8	13·3	12·6	16·1	17·3	19·2	20·1	20·3	17·0	15·9	17·1	16·2	4·8	10·2	14·3	14·1	13·4	14·5
21 Q	13·5	13·7	13·3	13·0	13·1	12·5	12·6	12·1	11·7	13·3	16·3	18·4	20·1	18·4	19·0	17·2	16·4	16·1	15·2	15·2	14·3	13·6	13·6	13·2	14·8
22	13·3	13·4	12·5	12·7	13·0	12·1	11·9	11·9	11·2	12·5	16·0	18·9	21·7	20·6	20·0	17·2	15·6	16·2	16·1	15·6	11·0	7·7	13·0	13·9	14·5
23	13·9	15·6	14·1	14·3	13·5	12·6	11·7	12·0	13·3	14·6	18·8	22·0	27·3	24·7	25·1	22·7	17·7	14·3	11·8	11·9	11·2	9·4	10·7	12·3	15·6
24	10·3	14·0	13·5	11·8	16·0	13·5	12·4	11·4	11·3	14·5	18·8	23·2	25·0	25·7	25·1	19·7	20·4	16·4	13·8	13·3	10·5	8·7	6·5	5·0	15·0
25 D	-2·4	10·7	12·3	13·6	11·8	12·1	12·1	11·2	12·4	16·0	17·9	24·2	25·4	26·4	20·8	20·0	17·1	16·2	11·4	11·4	7·6	11·7	10·5	8·9	14·1
26 D	10·7	18·2	17·0	14·8	15·1	14·2	15·2	14·5	15·2	15·0	16·4	20·0	23·2	23·1	19·7	20·1	15·1	17·0	7·6	8·5	6·5	3·0	8·1	10·9	14·5
27	11·7	9·5	17·5	9·6	12·5	15·4	16·0	14·4	13·3	17·0	18·3	20·4	20·7	20·7	22·7	19·7	9·9	14·2	14·3	9·5	11·8	12·1	11·4	4·5	14·5
28	1·0	9·7	15·3	14·4	16·1	12·9	12·5	13·3	14·1	13·3	16·9	19·7	21·3	19·7	19·3	13·6	9·8	16·0	13·3	8·5	7·8	10·7	11·7	10·4	13·4
29	13·1	15·3	15·4	14·5	13·3	12·5	12·5	12·1	10·4	9·6	11·4	14·2	16·7	18·8	18·8	16·3	15·8	11·2	11·0	12·7	12·5	10·8	11·9	12·5	13·4
30	12·9	16·2	13·6	13·4	13·3	13·2	12·6	11·7	10·7	10·9	14·1	17·2	19·3	19·5	19·1	17·4	16·1	15·6	15·2	14·5	14·5	14·1	13·6	13·1	14·7
31 Q	12·5	11·8	11·7	12·1	13·3	13·2	12·5	11·9	10·8	10·6	12·4	15·6	16·9	17·1	17·0	16·1	15·6	15·2	15·1	15·0	14·7	14·5	14·5	11·7	13·8
Mean	11·4	12·8	13·3	12·5	12·5	12·5	12·8	11·7	11·2	12·7	15·8	19·2	21·3	21·4	20·6	19·1	16·5	15·9	15·2	13·7	11·9	11·7	11·6	11·2	14·5

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

149 ESKDALEMUIR (V) — 44,000 γ (·44 C.G.S.unit) + — OCTOBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 D	863	922	946	830	786	845	939	963	974	973	985	992	990	988	991	992	992	991	991	991	975	968	952	927	949
2	940	948	955	948	944	946	962	970	974	974	974	979	979	985	997	999	1003	1001	994	988	984	979	959	952	972
3	957	954	954	963	963	968	973	976	979	979	976	969	968	968	971	976	994	998	991	993	992	975	944	951	972
4	950	946	956	962	958	961	970	975	975	972	968	965	973	974	979	979	981	984	986	982	979	978	977	976	971
5 Q	976	975	975	975	975	975	979	981	982	976	968	961	956	959	965	972	978	979	976	975	975	974	975	974	973
6	974	974	974	974	971	970	971	980	980	976	966	959	959	968	971	974	976	978	980	976	975	974	974	974	973
7 D	973	972	971	968	965	964	962	972	973	969	969	974	998	1050	1144	1182	1233	1188	1205	1179	1079	1034	1009	968	1038
8 D	969	932	910	936	879	819	844	933	974	988	1004	1020	1019	1009	1004	1007	1027	1016	1004	1003	984	986	986	981	968
9	974	967	970	979	981	984	983	986	988	992	990	984	981	984	997	1005	1007	998	991	988	991	979	971	974	985
10	970	955	961	968	968	976	982	989	992	986	980	980	981	991	1007	1009	1004	999	998	999	1001	971	975	978	984
11	974	958	966	969	969	968	971	969	972	972	971	972	983	989	999	1009	1009	1009	1006	1001	989	985	982	982	982
12	982	982	984	982	982	982	982	983	981	980	978	974	975	978	984	988	986	981	979	979	980	975	976	975	980
13	976	976	978	978	978	977	979	982	982	978	974	973	971	972	975	978	978	975	975	979	980	976	971	968	976
14 Q	969	972	972	974	974	974	974	979	981	981	974	968	964	963	969	975	975	974	974	974	973	974	974	974	973
15 Q	972	972	972	972	973	974	974	976	976	973	968	966	968	968	972	979	981	981	981	982	983	983	979	974	975
16	969	963	958	961	968	970	973	975	975	970	963	958	956	967	985	993	998	999	1004	1009	1001	995	979	965	977
17	951	956	964	972	975	978	979	979	978	974	974	969	969	974	976	979	981	981	980	978	976	975	974	974	974
18	973	973	972	972	972	971	970	974	974	971	969	968	965	966	971	975	976	974	976	979	977	972	968	968	972
19	969	968	964	964	965	964	965	969	969	968	964	965	967	968	969	974	972	971	974	974	975	978	969	962	969
20	958	965	965	967	966	965	953	953	959	962	966	972	974	974	976	984	983	978	979	985	975	973	973	971	970
21 Q	972	973	971	972	972	972	970	973	973	971	967	967	969	972	972	974	975	979	978	974	974	974	968	968	972
22	970	971	971	971	970	970	972	974	974	969	968	968	966	968	971	975	972	969	969	971	977	976	973	973	971
23	973	968	968	968	968	965	968	970	972	968	965	970	974	975	980	992	992	990	992	988	988	982	956	945	974
24	952	961	967	968	967	967	969	972	971	971	972	974	979	986	1004	1025	1014	1005	991	985	986	987	976	895	977
25 D	899	927	923	932	958	968	971	975	976	976	985	982	997	1014	1002	1002	1004	1002	997	985	972	936	923	933	968
26 D	944	945	933	932	936	940	949	961	966	971	979	983	985	1008	1041	1029	1050	1056	1011	986	986	957	939	962	977
27	963	963	927	946	952	942	949	962	974	974	973	983	1010	1004	1002	1021	1030	1017	1008	1001	984	975	967	962	979
28	946	957	956	958	962	972	975	976	981	982	982	985	993	1015	1005	1012	1019	1005	1001	994	982	979	977	972	983
29	974	974	969	974	977	977	979	985	991	989	986	979	979	980	985	991	988	987	985	992	992	986	979	978	982
30	968	945	956	968	974	975	976	979	979	973	968	968	968	972	976	981	981	980	979	979	978	978	979	979	973
31 Q	977	975	975	975	975	974	975	975	974	974	973	972	974	974	974	979	976	975	974	974	974	975	975	979	975
Mean	961	961	961	961	959	960	966	973	976	975	974	974	977	983	991	997	1001	998	994	992	985	978	970	965	976

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS
MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

150 ESKDALEMUIR — OCTOBER, 1938

Day	Terrestrial Magnetic Elements: Horizontal Force: Maximum 16,000 γ+			Horizontal Force: Minimum 16,000 γ+			Horizontal Force: Range	Declination: Maximum 13° +			Declination: Minimum 13° +			Declination: Range	Vertical Force: Maximum 44,000 γ+			Vertical Force: Minimum 44,000 γ+			Vertical Force: Range	$HR_H + VR_V$ § / 10,000γ²	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	h	m	γ	γ	h	m	γ	h	m	′	′	h	m	′	h	m	γ	γ	h	m	γ			°A
1 D	20	20	576	344	0	3	232	0	12	24·9	-11·9	4	22	36·8	19	2	998	767	4	1	231	1420	2	87·1
2	22	11	558	448	11	11	110	13	40	21·5	6·8	18	22	14·7	16	24	1004	939	0	1	65	473	1	87·1
3	16	53	519	439	21	49	80	11	48	20·0	4·0	20	38	16·0	17	1	1005	938	22	22	67	433	1	87·1
	1	18)																						
4	21	31)	521	436	12	18	85	14	6	23·0	8·5	3	41	14·5	18	48	988	945	1	28	43	333	0	87·0
5 Q	23	2	522	462	11	20	60	12	50	20·4	9·7	9	13	10·7	8	15	984	956	12	21	28	225	0	86·9
6	6	43	537	456	11	19	81	12	42	22·1	9·5	8	52	12·6	8	40	981	956	12	3	25	246	0	87·0
7 D	18	24	1044	345	23	34	699	18	19	81·9	-16·1	20	4	98·0	16	23	1323	956	23	29	367	2801	2	87·0
	5	0)																						
8 D	5	11)	527	287	6	18	240	6	30	26·4	-5·1	4	45	31·5	16	46	1035	803	5	32	232	1438	2	87·0
9	21	33	551	435	10	22	116	13	33	22·5	2·2	21	0	20·3	16	19	1009	964	1	50	45	393	1	87·0
10	21	5	577	455	10	43	122	13	7	23·8	6·0	21	0	17·8	14	59	1011	950	1	30	61	475	1	87·0
11	1	33	529	467	10	30	62	13	2	26·6	9·5	3	10	17·1	15	51	1011	956	1	32	55	349	0	86·9
12	21	15	541	464	10	0	77	13	11	22·7	7·7	21	40	15·0	15	42	989	974	11	20	15	194	0	87·0
13	22	0	548	457	10	34	91	14	14	22·8	7·8	8	30	15·0	8	6	984	967	23	10	17	226	0	87·0
14 Q	21	9	529	461	11	48	68	13	27	21·9	8·4	8	49	13·5	8	31	982	962	13	18	20	202	0	86·9
15 Q	5	0	528	466	11	17	62	13	56	25·1	9·5	8	31	15·6	21	35	985	964	11	50	21	196	0	86·9
16	2	30	534	447	12	40	87	12	31	27·4	1·5	23	4	25·9	19	13	1010	954	12	23	56	395	1	86·9
												0	50)											
17	23	15	529	464	10	10	65	12	48	23·5	8·6	1	30)	14·9	16	53	983	949	0	33	34	260	0	86·9
18	21	19	541	483	10	22	58	13	46	19·8	8·4	23	53	11·4	19	20	981	964	12	51	17	172	0	86·9
19	21	53	541	489	13	16	52	13	0	23·5	6·7	0	57	16·8	21	18	980	956	24	0	24	194	0	86·9
20	6	55	545	472	12	23	73	12	0	22·2	2·1	19	33	20·1	19	22	987	951	6	57	36	282	1	86·8
												8	21)											
21 Q	22	21	549	477	13	10	72	12	30	21·0	11·2	8	33)	9·8	17	34	979	964	11	10	15	186	0	86·9
	19	47)																						
22	21	21)	533	480	9	52	53	12	37	23·5	6·3	21	21	17·2	20	49	982	964	12	36	18	168	0	86·8
23	22	30	599	459	11	47	140	12	45	28·4	6·5	22	24	21·9	16	0	998	939	23	8	59	496	1	86·8
24	14	50	526	369	23	15	157	14	44	29·1	-5·7	24	0	34·8	15	0	1035	879	23	40	156	959	1	86·8
25 D	21	8	617	432	10	50	185	13	0	30·7	-6·6	0	6	37·3	13	24	1015	887	0	1	128	880	1	86·8
26 D	18	20	563	406	22	14	157	13	37	28·2	-1·7	21	52	29·9	16	48	1074	904	22	6	170	1022	2	86·7
27	20	35	540	414	11	45	126	12	33	27·3	0·1	19	8	27·2	15	55	1038	916	2	38	122	756	1	86·5
28	19	35	526	440	12	39	86	12	20	23·6	-0·3	0	43	23·9	16	10	1023	943	0	23	80	501	1	86·4
	17	56)																						
29	18	10)	532	458	11	25	74	13	50	19·4	7·7	17	43	11·7	20	0	995	968	2	30	27	243	0	86·4
30	1	23	552	466	10	50	86	13	40	20·1	9·6	8	56	10·5	16	0	982	939	1	40	43	335	0	86·3
															15	33)								
31 Q	19	26	524	489	11	17	35	12	25	17·9	10·1	9	10	7·8	23	40)	979	971	11	0	8	94	0	86·1
Mean	—	—	560	441	—	—	119	—	—	25·5	3·9	—	—	21·6	—	—	1011	937	—	—	74	527	0·61	86·8
No. of Days Used	—	—	31	31	—	—	31	—	—	31	31	—	—	31	—	—	31	31	—	—	31	31	31	31

§ For explanation see p. 95.

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

151 ESKDALEMUIR (H) — 16,000 γ (·16 C.G.S.unit) + — NOVEMBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	511	514	517	514	513	512	511	509	504	400	495	496	504	507	492	508	507	512	517	521	523	524	525	522	511
2	523	524	524	525	523	521	520	520	512	498	485	487	487	502	520	512	505	512	516	520	522	524	521	517	513
3 Q	517	516	516	516	520	520	518	516	508	498	491	493	502	503	501	501	509	515	515	521	522	515	520	520	511
4	520	516	514	516	519	520	518	519	516	507	496	499	499	510	513	506	505	516	518	518	515	520	517	520	513
5	522	523	520	518	520	520	520	516	507	498	492	494	502	510	507	501	494	512	518	520	523	520	519	519	512
6	522	517	516	515	520	516	524	520	510	496	485	488	490	493	500	503	507	512	514	514	519	506	516	519	509
7	519	518	519	519	520	521	523	518	500	488	481	482	491	496	501	503	509	512	515	507	510	497	503	515	507
8 D	516	523	515	523	536	528	520	518	507	498	490	486	491	493	496	499	484	483	496	503	493	479	454	452	499
9 D	479	443	482	500	519	491	479	503	486	461	456	441	439	464	465	471	495	499	480	468	481	490	493	490	478
10	468	471	476	486	491	494	492	486	473	462	458	462	474	482	486	490	494	498	502	505	503	499	501	507	486
11	499	499	499	502	506	508	507	507	499	490	479	482	486	494	491	495	502	508	508	510	505	504	512	510	500
12 Q	509	508	512	513	515	517	518	517	507	492	483	483	490	498	507	510	515	520	521	523	523	521	521	519	510
13 Q	517	518	514	513	515	517	518	512	503	492	481	482	487	495	503	509	513	518	521	523	523	523	520	519	510
14	519	519	519	519	519	522	524	523	515	501	491	493	498	509	523	526	527	534	514	494	499	496	494	481	511
15	486	483	486	489	495	498	498	495	492	483	474	471	478	490	499	508	514	517	514	512	515	506	488	499	495
16	498	501	499	502	505	511	514	514	508	499	492	488	496	506	507	507	514	520	522	522	522	524	521	539	510
17 D	502	506	508	509	513	518	523	526	522	511	495	500	525	511	494	478	481	474	481	481	471	478	489	493	500
18	507	501	500	507	513	510	506	507	502	498	483	477	481	498	498	496	502	502	506	498	494	498	495	505	499
19	507	514	509	506	513	517	513	513	498	493	458	473	489	495	499	502	506	506	501	498	507	509	510	513	502
20	514	514	515	516	519	522	518	523	511	479	478	479	483	493	491	500	501	505	507	515	511	511	511	514	505
21 D	518	518	519	517	522	525	525	522	518	503	476	485	497	511	486	498	497	474	489	485	502	497	498	505	504
22	502	502	509	490	509	513	502	496	496	482	477	478	478	486	482	485	495	500	501	498	498	505	505	503	495
23	509	509	501	510	505	509	518	503	501	507	485	486	485	494	489	482	494	507	511	513	510	504	493	502	501
24	507	510	509	511	515	522	505	514	506	497	489	483	492	493	473	498	495	485	465	485	469	467	470	478	493
25	489	494	490	504	497	502	506	509	506	503	481	481	477	481	488	493	479	490	506	510	515	511	502	506	497
26 D	507	504	526	506	508	517	501	498	501	479	473	485	464	478	485	497	485	514	506	499	499	494	504	507	497
27	501	499	507	512	506	517	514	513	509	498	481	495	489	498	502	505	510	513	517	515	515	517	511	520	507
28 Q	512	512	513	515	519	522	521	513	507	498	497	497	490	497	497	504	510	511	517	521	521	521	519	517	510
29	518	518	525	521	521	525	527	524	515	492	484	489	496	502	509	511	515	519	523	521	518	536	506	507	513
30 Q	516	512	514	517	521	521	524	521	516	504	494	493	497	501	511	515	521	523	525	525	521	521	520	517	515
Mean	508	507	509	510	514	515	514	513	505	494	483	484	489	496	497	500	503	507	508	508	508	507	505	506	504

MAGNETIC DECLINATION (West)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

152 ESKDALEMUIR (D) — 13° + — NOVEMBER, 1938

Hour	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	10·5	11·4	11·2	11·3	12·1	12·5	12·5	12·1	11·1	11·2	13·5	18·0	21·5	21·3	20·6	17·2	16·1	15·4	14·7	14·5	14·3	14·1	13·5	13·4	14·3
2	13·4	13·4	13·4	13·4	13·3	13·1	12·8	12·2	10·8	10·4	13·3	15·6	16·8	17·9	19·8	19·0	19·1	16·4	15·3	15·1	14·2	14·1	13·3	13·3	14·8
3 Q	12·6	12·8	12·6	12·8	13·0	12·6	12·4	12·4	11·2	11·1	13·3	16·2	18·8	18·8	16·8	15·3	15·4	15·3	15·2	14·5	14·4	11·8	12·5	13·2	14·0
4	13·1	12·8	13·1	13·0	12·8	12·4	12·0	12·2	11·2	11·2	12·5	16·4	17·0	18·3	18·3	16·7	15·8	15·8	16·8	15·3	10·9	12·4	13·0	12·8	14·0
5	14·1	14·0	13·3	14·0	13·1	12·5	12·4	12·1	11·5	12·4	15·1	16·4	18·0	18·7	17·9	16·7	14·8	15·1	15·4	15·0	14·4	14·1	13·5	13·3	14·5
6	12·6	13·3	13·2	13·3	12·8	12·3	11·5	11·8	11·4	11·7	14·2	17·8	20·2	20·1	18·8	17·9	17·1	16·7	16·1	15·3	11·2	11·8	12·4	12·3	14·4
7	12·5	13·3	13·4	13·0	12·7	12·5	12·8	11·4	10·5	11·4	15·0	17·7	19·5	19·9	19·1	17·9	17·1	16·8	17·1	15·4	10·6	11·1	11·0	12·4	14·3
8 D	12·9	14·2	12·6	16·4	14·2	12·1	14·1	13·3	13·3	15·4	18·9	21·7	25·0	25·3	26·6	26·5	25·3	18·8	17·0	13·0	11·0	7·8	3·9	0·6	15·8
9 D	1·3	3·0	14·3	12·5	11·8	12·5	11·6	15·4	13·1	9·8	13·5	19·0	21·8	23·2	22·3	23·0	10·4	23·3	24·5	12·5	10·0	10·8	11·7	6·0	14·1
10	2·0	5·1	11·7	11·0	11·9	12·5	12·5	12·1	11·9	12·2	14·1	16·0	16·3	16·7	16·0	15·6	15·2	15·1	14·3	14·1	13·3	12·5	11·4	11·1	12·7
11	11·7	11·7	12·1	12·5	12·8	12·8	12·5	12·4	12·0	11·5	13·1	15·9	16·8	17·8	17·1	16·4	16·1	15·4	11·9	12·6	13·1	11·3	11·5	11·6	13·4
12 Q	11·5	13·1	13·6	13·5	13·2	12·5	12·4	12·4	11·7	12·1	13·7	16·1	17·1	17·2	16·6	16·1	16·1	15·9	15·3	15·0	14·2	13·3	13·2	13·0	14·1
13 Q	12·5	12·5	12·3	12·0	12·4	12·5	12·0	12·0	11·4	11·3	12·5	15·2	17·2	18·1	17·9	16·6	16·1	15·6	14·9	14·4	13·8	13·5	12·9	12·6	13·8
14	13·1	13·1	13·4	13·3	13·3	13·1	12·8	12·0	11·5	11·0	12·6	15·2	17·1	18·1	19·8	20·2	22·0	28·2	32·1	20·0	13·2	9·5	10·4	5·7	15·4
15	5·5	7·7	11·6	11·2	12·2	11·6	12·1	12·2	11·3	11·0	12·3	14·1	15·8	16·8	16·3	15·9	15·3	15·5	15·6	15·4	15·0	13·2	8·9	9·7	12·8
16	10·4	10·9	11·5	11·7	12·1	12·1	11·9	11·9	11·5	11·7	13·6	15·1	16·6	16·5	16·2	16·3	15·3	15·2	14·4	13·7	13·3	13·2	12·5	9·5	13·2
17 D	9·2	9·4	10·9	10·4	9·7	9·8	10·2	10·7	10·8	11·8	13·5	15·5	20·8	20·9	23·2	12·9	21·9	18·4	11·8	9·5	3·0	9·6	6·7	11·2	12·6
18	13·9	14·1	14·1	15·3	14·2	14·7	13·6	13·1	12·7	14·2	14·2	19·4	18·9	16·2	17·1	15·9	15·0	14·3	11·5	11·1	4·8	8·4	10·9	13·3	13·8
19	15·5	16·8	17·1	14·1	12·4	11·8	12·5	12·5	11·6	13·2	14·1	17·1	17·4	17·9	17·7	16·3	15·3	14·1	13·2	12·3	13·1	12·7	12·4	12·7	14·3
20	14·3	13·6	12·7	12·6	12·4	12·4	13·7	12·7	12·5	13·3	15·5	18·0	19·0	20·0	19·0	16·3	17·2	18·0	15·9	13·5	13·0	12·4	12·3	12·5	14·7
21 D	13·2	13·3	13·3	12·5	12·6	12·8	12·6	12·5	13·0	14·9	16·1	20·7	21·2	23·7	21·8	18·9	18·9	12·6	9·5	9·6	9·6	1·4	9·6	12·2	14·0
22	12·8	12·3	11·5	11·4	8·9	11·7	13·4	18·8	15·4	13·3	14·1	16·3	18·1	17·6	18·2	17·0	14·2	12·9	13·0	12·8	11·6	11·6	10·4	8·4	13·6
23	9·0	8·1	8·2	9·1	10·5	11·7	13·6	15·7	13·3	13·5	13·4	15·9	16·3	18·0	17·5	15·4	13·3	13·3	14·0	13·2	12·5	8·6	6·1	11·7	12·6
24	12·3	13·3	15·1	14·1	12·4	12·3	15·5	14·8	13·8	12·5	15·9	16·0	17·1	16·8	17·2	17·2	14·2	14·4	10·5	11·2	8·6	4·9	4·0	5·5	12·9
25	9·6	12·4	12·3	11·4	12·5	12·5	12·9	13·2	12·3	13·4	14·2	17·1	18·0	18·1	17·0	16·3	10·4	14·5	14·2	12·5	12·5	12·3	10·9	11·1	13·4
26 D	12·5	13·1	11·6	9·5	11·8	11·8	16·2	26·4	16·3	13·8	14·2	17·9	19·1	18·8	19·3	17·1	14·1	11·2	13·1	11·1	9·6	10·4	11·0	11·6	14·2
27	10·4	13·4	12·6	13·2	14·1	13·3	13·2	12·3	11·5	10·8	11·7	14·4	15·5	17·1	15·9	14·3	14·2	14·1	13·2	13·3	13·0	12·5	11·7	12·0	13·2
28 Q	12·5	12·6	13·1	13·3	13·3	13·4	13·2	12·0	12·0	11·9	14·1	16·6	17·8	17·3	16·3	15·7	14·9	13·2	13·0	13·1	12·8	12·6	13·5	12·6	13·7
29	12·8	12·8	14·9	12·2	12·1	11·9	10·8	10·7	10·8	10·4	11·7	14·1	16·2	16·1	16·5	15·2	14·7	15·0	13·6	13·6	13·1	9·9	9·4	11·3	12·9
30 Q	10·6	10·4	13·1	13·1	12·5	12·4	12·0	11·7	11·2	11·4	11·8	14·2	15·9	16·1	16·1	15·2	14·9	14·5	14·1	14·1	13·1	13·1	12·6	12·5	13·2
Mean	11·3	11·9	12·8	12·6	12·4	12·4	12·7	13·2	12·1	12·1	13·9	16·7	18·2	18·6	18·4	17·0	16·0	15·8	15·0	13·6	11·9	11·2	10·9	11·0	13·8

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

153 ESKDALEMUIR (V) — 44,000 γ (·44 C.G.S.unit) + — NOVEMBER, 1938

	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	980	978	975	974	973	974	976	976	976	972	970	970	973	978	980	978	976	976	976	974	974	974	974	974	975
2	974	973	972	972	972	972	972	973	975	972	972	970	969	969	977	982	984	980	978	977	977	976	976	976	975
3 Q	976	976	975	975	975	975	974	975	975	975	972	969	970	975	980	978	975	975	975	975	975	977	976	975	975
4	975	975	975	975	975	975	974	972	972	969	968	965	969	968	972	975	978	975	975	977	980	978	976	974	974
5	970	969	969	969	970	970	971	974	975	970	969	969	970	973	979	980	982	979	975	975	974	974	975	975	973
6	970	969	969	969	969	969	969	970	971	972	974	972	974	976	978	980	980	977	976	978	980	979	976	975	974
7	973	972	971	971	971	970	969	969	973	971	970	970	973	975	976	976	976	976	977	983	986	986	985	978	975
8 D	975	967	964	957	951	954	957	958	961	961	963	970	976	993	1016	1032	1040	1031	1016	1010	1008	1010	992	934	983
9 D	908	947	945	944	943	945	956	958	965	974	975	978	992	1003	1012	1046	1055	1028	1041	1041	1018	1006	1002	1002	987
10	992	975	952	964	974	976	981	982	982	982	981	981	981	981	984	986	986	983	982	982	982	982	983	981	980
11	982	982	982	981	981	981	981	981	983	983	980	976	974	975	979	980	982	982	982	981	981	981	978	976	980
12 Q	975	976	975	976	977	976	975	975	975	976	975	974	973	974	975	975	975	975	975	975	975	975	975	975	975
13 Q	975	975	975	975	975	975	975	976	978	977	975	974	975	975	977	979	977	976	975	975	975	974	975	972	975
14	972	971	970	971	972	972	972	972	974	975	975	973	973	974	974	976	977	986	1029	1085	1082	1046	1022	1006	992
15	986	983	986	987	986	986	984	985	985	983	982	980	980	980	981	982	981	981	980	981	982	989	989	988	984
16	987	986	983	981	980	979	977	976	977	980	979	977	975	975	975	976	977	976	976	976	976	975	976	970	978
17 D	973	976	975	974	973	971	969	969	969	969	970	966	966	973	990	1040	1019	1034	1035	1013	998	975	957	972	984
18	966	969	970	971	973	975	976	977	979	976	976	976	982	983	981	982	982	982	983	985	987	980	979	974	978
19	969	963	955	962	969	970	970	970	975	973	977	979	981	980	981	980	981	981	983	986	982	981	979	975	975
20	970	970	970	970	970	970	969	968	972	975	975	977	980	983	993	995	993	992	991	986	982	981	981	979	979
21 D	976	975	974	973	971	970	969	970	969	967	970	970	973	981	1006	1003	1000	1023	1022	1012	981	973	975	979	983
22	980	980	972	958	950	962	964	963	963	970	975	975	979	987	993	995	993	989	987	988	985	981	978	974	977
23	965	947	950	947	946	957	962	963	969	970	975	972	973	976	986	993	995	990	983	979	977	976	975	976	971
24	975	975	975	972	973	970	969	965	966	970	970	974	979	985	995	1000	1012	1030	1034	1009	1006	1006	994	983	987
25	977	977	981	976	980	981	980	980	980	977	974	975	980	986	988	991	1006	1000	988	983	980	976	977	976	982
26 D	975	973	952	956	964	968	967	952	953	964	972	977	990	987	990	996	1004	1000	990	989	989	986	981	973	977
27	966	969	970	973	975	974	975	975	976	975	975	974	974	973	977	980	981	980	977	976	975	974	975	971	975
28 Q	970	971	973	972	971	970	969	970	971	973	975	975	975	976	976	977	979	979	978	975	974	972	972	971	973
29	969	969	965	969	969	968	968	969	971	975	970	968	966	968	970	973	972	972	973	974	975	970	974	975	971
30 Q	973	972	970	970	970	969	969	969	968	966	963	964	966	966	969	970	970	970	969	970	973	972	971	970	969
Mean	972	972	970	969	970	971	971	971	973	973	973	973	975	978	984	989	990	989	989	989	986	983	980	976	978

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS: MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

154 ESKDALEMUIR — NOVEMBER, 1938

Day	Terrestrial Magnetic Elements: Horizontal Force: Maximum 16,000 γ+			Horizontal Force: Minimum 16,000 γ+			Horizontal Force: Range	Declination: Maximum 13° +			Declination: Minimum 13° +			Declination: Range	Vertical Force: Maximum 44,000 γ+			Vertical Force: Minimum 44,000 γ+			Vertical Force: Range	HR_H+VR_V §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
																						10,000γ²		
	h	m	γ	h	m	γ	γ	h	m	′	′	h	m	′	h	m	γ	h	m	γ	γ			
1	19	24	532	14	39	487	45	13	21	23·4	10·1	0	9	13·3	14	0	981	969	11	42)	12	128	0	86·1
2	21	40	528	10	38	481	47	14	7	22·0	9·8	9	5	12·2	16	4	986	969	13	10	17	154	0	86·0
3 Q	20	11	528	11	11	488	40	13	3	19·6	10·6	9	18	9·0	14	57	980	969	12	0	11	115	0	85·9
	21	40)						13	3)															
4	21	49)	528	10	36	493	35	14	8)	19·0	8·4	20	46	10·6	20	26	982	964	11	30	18	139	0	85·8
5	1	22	526	16	37	486	40	12	51	19·2	11·4	8	48	7·8	16	52	984	969	9	56	15	133	0	85·8
6	20	51	534	11	0	482	52	12	58	21·8	9·0	20	30	12·8	20	22	982	968	4	29	14	149	0	85·8
				11	2)																			
7	6	53	527	11	7)	479	48	12	51	20·4	7·6	20	48	12·8	20	31	987	967	6	59	20	169	0	85·7
8 D	4	42	543	23	47	412	131	16	33	32·1	-10·3	23	23	42·4	16	4	1058	881	23	50	177	1011	2	85·6
9 D	0	1	535	11	58	418	123	15	25	28·2	-5·8	0	58	34·0	16	10	1082	879	0	3	203	1114	1	85·6
10	23	10	515	2	0	448	67	11	27	18·0	-0·5	0	36	18·5	0	1	1000	948	2	30	52	344	1	85·4
11	22	30	515	10	58	476	39	13	30	18·1	10·6	18	43	7·5	9	0	985	973	12	30	12	118	0	85·4
12 Q	20	13	524	11	20	482	42	13	2	17·6	10·7	0	1	6·9	5	13	977	972	13	0	5	91	0	85·3
13 Q	19	49	524	10	37	478	46	13	50	18·9	11·0	9	15	7·9	8	55	980	972	11	50	8	112	0	85·3
14	18	20	547	23	12	470	77	18	27	36·7	2·8	23	19	33·9	20	8	1091	970	1	42	121	670	1	85·2
15	21	42	538	22	9	470	68	21	50	17·9	3·1	0	17	14·8	21	32	996	979	11	40	17	188	0	85·1
16	23	30	582	11	18	486	96	12	42	18·3	6·7	23	30	11·6	0	20	989	964	23	35	25	270	0	85·1
17 D	12	18	556	20	55	448	108	12	19	28·1	-4·6	20	43	32·7	15	19	1058	950	22	30	108	663	1	85·1
								11	38)															
18	4	28	520	12	46	464	56	12	18)	21·4	1·1	20	20	20·3	20	30	991	963	0	32	28	218	0	85·1
19	1	42	528	10	42	454	74	12	57	19·9	10·8	18	48)	9·1	19	10	986	952	2	35	34	275	0	85·0
20	7	36	528	10	6	469	59	14	16	21·8	11·5	21	50	10·3	15	5	999	967	6	59	32	241	0	84·9
21 D	20	4	547	21	0	437	110	14	15	27·6	-3·8	21	11	31·4	17	53	1039	966	9	3	73	509	1	84·9
	5	47)																						
22	5	54)	526	454	3	33	72	7	43	20·9	6·3	4	0	14·6	15	1	998	940	3	58	58	379	1	84·9
23	0	56	542	476	12	6	66	13	47	20·7	3·1	22	29	17·6	16	29	997	944	4	6	53	347	0	84·8
24	17	18	526	432	18	11	94	17	20	21·1	1·3	22	57	19·8	17	22	1047	963	7	49	84	532	1	84·8
25	20	29	518	465	16	26	53	11	56	19·7	7·3	0	6	12·4	16	35	1012	972	1	6	40	267	0	85·1
26 D	17	13	555	453	11	45	102	7	22	29·6	2·3	17	9	27·3	17	4	1010	946	2	50)	64	455	1	85·0
																			8	0)				
27	23	42	538	471	11	17	67	13	20	18·1	8·8	0	21	9·5	15	56	982	963	0	2	19	196	0	84·9
28 Q	5	54	526	484	12	28	42	12	54	18·2	11·2	8	37	7·0	18	4	980	969	6	0	11	118	0	84·8
															21	30)								
29	21	22	560	484	10	30	76	14	18	17·1	7·8	21	8	9·3	21	4	976	963	2	25	13	183	0	84·8
30 Q	19	10	530	490	11	0	40	14	33	16·3	7·7	1	3	8·6	0	1	975	963	11	14	12	120	0	84·8
Mean	--	--	534	467	--	--	67	--	--	21·7	5·5	--	--	16·2	--	--	1003	958	--	--	45	314	0·33	85·3
No. of Days Used	--	--	30	30	--	--	30	--	--	30	30	—	--	30	--	--	30	30	--	--	30	30	30	30

§ For explanation see p. 95

TERRESTRIAL MAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

155 ESKDALEMUIR (H) 16,000 γ (.16 C.G.S.unit) + DECEMBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 Q	517	517	517	519	520	521	521	517	517	513	513	513	513	516	517	521	527	532	533	533	532	530	526	522	521
2 D	521	523	525	525	527	529	529	530	523	511	511	514	508	512	514	509	508	523	510	476	453	448	441	434	504
3 D	427	434	468	485	485	501	501	494	476	466	468	472	484	492	498	502	502	473	467	487	480	481	476	477	479
4	479	577	483	483	492	489	489	490	488	486	482	480	481	484	490	493	501	507	509	508	516	509	509	504	493
5	501	496	493	497	501	505	507	508	507	498	494	488	471	486	495	508	508	509	509	510	513	513	512	509	502
6	510	514	512	513	516	513	513	512	508	506	508	502	506	509	508	510	514	516	517	510	512	513	506	511	511
7	512	512	514	514	516	514	516	515	512	509	504	498	498	503	509	512	517	513	517	525	525	521	521	518	513
8 Q	517	517	520	521	523	526	525	525	521	514	505	504	506	510	514	518	521	525	526	525	522	523	523	522	519
9	521	522	523	524	526	534	540	538	537	526	517	517	518	525	529	530	545	527	501	497	501	493	495	490	520
10 D	496	493	497	503	504	509	509	513	508	504	491	487	501	503	503	492	506	485	504	455	487	476	470	468	494
11	475	475	475	475	482	483	484	486	487	481	470	471	475	483	489	499	501	508	508	505	505	503	504	499	488
12	499	496	495	496	500	501	500	498	504	500	492	488	477	483	505	502	499	508	511	509	507	510	508	503	500
13	509	497	503	501	502	512	513	507	509	507	501	495	500	506	508	512	509	517	521	518	501	492	500	505	506
14	502	498	505	501	500	502	507	508	509	504	497	498	498	498	507	514	516	507	504	487	487	496	506	507	502
15	509	505	504	501	509	516	508	515	512	508	509	508	509	508	503	509	516	515	516	509	516	513	515	509	510
16 D	507	509	512	516	518	522	520	523	520	533	524	509	512	509	507	511	523	483	496	485	473	479	470	432	504
17	456	485	487	496	520	523	510	493	466	472	478	472	470	473	482	484	493	491	495	492	491	490	496	516	489
18 D	472	496	498	497	507	504	509	499	489	498	496	474	462	473	492	484	494	454	440	452	456	480	479	485	483
19	491	491	490	500	498	500	505	499	475	477	471	467	470	472	467	468	482	470	451	455	470	474	488	488	480
20	479	489	494	487	505	506	508	507	497	491	493	490	487	483	488	478	486	486	468	484	487	474	491	498	490
21	500	500	502	505	511	513	517	508	497	495	497	484	483	494	490	501	505	508	511	513	511	509	512	511	503
22	512	512	510	520	530	531	498	480	463	466	481	471	467	485	482	482	479	481	480	484	487	490	486	498	491
23	501	498	501	502	502	503	501	500	496	493	493	490	491	489	495	501	503	504	506	507	510	506	516	503	500
24 Q	499	500	501	509	511	513	512	506	500	499	499	501	503	502	502	506	509	510	513	513	507	506	502	503	505
25	506	508	510	510	513	515	515	512	512	508	505	510	515	515	506	505	512	513	516	514	512	511	512	513	511
26 Q	512	513	512	517	519	519	520	519	517	513	508	508	511	517	520	520	519	521	524	522	520	521	519	518	517
27	516	516	516	515	515	516	519	517	515	512	509	506	508	514	521	522	524	525	526	524	523	522	514	502	517
28	507	513	514	514	515	519	519	519	517	513	407	504	511	518	520	516	516	521	526	524	523	517	515	518	516
29	521	521	521	523	525	255	527	525	521	512	504	505	512	517	518	518	518	519	523	521	519	518	511	505	518
30	510	512	515	512	515	519	520	519	517	515	520	517	516	519	527	527	512	513	519	522	515	518	515	512	517
31 Q	511	515	517	517	519	522	523	523	519	517	510	505	508	515	521	519	521	523	525	524	522	519	518	515	518
Mean	500	502	504	506	511	513	512	510	504	502	499	495	496	500	504	506	509	506	506	503	503	502	502	500	504

MAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

156 ESKDALEMUIR (D) 13° + DECEMBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1 Q	12·5	12·8	12·9	12·7	12·5	12·3	12·4	12·3	12·2	12·2	13·6	14·6	15·3	15·2	15·3	15·5	14·5	14·2	14·1	13·9	13·3	12·5	12·5	12·5	13·4
2 D	12·5	13·2	13·3	13·6	13·6	13·3	12·6	12·3	12·1	13·6	15·4	17·2	19·3	21·9	23·6	24·6	25·5	28·3	31·0	25·0	9·4	-3·6	6·7	2·1	15·7
3 D	0·4	1·4	2·5	1·2	3·4	8?·7	14·2	15·8	14·1	14·5	14·8	17·2	19·3	22·0	25·0	28·2	30·4	30·0	19·9	16·1	6·5	11·4	9·5	9·5	14·0
4	1·6	7·7	9·3	9·5	13·2	10·8	11·4	11·5	11·3	12·1	12·5	14·1	14·7	15·3	15·2	14·3	14·2	14·1	13·6	13·2	12·9	13·0	12·0	11·6	12·0
5	12·0	12·2	11·6	9·4	9·0	8·7	10·5	11·2	11·1	11·3	14·0	17·9	19·3	20·7	18·2	16·6	17·2	14·4	13·5	12·4	11·9	11·5	11·4	11·3	13·2
6	11·1	10·8	11·8	12·2	11·4	11·7	12·2	11·4	11·3	11·4	13·0	13·9	15·5	15·4	15·4	15·4	15·0	14·0	14·2	12·4	8·7	8·7	10·4	11·7	12·5
7	11·8	11·8	11·9	12·3	11·4	12·1	11·9	11·4	11·4	12·0	12·8	13·5	14·9	15·1	15·2	15·3	14·7	12·7	10·1	13·1	12·9	12·5	12·4	12·3	12·7
8 Q	12·5	12·6	13·0	13·0	12·8	12·3	12·1	11·7	11·1	10·5	12·1	13·7	15·1	15·6	16·0	15·8	14·6	14·1	13·5	13·3	12·8	12·5	12·3	12·2	13·1
9	12·5	12·6	13·0	13·3	13·1	13·3	12·8	12·4	12·1	10·5	11·2	12·6	14·3	15·4	16·4	16·3	16·1	16·4	16·1	15·3	11·1	9·5	9·0	7·4	13·0
10 D	10·4	11·1	10·5	12·0	11·9	11·8	12·3	12·3	11·2	10·7	12·1	13·2	16·4	17·2	16·9	21·4	20·5	15·3	19·7	6·5	3·9	7·5	9·7	5·6	12·5
11	10·5	9·5	13·1	13·6	12·0	12·4	11·8	11·6	11·7	11·2	13·1	13·8	15·6	16·1	16·3	15·9	14·3	14·1	13·1	12·4	12·1	10·5	11·7	11·3	12·8
12	11·4	10·5	11·5	10·8	11·4	9·5	10·6	11·4	11·7	10·5	12·0	15·2	16·4	16·3	17·8	16·4	14·5	13·3	12·7	12·5	12·0	11·6	11·4	10·5	12·6
13	9·0	9·8	11·3	11·4	11·2	11·0	11·1	11·6	11·9	11·4	12·6	14·1	16·2	16·0	15·6	15·3	15·4	15·0	17·6	11·6	10·5	11·9	11·0	9·5	12·6
14	9·1	10·5	9·9	10·8	10·5	10·8	11·3	12·2	11·7	12·3	11·7	15·2	14·6	16·8	17·1	16·1	18·2	19·3	15·9	10·0	8·8	10·8	11·4	12·4	12·8
15	12·0	12·3	12·3	13·3	11·4	10·5	11·7	12·6	11·7	11·2	12·2	13·3	14·6	15·6	15·6	15·4	14·7	14·5	14·9	15·2	12·6	12·4	12·3	12·4	13·1
16 D	11·8	12·2	11·6	12·3	11·7	10·8	11·6	11·5	13·3	15·6	15·3	14·2	13·3	16·4	15·6	15·7	18·9	16·7	16·0	13·2	2·5	6·6	3 2	-3·2	11·9
17	5·4	8·6	13·8	12·3	16·0	14·7	15·2	14·1	13·3	14·1	16·5	15·2	18·0	17·2	16·1	13·2	9·4	13·4	12·2	6·7	5·8	10·9	10·5	10·6	12·6
18 D	7·2	5·6	8·1	9·8	11·2	12·4	12·5	16·3	12·4	13·5	14·1	15·2	15·2	17·6	13·4	13·5	15·5	10·2	14·4	9·4	5·1	7·6	6·6	10·6	11·6
19	12·5	13·1	12·8	13·3	14·4	17·8	17·9	16·2	14·7	15·3	14·5	17·2	18·8	19·6	19·4	19·0	14·5	18·5	17·7	8·2	7·1	5·4	2·8	1·6	13·8
20	4·1	11·3	12·5	15·1	13·9	14·4	13·6	12·5	12·8	13·6	13·6	14·3	15·6	17·7	16·4	15·9	17·9	18·9	16·2	11·8	7·8	8·7	3·5	7·6	12·9
21	10·7	11·9	12·6	12·8	12·8	13·3	14·5	12·7	12·0	11·4	14·1	14·3	15·0	15·5	14·0	15·0	14·5	13·9	13·1	12·3	11·8	11·3	11·9	12·2	13·1
22	12·2	11·6	12·1	7·9	11·2	18·3	22·3	15·5	13·1	17·8	18·3	18·8	17·2	18·3	18·0	15·2	14·0	12·5	12·5	10·5	10·6	9·4	9·3	9·1	13·9
23	12·3	10·4	10·6	11·1	12·3	11·8	11·3	11·3	11·2	12·4	13·4	13·0	14·9	14·3	13·8	14·1	14·0	13·4	12·9	12·5	12·3	11·8	9·4	10·4	12·3
24 Q	11·4	11·1	11·6	11·9	11·6	11·9	11·3	11·5	11·6	12·7	13·9	14·6	14·7	14·9	15·2	14·8	14·2	14·1	13·8	13·0	11·4	11·0	11·3	11·7	12·7
25	11·2	12·6	12·1	11·7	11·3	11·1	11·6	11·5	11·8	12·6	13·8	13·5	14·1	14·0	14·1	13·7	13·9	13·6	13·1	12·6	12·3	11·8	11·5	11·7	12·5
26 Q	12·0	11·7	11·8	11·6	11·7	12·2	12·0	11·5	11·6	12·6	13·6	14·0	14·4	15·0	14·0	14·0	13·8	13·8	14·0	13·1	12·5	11·8	11·6	11·6	12·7
27	11·5	11·7	11·7	11·9	12·3	12·4	12·2	11·6	11·9	12·9	13·2	13·7	14·3	14·4	13·9	13·4	13·3	13·4	13·2	12·8	12·8	12·0	11·8	9·3	12·6
28	9·9	11·6	10·8	10·5	11·5	11·6	12·2	11·8	12·0	12·4	12·6	14·3	14·9	17·7	17·0	18·4	16·8	15·4	14·2	14·1	13·1	11·7	10·7	11·2	13·2
29	12·6	11·5	11·5	12·0	11·9	12·4	12·6	12·3	12·5	13·2	13·3	13·7	15·8	16·7	14·7	13·5	13·4	13·9	13·5	12·9	12·3	12·2	9·2	8·5	12·7
30	9·7	11·0	11·9	11·0	12·0	12·5	12·3	12·2	12·1	12·5	13·6	14·1	14·6	15·2	14·5	14·6	14·9	17·4	15·1	13·3	12·4	12·3	11·5	10·4	13·0
31 Q	9·4	11·7	12·3	12·9	12·6	12·5	12·0	11·5	11·2	11·6	12·5	14·1	15·4	15·7	14·4	13·3	13·4	13·3	12·7	12·2	11·7	12·2	12·2	10·2	12·5
Mean	10·1	10·9	11·5	11·5	11·8	12·2	12·7	12·4	12·1	12·6	13·5	14·6	15·7	16·6	16·3	16·1	15·9	15·6	15·0	12·6	10·4	10·3	10·0	9·5	12·9

Q denotes an international quiet day and D an international disturbed day.

TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at the hours of Greenwich Mean Time

157 ESKDALEMUIR (V) — 44,000 γ (44 C.G.S.unit) + — DECEMBER, 1938

Hour G. M. T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 Q	971	970	970	970	970	970	970	970	968	965	963	960	960	963	965	967	970	969	968	967	968	968	969	970	968
2 D	968	967	966	965	965	965	965	964	964	964	964	960	966	966	973	988	1001	1030	1069	1150	1125	1060	1035	1034	999
3 D	1005	994	937	936	929	930	934	942	954	961	968	977	983	988	999	1013	1030	1076	1101	1108	1109	1043	1028	1024	999
4	1020	996	991	988	982	982	985	987	987	985	983	983	986	986	987	986	984	982	982	983	983	982	982	982	986
5	982	983	983	983	981	981	981	977	978	981	978	977	986	987	987	987	988	987	983	982	982	981	981	981	982
6	979	971	973	974	974	974	974	971	970	965	965	966	968	971	973	976	976	976	976	978	981	978	977	976	973
7	976	976	976	975	973	972	971	971	970	966	965	967	968	970	971	973	974	976	976	971	970	971	971	972	972
8 Q	971	971	970	970	970	970	970	969	965	964	964	965	965	967	968	970	971	970	970	970	970	970	970	970	969
9	970	970	970	970	970	968	964	964	964	964	965	964	964	964	967	970	971	977	997	1011	1012	1006	1000	985	976
10 D	980	976	965	962	966	969	970	970	970	964	964	964	964	971	989	1039	1020	1036	1079	1072	1127	1052	1046	1026	1002
11	1006	993	990	990	989	988	988	987	985	986	987	988	984	982	984	986	987	986	984	984	984	984	982	982	987
12	982	982	982	981	981	981	978	980	977	976	970	971	975	977	981	987	987	986	983	983	982	981	981	977	980
13	965	970	976	977	978	976	976	976	973	971	971	974	976	976	977	981	981	981	983	991	989	995	995	989	979
14	987	983	980	977	978	980	978	978	976	976	977	974	971	972	980	982	983	986	993	1004	1004	994	984	981	982
15	980	977	977	976	974	974	973	970	970	970	971	973	975	972	976	977	976	979	981	984	985	987	984	983	977
16 D	982	980	977	976	974	973	971	970	964	959	959	968	965	965	972	976	978	1010	1027	1020	1023	999	998	976	982
17	945	954	972	962	947	930	947	961	974	977	986	989	990	992	993	1000	1011	1004	1000	997	992	990	986	966	978
18 D	932	950	954	959	964	969	971	971	974	977	981	982	990	993	1017	1037	1044	1087	1068	1076	1048	984	980	982	995
19	982	982	983	981	978	974	969	970	977	982	987	985	987	997	1007	1027	1042	1043	1055	1060	1043	1030	992	964	1000
20	960	968	971	971	969	976	978	979	978	980	983	982	978	983	993	998	1005	1017	1032	1017	1012	992	981	978	987
21	981	982	981	981	978	976	974	974	978	980	983	987	984	984	990	984	983	982	982	982	981	982	981	978	981
22	977	976	969	964	960	948	945	950	966	976	988	996	1011	1006	1006	1005	1004	1004	1003	1003	998	993	989	977	984
23	968	971	979	980	980	980	981	981	981	977	979	978	974	976	982	982	982	982	981	981	979	980	977	976	979
24 Q	978	980	981	978	978	977	977	977	978	977	979	979	977	976	980	981	981	981	981	979	980	981	981	981	979
25	977	976	974	976	977	976	976	976	974	974	978	978	978	976	979	981	978	980	980	979	977	976	976	976	977
26 Q	976	975	975	973	973	973	973	973	972	973	977	977	974	973	975	976	976	976	976	976	976	975	975	974	975
27	974	974	973	972	971	971	971	971	970	971	974	973	975	974	973	971	972	973	974	974	974	973	977	981	973
28	980	976	976	976	974	971	971	971	971	973	976	973	971	973	976	975	976	976	977	977	977	977	977	980	976	975
29	974	972	971	970	970	970	970	970	970	971	971	968	965	969	974	974	973	973	973	974	974	973	976	975	972
30	971	970	969	970	970	970	970	971	970	966	964	964	966	970	971	970	974	977	978	977	978	977	976	976	971
31 Q	974	971	970	970	970	970	970	970	969	966	970	968	964	968	968	968	970	970	970	970	970	970	970	970	969
Mean	977	975	974	973	971	970	971	971	972	972	974	975	975	977	982	987	989	995	999	1002	1002	990	986	982	981

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS
MAGNETIC CHARACTER FIGURES: TEMPERATURE IN MAGNET HOUSE

158 ESKDALEMUIR — DECEMBER, 1938

Day	Terrestrial Magnetic Elements																					$\frac{HR_H + VR_V}{10{,}000\gamma^2}$ §	Magnetic Character of Day (0-2)	Temperature in Magnet House 200 +
	Horizontal Force							Declination						Vertical Force										
	Maximum 16,000 γ+			Minimum 16,000 γ+			Range	Maximum 13° +			Minimum 13° +			Range	Maximum 44,000 γ+			Minimum 44,000 γ+			Range			
	h	m	γ	γ	h	m	γ	h	m	′	′	h	m	′	′	h	m	γ	γ	h	m	γ			
1 Q	19	20	541	510	10	51	31	14	58	16·1	11·9	5	47	4·2	0	1	971	958	11	58	13	109	0	84·8
2 D	17	47	538	416	21	58	122	19	15	39·7	-13·8	21	16	53·5	19	37	1177	958	11	37	219	1184	2	84·8
3 D	19	40	523	418	1	33	105	17	7	37·6	- 4·4	2	50	42·0	20	9	1153	922	4	13	231	1210	2	85·0
4	20	20	532	459	0	14	73	4 12	20) 59)	15·8	-5·5	0	36	21·3	0	10	1030	978	4	50	52	353	1	84·9
5	16	16	520	460	12	50	60	13	14	22·4	8·2	5	14	14·2	15 18	0) 30)	988	976	11	20	12	153	0	84·7
6	17	38	522	497	11	45	25	12 12	18 9)	17·2	6·7	21	19	10·5	20 0	32 40)	982	964	10	10	18	122	0	84·8
7	19	5	527	496	12	35	31	13	47)	15·7	9·4	18	20	6·3	18	31)	977	964	10	50	13	109	0	84·7
8 Q	17 16	48 28	530	501	11	31	29	14	40	16·1	10·3	9	26	5·8	0	1	973	963	10	12	10	93	0	84·6
9	16	43)	551	482	23	3	69	17	57	17·2	6·7	23 20	31 42)	10·5	20	0	1017	962	11	52	55	361	0	84·3
10 D	18	41	578	399	18	53	179	18	46	37·6	-0·4	23	27)	38·0	20	28	1150	960	3	33	190	1148	2	84·7
11	16	11	516	457	10	42	59	14 12	12 57)	17·1	6·8	8	30	10·3	0	1	1017	981	22	22	36	259	0	84·5
12	19	22	516	472	13	16	44	14	23)	18·8	8·6	5	21	10·2	15	20	988	970	11	57	18	154	0	84·5
13	19	57	535	476	20	42	59	18	40	18·8	2·9	19	48	15·9	22	10	1000	963	0	43	37	263	0	84·5
14	16	42	524	471	20	51	53	17	10	20·8	5·7	20	2	15·1	19	54	1010	970	12	2	40	267	0	84·4
15	20	54	520	496	3	15	24	14	33	16·1	10·2	9	10	5·9	21	38	987	968	8	53	19	125	0	84·2
16 D	18	28	610	415	23	49	195	18	38	23·6	-14·5	20	8	38·1	20	6	1071	957	9	57	114	834	1	84·2
17	23	55	569	391	0	13	178	5	2	21·0	-2·4	0	1	23·4	16	0	1013	917	0	33	96	725	1	84·4
18 D	17	2	594	377	17	32	217	17	27	26·9	-3·2	0	50	30·1	17	4	1148	928	0	30	220	1346	2	84·4
19	22	21	516	437	18	30	79	18	6	24·4	-3·1	22	41	27·5	18	55	1067	960	24	0	107	610	1	84·3
20	22	28	530	455	18	16	75	17	44	21·9	-3·0	22	22	24·9	18	28	1035	958	0	31	77	470	1	84·3
21	6	56	521	461	12	9	60	13	28	16·1	9·9	0	14	6·2	14	25	993	971	6	57	22	198	0	84·3
22	5	12	541	442	12	2	99	6	51	28·1	7·3	21	40	20·8	12	7	1016	932	7	3	84	540	1	84·4
23	22	28	534	481	13	57	53	0	45	16·9	6·6	22	25	10·3	15	8	983	964	0	59	19	172	0	84·2
24 Q	18	44	516	495	9	10	21	14	8	15·4	9·5	21	18	5·9	16	18	982	976	13	0	6	62	0	84·2
25	13	22	519	499	15	8	20	14	12	15·1	10·3	0	27	4·8	15	5	982	971	8	51	11	82	0	84·2
26 Q	18	21	527	507	10	54	20	13	36	15·1	11·2	3	46	3·9	10	55	978	971	8	45	7	64	0	84·2
27	19	0	528	495	23	17	33	13	8	15·0	8·6	23	23	6·4	24	0	981	970	9	0	11	103	0	84·1
28	19	0	531	499	0	1	32	15	37	18·9	8·6	0	5	10·3	0	1	981	969	11	45	12	107	0	84·2
29	4	52	530	499	10	51	31	13	32	17·7	7·3	23	5	10·4	23	18	976	964	12	50	12	105	0	84·1
30	14	17	528	502	16	40	26	17	40	18·9	9·3	0	23	9·6	18	53	981	963	10	52	18	124	0	84·1
31 Q	23	7	529	503	11	25	26	12	53	16·0	7·9	0	7	8·1	0	11	976	964	12	30	12	97	0	84·1
Mean	--	--	535	467	---	--	69	--	--	20·6	4·3	--	--	16·3	--	--	1019	961	--	--	58	373	0·45	84·4
No. of Days used	--	--	31	31	--	--	31	--	--	31	31	--	--	31	--	--	31	31	--	--	31	31	31	31

§ For explanation see p. 95.

DIURNAL INEQUALITIES OF THE GEOGRAPHICAL COMPONENTS OF MAGNETIC FORCE -, (ALL DAYS)

Departures from the mean of the 24 hourly values (uncorrected for non-cyclic change)

MONTH AND SEASON	Hour 0-1	G.M.T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
159 ESKDALEMUIR — NORTH COMPONENT (ALL DAYS) — 1938																								
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	-8·7	-12·5	-11·5	-2·9	+3·9	+7·3	+10·4	+7·7	-5·7	-9·9	-9·2	-7·2	-7·1	-0·3	+6·0	+9·4	+11·4	+13·2	+14·7	+3·3	+5·3	-7·5	-5·8	-4·4
February	+5·4	+4·4	+4·4	+7·3	+8·8	+5·9	+10·4	+9·3	+4·1	-5·1	-14·1	-19·0	-21·6	-19·0	-12·5	-4·3	-0·3	+2·3	+6·0	+3·4	+6·2	+6·8	+3·9	+7·3
March	+11·5	+0·6	+7·0	+5·4	+8·6	+10·1	+8·9	+5·6	-3·7	-14·5	-24·3	-31·5	-31·6	-19·1	-11·5	-2·4	+5·2	+10·9	+10·8	+11·8	+12·8	+9·5	+10·3	+9·5
April	+8·9	+7·7	+5·8	+5·5	+7·8	+8·3	+7·3	+4·1	-9·1	-26·8	-40·7	-45·6	-40·0	-28·6	-10·3	+8·4	+17·1	+21·0	+22·3	+22·9	+19·5	+13·9	+10·6	+9·9
May	+0·1	+4·8	+4·9	+3·8	+3·1	+3·2	-0·5	-10·1	-15·7	-23·3	-31·0	-31·7	-25·5	-15·1	-1·1	+12·7	+24·0	+35·0	+27·9	+24·9	+10·5	+1·8	+6·0	-8·5
June	+4·2	+5·8	+4·2	+3·7	+5·7	+4·7	-2·3	-11·8	-21·7	-31·8	-34·4	-29·3	-24·1	-18·4	-7·9	+0·3	+13·2	+22·3	+31·4	+30·4	+23·8	+14·4	+9·5	+8·3
July	+5·7	+5·1	+5·8	+8·1	+7·7	+4·7	-2·2	-11·1	-23·3	-32·3	-37·5	-35·8	-29·7	-24·7	-11·9	+10·1	+23·4	+30·9	+33·1	+28·6	+21·8	+11·9	+7·1	+4·9
August	+3·1	+6·3	+8·9	+8·3	+8·6	+9·3	+3·7	-8·4	-21·4	-37·5	-42·8	-40·2	-30·7	-19·4	-5·1	+4·3	+17·2	+24·2	+27·7	+26·2	+21·5	+16·3	+13·7	+5·9
September	+10·5	+4·0	+3·8	+7·6	+11·1	+12·1	+8·6	+4·7	-11·3	-22·8	-31·2	-33·0	-28·8	-18·4	-10·8	+0·1	+4·9	+7·3	+15·6	+15·3	+15·1	+14·4	+11·8	+9·5
October	+7·1	+6·6	+6·8	+8·0	+9·5	+13·9	+10·5	+4·1	-7·0	-20·9	-32·8	-36·0	-30·0	-18·8	-7·5	-1·3	+4·0	+9·3	+16·9	+14·2	+11·7	+12·6	+11·8	+7·2
November	+6·7	+5·0	+6·3	+7·8	+11·3	+12·5	+10·7	+9·2	+3·3	-8·2	-20·6	-22·7	-19·6	-12·7	-11·5	-6·8	-3·4	+0·8	+2·9	+4·6	+6·5	+6·1	+4·7	+7·0
December	-0·9	+0·2	+2·0	+4·0	+7·6	+9·7	+8·6	+6·3	+1·5	-2·0	-5·7	-10·5	-11·0	-7·5	-3·5	-2·0	+2·0	-0·9	-0·7	-0·7	+1·7	+0·9	+1·1	-0·3
Year	+4·4	+3·1	+4·1	+5·5	+7·8	+8·5	+6·1	+0·9	-9·2	-19·6	-27·0	-28·5	-24·9	-16·8	-7·3	+2·3	+9·9	+14·7	+17·3	+15·4	+13·1	+8·5	+7·1	+4·7
Winter	+0·6	-0·7	+0·3	+4·1	+7·9	+8·9	+10·1	+8·1	+0·8	-6·3	-12·4	-14·9	-14·8	-9·8	-5·4	-0·9	+2·5	+3·9	+5·8	+2·6	+4·9	+1·5	+1·0	+2·4
Equinox	+9·4	+4·7	+5·8	+6·7	+9·2	+11·1	+8·8	+4·6	-7·8	-21·3	-32·3	-36·5	-32·6	-21·1	-9·9	+1·2	+7·7	+12·1	+16·3	+16·1	+14·7	+12·6	+11·2	+9·0
Summer	+3·3	+5·5	+6·0	+5·9	+6·3	+5·5	-0·3	-10·4	-20·5	-31·2	-38·4	-34·3	-27·5	-19·4	-6·5	+6·9	+19·4	+28·1	+30·0	+27·5	+19·3	+11·1	+9·1	+2·7
160 ESKDALEMUIR — WEST COMPONENT (ALL DAYS) — 1938																								
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	-11·0	-6·7	-11·0	-7·9	-2·8	+2·2	+0·9	-1·7	-6·6	-6·3	-2·1	+3·5	+9·9	+21·1	+23·7	+17·3	+17·4	+16·1	+10·3	-6·4	-6·4	-17·2	-22·3	-13·9
February	-10·1	-11·4	-6·6	-8·7	-9·1	-3·1	-2·4	-1·8	-7·5	-13·0	-7·9	+3·1	+14·7	+22·9	+23·1	+22·2	+16·9	+7·9	+4·1	+1·9	-3·3	-9·1	-12·0	-10·8
March	-16·7	-16·9	-13·3	-11·6	-9·1	-9·5	-7·3	-11·6	-20·1	-22·3	-10·5	+6·1	+21·9	+33·0	+34·3	+28·6	+18·9	+12·7	+8·1	+3·2	+0·8	-3·3	-6·7	-8·6
April	-5·8	-6·3	-9·5	-10·8	-13·7	-15·1	-15·0	-32·2	-36·1	-29·7	-16·2	+4·6	+25·3	+36·9	+37·8	+32·3	+22·2	+12·8	+9·0	+4·2	+5·0	+3·3	-0·3	-2·8
May	-6·3	-9·2	-9·3	-12·0	-13·0	-17·3	-24·3	-29·8	-29·3	-22·1	-8·5	+7·1	+24·1	+32·9	+32·6	+28·7	+25·3	+20·9	+13·4	+8·2	+4·5	-0·7	-0·5	-15·2
June	-1·8	-4·0	-8·3	-12·1	-16·3	-25·3	-32·6	-35·5	-32·0	-25·2	-9·9	+6·9	+21·4	+28·6	+32·0	+28·2	+24·3	+19·4	+16·7	+10·2	+7·7	+5·2	+1·5	+1·1
July	-3·2	-5·7	-4·3	-7·3	-12·5	-20·2	-31·9	-35·5	-35·7	-28·5	-12·9	+4·1	+21·1	+30·3	+33·4	+34·2	+29·2	+20·1	+12·2	+8·3	+6·6	+2·0	-0·5	-3·3
August	-6·1	-7·4	-11·8	-11·3	-17·7	-25·6	-29·1	-34·9	-30·9	-21·0	-3·1	+14·9	+31·2	+27·4	+37·0	+27·9	+16·7	+10·0	+7·9	+8·5	+7·5	+7·5	-0·7	-6·9
September	-10·1	-13·6	-13·0	-14·8	-7·3	-7·1	-10·7	-18·3	-24·7	-18·7	-8·1	+8·7	+24·6	+32·8	+31·5	+27·8	+20·4	+14·0	+10·2	+4·3	-3·2	-5·7	-7·1	-12·0
October	-13·9	-6·8	-4·6	-6·3	-7·6	-6·5	-6·0	-12·7	-18·0	-14·1	-1·2	+14·7	+26·5	+29·7	+28·2	+22·2	+10·9	+8·9	+7·3	-0·9	-10·2	-11·1	-11·4	-14·8
November	-10·9	-8·1	-3·6	-4·4	-4·1	-4·0	-2·9	-1·1	-7·8	-10·3	-4·6	+8·5	+17·1	+20·8	+20·0	+14·2	+10·0	+10·1	+6·7	-0·3	-7·9	-11·7	-13·4	-12·4
December	-14·2	-10·1	-6·6	-5·9	-3·4	-1·1	+1·0	-0·8	-3·8	-2·1	+1·3	+6·1	+11·3	+16·5	+15·7	+15·4	+15·1	+12·8	+10·1	-1·5	-12·2	-12·7	-14·0	-16·6
Year	-9·2	-8·9	-8·5	-9·6	-9·7	-11·1	-13·3	-18·0	-21·1	-17·8	-7·0	+7·4	+20·7	+28·6	+29·1	+24·9	+19·0	+13·8	+9·7	+3·2	-0·9	-4·5	-7·3	-9·7
Winter	-11·6	-9·1	-6·9	-6·7	-4·9	-1·5	-0·8	-1·3	-6·4	-7·9	-3·3	+5·3	+13·3	+20·3	+20·6	+17·3	+14·8	+11·7	+7·8	-1·6	-7·5	-12·7	-15·4	-13·4
Equinox	-11·6	-10·9	-10·1	-11·4	-9·4	-9·5	-9·7	-18·7	-24·7	-21·2	-9·0	+8·5	+24·5	+33·1	+33·0	+27·7	+18·1	+12·1	+8·7	+2·7	-1·9	-4·2	-6·4	-9·5
Summer	-4·3	-6·6	-8·4	-10·7	-14·9	-22·1	-29·5	-33·9	-32·0	-24·2	-8·6	+8·2	+24·4	+32·3	+33·7	+29·8	+23·9	+17·6	+12·6	+8·8	+6·5	+3·5	-0·1	-6·1
161 ESKDALEMUIR — VERTICAL COMPONENT (ALL DAYS) — 1938																								
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	-2·3	-14·9	-17·2	-17·5	-16·5	-16·6	-13·4	-10·3	-3·2	-9·3	-5·5	-3·0	-3·4	+4·0	+14·8	+18·7	+24·6	+25·2	+19·9	+9·4	+13·1	+8·7	+3·9	-3·2
February	-1·7	-3·8	-8·7	-12·4	-13·0	-13·7	-16·2	-13·1	-8·9	-6·5	-6·8	-7·7	-6·6	-1·8	+5·1	+9·6	+15·7	+23·2	+23·7	+16·8	+13·4	+7·3	+5·1	+1·0
March	-6·7	-13·5	-12·7	-9·4	-7·5	-6·9	-7·8	-4·5	-2·5	-2·8	-6·1	-9·5	-9·2	-5·0	+2·2	+9·8	+15·9	+17·2	+20·7	+17·0	+10·7	+8·2	+4·6	-2·2
April	-8·6	-11·7	-11·4	-8·8	-8·6	-7·0	-4·8	+8·4	+2·8	-5·4	-8·6	-12·0	-11·4	-4·6	+4·4	+11·6	+17·3	+19·9	+18·1	+15·7	+10·4	+2·2	-2·3	-5·6
May	-17·3	-9·7	-7·0	-6·4	-6·1	-6·9	-5·6	-3·8	-6·1	-9·9	-12·5	-15·1	-12·6	-4·5	+6·6	+15·8	+21·5	+24·6	+22·2	+19·7	+11·7	+6·1	-2·9	-1·8
June	-1·3	-2·8	-3·9	-3·6	-2·4	-1·2	-0·9	-1·0	-3·3	-7·8	-12·7	-16·3	-14·3	-9·2	-3·7	+3·2	+9·4	+12·9	+13·6	+14·9	+11·2	+9·5	+6·4	+3·3
July	-6·7	-7·6	-7·5	-4·0	-2·2	-4·7	-3·8	-4·1	-6·2	-10·3	-10·9	-13·5	-11·9	-5·7	+2·5	+9·1	+18·0	+21·1	+21·7	+16·1	+10·4	+5·7	-0·7	-4·8
August	-11·9	-9·6	-7·5	-9·1	-8·2	-2·7	+0·3	+1·1	-1·1	-5·8	-10·3	-13·8	-11·9	-4·5	+3·3	+12·1	+18·8	+21·3	+18·1	+13·0	+10·6	+5·9	-0·5	-7·6
September	-13·4	-15·8	-23·7	-23·4	-14·0	-7·8	-2·4	-0·1	+0·6	-1·8	-3·2	-4·6	-2·4	+2·3	+9·5	+16·9	+23·1	+22·7	+19·7	+18·6	+11·1	+4·3	-4·8	-11·4
October	-15·8	-15·4	-15·5	-15·7	-17·5	-16·5	-10·6	-3·2	+0·2	-1·1	-2·1	-2·1	+0·8	+6·4	+14·6	+20·8	+24·8	+21·3	+18·2	+15·4	+8·9	+1·4	-6·0	-11·3
November	-5·3	-5·7	-8·1	-8·3	-7·9	-6·9	-6·5	-6·7	-5·2	-4·6	-4·6	-4·8	-2·4	+0·6	+5·8	+10·7	+11·7	+11·6	+11·6	+11·1	+8·5	+5·1	+2·1	-1·8
December	-4·4	-5·5	-7·3	-8·2	-9·5	-10·3	-10·2	-9·6	-8·7	-8·7	-7·0	-6·4	-5·4	-3·9	+0·8	+5·7	+7·7	+13·8	+18·5	+21·6	+20·8	+9·6	+5·6	+1·0
Year	-7·9	-9·7	-10·9	-10·6	-9·5	-8·4	-6·8	-3·9	-4·0	-6·2	-7·5	-9·1	-7·6	-2·2	+5·5	+12·0	+17·4	+19·6	+18·8	+15·8	+11·7	+6·2	+0·9	-3·7
Winter	-3·4	-7·5	-10·3	-11·6	-11·7	-11·9	-11·6	-9·9	-8·0	-7·3	-6·0	-5·5	-4·5	-0·3	+6·6	+11·2	+14·9	+18·5	+18·4	+14·7	+13·9	+7·7	+4·2	-0·7
Equinox	-11·1	-14·1	-15·8	-14·3	-11·9	-9·5	-6·4	+0·1	+0·3	-2·8	-5·0	-7·1	-5·5	-0·2	+7·7	+14·8	+20·3	+20·3	+19·2	+16·7	+10·3	+4·0	-2·1	-7·6
Summer	-9·3	-7·4	-6·5	-5·8	-4·7	-3·9	-2·5	-1·9	-4·2	-8·5	-11·6	-14·7	-12·7	-6·0	+2·2	+10·1	+16·9	+20·0	+18·9	+15·9	+11·0	+6·8	+0·6	-2·7

DIURNAL INEQUALITIES OF THE MAGNETIC ELEMENTS, DECLINATION, INCLINATION, AND HORIZONTAL FORCE - (ALL DAYS)

Departures from the mean of the 24 hourly values (uncorrected for non-cyclic change)

DECLINATION (measured positive towards the West) (ALL DAYS)

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MONTH AND SEASON	Hour 0-1	G.M.T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
January	-1·82	-0·75	-1·67	-1·48	-0·75	+0·10	-0·32	-0·71	-1·06	-0·81	+0·02	+1·05	+2·34	+4·29	+4·51	+3·06	+2·97	+2·62	+1·38	-1·46	-1·56	-3·12	-4·24	-2·61
February	-2·31	-2·52	-1·55	-2·11	-2·27	-0·92	-0·99	-0·82	-1·72	-2·39	-0·93	+1·54	+4·02	+5·56	+5·28	+4·70	+3·45	+1·49	+0·54	+0·22	-0·96	-2·16	-2·61	-2·53
March	-3·93	-3·45	-3·03	-2·62	-2·25	-2·42	-1·90	-2·63	-3·90	-3·81	-0·96	+2·75	+5·95	+7·60	+7·51	+5·91	+3·58	+2·05	+1·12	+0·08	-0·46	-1·13	-1·86	-2·20
April	-1·60	-1·64	-2·21	-2·46	-3·15	-3·47	-3·39	-6·72	-6·88	-4·73	-1·33	+3·12	+7·04	+8·86	+8·16	+6·14	+3·69	+1·58	+0·75	-0·24	+0·09	0·00	-0·56	-1·05
May	-1·28	-2·09	-2·13	-2·62	-2·78	-3·67	-4·90	-5·56	-5·20	-3·36	-0·24	+2·96	+6·10	+7·40	+6·66	+5·22	+3·97	+2·57	+1·38	+0·47	+0·40	-0·23	-0·39	-2·68
June	-0·57	-1·09	-1·89	-2·63	-3·57	-5·34	-6·49	-6·62	-5·44	-3·59	-0·36	+2·80	+5·48	+6·68	+6·85	+5·69	+4·29	+2·86	+1·88	+0·62	+0·41	+0·36	-0·16	-0·17
July	-0·92	-1·41	-1·15	-1·86	-2·91	-4·32	-6·36	-6·67	-6·13	-4·23	-0·81	+2·55	+5·70	+7·33	+7·35	+6·45	+4·80	+2·80	+0·89	+0·31	+0·30	-0·17	-0·43	-0·91
August	-1·39	-1·81	-2·82	-2·68	-4·01	-5·63	-6·08	-6·69	-5·26	-2·48	+1·41	+4·94	+7·79	+8·52	+7·76	+5·46	+2·57	+0·88	+0·29	+0·48	+0·49	+0·74	-0·80	-1·68
September	-2·54	-2·95	-2·81	-3·37	-2·02	-2·02	-2·57	-3·94	-4·46	-2·70	-0·15	+3·35	+6·37	+7·53	+6·90	+5·63	+3·91	+2·50	+1·32	+0·13	-1·38	-1·85	-2·00	-2·88
October	-3·16	-1·89	-1·26	-2·06	-2·00	-1·99	-1·72	-2·78	-3·32	-1·87	+1·32	+4·70	+6·80	+6·92	+6·07	+4·57	+2·01	+1·36	+0·67	-0·85	-2·63	-2·86	-2·88	-3·35
November	-2·53	-1·89	-1·03	-1·26	-1·36	-1·42	-1·10	-0·65	-1·73	-1·69	+0·04	+2·82	+4·41	+4·82	+4·61	+3·21	+2·19	+2·01	+1·21	-0·27	-1·91	-2·66	-2·95	-2·85
December	-2·64	-2·06	-1·44	-1·39	-1·06	-0·68	-0·20	-0·47	-0·84	-0·34	+0·54	+1·73	+2·82	+3·70	+3·35	+3·21	+2·97	+2·63	+2·08	-0·28	-2·56	-2·61	-2·89	-3·37
Year	-2·07	-1·95	-1·92	-2·21	-2·35	-2·65	-3·00	-3·69	-3·83	-2·67	-0·12	+2·86	+5·40	+6·60	+6·25	+4·94	+3·37	+2·10	+1·13	-0·07	-0·81	-1·31	-1·81	-2·19
Winter	-2·37	-1·81	-1·42	-1·55	-1·37	-0·73	-0·65	-0·66	-1·34	-1·31	-0·08	+1·79	+3·40	+4·59	+4·44	+3·55	+2·89	+2·19	+1·30	-0·45	-1·75	-2·64	-3·17	-2·84
Equinox	-2·81	-2·43	-2·33	-2·63	-2·35	-2·47	-2·39	-4·02	-4·64	-3·28	-0·28	+3·48	+6·54	+7·73	+7·16	+5·56	+3·30	+1·87	+0·97	-0·22	-1·09	-1·46	-1·33	-2·37
Summer	-1·04	-1·60	-2·00	-2·45	-3·32	-4·74	-5·96	-6·39	-5·51	-3·41	0·00	+3·31	+6·27	+7·48	+7·15	+5·71	+3·91	+2·23	+1·11	+0·47	+0·40	+0·17	-0·45	-1·36

INCLINATION (ALL DAYS)

163 ESKDALEMUIR — 1938

	Hour 0-1	G.M.T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
January	+0·69	+0·56	+0·47	-0·12	-0·60	-0·92	-1·04	-0·74	+0·25	+0·51	+0·50	+0·32	+0·24	-0·21	-0·40	-0·41	-0·40	-0·50	-0·62	+0·11	+0·09	+0·98	+0·82	+0·42
February	-0·24	-0·20	-0·40	-0·65	-0·77	-0·88	-1·07	-0·90	-0·38	+0·39	+0·89	+1·00	+1·00	+0·85	+0·60	+0·19	+0·15	+0·30	+0·12	+0·17	-0·02	-0·13	+0·07	-0·29
March	-0·67	-0·10	-0·57	-0·40	-0·60	-0·69	-0·67	-0·30	+0·50	+1·24	+1·61	+1·74	+1·51	+0·60	+0·28	-0·06	-0·23	-0·49	-0·31	-0·40	-0·59	-0·37	-0·48	-0·55
April	-0·70	-0·70	-0·52	-0·40	-0·51	-0·50	-0·37	+0·42	+1·24	+2·10	+2·70	+2·61	+1·96	+1·19	+0·20	-0·77	-1·03	-1·08	-1·16	-1·18	-1·09	-0·90	-0·76	-0·75
May	-0·33	-0·41	-0·35	-0·22	-0·16	-0·11	+0·28	+1·02	+1·32	+1·63	+1·87	+1·80	+0·99	+0·38	-0·28	-0·88	-1·42	-2·00	-1·49	-1·28	-0·48	+0·04	-0·46	+0·74
June	-0·29	-0·39	-0·24	-0·15	-0·18	+0·06	+0·63	+1·30	+1·84	+2·29	+2·11	+1·41	+0·91	+0·53	-0·07	-0·38	-0·99	-1·45	-1·98	-1·78	-1·39	-0·80	-0·50	-0·49
July	-0·50	-0·43	-0·51	-0·52	-0·38	-0·09	+0·55	+1·19	+1·93	+2·30	+2·40	+1·97	+1·33	+1·01	+0·40	-0·96	-1·55	-1·80	-1·81	-1·60	-1·28	-0·67	-0·49	-0·49
August	-0·39	-0·53	-0·60	-0·60	-0·50	-0·29	+0·20	+1·11	+1·88	+2·62	+2·58	+2·08	+1·27	+0·58	-0·17	-0·41	-0·91	-1·20	-1·50	-1·53	-1·26	-1·04	-0·90	-0·49
September	-0·87	-0·44	-0·63	-0·85	-0·97	-0·88	-0·47	-0·02	+1·13	+1·77	+2·10	+1·92	+1·45	+0·76	+0·47	-0·01	-0·07	-0·14	-0·70	-0·61	-0·88	-0·75	-0·79	-0·72
October	-0·64	-0·71	-0·78	-0·80	-0·94	-1·21	-0·87	-0·16	+0·74	+1·58	+2·13	+2·10	+1·59	+0·94	+0·41	+0·25	+0·19	-0·21	-0·80	-0·54	-0·40	-0·60	-0·76	-0·51
November	-0·40	-0·34	-0·55	-0·67	-0·89	-0·93	-0·84	-0·78	-0·22	+0·58	+1·30	+1·23	+0·97	+0·52	+0·60	+0·50	+0·37	+0·09	0·00	-0·01	-0·09	-0·10	-0·04	-0·30
December	+0·17	+0·01	-0·21	-0·38	-0·69	-0·89	-0·84	-0·63	-0·27	-0·06	+0·19	+0·42	+0·50	+0·13	+0·02	+0·03	-0·19	+0·20	+0·33	+0·60	+0·60	+0·39	+0·28	+0·29
Year	-0·35	-0·31	-0·41	-0·48	-0·60	-0·59	-0·38	+0·13	+0·83	+1·41	+1·70	+1·53	+1·14	+0·61	+0·17	-0·24	-0·51	-0·69	-0·83	-0·67	-0·55	-0·33	-0·33	-0·26
Winter	+0·05	+0·01	-0·17	-0·45	-0·74	-0·85	-0·96	-0·76	-0·15	+0·35	+0·72	+0·74	+0·68	+0·32	+0·21	+0·08	-0·02	+0·02	-0·04	+0·22	+0·15	+0·29	+0·28	+0·03
Equinox	-0·72	-0·49	-0·63	-0·61	-0·75	-0·82	-0·59	-0·01	+0·91	+1·67	+2·13	+2·09	+1·63	+0·87	+0·34	-0·15	-0·29	-0·48	-0·74	-0·68	-0·69	-0·65	-0·70	-0·63
Summer	-0·38	-0·44	-0·43	-0·37	-0·31	-0·11	+0·41	+1·15	+1·74	+2·21	+2·24	+1·77	+1·13	+0·63	-0·03	-0·66	-1·22	-1·61	-1·69	-1·55	-1·10	-0·62	-0·59	-0·18

HORIZONTAL FORCE (ALL DAYS)

164 ESKDALEMUIR — 1938

	Hour 0-1	G.M.T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	-11·0	-13·7	-13·7	-4·6	+3·1	+7·6	+10·3	+7·1	-7·1	-11·1	-9·4	-6·2	-4·6	+4·6	+11·3	+13·2	+15·1	+16·6	+16·7	+1·7	+3·7	-11·3	-10·8	-7·5
February	+2·9	+1·6	+2·8	+5·1	+6·5	+5·0	+9·6	+8·6	+2·3	-8·0	-15·5	-17·8	-17·6	-13·2	-6·8	+0·9	+3·6	+4·1	+6·8	+3·7	+5·3	+4·5	+1·0	+4·6
March	+7·3	-3·3	+3·7	+2·6	+6·3	+7·6	+7·0	+2·8	-8·3	-19·3	-26·1	-29·2	-25·7	-10·9	-3·2	+4·3	+9·4	+13·5	+12·4	+12·2	+12·6	+8·5	+8·5	+7·3
April	+7·3	+6·0	+3·4	+2·9	+4·4	+4·6	+3·6	-3·4	-17·2	-32·9	-43·3	-43·3	-33·1	-19·3	-1·3	+15·6	+21·8	+23·4	+23·8	+23·3	+20·1	+14·3	+10·3	+9·0
May	-1·3	+2·6	+2·6	+0·9	0·0	-0·9	-6·1	-16·7	-22·0	-27·8	-32·1	-29·2	-19·3	-7·1	+6·4	+18·9	+29·2	+38·9	+30·2	+26·1	+11·2	+1·6	+5·7	-11·8
June	+3·7	+4·7	+2·2	+0·8	+1·8	-1·2	-9·7	-19·6	-28·4	-36·7	-35·8	-27·0	-18·6	-11·4	-0·4	+6·7	+18·4	+26·2	+34·4	+31·9	+24·9	+15·2	+9·6	+8·3
July	+4·8	+3·6	+4·7	+6·2	+4·6	-0·1	-9·5	-19·0	-30·9	-38·0	-39·5	-33·9	-24·1	-17·1	-3·9	+17·7	+29·5	+34·7	+35·0	+29·7	+22·7	+12·0	+6·8	+4·0
August	+1·6	+4·4	+6·0	+5·5	+4·3	+3·2	-3·1	-16·2	-27·9	-41·3	-42·2	-35·7	-22·8	-10·3	+3·5	+10·6	+20·6	+25·9	+28·8	+27·5	+22·6	+17·6	+13·2	+4·2
September	+7·9	+0·8	+0·7	+4·0	+9·1	+10·1	+5·9	+0·4	-16·7	-26·5	-32·2	-30·1	-22·4	-10·4	-3·3	+6·5	+9·4	+10·3	+17·5	+15·9	+14·0	+12·7	+9·9	+6·5
October	+3·7	+4·9	+5·6	+5·9	+7·5	+12·0	+6·9	+1·1	-10·9	-23·6	-32·2	-31·7	-23·1	-11·5	-0·8	+3·8	+6·4	+11·1	+18·1	+13·6	+9·0	+9·7	+8·9	+3·6
November	+4·0	+3·0	+5·3	+6·6	+10·1	+11·3	+9·8	+8·7	+1·4	-10·3	-21·1	-20·2	-15·2	-7·6	-6·6	-3·4	-1·0	+3·1	+4·4	+4·4	+4·5	+3·3	+1·5	+4·0
December	-4·1	-2·1	+0·4	+2·5	+6·6	+9·2	+6·6	+5·9	+0·6	-2·4	-5·3	-8·8	-8·1	-3·5	+0·2	+1·6	+5·4	+2·1	+1·6	-1·0	-1·2	-2·0	-2·1	-4·1
Year	+2·2	+1·0	+2·0	+3·2	+5·4	+5·7	+2·9	-3·3	-13·8	-23·2	-27·9	-26·1	-19·5	-9·8	-0·4	+8·0	+14·0	+17·5	+19·1	+15·7	+12·5	+7·2	+5·2	+2·3
Winter	-2·1	-2·8	-1·3	+2·4	+6·6	+8·3	+9·6	+7·6	-0·7	-7·9	-12·8	-13·3	-11·4	-4·9	-0·5	+3·1	+5·8	+6·5	+7·4	+2·2	+3·1	-1·4	-2·6	-0·7
Equinox	+6·5	+2·1	+3·3	+3·9	+6·8	+8·6	+6·3	+0·2	-13·3	-25·6	-33·5	-33·6	-26·1	-13·0	-2·1	+7·5	+11·7	+14·6	+17·9	+16·3	+13·9	+11·3	+9·4	+6·6
Summer	+2·2	+3·8	+3·9	+3·3	+2·7	+0·3	-7·1	-17·9	-27·3	-35·9	-37·4	-31·5	-21·2	-11·5	+1·4	+13·5	+24·4	+31·4	+32·1	+28·8	+20·3	+11·6	+8·8	+1·2

