Met.O.798

METEOROLOGICAL OFFICE

THE OBSERVATORIES' YEAR BOOK

1964

Comprising the geophysical results obtained from autographic records and eye observations at the Lerwick, Eskdalemuir and Kew Observatories

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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. Further publication was resumed eventually after a long interruption because of the 1939-45 war but in an abridged form as outlined in the next paragraph.

The General Introduction to the Meteorological Tables and the parts of the Sectional Introductions which dealt with site, instruments, procedure and tabulations included in the volume for 1938 served as the standards of reference up to 1956; only important departures from these standards were mentioned explicitly in subsequent Year Books. The space devoted to the discussion of observations was reduced and the monthly tables of individual hourly values of meteorological elements were discontinued, but summaries of the daily mean values (or totals), monthly means (or totals) of the hourly values and some maximum and minimum values were given. The diary of cloud, weather and visibility, and, after 1939, the aerological and seismological tables were also discontinued, but no major changes were made in the tables of atmospheric electricity and geomagnetism.

Another major review of the contents of the *Observatories' Year Book* was then carried out and a number of important changes made, commencing with the volume for 1957. The meteorological data for Kew and Eskdalemuir were omitted; a punched card system of recording such data centrally, at the Meteorological Office, Bracknell, has been adopted. It was also decided to omit all mention of the seismological work at Kew. Full details of the seismological measurements are given in the *Kew Seismological Bulletin*, distribution of which was resumed in 1947 after a break of seven years, and are also communicated to the *International Seismological Summary*. There were also some changes in the geomagnetism and atmospheric electricity tables; further changes in these tables have been introduced in this volume. Full details of all the tables are given in the present Introduction.

It may be of assistance to those who make use of the data in this volume to know the full range of the other work now carried out at the three observatories and this is detailed below. Requests for information about this other work should be addressed, unless otherwise stated below, to the Director-General, Meteorological Office, London Road, Bracknell, Berkshire, England.

Lerwick Observatory

Full hourly synoptic observations of the weather. Continuous recording and hourly tabulations of pressure, wind, rainfall, sunshine, temperature, humidity, total and diffuse solar radiation on a horizontal surface, daylight illumination on a horizontal surface, radiation balance. Daily measurements of evaporation and air smoke pollution.

Routine radiosonde and radar-wind upper air measurements (twice and four times daily respectively). Daily measurements of the total amount of ozone. Chemical sampling of the air and rain-water. Sampling for radio-activity of particulate matter in the air near the surface and sampling for radio-activity of rain-water.

There is a Radio and Space Research Station Unit, attached to Lerwick Observatory, which makes some measurements in connexion with its work on radio wave propagation, as well as solar proton measurements, using a neutron monitor, and magnetic micropulsation measurements, using a fluxgate magnetometer. Requests for information about this work should be addressed to the Director, Radio and Space Research Station, Ditton Park, Slough, Buckinghamshire, England.

Eskdalemuir Observatory

Full hourly synoptic observations of the weather. Continuous recording and hourly tabulations of pressure, wind, rainfall, sunshine, temperature, humidity, total and diffuse solar radiation on a horizontal surface, daylight illumination on a horizontal surface, radiation balance. Daily measurements of evaporation, air smoke pollution and soil temperatures (at depths of 30 and 122 cm). Chemical sampling of the air and rain-water. Sampling for radio-activity of particulate matter in the air near the surface, sampling for radio-activity of rain-water. From March, records from a set of the American world wide Standard seismographs - 3 components on both short and long period instruments.

Kew Observatory

Three-hourly synoptic observations of the weather, 06-21 G.M.T. Continuous recording and hourly tabulations of pressure, wind, rainfall, sunshine, temperature, humidity, total and diffuse radiation on a horizontal surface, solar radiation at normal incidence, daylight illumination on a horizontal surface, radiation balance. Daily measurements of evaporation, and soil temperatures (at depths of 50, 100 and 122 cm). Three hourly measurements (06-21 G.M.T.) of soil temperatures at surface and depths of 5, 10, 20 and 30 cm; from 1 August continuous recording and three-hourly tabulations (00-21 G.M.T.) of soil temperatures at these depths. Daily and hourly tabulations of smoke, and daily tabulations of sulphur dioxide, concentrations in the air. Records from a set of Galitzin seismographs (3 components) and a short period vertical seismograph.

CONTENTS

ESKDALEMUIR OBSERVATORY - *continued*

Atmospheric electricity

KEW OBSERVATORY

Atmospheric electricity

Air pollution

ERRATA IN PREVIOUS VOLUMES

Geomagnetism

Observatories' Year Books 1932 to 1937

In the 'Table of Contents' the entry for Tables 269-316 for each year should be as follows:-

'Hourly values of horizontal component, declination and vertical component; hourly, daily and monthly means'.

Observatories' Year Book 1957

In the 'Table of Contents' the page number for Table 34 should be 99 and the page number for Table 35 should be 98.

In the Introduction to the present *Observatories' Year Book*, on pages 6 to 8, an account is given of a comprehensive review of the geomagnetic measurements at Lerwick and Eskdalemuir. Corrections to the previous published values, as a result of this review, follow. It is to be noted that the review was concerned directly with *H* and *Z* values; hence the corrections for the other magnetic quantities, derived from these, are within ± 1γ, or 0·1′, of the true values.

LERWICK

Observatories' Year Books 1934 to 1937 inclusive

From 1934 to 1937 inclusive, all values of *H* at Lerwick, as amended by the correction table on p.21 of the *Observatories' Year Book* 1938, are 5γ too low. This means that the values originally published are only 1γ too high.

Observatories' Year Book 1938

In the Lerwick section p.21, substitute the following correction table for the existing one (in this latter *X*, −*Y*, *F* were originally *N*, *W*, *T* respectively):

Corrections to original published values

	H	*D*	*Z*	*X*	−*Y*	*I*	*F*
	γ	′	γ	γ	γ	′	γ
1923-25	...	−4·2	...	...	...	...	...
1926	...	−4·2	...	+4	−17	...	...
1927	...	−4·2	...	+5	−17	...	...
1928-29	...	−4·2	...	+4	−17	...	...
1930	...	−4·2	...	+4	−18	...	...
1931	...	−4·2	...	+4	−17	...	...
1932	...	−4·2	...	+5	−17	...	...
1933	...	−4·2	...	+4	−17	...	...
1934	−1	−4·2	−28	+3	−17	−0·5	−27
1935	−1	−4·2	−28	+3	−18	−0·6	−28
1936	−1	−4·2	−28	+3	−17	−0·6	−27
1937	−1	−4·2	−27	+3	−16	−0·6	−26

In the table of Principal Magnetic Disturbances in the Introduction to the Lerwick section, 5γ should be added to all maximum and minimum values of *H*.

The corrections to *H* in the footnotes to the Tables of Terrestrial Magnetic Force: Horizontal and Vertical Components should be −1γ.

ERRATA IN PREVIOUS VOLUMES *(contd.)*

Table of Mean Monthly and Annual Values of Terrestrial Magnetic Elements:

All values of *H* should be increased by 5γ.
All values of *X* should be increased by 5γ.
All values of *-Y* should be increased by 1γ.
All values of *I* should be decreased by 0·3'.
All values of *F* should be increased by 1γ.

Observatories' Year Books 1939 to 1946 inclusive

From 1939 to 1946 inclusive, all values of *H* at Lerwick, as amended by previous errata, are 5γ too low. The following changes are required:

In the Lerwick section:

In the correction table in the Introduction to the Lerwick section, the correction to *H* should be -1γ.

In the Tables of Principal Magnetic Disturbances in the Introduction to the Lerwick section, 5γ should be added to all maximum and minimum values of *H*.

The corrections to *H* in the footnotes to the Tables of Terrestrial Magnetic Force: Horizontal and Vertical Components should be -1γ.

In the Tables of Mean Monthly and Annual Values of Terrestrial Magnetic Elements, 5γ should be added to all values of *H*. The following changes are required:

All values of *H* should be increased by 5γ.
All values of *X* should be increased by 5γ.
All values of *-Y* should be increased by 1γ.
All values of *I* should be decreased by 0·3'.
All values of *F* should be increased by 1γ.

Observatories' Year Book 1939

Page 2, last para., line 2, first word to read 'decreased' not 'increased'.

Observatories' Year Books 1947 to 1952 inclusive

From 1947 to 1952 inclusive, all values of *H* at Lerwick, as amended by previous errata, are 5γ too low. The following changes are required:

In the Lerwick section:

All values of *H* should be increased by 5γ.
All values of *X* should be increased by 5γ.
All values of *-Y* should be increased by 1γ.
All values of *I* should be decreased by 0·3'.
All values of *F* should be increased by 1γ.