DIURNAL INEQUALITIES OF THE GEOGRAPHICAL COMPONENTS OF MAGNETIC FORCE
(INTERNATIONAL QUIET DAYS)

Departures from the mean of the 24 hourly values (uncorrected for non-cyclic change)

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MONTH AND SEASON	Hour 0-1	G.M.T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	-4·6	-3·4	+0·5	-1·8	+2·5	+5·6	+5·9	+6·5	+3·9	-4·8	-9·2	-0·1	-8·9	-6·8	-5·6	-0·3	+1·2	+5·0	+8·2	+3·6	+1·2	+1·7	+4·3	+4·3
February	+4·8	+3·8	+4·7	+4·9	+7·4	+8·6	+9·8	+6·2	+4·1	-5·4	-16·9	-23·6	-24·8	-20·8	-12·1	-5·6	-1·1	+2·4	+6·5	+7·3	+9·4	+10·0	+10·2	+10·4
March	+10·9	+8·7	+8·4	+9·0	+10·1	+11·5	+12·5	+11·8	+2·5	-12·4	-27·2	-39·0	-40·7	-32·4	-20·4	-7·6	+0·9	+6·9	+10·2	+15·2	+15·4	+15·8	+15·6	+14·1
April	+9·9	+8·8	+8·8	+8·5	+9·7	+9·7	+6·9	+2·8	-7·1	-25·1	-38·4	-41·7	-36·2	-25·9	-12·0	+3·5	+7·1	+14·4	+18·1	+20·5	+17·7	+14·6	+12·2	+13·0
May	+2·8	+1·1	+3·0	+3·7	+4·7	+4·8	+4·4	-1·5	-8·8	-18·3	-25·1	-29·6	-21·6	-18·2	-8·1	+1·0	+6·9	+17·0	+17·4	+17·5	+14·6	+14·0	+9·0	+7·3
June	+2·9	+3·8	+3·1	+4·8	+7·1	+6·2	+1·4	-6·3	-16·9	-28·1	-35·5	-28·5	-20·7	-14·0	-6·1	+2·2	+9·1	+15·5	+24·5	+25·5	+20·7	+12·9	+8·2	+7·9
July	+8·1	+4·1	+5·3	+8·3	+10·1	+4·8	-2·6	-10·9	-22·2	-29·9	-34·3	-32·8	-24·0	-13·9	-2·0	+10·6	+17·0	+18·8	+20·2	+19·6	+17·3	+12·9	+9·1	+6·7
August	+6·8	+5·9	+6·7	+5·4	+8·2	+7·3	+1·4	-5·8	-15·2	-28·7	-37·2	-35·5	-28·4	-15·3	-7·4	+0·9	+8·5	+18·2	+19·9	+22·4	+20·2	+16·8	+14·7	+12·2
September	+10·6	+8·2	+7·9	+8·3	+7·4	+8·2	+7·1	+3·8	-8·4	-21·3	-33·0	-35·1	-31·7	-21·8	-13·0	-5·1	+1·2	+10·8	+14·1	+16·6	+15·1	+15·4	+17·1	+17·4
October	+10·3	+9·2	+8·7	+9·5	+10·7	+12·0	+11·6	+6·3	-3·9	-15·9	-25·9	-32·9	-32·5	-22·0	-13·7	-6·5	-0·2	+2·8	+6·6	+12·1	+12·3	+12·6	+16·8	+12·0
November	+4·9	+3·5	+3·3	+4·4	+7·5	+9·1	+9·9	+6·2	-0·5	-11·6	-20·7	-23·2	-21·5	-16·3	-10·6	-5·5	+0·4	+4·7	+7·6	+10·5	+10·5	+9·8	+9·6	+8·0
December	-3·2	-2·6	-1·9	+1·1	+3·1	+4·7	+5·1	+3·3	+0·3	-3·7	-9·0	-11·0	-9·9	-6·6	-3·5	-1·2	+2·0	+4·8	+7·2	+7·0	+5·1	+4·6	+2·6	+1·4
Year	+5·4	+4·3	+4·9	+5·5	+7·4	+7·7	+6·1	+1·8	-6·0	-17·1	-26·0	-28·5	-25·1	-17·7	-9·5	-1·1	+4·6	+10·0	+13·3	+14·8	+13·3	+11·7	+10·8	+9·5
Winter	+0·5	+0·3	+1·6	+2·1	+5·1	+7·0	+7·7	+5·5	+2·0	-6·4	-14·0	-16·7	-16·3	-12·6	-7·9	-3·1	+0·6	+4·2	+7·4	+7·1	+6·6	+6·5	+6·7	+6·0
Equinox	+10·4	+8·8	+8·5	+8·9	+9·4	+10·4	+9·5	+6·2	-4·3	-18·7	-31·1	-37·2	-35·3	-25·5	-14·7	-3·9	+2·2	+8·8	+12·2	+16·1	+15·2	+14·6	+15·4	+14·1
Summer	+5·1	+3·7	+4·5	+5·5	+7·5	+5·8	+1·1	-6·1	-15·8	-26·3	-33·0	-31·6	-23·7	-15·3	-5·9	+3·7	+10·9	+16·9	+20·5	+21·3	+18·2	+14·1	+10·3	+8·5

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	Hour 0-1	G.M.T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	-7·9	-6·5	-3·7	-5·9	-3·5	-2·7	-3·0	-4·2	-5·9	-6·3	-1·9	+3·8	+12·1	+19·9	+14·8	+10·2	+6·3	+6·6	+5·6	+1·1	-9·5	-7·5	-6·8	-5·0
February	-4·1	-0·7	+0·3	-0·9	-2·2	-2·9	-6·3	-6·5	-13·1	-21·1	-16·5	-5·6	+7·8	+15·4	+16·5	+13·7	+8·6	+6·7	+5·8	+6·1	+5·3	+1·8	-3·6	-4·5
March	-3·7	-3·9	-3·0	-5·7	-6·3	-7·8	-9·4	-15·1	-24·9	-31·7	-20·6	-3·5	+15·4	+26·5	+29·3	+23·1	+12·8	+8·1	+6·5	+5·3	+4·0	+3·4	+1·8	-0·6
April	-1·7	-3·1	-5·1	-6·2	-9·5	-15·3	-23·7	-32·3	-37·0	-31·8	-14·6	+4·8	+22·6	+32·7	+30·9	+25·8	+17·4	+12·4	+9·2	+7·4	+6·0	+5·6	+3·5	+2·2
May	-0·7	-2·3	-4·3	-4·6	-8·9	-16·4	-22·9	-30·6	-29·3	-20·7	-7·3	+5·6	+17·7	+21·0	+20·9	+16·7	+13·2	+13·0	+12·3	+9·7	+7·4	+4·9	+3·0	+2·7
June	-1·3	-1·3	-3·7	-7·7	-15·3	-23·7	-30·6	-35·2	-30·8	-23·1	-7·9	+10·0	+23·4	+27·6	+28·1	+24·9	+18·8	+14·2	+10·0	+7·6	+6·1	+4·3	+2·6	+3·0
July	-0·1	-4·6	-7·6	-9·6	-16·2	-26·1	-36·9	-38·7	-33·9	-21·8	-4·4	+14·7	+29·2	+38·4	+38·8	+30·4	+18·8	+8·1	+3·8	+5·3	+6·1	+4·1	+1·4	+0·9
August	-8·9	-10·4	-10·3	-11·8	-13·1	-18·8	-23·3	-28·4	-28·6	-19·6	-3·5	+14·9	+27·4	+33·7	+31·3	+22·5	+13·5	+7·3	+4·5	+6·8	+6·6	+6·5	+2·2	-0·4
September	-7·2	-6·9	-6·6	-7·8	-9·4	-12·3	-19·3	-26·8	-28·7	-24·1	-11·8	+7·7	+22·6	+30·7	+28·9	+21·1	+13·3	+10·7	+8·5	+9·7	+7·4	+3·0	-0·2	-2·4
October	-4·0	-4·2	-5·2	-4·9	-3·9	-4·8	-7·9	-15·1	-22·9	-23·1	-10·8	+5·0	+17·1	+21·9	+22·9	+16·9	+11·7	+8·1	+7·1	+5·9	+2·3	-1·9	-3·0	-7·1
November	-7·9	-6·5	-3·3	-3·1	-2·6	-3·2	-4·4	-6·8	-11·3	-13·6	-8·3	+3·9	+12·7	+14·6	+12·1	+8·6	+8·5	+6·7	+5·4	+4·7	+1·9	-2·2	-2·8	-3·0
December	-7·4	-5·2	-3·4	-2·1	-2·6	-2·1	-3·5	-5·2	-6·7	-5·7	-1·0	+3·8	+7·9	+10·1	+9·4	+8·5	+6·3	+6·1	+5·2	+2·6	-1·6	-3·4	-4·0	-5·9
Year	-4·5	-4·6	-4·7	-5·9	-7·8	-11·3	-15·9	-20·4	-22·8	-20·2	-9·1	+5·4	+18·0	+24·3	+23·7	+18·5	+12·4	+9·0	+7·0	+6·0	+3·5	+1·5	-0·5	-1·7
Winter	-6·8	-4·7	-2·5	-3·0	-2·7	-2·7	-4·3	-5·7	-9·3	-11·7	-6·9	+1·5	+10·1	+15·0	+13·2	+10·2	+7·4	+6·5	+5·5	+3·6	-0·9	-2·8	-4·3	-4·6
Equinox	-4·1	-4·5	-5·0	-6·1	-7·3	-10·0	-15·1	-22·3	-28·4	-27·7	-14·5	+3·5	+19·4	+27·9	+28·0	+21·7	+13·8	+9·8	+7·8	+7·1	+5·0	+2·5	+0·5	-2·0
Summer	-2·7	-4·7	-6·5	-8·4	-13·4	-21·3	-28·4	-33·2	-30·7	-21·3	-5·8	+11·3	+24·4	+30·2	+29·8	+23·6	+16·1	+10·7	+7·7	+7·3	+6·5	+4·9	+2·3	+1·5

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	Hour 0-1	G.M.T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	-4·6	-3·7	-2·2	-1·8	-1·8	-3·1	-2·6	-2·8	-4·2	-4·5	-1·8	-3·4	-6·4	-3·5	+3·0	+2·4	+3·4	+2·1	+2·6	+5·0	+9·6	+8·3	+6·4	+3·6
February	+1·2	+1·4	+1·4	+2·6	+2·6	+2·3	+1·0	-0·6	+0·4	+0·6	-3·6	-6·4	-8·6	-7·2	-3·6	+1·0	+3·0	+2·5	+2·2	+1·2	+1·4	+1·8	+2·2	+1·2
March	+5·0	+4·2	+4·0	+3·8	+4·0	+3·3	+2·6	+4·0	+3·8	+0·8	-5·4	-11·6	+14·0	-12·2	-7·4	-0·4	+2·4	+0·9	+1·0	+2·0	+1·8	+1·8	+2·6	+3·0
April	+4·6	+4·1	+4·2	+3·9	+4·0	+4·7	+5·6	+5·3	+0·6	-7·1	-10·8	-16·7	-17·2	-10·5	-3·4	+1·1	+2·8	+3·7	+4·8	+4·7	+3·8	+2·3	+3·0	+2·3
May	+5·4	+5·7	+6·3	+6·4	+7·5	+8·3	+4·6	+2·5	-2·1	-9·0	-13·1	-16·9	-18·2	-14·7	-9·7	-3·8	+0·7	+4·3	+6·8	+6·7	+6·3	+6·0	+5·9	+4·1
June	+1·4	+0·4	+0·1	+0·8	+3·4	+4·2	+3·2	+2·4	+0·5	-5·2	-13·0	-18·8	-17·2	-11·2	-4·7	+0·8	+4·4	+7·0	+8·2	+9·0	+9·1	+7·6	+5·0	+2·6
July	+1·6	+1·5	+2·0	+2·9	+4·9	+5·0	+2·3	+0·5	-5·2	-11·9	-13·0	-16·5	-16·0	-12·9	-3·6	+3·3	+9·5	+13·6	+13·5	+8·3	+5·2	+3·1	+1·4	+0·5
August	0·0	+0·2	+1·3	+2·0	+2·4	+4·2	+5·6	+5·0	+2·1	-1·2	-4·4	-11·0	-13·6	-11·0	-3·9	+1·8	+5·0	+7·0	+5·2	+3·0	+1·5	0·0	-0·2	-1·0
September	+2·9	+1·7	+2·3	+2·7	+2·7	+3·3	+4·7	+4·3	+2·1	-3·7	-8·7	-13·1	-12·9	-10·7	-9·5	-1·1	+2·3	+4·3	+5·5	+5·1	+5·9	+5·3	+3·1	+1·5
October	-0·5	-0·2	-0·7	0·0	+0·2	+0·1	+0·8	+3·2	+3·5	+1·4	-3·7	-6·8	-7·5	-6·4	-3·3	+2·2	+3·4	+3·9	+3·0	+2·2	+2·1	+2·4	+0·5	+0·2
November	+0·2	+0·4	0·0	0·0	0·0	-0·7	-1·2	-0·6	-0·2	-0·2	-1·6	-2·4	-1·8	-0·4	+1·8	+2·2	+1·6	+1·3	+0·8	+0·4	+0·8	+0·4	+0·2	-1·0
December	+2·1	+1·5	+1·3	+0·3	+0·3	+0·2	+0·1	-0·1	-1·5	-2·9	-1·3	-2·1	-3·9	-2·5	-0·7	+0·5	+1·7	+1·4	+1·1	+0·5	+0·9	+0·9	+1·1	+1·1
Year	+1·6	+1·4	+1·7	+2·0	+2·5	+2·6	+2·2	+1·9	0·0	-3·6	-6·7	-10·5	-11·4	-8·6	-3·7	+0·8	+3·3	+4·3	+4·6	+4·0	+4·0	+3·3	+2·6	+1·5
Winter	-0·3	-0·1	+0·1	+0·3	+0·3	-0·3	-0·7	-1·0	-1·4	-1·7	-2·1	-3·6	-5·2	-3·4	+0·1	+1·5	+2·4	+1·8	+1·7	+1·8	+3·2	+2·9	+2·5	+1·2
Equinox	+3·0	+2·5	+2·5	+2·6	+2·7	+2·9	+3·4	+4·2	+2·5	-2·1	-7·1	-12·1	-12·9	-9·9	-5·9	+0·5	+2·7	+3·2	+3·6	+3·5	+3·4	+2·9	+2·3	+1·7
Summer	+2·1	+1·9	+2·4	+3·0	+4·5	+5·4	+3·9	+2·6	-1·2	-6·8	-10·9	-15·8	-16·3	-12·5	-5·5	+0·5	+4·9	+8·0	+8·4	+6·7	+5·5	+4·2	+3·0	+1·5

DIURNAL INEQUALITIES OF THE MAGNETIC ELEMENTS, DECLINATION, INCLINATION, AND HORIZONTAL FORCE (INTERNATIONAL QUIET DAYS)

Departures from the mean of the 24 hourly values (uncorrected for non-cyclic change)

DECLINATION (measured positive towards the West) (QUIET DAYS)

168 ESKDALEMUIR — 1938

MONTH AND SEASON	Hour 0-1 / G.M.T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
January	-1·39	-1·15	-0·77	-1·11	-0·83	-0·82	-0·89	-1·17	-1·39	-1·05	+0·05	+1·21	+2·89	+4·36	+3·27	+2·07	+1·23	+1·10	+0·73	+0·05	-1·99	-1·59	-1·59	-1·21
February	-1·06	-0·32	-0·17	-0·42	-0·80	-1·00	-1·74	-1·62	-2·85	-4·02	-2·52	0·00	+2·78	+4·12	+3·93	+3·04	+1·80	+1·24	+0·86	+0·88	+0·63	-0·12	-1·22	-1·42
March	-1·27	-1·22	-1·02	-1·59	-1·76	-2·14	-2·51	-3·62	-5·18	-5·83	-2·86	+1·16	+5·07	+6·94	+6·92	+5·05	+2·56	+1·30	+0·83	+0·34	+0·08	-0·07	-0·38	-0·80
April	-0·82	-1·05	-1·46	-1·66	-2·40	-3·57	-5·14	-6·68	-7·16	-5·25	-1·12	+2·98	+6·32	+7·87	+6·84	+5·06	+3·18	+1·83	+1·00	+0·52	+0·36	+0·43	+0·12	-0·20
May	-0·28	-0·51	-1·02	-1·11	-2·03	-3·56	-4·85	-6·13	-5·52	-3·33	-0·28	+2·55	+4·62	+5·13	+4·62	+3·33	+2·25	+1·82	+1·67	+1·13	+0·80	+0·33	+0·18	+0·19
June	-0·39	-0·44	-0·89	-1·78	-3·44	-5·09	-6·28	-6·82	-5·43	-3·34	+0·09	+3·38	+5·73	+6·26	+5·97	+4·92	+3·36	+2·13	+0·86	+0·32	+0·25	+0·26	+0·13	+0·22
July	-0·41	-1·13	-1·79	-2·33	-3·77	-5·52	-7·35	-7·31	-5·79	-2·99	+0·77	+4·53	+7·05	+8·43	+7·95	+5·85	+2·99	+0·74	-0·19	+0·13	+0·41	+0·21	-0·15	-0·13
August	-2·13	-2·40	-2·42	-2·65	-3·06	-4·16	-4·79	-5·48	-5·08	-2·61	+1·08	+4·72	+6·93	+7·56	+6·70	+4·53	+2·32	+0·70	-0·03	+0·30	+0·36	+0·51	-0·26	-0·66
September	-1·96	-1·80	-1·72	-1·98	-2·26	-2·89	-4·26	-5·62	-5·42	-3·86	-0·82	+3·24	+6·10	+7·26	+6·48	+4·52	+2·64	+1·65	+1·04	+1·18	+0·78	-0·12	-0·86	-1·32
October	-1·31	-1·29	-1·47	-1·45	-1·31	-1·54	-2·17	-3·37	-4·47	-3·93	-0·95	+2·59	+5·03	+5·49	+5·29	+3·73	+2·39	+1·50	+1·13	+0·63	-0·11	-0·99	-1·41	-2·01
November	-1·83	-1·49	-0·83	-0·83	-0·89	-1·09	-1·37	-1·67	-2·27	-2·21	-0·69	+1·89	+3·59	+3·73	+2·97	+2·01	+1·71	+1·13	+0·73	+0·45	-0·11	-0·91	-1·03	-0·99
December	-1·35	-0·93	-0·59	-0·49	-0·67	-0·66	-0·95	-1·21	-1·37	-0·99	+0·23	+1·29	+2·07	+2·37	+2·07	+1·77	+1·19	+1·00	+0·71	+0·19	-0·57	-0·91	-0·93	-1·27
Year	-1·18	-1·14	-1·18	-1·45	-1·93	-2·67	-3·52	-4·23	-4·33	-3·28	-0·59	+2·46	+4·85	+5·79	+5·25	+3·81	+2·30	+1·35	+0·78	+0·51	+0·07	-0·25	-0·62	-0·80
Winter	-1·41	-0·97	-0·59	-0·71	-0·80	-0·89	-1·24	-1·42	-1·97	-2·07	-0·73	+1·10	+2·83	+3·64	+3·06	+2·22	+1·48	+1·12	+0·76	+0·39	-0·51	-0·88	-1·19	-1·22
Equinox	-1·34	-1·34	-1·42	-1·67	-1·93	-2·53	-3·52	-4·82	-5·56	-4·72	-1·44	+2·49	+5·63	+6·89	+6·38	+4·59	+2·69	+1·57	+1·00	+0·67	+0·28	-0·19	-0·63	-1·08
Summer	-0·80	-1·12	-1·53	-1·97	-3·07	-4·58	-5·81	-6·43	-5·45	-3·07	+0·41	+3·79	+6·08	+6·85	+6·31	+4·61	+2·73	+1·35	+·58	+0·47	+0·45	+0·33	-0·03	-0·09

INCLINATION (QUIET DAYS)

169 ESKDALEMUIR — 1938

	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
January	+0·31	+0·23	0·00	+0·18	-0·17	-0·40	-0·40	-0·42	-0·28	+0·30	+0·60	+0·45	+0·23	+0·05	+0·21	-0·09	-0·10	-0·37	-0·58	-0·14	+0·30	+0·21	-0·01	-0·11
February	-0·21	-0·20	-0·29	-0·25	-0·39	-0·48	-0·53	-0·31	-0·07	+0·70	+1·29	+1·49	+1·30	+0·95	+0·45	+0·19	+0·01	-0·20	-0·48	-0·55	-0·67	-0·63	-0·56	-0·56
March	-0·53	-0·41	-0·40	-0·40	-0·48	-0·56	-0·61	-0·45	+0·31	+1·32	+1·98	+2·33	+2·09	+1·41	+0·70	+0·14	-0·20	-0·56	-0·72	-1·02	-1·03	-1·05	-1·00	-0·86
April	-0·52	-0·42	-0·39	-0·37	-0·39	-0·30	+0·06	+0·44	+1·06	+1·98	+2·48	+2·25	+1·61	+0·94	+0·22	-0·80	-0·67	-1·05	-1·20	-1·35	-1·17	-0·99	-0·80	-0·82
May	-0·04	+0·10	+0·03	-0·01	+0·01	+0·15	+0·19	+0·64	+0·99	+1·30	+1·43	+1·43	+0·70	+0·50	-0·02	-0·41	-0·79	-1·21	-1·16	-1·14	-0·91	-0·87	-0·50	-0·41
June	-0·13	-0·21	-0·14	-0·18	-0·15	+0·06	+0·48	+1·00	+1·60	+2·10	+2·13	+1·28	+0·58	+0·21	-0·16	-0·51	-0·79	-1·07	-1·58	-1·58	-1·23	-0·71	-0·48	-0·50
July	-0·50	-0·17	-0·18	-0·31	-0·30	+0·22	+0·80	+1·33	+1·87	+2·00	+2·00	+1·52	+0·72	0·00	-0·57	-1·09	-1·18	-1·00	-1·05	-1·17	-1·09	-0·82	-0·59	-0·44
August	-0·30	-0·22	-0·28	-0·12	-0·29	-0·10	+0·40	+0·94	+1·50	+2·17	+2·40	+1·83	+1·10	+0·20	-0·10	-0·37	-0·65	-1·00	-1·23	-1·60	-1·36	-1·20	-1·00	-0·82
September	-0·52	-0·40	-0·36	-0·38	-0·28	-0·28	-0·06	+0·28	+1·05	+1·70	+2·13	+1·88	+1·41	+0·70	+0·18	0·00	-0·23	-0·79	-0·91	-1·10	-0·97	-0·92	-1·05	-1·08
October	-0·62	-0·55	-0·52	-0·55	-0·63	-0·70	-0·63	-0·10	+0·70	+1·44	+1·80	+1·92	+1·70	+0·94	+0·47	+0·23	-0·10	-0·20	-0·49	-0·83	-0·81	-0·76	-1·04	-0·67
November	-0·20	-0·11	-0·18	-0·24	-0·45	-0·58	-0·60	-0·31	+0·20	+0·98	+1·46	+1·40	+1·18	+0·83	+0·55	+0·29	-0·11	-0·38	-0·57	-0·77	-0·70	-0·60	-0·59	-0·50
December	+0·38	+0·29	+0·20	-0·02	-0·15	-0·30	-0·30	-0·15	+0·04	+0·27	+0·59	+0·82	+0·43	+0·21	+0·08	-0·04	-0·19	-0·38	-0·51	-0·50	-0·30	-0·20	-0·09	+0·02
Year	-0·24	-0·17	-0·21	-0·22	-0·31	-0·27	-0·10	+0·24	+0·75	+1·35	+1·69	+1·53	+1·09	+0·58	+0·17	-0·19	-0·42	-0·68	-0·87	-0·97	-0·83	-0·71	-0·64	-0·56
Winter	+0·07	+0·05	-0·07	-0·08	-0·29	-0·44	-0·46	-0·30	-0·03	+0·56	+0·99	+0·99	+0·79	+0·51	+0·32	+0·09	-0·10	-0·33	-0·53	-0·49	-0·34	-0·31	-0·31	-0·29
Equinox	-0·55	-0·45	-0·42	-0·43	-0·45	-0·46	-0·31	+0·04	+0·78	+1·61	+2·10	+2·09	+1·70	+1·00	+0·39	-0·06	-0·30	-0·65	-0·83	-1·07	-0·99	-0·93	-0·97	-0·86
Summer	-0·24	-0·13	-0·14	-0·15	-0·18	+0·06	+0·47	+0·98	+1·49	+1·89	+1·99	+1·51	+0·77	+0·23	-0·21	-0·59	-0·85	-1·07	-1·25	-1·35	-1·15	-0·90	-0·64	-0·54

HORIZONTAL FORCE (QUIET DAYS)

170 ESKDALEMUIR — 1938

	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	-6·3	-4·8	-0·4	-3·1	+1·6	+4·8	+5·1	+5·4	+2·4	-6·1	-9·4	-8·0	-5·9	-2·0	-2·0	+2·1	+2·6	+6·4	+9·3	+3·8	-1·0	-0·1	+2·6	+3·0
February	+3·7	+3·5	+4·6	+4·5	+6·7	+7·7	+8·1	+4·5	+1·0	-10·1	-20·3	-24·3	-22·3	-16·7	-8·0	-2·3	+0·9	+3·9	+7·7	+8·5	+10·4	+10·1	+9·1	+9·1
March	+9·8	+7·6	+7·5	+7·4	+8·4	+9·4	+10·0	+8·0	-3·3	-19·4	-31·2	-38·8	-36·0	-25·4	-13·1	-2·0	+3·8	+8·6	+11·4	+16·0	+15·9	+16·2	+15·6	+13·6
April	+9·3	+7·9	+7·4	+6·9	+7·3	+5·9	+1·3	-4·7	-15·4	-31·7	-40·7	-36·5	-30·1	-17·7	-4·6	+9·3	+10·9	+16·9	+19·7	+21·7	+18·6	+15·5	+12·7	+13·1
May	+2·6	+0·5	+1·9	+2·6	+2·5	+0·9	-1·0	-8·5	-15·3	-22·6	-26·1	-27·5	-17·0	-12·9	-3·1	+4·8	+11·7	+19·5	+19·8	+19·3	+15·9	+14·8	+9·5	+7·7
June	+2·5	+3·4	+2·2	+2·9	+3·4	+0·6	-5·7	-14·2	-23·6	-32·7	-36·4	-25·4	-14·7	-7·2	+0·6	+7·9	+13·2	+18·4	+26·1	+26·6	+21·6	+13·5	+8·6	+8·4
July	+7·8	+2·9	+3·4	+5·9	+6·1	-1·4	-11·1	-19·5	-29·4	-34·1	-34·6	-28·5	-16·6	-4·7	+7·0	+17·3	+20·9	+20·2	+20·5	+20·3	+18·2	+13·5	+9·2	+6·7
August	+4·6	+3·4	+4·2	+2·6	+5·0	+2·8	-4·0	-12·2	-21·4	-32·4	-37·0	-31·2	-21·4	-7·2	0·0	+6·0	+11·4	+17·4	+20·4	+23·4	+21·2	+17·8	+14·8	+11·8
September	+8·7	+6·4	+6·2	+6·3	+5·0	+5·2	+2·5	-2·4	-14·8	-26·3	-34·8	-32·4	-25·7	-14·2	-6·0	-0·1	+4·2	+13·0	+15·7	+18·4	+16·4	+15·7	+16·6	+16·4
October	+9·1	+8·0	+7·3	+8·1	+9·5	+10·6	+9·5	+2·7	-9·1	-20·8	-27·7	-30·9	-27·7	-16·4	-8·1	-2·5	+2·5	+4·6	+8·1	+13·1	+12·5	+11·8	+15·7	+10·1
November	+3·0	+1·9	+2·5	+3·6	+6·7	+8·1	+8·6	+4·5	-3·1	-14·4	-22·1	-21·7	-18·0	-12·5	-7·5	-3·4	+2·3	+6·1	+8·6	+11·3	+10·7	+9·0	+8·7	+7·1
December	-4·8	-3·7	-2·6	+0·6	+2·4	+4·1	+4·2	+2·0	-1·2	-4·9	-9·0	-9·8	-7·8	-4·1	-1·2	+0·8	+3·4	+6·1	+8·2	+7·4	+4·6	+3·7	+1·6	0·0
Year	+4·2	+3·1	+3·7	+4·0	+5·4	+4·9	+2·3	-2·9	-11·1	-21·3	-27·4	-26·5	-20·3	-11·7	-3·8	+3·2	+7·3	+11·8	+14·6	+15·8	+13·7	+11·8	+10·4	+8·9
Winter	-1·1	-0·8	+1·0	+1·4	+4·3	+6·2	+6·5	+4·1	-0·2	-8·9	-15·2	-15·9	-13·5	-8·8	-4·7	-0·7	+2·3	+5·6	+8·5	+7·7	+6·2	+5·7	+5·5	+4·8
Equinox	+9·2	+7·5	+7·1	+7·2	+7·5	+7·8	+5·8	+0·9	-10·7	-24·5	-33·6	-35·4	-29·9	-18·4	-7·9	+1·2	+5·3	+10·8	+13·7	+17·3	+15·9	+14·8	+15·1	+13·3
Summer	+4·4	+2·5	+2·9	+3·5	+4·3	+0·7	-5·5	-13·6	-22·4	-30·5	-33·5	-28·1	-17·4	-8·0	+1·1	+9·0	+14·3	+18·9	+21·7	+22·4	+19·2	+14·9	+10·5	+8·7

DIURNAL INEQUALITIES OF THE GEOGRAPHICAL COMPONENTS OF MAGNETIC FORCE - (INTERNATIONAL DISTURBED DAYS)

Departures from the mean of the 24 hourly values (uncorrected for non-cyclic change)

NORTH COMPONENT (DISTURBED DAYS)

171 ESKDALEMUIR 1938

MONTH AND SEASON	Hour 0-1	G.M.T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	-50·1	-73·9	-64·0	-18·3	+10·1	+10·5	+21·3	+13·8	-29·3	-26·8	-7·8	+16·5	+6·1	+40·2	+73·4	+76·2	+57·0	+60·9	+45·1	-14·6	+20·5	-61·1	-63·5	-44·0
February	+9·0	+8·2	+10·7	+13·3	+26·5	+3·4	+21·1	+15·9	+2·9	-6·1	-20·4	-24·4	-36·9	-22·9	-6·3	+6·5	+3·6	+5·2	+11·0	-8·7	+2·4	+0·4	-8·7	-5·4
March	+19·5	-15·3	+3·3	+1·3	+16·6	+12·0	+1·3	-4·7	-13·8	-32·2	-21·5	-22·3	-25·4	-6·2	-8·4	+1·4	+11·6	+27·9	+18·9	+17·3	+18·4	-0·4	+5·2	-4·4
April	+7·7	+5·5	+1·0	+5·6	+6·0	+5·2	-3·3	+4·8	-9·8	-29·0	-47·2	-53·3	-48·2	-28·8	+14·3	+36·8	+43·6	+34·3	+23·4	+31·3	+18·9	-1·7	-9·1	-10·7
May	+5·1	+20·7	+19·5	+12·6	+5·6	-10·1	-11·0	-26·5	-25·6	-22·1	-28·8	-21·4	-14·8	+8·6	+33·6	+48·2	+51·6	+85·6	+49·9	+40·8	-31·3	-70·7	-25·3	-94·3
June	+9·9	+16·1	+10·1	+0·9	-0·5	+1·5	-8·8	-23·3	-32·6	-45·6	-45·4	-35·9	-24·7	-22·8	-7·8	+2·3	+18·7	+30·0	+43·9	+45·6	+35·5	+18·3	+4·5	+10·1
July	+7·9	+2·8	+7·1	+13·6	+14·2	-4·3	-17·8	-29·4	-47·1	-54·3	-51·5	-44·4	-24·7	-26·9	-18·5	+27·1	+53·9	+67·2	+72·1	+54·4	+23·2	-0·8	-13·6	-10·1
August	-8·5	+2·6	+15·5	+16·3	+17·9	+12·6	+6·5	-8·8	-29·9	-60·4	-55·6	-44·0	-30·1	-8·9	+0·7	+10·2	+36·7	+29·5	+33·8	+31·2	+20·4	+15·7	+15·1	-18·2
September	+3·5	-21·4	-23·4	+0·7	+20·5	+12·8	+10·3	+5·8	-31·5	-34·0	-39·9	-35·5	-22·8	+6·4	+12·1	+33·0	+28·9	+12·2	+12·6	+11·2	+15·8	+12·7	+6·7	+3·2
October	-9·1	-3·0	+1·5	+4·0	+4·3	+13·7	-0·1	-0·6	-13·1	-30·8	-47·0	-51·2	-33·0	-15·0	+3·5	+20·7	+24·1	+27·7	+61·9	+35·2	+15·0	+5·3	-2·0	-11·8
November	+13·4	+7·1	+16·0	+17·3	+25·9	+22·3	+15·1	+15·9	+12·0	-3·9	-18·1	-24·7	-20·1	-13·0	-19·3	-12·7	-11·2	-9·5	-6·0	-4·7	0·0	-0·9	-1·5	+0·6
December	-2·9	+3·0	+11·2	+15·7	+17·9	+21·6	+20·7	+17·8	+10·6	+8·8	+3·6	-4·1	-3·4	-1·7	+3·3	-1·8	+3·4	-16·6	-17·0	-22·3	-14·1	-11·6	-18·4	-23·7
Year	+0·4	-4·0	+0·7	+7·1	+13·7	+8·4	+4·6	-1·6	-17·2	-28·0	-31·7	-28·8	-22·9	-7·6	+6·7	+20·8	+26·8	+29·5	+29·1	+18·1	+10·4	-7·9	-9·3	-17·4
Winter	-7·7	-13·9	-6·5	+7·5	+20·1	+14·5	+19·6	+15·9	-1·0	-7·0	-10·7	-9·2	-13·6	+0·6	+12·8	+17·1	+13·2	+10·0	+6·2	-12·6	+2·2	-18·4	-23·0	-18·1
Equinox	+5·4	-8·6	-4·5	+2·9	+11·6	+10·9	+2·1	+1·3	-17·0	-31·5	-38·9	-40·5	-31·6	-10·9	+5·4	+23·3	+27·0	+25·6	+29·2	+23·7	+17·0	+3·9	+0·2	-5·9
Summer	+3·9	+10·5	+13·1	+10·9	+9·3	-0·1	-7·8	-22·0	-33·8	-45·6	-45·3	-36·4	-23·6	-12·5	+2·0	+21·9	+40·2	+53·1	+49·9	+43·0	+11·9	-9·4	-4·8	-28·1

WEST COMPONENT (DISTURBED DAYS)

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MONTH AND SEASON	Hour 0-1	G.M.T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	+0·5	+19·4	+18·2	-3·9	+4·2	+11·7	+3·1	-1·4	-20·4	-21·8	-17·5	-12·7	-8·2	+20·9	+47·8	+34·4	+37·2	+31·3	+24·1	-31·0	+15·1	-30·4	-73·1	-13·2
February	-4·6	-5·9	-0·4	-10·0	-11·9	+3·5	+4·4	+1·5	-9·1	-14·0	-6·1	+5·1	+13·6	+22·7	+21·9	+29·8	+29·9	+0·3	-2·9	-1·4	-10·5	-21·5	-20·0	-14·5
March	-50·5	-54·2	-37·6	-33·5	-17·5	-6·4	+14·7	+8·3	-9·8	-17·6	+1·9	+13·7	+30·3	+48·5	+45·5	+46·3	+40·8	+33·3	+19·3	-1·4	-7·7	-15·4	-24·0	-26·9
April	-14·5	-10·6	-18·0	-22·5	-27·6	-15·1	+12·0	-38·4	-33·3	-24·6	-23·6	-5·2	+15·6	+34·6	+47·5	+41·5	+33·1	+11·2	+9·3	+7·9	+12·9	+11·4	-0·5	-3·2
May	-12·1	-14·7	-24·7	-32·6	-20·5	-26·1	-21·5	-26·9	-27·9	-14·5	+0·3	+16·6	+41·2	+80·2	+57·7	+50·1	+53·8	+57·1	+30·7	+16·0	-9·9	-39·3	-21·5	-91·5
June	-2·3	-10·9	-20·4	-17·4	-13·2	-24·2	-35·1	-41·5	-33·8	-27·4	-6·5	+10·4	+25·9	+29·6	+35·8	+33·9	+29·1	+25·3	+26·0	+11·8	+6·9	+1·2	-6·4	+3·0
July	-12·0	-13·7	-1·1	-12·3	-10·5	-12·0	-32·5	-32·3	-28·2	-26·7	-11·4	+2·8	+22·6	+29·5	+31·1	+43·6	+46·9	+43·2	+23·7	+8·9	-1·2	-19·1	-22·2	-17·2
August	-11·8	-11·3	-17·6	-19·7	-26·7	-31·8	-30·7	-37·1	-23·1	-15·4	+3·1	+16·3	+32·9	+40·7	+50·3	+41·1	+23·5	+13·4	+20·2	+17·1	+9·3	+12·4	-21·3	-33·8
September	-35·2	-47·0	-40·9	-50·4	-11·2	+8·3	+7·3	-2·6	-20·7	-12·0	-2·5	+12·7	+29·1	+45·9	+42·9	+46·8	+40·1	+25·7	+19·4	+4·7	-19·1	-10·9	-8·3	-22·3
October	-36·3	-15·4	-5·5	-12·7	-27·8	-13·1	-2·9	-15·7	-13·3	-3·0	+4·1	+23·0	+34·7	+40·7	+32·3	+44·6	+23·1	+18·7	+22·3	-1·2	-32·1	-18·6	-23·0	-23·1
November	-17·7	-15·8	-4·1	-5·3	-4·4	-6·3	-2·4	+11·2	-1·3	-5·9	+1·2	+17·9	+31·9	+37·5	+37·3	+24·3	+16·9	+11·2	+3·7	-15·9	-27·1	-30·5	-27·8	-28·6
December	-23·8	-21·2	-16·8	-12·9	-9·5	-3·5	+2·4	+6·7	-0·1	+4·2	+6·8	+10·2	+16·7	+28·6	+29·2	+36·7	+45·3	+30·4	+30·8	-0·8	-41·1	-38·4	-33·9	-46·1
Year	-18·3	-16·8	-16·9	-19·4	-14·3	-9·6	-6·7	-14·0	-18·4	-14·9	-4·2	+9·2	+23·9	+36·6	+39·9	+39·0	+35·0	+25·1	+18·9	+1·2	-8·7	-16·6	-23·5	-26·5
Winter	-11·4	-5·8	-9·3	-8·0	-5·4	+1·4	+1·9	+4·5	-7·7	-9·4	-3·9	+5·1	+13·5	+27·4	+34·1	+31·3	+32·4	+18·3	+13·9	-12·3	-15·9	-30·2	-38·7	-25·6
Equinox	-34·1	-31·8	-25·6	-29·8	-19·9	-6·5	+7·8	-12·1	-19·3	-14·3	-5·0	+11·1	+27·4	+42·4	+42·1	+43·7	+34·3	+22·2	+17·6	+2·5	-11·5	-8·4	-14·0	-18·9
Summer	-9·5	-12·7	-15·9	-20·5	-17·7	-23·5	-29·9	-34·5	-28·3	-21·0	-3·6	+11·5	+30·7	+40·0	+43·7	+42·2	+38·3	+34·7	+25·1	+13·5	+1·3	-11·2	-17·9	-34·6

VERTICAL COMPONENT (DISTURBED DAYS)

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MONTH AND SEASON	Hour 0-1	G.M.T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	+4·4	-70·4	-76·9	-64·6	-39·6	-38·4	-30·6	-22·6	-21·7	-25·0	-12·4	+4·4	+5·2	+31·0	+53·9	+58·2	+92·0	+103·2	+58·4	-7·0	+8·1	+1·2	+1·4	-10·2
February	-10·7	-14·3	-20·8	-35·9	-48·1	-53·3	-57·1	-41·5	-25·0	-17·1	-15·3	-12·1	-5·9	+3·1	+16·0	+17·9	+39·7	+82·1	+68·3	+52·7	+40·2	+10·1	+6·9	+0·1
March	-35·5	-46·7	-45·4	-46·5	-37·3	-36·3	-46·5	-33·9	-19·4	-7·9	-2·7	-0·5	+3·5	+13·1	+27·4	+36·5	+51·9	+55·9	+72·3	+55·1	+29·6	+23·5	+9·7	-19·9
April	-30·0	-32·3	-32·4	-25·8	-27·4	-30·3	-33·4	+35·4	+12·4	-6·1	-3·8	-1·0	+3·0	+11·1	+23·8	+36·8	+44·2	+49·7	+33·4	+26·2	+15·0	-11·9	-25·0	-31·6
May	-38·9	-25·7	-25·1	-28·9	-28·7	-36·4	-39·9	-30·3	-26·3	-19·9	-15·1	-13·5	-1·3	+18·5	+49·1	+63·9	+66·9	+63·8	+46·9	+44·3	+16·3	-0·1	-33·3	-6·3
June	-2·4	-9·3	-16·8	-24·1	-27·0	-30·1	-22·8	-13·9	-10·2	-10·7	-9·0	-9·7	-2·2	+5·5	+10·0	+16·7	+25·8	+28·9	+26·0	+29·1	+13·8	+14·3	+12·0	+6·1
July	-34·2	-35·7	-29·3	-18·8	-12·9	-19·3	-18·6	-20·1	-18·7	-19·4	-5·7	-9·5	-4·0	+8·5	+27·1	+39·6	+54·5	+43·9	+44·8	+32·1	+28·3	+4·4	-14·7	-22·3
August	-47·7	-39·6	-23·9	-15·2	-9·6	-7·1	-9·0	-6·0	-8·9	-13·8	-18·9	-16·6	-0·3	+20·0	+27·1	+39·6	+50·2	+42·1	+32·6	+22·8	+22·3	+10·4	-13·1	-37·4
September	-64·5	-71·5	-117·4	-122·3	-69·5	-43·7	-22·5	-11·3	+1·4	+5·5	+13·3	+22·1	+34·3	+48·5	+63·6	+74·3	+89·9	+84·7	+72·7	+58·1	+26·4	+2·1	-27·7	-46·5
October	-50·3	-40·3	-43·3	-60·3	-75·1	-72·7	-46·9	-19·1	-7·3	-4·5	+4·5	+10·3	+17·7	+33·9	+56·5	+62·5	+81·3	+70·7	+61·7	+48·9	+19·3	-3·7	-18·1	-25·7
November	-21·4	-15·2	-20·8	-22·0	-22·4	-21·2	-19·2	-21·4	-19·4	-15·8	-12·8	-10·6	-3·4	+4·6	+20·0	+40·6	+40·8	+40·4	+38·0	+30·2	+16·0	+7·2	-1·4	-10·8
December	-21·8	-21·9	-35·4	-35·7	-36·7	-34·0	-33·1	-31·9	-30·0	-30·3	-28·0	-25·1	-21·6	-18·7	-5·2	+14·7	+19·3	+52·6	+73·5	+89·5	+91·2	+32·3	+22·2	+13·1
Year	-29·4	-35·2	-40·8	-41·7	-36·1	-35·2	-31·6	-18·1	-14·4	-13·7	-8·8	-5·1	+2·1	+14·9	+30·8	+41·8	+54·7	+59·8	+54·1	+40·2	+27·2	+7·5	-6·8	-15·9
Winter	-12·4	-30·5	-39·0	-39·5	-36·5	-36·7	-35·0	-29·3	-24·0	-22·1	-17·1	-10·9	-6·4	+5·0	+21·2	+32·9	+47·9	+69·6	+64·5	+41·3	+38·9	+12·7	+7·3	-1·9
Equinox	-45·1	-47·7	-59·6	-63·7	-52·3	-45·7	-37·3	-7·2	-3·2	-3·3	+2·8	+7·7	+14·6	+26·7	+42·8	+52·5	+66·8	+65·3	+60·0	+47·1	+22·6	+2·5	-15·3	-30·9
Summer	-30·8	-27·6	-23·8	-21·7	-19·5	-23·2	-22·6	-17·6	-16·0	-15·9	-12·2	-12·3	-1·9	+13·1	+28·3	+39·9	+49·3	+44·7	+37·6	+32·1	+20·2	+7·3	-12·3	-15·0

DIURNAL INEQUALITIES OF THE MAGNETIC ELEMENTS, DECLINATION, INCLINATION AND HORIZONTAL FORCE (INTERNATIONAL DISTURBED DAYS)

Departures from the mean of the 24 hourly values (uncorrected for non-cyclic change)

DECLINATION (measured positive towards the West) (DISTURBED DAYS)

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MONTH AND SEASON	Hour 0-1	G.M.T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
January	+2·52	+7·51	-0·20	0·00	+0·36	+1·87	-0·40	-0·96	-2·74	-3·13	-3·18	-3·36	-1·96	+2·31	+6·18	+3·32	+4·82	+3·43	+2·72	-5·60	+2·08	-3·23	-11·73	-0·56
February	-1·37	-1·58	-0·59	-2·66	-3·66	+0·55	-0·12	-0·46	-1·99	-2·54	-0·25	+2·20	+4·53	+5·70	+4·75	+5·72	+5·90	-0·19	-1·12	+0·14	-2·25	-4·38	-3·63	-2·66
March	-11·18	-10·25	-7·78	-6·85	-4·34	-1·87	+2·92	+1·91	-1·32	-2·03	+1·42	+3·85	+7·36	+10·13	+9·62	+9·31	+7·72	+5·41	+3·00	-1·11	-2·44	-3·11	-5·12	-5·25
April	-3·31	-2·41	-3·70	-4·83	-5·89	-3·31	+2·59	-8·03	-6·28	-3·69	-2·53	+1·51	+5·33	+8·39	+8·96	+6·65	+4·63	+0·63	+0·77	+0·11	+1·72	+2·39	+0·33	-0·13
May	-2·70	-3·97	-5·94	-7·21	-4·42	-4·81	-3·84	-4·19	-4·44	-1·89	+1·44	+4·39	+9·06	+11·79	+10·10	+7·85	+6·44	+7·49	+3·84	+1·29	-0·50	-4·59	-3·14	-14·05
June	-0·93	-2·99	-4·61	-3·57	-2·65	-4·98	-6·69	-7·29	-5·29	-3·37	+0·85	+3·83	+6·43	+7·09	+7·63	+6·77	+5·01	+3·70	+3·17	+0·21	-0·31	-0·63	-1·51	+0·13
July	-2·81	-2·90	-0·57	-3·14	-2·82	-2·23	-5·74	-5·14	-3·47	-2·80	+0·15	+2·70	+5·77	+7·28	+7·19	+7·54	+6·94	+5·55	+1·34	-0·80	-1·35	-3·84	-3·85	-3·00
August	-1·98	-2·42	-4·32	-4·78	-6·28	-7·05	-6·54	-7·10	-3·26	-0·22	+3·30	+5·42	+8·12	+8·68	+10·16	+7·84	+3·02	+1·31	+2·48	+1·98	+0·90	+1·76	-5·04	-5·98
September	-7·32	-8·53	-7·19	-10·28	-3·25	+1·07	+1·00	-0·81	-2·69	-0·82	+1·41	+4·29	+7·00	+9·03	+8·15	+7·94	+6·77	+4·63	+3·34	+0·41	-4·63	-2·82	-2·01	-4·69
October	-6·92	-2·98	-1·19	-2·76	-5·84	-3·30	-0·58	-3·16	-2·07	+0·86	+3·08	+7·12	+8·62	+8·98	+6·39	+8·06	+3·54	+2·46	+1·56	-1·92	-7·23	-4·02	-4·58	-4·12
November	-4·22	-3·55	-1·80	-1·89	-2·13	-2·34	-1·21	+1·51	-0·84	-1·01	+1·10	+4·81	+7·44	+8·23	+8·80	+5·53	+3·97	+2·72	+1·03	-3·01	-5·50	-6·15	-5·56	-5·83
December	-4·68	-4·44	-3·94	-3·36	-2·78	-1·74	-0·89	+0·50	-0·52	+0·44	+1·20	+2·26	+3·56	+5·88	+5·76	+7·54	+9·02	+6·96	+7·06	+0·90	-7·66	-7·24	-6·00	-8·22
Year	-3·74	-3·21	-3·47	-4·28	-3·56	-2·35	-1·59	-2·77	-2·91	-1·67	+0·67	+3·25	+5·94	+7·79	+7·78	+6·92	+5·81	+3·67	+2·43	-0·62	-2·26	-2·99	-4·32	-4·83
Winter	-1·94	-0·51	-1·58	-1·98	-2·06	-0·41	-0·56	+0·15	-1·52	-1·56	-0·28	+1·47	+3·39	+5·53	+6·30	+5·53	+5·93	+3·23	+2·42	-1·89	-3·33	-5·25	-6·74	-4·32
Equinox	-7·18	-6·04	-4·97	-6·18	-4·58	-1·85	+1·48	-2·52	-3·09	-1·39	+0·85	+4·19	+7·08	+9·13	+8·28	+7·74	+5·67	+3·28	+2·17	-0·63	-3·15	-1·89	-2·85	-3·55
Summer	-2·11	-3·07	-3·86	-4·67	-4·04	-4·77	-5·70	-5·93	-4·11	-2·07	+1·43	+4·09	+7·35	+6·71	+8·77	+7·50	+5·85	+4·51	+2·71	+0·67	-0·31	-1·83	-3·39	-5·73

INCLINATION (DISTURBED DAYS)

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	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
January	+3·39	+2·80	+2·50	-0·49	-1·71	-1·81	-2·20	-1·59	+1·70	+1·49	+0·49	-0·79	-0·15	-2·18	-4·19	-4·08	-2·00	-1·89	-1·87	+1·27	-1·34	+4·50	+5·32	+2·83
February	-0·80	-0·78	-1·22	-1·60	-2·77	-1·62	-2·90	-2·10	-0·67	+0·30	+1·04	+1·22	+2·06	+1·23	+0·48	-0·47	+0·28	+1·70	+1·51	+1·90	+1·00	+0·57	+1·05	+0·59
March	-1·38	+0·68	-0·76	-0·70	-1·74	-1·80	-1·49	-0·66	+0·59	+2·20	+1·32	+1·23	+1·29	-0·01	+0·52	+0·07	-0·11	-0·95	+0·26	+0·27	-0·37	+0·85	+0·27	+0·22
April	-1·02	-1·00	-0·60	-0·68	-0·65	-0·88	-0·80	+1·19	+1·47	+2·13	+3·38	+3·58	+2·80	+1·64	-1·20	-2·12	-2·25	-1·19	-0·84	-1·52	-1·06	-0·34	0·00	-0·02
May	-1·12	-1·79	-1·53	-1·06	-0·79	+0·16	+0·07	+1·40	+1·47	+1·19	+1·50	+0·81	+0·30	-1·03	-1·87	-2·33	-2·55	-4·90	-2·59	-1·81	+2·62	+5·24	+1·18	+7·43
June	-0·69	-1·12	-0·78	-0·39	-0·41	-0·48	+0·57	+1·85	+2·41	+3·16	+2·86	+1·97	+1·18	+1·18	+0·20	-0·29	-1·03	-1·65	-2·62	-2·45	-2·10	-0·89	+0·09	-0·57
July	-1·19	-0·87	-1·19	-1·18	-1·10	0·00	+1·21	+1·93	+3·06	+3·50	+3·41	+2·63	+1·18	+1·50	+1·41	-1·48	-2·90	-3·99	-3·99	-2·90	-0·80	+0·47	+0·89	+0·40
August	-0·44	-0·99	-1·33	-1·14	-1·00	-0·52	-0·18	+1·00	+2·10	+3·87	+3·12	+2·23	+1·47	+0·44	-0·15	-0·32	-1·51	-1·10	-1·71	-1·74	-0·92	-0·98	-1·00	+0·80
September	-1·29	+0·34	-1·09	-2·30	-2·90	-2·06	-1·35	-0·61	+2·41	+2·56	+3·31	+2·69	+1·90	+0·08	+0·11	-1·02	-0·29	+0·90	+0·70	+0·63	-0·10	-0·61	-1·00	-1·01
October	-0·10	-0·57	-1·09	-1·59	-1·73	-2·52	-1·10	-0·19	+0·90	+1·98	+3·12	+3·28	+2·06	+1·20	+0·67	-0·50	+0·09	-0·35	-2·88	-1·09	0·00	-0·14	+0·03	+0·50
November	-1·12	-0·80	-1·51	-1·61	-2·19	-1·91	-1·43	-1·76	-1·24	-0·03	+0·86	+1·09	+0·73	+0·39	+1·18	+1·48	+1·49	+1·46	+1·29	+1·30	+0·81	+0·70	+0·50	+0·12
December	+0·01	-0·40	-1·38	-1·69	-1·92	-2·20	-2·21	-2·08	-1·45	-1·40	-1·04	-0·51	-0·58	-0·81	-0·80	-0·10	-0·42	+1·93	+2·48	+3·70	+3·82	+2·18	+2·29	+2·58
Year	-0·48	-0·36	-0·83	-1·20	-1·58	-1·29	-0·98	-0·13	+1·06	+1·75	+1·95	+1·62	+1·19	+0·30	-0·30	-0·93	-0·93	-0·84	-0·85	-0·20	+0·13	+0·96	+0·80	+1·16
Winter	+0·37	+0·25	-0·40	-1·35	-2·15	-1·89	-2·19	-1·88	-0·41	+0·09	+0·34	+0·25	+0·51	-0·34	-0·83	-0·79	-0·16	+0·80	+0·85	+2·04	+1·07	+1·99	+2·29	+1·53
Equinox	-0·95	-0·14	-0·89	-1·32	-1·75	-1·77	-1·19	-0·07	+1·34	+2·22	+2·78	+2·69	+2·02	+0·73	+0·03	-0·89	-0·84	-0·40	-0·69	-0·43	-0·39	-0·06	-0·17	-0·08
Summer	-0·86	-1·19	-1·21	-0·94	-0·83	-0·21	+0·42	+1·55	+2·26	+2·93	+2·72	+1·91	+1·03	+0·52	-0·10	-1·11	-2·00	-2·91	-2·73	-2·23	-0·30	+0·96	+0·29	+2·01

HORIZONTAL FORCE (DISTURBED DAYS)

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	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	-48·6	-67·5	-66·0	-16·7	+10·8	+12·9	+21·4	+13·1	-33·2	-31·1	-11·6	+13·1	+4·0	+43·9	+82·4	+82·1	+64·0	+66·5	+49·4	-21·3	+23·4	-66·5	-78·6	-45·9
February	+7·7	+6·6	+10·3	+10·6	+23·0	+4·1	+21·6	+15·8	+0·7	-9·2	-21·3	-22·6	-32·7	-17·0	-1·1	+13·2	+10·4	+5·1	+10·0	-8·8	-0·1	-4·6	-13·1	-8·6
March	+7·3	-27·4	-5·5	-6·5	+12·1	+10·2	+4·7	-2·7	-15·7	-35·4	-20·5	-18·5	-17·7	+5·2	+2·3	+12·1	+20·7	+34·8	+22·9	+16·5	+16·1	-4·0	-0·5	-10·5
April	+4·2	+2·9	-3·2	+0·3	-0·5	+1·6	-0·5	-4·1	-17·2	-33·9	-51·4	-53·1	-40·4	-20·1	+24·8	+45·3	+49·9	+36·0	+24·9	+32·3	+21·4	+0·9	-9·0	-11·1
May	+2·2	+16·8	+13·3	+4·8	+0·8	-15·8	-15·6	-32·0	-31·3	-24·8	-28·0	-17·0	-5·0	+22·2	+45·9	+58·4	+62·6	+96·4	+55·6	+43·4	-32·7	-77·8	-29·6	-112·8
June	+9·1	+13·1	+5·1	-3·1	-3·5	-4·1	-16·7	-32·3	-39·5	-50·7	-45·7	-32·5	-18·1	-15·3	+0·7	+10·1	+24·9	+35·1	+48·7	+47·1	+36·1	+18·1	+2·9	+10·5
July	+4·9	-0·4	+6·7	+10·4	+11·4	-6·9	-24·8	-36·0	-52·3	-59·0	-52·7	-42·6	-18·9	-19·4	-10·9	+36·4	+63·2	+75·3	+75·6	+55·0	+22·3	-5·2	-18·3	-13·8
August	-11·0	-0·1	+11·0	+11·3	+11·3	+5·0	-0·7	-17·1	-34·4	-62·3	-53·4	-39·1	-21·8	+0·7	+12·2	+19·3	+41·1	+31·8	+37·5	+34·3	+22·0	+18·1	+9·8	-25·5
September	-4·7	-31·6	-32·2	-10·9	+17·4	+14·4	+11·7	+5·0	-35·4	-35·9	-39·4	-31·6	-15·5	+16·8	+21·6	+42·9	+37·4	+17·8	+16·7	+12·0	+11·0	+9·9	+4·6	-2·0
October	-17·2	-6·5	+0·2	+1·0	-2·2	+10·3	-0·8	-4·2	-15·8	-30·7	-44·8	-44·6	-24·2	-5·3	+10·8	+30·4	+28·8	+31·3	+65·4	+34·0	+7·2	+0·9	-7·2	-18·8
November	+9·0	+3·3	+14·6	+15·6	+24·2	+20·3	+14·2	+18·0	+11·4	-5·1	-17·4	-20·0	-12·2	-4·1	-10·2	-6·8	-7·0	-6·7	-5·0	-8·2	-6·2	-7·9	-7·8	-6·0
December	-8·3	-1·9	+7·1	+12·3	+15·3	+20·2	+20·7	+18·9	+10·3	+9·5	+5·1	-1·7	+0·5	+4·9	+9·9	+6·7	+13·7	-9·2	-9·5	-21·9	-23·1	-20·1	-25·7	-33·7
Year	-3·8	-7·7	-3·2	+2·4	+10·0	+6·0	+2·9	-4·8	-21·0	-30·7	-31·8	-25·9	-16·8	+1·0	+15·7	+29·2	+34·1	+34·5	+32·7	+17·9	+8·1	-11·5	-14·4	-23·0
Winter	-10·1	-14·9	-8·5	+5·5	+18·3	+14·4	+19·5	+16·5	-2·7	-9·0	-11·3	-7·8	-10·1	+6·9	+20·3	+23·8	+20·3	+13·9	+11·2	-15·1	-1·5	-24·8	-31·3	-23·5
Equinox	-2·6	-15·7	-10·2	-4·0	+6·7	+9·1	+3·8	-1·5	-21·0	-34·0	-39·0	-36·9	-24·5	-0·9	+14·9	+32·7	+34·2	+30·0	+32·5	+23·7	+13·9	+1·9	-3·0	-10·1
Summer	+1·3	+7·3	+9·0	+5·9	+5·0	-5·5	-14·5	-29·3	-39·4	-49·2	-44·9	-32·8	-15·9	-2·9	+12·0	+31·1	+47·9	+59·7	+54·3	+44·9	+11·9	-11·7	-8·8	-35·4

RANGE OF MEAN DIURNAL INEQUALITIES FOR THE MONTHS, YEAR AND SEASONS OF 1938

NOTE. The ranges are derived from the diurnal inequalities printed in Tables 317 to 334

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MONTH AND SEASON	All Days			Quiet Days			Disturbed Days			All Days			Quiet Days			Disturbed Days		
	N	W	V	N	W	V	N	W	V	D	I	H	D	I	H	D	I	H
	γ	γ	γ	γ	γ	γ	γ	γ	γ	′	′	γ	′	′	γ	′	′	γ
January	27·2	46·0	42·7	17·4	29·4	16·0	150·1	120·9	182·1	8·75	2·02	30·4	6·34	1·18	18·7	19·29	9·51	161·0
February	32·0	36·1	39·9	35·2	37·6	11·6	63·4	51·4	145·4	8·16	2·07	27·4	8·14	2·16	34·7	10·28	4·96	55·7
March	44·4	56·6	34·2	56·5	61·0	19·0	60·1	102·7	119·0	11·53	2·43	42·7	12·77	3·38	55·0	21·31	3·94	70·2
April	68·5	73·9	31·9	62·2	69·7	22·8	96·8	85·9	83·1	15·74	3·88	67·1	15·03	3·83	62·4	16·99	5·83	103·0
May	66·7	62·7	41·9	47·1	51·6	26·5	156·3	151·7	106·8	12·96	3·87	71·0	11·26	2·64	47·3	25·84	12·33	209·2
June	65·8	67·5	31·2	61·0	63·3	27·9	91·2	77·3	59·2	13·47	4·27	71·1	13·08	3·71	63·0	14·92	5·78	99·4
July	70·6	69·9	35·2	54·7	77·5	30·1	126·4	79·4	90·2	14·02	4·21	74·5	15·78	3·18	55·5	13·28	7·49	134·6
August	70·3	72·3	35·1	59·6	62·3	20·6	97·1	87·4	97·9	15·21	4·15	71·0	13·06	3·90	60·4	17·26	5·61	103·4
September	48·6	57·5	46·8	52·5	59·4	19·0	72·9	97·2	212·2	11·99	3·07	49·7	12·88	3·23	53·2	19·31	6·21	82·3
October	52·9	47·7	42·3	49·7	46·0	11·4	113·1	80·9	156·4	10·27	3·34	50·3	9·96	2·96	46·6	16·21	6·16	110·2
November	35·2	34·2	20·0	33·7	28·2	4·6	50·6	68·0	63·2	7·77	2·23	32·4	6·00	2·23	33·4	14·65	3·68	44·2
December	20·7	33·1	31·9	18·2	17·5	6·0	45·3	91·4	126·9	7·07	1·49	18·0	3·74	1·13	18·0	17·24	6·03	54·4
Year	45·8	50·2	30·5	43·3	47·1	16·0	61·2	66·4	101·5	10·43	2·53	47·0	10·12	2·66	43·2	12·32	3·53	66·3
Winter	25·0	36·0	30·4	24·4	26·7	8·4	43·1	72·8	109·1	7·76	1·69	22·9	5·71	1·52	24·4	13·04	4·48	55·1
Equinox	52·8	57·8	36·1	53·3	56·4	17·1	69·7	77·8	130·5	12·37	2·95	51·5	12·45	3·17	52·7	15·31	4·55	73·2
Summer	66·4	67·6	34·7	54·3	63·4	24·7	98·7	78·3	80·1	13·87	3·93	69·5	13·28	3·34	55·9	14·70	5·84	108·9

NON-CYCLIC CHANGE

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MONTH AND SEASON	All Days			Quiet Days			Disturbed Days		
	H	D	V	H	D	V	H	D	V
	γ	′	γ	γ	′	γ	γ	′	γ
January	-0·9	-0·03	+1·2	+9·4	+0·62	+5·6	-19·9	+2·63	+19·1
February	+1·1	-0·19	-1·7	+4·8	-0·43	-0·6	-16·3	-1·17	+0·9
March	+0·5	+0·21	+0·9	+3·7	+0·15	-3·0	-9·6	+2·09	+8·9
April	+0·3	+0·05	-0·1	+2·5	+0·29	-2·6	-10·1	+1·62	-1·4
May	-0·6	-0·10	+0·3	+4·5	+0·03	-1·4	-42·5	-1·01	-39·5
June	+1·0	+0·04	-0·2	+4·3	+0·51	-0·5	-8·7	+0·22	-6·9
July	-0·7	-0·07	+0·3	0·0	-0·25	-0·8	-10·4	+1·48	+7·8
August	+0·4	-0·01	-0·3	+5·2	+0·91	-0·6	-12·3	-0·42	+0·7
September	-3·6	-0·24	-2·2	+8·0	+0·02	-3·6	-5·3	+2·66	+7·7
October	+2·8	+0·10	+2·6	-0·2	-0·72	0·0	+14·4	+2·90	+21·1
November	+0·2	+0·05	-0·3	+3·9	+0·70	-1·7	-14·4	-1·67	+2·8
December	0·0	-0·07	0·0	+4·2	+0·15	-1·6	-27·1	-3·23	+19·5
Year	0·0	-0·01	0·0	+4·2	+0·17	-0·9	-13·5	+0·51	+3·4
Winter	+0·1	-0·06	-0·2	+5·6	+0·26	+0·4	-19·4	-0·86	+10·6
Equinox	0·0	+0·03	+0·3	+3·5	-0·07	-2·3	-2·7	+2·32	+9·1
Summer	0·0	-0·01	0·0	+3·5	+0·30	-0·8	-18·5	+0·07	-9·5

MEAN VALUES OF $HR_H + VR_V$*

(Unit $10{,}000\gamma^2$)

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HR_H	VR_V	Sum	Mean Character Figure
377	625	1002	1·00
139	303	442	0·75
167	319	486	0·65
278	448	726	0·73
320	470	790	0·84
174	217	391	0·47
205	299	504	0·55
209	325	534	0·55
219	416	635	0·60
196	331	527	0·61
111	203	314	0·33
113	259	372	0·45
209	351	560	0·63
185	347	532	0·63
215	379	594	0·65
227	328	555	0·60

* See p. 95.

MEAN MONTHLY AND ANNUAL VALUES OF TERRESTRIAL MAGNETIC ELEMENTS

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MONTH	Horizontal Force			Declination (West)			Vertical Force			North Component	West Component	Inclination (North)		Total Force
	a	q	d	a	q	d	a	q	d	all days	all days	all days		all days
	16,000γ+			13°+			44,000γ+							
	γ	γ	γ	′	′	′	γ	γ	γ	γ	γ	°	′	γ
January	487	504	455	20·9	21·7	20·6	965	951	995	16041	3806	69	51·9	47892
February	498	499	489	20·5	20·3	20·4	961	960	968	16053	3807	69	51·0	47893
March	503	512	486	19·8	20·4	19·4	954	950	952	16058	3805	69	50·5	47888
April	503	513	490	19·0	18·9	19·2	961	956	977	16059	3801	69	50·7	47894
May	506	515	487	18·1	18·1	17·5	962	958	966	16063	3798	69	50·5	47896
June	518	517	516	17·5	17·4	17·8	959	961	953	16076	3798	69	49·8	47898
July	515	517	509	16·9	16·7	18·0	967	966	969	16073	3794	69	50·0	47904
August	508	513	506	16·0	16·1	16·7	968	967	971	16067	3788	69	50·5	47902
September	501	509	475	15·1	16·0	13·7	967	966	969	16061	3782	69	51·0	47899
October	499	508	487	14·5	14·8	14·2	976	974	980	16061	3779	69	51·3	47907
November	504	511	495	13·8	13·8	14·1	978	974	983	16066	3777	69	51·0	47910
December	504	516	493	12·9	12·9	13·1	981	972	995	16067	3773	69	51·1	47913
Year	504	511	491	17·1	17·3	17·1	967	963	973	16062	3792	69	50·7	47900

HARMONIC COMPONENTS OF THE DIURNAL INEQUALITY OF MAGNETIC FORCE

Values of a_n, b_n in the series $\Sigma (a_n \cos 15nt^\circ + b_n \sin 15nt^\circ)$, t being reckoned in hours from midnight G.M.T.

Longitude of Eskdalemuir Observatory, 3° 12′W.

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Month and Season	North Component								West Component								Vertical Component							
	a_1	b_1	a_2	b_2	a_3	b_3	a_4	b_4	a_1	b_1	a_2	b_2	a_3	b_3	a_4	b_4	a_1	b_1	a_2	b_2	a_3	b_3	a_4	b_4
	ALL DAYS																							
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
Jan.	-2·1	-4·5	-9·8	+1·6	+1·4	-2·9	+2·7	0·0	-12·0	-6·4	-4·5	+8·7	+1·0	-1·1	+2·5	+2·1	-3·1	-17·8	-3·5	-0·1	+3·3	0·0	+0·1	-1·5
Feb.	+10·3	+3·3	-7·4	-1·9	+3·3	+0·2	-0·8	+0·1	-10·0	-9·1	-1·9	+7·7	+0·5	-4·3	+0·5	+3·0	+2·0	-16·3	-3·5	-1·5	+1·2	+2·9	+0·2	-0·4
Mar.	+15·5	-1·6	-11·0	-0·8	+4·3	-1·5	-0·3	+0·3	-11·4	-15·5	-0·3	+10·2	-2·0	-7·8	+1·0	+2·1	+0·4	-11·7	-6·9	-3·2	+1·5	+0·9	-0·6	-1·5
Apr.	+20·8	-8·3	-17·3	+1·5	+6·4	-1·3	-1·1	+1·4	-6·4	-21·6	+4·7	+14·2	-3·2	-8·1	+1·6	+1·6	-1·1	-10·2	-9·3	-2·5	+3·6	+1·1	-1·3	+1·1
May	+10·2	-11·2	-16·6	+3·3	+4·8	+3·6	-1·9	+1·9	-8·7	-22·2	+3·0	+11·9	-4·0	-3·2	+0·8	+0·5	+0·8	-13·6	-10·7	+0·4	+1·5	+0·9	-1·8	-0·5
June	+18·3	-13·1	-13·0	+2·1	-1·6	-0·1	+2·3	+1·8	-4·5	-24·8	+6·3	+11·3	-3·2	-2·0	+0·8	+0·3	+6·3	-7·3	-6·9	-2·3	+1·9	-0·2	-0·4	0·0
July	+19·2	-14·6	-16·7	+4·4	+0·8	+1·6	+1·6	-0·4	-4·8	-24·5	+4·5	+14·7	-3·4	-3·1	-0·1	-0·7	+2·4	-11·0	-9·4	+0·2	+0·9	+1·3	-0·2	-0·5
Aug.	+20·7	-12·1	-16·1	+4·7	+0·7	-2·7	+0·6	+1·5	-9·1	-22·8	+9·5	+10·6	-6·2	-4·4	-0·9	+1·2	-0·1	-10·4	-10·0	-1·4	+2·8	+0·3	-1·3	0·0
Sept.	+17·6	-4·6	-11·7	0·0	+2·5	-4·2	+0·4	+0·8	-11·4	-16·8	+0·9	+10·7	-2·7	-6·1	+2·9	+1·0	-7·0	-15·3	-8·5	-4·2	+2·9	-0·5	+0·5	+0·3
Oct.	+17·3	-1·9	-12·6	+1·5	+3·3	-3·0	-0·3	+2·1	-12·8	-9·7	+2·2	+11·0	-3·7	-3·1	+2·4	+2·5	-8·2	-14·7	-5·8	-0·5	+2·4	+1·8	-2·2	+0·7
Nov.	+11·4	+3·7	-7·6	-0·8	+2·5	-2·2	-0·4	+1·6	-8·6	-6·3	-2·6	+8·2	-0·3	-2·4	+0·5	+3·7	-0·6	-9·9	-3·1	-0·6	+0·7	0·0	-0·6	-0·3
Dec.	+3·7	+3·2	-5·0	-0·1	+1·4	-1·5	-0·7	-0·6	-11·6	-5·2	-3·9	+6·1	-0·1	+0·1	+1·6	+0·7	+3·5	-12·9	-3·8	-3·3	-1·8	+0·9	-0·6	+0·8
Year	+13·7	-5·3	-12·0	+1·5	+2·3	-1·3	+0·4	+0·7	-9·4	-15·4	+1·6	+10·5	-2·4	-3·7	+1·3	+1·4	-0·4	-12·6	-6·8	-1·6	+1·7	+0·8	-0·7	-0·2
Winter	+5·8	+1·5	-7·5	-0·2	+2·1	-1·6	+0·2	+0·3	-10·9	-6·7	-2·9	+7·6	0·0	-1·7	+1·6	+2·2	+0·5	-14·2	-3·5	-1·4	+0·9	+0·9	-0·2	-0·4
Equinox	+17·8	-4·1	-13·1	+0·6	+4·1	-2·5	-0·3	+1·2	-10·5	-15·9	+1·9	+11·5	-2·9	-6·3	+2·0	+1·8	-4·0	-13·0	-7·6	-2·6	+2·6	+0·8	-0·9	+0·2
Summer	+17·5	-13·3	-15·4	+4·3	+0·6	+0·3	+1·3	+0·8	-6·8	-23·6	+5·8	+12·1	-4·2	-3·1	+0·2	+0·3	+2·4	-10·6	-9·3	-0·8	+1·8	+0·6	-0·9	-0·2
	QUIET DAYS																							
Year	+15·0	-2·5	-10·0	+0·2	+2·5	-1·5	-0·3	+1·1	-4·1	-13·9	+3·7	+9·2	-3·5	-4·0	+0·9	+1·4	+4·7	-1·1	-4·2	-0·6	+1·7	+0·2	-0·7	-0·4
Winter	+8·1	+1·7	-6·9	-1·4	+2·1	-0·9	-0·1	+0·7	-3·9	-5·8	-0·6	+5·7	-1·7	-2·3	+0·9	+2·0	+1·9	-1·3	-1·3	-0·2	+0·5	-0·1	-0·8	-0·6
Equinox	+20·3	-0·6	-11·8	-0·9	+4·4	-1·6	-1·0	+1·4	-3·3	-16·3	+3·2	+11·2	-4·0	-6·2	+1·5	+2·1	+5·1	-0·3	-4·5	-1·3	+2·4	+0·4	-1·0	-0·2
Summer	+16·6	-8·5	-11·6	+2·9	+0·8	-1·9	+0·3	+1·3	-5·1	-19·7	+8·4	+10·7	-4·9	-3·3	+0·4	+0·2	+7·0	-1·6	-6·9	-0·4	+2·1	+0·3	-0·4	-0·3
	DISTURBED DAYS																							
Year	+6·8	-15·3	-19·0	+7·9	+1·4	-1·4	+0·8	+0·5	-19·6	-18·8	-4·2	+13·4	+0·2	-2·7	+2·4	+2·3	-13·8	-40·3	-13·0	-1·4	+2·9	+3·3	+0·2	+0·2
Winter	-5·5	-2·8	-14·2	+4·6	+2·3	-5·2	-0·2	-1·6	-18·3	-9·8	-7·1	+14·1	+3·7	-0·5	+2·4	+3·4	-3·3	-41·5	-11·9	-1·7	+2·8	+5·4	+3·7	-0·2
Equinox	+11·9	-15·1	-19·8	+6·1	+4·1	-4·2	-0·3	+0·8	-22·9	-18·0	-5·1	+10·9	+1·0	-8·7	+3·7	+1·3	-28·5	-44·7	-13·6	-4·6	+5·1	+4·8	-0·1	+2·7
Summer	+13·9	-27·8	-23·0	+13·0	-2·2	+5·3	+3·0	+2·3	-17·6	-28·7	-0·3	+15·3	-4·0	+0·8	+1·1	+2·2	-9·7	-34·7	-13·4	+2·2	+0·9	-0·3	-3·2	-1·9

HARMONIC COMPONENTS OF THE DIURNAL INEQUALITY OF MAGNETIC FORCE

Values of c_n, α_n in the series $\Sigma c_n \sin (15n\,T^\circ + \alpha n)$ T being Mean Local Time, reckoned in hours from midnight

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Month and Season	North Component								West Component								Vertical Component							
	a_1	a_1	c_2	a_2	c_3	a_3	c_4	a_4	c_1	a_1	c_2	a_2	c_3	a_3	c_4	a_4	c_1	a_1	c_2	a_2	c_3	a_3	c_4	a_4
	ALL DAYS																							
	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°
Jan.	4·9	208	9·9	285	3·2	164	2·7	103	13·6	245	9·8	339	1·5	147	3·2	63	18·1	193	3·5	274	3·3	100	1·5	189
Feb.	10·8	75	7·7	262	3·3	97	0·8	293	13·5	231	7·9	352	4·3	182	3·1	22	16·4	176	3·8	253	3·2	31	0·5	163
Mar.	15·6	99	11·0	272	4·6	119	0·4	323	19·2	219	10·2	5	8·1	204	2·3	39	11·7	181	7·6	251	1·7	66	1·6	215
Apr.	22·4	115	17·3	281	6·5	111	1·8	335	22·5	200	15·0	25	8·7	211	2·3	56	10·3	189	9·7	262	3·7	83	1·7	322
May	15·1	141	16·9	288	6·0	63	2·7	327	23·9	205	12·3	21	5·2	241	0·9	67	13·6	180	10·7	279	1·8	68	1·8	268
June	22·5	129	13·1	286	1·6	275	2·9	65	25·2	193	13·0	35	3·7	248	0·8	84	9·7	142	7·3	258	1·9	105	0·4	282
July	24·1	130	17·3	291	1·8	36	1·7	118	25·0	194	15·4	23	4·6	237	0·7	202	11·2	171	9·4	277	1·6	45	0·5	214
Aug.	24·0	123	16·8	293	2·9	175	1·6	36	24·6	205	14·2	48	7·6	244	1·5	336	10·4	184	10·1	269	2·8	93	1·3	282
Sept.	18·2	108	11·7	276	4·9	159	0·9	40	20·3	217	10·8	11	6·7	214	3·1	84	16·8	208	9·5	250	3·0	109	0·6	72
Oct.	17·4	100	12·7	283	4·4	142	2·1	6	16·0	236	11·2	18	4·8	239	3·5	57	16·9	212	5·9	272	3·0	62	2·3	301
Nov.	12·0	75	7·7	271	3·3	142	1·7	359	10·7	237	8·6	349	2·4	196	3·7	21	9·9	187	3·1	266	0·7	103	0·7	257
Dec.	4·8	52	5·0	276	2·1	147	0·9	238	12·7	249	7·3	334	0·1	318	1·8	81	13·3	168	5·0	235	2·0	308	1·0	339
Year	14·7	114	12·1	283	2·6	129	0·8	40	18·0	215	10·6	15	4·4	222	1·9	54	12·6	185	7·0	263	1·9	75	0·7	269
Winter	6·0	79	7·5	275	2·7	136	0·3	54	12·8	242	8·1	346	1·7	191	2·7	49	14·2	181	3·7	254	1·3	52	0·4	224
Equinox	18·3	106	13·1	279	4·8	131	1·2	357	19·1	217	11·7	15	6·9	214	2·7	60	13·6	200	8·1	258	2·7	82	0·9	293
Summer	22·0	130	16·0	292	0·7	72	1·5	70	24·6	199	13·4	32	5·2	243	0·4	37	10·9	171	9·3	272	1·9	81	0·9	268
	QUIET DAYS																							
Year	15·2	103	10·0	278	2·9	130	1·1	360	14·5	200	9·9	28	5·3	231	1·7	46	4·8	106	4·3	268	1·7	93	0·8	254
Winter	8·2	81	7·0	265	2·3	121	0·7	3	7·0	218	5·8	360	2·9	226	2·2	37	2·3	127	1·3	268	0·5	109	1·0	244
Equinox	20·3	95	11·8	272	4·7	119	1·7	338	16·7	195	11·6	22	7·4	222	2·6	48	5·1	97	4·7	261	2·5	91	1·1	270
Summer	18·6	120	12·0	291	2·1	167	1·3	28	20·3	198	13·6	45	5·9	246	0·4	76	7·2	106	6·9	273	2·1	91	0·5	240
	DISTURBED DAYS																							
Year	16·7	159	20·6	299	2·0	144	0·9	70	27·2	229	14·1	349	2·7	185	3·3	59	42·6	202	13·1	270	4·4	51	0·3	51
Winter	6·1	246	14·9	295	5·7	165	1·7	201	20·8	245	15·8	340	3·7	107	4·2	48	41·6	188	12·1	268	6·0	37	3·8	107
Equinox	19·2	145	20·8	294	5·9	145	0·9	351	29·1	235	12·0	341	8·7	183	4·0	84	53·0	216	14·3	258	7·0	56	2·7	370
Summer	31·1	157	26·4	306	5·7	347	3·8	66	33·7	215	15·3	5	4·1	291	2·5	39	36·1	199	13·6	286	0·9	118	3·7	252

M.O. 578

THE OBSERVATORIES' YEAR BOOK 1938

Comprising the meteorological and geophysical results obtained from autographic records and eye observations at the Lerwick, Aberdeen, Eskdalemuir, Valentia, and Kew observatories, and the results of soundings of the upper atmosphere by means of registering balloons

VALENTIA OBSERVATORY

Decimal Index
551.506.1

Obs. Yearb., 1938,
London, 1955

VALENTIA OBSERVATORY

Latitude	51°56′N.
Longitude	10°15′W.
G.M.T. of Local Mean Noon	12h.41m.

Heights of instruments	above M.S.L.	above ground
	m.	m.
Barometer	13·7	..
Thermometer bulbs	..	1·3
Rain-gauge	9·1	..
Beckley rain-gauge rim	..	0·5
Sunshine recorder	..	12·8
Robinson cup anemograph	26	14
Pressure-tube anemograph	30	13

INTRODUCTION

Valentia Observatory derives its name from the fact that it was originally established on Valentia Island in 1867. It was removed to the mainland in March 1892, and now lies about 1 Km. (¾ mile) south-west of the town of Cahirciveen and about 4 Km. (2½ miles) north-east of the former site. The Observatory was maintained by the British Meteorological Office until April 1, 1937, when the Irish Meteorological Service assumed control.

SITE

The Observatory is remote from any other buildings. The general character of the surrounding country is hilly. The eastern bank of the Cahir river is about 150 m. to the westward, and in that direction there is no very high ground between the Observatory and the open sea, some 6 Km. (3½ miles) away. To the north-west, however, are hills varying in height from 120 to 275 m. (400 to 900 ft.), the highest being less than 5 Km. (3 miles) distant. These are only separated by a narrow gully running in a north-north-west direction from other hills equally high, which stretch away to the northward: the nearest of these is but little more than 1½ Km. (1 mile) from the Observatory. Beyond the town of Cahirciveen to the north-east the river opens out considerably, and the country in this direction becomes an open boggy basin, rising by only a gentle gradient. Southward of this, however, it soon rises again, and at about a mile south-east of the Observatory it culminates in the hill Bentee upwards of 380 m. (1,245 ft.) in height. Still further south it opens out once more to a distance of nearly 8 Km. (5 miles) from the Observatory, where there is a range of hills running east and west, and varying in height from 120 to 400 m. (400 to 1,300 ft.). To the south-west there is an opening to the sea, between Valentia Island and the mainland; and the circle of hills is completed by those on the Island itself, the highest of which is about 240 m. (800 ft.) high, and bears about west-south-west from the Observatory. A contoured map of the surroundings, a general view from south, a site plan and a view showing the disposition of the various instruments are given in Figs. 14-17.

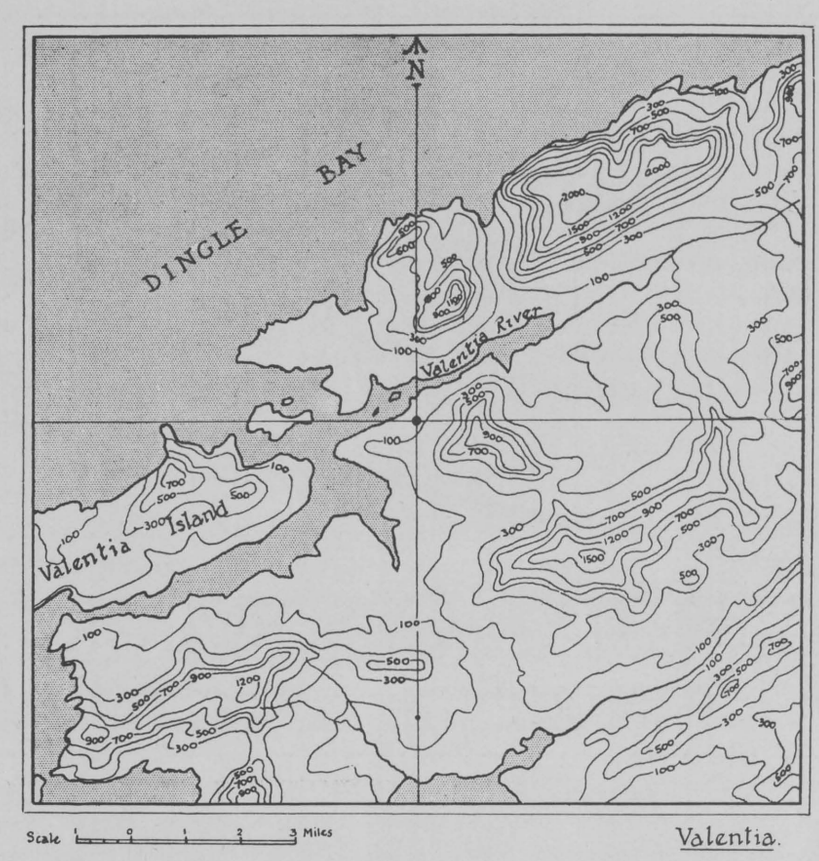

FIG. 14.—CONTOURED MAP SHOWING SURROUNDINGS OF VALENTIA OBSERVATORY. (THE HEIGHTS ARE GIVEN IN FEET ABOVE IRISH ORDNANCE DATUM).

FIG. 15.—GENERAL VIEW FROM S. (THE OBSERVATORY BUILDING IS IN THE CENTRE OF THE PHOTOGRAPH).

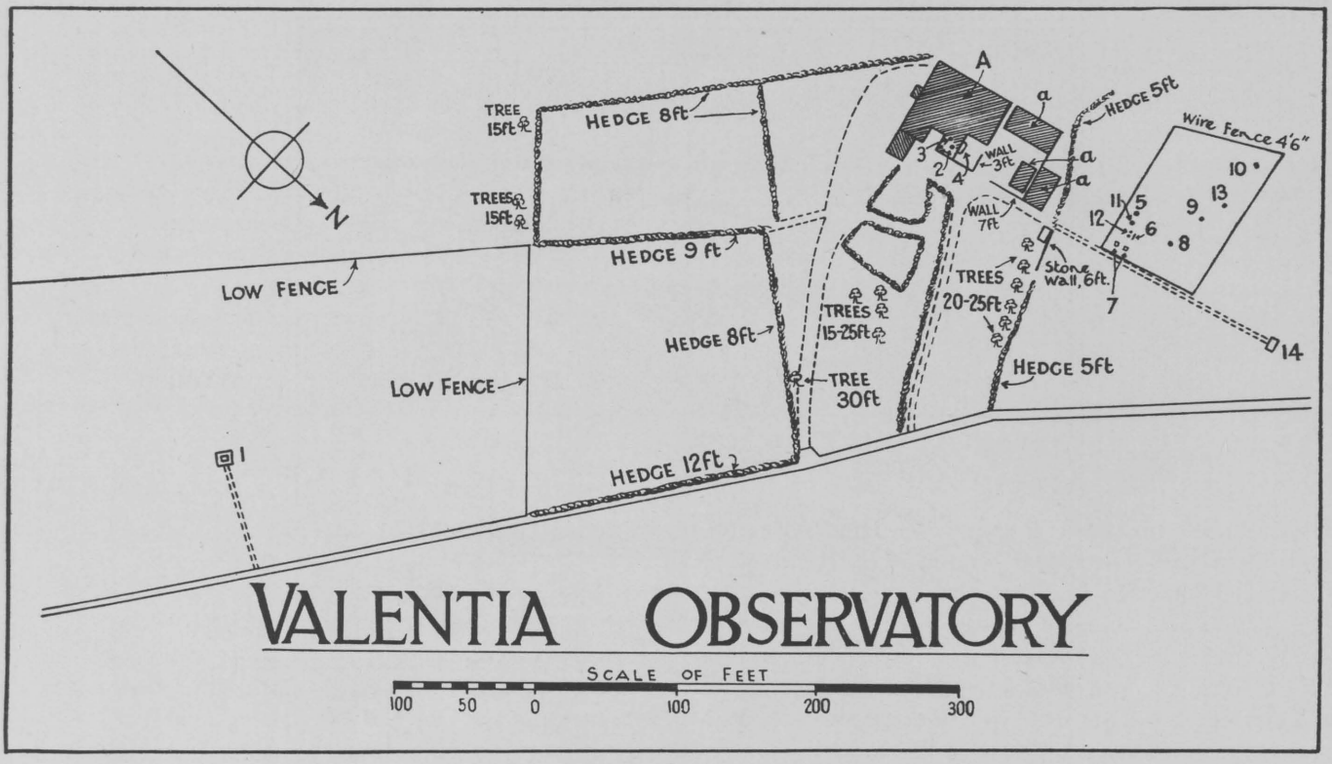

FIG. **16** —SITE PLAN.

FIG. 17.—VIEW OF INSTRUMENT ENCLOSURE FROM N.W.

A.—OBSERVATORY BUILDING. a.—SHEDS.
1.—DINES PRESSURE TUBE AMEMOMETER. 2.—ROBINSON CUP ANEMOGRAPH.
3.—CAMPBELL STOKES SUNSHINE RECORDER ON OBSERVATORY TOWER.
4.—NORTH WALL SCREEN CONTAINING BULBS OF PHOTO-THERMOGRAPH AND STANDARD CONTROL THERMOMETERS.
5.—BECKLEY AUTOGRAPHIC RAINGAUGE AND 8 INCH CONTROL RAINGAUGE.
6.—GRASS MINIMUM THERMOMETER.
7.—EXPERIMENTAL AND STEVENSON THERMOMETER SCREENS.
8.—JARDI RATE OF RAINFALL RECORDER. 9.—BESSON COMB NEPHOSOCOPE.
10.—EVAPORATION GAUGE. 11.—DINES TILTING SYPHON RAINGAUGE.
12.—EARTH THERMOMETERS. 13.—CHECK RAINGAUGE.
14.—HUT FOR ABSOLUTE MAGNETIC OBSERVATIONS.

METEOROLOGY

The elements dealt with in the following tables are:— atmospheric pressure, air temperature, humidity, rainfall, sunshine, wind, earth temperature and minimum temperature on the grass. As mentioned in the General Introduction to this volume, the detailed monthly tables of hourly values of pressure, temperature, humidity, rainfall, sunshine and wind as published until 1937 are not included. Tabular summaries of daily mean values (or totals), monthly means (or totals) of hourly values and some maximum and minimum values are given. Hourly values of the elements mentioned are available in manuscript form. The diary of cloud, weather and visibility is also discontinued.

NOTES ON THE INSTRUMENTS

Pressure and temperature.—The photographic barograph and thermograph are installed in a room on the ground floor of the Observatory tower. The standard Fortin barometer, from which the control readings at 9h., 15h. and 21h. are taken, is mounted in the same room beside a window which faces north-east. The stems of the dry- and wet-bulb thermometers pass out into the screen placed against the north wall of the tower. Close to the bulbs of these thermometers are the bulbs of the standard thermometers from which the control readings at 9h., 15h. and 21h. are taken.

Rainfall.— The Beckley rain-gauge and 8-in. (20·3 cm.) check gauge are placed in a railed-off enclosure about 40 m. to the north of the tower.

Sunshine.— The recorder is cemented to a wooden rail on the roof of the tower. The exposure of the sunshine recorder is such that there is no appreciable loss of record due to obstructions in the months of May, June, July and August. During the remainder of the year the hill Bentee, lying to the south-east, cuts off early morning sunshine. The reduction in possible record, assuming that the recorder becomes sensitive to sunshine only when the sun is at an altitude of more than three degrees, is shown in the following table for the 1st and 15th of each month:—

REDUCTION IN POSSIBLE RECORD IN TENTHS OF AN HOUR

	Jan.	Feb.	Mar.	Apr.	Sept.	Oct.	Nov.	Dec.
	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.
1st	0·5	0·5	0·7	0·5	0·3	0·7	0·5	0·6
15th	0·6	0·5	0·7	0·3	0·5	0·7	0·5	0·5

Wind, speed and direction.— Up to 1925 measurements of wind speed and direction, as given in the tables, were obtained from the Robinson cup anemograph on the roof of the Observatory tower. From 1926 to 1931 measurements of wind speed and direction refer to records from an old-pattern Meteorological Office pressure-tube anemograph. A comparison between the mean speed as recorded by this anemograph and the cup anemometer is given in the General Introduction. A new Meteorological Office pressure-tube anemograph, with 1-in. connecting pipes, was brought into use on January 1, 1932. The new instrument was erected alongside the old instrument with its head at the same height; a comparison extending over the period May 1931 to January 1932 showed that the new instrument recorded higher speeds than the old. In hourly mean values the difference was nearly uniform and equal to 1 m.p.h. (0·4 m./sec.). In great speeds the increase was approximately 12 per cent. of the speed recorded by the old instrument.

The site of the pressure-tube anemograph is in an open field, about 250 m. south-east by east of the Observatory tower. About 1½ Km. (1 mile) to the south-east is the highest point, 380 m. (1,245 ft.) of the hill Bentee which extends for some little distance in a northerly and south-westerly direction. A description of the surrounding country has already been given.

In a few instances where records of the pressure-tube anemographs have been defective, the required values have been obtained from the records of the cup anemometer, a suitable adjustment of such values having been made in accordance with the table in the General Introduction showing the effect of exposure on the two instruments. Values thus obtained are entered as interpolated values.

Earth temperature.—The thermometers are at depths of 30 cm. and 122 cm. below the grass-covered surface of the ground. The site is well exposed. The thermometers are of the standard type described in the " Observer's handbook".

Minimum temperature on the grass.— The grass minimum thermometer is of the type described in the General Introduction. It is exposed over short grass in the field enclosure. It is set at 18h. and read at 7h. on the succeeding day, the observation being entered to the day of reading.

NOTES ON THE METEOROLOGICAL SUMMARIES

Weather of 1938.— Notable features were the particularly dry spring, the excessive rain throughout the summer and autumn and the unusually sunny December with its cold spell from the 18th to 26th. Rainfall and temperature were above the average and sunshine slightly below.

Pressure.— No change in the values used for reducing pressure at station level to pressure at mean sea level was made at Valentia Observatory by the introduction in 1928 of the revised scheme as set out in the General Introduction.

Mean pressure for the year was 1·6 mb. above normal. Of the monthly mean pressures four were higher and eight were lower than normal. The departures ranged from an excess of 15 mb. in April to a deficiency of 8 mb. in November. The extreme values recorded were 1043 mb. and 961 mb. on February 11 and January 14 respectively.

Details of the Fourier analysis of the diurnal inequalities of pressure for the year are given in Table A, together with normal values referring to the period 1871-1926 as computed by Dr. A. Crichton Mitchell*. From 1935 onwards, these values have been adjusted for local mean time so as to agree with current data. The coefficients are given to the nearest 0·01 mb. and the phase angles to the nearest 1°.

Temperature.— Mean temperature for the year was 0·7°A. above normal. The greatest departures from normal were -0·8°A. in July and +2·6°A. in March. The highest temperature (297·9°A.) occured on August 3 and the lowest (269·0°A.) on December 22.

The harmonic analysis of the monthly and seasonal diurnal inequalities of temperature is given in Table B together with normal values referring to the period of 1871-1926 as computed by Dr. A. Crichton Mitchell*. From 1935 onwards, these values have been adjusted for local mean time so as to agree with current data. The coefficients are given to the nearest 0·01°A. and the phase angles to the nearest 1°.

Rainfall.— The total rainfall for the year was 1,556 mm., this amount being 142 mm. above the average. February, March, April, and December were all below normal, April (2 mm.) being the driest month since records began in 1866. Rainfall in excess of the average for the remaining months amounted to 38 per cent. October (190 mm.) was the wettest month. Amounts in excess of 25 mm. were measured on 8 days.

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* Mitchell, A. Crichton; Diurnal variation of pressure and temperature at Cahirciveen (Valentia), 1871-1926. *Quart. J.R. met. Soc., London,* 55, 1929, p. 310.

Sunshine.— Sunshine for year totalled 1,312 hr. which is 4 per cent. below the average. April with a total of 262 hr. (63 per cent. of possible) was the brightest and November with 36 hr. (14 per cent. of possible) the dullest month.

IDENFIFICATION NUMBERS OF INSTRUMENTS IN USE IN 1938

Standard Fortin barometer M.O.463
Standard dry-bulb thermometer .. M.O.1701 Corrections Nil
Standard wet-bulb thermometer .. M.O.1702 Corrections 255°- 266°+ 0·2°; 267°- 268°+ 0·1°; 269°- 272° Nil; 273° and above,- 0·1°
Recording Beckley rain-gauge ..
Jardi rate-of-rainfall recorder M.O.3
Control rain-gauge M.O.258
Glass for control rain-gauge .. M.O.1572 & 1737
Campbell-Stokes sunshine recorder M.O.5
Robinson cup anemograph .. .. Beck 46
Pressure-tube anemograph M.O.1084/30
Grass minimum thermometer .. .. M.O.60004/31 Corrections 2·0°F.- 0·1°F.; 12·0°F. Nil; 32·0°F. Nil; 52·0°F.+ 0·1°F.; 72·0°F.+ 0·1°F.
Earth thermometer 1 ft. .. .. M.O.9 Corrections 260°A.+ 0·1°A.; 280°A. and above, Nil
Earth thermometer 4 ft. .. .. M.O.24005 Corrections 273°A. Nil; 278°A.- 0·1°A.; 283°A. and above, Nil

All thermometer corrections are applied before tabulation.

TABLE A - DIURNAL VARIATION OF BAROMETRIC PRESSURE FOURIER COEFFICIENTS VALENTIA OBSERVATORY, LONGITUDE 10°15′W.

Values of c_n, α_n in the series $\Sigma c_n \sin(15nt + \alpha_n)$, t being local mean time reckoned in hours from midnight

	c_1		α_1		c_2		α_2		c_3		α_3		c_4		α_4	
	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926
	mb.	mb.	°	°	mb.	mb.	°	°	mb.	mb.	°	°	mb.	mb.	°	°
January	1·11	0·10	301	162	0·30	0·32	180	153	0·15	0·16	359	250	0·11	0·07	196	208
February	0·47	0·12	168	194	0·34	0·34	153	148	0·06	0·11	7	346	0·05	0·04	83	92
March	0·29	0·12	207	157	0·41	0·36	146	150	0·07	0·04	325	262	0·05	0·04	7	50
April	0·18	0·10	6	191	0·40	0·31	154	149	0·05	0·03	224	171	0·03	0·04	13	11
May	0·30	0·17	185	180	0·28	0·27	165	147	0·09	0·07	183	165	0·02	0·02	270	347
June	0·05	0·20	197	199	0·23	0·25	125	146	0·12	0·08	162	161	0·99	0·00	42	340
July	0·21	0·24	181	183	0·25	0·25	148	143	0·09	0·08	148	161	0·03	0·01	338	11
August	0·16	0·25	78	188	0·30	0·28	144	144	0·05	0·05	156	163	0·04	0·03	331	345
September	0·22	0·19	137	203	0·37	0·34	155	153	0·02	0·00	296	50	0·05	0·04	351	6
October	0·51	0·20	300	198	0·26	0·34	180	160	0·12	0·07	355	359	0·01	0·01	97	56
November	0·35	0·08	239	184	0·23	0·34	148	161	0·17	0·13	43	6	0·03	0·03	139	167
December	0·22	0·13	186	191	0·24	0·32	168	160	0·15	0·16	5	358	0·08	0·07	223	198
Arithmetic mean	0·34	0·16			0·30	0·31			0·09	0·08			0·12	0·03		
Year	0·14	0·15	243	188	0·29	0·31	156	153	0·03	0·03	27	5	0·00	0·00	277	70
Winter	0·31	0·11	259	184	0·21	0·33	148	155	0·13	0·14	16	356	0·13	0·04	209	182
Equinox	0·10	0·15	271	191	0·35	0·34	157	153	0·04	0·02	324	351	0·03	0·03	6	25
Summer	0·14	0·21	167	188	0·26	0·26	146	145	0·09	0·07	163	162	0·01	0·02	319	350

"Winter" comprises the four months January, February, November, December; "Equinox" the months March, April, September, October; and "Summer" May to August.

TABLE B - DIURNAL VARIATION OF TEMPERATURE FOURIER COEFFICIENTS
VALENTIA OBSERVATORY, LONGITUDE 10°15′W.

Values of c_n, α_n in the series $\Sigma c_n \sin(15nt + \alpha_n)$, t being local mean time reckoned in hours from midnight

	c_1		α_1		c_2		α_2		c_3		α_3		c_4		α_4	
	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926
	°A.	°A.	°	°	°A.	°A.	°	°	°A.	°A.	°	°	°A.	°A.	°	°
January	0·48	0·48	240	238	0·25	0·26	45	53	0·16	0·11	232	226	0·05	0·02	32	46
February	0·64	0·81	237	234	0·20	0·37	45	53	0·09	0·09	219	237	0·04	0·03	177	189
March	1·28	1·34	231	235	0·39	0·42	55	60	0·06	0·04	168	328	0·10	0·08	181	216
April	3·14	1·80	234	239	0·53	0·36	101	72	0·36	0·15	36	41	0·15	0·06	275	236
May	1·95	2·08	239	242	0·22	0·19	87	98	0·25	0·24	53	57	0·08	0·04	299	309
June	1·63	2·05	243	243	0·05	0·11	48	97	0·16	0·21	87	63	0·05	0·03	33	13
July	1·44	1·86	240	243	0·22	0·15	46	75	0·06	0·20	70	59	0·01	0·01	353	339
August	1·61	1·74	240	243	0·22	0·30	100	69	0·09	0·16	53	47	0·04	0·03	272	240
September	0·15	1·55	237	242	0·04	0·45	87	70	0·01	0·06	38	216	0·01	0·09	256	234
October	0·75	1·11	234	241	0·33	0·41	68	68	0·12	0·08	256	274	0·07	0·07	358	225
November	0·42	0·72	239	239	0·30	0·35	71	62	0·08	0·12	255	252	0·03	0·01	8	115
December	0·56	0·44	244	234	0·29	0·26	42	55	0·17	0·11	229	241	0·06	0·03	65	59
Arithmetic mean	1·17	1·33			0·25	0·30			0·13	0·13			0·06	0·04		
Year	1·27	1·33	238	240	0·27	0·30	70	66	0·03	0·05	53	38	0·02	0·02	294	234
Winter	0·52	0·61	240	236	0·27	0·31	351	56	0·13	0·10	232	232	0·03	0·13	59	92
Equinox	1·63	1·45	234	239	0·39	0·41	80	67	1·00	0·05	116	6	0·08	0·08	246	228
Summer	1·65	1·93	240	242	0·16	0·18	75	82	0·14	0·20	64	57	0·04	0·02	343	222

"Winter" comprises the four months January, February, November, December; "Equinox" the months March, April, September, October; and "Summer" May to August.

TERRESTRIAL MAGNETISM

NOTES ON THE MAGNETIC OBSERVATIONS FOR THE YEAR 1938

Absolute observations of declination, horizontal force and inclination were made weekly at Valentia Observatory during the year 1938. The instruments in use were Dover unifilar No. 139, with collimator magnet No. 139A and mirror magnet No. 139C, and Dover dip circle No. 118. These instruments are the same as in previous years except that the Dover dip circle, No. 239 was used from May 1930 to October 1931. The mean times of observations were 10·24 for declination, 11·43 for horizontal force and 14·31 for inclination, all according to Greenwich Mean Time. In the individual observations the greatest departure from the mean time in any element was 8 min. The deflection of the mirror magnet was measured for two distances of the collimator magnet, namely 30 cm. and 40 cm. The complete deflection observation consisted of eight readings of the mirror magnet. The distribution constant, P, used for 1938 was computed from the mean deflections for 30 cm. and 40 cm. for the seven years 1931-1937 inclusive. The mean P so obtained was 7·53. The moment of the collimator magnet has decreased at the rate of about 1 unit per annum.

The values of declination, horizontal force and inclination obtained in the absolute observations are given in detail in Table C, but in Table D the mean monthly values are computed only from such of these absolute observations as were taken at times subsequently found, by reference to the Eskdalemuir magnetograph curves, to be free from serious disturbance. Observations in Table C taken at disturbed times and not, therefore, utilized for mean values in Table D, are marked with an asterisk. The north, west and vertical components and the total force for each month and the year are computed from the corresponding mean values of the observed elements.

Westerly declination has diminished by 9·3′ as compared with 1937. From 1936 to 1937 the decrease was 9·9′ and in the previous twelve months 11·1′. The average annual decrease for 5-year periods since 1910 is as follows:—

1910-15	1915-20	1920-25	1925-30	1930-35
8·2′	9·2′	11·1′	11·0′	10·7′

The rate of the eastward movement of the magnetic needle increased slowly up to about 1927, but is now apparently decreasing again.

Northerly inclination increased 0·3′ from 1937 to 1938. Changes during the past 10 years have been irregular, but, on the whole, it appears that inclination is diminishing at a slow rate.

Up to 1920 the mean annual values of horizontal force had shown a steady decline from year to year. In the years 1921 to 1924, 1927, 1931, 1933, 1934, 1937, and in 1938 the change was in the opposite direction, each year having a mean value higher than that of the preceding year.

The amount of annual change is shown in the following table:—

Period	Annual change	Period	Annual change
1910-15	5γ decrease (mean value)	1930-31	2γ increase
1915-20	6γ decrease (mean value)	1931-32	6γ decrease
1920-25	2γ increase (mean value)	1932-33	2γ increase
1925-26	14γ decrease	1933-34	1γ increase
1926-27	2γ increase	1934-35	8γ decrease
1927-28	11γ decrease	1935-36	3γ decrease
1928-29	5γ decrease	1936-37	1γ increase
1929-30	8γ decrease	1937-38	6γ increase

The reversal of the annual change in horizontal force in certain years was not accompanied by a corresponding reversal in total force. The average annual decrease in total force for 5-year periods since 1910 is as follows:—

1910-15	1915-20	1920-25	1925-30	1930-35
49γ	33γ	32γ	20γ	22γ

Total force, which until 1935 had continued to decrease but at an apparently diminishing rate, has this year shown an increase of 25γ. This is the third successive year in which an increase is shown, the amount being 1γ in 1936 and 15γ in 1937. The individual changes from year to year as shown in Table D are somewhat irregular, but this may be due in considerable measure to instrumental uncertainties. The total force is computed from the horizontal force and the inclination, using the formula $T = H \sec I$, so that an error of 0·1′ in I would give an error of approximately 4γ in T at Valentia. In addition, it is to be remembered that the secular change data for Valentia are obtained from absolute observations made at fixed hours at any of which the value obtained for an element may differ by an amount which is not necessarily constant from its true mean value for the day of observation. It is by no means improbable that owing to this and errors of observation, uncertainties to the extent of several tenths of a minute of arc may be introduced into the mean value of I for the year. For the average change over a series of years these possible errors are naturally much diminished, and the average fall of 31γ per annum in the total force up to 1935 obtained from the values in Table D is probably a close approximation to the true change. To assume that the magnetic field in the Valentia district is increasing at a specified rate would be premature at this stage, but the values obtained in recent years suggest that the minimum had been reached about 1935 and that the field is now increasing.

TABLE C - ABSOLUTE MAGNETIC OBSERVATIONS, 1938
VALENTIA OBSERVATORY, LATITUDE 51°56′ N. LONGITUDE 10°15′ W.

The mean times of observations were 10h. 24m. for declination, 11h. 43m. for horizontal force and 14h. 31m. for inclination. The greatest departure in an individual observation was 8 min. from the mean time mentioned.

	Westerly declination		Horizontal force	Northerly inclination	
	°	′	γ	°	′
Jan. 7	16	8·8	17832	67	58·2
13	16	11·9	17802	67	59·4
21	16	11·0*	17767*	67	59·2*
27	16	5·1	17798	67	59·4
Feb. 4	16	7·8	17810	67	58·4
10	16	5·8*	17775*	67	59·3
17	16	5·8	17800	67	58·7
24	16	6·6	17809	67	59·3
Mar. 4	16	4·7	17815	67	58·3
10	16	4·5	17802	67	59·3
18	16	3·3	17798	67	57·7
24	16	7·4*	17764*	67	59·7
Apr. 1	16	0·2	17794	67	58·0
7	16	2·1	17793*	67	59·4*
14	16	5·1*	17780*		
21	16	1·1	17797	67	59·7
29	16	1·9	17796	67	58·0
May 5	15	59·1	17813	67	59·0
13	16	2·5	17759	67	59·5
19	16	1·6	17805	67	57·6
27	16	1·2	17818	67	57·2
June 2	16	2·2	17809	67	58·6
10	16	4·5	17826	67	57·3
17	16	2·0	17814	67	59·0
24	16	0·0	17838	67	57·0
30	16	0·3	17796	67	58·1
July 8	16	0·8	17809	67	58·3
14	16	1·9	17823	67	56·9
22	16	2·8	17811	67	57·6
28	16	5·8	17823	67	57·9
Aug. 5	16	0·3	17794	67	58·9
12	16	3·3	17787	67	58·1
19	16	0·3	17810	67	56·4
25	16	3·5	17797	67	58·7
Sept. 2	15	58·2	17818	67	57·9
9	16	2·4	17820	67	57·3
16	16	0·5	17768	67	59·9
23	15	58·3	17801	67	58·3
30	15	56·5*	17801	67	57·2
Oct. 7	16	5·3*	17786*	67	59·6*
14	15	56·9	17800	67	58·2
21	16	1·8	17813	67	58·3
28	16	2·5	17787	67	58·9
Nov. 4	15	59·2	17825	67	57·1
10	15	59·9	17786	67	59·2
18	15	59·7	17803	67	58·3
24	16	0·6	17807	67	59·6
Dec. 2	16	1·2	17842	67	56·4
9	15	58·3	17838	67	56·1
16	16	0·5	17842	67	57·7
23	16	1·1	17820	67	58·2
30	16	0·1	17848	67	56·9

* Disturbance at these times. Values not utilized in computing means given in Table D.

TABLE D - MAGNETIC DATA FOR THE YEAR 1938
VALENTIA OBSERVATORY, LATITUDE 51°56′ N. LONGITUDE 10°15′ W.

	Declination (West)		Inclination (North)		Horizontal force	North	West	Vertical force	Total
1938	°	′	°	′	γ	γ	γ	γ	γ
January	16	8·6	67	59·0	17811	17109	4952	44047	47512
February	16	6·7	67	58·9	17806	17107	4941	44031	47495
March	16	4·2	67	58·7	17805	17109	4929	44021	47485
April	16	1·3	67	58·6	17796	17104	4912	43995	47458
May	16	1·1	67	58·3	17799	17108	4912	43992	47456
June	16	1·8	67	58·0	17817	17124	4920	44024	47493
July	16	2·8	67	57·7	17817	17123	4925	44013	47483
August	16	1·9	67	58·0	17797	17105	4915	43975	47441
September	15	59·9	67	58·1	17802	17113	4906	43992	47457
October	16	0·4	67	58·5	17800	17110	4908	44001	47466
November	15	59·9	67	58·5	17805	17116	4907	44013	47479
December	16	0·2	67	57·1	17838	17147	4918	44044	47519
Year 1938	16	2·4	67	58·3	17808	17114	4920	44012	47478
Year 1937	16	11·7	67	58·0	17802	17095	4965	43987	47453
Year 1936	16	21·6	67	57·7	17801	17080	5014	43972	47438
Year 1935	16	32·7	67	57·4	17804	17067	5070	43969	47437
Year 1930	17	27·6	67	59·8	17813	16992	5345	44081	47546
Year 1925	18	22·4	68	0·0	17849	16939	5626	44177	47646
Year 1920	19	17·9	68	5·3	17840	16837	5896	44353	47806
Year 1915	20	3·8	68	7·9*	17869	16785	6130	44519*	47972*
Year 1910	20	44·6	68	13·0	17892	16732	6337	44771	48215

* Mean of 11 months only.

PRESSURE AT STATION LEVEL

Maximum, minimum and daily mean values in millibars for each day 0h. to 24h. Greenwich Mean Time
The initial 9 or 10 of the values is omitted, i.e. 1005·61 is printed 05·61

183 **VALENTIA OBSERVATORY:** H_b (height of barometer cistern above M.S.L.) = 13·7 m. 1938

DAY	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
1	36·9	34·9	36·0	13·8	96·4	04·1	36·9	18·1	27·0	27·3	22·9	25·9	18·1	13·5	15·2	10·9	02·9	04·7
2	35·7	34·1	34·9	25·4	11·9	19·3	39·2	36·5	37·8	22·9	15·0	18·5	15·5	12·5	13·6	18·5	10·9	15·8
3	35·0	32·8	33·9	25·9	23·0	24·9	36·5	32·6	34·0	34·5	21·3	29·0	17·7	15·1	16·4	17·6	06·0	11·2
4	34·5	33·0	33·6	23·0	13·9	18·9	38·5	34·1	36·5	34·0	28·3	31·0	17·3	15·7	16·5	06·0	02·5	04·5
5	33·0	27·8	31·1	23·7	11·2	15·8	34·3	32·7	33·5	30·0	26·9	28·6	20·4	16·2	17·6	04·9	00·2	02·8
6	27·8	06·2	15·9	28·6	23·7	26·5	33·3	29·0	31·0	30·3	28·8	29·5	21·9	20·2	20·9	00·2	94·6	97·2
7	06·2	00·0	03·2	23·7	18·4	21·2	29·3	25·1	26·6	29·0	26·5	27·5	23·2	21·0	22·1	10·5	99·3	06·3
8	00·0	79·4	90·0	23·7	15·9	20·9	25·7	23·1	24·0	26·6	23·5	25·0	22·5	19·4	21·3	17·8	10·0	13·5
9	80·2	73·7	77·4	25·6	17·9	21·4	23·9	21·8	22·6	29·6	24·2	26·4	19·4	16·8	17·8	23·5	17·8	20·5
10	94·6	78·5	86·7	38·2	25·4	29·7	28·5	23·8	26·2	37·0	29·5	33·3	17·1	15·3	15·9	26·8	23·1	24·0
11	98·5	91·9	95·6	41·2	38·2	39·9	28·8	27·0	27·9	39·9	36·9	38·3	15·3	09·4	12·1	28·5	25·4	27·2
12	01·3	88·1	95·1	38·5	33·5	35·1	30·4	27·5	29·2	39·5	33·6	36·7	09·6	06·9	08·0	29·6	25·8	27·5
13	06·0	92·7	00·8	36·4	33·6	35·0	29·5	15·4	22·9	33·6	27·7	30·6	06·9	99·0	02·3	30·7	29·3	30·0
14	07·1	59·6	88·2	33·8	28·7	30·6	15·5	10·9	13·5	27·7	25·1	26·6	99·0	94·4	95·8	29·7	28·1	29·0
15	03·3	59·8	90·9	30·8	29·2	30·0	15·1	07·6	10·5	25·8	23·1	24·6	14·1	96·6	04·8	29·4	28·0	28·8
16	03·5	87·0	90·9	30·6	28·9	29·7	17·5	06·2	12·2	28·4	23·5	25·2	16·0	14·1	15·1	28·9	25·1	27·3
17	17·1	03·5	13·1	29·0	21·4	26·3	17·4	15·7	16·5	32·0	27·8	29·6	14·9	06·9	10·7	25·1	13·2	19·2
18	11·6	95·0	00·5	29·8	21·5	27·1	15·9	08·0	12·1	32·3	30·8	31·6	16·1	05·4	10·0	13·2	10·0	11·3
19	14·4	02·4	10·8	31·7	28·7	30·8	08·4	01·9	06·2	30·8	29·0	29·9	18·2	15·3	17·2	23·7	12·8	18·6
20	14·2	07·8	11·4	33·4	31·7	32·5	02·7	00·4	01·5	32·2	29·9	31·1	19·1	14·7	17·0	24·5	21·0	23·6
21	23·6	08·0	19·6	32·4	28·6	30·9	12·6	00·4	05·7	32·1	30·1	31·3	25·3	18·7	21·2	21·0	18·8	19·6
22	24·0	19·2	20·7	28·6	21·7	24·8	17·9	12·6	15·7	30·1	24·5	27·1	27·1	15·6	24·5	19·5	17·8	18·6
23	24·5	19·0	22·5	21·7	16·5	19·2	18·5	16·6	17·8	25·4	23·3	23·9	24·0	15·1	22·1	19·2	16·8	18·5
24	27·8	14·6	23·5	16·5	07·8	12·2	16·6	13·1	14·2	28·4	25·4	26·9	23·8	17·2	22·3	16·8	08·3	13·1
25	27·1	12·7	21·9	07·8	01·9	03·2	20·3	12·9	16·0	28·3	25·1	26·8	14·5	08·0	13·1	13·8	07·6	10·7
26	23·8	11·7	14·9	22·9	97·5	06·4	21·4	18·8	20·2	25·1	19·6	21·9	08·0	93·5	98·3	13·9	02·3	10·2
27	22·0	13·7	18·4	23·8	21·2	22·2	25·5	20·2	22·7	21·8	19·6	20·4	05·3	97·8	02·6	06·4	98·4	03·1
28	14·7	99·4	07·5	21·7	13·2	16·3	25·7	24·0	24·9	23·3	21·4	22·5	04·4	00·3	02·7	06·3	86·2	94·1
29	10·1	00·2	04·5				25·2	22·7	24·0	23·2	19·5	21·7	04·0	95·1	98·4	07·6	98·8	05·9
30	13·6	02·2	10·1				26·2	24·5	25·3	19·5	18·1	18·9	10·8	96·2	04·9	06·6	05·1	05·8
31	08·9	92·2	99·0				26·8	24·7	25·5				09·1	99·0	02·8			
Mean	15·52	02·62	09·77	27·22	20·05	23·39	24·00	18·96	21·41	29·35	25·36	27·34	15·44	09·19	12·36	17·70	11·54	14·75

DAY	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
1	12·9	04·9	08·9	24·7	22·9	23·7	21·5	15·1	17·9	16·3	02·1	12·5	06·4	98·8	04·6	00·2	88·0	91·8
2	20·1	12·9	17·3	23·0	18·5	20·3	23·5	21·3	22·4	06·6	00·9	03·9	09·1	05·9	07·8	10·4	98·8	02·9
3	19·1	11·5	16·0	19·7	14·7	17·1	25·8	22·9	24·0	05·9	81·4	91·2	09·2	04·7	06·8	13·7	05·5	10·7
4	11·5	01·1	05·4	16·2	12·5	13·9	28·2	25·7	27·1	01·0	85·5	96·6	18·4	06·5	12·4	05·7	03·0	04·3
5	10·6	02·3	07·2	13·6	11·8	12·8	27·3	18·5	23·3	04·1	93·6	98·1	21·2	18·4	20·2	10·8	03·2	08·1
6	10·5	07·6	09·0	13·9	11·4	12·5	18·5	14·0	16·3	08·5	94·2	05·0	20·5	12·9	16·9	10·8	01·2	07·5
7	07·6	02·9	04·4	14·5	13·4	14·0	21·9	12·3	14·7	09·3	93·9	01·1	12·9	07·9	10·1	01·2	91·7	94·3
8	18·1	05·1	10·8	13·8	11·4	12·5	28·3	21·9	25·6	10·5	93·1	03·4	08·0	05·3	06·3	97·2	92·5	95·4
9	24·6	18·1	22·5	14·0	10·4	11·9	28·1	25·5	26·9	05·0	93·6	00·5	05·5	99·4	00·8	92·5	78·3	81·0
10	23·0	13·0	17·9	17·0	13·5	15·1	28·3	26·5	27·5	13·6	04·7	09·3	00·5	94·2	98·2	80·2	78·3	79·2
11	13·0	08·2	10·1	17·8	15·8	16·4	28·1	27·1	27·6	17·9	13·6	16·1	94·2	83·0	87·4	83·7	79·9	82·3
12	12·4	07·6	10·0	20·1	17·6	19·1	28·2	26·0	27·3	13·9	07·2	11·2	90·5	85·2	88·4	97·2	82·8	92·2
13	12·7	09·9	11·7	19·0	13·2	15·2	26·0	19·5	23·2	13·2	02·9	07·2	08·7	89·2	96·6	98·1	88·6	92·7
14	15·8	11·1	13·0	15·1	11·3	12·8	21·0	17·3	18·4	20·1	13·2	18·2	21·3	08·7	16·8	08·3	98·1	04·1
15	22·6	15·8	19·8	11·8	07·5	09·7	22·1	17·4	20·7	18·4	07·9	11·8	21·4	12·0	16·7	01·4	85·7	90·9
16	23·5	22·0	22·7	10·0	05·7	07·3	17·4	04·2	10·5	07·9	03·3	06·4	14·9	12·9	13·7	21·3	95·5	11·4
17	22·3	20·4	21·0	17·4	10·0	15·5	06·8	02·0	03·9	05·1	01·3	03·3	22·6	14·3	19·3	21·5	06·3	15·3
18	23·1	22·1	22·7	15·4	00·5	07·6	11·8	06·8	09·8	13·5	03·6	07·4	20·9	99·9	08·1	10·4	03·8	05·9
19	22·6	18·1	19·9	00·5	95·8	97·8	10·7	95·8	02·1	19·6	13·5	17·7	08·5	02·3	06·6	18·1	10·2	15·4
20	18·9	17·5	18·3	11·1	98·3	04·2	00·1	99·0	99·6	18·7	09·9	13·8	02·3	90·8	96·0	18·1	16·4	17·2
21	18·4	14·5	16·6	17·5	11·1	15·7	99·2	97·9	98·6	12·2	08·4	10·6	92·1	86·5	88·5	19·3	16·6	17·8
22	16·4	12·9	14·2	15·8	09·1	11·9	98·5	86·6	93·1	11·0	03·0	05·9	95·6	75·5	91·6	21·1	19·2	20·3
23	16·8	11·9	15·4	13·4	10·2	11·7	03·1	89·9	97·4	15·1	11·0	13·8	96·3	61·3	81·9	22·7	19·5	20·6
24	11·9	05·8	07·4	21·0	10·8	15·1	08·2	03·1	06·0	15·2	13·5	14·3	05·6	96·3	01·6	28·6	22·7	26·2
25	08·3	06·7	07·5	23·9	21·0	22·7	09·9	05·9	08·6	19·3	13·5	16·5	01·3	91·9	97·6	29·8	28·1	29·0
26	08·8	05·6	06·8	23·4	20·3	22·2	10·1	02·2	05·2	18·8	14·2	16·8	10·0	94·5	04·4	29·2	25·6	27·5
27	09·4	01·5	05·2	20·3	15·7	17·1	14·0	10·0	12·8	21·7	17·4	19·9	09·4	98·6	01·9	27·5	25·1	26·3
28	11·8	06·6	09·8	20·1	17·3	18·7	12·3	07·7	09·1	20·8	18·3	19·1	01·9	97·0	98·7	27·2	21·4	25·2
29	07·6	01·2	03·6	20·1	17·7	19·2	07·7	04·9	05·8	18·7	03·0	09·5	05·0	91·2	00·6	21·4	11·5	15·6
30	10·4	98·2	03·7	17·7	16·8	17·2	13·6	06·8	09·1	13·6	06·1	11·1	95·7	89·1	93·0	11·5	08·4	10·4
31	23·7	10·4	17·8	17·5	15·0	16·0				13·4	96·8	07·9				08·4	92·4	01·6
Mean	15·75	09·92	12·80	16·75	12·30	14·43	16·67	11·13	13·82	13·19	04·02	09·03	07·66	97·81	03·12	11·21	03·17	07·20
									Annual	17·46	10·42	14·03						

PRESSURE AT STATION LEVEL

Monthly and annual means of hourly values in millibars at exact hours Greenwich Mean Time

184 VALENTIA OBSERVATORY: H_b = 13·7 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean
	millibars																									
Jan.	09·50	09·37	09·40	09·67	09·89	10·10	10·25	10·55	10·89	11·19	11·40	11·48	11·04	10·43	09·92	09·55	09·43	09·30	09·06	08·88	08·68	08·44	08·35	08·27	08·20	09·77
Feb.	23·41	23·26	23·01	22·76	22·41	22·41	22·54	22·61	22·87	23·11	23·25	23·43	23·59	23·49	23·39	23·32	23·45	23·58	23·83	24·11	24·22	24·26	24·31	24·30	24·19	23·39
Mar.	21·42	21·27	21·17	20·91	20·67	20·65	20·67	20·88	21·20	21·49	21·70	21·81	21·85	21·84	21·60	21·40	21·32	21·27	21·42	21·66	21·85	21·95	21·90	21·84	21·70	21·41
Apr.	27·71	27·60	27·41	27·30	27·17	27·17	27·36	27·59	27·67	27·73	27·78	27·72	27·59	27·45	27·23	26·97	26·72	26·66	26·75	26·92	27·21	27·49	27·52	27·52	27·43	27·34
May	12·80	12·55	12·22	12·10	11·97	11·98	12·07	12·24	12·33	12·39	12·43	12·43	12·47	12·41	12·41	12·38	12·30	12·32	12·27	12·37	12·53	12·73	12·71	12·54	12·31	12·36
June	15·01	14·88	14·70	14·49	14·42	14·44	14·55	14·69	14·71	14·75	14·79	14·83	14·94	14·97	14·88	14·83	14·74	14·62	14·55	14·58	14·59	14·83	15·10	15·13	15·07	14·75
July	12·78	12·65	12·45	12·21	12·09	12·14	12·31	12·45	12·63	12·72	12·81	12·82	12·86	12·90	12·91	12·95	12·92	12·89	12·88	12·97	13·12	13·38	13·50	13·53	13·38	12·80
Aug.	14·93	14·84	14·69	14·54	14·32	14·22	14·31	14·43	14·55	14·60	14·58	14·53	14·45	14·38	14·30	14·16	14·00	13·99	14·02	14·10	14·31	14·65	14·73	14·77	14·67	14·43
Sept.	14·20	14·07	13·89	13·67	13·48	13·33	13·40	13·58	13·74	13·87	13·95	13·96	13·87	13·80	13·69	13·53	13·43	13·46	13·64	13·86	14·19	14·33	14·34	14·32	14·14	13·82
Oct.	08·86	08·77	08·86	08·83	08·88	09·03	09·15	09·31	09·60	09·85	09·92	09·83	09·71	09·35	09·05	08·84	08·71	08·67	08·77	08·81	08·73	08·60	08·49	08·40	08·38	09·03
Nov.	03·29	03·16	02·97	02·85	02·64	02·57	02·54	02·94	03·15	03·41	03·59	03·76	03·51	03·36	03·22	03·22	03·23	03·22	03·28	03·26	03·07	02·91	02·89	02·98	02·99	03·12
Dec.	07·25	07·11	06·99	07·02	06·86	06·71	06·72	06·78	06·93	07·24	07·51	07·60	07·35	07·15	06·93	07·00	07·23	07·35	07·39	07·51	07·57	07·56	07·55	07·42	07·34	07·20
Annual	14·18	14·04	13·90	13·78	13·65	13·65	13·74	13·93	14·11	14·28	14·40	14·44	14·35	14·21	14·04	13·93	13·87	13·86	13·90	14·00	14·08	14·17	14·19	14·16	14·06	14·03

PRESSURE REDUCED TO MEAN SEA LEVEL

Monthly and annual means of hourly values in millibars at exact hours Greenwich Mean Time

185 VALENTIA OBSERVATORY: H_b = 13·7 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean
	millibars																									
Jan.	11·18	11·05	11·08	11·35	11·57	11·78	11·93	12·23	12·57	12·87	13·08	13·16	12·72	12·10	11·59	11·22	11·10	10·98	10·74	10·56	10·36	10·12	10·03	09·95	09·88	11·45
Feb.	25·12	24·97	24·72	24·47	24·12	24·12	24·25	24·32	24·58	24·82	24·96	25·13	25·29	25·19	25·09	25·02	25·15	25·28	25·53	25·82	25·93	25·97	26·02	26·01	25·90	25·10
Mar.	23·10	22·95	22·85	22·59	22·35	22·33	22·35	22·56	22·88	23·17	23·38	23·49	23·52	23·51	23·27	23·07	22·99	22·94	23·10	23·34	23·53	23·63	23·58	23·52	23·58	23·09
Apr.	29·42	29·31	29·12	29·01	28·88	28·88	29·07	29·31	29·38	29·43	29·47	29·41	29·28	29·14	28·90	28·64	28·40	28·34	28·43	28·60	28·90	29·18	29·21	29·22	29·13	29·03
May	14·48	14·23	13·89	13·77	13·64	13·65	13·74	13·91	13·99	14·05	14·09	14·09	14·12	14·06	14·06	14·03	13·95	13·97	13·93	14·03	14·19	14·39	14·38	14·21	13·98	14·02
June	16·68	16·55	16·37	16·16	16·09	16·11	16·21	16·35	16·36	16·40	16·44	16·48	16·59	16·62	16·53	16·48	16·39	16·27	16·20	16·23	16·24	16·49	16·76	16·79	16·74	16·40
July	14·44	14·31	14·11	13·86	13·74	13·79	13·96	14·10	14·28	14·37	14·46	14·47	14·51	14·54	14·55	14·59	14·56	14·54	14·53	14·62	14·77	15·03	15·15	15·19	15·04	14·45
Aug.	16·53	16·49	16·34	16·19	15·97	15·87	15·96	16·08	16·19	16·24	16·22	16·17	16·09	16·02	15·94	15·80	15·64	15·63	15·66	15·74	15·96	16·30	16·38	16·42	16·32	16·08
Sept.	15·86	15·73	15·55	15·33	15·15	15·00	15·07	15·25	15·40	15·52	15·60	15·61	15·52	15·45	15·34	15·18	15·08	15·11	15·29	15·51	15·84	15·98	15·99	15·98	15·80	15·47
Oct.	10·52	10·43	10·52	10·49	10·54	10·69	10·81	10·97	11·26	11·51	11·58	11·48	11·36	11·00	10·70	10·49	10·36	10·33	10·43	10·47	10·39	10·26	10·15	10·06	10·04	10·69
Nov.	04·94	04·81	04·62	04·50	04·29	04·22	04·19	04·59	04·80	05·06	05·24	05·41	05·16	05·01	04·87	04·87	04·88	04·87	04·93	04·91	04·72	04·56	04·54	04·63	04·64	04·77
Dec.	08·93	08·79	08·67	08·70	08·54	08·39	08·40	08·46	08·61	08·92	09·19	09·28	09·03	08·82	08·60	08·67	08·90	09·03	09·07	09·20	09·26	09·25	09·24	09·10	09·02	08·88
Annual	15·86	15·72	15·58	15·46	15·33	15·33	15·42	15·61	15·78	15·95	16·07	16·11	16·02	15·88	15·70	15·59	15·54	15·53	15·57	15·67	15·75	15·84	15·86	15·83	15·74	15·70

The initial 9 or 10 of the value is omitted, i.e. 1001·42 is printed 01·42

The monthly and annual values of pressure reduced to mean sea level are computed from the corresponding monthly and annual means of pressure at station level and of temperature. See General Introduction to the Meteorological Tables, 1938.

TEMPERATURE

Monthly and annual means of readings in degrees Absolute at exact hours Greenwich Mean Time

186 VALENTIA OBSERVATORY: North Wall Screen: h_t = 1·3 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean
	degrees Absolute																									
Jan.	80·54	80·74	80·68	80·67	80·66	80·71	80·82	80·67	80·61	80·67	80·90	81·18	81·51	81·86	81·95	81·87	81·58	81·20	81·16	81·00	81·02	80·93	80·88	80·83	80·63	81·03
Feb.	79·87	79·86	79·84	79·77	79·84	79·97	79·98	79·95	80·02	80·06	80·26	80·67	81·06	81·18	81·24	81·23	81·09	80·96	80·66	80·36	80·34	80·28	80·28	80·16	79·99	80·37
Mar.	82·23	82·01	81·85	81·66	81·68	81·69	81·78	81·76	81·87	82·29	82·85	83·41	83·75	84·09	84·17	84·30	84·20	83·83	83·41	82·94	82·61	82·46	82·33	82·35	82·25	82·73
Apr.	80·99	80·58	80·34	79·88	79·55	79·34	79·28	79·90	81·51	82·99	83·99	84·62	85·08	85·45	85·61	85·64	85·52	85·18	84·62	83·90	82·88	82·36	81·73	81·29	80·82	82·59
May	82·96	82·77	82·77	82·52	82·27	82·10	82·29	83·01	83·93	84·53	85·07	85·42	85·70	85·97	86·10	86·19	86·24	85·86	85·51	85·06	84·46	83·80	83·46	83·28	83·11	84·22
June	85·52	85·36	85·23	85·17	84·99	85·10	85·57	86·04	86·74	86·99	87·14	87·62	87·93	88·14	88·23	88·32	88·36	88·13	87·67	87·28	86·78	86·28	85·95	85·65	85·55	86·68
July	86·09	86·03	85·92	85·94	85·87	85·82	85·98	86·34	86·79	87·04	87·51	87·85	88·35	88·57	88·68	88·71	88·64	88·41	87·99	87·54	87·14	86·73	86·55	86·26	86·14	87·12
Aug.	87·41	87·17	86·98	86·89	86·87	86·82	86·97	87·44	88·01	88·59	89·07	89·51	89·75	89·91	90·01	90·02	89·83	89·62	89·23	88·88	88·38	88·14	87·87	87·53	87·36	88·37
Sept.	86·13	86·09	85·87	85·75	85·53	85·46	85·43	85·54	86·24	87·04	87·58	87·98	88·30	88·49	88·52	88·53	88·35	88·10	87·69	87·17	86·84	86·75	86·61	86·42	86·20	86·94
Oct.	84·68	84·61	84·62	84·57	84·59	84·47	84·38	84·37	84·36	84·76	85·20	85·65	85·86	86·09	86·17	86·18	85·85	85·53	85·27	85·08	85·07	85·04	84·92	84·90	84·65	85·09
Nov.	83·80	83·86	83·76	83·77	83·59	83·52	83·57	83·40	83·54	83·71	83·95	84·24	84·53	84·61	84·73	84·52	84·24	84·09	83·86	83·71	83·80	83·79	83·71	83·70	83·70	83·92
Dec.	79·67	79·64	79·53	79·53	79·72	79·80	79·67	79·60	79·70	79·66	79·74	80·21	80·62	80·94	81·07	80·87	80·62	80·22	80·06	79·98	79·90	79·75	79·62	79·66	79·67	79·99
Annual	83·34	83·24	83·14	83·03	82·95	82·92	83·00	83·19	83·63	84·05	84·46	84·88	85·22	85·46	85·56	85·55	85·40	85·11	84·78	84·43	84·12	83·88	83·68	83·52	83·36	84·11

The initial 2 or 3 of the readings is omitted, i.e. 275·00 degrees Absolute is printed 75·00

Add 0·16° to obtain temperature in degrees Kelvin where T (°K) = t (°C) + 273·16

Maximum, minimum and daily mean values in degrees Absolute for each day 0h. to 24h. Greenwich Mean Time
The initial 2 or 3 of the values is omitted, i.e. 275·0° is printed 75·0°. Add 0·16° to obtain temperature
in degrees Kelvin where T (°K.) = t (°C.) + 273·16

187 VALENTIA OBSERVATORY: North Wall Screen: h_t (height of thermometer bulb above ground) = 1·3 m. 1938

DAY	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.
1	79·5	75·1	77·4	81·1	77·4	80·2	83·0	78·0	81·1	85·0	82·4	83·9	87·1	77·0	82·8	85·1	82·0	83·5
2	80·0	73·3	76·5	84·0	80·7	83·1	83·8	75·4	80·6	85·8	81·0	83·6	84·9	79·4	82·6	87·3	82·5	84·8
3	78·5	71·1	74·5	84·5	83·3	83·9	83·9	81·4	82·6	83·7	77·8	81·6	85·6	79·3	82·9	86·1	84·0	85·3
4	78·5	72·0	75·7	84·1	83·1	83·7	84·1	79·5	82·4	84·0	75·2	80·3	89·2	80·8	84·9	87·1	82·9	84·8
5	79·1	76·9	78·0	83·6	77·1	80·2	85·1	80·0	82·7	85·1	82·0	83·7	91·1	81·2	86·1	88·4	81·2	84·7
6	81·5	77·9	80·0	79·9	76·4	78·3	85·0	75·2	80·1	85·5	81·3	83·7	88·8	77·1	84·0	88·1	83·3	86·3
7	82·1	80·0	81·3	82·8	79·8	81·0	85·0	74·4	79·4	85·2	80·9	82·9	84·8	79·5	83·1	88·7	83·1	85·8
8	82·5	77·2	81·1	82·4	79·0	80·6	83·5	80·0	82·1	86·3	80·7	83·4	84·1	78·2	81·2	89·1	83·9	86·5
9	80·9	77·0	79·0	84·3	82·4	83·5	84·1	82·2	83·1	86·9	79·6	83·8	86·0	75·1	81·4	87·6	83·5	85·5
10	81·5	78·4	80·3	84·3	78·6	82·7	84·8	82·8	83·5	84·6	81·4	83·2	86·9	77·5	83·4	87·6	83·2	85·1
11	82·5	79·6	81·6	83·0	75·2	79·6	85·1	82·2	83·7	86·0	78·7	82·4	85·9	83·8	85·1	87·5	82·6	85·3
12	84·8	80·7	82·5	84·0	80·9	82·5	84·3	82·0	83·1	86·4	74·6	80·5	88·5	84·8	86·1	88·0	84·4	85·7
13	83·0	80·4	81·7	81·5	79·3	80·3	85·9	82·0	84·0	88·8	75·2	82·1	86·2	84·9	85·5	88·6	83·7	86·1
14	84·8	79·7	82·1	79·4	75·8	78·0	85·5	82·5	83·9	88·8	82·5	83·5	89·1	84·4	86·4	90·0	82·1	86·2
15	82·9	80·0	81·5	77·6	74·0	75·8	85·0	83·2	84·0	88·5	76·9	83·3	84·4	82·6	83·6	89·3	82·1	86·1
16	84·9	79·0	82·7	78·1	73·9	76·1	85·0	81·4	83·7	87·4	78·6	83·1	85·1	82·3	83·3	90·9	83·9	87·8
17	81·4	77·8	80·0	78·0	75·0	76·8	84·9	81·8	83·6	86·8	78·0	82·0	87·8	78·9	83·8	93·0	83·9	89·4
18	84·0	79·4	82·3	80·3	76·5	78·4	85·4	84·0	84·6	85·2	76·3	80·9	87·5	80·3	83·8	90·0	86·7	88·3
19	83·7	78·9	82·3	81·4	75·2	78·2	84·6	80·0	83·0	84·0	74·9	79·7	87·3	81·9	84·4	89·4	85·4	87·4
20	84·9	83·4	84·0	82·0	74·4	78·6	83·7	79·5	81·1	85·9	74·8	80·6	85·9	83·0	84·7	90·9	84·4	87·4
21	84·8	79·7	81·6	79·9	72·0	76·4	82·7	77·7	80·2	86·0	75·7	81·3	87·5	84·0	85·9	90·3	87·0	88·3
22	85·5	82·2	84·3	78·6	76·7	77·7	83·9	74·3	79·4	85·0	76·4	81·5	88·9	80·0	85·5	90·2	86·5	88·1
23	84·7	83·5	84·0	80·6	76·6	78·7	85·6	80·2	83·0	86·9	78·3	83·2	87·1	83·0	85·2	91·0	87·9	88·9
24	84·5	82·3	83·8	83·9	80·6	82·6	85·2	82·8	84·3	86·2	77·6	82·7	87·2	84·4	85·5	90·4	87·8	88·6
25	84·7	79·7	81·9	84·8	83·7	84·4	82·8	80·0	81·2	85·7	80·1	83·2	88·0	83·1	85·3	90·0	86·7	88·2
26	81·0	78·4	79·9	84·5	79·9	82·4	84·3	80·0	82·6	86·9	79·0	83·1	85·4	82·4	83·9	89·5	86·1	88·0
27	83·1	77·4	80·6	84·8	78·7	82·7	84·6	83·0	83·8	86·0	82·3	84·2	86·0	82·0	83·9	89·2	86·8	88·1
28	84·0	82·9	83·6	85·3	82·6	84·2	85·5	83·2	84·3	86·9	80·0	83·7	86·0	80·9	83·4	89·0	84·6	87·0
29	84·0	79·9	82·3				85·8	84·4	84·8	87·6	78·0	83·4	87·0	81·5	84·3	89·0	84·4	86·8
30	83·9	81·5	82·5				85·9	83·0	84·6	86·9	78·3	82·9	86·8	83·1	84·9	88·9	83·7	86·5
31	84·4	78·3	82·7				86·2	82·8	84·0				87·0	81·9	84·0			
Mean	82·8	78·8	81·0	82·1	78·2	80·4	84·7	80·6	82·7	86·1	78·6	82·6	86·9	81·2	84·2	89·0	84·3	86·7

DAY	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.
1	88·4	83·4	85·7	91·4	84·3	88·6	88·2	82·0	85·5	88·0	85·4	86·6	85·0	81·6	83·2	83·1	80·7	82·4
2	88·5	84·9	86·1	94·0	88·9	91·7	87·7	79·8	84·1	86·5	82·8	84·7	84·9	82·1	83·6	83·2	80·9	82·1
3	89·0	85·7	87·0	97·9	89·8	93·1	88·7	78·9	84·4	88·4	83·5	85·6	86·2	82·8	84·6	84·6	77·0	81·7
4	88·3	84·0	86·3	95·1	89·6	92·0	88·5	84·9	86·9	86·5	83·1	84·8	87·4	85·7	86·7	85·7	81·8	83·9
5	87·8	84·7	85·9	93·2	89·6	90·9	89·7	85·4	87·4	85·5	81·1	84·0	86·9	85·8	86·2	83·3	80·0	82·2
6	89·8	82·9	86·1	90·4	88·7	89·8	88·4	86·4	87·2	87·2	83·4	85·6	86·8	85·4	86·1	84·5	82·0	83·6
7	87·7	83·8	85·8	92·4	87·4	90·0	89·1	85·4	87·4	87·2	84·4	85·4	87·0	85·7	86·4	84·2	79·9	82·4
8	87·9	84·3	85·7	91·0	85·2	88·4	91·3	86·0	88·5	88·3	83·5	86·1	87·0	86·1	86·6	80·9	77·0	79·4
9	88·1	84·5	86·4	89·9	87·8	88·4	90·4	84·4	87·5	87·5	83·1	85·1	87·8	86·4	87·2	82·6	79·2	81·2
10	88·1	85·7	87·2	92·2	87·1	89·4	90·0	81·8	86·2	86·2	83·1	84·7	88·0	86·8	87·3	82·4	79·0	81·0
11	89·0	85·5	87·0	91·6	85·4	88·5	89·0	86·9	88·1	87·1	83·5	85·6	88·5	85·6	87·3	83·0	80·1	81·9
12	90·0	85·4	87·5	89·4	86·0	87·7	90·0	87·2	88·4	88·3	86·8	87·3	88·2	86·1	87·1	82·9	80·0	81·3
13	89·0	86·0	87·7	89·6	84·2	86·8	90·9	87·5	88·8	88·7	85·0	87·5	87·1	83·3	85·7	84·7	80·7	83·1
14	89·7	85·1	87·2	89·0	82·9	86·8	89·7	84·7	88·1	88·0	84·3	85·8	86·9	83·4	85·3	82·5	78·9	80·7
15	88·1	85·0	86·4	91·4	87·4	89·1	88·4	80·4	85·5	88·4	84·3	85·7	88·0	85·1	86·6	84·2	81·9	82·8
16	89·6	85·2	86·9	90·0	86·9	88·2	89·1	87·7	88·3	86·9	83·0	85·1	87·6	84·3	85·8	82·5	74·9	80·4
17	89·5	85·8	87·5	90·0	86·9	88·3	89·5	87·0	88·4	86·8	82·4	85·4	86·3	82·3	84·9	82·1	74·0	79·0
18	89·9	85·8	87·3	89·1	86·3	87·8	88·3	84·0	86·4	86·0	81·9	84·3	87·2	82·8	85·0	82·4	76·8	80·5
19	90·9	85·7	88·1	89·0	84·3	87·0	88·3	83·6	86·0	87·5	83·1	85·7	83·5	79·2	81·4	77·0	71·7	74·2
20	90·0	85·8	87·9	87·7	84·9	86·3	89·2	83·1	86·3	88·1	85·9	87·2	81·9	76·9	79·1	73·7	70·8	72·0
21	91·0	85·1	88·2	89·1	85·3	87·1	88·5	84·4	86·0	87·8	79·7	85·2	81·2	78·9	79·9	74·2	69·5	71·7
22	89·2	85·8	87·7	89·7	86·0	88·5	89·4	85·0	87·7	86·9	79·6	84·0	83·0	80·4	81·6	77·8	69·0	73·6
23	89·2	85·0	86·8	90·4	88·4	89·1	89·5	85·2	87·6	86·0	81·4	83·9	84·4	79·7	81·8	78·1	71·9	75·0
24	91·7	85·0	87·7	89·3	87·0	88·3	89·9	85·7	87·5	86·6	84·4	85·7	82·1	77·2	80·0	77·0	70·2	73·7
25	90·3	84·0	87·2	90·0	85·9	87·9	88·6	83·5	86·6	84·9	82·1	83·7	83·0	79·7	81·8	80·0	75·0	77·8
26	90·7	85·0	87·4	91·3	84·9	88·2	90·7	87·4	89·0	84·9	82·0	83·5	81·2	79·0	80·4	83·2	79·8	81·5
27	88·0	84·4	86·2	90·5	87·3	88·8	90·0	87·0	88·4	84·4	82·0	83·1	85·2	79·8	82·9	83·4	81·0	82·2
28	90·3	86·0	87·8	88·3	85·3	86·8	87·9	85·5	86·6	85·6	81·6	84·2	81·9	79·1	80·7	83·4	82·3	82·7
29	89·6	86·9	88·6	88·1	84·4	86·4	87·1	80·2	84·4	86·5	80·4	84·2	84·1	77·2	80·4	83·9	81·1	83·0
30	90·8	87·3	89·1	88·2	82·0	85·5	87·1	80·5	87·7	84·6	82·7	83·7	83·0	80·6	81·9	81·6	79·3	80·5
31	90·0	85·3	87·8	87·8	78·4	84·0				86·3	82·8	84·3				83·9	80·5	82·1
Mean	89·4	85·1	87·1	90·5	86·1	88·4	89·1	84·4	86·9	86·8	83·0	85·1	85·4	82·3	83·9	81·8	77·6	80·0
									Annual	86·2	81·7	84·1						

MEAN RELATIVE HUMIDITY AND VAPOUR PRESSURE FOR EACH DAY

Mean percentages from readings at exact hours 0h. to 24h. Greenwich Mean Time; vapour pressure from daily mean temperature and relative humidity

188 VALENTIA OBSERVATORY: North Wall Screen: h_t = 1·3 m. 1938

DAY	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.
	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.
1	76·5	6·4	67·3	6·8	76·0	8·2	83·8	10·9	62·1	7·5	67·4	8·6	81·1	11·9	80·9	14·3	74·3	10·8	87·5	13·6	72·6	9·0	71·4	8·4
2	86·9	6·8	83·7	10·3	80·3	8·4	82·4	10·5	60·6	7·3	71·6	9·9	83·9	12·7	84·1	18·1	83·1	11·0	74·7	10·3	80·6	10·3	76·5	8·9
3	85·6	5·8	88·0	11·5	78·4	9·4	62·5	7·0	64·6	7·9	91·7	13·1	81·2	13·0	80·0	18·8	82·7	11·2	85·2	12·4	91·4	12·5	78·4	8·8
4	83·0	6·1	85·9	11·0	88·9	10·5	78·9	8·1	61·2	8·5	85·8	11·9	78·3	12·0	84·8	18·6	78·3	12·4	77·2	10·7	96·2	15·1	93·8	12·2
5	81·9	7·1	86·9	8·8	83·6	10·1	83·0	10·7	60·4	9·1	85·9	11·8	78·4	11·7	87·8	18·0	85·0	13·9	76·7	10·1	96·1	14·6	79·7	9·3
6	86·7	8·7	73·7	6·6	87·3	8·8	81·2	10·5	63·2	8·3	94·0	14·4	82·4	12·4	92·3	17·7	76·8	12·4	83·9	12·2	97·6	14·7	87·0	11·1
7	80·8	8·8	93·1	10·0	85·0	8·2	89·7	10·9	65·5	8·1	86·3	12·8	77·0	11·4	89·7	17·4	80·0	13·2	76·8	11·1	92·7	14·3	87·9	10·4
8	84·7	9·1	80·2	8·4	87·7	10·2	80·9	10·2	72·8	7·9	85·2	13·2	75·0	11·0	93·1	16·3	73·8	13·0	88·3	13·3	93·6	14·6	78·9	7·6
9	75·0	7·0	91·8	11·7	91·7	11·3	61·7	8·0	79·7	8·8	81·9	11·9	80·4	12·4	94·1	16·5	79·9	13·2	82·7	11·7	90·2	14·6	87·4	9·5
10	68·9	7·1	85·3	10·3	88·7	11·3	63·7	7·9	77·0	9·7	74·5	10·5	93·8	15·2	87·9	16·4	87·2	13·2	81·3	11·2	90·9	14·8	84·5	9·1
11	85·2	9·5	87·0	8·5	77·0	9·9	69·0	8·1	91·8	13·0	79·0	11·3	85·0	13·6	87·3	15·4	95·1	16·3	86·5	12·6	80·1	13·1	80·9	9·2
12	91·2	10·8	79·0	9·4	81·1	10·0	76·3	7·9	87·8	13·2	81·4	12·0	85·2	14·1	72·1	12·1	96·1	16·8	97·5	15·9	88·1	14·2	88·9	9·7
13	81·3	9·1	68·4	7·0	62·9	8·3	71·4	8·3	94·4	13·7	79·2	11·9	93·9	15·7	86·5	13·6	91·9	16·5	92·7	15·3	90·7	13·3	89·9	11·1
14	84·2	9·7	67·8	5·9	80·0	10·4	67·0	8·5	92·4	14·2	84·1	12·8	81·2	13·2	80·7	12·7	89·9	15·4	87·2	12·9	93·4	13·4	83·4	8·9
15	76·4	8·5	63·1	4·7	91·7	12·0	77·5	9·7	86·1	11·0	80·9	12·2	78·1	12·0	87·8	16·1	83·3	12·1	92·0	13·5	85·7	13·3	86·9	10·5
16	89·6	10·8	67·9	5·2	84·2	10·8	70·2	8·7	62·7	8·0	84·1	14·2	73·0	11·6	84·8	14·7	93·4	16·2	89·8	12·7	89·5	13·2	73·2	7·5
17	75·5	7·6	71·1	5·7	87·3	11·2	60·4	6·9	78·2	10·1	71·5	13·3	94·3	15·6	79·6	13·8	93·5	16·4	94·9	13·7	91·8	12·8	77·9	7·3
18	84·6	9·9	68·4	6·1	89·9	12·3	67·7	7·2	80·6	10·5	87·9	15·3	91·5	14·9	92·2	15·5	87·6	13·5	83·2	11·1	82·9	11·6	67·7	7·0
19	82·6	9·7	73·8	6·5	91·2	11·2	79·5	7·8	89·2	12·0	73·9	12·1	88·0	15·1	80·0	12·8	86·5	13·0	90·1	13·2	79·8	8·8	62·6	4·2
20	90·4	11·9	75·6	6·9	86·0	9·3	78·7	8·2	95·3	13·1	77·3	12·7	84·1	14·3	79·9	12·2	86·8	13·3	88·5	14·3	85·2	8·0	72·9	4·1
21	75·8	8·5	77·5	6·1	82·3	8·4	77·5	8·5	96·0	14·3	90·3	15·7	85·5	14·8	82·6	13·3	87·0	13·0	93·7	13·3	87·1	8·7	77·1	4·3
22	91·9	12·3	70·3	6·0	82·2	7·9	76·7	8·5	85·8	12·5	92·2	15·8	88·4	14·8	96·6	17·0	87·0	14·6	80·8	10·6	75·5	8·4	78·3	5·0
23	93·7	12·3	67·6	6·2	83·2	10·2	73·4	9·1	80·8	11·5	94·1	17·0	76·4	12·1	95·2	17·4	83·1	13·8	87·3	11·4	72·2	8·2	86·5	6·1
24	86·2	11·2	81·6	9·8	95·5	12·8	76·0	9·1	82·5	12·0	90·8	16·1	86·0	14·4	89·6	15·6	88·1	14·6	95·6	14·0	78·3	7·8	82·9	5·3
25	75·5	8·6	94·5	12·7	77·5	8·4	69·0	8·6	87·8	12·6	84·8	14·7	82·4	13·3	80·0	13·6	90·3	14·1	75·7	9·7	82·1	9·3	84·2	7·3
26	77·5	7·7	82·8	9·8	83·9	10·0	69·7	8·6	88·0	11·5	92·9	15·8	85·8	14·1	87·4	15·1	89·3	16·2	76·7	9·7	72·1	7·4	96·7	10·7
27	77·6	8·1	88·8	10·7	90·1	11·7	72·4	9·6	74·2	9·7	80·5	13·8	86·5	13·1	90·0	16·2	80·5	14·1	68·2	8·4	87·9	10·7	88·3	10·3
28	91·4	11·7	87·1	11·6	88·4	11·8	67·9	8·7	79·5	10·0	88·0	14·1	85·5	14·4	71·8	11·3	87·7	13·7	88·9	11·8	74·8	7·9	95·1	11·4
29	76·4	9·0			94·3	13·0	67·3	8·5	83·3	11·1	78·2	12·3	96·2	17·1	72·0	11·1	89·3	12·0	94·0	12·5	82·6	8·5	89·6	11·0
30	81·3	9·7			90·6	12·4	62·6	7·6	76·9	10·7	79·7	12·3	91·6	16·8	74·3	10·8	87·6	12·0	74·1	9·5	74·1	8·4	68·5	7·1
31	84·4	10·2			89·1	11·7			82·1	10·8			83·9	14·1	77·6	10·2			89·9	12·0			86·8	10·0
Mean*	82·7	9·0	78·9	8·4	85·0	10·3	73·3	8·8	78·8	10·6	83·2	13·1	84·3	13·6	84·6	14·9	85·8	13·7	85·2	12·1	85·2	11·4	82·1	8·5

* Mean of the column.

RELATIVE HUMIDITY

Monthly and annual means of values at exact hours Greenwich Mean Time

189 VALENTIA OBSERVATORY: h_t = 1·3 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean*
	per cent.																									
Jan.	83·8	82·4	83·0	83·6	83·2	81·9	81·5	81·9	82·6	82·3	81·8	81·8	81·4	81·8	80·9	81·8	82·7	83·0	83·3	84·0	83·7	83·8	84·4	83·3	83·9	82·7
Feb.	79·2	79·5	80·5	80·5	80·3	79·9	80·2	80·9	81·3	81·2	81·5	79·0	76·4	75·9	75·7	75·5	76·5	76·9	77·9	78·9	78·2	78·9	79·1	79·1	79·2	78·9
Mar.	85·5	86·8	87·6	87·7	86·7	87·3	87·2	87·9	87·5	86·8	85·7	83·9	82·2	81·0	80·7	80·3	80·2	80·9	82·9	84·7	86·0	87·1	87·1	86·7	85·9	85·0
Apr.	78·6	80·0	79·8	82·4	82·0	82·3	81·6	80·2	77·3	73·5	68·6	65·4	63·7	62·6	63·0	65·1	66·2	67·0	68·1	70·4	72·9	74·1	76·5	77·2	78·3	73·3
May	83·2	83·3	83·0	83·5	83·9	84·4	83·6	82·3	79·8	78·1	75·8	74·7	74·4	73·1	72·6	72·7	72·9	73·6	75·1	76·5	78·0	81·1	82·5	82·7	83·3	78·8
June	87·3	87·5	88·0	87·5	88·4	87·4	86·8	86·1	83·5	82·3	82·3	80·8	79·7	78·4	78·2	76·4	76·5	77·5	79·4	80·4	83·0	85·2	86·2	87·0	87·6	83·2
July	88·9	88·0	88·8	88·5	88·7	88·3	87·8	86·9	85·9	86·5	83·2	81·9	79·5	78·5	78·1	76·9	77·9	79·3	81·0	82·9	85·1	86·4	87·0	87·6	88·8	84·3
Aug.	88·5	88·6	89·1	88·9	88·7	89·0	88·5	87·7	85·4	83·7	81·2	80·0	80·5	80·1	80·2	79·8	80·1	81·0	81·5	82·7	85·1	85·7	86·3	88·3	88·5	84·6
Sept.	88·8	88·9	89·3	89·6	89·8	89·8	89·6	90·6	89·5	87·6	84·8	83·3	81·7	80·5	80·9	80·0	80·9	81·5	82·4	84·2	85·9	86·1	86·8	87·7	88·6	85·8
Oct.	86·6	86·4	85·9	86·4	84·9	84·7	85·2	86·0	86·1	85·6	84·4	84·1	83·8	82·2	82·6	82·8	83·7	85·7	86·4	85·9	85·7	86·2	87·1	86·3	86·9	85·2
Nov.	85·5	85·1	85·1	84·2	85·5	86·7	86·3	86·2	86·3	86·6	86·6	85·9	83·9	83·6	83·0	82·7	84·2	84·4	85·6	86·5	84·8	84·9	86·2	85·2	84·7	85·2
Dec.	82·1	81·9	81·8	82·3	81·7	81·7	82·2	82·7	83·3	84·0	84·0	84·0	82·4	80·2	79·3	79·3	79·8	81·4	80·8	82·0	83·1	83·5	82·7	82·7	82·4	82·1
Annual	84·9	84·9	85·2	85·5	85·4	85·3	85·1	85·0	84·1	83·2	81·7	80·4	79·2	78·2	78·0	77·8	78·5	79·4	80·4	81·6	82·7	83·6	84·4	84·5	84·9	82·5

VAPOUR PRESSURE

Monthly mean values at exact hours Greenwich Mean Time computed from corresponding mean values of temperature and relative humidity

190 VALENTIA OBSERVATORY: h_t = 1·3 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean*
	millibars																									
Jan.	8·7	8·7	8·7	8·8	8·7	8·6	8·6	8·6	8·6	8·7	8·7	8·8	9·0	9·3	9·2	9·2	9·2	9·0	9·1	9·0	9·0	8·9	9·0	8·8	8·7	8·9
Feb.	7·9	7·9	7·9	8·0	7·9	8·0	8·0	8·1	8·1	8·2	8·3	8·3	8·3	8·3	8·2	8·2	8·3	8·3	8·2	8·1	8·0	8·1	8·1	8·0	7·9	8·1
Mar.	10·0	10·0	9·9	9·9	9·7	9·8	9·9	9·9	10·0	10·2	10·4	10·6	10·7	10·7	10·7	10·7	10·7	10·5	10·5	10·3	10·3	10·3	10·2	10·2	10·0	10·3
Apr.	8·4	8·3	8·2	8·2	7·9	7·9	7·8	8·0	8·6	9·0	9·0	8·9	9·0	9·1	9·2	9·5	9·6	9·5	9·3	9·2	8·9	8·7	8·6	8·5	8·3	8·7
May	10·2	10·1	10·1	9·9	9·8	9·7	9·8	10·1	10·4	10·6	10·7	10·8	10·9	11·0	10·9	11·0	11·1	10·9	10·9	10·8	10·6	10·5	10·5	10·4	10·3	10·5
June	12·6	12·6	12·5	12·4	12·4	12·4	12·7	12·9	13·1	13·2	13·2	13·4	13·5	13·5	13·5	13·3	13·4	13·3	13·3	13·1	13·1	13·0	12·9	12·8	12·7	13·0
July	13·4	13·2	13·2	13·2	13·2	13·0	13·2	13·3	13·6	13·8	13·7	13·9	13·8	13·9	13·9	13·7	13·8	13·9	13·8	13·7	13·7	13·5	13·5	13·4	13·4	13·6
Aug.	14·5	14·4	14·2	14·1	14·1	14·0	14·2	14·4	14·6	14·8	14·9	15·0	15·4	15·4	15·5	15·5	15·3	15·3	15·0	14·9	14·9	14·7	14·6	14·6	14·5	14·8
Sept.	13·4	13·4	13·3	13·2	13·0	13·0	12·9	13·1	13·6	14·0	14·1	14·2	14·2	14·2	14·3	14·1	14·1	14·0	13·8	13·6	13·6	13·5	13·5	13·5	13·5	13·7
Oct.	11·9	11·8	11·7	11·8	11·6	11·5	11·5	11·6	11·6	11·8	12·0	12·3	12·5	12·4	12·5	12·6	12·4	12·4	12·4	12·1	12·1	12·1	12·1	12·0	11·9	12·0
Nov.	11·1	11·1	11·0	10·9	10·9	11·0	11·0	10·9	11·0	11·1	11·3	11·4	11·4	11·4	11·4	11·2	11·3	11·2	11·2	11·1	11·0	11·0	11·1	11·0	10·9	11·1
Dec.	8·0	8·0	7·9	8·0	8·0	8·1	8·1	8·1	8·2	8·3	8·3	8·5	8·6	8·6	8·6	8·5	8·3	8·3	8·2	8·2	8·3	8·2	8·1	8·1	8·1	8·2
Year†	10·6	10·6	10·6	10·5	10·5	10·4	10·5	10·5	10·8	11·0	11·1	11·2	11·3	11·3	11·4	11·3	11·3	11·2	11·1	11·0	10·9	10·9	10·8	10·7	10·7	10·9

* Mean of values ½(0 + 24),1,2...23.

† Mean values for the year are means of the monthly values.