Observatories' Year Book 1953

From 1 January to 31 May 1953, all values of *H* as amended by previous errata, are 5γ too low. The following changes are required:

In the Lerwick section, 5γ should be added to all values of *H* up to 31 May inclusive. P.39, Table 63, correct monthly values of *X*, *-Y*, *I* and *F* up to May inclusive as for years 1938 to 1952. Correct annual values to read:

H all days to read	14435γ
H q days	14441γ
H d days	14423γ

ERRATA IN PREVIOUS VOLUMES *(contd.)*

X all days to read 14199γ
-*Y* all days 2601γ
I all days 72° 57·8′
F all days 49268γ

Page 4, last line of para. 3 to read '*H* 1540γ' not '*H* 1545γ'.

Observatories' Year Book 1958

From 28 September 1958 all values of *Z* at Lerwick are 7γ too high. The following changes are required:

In the Lerwick section:

7γ should be subtracted from all values of *Z* from 28 September onwards.
P. 11. In the third column of the last line of the table at the foot of the page the value for 1959 should be '+4' not '+14'.
P. 44. Table 5. Correct monthly values of *I* and *F* from October inclusive as for the years 1959 to 1961 - see below. Correct annual values to read *Z* all days 47246γ, *Z q* days 47245γ, *Z d* days 47247γ, *I* 72° 55·8′ and *F* 49423γ.

Observatories' Year Books 1959 to 1961 inclusive

From 1959 to 1961 inclusive all values of *Z* at Lerwick are 7γ too high. The following changes are required:

In the Lerwick section:

All values of *Z* should be decreased by 7γ.
In the Tables of Mean Monthly and Annual Values of Terrestrial Magnetic Elements:
All values of *I* should be decreased by 0·1′.
All values of *F* should be decreased by 6γ.

ESKDALEMUIR

National Physical Laboratory Report of the Observatory Dept. 1908 and 1909

In 1908 and 1909, all values of *H* at Eskdalemuir are 9γ too high and all values of *Z* are 24γ (in 1908) or 25γ (in 1909) too high. The following changes are required:

In the Eskdalemuir section:

All values of *H* should be decreased by 9γ.
All values of *Z* should be decreased by 24γ (in 1908) or 25γ (in 1909).

Geophysical and Meteorological Observations in the year ended 31 December 1910 at .... Eskdalemuir Observatory

In 1910 all values of *H* at Eskdalemuir are 10γ too high and all values of *Z* are 26γ too high. The following amendments should be made:

In the Eskdalemuir section:

All values of *H* should be decreased by 10γ.
All values of *Z* should be decreased by 26γ.
All values of *X* should be decreased by 9γ.
All values of -*Y* should be decreased by 4γ.
All values of *F* should be decreased by 28γ.

The British Meteorological and Magnetic Year Books, Part IV. 1911 to 1913 inclusive

From 1911 to 1913 all values of *H* at Eskdalemuir are 10γ (in 1911 and 1912) or 11γ (in 1913) too high and all values of *Z* are 27γ (in 1911 and 1912), or 28γ (in 1913) too high. The following changes are required:

ERRATA IN PREVIOUS VOLUMES *(contd.)*

In the Eskdalemuir section:

All values of *H* should be decreased by 10γ (in 1911 and 1912) or 11γ (in 1913).
All values of *Z* should be decreased by 27γ (in 1911 and 1912) or 28γ (in 1913).
All values of *X* should be decreased by 10γ.
All values of -*Y* should be decreased by 3γ.
All values of *F* should be decreased by 29γ (in 1911) or 30γ (in 1912 and 1913).

In the Table of Mean Monthly and Annual Values of Terrestrial Magnetic Elements at Meteorological Observatories, all values for the earlier years, prior to 1911, should be amended according to the errata given above for those years.

The British Meteorological and Magnetic Year Books, Part IV, 1914 to 1921 inclusive and The Observatories' Year Books 1922 to 1953 inclusive.

During the period 1914 to 1933 inclusive, all values of *H* at Eskdalemuir are too high by an amount varying uniformly over the period from 11γ in 1914 to 19γ in 1933, and all values of *Z* are too high by an amount varying from 29γ in 1914 to 51γ in 1933. The following amendments are required:

In the Eskdalemuir section:

All values of *H* should be decreased uniformly over the period by an amount varying from 11γ in 1914 to 19γ in 1933.
All values of *Z* should be decreased uniformly during the period 1914 to 1918 from 29γ to 33γ, during the period 1919 to 1925, similarly from 35γ to 41γ, during the period 1926 to 1932 again similarly from 43γ to 49γ and in 1933 by 51γ.
All values of *X* should be decreased uniformly over the period by an amount varying from 10γ to 19γ.
All values of -*Y* should be decreased uniformly over the period by an amount varying from 3γ to 4γ.
All values of *F* should be decreased uniformly over the period 1914 to 1918 by an amount varying from 31γ to 35γ, over the period 1919 to 1925 by an amount varying uniformly from 37γ to 43γ, in 1926 by 45γ, over the period 1927 to 1932 by an amount varying uniformly from 47γ to 52γ and in 1933 by 55γ.

In the Table of Mean Monthly and Annual Values of Terrestrial Magnetic Elements at Meteorological Observatories in the British Meteorological and Magnetic Year Book, Part IV, all values for the earlier years, prior to 1914, should be amended according to the errata given above for those years.

Observatories' Year Book, 1934 to 1952, inclusive

From 1934 to 1952 inclusive, all values of *H* at Eskdalemuir are 5γ too high and all values of *Z* are 14γ too high. The following amendments are required:

In the Eskdalemuir section:

All values of *H* should be decreased by 5γ.
All values of *Z* should be decreased by 14γ.
All values of *X* should be decreased by 5γ.
All values of -*Y* should be decreased by 1γ.
All values of *F* should be decreased by 15γ.

Observatories' Year Book, 1953

During 1953, all values of *H* at Eskdalemuir are 5γ too high; from 1 January to 30 June 1953, all values of *Z* are 14γ too high and from 1 July to 31 December 1953, all values of *Z* are 4γ too high. The following amendments are required:

ERRATA IN PREVIOUS VOLUMES *(contd.)*

In the Eskdalemuir section:

1 January to 30 June 1953 - as for the period 1934 to 1952.
1 July to 31 December 1953

All values of H should be decreased by 5γ.
All values of Z should be decreased by 4γ.
All values of X should be decreased by 5γ.
All values of $-Y$ should be decreased by 1γ.
All values of F should be decreased by 6γ.
All values of I should be increased by $0{\cdot}2'$.

Observatories' Year Book, 1954

From 1 January to 28 February 1954, all values of H at Eskdalemuir are 5γ too high and all values of Z are 4γ too high; from 1 March to 31 December 1954, all values of H are 3γ too high - there is no change in Z. The following amendments are required:

In the Eskdalemuir section:

1 January to 28 February 1954, as for 1 July to 31 December 1953.
1 March to 31 December 1954, as for 1955 to 1964 - see below.

Observatories' Year Books 1955 to 1964 inclusive

From 1955 to 1964 inclusive, all values of H at Eskdalemuir are 3γ too high. The following amendments are required:

In the Eskdalemuir section:

All values of H should be decreased by 3γ.
All values of X should be decreased by 3γ.
All values of $-Y$ should be decreased by 1γ.
All values of F should be decreased by 1γ.
All values of I should be increased by $0{\cdot}2'$.

Atmospheric Electricity

Observatories' Year Book 1940

Page 86, table 100. In Annual mean for 0a days for '231' read '233'.

Observatories' Year Book 1945

Page 14, table 2. In Annual mean for 0a days for '195' read '187'.
In Summer mean for 0a days for '200' read '175'.

Observatories' Year Book 1947

Page 9, table 6. In (a) Annual mean 14-15h for '193' read '192'.
In (a) Annual mean 20-21h for '203' read '201'.
In all hours Annual (a) mean for '187' read '186'.

Observatories' Year Book 1949

Page 62, table 91. In Annual mean for 0a days for '193' read '192'.

Observatories' Year Book 1956

Page 115, table 174. In heading of lower part of table for 'γ+' read 'λ+'.

ERRATA IN PREVIOUS VOLUMES *(contd.)*

Observatories' Year Books 1957 and 1958

1957, Page 17)
1958, Page 16) Under TABULATIONS, third paragraph. In first line delete 'and sums'. In third and fourth lines delete 'sums and'.