Amount in millimetres, duration in hours and maximum rate of fall for each day 0h. to 24h. Greenwich Mean Time

191 VALENTIA OBSERVATORY: H_r (height of receiving surface above M.S.L.) = H (height of station above M.S.L.) + h_r (height of receiving surface above ground) = 9·1 m. + 0·5 m. 1938

DAY	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate
	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.
1	1·4	1·5	9	3·4	1·9	15	2·0	1 9	10	0·4	0·9	5	0·0	0·0	-	0·1	0·2	-
2	0·0	0·0	-	5·1	2·9	23	0·0	0·0	-	1·3	1·8	6	0·0	0·0	-	0·0	0·0	-
3	0·0	0·0	-	0·0	0·0	-	0·0	0·0	-	0·0	0·0	-	0·0	0·0	-	12·5	10·4	9
4	0·0	0·0	-	0·0	0·0	-	0·6	3·0	-	0·0	0·0	-	0·0	0·0	-	6·0	3·6	25
5	0·3	1·2	-	10·9	11·5	14	0·0	0·0	-	0·2	0·3	-	0·0	0·0	-	10·5	4·6	75
6	5·3	4·2	30	0·1	0·2	-	0·0	0·0	-	0·0	0·0	-	0·0	0·0	-	22·9	10·6	18
7	2·9	1·4	25	6·8	7·1	16	0·0	0·0	-	0·0	0·0	-	0·0	0·0	-	2·6	1·4	20
8	8·2	5·5	39	3·7	2·6	17	0·5	2·5	-	0·0	0·0	-	0·0	0·0	-	3·0	1·3	45
9	7·9	4·1	36	6·3	6·0	10	0·5	3·2	-	0·0	0·0	-	0·0	0·0	-	2·0	1·0	25
10	2·2	0·7	23	0·3	0·1	-	0·0	0·0	-	0·0	0·0	-	0·1	0·3	-	0·5	0·3	6
11	8·5	7·3	8	0·0	0·0	-	0·0	0·0	-	0·0	0·0	-	19·9	12·7	49	0·4	0·3	4
12	9·7	6·3	71	0·0	0·0	-	0·0	0·0	-	0·0	0·0	-	0·0	0·0	-	0·0	0·0	-
13	4·4	1·7	30	0·0	0·0	-	0·0	0·0	-	0·0	0·0	-	18·4	11·1	20	0·0	0·0	-
14	14·7	7·0	24	0·0	0·0	-	0·8	0·4	8	0·0	0·0	-	8·3	8·1	18	0·0	0·0	-
15	7·1	6·4	26	0·0	0·0	-	12·5	14·2	9	0·0	0·0	-	5·8	6·1	10	0·0	0·0	-
16	48·6	13·9	74	0·0	0·0	-	4·0	3·3	11	0·0	0·0	-	0·0	0·0	-	0·0	0·0	-
17	0·2	0·1	6	0·1	0·3	-	1·6	4·1	4	0·0	0·0	-	1·0	0·8	10	0·3	1·3	-
18	10·5	4·1	24	1·3	0·6	17	4·6	7·1	9	0·0	0·0	-	2·7	2·4	12	2·5	4·6	2
19	1·7	1·3	19	0·0	0·0	-	17·9	15·5	14	0·0	0·0	-	4·8	6·8	4	0·0	0·0	-
20	2·7	5·3	4	0·0	0·0	-	9·2	5·6	23	0·0	0·0	-	6·2	14·2	4	0·0	0·0	-
21	1·8	2·2	15	0·0	0·0	-	9·7	2·3	16	0·0	0·0	-	3·8	7·4	8	1·3	2·6	-
22	1·0	2·0	2	0·0	0·0	-	0·0	0·0	-	0·0	0·0	-	0·5	1·0	2	3·0	4·1	9
23	4·7	11·3	35	0·0	0·0	-	0·1	0·4	2	0·0	0·0	-	2·8	0·9	85	1·5	3·1	5
24	0·5	1·9	10	9·8	7·9	16	4·0	5·5	10	0·0	0·0	-	0·2	0·3	-	2·6	6·0	6
25	7·6	3·7	25	26·5	14·1	29	3·4	3·1	25	0·0	0·0	-	5·8	3·2	12	0·1	0·6	-
26	7·1	3·6	31	11·3	8·9	18	2·2	3·5	9	0·0	0·0	-	19·6	10·1	25	5·9	8·4	10
27	6·8	4·1	25	5·2	6·4	8	0·5	0·8	9	0·3	0·2	10	0·4	0·4	6	2·7	3·0	16
28	3·7	4·9	15	0·9	1·4	(3)	0·1	0·1	3	0·0	0·0	-	5·1	1·7	66	16·7	9·6	27
29	5·2	4·2	21				0·5	1·3	3	0·0	0·0	-	8·3	2·4	108	1·5	1·2	28
30	4·5	6·2	6				0·8	3·7	1	0·0	0·0	-	3·4	1·0	32	5·5	1·8	66
31	5·3	4·9	21				0·2	0·6	-				9·6	7·4	22			
Total	184·5	121·0	-	91·7	71·9	-	75·7	82·1	-	2·2	3·2	-	127·4	98·3	-	104·1	80·0	-

DAY	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate
	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.
1	4·3	2·1	25	0·0	0·0	-	0·0	0·0	-	10·3	3·0	36	3·0	1·3	35	2·0	1·6	10
2	1·9	0·5	45	2·3	1·9	20	0·8	0·2	32	6·3	2·8	33	4·8	1·1	40	5·2	2·9	31
3	0·5	1·3	3	9·7	3·9	20	0·0	0·0	-	17·7	8·5	25	0·0	0·0	-	2·6	3·4	4
4	3·4	1·8	26	11·7	3·5	67	0·0	0·0	-	8·3	3·3	51	0·6	1·7	-	9·9	14·6	10
5	1·1	0·7	12	0·0	0·0	-	0·4	0·2	6	4·9	1·8	48	0·8	4·0	-	2·7	0·5	42
6	7·5	2·5	69	3·8	2·7	8	0·4	0·6	2	14·4	3·8	23	5·3	17·5	2	0·4	0·1	7
7	0·6	0·7	15	5·9	2·1	20	1·0	0·7	15	1·3	2·1	9	0·3	0·8	4	16·1	10·0	40
8	0·7	0·5	20	1·6	0·9	9	0·0	0·0	-	17·3	8·2	54	4·1	2·8	9	3·5	1·3	32
9	1·3	1·2	24	11·3	6·6	13	0·0	0·0	-	2·2	1·1	45	1·1	1·4	12	6·2	4·7	22
10	8·0	3·7	21	0·0	0·0	-	0·0	0·0	-	3·2	1·0	52	13·1	8·1	90	7·3	3·1	30
11	0·2	0·5	6	0·8	0·5	5	1·9	5·1	3	4·6	2·6	18	7·4	2·4	35	0·1	0·2	-
12	0·3	0·3	2	0·0	0·0	-	0·4	1·8	-	15·7	8·1	73	2·4	2·4	19	6·0	4·0	43
13	13·8	6·5	18	2·8	4·8	6	0·4	1·6	-	4·8	4·0	25	8·7	3·9	56	17·6	9·2	52
14	1·2	0·6	21	1·8	1·4	6	0·9	1·4	8	0·9	0·3	28	1·3	1·3	15	4·7	1·9	34
15	0·0	0·0	-	1·5	2·8	5	0·9	1·2	3	3·3	1·5	30	8·4	2·7	39	38·3	9·5	100
16	0·0	0·0	-	1·3	0·9	9	22·4	9·4	30	5·4	2·6	36	1·0	0·8	22	1·4	1·1	14
17	0·8	2·9	-	0·0	0·0	-	2·8	3·3	6	14·8	8·7	21	5·0	1·4	28	0·9	1·2	7
18	0·1	0·0	-	4·6	6·1	15	2·4	2·4	12	1·1	1·2	5	16·3	8·2	25	7·0	8·0	12
19	0·8	2·4	2	3·3	1·1	15	14·9	7·0	14	0·0	0·0	-	8·2	3·1	50	0·0	0·0	-
20	0·1	0·5	-	4·7	1·9	14	2·2	0·3	29	0·1	0·4	-	5·3	2·7	25	0·0	0·0	-
21	0·2	0·2	5	1·5	1·6	15	6·9	3·4	25	15·6	5·6	72	9·2	7·3	20	0·0	0·0	-
22	9·3	6·3	18	33·3	14·2	10	32·3	6·4	176	0·0	0·0	-	10·5	5·2	26	0·7	0·7	33
23	0·0	0·0	-	35·9	7·7	56	0·3	0·2	4	0·0	0·0	-	4·9	2·2	23	0·8	0·4	6
24	3·7	4·1	29	0·3	0·2	4	4·2	1·1	33	3·3	11·3	4	8·3	4·5	50	0·0	0·0	-
25	4·1	0·5	98	0·8	0·9	3	3·0	3·5	5	2·9	6·7	4	16·7	7·7	42	1·7	5·5	3
26	3·6	0·6	45	0·0	0·0	-	21·6	8·8	17	0·7	0·4	11	3·3	2·3	38	2·0	8·1	-
27	30·0	7·0	36	3·9	6·7	7	0·0	0·0	-	1·5	0·7	13	8·2	8·1	15	1·2	3·2	-
28	5·4	3·3	36	0·0	0·0	-	10·6	8·1	60	1·7	2·6	6	6·5	2·7	25	2·8	8·0	2
29	30·3	16·6	30	0·0	0·0	-	11·3	2·1	75	16·0	13·2	10	11·7	5·9	29	0·6	0·3	8
30	18·2	6·6	25	0·0	0·0	-	10·8	8·5	21	0·3	0·4	15	8·4	2·9	55	1·0	0·5	7
31	0·8	0·9	5	0·0	0·0	-				11·6	5·2	18				4·9	5·8	7
Total	152·2	74·8	-	142·8	72·4	-	152·8	77·3	-	190·2	111·1	-	184·8	116·4	-	147·6	109·8	-

RAINFALL

Monthly and annual totals of amounts in sixty-minute periods between exact hours Greenwich Mean Time

192 VALENTIA OBSERVATORY: H_r = 9·1 m. + 0·5 m. 1938

	Hour G.M.T. 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	0-24
	millimetres																								
Jan.	11·1	16·3	8·8	4·0	4·7	2·2	2·7	5·2	2·3	6·1	7·0	10·2	7·9	13·5	14·8	13·1	6·0	6·2	8·8	6·8	6·7	8·1	4·2	7·8	184·5
Feb.	2·5	4·6	11·0	10·4	5·8	3·5	2·7	5·9	4·1	3·6	0·9	3·5	5·2	3·0	4·6	2·8	2·4	2·4	3·1	2·6	4·5	1·6	0·6	0·4	91·7
Mar.	4·8	4·5	2·8	0·9	1·6	3·7	6·8	13·1	5·3	3·3	2·5	2·3	1·0	1·2	0·8	0·7	1·2	1·4	2·1	3·2	2·9	1·0	3·4	5·2	75·7
Apr.	0·1	···	···	···	···	···	0·2	···	···	···	···	0·3	0·3	···	0·8	···	···	···	0·1	···	···	0·2	···	0·2	2·2
May	7·0	8·9	5·6	4·8	3·8	4·0	9·3	3·0	6·0	7·0	6·2	7·6	4·0	8·1	3·4	4·0	5·4	3·6	3·2	7·1	4·4	4·4	2·4	4·2	127·4
June	1·2	2·3	4·6	7·6	4·5	5·3	6·8	7·2	8·4	8·2	4·3	1·8	5·1	2·1	2·8	3·9	3·4	1·2	2·3	8·2	3·2	6·0	1·5	2·2	104·1
July	2·9	4·9	10·5	4·2	2·7	4·3	3·9	6·6	11·2	7·7	11·4	8·0	8·5	13·0	7·1	3·4	1·4	3·4	8·9	10·3	6·1	6·0	3·0	2·8	152·2
Aug.	6·7	7·2	8·2	8·9	8·9	13·8	5·1	5·3	4·3	3·8	5·8	3·6	1·6	2·2	2·1	2·5	7·2	4·4	11·8	6·8	10·9	4·7	5·4	1·6	142·8
Sept.	9·3	16·2	9·6	4·2	6·4	8·9	4·5	6·9	3·3	4·8	5·6	4·2	6·7	6·6	6·5	12·2	6·0	6·3	3·1	1·9	0·7	6·6	4·3	8·0	152·8
Oct.	7·2	5·5	2·9	5·2	1·8	2·8	5·3	16·5	6·7	6·4	8·5	7·0	8·9	10·0	1·3	3·4	9·1	11·9	11·4	6·9	5·3	10·3	18·0	17·9	190·2
Nov.	16·6	5·9	2·1	7·0	6·3	4·7	8·2	12·2	5·3	8·6	10·7	7·8	6·2	2·6	3·1	4·4	6·6	5·7	9·0	14·3	12·5	12·0	4·9	8·1	184·8
Dec.	6·8	9·1	10·2	7·7	8·9	4·6	6·4	12·9	13·2	8·6	1·7	4·8	5·5	4·2	2·0	1·9	3·2	2·0	6·0	7·0	4·1	5·0	4·8	7·0	147·6
Annual	76·2	85·4	76·3	64·9	55·4	57·8	61·8	94·7	70·3	68·1	64·6	61·1	60·0	66·5	49·3	52·3	51·9	48·5	69·8	75·1	61·3	65·9	52·5	65·4	1556·0

RAINFALL

Monthly and annual totals of durations in sixty-minute periods between exact hours Greenwich Mean Time

193 VALENTIA OBSERVATORY: H_r = 9·1 m. + 0·5 m. 1938

	Hour G.M.T. 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	0-24
	hours																								
Jan.	5·9	6·3	6·3	5·1	5·6	3·6	2·4	3·7	2·7	2·9	2·5	3·8	4·6	6·1	6·8	4·8	4·7	6·8	7·2	7·7	7·4	5·0	4·6	4·5	121·0
Feb.	1·6	3·7	3·7	4·1	3·9	2·4	3·3	4·9	4·1	3·6	1·5	2·9	3·4	3·9	3·7	2·7	3·7	2·7	3·3	2·3	2·1	1·7	1·4	1·3	71·9
Mar.	3·2	3·1	4·7	2·4	3·4	4·8	6·0	7·5	6·3	3·1	1·9	1·3	1·5	1·0	1·0	0·6	1·8	3·8	3·7	5·0	4·9	3·1	3·4	4·6	82·1
Apr.	0·2	···	···	···	···	···	0·3	···	···	···	···	0·5	0·6	···	0·5	···	···	···	0·2	···	···	0·5	···	0·4	3·2
May	3·9	6·0	6·3	5·8	3·4	4·1	5·6	4·5	3·9	5·5	4·9	4·4	4·0	2·7	2·3	3·6	3·2	1·3	2·3	4·4	4·1	2·9	3·8	5·4	98·3
June	1·5	4·1	5·3	5·1	3·2	4·1	6·8	6·3	4·8	3·9	3·5	2·1	1·2	2·3	2·4	2·7	1·9	1·3	2·4	3·7	3·6	2·0	3·0	2·8	80·0
July	2·0	1·9	2·8	3·5	2·1	3·9	4·7	4·6	5·1	4·3	3·1	2·6	3·5	4·0	2·0	1·7	1·0	2·3	3·3	3·6	3·2	4·2	2·4	3·0	74·8
Aug.	3·4	2·8	3·3	5·6	5·2	5·1	3·1	2·8	4·7	3·5	1·8	1·8	2·0	1·1	1·7	1·5	3·7	2·9	2·1	3·1	2·4	2·9	4·2	1·7	72·4
Sept.	3·8	4·6	2·5	4·2	4·3	3·8	4·4	5·2	3·8	2·5	3·5	3·2	3·5	2·4	2·2	3·1	3·4	2·4	1·6	1·8	1·5	2·5	3·2	3·9	77·3
Oct.	5·9	4·8	2·8	2·5	2·6	2·6	5·1	7·2	6·7	5·7	5·3	5·4	4·8	4·7	1·5	1·6	3·7	5·7	4·5	3·9	3·2	5·8	7·7	7·4	111·1
Nov.	6·8	4·5	3·2	4·9	4·4	5·4	6·0	6·8	6·3	4·9	4·8	4·6	3·7	2·6	2·6	2·6	3·1	4·4	5·6	7·3	8·0	6·3	3·3	4·3	116·4
Dec.	6·9	7·5	6·5	5·9	6·0	4·2	4·3	5·6	6·0	4·4	2·2	1·7	4·3	3·0	1·0	1·8	3·1	4·1	5·7	4·3	5·3	5·3	4·9	5·8	109·8
Annual	45·1	49·3	47·4	49·1	44·1	44·0	52·0	59·1	54·4	44·3	35·0	34·3	37·1	33·8	27·7	26·7	33·3	37·7	41·9	47·1	45·7	42·2	41·9	45·1	1018·3

194 VALENTIA OBSERVATORY

NOTES ON RAINFALL

1938

Dry Periods

The following definitions are adopted by the British Rainfall Organization
An "absolute drought" is a period of at least 15 consecutive days to none of which is credited 0·2 mm. of rain or more
A "partial drought" is a period of at least 29 consecutive days, the mean daily rainfall of which does not exceed 0·2 mm.
A "dry spell" is a period of at least 15 consecutive days to none of which is credited 1·0 mm. of rain or more

"Absolute drought": April 6–26
"Partial drought": March 27–May 10
"Dry spell": April 3–May 10

Wet Periods

The following definitions are adopted by the British Rainfall Organization
A "rain spell" is a period of at least 15 consecutive days to each of which is credited 0·2 mm. of rain or more
A "wet spell" is a period of at least 15 consecutive days to each of which is credited 1·0 mm. of rain or more

"Rain spells": January 5–February 2; May 17–31; June 26–July 14; September 11–26; September 28–October 18; November 4–December 10
"Wet spells": September 28–October 13; November 8–December 5

Notable Falls of the Year

The greatest amount between one exact hour and the next was 12·4 mm. between 1h. and 2h. on September 22

Details of the greatest continuous falls are as follows

	January 16	July 27	August 21–22	September 21–22	December 14–15
Amount (mm.)	31	29	30	28	36
Duration of rainfall (hr.)	9·7	6·5	11·0	5·2	9·0

Rate of Rainfall (Jardi recorder)

The highest instantaneous rate of rainfall was 176 mm./hr. on September 22. On 24 days during the year the rate exceeded 50 mm./hr.

195 VALENTIA OBSERVATORY: h_s(height of recorder above ground) = 12·8 m. 1938

DAY	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible	Duration	Per cent. of possible
	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%	hr.	%
1	4·4	57	0·9	10	7·0	65	···	···	11·8	80	8·1	50	7·9	48	2·1	14	8·5	63	1·6	14	3·9	41	···	···
2	6·3	81	0·2	2	2·5	23	0·1	1	2·6	18	13·6	83	5·0	30	1·2	8	8·8	65	5·5	48	1·1	12	3·3	41
3	6·4	82	···	···	3·6	33	10·7	82	1·3	9	···	···	1·3	8	3·8	25	11·6	86	0·3	3	0·5	5	4·3	54
4	0·1	1	···	···	3·1	28	1·3	10	9·4	63	7·0	43	5·7	35	1·1	7	0·3	2	3·5	31	···	···	···	···
5	1·4	18	···	···	0·3	3	0·1	1	10·7	71	3·8	23	10·2	62	5·3	35	0·8	6	6·3	56	···	···	4·1	52
6	1·0	12	8·0	86	9·0	81	7·7	58	13·3	88	···	···	4·3	26	3·8	25	···	···	0·7	6	···	···	0·2	3
7	1·4	18	···	···	8·9	80	1·4	11	6·4	42	5·9	36	0·2	1	1·9	13	7·3	55	4·1	36	0·1	1	···	···
8	···	···	5·3	56	0·1	1	9·5	71	0·7	5	11·0	67	5·1	31	1·0	7	9·6	73	···	···	···	···	3·8	48
9	0·5	6	···	···	···	···	10·4	78	14·1	93	8·6	52	3·0	18	···	···	8·5	65	4·7	42	···	···	2·6	33
10	3·2	40	1·5	16	···	···	8·9	66	3·4	22	6·0	36	0·1	1	3·6	24	7·6	58	3·8	35	0·2	2	1·5	19
11	0·3	4	···	···	0·1	1	11·9	88	···	···	1·7	10	2·8	17	1·2	8	···	···	3·5	32	2·9	32	5·3	68
12	0·8	10	4·3	45	0·1	1	11·6	85	3·0	19	7·9	48	2·5	15	6·5	44	1·5	11	···	···	0·1	1	3·3	43
13	0·9	11	6·7	69	10·0	86	12·3	90	···	···	14·1	85	···	···	0·1	1	···	···	4·5	42	1·8	20	2·7	35
14	···	···	8·4	86	5·5	47	12·6	92	0·4	3	11·5	69	8·5	52	···	···	0·3	2	2·5	23	1·3	15	4·2	54
15	3·2	39	4·9	50	···	···	11·5	83	···	···	13·4	81	2·7	17	0·1	1	1·1	9	1·2	11	0·3	3	0·7	9
16	···	···	3·8	38	6·0	51	10·4	75	2·0	13	13·4	81	5·5	34	2·9	20	···	···	5·4	51	3·5	40	2·8	36
17	1·2	15	2·5	25	···	···	12·0	86	3·7	24	8·4	50	···	···	9·1	63	0·7	6	···	···	0·6	7	1·6	21
18	0·1	1	4·0	40	0·3	3	10·3	74	12·2	77	···	···	2·5	16	0·1	1	2·6	21	0·3	3	···	···	···	···
19	0·5	6	8·6	85	···	···	12·6	90	2·2	14	9·2	55	1·0	6	7·4	51	···	···	4·3	41	0·7	8	2·5	33
20	···	···	7·0	69	0·5	4	12·4	88	···	···	5·8	35	4·5	28	6·7	47	4·1	33	0·7	7	3·0	35	6·2	80
21	1·1	13	4·5	44	9·0	74	11·3	80	0·5	3	···	···	3·0	19	6·0	42	5·3	43	3·2	31	0·4	5	6·3	82
22	0·2	2	···	···	(9·5)*(78)		2·9	20	6·1	38	0·5	3	···	···	···	···	0·1	1	6·6	64	3·4	40	6·3	82
23	···	···	···	···	2·9	24	12·6	88	7·2	45	···	···	2·9	18	···	···	6·4	53	3·8	37	1·6	19	5·6	73
24	2·5	29	···	···	···	···	9·4	66	1·4	9	0·8	5	5·4	34	8·0	57	9·6	79	···	···	3·1	37	3·5	46
25	4·4	51	···	···	3·5	28	8·5	59	4·4	27	4·2	25	5·3	34	5·4	38	5·0	42	4·7	47	0·2	2	···	···
26	2·6	30	0·5	5	···	···	10·1	70	0·3	2	···	···	6·5	41	7·3	52	···	···	0·1	1	2·5	30	···	···
27	2·9	33	···	···	0·1	1	2·8	19	7·3	45	7·2	43	3·2	20	···	···	1·2	10	4·5	45	···	···	1·5	20
28	···	···	···	···	···	···	12·5	86	9·0	56	0·9	5	2·9	19	4·0	29	···	···	···	···	1·9	23	0·1	1
29	0·5	6			···	···	13·2	90	2·7	17	9·9	60	···	···	2·8	20	3·7	32	···	···	0·7	9	···	···
30	···	···			0·4	3	10·8	73	10·2	63	10·8	65	0·8	5	11·0	80	1·9	16	0·4	4	2·6	32	3·5	45
31	0·1	1			3·2	25			7·7	47			3·1	20	5·4	39			0·8	8			···	···
Mean	1·48		2·54		2·76		8·73		4·97		6·12		3·42		3·48		3·55		2·48		1·21		2·45	
											Annual mean		3·59											

* Estimated value: sphere out of position.

DURATION OF BRIGHT SUNSHINE

Monthly and annual totals between exact hours Local Apparent Time

196 VALENTIA OBSERVATORY: h_s = 12·8 m. 1938

	Hour L.A.T. 3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	Total	Per cent. of possible
	hours																			%
Jan.	-	-	-	-	···	0·4	6·1	8·8	9·2	8·0	6·6	5·6	1·3	···	-	-	-	-	46·0	18
Feb.	-	-	-	···	0·3	6·9	9·1	10·8	11·3	9·3	7·5	7·2	6·9	1·8	···	-	-	-	71·1	26
Mar.	-	-	···	···	2·8	6·7	7·2	7·4	9·1	9·6	11·0	12·9	10·0	7·2	1·7	···	-	-	85·6	23
Apr.	-	···	3·9	19·1	21·5	21·3	22·6	22·5	23·0	22·5	21·6	20·7	20·2	20·0	17·9	5·0	···	-	261·8	63
May	···	0·1	4·0	9·1	10·1	11·8	13·1	12·0	11·4	11·5	14·6	13·3	11·5	11·9	11·6	7·3	0·7	···	154·0	32
June	···	3·9	9·0	10·7	8·3	6·5	10·3	12·1	14·1	15·4	17·3	15·7	15·8	14·0	13·1	11·4	6·1	···	183·7	35
July	···	0·1	1·3	3·4	3·4	4·4	7·2	9·8	12·0	12·3	11·9	11·6	8·3	8·2	7·0	4·6	0·4	···	105·9	21
Aug.	-	···	1·8	5·5	6·6	7·8	8·9	10·2	7·6	8·7	11·6	11·9	10·2	10·0	5·6	1·4	···	-	107·8	24
Sept.	-	-	···	2·2	6·0	7·3	7·5	9·7	11·5	12·7	11·1	11·2	10·6	10·1	5·6	1·0	-	-	106·5	28
Oct.	-	-	-	···	0·9	5·5	10·2	11·5	10·1	11·9	11·2	9·3	5·1	1·3	···	-	-	-	77·0	23
Nov.	-	-	-	-	···	1·6	3·9	5·8	7·2	8·6	5·2	3·4	0·7	···	-	-	-	-	36·4	14
Dec.	-	-	-	-	-	···	9·1	12·4	14·5	14·7	13·2	9·7	2·3	-	-	-	-	-	75·9	31
Annual	···	4·1	20·0	50·0	59·9	80·2	115·2	123·0	141·0	145·2	142·8	132·5	102·9	84·5	62·5	30·7	7·2	···	1311·7	29

WIND

Mean speed and highest instantaneous speed recorded each day (0h. to 24h. Greenwich Mean Time) by the pressure-tube anemograph

197 VALENTIA OBSERVATORY: H_a(height of anemograph above M.S.L.) = height of ground above M.S.L. + h_a(height of anemograph above ground) = 17 m. + 13 m. 1938

DAY	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust
	metres per second																							
1	2·3	8	13·4	31	4·1	14	5·5	12	5·1	14	7·1	17	5·0	13	1·7	8	3·5	11	5·0	24	9·3	22	13·1	29
2	2·4	8	8·5	24	4·8	11	8·6	19	4·8	17	4·5	12	6·1	14	3·2	15	2·1	9	9·8	25	5·8	17	7·6	21
3	2·2	10	9·4	19	8·3	18	6·8	19	4·9	15	6·8	15	5·7	11	4·3	22	2·7	9	11·6	34	5·7	13	6·4	21
4	2·3	11	11·0	21	4·3	12	3·3	10	5·0	14	4·5	15	9·0	20	3·7	16	3·4	10	12·3	32	7·2	15	6·6	15
5	2·3	9	8·9	19	3·6	11	4·6	11	4·5	15	7·3	21	7·7	16	2·4	7	4·2	12	9·9	25	6·8	14	8·5	23
6	8·4	22	3·9	11	1·7	7	2·9	8	4·9	12	9·0	21	3·1	10	1·6	8	4·9	14	9·0	24	7·5	14	9·0	21
7	8·0	20	3·4	13	1·4	6	1·5	7	5·8	14	8·9	21	9·9	22	1·0	7	7·0	18	10·6	27	8·9	17	6·5	21
8	6·2	23	6·3	17	4·3	11	2·6	11	2·2	14	6·8	14	10·9	21	3·6	10	4·6	15	10·0	25	8·3	17	3·2	11
9	8·9	23	8·1	18	5·7	11	5·8	17	2·3	8	6·3	16	6·0	15	4·5	12	3·0	13	8·1	21	10·2	23	6·1	21
10	8·0	22	7·8	23	2·9	9	8·2	20	7·5	17	5·3	13	7·2	16	2·1	8	2·5	11	6·4	17	8·3	19	5·2	15
11	5·7	17	2·1	12	3·4	11	4·2	13	9·1	17	5·1	15	5·6	14	3·2	13	2·6	9	6·2	15	11·7	28	3·5	12
12	7·5	29	8·5	18	5·5	15	1·5	7	8·1	17	6·7	15	3·0	7	5·0	10	1·6	7	7·9	21	11·3	28	4·3	23
13	9·5	23	5·8	16	8·1	22	2·1	9	8·3	17	4·7	12	5·8	15	2·1	8	2·8	11	10·0	22	7·6	23	9·2	23
14	11·6	37	4·8	14	10·5	21	2·7	11	3·2	10	3·3	12	4·9	12	4·2	15	4·0	11	6·7	15	4·6	12	7·4	23
15	12·3	33	4·8	13	11·7	24	2·0	9	10·7	20	2·8	10	5·8	11	5·7	14	5·0	15	7·9	19	7·9	19	11·6	30
16	10·0	25	4·3	13	6·7	23	5·3	17	6·2	16	1·8	7	2·8	7	8·1	20	9·1	20	7·1	20	5·7	13	5·8	23
17	4·8	19	6·4	17	8·9	18	6·5	20	4·6	15	4·9	14	4·7	13	5·7	15	6·1	16	3·8	20	3·7	11	7·6	26
18	11·8	25	7·6	22	12·3	25	2·8	10	4·4	11	5·7	12	1·6	7	7·1	18	4·7	12	6·9	20	10·2	23	11·8	28
19	8·5	23	2·9	12	7·1	23	2·2	8	2·6	8	6·8	14	3·0	8	8·6	25	6·0	17	6·2	14	7·2	24	6·6	25
20	11·8	26	2·5	10	4·4	13	1·6	8	4·5	12	6·4	14	2·5	8	5·8	19	3·8	10	10·5	22	3·1	15	4·3	10
21	5·3	24	2·4	9	2·6	8	2·5	8	3·9	10	5·5	15	5·0	13	4·5	12	5·3	14	3·2	17	3·4	15	2·9	10
22	11·3	25	3·9	13	2·8	10	2·2	11	3·7	17	5·0	11	5·7	12	6·9	17	12·1	36	3·0	9	6·1	23	1·3	6
23	10·0	28	6·8	17	6·6	14	3·0	10	8·3	24	5·8	12	3·0	9	7·5	18	8·8	24	2·2	9	10·5	37	1·1	8
24	11·3	27	9·9	26	7·1	16	3·8	12	5·7	17	7·0	16	6·3	15	3·5	9	4·7	10	5·5	12	5·5	19	1·6	6
25	9·9	29	11·6	26	6·5	15	4·2	11	5·4	19	5·7	15	4·1	12	2·5	9	4·2	14	6·4	16	7·7	23	4·2	12
26	8·1	23	9·9	26	6·1	15	4·4	13	7·4	18	5·9	17	5·8	13	2·6	10	6·7	17	6·4	21	6·2	19	2·1	9
27	8·8	23	9·5	20	5·2	14	4·1	16	7·2	16	10·5	21	5·8	15	4·8	14	4·2	9	7·6	19	8·4	22	3·7	11
28	10·9	25	11·1	25	5·6	13	6·3	16	4·8	17	11·3	28	6·5	16	7·0	17	5·1	15	3·6	13	9·3	22	4·5	11
29	12·5	31			6·4	13	3·6	12	6·4	20	8·3	19	9·2	21	4·5	11	3·1	13	5·5	15	6·9	23	5·6	15
30	8·2	29			6·0	13	4·1	11	6·1	18	6·5	15	7·9	17	2·7	10	4·9	14	4·8	14	10·9	28	6·2	17
31	13·9	35			5·0	11			5·7	14			3·1	9	1·5	6			7·4	22			5·8	17

WIND

Monthly and annual means of mean wind speed between exact hours Greenwich Mean Time

198 VALENTIA OBSERVATORY: H_a = 17 m. + 13 m. 1938

	Hour G.M.T. 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
	metres per second																								
Jan.	8·5	8·5	8·5	8·5	8·5	8·3	8·0	7·7	7·6	7·6	7·7	7·7	8·0	7·8	8·2	7·7	7·4	7·8	8·2	8·6	8·9	9·0	9·1	9·0	8·2
Feb.	6·7	7·0	7·0	6·9	7·2	7·1	7·2	7·3	7·2	7·0	7·0	7·4	7·6	7·6	7·6	7·3	7·0	6·6	6·5	6·6	6·6	6·3	6·3	6·4	7·0
Mar.	5·5	5·4	5·6	5·4	5·6	5·5	5·4	5·7	5·6	5·7	6·1	6·6	6·6	6·5	6·5	6·6	6·3	6·1	5·5	5·6	5·3	5·2	5·4	5·5	5·8
Apr.	3·1	3·2	3·0	2·8	2·8	2·9	2·9	3·2	3·3	3·7	4·5	4·9	5·2	5·5	5·5	5·7	5·7	5·3	4·8	4·1	3·4	3·3	3·1	3·1	4·0
May	4·6	4·8	4·8	4·6	4·8	4·8	4·8	4·8	5·3	5·9	6·4	6·7	6·7	6·7	6·7	6·6	6·6	6·7	6·2	5·7	5·1	5·0	4·9	4·9	5·6
June	5·5	5·3	5·3	5·1	5·1	5·0	5·3	5·8	6·1	6·1	6·7	7·0	7·2	7·4	7·8	7·6	7·5	7·1	6·9	6·5	5·9	5·8	5·7	5·5	6·2
July	4·5	4·5	4·9	4·9	4·9	5·1	4·9	5·2	5·5	5·9	6·2	6·4	6·7	7·0	7·2	7·1	6·6	6·4	6·0	5·4	4·9	4·5	4·3	4·4	5·6
Aug.	3·2	2·9	3·1	3·5	3·5	3·7	3·9	4·0	4·1	4·6	4·8	5·2	5·2	5·3	5·3	5·2	5·2	5·3	4·8	4·3	4·1	3·8	3·4	3·2	4·2
Sept.	3·7	3·8	3·8	3·7	3·7	3·9	3·5	3·8	4·3	5·0	5·6	6·1	6·2	6·3	6·4	6·5	6·3	5·9	5·0	4·3	4·3	4·2	4·1	3·7	4·8
Oct.	6·9	7·2	6·9	7·0	6·6	6·3	6·2	6·3	6·2	6·8	7·0	7·4	7·7	8·0	8·1	8·1	7·5	7·6	7·4	7·4	7·1	7·1	7·2	7·3	7·1
Nov.	7·2	7·3	7·4	7·4	7·3	7·5	7·6	7·3	7·3	7·5	7·7	8·1	8·3	8·3	8·1	7·4	7·1	7·2	7·0	7·4	7·5	7·5	7·5	7·6	7·5
Dec.	6·5	6·8	6·4	6·5	6·1	5·6	5·7	5·5	5·4	5·5	5·8	6·0	6·3	6·5	6·4	6·0	5·5	5·3	5·3	5·7	5·7	5·4	5·7	6·3	5·9
Annual	5·5	5·6	5·5	5·5	5·5	5·4	5·5	5·6	5·9	6·3	6·6	6·8	6·9	7·0	6·8	6·6	6·4	6·2	6·0	5·8	5·6	5·6	5·6	5·6	6·0

DISTRIBUTION OF WIND SPEED, EXTREME VELOCITIES AS RECORDED BY PRESSURE-TUBE ANEMOGRAPH

199 VALENTIA OBSERVATORY: H_a = 17 m. + 13 m.

	DISTRIBUTION OF WIND SPEED								EXTREME VELOCITIES				
	More than 17·1 m./sec.		10·8 to 17·1 m./sec.		5·5 to 10·7 m./sec.	1·6 to 5·4 m./sec.	Less than 1·6 m./sec.	No record	Highest hourly wind			Highest gust	
	Dates of occurrence	Duration	No. of days	Duration	Duration	Duration	Duration	Duration	Veer from N.	Speed	Hour ended	Speed	Date
		hr.		hr.	hr.	hr.	hr.	hr.	°	m./sec.	day h.	m./sec.	day h. m.
Jan.	15,16,25,31	12	21	186	342	153	51	0	195	20	14 22	37	14 21 40
Feb.	4	4	13	110	311	208	39	0	265	18	1 1	31	1 2 45
Mar.	-	0	8	71	303	292	78	0	210	15	18 18	25	18 15 05
Apr.	-	0	2	3	193	344	180	0	65	13	17 2	20	10 11 00
May	-	0	4	18	366	288	72	0	350	13	15 16	24	23 2 30
June	-	0	6	40	394	240	46	0	210	16	28 11	28	28 21 35
July	-	0	4	43	326	322	53	0	15	14	7 15	22	7 16 50
Aug.	-	0	3	11	220	342	171	0	270	13	19 20	25	19 22 55
Sept.	22	2	3	21	239	328	130	0	155	20	22 18	36	22 17 40
Oct.	3,4	7	18	110	374	214	39	0	275	19	3 21	34	3 21 15
Nov.	23	5	12	85	452	169	9	0	225	23	23 4	37	23 2 55
Dec.	1,15	3	13	75	287	277	102	0	270	18	1 13	30	15 2 05
Year	11 days	33	107	773	3807	3177	970	0	225	23	Nov. 23 4	37	Nov. 23 2 55

TEMPERATURE IN THE GROUND AT DEPTHS OF 30 CM.(1ft.) AND 122 CM.(4ft.) AT 9h. GREENWICH MEAN TIME

200 VALENTIA OBSERVATORY 1938

DAY	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.
	degrees Absolute																							
1	79·0	81·5	80·4	81·5	81·3	80·9	84·0	82·7	84·2	83·9	86·4	85·1	87·9	86·9	89·2	87·9	87·8	87·8	86·2	87·1	84·0	85·1	80·8	83·0
2	78·3	81·3	80·0	81·6	80·4	81·0	83·8	82·9	84·1	83·9	86·0	85·1	88·1	86·9	89·8	87·5	87·6	87·8	86·8	87·1	83·1	85·1	80·9	83·0
3	77·3	81·2	81·0	81·5	80·6	81·1	83·0	83·0	83·9	83·9	87·0	85·1	88·1	86·8	90·0	87·6	87·3	87·7	85·9	87·0	83·2	85·0	80·6	82·9
4	76·4	81·0	81·6	81·5	81·1	81·1	82·8	83·0	83·9	83·9	86·9	85·2	88·1	86·9	90·2	87·7	87·6	87·6	85·4	87·0	84·1	85·0	81·2	82·9
5	76·6	80·9	81·7	81·5	81·0	81·2	82·9	83·0	84·1	83·9	86·7	85·2	87·6	86·9	90·9	87·9	87·9	87·6	85·0	86·9	85·0	84·9	81·9	82·8
6	77·3	80·6	80·2	81·6	81·1	81·3	83·2	83·0	84·3	84·0	87·0	85·2	87·9	86·9	91·4	87·9	87·9	87·5	84·8	86·8	85·2	85·0	81·2	82·8
7	78·3	80·5	80·0	81·8	81·1	81·3	84·0	83·0	84·9	84·0	86·6	85·4	88·2	86·9	91·1	88·0	87·9	87·6	85·2	86·3	85·4	84·9	82·0	82·8
8	79·1	80·4	80·2	81·7	81·1	81·4	84·1	83·0	84·2	83·9	86·6	85·5	87·2	86·9	90·9	88·1	87·9	87·5	84·9	86·2	85·4	85·0	81·2	82·8
9	79·0	80·5	80·9	81·5	81·8	81·5	84·2	83·1	83·7	84·0	87·0	85·5	87·3	86·9	90·4	88·2	88·0	87·4	85·5	86·2	85·5	85·0	80·8	82·7
10	78·4	80·6	81·5	81·5	82·0	81·6	84·4	83·1	84·5	84·0	87·0	85·5	87·9	86·8	90·1	88·2	87·9	87·3	85·0	86·0	85·7	85·0	80·1	82·5
11	78·9	80·7	80·9	81·6	82·1	81·7	83·4	83·4	84·8	84·0	87·2	85·6	87·9	86·9	90·7	88·2	88·1	87·3	84·8	85·9	85·9	85·1	80·0	82·4
12	79·5	80·6	81·0	81·7	82·1	81·8	83·5	83·4	85·0	84·0	87·3	85·6	88·1	86·9	90·2	88·2	88·4	87·3	85·6	85·9	85·6	85·1	80·1	82·3
13	80·1	80·8	80·9	81·8	81·8	81·9	83·5	83·4	85·4	84·0	87·2	85·9	88·9	86·9	89·9	88·3	88·8	87·3	86·3	85·8	85·4	85·2	80·4	82·0
14	79·9	80·9	80·2	81·6	81·7	81·8	83·8	83·4	85·5	84·0	87·9	85·9	88·3	87·0	89·3	88·3	88·9	87·4	86·0	85·8	85·0	85·2	81·0	82·1
15	80·1	80·9	78·9	81·6	82·4	81·9	84·1	83·4	86·1	84·2	88·1	86·1	88·8	87·0	89·3	88·3	88·2	87·5	85·6	85·8	85·1	85·2	80·9	82·1
16	80·1	80·9	77·9	81·4	82·8	82·0	84·2	83·3	85·0	84·2	88·9	86·0	88·4	87·0	89·4	88·2	88·0	87·5	85·6	85·9	85·2	85·2	81·0	82·1
17	80·2	80·9	77·6	81·2	83·0	82·0	83·6	83·5	85·0	84·3	89·1	86·1	88·8	87·0	89·0	88·2	88·1	87·5	85·6	85·8	85·1	85·2	79·3	82·1
18	80·0	81·0	77·5	81·0	83·0	82·0	83·3	83·5	85·0	84·3	89·8	86·1	88·8	87·0	89·3	88·1	88·2	87·5	85·4	85·8	85·0	85·2	79·5	82·0
19	80·1	81·0	77·6	81·0	83·3	82·1	83·2	83·7	85·9	84·4	89·0	86·4	89·4	87·4	88·8	88·1	88·0	87·6	84·9	85·8	83·8	85·1	78·8	82·0
20	80·8	81·0	77·5	80·9	82·7	82·1	83·2	83·5	86·0	84·5	89·7	86·5	89·4	87·1	88·0	88·1	87·5	87·5	85·3	85·7	82·2	85·1	77·1	81·9
21	81·4	81·0	77·7	80·9	82·2	82·2	83·7	83·5	86·1	84·6	88·4	86·6	89·7	87·2	87·8	88·0	87·5	87·6	86·0	85·6	82·5	85·0	76·2	81·8
22	80·9	81·1	77·9	80·8	82·0	82·3	83·8	83·5	85·8	84·6	88·6	86·6	90·0	87·2	88·0	87·9	87·1	87·4	85·2	85·6	81·4	84·8	75·9	81·3
23	82·0	81·2	77·9	80·7	82·0	82·4	83·7	83·6	86·6	84·7	88·8	86·6	89·1	87·4	88·7	87·9	87·2	87·2	84·9	85·7	81·8	84·5	75·3	81·0
24	82·0	81·2	78·0	80·5	82·3	82·9	83·8	83·5	86·3	84·8	88·8	86·7	89·1	87·6	88·9	87·9	87·5	87·2	85·0	85·6	81·0	84·2	75·1	80·9
25	82·0	81·5	80·1	80·5	83·0	82·3	84·0	83·5	86·3	84·9	88·9	86·8	89·2	87·6	89·1	87·9	87·6	87·1	85·2	85·6	81·0	84·0	75·0	80·7
26	80·9	81·7	81·2	80·5	82·1	82·5	84·0	83·6	86·7	84·9	89·1	86·1	89·1	87·8	89·2	87·9	87·6	87·1	84·2	85·5	81·0	83·9	75·0	80·2
27	80·0	81·8	80·2	80·6	82·5	82·4	84·5	83·6	85·7	85·0	88·9	87·0	89·0	87·8	90·0	87·9	88·0	87·1	83·8	85·5	81·0	83·7	76·1	80·0
28	80·7	81·6	81·5	80·8	82·9	82·4	84·3	83·6	86·0	85·0	88·4	87·0	88·1	87·8	89·3	87·8	88·0	87·1	83·6	85·4	81·1	83·7	78·3	80·0
29	81·0	81·6			83·4	82·5	84·2	83·9	86·1	85·0	88·0	87·0	88·6	87·7	88·6	87·9	87·0	87·2	83·8	85·2	80·5	83·3	79·8	80·0
30	80·9	81·4			83·6	82·5	84·4	83·8	86·0	85·1	87·9	86·9	88·9	87·8	88·2	87·9	86·4	87·1	84·2	85·1	80·9	83·1	80·0	80·0
31	81·4	81·5			83·8	82·6			86·7	85·1			88·9	87·5	88·0	87·9			84·0	85·1			79·0	80·1
Mean	79·8	81·1	78·7	81·2	82·1	81·9	83·8	83·3	85·3	84·4	87·9	86·0	88·5	87·2	89·5	88·0	87·8	87·4	85·2	85·9	83·6	84·7	79·2	81·8
											Year		84·4	84·4										

MINIMUM TEMPERATURE "ON THE GRASS" DURING THE INTERVAL 18h. TO 7h. GREENWICH MEAN TIME

201 VALENTIA OBSERVATORY 1938

DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
	degrees Absolute											
1	75·2	74·6	78·0	81·8	71·3	78·6	79·2	81·3	78·1	82·4	77·8	77·6
2	70·8	75·8	71·4	80·7	75·9	78·6	82·9	87·9	74·7	81·3	79·3	78·2
3	67·6	81·2	79·3	77·3	72·4	80·9	84·0	86·9	75·7	80·7	80·4	73·2
4	67·5	82·2	81·3	71·6	76·9	83·0	81·8	88·4	78·6	80·7	83·1	82·4
5	73·0	81·3	74·2	77·2	78·6	77·3	82·0	88·6	83·3	80·2	84·8	77·7
6	75·6	72·7	71·8	81·6	71·3	84·1	78·6	88·4	83·6	80·2	84·9	79·4
7	77·4	77·0	71·9	76·4	79·7	80·9	80·5	86·3	83·4	82·4	84·7	82·1
8	79·6	76·8	71·4	79·1	74·7	81·9	82·7	82·4	81·6	81·9	85·1	73·7
9	73·7	78·3	81·3	73·0	70·7	80·8	82·8	87·3	78·9	82·4	84·1	74·8
10	75·2	80·8	81·8	77·4	73·8	80·8	84·7	84·1	77·4	80·6	85·2	75·2
11	73·9	71·9	81·0	74·6	82·0	77·1	83·6	82·8	82·4	80·7	85·2	77·0
12	79·2	79·8	78·9	70·1	83·6	82·9	84·1	84·2	87·4	84·7	83·2	76·6
13	77·1	76·3	78·3	71·9	83·4	78·8	85·6	83·2	86·9	85·9	79·7	77·4
14	76·6	76·6	79·3	72·4	84·6	77·6	82·3	80·2	87·3	81·7	80·2	75·8
15	79·2	71·2	82·1	72·4	82·6	76·9	83·0	85·8	75·9	81·9	82·8	76·8
16	77·9	68·6	83·4	74·3	80·5	78·7	82·5	85·2	85·7	79·7	81·9	78·7
17	76·7	72·7	78·2	75·6	74·8	78·7	82·4	83·3	87·1	83·1	79·7	69·8
18	77·3	74·1	82·9	70·1	78·1	85·6	85·2	83·6	84·9	79·1	77·6	78·8
19	76·3	71·2	83·0	70·7	78·1	82·1	84·7	83·1	79·3	80·2	76·9	72·5
20	82·1	70·9	77·5	70·6	82·0	81·3	82·0	81·6	79·2	84·2	73·6	66·2
21	78·7	68·5	76·3	71·4	84·3	83·6	80·8	79·7	79·8	84·7	73·8	64·8
22	76·2	75·8	70·9	72·1	76·4	86·2	85·8	84·3	81·3	76·3	76·3	64·1
23	82·9	75·3	76·7	73·1	81·3	86·4	81·9	88·4	83·8	77·9	77·1	68·0
24	80·3	77·7	82·4	72·2	82·4	87·4	82·4	82·6	81·4	82·0	73·5	66·3
25	80·1	82·6	78·6	75·5	81·6	86·3	79·8	83·6	79·9	81·8	75·9	72·9
26	76·9	83·2	77·3	73·0	82·6	83·6	82·4	82·0	85·8	77·4	76·7	77·5
27	75·3	75·8	81·7	79·7	80·6	84·6	82·9	87·3	84·1	79·3	76·7	79·1
28	80·2	82·9	79·2	77·2	77·2	83·2	83·6	83·9	84·7	79·4	75·6	80·2
29	77·3		83·2	73·3	79·2	81·7	85·2	81·3	81·8	77·2	74·2	81·2
30	78·7		83·3	73·8	78·1	81·9	88·1	78·7	78·2	81·0	78·2	78·3
31	82·3		81·4		78·6		85·8	74·7		80·4		75·2
Mean	76·8	76·3	78·7	74·7	78·6	81·7	83·0	83·9	81·7	81·0	79·6	75·2
						Year	79·3					

The initial 2 or 3 of the readings is omitted, i.e. 275·0 degrees is printed 75·0.

The minimum "on the grass" refers to the interval from 18h. on the previous day to 7h. on the day to which it is entered.

Add 0·16° to obtain temperature in degrees Kelvin where T (°K.) = t (°C.) + 273·16.

M.O. 578

THE OBSERVATORIES' YEAR BOOK 1938

Comprising the meteorological and geophysical results obtained from autographic records and eye observations at the Lerwick, Aberdeen, Eskdalemuir, Valentia, and Kew observatories, and the results of soundings of the upper atmosphere by means of registering balloons

KEW OBSERVATORY

Decimal Index
55.034(058)
55.038(058)
551.506.1
551.506.7
551.510.42(058)
551.594(058)

Obs. Yearb., 1938,
London, 1955

KEW OBSERVATORY

Latitude	51°28′N.
Longitude	0°19′W.
G.M.T. of Local Mean Noon	12h. 1m.

Heights of instruments	above M.S.L.	above ground
	m.	m.
Barometer	10·4	..
Thermometer bulbs	..	3·0
Rain-gauge site	5·5	..
Beckley rain-gauge rim	..	0·53
Sunshine recorder	..	13·3
Pressure-tube anemograph	28	23

INTRODUCTION

The Observatory was built in 1769 as the private observatory of King George III. Since 1842 it has been devoted to physics and meteorology. The meteorological records are continuous from 1868, and there is a partial record from 1842 to 1868.

The Observatory is in the Old Deer Park, Richmond (Surrey), about 16 Km. (10 miles) to the west of the City of London, it stands on a low artificial mound whose level is about 1½ m. (5 ft.) higher than that of the surrounding park. Round the Observatory a golf course has been laid out. The River Thames is distant about 300 m. on the north and west. Kew Gardens, which are extensively wooded, lie to the east-north-east, the nearest point of the Gardens being about 600 m. away. The town of Richmond, to the south-east, is about 1,100 m. distant. On the east side of the Park is the main road from Richmond to Kew; on the south side the railway from Richmond to Twickenham. An open area partly wooded, Syon Park, lies to the north-north-east across the river. Richmond Park is about 2½ Km. (1½ miles) to the south-east. Figs. 18, 19, 20, 21 are respectively a plan of the surrounding country, an aerial view of the Observatory, a site plan, and a photograph of the Observatory and instrument lawn. Fig. 18 was prepared from the large scale Ordnance Survey and is revised to 1948, but the built-up areas had then not changed significantly since 1938. The photograph of Fig. 19 was taken in 1948 and that of Fig. 21 in March 1953. The site plan was prepared in October 1953. There are numerous changes from the conditions of 1938; these may be followed from the legend of Figs. 20-21 and by reference to the corresponding figures in the 1935 volume.

For the early history of the Observatory reference may be made to papers by G. Rigaud*, R.H. Scott†, C. Chree‡, O.J.R. Howarth§, R.S. Whipple‖ and F.J.W. Whipple¶.

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* Rigaud, G.; Dr. Demainbray and the King's Observatory at Kew. *Observatory, London*, **5**, 1882, p. 279.

† Scott, R.H.; The history of the Kew Observatory. *Proc. roy. Soc., London*, **39**, 1885, p. 37.

‡ Chree, C.; Description of the Kew Observatory, Old Deer Park, Richmond, Surrey. *Rec. roy. Soc., London*, 1st edn, 1897, p. 137.

§ Howarth, O.J.R.; The British Association for the Advancement of Science: a retrospect 1831-1921. London, 1922.

‖ Whipple, R.S.; An old catalogue and what it tells us of the scientific instruments and curios collected by Queen Charlotte and King George III. *Proc. opt. Conv., London*, Pt. II, 1926.

¶ Whipple, F.J.W.; Some aspects of the early history of Kew Observatory. *Quart. J.R. met. Soc., London*, **63**, 1937, p. 127.

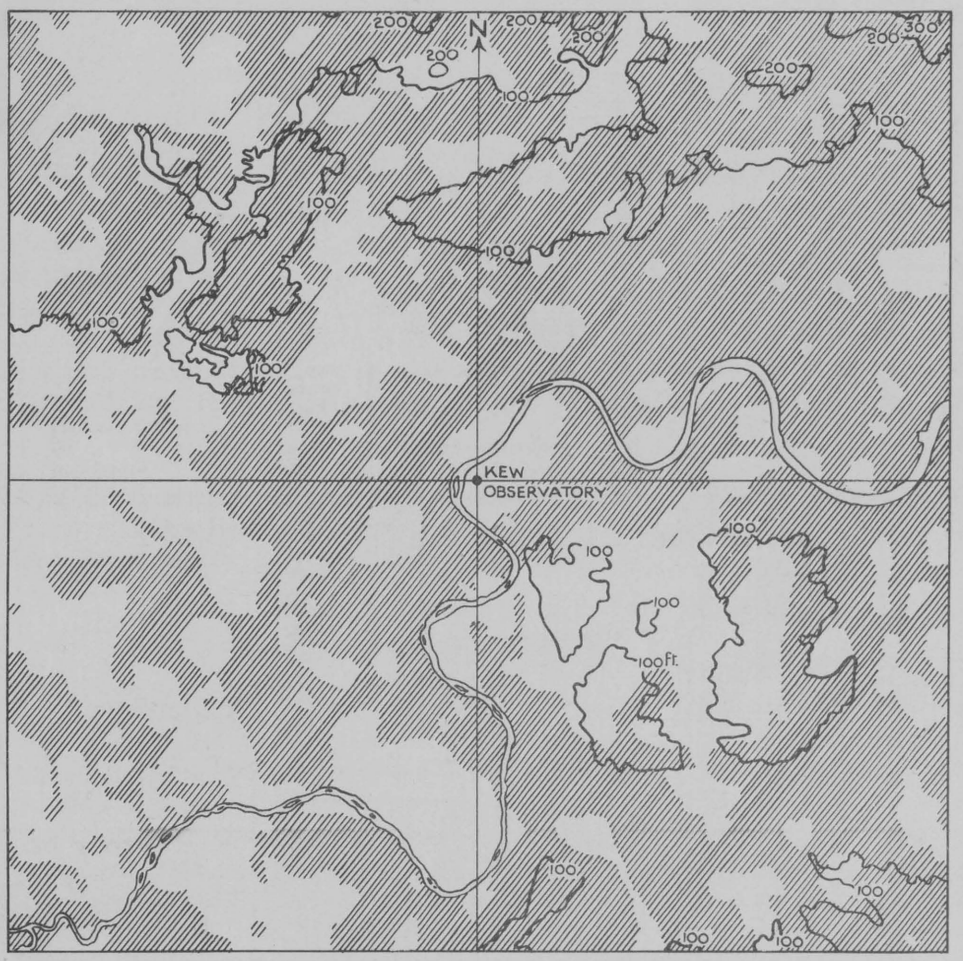

FIG. 18—CONTOURED MAP OF SURROUNDINGS, 1948

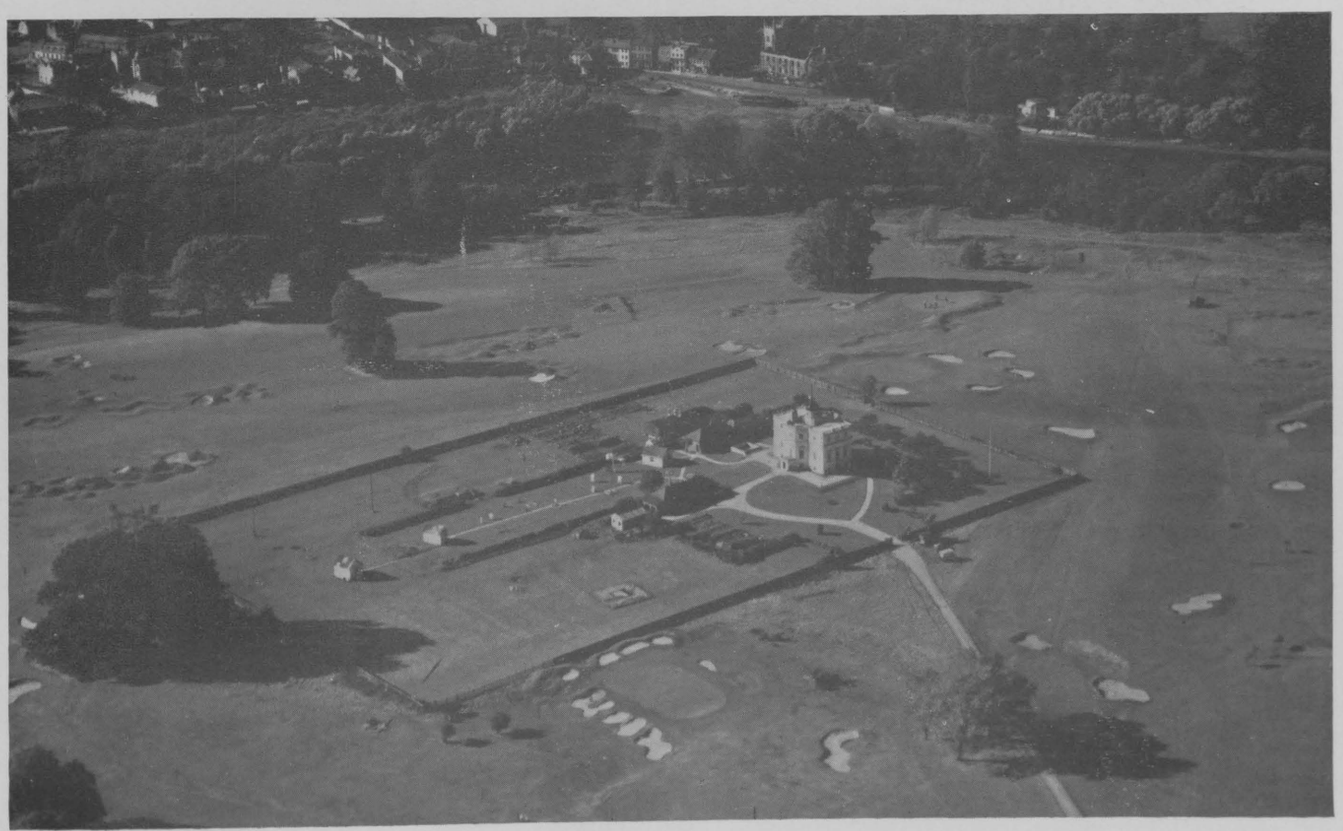

FIG. 19—AERIAL VIEW FROM SOUTH-EAST, 1,000 FT., 1948

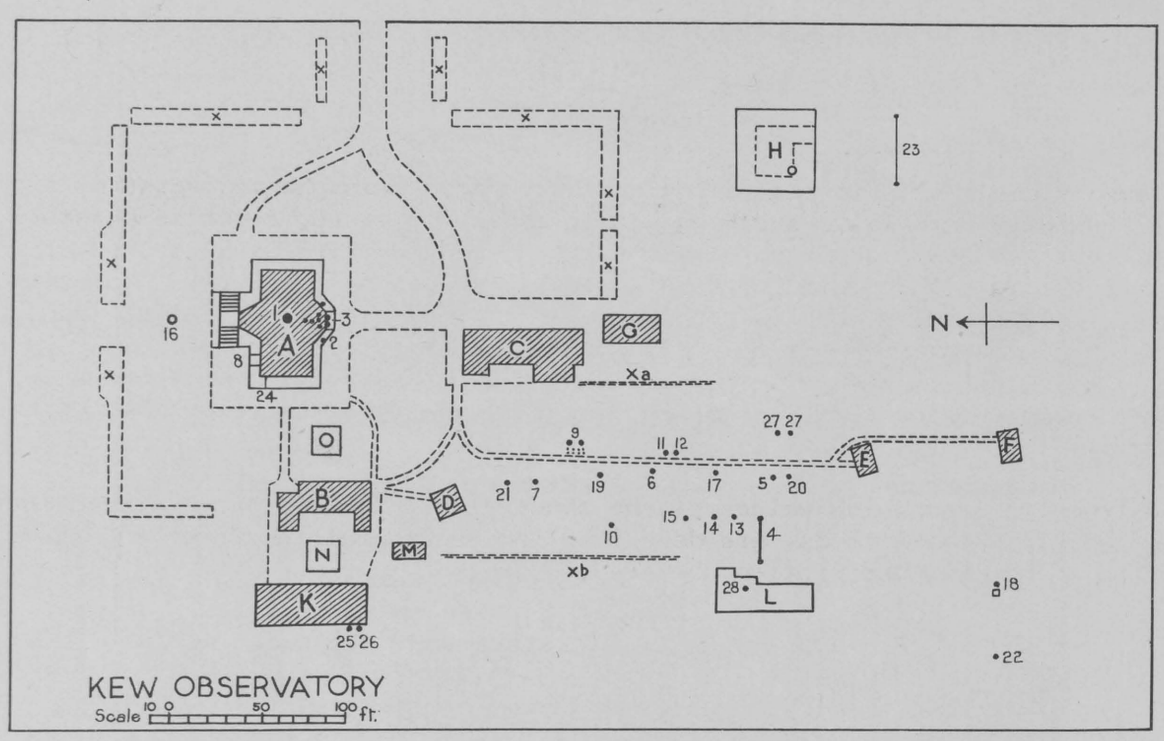

FIG. 20—SITE PLAN, 1953

FIG. 21—GENERAL VIEW FROM SOUTH-WEST, MARCH 1953

A—MAIN OBSERVATORY BUILDING
B—CLINICAL HOUSE
C—WORKSHOP
D—EXPERIMENTAL HUT
E—STORE
F—ATMOSPHERIC ELECTRICITY LABORATORY
G—CARPENTER'S SHOP (ERECTED 1941)
H—UNDERGROUND ELECTRICAL LABORATORY
K—HUT (ERECTED 1941)
L—UNDERGROUND SEISMOLOGICAL HOUSE
M—GREENHOUSE
N—HOT WATER STORAGE CYLINDERS (ERECTED 1953)
O—STATIC TANK (ERECTED 1942)
x—SHRUBBERIES OR HEDGES (HEDGES xa AND xb CONSIDERABLY REDUCED IN HEIGHT, THICKNESS AND LENGTH 1949-50)
1—METEOROLOGICAL OFFICE PRESSURE-TUBE ANEMOGRAPH
2—SUNSHINE RECORDER
3—SOLAR RADIATION AND DAYLIGHT RECORDERS (INSTALLED IN THIS POSITION 1946)
4—RADIATION BALANCE METER (INSTALLED 1953)
5—ROBITZSCH RADIATION RECORDERS (INSTALLED 1948)
6—SOLAR RADIATION THERMOMETER
7—STEVENSON SCREEN
8—NORTH WALL SCREEN
9—EARTH THERMOMETERS
10—GRASS MINIMUM THERMOMETER
11—8-IN. RAIN-GAUGE
12—5-IN. RAIN-GAUGE (INSTALLED 1951)
13—STORM GAUGE
14—RAINFALL CHRONOGRAPH
15—BIBBY RATE-OF-RAINFALL RECORDER (INSTALLED 1951)
16—MODIFIED JARDI RATE-OF-RAINFALL RECORDER (MODIFIED 1951)
17—METEOROLOGICAL OFFICE-TILTING SIPHON RAIN-GAUGE (INSTALLED 1944 VICE BECKLEY GAUGE)
18—EVAPORATION GAUGE (INSTALLED 1948, MODIFIED 1951)
19—PILLAR
20—THEODOLITE PILLAR
21—BESSON COMB NEPHOSCOPE
22—POINT DISCHARGE MAST (MOVED 1939)
23—POSTS FOR STRETCHED-WIRE APPARATUS
24—ELECTROGRAPH COLLECTOR (MOVED FROM CLINICAL HOUSE 1939)
25—OWENS AIR FILTER AND POLLUTION GAUGE (REMOVED FROM CLINICAL HOUSE 1953)
26—SMOKE FILTER (INSTALLED 1948, REMOVED FROM CLINICAL HOUSE 1953)
27—POLLUTION GAUGES
28—PHOTOBAROGRAPH

METEOROLOGY

The elements dealt with in the following tables are: atmospheric pressure, air temperature, humidity, rainfall, sunshine, solar radiation, wind, earth temperature, and minimum night temperature on the grass. As mentioned in the General Introduction to this volume the detailed monthly tables of hourly values of pressure, temperature, humidity, rainfall, sunshine and wind published until 1937 are not included. Tabular summaries of daily mean values (or totals), monthly means (or totals) of hourly values, and certain maximum and minimum values are given. Hourly values of the elements mentioned are available in manuscript form. The diary of cloud, visibility, and weather is also discontinued.

The instruments from which values of the above elements have been obtained and the methods of tabulating the records, are described in the General Introduction. The following notes supplement that description where necessary.

NOTES ON THE INSTRUMENTS

Pressure.— The photographic barograph which is mounted in the basement of the Observatory, where the diurnal variation of temperature is very small, magnifies barometric changes in the ratio 1·553:1. "Residual corrections", obtained from the control observations taken daily with the Newman barometer at 9h., 15h. and 21h., are applied to the hourly measurements. The same correction is applied to all the readings on the same photographic sheet, i.e. generally for 48 hr. The individual entries published for the hours of the control observations may differ by 0·3 mb. from those observations. A zero correction of +0·2 mb. is applied to the Newman barometer readings, based on a long series of comparisons with the two large mercury barometers set up in 1855 and 1860 respectively, the accuracy of which has been confirmed by indirect comparisons with the standard of the National Physical Laboratory*. These comparisons were made on the assumption that the value of the acceleration due to gravity is g = 981·199 cm./sec.^{2}. This is the value given by pendulum observations†.

On occasions when a loss of trace occurred, the missing hourly values were derived from the Dines float barograph‡.

Temperature and humidity.— The thermograph is mounted in the west room on the first floor of the Observatory, the thermometer bulbs being exposed in the screen attached to the north wall of the building. This screen has single louvers and the bottom is open. There is an additional flat-louvered screen which shields the main screen from direct sunshine when the sun is in the west and not too low. The height of the bottom of the bulbs of the recording thermometers above the bottom of the sides of the screen containing them is 30 cm. in summer, 33 cm. in winter. The height of the bulbs above the top of the artificial mound on which the Observatory stands is approximately 3 m.; the height above the lawn where the rain-gauge is situated is approximately 5 m. The scale values of the photographic records are not identical for the dry- and wet-bulb curves. For the dry bulb, tube No.4 II was in use with a scale value of 1 mm. = 0·334°A.; for the wet bulb, tube No.4 was in use with a scale value of 1 mm. = 0·271°A.

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* London, Meteorological Office. The new primary standard barometer at the National Physical Laboratory. *Met. Mag., London,* 68, 1933, p. 119.

† A comparison between the values of g at Cambridge and Kew Observatory was made during the year 1925 by Sir G.P. Lenox-Conyngham with the assistance of Mr. G. Manley. A similar comparison between Potsdam and Cambridge was made by Prof. Meinesz earlier in the year. These observations are in accord with those made at Kew and Potsdam by Putnam in 1900, from which the value stated above was derived. The value for Potsdam, g = 981·274, based on the observations of Kühnen and Furtwängler, is adopted as the standard of reference. For the latitude of Kew Observatory, 51°28′, the formula in the General Introduction gives g = 981·185.

‡ For descriptions of this instrument see London, Meteorological Office; *Observatories' Year Book, 1923. London,* 1926 and Dines, L.H.G.; The Dines float barograph. *Quart. J.R. met. Soc., London,* 55, 1929, p. 37.

Readings of the control thermometers are used for the daily weather service, and are made on the Fahrenheit scale. The control thermometers used were last tested at the National Physical Laboratory in 1933, and are correct to within 0·1°F. The close agreement of the scale of the Kew standards with the scale of the hydrogen thermometer was demonstrated by Harker in 1905*. The recent tests indicate that these thermometers with large bulbs keep their zeros well. On August 10, 1938 the dry-bulb thermometer No. 666 was broken and replaced by thermometer No. M.O.29272 which was used as a temporary standard until the end of the year.

The water for the wet-bulb thermometers is supplied from a tank fitted outside the screen. A large bottle is inverted over the tank and water flowing from this bottle keeps the level constant in the tank and in the cups from which wicks are taken to the wet bulbs. The height of the apparatus is adjusted so that the water drips steadily from the wet bulbs.

Control eye readings of the standard thermometers are taken daily at 9h., 15h. and 21h. Residual corrections obtained from the control observations are applied to the hourly measurements of the curves. The same correction is applied to all the readings on the same photographic sheet, i.e. generally for 48 hr. The individual entries published for the hours of the control observations may differ by 0·3°A. from these observations. The larger departures refer to occasions when temperature is oscillating or changing rapidly.

In cases of loss of the dry-bulb record the readings of a mercury-in-steel thermograph are adopted. When the wet-bulb trace is missing or defective, values are derived from the dry-bulb trace and the records of a hair hygrograph. The same procedure is always adopted when the wet-bulb reading is at or below 273°A. Humidity was determined from the dry- and wet-bulb readings by the procedure described in the General Introduction to this volume†.

It may be noted that during 1938, as in previous years, the temperatures published for Kew Observatory in the *Daily Weather Report* and elsewhere also refer to the North Wall Screen. For the daily and weekly reports the readings of maximum and minimum thermometers exposed in that screen are utilized.

Rainfall.— From January 1921 the standard rain-gauge for the Observatory has been an 8-in. gauge with the deep "Snowdon" funnel. The site is level and protected from wind, principally by hedges about 1·5 m. high and distant 11 m. to the east and 17 m. to the west. Readings of this standard gauge are taken at 7h. and 18h. The hourly readings, which normally refer to the Beckley gauge, are adjusted to give totals in agreement with the standard gauge. Records of the instantaneous rate of rainfall are obtained from the Jardi rate-of-rainfall recorder. This instrument is situated 12 m. from the north wall of the Observatory, and the rim is 1·2 m. above the level of the surrounding ground. Measurements of heavy rainfall in short intervals are also obtained from the records of the minute-by-minute gauge‡ which is erected 10 m. south-west of the Beckley gauge with its rim 1·2 m. high.

Sunshine.— The sunshine recorder is mounted on the south parapet of the roof. The same frame has been in use since 1880, and it is believed that the ball has not been changed. The ball is now somewhat yellow. The exposure is satisfactory. The greatest elevations of the sky line in the azimuths in which the sun can rise and set are 1° and 3° respectively.

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* Harker, J.A.; On the "Kew" scale of temperature and its relation to the international hydrogen scale, *Proc. roy. Soc., London*, A, 78, 1907, p. 225.

† Before 1926 the tables, based on Glaisher's factors, published in section I of the "Computor's handbook", London, Meteorological Office, 1st edn 1916, were used.

‡ Whipple, F.J.W.; A fifth of an inch in a minute. *Met. Mag., London*, 69, 1934, p. 157.

Solar radiation.— The daily totals, and the monthly and annual totals of hourly amounts of solar radiation received on a surface perpendicular to the solar beam, are obtained by the Gorczynski pyrheliograph. The Moll thermopile of the pyrheliograph is mounted on a heliostat near the sunshine recorder and is connected to a recording millivoltmeter in the dome. The total radiation for the day is derived from hourly means and is reduced to joules per square centimetre (1 joule = 0·239 calorie). The hourly means for each month and daily totals are communicated to Paris for publication in the *Bulletin actinometrique international* (hourly readings were given until the end of 1937).

The pyrheliograph is standardized by observations with Ångström pyrheliometer No. 24. The standardizing observations are taken near noon when the sky is free of haze and cloud for a considerable area around the sun. Ångström pyrheliometer No. 24 was compared in 1924 with the standard instrument at Uppsala, No. 70, and the reduction factor adopted depends on this comparison. Investigations at the National Physical Laboratory and elsewhere have demonstrated* that the error of the scale of Ångström standard No. 70 does not exceed ½ per cent.

Wind speed and direction.— Particulars of the pressure-tube anemograph are:

Pattern	Mk II (see "Observer's handbook" 1952, p. 67)
Suction holes	80 holes in 4 rows of 20, diameter 2 mm.
Connecting tubes	Length 8 m., internal diameter 24 mm.
Height of vane above lawn	23 m.

The present instrument with its head mounted above the dome has been in regular use since January 1, 1931. Details of the anemographs previously in use will be found in the *Observatories' Year Book, 1933*.

There is a continuous belt of trees along the river about 300 m. away and other tall trees at shorter distances, but few of the trees have their summits above the level of the vane.

Earth temperature.— The two thermometers in use were at 30 cm. and 122 cm. The ground in which the tubes for the thermometers are sunk is under grass. The soil is gravel. There are three fruit trees, about 6 m. high, about 9 m. to the east of the site. The bulb of the lower thermometer is 430 cm. above sea level. In some years the underground water surpasses this level.

Minimum temperature on the grass.— The grass minimum thermometer is set at 18h. and read at 7h. on the succeeding day, the reading being assigned to the day of reading†. The thermometer is placed with the bulb about 25 mm. above the turf. The exposure is good, there being no obstruction within 75° of the zenith. The thermometer has a spherical bulb, diameter 17 mm.

IDENTIFICATION NUMBERS OF INSTRUMENTS IN USE IN 1938

Control barometer	Newman 34
Control dry-bulb thermometer	No. 666 & M.O.29272
Control wet-bulb thermometer	No. 788
Recording Beckley rain-gauge	1
Jardi rate-of-rainfall recorder ..	M.O.3/32
Control rain-gauge (8-in.)	M.O.1271

* Guild, J.; Investigations in absolute radiometry. *Proc. roy. Soc., London*, A, 161, 1937, p. 1.

† The hour of the readings to be published in the *Observatories' Year Book* was changed from 9h. to 7h. from January 1, 1924.

IDENTIFICATION NUMBERS OF INSTRUMENTS IN USE IN 1938—*continued*

Glass for control rain-gauge	1768
Campbell-Stokes sunshine recorder	M.O.12
Meteorological Office pressure-tube anemograph head	M.O.1057
Meteorological Office pressure-tube anemograph recorder	M.O.1057
Earth thermometer 1 ft.	M.O.5
Earth thermometer 4 ft.	M.O.10
Grass minimum thermometer	M.O.18011
Photo-thermograph dry bulb	4 II
Photo-thermograph wet bulb	4
Photo-barograph	No number
Ångström pyrheliometer	24
Milliammeter (certified N.P.L.1919)	68956

Thermometer corrections 1938

	No.666 N.P.L.1933		No.788 N.P.L.1933		M.O.5 N.P.L.1913		M.O.10 N.P.L.1913		M.O.18011 N.P.L.1929		M.O.29272 N.P.L.1922	
	°F.		°F.		°A.		°A.		°F.		°F.	
Certified	2	-0·1	2	+0·1	260	+0·1	260	+0·3	2	0·0	12	0·0
	12	-0·1	12	+0·1	273	0·0	273	+0·1	22	0·0	32	0·0
	32	-0·1	32	0·0	280	0·0	280	+0·2	32	0·0	62	0·0
	52	-0·1	52	-0·1	290	0·0	290	+0·1	52	0·0	82	0·0
	72	0·0	72	0·0	300	0·0	300	0·0	72	0·0	112	0·0
	92	0·0	92	0·0	310	0·0	316	+0·1	..	..	..	..
	112	0·0	..	..	..	..	..	..	..	..	..	..
	122	0·0	..	..	..	..	..	..	..	..	..	..
Applied		0·0		0·0		0·0		+0·1		0·0		0·0

NOTES ON THE METEOROLOGICAL SUMMARIES

The mean temperature for the year, 283·9°A. (51·7°F.), was slightly higher than the normal for the period 1906-1935, 282·8°A. (49·6°F.). The lowest reading of the grass minimum thermometer was 263·9°A. (15·6°F.), on December 21. The lowest temperature in the north-wall screen 266·8°A. (20·8°F.) was recorded between 21h. and 22h. on December 20. There were 4 "ice days", i.e. days with maximum temperature in the screen of 273·0°A. (32·0°F.) or less. The maximum temperature in the same screen was 301·8°A. (83·8°F.) on August 1. There were 4 days on which the maximum temperature exceeded 300·0°A. (80·6°F.).

The rainfall for the year, 461 mm., was the lowest since 1921 (310 mm.), and was 24 per cent. below the normal for the standard period 1881-1915 (606 mm.). The driest months were February 8 mm., March 7 mm., April 2 mm., and June 9 mm. December 84 mm. was the wettest month, the heaviest fall in one day during the year (26 mm.) occurring on the 16th.

The sunshine for the year, 1459 hours, was 10 hours below the normal for the period 1906-1935.

The highest wind speed recorded in a gust was 33 m./sec. (73 m.p.h.) on November 23 at 12h. 25m. This is the highest on record.

Diurnal variation of pressure and temperature; harmonic analysis.– The first four harmonic components computed for each month, for the year and for each of the three seasons, winter, equinox and summer are set out in Tables A and B. In these tables the c's are the amplitudes of the component sine waves, the angles α are the phases of the waves at midnight so that if t is the time in hours since midnight the inequality is given by the expression

$$c_1 \sin (15t^\circ + \alpha_1) + c_2 \sin (30t^\circ + \alpha_2) + \ldots\ldots$$

The curves are tabulated according to Greenwich Mean Time but the phases have been reduced to local mean time. The difference in longitude between Kew and Greenwich being only 19′ the correction is hardly appreciable in the figures, which are rounded to the nearest degree.

TABLE A - DIURNAL VARIATION OF BAROMETRIC PRESSURE FOURIER COEFFICIENTS
KEW OBSERVATORY, LONGITUDE 0°19′W.

Values of c_n, α_n in the series $\Sigma c_n \sin (15nt + \alpha_n)$, t being local mean time reckoned in hours from midnight

	c_1		α_1		c_2		α_2		c_3		α_3		c_4		α_4	
	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926
	mb.	mb.	°	°	mb.	mb.	°	°	mb.	mb.	°	°	mb.	mb.	°	°
January	0·19	0·02	57	315	0·32	0·31	164	151	0·15	0·17	343	346	0·07	0·07	217	202
February	0·24	0·05	101	73	0·37	0·36	151	146	0·14	0·12	352	340	0·05	0·03	121	108
March	0·16	0·11	83	38	0·39	0·40	144	149	0·08	0·07	347	332	0·04	0·04	28	25
April	0·25	0·28	336	31	0·44	0·40	160	151	0·03	0·03	210	185	0·05	0·04	339	353
May	0·21	0·32	20	27	0·39	0·35	147	148	0·08	0·09	159	161	0·02	0·02	316	319
June	0·30	0·30	19	17	0·34	0·32	143	143	0·09	0·09	165	160	0·01	0·01	253	260
July	0·29	0·26	25	16	0·35	0·31	138	140	0·10	0·10	161	153	0·00	0·01	310	281
August	0·41	0·21	4	20	0·40	0·34	150	144	0·04	0·06	155	155	0·03	0·04	311	309
September	0·20	0·12	53	6	0·45	0·40	154	152	0·03	0·01	2	350	0·05	0·04	314	332
October	0·10	0·06	37	76	0·40	0·38	148	160	0·08	0·09	351	359	0·00	0·01	17	22
November	0·08	0·03	351	124	0·35	0·34	160	160	0·12	0·13	357	358	0·03	0·03	178	183
December	0·07	0·08	238	137	0·32	0·31	154	152	0·15	0·15	351	353	0·06	0·07	208	205
Arithmetic mean	0·21	0·15			0·38	0·35			0·09	0·09			0·03	0·03		
Year	0·17	0·14	25	29	0·36	0·35	148	150	0·03	0·03	363	359	0·01	0·01	287	280
Winter*	0·15	0·03	84	111	0·33	0·33	152	152	0·12	0·14	355	350	0·06	0·05	213	208
Equinox*	0·16	0·14	21	32	0·44	0·39	153	153	0·05	0·04	343	345	0·03	0·03	342	359
Summer*	0·30	0·27	16	20	0·32	0·33	143	144	0·08	0·08	151	157	0·01	0·02	299	305

TABLE B - DIURNAL VARIATION OF TEMPERATURE FOURIER COEFFICIENTS
KEW OBSERVATORY, LONGITUDE 0°19′W.

Values of c_n, α_n in the series $\Sigma c_n \sin (15nt + \alpha_n)$, t being local mean time reckoned in hours from midnight

	c_1		α_1		c_2		α_2		c_3		α_3		c_4		α_4	
	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926	1938	1871-1926
	°A.	°A.	°	°	°A.	°A.	°	°	°A.	°A.	°	°	°A.	°A.	°	°
January	1·19	0·99	228	221	0·42	0·43	41	35	0·19	0·17	217	208	0·04	0·01	345	3
February	1·53	1·53	223	221	0·58	0·57	36	34	0·07	0·12	211	211	0·06	0·06	158	169
March	2·40	2·45	220	222	0·62	0·63	41	40	0·07	0·07	359	334	0·10	0·11	211	197
April	2·58	3·21	220	226	0·30	0·48	56	51	0·18	0·22	21	24	0·08	0·07	254	218
May	3·56	3·72	226	227	0·18	0·15	45	74	0·26	0·31	29	35	0·05	0·04	47	20
June	3·45	3·72	224	226	0·08	0·02	293	84	0·30	0·26	74	35	0·12	0·10	15	33
July	2·88	3·68	228	225	0·12	0·06	151	50	0·27	0·29	18	31	0·09	0·07	31	28
August	3·73	3·54	221	226	0·36	0·34	71	52	0·30	0·30	25	28	0·03	0·03	153	218
September	2·75	3·22	225	228	0·65	0·71	51	49	0·11	0·14	9	24	0·13	0·16	204	213
October	2·24	2·32	226	229	0·76	0·76	43	50	0·12	0·10	312	248	0·12	0·12	202	200
November	1·51	1·39	217	226	0·60	0·57	49	44	0·19	0·18	305	232	0·01	0·02	84	141
December	0·86	0·90	219	226	0·29	0·40	25	41	0·10	0·16	287	215	0·02	0·04	42	38
Arithmetic mean	2·39	2·56			0·41	0·43			0·18	0·19			0·07	0·07		
Year	2·41	2·56	225	226	0·35	0·42	38	45	0·09	0·08	11	17	0·02	0·02	119	195
Winter*	1·22	1·20	221	223	0·47	0·49	33	39	0·11	0·15	214	217	0·02	0·01	176	121
Equinox*	2·61	2·80	224	226	0·51	0·64	46	47	0·09	0·09	348	4	0·10	0·11	232	207
Summer*	3·48	3·67	225	226	0·17	0·14	8	59	0·26	0·29	23	32	0·06	0·04	59	27

* "Winter" comprises the four months January, February, November, December; "Equinox" the months March, April, September, October; and "Summer" May to August.

The "normals" refer to the years 1871-1926 and were computed by Crichton Mitchell*. In his tables the phases were with reference to local apparent time.

Level of underground water.– Daily readings of the height of the surface of the underground water, published from 1914 to 1937, are not included in the present volume. Readings are available in manuscript for 1938, but at the end of the year the well was closed during structural alterations and the record ceased. The level of the water in the well had been subject to variable artificial influences during the few preceding years.

ATMOSPHERIC ELECTRICITY

Potential gradient, air-earth current and conductivity are observed each afternoon when conditions are favourable. Continuous autographic records of potential gradient are maintained.

Potential gradient, air-earth current and conductivity.– Measurements of these elements are made with a modified Wilson apparatus in the underground laboratory. The test plate is flush with the roof of the laboratory and nearly at ground level†. The electrometer is calibrated once a month by means of Weston standard cells.

The potential gradient, F, is given in volts per centimetre by the formula,

$$F = 4\pi\ (9 \times 10^{11})\ Cv/A,$$

where C is the capacity, in farads, of the system (when shielded), v the voltage acquired by the test plate after being exposed to the field, earthed and then shielded, and A is the area of the plate. The value of C is $5{\cdot}91 \times 10^{-11}$ farads and the diameter of the plate is 20·8 cm. The potential gradient found in this way is, to a very close approximation, equal to that found by measuring the potential at a height of 1 m. in the open part of the grounds.

The air-earth current is given in amperes per square centimetre by the formula,

$$i = C\delta v/At,$$

where δv is the voltage acquired by the plate in t seconds. The value of δv used is the mean of four observations, each lasting five minutes. The observations of the current are sandwiched between the observations of the field strength and from the two mean values of i and F the conductivity $\lambda+$ is deduced. No observations are made during rain or when the potential gradient is negative.

The use of the test plate at ground level introduced a discontinuity in the series of observations. Revised mean values for the period up to 1931 have been published by Scrase†. In 1938 the mean value of the current for the year, allowing equal weight to each month, is 107×10^{-18} amp. cm.$^{-2}$ while that for conductivity is 47×10^{-18} ohm^{-1} cm.$^{-1}$. Both of these values are somewhat higher than the corresponding means averaged over the period from 1912 to 1937 (101×10^{-18} amp. cm.$^{-2}$ and 37×10^{-18} ohm^{-1} cm.$^{-1}$), the 1938 value of conductivity being the highest yet obtained.

Potential gradient; continuous records.– The Kelvin electrograph, which has been housed since 1915 in a low building known as the Clinical House, provides a record of the electrical potential at a point not far from the wall of the building. The radio-active

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* Mitchell, A. Crichton; Diurnal variation of pressure and temperature at Richmond (Kew Observatory), 1871-1926. *Quart. J.R. met. Soc., London*, **56**, 1930, p. 76.

† For comparisons between the present and earlier methods see Scrase, F.J.; Observations of atmospheric electricity at Kew Observatory. A survey of results obtained from 1843 to 1931. *Geophys. Mem., London*, **7**, No. 60, 1934.

collector which is used is 121 cm. from the window through which the boom projects and 187 cm. above ground level. A collector freshly coated with polonium is fitted every six months.

By means of the observations of field strength made with the Wilson apparatus in the underground laboratory a factor is derived by which the potential recorded by the electrograph must be multiplied to obtain the potential gradient in the open. The mean factor for the year was 2·71, i.e. the collector was on the average at the same potential as a point 36·9 cm. above ground in the paddock.

The data appearing in Table 223 include the electrical character figure assigned to each day from the consideration of the electrograms. Of the character figures, 0 denotes the absence of negative potential, 1 implies the existence of negative potential at one or more times during the day but with a total duration of less than 3 hr., while 2 implies the existence of negative potential with a total duration of 3 hr. or more. The present criteria for character figures were adopted from the beginning of 1914. Correcting for missing days, the average frequency of character figure 0, 1, and 2 during the years 1914-1937 inclusive were 180, 140, 45. The corresponding figures for 1938 are 156, 159, 50.

In accordance with a resolution of the International Union of Geodesy and Geophysics (Section for Terrestrial Magnetism and Atmospheric Electricity, Prague Meeting 1927) tabulations of the duration of negative potential gradient have been included in the *Observatories' Year Book* since 1928. The total duration of negative gradient is given for each day for which the electrograph record is satisfactory. Since 1934 there have been occasions, totalling 100-200 hr./yr., when negative potential gradient has occurred without precipitation. This happens with N.–NE. winds, usually when the lower atmosphere is stable. The cause has not been definitely located, but almost certainly lies in industrial activity in the area 3 to 6 miles north-north-east of the Observatory.

Table 224 contains means for the 60-min. intervals ending at 3h., 9h., 15h. and 21h. G.M.T. respectively. On occasions when the trace was defective, values of potential gradient have been omitted. The electrograph is intended to record the potential gradient of fine weather and the limits are approximately −1,500 and +2,000 v./m. In showers and thunderstorms gradients of 10,000 v./m. or more may occur, and even when the curve does not go beyond the limits of the chart the changes may be so rapid that no satisfactory estimate of the mean value of the ordinate is possible. All such occurrences are indicated by the letter *z*. If there is no doubt as to the sign of the hourly mean value, though a numerical measure is unobtainable, the sign is indicated by a plus or a minus attached to the *z*. The symbol $z\pm$ indicates that there were oscillations on both sides of the zero line, and that the sign of the mean value was uncertain.

The extreme hourly values in Table 224 are 1,625 v./m. at 3h. on October 25 and −680 v./m. at 21h. on May 18. The former value is representative of foggy conditions. The extreme negative gradient was associated with slight rain.

At the foot of each section of Table 224 there are two sets of mean values. These are obtained according to different rules. The (a) mean is the arithmetic mean of all the positive potential gradients in the column. The (b) mean is the algebraic mean of all the entries which remain in the column after eliminating those referring to days in which at least one of the four hourly values is indeterminate. The last line gives the mean value for each month as derived from (a) and (b) means for the four hours.

The diurnal inequalities and the mean monthly and annual values in Table 225 are based on the curves for certain "quiet days". Normally 10 quiet days are selected in each month, these being calendar days characterized by no negative potential gradient, no large irregular movements, no indication of inferior insulation and no large non-cyclic change.

When there are not 10 calendar days with these characteristics in a month the number can sometimes be made up by using other spells of 24 hr. The treatment of the months in which there were not 10 quiet days is shown in the following list.

1938	Calendar days	Other spells	Total
January	6	3	9
December	7	1	8

Except in the months where these other spells were used the non-cyclic change is given explicitly in Table 225.

ATMOSPHERIC POLLUTION

The Owens atmospheric pollution recorder or air filter No. 1* is situated in the Clinical House, and the level of the intake is about 1½ m. above that of the adjacent ground. When the normal volume of air, 2 l., is aspirated through a hole 3·2 mm. in diameter shade number 1 is produced by 0·32 mg. of polluting particles per cubic metre. The Owens apparatus was designed in the first place for dealing with the air of cities, and the amount of pollution at the Observatory is usually so small that the shade recorded when the 2 l. are aspirated is either 0 or 1. An auxiliary tank is fitted, and when it is in operation each spot on the filter paper corresponds with 6·4 l. of air. The unit shade is therefore equivalent to 0·1 mg./m.^{3}. When fog prevails the auxiliary tank is put out of action and the unit shade reverts to the value 0·32 mg./m.^{3}.

Special attention is paid to the maintenance of consistency in the standard of shades. Each new scale of shades is compared directly with the original standard. New scales of shades were taken into use on January 1 and November 1, 1938.

During 1938 the highest estimate of pollution was 1·8 mg./m.^{3}, this value occurring on October 25 from 20h. to 21h. There were 12 days on which the pollution reached 1·0 mg./m.^{3}, the number of hours credited with 1·0 mg./m.^{3} or more being 27.

Table 226 gives for each month mean hourly values derived from all the days for which complete records were obtained. There were 359 such days in the year. The highest and lowest of these hourly values are underlined. The diurnal variation of atmospheric pollution has been discussed by Whipple†.

SEISMOLOGY

The equipment in use during the year comprised three Galitzin seismographs recording the components of earth movements to the north, the east, and in the vertical, together with two modified Wood-Anderson seismographs, designed and constructed at the Observatory, recording the horizontal components of earth movement. The Galitzin vertical component pendulum is fitted with an elinvar spring as described by Scrase‡.

The instruments are housed in a semi-underground laboratory about 100 m. from the main building. The pendulums are set on concrete pillars which are integral with the 15-in. thick reinforced concrete floor of the house. The temperature is controlled by thermostat. Time marks are made on the records by interrupting the recording light for 2 sec. each minute and 4 sec. each hour; the breaks are controlled by a synchronome clock

* A description of the instrument is given in the London, Meteorological Office; Advisory committee on atmospheric pollution: report on observations in the year 1917-18. London, 1919.

† Whipple, F.J.W.; Potential gradient and atmospheric pollution: the influence of "summer time". *Quart. J.R. met. Soc., London*, **55**, 1929, p. 351.

‡ Scrase, F.J.; The thermal and elastic properties of elinvar: a study of an elinvar spring in the Galitzin vertical seismograph at Kew Observatory. *J. sci. Instrum., London*, **6**, 1929, p. 385.

rated at least once each day from the B.B.C. time signals. A full description of the installation has been published by Lee*. The geological formation in the vicinity of the Observatory is shown in the *Observatories' Year Book, 1937*†.

Until 1937 the adjustments were those adopted by Galitzin, the free periods of pendulum and galvanometer being the same for each seismograph, but the free periods for the horizontal components were twice as long as those for the vertical. In the new scheme each of the horizontal seismographs is adjusted to have the free period of the pendulum one third of the galvanometer period; in this way their response to the earth movements is brought into approximate agreement with that of the vertical component. The Galitzin seismographs were not standardized during 1938, and it has been assumed that the constants have not changed appreciably from the values determined in December 1937. The values of the constants are summarized in the following table, where

l = length of the simple equivalent pendulum.

T_0 = free period of the pendulum.

T_1 = free period of the galvanometer.

μ^2 = damping coefficient which vanishes when the free movement of the pendulum is just aperiodic.

k = "transmission factor".

A = length of the beam of light from the galvanometer mirror to the recording drum.

$\frac{kA}{\pi l}$ = factor for obtaining the magnification for simple harmonic earth waves of very short period, i.e. if V denotes the magnification and T the period of the earth waves,

$$\frac{kA}{\pi l} = \left(\frac{V}{T}\right), \; T \rightarrow 0.$$

Component	l	T_1	Date of standardization	T_0	μ^2	$\frac{kA}{\pi l} = \left(\frac{V}{T}\right), T \rightarrow 0$
	mm.	sec.		sec.		sec.$^{-1}$
N	118	24·2	Dec. 14, 1937	8·1	0·00	77·3
E	118	24·8	Dec. 15, 1937	8·3	0·00	76·3
Z	360	13·3	Dec. 30, 1937	13·0	−0·01	75·4

A complete description of the Wood-Anderson seismograph appears in the *Bulletin of the Seismological Society of America*‡. In this seismograph the moving system is very small, weighing about 0·7 gm., and the control is due to the torsional reaction of the suspension. The Kew instruments were copied from the Wood-Anderson design, but some alterations have been introduced. The moving system in the Kew type consists of a copper bar, 3 mm. by 5 mm. by 20 mm., and weighing about 3 gm.; this mass is attached near the middle of a tungsten wire 0·025 mm. in diameter. These instruments are set up with the axis inclined slightly to the vertical and the controlling force is chiefly due to gravity. The damping is magnetic. Direct optical registration is employed, the image of an illuminated slit reflected from a small mirror attached to the mass being focussed

* Lee, A.W.; Seismology at Kew Observatory. *Geophys. Mem., London*, 9, No. 78, 1939.

† See also

Homersham, C.; Introductory note on a deep boring at Richmond, Surrey. *Quart. J. geol. Soc., London*, 40, 1884, p. 724.

Judd, J.W. and Homersham, C.; Supplementary notes on the deep boring at Richmond, Surrey. *Quart. J. geol. Soc., London*, 41, 1885, p. 523.

Barrow, G. and Wills, L.J.; Records of London wells. *Mem. geol. Surv. U.K., London*, 1913.

‡ Anderson, J.A. and Wood, H.O.; Description and theory of the torsion seismometer. *Bull. seismol. Soc. Amer., Berkeley Cal.*, 15, 1925, p. 1.

on the photographic sheet. The approximate constants during 1938 were:– magnification 700, free period 2·5 sec., damping ratio 20:1.

Table 227 contains the particulars of the earthquakes recorded at the Observatory. The notation employed is as follows*:–

In the second column of the diary the entries N, E, Z, refer to the records from the north-south, east-west and vertical seismographs respectively.

P is the normal first phase (longitudinal waves). PKP is a longitudinal wave which has passed through the earth's central core, and PcP one which has been reflected from the core.

PP, PPP... are longitudinal waves reflected once, twice... near the earth's surface.

S is the normal second phase (transverse waves). The waves which penetrate the central core and pass through it as longitudinal vibrations are designated by the symbol SKS.

PS and PPS are waves which suffer a change or changes from longitudinal to transverse oscillation or *vice versa*, on reflection near the surface.

SS, SSS... are transverse waves reflected once, twice... near the surface.

The notation adopted for the supplementary reflected waves from deep-focus earthquakes and for the waves from near earthquakes, are those of F.J. Scrase† and H. Jeffreys‡ respectively.

L indicates long (surface) waves, L_Q Love waves, L_R Rayleigh waves.

i is the sudden commencement of a phase. e means a gradual or indistinct commencement. These letters are used as prefixes to the phase symbols, but where the character of the phase is not assignable the letters are used as independent symbols. When the commencement of a phase is moderately clear the prefixes are not used. All times entered against the above phases are the times of arrival of the phases at the station. The phases denoted by M are successive prominent maxima occurring during the principal or surface phase. The entries under A are the amplitudes, in microns (1 = 0·001 mm.), of the components of the true displacement of the ground from the position of rest. Displacements to the north, east and upwards are regarded as being positive. When successive positive and negative displacements have the same magnitude the time of occurrence is given for the positive one. The times of the maxima and the amplitudes of sinusoidal waves are computed from the standard formulae given by Galitzin (see *Observatories' Year Book, 1936*, p. 367).

Δ is the distance in kilometres of the epicentres measured along the arc of a great circle. For earthquakes of normal focal depth, located within 10,000 Km. of Kew, the distance is generally derived from the interval between P and S by the table, due to Zeissig, given in Klotz's "Seismological tables"§. For greater distances other phases are considered, and Δ is obtained from the travel curves given by Gutenberg‖. In the case of deep-focus shocks both Δ and the depth of focus are determined from the tables in the papers on "Materials for the study of deep-focus earthquakes", by B. Gutenburg and C.F. Richter¶. The azimuth of the epicentre (0° to 360°) is measured from north through east. When an estimation of the azimuth is possible, it is used, together with Δ, for provisional determination of the co-ordinates of the epicentre. The co-ordinates given in the Seismological Diary have generally been received at a later date; the authorities for these determinations are inserted in brackets. Here the letters J.S.A. signify the Jesuit Seismological Association of America, U.S.C.G.S., the United States Coast and Geodetic Survey, and U.R.S.S. the bulletins issued by the Soviet Union.

Brackets enclosing figures or phase symbols indicate that the interpretation is uncertain.

The total number of shocks recorded during the year was 332. The phases being sufficiently well defined, estimates of the epicentral distances were obtained for 90 shocks, whilst in 10 cases the records of the initial impulses were sufficiently sharp to allow of computations of azimuth and so of estimates of the co-ordinates of the epicentres. There were 18 earthquakes which produced at the Observatory a disturbance in which the

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* The notation was amended from the beginning of 1933, the most important change being the adoption of a special letter, K, for the compressional waves through the core. This symbol, taken from the Georgetown bulletins, is now used in the International Seismological Summary. Previously a pulse which started and finished as a transverse wave but passed through the core as a compressional wave was denoted by ScPcS. In the new notation such a pulse is denoted by SKS.

† Scrase, F.J.; The reflected waves from deep-focus earthquakes. *Proc. roy. Soc., London*, A, **132**, 1931, p. 213.

‡ Jeffreys, H.; On near earthquakes. *Mon. Not. R. astr. Soc. geophys. Suppl., London*, **1**, 1926, p. 385.

§ Klotz, O.; Seismological tables. *Publ. Dom. Obs., Ottawa*, **3**, 1916, p. 15.

‖ Gutenberg, B.; Handbuch der Geophysik. **4**, Erdbeben. Berlin, 1932, p. 212.

¶ Gutenberg, B. and Richter, C.F.; Materials for the study of deep-focus earthquakes. *Bull. seismol. Soc. Amer., Berkeley Cal.*, **26**, 1936, p. 341 and **27**, 1937, p. 157.

maximum amplitude of the surface waves exceeded 0·1 mm. in one or more of the components. Particular mention must be made of the earthquakes which originated in Belgium on June 11, and in the Pacific Ocean south of Alaska on November 10. The former was felt over the greater part of England, and in Belgium, Holland, France and Germany. The latter was one of the greatest earthquakes of modern times, and the movements at Kew were much too large to be completely recorded by the Galitzin seismographs; the Wood-Anderson seismograms show that the greatest oscillations were of period 32 sec. with the maximum amplitude about 9 mm.

Microseisms.– The routine tabulations of microseisms recorded at Kew from 1926 to 1934, and at Eskdalemuir from 1911 to 1925, were taken from the north-south component for each day at 0h., 6h., 12h. and 18h. The results obtained from a comparison of the microseisms recorded by the three components during a complete year (1932) having shown* that the vertical is more reliable than either of the horizontal components for such tabulations; the vertical component was adopted from the beginning of 1935.

The advantages of using the vertical component are that the amplitude recorded does not depend upon the direction of travel of the waves, and that the effects of local geological structure are smaller. In addition, until the removal of the seismographs to the underground house in 1937 and the subsequent adjustment of the periods of the horizontal instruments, the vertical component, which was the only one free from wind disturbance, had also appreciably the highest magnification for oscillations of the period of microseisms.

The hours of tabulation are the same as for the north-south component in earlier years. The group of waves of greatest amplitude occurring in the 30 min. centring at the hour in question is selected, and the amplitude tabulated is the mean obtained from the three largest complete waves in that group. The period is obtained from a measurement made on the same group, the total time, to the nearest second, for a number of complete consecutive waves occupying 25 to 30 sec. being measured.

On the occasions of failure of the Z record, gaps in the tabulations (Table 228) have been filled in by interpolation or from measurements of the microseisms recorded by the horizontal seismographs. By use of the data of 1932* (*Geophysical Memoir* No. 66) it was found that there was a linear relation between the ratio of horizontal to vertical amplitude and the period of the oscillations, the ratio varying from 1·2 for microseisms of period 4½ sec. to 0·85 for those of period 9 sec. Allowance is accordingly made for the difference between the amplitudes recorded by the horizontal and vertical components. Values obtained by interpolation or from the horizontal seismograms are bracketed in the tables. For comparison, the following table gives for Kew the monthly and annual means of amplitude and period of the north-south component microseisms from 1926 to 1934, and of the vertical component microseisms from 1935 to 1938.

Kew Observatory. Microseisms, 1926-38

Component			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
N-S	1926-34	Mean period (sec.)	6·5	6·1	5·9	5·4	4·9	4·7	4·4	4·6	5·0	5·4	6·0	6·4	5·5
		Mean amplitude (μ)	2·3	1·6	1·4	0·9	0·5	0·4	0·3	0·5	0·6	1·1	1·6	2·0	1·1
Z	1935-38	Mean period (sec.)	6·5	6·2	5·9	5·6	5·2	4·8	4·7	4·9	5·3	6·2	6·4	6·3	5·7
		Mean amplitude (μ)	2·3	2·4	1·2	0·8	0·5	0·4	0·3	0·3	0·7	1·3	1·5	1·8	1·1

The results obtained from the special investigation for 1932 showed that, within the accuracy of the measurements, the annual means of amplitude and period were equal for the three components. Accordingly the value of the data for determining secular variations was not impaired by the change from the north-south to the vertical component.

During 1938 the greatest amplitude was 11·5 μ on November 28 at 12h. Amplitudes of 5 μ or more were recorded on the following dates:– January 13, 23 and 29; February 1 and 2; March 4; November 28 and 29; December 1 and 19.

* Lee, A.W.; The three components of microseismic disturbance at Kew Observatory. Discussion on the records for 1932. *Geophys. Mem., London*, 7, No. 66, 1935.

PRESSURE AT STATION LEVEL

Maximum, minimum and daily mean values in millibars for each day 0h. to 24h. Greenwich Mean Time
The initial 9 or 10 of the values is omitted, i.e. 1005·61 is printed 05·61

202 **KEW OBSERVATORY:** H_b (height of barometer cistern above M.S.L.) = 10·4 m. 1938

DAY	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
1	28·3	26·5	27·3	05·2	94·2	99·9	31·6	15·8	21·5	28·1	24·9	26·3	13·8	12·2	13·0	07·3	95·4	02·8
2	30·2	28·1	29·3	20·7	05·2	13·5	37·1	31·6	35·4	24·9	09·8	17·9	14·9	11·7	13·1	16·0	95·0	06·8
3	32·8	28·8	31·4	30·0	20·7	25·6	37·4	35·2	36·5	29·4	09·5	19·4	15·1	13·8	14·6	17·8	15·7	16·9
4	31·6	22·6	25·9	30·9	28·4	29·8	39·7	36·1	38·3	30·5	27·1	28·9	17·9	14·6	16·2	17·6	06·1	12·5
5	27·4	24·0	25·8	28·4	22·0	24·6	39·1	33·0	35·9	27·2	21·5	23·9	18·7	16·0	17·8	15·7	05·4	10·6
6	24·0	08·3	18·7	31·0	23·6	27·5	33·3	29·1	31·4	25·0	23·1	24·0	18·6	15·0	17·1	16·1	14·5	15·2
7	08·3	95·4	99·5	31·1	25·2	28·5	30·7	27·5	29·2	24·9	22·5	23·9	21·7	14·5	17·4	17·6	13·0	15·4
8	98·2	84·6	94·3	25·2	21·9	23·0	27·6	19·7	23·5	28·0	24·2	26·1	23·1	20·0	21·5	18·9	17·2	17·9
9	84·6	74·0	78·4	23·6	16·9	20·6	21·6	19·1	20·5	35·5	28·0	31·0	20·2	14·8	17·0	21·1	18·9	20·1
10	91·3	73·0	79·3	26·4	13·6	17·4	27·2	21·5	24·0	40·9	35·5	38·6	22·3	16·5	19·2	22·1	19·7	20·5
11	03·4	91·3	99·1	34·7	26·4	32·3	32·4	27·2	29·6	41·3	37·3	39·6	24·7	22·1	23·2	23·1	20·4	21·8
12	09·8	98·1	03·5	29·6	15·2	19·7	35·5	32·3	34·2	38·8	31·4	35·3	22·1	15·6	18·3	24·3	20·0	21·3
13	10·8	03·4	07·0	23·7	19·7	22·2	35·1	28·6	32·3	31·4	25·3	28·2	16·7	13·8	15·7	26·4	24·3	25·5
14	15·9	94·2	09·7	26·0	22·6	24·1	28·6	22·2	24·9	25·7	23·2	24·5	13·8	04·4	08·1	25·9	21·6	24·0
15	08·2	86·9	94·6	25·9	22·7	24·0	24·6	21·0	22·9	25·2	23·1	24·2	10·5	05·5	07·9	26·4	22·5	23·7
16	09·2	95·6	01·7	24·8	23·2	24·1	21·2	17·6	19·2	26·7	22·2	23·7	13·7	10·0	11·9	27·4	24·3	26·0
17	19·2	96·1	08·6	30·5	20·9	24·7	25·0	20·6	22·9	31·8	26·7	29·0	13·4	08·4	10·8	25·1	20·5	22·9
18	19·8	01·6	11·9	30·9	25·0	27·7	25·9	23·3	24·6	31·8	28·3	30·1	11·2	05·8	07·6	20·5	12·9	15·7
19	19·2	01·5	10·2	32·6	28·1	29·9	23·3	18·5	20·5	28·3	24·6	26·1	16·1	11·2	13·9	22·0	13·0	16·4
20	22·5	18·9	21·1	34·7	32·0	33·2	18·5	10·4	13·6	29·5	26·7	28·2	22·5	15·2	18·1	25·0	22·0	24·0
21	29·0	19·6	23·3	32·2	29·5	30·9	13·0	07·0	09·2	29·3	23·5	27·4	25·3	22·5	23·5	24·5	18·5	21·5
22	31·1	28·8	29·8	29·5	25·3	26·9	17·8	13·0	15·2	23·5	19·1	20·3	26·0	23·3	24·5	20·7	18·2	19·6
23	33·6	31·0	32·2	27·4	25·9	26·6	20·7	17·7	19·2	20·3	18·4	19·0	23·4	14·3	18·0	20·0	18·3	19·1
24	32·8	29·9	31·4	26·7	24·9	25·9	20·6	15·0	18·2	22·4	20·2	21·6	17·2	14·3	15·5	18·8	12·8	15·7
25	29·9	17·3	22·3	26·1	20·5	23·5	15·0	07·9	11·2	21·8	19·1	20·5	15·7	10·6	12·6	12·8	08·3	10·1
26	24·3	04·4	12·9	20·6	11·6	16·3	16·6	12·3	15·2	21·6	18·3	20·0	11·1	02·5	07·8	15·1	11·8	13·6
27	15·5	04·4	09·9	27·1	12·8	23·0	19·3	10·7	14·0	19·2	16·5	18·1	02·5	98·2	99·8	11·9	02·0	05·7
28	14·9	91·0	02·1	25·8	16·9	22·5	24·0	19·3	22·5	21·4	18·3	19·4	02·1	97·5	99·5	07·1	93·1	02·6
29	01·7	87·2	95·4	-	-	-	23·8	22·0	23·0	21·2	15·3	18·8	06·4	95·7	03·2	10·1	93·2	03·0
30	11·5	84·7	01·5	-	-	-	25·3	22·8	23·6	15·3	12·3	14·0	11·9	96·5	01·6	09·9	07·8	08·8
31	11·4	91·8	03·1	-	-	-	26·5	23·6	25·2	-	-	-	13·5	05·3	09·8	-	-	-
Mean	17·11	04·61	11·01	27·19	20·53	23·85	26·39	21·34	23·79	27·36	22·53	24·93	16·33	11·03	13·49	18·91	12·88	15·99

DAY	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
1	09·7	07·1	08·1	24·2	21·8	23·2	17·7	15·8	16·8	15·0	13·3	14·3	07·7	99·8	03·8	97·7	91·4	93·6
2	14·8	09·6	12·0	24·4	21·1	22·8	21·3	17·1	18·8	14·0	00·7	05·1	09·5	04·8	06·5	04·9	95·5	02·5
2	16·7	12·6	15·2	22·6	19·2	20·9	22·5	20·1	21·2	06·8	82·7	99·5	14·7	09·5	13·0	19·3	04·4	12·5
4	12·6	02·2	06·2	19·8	14·3	17·0	23·7	20·1	21·7	02·1	84·3	93·1	19·2	09·2	13·5	19·7	08·6	16·4
5	06·7	99·2	01·7	16·0	12·8	14·3	23·5	19·1	21·8	03·1	96·2	99·2	24·1	19·2	21·7	13·9	02·3	07·9
6	13·8	06·7	11·2	14·5	11·9	13·3	19·1	09·1	13·5	13·5	03·1	09·3	24·7	20·8	22·8	15·2	12·7	14·1
7	12·9	02·4	06·9	13·5	11·9	12·8	12·9	07·9	09·0	11·5	98·2	03·5	20·8	16·0	17·6	12·7	00·5	08·7
8	07·5	00·6	03·4	13·0	10·9	11·7	21·7	12·9	17·6	15·5	04·5	11·1	16·3	15·1	15·7	00·5	93·2	95·8
9	20·2	07·5	14·7	14·2	11·8	12·8	23·4	20·5	21·7	07·4	99·9	02·5	17·8	15·2	16·2	00·9	89·8	96·3
10	20·2	12·4	17·4	14·3	12·8	13·6	24·2	21·5	22·6	13·3	07·4	09·7	15·2	10·0	13·4	93·9	88·6	91·3
11	12·4	06·5	09·1	13·8	11·1	12·7	24·5	20·9	22·8	21·2	13·3	16·7	10·0	04·8	07·2	94·7	91·8	93·3
12	12·0	06·4	08·0	12·8	10·1	11·8	22·9	20·3	21·5	22·5	17·9	20·5	13·2	09·1	11·2	10·8	94·4	03·3
13	17·6	12·0	15·5	12·5	10·6	11·6	22·7	16·6	20·0	17·9	11·9	14·1	15·4	11·5	12·8	11·3	09·8	10·6
14	17·3	13·9	15·3	14·4	11·3	12·7	16·6	11·6	14·3	23·4	13·9	19·2	28·3	15·4	22·4	18·0	09·2	12·9
15	15·4	13·0	13·7	15·5	11·3	13·7	23·8	16·0	20·5	23·1	15·3	19·8	29·7	26·9	28·6	18·0	10·2	14·1
16	20·8	15·4	17·8	11·3	04·5	06·8	24·0	17·3	21·1	15·3	10·0	11·7	26·9	20·8	22·8	19·8	09·5	13·6
17	22·9	20·7	21·9	15·2	04·6	09·8	17·3	10·7	13·3	12·1	08·3	11·1	23·7	20·6	21·8	25·3	19·8	23·6
18	22·9	20·7	21·6	14·8	05·9	11·7	10·7	08·7	09·8	11·1	04·8	07·9	23·7	05·9	17·8	24·9	20·4	22·4
19	21·4	18·0	19·5	05·9	98·2	01·0	08·7	07·0	07·7	25·9	11·1	19·2	13·3	05·1	11·1	20·4	13·8	17·3
20	18·1	15·0	16·8	10·1	01·0	05·2	07·4	02·0	03·9	27·1	24·8	26·0	10·8	90·7	99·6	13·8	07·4	10·1
21	17·8	16·1	17·1	17·8	10·1	13·8	10·3	02·9	05·8	25·2	16·9	21·9	94·3	85·8	89·8	07·4	03·3	04·9
22	17·5	14·0	15·6	18·2	16·1	17·3	14·2	10·3	13·0	16·9	08·7	11·4	97·5	85·8	93·2	07·6	03·7	05·5
23	14·3	12·0	13·4	21·1	17·1	19·7	12·6	10·5	11·7	17·0	10·1	13·4	96·2	79·6	86·7	18·5	07·1	13·0
24	13·2	10·8	11·8	20·4	18·0	19·2	11·3	09·0	10·4	19·6	16·9	18·0	09·5	96·2	03·1	26·5	18·4	22·0
25	12·9	09·1	11·3	19·8	18·1	18·9	13·8	08·9	11·3	16·9	09·7	12·5	09·7	95·8	04·1	32·5	26·5	30·3
26	15·5	08·1	10·6	20·8	18·9	19·7	13·9	12·3	13·1	10·9	03·6	08·2	10·7	88·9	00·2	31·7	15·8	24·9
27	16·4	09·3	14·2	20·5	15·6	18·2	15·4	12·0	14·0	10·0	02·2	05·1	14·5	02·2	10·6	16·9	14·3	15·7
28	17·1	09·4	14·0	15·6	08·7	12·0	12·9	08·2	11·6	15·3	10·0	13·4	04·6	00·2	02·0	18·9	14·6	16·8
29	17·0	15·5	16·4	13·5	07·8	10·4	13·4	06·9	10·3	15·1	09·1	13·1	10·0	04·6	08·0	15·0	03·6	09·8
30	17·4	15·1	15·9	15·0	13·2	14·1	14·1	11·9	13·2	12·4	05·9	08·0	07·2	93·3	97·3	04·0	00·8	02·8
31	21·8	17·3	19·5	16·1	14·6	15·1	-	-	-	15·5	07·7	13·1	-	-	-	06·0	02·2	04·3
Mean	16·03	10·92	13·41	16·18	12·11	14·12	17·35	12·94	15·14	15·37	07·17	11·34	13·97	05·43	09·82	13·57	05·92	10·01
									Annual	18·74	12·20	15·57						

PRESSURE AT STATION LEVEL

Monthly and annual means of hourly values in millibars at exact hours Greenwich Mean Time

203 KEW OBSERVATORY: H_b = 10·4 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean
	millibars																									
Jan.	11·80	11·31	10·99	10·60	10·23	10·06	10·11	10·38	10·81	11·11	11·28	11·38	11·18	10·95	10·89	11·02	11·14	11·37	11·44	11·60	11·60	11·38	11·21	10·99	10·71	11·01
Feb.	23·70	23·79	23·81	23·65	23·55	23·62	23·68	23·80	24·07	24·17	24·23	24·25	23·96	23·65	23·40	23·22	23·29	23·44	23·72	23·95	24·09	24·28	24·38	24·43	24·50	23·85
Mar.	24·02	23·94	23·77	23·52	23·49	23·58	23·71	23·99	24·23	24·36	24·40	24·29	24·10	23·61	23·27	23·01	22·89	22·95	23·26	23·63	23·91	24·19	24·33	24·35	24·33	23·79
Apr.	25·40	25·28	25·11	24·94	24·85	24·90	25·18	25·45	25·51	25·64	25·53	25·33	25·05	24·80	24·48	24·18	24·03	24·05	24·19	24·49	24·89	25·07	25·11	25·09	24·97	24·93
May	14·02	13·90	13·72	13·64	13·54	13·64	13·81	13·85	13·88	13·85	13·71	13·62	13·43	13·29	13·15	12·97	12·77	12·72	12·78	13·02	13·41	13·65	13·75	13·76	13·81	13·49
June	15·99	15·86	15·75	15·70	15·77	15·92	16·15	16·37	16·50	16·58	16·53	16·50	16·34	16·19	15·91	15·80	15·56	15·42	15·35	15·45	15·59	16·00	16·16	16·16	16·04	15·99
July	13·57	13·45	13·31	13·20	13·16	13·28	13·45	13·60	13·63	13·68	13·59	13·52	13·42	13·34	13·17	13·09	12·92	12·86	12·92	13·16	13·48	13·87	14·00	14·03	14·00	13·41
Aug.	14·46	14·39	14·26	14·07	13·98	14·04	14·29	14·53	14·66	14·67	14·57	14·36	14·15	13·97	13·72	13·60	13·39	13·40	13·54	13·83	14·14	14·33	14·34	14·38	14·27	14·12
Sept.	15·40	15·27	15·15	14·94	14·82	14·88	15·12	15·26	15·47	15·64	15·55	15·39	15·22	15·01	14·80	14·67	14·55	14·64	14·84	15·17	15·36	15·42	15·48	15·44	15·32	15·14
Oct.	11·51	11·40	11·25	11·02	10·88	10·93	10·98	11·17	11·41	11·61	11·65	11·62	11·46	11·26	11·18	11·09	11·11	11·25	11·55	11·68	11·68	11·65	11·60	11·43	11·32	11·34
Nov.	10·35	10·10	09·90	09·66	09·52	09·40	09·37	09·49	09·70	09·82	10·03	10·08	09·81	09·57	09·44	09·43	09·61	09·81	09·96	10·10	10·10	10·19	10·16	10·15	10·02	09·82
Dec.	09·84	09·76	09·74	09·71	09·49	09·29	09·38	09·62	10·01	10·40	10·72	10·65	10·31	10·17	09·96	10·10	10·13	10·07	10·11	10·17	10·14	10·13	10·14	10·08	09·98	10·01
Annual	15·84	15·70	15·56	15·39	15·27	15·29	15·44	15·63	15·82	15·96	15·98	15·92	15·70	15·48	15·28	15·18	15·12	15·17	15·31	15·52	15·70	15·85	15·89	15·86	15·77	15·57

PRESSURE REDUCED TO MEAN SEA LEVEL

Monthly and annual means of hourly values in millibars at exact hours Greenwich Mean Time

204 KEW OBSERVATORY: H_b = 10·4 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean
	millibars																									
Jan.	13·09	12·60	12·28	11·89	11·51	11·35	11·39	11·67	12·10	12·40	12·57	12·67	12·47	12·23	12·17	12·30	12·42	12·65	12·73	12·88	12·89	12·67	12·49	12·28	12·00	12·30
Feb.	25·01	25·10	25·13	24·97	24·86	24·93	25·00	25·11	25·38	25·48	25·54	25·55	25·26	24·95	24·69	24·52	24·59	24·74	25·03	25·26	25·40	25·59	25·69	25·74	25·82	25·16
Mar.	25·32	25·24	25·07	24·82	24·79	24·89	25·02	25·29	25·53	25·66	25·69	25·58	25·38	24·88	24·54	24·28	24·18	24·22	24·53	24·91	25·20	25·48	25·62	25·64	25·63	25·08
Apr.	26·71	26·59	26·42	26·25	26·16	26·21	26·49	26·76	26·82	26·94	26·82	26·62	26·33	26·08	25·76	25·46	25·31	25·33	25·47	25·78	26·18	26·37	26·41	26·40	26·28	26·23
May	15·30	15·18	15·00	14·92	14·83	14·92	15·09	15·12	15·15	15·12	14·97	14·88	14·69	14·55	14·40	14·23	14·02	13·98	14·04	14·28	14·67	14·92	15·02	15·04	15·09	14·76
June	17·25	17·12	17·02	16·96	17·04	17·19	17·41	17·63	17·76	17·83	17·77	17·74	17·58	17·43	17·14	17·04	16·80	16·66	16·59	16·69	16·83	17·25	17·41	17·42	17·30	17·24
July	14·82	14·70	14·57	14·46	14·42	14·54	14·70	14·85	14·88	14·92	14·83	14·76	14·65	14·57	14·40	14·32	14·15	14·09	14·15	14·39	14·72	15·12	15·25	15·28	15·26	14·66
Aug.	15·71	15·65	15·51	15·33	15·24	15·29	15·55	15·78	15·91	15·92	15·81	15·59	15·38	15·20	15·14	14·82	14·61	14·63	14·77	15·06	15·38	15·58	15·59	15·63	15·53	15·37
Sept.	16·67	16·54	16·41	16·21	16·08	16·14	16·38	16·52	16·73	16·90	16·80	16·63	16·47	16·25	16·03	15·90	15·79	15·88	16·08	16·42	16·62	16·68	16·74	16·70	16·59	16·40
Oct.	12·78	12·67	12·52	12·29	12·15	12·21	12·25	12·44	12·69	12·87	12·92	12·88	12·72	12·51	12·44	12·34	12·37	12·51	12·81	12·95	12·95	12·92	12·87	12·70	12·59	12·61
Nov.	11·62	11·37	11·17	10·93	10·79	10·67	10·64	10·77	10·97	11·09	11·30	11·34	11·07	10·83	10·70	10·69	10·88	11·07	11·23	11·37	11·37	11·46	11·43	11·42	11·29	11·09
Dec.	11·14	11·06	11·04	11·01	10·79	10·59	10·68	10·92	11·31	11·70	12·01	11·94	11·60	11·46	11·25	11·39	11·42	11·37	11·40	11·46	11·44	11·43	11·43	11·38	11·28	11·30
Annual	17·12	16·99	16·85	16·67	16·55	16·58	16·72	16·91	17·10	17·24	17·25	17·18	16·97	16·75	16·55	16·44	16·38	16·43	16·57	16·79	16·97	17·12	17·16	17·14	17·05	16·85

The initial 9 or 10 of the value is omitted, i.e. 1001·42 is printed as 01·42

The monthly and annual values of pressure reduced to mean sea level are computed from the corresponding monthly and annual means of pressure at station level and of temperature. See General Introduction to the Meteorological Tables, 1938.

TEMPERATURE

Monthly and annual means of readings in degrees Absolute at exact hours Greenwich Mean Time

205 KEW OBSERVATORY: North Wall Screen: h_t = 3·0 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean
	degrees Absolute																									
Jan.	79·04	78·97	78·96	78·85	78·86	78·69	78·70	78·68	78·71	78·94	79·47	80·05	80·45	80·85	80·98	80·85	80·58	80·20	79·94	79·67	79·51	79·39	79·34	79·28	79·19	79·54
Feb.	77·65	77·52	77·46	77·39	77·18	77·13	77·02	76·93	77·02	77·58	78·39	79·17	79·75	80·13	80·27	80·20	79·89	79·37	79·01	78·61	78·30	78·11	77·96	77·80	77·71	78·34
Mar.	80·22	80·06	79·76	79·53	79·25	79·00	78·93	79·03	79·89	81·11	82·38	83·71	85·01	86·05	86·70	87·05	86·95	86·30	85·05	83·71	82·77	81·94	81·27	80·68	80·17	82·35
Apr.	79·18	78·64	78·18	77·82	77·58	77·49	77·63	78·52	79·75	80·94	82·10	82·96	83·58	84·08	84·43	84·73	84·69	84·21	83·53	82·56	81·76	81·06	80·32	79·77	79·16	81·08
May	82·24	81·80	81·39	81·05	80·72	80·95	81·76	83·05	84·21	85·17	85·98	86·56	86·87	87·38	87·45	87·65	87·68	87·45	86·98	86·10	84·85	84·05	83·45	82·78	82·36	84·50
June	86·89	86·30	85·84	85·51	85·25	85·73	86·42	87·50	88·37	89·40	90·20	91·06	91·68	92·32	92·66	92·81	92·67	92·40	92·14	91·64	90·37	89·22	88·31	87·56	86·86	89·27
July	87·48	87·05	86·73	86·50	86·30	86·40	87·02	87·88	88·88	89·73	90·53	91·30	91·86	92·36	92·78	93·07	93·01	92·89	92·52	91·90	90·62	89·40	88·71	88·13	87·72	89·71
Aug.	88·24	87·84	87·49	87·28	87·01	86·87	87·19	87·85	88·64	89·80	90·84	91·96	92·81	93·57	94·03	94·18	94·19	93·63	92·85	91·77	90·65	89·86	89·14	88·43	87·93	90·25
Sept.	85·87	85·50	85·29	85·28	85·09	84·90	84·80	85·52	86·58	87·94	88·88	89·82	90·55	91·18	91·44	91·53	91·23	90·57	89·56	88·58	87·90	87·14	86·74	86·31	85·92	87·84
Oct.	82·56	82·25	82·02	81·90	81·95	81·86	81·82	81·86	82·40	83·40	84·31	85·15	85·88	86·30	86·45	86·45	86·01	85·21	84·43	83·83	83·47	83·20	82·87	82·66	82·54	83·67
Nov.	82·48	82·39	82·23	82·23	82·22	82·20	82·16	82·11	82·19	82·78	83·46	84·08	84·47	84·72	84·88	84·70	84·17	83·54	83·20	82·98	82·76	82·61	82·45	82·46	82·34	83·06
Dec.	77·15	77·07	76·90	76·84	76·78	76·89	76·92	76·91	76·91	77·22	77·65	78·18	78·61	78·94	78·93	78·69	78·31	78·01	77·93	77·71	77·59	77·52	77·38	77·21	77·09	77·60
Annual	82·44	82·12	81·85	81·68	81·52	81·51	81·70	82·15	82·80	83·67	84·52	85·33	85·96	86·49	86·75	86·83	86·61	86·15	85·59	84·92	84·21	83·63	83·16	82·76	82·42	83·93

The initial 2 or 3 of the readings is omitted, i.e. 275·00 degrees Absolute is printed 75·00

Add 0·16° to obtain temperature in degrees Kelvin where T (°K.) = t (°C.) + 273·16

TEMPERATURE

Maximum, minimum and daily mean values in degrees Absolute for each day 0h. to 24h. Greenwich Mean Time
The initial 2 or 3 of the values is omitted, i.e. 275·0° is printed 75·0°. Add 0·16° to obtain temperature in degrees Kelvin where T (°K.) = t (°C.) + 273·16

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DAY	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.
1	79·6	76·4	77·9	81·1	77·0	78·4	85·1	78·0	82·1	90·0	80·3	84·3	84·1	80·0	81·9	91·2	83·0	86·8
2	79·8	77·2	78·2	82·0	76·7	78·8	84·5	73·8	79·0	86·6	79·8	83·6	84·6	79·2	81·1	86·8	81·9	84·7
3	78·1	74·2	75·3	85·0	78·7	81·5	87·6	75·3	80·3	84·4	78·6	81·4	82·9	80·1	81·5	90·2	80·4	85·6
4	79·5	74·4	76·9	84·2	80·0	82·0	87·4	74·1	80·0	83·9	74·4	79·5	86·8	81·7	84·0	94·5	83·7	89·3
5	78·3	74·7	76·9	83·9	78·2	80·5	88·7	74·5	80·1	84·5	74·6	80·7	88·3	79·6	83·8	92·3	83·9	88·4
6	78·8	76·7	77·9	82·5	74·7	79·3	87·8	74·6	80·5	89·5	80·2	84·8	88·3	78·8	82·6	92·3	82·2	88·2
7	80·7	76·7	78·8	80·7	77·7	79·0	84·2	73·6	78·8	89·2	78·4	83·7	84·6	77·1	81·3	95·3	86·6	90·8
8	80·4	75·4	78·1	80·6	78·0	78·9	88·3	72·7	79·1	83·8	77·6	80·5	85·6	72·9	79·9	94·9	88·4	91·2
9	80·3	75·4	78·4	83·2	77·5	80·5	88·2	76·2	81·8	81·4	75·1	78·5	87·2	74·4	81·9	92·1	84·2	88·0
10	77·6	74·2	76·1	84·6	77·0	81·4	87·1	81·5	83·9	83·4	75·5	79·3	89·3	77·6	84·3	90·8	82·1	86·1
11	80·9	73·8	77·4	78·9	74·4	76·1	88·3	80·0	83·7	85·7	71·9	79·4	91·5	80·8	86·2	90·7	80·6	86·4
12	85·0	79·2	82·0	83·1	75·3	79·9	85·1	77·5	82·3	88·8	73·7	80·9	92·5	77·9	86·2	90·7	83·5	86·7
13	84·8	78·8	82·5	78·0	74·8	76·1	85·9	74·2	79·7	88·2	75·3	82·3	91·2	84·0	87·4	92·9	83·0	88·3
14	84·6	78·5	81·1	75·5	73·5	74·3	86·4	73·1	80·4	85·6	78·5	82·0	96·9	83·1	89·8	97·9	86·0	91·9
15	84·0	79·4	81·9	76·1	74·0	74·9	86·0	75·0	79·9	85·3	77·6	81·3	92·8	86·0	89·0	92·6	84·2	88·5
16	84·8	78·8	82·1	75·6	74·2	75·0	87·5	80·2	83·5	86·7	75·9	81·5	89·7	83·2	86·4	96·1	83·7	90·3
17	84·9	75·3	79·8	76·3	73·1	74·8	85·2	81·0	83·6	82·6	75·5	79·2	88·7	82·0	85·5	97·2	86·0	91·3
18	82·5	74·3	78·3	82·8	72·8	77·3	86·9	80·9	83·5	81·2	73·9	78·1	87·7	80·9	83·9	97·0	84·2	91·0
19	82·6	79·2	80·6	79·7	75·2	77·0	89·6	78·4	83·7	84·1	74·6	79·3	85·6	79·1	82·0	95·5	85·9	90·4
20	84·0	80·0	82·1	78·9	74·2	76·9	91·2	78·7	85·0	85·3	74·8	80·7	86·7	77·7	82·7	94·7	82·6	89·2
21	83·2	78·7	81·7	77·7	75·8	76·9	88·9	80·8	85·2	85·2	79·3	81·6	88·8	77·9	83·9	98·1	82·9	90·9
22	82·9	76·2	80·1	76·0	74·0	75·1	89·0	78·7	82·9	85·1	78·7	81·7	93·3	78·1	86·2	96·3	86·8	91·2
23	83·1	81·0	82·2	79·8	73·9	76·8	89·8	79·0	83·1	83·6	78·2	81·0	93·8	80·8	87·1	96·5	88·6	91·9
24	85·5	80·1	82·5	81·1	71·5	76·1	89·6	74·3	83·1	84·3	78·8	81·3	89·3	80·8	85·3	96·9	90·0	93·1
25	82·7	76·8	80·8	86·0	70·9	78·7	85·2	76·3	81·7	85·0	78·1	81·5	86·3	80·8	84·2	96·6	87·9	91·9
26	81·2	75·4	77·8	85·3	81·2	82·9	82·5	76·2	79·4	84·3	75·5	80·2	89·3	79·2	84·5	95·5	86·5	90·6
27	78·8	74·4	76·1	83·3	78·6	81·0	87·2	79·6	84·2	86·3	78·1	81·8	90·9	84·2	87·3	92·4	86·2	89·9
28	84·9	74·6	81·0	84·7	82·4	83·3	89·6	82·3	85·4	86·6	76·5	81·7	86·2	81·7	84·0	92·9	85·1	88·9
29	85·0	78·0	80·4	-	-	-	90·1	80·7	85·1	83·2	76·2	79·7	88·8	80·5	84·4	92·0	85·5	88·9
30	82·5	76·7	79·0	-	-	-	90·6	83·0	86·3	85·3	75·9	80·8	89·1	82·8	85·6	92·8	83·9	87·8
31	83·6	77·6	81·7	-	-	-	90·6	81·4	85·5	-	-	-	88·1	80·9	85·5	-	-	-
Mean	82·1	76·8	79·5	80·9	75·9	78·3	87·6	77·6	82·3	85·3	76·7	81·1	88·7	80·1	84·5	93·9	84·7	89·3

DAY	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.	°A.
1	92·1	82·0	86·7	01·8	90·8	95·9	91·6	78·6	85·6	89·4	83·0	85·7	85·9	79·2	83·2	81·9	78·0	80·1
2	92·7	82·2	87·6	00·6	89·2	94·2	90·3	80·9	85·7	87·3	82·0	84·7	85·1	79·0	81·8	82·7	77·5	80·2
3	93·0	82·9	87·9	99·4	88·6	93·6	90·4	79·0	85·4	88·5	80·2	84·4	86·0	81·8	84·0	81·5	72·9	78·7
4	92·2	84·2	88·1	00·0	87·0	93·2	89·6	81·4	86·7	88·0	84·0	85·7	89·2	85·1	87·5	83·1	70·9	77·6
5	90·1	82·4	86·5	99·2	87·8	92·8	90·6	80·6	85·8	86·0	81·2	83·8	92·0	87·4	89·2	85·7	76·9	82·1
6	92·6	82·6	87·9	00·5	89·8	94·8	90·8	84·3	86·6	87·3	81·4	84·0	86·7	85·1	86·2	83·1	76·1	80·0
7	96·9	85·7	91·0	92·7	90·5	91·4	90·3	83·8	87·0	87·7	82·8	85·5	86·5	84·0	85·4	83·0	78·7	80·8
8	90·3	85·9	87·2	98·5	89·9	93·2	90·2	84·6	87·7	88·5	82·4	85·0	86·3	81·0	84·5	83·8	77·8	80·7
9	90·9	85·5	87·4	99·2	88·8	93·5	90·1	85·1	87·2	90·9	84·1	88·4	83·9	79·8	82·3	82·9	74·1	79·4
10	90·8	84·6	87·8	92·7	89·1	90·8	90·7	83·0	87·1	87·3	81·7	84·1	87·6	82·9	84·6	84·2	82·1	83·0
11	94·6	88·1	90·6	98·5	87·8	91·5	92·9	80·0	87·1	88·1	79·9	83·6	89·3	82·6	85·7	86·0	82·0	83·7
12	91·1	87·0	88·8	98·3	86·5	91·0	97·4	87·9	92·3	88·9	81·1	85·4	89·3	84·4	87·3	86·0	79·9	83·7
13	96·1	85·8	90·3	93·4	87·1	89·7	97·2	87·3	91·6	89·3	86·6	87·9	89·3	87·2	88·4	84·0	78·2	82·7
14	92·5	87·0	89·6	92·4	86·6	89·3	95·0	85·1	89·5	88·7	82·8	86·1	88·2	81·6	86·2	84·9	77·2	82·3
15	91·1	85·9	88·7	96·1	84·8	89·9	89·7	81·7	85·3	87·7	80·3	84·3	83·2	81·7	82·6	83·9	75·9	80·2
16	90·1	84·7	87·4	94·5	88·7	90·9	91·7	79·0	85·5	89·1	83·0	86·6	85·9	82·4	84·5	82·6	80·8	81·9
17	94·1	84·9	89·3	92·8	85·7	89·7	93·6	82·8	88·5	89·1	83·3	86·0	85·5	83·6	84·8	80·8	71·3	76·3
18	93·7	87·6	90·2	94·0	85·4	89·3	93·1	88·0	90·0	88·4	84·3	86·1	86·2	81·3	84·6	71·6	70·0	70·7
19	95·2	86·8	91·0	93·2	87·0	89·4	91·6	85·6	88·2	87·2	80·1	84·2	85·9	79·6	81·6	70·7	69·0	69·9
20	97·3	86·5	91·1	92·8	84·6	88·4	91·6	85·3	87·9	88·2	77·3	82·1	84·0	79·8	81·5	70·1	66·8	68·5
21	97·0	89·5	92·3	92·5	80·5	86·6	89·1	85·0	86·9	88·2	79·2	83·2	80·2	75·0	77·9	71·9	67·6	70·3
22	94·9	88·5	91·3	90·1	83·1	86·4	92·6	84·1	88·5	85·5	78·8	82·2	81·5	77·4	79·0	75·0	71·0	72·8
23	95·1	86·9	91·6	94·9	84·0	88·8	97·1	88·7	92·4	86·5	77·6	81·7	86·2	78·1	82·3	73·6	71·1	72·2
24	98·2	86·1	91·8	96·3	85·1	90·2	95·1	87·0	91·5	83·3	73·5	77·8	81·4	76·0	78·6	74·8	72·4	73·8
25	96·5	87·0	91·4	96·1	84·1	89·7	93·9	85·1	89·8	81·9	74·0	76·6	84·6	75·9	81·4	73·8	72·3	73·0
26	95·5	87·3	91·0	91·2	87·1	89·2	91·1	83·1	86·9	84·4	77·9	81·7	84·6	75·9	80·7	75·9	71·6	73·5
27	96·1	84·5	90·4	94·5	85·3	89·6	90·6	85·7	87·4	82·7	77·0	80·0	83·6	72·8	78·1	80·0	75·9	78·1
28	93·6	85·4	89·3	92·3	85·5	88·1	90·1	85·0	87·3	84·2	77·3	81·3	84·2	76·0	81·5	78·8	76·6	77·4
29	95·3	84·7	89·9	87·7	84·9	85·8	90·6	83·0	87·7	84·3	77·3	80·7	79·7	73·1	76·1	81·3	76·1	78·6
30	96·4	86·6	92·1	90·4	80·3	85·3	91·4	81·6	86·1	86·1	80·0	83·3	84·0	75·6	80·3	79·2	74·1	77·2
31	00·5	90·7	94·9	90·6	81·2	85·6	-	-	-	84·9	77·6	81·8	-	-	-	78·6	74·0	76·1
Mean	94·1	85·8	89·7	95·1	86·3	90·3	92·0	83·7	87·8	87·0	80·4	83·7	85·5	80·2	83·1	79·9	74·8	77·6
									Annual	87·7	80·3	83·9						

MEAN RELATIVE HUMIDITY AND VAPOUR PRESSURE FOR EACH DAY

Mean percentages from readings at exact hours 0h. to 24h. Greenwich Mean Time; vapour pressure from daily mean temperature and relative humidity

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DAY	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.	Rel. hum.	Vap. press.
	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.	%	mb.
1	81·7	7·1	69·3	6·2	71·3	8·2	74·0	9·9	75·0	8·5	79·5	12·5	73·0	11·4	70·6	19·7	79·8	11·6	81·3	11·9	72·6	9·0	77·4	7·8
2	87·2	7·7	76·3	7·0	74·2	6·9	69·4	8·9	78·7	8·5	61·9	8·5	66·5	11·1	70·9	17·8	71·0	10·4	84·6	11·6	78·3	8·9	85·5	8·7
3	81·2	5·9	84·5	9·4	72·9	7·5	56·9	6·3	81·2	9·0	65·7	9·6	70·6	12·0	62·7	15·2	70·5	10·2	78·7	10·6	81·6	10·7	79·7	7·3
4	86·9	7·0	79·7	9·1	79·8	8·0	60·0	5·8	59·2	7·8	60·3	11·2	66·6	11·4	64·2	15·2	70·4	11·0	62·3	9·2	89·2	14·7	92·1	7·8
5	85·0	6·9	80·9	8·4	76·4	7·7	79·5	8·4	55·7	7·2	59·8	10·5	71·0	11·0	75·7	17·5	74·4	11·0	79·6	10·3	84·7	15·6	83·2	9·6
6	85·4	7·4	86·5	8·3	70·5	7·3	73·7	10·2	60·6	7·2	71·4	12·3	66·7	11·3	70·3	18·4	85·6	13·3	72·3	9·4	92·2	14·0	90·3	9·0
7	86·2	8·0	85·7	8·0	87·0	8·0	67·9	8·7	64·6	7·1	73·3	14·9	66·0	13·6	90·0	19·1	77·7	12·4	79·8	11·6	84·9	12·2	83·5	8·8
8	93·5	8·2	87·5	8·1	84·5	8·0	61·8	6·4	60·4	6·0	77·5	16·2	81·3	13·2	78·0	18·5	78·0	13·0	75·1	10·5	82·5	11·2	86·3	9·1
9	83·8	7·5	86·4	9·0	80·5	9·1	61·7	5·6	61·9	7·1	64·9	11·1	67·9	11·1	72·4	17·5	73·3	11·9	79·5	13·9	86·7	10·2	87·7	8·4
10	88·7	6·8	72·6	8·0	83·3	10·9	59·0	5·6	67·7	9·1	64·3	9·7	80·0	13·5	89·3	18·2	69·8	11·2	78·7	10·4	85·3	11·7	89·1	10·9
11	93·6	7·8	61·0	4·7	85·9	11·1	67·7	6·5	57·7	8·8	61·6	9·5	68·2	13·7	83·0	17·7	83·7	13·5	80·4	10·3	87·8	12·9	84·6	10·9
12	91·1	10·5	64·7	6·4	74·1	8·7	71·3	7·6	68·8	10·4	63·7	10·0	70·4	12·6	86·0	17·8	76·9	17·2	81·9	11·8	81·3	13·3	88·3	11·4
13	89·3	10·6	75·8	5·8	77·3	7·6	66·4	7·8	73·7	12·1	62·0	10·8	60·5	11·9	69·1	13·1	77·9	16·7	89·2	15·1	80·9	14·2	91·0	11·0
14	90·6	9·8	79·6	5·3	68·1	7·0	68·1	7·8	70·3	13·5	59·8	13·1	72·8	13·8	75·4	14·0	81·2	15·2	76·0	11·5	87·3	13·3	91·3	10·7
15	70·7	8·1	71·4	5·0	86·1	8·6	71·1	7·8	71·5	13·0	64·2	11·3	84·4	15·1	75·9	14·6	67·6	9·7	83·5	11·2	96·4	11·5	90·9	9·2
16	89·9	10·4	79·7	5·6	77·4	9·8	68·3	7·6	76·7	11·8	64·7	12·8	77·7	12·8	73·3	15·0	73·5	10·7	91·9	14·3	93·5	12·7	92·5	10·5
17	79·6	7·9	81·8	5·7	81·6	10·4	61·1	5·8	79·5	11·5	66·1	13·9	64·5	12·0	61·6	11·7	75·6	13·3	83·2	12·5	91·5	12·7	79·3	6·1
18	86·9	7·7	71·2	5·9	80·5	10·2	62·2	5·5	72·7	9·5	67·9	14·0	78·3	15·4	70·8	13·1	85·5	16·6	81·1	12·2	92·1	12·6	64·0	3·3
19	78·9	8·2	79·7	6·5	62·5	8·0	69·1	6·6	62·3	7·2	59·7	11·9	76·6	15·8	73·4	13·7	83·0	14·3	71·0	9·4	81·9	9·2	69·0	3·4
20	83·4	9·6	78·1	6·3	61·5	8·6	66·6	7·0	66·4	8·0	57·1	10·5	76·7	15·9	63·2	11·1	80·8	13·7	88·1	10·2	87·5	9·7	70·4	3·1
21	86·8	9·8	78·1	6·3	69·0	9·8	66·4	7·4	61·5	8·0	58·0	11·9	69·7	15·6	72·1	11·2	90·1	14·3	78·1	9·7	93·6	8·1	88·1	4·4
22	92·0	9·3	75·1	5·3	79·0	9·6	71·7	8·1	66·7	10·1	72·3	15·1	75·0	15·8	84·3	13·0	81·2	14·3	85·5	10·0	82·8	7·7	92·4	5·6
23	88·5	10·3	74·9	6·0	83·8	10·4	76·7	8·2	70·9	11·4	72·1	15·7	65·8	14·1	73·0	13·1	80·3	18·1	87·5	9·8	75·7	8·9	84·1	4·8
24	79·9	9·5	80·6	6·1	72·3	8·9	76·4	8·4	64·7	9·3	66·1	15·6	73·1	15·9	67·6	13·3	84·1	17·9	93·7	8·1	82·0	7·5	80·8	5·2
25	77·6	8·2	80·0	7·3	89·8	10·1	76·5	8·5	76·7	10·2	66·7	14·6	71·7	15·2	74·3	14·1	89·0	17·0	96·6	7·6	83·6	9·2	75·1	4·6
26	84·6	7·3	76·9	9·4	66·1	6·4	74·0	7·5	77·6	10·5	65·9	13·3	65·3	13·5	79·3	14·6	92·7	14·7	79·0	8·9	78·8	8·3	91·1	5·8
27	79·1	6·0	71·1	7·6	74·7	9·9	69·9	7·9	76·0	12·4	78·4	15·1	69·0	13·7	79·4	15·0	90·4	14·8	80·4	8·1	89·5	7·9	85·5	7·5
28	87·6	9·4	84·5	10·6	69·5	10·0	70·4	7·9	85·7	11·3	69·2	12·5	71·6	13·3	86·6	14·9	88·5	14·4	78·5	8·6	93·0	10·3	82·4	6·9
29	63·0	6·5			76·5	10·8	63·9	6·3	77·3	10·4	55·9	10·1	73·7	14·2	88·3	13·1	82·7	13·8	83·6	8·8	93·0	7·1	96·9	8·8
30	75·7	7·1			76·9	11·8	65·0	6·9	67·5	9·8	68·3	11·5	71·5	15·8	76·4	10·9	84·5	12·7	87·2	10·9	80·7	8·3	83·6	6·9
31	88·6	10·0			71·0	10·3			81·2	11·8			74·3	19·5	72·2	10·5			82·4	9·3			86·0	6·6
Mean*	84·4	8·3	77·6	7·0	76·3	9·0	68·2	7·4	70·0	9·6	65·9	12·3	71·6	13·7	75·1	14·9	80·0	13·6	81·6	10·6	85·7	10·8	84·6	7·6

* Mean of the column.

RELATIVE HUMIDITY

Monthly and annual means of values at exact hours Greenwich Mean Time

208 KEW OBSERVATORY: h_t = 3·0 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean*
	per cent.																									
Jan.	86·7	87·5	87·7	88·2	87·3	88·2	87·5	86·9	86·2	85·9	84·4	82·4	81·0	78·4	78·1	78·1	80·3	81·6	82·3	84·2	85·1	85·8	86·8	85·7	86·2	84·4
Feb.	81·3	81·4	81·6	82·0	82·7	82·5	83·6	84·1	84·5	82·4	78·1	74·1	71·5	68·7	67·5	67·3	69·7	73·2	74·1	76·0	77·4	78·5	79·5	80·5	81·9	77·6
Mar.	86·1	86·9	87·6	88·3	88·6	88·3	88·5	88·1	85·3	80·9	76·5	71·2	65·4	61·2	57·5	57·1	57·9	60·4	65·3	70·9	75·0	78·0	81·2	83·8	86·0	76·3
Apr.	77·8	80·9	83·2	83·7	83·3	84·2	84·2	80·3	74·8	68·4	62·4	58·2	55·5	53·2	52·5	51·1	51·4	53·6	57·5	62·1	65·8	67·7	71·5	74·6	77·7	68·2
May	79·1	81·0	81·9	83·5	84·3	84·9	82·3	76·5	71·4	66·9	62·6	59·5	58·9	58·5	57·9	56·6	57·1	56·4	59·3	63·3	70·3	73·6	76·2	78·3	79·4	70·0
June	76·7	78·7	80·4	82·1	83·2	81·9	77·8	72·3	68·6	63·0	59·9	56·1	54·2	51·8	50·7	49·8	52·7	54·8	56·4	57·0	61·3	66·6	71·9	74·5	76·7	65·9
July	82·4	84·3	85·5	86·3	86·7	86·5	83·4	79·4	73·0	69·4	65·7	62·6	60·5	59·3	57·9	57·2	58·3	58·8	59·8	62·6	68·0	74·1	77·5	79·9	82·3	71·6
Aug.	84·4	86·8	87·7	88·7	89·7	89·7	89·5	86·6	83·4	77·7	73·3	67·7	63·2	60·2	58·5	58·6	57·0	60·2	63·5	67·2	72·3	75·8	79·2	82·5	84·6	75·1
Sept.	89·9	90·4	90·9	90·9	91·5	92·0	92·1	90·3	86·1	80·8	76·1	71·6	67·7	64·7	62·5	61·4	63·4	67·5	72·8	77·4	80·8	84·3	86·3	88·4	90·0	80·0
Oct.	86·6	87·5	87·7	87·6	87·5	87·6	88·0	88·7	87·5	84·8	80·3	75·7	71·9	69·6	69·4	69·2	71·8	74·5	79·4	83·5	84·2	85·4	85·1	85·8	86·2	81·6
Nov.	90·0	89·9	90·7	90·5	90·2	89·9	90·2	90·3	90·5	88·0	85·4	81·3	77·8	76·3	75·5	76·7	79·5	82·5	84·1	85·3	87·0	88·0	88·8	88·5	89·8	85·7
Dec.	85·5	86·1	87·1	87·4	87·5	87·4	88·0	87·5	88·4	86·9	85·6	83·8	81·7	79·3	78·1	79·4	81·3	81·9	83·2	84·4	84·6	84·6	85·1	85·5	86·0	84·6
Annual	83·9	85·1	86·0	86·6	86·9	86·9	86·3	84·3	81·6	77·9	74·2	70·4	67·4	65·1	63·8	63·5	65·0	67·1	69·8	72·8	76·0	78·5	80·8	82·3	83·9	76·8

VAPOUR PRESSURE

Monthly mean values at exact hours Greenwich Mean Time computed from corresponding mean values of temperature and relative humidity

209 KEW OBSERVATORY: h_t = 3·0 m. 1938

	Hour G.M.T. 0	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	24	Mean*
	millibars																									
Jan.	8·1	8·2	8·2	8·2	8·1	8·1	8·0	8·0	7·9	8·0	8·1	8·3	8·4	8·3	8·4	8·3	8·4	8·3	8·2	8·3	8·2	8·2	8·3	8·2	8·2	8·2
Feb.	6·9	6·9	6·9	6·9	6·8	6·8	6·8	6·8	6·9	7·0	7·0	7·0	7·0	6·9	6·9	6·8	6·9	7·0	6·9	6·9	6·9	6·9	6·9	6·9	7·0	6·9
Mar.	8·8	8·7	8·6	8·6	8·4	8·3	8·2	8·3	8·5	8·7	9·0	9·2	9·2	9·2	9·0	9·2	9·2	9·2	9·2	9·1	9·1	8·9	8·9	8·8	8·7	8·8
Apr.	7·4	7·4	7·4	7·2	7·1	7·1	7·2	7·3	7·4	7·3	7·2	7·1	7·1	7·0	7·1	7·0	7·1	7·1	7·3	7·4	7·4	7·3	7·3	7·4	7·3	7·2
May	9·2	9·2	9·0	9·0	8·9	9·1	9·3	9·4	9·5	9·5	9·4	9·3	9·3	9·6	9·5	9·4	9·5	9·3	9·5	9·5	9·8	9·7	9·7	9·5	9·3	9·4
June	12·2	12·0	11·9	11·9	11·9	12·1	12·0	11·9	12·0	11·8	11·8	11·6	11·7	11·6	11·6	11·5	12·1	12·4	12·5	12·3	12·2	12·3	12·5	12·4	12·1	12·0
July	13·6	13·5	13·4	13·4	13·2	13·3	13·3	13·3	13·2	13·2	13·2	13·2	13·2	13·3	13·4	13·4	13·6	13·7	13·6	13·7	13·7	13·8	13·8	13·7	13·8	13·5
Aug.	14·6	14·7	14·5	14·4	14·3	14·2	14·6	14·6	14·8	14·8	15·0	14·8	14·6	14·6	14·6	14·7	14·3	14·6	14·7	14·6	15·3	14·6	14·5	14·5	14·4	14·6
Sept.	13·4	13·1	13·0	13·0	12·9	12·8	12·8	13·1	13·4	13·7	13·7	13·9	13·6	13·5	13·3	13·1	13·3	13·6	13·7	13·7	13·7	13·6	13·6	13·5	13·4	13·4
Oct.	10·3	10·2	10·1	10·0	10·0	10·0	10·0	10·0	10·3	10·7	10·8	10·7	10·7	10·6	10·7	10·7	10·8	10·6	10·7	10·8	10·7	10·6	10·4	10·3	10·3	10·4
Nov.	10·7	10·6	10·6	10·6	10·5	10·5	10·5	10·5	10·5	10·7	10·8	10·7	10·5	10·5	10·5	10·5	10·6	10·5	10·5	10·5	10·5	10·5	10·5	10·5	10·5	10·6
Dec.	7·0	7·0	7·0	7·0	7·0	7·0	7·1	7·1	7·1	7·2	7·3	7·4	7·4	7·4	7·3	7·3	7·2	7·1	7·2	7·2	7·2	7·1	7·1	7·1	7·0	7·2
Year†	10·2	10·1	10·1	10·0	9·9	9·9	10·0	10·0	10·1	10·2	10·3	10·3	10·2	10·2	10·2	10·2	10·3	10·3	10·3	10·3	10·4	10·3	10·3	10·2	10·2	10·2

* Mean of values ½(0 + 24),1,2...23.

† Mean values for the year are means of monthly values.

RAINFALL

Amount in millimetres, duration in hours and maximum rate of fall for each day 0h. to 24h. Greenwich Mean Time

210 KEW OBSERVATORY: H_r (height of receiving surface above M.S.L.) = H (height of station above M.S.L.) + h_r (height of receiving surface above ground) = 5·5 + 0·53 m. 1938

DAY	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate
	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.
1	...	...	...	0·2	0·1	1	0·9	2·2	1	...	...	...	0·3	0·5	2	2·7	1·0	9
2	2·1	2·3	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	0·2	0·2	...	...	...	...	...	...	...	1·7	1·2	12	7·3	6·5	4	...	...	...
4	0·1	0·3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	0·1	0·2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	0·8	1·1	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	0·2	0·2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	0·3	1·0	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	1·9	1·7	3	0·1	0·6	...	...	...	...	...	...	...	...	...	...	0·2	0·6	
10	3·7	3·8	14	1·6	0·7	38	...	...	...	...	...	...	...	...	...	0·4	0·4	4
11	2·0	1·5	16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	3·9	4·6	4	...	...	...	...	...	...	...	...	...	0·3	0·3	1	...	...	...
13	11·1	7·4	26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	1·7	1·9	2	0·1	0·3	...	...	...	...	...	...	...	0·6	1·2	5	...	...	...
15	3·1	2·6	12	...	0·1	...	...	...	...	...	...	...	0·4	0·6	5	...	...	...
16	5·8	6·5	3	0·2	0·5	...	...	...	...	...	...	...	...	0·1	...	...	...	...
17	0·9	1·2	8	1·9	3·8	4	...	...	...	...	...	...	2·2	3·1	34	...	...	...
18	0·1	0·1	...	...	...	...	...	...	...	...	...	...	0·7	2·1	2	...	...	...
19	0·2	0·4	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	0·1	0·1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·2	0·7	2
23	0·1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	...	...	...	...	...	...	...	...	...	0·4	0·5	3	0·4	0·5	16	...	...	...
25	2·8	1·5	13	...	...	...	4·6	5·8	17	...	...	...	3·4	3·1	17	...	...	...
26	3·9	2·0	7	3·0	2·0	12	1·1	2·2	1	...	...	...	...	...	...	...	...	...
27	...	...	...	0·6	1·2	1	0·1	0·5	...	0·2	0·3	2	0·1	0·4	1	4·2	2·8	6
28	1·8	2·7	3	0·2	0·3	...	...	...	...	...	...	...	12·3	7·0	25	0·4	1·0	...
29	2·3	0·7	40				...	...	...	...	...	...	1·7	2·2	5	...	...	...
30	5·1	3·2	30				...	...	...	...	...	...	1·2	1·8	12	0·9	0·9	4
31	2·4	2·8	23				...	...	...				2·2	2·2	16			
Total	56·7	50·0	-	7·9	9·6	-	6·7	10·7	-	2·3	2·0	-	33·1	31·6	-	9·0	7·4	-

DAY	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate	Amount	Duration	Max. rate
	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.	mm.	hr.	mm./hr.
1	0·3	0·4	...	...	...	...	0·5	1·4	...	0·7	0·6	1	2·5	3·4	2	1·6	0·9	2
2	1·1	0·6	20	...	...	...	0·1	...	...	4·4	3·9	5	...	...	...	0·7	0·9	4
3	...	...	...	...	...	...	0·1	0·4	...	10·2	6·1	20	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...	0·4	0·7	...	...	...	...	...	...	...
5	3·5	1·0	49	...	...	...	...	...	...	3·3	2·4	15	...	...	...	1·5	1·4	4
6	0·1	0·2	...	...	...	...	1·7	1·0	20	...	...	...	...	...	...	...	...	...
7	1·2	1·3	3	14·0	7·0	(34)	2·4	1·0	27	3·4	2·4	11	...	...	...	...	...	...
8	6·5	2·5	41	5·5	4·0	(9)	...	...	...	0·9	1·7	...	...	...	...	1·2	1·7	13
9	...	...	...	...	...	...	...	...	...	5·7	4·2	4	...	...	...	8·3	5·3	5
10	...	0·1	...	10·8	9·8	11	...	...	...	...	...	...	...	...	...	4·4	4·1	4
11	...	...	...	18·3	2·0	116	...	...	...	...	...	...	2·0	1·9	2	0·4	0·8	...
12	...	...	...	3·5	1·2	30	...	...	...	1·0	1·2	2	2·3	1·3	4	1·2	2·2	2
13	...	...	...	...	...	...	...	...	...	4·2	3·5	13	1·1	1·9	1	...	...	...
14	...	...	...	0·2	0·2	...	0·6	0·9	2	...	...	...	0·2	0·1	1	2·5	3·5	(4)
15	5·8	2·6	17	...	...	...	...	...	...	...	...	...	0·1	...	...	0·6	1·7	...
16	...	...	...	0·1	0·2	...	...	...	...	7·0	3·4	10	1·1	2·0	1	26·2	17·1	(17)
17	...	...	...	...	...	...	...	...	...	...	...	...	0·2	0·2	2	0·1	0·2	...
18	0·1	0·1	1	...	...	...	3·8	1·8	22	2·1	1·0	15	0·9	1·3	1	...	...	...
19	...	...	...	0·6	0·9	2	1·3	0·9	10	...	...	...	4·5	3·5	57	...	...	...
20	...	...	...	...	...	...	1·4	3·4	1	...	...	...	15·6	9·6	31	...	...	...
21	...	...	...	0·3	0·2	6	1·2	2·3	1	...	...	...	0·2	0·3	...	11·5	13·1	(Snow)
22	...	...	...	0·9	0·9	18	...	...	...	...	...	...	0·1	0·3	...	7·3	9·6	(Snow)
23	...	...	...	...	...	...	...	...	...	...	...	...	3·0	3·8	8	1·1	2·5	(Snow)
24	...	...	...	...	...	...	10·1	4·0	17	...	...	...	...	...	...	0·3	1·0	(Snow)
25	0·3	0·6	2	...	...	...	0·8	3·9	...	...	...	...	14·4	5·2	23	...	...	...
26	...	...	...	5·4	2·9	6	1·1	3·0	3	5·7	6·1	19	8·4	3·0	20	7·2	8·5	(Snow)
27	6·9	2·7	15	...	...	...	21·1	8·9	25	1·4	1·7	9	0·3	0·6	...	...	...	...
28	...	...	...	6·0	5·8	10	0·2	0·3	1	...	...	...	6·5	4·3	49	1·0	2·1	(2)
29	...	...	...	2·9	5·0	6	1·0	0·9	6	...	...	...	...	...	...	5·9	7·8	7
30	...	...	...	...	...	...	1·9	1·0	19	1·8	1·8	12	2·6	2·2	6	0·1	...	...
31	...	...	...	...	...	...				...	...	...				0·5	1·0	...
Total	25·8	12·1	-	68·5	40·1	-	49·3	35·1	-	52·2	40·7	-	66·0	44·9	-	83·6	85·4	-

Monthly and annual totals of amounts in sixty-minute periods between exact hours Greenwich Mean Time

211 KEW OBSERVATORY: H_r = 5·5 m. + 0·53 m. 1938

	Hour G.M.T. 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	0-24
	millimetres																								
Jan.	4·2	3·8	6·7	3·4	3·1	3·4	0·5	1·0	0·4	0·7	0·3	5·0	3·9	2·2	3·1	3·9	4·2	2·5	0·6	0·2	0·1	0·3	1·9	1·3	56·7
Feb.	0·2	···	···	···	···	···	0·1	0·1	0·2	···	0·1	0·8	2·0	0·5	0·3	···	0·1	0·3	1·2	1·6	0·1	0·1	···	0·2	7·9
Mar.	0·4	0·6	0·6	0·1	···	0·1	0·7	0·3	0·1	0·3	···	···	0·1	0·4	0·3	0·2	0·1	1·3	···	···	···	···	0·8	0·3	6·7
Apr.	···	1·6	0·1	···	···	···	0·3	0·1	···	···	···	···	0·2	···	···	···	···	···	···	···	···	···	···	···	2·3
May	0·2	···	0·4	···	···	···	···	0·9	1·9	3·1	4·1	5·1	2·5	1·2	0·7	1·0	···	6·1	1·2	1·5	0·6	2·1	0·3	0·2	33·1
June	···	···	···	···	···	···	···	···	···	0·2	···	1·1	1·5	1·5	1·5	1·5	0·1	0·6	0·3	0·1	0·3	0·3	···	···	9·0
July	0·2	0·1	···	···	···	···	···	0·1	1·8	3·7	0·1	0·6	1·2	0·6	0·1	1·4	···	1·6	4·1	3·0	1·3	1·6	4·3	···	25·8
Aug.	0·5	3·7	2·1	3·1	1·4	1·9	5·7	4·6	1·0	0·1	0·3	0·4	0·9	3·1	5·6	5·8	1·1	12·1	7·8	2·3	0·6	1·6	2·2	0·6	68·5
Sept.	1·0	1·1	1·3	1·6	1·2	0·2	0·4	0·2	0·3	1·9	1·4	0·3	0·3	0·4	0·2	···	3·8	4·5	5·5	4·8	8·8	0·9	7·0	2·2	49·3
Oct.	0·1	···	2·3	1·0	1·9	3·2	5·0	5·3	1·7	1·2	1·1	2·6	4·4	1·1	0·1	1·0	3·0	2·8	2·7	2·8	2·7	3·5	2·2	0·5	52·2
Nov.	4·6	6·0	8·4	2·3	2·5	2·6	4·2	2·0	0·9	1·4	0·1	1·0	1·8	1·9	4·9	3·2	2·2	0·5	0·4	4·5	4·9	2·4	2·9	0·4	66·0
Dec.	2·6	1·1	1·2	1·7	1·9	3·1	3·4	2·5	3·8	2·1	2·5	3·2	5·3	5·9	6·4	6·0	5·2	5·1	4·5	5·1	5·1	1·8	1·9	2·2	83·6
Annual	14·0	18·0	23·1	13·2	12·0	14·5	20·3	17·1	12·1	14·7	10·0	20·1	24·1	18·8	23·2	24·0	19·8	37·4	28·3	25·9	24·5	14·6	23·5	7·9	461·1

RAINFALL

Monthly and annual totals of durations in sixty-minute periods between exact hours Greenwich Mean Time

212 KEW OBSERVATORY: H_r = 5·5 m. + 0·53 m. 1938

	Hour G.M.T. 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	0-24
	hours																								
Jan.	3·9	3·6	3·0	3·0	3·9	2·6	1·3	1·4	0·7	0·6	0·5	3·0	3·4	2·3	2·9	2·7	4·0	2·0	1·1	0·7	0·2	0·3	1·5	1·4	50·0
Feb.	0·1	···	···	···	···	···	0·4	0·5	0·4	···	0·3	1·1	1·6	0·9	1·2	0·1	0·2	0·5	0·9	0·6	0·3	0·2	···	0·3	9·6
Mar.	1·5	1·0	1·1	0·2	···	0·1	0·9	0·7	0·2	0·5	···	···	0·2	0·4	0·3	0·4	0·1	0·9	···	···	···	0·2	1·0	1·0	10·7
Apr.	0·2	0·7	0·3	···	···	···	0·3	0·2	···	···	···	···	0·3	···	···	···	···	···	···	···	···	···	···	···	2·0
May	0·3	···	0·6	···	···	···	0·1	1·0	1·4	2·0	2·0	4·1	4·4	1·7	1·3	1·4	···	2·1	2·0	2·4	1·6	2·0	0·8	0·4	31·6
June	···	···	···	···	···	···	···	···	···	0·2	···	0·6	1·0	1·0	0·8	0·6	0·3	0·7	0·2	0·3	1·0	0·6	0·1	···	7·4
July	0·6	0·1	···	···	···	···	···	0·2	1·0	0·9	0·1	0·5	0·7	0·7	0·1	0·9	0·1	0·6	1·2	1·2	1·2	1·0	1·0	···	12·1
Aug.	1·1	2·0	2·3	3·0	2·1	2·4	2·5	3·3	0·7	0·3	0·4	1·4	1·1	1·6	2·6	2·4	1·8	1·8	1·2	1·5	1·4	1·2	1·0	1·0	40·1
Sept.	1·7	1·3	1·1	1·3	1·7	0·9	1·1	0·6	0·9	1·7	0·8	0·7	0·7	0·6	0·4	···	2·5	3·9	4·0	2·4	1·6	1·5	2·3	1·4	35·1
Oct.	···	···	1·6	1·7	1·7	2·5	2·7	3·1	2·4	1·0	1·0	1·4	2·9	1·5	0·2	1·7	2·7	2·1	2·2	2·0	1·7	2·1	1·7	0·8	40·7
Nov.	3·0	3·1	3·8	3·0	3·4	3·5	2·9	0·9	1·7	1·0	0·3	0·9	1·1	1·2	1·8	2·3	2·6	0·8	0·7	1·5	1·7	1·8	1·4	0·5	44·9
Dec.	1·4	1·4	1·6	2·7	3·0	4·8	4·1	4·9	4·8	3·3	2·1	3·2	2·8	3·7	3·5	4·0	3·3	3·5	4·9	5·2	5·1	3·9	4·5	3·7	85·4
Annual	13·8	13·2	15·4	14·9	15·8	16·8	16·3	16·8	14·2	11·5	7·5	16·9	20·2	15·6	15·1	16·5	17·6	18·9	18·4	17·8	15·8	14·8	15·3	10·5	369·6

213 KEW OBSERVATORY NOTES ON RAINFALL 1938

Dry Periods

The following definitions are adopted by the British Rainfall Organization
An "absolute drought" is a period of at least 15 consecutive days to none of which is credited 0·2 mm. of rain or more
A "partial drought" is a period of at least 29 consecutive days, the mean daily rainfall of which does not exceed 0·2 mm.
A "dry spell" is a period of at least 15 consecutive days to none of which is credited 1·0 mm. of rain or more

"Absolute drought": February 29–March 23; April 3–22
"Partial drought": February 1–May 2
"Dry spell": March 1–23; April 3–May 2; June 2–26

Wet Periods

The following definitions are adopted by the British Rainfall Organization
A "rain spell" is a period of at least 15 consecutive days to each of which is credited 0·2 mm. of rain or more
A "wet spell" is a period of at least 15 consecutive days to each of which is credited 1·0 mm. of rain or more

No "rain spells" or "wet spells" occurred in 1938

Rainfall Duration

Hours	0·1-1·0	1·1-2·0	2·1-6·0	6·1-12·0	>12·0
Number of days	65	29	48	13	2

Continuous or Heavy Falls

The fall of the longest duration occurred on December 21 when 9 mm. fell in 9 hr. 20 min.

Heavy Falls in short periods

On August 11, 5 mm. fell in 7 min.