1957, Page 63, table 20. In Annual mean for Oa days for '125' read '129'.

1957, Page 104, table 43, January 20. Last column for 'Z' read '2'.

1957, Page 110, table 44, August 22)
1958, Page 118, table 44, October 17) Entry under 'Character' should read '(0–)'.

1957, Page 110, table 44)
1958, Page 118, table 44) All entries '···' in column headed 'Duration of negative potential gradient' should read '0·0'.

1958, Page 112, table 43, February 22 Delete *for entry 21-22h and add *to 19-20h. In mean for '46' read '45'.
February In mean for month for '111' read '110'
In mean for 19-20h for '84(19)' read '86(18)'
In mean for 21-22h for '116(18)' read '112(19)'

Page 113, table 43, March 18 In mean for '91' read '51'.
April In mean for Oa days for '59' read '46'.

Page 116, table 43, September 21 In hours used for '(10)' read '(15)'.
October 5 In mean for '103' read '108'.

Page 117, table 43, November 5 In mean for '63(12)' read '54(14)'.
December 17 21-22h for '160' read '60'.
In mean for '75' read '71'.
December In mean for 21-22h for '105(23)' read '101(23)'.
In mean for Oa days for '85' read '84'.
Year In annual mean for 19-20h for '82' read '83'.
for 21-22h for '82' read '81'.

Observatories' Year Book 1959 to 1963

Table 40 Entries '···' in column headed 'Duration of negative potential gradient' should read '0·0'.

1959 Page 17)
1960 Page 15)
1961 Page 15) Under TABULATIONS, second paragraph In first line delete 'and sums'. In third and fourth lines delete 'sums and'
1962 Page 13)
1963 Page 13)

Observatories' Year Book 1959

Page 59,	table 19,	July 8,	5-6h.	Omit *
Page 60,	table 19,	September 12,	10-11h.	Add *
		September 28,	4-5h.	Add *
		October 25,	10-11h.	Add *
Page 100,	table 39,	January.	In mean for Oa days for '141' read '146'.	
Page 102,	table 39,	May	In mean for 1-2h for '120' read '12'. 2-3h for '73' read '7'.	
		May 9,	14-15h.	Add *.
Page 103,	table 39,	July.	In mean for Oa days for '50' read '52'.	
Page 105,	table 39,	December.	In mean for Oa days for '109' read '105'.	
		Year	In Annual mean for Oa days for '68' read '69'.	

ERRATA IN PREVIOUS VOLUMES *(contd.)*

Observatories' Year Book 1960

Page 54,	table 19,	January 22,	19-20h. Add *
Page 58,	table 19,	October 14,	8-9h. Omit *
Page 98,	table 39,	January 7,	In mean for '89' read '47'.
Page 99,	table 39,	April.	In mean for Oa days for '88(3)' read '89(4)'.
Page 104,	table 40,	January 17.	For 'Oa' read 'Ob'.

Observatories' Year Book 1961

Page 54,	table 19,	January 3,	16-17h, 17-18h, 18-19h. Add *
		January 4,	1-2h, 2-3h, 6-7h. Add *
		January 9,	17-18h. Add *
		January 13,	6-7h. Add *
		January 28,	3-4h. Add *
		January 29,	10-11h. Add *
Page 55,	table 19,	March 22,	23-24h. Add *
		March 27,	8-9h. Add *
		April 12.	In hours used for '(2)' read '(21)'.
Page 56,	table 19,	May 2,	19-20h. Omit *
		May 4,	23-24h. Omit *
		June 9,	15-16h. Add *
		June 28,	21-22h. Omit *
Page 57,	table 19,	August 6,	4-5h. For '115' read '155'.
		August	In mean for 16-17h for '139' read '133'.
Page 58,	table 19,	September 1,	23-24h. For '-225' read '225'.
Page 100,	table 39,	May 31.	In mean for '94' read '75'.
		May.	In mean for Oa days for '84' read '88'.
Page 103,	table 39,	In Annual mean	for Oa days for '92' read '99'.

Observatories' Year Book 1962

Page 52,	table 19,	February 5,	8-9h. Add *
		February 12,	4-5h. Omit *
Page 54,	table 19,	June 1,	11-12h. Omit *
Page 56,	table 19,	September 30,	12-13h. Omit *
Page 57,	table 19,	November 30,	12-13h. For '68' read '65'.
		December 10,	17-18h. Omit *
		December 29,	23-24h. Add *

Pages 99-101, table 39. The entries for the means for the following days should be '-' not '0': 9 Aug., 2 Oct., 10 Nov., 11 Nov.

Page 102, table 40.

	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
No. of days used	for 26 read 31	for 19 read 25	for 24 read 27	for 24 read 27	for 21 read 24	for 26 read 27
Mean	for 1·8 read 1·5	for 2·3 read 1·7	for 2·3 read 2·0	for 2·4 read 2·1	for 5·1 read 4·4	for 3·9 read 3·7

Annual values. In No. of days for '288' read '309'.
In mean for '3·00' read '2·80'.

Observatories' Year Book 1963

Page 52,	table 19,	January 5,	20-21h. Add *
		12,	17-18, 18-19h. Add *

ERRATA IN PREVIOUS VOLUMES *(contd.)*

Page 52, table 19, January 13,	11-12h.	Add *
Page 53, table 19, April 26,	6-7h.	Omit *
Page 54, table 19, May 18,	18-19h.	Omit *
Page 57, table 19, November 16,	18-19h.	Add *
18,	15-16h.	Add *
December 1,	19-20h.	Add *
Page 96, table 39, January 11,	7-8h.	For 'Z±' read '-*'.
January.	In mean for Oa days for '144(5)' read '180(4)'.	
Page 99, table 39, August.	In mean for Oa days for '1(1)' read '50(1)'.	
Page 100, table 39, September.	In mean for Oa days for '53(2)' read '53(1)'.	
Page 101, table 39,	In Annual mean for Oa days for '32' read '114'.	
Pages 96-101, table 39,	The entries for the means for the following days should be '-' not '0': 4 Jan., 20 Jan., 6 Feb., 9 Mar., 10 Mar., 14 Mar., 16 Mar., 25 May, 24 June, 5 Aug., 20 Sept., 21 Sept., 30 Sept., 12 Nov., 23 Nov.	

Page 102, table 40.

	JAN.	FEB.	MAR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Total							for 65·3 read 175·3				
No. of days	for 25 read 31	for 10 read 26	for 19 read 22	for 19 read 21		for 30 read 31	for 26 read 27	for 22 read 25			for 26 read 30
Mean	for 1·7 read 1·4	for 3·7 read 1·4	for 4·9 read 4·2	for 4·6 read 4·2	for 2·8 read 2·9	for 1·7 read 1·8	for 3·7 read 2·8	for 4·9 read 2·5	for 4·3 read 2·7	for 4·6 read 5·2	for 2·8 read 2·3

Annual values. In total for '848·1' read '858·1'.
In No. of days for '269' read '305'.
In Mean for '3·15' read '2·81'.
In No. of days with character 0 for '38' read '37'.

January 4 — Entry under 'Character' should be left blank.

September 31)
November 31) Delete dashes.

Miscellaneous

Level of Underground Water at Kew

Observatories' Year Book 1933

Page 356, line 3 — for '1934' read '1933'.

Observatories' Year Book 1934

Page 358,	line 11	for '750' read '772'.
	line 13	for '763' read '709'.
	line 13-14	for 'above' read 'below'.
	line 14	for '13' read '63' and insert at end 'Of this correction (63 cm) 37 cm is accounted for by the new determination of the level of the beach mark using Newlyn as the datum instead of Liverpool, and 26 cm as an internal redetermination of levels'.
Page 415,	table 527	Alter sub-heading to read: 'zero = 63 cm below MSL'.

ERRATA IN PREVIOUS VOLUMES *(contd.)*

Observatories' Year Book 1935

Page 362,	line 11	for '750' read '772'.
	line 13	for '763' read '709'.
	line 13-14	for 'above' read 'below'.
	line 14	for '13' read '63'.
Page 421,	table 527	In the sub-heading for '13 cm above' read '63 cm below'.

Observatories' Year Book 1936

Page 385,	line 5	For '13 cm above' read '63 cm below'.
Page 417,	table 527	In the sub-heading for '13 cm above' read '63 cm below'.