Rate of Rainfall (Jardi recorder)

The highest instantaneous rate of rainfall recorded by this instrument was 116 mm./hr. at 17h. 55m. on August 11

DURATION OF BRIGHT SUNSHINE AND TOTAL SOLAR RADIATION FOR EACH DAY

Solar radiation received on a surface perpendicular to the solar beam

214 KEW OBSERVATORY: h_s (height of recorder above ground) = 13·3 m. 1938

DAY	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	Total for day	Per cent of possible	Solar radiation	Total for day	Per cent of possible	Solar radiation	Total for day	Per cent of possible	Solar radiation	Total for day	Per cent of possible	Solar radiation	Total for day	Per cent of possible	Solar radiation	Total for day	Per cent of possible	Solar radiation
	hr.	%	J./cm.^{2}	hr.	%	J./cm.^{2}	hr.	%	J./cm.^{2}	hr.	%	J./cm.^{2}	hr.	%	J./cm.^{2}	hr.	%	J./cm.^{2}
1	0·1	1	10	5·5	61	800	6·9	64	980	6·8	53	1450	0·6	4	30	1·1	7	80
2	0·2	3	30	1·1	12	100	6·1	56	1030	5·1	39	490	0·2	1	30	2·6	16	230
3	···	···	···	1·3	14	190	9·1	83	2160	10·9	84	1970	···	···	···	8·9	55	1240
4	···	···	···	0·7	8	120	9·8	89	1970	6·3	48	1290	5·1	34	520	11·8	72	2780
5	···	···	10	4·8	52	690	7·0	63	1380	···	···	40	13·6	91	2630	10·2	62	1520
6	···	···	···	0·1	1	30	8·6	77	1470	7·0	53	810	9·7	65	1650	3·5	21	250
7	2·5	31	330	···	···	10	2·9	26	370	8·2	62	1520	3·3	22	310	3·4	21	80
8	0·6	7	90	0·1	1	20	5·9	52	820	9·1	68	1550	10·4	69	1440	2·7	16	260
9	2·1	26	250	3·3	35	480	8·6	76	1450	0·6	4	80	3·3	22	510	7·1	43	940
10	1·0	12	90	1·5	16	150	0·6	5	110	8·4	62	1220	4·3	28	780	11·0	67	1460
11	0·1	1	30	6·8	70	820	4·8	42	430	10·5	78	1970	12·1	79	2260	9·5	58	1700
12	···	···	10	5·3	54	580	2·1	18	110	8·7	64	1680	10·8	70	2020	2·2	13	280
13	···	···	10	3·6	37	190	2·2	19	360	11·0	81	1660	1·4	9	170	12·6	76	1650
14	···	···	···	3·6	37	130	10·5	90	2690	1·8	13	150	3·6	23	330	10·8	65	1670
15	0·2	2	10	···	···	···	3·1	26	420	2·1	15	130	8·2	53	800	8·0	48	860
16	···	···	···	···	···	···	3·6	31	640	7·9	57	920	1·3	8	100	13·2	80	2350
17	5·6	67	720	···	···	···	0·3	3	20	5·5	40	750	···	···	10	6·0	36	440
18	···	···	10	6·0	59	770	3·1	26	440	6·3	45	930	1·0	6	130	4·1	25	400
19	6·4	76	920	4·1	40	290	10·5	87	2600	2·4	17	340	3·7	24	390	8·4	51	1120
20	0·1	1	50	1·6	16	150	7·7	64	1430	2·8	20	220	9·6	61	1530	13·0	78	2670
21	···	···	···	···	···	···	6·4	53	860	0·6	4	80	14·1	89	2740	14·8	89	3200
22	···	···	20	···	···	···	5·0	41	390	0·7	5	50	10·4	66	1980	2·5	15	320
23	2·0	23	310	4·2	40	380	5·9	48	570	···	···	10	6·4	40	810	2·0	12	220
24	6·2	72	890	6·3	60	660	8·5	69	1270	0·5	3	50	5·9	37	760	7·0	42	950
25	2·4	28	290	1·8	17	340	···	···	···	0·8	6	60	0·4	3	30	7·9	48	720
26	3·1	35	410	1·8	17	340	7·9	63	1310	2·0	14	170	3·9	24	460	3·6	22	420
27	5·2	59	480	6·4	60	1360	1·9	15	160	2·0	14	170	1·3	8	210	1·1	7	100
28	···	···	···	···	···	30	2·0	16	280	5·2	36	580	0·8	5	50	3·3	20	290
29	5·5	62	620				5·1	40	580	8·1	55	1070	6·4	40	1030	7·4	45	990
30	1·3	14	130				7·8	61	790	8·7	59	560	8·2	51	1210	7·7	47	1080
31	···	···	···				9·1	71	2100				1·4	9	270			
Mean	1·44		180	2·50		310	5·58		940	5·00		730	5·21		810	6·91		1010

DAY	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Total for day	Per cent of possible	Solar radiation	Total for day	Per cent of possible	Solar radiation	Total for day	Per cent of possible	Solar radiation	Total for day	Per cent of possible	Solar radiation	Total for day	Per cent of possible	Solar radiation	Total for day	Per cent of possible	Solar radiation
	hr.	%	J./cm.^{2}	hr.	%	J./cm.^{2}	hr.	%	J./cm.^{2}	hr.	%	J./cm.^{2}	hr.	%	J./cm.^{2}	hr.	%	J./cm.^{2}
1	6·4	39	940	10·8	70	1520	4·2	31	540	3·4	29	310	4·9	51	670	4·6	56	590
2	6·7	41	970	6·6	43	720	10·2	76	2110	1·2	10	110	5·6	58	830	4·1	51	560
3	3·5	21	400	10·8	71	1850	8·6	64	1540	4·5	39	870	0·1	1	0	4·3	53	330
4	6·6	40	850	9·4	62	1000	4·1	31	370	6·6	58	710	0·1	1	20	0·6	7	50
5	6·7	41	920	3·6	24	430	3·1	23	360	0·3	3	70	7·3	78	1070	1·4	17	140
6	5·7	35	840	8·0	53	1260	0·4	3	30	7·2	64	1170	···	···	···	1·7	21	230
7	1·6	10	250	···	···	···	3·1	24	400	0·1	1	30	···	···	0	1·6	20	150
8	0·5	3	50	4·8	32	790	3·3	25	180	3·8	34	600	···	···	···	0·1	1	10
9	4·0	25	450	7·1	47	1260	3·3	25	320	0·1	1	0	···	···	···	3·5	44	420
10	1·4	9	230	···	···	···	3·0	23	460	2·1	19	240	4·3	47	180	0·1	1	40
11	4·5	28	610	9·3	63	1700	1·2	9	160	5·9	54	850	4·8	53	640	···	···	0
12	0·3	2	20	5·5	37	670	7·8	61	960	1·6	15	280	1·0	11	80	3·9	50	320
13	9·5	59	1660	6·5	44	760	8·3	65	1870	···	···	···	···	···	0	0 3	4	20
14	···	···	···	···	···	10	4·2	33	740	8·0	74	1180	2·0	22	160	···	···	10
15	0·1	1	···	7·7	53	920	10·4	82	2040	4·7	44	620	···	···	···	1·5	19	90
16	1·8	11	210	3·6	25	510	5·7	45	820	···	···	0	···	···	···	···	···	···
17	8·4	52	1270	5·2	36	690	5·1	41	580	7·5	71	1490	0·1	1	10	···	···	···
18	0·9	6	60	6·8	47	720	3·2	26	310	3·8	36	390	0·6	7	70	3·3	43	130
19	8·6	54	1040	1·3	9	110	1·3	10	180	6·6	63	900	3·9	45	550	···	···	···
20	7·1	45	1440	6·1	43	700	1·2	10	100	4·4	42	460	···	···	···	2·5	32	190
21	3·7	23	320	9·1	64	1870	···	···	···	8·7	84	1630	···	···	10	···	···	···
22	···	···	10	0·7	5	50	10·3	84	2050	7·0	68	750	6·2	73	840	···	···	···
23	2·6	16	230	11·1	79	1630	6·9	57	1170	4·5	44	370	3·1	37	330	···	···	···
24	5·2	33	460	5·8	41	790	1·3	11	50	1·9	19	180	3·7	44	490	···	···	···
25	6·0	38	590	2·6	19	410	2·5	21	220	1·7	17	160	0·8	10	100	···	···	···
26	5·5	35	660	2·1	15	170	···	···	0	4·6	46	690	5·2	62	620	···	···	···
27	8·9	57	1280	3·9	28	390	0·8	7	80	4·0	40	520	4·6	55	530	5·6	72	550
28	8·2	53	1110	0·1	1	40	0·7	6	80	3·7	37	340	···	···	0	2·2	28	220
29	3·7	24	380	···	···	···	3·5	30	360	2·7	27	280	0·6	7	100	···	···	0
30	13·6	88	2980	3·7	27	360	7·7	66	1440	···	···	0	3·0	37	370	3·4	43	430
31	4·9	32	770	5·8	43	730				0·3	3	30				5·1	65	730
Mean	4·73		680	5·10		710	4·18		650	3·58		490	2·06		260	1·61		170
							Annual mean			4·00		580						

DURATION OF BRIGHT SUNSHINE

Monthly and annual totals between exact hours Local Apparent Time

215 KEW OBSERVATORY: h_s(height of recorder above ground) = 13·3 m. 1938

	Hour L.A.T. 3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	Total	Per cent. of possible
	hours																			%
Jan.	-	-	-	-	···	4·2	8·3	7·0	5·7	6·7	6·5	4·5	1·7	···	-	-	-	-	44·6	17
Feb.	-	-	-	···	1·4	6·0	9·5	12·3	11·7	9·6	7·7	7·1	4·5	0·1	···	-	-	-	69·9	25
Mar.	-	-	···	2·9	10·0	13·4	16·9	17·7	19·5	19·7	20·8	22·6	16·5	10·8	2·2	···	-	-	173·0	47
Apr.	-	···	0·8	6·0	10·2	9·7	15·2	17·8	15·5	14·3	14·8	14·5	13·5	10·9	5·6	1·2	···	-	150·0	36
May	···	0·8	7·5	9·5	12·4	14·4	13·1	13·5	12·1	10·1	10·4	11·2	10·7	12·5	11·8	9·5	1·9	···	161·4	34
June	···	3·2	9·5	14·5	15·5	16·7	15·3	15·4	16·3	14·6	16·5	14·7	14·4	12·3	10·7	12·4	5·4	···	207·4	42
July	···	1·3	7·1	10·5	12·2	10·2	11·2	11·5	10·5	11·1	11·9	14·0	11·6	8·1	7·2	6·5	1·7	···	146·6	29
Aug.	-	···	0·5	3·9	6·4	10·2	13·0	16·7	16·0	15·5	14·1	14·8	15·9	14·3	11·2	5·5	···	-	158·0	35
Sept.	-	-	···	2·6	8·7	14·2	14·3	13·4	12·3	10·8	11·7	12·8	11·4	8·5	4·7	···	-	-	125·4	33
Oct.	-	-	-	0·3	5·4	10·5	11·8	15·3	16·2	14·3	12·8	11·9	9·1	3·2	0·1	-	-	-	110·9	33
Nov.	-	-	-	-	0·1	3·6	6·9	8·8	10·7	10·0	10·0	7·9	3·7	0·2	-	-	-	-	61·9	23
Dec.	-	-	-	-	···	1·3	8·8	10·1	11·8	10·9	4·5	1·9	0·5	···	-	-	-	-	49·8	20
Annual	···	5·3	25·4	50·2	82·3	114·4	144·3	159·5	158·3	147·6	141·7	137·9	113·5	80·9	53·5	35·1	9·0	···	1458·9	33

SOLAR RADIATION RECEIVED ON A SURFACE PERPENDICULAR TO THE SOLAR BEAM

Monthly and annual totals between exact hours Local Apparent Time

216 KEW OBSERVATORY: h_s = 13·3 m. 1938

	Hour L.A.T. 3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	Total
	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}	J./cm.^{2}
Jan.	-	-	-	-	···	390	1080	1040	790	910	780	460	260	···	-	-	-	-	5710
Feb.	-	-	-	···	180	780	1150	1640	1690	1110	820	640	490	120	···	-	-	-	8620
Mar.	-	-	10	470	1480	1920	2840	3410	3730	3790	3560	3480	2590	1510	390	10	-	-	29190
Apr.	-	···	210	920	1270	1310	2070	2610	2500	2500	2350	2160	1920	1280	670	190	···	-	21960
May	···	200	960	1450	1590	1960	1970	2410	2310	2020	1800	1950	1870	1810	1640	1050	190	···	25180
June	···	350	920	1800	2150	2590	2230	2460	2870	2520	2460	2170	2240	1770	1690	1460	550	···	30230
July	···	160	670	1460	1720	1570	1430	1970	1550	1580	2010	2180	1730	1170	970	630	220	···	21020
Aug.	-	···	200	500	670	1360	1630	2310	2080	2500	2080	2290	2430	2000	1310	680	30	-	22070
Sept.	-	-	10	640	1250	1800	2430	2230	2140	1950	1840	1830	1500	1190	620	70	-	-	19500
Oct.	-	-	-	40	810	1630	1970	2140	2110	1760	1790	1390	1030	510	60	-	-	-	15240
Nov.	-	-	-	-	30	310	790	1430	1420	1240	1190	750	500	40	-	-	-	-	7700
Dec.	-	-	-	-	···	90	810	1260	1360	1080	410	140	70	···	-	-	-	-	5220
Annual	···	710	2980	7280	11150	15710	20400	24910	24550	22960	21090	19440	16630	11400	7350	4090	990	···	211640

WIND

Mean speed and highest instantaneous speed recorded each day (0h. to 24h. Greenwich Mean Time) by the pressure-tube anemograph

217 KEW OBSERVATORY: H_a(height of anemograph above M.S.L.) = height of ground above M.S.L. + h_a(height of anemograph above ground) = 5 m. + 23 m. 1938

DAY	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust	Mean	Max. gust
	metres per second																							
1	5·4	15	8·5	25	4·9	13	3·7	10	7·9	19	5·6	28	1·5	10	4·1	11	1·2	8	2·9	10	5·9	16	6·6	23
2	4·3	15	4·3	15	3·7	13	6·9	18	6·5	16	9·3	28	2·1	11	4·8	12	2·3	11	4·8	15	5·0	16	3·8	12
3	3·6	13	4·1	14	3·2	10	6·4	20	5·0	12	5·3	17	3·9	13	6·2	13	1·8	8	7·5	28	4·2	14	3·4	11
4	4·0	15	4·2	14	2·1	6	2·7	10	8·2	18	4·7	15	4·4	16	5·6	13	2·7	11	10·0	28	5·8	16	3·4	16
5	2·3	13	3·8	13	1·7	13	3·2	12	7·7	17	4·9	15	3·6	15	2·0	13	1·9	8	6·0	18	4·7	13	5·6	17
6	3·6	12	1·3	6	1·5	6	3·0	12	4·4	15	5·9	18	3·8	16	1·6	9	2·3	9	4·7	15	3·9	12	3·9	11
7	5·1	17	3·5	11	0·8	3	3·4	13	4·8	16	5·5	18	5·5	18	1·1	6	2·2	11	5·8	21	3·8	12	5·1	15
8	2·8	8	1·8	5	2·1	10	4·3	12	1·9	10	3·7	11	7·8	23	1·5	10	5·3	16	5·7	18	3·4	11	4·5	15
9	5·7	19	4·5	15	4·3	13	4·6	12	2·4	10	3·9	13	5·5	17	1·9	10	6·3	17	7·2	21	2·6	9	5·6	19
10	3·6	11	7·1	21	3·2	9	3·7	10	1·7	6	4·4	15	5·6	16	0·6	5	4·5	14	3·5	11	2·3	7	5·3	15
11	2·7	10	5·1	17	1·8	7	2·3	10	3·5	13	2·9	11	5·9	17	1·0	11	1·8	7	4·0	15	3·4	11	4·7	13
12	5·0	16	8·8	26	2·9	8	3·2	13	4·5	17	2·5	9	2·8	9	1·5	13	2·5	14	4·8	16	6·4	20	4·2	14
13	6·3	20	7·8	22	2·6	8	2·8	11	5·5	16	4·0	14	2·7	12	2·7	11	2·0	8	7·3	19	7·2	19	3·4	13
14	6·6	23	7·3	19	3·7	14	5·2	15	4·0	14	2·5	13	4·7	13	1·7	7	4·1	13	4·2	14	3·5	14	3·3	17
15	11·1	29	9·0	22	4·1	14	4·9	13	5·5	18	3·7	13	2·8	9	2·0	11	2·9	13	2·2	9	1·3	7	2·7	13
16	7·7	19	7·4	18	6·4	17	3·8	15	4·9	14	2·1	9	2·9	12	5·7	17	2·9	14	3·0	13	3·5	9	3·6	13
17	5·0	16	6·3	17	4·6	11	6·4	16	2·7	13	1·9	9	3·4	11	5·3	16	5·1	17	4·4	15	2·2	9	5·5	17
18	4·2	14	7·0	20	6·1	17	4·2	15	4·1	13	2·8	14	2·9	8	5·6	17	4·4	14	5·3	19	4·3	18	10·2	22
19	5·2	16	6·8	15	5·5	19	3·1	14	4·2	13	4·8	16	2·4	10	7·0	19	3·6	11	4·2	15	4·2	21	9·6	20
20	5·1	16	5·3	13	5·0	17	2·6	10	5·1	17	3·3	12	3·0	9	5·1	15	4·9	16	1·0	6	5·5	18	6·6	15
21	4·4	14	3·5	10	5·5	17	2·1	7	4·8	14	3·3	13	2·6	9	2·0	12	2·0	8	3·0	11	1·7	9	3·5	11
22	2·0	9	2·5	8	2·8	8	3·7	13	3·7	11	3·3	12	2·6	7	2·6	10	3·6	13	2·4	8	2·8	11	2·2	13
23	4·6	14	4·4	15	1·2	5	3·7	12	3·6	17	3·5	13	1·2	6	2·6	10	3·1	13	1·6	6	8·7	33	3·3	11
24	6·2	16	3·1	10	4·3	13	2·9	10	4·5	17	4·8	13	2·9	13	1·9	10	2·0	8	0·8	5	2·6	9	6·1	17
25	6·8	20	3·4	12	4·7	15	3·5	13	2·2	7	6·3	19	3·2	10	1·3	9	1·7	9	0·7	2	5·7	23	3·4	12
26	4·3	16	6·4	23	5·1	17	3·8	13	3·6	15	4·6	13	3·8	14	1·9	7	1·0	6	3·2	12	5·2	27	2·9	10
27	4·1	15	8·1	21	5·0	14	4·0	12	2·8	11	8·0	23	5·7	19	1·5	7	2·2	10	4·1	15	4·2	19	3·6	13
28	6·5	21	7·5	19	3·4	10	5·8	16	3·1	11	9·3	26	5·3	14	1·2	9	3·0	10	3·6	16	2·7	16	2·5	12
29	8·7	28			4·4	12	5·4	18	6·2	21	7·5	20	5·0	17	3·8	15	2·7	8	1·1	4	1·5	4	2·4	13
30	6·0	21			5·0	14	7·5	19	7·1	20	5·1	17	5·1	16	1·8	9	3·8	14	2·3	10	6·3	21	4·1	13
31	7·0	23			4·3	11			5·8	19			2·8	9	1·3	7			2·8	12			3·1	9

WIND

Monthly and annual means of mean wind speed between exact hours Greenwich Mean Time

218 KEW OBSERVATORY: H_a = 5 m. + 23 m. 1938

	Hour G.M.T. 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean
	metres per second																								
Jan.	4·8	4·8	4·8	4·9	5·0	5·0	5·2	5·3	5·4	5·5	5·9	6·0	5·9	6·0	5·8	5·4	5·2	4·9	4·8	4·5	4·4	4·6	4·8	4·8	5·2
Feb.	4·8	4·9	5·0	4·8	4·7	4·6	4·7	4·7	5·0	5·4	6·0	6·6	6·8	6·7	6·5	6·2	5·9	5·7	5·7	5·4	5·4	5·3	5·0	4·8	5·5
Mar.	2·9	3·0	2·8	2·8	2·8	2·9	2·9	3·1	3·6	4·0	4·5	4·8	5·1	5·3	5·4	5·1	4·9	4·2	3·7	3·5	3·4	3·2	2·8	2·9	3·7
Apr.	2·8	2·5	2·5	2·6	2·7	2·8	3·1	3·6	4·4	4·9	5·3	5·2	5·5	5·6	5·7	5·6	5·6	5·2	4·6	4·1	4·0	3·7	3·2	3·1	4·1
May	3·5	3·4	3·4	3·3	3·2	3·2	3·6	4·4	5·0	5·3	5·6	5·6	5·7	5·8	6·0	5·6	5·7	5·6	5·4	5·0	4·0	4·0	3·7	3·7	4·6
June	3·5	3·4	3·3	3·3	3·5	3·6	4·1	4·4	4·8	5·1	5·6	5·7	5·9	5·9	6·2	6·1	6·1	5·5	5·4	5·0	4·2	3·8	3·6	3·6	4·6
July	2·8	2·6	2·6	2·7	2·8	2·9	3·1	3·7	4·0	4·3	4·4	4·6	4·8	4·7	5·1	4·9	5·0	4·9	4·5	4·2	3·3	3·1	2·9	2·8	3·8
Aug.	2·2	2·0	2·0	2·1	2·2	2·1	2·2	2·4	2·8	3·1	3·4	3·7	3·9	3·8	3·9	4·0	4·1	3·7	3·2	2·8	2·4	2·3	2·3	2·3	2·9
Sept.	2·0	2·0	2·1	2·0	2·2	1·9	2·0	2·6	3·2	3·6	3·9	4·1	4·1	4·4	4·5	4·5	4·2	3·6	2·9	2·7	2·6	2·4	2·2	2·2	3·0
Oct.	3·2	3·1	3·3	3·6	3·6	3·6	3·7	3·9	4·2	4·5	4·9	5·2	5·3	5·1	4·7	4·5	4·1	3·9	3·6	3·7	3·8	3·7	3·5	3·4	4·0
Nov.	4·0	3·8	4·0	3·8	3·7	3·7	3·6	3·6	4·0	4·2	4·4	4·9	4·9	4·9	4·7	4·3	4·0	4·0	4·3	4·1	4·2	4·2	4·2	4·1	4·1
Dec.	4·2	4·1	4·0	3·9	3·9	4·1	4·1	4·0	4·2	4·6	4·9	5·1	5·2	5·0	5·1	4·8	4·5	4·6	4·6	4·5	4·6	4·5	4·3	4·1	4·5
Annual	3·4	3·3	3·3	3·3	3·4	3·4	3·5	3·8	4·2	4·5	4·9	5·1	5·3	5·2	5·3	5·1	4·9	4·7	4·4	4·1	3·9	3·7	3·5	3·5	4·2

DISTRIBUTION OF WIND SPEED, EXTREME VELOCITIES AS RECORDED BY PRESSURE-TUBE ANEMOGRAPH

219 KEW OBSERVATORY: H_a = 5 m. + 23 m. 1938

	DISTRIBUTION OF WIND SPEED								EXTREME VELOCITIES				
	More than 17·1 m./sec.		10·8 to 17·1 m./sec.		5·5 to 10·7 m./sec.	1·6 to 5·4 m./sec.	Less than 1·6 m./sec.	No record	Highest hourly wind			Highest gust	
	Dates of occurrence	Duration	No. of days	Duration	Duration	Duration	Duration	Duration	Veer from N.	Speed	Hour ended	Speed	Date
		hr.		hr.	hr.	hr.	hr.	hr.	°	m./sec.	day h.	m./sec.	day h. m.
Jan.	-	0	5	23	284	392	45	0	210	15	15 9	29	15 14 45
Feb.	-	0	4	13	324	294	41	0	320	13	12 12	26	12 11 20
Mar.	-	0	0	0	147	463	134	0	210	11	19 15	19	19 13 45
Apr.	-	0	0	0	185	467	68	0	15	10	30 17	20	3 9 55
May	-	0	1	1	271	394	78	0	80	11	4 17	21	29 23 55
June	-	0	4	23	203	429	65	0	205	14	28 17	28	2 2 20
July	-	0	1	1	164	475	104	0	160	11	8 7	23	8 13 35
Aug.	-	0	0	0	107	374	263	0	205	11	19 11	19	19 8 55
Sept.	-	0	0	0	91	444	185	0	5	9	9 9	17	9 16 55
Oct.	-	0	3	16	187	391	150	0	210 230	12	3 21 4 7	28	3 22 40
Nov.	-	0	2	14	160	459	87	0	220	16	23 12	33	23 12 25
Dec.	-	0	2	18	203	430	93	0	75	14	18 13	23	1 6 5
Year	-	0	22	109	2326	5012	1313	0	220	16	Nov. 23 12	33	Nov. 23 12 25

TEMPERATURE IN THE GROUND AT DEPTHS OF 30 CM.(1ft.) AND 122 CM.(4ft.) AT 9h. GREENWICH MEAN TIME

220 KEW OBSERVATORY 1938

DAY	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.	30 cm.	122 cm.
	degrees Absolute																							
1	77·0	79·9	79·0	80·2	78·9	79·0	83·8	81·5	82·1	82·1	85·7	84·2	89·3	87·2	93·1	88·4	87·6	88·6	87·0	87·8	82·5	84·7	79·2	83·2
2	77·3	79·8	77·9	80·2	78·9	79·1	83·8	81·7	81·9	82·1	85·5	84·3	89·0	87·3	93·0	88·5	87·8	88·6	86·7	87·7	81·9	84·6	79·4	83·1
3	77·4	79·8	78·0	80·2	78·4	79·3	83·6	81·9	81·9	82·1	85·0	84·3	88·8	87·2	92·9	88·5	87·1	88·4	85·6	87·6	81·9	84·5	79·3	83·0
4	76·8	79·8	78·8	80·1	78·3	79·3	82·3	82·0	82·0	82·1	86·2	84·4	89·0	87·1	93·0	88·7	88·0	88·2	85·7	87·5	82·9	84·4	78·2	82·8
5	76·8	79·9	79·0	80·2	78·7	79·4	81·8	82·1	82·7	82·2	87·6	84·5	88·7	87·2	93·1	88·8	87·2	88·1	85·1	87·2	84·3	84·2	79·7	82·6
6	76·9	79·6	78·6	80·1	78·6	79·3	82·1	82·1	82·7	82·1	87·1	84·6	89·0	87·1	93·3	88·9	87·7	88·1	84·3	87·1	85·0	84·4	79·1	82·5
7	77·2	79·5	78·7	80·1	78·3	79·5	82·4	82·1	83·0	82·1	87·5	84·5	89·3	87·1	93·8	88·9	87·6	88·1	84·9	87·1	85·0	84·6	79·6	82·3
8	76·9	79·5	78·7	80·1	77·8	79·4	82·5	82·2	82·2	82·3	88·2	84·9	88·8	87·1	92·8	89·1	88·0	88·0	84·5	87·0	84·6	84·7	79·7	82·2
9	77·5	79·4	79·0	80·2	78·5	79·5	81·8	82·1	82·0	82·2	88·2	85·0	88·0	87·1	92·7	89·1	87·6	87·9	85·7	86·9	83·6	84·7	79·2	82·3
10	77·0	79·5	79·4	80·2	80·0	79·6	81·2	82·1	82·9	82·3	87·9	85·1	88·2	87·1	92·7	89·2	87·3	88·0	85·4	86·7	83·6	84·8	80·0	82·1
11	76·4	79·4	78·5	80·2	80·6	79·6	81·2	82·3	83·9	82·3	87·7	85·1	88·7	87·1	92·4	89·3	86·6	87·9	84·6	86·6	83·5	84·7	80·6	82·2
12	77·1	79·4	77·8	80·3	81·0	79·7	80·9	82·2	84·2	82·4	88·1	85·2	89·0	87·1	92·8	89·3	88·1	87·8	84·4	86·6	84·0	84·7	81·1	82·1
13	78·9	79·3	77·6	79·8	79·9	79·8	81·2	82·1	85·6	82·7	87·9	85·3	89·5	87·2	92·7	89·3	88·9	87·7	85·2	86·4	84·7	84·8	80·9	82·1
14	78·7	79·3	76·9	79·4	79·4	80·1	81·8	82·0	85·7	82·7	88·8	85·3	89·7	87·1	92·3	89·4	89·6	87·8	85·7	86·4	85·1	84·7	81·2	82·1
15	79·4	79·5	76·1	79·4	79·3	80·1	82·0	81·8	86·3	82·8	89·2	85·5	89·6	87·2	91·0	89·4	89·0	87·9	85·1	86·3	84·5	84·7	80·9	82·1
16	79·0	79·6	75·9	79·2	80·0	80·2	82·0	81·7	86·0	83·1	89·1	85·6	89·0	87·2	91·7	89·4	88·8	88·1	85·1	86·2	84·0	84·8	81·1	82·2
17	80·0	79·8	76·0	79·1	81·0	80·1	81·8	82·0	85·3	83·1	90·0	85·8	89·2	87·3	91·1	89·3	87·7	87·9	85·7	86·2	84·6	84·9	81·0	82·2
18	78·3	79·8	75·5	79·1	81·2	80·3	81·2	82·1	85·3	83·3	90·0	86·0	89·8	87·3	90·4	89·2	88·7	87·9	85·7	86·1	84·2	84·7	78·9	82·2
19	78·8	79·9	76·0	79·1	81·0	80·6	80·8	82·2	85·0	83·4	89·8	86·0	90·0	87·3	90·5	89·2	88·7	87·9	85·1	86·1	84·0	84·9	77·0	82·1
20	78·8	79·9	75·8	79·0	80·6	80·4	80·6	82·2	84·2	83·6	89·9	86·1	90·2	87·3	89·7	89·1	88·0	87·8	84·1	86·1	83·0	84·7	76·0	82·1
21	79·5	80·0	76·2	79·0	81·2	80·6	81·3	82·1	84·5	83·9	90·3	86·2	91·3	87·4	89·0	89·2	88·0	87·8	83·7	86·2	82·0	84·8	75·7	81·9
22	79·0	80·0	76·2	78·9	81·3	80·8	81·7	82·1	85·0	83·7	91·0	86·3	91·7	87·5	89·0	89·1	87·5	87·8	82·9	86·0	81·4	84·6	75·4	81·7
23	79·8	80·1	75·8	78·8	81·4	80·8	81·5	82·0	86·6	83·6	91·1	86·5	91·2	87·7	89·0	89·1	88·1	87·9	82·7	86·0	81·0	84·4	75·1	81·3
24	80·0	80·1	75·9	78·9	81·3	80·9	81·7	81·9	86·2	83·8	91·9	86·7	91·1	87·8	89·2	89·0	89·1	88·0	82·0	85·8	80·9	84·2	75·1	81·1
25	80·0	80·3	75·6	78·8	82·2	81·0	81·9	82·0	86·0	84·0	91·9	86·9	91·4	87·8	89·3	88·9	89·3	87·8	81·1	85·6	80·1	84·1	75·1	81·0
26	79·0	80·3	77·0	78·8	81·1	81·1	81·4	82·1	85·3	84·1	91·3	86·9	91·7	88·1	90·1	88·8	88·5	87·8	81·4	85·4	81·2	84·1	75·1	80·7
27	78·1	80·4	78·2	78·8	81·1	81·1	81·3	82·1	86·1	84·1	91·6	87·1	91·2	88·1	89·9	88·8	88·6	87·9	81·5	85·1	79·8	83·9	75·3	80·5
28	77·5	80·4	79·1	78·9	81·7	81·2	81·5	82·1	86·0	84·1	90·0	87·2	90·9	88·1	89·9	88·8	88·1	87·9	81·6	85·0	80·6	83·7	75·3	80·2
29	79·0	80·3			82·4	81·3	81·8	82·1	85·4	84·2	89·8	87·2	90·4	88·2	89·6	88·7	88·1	87·8	81·1	85·0	79·8	83·4	75·6	80·1
30	78·7	80·2			83·2	81·3	81·5	82·1	85·5	84·2	89·8	87·2	90·8	88·3	88·0	88·8	87·1	87·9	81·7	84·9	79·0	83·2	76·4	80·1
31	78·4	80·2			83·6	81·4			85·4	84·2			91·9	88·2	87·7	88·7			81·9	84·7			76·0	79·8
Mean	78·2	79·8	77·4	79·5	80·4	80·2	81·8	82·0	84·4	83·1	88·9	85·7	89·9	87·4	91·2	89·0	88·1	88·0	84·1	86·3	82·8	84·5	78·1	81·8
											Year		83·8	84·0										

MINIMUM TEMPERATURE "ON THE GRASS" DURING THE INTERVAL 18h. TO 7h. GREENWICH MEAN TIME

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DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
	degrees Absolute											
1	73·2	74·8	79·8	77·8	79·2	82·5	75·6	85·2	73·6	77·6	81·2	75·3
2	75·5	74·1	69·1	76·3	78·6	80·3	75·2	87·6	75·3	77·9	76·6	72·9
3	73·6	74·1	70·7	74·8	79·7	77·4	78·4	87·2	72·6	77·3	78·8	74·2
4	72·4	76·9	65·2	66·3	79·7	82·0	83·0	85·7	78·1	82·3	83·4	67·2
5	70·8	72·9	71·7	69·4	76·4	84·3	78·5	83·8	75·7	81·2	85·9	81·3
6	73·8	68·1	67·6	75·1	77·9	76·4	79·6	87·0	82·9	79·1	83·2	70·1
7	75·4	75·1	67·3	72·7	70·3	84·1	83·1	87·9	80·4	79·7	83·6	76·9
8	73·0	76·8	69·6	71·9	64·3	87·1	83·5	89·8	82·3	80·1	79·3	77·4
9	77·3	73·6	73·6	69·3	66·7	79·6	84·1	85·8	82·4	83·0	73·2	66·5
10	70·8	77·6	79·2	71·8	70·2	79·2	81·9	87·9	79·3	78·2	81·4	79·8
11	70·3	70·7	74·2	64·9	75·8	74·7	87·5	86·8	73·6	76·9	78·5	79·1
12	76·4	69·1	74·1	67·1	70·8	81·3	85·6	83·4	87·4	77·1	80·7	82·4
13	76·4	72·9	68·6	68·1	81·9	75·4	81·9	84·8	81·9	84·7	85·3	71·8
14	75·1	70·6	65·8	70·9	77·2	79·7	84·2	84·7	84·2	81·7	83·7	79·7
15	80·3	71·2	69·1	73·8	84·2	80·1	86·8	79·4	78·6	75·3	75·1	72·8
16	76·8	73·2	77·3	67·5	81·4	77·8	81·7	86·7	72·6	78·3	77·0	79·8
17	77·6	74·2	81·8	73·7	77·6	79·5	83·0	85·9	76·3	78·1	82·3	77·1
18	67·5	68·6	77·8	68·8	78·1	79·1	85·8	82·3	87·3	82·2	78·9	67·3
19	77·8	72·9	70·6	67·3	78·1	83·2	80·3	86·3	83·1	80·8	77·3	69·4
20	76·9	70·6	69·8	66·9	70·3	78·1	83·7	83·4	82·9	73·5	74·2	65·8
21	80·3	75·7	74·1	76·9	71·9	76·3	83·6	74·2	82·4	72·9	70·1	63·9
22	71·3	73·7	70·7	73·1	74·1	83·1	85·3	78·7	78·7	70·2	75·9	70·7
23	79·1	66·3	74·0	70·7	74·4	86·4	82·4	80·0	80·3	74·2	72·9	71·8
24	79·2	69·1	70·9	77·1	75·8	89·6	81·2	78·9	81·9	70·9	69·7	70·1
25	77·6	64·8	81·3	78·6	80·3	85·8	82·9	77·9	88·1	70·2	71·3	71·3
26	72·9	75·8	71·3	69·6	73·5	83·4	84·1	85·8	78·4	72·7	79·1	70·2
27	69·8	76·9	76·5	75·6	81·7	88·6	79·0	80·1	83·5	72·8	65·7	73·1
28	71·3	79·7	73·6	71·3	80·2	83·1	82·8	80·2	83·4	77·8	80·2	71·4
29	76·8		75·8	72·9	77·7	85·5	80·2	84·1	81·9	70·8	68·1	75·2
30	75·2		80·6	72·1	80·5	80·8	84·1	75·3	75·7	73·7	66·8	73·5
31	73·5		79·2		76·9		88·0	74·7		72·3		71·2
Mean	74·8	72·9	73·3	71·7	76·3	81·5	82·5	83·3	80·2	76·9	77·3	73·2
						Year	77·0					

The initial 2 or 3 of the readings is omitted, i.e. 275·0 degrees is printed 75·0.

The minimum "on the grass" refers to the interval from 18h. on the previous day to 7h. on the day to which it is entered.

Add 0·16° to obtain temperature in degrees Kelvin where T (°K.) = t (°C.) + 273·16.

ELECTRICAL OBSERVATIONS, UNDERGROUND LABORATORY, WILSON METHOD

Mean value for periods of 20 min. about 14h. 30m.

F = Potential gradient, unit 1 v/cm. $\lambda+$ = Conductivity due to positive ions, unit 10^{-13} ohms/cm.
i = Air-earth current, unit 10^{-18} amp./cm.^{2}

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Day	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	F	$\lambda+$	i	F	$\lambda+$	i	F	$\lambda+$	i	F	$\lambda+$	i	F	$\lambda+$	i	F	$\lambda+$	i
1	...	...	...	...	...	...	2·60	38	99	2·31	65	150	...	...	...	...	...	...
2	...	...	...	...	...	...	2·68	34	90	...	...	...	4·24	39	164	...	...	...
3	...	...	...	...	...	...	4·62	31	144	...	...	...	...	...	...	...	...	...
4	...	...	...	3·16	22	71	4·33	31	132	2·18	57	124	4·75	27	127	...	...	...
5	...	...	...	...	...	...	...	...	...	...	...	...	4·75	30	144	...	...	...
6	5·33	16	83	...	...	...	...	...	...	2·37	52	119	3·19	37	119	...	...	...
7	4·03	23	94	4·22	12	50	...	...	...	2·36	56	134	1·39	50	70	...	...	...
8	...	...	...	3·63	22	81	...	...	...	...	...	...	...	...	...	...	...	...
9	...	...	...	...	...	...	2·34	41	96	...	...	...	1·42	54	77	1·20	70	83
10	...	...	...	...	...	...	2·72	38	105	...	...	...	...	...	...	1·33	71	94
11	...	...	...	2·01	26	52	4·24	28	117	1·90	61	115	1·34	67	90	...	...	...
12	4·77	21	98	...	...	...	...	...	...	2·61	53	139	1·99	60	119	...	...	...
13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	4·33	24	104	4·47	33	147	3·34	44	148	1·42	85	121	...	...	...	1·21	71	85
15	...	...	...	...	...	...	3·66	56	205	...	...	...	...	...	...	1·49	92	138
16	...	...	...	...	...	...	2·38	54	128	...	...	...	...	...	...	2·13	54	116
17	4·60	19	87	...	...	...	3·90	36	141	...	...	...	...	...	...	...	...	...
18	3·86	26	100	...	...	...	2·46	51	126	...	...	...	2·60	47	123	...	...	...
19	4·23	23	99	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	3·95	26	102	...	...	...	...	...	...	1·41	48	67	...	...	...	1·05	69	73
21	...	...	...	6·74	11	77	...	...	...	...	...	...	...	...	...	1·65	72	119
22	...	...	...	...	...	...	3·20	34	109	...	...	...	...	...	...	...	...	...
23	...	...	...	6·09	23	142	3·93	31	123	...	...	...	1·27	144	184	...	...	...
24	...	...	...	5·08	21	105	...	...	...	...	...	...	...	...	...	...	...	...
25	...	...	...	4·60	32	150	...	...	...	...	...	...	...	...	...	...	...	...
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	3·74	14	53	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
28	...	...	...	...	...	...	1·67	65	109	2·03	80	163	...	...	...	1·81	82	148
29	...	...	...				2·05	57	115	1·77	75	133	...	...	...	...	...	...
30	...	...	...				2·19	54	119	...	...	...	...	...	...	...	...	...
31	...	...	...				1·92	63	120				...	...	...			
Mean	4·32	21	91	4·44	22	97	3·01	44	124	2·04	63	127	2·69	56	122	1·48	73	107
No. of days used	9	9	9	9	9	9	18	18	18	10	10	10	10	10	10	8	8	8

Day	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	F	$\lambda+$	i	F	$\lambda+$	i	F	$\lambda+$	i	F	$\lambda+$	i	F	$\lambda+$	i	F	$\lambda+$	i
1	...	...	...	...	...	...	...	...	...	...	...	...	3·08	37	113	...	...	...
2	...	...	...	...	...	...	1·64	56	92	...	...	...	...	...	...	5·55	16	90
3	...	...	...	...	...	...	...	...	...	...	...	...	4·34	22	96	...	...	...
4	...	...	...	3·73	48	180	...	...	...	...	...	...	3·94	24	93	...	...	...
5	...	...	...	2·90	35	102	2·21	54	119	...	...	...	...	...	...	3·68	12	45
6	...	...	...	...	...	...	...	...	...	1·73	61	106	...	...	...	4·91	13	67
7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	...	...	...	...	...	...	...	...	...	...	...	...	5·22	21	109	...	...	...
9	...	...	...	1·57	121	191	...	...	...	...	...	...	2·84	30	85	3·48	20	68
10	...	...	...	...	...	...	...	...	...	2·17	41	88	3·43	24	146	...	...	...
11	...	...	...	1·44	67	103	...	...	...	2·61	51	134	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...	2·05	26	53	...	...	...	5·23	20	105
13	1·32	75	99	...	...	...	1·98	61	120	...	...	...	...	...	...	4·55	17	78
14	...	...	...	...	...	...	1·52	62	94	...	...	...	4·53	22	99	5·54	7	36
15	...	...	...	1·45	66	96	1·37	40	55	...	...	...	...	...	...	...	...	...
16	...	...	...	...	...	...	1·76	66	115	...	...	...	...	...	...	...	...	...
17	...	...	...	1·65	73	121	...	...	...	2·64	45	119	4·27	16	66	...	...	...
18	...	...	...	1·20	85	102	...	...	...	3·04	48	145	2·47	33	82	...	...	...
19	1·42	-	-	...	...	...	2·60	31	81	2·70	46	124	...	...	...	...	...	...
20	...	...	...	...	...	...	2·71	38	103	3·32	27	90	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	2·34	59	136	...	...	...	3·33	19	64	...	...	...
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	...	...	...	...	...	...	...	...	...	...	...	...	4·37	19	82	...	...	...
25	1·53	82	125	...	...	...	...	...	...	...	...	...	3·39	25	86	...	...	...
26	1·23	104	128	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	1·52	87	133	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
28	1·77	60	106	...	...	...	...	...	...	5·07	18	90	...	...	...	...	...	...
29	1·94	63	119	...	...	...	...	...	...	...	...	...	8·85	-	-	4·21	14	59
30	...	...	...	...	...	...	...	...	...	...	...	...	3·09	25	76	...	...	...
31	...	...	...	...	...	...				4·33	26	112				...	...	...
Mean	1·53	79	118	1·99	71	128	2·01	52	102	2·97	39	106	3·80	24	92	4·64	15	69
No. of days used	7	6	6	7	7	7	9	9	9	10	10	10	14	13	13	8	8	8

Year:				
Mean	3·02	44	108
No. of days used	119	117	117

Day	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient
		hr.		hr.		hr.		hr.		hr.		hr.
1	2	7·1	1	0·4	1	0·7	0	···	2	14·1	1	1·4
2	2	18·9	1	0·2	0	···	0	···	2	8·9	1	0·6
3	1	2·8	0	···	0	···	1	1·5	2	3·3	1	0·1
4	2	8·2	0	···	0	···	0	···	0	···	1	1·6
5	1	0·1	0	···	0	···	0	···	0	···	1	0·1
6	1	0·2	1	0·8	1	1·3	1	0·3	0	···	0	···
7	0	···	1	0·8	1	0·4	0	···	0	···	0	···
8	1	0·1	1	0·4	1	0·9	2	3·3	0	···	0	···
9	1	2·6	1	1·0	1	0·7	0	···	0	···	1	1·7
10	2	5·8	1	1·9	1	0·6	0	···	0	···	1	1·0
11	1	0·1	0	···	0	···	1	0·3	0	···	0	···
12	1	0·7	2	5·3	1	0·5	1	0·6	0	···	0	···
13	2	(6·2)	2	12·3	0	···	1	1·0	0	···	0	···
14	1	2·7	1	2·8	0	···	2	3·3	1	2·0	0	···
15	2	3·5	1	0·9	0	···	1	0·8	1	0·4	0	···
16	2	3·3	0	···	1	0·1	1	0·1	0	···	1	0·2
17	1	1·1	1	1·2	1	0·1	1	0·2	1	2·5	0	···
18	1	0·9	2	4·2	0	···	0	···	2	4·7	0	···
19	1	0·4	1	0·7	0	···	1	0·1	1	2·6	0	···
20	0	···	1	0·6	0	···	0	···	0	···	0	···
21	1	0·8	0	···	0	···	0	···	0	···	0	···
22	0	···	0	···	0	···	2	4·4	1	0·4	0	···
23	0	···	0	···	0	···	2	5·8	1	0·3	0	···
24	0	···	1	0·3	0	···	2	3·5	1	1·1	0	···
25	1	1·3	0	···	2	4·3	2	6·5	2	3·6	1	0·2
26	1	1·8	1	1·9	1	2·3	1	0·3	0	···	0	···
27	0	···	1	0·6	1	1·4	1	2·6	1	0·9	1	2·8
28	1	1·4	0	···	0	···	2	9·0	2	5·2	1	1·6
29	1	1·6			0	···	1	0·9	1	2·2	0	···
30	2	3·5			0	···	2	8·3	1	2·7	1	1·9
31	1	1·2			0	···			1	0·2		
Total	-	76·3	-	36·3	-	13·3	-	52·8	-	55·1	-	13·2
No. of days used	-	31	-	28	-	31	-	30	-	31	-	30
Mean	-	2·5	-	1·3	-	0·4	-	1·8	-	1·8	-	0·4

Day	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient
		hr.		hr.		hr.		hr.		hr.		hr.
1	1	1·4	0	···	1	0·4	1	0·8	0	···	1	1·0
2	2	3·0	0	···	0	···	2	3·1	0	···	1	0·8
3	0	···	0	···	1	0·6	2	4·6	0	···	0	···
4	1	1·0	1	2·5	0	···	1	1·5	0	···	0	···
5	1	2·4	1	0·2	0	···	2	5·9	0	···	1	0·5
6	1	0·9	1	0·1	1	0·5	1	0·2	0	···	0	···
7	2	3·9	2	3·0	1	1·2	1	0·5	1	0·1	0	···
8	2	3·0	1	1·5	2	4·4	1	1·2	0	···	1	2·4
9	1	0·7	1	0·5	1	2·4	1	1·9	0	···	2	4·4
10	0	···	2	6·0	0	···	0	···	0	···	2	4·0
11	0	···	1	2·1	0	···	0	···	1	1·2	1	1·3
12	0	···	2	4·1	0	···	0	···	1	0·7	1	1·2
13	0	···	0	···	0	···	1	0·8	0	···	0	···
14	0	···	1	0·7	2	4·0	0	···	0	···	1	1·3
15	1	2·0	0	···	1	0·5	0	···	1	0·1	0	···
16	1	0·5	0	···	0	···	1	1·1	1	(2·8)	2	17·3
17	0	···	0	···	0	···	0	···	1	(0·5)	1	0·6
18	1	0·4	0	···	1	1·1	1	1·0	1	0·4	0	···
19	0	···	1	0·1	1	0·7	0	···	1	2·8	2	4·4
20	0	···	1	0·4	1	0·6	0	···	2	10·9	1	0·2
21	1	0·8	1	1·8	0	···	0	···	2	3·0	1	1·6
22	0	···	0	···	0	···	0	···	1	2·1	2	8·7
23	0	···	0	···	0	···	0	···	1	2·4	1	1·1
24	0	···	0	···	1	2·3	1	0·5	1	0·1	1	1·3
25	1	0·1	1	0·1	1	1·7	1	0·2	2	5·0	0	···
26	0	···	1	1·3	0	···	2	5·3	1	2·7	1	0·5
27	1	1·7	1	0·1	2	6·7	2	4·4	1	0·7	0	···
28	0	···	1	1·4	1	0·2	1	2·8	1	(1·8)	1	1·2
29	0	···	2	8·9	0	···	0	···	0	···	2	4·7
30	0	···	0	···	1	0·9	1	1·2	1	2·3	0	···
31	0	···	0	···			0	···			1	0·2
Total	-	21·8	-	34·8	-	28·2	-	37·0	-	39·6	-	58·7
No. of days used	-	31	-	31	-	30	-	31	-	30	-	31
Mean	-	0·7	-	1·1	-	0·9	-	1·2	-	1·3	-	1·9

Annual values: Character 0 1 2
No. of days used 156 159 50

Duration: Total 467·1 hr.
No. of days 365
Mean 1·28 hr.

POTENTIAL GRADIENT (reduced to level surface, Paddock site)

Kelvin electrograph standardized by Wilson readings, underground laboratory

Mean values for periods of sixty minutes, between exact hours, Greenwich Mean Time

DAY	JANUARY, Factor 2·76				FEBRUARY, Factor 2·76				MARCH, Factor 2·74			
	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.
	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.
1	-120	-75	15	135	160	355	220	430	105	380	295	470
2	-60	-45	-220	-340	205	485	295	710	320	615	265	335
3	-145	680	500	725	205	485	400	445	395	585	470	720
4	385	530	-340	-220	295	445	295	590	440	645	485	220
5	515	725	530	370	295	470	355	470	-	-	280	735
6	120	445	530	680	325	415	445	75	485	525	365	455
7	105	500	415	455	-15	325	415	220	175	350	470	485
8	355	650	545	310	105	295	355	470	615	910	365	15
9	135	205	400	795	265	445	120	45	115	410	235	220
10	160	355	-455	175	105	160	135	220	295	280	235	410
11	725	870	780	735	220	355	220	455	295	440	350	425
12	0	205	-	-	60	-75	Z±	120	-30	675	675	735
13	-	-	-	650	-145	30	780	-385	310	410	335	540
14	415	620	455	75	90	-30	445	590	365	500	320	690
15	60	220	220	385	60	205	470	400	350	630	395	645
16	280	75	105	175	120	400	340	470	235	310	235	160
17	75	560	430	795	265	355	250	445	190	425	350	585
18	620	590	415	145	90	470	635	560	310	410	235	615
19	160	560	370	605	385	340	470	575	295	395	235	790
20	220	220	400	445	415	470	415	160	295	295	115	525
21	145	295	45	545	135	515	665	530	205	175	175	515
22	780	530	295	485	340	385	855	750	280	555	-	-
23	310	515	430	295	620	765	605	560	-	-	350	310
24	145	340	400	470	120	680	470	605	470	455	160	320
25	145	205	205	500	-	-	485	355	60	160	175	410
26	385	530	415	680	190	295	220	190	145	350	205	335
27	310	650	355	695	135	250	265	135	15	145	145	265
28	370	235	250	265	145	235	445	265	190	295	160	175
29	Z±	310	250	500					250	235	205	295
30	-90	355	385	680					75	280	205	220
31	135	430	250	90					105	265	190	295
(a)	282	443	361	459	214	385	410	401	264	417	289	431
(b)	237	420	290	398	197	369	407	384	253	413	287	424
Mean	(a) 386		(b) 336		(a) 353		(b) 339		(a) 350		(b) 344	

DAY	APRIL, Factor 2·71				MAY, Factor 2·83				JUNE, Factor 2·74			
	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.
	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.
1	145	230	230	230	-195	-225	-60	165	145	350	Z±	175
2	175	215	145	365	-75	90	455	105	30	220	205	280
3	0	205	115	215	150	Z-	90	395	190	265	160	235
4	215	405	205	465	180	560	455	440	130	265	175	0
5	290	335	215	215	225	665	455	515	60	175	115	310
6	205	230	230	175	180	350	-	-	145	115	115	250
7	190	350	230	230	-	-	135	470	160	130	175	235
8	60	450	205	465	-	260	75	135	115	235	250	265
9	215	245	215	655	90	225	120	240	160	320	145	-235
10	290	350	215	405	120	275	150	120	250	-320	Z±	280
11	60	375	205	565	135	210	135	225	205	280	130	160
12	290	435	290	505	105	240	195	195	130	235	130	295
13	100	550	175	245	165	275	180	335	190	235	175	295
14	75	15	130	115	180	260	150	60	310	310	115	175
15	160	160	260	450	15	180	195	365	220	280	145	115
16	205	625	390	350	225	195	165	455	60	220	205	145
17	230	305	230	320	260	240	-30	120	90	295	105	160
18	145	290	175	290	120	240	240	-680	90	145	105	235
19	160	375	175	175	-15	305	150	90	175	115	90	235
20	175	405	130	320	195	150	120	575	210	210	115	105
21	45	365	160	350	240	120	210	320	175	295	175	235
22	-15	-230	85	245	240	60	150	305	265	160	115	265
23	230	15	-100	100	305	350	120	380	205	205	145	235
24	100	100	130	450	275	-75	Z±	180	90	190	175	235
25	115	145	115	-160	225	150	-380	365	295	130	45	205
26	130	680	375	420	485	395	225	545	145	160	115	115
27	145	175	350	595	210	335	180	350	60	-	90	205
28	30	-305	145	-115	240	150	150	470	130	205	175	130
29	175	115	145	215	180	275	90	150	115	190	75	205
30	245	365	160	-320	150	275	Z±	410	130	205	175	130
31					335	335	135	290				
(a)	159	304	201	338	201	265	189	302	156	219	141	204
(b)	153	266	191	285	168	242	158	260	156	215	143	186
Mean	(a) 251		(b) 224		(a) 239		(b) 207		(a) 180		(b) 175	

The potential gradient is reckoned as positive if the potential increases upwards. For indeterminate potential gradient the notation Z is used.

(a) Mean from all positive readings. (b) Mean from all complete days using both positive and negative readings.

POTENTIAL GRADIENT (reduced to level surface, Paddock site)

Kelvin electrograph standardized by Wilson readings, underground laboratory

Mean values for periods of sixty minutes, between exact hours, Greenwich Mean Time

224 KEW OBSERVATORY 1938

DAY	JULY, Factor 2·81				AUGUST, Factor 2·71				SEPTEMBER, Factor 2·57			
	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.
	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.
1	330	420	Z±	105	115	290	130	350	195	425	150	135
2	240	255	120	120	145	205	205	365	165	415	165	305
3	150	150	75	210	175	305	335	450	165	415	165	495
4	120	225	-225	180	230	435	420	90	275	290	135	195
5	240	-135	105	270	230	60	290	175	180	220	220	480
6	210	240	60	360	175	230	115	175	165	220	220	260
7	180	285	Z±	195	145	145	-375	130	150	455	195	150
8	165	-60	90	135	115	130	205	365	125	235	-70	85
9	135	255	105	195	275	-230	160	275	55	40	40	415
10	180	240	105	270	45	130	-160	305	245	180	195	440
11	135	270	135	180	535	480	145	495	135	70	135	275
12	60	165	180	345	260	350	230	Z±	85	235	195	345
13	240	315	120	240	115	290	145	160	135	345	180	235
14	90	195	95	345	100	45	85	275	220	330	165	-165
15	105	195	270	180	390	375	145	230	150	315	150	165
16	120	270	60	195	205	175	175	245	135	385	165	315
17	105	210	150	270	145	230	-	-	125	245	165	245
18	95	150	60	195	-	-	-	480	55	205	220	370
19	95	255	165	270	390	375	115	320	165	305	235	465
20	120	210	225	105	160	245	60	305	480	195	290	370
21	75	135	165	270	215	350	100	230	135	455	220	415
22	150	285	210	345	205	290	115	520	195	370	220	345
23	120	390	255	90	175	480	215	375	195	290	180	290
24	105	120	60	240	205	390	290	275	165	330	235	150
25	240	465	180	135	100	420	205	145	30	195	195	440
26	195	330	135	255	Z+	175	115	160	355	315	245	400
27	315	270	150	-45	100	275	115	160	425	260	150	Z±
28	270	300	165	330	175	115	160	230	85	315	205	620
29	180	330	165	315	-30	-85	45	260	220	315	220	525
30	195	315	180	345	215	375	190	245	245	305	220	565
31	135	270	240	255	205	465	145	290				
(a)	164	259	144	231	198	280	172	279	182	289	189	339
(b)	158	228	131	228	189	250	140	276	173	290	181	322
Mean	(a) 199		(b) 186		(a) 232		(b) 214		(a) 250		(b) 241	

DAY	OCTOBER, Factor 2·57				NOVEMBER, Factor 2·66				DECEMBER, Factor 2·66			
	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.	2-3 h.	8-9 h.	14-15 h.	20-21 h.
	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.	v./m.
1	285	-125	185	370	160	240	260	875	260	445	Z+	155
2	240	115	210	395	355	395	220	575	315	600	285	535
3	140	310	200	-210	240	395	475	515	315	365	420	665
4	100	100	185	225	80	395	355	200	690	745	390	115
5	125	-15	240	210	120	260	335	300	105	15	390	850
6	140	325	225	495	200	260	300	320	285	575	455	430
7	140	140	285	425	80	320	455	635	145	210	455	445
8	155	310	225	210	280	395	595	655	-25	80	365	470
9	55	115	255	425	415	555	-	630	600	625	340	-50
10	255	480	225	325	425	405	335	270	-90	285	445	350
11	170	240	200	255	270	315	270	425	390	185	745	495
12	200	285	195	245	270	225	155	180	90	235	520	625
13	75	100	175	195	135	180	180	90	615	350	455	300
14	195	295	195	495	90	450	425	405	130	250	560	680
15	370	520	220	220	605	270	225	270	1320	-	615	575
16	50	50	220	270	425	90	-	-	105	Z-	Z-	-510
17	395	420	270	470	-	-	405	450	40	220	550	720
18	445	745	320	-	290	450	145	145	350	405	365	420
19	125	220	270	470	-190	350	415	590	210	210	285	390
20	Z-	270	295	590	190	270	Z-	765	155	600	510	470
21	75	345	345	540	215	900	0	775	185	220	65	350
22	345	540	320	540	145	375	400	1285	155	550	-25	-220
23	345	665	565	495	-40	135	105	440	220	455	810	390
24	100	1430	470	270	320	430	470	605	220	65	105	520
25	1625	1330	590	690	510	415	390	Z-	405	405	445	625
26	175	220	395	-150	Z-	565	430	630	185	445	285	705
27	220	565	75	-75	255	645	480	105	520	420	405	455
28	-75	320	445	665	55	685	-	-	-	-	820	285
29	395	615	395	690	-	-	830	575	520	770	470	-25
30	445	520	270	395	190	135	375	480	260	445	390	550
31	565	690	395	715					315	445	455	795
(a)	274	423	286	418	253	375	347	489	325	379	443	495
(b)	256	384	284	354	204	360	317	461	271	377	405	446
Mean	(a) 350		(b) 319		(a) 366		(b) 335		(a) 411		(b) 375	
Annual means (a)									221	336	264	363
Annual means (b)									201	317	242	333
									(a) 296		(b) 273	

The factor used for converting the potential at the collector to potential gradient in volts per metre in the open is given for each month.

POTENTIAL GRADIENT (reduced to level surface): DIURNAL INEQUALITIES

The departures from the mean of the day are adjusted for non-cyclic change†

225 KEW OBSERVATORY — Selected quiet days — 1938

	Hour G.M.T. 0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	Non-cyclic change†	Mean
	volts per metre																								v./m.	v./m.
Jan.	-60	-85	-98	-102	-86	-79	-39	+30	+51	+68	+68	+7	-37	-33	-30	+19	+26	+56	+54	+87	+89	+66	+32	-7	...	423
Feb.	-51	-80	-133	-142	-143	-140	-85	-29	+41	+63	+50	+32	-8	+20	+44	+66	+73	+68	+93	+128	+81	+41	+31	-23	...	409
Mar.	-24	-49	-76	-85	-77	-63	-28	+22	+53	+44	+32	+20	-15	-64	-72	-67	-49	-2	+62	+101	+128	+112	+73	+25	-33	306
Apr.	-8	-38	-68	-33	-46	-31	-4	+66	+65	+36	0	-24	-47	-51	-59	-50	-39	-32	+12	+63	+103	+115	+57	+11	-10	253
May	-42	-66	-52	-51	-34	-13	+53	+92	+63	+17	-12	-33	-58	-42	-25	-32	-16	+4	-3	+39	+81	+94	+39	-2	+10	255
June	-8	+1	-3	-6	-9	+17	+41	+42	+58	+38	+15	-22	-32	-33	-44	-45	-46	-32	-27	-8	+27	+48	+35	-8	+10	184
July	+7	-19	-37	-45	-33	-5	+22	+61	+50	+38	+8	-12	-38	-60	-64	-64	-57	-44	-17	+7	+73	+122	+88	+24	+40	206
Aug.	-19	-34	-46	-54	-55	-36	+7	+56	+93	+98	+53	-19	-39	-55	-61	-61	-59	-68	-6	+51	+72	+86	+74	+26	-10	239
Sept.	-24	-53	-75	-83	-83	-56	-10	+85	+92	+31	0	-18	-37	-50	-51	-37	-13	+18	+71	+89	+101	+61	+40	-1	+22	241
Oct.	-47	-45	-72	-61	-81	-61	-4	+52	+98	+62	+46	+12	-36	-82	-72	-25	-20	-5	+50	+77	+96	+71	+45	0	-83	380
Nov.	-28	-78	-117	-158	-147	-145	-123	-51	+19	+19	-9	-8	+13	+7	+34	+68	+93	+131	+143	+114	+118	+91	+8	+9	+115	338
Dec.	-20	-38	-22	-22	-81	-125	-98	-49	+20	+63	+54	+38	+13	-13	-23	-37	+16	+57	+30	+47	+70	+66	+41	+13	...	429
Year	-27	-49	-67	-70	-73	-61	-22	+31	+59	+48	+25	-2	-27	-38	-35	-22	-8	+13	+39	+66	+87	+81	+47	+6	...	305
Winter	-40	-70	-93	-106	-114	-122	-86	-25	+33	+53	+41	+17	-5	-5	+6	+29	+52	+78	+80	+94	+89	+66	+28	-2	...	400
Equinox	-26	-46	-73	-65	-72	-53	-4	+56	+77	+43	+19	-3	-34	-62	-63	-45	-30	-5	+49	+83	+107	+90	+54	+9	...	295
Summer	-15	-29	-37	-39	-33	-9	+31	+63	+66	+48	+16	-21	-42	-47	-49	-51	-45	-35	-13	+22	+63	+87	+59	+10	...	221

Winter: January, February, November, December
Equinox: March, April, September, October
Summer: May to August

† See p. 10.

AIR POLLUTION: HOURLY MEANS FOR EACH MONTH

226 KEW OBSERVATORY — Complete days only — 1938

	Hour G.M.T. 0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	Mean	No. of days used
	milligrams per cubic metre																								mg./m.^{3}	
Jan.	0·05	0·03	0·03	0·05	0·03	0·03	0·04	0·05	0·09	0·14	0·13	0·14	0·12	0·10	0·09	0·12	0·12	0·12	0·15	0·17	0·16	0·14	0·12	0·08	0·10	31
Feb.	0·09	0·08	0·04	0·04	0·04	0·04	0·05	0·09	0·15	0·19	0·17	0·16	0·14	0·10	0·10	0·11	0·13	0·16	0·19	0·21	0·20	0·17	0·14	0·11	0·12	27
Mar.	0·15	0·15	0·13	0·12	0·11	0·10	0·10	0·13	0·18	0·16	0·15	0·15	0·11	0·08	0·08	0·08	0·10	0·18	0·22	0·29	0·33	0·30	0·24	0·19	0·16	31
Apr.	0·09	0·08	0·07	0·06	0·07	0·08	0·10	0·13	0·15	0·10	0·07	0·06	0·05	0·04	0·04	0·05	0·04	0·09	0·11	0·15	0·16	0·15	0·13	0·10	0·09	30
May	0·03	0·03	0·03	0·02	0·03	0·04	0·04	0·05	0·05	0·03	0·03	0·04	0·03	0·03	0·03	0·03	0·02	0·04	0·07	0·09	0·10	0·08	0·05	0·04	0·04	31
June	0·01	0·01	0·01	0·01	0·02	0·02	0·02	0·02	0·01	0·01	0·01	0·01	0·00	0·00	0·00	0·01	0·01	0·01	0·00	0·00	0·01	0·02	0·01	0·01	0·01	30
July	0·02	0·02	0·02	0·02	0·02	0·02	0·03	0·03	0·02	0·02	0·02	0·01	0·02	0·01	0·01	0·01	0·01	0·01	0·00	0·01	0·01	0·02	0·02	0·03	0·02	31
Aug.	0·05	0·05	0·04	0·04	0·04	0·05	0·07	0·08	0·09	0·08	0·06	0·02	0·02	0·03	0·02	0·02	0·02	0·02	0·02	0·05	0·06	0·05	0·05	0·04	0·04	30
Sept.	0·06	0·06	0·05	0·04	0·04	0·05	0·09	0·10	0·09	0·06	0·04	0·03	0·03	0·02	0·01	0·01	0·02	0·04	0·07	0·10	0·09	0·08	0·08	0·07	0·06	28
Oct.	0·16	0·13	0·12	0·10	0·09	0·09	0·07	0·10	0·13	0·13	0·13	0·14	0·12	0·10	0·11	0·15	0·21	0·23	0·26	0·27	0·27	0·26	0·23	0·19	0·16	31
Nov.	0·07	0·05	0·04	0·03	0·03	0·03	0·03	0·05	0·13	0·17	0·13	0·11	0·11	0·11	0·11	0·15	0·20	0·24	0·28	0·28	0·25	0·20	0·14	0·11	0·13	29
Dec.	0·14	0·13	0·11	0·09	0·08	0·10	0·09	0·12	0·19	0·24	0·24	0·22	0·20	0·18	0·20	0·21	0·20	0·23	0·25	0·28	0·26	0·24	0·21	0·18	0·18	30
Year	0·08	0·07	0·06	0·05	0·05	0·05	0·06	0·08	0·11	0·11	0·10	0·09	0·08	0·07	0·07	0·08	0·09	0·11	0·13	0·15	0·16	0·14	0·12	0·10	0·09	359
Winter	0·09	0·07	0·05	0·05	0·05	0·05	0·05	0·08	0·14	0·18	0·17	0·16	0·14	0·12	0·13	0·14	0·16	0·19	0·21	0·23	0·22	0·19	0·15	0·12	0·13	117
Spring	0·12	0·12	0·10	0·09	0·09	0·09	0·10	0·13	0·16	0·13	0·11	0·10	0·08	0·06	0·06	0·06	0·07	0·14	0·17	0·22	0·25	0·22	0·19	0·15	0·13	61
Autumn	0·11	0·10	0·08	0·07	0·07	0·07	0·08	0·10	0·11	0·10	0·09	0·09	0·07	0·06	0·06	0·08	0·11	0·13	0·17	0·18	0·18	0·17	0·16	0·13	0·11	59
Summer	0·03	0·03	0·03	0·02	0·03	0·03	0·04	0·04	0·04	0·03	0·03	0·02	0·02	0·02	0·01	0·02	0·01	0·02	0·02	0·03	0·04	0·04	0·03	0·03	0·03	122

SEISMOLOGICAL DIARY

Galitzin Seismographs, three components

227 **KEW OBSERVATORY** Lat. 51° 28′ 6″ N. Long. 0° 18′ 47″ W. Height above M.S.L. 5 metres **1938**

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
Jan.			h. m. s.	s.	μ	km.	
1/2	N	iPP	23 45 32	...	...	...	Pacific Ocean near
	NE	iSKS	52 43	...	...	...	Volcano Island.
	E	eL	0 15	...	...	...	24° N., 141° E.
	ZN	eL	21	...	...	...	(Bombay.)
	E	M	27 23	18	−10	...	
	Z	M	29 17	19	+10	...	
	N	M	29 25	18	+10	...	
		F	1 0	...	...	...	
2	ZNE	i(S)	11 4 43	...	...	...	South-east of Crete.
	ZNE	eL	8	...	...	...	(Athens.)
		F	15	...	...	...	
2	ZNE	iP	22 39 43	...	...	9130	Dilatation.
	NE	iS	50 0	...	...	...	
	N	e	52 59	...	...	...	
	N	L	23 8	...	...	...	Pacific Ocean near
	ZE	L	13	...	...	...	Central America.
	E	M	18 47	18	−20	...	16° N., 98° W.
	Z	M	18 50	18	−20	...	(U.S.C.G.S.)
		F	55	...	...	...	
7	NE	eSSS	16 9 49	...	...	...	Bismarck Archipelago.
	NE	eL	23	...	...	...	3° S., 153° E.
	Z	eL	31	...	...	...	(Bombay.)
	Z	M	34 24	30	+17	...	
		F	17 25	...	...	...	
10	NE	eL	21 44	...	...	...	Southern Japan.
	Z	eL	49	...	...	...	31° N., 130° E.
	Z	M	54 9	15	− 5	...	(Bombay.)
		F	22 20	...	...	...	
11	Z	iP	15 24 41	...	...	9470	Dilatation.
	Z	i	24 53	...	...	...	Felt in Japan.
	NE	iSKS	35 3	...	...	...	34° N., 135° E.
	N	iS	35 15	...	...	...	(Bombay.)
	Z	iSP	36 27	...	...	...	
	E	eSSSS	47 23	...	...	...	
	E	eL	50	...	...	...	
	ZN	eL	54	...	...	...	
	E	M	57 36	31	+29	...	
	N	M	58 22	26	+16	...	
	Z	M	16 7 49	20	+18	...	
		F	40	...	...	...	
17	—	—	9 30 to	...	...	...	No records.
			13 0	...	...	...	
18		e	5 15	...	...	...	South Atlantic Ocean.
		F	40	...	...	...	7° S., 1° E.
							(Bombay.)
22	E	e(P)	2 55 7	...	...	...	
	ZNE	L	3 0	...	...	...	
		F	10	...	...	...	
23	ZN	iPP	8 51 15	...	...	12000	Dilatation : confused
	NE	iPS	9 0 40	...	...	...	by microseisms.
	E	iSS	5 57	...	...	...	
	E	iSSS	9 56	...	...	...	Felt in Hawaii.
	NE	L	16	...	...	...	21° N., 156° W.
	Z	L	23	...	...	...	(U.S.C.G.S.)
	N	M	26 40	26	+48	...	
	E	M	29 1	20	−30	...	
	Z	M	30 14	20	+33	...	
	ZNE	eL_2	10 42	...	...	...	L via antipodes.
		F	11 15	...	...	...	
24	E	iSKKS	10 58 38	...	...	(13000)	Confused by micro-
	N	iPKKS	11 4 52	...	...	...	seisms.
	NE	iSS	8 5	...	...	...	
	E	iSSS	12 30	...	...	...	Between Sandwich
	E	L	22	...	...	...	Group and South
	ZN	L	26	...	...	...	Orkneys.
	N	M	35 10	19	+22	...	60° S., 36° W. (J.S.A.)
		F	13 50	...	...	...	
25	NE	eL	18 16	...	...	...	
	Z	eL	21	...	...	...	
		F	19 10	...	...	...	
26		e	3 55	...	...	...	Persia.
		F	4 15	...	...	...	35° N., 47° E.
							(Strasbourg.)
30		e	17 45	...	...	...	Very small.
		F	55	...	...	...	Felt in Italy.

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
Feb.			h. m. s.	s.	μ	km.	
1	Z	iP	19 19 52	...	...	13500	Dilatation.
	Z	i	19 57	...	...	...	Confused by micro-
	Z	ePKP	23 31	...	...	...	seisms.
	ZNE	iPP	24 40	...	...	...	Diffracted PKP.
	NE	i	24 51	...	...	...	
	NE	iPPP	27 6	...	...	...	
	NE	iSKS	30 22	...	...	...	Banda Sea.
	NE	i	30 43	...	...	...	5° S., 132° E.
	NE	iPS	34 37	...	...	...	(Strasbourg.)
	NE	iPSKS	35 3	...	...	...	
	NE	iPPS	35 51	...	...	...	
	N	iSS	40 57	...	...	...	
	E	iSS	41 4	...	...	...	
	NE	iSSS	45 59	...	...	...	
	NE	L	52	...	...	...	
	E	M	57 48	55	−1921	...	
	N	M	58 21	58	+3420	...	
	Z	L	20 3	...	...	...	
	N	M	4 39	30	−1170	...	
	E	M	11 6	23	+800	...	
	Z	M	23 58	20	+610	...	
	ZNE	eL_2	21 4	...	...	...	L via Antipodes.
		F	23 30	...	...	...	
4		e	0 52	...	...	...	Very small.
		F	1 10	...	...	...	
5	ZNE	iP	2 35 20	...	...	8700	Compression.
	ZNE	ipP	35 59	...	...	...	
	ZNE	iS	44 54	...	...	...	
	N	iScS	45 21	...	...	...	Destructive in Colom-
	NE	iPS	46 2	...	...	...	bia. 4° N., 75° W.
	N	isPS	46 32	...	...	...	(Strasbourg.)
	E	i	48 23	...	...	...	Focal depth about
	ZN	iSS	49 54	...	...	...	150 km.
	ZNE	eL	55	...	...	...	
	E	M	3 3 27	19	+20	...	
	Z	M	3 33	16	+16	...	
		F	4 10	...	...	...	
8	E	iSKS	7 39 11	...	...	...	Felt in Ecuador.
	ZN	eS	39 22	...	...	...	
	ZNE	eL	56	...	...	...	
	E	M	8 4 46	18	+ 6	...	
		F	20	...	...	...	
8		e	14 0	...	...	...	Very small.
		F	15	...	...	...	Near Formosa.
							(Hukuoka.)
8	NE	eSKS	14 44 37	...	...	...	Ecuador. (Pasadena.)
	ZNE	eL	15 0	...	...	...	
		F	20	...	...	...	
10		e	7 0	...	...	...	
		F	25	...	...	...	
10	ZNE	i(S)	20 48 2	...	...	...	East of Crete.
	N	i	48 38	...	...	...	35° N., 27° E.
	ZNE	L	51	...	...	...	(Strasbourg.)
	N	M	52 30	16	−14	...	
		F	21 5	...	...	...	
11		e	15 32		...	...	Very small.
		F	45	...	...	...	Felt in Luzon.
13	ZNE	L	9 28	...	...	...	Earlier phases masked
	E	M	47 59	19	+12	...	by microseisms. East
		F	10 30	...	...	...	of New Zealand.
							38° S., 179° W.
							(U.S.C.G.S.)
14	ZNE	iP	3 1 36	...	...	4050	Compression.
	ZNE	i	1 47	...	...	...	Caspian Sea.
	Z	iPP	2 58	...	...	...	41° N., 53° E.
	ZNE	iS	7 26	...	...	...	(Strasbourg.)
	ZNE	i	7 49	...	...	...	
	ZNE	iSS	10 12	...	...	...	
	ZN	i	11 20	...	...	...	
	ZNE	eL	15	...	...	...	Surface waves very
		F	45	...	...	...	small.
15	ZNE	iP	3 35 5	...	...	4090	Compression.
	ZNE	iPP	36 32	...	...	...	North of Cape Verde
	NE	iS	40 57	...	...	...	Islands.

SEISMOLOGICAL DIARY

Galitzin Seismographs, three components

227 **KEW OBSERVATORY** Lat. 51° 28′ 6″ N. Long. 0° 18′ 47″ W. Height above M.S.L. 5 metres **1938**

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
			h. m. s.	s.	μ	km.	
Feb. 15 cont.	ZNE	L	44	...	...	...	18° N., 25° W. (U.S.C.G.S.)
	N	M	47 52	15	− 8	...	
		F	4 40	...	...	...	
15	Z	iP	7 4 32	...	...	...	Compression.
	E	i	4 46	...	...	...	Repetition of preceding shock.
	ZNE	eL	15	...	...	...	
		F	45	...	...	...	
22	ZNE	eL	5 54	...	...	...	
		F	6 15	...	...	...	
22	ZNE	eL	7 10	...	...	...	
		F	8 5	...	...	...	
27		e	2 5	...	...	...	Very small.
		F	45	...	...	...	Kamtchatka. 60° N., 145° E. (Strasbourg.)
Mar. 2	ZNE	eL	0 21	...	...	...	
		F	55	...	...	...	
2	E	L	7 52	...	...	...	Very small on N.-S. and Z components. Algeria. 36° N., 3° E. (Strasbourg.)
	E	M	52 40	10	− 5	...	
		F	57	...	...	...	
8		e	4 0	...	...	...	Very small.
		F	15	...	...	...	
8	Z	ePP	5 56 36	...	...	(14500)	
	ZNE	iPKS	57 49	...	...	...	
	Z	i	58 1	...	...	...	
	NE	eSKKS	6 3 30	...	...	...	
	NE	eL	33	...	...	...	
	Z	eL	40	...	...	...	
	E	M	54 16	20	− 8	...	
	Z	M	57 19	19	−11	...	
		F	8 20	...	...	...	
9	ZNE	eL	3 24	...	...	...	
		F	4 10	...	...	...	
9	ZE	e	5 55	...	...	...	Very small. Pacific Ocean south of Panama. 6° N., 83° W. (U.S.C.G.S.)
		F	6 5	...	...	...	
10		e	16 38	...	...	...	
	NE	eL	17 17	...	...	...	
	Z	eL	22	...	...	...	
		F	45	...	...	...	
11	Z	iP	14 55 24	...	...	2220	N.E., e.
	E	i	55 56	...	...	...	
	NE	i	56 9	...	...	...	
	ZNE	iS	59 6	...	...	...	Felt on the west coast of Greece.
	ZNE	iL	15 2 13	...	...	...	
	N	M	2 23	15	+15	...	
		F	25	...	...	...	
11		e	17 20	...	...	...	Very small.
		F	55	...	...	...	
12		e	20 32	...	...	...	Very small.
		F	21 0	...	...	...	
13		e	15 51	...	...	...	
		F	16 5	...	...	...	
13	ZNE	iP	17 50 7	...	...	2120	Repetition of the shock at 11d. 14 h.
	E	i	50 16	...	...	...	
	NE	e	53 34	...	...	...	
	ZNE	iS	53 41	...	...	...	
	ZNE	L	56	...	...	...	
	N	M	57 1	15	+27	...	
		F	18 40	...	...	...	
13	ZNE	e	21 30	...	...	...	Baluchistan. 29° N., 66° E. (Bombay.)
		eL	39	...	...	...	
		F	22 10	...	...	...	
Mar. 14	Z	iP	0 59 6	...	...	...	Felt in western and central India. 22° N., 76° E. (Bombay.)
	Z	i	59 17	...	...	...	
	ZNE	eL	1 22	...	...	...	
	E	M	32 14	17	+ 9	...	
	Z	M	32 19	17	− 8	...	
		F	2 5				
14	ZE	iP	5 25 51	...	...	...	China. 33° N., 103° E. (Bombay.)
	N	eSSS	43 55	...	...	...	
	ZNE	eL	50	...	...	...	
	E	M	6 0 19	13	+ 4	...	
		F	35	...	...	...	
19	NE	e	13 40	...	...	...	Very small.
		F	14 25	...	...	...	
21	ZNE	eL	2 27	...	...	...	
		F	3 10	...	...	...	
22	ZNE	iP	15 33 18	...	...	7850	Compression. Amplitudes of iP as read in mm :— Z. N. E. +0·9 −0·3 +0·2 Azimuth about north-west by north. Queen Charlotte Islands. 53° N., 132° W. (U.S.C.G.S.)
	ZNE	i	33 23	...	...	...	
	ZNE	iPP	35 58	...	...	...	
	ZNE	iPPP	37 40	...	...	...	
	NE	iS	42 30	...	...	...	
	Z	i	43 12	...	...	...	
	NE	iScS	43 24	...	...	...	
	ZNE	iSS	47 6	...	...	...	
	Z	e	50 12	...	...	...	
	NE	iSSS	50 49	...	...	...	
	ZNE	L	54	...	...	...	
	Z	M	16 4 23	15	+39	...	
	N	M	4 38	15	−42	...	
	E	M	5 15	13	−27	...	
	ZNE	eL_2	17 57	...	...	...	L via antipodes.
		F	18 35	...	...	...	
22		e	22 49	...	...	...	Repetition of preceding shock.
	E	L	23 7	...	...	...	
	ZN	L	9	...	...	...	
		F	40	...	...	...	
25		e	9 0	...	...	...	Caribbean Sea. 17° N., 85° W. (J.S.A.)
		F	20	...	...	...	
25	ZNE	eL	17 4	...	...	...	
		F	18 10	...	...	...	
27	ZNE	e	3 0	...	...	...	
	ZNE	eL	30	...	...	...	
		F	45	...	...	...	
27	E	eP	11 19 30	...	...	1210	
	N	i	21 27	...	...	...	
	E	iS	21 39	...	...	...	Felt in Austria and Yugo-Slavia. 46·1° N., 16·7° E. (Zagreb.)
	ZNE	iSg	23 15	...	...	...	
	ZNE	i	24 29	...	...	...	
	Z	M	24 34	10	+35	...	
	E	M	24 34	10	−41	...	
	ZE	i	25 14	...	...	...	
	E	i	26 27	...	...	...	
	ZE	i	27 15	...	...	...	
		F	12 10	...	...	...	
30		e	15 7	...	...	...	Very small.
		F	25	...	...	...	
31/1	ZE	eS	22 55 9	...	...	...	Eastern China. 28° N., 121° E. (Bombay.)
	Z	iSP	56 35	...	...	...	
	E	i	56 44	...	...	...	
	ZNE	L	23 21	...	...	...	
	Z	M	29 45	15	+9	...	
	N	M	29 49	15	+10	...	
		F	0 10	...	...	...	
Apr. 1	ZNE	eL	1 38	...	...	...	
		F	55	...	...	...	
1	ZNE	e	21 55	...	...	...	
	NE	L	22 21	...	...	...	
	Z	L	26	...	...	...	
	N	M	29 42	15	− 8	...	
	Z	M	29 46	17	+ 7	...	
		F	23 20	...	...	...	

SEISMOLOGICAL DIARY

Galitzin Seismographs, three components

227 **KEW OBSERVATORY** Lat. 51° 28′ 6″ N. Long. 0° 18′ 47″ W. Height above M.S.L. 5 metres **1938**

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
Apr.			h. m. s.	s.	μ	km.	
2		e	6 30	...	...	...	South America.
	ZNE	eL	50	...	...	...	
		F	8 50	...	...	...	
10		e	5 38	...	...	...	Very small.
		F	6 5	...	...	...	
12	ZNE	eL	11 40	...	...	...	
		F	12 15	...	...	...	
13	ZNE	iP	2 49 23	...	...	1710	Dilatation. Amplitudes of iP as measured in mm :— Z. N. E. −7·6 −4·7 +4·7
	Z	i	50 1	...	...	...	
	ZN	i	50 32	...	...	...	
	ZNE	iS	52 20	...	...	...	
	NE	iSS	52 30	...	...	...	
	NE	i	53 4	...	...	...	Azimuth about south-east.
	ZNE	L	54	...	...	...	
	E	M	54 33	9	+50	...	Felt throughout
	Z	M	54 58	8	−32	...	southern Italy.
	N	M	55 3	7	−49	...	39·5° N., 15·0° E.
		F	4 30	...	...	...	(Strasbourg.)
14	ZNE	iP	1 28 7	...	...	8400	Burma. 23° N., 95° E.
	Z	ipP	28 39	...	...	...	(Pasadena.)
	ZNE	iS	37 33	...	...	...	Depth of focus about
	ZNE	isS	38 8	...	...	...	120 km.
	NE	iPS	38 38	...	...	...	
	NE	eSS	42 22	...	...	...	
	NE	eSSS	46 2	...	...	...	
	ZNE	eL	51	...	...	...	Surfaces waves small.
	N	M	59 25	20	+13	...	
		F	2 50	...	...	...	
16	ZNE	eL	20 56	...	...	...	Central America.
		F	21 25	...	...	...	
17	Z	iP	14 52 47	...	...	9900	Bolivia.
	Z	iPP	56 26	...	...	...	17° S., 68° W.
	NE	iS	15 3 41	...	...	...	(Strasbourg.)
	E	i	5 24	...	...	...	
	E	e	5 57	...	...	...	
	N	eL	25	...	...	...	
	ZE	L	28	...	...	...	
	E	M	30 28	20	+11	...	
	Z	M	30 33	21	+14	...	
	N	M	30 38	19	− 7	...	
		F	16 25	...	...	...	
19	ZNE	iP	11 5 1	...	...	2800	Dilatation. Amplitudes of iP as measured in mm :— Z. N. E. −3·6 −0·8 +2·0
	N	iS	9 29	...	...	...	
	E	i	9 43	...	...	...	
	Z	i	9 54	...	...	...	
	N	i	10 8	...	...	...	
	ZE	i	11 15	...	...	...	Azimuth about east-south-east.
	N	i	11 29	...	...	...	
	ZNE	eL	12	...	...	...	Destructive in Asia
	N	M	13 40	24	+195	...	Minor.
	E	M	16 5	18	+125	...	38·9° N., 32·7° E.
	Z	M	18 56	14	+67	...	(Strasbourg.)
	ZNE	eL_2	13 53	...	...	...	L via antipodes.
		F	14 50	...	...	...	
19/20	ZNE	eL	23 0	...	...	...	Repetition of preceding
		F	0 5	...	...	...	shock.
20	Z	ePKP	6 46 57	...	...	(16000)	East of New Hebrides.
	Z	iSKP	50 24	...	...	...	20° S., 175° E. (Apia.)
	NE	eL	7 30	...	...	...	
	Z	eL	37	...	...	...	
	Z	M	54 58	21	− 9	...	
		F	9 30	...	...	...	
21		e	1 49	...	...	...	
	ZNE	eL	2 6	...	...	...	
		F	3 0	...	...	...	
22	E	iS	4 36 22	...	...	...	North west of Van-
	ZNE	eL	50	...	...	...	couver Island.
		F	5 40	...	...	...	51° N., 129° W.
							(Pasadena.)
23	Z	iP	0 40 55	...	...	10050	N.E., e.
	ZNE	iPP	44 32	...	...	...	Riu-Kiu Islands.
	NE	eSKS	51 25	...	...	...	(Hukuoka.)
	E	iS	51 55	...	...	...	
	ZNE	eL	1 12	...	...	...	
Apr.			h. m. s.	s.	μ	km.	
23	E	M	21 0	21	−13	...	
cont.	Z	M	26 45	21	−12	...	
		F	2 25	...	...	...	
23	ZE	iP	6 12 34	...	...	5070	Persia.
	NE	e	19 7	...	...	...	28° N., 55° E.
	NE	iS	19 20	...	...	...	(Strasbourg.)
	NE	eSS	22 52	...	...	...	
	ZNE	eL	27	...	...	...	
		F	7 5	...	...	...	
23	NE	iS	9 41 21	...	...	...	Repetition of preceding shock.
	ZNE	eL	50	...	...	...	
		F	10 25	...	...	...	
25	ZNE	eL	9 18	...	...	...	
		F	30	...	...	...	
25		e	10 45	...	...	...	Region of Samoa.
		F	11 0	...	...	...	
25		e	11 49	...	...	...	
		F	12 5	...	...	...	
25	NE	eL	15 30	...	...	...	Japan.
	Z	eL	34	...	...	...	
		F	55	...	...	...	
25	NE	eL	17 40	...	...	...	Destructive in Nicara-
	Z	eL	44	...	...	...	gua.
	Z	M	52 2	19	− 6	...	13° N., 87° W.
	E	M	52 5	19	+ 6	...	(Strasbourg.)
		F	18 40	...	...	...	
26		e	13 42	...	...	...	Very small.
		F	14 15	...	...	...	East Indies.
29	ZNE	L	2 46	...	...	...	
		F	55	...	...	...	
29	ZNE	i(P)	4 57 50	...	...	...	
	ZNE	L	5 3	...	...	...	
	Z	M	4 6	17	+ 3	...	
		F	25	...	...	...	
May							
1	ZNE	eL	2 1	...	...	...	
		F	3 5	...	...	...	
2	ZNE	eL	15 43	...	...	...	
		F	16 10	...	...	...	
3	Z	iP	2 27 39	...	...	8900	Dilatation.
	ZNE	iS	37 44	...	...	...	Destructive in Mexico.
	NE	eL	49	...	...	...	18° N., 99° W.
	Z	eL	55	...	...	...	(U.S.C.G.S.)
		F	3 25	...	...	...	
3	Z	iP	19 27 54	...	...	...	Kurile Islands.
	Z	i	28 26	...	...	...	46° N., 149° E.
	ZNE	eL	55	...	...	...	(Pasadena.)
		F	20 20	...	...	...	
6	NE	i	5 1 7	...	...	650	Bay of Biscay.
	NE	iS	1 12	...	...	...	45·9° N., 3·1° W.
	NE	iSg	1 51	...	...	...	(Strasbourg.)
	NE	i	1 56	...	...	...	
	NE	i	2 0	...	...	...	
	ZNE	i	2 5	...	...	...	
	N	i	2 21	...	...	...	
		F	6	...	...	...	
6	ZE	iP	18 29 26	...	...	...	Destructive in Nicara-
	ZNE	eL	50	...	...	...	gua.
	Z	M	19 1 43	19	+ 7	...	13° N., 87° W.
	E	M	1 47	19	+ 7	...	(Strasbourg.)
		F	50	...	...	...	
8	NE	e(PPS)	14 26 55	...	...	...	Indian Ocean.
	ZNE	eL	50	...	...	...	50° S., 98° E.
	E	M	15 10 32	18	+13	...	(Pasadena.)
	Z	M	11 23	18	+10	...	
		F	16 35	...	...	...	
10	—	—	10 35 to 11 45	...	...	...	No records.