INTRODUCTION

DESCRIPTION OF OBSERVATORIES

Lerwick Observatory, Shetland (60°08'N, 1°11'W)

The Observatory is set on a ridge of high ground about 85 m above MSL and about 2½ km to the south-west of the port of Lerwick (population about 6000). The surrounding country is desolate moorland.

General views of the Observatory, a site plan and a contour map of the surrounding country were published in the *Observatories' Year Book* for 1961. An account of the history of the Observatory is given by W. G. Harper[1].

Eskdalemuir Observatory, Dumfriesshire (55°19'N, 3°12'W)

The Observatory is situated on a rising shoulder of open moorland about 245 m above MSL in the upper part of the valley of the River White Esk in the Southern Uplands of Scotland. It is surrounded by open moorland with hills rising within 8 km to the north-west to nearly 700 m above MSL.

General views of the Observatory, a site plan and a contour map of the surrounding country were published in the *Observatories' Year Book* for 1961. The history of the Observatory is described by M. J. Blackwell[2] in a paper marking the fiftieth anniversary of the commencement of observations, and by J. Crichton[3].

Kew Observatory, Richmond, Surrey (51°28'N, 0°19'W)

Kew Observatory lies in the south-west corner of an area of parkland about 16 km west-south-west of the centre of London. The ground level is about 5 m above MSL. Outside the parkland within 1 km, the area is extremely built-up, with a number of small factories within a few kilometres to the north and east.

General views of the Observatory, a site plan and a contour map of the surrounding country were published in the *Observatories' Year Book* for 1961.

For the early history of the Observatory reference may be made to papers by G. Rigaud[4], R. H. Scott[5], C. Chree[6], O. J. R. Howarth[7], R. S. Whipple[8], F. J. W. Whipple[9], and A. J. Drummond[10].

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1. HARPER, W. G.; Lerwick Observatory. *Met. Mag., London*, 79, 1950, p.309.
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GEOMAGNETISM

Regular recording of the earth's geomagnetic field commenced at Kew in 1857. By the beginning of the twentieth century, however, the extension of London's electric railway and tramway system had caused so much geomagnetic disturbance that it was decided to establish another geomagnetic observatory in an area considered unlikely to be similarly affected. This led to the building of Eskdalemuir Observatory which was opened in 1908, but geomagnetic observations were also continued at Kew up to 1924.

Comparisons of the geomagnetic results obtained at Kew and Eskdalemuir showed, however, that it would be very desirable to obtain geomagnetic records as far north as possible in the British Isles, and this resulted in the establishment of Lerwick Observatory in 1921. Recording of the geomagnetic field has been continuous at Lerwick since January 1923.

The principal magnetographs at Lerwick and Eskdalemuir are normal and quick-run La Cour instruments, each set consisting of *H, D* and *Z* variometers; the paper speeds are 15 mm/h for the normal and 180 mm/h for the quick-run. Time marks are made at five-minute intervals except at the hour, and two-minute breaks are made three times daily at Lerwick and twice daily at Eskdalemuir. Scale values of the *H* and *Z* variometers are measured about once a week at Lerwick and once a month at Eskdalemuir, during magnetically quiet periods, by passing a current through Helmholtz-Gaugain coils placed over the variometers, the resulting deflection being recorded on the photographic paper. The current is measured by a milliammeter which is periodically calibrated by a potentiometer using a standard resistance, and a standard cell. It is thought that the scale values adopted, about 4γ/mm for *H* and 6γ/mm for *Z* (at both observatories) are accurate to about ½ and 1 per cent respectively. The scale value for *D* is normally determined from the optics and geometry of the system, with small corrections for torsion and paper shrinkage, but is occasionally checked by a similar electrical method to that used with the *H* and *Z* variometers; the difference between the electrical and optical methods is small and the adopted scale values are accurate to about 1 per cent. Following a complete review made in 1963-64, of the scale values, used at both observatories since the installation of the La Cour variometers, in comparison with the optical calculations, electrical determinations and analyses of absolute values, it was decided that the values hitherto adopted were in error by amounts varying up to 4 per cent, mainly because geometrical calculations had been used alone, without account being taken of the curvature of the prism face. Details of the correct scale values to be adopted, over various periods, are given in the section, "*Errata in Previous Volumes and in the Present Volume*" on page vii of the *Observatories' Year Book* 1962. The monthly and yearly mean values of *D* are unaffected, but the other values of *D* published in the *Observatories' Year Books* for Lerwick from April 1934 to December 1961, and for Eskdalemuir from January 1936 to December 1962, are in error by the proportion of their deviation from the mean monthly or yearly values; the correction is positive if the westerly declination is greater than the mean value and negative if it is less than the mean value. Tables (for Eskdalemuir only) of diurnal inequalities of the geographical components, which involve the value of *D*, are correspondingly affected.

Complete sets (*H, D* and *Z*) of supplementary magnetographs with lower sensitivity are also operated to provide information during any breaks in the normal magnetograph records, and also to provide information when rapid geomagnetic disturbance renders the traces of the standard magnetograph indecipherable. Details of these instruments can be found in the *Observatories' Year Book* for 1938.

The magnetograph house (*K**) at Lerwick, which contains the La Cour magnetographs, is above ground and is made of non-magnetic concrete: its internal dimensions are 4·9 m by 3 m with the semi-circular shaped roof about 3 m in the middle, and 2 m at the sides, above the floor; the walls and roof are 76 cm thick. An electric heater, controlled by a thermostat, enables the temperature to be kept reasonably constant. The time for a cycle of temperature

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*The descriptive letters or numbers, are those given in the Figures published in the *Observatories' Year Book* 1961.

changes (that is, the time between successive operations of the thermostat contacts) is of the order of one hour and a small oscillation of the temperature of the magnetograph is evident from the records, but the amplitude is only about 1 degree Celsius. The supplementary magnetographs are housed in an unheated wooden hut (L).

At Eskdalemuir the magnetographs are placed in an underground chamber (3) 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, width 6·1 m, height 3·0 m. The whole outer shell is covered with a thick layer of earth which forms a mound. The instruments and greater part of the rooms are below the undisturbed level of the surrounding ground. Electrical heating, thermostatically controlled, was introduced in 1936 but, although the diurnal range in temperature is normally negligible, there is an annual range of temperature of about 4 degrees Celsius.

The temperature recorded by a thermometer inserted in the quick-run *Z* variometer, taken to be representative of the magnetograph house, is read daily at 09 G.M.T. at Lerwick and at midnight at Eskdalemuir and the readings are given in Table 4 (for Lerwick) and Table 22 (for Eskdalemuir).

Baseline values of the magnetograms are computed from the absolute measurements, made twice weekly, and measured scale values using the ordinate of the variometer curve at the times of the absolute observations. The adopted values of the baselines are obtained by a graphical smoothing process. Normally one value is adopted for one day except when instrumental discontinuities have occurred.

TABULATIONS

Tables 1 and 19 give, for Lerwick and Eskdalemuir respectively, mean values of the horizontal component *(H)* of geomagnetic force for periods of 60 minutes ending at the exact hour G.M.T. together with hourly, daily and monthly sums and means. Tables 2 and 20 give similar information for declination *(D)* and Tables 3 and 21 for the vertical component *(Z)*.

Tables 4 and 22 contain the geomagnetic 3-hourly character figures K, K_H, K_D and K_Z, together with the daily character figure *C* and the temperature in the magnetograph house. K_H, K_D and K_Z refer to character figures assigned solely by reference to the variations in one magnetic component (*H, D* or *Z* respectively) whereas *K* is the higher figure out of K_H and K_D for that particular 3-hour period. These *K* figures are thus different from the *K*'s published in the *Observatories' Year Book* 1963 and in previous years, in which each value of *K* was the maximum out of the corresponding K_H, K_D and K_Z, but if these *K* figures are required they can be readily obtained from the data in Tables 4 and 22. The decision to publish the *K* figures for each component in this way, and to discontinue the previous practice of publishing the daily ranges of the geomagnetic components, is in agreement with resolutions of the International Association of Geomagnetism and Aeronomy (IAGA) meeting at the International Union of Geodesy and Geophysics (UGGI) Assembly at Berkeley, California, in August 1963.

The geomagnetic character figures *C* are determined merely by inspection of the magnetograms. The standard is related to the general level of activity during the year, and the following recommendations, made in 1910 by Chree, Van Everdingen and Schmidt are adopted as guiding principles "that no one of the characters, 0, 1 and 2 should be attributed to more than two-thirds of the days of the year, and that in each quarter the number of days of character 2 should be on the average at least 6".

The geomagnetic character figures *K* have been derived generally in the conventional way (see, for example, IGY Instruction Manual, Part IV, Geomagnetism - Part I Section 1.7). The lower limit for *K*=9 is 1000γ for Lerwick and 750γ for Eskdalemuir.

Tables 1-4 are subdivided into monthly sections and the same monthly parts of each table are grouped together on facing pages. Tables 19-22 are treated similarly. The days selected by IAGA as being typical "quiet" and "disturbed" days are marked by the letters "*q*" and "*d*" respectively.

In general the declination (*D*) is measured to the west, and is considered to increase with increasing westerly declination, in accordance with the convention adopted in previous volumes. There is, however, an important exception in Tables 14 and 34 entitled "Noteworthy Geomagnetic Disturbances" (see below). In these two tables a movement of *D* to the east (that is decreasing westerly declination) is regarded as positive, in order that the data in the tables may agree in every respect with data already supplied to IAGA.

Tables 5 (for Lerwick) and 23 (for Eskdalemuir) give the mean monthly and annual values of the geomagnetic elements *H*, *D* and *Z* together with the values of the north component (*X*), west component (*-Y*), inclination (*I*) and total force (*F*). The values for *H*, *D* and *Z* are also given for the international quiet and disturbed days.

The next set of tables (6-13 for Lerwick and 24-32 for Eskdalemuir) gives data on the diurnal inequalities of each geomagnetic element. As recommended by a resolution of the Commission for Terrestrial Magnetism and Atmospheric Electricity and approved by the Conference of Directors at Warsaw in 1935, the diurnal inequalities are all uncorrected for non-cyclic change, but the values of the non-cyclic change are also given separately in Tables 11 and 31.

Some information is given for Eskdalemuir but not for Lerwick. This includes the diurnal inequalities of the north (*X*) and west (*-Y*) components and the inclination (*I*), and values of the first four harmonic components of the diurnal inequalities of the north, west and vertical components.

The inequalities of *X*, *-Y* and *I* have been computed from those of *H*, *D* and *Z* by means of the formulae:

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

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

$$\delta I = \frac{180 \times 60}{\pi} \cos I \left[\frac{\delta Z \cos I - \delta H \sin I}{H} \right]$$

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 23.

The results of harmonic analysis of the mean diurnal inequalities of *X*, *-Y* and *Z* for the months, seasons and year are to be found in Table 33, 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 24-29, but for this purpose the non-cyclic change has been eliminated.

A correction has been applied where necessary, because the hourly values are not instantaneous but are 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, and c_1; 1·01152 for a_2, b_2 and c_2; 1·02617 for a_3, b_3 and c_3; and 1·04720 for a_4, b_4 and c_4. The values were obtained to two decimal places and finally were rounded off to 0·1γ.

Tables 14 and 34 are entitled "Noteworthy Geomagnetic Disturbances". These were revised in content in 1947 and now include all the disturbances which would have been included in the previous type of tables, with, however, additional disturbances with sudden commencement (ssc) and those which can be recognised as being solar flare effects (sfe). The tables are divided into three parts:

(a) Disturbances noteworthy for some reason (usually, but not always, range) and without a sudden commencement.

(b) Well marked sudden commencements whether followed by a large disturbance or not.

(c) Disturbances accompanying a solar flare or other known solar flare effect.

The time given of commencement and ending of disturbances in (a) must depend on an arbitrary judgement. The list of sudden commencements under (b) will usually be a little shorter than that given in the IAGA bulletins because a somewhat stricter meaning has been given to the words "well marked". The (c) table has been made as complete as possible by a careful scrutiny of the magnetograms at the time of any known solar flare or solar flare effect, but a small "crochet" can easily be masked by other disturbances. Doubtful cases are not included. The signs given to the movements of *H*, *D* and *Z* are positive for increasing *H*, *Z* and an increase of force towards the east (that is, a decreasing westerly declination). Particulars of the same disturbances are given in both the Lerwick and Eskdalemuir tables, even if the disturbance at one of the stations is relatively small.

NOTES ON THE RESULTS

Comparing mean values on all days of 1964 with those of 1963, at Lerwick *H* increased by 24γ, *D* (west) decreased by 4·2′ and *Z* increased by 23γ. The changes deduced in *X*, −*Y*, *I* and *F* are +27γ, −13γ, −1·1′ and + 28γ respectively. The ranges between the extreme values recorded during 1964 were *H* 1193γ, *D* 2°34·0′ and *Z* 588γ. The range of 2°34·0′ in declination corresponded to a range of 647γ in the component of force perpendicular to the magnetic meridian.

Similarly at Eskdalemuir *H* increased by 30γ, *D* (west) decreased by 4·9′ and *Z* increased by 14γ. The changes deduced in *X*, −*Y*, *I* and *F* are +33γ, −18γ, −1·6′ and +23γ respectively. The ranges between the extreme values recorded during 1964 were *H* 340γ, *D* 1°7·6′ and *Z* 341γ. The range of 1°7·6′ in declination corresponded to a range of 332γ in the component of force perpendicular to the magnetic meridian.

It has been decided to discontinue this section after the 1965 *Observatories' Year Book*.

ABSOLUTE STANDARDS OF GEOMAGNETIC FORCE AT LERWICK AND ESKDALEMUIR

While the standard instrument for declination measurement continues to be the Kew pattern unifilar magnetometer, the standard instrument for *H* and *Z* became, at the end of 1964, the proton vector magnetometer, the accuracy of the latter instrument is checked by simultaneous independent measurements of *F*, *H*, and *Z*; the mean difference between *F* and $\sqrt{(H^2 + Z^2)}$ is zero, with a standard deviation of about ½γ.

The Lerwick instrument is on the lines of that described by L. Hurwitz and J.R. Nelson (*Journal of Geophysical Research*, 65, 1960, p.1759); the principle of the Eskdalemuir instrument is similar but the horizontal and vertical components are balanced in turn by the field produced by a simple rotatable Helmholtz-Gaugain coil system. A more detailed description of these instruments (with photographs) is reserved for the Introduction to the *Observatories' Year Book* 1965.

Older instruments, using proton magnetometers, from 1960, are described in the *Observatories' Year Book* 1963 (pages 6-7); the instruments previously in use are described in the *Observatories' Year Books*, 1957-59.

In view of the improved accuracy (particularly in *Z* measurements) that the new instruments have provided, the opportunity has been taken to review the whole series of geomagnetic measurements made at Eskdalemuir and Lerwick, and to estimate (where possible) the probable corrections to past values. Much weight has naturally been given to the various intercomparisons between the two observatories (and between the observatories and Abinger/Hartland) which have been reported in past *Observatories' Year Books*, but it will not be necessary in this account to trace every step that was made. The errata arising from this review are listed on pages vii-xi.

Horizontal component

At Lerwick, from 1922 until 1939, the standard instrument for measuring *H* was Kew unifilar magnetometer L3951 mounted on the central pillar in Hut *H* (see Figure 3 of the *Observatories' Year Book* 1961. This was replaced on October 1939 by a portable Smith Coil, placed on the central pillar in Hut I, which was standardized by comparison with L3951; this is referred to below as the Lerwick *H* standard. Observations continued to be made twice monthly with L3951 until 1946, and the two instruments showed complete agreement during this period.

In June 1953 there was a decrease in the standard of $1{\cdot}3\gamma$ when, following a recalibration of the Smith coil potentiometer at the National Physical Laboratory (NPL) it was discovered that hitherto an old and slightly incorrect factor had been used to convert from international amperes to absolute amperes. Early in 1965, comparisons with the proton vector magnetometer showed that the Lerwick *H* standard, then in force, (i.e. 1γ below the pre-1953 standard) was, in fact, correct (error less than 1γ).

The position has not, however, been clear in the past, and the published Lerwick *H* values have been in error for two reasons. Firstly, it was decided, after the 1946 inter-observatory comparisons, to assimilate the Lerwick *H* values to the inferred Abinger standard and 6γ was subtracted from the Lerwick *H* values. This was backdated to 1 January 1934, the date on which the change from dip circle to dip inductor (for determination of inclination and thence vertical component) was made effective. Secondly, the recalibration of the Smith coil potentiometer at the NPL in 1953 showed a small change in the value of the resistances from the 1938 calibration, and, in order to avoid an apparent discontinuity, the correction was altered from -6γ to $+1\gamma$ from 1 June 1953. The present review has shown that both these decisions were incorrect; the first because subsequent inter-observatory comparisons led to the 6γ being attributed partly to experimental error and partly to an error in the Abinger standard; the second because it seems most probable that the changes in the resistances occurred during the transport of the potentiometer to the NPL. The correction for the period 1 June 1953 to 31 December 1964, of 1γ, can be ignored, but it seems best to repeal the correction from 1934 to June 1953, by now adding 5γ to the published values as previously amended for this period (i.e. 6γ by removing the assimilation to the inferred Abinger standard minus 1γ due to the incorrect conversion from international to absolute amperes).