SEISMOLOGICAL DIARY

Galitzin Seismographs, three components

227 **KEW OBSERVATORY** Lat. 51° 28′ 6″ N. Long. 0° 18′ 47″ W. Height above M.S.L. 5 metres **1938**

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
			h. m. s.	s.	μ	km.	
May 11	Z	iP	14 57 20	...	...	9400	
	E	i	57 47	...	...	...	
	Z	i	58 19	...	...	...	Pacific Ocean near Central America.
	Z	iPP	15 1 14	...	...	...	17° N., 101° W.
	NE	iSKS	7 34	...	...	...	(U.S.C.G.S.)
	ZNE	iPS	8 34	...	...	...	
	Z	iPPS	9 19	...	...	...	
	ZNE	eL	25	...	...	...	
	N	M	27 57	30	+15	...	
		F	17 10	...	...	...	
12	Z	eP	15 54 59	...	...	14000	
	Z	iPKP	58 13	...	...	...	
	ZNE	iPP	16 0 14	...	...	...	
	ZNE	i	0 31	...	...	...	
	NE	iPKS	1 29	...	...	...	
	ZNE	iPPP	3 0	...	...	...	
	NE	eSKKS	6 59	...	...	...	
	NE	iPS	10 28	...	...	...	
	ZNE	iPPS	11 51	...	...	...	New Guinea.
	NE	i	12 29	...	...	...	8° S., 147° E.
	Z	i	13 3	...	...	...	(U.S.C.G.S.)
	ZNE	i	13 11	...	...	...	
	ZNE	i	14 3	...	...	...	
	ZNE	eSS	17 13	...	...	...	
	N	i	17 51	...	...	...	
	E	i	17 59	...	...	...	
	ZNE	i	18 51	...	...	...	
	N	i	21 41	...	...	...	
	E	iSSS	22 37	...	...	...	
	N	i	23 7	...	...	...	
	NE	L	27	...	...	...	Love waves.
	ZNE	L	32	...	...	...	Rayleigh waves.
	E	M	48 52	23	+200	...	
	N	M	53 14	23	+220	...	
	Z	M	58 40	19	+220	...	
		F	20 10	...	...	...	
12	ZNE	eL	21 50	...	...	...	Nubia.
	N	M	58 5	19	+ 9	...	18° N., 38° E.
		F	23 0	...	...	...	(Strasbourg.)
12	ZNE	iP	22 15 5	...	...	2770	
	ZNE	iS	19 31	...	...	...	Superposed on preceding shock.
	ZNE	i	19 39	...	...	...	
	ZNE	L	23	...	...	...	Felt in Crete
	N	M	24 5	18	−31	...	34° N., 25° E.
		F	– – –	...	...	...	(Athens.)
13		e	1 35	...	...	...	
		eL	57	...	...	...	
		F	2 15	...	...	...	
13	ZNE	iP	2 58 2	...	...	...	Atlantic Ocean south-west of Iceland.
		eL	3 3	...	...	...	60° N., 35° W.
		F	15	...	...	...	(Strasbourg.)
13		e	4 11	...	...	...	Very small.
		F	15	...	...	...	
13		e	13 0	...	...	...	
		F	10	...	...	...	
13	NE	eL	15 59	...	...	...	
	Z	eL	16 7	...	...	...	
		F	30	...	...	...	
14		e	4 57	...	...	...	Asia Minor.
		F	5 15	...	...	...	41° N., 37° E.
							(Strasbourg.)
14		e	7 6	...	...	...	Very small.
		F	20	...	...	...	
14		e	7 52	...	...	...	Very small.
		F	8 0	...	...	...	
14	E	e	12 34 25	...	...	...	
	ZNE	L	45	...	...	...	
	N	M	46 57	23	+14	...	
		F	13 35	...	...	...	
14	NE	e	18 53	...	...	...	Very small.
		F	19 10	...	...	...	

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
			h. m. s.	s.	μ	km.	
May 15		e	1 0	...	...	...	Very small.
		F	15	...	...	...	
15	ZE	iP	3 38 16	...	...	2430	Dilatation.
	E	iS	42 15	...	...	...	
	ZNE	L	43	...	...	...	North Atlantic Ocean.
	Z	M	44 34	18	+ 6	...	48° N., 33° W.
		F	4 15	...	...	...	(Strasbourg.)
16		e	14 30	...	...	...	
		F	45	...	...	...	
16		e	16 30	...	...	...	
		F	55	...	...	...	
16	Z	iP	18 40 50	...	...	...	
	ZNE	L	47	...	...	...	
		F	19 5	...	...	...	
18		—	9 5 to	...	...	...	No records.
			15 45	...	...	...	
19		e	15 27	...	...	...	Very small.
		F	30	...	...	...	
19	Z	iP	17 23 12	...	...	11700	Destructive in Celebes.
	Z	i	23 17	...	...	...	0°, 119° E.
	ZNE	iPP	27 43	...	...	...	(Strasbourg.)
	ZNE	i	27 53	...	...	...	
	E	i	29 39	...	...	...	
	ZNE	iPPP	30 13	...	...	...	
	NE	iSKS	33 50	...	...	...	
	N	iS	35 21	...	...	...	
	Z	iSP	36 54	...	...	...	Large movement.
	NE	iPS	37 9	...	...	...	
	E	i	37 21	...	...	...	Large movement.
	E	i	37 41	...	...	...	
	ZNE	iPPS	38 8	...	...	...	Large movement.
	ZE	i	40 22	...	...	...	
	E	iPKKS	42 20	...	...	...	
	ZN	iSS	42 59	...	...	...	
	E	iPPP	46 37	...	...	...	PPP by path >180°.
	E	iSSS	47 21	...	...	...	
	N	i	48 1	...	...	...	
	NE	eL	50	...	...	...	Love waves.
	ZNE	L	53	...	...	...	Rayleigh waves.
	E	M	18 13 13	25	+280	...	
	N	M	20 51	19	+160	...	
	Z	M	22 15	20	−160	...	
		F	22 0	...	...	...	
19		e	18 20	...	...	...	
		F	30	...	...	...	
22	Z	iP	8 5 36	...	...	...	N.E., e. New Hebrides.
		F	30	...	...	...	19° S., 168° E.
							(Wellington.)
22	Z	iP	8 41 54	...	...	...	Compression. N.E., e.
	ZNE	eL	9 1	...	...	...	Repetition of preceding shock.
		F	10 45	...	...	...	
23	ZNE	iP	7 31 11	...	...	9430	Compression.
	ZNE	i	31 21	...	...	...	Amplitudes of iP as read in mm :—
	ZNE	iPP	34 35	...	...	...	Z. N. E.
	ZNE	iPPP	36 35	...	...	...	+4·5 −1·2 −1·0
	Z	i	37 53	...	...	...	Azimuth about 40°.
	NE	iS	41 43	...	...	...	
	ZNE	iScS	41 54	...	...	...	
	E	i	42 3	...	...	...	
	Z	iSP	42 33	...	...	...	
	ZNE	iSS	47 11	...	...	...	Destructive in Honshiu, Japan.
	ZNE	e	48 35	...	...	...	36° N., 141° E.
	NE	L	57	...	...	...	(U.S.C.G.S.)
	Z	L	8 2	...	...	...	
	E	M	4 7	30	−380	...	
	N	M	6 18	25	−290	...	
	Z	M	9 16	24	+250	...	
		F	– – –	...	...	...	Overlapped by next shock.
23	NE	iPP	8 38 49	...	...	(9400)	North-west of Luzon.
	NE	iS	45 28	...	...	...	19° N., 119° E.
	E	iPS	45 57	...	...	...	(Strasbourg.)
	N	iSS	51 13	...	...	...	

SEISMOLOGICAL DIARY

Galitzin Seismographs, three components

227 KEW OBSERVATORY Lat. 51° 28′ 6″ N. Long. 0° 18′ 47″ W. Height above M.S.L. 5 metres **1938**

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
			h. m. s.	s.	μ	km.	
May 23 cont.	NE	i	52 31	...	...	...	
	N	i	59 43	...	...	...	
	NE	L	9 7	...	...	...	
	Z	L	13	...	...	...	
	N	M	16 30	21	+66	...	
	E	M	18 3	19	−62	...	
	Z	M	22 0	18	+52	...	
		F	11 50	...	...	...	
23		e	16 4	...	...	...	Very small.
		F	15	...	...	...	
24		e	10 6	...	...	...	Very small.
		F	20	...	...	...	
26		e	11 56	...	...	...	
		F	12 25	...	...	...	
27	ZNE	iP	21 27 33	...	...	2030	Adriatic Sea south of Meleda. 42·5° N., 17·5° E. (Strasbourg.)
	ZNE	eS	31 0	...	...	...	
	NE	iS*	32 14	...	...	...	
	ZNE	iL	32 40	...	...	...	
	N	M	34 1	8	− 9	...	
	Z	M	35 26	11	− 7	...	
		F	22 10	...	...	...	
28		e	0 16	...	...	...	Very small.
		F	30	...	...	...	
28	Z	eP	10 25 44	...	...	8450	Felt in Oregon. 43° N., 125° W. (U.S.C.G.S.)
	ZNE	iS	35 27	...	...	...	
	ZNE	eL	51	...	...	...	
	E	M	55 1	18	+ 5	...	
	Z	M	59 6	16	+ 9	...	
	N	M	59 16	14	− 8	...	
	ZNE	eL_2	11 43	...	...	...	L via antipodes.
		F	55	...	...	...	
28	Z	iP	16 54 16	...	...	8950	Dilatation.
	NE	iS	17 4 24	...	...	...	Felt in northern Japan.
	E	eL	19	...	...	...	43° N., 144° E. (Strasbourg.)
	ZN	eL	24	...	...	...	
	E	M	28 3	23	+19	...	
	N	M	28 13	21	+15	...	
		F	18 45	...	...	...	
30	ZNE	$iPKP_1$	14 49 28	...	...	16100	Compression.
	ZN	$iPKP_2$	49 34	...	...	...	PKP_2 by path of
	N	i	49 50	...	...	...	greater deviation.
	Z	i	51 5	...	...	...	New Hebrides.
	ZN	iPP	52 58	...	...	...	20° S., 169° E.
	ZN	$iSKP_1$	53 4	...	...	...	(U.S.C.G.S.)
	ZN	$iSKP_2$	53 41	...	...	...	SKP_2 by path of
	E	eSS	15 11 44	...	...	...	greater deviation.
	N	e	12 56	...	...	...	
	ZNE	eL	35	...	...	...	
	E	M	56 8	20	−38	...	
	N	M	57 8	21	−59	...	
	Z	M	57 13	21	+59	...	
		F	17 25	...	...	...	
31	ZNE	eL	0 12	...	...	...	Kurile Islands.
		F	55	...	...	...	
31	Z	e	18 5	...	...	...	Black Sea.
	ZNE	eL	9	...	...	...	42° N., 37° E. (Strasbourg.)
		F	30	...	...	...	
31	Z	e	19 45	...	...	...	Repetition of preceding shock.
	ZNE	eL	49	...	...	...	
		F	20 10	...	...	...	
June 9	Z	iP	19 30 3	...	...	13000	N.E., e. Compression.
	ZNE	iPP	34 49	...	...	...	
	ZN	i	35 56	...	...	...	
	ZN	i	37 19	...	...	...	
	ZNE	iPPP	37 32	...	...	...	
	ZNE	iSP	44 33	...	...	...	North-west of New Guinea. 1° S., 132° E. (Manila.)
	NE	i	44 54	...	...	...	
	E	i	45 2	...	...	...	
	ZNE	iSPP	45 33	...	...	...	
	NE	e	50 5	...	...	...	
	NE	i	50 33	...	...	...	
	ZNE	iSS	51 9	...	...	...	
	E	i	54 37	...	...	...	
June 9 cont.	N	eSSS	55 21	...	...	...	
	E	i	55 50	...	...	...	
	NE	e	58 45	...	...	...	
	NE	eL	20 11	...	...	...	
	Z	eL	18	...	...	...	
	N	M	22 7	21	−48	...	
	Z	M	26 13	20	+47	...	
	E	M	28 1	20	+44	...	
		F	23 0	...	...	...	
10	ZNE	eP	10 6 39	...	...	10000	Dilatation.
	ZNE	iP	6 52	...	...	...	Amplitudes of iP as read in mm :— Z. N. E. −3·0 +0·7 +0·7 Azimuth about north-east.
	ZNE	iPP	10 19	...	...	...	
	ZNE	ePPP	11 51	...	...	...	
	NE	iSKS	17 18	...	...	...	
	ZNE	iS	17 37	...	...	...	
	NE	iPS	18 27	...	...	...	
	NE	iSS	23 38	...	...	...	Riu-Kiu Islands.
	NE	iSSS	27 46	...	...	...	25° N., 125° E. (U.S.C.G.S.)
	ZNE	L	34	...	...	...	
	E	M	51 48	18	−420	...	
	N	M	52 8	18	−440	...	
	Z	M	52 19	18	+380	...	
	ZNE	eL_2	12 5	...	...	...	L via antipodes.
		F	15 0	...	...	...	
10	ZNE	eL	16 15	...	...	...	Repetition of preceding shock.
		F	30	...	...	...	
10	ZNE	eL	17 6	...	...	...	
		F	30	...	...	...	
10	ZNE	eP	18 18 23	...	...	...	Pacific Ocean near Central America. 16° N., 98° W. (U.S.C.G.S.)
	ZNE	eL	50	...	...	...	
		F	19 35	...	...	...	
10	ZNE	eL	20 24	...	...	...	Very small.
		F	30	...	...	...	
11	Z	iP	10 58 18	...	...	345	Felt in Belgium, Holland, France, England and Germany. 50° 47′ N., 3° 35′ E. (Uccle.)
	ZNE	iP*	58 25	...	...	...	
	ZNE	iPg	58 30	...	...	...	
	ZNE	i	58 38	...	...	...	
	NE	iS	58 56	...	...	...	
	ZNE	iS*	59 4	...	...	...	
	ZNE	iSg	59 11	...	...	...	
	ZNE	M	11 0 ±	...	...	...	
		F	10	...	...	...	
11	Z	i(P)	12 10 1	...	...	...	After shock from the Belgian earthquake at 11d. 10h. 57m.
		F	12	...	...	...	
11	ZE	iP	13 9 23	...	...	...	
	ZNE	i(Sg)	10 22	...	...	...	ditto.
		F	12	...	...	...	
12	Z	iP	13 26 32	...	...	360	
	Z	iP*	26 41	...	...	...	
	ZNE	iPg	26 55	...	...	...	ditto.
	ZNE	i	27 3	...	...	...	
	ZNE	iS	27 8	...	...	...	
	Z	iS*	27 22	...	...	...	
	Z	iSg	27 30	...	...	...	
		F	31	...	...	...	
14		e	8 19	...	...	...	Very small.
		F	20	...	...	...	
15	ZNE	eL	8 37	...	...	...	Felt along the Pacific Coast of Chile. 31° S., 74° W. (J.S.A.)
		F	9 10	...	...	...	
15	Z	ePKP	13 0 36	...	...	...	New Hebrides.
	ZNE	eL	47	...	...	...	20° S., 169° E.
		F	15 0	...	...	...	Wellington.
16	ZNE	iP	2 28 14	...	...	9890	Compression.
	ZNE	i	28 26	...	...	...	Amplitudes of iP as read in mm :— Z. N. E. +1·8 −0·6 −0·6 Azimuth about north-east.
	ZNE	iPP	31 53	...	...	...	
	Z	iPPP	33 54	...	...	...	
	NE	iSKS	38 44	...	...	...	
	ZNE	iSKKS	38 58	...	...	...	
	ZNE	iS	39 7	...	...	...	
	E	iPS	39 54	...	...	...	

SEISMOLOGICAL DIARY

Galitzin Seismographs, three components

227 **KEW OBSERVATORY** Lat. 51° 28′ 6″ N. Long. 0° 18′ 47″ W. Height above M.S.L. 5 metres **1938**

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
			h. m. s.	s.	μ	km.	
June 16 cont.	ZNE	iPPS	40 25	...	...	...	
	NE	i	40 57	...	...	...	Riu-Kiu Islands.
	ZE	i	44 30	...	...	...	27° N., 129° E.
	N	iSS	45 34	...	...	...	(Strasbourg.)
	N	eSSS	51 46	...	...	...	
	Z	i	52 6	...	...	...	
	ZNE	eL	3 0	...	...	...	
	Z	M	14 16	14	*(-290)	...	*Maxima passed off bottom of chart.
	N	M	14 19	14	−170	...	
	E	M	14 19	14	−200	...	
		F	6 50	...	...	...	
16/17	ZNE	eL	23 39	...	...	...	Near Formosa.
		F	0 10	...	...	...	(Zinsen.)
18	NE	eL	1 25	...	...	...	Pacific Ocean east of Japan.
	Z	eL	34	...	...	...	
		F	55	...	...	...	37° N., 141° E.
							(Zinsen.)
19	—	—	7 29 to	...	...	...	
			9 56	...	...	...	No records.
20	—	—	13 24 to	...	...	...	
			14 37	...	...	...	No records.
20/21	ZNE	iP	23 59 33	...	...	5870	Destructive in Turkestan.
	ZNE	iPP	0 1 29	...	...	...	
	ZE	iPPP	2 53	...	...	...	41° N., 77° E.
	ZNE	iS	7 2	...	...	...	(Strasbourg.)
	NE	iSS	10 18	...	...	...	
	E	i	10 38	...	...	...	
	ZN	i	10 50	...	...	...	
	ZNE	L	17	...	...	...	
	N	M	19 47	17	−210	...	
	Z	M	22 44	16	−200	...	
	E	M	22 45	17	−230	...	
	E	M	22 45	17	−230	...	
		F	3 20	...	...	...	
21	NE	eL	7 28	...	...	...	Near Formosa.
	Z	eL	34	...	...	...	(Zinsen.)
		F	8 5	...	...	...	
23	ZNE	eL	1 50	...	...	...	Felt in Chile.
		F	2 25	...	...	...	
23	Z	$iPKP_1$	13 15 5	...	...	16000	Compression. N.E., e.
	ZNE	$iPKP_2$	15 9	...	...	...	PKP_2 by path of
	NE	ePP	17 50	...	...	...	greater deviation.
	ZN	eSKP	18 37	...	...	...	New Hebrides.
	ZNE	eL	57	...	...	...	20° S., 169° E.
	E	M	14 21 26	21	+14	...	(U.S.C.G.S.)
	Z	M	21 41	21	+29	...	
	N	M	22 17	21	−10	...	
		F	16 0	...	...	...	
24		e	20 2	...	...	...	Very small.
		F	15	...	...	...	
25/26	ZNE	iP	23 50 44	...	...	2920	Surface waves very
	ZNE	iS	55 21	...	...	...	small.
		F	0 35	...	...	...	Between Spitzbergen and Greenland.
							77° N., 2° E.
							(Strasbourg.)
28	ZE	iP	19 30 3	...	...	9030	Compression.
	E	iS	40 15	...	...	...	Azimuth about west.
	E	iPS	40 39	...	...	...	Felt in Mexico.
	ZNE	eL	55	...	...	...	18° N., 100° W.
		F	20 15	...	...	...	(U.S.C.G.S.)
29	NE	eL	20 10	...	...	...	Region of Samoa.
		F	30	...	...	...	
30	Z	iPKP	17 4 23	...	...	...	Dilatation. N.E., e.
	ZNE	eL	50	...	...	...	South-east of New
		F	18 50	...	...	...	Caledonia.
							24° S., 167° E.
							(U.S.C.G.S.)
July 2	Z	e	1 48 44	...	...	...	Adriatic Sea.
		F	2 10	...	...	...	41° N., 18° E.)
							(Zurich.)

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
July			h. m. s.	s.	μ	km.	
2		e	12 38	...	...	...	
		F	55	...	...	...	
4	Z	iPKP	21 32 21	...	...	...	Loyalty Islands.
	ZNE	eL	22 30	...	...	...	22° S., 169° E.
		F	23 15	...	...	...	(Strasbourg.)
5	Z	iPKP	2 23 26	...	...	...	Compression. Repetition of preceding shock.
		F	− − −	...	...	...	Overlapped by next shock.
5	Z	iPKP	3 14 21	...	...	...	Repetition of the shock at 4d. 21h.
	ZNE	eL	45	...	...	...	
		F	5 25	...	...	...	
5/6	Z	iPKP	22 27 1	...	...	...	Compression.
	ZNE	eL	23 15	...	...	...	Repetition of the
	E	M	0 0 4	18	+ 4	...	shock at 4d. 21h.
		F	45	...	...	...	South-east of Loyalty Islands.
							24° S., 173° E.
							(U.S.C.G.S.)
6	Z	$iPKP_1$	1 44 11	...	...	...	Repetition of the
	Z	$iPKP_2$	44 44	...	...	...	shock at 4d. 21h.
	ZNE	eL	2 32	...	...	...	PKP_2 by path of
	E	M	3 14 35	18	+ 6	...	greater deviation.
		F	4 20	...	...	...	
6	ZNE	eL	13 42	...	...	...	
		F	14 15	...	...	...	
7		e	18 30	...	...	...	Very small.
		F	19 10	...	...	...	
8	ZNE	eL	14 52	...	...	...	
		F	15 5	...	...	...	
11		e	16 50	...	...	...	Very small.
		F	17 5	...	...	...	
12	ZNE	ePKP	12 56 31	...	...	...	Repetition of the
	ZNE	eL	13 42	...	...	...	shock at 4d. 21h.
		F	15 10	...	...	...	
13	Z	e(P)	20 19 6	...	...	...	Felt in Roumania.
	Z	e	19 27	...	...	...	
	NE	e	22 53	...	...	...	
		F	30	...	...	...	
14	ZNE	eL	3 37	...	...	...	
		F	4 5	...	...	...	
15	ZNE	eL	0 50	...	...	...	South-west of Fiji.
		F	1 25	...	...	...	21° S., 176° E.
							(Strasbourg.)
16	ZNE	eL	16 40	...	...	...	Very small.
		F	17 5	...	...	...	
17		e	11 25	...	...	...	
		F	12 10	...	...	...	
18	Z	eP	1 0 8	...	...	...	Very small.
	NE	i	1 13	...	...	...	Felt in France and
	NE	i	1 29	...	...	...	Italy.
	NE	i	2 24	...	...	...	
	ZNE	L	3 9	...	...	...	
	N	M	3 11	8	+ 5	...	
	Z	M	3 13	8	+ 5	...	
		F	15	...	...	...	
20	ZNE	iP	0 28 26	...	...	2400	Dilatation.
	ZNE	iS	32 23	...	...	...	
	ZNE	i	32 35	...	...	...	Destructive in North-
	ZNE	L	35	...	...	...	ern Attica, Greece.
	N	M	36 18	11	+51	...	38·6° N., 23·1° E.
		F	2 10	...	...	...	(Athens.)
21	NE	i	9 30 0	...	...	...	
	ZNE	eL	45	...	...	...	
		F	10 45	...	...	...	
21	ZNE	eL	22 5	...	...	...	Asia Minor.
		F	40	...	...	...	41° N., 39° E.
							(Strasbourg.)

SEISMOLOGICAL DIARY

Galitzin Seismographs, three components

227 KEW OBSERVATORY Lat. 51° 28′ 6″ N. Long. 0° 18′ 47″ W. Height above M.S.L. 5 metres **1938**

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
			h. m. s.	s.	μ	km.	
July 22	ZNE	eP	8 0 47	...	...	9650	Pacific Ocean near Central America.
	NE	eSKS	11 16	...	...	...	
	NE	eSS	16 59	...	...	...	19° N., 107° W.
	ZNE	eL	20	...	...	...	(U.S.C.G.S.)
	E	M	31 33	26	+30	...	
		F	10 55	...	...	...	
23/24	ZNE	eL	23 55	...	...	...	
		F	0 30	...	...	...	
24	NE	eP	13 23 58	...	...	8290	No Z record.
	NE	eS	34 42	...	...	...	Aleutian Islands.
	NE	eL	44	...	...	...	53° N., 167° W.
		F	14 30	...	...	...	(U.S.C.G.S.)
27	Z	iP	1 34 0	...	...	...	
	NE	e	41 26	...	...	...	
		F	50	...	...	...	
27		e	13 32	...	...	...	Very small.
		F	45	...	...	...	
27		eL	17 40	...	...	...	
	E	M	53 28	15	+ 9	...	
		F	18 20	...	...	...	
28	Z	i(P)	8 29 14	...	...	...	
		F	9 5	...	...	...	
29	ZE	iP	13 20 5	...	...	10350	Compression.
	ZE	iPP	23 59	...	...	...	
	E	eSKS	30 37	...	...	...	
	E	iSKKS	30 56	...	...	...	Indian Ocean west of Sumatra.
	N	iS	31 18	...	...	...	1° N., 96° E.
	NE	i	31 38	...	...	...	(U.S.C.G.S.)
	ZE	iPPS	32 53	...	...	...	
	ZNE	eL	55	...	...	...	
	N	M	14 5 30	19	+11	...	
		F	16 0	...	...	...	
30		e	19 39	...	...	...	
		F	20 0	...	...	...	
Aug. 2	ZNE	eL	0 42	...	...	...	Very small.
		F	1 5	...	...	...	
3	ZNE	eL	14 12	...	...	...	
		F	30	...	...	...	
4	Z	iP	9 7 51	...	...	10600	
	Z	ipP	8 47	...	...	...	
	Z	e	17 35	...	...	...	Northern Argentina.
	ZNE	iSKS	18 6	...	...	...	25° S., 66° W., with
	ZNE	iS	18 45	...	...	...	depth of focus about
	ZE	isS	19 59	...	...	...	200 km. (J.S.A.)
	ZNE	eL	30	...	...	...	
	E	M	47 12	20	+ 9	...	
	Z	M	47 18	20	+ 8	...	
		F	11 10	...	...	...	
5		e	16 30	...	...	...	Very small.
		F	17 40	...	...	...	
8	ZNE	e	13 18	...	...	...	
	ZN	i	19 25	...	...	...	
	N	e	23 26	...	...	...	
	ZNE	eL	25	...	...	...	
	E	M	25 51	15	+ 5	...	
		F	14 5	...	...	...	
8	ZNE	iP	15 39 51	...	...	2300	Near Jan Mayen.
	E	iS	43 40	...	...	...	72° N., 10° W.
	ZN	e	43 50	...	...	...	(Strasbourg.)
	ZNE	eL	45	...	...	...	
	E	M	46 19	15	+ 5	...	
		F	16 10	...	...	...	
8	ZN	eP	16 54 22	...	...	...	Repetition of preceding shock.
	ZNE	eL	17 0	...	...	...	
		F	10	...	...	...	
8	ZNE	eL	19 5	...	...	...	
		F	25	...	...	...	
Aug. 9	ZNE	eL	12 5	...	...	...	Very small.
		F	25	...	...	...	
9	ZNE	eL	18 42	...	...	...	Very small.
		F	19 0	...	...	...	
9		e	22 15	...	...	...	Very small.
		F	30	...	...	...	
10		e	2 45	...	...	...	Very small.
		F	55	...	...	...	
12	ZN	ePP	4 25 49	...	...	(16000)	South-west of Fiji.
	Z	ePPP	28 18	...	...	...	20° S., 175° E.
	ZNE	eL	5 20	...	...	...	(Strasbourg.)
		F	6 25	...	...	...	
14	ZN	e	20 55 52	...	...	...	
	ZNE	eL	21 5	...	...	...	
		F	30	...	...	...	
15	ZNE	iP	11 6 25	...	...	2070	Albania.
	ZNE	iS	9 54	...	...	...	41° N., 20° E.
	ZNE	L	13	...	...	...	(Strasbourg.)
		F	25	...	...	...	
15	ZNE	eL	17 35	...	...	...	Very small.
		F	55	...	...	...	
16	ZNE	iP	4 39 34	...	...	8270	Compression.
	NE	iP_cP	39 58	...	...	...	Amplitudes of iP as
	Z	i	40 8	...	...	...	read in mm :—
	ZE	iPP	42 24	...	...	...	Z. N. E.
	ZNE	iPPP	43 57	...	...	...	+2·0 (−0·2) −0·9
	ZE	iPPPP	44 53	...	...	...	Azimuth between east-
	ZNE	iS	49 7	...	...	...	north-east and east.
	NE	iPS	49 41	...	...	...	Burma.
	E	i	50 41	...	...	...	23° N., 95° E.
	NE	iSS	53 57	...	...	...	(Strasbourg.)
	ZNE	L	5 5	...	...	...	
	Z	M	16 56	21	+200	...	
	E	M	16 58	21	+105	...	
		F	8 35	...	...	...	
18	E	iSKS	9 54 15	...	...	...	Sumatra.
	ZNE	eL	10 20	...	...	...	4° S., 104° E.
		F	11 10	...	...	...	(Strasbourg.)
18	ZNE	eL	19 52	...	...	...	Riu-Kiu Islands.
	Z	M	20 4 49	16	+ 6	...	28° N., 130° E.
		F	30	...	...	...	(Strasbourg.)
20		e	6 18	...	...	...	Very small. Sumatra.
		F	40	...	...	...	2° S., 104° E.
							(Strasbourg.)
21		e	17 4	...	...	...	Very small.
		F	20	...	...	...	
22		e	10 55	...	...	...	Very small.
		F	11 5	...	...	...	
22	Z	e(SS)	22 4 47	...	...	...	East of Ceylon.
	ZNE	eL	10	...	...	...	7° N., 82° E.
	E	M	19 4	13	+ 5	...	(Strasbourg.)
		F	23 0	...	...	...	
23	ZNE	eL	8 50	...	...	...	
		F	9 15	...	...	...	
24	ZNE	eL	16 45	...	...	...	
		F	17 10	...	...	...	
25	Z	eP	1 41 55	...	...	11300	
	Z	iPP	46 4	...	...	...	N.E., e.
	E	iSKS	52 34	...	...	...	
	Z	iSP	55 2	...	...	...	South - west of
	E	ePPS	56 4	...	...	...	Sumatra.
	ZNE	eL	2 25	...	...	...	5° S., 100° E.
	Z	M	43 31	17	− 5	...	(Strasbourg.)
		F	4 20	...	...	...	
28	ZN	eP	21 7 47	...	...	...	North Atlantic Ocean.
	ZNE	eL	13	...	...	...	
		F	55	...	...	...	

SEISMOLOGICAL DIARY

Galitzin Seismographs, three components

227 **KEW OBSERVATORY** Lat. 51° 28′ 6″ N. Long. 0° 18′ 47″ W. Height above M.S.L. 5 metres **1938**

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
			h. m. s.	s.	μ	km.	
Aug. 29	Z	eP	15 36 12	...	...	11430	Destructive in the Philippines. 12° N., 124° E. (U.S.C.G.S.)
	ZE	ePP	41 22	...	...	...	
	NE	iSKS	46 48	...	...	...	
	NE	i	46 54	...	...	...	
	NE	iS	48 10	...	...	...	
	NE	iPS	49 4	...	...	...	
	Z	e	49 19	...	...	...	
	ZNE	eL	16 10	...	...	...	
	E	M	17 16	24	−47	...	
	N	M	19 5	22	−17	...	
	Z	M	24 25	20	+14	...	
		F	18 20	...	...	...	
30	Z	ePKP	12 8 42	...	...	13700	
	Z	iPP	10 21	...	...	...	N.E., e. Diffracted PKP waves.
	ZN	ePPP	12 58	...	...	...	
	Z	i	14 50	...	...	...	New Guinea.
	E	eSKKS	17 16	...	...	...	6° S., 143° E. (Apia.)
	ZNE	ePS	20 12	...	...	...	
	Z	iSKKP	22 23	...	...	...	
	NE	eL	45	...	...	...	
	Z	eL	53	...	...	...	
	Z	M	13 6 42	18	−21	...	
	N	M	6 45	18	− 9	...	
	E	M	7 13	18	+13	...	
		F	15 30	...	...	...	
30		e	17 35	...	...	...	Very small.
		F	18 50	...	...	...	
30		e	19 38	...	...	...	Very small.
		F	55	...	...	...	
31	Z	e(PKP)	18 5 3	...	...	...	Possibly the diffracted PKP waves. Bismarck Archipelago. 3° S., 151° E. with depth of focus 340 km. (Strasbourg.) Surface waves very small.
	Z	i	5 40	...	...	...	
	N	e	6 58	...	...	...	
	N	e	14 33	...	...	...	
	N	e	17 18	...	...	...	
	ZNE	eL	18 40	...	...	...	
		F	19 25	...	...	...	
Sept. 1	Z	eP	3 7 9	...	...	...	
	ZNE	eL	42	...	...	...	
	Z	M	52 56	16	− 6	...	
		F	4 25	...	...	...	
1/2	Z	iP	23 0 31	...	...	8700	N.E., e.
	Z	i	0 48	...	...	...	Pacific Ocean near Salvador.
	Z	ePP	3 33	...	...	...	
	N	eS	10 26	...	...	...	13° N., 89° W. (U.S.C.G.S.)
	NE	ePS	10 47	...	...	...	
	ZNE	eL	25	...	...	...	
	Z	M	44 40	16	+ 7	...	
		F	0 55	...	...	...	
3	Z	i(P)	4 50 29	...	...	...	N.E., e.
	ZNE	L	56	...	...	...	
		F	5 20	...	...	...	
4		e	19 46	...	...	...	
	ZNE	eL	20 12	...	...	...	
		F	21 30	...	...	...	
4		eL	22 37	...	...	...	
		F	55	...	...	...	
5		e	8 0	...	...	...	Very small.
		F	20	...	...	...	Felt in Algiers.
5	Z	$iPKP_1$	15 2 30	...	...	(18000)	
	Z	$iPKP_2$	3 12	...	...	...	PKP_2 by path of greater deviation.
	Z	ePP	6 55	...	...	...	
	ZNE	eL	50	...	...	...	New Zealand.
		F	17 20	...	...	...	35° S., 175° W. (Strasbourg.)
6	Z	iP	20 58 4	...	...	...	N.E., e.
	ZNE	eL	21 34	...	...	...	Sea of Okhotsk.
		F	22 10	...	...	...	47° N., 147° E. (Strasbourg.)
7	Z	ePP	2 13 25	...	...	...	Java Sea.
	ZNE	eL	52	...	...	...	5° S., 117° E. (Strasbourg.)
		F	3 25	...	...	...	
Sept. 7	ZNE	iP	4 16 15	...	...	10000	Compression.
	ZNE	iPP	19 45	...	...	...	
	N	eSKS	26 47	...	...	...	
	N	i	27 49	...	...	...	Formosa. 24° N., 121° E. (U.S.C.G.S.)
	Z	iSP	28 7	...	...	...	
	NE	iPPS	28 33	...	...	...	
	Z	e	29 30	...	...	...	
	NE	iSS	32 53	...	...	...	
	NE	eL	42	...	...	...	
	Z	eL	52	...	...	...	
	N	M	5 1 7	15	−61	...	
	Z	M	1 10	15	+90	...	
		F	7 25	...	...	...	
7	Z	i(PKP)	13 17 16	...	...	...	New Zealand. (Strasbourg.)
	Z	i	19 33	...	...	...	Surface waves very small.
	ZNE	i	20 25	...	...	...	
	N	i	20 39	...	...	...	
		F	14 40	...	...	...	
10		e	23 10	...	...	...	
		F	25	...	...	...	
11		e	20 32	...	...	...	Very small.
		F	55	...	...	...	
12	ZNE	eL	6 48	...	...	...	Felt in California. 40° N., 125° W. (Pasadena.)
		F	7 20	...	...	...	
14		e	9 40	...	...	...	Very small.
		F	55	...	...	...	
16	ZNE	eL	4 47	...	...	...	
		F	5 15	...	...	...	
16		e	6 55	...	...	...	
		F	7 25	...	...	...	
18	ZNE	iP	3 55 17	...	...	2400	Compression.
	ZNE	iS	59 14	...	...	...	Greece.
	ZNE	L	4 2	...	...	...	38·0° N., 23·5° E.
	Z	M	4 39	9	−17	...	(Strasbourg.)
	N	M	4 41	9	+30	...	
		F	45	...	...	...	
21		e	13 55	...	...	...	Very small.
		F	14 10	...	...	...	
21		e	15 0	...	...	...	Very small.
		F	25	...	...	...	
21	NE	iP	19 4 41	...	...	9900	Wood - Anderson records.
	NE	i	5 13	...	...	...	Galitzin seismographs not in operation.
	E	i	5 27	...	...	...	
	NE	iS	15 35	...	...	...	Pacific Ocean south of Japan.
	NE	eL	30	...	...	...	
		F	20 40	...	...	...	31° N., 140° E. (Strasbourg.)
25	ZNE	eL	21 33	...	...	...	New Zealand.
		F.	22 30	...	...	...	37° S., 176° E. (Strasbourg.)
27	Z	iP	2 41 5	...	...	6010	N.E., e. Compression. Abyssinia.
	NE	iS	48 42	...	...	...	9° N., 37° E.
	ZNE	eL	56	...	...	...	(Strasbourg.)
	Z	M	3 13 46	10	+ 9	...	
	N	M	13 51	10	+14	...	
		F	4 20	...	...	...	
27		e	10 37	...	...	...	Bismarck Archipelago.
	ZNE	eL	11 20	...	...	...	6° S., 151° E.
	Z	M	32 59	22	+ 6	...	(Strasbourg.)
		F	12 45	...	...	...	
28		e	18 37	...	...	...	Solomon Islands.
	ZNE	eL	19 27	...	...	...	11° S., 164° E.
		F	20 50	...	...	...	(Strasbourg.)
Oct. 2	ZNE	eL	16 55	...	...	...	South-west of Cape Verde Islands.
		F	17 10	...	...	...	12° N., 30° W. (Dakar.)

SEISMOLOGICAL DIARY

Galitzin Seismographs, three components

227 **KEW OBSERVATORY** Lat. 51° 28′ 6″ N. Long. 0° 18′ 47″ W. Height above M.S.L. 5 metres **1938**

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
Oct.			h. m. s.	s.	μ	km.	
7	NE	eL	1 50	...	...	...	
	Z	eL	54	...	...	...	
		F	2 20	...	...	...	
7	NE	eL	17 10	...	...	...	
	Z	eL	18	...	...	...	
		F	50	...	...	...	
9	ZNE	eL	17 55	...	...	...	Earlier phases obscured by microseisms.
	Z	M	18 15 26	18	+ 5	...	
		F	50	...	...	...	
10	e		3 45	...	...	...	
	F		4 15	...	...	...	
10	ZNE	eP	21 2 43	...	...	12000	
	Z	iPP	7 26	...	...	...	N.E., e.
	Z	iPPP	10 2	...	...	...	
	NE	iSKS	13 16	...	...	...	
	NE	iSKKS	14 14	...	...	...	
	ZNE	iPS	16 32	...	...	...	Large movement.
	ZNE	iPPS	17 41	...	...	...	
	Z	iSKKP	21 55	...	...	...	
	NE	eSS	22 43	...	...	...	
	Z	iPPP	26 22	...	...	...	PPP by path greater than 180°.
	NE	eSSS	26 49	...	...	...	
	NE	eL	30	...	...	...	Felt in north-east Celebes.
	Z	eL	35	...	...	...	
	N	M	52 23	26	−84	...	1° N., 125° E.
	E	M	55 25	22	−77	...	(U.S.C.G.S.)
	Z	M	55 56	26	+98	...	
		F	23 50	...	...	...	
11	ZNE	ePS	0 36 25	...	...	...	Repetition of preceding shock.
	ZNE	eL	1 2	...	...	...	
		F	40	...	...	...	
12	Z	iP	0 46 57	...	...	9410	Compression N.E., e.
	Z	iPP	50 9	...	...	...	N.E., e.
	NE	iSKS	57 16	...	...	...	
	NE	iS	57 28	...	...	...	Pacific Ocean east of Japan.
	Z	eSP	58 18	...	...	...	
	E	iSS	1 2 42	...	...	...	37° N., 142° E.
	ZNE	eL	15	...	...	...	(Strasbourg.)
	N	M	22 51	20	−31	...	
	E	M	22 51	20	+66	...	
	Z	M	31 17	15	+17	...	
		F	3 30	...	...	...	
13	NE	eL	16 8	...	...	...	Philippine Islands.
	Z	eL	15	...	...	...	13° N., 122° E.
	N	M	24 10	15	−11	...	(Strasbourg.)
	E	M	24 10	15	−10	...	
	Z	M	24 14	15	+14	...	
		F	55	...	...	...	
16	N	iP	2 22 4	...	...	1000	From records of Wood-Anderson seismographs.
	NE	iPg	23 12	...	...	...	
	E	iS*	24 20	...	...	...	
	NE	iSg	24 53	...	...	...	Felt in northern Spain.
	Z	i	25 26	...	...	...	
		F	30	...	...	...	43·3° N., 3·0° W.
17/18		e	23 51	...	...	...	(Strasbourg.)
		F	0 15	...	...	...	
19	ZNE	iP	4 22 59	...	...	5810	
	NE	iS	30 25	...	...	...	
	NE	i	30 31	...	...	...	Great Altai Mountains.
	NE	iScS	32 48	...	...	...	50° N., 91° E.
	NE	iSS	34 35	...	...	...	(Strasbourg).
	ZNE	L	39	...	...	...	
	E	M	44 0	17	−110	...	
	N	M	44 0	17	+145	...	
		F	6 15	...	...	...	
20	NE	iPP	2 39 21	...	...	13000	No Z record.
	NE	i	39 49	...	...	...	
	NE	i	40 13	...	...	...	
	NE	iSKS	44 51	...	...	...	
	NE	iPS	49 3	...	...	...	Felt in Timor.
	E	iSS	55 3	...	...	...	9° S., 123° E.
	E	i	3 1 11	...	...	...	(Strasbourg.)
	NE	eL	16	...	...	...	
	N	M	17 45	46	+130	...	
	E	M	19 10	48	+195	...	
		F	5 10	...	...	...	
Oct.			h. m. s.	s.	μ	km.	
20		e	13 45	...	...	...	Very small.
		F	14 15	...	...	...	
21	N	i(PS)	20 45 23	...	...	...	No Z record.
	NE	eL	21 5	...	...	...	Indian Ocean west of Maldive Islands.
		F	45	...	...	...	5° N., 70° E.
							(Strasbourg.)
22	NE	eL	1 5	...	...	...	No Z record.
		F	50	...	...	...	East of New Zealand.
							36° S., 177° W.
							(Wellington.)
23	NE	e	3 46	...	...	...	No Z record.
	NE	eL	52	...	...	...	
	E	M	4 5 51	12	+ 5	...	
		F	5 10	...	...	...	
23		e	6 27	...	...	...	Very small.
		F	55	...	...	...	
23	Z	iP	15 13 17	...	...	8570	Dilatation.
	NE	iS	23 6	...	...	...	
	NE	iPS	23 24	...	...	...	Near Madagascar.
	NE	L	42	...	...	...	(Strasbourg.)
	Z	L	45	...	...	...	
	E	M	47 20	15	+11	...	
	N	M	51 57	15	+11	...	
	Z	M	52 1	15	+10	...	
		F	17 5	...	...	...	
26		e	4 0	...	...	...	Very small.
		F	25	...	...	...	
26		e	17 45	...	...	...	Very small.
		F	55	...	...	...	
29	ZN	iP	13 21 11	...	...	9510	Pacific Ocean east of Japan.
	N	e	29 54	...	...	...	34° N., 142° E.
	E	e	31 7	...	...	...	(Strasbourg.)
	E	iS	31 47	...	...	...	
	N	eScS	31 57	...	...	...	
	NE	eL	50	...	...	...	
	E	M	53 4	32	+11	...	
	Z	eL	55	...	...	...	
		F	14 35	...	...	...	
30		e	0 32	...	...	...	Very small.
		F	1 0	...	...	...	
Nov.							
4		e	3 50	...	...	...	Very small.
		F	4 20	...	...	...	
5	ZNE	iP	8 55 59	...	...	9670	Compression. Amplitudes of iP as read in mm :—
	ZNE	ipP	56 18	...	...	...	
	ZNE	isP	56 31	...	...	...	Z. N. E.
	ZE	i	57 2	...	...	...	+2·7 −1·0 −0·7
	Z	i	57 49	...	...	...	giving azimuth about 35°. Felt in eastern Japan.
	Z	iPP	59 24	...	...	...	
	ZNE	ipPP	59 47	...	...	...	
	NE	isPP	59 56	...	...	...	
	ZNE	iPPP	9 1 40	...	...	...	36° N., 141° E., with depth of focus about 85 km.
	Z	i	3 19	...	...	...	
	NE	iS	6 28	...	...	...	(Strasbourg.)
	NE	i	6 40	...	...	...	
	NE	ipS	6 52	...	...	...	Large movement.
	E	isS	7 0	...	...	...	
	ZNE	iSP	7 20	...	...	...	
	ZNE	isPS	7 56	...	...	...	
	Z	i	8 24	...	...	...	
	N	i	11 58	...	...	...	
	E	iSS	12 20	...	...	...	
	E	i	12 40	...	...	...	
	NE	isSS	13 8	...	...	...	
	ZNE	i	13 37	...	...	...	
	ZNE	iSSS	15 49	...	...	...	
	Z	i	17 48	...	...	...	
	E	i	18 12	...	...	...	
	NE	i	19 52	...	...	...	
	NE	L	21 24	...	...	...	
	Z	L	24	...	...	...	
	E	M	26 55	36	−780	...	
	N	M	28 9	33	−480	...	
	Z	M	28 36	35	−360	...	
		F	− − −	...	...	...	Overlapped by next shock.

SEISMOLOGICAL DIARY

Galitzin Seismographs, three components

227 **KEW OBSERVATORY** Lat. 51° 28′ 6″ N. Long. 0° 18′ 47″ W. Height above M.S.L. 5 metres **1938**

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
Nov.			h. m. s.	s.	μ	km.	
5	ZNE	iP	11 2 54	...	...	9650	Dilatation.
	ZNE	ipP	3 15	...	...	...	Repetition of preceding shock.
	ZNE	isP	3 27	...	...	...	
	ZNE	iPP	6 35	...	...	...	
	NE	iPPP	8 22	...	...	...	
	ZNE	i	8 38	...	...	...	
	ZNE	i	10 3	...	...	...	
	NE	i	10 16	...	...	...	
	NE	iS	13 20	...	...	...	
	NE	ipS	13 45	...	...	...	Large movement.
	ZN	isS	13 58	...	...	...	
	E	iSP	14 18	...	...	...	
	NE	isPS	14 40	...	...	...	
	Z	i	15 12	...	...	...	
	NE	i	15 40	...	...	...	
	ZE	iSS	19 35	...	...	...	
	NE	iSSS	22 32	...	...	...	
	NE	eL	28	...	...	...	
	Z	eL	33	...	...	...	
	N	M	42 59	22	+760	...	
	E	M	44 17	19	(±530)*	...	*Maxima passing beyond limits of registration.
	Z	M	45 38	20	+810	...	
		F	15 25	...	...	...	
5	NE	e	22 6	...	...	...	No Z record.
	NE	eL	14	...	...	...	
		F	30	...	...	...	
6	NE	eP	9 6 30	...	...	9600	No Z record.
	NE	i	6 37	...	...	...	Pacific Ocean near Japan.
	NE	isP	7 1	...	...	...	
	N	iPP	9 55	...	...	...	37° N., 142° E., with depth of focus about 100 km. (Strasbourg.)
	E	isPP	10 21	...	...	...	
	NE	i	13 59	...	...	...	
	NE	iS	17 0	...	...	...	
	N	iPS	18 1	...	...	...	
	E	i	18 21	...	...	...	
	NE	eL	35	...	...	...	
	N	M	55 8	14	−200	...	
	E	M	55 53	14	−145	...	
		F	13 15	...	...	...	
6	NE	eL	18 3	...	...	...	No Z record.
		F	40	...	...	...	
6/7	NE	eP	21 51 21	...	...	9540	No Z record.
	NE	i	51 46	...	...	...	Repetition of the shock at 6d. 9h.
	NE	iS	22 1 58	...	...	...	
	E	i	2 12	...	...	...	
	NE	eL	17	...	...	...	
	E	M	33 16	16	+110	...	
	N	M	42 2	13	+ 65	...	
		F	1 0	...	...	...	
7	NE	eL	1 36	...	...	...	No Z record.
		F	− −	...	...	...	Overlapped by next shock.
7	NE	eP	1 51 9	...	...	9380	No Z record.
	N	iSKS	2 1 18	...	...	...	Japan.
	E	iS	1 38	...	...	...	Large movement.
	NE	e	7 32	...	...	...	Possibly two shocks superposed.
	NE	eL	19	...	...	...	
	E	M	21 58	32	+26	...	
	N	M	23 22	32	+26	...	
		F	3 50	...	...	...	
7	NE	e	4 40	...	...	...	No Z record.
	NE	eL	58	...	...	...	
	N	M	5 14 53	13	− 9	...	
		F	55	...	...	...	
7	Z	iP	19 46 20	...	...	9410	Compression. N.E., e.
	NE	iS	56 51	...	...	...	Repetition of the shock at 6d. 9h.
	NE	eSS	20 2 13	...	...	...	
	E	iSSS	6 2	...	...	...	
	Z	i	8 57	...	...	...	
	NE	eL	15	...	...	...	
	Z	eL	23	...	...	...	
	E	M	24 47	19	−14	...	
	Z	M	32 52	13	+12	...	
		F	21 20	...	...	...	
8	ZNE	e	3 17 0	...	...	...	Felt near Vienna.
	NE	i	17 26	...	...	...	
	N	i	17 38	...	...	...	
	NE	i	17 55	...	...	...	
		F	25	...	...	...	
8		e	11 45	...	...	...	
		F	12 25	...	...	...	
8		e	13 55	...	...	...	
		F	14 25	...	...	...	
9	ZNE	iP	9 28 37	...	...	...	Compression.
	ZNE	ipP	29 4	...	...	...	No records 9h. 39m. to 9h. 46m. during changing of charts.
	NE	eL	57	...	...	...	
	Z	eL	10 5	...	...	...	
	E	M	6 58	18	−32	...	Japan (repetition from 6d. 9h.) with focal depth 100-135 km. (Strasbourg.)
	N	M	15 55	13	−34	...	
	Z	M	16 3	13	−22	...	
		F	12 25	...	...	...	
9	ZNE	eL	16 57	...	...	...	
		F	17 20	...	...	...	
10	E	eL	7 30	...	...	...	
	ZN	eL	38	...	...	...	
		F	8 5	...	...	...	
10	Z	eP	11 1 1	...	...	9500	Japan (repetition from 6d. 9h.)
	Z	ePPP	5 3	...	...	...	
	E	iSKS	10 23	...	...	...	
	N	iSKKS	10 36	...	...	...	
	NE	iPS	11 29	...	...	...	
	NE	eL	30	...	...	...	
	Z	eL	36	...	...	...	
	E	M	39 45	18	+10	...	
	Z	M	45 2	16	−12	...	
	N	M	45 42	14	−15	...	
		F	13 15	...	...	...	
10	ZN	iP	20 30 6	...	...	8190	Compression. E., e.
	ZNE	i	30 15	...	...	...	Amplitudes as read in mm :— Z. N. E.
	ZNE	iPP	32 51	...	...	...	
	ZNE	iPPP	34 29	...	...	...	
	ZE	i	37 1	...	...	...	iP + 2·2 −1·0 +(0·2)
	ZE	iS	39 35	...	...	...	i +16·0 −6·2 +2·2
	ZN	iPS	40 9	...	...	...	Azimuth between north and north-north-west.
	ZNE	iPPS	40 43	...	...	...	
	N	iSS	44 53	...	...	...	Pacific Ocean south of Alaska.
	NE	i	46 13	...	...	...	
	N	iSSSS	48 57	...	...	...	
	Z	i	54 50	...	...	...	55° N., 157° W. (Strasbourg.)
	ZN	iLR	56 17	...	...	...	
	N	M*	57 17	32	(−9000)	...	*Galitzin traces passing beyond limits of registration.
	N	M*	59 25	27	(+8000)	...	
		F	− − −	...	...	...	
10	N	eP	22 7 (7)	...	...	8030	From Wood-Anderson record.
	N	iS	16 28	...	...	...	
	N	iPS	16 39	...	...	...	Obscured by surface waves from preceding shock.
		F	− − −	...	...	...	
11	ZN	iP	1 9 10	...	...	8030	Compression. E., e.
	N	i	9 19	...	...	...	Repetition from the great earthquake near Alaska.
	ZNE	iS	18 31	...	...	...	
	NE	iPS	18 49	...	...	...	
	NE	i	19 14	...	...	...	55° N., 156° E. (J.S.A.)
	ZNE	eL	33	...	...	...	
	E	M	36 24	29	+36	...	
	Z	M	41 24	22	+29	...	
		F	− − −	...	...	...	
11	E	e(S)	3 21 1	...	...	...	Lost in later movements from the great earthquake at 10d. 20h.
	ZNE	eL	35	...	...	...	
		F	4 30	...	...	...	Repetition from the Japanese epicentres.
11	ZNE	eL	5 30	...	...	...	
		F	6 10	...	...	...	
11	ZNE	eL	6 35	...	...	...	
		F	7 5	...	...	...	

SEISMOLOGICAL DIARY

Galitzin Seismographs, three components

227 **KEW OBSERVATORY** Lat. 51° 28′ 6″ N. Long. 0° 18′ 47″ W. Height above M.S.L. 5 metres **1938**

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
Nov.			h. m. s.	s.	μ	km.	
11	Z	eP	8 42 13	...	...	...	
	ZNE	eL	9 5	...	...	...	
	Z	M	37 57	18	+ 6	...	
		F	10 25	...	...	...	
12		e	8 54	...	...	...	
		F	9 30	...	...	...	
12	Z	eP	15 1 45	...	...	9190	Kurile Islands.
	NE	eS	12 5	...	...	...	47° N., 154° E.
	ZNE	eL	30	...	...	...	(Strasbourg.)
	E	M	35 9	20	+ 7	...	
	Z	M	44 12	16	− 9	...	
		F	17 5	...	...	...	
13	NE	eL	5 44	...	...	...	
	Z	eL	52	...	...	...	
		F	6 15	...	...	...	
13	ZN	iP	13 25 50	...	...	8900	Compression. E., e.
	ZN	ipP	26 13	...	...	...	
	NE	iS	35 51	...	...	...	Kurile Islands.
	NE	isS	36 29	...	...	...	46° N.; 149° E., with
	E	eL	49	...	...	...	depth of focus about
	ZN	L	56	...	...	...	80 km. (J.S.A.)
	Z	M	56 37	31	+26	...	
	N	M	57 18	30	+26	...	
	E	M	58 29	25	+27	...	
		F	14 55	...	...	...	
13/14	Z	eP	22 44 11	...	...	(9700)	Repetition from the
	ZE	iSP	55 12	...	...	...	Japanese epicentres.
	E	eSS	23 0 51	...	...	...	
	NE	eSSS	4 29	...	...	...	
	E	e	4 53	...	...	...	
	NE	eL	8	...	...	...	
	Z	eL	12	...	...	...	
	E	M	22 48	19	+76	...	
	N	M	29 16	15	+59	...	
	Z	M	29 23	15	+72	...	
		F	1 35	...	...	...	
14	NE	eL	3 18	...	...	...	
	Z	eL	27	...	...	...	
		F	55	...	...	...	
14	ZNE	eL	13 10	...	...	...	Felt in New Guinea.
	Z	M	23 2	22	+12	...	
	E	M	23 29	23	+11	...	
		F	14 20	...	...	...	
15	ZNE	eL	10 28	...	...	...	Probably repetition
		F	11 5	...	...	...	from the great earth-
							quake of Nov. 10d.
							20h.
15		e	12 0	...	...	...	Very small.
		F	10	...	...	...	
15	ZNE	eL	16 10	...	...	...	
		F	45	...	...	...	
15		e	19 55	...	...	...	
		F	20 10	...	...	...	
15	Z	eP	21 13 58	...	...	10700	Indian Ocean south-
	Z	ePP	18 14	...	...	...	west of Sumatra.
	E	iSKS	24 51	...	...	...	5° S., 97° E.
	NE	eS	25 27	...	...	...	(Strasbourg.)
	ZE	eSP	27 54	...	...	...	
	NE	eSS	32 30	...	...	...	
	ZNE	eL	47	...	...	...	
	Z	M	22 2 34	19	+13	...	
	E	M	8 46	18	+19	...	
		F	23 50	...	...	...	
16	ZNE	e	5 56 57	...	...	...	Probably repetition
	ZNE	eL	6 12	...	...	...	from the great
		F	7 5	...	...	...	earthquake of Nov.
							10d. 20h.
16	Z	iP	11 20 47	...	...	9310	N., e.
	N	iS	31 13	...	...	...	Repetition from the
	E	i	31 19	...	...	...	Japanese epicentres.
	ZNE	eL	49	...	...	...	
	E	M	58 54	22	+ 8	...	
		F	12 35	...	...	...	
17	ZNE	iP	4 6 0	...	...	8070	Compression.
	ZNE	iPcP	6 14	...	...	...	
	ZNE	iPP	8 45	...	...	...	
	ZNE	ePPP	10 23	...	...	...	
	E	iS	15 23	...	...	...	Repetition from the
	NE	i	15 31	...	...	...	great earthquake
	E	i	15 35	...	...	...	south of Alaska.
	E	L	25	...	...	...	55° N., 158° W.
	ZN	L	29	...	...	...	(U.S.C.G.S.)
	E	M	32 50	29	−220	...	
	Z,	M	34 9	28	+230	...	
	N	M	34 17	26	+240	...	
	ZNE	eL$_2$	6 19	...	...	...	L via antipodes.
	E	M	36 48	20	+ 7	...	
	N	M	37 1	19	−11	...	
	Z	M	37 5	19	−12	...	
		F	8 20	...	...	...	
17		e	21 50	...	...	...	Very small.
		F	22 5	...	...	...	
18	NE	eL	19 10	...	...	...	
	Z	eL	20	...	...	...	
		F	45	...	...	...	
19	E	eL	6 25	...	...	...	Kurile Islands.
	ZN	eL	30	...	...	...	45° N., 149° E.
		F	7 10	...	...	...	(Strasbourg.)
21	NE	e(S)	1 33 2	...	...	...	
	NE	e(PS)	33 58	...	...	...	
	NE	eL	49	...	...	...	
	Z	eL	53	...	...	...	
	E	M	55 59	24	+ 6	...	
	Z	M	57 36	14	+ 5	...	
		F	2 25	...	...	...	
21	NE	eL	7 42	...	...	...	
	Z	eL	48	...	...	...	
		F	8 10	...	...	...	
21		e	15 33	...	...	...	Very small. Probably
		F	55	...	...	...	repetition from the
							great earthquake of
							Nov. 10d. 20h.
22	Z	iP	1 26 44	...	...	9500	N.E., e.
	ZNE	ipP	27 2	...	...	...	Repetition from the
	NE	iS	37 15	...	...	...	Japanese epicentres.
	ZNE	ipS	37 28	...	...	...	36° N., 142° E. with
	E	isS	37 53	...	...	...	depth of focus 60 to
	E	iPS	38 17	...	...	...	80 km. (J.S.A.)
	NE	eL	54	...	...	...	Love waves.
	E	M	59 6	31	+24	...	
	N	M	59 24	31	+17	...	
	ZNE	eL	2 2	...	...	...	Rayleigh waves.
	E	M	10 24	15	+32	...	
	N	M	10 53	18	+27	...	
	Z	M	11 7	15	−30	...	
		F	4 45	...	...	...	
22		e	8 57	...	...	...	Very small.
		F	9 25	...	...	...	
25	ZE	iP	0 12 8	...	...	1760	North Atlantic Ocean.
	E	i	12 56	...	...	...	
	N	iS	15 9	...	...	...	
	E	iSS	15 22	...	...	...	
	ZNE	L	18	...	...	...	
	E	M	19 20	15	+ 6	...	
	Z	M	19 24	16	+ 8	...	
		F	45	...	...	...	
25	NE	eL	9 0	...	...	...	
	Z	eL	10	...	...	...	
	Z	M	15 24	20	+12	...	
		F	50	...	...	...	

SEISMOLOGICAL DIARY

Galatzin Seismographs, three components

227 **KEW OBSERVATORY** Lat. 51° 28′ 6″ N. Long. 0° 18′ 47″ W. Height above M.S.L. 5 metres **1938**

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
Nov.			h. m. s.	s.	μ	km.	
29	NE	eL	14 23	...	...	...	Confused by micro-
	Z	eL	28	...	...	...	seisms.
		F	15 0	...	...	...	
30	ZNE	eP	2 42 39	...	...	9670	Confused by micro-
	E	i	52 58	...	...	...	seisms.
	NE	iSKS	53 2	...	...	...	Repetition from the
	E	iSKKS	53 10	...	...	...	Japanese epicentres.
	N	iS	53 22	...	...	...	37° N., 142° E.
	NE	iPS	54 10	...	...	...	(U.S.C.G.S.)
	E	iSS	58 48	...	...	...	
	ZNE	eL	3 9	...	...	...	
	E	M	20 44	20	+56	...	
	N	M	22 28	20	−68	...	
	Z	M	25 13	19	+59	...	
		F	5 20	...	...	...	
Dec.					μ		
1	NE	eL	3 5	...	...	...	Confused by micro-
	Z	eL	12	...	...	...	seisms.
		F	50	...	...	...	
2	ZNE	e	22 41 0	...	...	...	
	NE	eL	49	...	...	...	
	Z	eL	52	...	...	...	
	N	M	53 54	13	+10	...	
		F	23 20	...	...	...	
3		e	1 30	...	...	...	Very small.
		F	50	...	...	...	
3	NE	i(S)	12 34 54	...	...	...	
	NE	eL	53	...	...	...	
	Z	eL	13 2	...	...	...	
	E	M	2 36	19	+12	...	
	Z	M	7 7	18	+13	...	
		F	14 0	...	...	...	
4		e	6 55	...	...	...	Very small. Confused
		F	7 25	...	...	...	by microseisms.
4	ZNE	eL	17 30	...	...	...	
		F	18 30	...	...	...	
5		e	1 7	...	...	...	Very small.
		F	20	...	...	...	
6/7	Z	iP	23 13 50	...	...	10900	
	Z	iPP	17 41	...	...	...	
	E	iS	25 27	...	...	...	
	NE	eL	43	...	...	...	
	Z	eL	50	...	...	...	
	N	M	51 45	18	−74	...	
	E	M	54 34	18	−80	...	
	Z	M	59 59	14	−48	...	
		F	1 15	...	...	...	
7		e	11 0	...	...	...	Very small.
		F	15	...	...	...	
7	ZE	iPP	13 45 16	...	...	14200	Compression.
	NE	iPKS	46 27	...	...	...	
	E	iSKKS	52 47	...	...	...	Confused by micro-
	Z	e	54 23	...	...	...	seisms.
	E	iPS	55 3	...	...	...	
	E	ePPS	56 31	...	...	...	
	ZNE	iSS	14 2 43	...	...	...	
	NE	eL	22	...	...	...	
	Z	eL	28	...	...	...	
	N	M	33 36	28	+29	...	
	Z	M	34 51	26	+27	...	
		F	16 15	...	...	...	

Date	Compt.	Phase	G.M.T.	Period	Amplitude	Δ	Remarks
Dec.			h. m. s.	s.	μ	km.	
9	Z	iP	4 6 24	...	...	7890	N.E., e.
	E	iS	15 38	...	...	...	
	E	iPS	15 56	...	...	...	
	NE	iS_cS	16 24	...	...	...	
	ZNE	eL	30	...	...	...	
	Z	M	39 12	19	−10	...	
		F	5 15	...	...	...	
9		e	5 49	...	...	...	
		F	6 10	...	...	...	
13	E	i(S)	17 48 32	...	...	...	
	NE	eL	18 8	...	...	...	
	Z	eL	13	...	...	...	
	E	M	16 29	18	−10	...	
	Z	M	19 17	18	+ 5	...	
		F	55	...	...	...	
14/15	—	—	− − −	...	...	...	No records, 14d. 16h. 18m. to 15d. 18h. 3m.
16*	E	e	17 59 5	...	...	...	Possibly PSKS by
	NE	eSS	18 7 1	...	...	...	path of greater de-
	NE	eL	49	...	...	...	viation. Felt in the
	N	M	19 5 41	17	(+120)	...	South of New
	E	M	6 41	18	(+120)	...	Zealand.
		F	30	...	...	...	45° S., 167° E. (Wellington.)
							*Tabulations from Wood - Anderson seismograms; Galitzin instruments not recording.
17*	NE	eL	0 50	...	...	...	Repetition from pre-
		F	1 10	...	...	...	ceding shock.
17	ZNE	eP	16 45 8	...	...	7250	Confused by micro-
	NE	ePPP	49 18	...	...	...	seisms.
	E	eS	53 50	...	...	...	
	ZNE	eL	17 4	...	...	...	
	Z	M	11 14	14	+37		
	N	M	11 26	16	−38	...	
	E	M	11 46	12	−26	...	
		F	45	...	...	...	
19	ZNE	eL	19 7	...	...	...	
		F	35	...	...	...	
21	ZNE	eL	13 25	...	...	...	
		F	14 10	...	...	...	
22	NE	eL	17 40	...	...	...	
	Z	eL	48	...	...	...	
	N	M	52 55	23	−15	...	
		F	18 10	...	...	...	
23	ZNE	eL	18 55	...	...	...	Confused by micro-
		F	19 5	...	...	...	seisms.
26	NE	i	22 10 38	...	...	...	
	E	i	10 45	...	...	...	
	N	i	14 6	...	...	...	
	N	i	14 35	...	...	...	
	NE	i	14 46	...	...	...	
	ZNE	L	15	...	...	...	
		F	25	...	...	...	
30	ZNE	eL	3 55	...	...	...	Near New Zealand.
		F	4 15	...	...	...	(Perth.)

MICROSEISMS OF VERTICAL COMPONENT: AMPLITUDE (μ = 0·001 mm.) AND PERIOD

Derived from readings for the periods of thirty minutes centring at the exact hours, Greenwich Mean Time

Day	JANUARY								FEBRUARY								MARCH							
	0h.		6h.		12h.		18h.		0h.		6h.		12h.		18h.		0h.		6h.		12h.		18h.	
	A	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ
	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.
1	0·3	5·4	0·3	6·7	0·3	7·5	0·3	6·5	4·2	7·5	11·0	8·7	10·9	8·0	10·0	8·3	3·3	7·3	3·5	8·0	3·1	7·7	2·5	7·5
2	0·5	7·2	0·3	6·5	0·8	7·5	0·6	7·5	6·6	8·0	5·4	8·0	4·7	6·0	3·0	8·0	2·3	7·3	2·2	7·0	3·2	6·5	2·6	6·3
3	0·5	7·2	0·6	8·0	0·6	7·3	0·5	7·3	3·2	6·7	3·3	6·7	3·0	6·7	3·0	6·7	2·4	6·3	2·7	6·5	3·2	6·5	3·0	7·0
4	0·6	7·0	0·5	7·0	0·6	7·0	0·2	6·5	3·2	6·5	2·7	6·5	3·3	7·3	3·2	6·7	3·2	6·7	3·1	7·5	3·8	8·3	6·2	8·0
5	0·2	6·3	0·2	6·7	0·3	7·0	0·2	7·0	3·2	7·0	4·1	7·3	3·3	8·0	3·3	7·5	4·4	8·0	4·6	7·0	3·1	7·3	3·9	7·7
6	0·2	6·0	0·3	6·3	0·3	6·5	1·4	7·3	2·8	7·0	3·1	7·5	2·5	7·5	2·5	6·7	4·1	8·3	4·3	8·7	1·9	7·5	1·6	7·0
7	1·6	6·8	1·6	6·8	1·4	6·6	0·8	9·0	3·0	6·7	2·8	7·3	2·7	6·6	3·2	8·0	1·3	6·5	1·3	6·3	1·0	6·5	1·1	6·0
8	0·5	5·8	0·3	5·8	1·0	6·0	0·3	7·0	3·3	7·0	3·3	7·3	3·1	7·3	3·3	7·7	1·1	6·5	1·1	6·5	1·1	6·0	1·3	7·0
9	0·5	5·8	1·4	6·8	1·1	7·0	1·4	7·0	3·1	7·7	2·7	7·5	2·5	6·7	2·2	7·0	1·1	6·7	1·4	6·7	1·6	6·7	1·4	6·7
10	1·6	7·2	1·7	7·2	1·4	6·6	0·6	7·0	1·9	6·3	1·8	6·0	2·7	6·5	2·8	6·0	1·3	6·5	1·1	6·7	1·0	6·0	0·8	6·5
11	0·6	7·2	0·5	6·2	0·3	5·8	0·3	5·8	3·2	6·5	2·6	6·0	2·7	8·3	1·8	6·3	0·8	6·0	0·5	6·0	0·7	5·2	0·5	5·0
12	0·3	6·2	1·3	6·0	0·8	6·0	0·3	6·0	3·0	6·7	2·9	6·0	2·8	6·7	3·6	4·8	0·5	5·7	0·5	5·0	0·6	6·0	0·6	6·0
13	1·1	6·6	1·6	7·0	5·5	8·0	5·9	7·2	3·2	6·5	2·7	7·0	3·1	6·0	2·9	6·0	0·5	5·4	0·5	5·6	0·7	5·2	0·5	6·0
14	3·3	7·2	1·9	7·8	2·2	8·0	2·1	6·6	1·8	5·7	1·6	6·0	1·4	5·2	1·2	5·0	0·8	6·0	1·0	6·0	1·7	9·7	4·5	9·3
15	1·6	5·8	1·9	8·0	1·8	6·0	2·0	5·8	1·4	4·0	1·3	6·0	1·9	3·8	1·3	5·7	3·1	9·3	2·9	8·7	3·0	7·5	2·5	7·3
16	1·1	6·0	1·4	6·2	0·9	4·8	1·0	5·4	1·4	6·7	1·5	5·6	1·0	6·0	1·4	5·4	1·6	6·7	1·3	7·0	1·1	5·8	1·3	6·0
17	0·7	5·4	0·6	6·0	1·3	6·6	1·1	6·0	1·5	5·7	1·3	4·6	1·5	3·5	1·5	4·2	1·0	6·0	1·1	6·0	1·0	6·0	1·1	6·5
18	2·0	7·4	1·9	6·6	2·4	6·6	3·0	6·6	1·5	4·2	1·4	4·8	1·7	5·0	1·7	5·4	1·3	6·3	1·4	6·5	1·9	6·7	2·7	6·3
19	3·5	6·6	3·3	7·2	3·4	7·4	3·2	8·0	1·7	5·7	1·0	6·3	1·2	5·0	1·4	6·5	1·6	7·0	1·3	7·0	1·3	6·3	1·3	6·3
20	3·0	7·0	3·0	7·0	1·7	7·2	1·7	7·0	1·5	6·0	1·6	6·5	1·6	7·0	1·4	6·5	1·1	5·8	1·2	4·8	1·2	5·0	0·7	5·6
21	2·7	6·8	1·9	6·6	2·3	7·2	2·2	7·0	1·4	6·5	1·7	5·2	1·7	5·7	1·6	6·5	0·6	6·0	0·9	5·0	0·7	5·2	0·5	6·0
22	2·8	7·0	2·8	7·0	2·7	7·4	3·6	7·2	1·7	6·5	1·8	6·3	1·7	6·5	1·6	6·0	0·7	5·6	0·6	4·5	0·8	5·4	(0·7)	(5·2)
23	3·9	7·7	5·0	7·4	3·9	8·3	3·6	8·0	1·7	7·5	1·6	6·3	1·7	5·6	1·6	6·0	1·0	5·6	1·2	5·6	1·1	6·5	1·1	6·0
24	3·3	7·0	3·9	7·2	(3·6)	(7·5)	3·4	7·7	1·6	6·0	1·3	6·0	1·6	6·3	1·8	4·5	1·1	6·5	1·1	6·0	1·3	6·0	1·3	6·3
25	3·1	7·2	2·4	7·0	1·6	7·0	1·7	7·2	1·6	4·8	1·6	6·8	1·8	4·8	1·6	6·0	1·1	6·0	1·3	6·5	1·4	6·5	1·4	6·5
26	1·6	6·6	1·6	6·8	1·9	7·0	1·8	6·2	1·7	7·0	1·8	5·7	2·0	5·8	1·9	6·5	1·5	6·0	1·6	6·3	1·3	5·6	1·2	5·6
27	1·6	6·6	1·4	7·0	1·4	7·0	1·6	6·8	1·8	6·0	1·6	5·8	1·7	5·6	1·8	5·6	1·1	6·0	0·9	6·7	1·5	6·0	1·5	6·0
28	1·8	6·2	1·6	6·6	2·7	6·6	2·9	7·2	1·6	6·5	1·8	6·3	4·0	5·7	3·8	6·7	1·2	5·2	1·5	5·2	1·8	5·8	1·9	5·2
29	3·3	7·0	6·6	9·0	6·6	8·4	5·8	8·0									1·7	5·2	1·7	5·0	1·7	5·7	1·6	6·0
30	2·5	8·0	2·3	7·2	2·5	7·0	1·4	6·6									1·8	5·6	1·7	5·6	1·8	6·0	1·9	5·2
31	1·8	6·0	1·4	6·2	3·6	5·2	3·3	6·7									1·9	5·4	2·0	5·6	1·7	5·6	1·5	5·7
Mean	1·7	6·7	1·8	6·9	2·0	6·9	1·9	6·9	2·4	6·4	2·5	6·4	2·6	6·2	2·5	6·3	1·6	6·4	1·7	6·3	1·7	6·3	1·8	6·4
Mean for days	*A* = 1·8 μ; *T*ρ = 6·9 sec.								*A* = 2·5 μ; *T*ρ = 6·3 sec.								*A* = 1·7 μ; *T*ρ = 6·3 sec.							

Day	APRIL								MAY								JUNE							
	0h.		6h.		12h.		18h.		0h.		6h.		12h.		18h.		0h.		6h.		12h.		18h.	
	A	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ	*A*	*T*ρ
	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.
1	1·0	6·5	0·8	5·7	0·8	5·7	1·0	6·0	1·0	5·6	1·1	6·3	1·0	5·7	1·2	7·3	0·6	4·2	1·0	4·0	0·7	3·1	0·8	4·2
2	1·0	6·0	1·0	5·7	0·7	5·7	1·1	5·7	1·4	7·5	1·2	7·5	0·9	4·7	1·0	6·5	1·5	4·2	0·8	4·3	1·5	3·8	1·1	3·3
3	1·3	5·7	1·1	6·0	1·7	5·7	1·9	6·0	0·8	6·0	0·9	5·2	1·0	6·5	1·0	5·2	1·4	4·0	1·2	4·0	0·6	3·7	0·7	3·3
4	2·4	6·0	1·1	6·5	0·7	5·7	0·6	6·0	0·6	6·5	0·7	3·4	0·6	3·6	0·7	3·3	0·6	3·6	0·7	5·8	1·3	6·7	1·5	6·0
5	0·7	5·7	0·5	5·7	0·6	4·5	0·4	4·5	0·6	4·0	0·6	4·0	0·6	3·9	0·6	4·2	1·4	6·5	1·4	6·7	1·5	6·0	1·5	6·0
6	0·3	5·2	0·3	5·6	0·3	6·3	0·3	5·0	0·6	4·0	0·6	4·2	0·4	4·3	0·6	4·3	0·8	6·5	1·0	6·5	0·4	4·8	0·5	4·6
7	0·5	5·4	0·5	6·3	0·8	6·0	1·0	6·5	0·4	4·0	0·5	5·6	1·2	5·6	1·1	6·0	0·5	4·8	0·5	4·8	0·7	4·8	0·7	4·8
8	0·8	6·5	1·1	6·0	1·0	6·5	0·3	6·0	1·4	5·2	1·5	5·6	1·7	5·6	1·3	5·6	1·1	4·8	0·9	4·8	0·7	4·8	0·5	4·8
9	0·5	5·4	0·3	6·0	0·3	6·0	0·3	6·0	1·2	5·6	0·9	5·2	0·8	5·6	1·1	5·0	0·9	5·0	0·7	5·2	0·5	4·8	0·6	4·2
10	0·3	5·4	0·5	5·4	0·5	5·7	0·5	4·8	1·2	4·8	1·4	5·2	0·8	5·4	1·0	5·2	0·4	4·8	0·7	4·8	(0·4)	(4·6)	0·5	4·6
11	0·7	5·7	0·7	5·4	0·8	6·0	0·7	5·4	1·1	4·8	1·2	5·2	1·2	4·8	0·9	4·8	0·4	4·0	0·4	4·8	(0·4)	(4·6)	(0·4)	(4·6)
12	0·8	7·5	0·5	6·7	0·5	7·5	0·5	6·5	1·2	5·0	1·5	5·7	1·6	6·5	2·1	6·5	(0·4)	(4·4)	(0·4)	(4·2)	0·6	4·0	0·4	4·8
13	0·5	6·3	0·5	6·7	0·6	6·0	0·6	6·5	1·4	6·7	1·7	7·0	1·6	6·7	1·6	6·7	0·5	4·8	0·4	4·5	0·7	4·8	0·5	5·2
14	0·3	6·0	0·3	6·0	0·5	6·0	0·8	6·3	1·4	6·5	0·9	6·7	1·1	6·5	1·0	5·7	0·6	4·3	0·4	4·3	0·9	4·6	1·2	5·0
15	0·6	6·5	0·5	6·0	0·5	6·3	0·6	6·7	1·1	4·5	1·1	4·5	1·5	5·6	1·2	5·2	1·3	4·6	1·1	5·0	0·9	4·8	1·1	4·5
16	0·3	6·0	0·5	6·7	0·5	5·6	0·5	5·2	1·2	5·4	1·0	5·8	0·7	5·2	0·7	5·2	1·1	4·7	1·0	4·3	0·9	5·2	0·9	4·8
17	0·7	5·7	1·0	5·7	1·1	5·7	0·8	5·4	0·3	5·6	0·5	5·2	0·5	5·2	0·5	5·2	1·1	4·3	0·8	5·8	0·8	5·6	0·8	7·0
18	0·8	5·7	1·0	6·0	0·9	5·2	0·7	5·2	1·0	6·0	1·3	6·0	(1·3)	(6·0)	1·5	6·0	0·8	7·0	0·9	5·2	0·2	5·6	0·2	5·6
19	0·7	5·2	0·5	4·8	(0·3)	(5·0)	0·3	5·2	0·6	6·0	0·8	5·7	1·0	5·7	(0·7)	(5·6)	0·2	5·6	0·3	5·8	0·6	6·0	(0·5)	(5·2)
20	0·5	5·2	0·4	4·8	0·4	4·8	0·4	4·8	0·5	5·0	0·5	4·7	0·9	5·2	0·8	5·7	(0·8)	(6·0)	1·3	6·2	1·6	6·7	1·1	6·5
21	0·3	5·0	0·4	4·8	0·4	4·8	0·4	4·8	0·7	5·7	0·6	6·0	0·5	6·3	0·8	6·0	1·3	5·6	0·8	6·5	1·5	5·7	1·6	7·7
22	0·3	5·0	0·4	4·8	0·5	5·2	0·3	5·0	0·6	6·0	0·7	5·4	0·9	5·2	0·9	5·2	1·5	6·0	1·4	5·2	0·9	4·8	0·7	5·0
23	0·3	5·0	0·3	6·0	0·4	4·8	0·5	4·6	0·7	5·6	1·2	5·6	0·7	5·6	1·0	5·6	0·5	4·8	0·5	5·0	0·5	4·6	0·5	4·8
24	0·4	4·8	0·3	5·4	0·3	5·7	0·8	7·0	0·8	6·0	0·8	5·7	0·8	5·4	0·7	5·0	0·5	4·6	0·5	4·7	0·5	4·7	0·7	4·5
25	1·0	6·5	1·3	6·5	0·8	6·5	(0·7)	(5·8)	0·7	4·8	0·9	5·2	0·5	5·0	0·6	4·3	0·5	5·0	0·7	4·5	0·9	5·0	1·1	5·0
26	0·5	5·7	0·7	5·4	0·4	4·2	0·5	5·4	0·6	4·5	0·7	4·7	0·9	5·0	0·9	5·0	0·7	5·2	0·9	4·8	0·9	5·2	1·0	4·2
27	0·5	4·8	0·3	5·2	0·7	5·7	0·6	4·5	1·1	4·3	1·1	5·0	0·9	4·8	1·1	4·8	0·7	5·4	0·7	5·0	1·7	3·7	1·2	5·2
28	0·7	5·0	1·1	5·0	0·7	5·2	0·9	5·2	0·9	5·0	1·1	4·7	1·2	5·0	(1·2)	(5·2)	1·5	5·2	1·9	5·0	1·8	4·6	1·8	4·6
29	0·7	5·0	0·9	4·6	0·7	5·7	0·7	4·8	0·7	5·0	1·1	4·8	1·2	5·4	0·9	5·2	2·0	4·6	2·3	4·3	1·9	4·3	1·8	4·6
30	0·9	4·8	0·8	6·0	1·0	5·7	0·8	6·3	0·9	4·8	0·8	4·2	1·4	5·0	1·4	5·2	1·7	3·8	0·9	3·4	0·8	3·7	0·8	4·0
31									1·2	5·4	0·9	5·2	0·8	5·4	0·7	4·5								
Mean	0·7	5·6	0·7	5·7	0·7	5·7	0·7	5·6	0·9	5·3	1·0	5·3	1·0	5·4	1·0	5·3	0·9	4·9	0·9	5·0	0·9	4·8	0·9	4·9
Mean for days	*A* = 0·7 μ; *T*ρ = 5·7 sec.								*A* = 1·0 μ; *T*ρ = 5·3 sec.								*A* = 0·9 μ; *T*ρ = 4·9 sec.							