In a number of previous *Observatories' Year Books* (particularly those for the years 1957-61) references are made to the "uncorrected coil" values of *H* derived from measurements with the Lerwick Smith coil magnetometer. This refers to *H* values obtained when the calibration constant first assigned to this instrument, in 1932, after calibration at Abinger, and not since altered, is used. The instrument was, however, modified before being used at Lerwick, and it is not surprising that changes were introduced into its effective constant. Essentially, as stated above, the instrument was recalibrated in 1938 against the existing Kew pattern magnetometer, and this was carried out by adding corrections to the "uncorrected coil" values.

At Eskdalemuir the standard instrument for absolute observations of H was the Kew unifilar magnetometer, Elliott 60, mounted on pillar 5 in the west absolute hut (marked 1 on the site plan, Figure 7, in the *Observatories' Year Book* 1961).

This Elliott 60 standard was replaced on 1 January 1934 by a Schuster-Smith coil magnetometer, placed on a specially built pillar in the same (west) hut, about 1·5 m south of pillar 5. This involved a discontinuity of -14γ, which is remarked on in the *Observatories' Year Book*, 1934 p.173. Of this total amount it was estimated that 10γ was due to the departure of the moment of inertia of the magnet system of the Elliott magnetometer, as determined in 1933, from the value originally determined in 1908, and as used up to and including 1933 in the reduction of the results of absolute observations. The likely suggestion was then made that the change occurred gradually throughout the period of use, 1908-33, a regular change of less than $\frac{1}{2}\gamma$ per year being caused. Observations with the Elliott 60 magnetometer continued to be made up to 1948 with no change in the difference between the two magnetometers.

The current measuring potentiometer in the Schuster-Smith coil apparatus had been originally calibrated by the NPL in international electrical units but, as with the Lerwick instrument, the conversion factor used to convert international amperes to absolute amperes (0·99997) was an old value, subsequently found to be greater than the correct value (0·99985). There is no reason to doubt that the NPL calibration was correct in international units and so the original measurements of H were too high by a factor of 0·00012 H ($\approx 2\cdot0\gamma$). This was put right in March 1954 when the potentiometer was recalibrated in absolute units, but, of course, there was a drop of 2γ in the H standard at this time.

Towards the end of 1964 a series of comparisons with the new proton vector magnetometer showed that the Schuster-Smith coil magnetometer was reading 3γ high. This was in good agreement with the expected value based on inter-observatory comparisons.

A summary of the proposed changes in the published H data as previously amended is given below.

Lerwick

1 January 1934 to 31 May 1953	add 5γ

Eskdalemuir

1908 to 31 December 1933	subtract 9γ in 1908 increasing uniformly to a subtraction of 19γ in 1933
1 January 1934 to 28 February 1954	subtract 5γ
1 March 1954 to 31 December 1964	subtract 3γ.

Vertical component

The earlier history of the measurements of Z at Lerwick and Eskdalemuir has been fully described in past *Observatories' Year Books*. At both observatories dip circles were originally used (at Eskdalemuir up to the end of 1913 and at Lerwick up to the end of 1933) and these were followed by dip inductors; these instrumental changes gave rise to discontinuities in the measurements of inclination, and thus of Z, which appear in the published values and must be noted. For Lerwick the present review has suggested no change to published values, as previously amended, up to 1954, but there is good evidence that sometime between then and April 1959 the measured value of Z became 7γ too high. It seems most probable that this took place when the balance magnetometer (BMZ) (No. 83) received an accidental knock on 28 September 1958 - a correction to its constant was applied from that time, but a review of the monthly mean quiet day values of Z around this date strongly suggests that the correction applied was 7γ too large.

This reduction of 7γ is therefore made from then until 1 January 1962, when the *Z* values were first derived direct from the proton magnetometer total force measurements and the Smith coil values of *H*. No change is required since this latter date.

For Eskdalemuir the review of the published *Z* data has had to take account of the changes of the *H* standard (see above) because the dip inductor was the standard instrument for the measurement of *Z* up to May 1960, when the *Z* values were first derived from the proton magnetometer total force measurement and the Schuster-Smith coil value of *H*. There was no change in the *Z* standard at this time but there was a small change (of 1γ) when the proton vector magnetometer was brought into use (1 January 1965).

A critical re-examination of the inter-observatory comparisons, taking into account all the evidence now available, strongly suggested, however, that the *Z* standard at Eskdalemuir decreased by about 15γ between 1953 and 1954; 5γ of this was accounted for by the change in *H* standard in March 1954 (see above) and an examination of the quiet day monthly mean values indicated that a decrease of 10γ occurred in July 1953. This was presumably due to a change in the dip inductor (a decrease of only 0·25 minute in the measurement of the angle of dip would give this change of *Z* at Eskdalemuir). There is no evidence of any other discontinuity in the observations by the dip inductor and so the only other changes in *Z* at Eskdalemuir which are now proposed are the effects of changes in the *H* standard. Details of these are given in the previous section. On 1 January 1934 the sudden decrease of 14γ in *H* gave a consequent decrease of 37γ in *Z* and the gradual rise in *H* from 1908 to 1933 (10γ over the period) gave rise to a corresponding increase of 27γ in *Z*.

A summary of the changes in the published *Z* data, as previously amended, which are now considered necessary, is given below (changes of 1γ have been ignored).

Lerwick

Up to and including 27 September 1958	no change
28 September 1958 to 31 December 1961	subtract 7γ
1 January 1962 onwards	no change

Eskdalemuir

From 1908 up to 31 December 1933	subtract an amount varying steadily from 24γ in 1908 to 51γ in 1933.
1 January 1934 to 30 June 1953	subtract 14γ
1 July 1953 to 28 February 1954	subtract 4γ
1 March 1954 onwards	no change.

Declination

It was decided in 1963 to re-examine all the available manuscript data on the determination of the azimuth of the fixed mark at Lerwick, from the first measurement in 1922 to the most recent value in 1961. (Measurements were made in 1922, 1923, 1930, 1932, 1937, 1938, 1939, 1940, 1944, 1948 and 1961, the last two being by the Ordnance Survey.) The clear conclusion was reached that the apparent drift of the mark between 1923 and 1948, mentioned in the 1938 and subsequent *Observatories' Year Books* was not real and was due to errors of observation with the instruments available at Lerwick. The most accurate observation (08°38·8′ ± 4″ east of south) is that made by the Ordnance Survey in 1961, and it is considered that this has always been the true value since declination observations began in 1922. The conclusion is consistent with the geology of the region, since both concrete pillars - that on which the declinometer stands and that, 117 m away, on which the azimuth mark is placed, are firmly cemented into solid bedrock. The change from the already published corrections for the years 1923 to 1946 are that (i) the original 1923 determination was in error by 4·2′ and not 3·5′, and (ii) that this figure of 4·2′ is the amount by which westerly declination is too large between 1923 and 1946, and not the range from 3·5′ in 1923 to 4·4′ in 1946, hitherto mentioned. In addition the published values of westerly declination from 1947 to 7 November 1961 are too small by 0·2′. Attention was drawn to these points in the *Observatories' Year Book* 1962, p.vii; in the Errata with this present volume mention is also made of the resulting changes in *X*, *-Y*.

The observations of the azimuth of the fixed mark at Eskdalemuir in 1948 gave results negligibly different from previous observations and no changes were required in the tabulations. Further observations of the fixed mark at Eskdalemuir were made in July 1961, by the Observatory staff, using a Tavistock theodolite, with Polaris as a reference star. The value determined was negligibly different (only 7″, the standard deviation of the observations being 6″) from the value adopted after the Ordnance Survey determination in 1948; it was, however, brought into use on 1 September 1961.

Inter-observatory comparisons of H and Z, 1946-1960

There have been frequent inter-observatory comparisons, including comparisons with Abinger/Hartland, using quartz horizontal magnetometers (QHMs) for horizontal components and BMZs for vertical components. In such comparisons the portable instrument is operated first at one station and then at the other, and it is clear that, included in the final result, and inseparable from it, is the net effect of any site differences there might be between the observing pier used for the portable instrument and the observing pier used for the standard instrument at each Observatory. There seems to be no site difference in *Z* between the various piers involved, but there is some evidence that, at Eskdalemuir, the value of *H* at the QHM pier is 2-3γ higher than that at the Schuster-Smith pier.

The results of the various inter-observatory comparisons have been reported in previous *Observatories' Year Books* (1958 for *Z* and 1960 for *H*) and these have now been revised to take account of the changes now adopted, and are given below. In this revision account has been taken of all changes considered to be reliably known, including the small ones ignored for the purposes of corrections to published data.

Revised inter-observatory comparisons of horizontal component

Date	Instruments used for comparison	Difference Eskdalemuir *H* - Lerwick *H*	Difference Eskdalemuir *H* - Abinger (Hartland after 1957) *H*
		γ	γ
1938	Direct	−2	
1946	QHM 89	−4	+1
1948	QHM 89	−1·5	+1
1950	QHM 90, 91 & 92	−3	
1950	QHM 91 & 92		+5
1954	QHM 120		+2
1957	QHM 119A, 120 & 121A	+1	
1959	QHM 119A, 120 & 121A	−3	
1959	QHM 119A, 120 477, 478 & 479		+1
1960	QHM 119A & 120	0	+3

Revised inter-observatory comparisons of vertical component

Date	Instruments used for comparison	Difference Eskdalemuir *Z* – Lerwick	Difference Eskdalemuir *Z* – Abinger (Hartland after 1957) *Z*
		γ	γ
1948	BMZ 35	+4	
1949	BMZ 35		+5
1950	BMZ 35	0	0
1951-52	BMZ 35		+5
1952	BMZ 35	+4	
1952-53	BMZ 35	+1	
1954	BMZ 35 & 53		+4
1957	BMZ 35 & 53	−19	
1959	BMZ 35	0	+7

It is evident that the 1957 Eskdalemuir and Lerwick *Z* comparison is anomalous and there is some other evidence for this - but, apart from this, it is seen that the *H* and *Z* Standards at the two observatories are now in good agreement. The small mean residual difference in *H* of about 2γ can be accounted for by the possible site difference between the QHM pier and the Schuster-Smith coil pier at Eskdalemuir.

Tables have now been prepared of the revised annual values of the geomagnetic components at Lerwick for the period 1923-66 and at Eskdalemuir for the period 1908-66, and these follow. It should be noted that the year to year changes mentioned in NOTES ON THE RESULTS in previous *Observatories' Year Books* should be amended accordingly.

LERWICK REVISED ANNUAL MEAN VALUES OF GEOMAGNETIC COMPONENTS

Year	*H* γ	*D* (west) ° ′	*Z* γ	*X* γ	−*Y* γ	*I* ° ′	*F* γ
1923	14655	15 40·3	46655	14111	3959	72 33·7	48902
1924	14642	15 26·5	46708	14113	3899	72 35·7	48950
1925	14621	15 13·5	46713	14108	3840	72 37·2	48948
1926	14618	14 58·6	46699	14121	3778	72 37·1	48933
1927	14607	14 45·7	46713	14125	3722	72 38·1	48944
1928	14585	14 32·9	46702	14117	3664	72 39·4	48926
1929	14556	14 19·4	46651	14104	3601	72 40·3	48869
1930	14527	14 7·0	46624	14088	3543	72 41·6	48835
1931	14517	13 55·4	46623	14090	3493	72 42·3	48830
1932	14495	13 41·9	46608	14083	3433	72 43·5	48809
1933	14477	13 29·8	46605*	14077	3379	72 44·6*	48802*
1934	14462	13 17·7	46716*	14074	3326	72 48·0*	48903*
1935	14445	13 5·3	46730	14070	3271	72 49·4	48911
1936	14428	12 53·6	46763	14064	3220	72 51·2	48938
1937	14411	12 42·4	46785	14058	3170	72 52·8	48955
1938	14401	12 31·6	46809	14059	3124	72 53·9	48973
1939	14394	12 21·4	46833	14061	3080	72 54·9	48995
1940	14389	12 11·1	46860	14065	3037	72 55·8	49018
1941	14382	12 1·0	46884	14067	2994	72 56·8	49040
1942	14386	11 52·5	46899	14078	2960	72 56·8	49055
1943	14378	11 43·5	46919	14078	2922	72 57·8	49072
1944	14380	11 35·1	46940	14087	2888	72 58·1	49093
1945	14376	11 26·3	46963	14091	2851	72 58·8	49113

LERWICK REVISED ANNUAL MEAN VALUES OF GEOMAGNETIC COMPONENTS *(contd.)*

Year	H γ	D (west) ° ′	Z γ	X γ	−Y γ	I ° ′	F γ
1946	14363	11 17·1	46989	14086	2810	73 0·2	49135
1947	14363	11 8·7	47002	14093	2776	73 0·5	49147
1948	14371	11 0·9	47009	14106	2745	73 0·1	49156
1949	14378	10 53·1	47037	14119	2714	73 0·2	49184
1950	14388	10 45·5	47039	14135	2685	72 59·6	49190
1951	14402	10 37·7	47061	14156	2656	72 59·1	49215
1952	14417	10 29·9	47087	14176	2626	72 58·7	49244
1953	14435	10 22·8	47106	14199	2601	72 57·8	49268
1954	14450	10 15·6	47129	14219	2573	72 57·2	49295
1955	14464	10 9·2	47156	14238	2549	72 56·8	49324
1956	14469	10 2·8	47191	14247	2523	72 57·3	49359
1957	14486	9 57·5	47225	14268	2504	72 56·8	49396
1958	14507	9 52·7	47246	14292	2487	72 55·8	49423
1959	14523	9 48·1	47271	14311	2472	72 55·4	49452
1960	14538	9 43·4	47299	14329	2454	72 54·9	49483
1961	14565	9 39·1	47318	14359	2441	72 53·5	49509
1962	14591	9 33·3	47336	14388	2422	72 52·1	49534
1963	14610	9 28·5	47359	14411	2405	72 51·3	49562
1964	14634	9 24·4	47382	14438	2392	72 50·2	49590
1965	14656	9 21·1	47403	14461	2381	72 49·2	49617
1966	14672	9 17·8	47431	14479	2370	72 48·7	49648

*Due to the change from dip circle to dip inductor measurements from 1 January 1934, there was a discontinuity of 2·8′ in *I* and thus 116γ in *Z* and 121γ in *F* (see *Observatories' Year Book*, 1938, pp. 19-21). The values for the years 1923 to 1925 inclusive are based on the results from absolute observations only.

ESKDALEMUIR REVISED ANNUAL MEAN VALUES OF GEOMAGNETIC COMPONENTS

Year	H γ	D (west) ° ′	Z γ	X γ	−Y γ	I ° ′	F γ
1908	16821	18 33·3	45283	15947	5353	69 37·3	48306
1909	16826	18 30·1	45360	15956	5339	69 38·9	48380
1910	16826	18 23·3	45317	15967	5307	69 37·8	48340
1911	16836	18 12·4	45317	15993	5260	69 37·1	48343
1912	16836	18 3·9	45318	16006	5221	69 37·2	48344
1913	16811	17 54·9	45254*	15996	5171	69 37·3*	48276*
1914	16793	17 45·3	45159*	15993	5121	69 36·1*	48180*
1915	16774	17 35·9	45143	15989	5071	69 36·9	48159
1916	16744	17 26·1	45088	15975	5017	69 37·6	48097
1917	16720	17 17·1	45061	15965	4968	69 38·6	48063
1918	16702	17 8·1	45034	15961	4921	69 39·0	48032
1919	16700	16 58·7	45049	15972	4875	69 39·6	48045
1920	16693	16 48·7	45026	15980	4828	69 39·5	48021
1921	16681	16 37·3	45025	15984	4771	69 40·3	48016
1922	16666	16 25·8	44974	15985	4714	69 40·0	47963
1923	16661	16 13·8	44915	15997	4657	69 38·8	47906
1924	16658	16 1·2	44898	16010	4597	69 38·7	47889
1925	16650	15 48·4	44902	16020	4535	69 39·3	47890
1926	16632	15 35·3	44896	16020	4469	49 40·3	47878
1927	16615	15 22·7	44843	16020	4406	69 40·2	47822
1928	16602	15 10·5	44849	16024	4346	69 41·2	47823