The symbol ··· indicates that microseisms were not measured, either by reason of occurrence of earthquake or lack of record

MICROSEISMS OF VERTICAL COMPONENT: AMPLITUDE (μ = 0·001 mm.) AND PERIOD

Derived from readings for the periods of thirty minutes centring at the exact hours, Greenwich Mean Time

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Day	JULY								AUGUST								SEPTEMBER							
	0h.		6h.		12h.		18h.		0h.		6h.		12h.		18h.		0h.		6h.		12h.		18h.	
	A	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*
	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.
1	0·8	4·0	0·7	4·8	0·4	4·2	0·6	4·5	0·4	4·8	0·2	4·8	0·4	4·8	0·2	3·9	0·2	4·8	0·2	4·3	0·2	4·6	0·2	4·7
2	0·5	4·6	0·5	4·8	0·5	4·8	0·4	4·0	0·2	4·0	0·2	3·7	0·2	3·9	0·2	4·3	0·2	5·0	0·2	5·4	0·2	4·7	0·2	5·2
3	0·5	5·0	0·6	4·5	0·4	4·2	0·4	4·2	0·4	4·0	0·2	3·6	0·4	3·7	0·2	4·7	0·2	4·5	0·2	4·0	0·2	3·3	0·2	3·5
4	0·3	6·5	0·5	6·5	0·7	5·2	0·7	4·8	0·2	3·8	0·2	3·9	0·2	3·9	0·2	3·5	0·2	4·5	0·2	3·7	0·4	4·7	0·2	4·7
5	0·5	5·4	0·5	4·6	0·5	4·6	0·6	3·6	0·2	4·0	0·2	3·9	0·2	4·7	0·2	4·3	0·2	4·7	0·2	5·0	0·2	5·0	0·2	4·3
6	0·6	4·3	(0·5)	(5·0)	0·5	6·3	0·4	4·5	0·2	4·7	0·2	4·8	0·1	4·5	0·1	4·3	0·2	4·7	0·2	4·8	0·3	5·0	0·5	5·2
7	0·4	4·1	0·8	4·0	1·5	4·6	1·3	4·5	0·1	4·0	0·1	4·0	0·1	4·6	0·1	4·6	0·3	5·2	(0·3)	(5·0)	0·2	4·7	0·2	4·7
8	0·8	4·2	0·7	5·4	0·7	4·7	0·3	5·4	0·1	5·2	0·1	4·6	0·1	4·6	0·1	4·4	0·2	4·3	0·2	4·0	0·4	3·7	0·4	4·0
9	0·6	4·3	0·4	4·3	1·0	4·0	0·8	3·9	0·1	5·0	0·1	5·4	0·2	6·3	0·2	6·5	0·4	4·2	0·4	3·7	0·2	3·5	0·4	4·3
10	0·6	4·3	0·4	3·7	0·5	4·7	0·4	3·9	0·2	6·7	0·2	7·0	0·2	7·0	0·2	7·7	0·4	4·7	0·4	4·3	0·3	5·4	0·3	5·0
11	0·4	4·0	0·4	4·5	0·8	6·0	0·7	5·7	0·2	8·0	0·3	8·7	0·2	8·0	0·2	8·0	0·3	5·2	0·3	5·2	0·3	5·2	0·3	5·2
12	0·3	5·2	0·4	4·6	0·2	4·6	0·2	4·8	0·2	8·0	0·3	6·5	0·5	6·0	0·3	5·8	0·3	5·6	0·3	5·2	0·4	4·5	0·5	5·4
13	0·4	4·2	0·2	5·2	0·2	4·3	0·2	4·7	0·2	5·4	0·3	5·2	0·3	5·2	0·4	4·8	0·7	5·0	0·5	5·0	0·5	5·6	0·7	5·0
14	0·3	5·0	0·4	4·8	0·7	5·6	1·0	6·5	0·2	5·4	0·2	4·8	0·3	5·0	0·2	5·2	0·5	5·0	0·5	5·2	0·5	5·0	0·4	4·3
15	1·3	6·5	0·8	5·6	0·8	6·0	0·5	5·4	0·2	4·8	0·2	4·6	0·2	4·0	0·2	4·5	0·4	4·8	0·3	5·2	0·4	4·8	0·4	4·8
16	0·4	4·7	0·4	4·6	0·3	5·2	0·2	4·5	0·2	4·3	(0·4)	(4·5)	0·4	4·8	1·2	7·5	0·4	4·8	0·4	4·7	0·4	4·5	0·6	4·3
17	0·2	4·5	0·2	4·8	0·4	4·0	0·2	3·7	1·6	7·5	1·4	7·0	1·3	6·0	1·1	5·7	0·5	4·7	0·6	4·3	0·9	5·0	0·8	4·3
18	0·2	4·2	0·2	4·5	0·2	4·5	0·2	5·7	0·3	5·4	0·4	4·5	0·5	4·8	0·6	4·3	1·2	5·2	0·7	4·6	0·8	4·3	0·4	4·3
19	0·4	4·0	0·4	4·8	0·2	4·2	0·6	4·3	0·6	4·0	0·6	4·0	0·4	4·2	0·4	4·0	0·4	4·0	0·3	5·0	0·6	4·0	0·5	4·8
20	0·2	4·0	0·3	5·0	0·7	4·6	0·4	4·0	0·5	4·8	0·5	4·8	1·4	6·5	1·3	6·3	0·4	4·8	0·4	4·7	0·4	4·7	1·3	7·0
21	0·4	4·2	0·7	4·8	0·3	5·4	0·5	4·6	0·7	5·6	0·6	6·0	0·5	6·5	0·5	5·6	1·2	7·7	1·3	6·5	(1·2)	(6·2)	(1·0)	(6·0)
22	0·2	4·2	0·4	4·2	(0·3)	(4·5)	(0·2)	(5·0)	0·3	5·0	0·3	5·2	0·7	5·0	0·7	5·2	(0·9)	(5·7)	(0·8)	(5·5)	0·7	5·2	1·5	5·7
23	(0·3)	(4·8)	(0·3)	(4·5)	(0·3)	(4·8)	(0·3)	(4·5)	0·3	5·0	0·5	5·2	0·5	5·6	0·5	5·0	1·3	5·7	1·7	6·7	1·4	8·0	1·6	7·7
24	(0·2)	(4·5)	(0·2)	(4·3)	(0·2)	(4·5)	(0·2)	(4·3)	0·5	5·4	0·5	5·0	0·5	5·6	0·5	5·4	1·4	7·0	1·4	6·7	1·4	7·0	1·4	6·5
25	(0·3)	(4·3)	(0·3)	(5·2)	(0·3)	(5·0)	(0·3)	(5·2)	0·5	5·2	0·5	6·0	0·7	5·7	0·5	5·4	0·8	6·3	0·7	5·8	0·5	6·3	0·3	7·7
26	(0·4)	(5·2)	(0·5)	(5·0)	(0·4)	(5·0)	(0·7)	(5·0)	0·3	5·2	0·2	5·4	0·2	5·4	0·2	4·8	0·3	6·0	0·4	4·7	0·4	4·2	0·4	4·3
27	(0·5)	(4·8)	(0·4)	(4·5)	(0·6)	(4·5)	(1·4)	(4·5)	0·2	4·7	0·2	4·7	0·2	4·0	0·2	4·8	0·4	4·7	0·4	4·0	0·2	4·8	0·2	4·3
28	(0·9)	(4·5)	(1·1)	(4·3)	(0·6)	(4·3)	0·4	4·6	0·2	5·0	0·2	4·5	0·5	5·2	0·3	5·0	0·2	4·8	0·2	5·6	0·4	4·8	0·4	4·6
29	0·2	4·3	0·2	4·7	0·2	4·0	0·2	4·0	0·3	5·0	0·3	5·0	0·4	4·7	0·4	4·8	0·3	5·7	0·6	7·5	1·4	6·7	1·3	6·0
30	0·2	4·7	0·4	4·3	0·6	4·2	0·6	4·2	0·4	4·8	0·2	4·8	0·2	5·0	0·2	5·0	0·8	5·7	0·8	5·4	0·5	5·6	0·3	5·2
31	0·4	4·5	0·4	4·7	0·4	4·8	0·4	4·5	0·2	5·0	0·2	4·8	0·4	4·8	0·2	4·8								
Mean	0·4	4·6	0·5	4·7	0·5	4·7	0·5	4·6	0·3	5·1	0·3	5·1	0·4	5·2	0·4	5·2	0·5	5·2	0·5	5·1	0·5	5·0	0·6	5·1
Mean for days	*A* = 0·5 μ; *Tρ* = 4·7 sec.								*A* = 0·3 μ; *Tρ* = 5·1 sec.								*A* = 0·5 μ; *Tρ* = 5·1 sec.							

Day	OCTOBER								NOVEMBER								DECEMBER							
	0h.		6h.		12h.		18h.		0h.		6h.		12h.		18h.		0h.		6h.		12h.		18h.	
	A	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*	*A*	*Tρ*
	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.	μ	sec.
1	0·3	5·4	0·2	5·6	0·2	5·6	0·2	4·8	1·5	6·0	1·5	6·0	1·7	6·5	2·1	6·5	2·5	8·7	4·8	8·7	4·7	8·0	5·4	8·3
2	0·4	4·6	0·5	5·6	1·5	6·0	1·6	6·0	3·1	7·7	1·9	7·7	2·5	6·7	1·6	6·5	4·8	7·7	3·1	7·7	2·3	7·7	2·1	7·0
3	1·5	6·0	1·4	6·5	1·4	6·5	1·4	6·5	1·6	6·5	0·8	6·5	1·3	6·7	1·3	6·5	1·7	6·7	1·4	6·3	1·6	6·0	1·7	5·7
4	2·3	5·7	1·9	7·7	2·8	6·7	1·7	7·7	0·8	6·0	1·4	6·5	1·5	6·0	1·6	5·0	1·4	6·5	0·8	6·0	1·0	6·0	1·5	5·6
5	1·7	7·7	2·1	7·0	1·9	6·7	1·9	6·5	1·2	5·2	1·5	5·7	(1·5)	(5·7)	(1·7)	(5·7)	1·4	7·0	3·0	7·7	3·3	7·7	3·3	7·7
6	1·6	6·5	1·7	7·0	(2·4)	(7·0)	1·6	7·7	(1·6)	(6·0)	(1·9)	(5·7)	(1·5)	(5·7)	(1·5)	(5·7)	3·6	7·7	4·4	7·0	3·4	7·3	3·0	6·7
7	1·7	6·7	2·7	6·7	1·7	7·0	1·9	6·7	(1·6)	(6·0)	(1·9)	(6·3)	1·6	6·0	1·5	5·7	(3·2)	(6·7)	3·3	6·7	2·1	7·0	1·6	7·0
8	3·6	7·3	2·0	7·7	2·2	7·7	1·7	7·7	1·3	6·0	1·3	5·7	0·9	5·0	0·7	5·0	1·6	7·0	1·9	7·0	1·4	7·0	1·4	7·0
9	2·3	7·3	1·4	6·5	1·4	6·5	1·5	5·7	0·9	5·0	0·9	5·0	1·4	5·0	1·5	6·0	1·4	7·0	1·4	8·0	1·2	7·7	1·3	6·3
10	1·3	6·3	1·5	5·7	1·0	5·6	1·5	5·7	1·4	6·7	1·1	6·7	1·3	5·7	1·2	5·2	0·8	6·5	1·5	6·0	1·4	8·0	1·9	8·3
11	1·0	5·7	1·3	6·0	0·7	5·4	0·8	5·4	(1·0)	(5·2)	0·8	5·4	0·9	5·2	0·8	5·7	1·6	8·0	2·7	8·0	2·0	7·7	1·6	8·0
12	0·5	6·0	0·5	5·2	0·2	5·2	0·2	4·2	1·0	5·6	1·1	5·7	1·1	6·5	1·5	6·0	1·6	7·7	1·6	7·7	1·6	7·0	1·4	6·3
13	0·2	4·7	0·3	6·5	1·4	8·0	1·6	8·0	1·5	5·6	1·6	6·0	1·5	6·0	1·6	6·5	1·4	6·5	1·4	6·3	1·4	5·4	1·0	5·7
14	1·6	7·7	1·8	6·3	1·6	6·5	2·1	6·7	1·6	6·5	1·5	6·0	1·8	6·0	1·7	5·7	1·3	6·3	1·4	6·5	2·2	8·3	···	···
15	1·9	6·5	1·4	6·5	1·3	6·0	1·5	6·0	0·8	6·3	0·5	6·0	0·3	5·0	0·3	5·4	···	···	···	···	···	···	2·9	6·5
16	1·5	5·7	1·3	6·5	1·6	6·0	1·4	6·5	0·2	5·0	0·3	6·5	0·5	6·7	0·3	6·0	4·3	6·3	(3·2)	(6·3)	···	···	···	···
17	0·8	6·5	0·8	5·7	0·5	5·2	0·7	5·2	0·3	6·5	0·3	6·3	0·2	6·3	0·2	6·5	···	···	···	···	3·2	7·0	2·5	7·3
18	0·7	5·2	0·5	5·2	0·3	5·2	(0·6)	(6·0)	0·3	6·5	1·5	6·0	1·4	6·3	1·4	6·3	2·3	6·0	2·8	6·0	3·2	6·7	4·7	7·0
19	(0·5)	(5·6)	(0·5)	(5·6)	(0·5)	(5·2)	(0·5)	(5·4)	3·3	6·7	3·4	7·7	2·1	7·0	3·5	6·7	5·8	6·7	8·6	6·5	5·8	6·3	4·0	6·5
20	(0·7)	(5·0)	(0·5)	(5·7)	1·6	6·7	1·4	6·7	2·1	6·7	1·6	6·7	1·6	7·5	1·6	6·5	2·4	6·0	1·7	6·5	1·6	6·0	1·7	5·0
21	(1·4)	(6·5)	(2·1)	(6·0)	2·1	6·7	2·1	6·7	1·4	7·0	1·4	6·7	1·0	6·3	1·5	5·4	0·9	4·8	0·5	5·2	0·4	4·8	0·2	5·7
22	(1·4)	(7·0)	(1·4)	(6·7)	(1·0)	(6·5)	(0·8)	(6·3)	1·1	6·7	1·5	6·0	1·4	6·5	1·0	6·5	0·4	4·8	0·4	4·8	0·4	4·8	0·4	4·8
23	(0·8)	(6·3)	(0·6)	(6·5)	0·7	5·8	0·7	5·8	1·4	6·5	1·5	6·0	1·4	6·5	1·4	6·7	0·5	5·4	0·4	4·3	0·5	5·2	1·5	5·2
24	0·5	6·0	1·4	6·7	(1·4)	(6·7)	1·6	6·7	2·2	5·2	1·5	5·2	1·4	6·5	1·6	6·7	1·0	4·0	0·2	5·0	0·2	4·2	0·5	4·8
25	2·1	8·3	3·2	8·3	2·4	8·3	2·5	8·0	1·6	7·0	1·3	7·0	1·8	6·0	1·4	7·0	0·4	4·8	0·2	4·6	0·4	3·8	0·2	3·3
26	1·9	7·0	1·4	6·7	1·6	6·5	1·4	6·5	2·5	7·0	1·7	6·5	2·4	7·0	1·8	6·3	0·2	4·5	0·2	3·7	0·2	4·6	0·2	6·0
27	1·4	6·3	1·5	6·0	0·8	6·0	(0·8)	(5·7)	1·6	6·0	1·6	6·7	1·6	6·0	2·5	6·7	0·3	5·0	0·4	4·0	1·1	6·0	1·3	6·0
28	(1·2)	(5·7)	(0·8)	(5·5)	(0·5)	(5·3)	(0·5)	(6·3)	3·3	6·7	5·2	9·0	11·5	9·3	9·9	9·3	1·5	6·0	1·5	6·0	1·4	7·3	1·1	6·0
29	(0·5)	(6·0)	(0·6)	(6·5)	0·5	6·5	0·5	6·5	8·7	8·7	6·7	8·7	6·5	8·7	3·5	8·7	0·5	6·0	0·7	5·2	1·4	6·3	0·9	5·0
30	0·7	5·8	1·3	6·5	1·6	6·5	1·9	7·3	3·3	8·3	2·8	8·0	2·5	8·0	2·8	8·0	1·4	6·7	1·3	5·6	1·6	4·8	1·7	5·2
31	1·5	6·0	1·7	6·5	1·6	6·3	1·4	6·5									1·3	5·6	1·5	5·4	1·5	5·6	1·6	7·0
Mean	1·3	6·2	1·3	6·4	1·3	6·3	1·3	6·4	1·8	6·4	1·7	6·5	1·9	6·4	1·8	6·3	1·8	6·3	1·9	6·2	1·8	6·3	1·8	6·2
Mean for days	*A* = 1·3 μ; *Tρ* = 6·3 sec.								*A* = 1·8 μ; *Tρ* = 6·4 sec.								*A* = 1·8 μ; *Tρ* = 6·3 sec.							

The symbol ··· indicates that microseisms were not measured, either by reason of occurrence of earthquake or lack of record

M.O.578
(Aerological)

THE OBSERVATORIES' YEAR BOOK 1938

Comprising the meteorological and geophysical results obtained from autographic records and eye observations at the observatories at Lerwick, Aberdeen, Eskdalemuir, Valentia and Kew, and the results of soundings of the upper atmosphere by means of registering balloons

AEROLOGICAL SECTION

Decimal Index
551.506.7

Obs. Yearb., 1938,
London, 1955

AEROLOGICAL SECTION

Station	Latitude	Longitude	Height above Sea Level
Kew Observatory ...	51° 28′ N. ...	0° 19′ W. ...	7 metres.
Sealand	53° 14′ N. ...	3° 0′ W. ...	5 metres.

Notes on the tables of Upper Air Temperatures obtained from soundings with registering balloons at Kew Observatory and Sealand, 1938

The tables in the Aerological Section are presented in the same form as those appearing in the *Observatories' Year Book* since 1930. As in that volume geopotential is used in place of geometric height for the vertical coordinate. The units employed are:

1 Leo (symbol l.) $=10^5$ c.g.s. units of geopotential.
1 Kiloleo (symbol Kl.) $=10^8$ c.g.s. ,, ,, ,,

A table shewing the relation between height and geopotential in latitude 52° 20′, the approximate mean latitude of Kew Observatory and Sealand, is given in the Introduction to the Aerological Section of the *Observatories' Year Book*, 1930. For ordinary purposes it may be taken that if 2·1% be added to the geopotential in kiloleos the corresponding height in kilometres will then be obtained.

The Dines pattern meteorograph was employed solely as before, and the method of operation remained the same as in recent years. A full description will be found in a pamphlet entitled "The Dines balloon meteorograph and the method of using it."* In the computation of pressure-geopotentials the graphical method was employed, checked as to its main features by an arithmetical process. The effect of humidity on the density of the air was neglected.

A total of 66 soundings were made during the year, 5 from Sealand and 61 from Kew. In most cases the meteorograph was attached as an adjunct either to an air sampling apparatus or to a radio sonde. All such cases are indicated in the notes. Only 4 instruments were not found and returned. Many of the soundings did not reach the stratosphere, and selection has therefore been made in regard to those which have been published; 32 will be found in the present volume, together with one made in December, 1937, which was returned too late for inclusion in the volume for that year.

The exposure of the meteorograph is much the same whether it is sent up alone or attached to another piece of apparatus. In the latter case the balloon is only a few metres above instead of 40 metres, but the vertical velocity is high and the thermal effects of the balloon are not appreciable.

The ventilation of the Dines meteorograph is effected solely by the natural draught produced by its vertical velocity. The vertical velocity of the rising balloon near the start is indicated approximately in Table 229 being based on a formula derived from a limited number of observations.† It is probable that even when the balloon is known to have burst, this velocity was not always maintained up to the highest point of the sounding. After the balloon had burst the velocity of fall was much higher, ranging from about 15 metres per second at 20 Kl. down to 5 near the ground. The ventilation on the descent was more adequate than on the ascent, especially in the stratosphere.

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*Dines, L.H.G.: The Dines balloon meteorograph and the method of using it. (M.O. 321) London, 1929.

†Dines, L.H.G.: *London, Prof. Notes, met. off.* No. 67, p. 8, 1935.

As regards temperature, unless stated to the contrary the mean of the records on the ascent and descent in the troposphere was employed in computing the published figures. In general the difference between the two records did not exceed 5°A., with a mean of about half that amount. Whenever direct evidence is available it is almost always found that in the troposphere the descending record is the colder of the two. An analysis of a large number of British soundings has led to the conclusion that as far as the troposphere is concerned this effect is mainly due to a temperature lag of the thermograph member, and that the mean of the two records gives in general a close approximation to the true air temperature.* In the stratosphere the rule has been followed of using the mean for the lower part, but if the two records begin to diverge steadily with increasing height, or if in the upper part they differ consistently by more than 2°, then the descent only is employed from thence upwards. Occasionally in exceptional circumstances it is deemed best to vary these rules, in which cases the fact is stated in the remarks.

In the case of high soundings made during the day-time a pronounced rise of temperature is sometimes observed over about a kiloleo at the extreme top. There is good evidence that this is a fictitious effect due to solar radiation and that the ascent is a great deal more affected by it than the descent. The rise of temperature in such cases is therefore usually ignored. An account of this phenomenon is to be found in *Memoirs of the Royal Meteorological Society*, **2**, No. 18. By L. H. G. Dines. See also the last page of this introduction.

Whenever possible the meteorograph was briefly calibrated again at one temperature after return, before the record plate had been disturbed, in order to discover whether any shift of zero had taken place since the previous calibration. This provides some check on the behaviour of the instrument, but disturbance is almost inevitable considering the rough treatment experienced in the shock of the fall and after.

All new meteorographs, and all old ones used again after repair, were seasoned in a vacuum chamber before use by being subjected to several slow reductions of pressure. This process has been found greatly to reduce the chance of a systematic difference occurring between the results of a fast and slow calibration. More detail is given in the Introduction to the tables for 1923, and within the limits of accuracy at present attainable in the measurement of upper air pressures, the results of the fast reduction of pressure in the calibration test may be taken as applying to the slow reduction in the actual sounding.

Owing to lag in the response of the aneroid box the difference in pressure reading as between a falling and a rising pressure, is of the order 3 or 4 millibars on the average in the middle region of a high sounding, falling off to lesser values on either side. If a correction be applied to the recorded temperatures at assigned pressures to allow for this error, it results, for an average sounding in the troposphere, in an increase in the difference between the temperatures recorded at any pressure on the ascent and descent. The effect is to make the recorded temperatures on the descent too high by about half a degree at a level of 6 or 7 kiloleos, with a tendency for the error to fall off above and below. When the mean of the two records is employed the resultant error is halved and becomes negligible.

In a few cases the meteorograph was fitted with a hair hygrograph. Only the record of relative humidity on the ascent in each case has been published, except when specific mention to the contrary is made in the remarks. The record of the descent appears to be the less reliable for two reasons, first that the previous exposure of the hair to extreme cold and dryness makes it more sluggish in response to changes in the

* See also:—FIELD J. H., Simla, Mem. Indian met. Dep. **24**. Part V. 1924.

relative humidity, second that the higher velocity at which the meteorograph falls increases the lag in its response reckoned in terms of height. The hygrometer readily shows changes in the relative humidity in the lower part of the troposphere, but the absolute value of its readings may be subject to uncertain error, especially at temperatures below freezing. No difference has been made as concerns this or previous volumes, in the interpretation of the records as between temperatures above and below the freezing point. For purposes of reference it may however be stated that Depegrams supplied to the International Commission for the exploration of the Upper Air were, up to the year 1929, drawn on the assumption that the published figures of relative humidity at temperatures below 273°A. referred to ice ; since 1930 it has been presumed that they refer to water in all cases. Below a temperature of 250°A. it seems doubtful if in the ordinary way the record has any meaning, and the figures for the higher parts of the atmosphere have not therefore been published.

In order to ensure as far as possible that the hygrograph works under standard conditions, it is normally exposed to a saturated atmosphere for ten minutes about an hour before the sounding is made.

The method of calibrating the hygrograph has remained the same as in former years. A full account of the process will be found in the Introduction to the Aerological Section of the Year Books for 1934 and preceding years.

In working up the records the hair has been assumed to have a uniform absolute coefficient of thermal expansion of 34×10^{-6} per °A. Since the frame of the hygrograph is made of nickel silver having a coefficient of 18×10^{-6} the relative expansion of hair to frame is assumed to be 16×10^{-6} per °A.

No allowance has been made in computing the published figures for the fact that the results of the calibration are not necessarily valid at low temperatures below the freezing point.

It has been noticed on many occasions that on passing through a cloud the hygrograph hairs expand more than they do when immersed in water or in an artificial saturated atmosphere. This phenomenon is not yet fully understood, but it has been proved that it is not due to errors in calibration or setting of the instrument; accordingly its occurrence is indicated by publishing a value of the relative humidity in excess of 100%. The values are determined by extrapolation of the calibration upwards through 100.

Data of well marked inversions and regions of zero lapse rate in the troposphere are included in the remarks on the soundings. They are set out in a uniform manner on the principle that corresponding values of geopotential, temperature and relative humidity are given for the salient points in each special case, the sequence being always from lesser geopotentials to greater.

The figures given in the table of lapse rates do not in every case agree with the temperatures appearing in the table of temperatures at assigned geopotentials. The reason for this is that both were determined independently from the original data, which can sometimes profitably be read to the nearest half degree, but are rounded off to whole degrees for publication.

The lapse rates given between ground level and 0·5 Kl. are determined from the reading in the thermometer screen at the station and that of the meteorograph at 0·5 Kl. A source of error arises here in that the two standards are independent and are not exposed in the same manner. A small difference is capable of making an appreciable error in the lapse rate, and it is possible that lapse rates apparently greater than 10°A. per Kl. in this layer are sometimes due to this cause.

In Table 229 occur the entries " Type of Tropopause " and " L_e=Geopotential at Tropopause." These are defined as follows :—Type I. The stratosphere commences with an inversion, and L_e is the geopotential at the first point of zero temperature gradient. Type II. The stratosphere begins with an abrupt transition to a temperature gradient below 2°A. per kiloleo without inversion, and L_e is the geopotential of the abrupt transition. Type III. There is no abrupt change of temperature gradient, and the base of the stratosphere is taken at the point where the mean fall of temperature for the kiloleo next above is 2°A. or less, provided that it does not exceed 2°A. for any subsequent kiloleo. In the remarks on the soundings the pressure distribution is classified according to the types defined in " Aids to forecasting." †

Statistical and correlation tables will be found in the Aerological Section of the *Observatories' Year Book* for the years 1929 and 1935.

Note.

The method of reducing the temperature in the upper portion of high soundings in daylight described above was introduced first in January, 1935. The method used previously was described in the Introduction to the Aerological Section of the respective Year Books. Shortly the difference was that previous to 1935 the temperatures recorded on the ascent and descent, when they differed considerably in the upper part of the sounding were weighted, the greater weight being given to the descent, while since that date the ascent in such circumstances has generally not been used.

This small change in procedure introduced in 1935 caused a slight break in continuity and with a view to obviating this, all the soundings back to the beginning of 1922 have been re-examined. Where it appeared that the published figure of temperature was not the same as it would have been if the modern procedure had been followed, a correction was tabulated which when applied would make it so. Without exception the correction must be deducted from the original figure.

The resulting correction tables are given below : blank spaces indicate that no corrections are needed. At the fixed levels few exceed 2° : at the highest points they are a little greater, as would be expected.

†—GOLD, E., F.R.S., *London, Geophys. Mem.* No. 16, 1920.

TABLE OF CORRECTIONS TO TEMPERATURES PUBLISHED IN THE AEROLOGICAL SECTION OF THE OBSERVATORIES YEAR BOOK.

The figures in the Table are degrees C. and must be deducted from the published figures. Where no correction is given the published figure remains valid. Under the heading " Top " appears the correction to the temperature reading for the highest point of the sounding, the exact height of which will be found in the tables in the Year Book. The column headed No. gives the serial number of the sounding to which the corrections refer.

		HEIGHT LEVELS. Kilometres														PRESSURE LEVELS (mb.)		
Year	No.	10	11	12	13	14	15	16	17	18	19	20	21	22	Top	100	200	300
1922	...	...	...	...	...	...	...	Nil	...	...	...	...	...	...	...	...	Nil	...
1923	...	...	...	...	...	...	...	Nil	...	...	...	...	...	...	...	...	Nil	...
1924	498	...	...	...	...	2	2	...	...	...	...	...	...	...	3	...	...	...
	499	...	...	1	1	1	1	2	...	...	...	...	...	...	2	...	1	...
	505	...	1	1	1	...	...	...	...	...	...	...	...	...	2	...	1	...
	507	...	...	...	...	...	...	...	...	...	...	...	...	...	?‡	...	...	...
	514	...	...	...	...	1	1	1	...	...	...	...	...	...	...	1	...	...
1925	528	...	...	...	...	1	2	2	2	...	...	...	...	...	4‡	2	...	...
	529	...	...	...	1	...	1	2	...	...	...	...	...	...	1	1	...	...
	543	...	1	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...
	549	...	...	...	...	...	...	2	...	...	...	...	...	...	1	2	...	...
	554	...	...	...	...	...	...	...	1	1	1	...	...	...	1	...	...	...
	556	...	...	...	2	2	1	2	...	...	...	...	...	...	1	...	...	...
	557	...	...	...	...	1	2	1	1	1	2	2	2	3	4	1	...	...
	558	...	...	...	1	1	2	2	2	2	...	...	...	...	3	2	...	...
	566	...	...	2	2	...	...	...	...	...	...	...	...	...	2	...	2	...
	569	...	...	1	1	2	2	...	...	...	...	...	...	...	3	...	1	...
	570	...	...	...	1	2	2	2	2	...	...	...	...	...	2	2	...	...
	572	...	...	...	1	1	1	1	1	2	...	...	...	...	2	1	...	...
	581	...	...	...	...	...	1	2	2	...	...	...	...	...	4	2	...	...
1926	590	...	1	1	2	...	...	...	...	...	...	...	...	...	2	...	1	1
	591	...	...	...	...	1	...	1	1	1	...	...	...	...	1	...	...	...
	595	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...
	596	...	...	...	...	...	...	...	...	1	1	1	...	...	1	1	...	...
	598	...	...	2	2	2	2	2	2	...	...	...	...	...	2	2	1	...
	602	...	...	...	1	2	2	...	...	...	...	...	...	...	1	...	...	...
	603	...	...	...	1	2	2	2	2	...	...	...	...	...	1	2	...	...
	609	...	...	1	2	3	2	2	3	3	2	2	...	...	2	2	...	...
	612	...	...	...	1	1	2	2	3	3	3	2	...	...	2	2	...	...
	613	...	...	...	2	1	1	2	2	2	1	...	...	...	1	2	...	...
	615	...	1	2	2	1	3	3	...	...	...	...	...	...	1	2	...	...
	616	...	...	2	1	1	2	1	2	...	...	...	...	...	1	1	1	...
	617	...	...	...	...	...	2	4	3	5	5	4	...	...	5	3	...	...
	620	...	...	...	...	...	2	...	1	...	...	...	...	...	...	...	...	...
	622	...	...	...	...	...	1	1	1	4	4	3	...	...	2	1	...	...
1927	632	...	...	...	...	...	...	...	1	2	...	...	...	...	2	...	...	...
	636	...	...	...	...	2	2	2	1	...	...	...	...	...	1	2	...	...
	639	...	...	...	...	...	...	2	2	...	1	...	...	...	1	2	...	...
	640	...	...	2	2	1	2	2	1	2	2	2	3	...	3	2	2	...
	642	...	...	...	...	1	...	2	1	...	...	...	...	...	1	2	...	...
	644	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...
	647	...	...	1	1	2	2	2	2	2	...	...	...	...	2	2	...	...
	648	...	...	1	1	...	2	2	2	1	...	...	...	...	1	2	...	...
	655	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...
	660	...	...	...	...	1	1	1	1	1	1	...	...	...	2	1	...	...
	662	...	...	...	...	...	...	...	...	1	2	...	...	...	1	...	...	...
	663	...	...	...	...	...	...	...	...	2	2	2	...	...	...	...	...	...
	672	...	...	...	2	1	1	2	1	1	3	3	...	...	2	2	...	...
1928	678	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...
	680	...	...	...	...	...	1	1	1	1	2	...	...	...	3	1	...	...
	683	...	...	...	1	2	1	1	1	...	...	...	...	...	1	2	...	...
	693	2	1	2	...	...	...	...	...	...	...	...	...	...	...	...	2	...
	703	...	...	...	...	...	...	2	1	...	...	...	...	...	...	1	...	...
	713	...	...	...	...	...	...	...	...	...	...	...	...	...	3‡	...	...	...
	717	...	...	1	1	1	...	1	1	...	...	...	...	...	1	1	1	...
	719	...	...	...	1	2	2	...	1	...	...	...	...	...	...	...	...	...
1929	729	...	...	...	...	...	...	1	2	...	...	...	...	...	1	1	...	...
	737	...	...	...	1	2	...	...	...	...	...	...	...	...	...	...	...	...
	738	...	...	...	...	...	1	2	2	...	...	...	...	...	1	1	...	...
	745	...	...	...	...	...	...	...	...	...	1	1	1	1	1	...	...	...

‡Unreliable.

TABLE OF CORRECTIONS TO TEMPERATURES PUBLISHED IN THE AEROLOGICAL SECTION OF THE OBSERVATORIES YEAR BOOK.

		GEOPOTENTIAL LEVELS. Kiloleos														PRESSURE LEVELS (mb.)		
Year	No.	10	11	12	13	14	15	16	17	18	19	20	21	22	Top	100	200	300
1930	776*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	778	...	...	...	...	2	1	2	1	2	5	...	...	...	5	2	...	...
	780	...	...	...	2	1	1	3	...	...	...	...	...	...	1	3	...	...
	781	...	...	...	...	...	...	1	1	1	...	...	...	...	1	1	...	...
	782	...	...	...	...	...	1	1	...	...	...	...	...	...	1	1	...	...
	783	...	...	...	...	...	...	...	...	1	...	...	...	...	2	2	...	...
	803	...	...	...	...	...	1	2	1	1	...	...	...	...	2	2	...	...
	807	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...
	809	...	...	...	1	2	3	2	1	2	...	...	...	...	3	2	...	...
1931	847	...	...	...	...	1	1	2	2	2	**	1	1	...	1	2	...	...
	848	...	2	2	2	2	2	...	...	...	...	...	...	...	...	...	2	...
	849	...	...	...	...	...	2	1	...	...	...	...	...	...	...	1	...	...
	853	...	...	...	2	1	1	1	...	...	...	...	...	...	1	...	...	...
	854	...	...	...	1	1	...	1	2	2	1	...	...	...	1	1	...	...
	856	...	...	...	...	...	...	1	...	1	...	...	...	...	2	1	...	...
	859	...	...	...	1	1	1	1	1	...	...	...	...	...	3	1	...	...
	863	...	...	...	...	...	...	2	2	2	1	1	...	...	...	...	...	...
1932	872	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
	879	...	...	...	1	3	2	2	1	...	...	...	...	...	1	2	1	...
	884	...	...	...	...	1	2	1	1	...	...	...	...	...	1	1	...	...
	888	...	...	...	...	...	1	...	1	1	...	...	...	...	1	...	...	...
	889	...	...	...	...	...	1	...	1	1	1	1	2	...	3	...	...	...
	890	...	...	...	...	...	...	...	1	2	...	1	2	3	3	...	...	...
	894	...	...	...	1	1	1	...	...	...	...	...	...	...	...	...	...	...
	897	...	...	...	...	...	1	2	1	1	...	...	...	...	1	2	...	...
	904	...	...	...	...	1	...	1	2	1	2	...	...	...	2	1	...	...
	910	...	...	...	...	...	1	...	1	2	1	1	...	...	1	1	...	...
1933	922	...	...	...	...	...	...	...	1	...	1	1	1	...	1	...	...	...
	925	...	...	...	...	...	...	...	2	2	2	...	...	...	...	...	...	...
	926	...	...	...	...	1	2	2	1	2	...	...	...	...	2	...	...	...
	929	...	...	...	...	1	1	1	1	1	1	...	...	...	...	1	...	...
	930	...	...	...	...	...	1	1	2	2	1	2	...	...	2	2	...	...
	931	1	2	1	...	...	...	...	...	...	...	...	...	...	...	...	2	...
	933	...	...	...	1	1	1	1	1	2	1	...	...	...	1	1	...	...
	937	...	...	...	...	...	...	1	2	1	2	2	...	...	3	1	...	...
	940	...	...	...	...	...	1	1	2	1	2	2	...	...	2	1	...	...
	941	...	...	...	...	...	1	2	2	2	1	...	...	...	1	2	...	...
	942	...	...	...	...	...	...	...	1	1	1	2	...	...	1	1	...	...
	943	...	...	...	...	...	...	...	1	2	2	...	...	...	2	1	...	...
	945	...	...	...	...	...	...	...	?‡	...	...	...	...	...	?‡	...	...	...
	947	...	...	...	...	...	1	1	2	2	1	1	1	...	1	1	...	...
	949	...	...	...	...	1	1	1	...	1	...	...	...	...	1	1	...	...
	950	...	...	1	2	1	1	...	...	2	1	...	...	...	1	...	...	...
	952	...	...	...	...	1	...	...	1	1	1	1	...	...	1	...	...	...
	956	...	...	1	1	1	1	...	...	...	...	...	...	...	1	...	...	...
1934	986	...	...	...	2	1	...	1	1	1	...	...	...	...	...	1	...	...
	988	...	...	...	...	1	1	1	2	2	...	...	...	...	2	1	...	...
	994	...	...	...	...	2	1	1	1	2	...	...	...	...	1	1	...	...
	999	...	...	...	...	...	...	1	...	1	1	1	2	...	2	1	...	...

*Balloon did not burst: readings may be too warm from 17 upwards.
**Correct temperature, 225° A.
‡Unreliable.

T=Temperature in degrees absolute P=Pressure in millibars

229 L=Geopotential Level above M.S.L. in kiloleos (Kl.) RH=Relative Humidity as percentage 1938

No. of Sounding	1244	1249	1250	1252	1253	1254	1255	1259	1261
Date	Dec. 16 1937	Jan. 17	Feb. 11	Feb. 16	Feb. 21	Mar. 28	Mar. 28	May 2	May 6
Station	Sealand	Sealand	Sealand	Kew	Kew	Sealand	Sealand	Kew	Kew
Start G.M.T.	07h. 05m.	18h. 50m.	17h. 30m.	15h. 28m.	16h. 30m.	15h. 30m.	16h. 10m.	11h. 05m.	10h. 56m.
L_t=Greatest Geopotential (Kl.)	11·87	17·44	20·61	10·28	20·77	16·12	19·02	12·39	12·75
T_t=Corresponding Temperature (°A.)	219	214	219	227	210	217	219	232	224
P_t=Corresponding Pressure (mb.)	177	74	46	240	42	95	60	173	166
Place of Fall	Llanbedr, nr. Crickhowell, S. Wales	Hatfield Park, Herts.	Upper Seagry, Chippenham, Wilts.	Milton on Stour, Gillingham, Dorset	Allington, Maidstone, Kent	Rexpoede, Dunkirk,	Cole-Orton Leicester	South Moreton, Didcot, Berks.	Long Sutton Common, Basingstoke, Hants.
Distance (Km.)	151	243	198	158	60	462	117	63	57
Bearing. Degrees from N	184	139	161	252	108	122	124	281	246
Type of Balloon	Veedip	Lewis Knight	Saul	Veedip	Saul	Saul	Saul	Veedip	Veedip
Weight of Balloon (Kg.)	0·41	0·34	2·20	0·41	2·21	2·21	2·24	0·41	0·39
Weight of Instrument (Kg.)	0·15	1·07	1·27	0·15	1·27	1·12	1·10	2·69	2·69
Net Free Lift (Kg.)	0·35	0·79	0·49	0·70	0·79	0·63	0·65	0·64	0·64
Estimated vertical velocity at start (m/s.)	3·5	5·0	3·0	6·0	4·5	4·0	4·0	5·0	5·0
Geostrophic Wind—Speed (m/s.)	15	13	12	13	7	13	13	11	10
Degrees from N	30	300	330	70	90	290	280	70	50
Wind (Anemograph)—Speed (m/s.)	4	2	8	9	1	6	6	7	5
Degrees from N	315	250	290	45	45	250	235	55	35
Humidity at surface (%)	87	77	78	90	76	69	68	77	57
Type of Tropopause	III	I	I	I	I	I	I	I	I
L_c=Geopotential at the tropopause (Kl.)	7·55	11·05	11·56	9·87	11·62	11·22	11·32	9·25	10·86
T_c=Temperature „ „ „ (°A.)	223	207	206	226	202	210	210	222	215
P_c=Pressure „ „ „ (mb.)	350	210	198	256	193	210	207	280	224
Mean Temp. in Stratosphere (L_c+2) to (L_c+5) (°A.)	—	214	215	—	210	216	217	—	—
Mean Temp. in Stratosphere (L_c+5) to (L_c+8) (°A.)	—	—	219	—	211	—	218	—	—
Mean Temp. in Stratosphere (L_c+8) to (L_c+11) (°A.)	—	—	—	—	—	—	—	—	—
T_m (Mean Temp. 1 to 9 Kl.) (°A.)	242	251	252	249	251	253	256	249	255
P_s (Pressure at M.S.L.) (mb.)	1010	1017	1036	1025	1031	1023	1023	1013	1019

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REMARKS ON THE SOUNDINGS AND THE PREVAILING WEATHER CONDITIONS, 1938

No. of Sounding

1244 bc. Clouds Stcu. 3/10 from NNW. at 0·7 Kl. Change of lapse rate (6·76 Kl., 396 mb., 226°A.). Pressure distribution :—A wedge of high pressure extending from an anticyclone near Iceland to off Western Ireland. Pressure low over France. Type IX.

1249* b. Cloudless. Inversion (4·67—5·11 Kl., 550—518 mb., 253·5—254°A.) ; Change of lapse rate (11·89 Kl., 183 mb., 208° A.). Pressure distribution :—Wedge of high pressure over British Isles. Type IV.

1250* c. Clouds Stcu. 9/10 from WNW. at 1 Kl. Inversion (0·94—1·25 Kl., 921—885 mb., 272—272·5°A.) ; inversion (2·42—3·02 Kl., 760—703 mb., 266—268°A.). Pressure distribution :—Anticylcone off South-west Ireland. Depressions north of Scotland and over Baltic. Type I.

1252 o. Clouds St. 10/10 from NE. Inversion (1·66—1·91 Kl., 827—800 mb., 262—267°A.). Pressure distribution :—Anticyclone Southern Norway to Scotland. Depression over Western Mediterranean. Type VIIIa.

1253* oz. Clouds St. 10/10 from ENE. Inversion (0·81—1·07 Kl., 930—900 mb., 269·5—276°A.). Changes of lapse rate (1·24 Kl., 880 mb., 276·5 °A.), and at (12·36 Kl., 170 mb., 202·5°A.). Pressure distribution :—Anticyclone over British Isles extending to Germany. Type XIa.

1254* c. Clouds Stcu. from WSW. Inversion (1·24—1·46 Kl., 876—853 mb., 75—76°A.). Change of lapse rate (12·43 Kl., 172 mb., 216·5°A.). Pressure distribution :—Anticyclone South-west of British Isles to France. Depression over Iceland. Type II.

1255* c. Clouds Stcu. from SW'W. Inversion (1·04—1·49 Kl., 900—860 mb., 277—278°A.). Isothermal (6·07—6·33 Kl., 462—446 mb., 246°A.). Change of lapse rate (12·76 Kl., 164 mb., 220°A.). Pressure distribution :—Anticyclone south-west of British Isles to France. Depression over Iceland. Type II.

1259† o. Clouds St. 10/10 from NE. Pressure distribution :—Pressure high north of Scotland, low over Bay of Biscay and France. Type VIII.

1261† Inversion (1·10—1·32 Kl., 890—865 mb., 74·5—78·5 °A.). Pressure distribution :—Wedge of high pressure from Iceland to off Western Ireland. Depressions Norway and Spain. Type X.

* Meteorograph attached to air sampling apparatus.
† Meteorograph attached to radio sonde.

T=Temperature in degrees absolute
L=Geopotential Level above M.S.L. in kiloleos (Kl.)
P=Pressure in millibars
RH=Relative Humidity as percentage

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No. of Sounding	1262	1265	1266	1267	1270	1272	1277	1280
Date	May 7	May 10	May 12	May 14	May 27	June 3	June 15	June 30
Station	Kew	Sealand	Kew	Kew	Kew	Kew	Kew	Kew
Start G.M.T.	11h. 0m.	16h. 15m.	12h. 55m.	10h. 55m.	14h. 15m.	10h. 43m.	10h. 51m.	13h. 30m.
L_t=Greatest Geopotential (Kl.)	15·60	19·33	13·65	13·01	11·90	13·64	17·52	15·14
T_t=Corresponding Temperature (°A)	228	222	224	229	229	226	226	228
P_t=Corresponding Pressure (mb.)	106	57	147	161	187	148	83	118
Place of Fall	Crowborough, Sussex.	Near Chesterfield, Derbyshire	Horningsea Cambs.	Welches Dam, nr. March, Cambs.	The Common, Kimbolton Rd., Beds.	Blackmanstire, Romsey Marsh, Kent	Hale Green Chiddingly, Lewes, Sussex	Scole, Diss, Norfolk
Distance (Km.)	58	106	93	114	105	97	73	142
Bearing. Degrees from N	143	95	21	15	25	119	150	44
Type of Balloon	Veedip	Saul	Veedip	Veedip	Veedip	Veedip	Dewey-Almy	Veedip
Weight of Balloon (Kg.)	0·46	2·12	0·58	0·55	0·59	0·51	0·38	0·55
Weight of Instrument (Kg.)	2·69	1·12	2·69	2·69	2·86	2·86	2·84	2·85
Net Free Lift (Kg.)	0·64	0·53	0·61	0·63	0·66	1·16	1·18	1·17
Estimated vertical velocity at start (m/s.)	5	3·0	5	5	5	6	6	6
Geostrophic Wind—Speed (m/s_e)	11	6	11	11	5	13	7	13
Degrees from N	30	200	220	170	130	270	340	240
Wind (Anemograph)—Speed (m/s.)	8	0	7	5	4	4	4	4
Degrees from N	15	—	195	170	200	270	310	225
Humidity at surface (%)	61	47	43	54	69	50	58	68
Type of Tropopause	I	I	I	I	I	I	I	I
L_c=Geopotential at the tropopause (Kl.)	11·27	10·97	11·73	11·51	10·40	11·50	12·66	10·98
T_c=Temperature „ „ „ (°A)	211	209	213	215	217	219	212	224
P_c=Pressure „ „ „ (mb.)	209	216	200	204	237	207	178	224
Mean Temp. in Stratosphere (L_c+2) to (L_c+5) (°A.)	—	219	—	—	—	—	225	—
Mean Temp. in Stratosphere (L_c+5) to (L_c+8) (°A.)	—	221	—	—	—	—	—	—
Mean Temp. in Stratosphere (L_c+8) to (L_c+11) (°A.)	—	—	—	—	—	—	—	—
T_m (Mean Temp. 1 to 9 Kl.) (°A.)	256	252	260	258	255	257	263	257
P_s (Pressure at M.S.L.) (mb.)	1017	1020	1019	1009	1000	1018	1024	1009

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REMARKS ON THE SOUNDINGS AND THE PREVAILING WEATHER CONDITIONS, 1938

No. of Sounding

1262† o. Inversion (0·98—1·46 Kl., 900—846 mb., 74·5—75·5°A.). Pressure Distribution :—Anticyclone west of Ireland. Depression over Scandinavia. Type I or X.

1265* c. Clouds stcu. 8/10 from W. at 0·7 Kl. Inversion (2·62—2·84 Kl., 732—711 mb., 263·5—266° A.). Pressure distribution :—Anticyclone over British Isles. Type IXb.

1266† Change of lapse rate (5·45 Kl., 510 mb., 260°A.). Pressure distribution :—Pressure high on Continent, low to west and north-west of British Isles. Type VIa.

1267† Pressure distribution :—Complex depression Faroes to South-west Ireland. Type VIa or VIIb.

1270† o. Pressure distribution :—Complex area of low pressure covering the British Isles. Type XIII.

1272† bc. Clouds Cu. and Frcu. 5/10 from W.; Ci. 1/10 from WNW. Isothermal on descent (1·50—1·84 Kl., 845—810 mb., 274·5°A.); isothermal (5·95—6·34 Kl., 470—445 mb., 253°A.). Change of lapse rate (12·08 Kl., 189 mb., 223°A.). Pressure distribution :—Feeble wedge of high pressure over England. Depressions North Sea and South-west of Iceland. Type IV.

1277† o. Clouds Stcu. 10/10 from NNW. Inversion 1·26—1·56 Kl., 880—846 mb., 280—282°A.). Change of lapse rate 13·71 Kl., 150 mb., 221°A.). Pressure distribution :—Anticyclone off South-west Ireland. Depression over Scandinavia. Type I.

1280† c/p. Clouds Cu. and Frcu. 3/10 from SW.; Acu and Cist. 6/10 from SW. Descending record employed entirely above 6 Kl. Pressure distribution :—Pressure relatively high on Continent, low north of Scotland. Type II.

* Meteorograph attached to air sampling apparatus.

† Meteorograph attached to radio sonde.

T=Temperature in degrees absolute — P=Pressure in millibars

229 L=Geopotential Level above M.S.L. in kiloleos (Kl.) — RH=Relative Humidity as percentage — **1938**

No. of Sounding	1281	1283	1289	1291	1294	1295	1296	1297
Date	July 1	July 7	July 21	July 23	August 5	August 11	August 26	August 27
Station	Kew	Kew	Kew	Kew	Kew	Kew	Kew	Kew
Start G.M.T.	14h. 57m.	14h. 10m.	13h. 18m.	11h. 35m.	10h. 55m.	17h. 30m.	10h. 47m.	10h. 38m.
L_t=Greatest Geopotential (Kl.)	14·26	13·67	15·74	14·23	14·68	17·97	12·48	14·53
T_t=Corresponding Temperature (°A)	235	232	223	226	225	226	227	224
P_t=Corresponding Pressure (mb.)	136	150	110	138	128	75	178	131
Place of Fall	Great Chishill, Royston, Herts.	Whittlesey near Peter-borough	Eridge, Tunbridge Wells, Kent	Winingale, Ongar, Essex	Leighton Buzzard, Beds	Tolworth, Surrey	Godstone, Surrey	Near Horsham, Sussex
Distance (Km.)	72	120	56	52	56	9	31	46
Bearing. Degrees from N	18	3	135	54	346	168	143	180
Type of Balloon	Veedip	Dewey-Almy	Veedip	Veedip	Veedip	Saul	Veedip	Veedip
Weight of Balloon (Kg.)	0·56	0·35	0·44	0·46	0·46	0·50	0·66	0·54
Weight of Instrument (Kg.)	2·81	2·88	2·83	0·78	2·62	—	2·61	2·61
Net Free Lift (Kg.)	1·21	1·14	1·19	0·57	1·40	—	1·41	1·41
Estimated vertical velocity at start (m/s.)	6	6	6	4·5	7	—	7	7
Geostrophic Wind—Speed (m/s.)	2	12	2	2	0	3	5	5
Degrees from N	290	160	350	120	—	260	10	280
Wind (Anemograph)—Speed (m/s.)	3	6	2	1	1	4	2	5
Degrees from N	250	135	340	270	0	55	25	190
Humidity at surface (%)	73	62	52	58	73	60	62	78
Type of Tropopause	I	I	I	I	I	I	I	I
L_c=Geopotential at the tropopause (Kl.)	8·60	10·58	12·63	11·24	11·43	10·49	10·04	10·78
T_c=Temperature „ „ „ (°A)	231	222	214	219	219	219	221	222
P_c=Pressure „ „ „ (mb.)	314	240	180	220	214	242	260	235
Mean Temp. in Stratosphere: (L_c+2) to (L_c+5) (°A.)	235	—	—	—	—	224	—	—
Mean Temp. in Stratosphere: (L_c+5) to (L_c+8) (°A.)	—	—	—	—	—	—	—	—
Mean Temp. in Stratosphere: (L_c+8) to (L_c+11) (°A.)	—	—	—	—	—	—	—	—
T_m (Mean Temp. 1 to 9 Kl.) (°A.)	254	261	266	264	263	—	257	260
P_s (Pressure at M.S.L.) (mb.)	1009	1005	1018	1015	1016	1014	1021	1021

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REMARKS ON THE SOUNDINGS AND THE PREVAILING WEATHER CONDITIONS, 1938

No. of Sounding

1281† cp. Change of lapse rate (3·47 Kl., 650 mb., 263°A.). Pressure distribution :—Pressure low and irregular over British Isles and France. Type XIII.

1283† o/orp. Isothermal on ascent (4·17—4·47 Kl., 593—574 mb., 266°A.), Isothermal on descent (4·57—5·00 Kl., 566—535 mb., 262·5°A.). Pressure distribution :—Depression centred off South-west England. Type VIIa.

1289† c. Clouds Cunb. and Stcu. 8/10 from N. Inversion (1·68—2·26 Kl., 830—774 mb., 280·5—283°A.). Pressure distribution :—Ridge of high pressure from North-east to South-west across British Isles. Type XIIIa.

1291* c. Clouds Stcu. and Ci. Ci. from S'E. Change of lapse rate (1·17 Kl., 880 mb., 283°A.). Pressure distribution :—Ridge of relatively high pressure over British Isles. Type XIIIa.

1294† c. Clouds Cist. and Ast. 9/10. Ci. from SE. very slow. Inversion (0·40—0·66 Kl., 970—940 mb., 290—291°A.). Change of lapse rate (5·12—6·16 Kl., 535—465 mb., 260—257°A.). Pressure distribution :—Anticyclone over Western Europe. Type uncertain.

1295 Thunderstorm. The data are derived from several soundings made close together. The meteorograph was sent up attached to an alti-electrograph. Change of lapse rate (12·93 Kl., 165 mb., 225·5°A.). Pressure distribution :—Pressure low and irregular over England and France. Type XIII.

1296† c. Clouds Stcu. 8/10 and Ast. 1/10. Change of lapse rate (11·51 Kl., 207 mb., 227°A.). Pressure distribution :—Wedge of high pressure over Western districts from an anticyclone South-west of Ireland. Type IV.

1297† c. Clouds Stcu. and Acu. 9/10. Change of lapse rate (1·28—1·76 Kl., 872—822 mb., 280·5—279° A.). Isothermal (2·49—2·97 Kl., 750—706 mb., 274°A.). Pressure distribution :—Trough of low pressure over Scotland and Ireland. Depression over Scandinavia. Type XII.

*Meteorograph attached to air sampling apparatus.

† Meteorograph attached to radio sonde.

T=Temperature in degrees absolute P=Pressure in millibars

229 L=Geopotential Level above M.S.L. in kiloleos (Kl.) RH=Relative Humidity as percentage 1938

No. of Sounding	1299	1301	1304	1308	1309	1311	1312	1313
Date	Sept. 13	Sept. 15	Sept. 21	Sept. 29	Sept. 30	Oct. 20	Oct. 22	Oct. 25
Station	Kew	Kew	Kew	Kew	Kew	Kew	Kew	Kew
Start G.M.T.	13h. 42m.	10h. 36m.	14h. 03m.	11h. 03m.	11h. 45m.	16h. 05m.	11h. 38m.	15h. 35m.
L_t=Greatest Geopotential (Kl.)	15·17	12·70	12·93	15·09	17·08	21·70	22·00	15·03
T_t=Corresponding Temperature (°A)	212	218	218	218	220	214	216	213
P_t=Corresponding Pressure (mb.)	117	171	164	111	84	39	37	114
Place of Fall	Cliffe-At-Hoo, Rochester, Kent	Ashburnham, Battle, Sussex	Beeston, Kings Lynn, Norfolk	Hemingford Abbots, St. Ives, Hunts.	Sawtry, Hunts.	Chigwell, Essex	Great Chesterford Saffron Walden Essex	Banstead Common, Upper Kingswood, Surrey
Distance (Km.)	57	80	157	96	108	30	74	20
Bearing. Degrees from N	90	140	46	7	1	60	27	156
Type of Balloon	Veedip	Veedip	Veedip	Dewey-Almy	Dewey-Almy	Dewey-Almy (2)	Dewey-Almy (2)	Dewey-Almy
Weight of Balloon (Kg.)	0·55	0·46	0·50	0·37	0·47	0·75	0·72	0·47
Weight of Instrument (Kg.)	2·72	2·75	2·72	2·72	2·68	1·12	1·12	2·69
Net Free Lift (Kg.)	1·30	1·27	2·00	1·30	1·34	0·87	1·17	1·33
Estimated vertical velocity at start (m/s.)	7	6·5	8	7	7	—	—	7
Geostrophic Wind—Speed (m/s.)	7	8	8	9	12	6	11	3
Degrees from N	280	20	230	250	190	180	150	210
Wind (Anemograph)—Speed (m/s.)	4	2	1	4	7	0	4	1
Degrees from N	295	25	205	250	165	—	115	225
Humidity at surface (%)	56	60	88	80	66	73	76	82
Type of Tropopause	II	I	I	II	I	II	I	I
L_c=Geopotential at the tropopause (Kl.)	12·37	11·76	11·92	11·22	10·70	13·15	12·25	12·34
T_c=Temperature „ „ „ (°A)	211	214	215	221	218	203	213	213
P_c=Pressure „ „ „ (mb.)	186	198	193	217	231	160	180	177
Mean Temp. in Stratosphere (L_c+2) to (L_c+5) (°A.)	—	—	—	—	220	211	214	—
Mean Temp. in Stratosphere (L_c+5) to (L_c+8) (°A.)	—	—	—	—	—	213	215	—
Mean Temp. in Stratosphere (L_c+8) to (L_c+11) (°A.)	—	—	—	—	—	—	—	—
T_m (Mean Temp. 1 to 9 Kl.) (°A.)	265	258	260	260	256	260	259	257
P_s (Pressure at M.S.L.) (mb.)	1021	1022	1007	1011	1014	1026	1012	1012

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REMARKS ON THE SOUNDINGS AND THE PREVAILING WEATHER CONDITIONS, 1938

No. of Sounding

1299† b. Clouds Frcu. 2/10. Isothermal (1·91—2·24 Kl., 811—778 mb., 283·5°A.). Pressure distribution :—Ridge of high pressure from off South-west Ireland to Continent. Type I or Ia.

1301† c. Clouds Cu. 8/10. Inversion (1·65—2·41 Kl., 830—754 mb., 272·5—273·5°A.). Change of lapse rate (3·39 Kl., 665 mb., 270°A.). Pressure distribution :—Anticyclone extending from near Azores to Western districts. Type II.

1304† or_o. Clouds Nb. 9/10 and Ast. 1/10. Change of lapse rate (4·61—4·98 Kl., 560—533 mb., 262—261·5°A.). Pressure distribution :—Depression south of Iceland. Trough of low pressure over North Sea. Type Va.

1308† c. Clouds Stcu. 6/10 and Cicu. 2/10. Cicu. from S'E. Isothermal (0·86—1·12 Kl., 910—880 mb., 281·5°A.). Change of lapse rate (2·10—2·72 Kl., 780—720 mb., 276—274·5°A.). Pressure distribution :—Depression off North-west Ireland. Type Va.

1309† bc. Clouds Frcu. 5/10. Cicu. from W. Pressure distribution :—Trough of low pressure from Iceland across Ireland to off South-west England. Type VII b.

1311* bc. Clouds Frst. 1/10 from SSE., Ci. 2/10 from S. Inversion (0·89—1·24 Kl., 920—880 mb., 291—292·5° A.). Isothermal (4·39—4·73 Kl., 590—565 mb., 264·5°A.). Change of lapse rate (14·36 Kl., 130 mb., 202·5°A.). Presssure distribution :—Pressure low on Atlantic and Baltic. Wedge of high pressure North Sea. Type IVa.

1312* bc. Clouds St. 5/10 from ESE. Change of lapse rate (1·48 Kl., 842 mb., 283°). Pressure distribution :—Anticyclone over Scandinavia. Low pressure to South-west of British Isles. Type VII b.

1313† bcm_o. Clouds Ast. and Stcu. 1/10, Ci. 3/10, Pressure distribution :—Trough of low pressure Western Norway to South-west England. Type XII.

* Meteorograph attached to air sampling apparatus.
† Meteorograph attached to radio sonde.

SOUNDINGS WITH REGISTERING BALLOONS, 1938

T=Temperature in degrees absolute — *P*=Pressure in millibars

L=Geopotential Level above M.S.L. in kiloleos (Kl.) — *RH*=Relative Humidity as percentage

No.	1244	1249	1250	1252	1253	1254	1255	1259	1261
Date	Dec. 16	Jan. 17	Feb. 11	Feb. 16	Feb. 21	March 28	March 28	May 2	May 6
Station	Sealand	Sealand	Sealand	Kew	Kew	Sealand	Sealand	Kew	Kew
Start (G.M.T.)	07h. 05m.	18h. 50m.	17h. 30m.	15h. 28m.	16h. 30m.	15h. 30m.	16h. 10m.	11h. 05m.	10h. 56m.

231 GEOPOTENTIALS, TEMPERATURES AND RELATIVE HUMIDITIES CORRESPONDING WITH ISOBARIC SURFACES 1938

Pressure	*L*	*T*	*RH*	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*
Milibars	Kl	°A 200 +	%	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +
100	...	...	...	15·59	14	15·74	15	...	...	15·52	10	15·80	17	15·83	17	...	...	...	...
200	11·11	20	...	11·35	07	11·51	6	...	...	11·41	3	11·51	12	11·53	11	11·43	30	11·55	17
300	8·54	22	...	8·86	24	9·02	23	8·83	29	8·95	21	9·00	25	9·01	25	8·80	23	9·01	24
400	6·69	27	66	6·95	40	7·11	38	6·90	39	7·06	36	7·08	40	7·09	40	6·92	34	7·10	40
500	5·21	38	74	5·36	53	5·55	50	5·35	45	5·51	48	5·51	50	5·52	51	5·37	48	5·52	54
600	3·93	49	83	4·03	57	4·22	60	4·05	53	4·19	59	4·17	60	4·18	61	4·05	57	4·17	63
700	2·81	58	79	2·88	62	3·05	68	2·92	61	3·03	67	3·01	68	3·01	68	2·90	64	2·99	71
800	1·81	64	92	1·87	67	2·03	67	1·91	67	1·99	73	1·97	74	1·97	74	1·87	72	1·93	76
900	·91	70	91	·96	72	1·11	73	1·01	67	1·06	76	1·03	76	1·03	77	·95	75	1·00	75
1000	·08	—	—	·13	77	·28	—	·19	73	·24	—	·19	83	·19	83	·11	—	·15	82

232 PRESSURES, TEMPERATURES AND HUMIDITIES AT GIVEN GEOPOTENTIALS 1938

Geopotentials	*P*	*T*	*RH*	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*
Kiloleos	mb	°A 200 +	%	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	...	...	...	...	...	51	19	...	...	48	10	...	...	...	...	...	...	...	...
19	...	...	...	...	...	59	20	...	...	56	10	...	...	60	19	...	...	...	...
18	...	...	...	...	...	69	20	...	...	67	11	...	...	71	19	...	...	...	...
17	...	...	...	79	14	82	16	...	...	78	12	...	...	83	15	...	...	...	...
16	...	...	...	93	14	96	16	...	...	92	11	97	17	97	17	...	...	...	...
15	...	...	...	110	14	113	14	...	...	109	9	114	16	114	17	...	...	...	...
14	...	...	...	129	15	132	17	...	...	129	10	133	14	134	16	...	...	...	...
13	...	...	...	152	13	156	14	...	...	153	7	157	15	157	19	...	...	...	...
12	...	...	...	180	08	184	6	...	...	181	3	184	14	185	15	183	31	187	20
11	204	20	...	212	07	217	7	...	...	214	5	217	11	218	11	214	29	219	16
10	239	21	...	250	14	256	15	251	26	253	13	254	17	256	18	249	26	257	18
9	279	21	...	294	23	301	24	292	28	297	20	300	25	300	25	291	22	301	24
8	326	22	...	342	31	350	31	340	33	348	28	350	32	350	33	340	26	350	32
7	381	25	65	396	40	407	39	395	39	404	36	405	41	406	41	395	34	406	41
6	444	32	70	457	48	470	46	456	42	466	44	466	47	467	47	457	43	468	49
5	515	40	77	526	54	540	54	526	47	537	52	536	54	536	55	526	51	536	57
4	594	49	82	604	57	618	62	604	53	615	60	614	61	614	61	604	57	613	64
3	682	57	78	690	62	705	68	693	60	702	67	700	68	701	68	690	64	699	70
2·5	729	60	83	737	64	752	66	740	64	749	70	747	70	747	71	737	67	744	73
2	780	63	89	787	65	802	67	790	67	799	73	796	73	796	74	786	71	794	76
1·5	834	66	95	840	69	856	71	844	63	852	75	848	76	849	77	839	73	846	78
1	890	69	91	896	72	913	72	901	67	907	74	904	77	904	77	894	75	900	75
0·5	948	72	89	955	75	973	75	961	70	967	72	962	80	962	79	953	78	958	79
Ground	1010	76	87	1016	78	1035	79	1024	75	1030	77	1023	86	1023	86	1013	82	1019	83

Note.—Tables of correlation coefficients, mean monthly pressures and temperatures for geodynamic levels, and corrections for kilometre heights will be found in the Introduction to the Observatories' Year Book, 1935

233 LAPSE RATE OF TEMPERATURE BETWEEN GIVEN GEOPOTENTIALS 1938

Degrees absolute per kiloleo

Kiloleos									
25 to 26	...	...	...	...	...	...	...	...	...
24 to 25	...	...	...	...	...	...	...	...	...
23 to 24	...	...	...	...	...	...	...	...	...
22 to 23	...	...	...	...	...	...	...	...	...
21 to 22	...	...	...	...	...	...	...	...	...
20 to 21	...	...	...	...	...	...	...	...	...
19 to 20	...	...	1	...	0	...	...	...	...
18 to 19	...	...	0	...	1	...	0	...	...
17 to 18	...	...	−4	...	1	...	−4	...	...
16 to 17	...	0	0	...	−1	...	2	...	...
15 to 16	...	0	−2	...	−2	−1	0	...	...
14 to 15	...	1	3	...	1	−2	−1	...	...
13 to 14	...	−2	−3	...	−3	1	3	...	...
12 to 13	...	−5	−8	...	−4	−1	−4	...	...
11 to 12	...	−1	1	...	2	−3	−4	−2	−4
10 to 11	1	7	8	...	8	6	7	−3	2
9 to 10	0	9	9	2	7	8	7	−4	6
8 to 9	1	8	7	5	8	7	8	4	8
7 to 8	3	9	8	6	8	9	8	8	9
6 to 7	7	9	7	3	8	6	6	9	8
5 to 6	8	5	8	5	8	7	8	8	8
4 to 5	9	3	8	6	8	7	6	6	7
3 to 4	8	5	6	7	7	7	7	7	6
2·5 to 3	6	4	3	7	6	6	5	8	5
2 to 2·5	6	3	2	6	6	5	6	6	6
1·5 to 2	6	7	8	−7	5	6	7	6	4
1 to 1·5	6	6	1	8	−3	1	0	3	−6
0·5 to 1	7	6	5	7	−4	7	4	7	8
Gd. to 0·5	6	6	8	10	10	11	13	7	8

T=Temperature in degrees absolute
L=Geopotential Level above M.S.L. in kiloleos (Kl.)
P=Pressure in millibars
RH=Relative Humidity as percentage

No.	1262	1265	1266	1267	1270	1272	1277	1280
Date	May 7	May 10	May 12	May 14	May 27	June 3	June 15	June 30
Station	Kew	Sealand	Kew	Kew	Kew	Kew	Kew	Kew
Start (G.M.T.)	11h. 00m.	16h. 15m.	12h. 55m.	10h. 55m.	14h. 15m.	10h. 43m.	10h. 51m.	13h. 30m.

GEOPOTENTIALS, TEMPERATURES AND RELATIVE HUMIDITIES CORRESPONDING WITH ISOBARIC SURFACES—*continued.*

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Pressure	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*
Millibars	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +
100	...	...	15·75	20	...	...	...	...	...	...	...	...	16·31	24	...	...
200	11·54	12	11·44	13	11·73	13	11·64	16	11·46	26	11·71	20	11·93	15	11·69	26
300	9·01	27	8·94	24	9·17	30	9·07	30	8·89	28	9·09	33	9·31	35	9·04	35
400	7·08	42	7·02	40	7·21	46	7·10	46	6·95	42	7·11	48	7·31	49	7·04	49
500	5·49	55	5·45	51	5·59	59	5·49	56	5·36	54	5·49	55	5·68	61	5·43	56
600	4·13	64	4·11	60	4·22	65	4·13	65	4·01	63	4·14	62	4·29	70	4·07	62
700	2·95	70	2·95	66	3·03	72	2·95	70	2·83	68	2·97	68	3·09	76	2·90	67
800	1·91	74	1·93	68	1·97	78	1·89	77	1·79	74	1·93	73	2·02	80	1·87	72
900	·97	74	1·01	76	1·02	83	·95	84	·85	80	1·00	78	1·07	82	·93	80
1000	·13	81	·17	—	·15	92	·08	91	·01	89	·15	—	·21	90	·07	—

PRESSURES, TEMPERATURES AND HUMIDITIES AT GIVEN GEOPOTENTIALS—*continued.*

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Geopotentials	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*
Kiloleos	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
19	...	...	60	22	...	...	...	...	...	...	...	...	...	...	...	...
18	...	...	70	21	...	...	...	...	...	...	...	...	...	...	...	...
17	...	...	82	22	...	...	...	...	...	...	...	...	90	25	...	...
16	...	...	96	21	...	...	...	...	...	...	...	...	105	24	...	...
15	117	27	113	19	...	...	...	...	...	...	...	...	122	24	121	28
14	136	24	132	18	...	...	...	...	...	...	...	...	143	21	140	27
13	158	22	155	17	163	21	162	29	...	...	164	24	168	16	163	27
12	186	17	183	15	192	13	189	18	...	...	191	23	198	15	191	26
11	218	12	215	9	225	16	222	17	216	22	224	20	232	23	223	24
10	257	18	253	15	264	23	260	22	253	19	262	28	270	30	260	29
9	301	27	297	24	307	31	303	30	295	27	304	34	314	37	302	36
8	350	35	346	32	356	39	351	39	343	34	352	41	364	45	350	42
7	405	43	401	40	412	47	405	47	397	41	406	49	418	52	404	49
6	466	51	463	46	474	56	466	53	457	49	466	53	479	59	463	53
5	534	59	532	54	541	61	534	59	525	57	535	58	546	65	530	58
4	610	65	609	60	617	67	610	65	601	63	611	63	622	71	606	63
3	695	70	696	65	703	73	695	70	685	68	697	68	707	76	691	67
2·5	741	72	743	64	748	75	740	73	730	70	744	70	753	78	737	68
2	790	73	793	68	797	78	790	76	779	72	794	72	802	80	786	71
1·5	843	75	845	71	848	80	840	81	830	76	845	74	853	81	838	74
1	897	74	901	76	903	83	894	84	885	79	900	78	907	82	893	79
0·5	956	78	960	80	960	88	950	87	940	84	957	82	965	87	950	84
Ground	1018	82	1020	87	1018	93	1009	91	1000	89	1017	89	1024	92	1008	88

Note.—Tables of correlation coefficients, mean monthly pressures and temperatures for geodynamic levels, and corrections for kilometre heights will be found in the Introduction to the Observatories' Year Book, 1935

LAPSE RATE OF TEMPERATURE BETWEEN GIVEN GEOPOTENTIALS—*continued.*

233 Degrees absolute per kiloleo 1938

Kiloleos								
25 to 26	...	...	...	...	...	...	...	...
24 to 25	...	...	...	...	...	...	...	...
23 to 24	...	...	...	...	...	...	...	...
22 to 23	...	...	...	...	...	...	...	...
21 to 22	...	...	...	...	...	...	...	...
20 to 21	...	...	...	...	...	...	...	...
19 to 20	...	...	...	...	...	...	...	...
18 to 19	...	−1	...	...	...	...	...	...
17 to 18	...	1	...	...	...	...	...	...
16 to 17	...	−1	...	...	...	...	−1	...
15 to 16	...	−2	...	...	...	...	0	...
14 to 15	−3	−1	...	...	...	...	−3	−1
13 to 14	−2	−1	...	...	...	...	−5	0
12 to 13	−5	−2	−8	−11	...	−1	−1	−1
11 to 12	−5	−6	3	−1	...	−3	8	−2
10 to 11	6	6	7	5	−3	8	7	5
9 to 10	9	9	8	8	8	6	7	7
8 to 9	8	8	8	9	7	7	8	6
7 to 8	8	8	8	8	7	8	7	7
6 to 7	8	6	9	6	8	4	7	4
5 to 6	8	8	5	6	8	5	6	5
4 to 5	6	6	6	6	6	5	6	5
3 to 4	5	5	6	5	5	5	5	4
2·5 to 3	4	−3	5	5	5	5	4	3
2 to 2·5	2	8	6	8	5	5	4	5
1·5 to 2	5	7	3	8	7	4	3	7
1 to 1·5	−2	9	7	6	7	7	1	10
0·5 to 1	7	8	10	8	8	8	11	10
Ground to 0·5	9	13	11	8	11	13	8	9

T=Temperature in degrees absolute
L=Geopotential Level above M.S.L. in kiloleos (Kl.)
P=Pressure in millibars
RH=Relative Humidity as percentage

No.	1281	1283	1289	1291	1294	1295	1296	1297
Date	July 1	July 7	July 21	July 23	Aug. 5	Aug. 11	Aug. 26	Aug. 27
Station	Kew	Kew	Kew	Kew	Kew	Kew	Kew	Kew
Start (G.M.T.)	14h. 57m.	14h. 10m.	13h. 18m.	11h. 35m.	10h. 55m.	17h. 30m.	10h. 47m.	10h. 38m.

GEOPOTENTIALS, TEMPERATURES AND RELATIVE HUMIDITIES CORRESPONDING WITH ISOBARIC SURFACES—*continued.* 231 1938

Pressure	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*	*RH*	*L*	*T*	*L*	*T*
Millibars	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	%	Kl	°A 200 +	Kl	°A 200 +
100	...	...	...	...	...	...	...	...	...	...	16·12	23	—	...	...	...	...
200	11·65	35	11·75	30	11·97	17	11·83	20	11·85	20	11·68	20	—	11·73	27	11·81	23
300	8·93	32	9·12	33	9·34	36	9·23	33	9·25	32	9·11	—	86	9·12	28	9·19	32
400	6·98	40	7·13	47	7·33	52	7·24	50	7·26	49	7·18	—	89	7·17	44	7·21	47
500	5·41	50	5·51	60	5·67	63	5·61	60	5·63	58	5·57	—	—	5·57	55	5·60	58
600	4·07	60	4·13	66	4·28	71	4·22	69	4·27	66	4·19	68	—	4·21	63	4·23	67
700	2·91	67	2·94	74	3·06	78	3·01	75	3·07	76	2·99	72	—	3·03	70	3·03	73
800	1·87	73	1·87	81	1·99	82	1·95	80	1·99	85	1·93	77	—	1·98	76	1·97	77
900	·93	80	·91	87	1·03	85	1·00	85	1·01	90	·99	84	—	1·03	82	1·04	82
1000	·07	—	·04	—	·15	—	·13	—	·13	—	·11	—	—	·17	—	·18	89

PRESSURES, TEMPERATURES AND HUMIDITIES AT GIVEN GEOPOTENTIALS—*continued.* 232 1938

Geopotentials	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*	*RH*	*P*	*T*	*P*	*T*
Kiloleos	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	%	mb	°A 200 +	mb	°A 200 +
26	...	...	...	...	...	...	...	...	...	...	...	...		...	...	...	...
25	...	...	...	...	...	...	...	...	...	...	...	...		...	...	...	...
24	...	...	...	...	...	...	...	...	...	...	...	...		...	...	...	...
23	...	...	...	...	...	...	...	...	...	...	...	...		...	...	...	...
22	...	...	...	...	...	...	...	...	...	...	...	...		...	...	...	...
21	...	...	...	...	...	...	...	...	...	...	...	...		...	...	...	...
20	...	...	...	...	...	...	...	...	...	...	...	...		...	...	...	...
19	...	...	...	...	...	...	...	...	...	...	...	...		...	...	...	...
18	...	...	...	...	...	...	...	...	...	...	...	...		...	...	...	...
17	...	...	...	...	...	...	...	...	...	...	87	25	—	...	...	...	...
16	...	...	...	...	...	...	...	...	...	...	102	23	—	...	...	...	...
15	...	...	...	...	123	22	...	...	...	...	119	23	—	...	...	...	...
14	141	35	...	...	144	21	143	26	143	24	139	23	—	...	...	142	24
13	164	35	166	32	169	16	167	24	167	23	163	25	—	...	...	166	23
12	190	35	193	31	199	17	195	21	195	20	191	21	—	192	26	194	23
11	220	35	225	25	234	24	229	20	229	20	223	19	—	224	24	227	22
10	255	35	262	26	273	32	267	26	267	26	261	20	—	262	21	265	26
9	297	32	305	34	316	39	310	35	311	34	306	—	86	306	29	308	33
8	344	34	354	41	364	47	359	43	360	43	355	—	88	355	38	357	40
7	399	40	407	49	418	55	414	51	414	50	410	—	90	410	45	412	48
6	460	47	467	56	479	61	474	58	475	58	472	—	—	472	52	473	55
5	529	54	535	62	546	67	542	64	544	61	540	—	—	540	58	542	62
4	606	61	611	67	622	73	617	70	621	69	615	69	—	617	64	618	69
3	692	66	695	74	706	79	702	75	706	77	699	72	—	704	71	703	74
2·5	738	69	740	77	750	81	747	78	751	81	745	74	—	749	74	748	74
2	787	72	787	80	798	82	795	80	799	85	794	77	—	798	76	798	77
1·5	838	75	837	84	850	82	846	82	849	88	844	81	—	850	79	848	80
1	892	80	890	87	904	86	900	85	902	90	898	84	—	904	82	904	82
0·5	950	84	946	—	960	90	956	89	957	91	955	87	—	961	86	961	86
Ground	1008	88	1004	89	1017	96	1014	94	1015	93	1013	91	60	1020	91	1020	91

Note.—Tables of correlation coefficients, mean monthly pressures and temperatures for geodynamic levels, and corrections for kilometre heights will be found in the Introduction to the Observatories' Year Book, 1935

LAPSE RATE OF TEMPERATURE BETWEEN GIVEN GEOPOTENTIALS—*continued.*
233 Degrees absolute per kiloleo 1938

Kiloleos								
25 to 26	...	...	...	...	...	...	...	...
24 to 25	...	...	...	...	...	...	...	...
23 to 24	...	...	...	...	...	...	...	...
22 to 23	...	...	...	...	...	...	...	...
21 to 22	...	...	...	...	...	...	...	...
20 to 21	...	...	...	...	...	...	...	...
19 to 20	...	...	...	...	...	...	...	
18 to 19	...	...	...	...	...	...	...	...
17 to 18	...	...	...	...	...	...	...	...
16 to 17	...	...	...	...	...	−2	...	...
15 to 16	...	...	...	...	...	0	...	...
14 to 15	...	...	−1	...	...	0	...	...
13 to 14	0	...	−5	−2	−1	2	...	−1
12 to 13	0	−1	1	−3	−3	−4	...	0
11 to 12	0	−6	7	−1	0	−2	−2	−1
10 to 11	0	1	8	6	6	1	−3	4
9 to 10	−3	8	7	9	8	—	8	7
8 to 9	2	7	8	8	9	—	9	7
7 to 8	6	8	8	8	7	—	7	8
6 to 7	7	7	6	7	8	—	7	7
5 to 6	7	6	6	6	3	—	6	7
4 to 5	7	5	6	6	8	—	6	7
3 to 4	5	7	6	5	8	3	7	5
2·5 to 3	7	6	5	5	7	4	7	1
2 to 2·5	5	7	2	4	9	6	5	7
1·5 to 2	7	7	0	4	6	6	5	5
1 to 1·5	8	6	7	6	4	7	7	4
0·5 to 1	8	{2	9	10	1	5	7	8
Gd. to 0·5	9		12	10	4	9	11	10

T=Temperature in degrees absolute *P*=Pressure in millibars

L=Geopotential Level above M.S.L. in kiloleos (Kl.) *RH*=Relative Humidity as percentage

No.	1299	1301	1304	1308	1309	1311	1312	1313
Date	Sept. 13	Sept. 15	Sept. 21	Spet. 29	Sept. 30	Oct. 20	Oct. 22	Oct. 25
Station	Kew	Kew	Kew	Kew	Kew	Kew	Kew	Kew
Start (G.M.T.)	13h. 42m.	10h. 36m.	14h. 03m.	11h. 03m.	11h. 45m.	16h. 05m.	11h. 38m.	15h. 35m.

231 GEOPOTENTIALS, TEMPERATURES AND RELATIVE HUMIDITIES CORRESPONDING WITH ISOBARIC SURFACES—*continued.* 1937

Pressure	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*	*L*	*T*
Millibars	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +	Kl	°A 200 +
100	...	...	...	...	...	...	...	...	15·99	19	15·91	10	15·85	14	...	...
200	11·93	13	11·71	14	11·69	15	11·73	21	11·60	23	11·81	11	11·61	14	11·59	15
300	9·33	33	9·11	33	9·08	34	9·11	33	9·02	27	9·23	32	9·06	28	9·01	30
400	7·34	49	7·13	45	7·08	49	7·12	49	7·08	42	7·25	46	7·11	45	7·06	44
500	5·70	61	5·54	55	5·46	59	5·50	58	5·50	54	5·64	59	5·50	57	5·47	55
600	4·31	70	4·18	64	4·09	65	4·13	65	4·14	63	4·27	65	4·14	63	4·11	63
700	3·10	79	2·99	72	2·90	72	2·95	73	2·96	69	3·07	73	2·95	73	2·93	71
800	2·02	83	1·94	73	1·85	77	1·89	77	1·91	75	2·02	79	1·89	81	1·88	77
900	1·06	87	1·03	77	·91	81	·95	81	·97	81	1·07	81	·94	81	·94	80
1000	·18	95	·18	85	·06	88	·09	87	·12	—	·21	85	·09	—	·09	—

232 PRESSURES, TEMPERATURES AND HUMIDITIES AT GIVEN GEOPOTENTIALS—*continued.* 1938

Geopotentials	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*	*P*	*T*
Kiloleos	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb	°A 200 +	mb.	°A 200 +
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...	...	...	...	37	16	...	...
21	...	...	...	...	...	...	...	...	...	...	44	13	43	16	...	...
20	...	...	...	...	...	...	...	...	...	...	51	13	51	15	...	...
19	...	...	...	...	...	...	...	...	...	...	61	13	60	15	...	...
18	...	...	...	...	...	...	...	...	...	...	71	13	71	15	...	...
17	...	...	...	...	...	...	...	...	85	20	84	12	83	15	...	...
16	...	...	...	...	...	...	...	...	100	19	99	11	98	14	...	...
15	121	12	...	...	...	...	119	18	117	19	117	8	115	14	115	13
14	142	11	...	...	...	...	139	18	137	20	138	3	135	14	135	13
13	168	11	...	...	...	...	163	20	160	21	164	4	159	14	159	14
12	197	13	191	15	191	15	192	21	188	22	194	11	187	13	187	14
11	232	19	224	18	223	19	224	22	220	20	228	17	220	15	220	18
10	271	27	262	25	261	27	262	27	257	20	267	26	259	20	258	24
9	315	36	305	34	303	35	305	33	300	27	311	33	303	28	300	30
8	364	43	353	42	351	42	353	41	349	35	360	41	352	37	349	36
7	419	51	408	46	404	49	407	49	405	43	414	47	407	46	403	44
6	481	60	469	51	464	56	467	55	466	50	477	56	467	55	464	52
5	548	65	537	59	532	61	536	61	535	57	544	63	534	59	533	58
4	624	72	613	65	607	66	612	65	612	65	621	67	611	64	608	64
3	709	79	699	71	691	71	696	71	697	69	707	73	696	73	693	70
2·5	754	82	744	73	737	73	741	75	742	72	752	76	741	77	739	74
2	803	83	794	73	786	75	789	76	791	75	802	79	790	80	788	76
1·5	852	85	847	73	837	78	840	79	842	78	853	81	840	83	838	77
1	907	87	902	77	891	81	894	81	897	80	907	81	894	81	893	80
0·5	962	91	960	81	947	84	951	83	955	85	965	83	951	80	951	80
Ground	1020	97	1021	87	1006	88	1010	89	1013	91	1025	87	1011	84	1011	82

Note.—Tables of correlation coefficients, mean monthly pressures and temperatures for geodynamic levels, and corrections for kilometre heights will be found in the Introduction to the Observatories' Year Book, 1935

LAPSE RATE OF TEMPERATURE BETWEEN GIVEN GEOPOTENTIALS—*continued*

233 Degrees absolute per kiloleo 1938

Kiloleos								
25 to 26	...	...	...	...	...	...	...	...
24 to 25	...	...	...	...	...	...	...	...
23 to 24	...	...	...	...	...	...	...	...
22 to 23	...	...	...	...	...	...	...	...
21 to 22	...	...	...	...	...	...	0	...
20 to 21	...	...	...	...	...	0	−1	...
19 to 20	...	...	...	...	...	0	0	...
18 to 19	...	...	...	...	...	0	0	...
17 to 18	...	...	...	...	...	−1	0	...
16 to 17	...	...	...	...	−1	−1	−1	...
15 to 16	...	...	...	...	0	−3	0	...
14 to 15	−1	...	...	0	1	−5	0	0
13 to 14	0	...	...	2	1	1	0	1
12 to 13	2	...	...	1	1	7	−1	0
11 to 12	6	3	4	1	−2	6	2	4
10 to 11	8	7	8	5	0	9	5	6
9 to 10	9	9	8	6	7	7	8	6
8 to 9	7	8	7	8	8	8	9	6
7 to 8	8	4	7	8	8	6	9	8
6 to 7	9	5	7	6	7	9	9	8
5 to 6	5	8	5	6	7	7	4	6
4 to 5	7	6	5	4	8	4	5	6
3 to 4	7	6	5	6	4	6	9	6
2·5 to 3	6	3	5	8	6	5	9	6
2 to 2·5	3	−1	4	1	5	6	6	6
1·5 to 2	3	2	5	6	6	5	5	1
1 to 1·5	4	7	6	5	5	−1	−3	6
0·5 to 1	9	9	6	4	10	4	−3	0
Gd. to 0·5	12	11	9	10	12	9	8	4

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