ESKDALEMUIR REVISED ANNUAL MEAN VALUES OF GEOMAGNETIC COMPONENTS *(contd.)*

Year	*H* γ	*D* (west) ° ′	*Z* γ	*X* γ	*-Y* γ	*I* ° ′	*F* γ
1929	16586	14 58·9	44832	16022	4287	69 41·9	47802
1930	16568	14 47·1	44834	16019	4228	69 43·2	47797
1931	16565	14 34·8	44850	16032	4170	69 43·7	47812
1932	16553	14 23·7	44867	16033	4115	69 45·0	47823
1933	16539	14 12·1	44839	16033	4058	69 45·2	47792
1934	16531	14 0·6	44845	16039	4002	69 45·9	47795
1935	16520	13 48·8	44861	16042	3944	69 47·0	47806
1936	16512	13 37·4	44894	16047	3889	69 48·4	47834
1937	16501	13 26·9	44920	16049	3837	69 49·8	47855
1938	16499	13 17·1	44953	16057	3791	69 50·7	47885
1939	16502	13 7·3	44977	16071	3746	69 51·1	47909
1940	16503	12 57·9	45008	16082	3703	69 51·8	47938
1941	16503	12 48·2	45037	16093	3657	69 52·5	47965
1942	16513	12 39·8	45039	16111	3620	69 51·9	47971
1943	16511	12 31·2	45064	16118	3579	69 52·7	47993
1944	16518	12 23·0	45076	16134	3542	69 52·5	48007
1945	16522	12 14·5	45093	16146	3503	69 52·6	48025
1946	16512	12 5·9	45120	16145	3461	69 54·0	48046
1947	16520	11 57·1	45140	16162	3421	69 53·9	48068
1948	16532	11 48·9	45144	16182	3385	69 53·2	48076
1949	16544	11 40·9	45158	16201	3350	69 52·8	48093
1950	16564	11 33·2	45180	16228	3317	69 52·0	48121
1951	16581	11 25·5	45193	16252	3284	69 51·1	48139
1952	16601	11 18·0	45203	16279	3253	69 50·0	48155
1953	16625	11 11·0	45213	16309	3224	69 48·7	48173
1954	16647	11 3·4	45228	16338	3193	69 47·4	48194
1955	16665	10 56·3	45250	16362	3162	69 46·9	48221
1956	16674	10 49·7	45277	16377	3132	69 47·0	48250
1957	16695	10 43·6	45296	16403	3107	69 46·0	48275
1958	16719	10 38·0	45320	16432	3085	69 45·0	48305
1959	16742	10 32·1	45344	16460	3061	69 44·1	48336
1960	16761	10 26·3	45370	16484	3037	69 43·4	48367
1961	16792	10 20·9	45385	16519	3016	69 41·8	48392
1962	16825	10 15·7	45396	16556	2997	69 39·8	48414
1963	16850	10 10·2	45413	16585	2975	69 38·6	48438
1964	16880	10 5·3	45427	16619	2957	69 36·9	48462
1965	16907	10 0·8	45440	16650	2940	69 35·4	48483
1966	16929	9 56·2	45462	16676	2921	69 34·5	48512

*Due to the change from dip circle to dip inductor measurements, on 1 January 1914, there were discontinuities in *Z*, *I*, and *F*. The values for the years 1908 to 1910 inclusive are based on the results from absolute observations only.

AURORA

An all-sky cine camera of the Alaskan type (compare IGY Instruction Manual Part II - Aurora and Airglow) continued in operation at Lerwick during 1964. When the sky was sufficiently clear for the photographing of aurora to be possible, but no aurora was visible, the camera was operated at a speed of 12 frames an hour. As soon as aurora became visible the speed was increased to four frames a minute; the speed was reduced again when no aurora had been visible for half an hour. The films were processed and the required data extracted at the World Data Centre at the Balfour Stewart Auroral Laboratory, University of Edinburgh, to which the camera belongs.

In addition to the photographing of the aurora, a visual watch of aurora was kept, and, in particular, hourly observations were made and recorded. The period of the hourly observations was from 20 to 10 minutes before each hour, i.e. the observational period for the hourly observation 23 was from 2240 to 2250 G.M.T. When aurora was observed detailed descriptions were recorded throughout the period of the display, but this work had to be suspended during the periods of the upper air soundings. Copies of the hourly observations and of the detailed description of the aurora were sent to the World Data Centre at Edinburgh.

A careful watch for noctilucent clouds is also maintained and notes of its occurrence or non-occurrence in very clear conditions are sent to the World Data Centre at Edinburgh. A note on an observation of noctilucent cloud at Lerwick on 5 January 1964, by R. A. Hamilton, was published in the *Meteorological Magazine*, London, 93, 1964 p.201.

The form of the Lerwick Auroral Log has been changed, and it now consists of the hourly auroral observations, with brief notes on form and brightness.

In Table 15 a symbol is given for each hourly observation during the hours of darkness, according to the following code (but to save space all nights during which the sky was overcast throughout have been omitted):-

L = aurora is observed
O = observing conditions are good and aurora is clearly absent
X = observing conditions made a decision about the presence of aurora impossible
? = aurora is suspected but observing conditions are not good enough for a firm decision.

When aurora was observed a brief note has been added describing the structure, form and brightness according to the following code:-

Structure	H = homogeneous
	S = striated
	R = rayed
	A = arc
	B = band
	P = patch
	V = veil
	R = rays
	N = not identifiable
Brightness index	1 = comparable with Milky Way
	2 = comparable with moonlit cirrus cloud
	3 = comparable with brightly moonlit cirrus cloud or moonlit cumulus cloud
	4 = much brighter than 3

complete definitions of the terms are given in the *International Auroral Atlas* (1963).

Table 16 is a general auroral table compiled in the Balfour Stewart Laboratory from all data available for the sector included within geomagnetic longitudes 70° and 90°E, extending from Iceland to France. Most of the observations used are made at British Meteorological Office stations, in British ships and aircraft, and by voluntary observers in the United Kingdom, but observations from Iceland and Faroes, Eire and France are also used. A more detailed analysis of the data appears annually in *Observatory*, London; for example that for 1964 is in Volume 85, December 1965.

ATMOSPHERIC ELECTRICITY

The programme at Lerwick and Eskdalemuir is to maintain a continuous record of atmospheric electric potential gradient as it exists just above a natural (short grass) open level surface. This is also done at Kew Observatory but there, in addition, regular measurements are made on fine afternoons of the air-earth current and from these the air conductivity is deduced. These latter are expressed as mean values covering the period of observation which is normally about 20 minutes centred on about 1430 G.M.T.

Continuous recording of potential gradient

The instruments used for the recording of the potential gradient are similar in principle at all three observatories. An insulated boom projects through the wall of the building and takes up the potential of the air because of the ionization caused by a small radioactive collector fitted to its tip. The potential of the boom is recorded by an electrostatic voltmeter except at Lerwick; the use of valve voltmeters for these measurements is discussed below.

The collectors are of polonium deposited on a copper rod about 4 cm long by 0·5 cm diameter; recoated collectors are supplied periodically by the Government Chemist, and a fresh collector is brought into use each quarter. Tests at Kew Observatory in 1959 showed that the strength of a new collector is usually between 80 and 200 micro-curies. A note about the supply of the collectors and of the techniques used in plating them is given in *Nature*, 1955, 175, p.965.

The potential of the boom is, of course, affected by the presence of buildings. Standardizing measurements have therefore to be made of the true potential gradient at a suitable open site. The ratio of the potential gradient in the open to the potential of the boom is called the exposure factor and is expressed in the units (metre^{-1}). The factors are given at the head of Tables 17, 35 and 37.

The methods of making the standardization measurements of potential gradient are different at each observatory.

At Lerwick an insulated wire with a polonium collector fixed to its centre is stretched horizontally between two stout wooden posts 9 m apart. The centre of the wire is exactly 1 m above a levelled piece of ground. The potential of this wire is measured at half-minute intervals for a period of 10 minutes by a Wulf electrometer; the exposure factor is calculated from the mean value of the observed potential and the mean reading of the electrograph. Observations are made in fine weather on as many days as possible.

At Eskdalemuir absolute observations of potential gradient are made with a Wulf electrometer using a small pit about 50 m from the main building. The electrometer is placed inside the pit and from the electrometer a thin metal rod (0·4 cm in diameter) projects vertically upwards through a hole in the metal lid covering the pit. A polonium collector is fixed to the rod at exactly one metre above the ground level. It has been shown that, in practice, the potential of the rod is the same (within experimental error) as that of a stretched wire at one metre exposed to the same potential gradient. The observer shuts himself in the pit and takes readings of the electrometer every half minute until 15-30 readings have been obtained. As at Lerwick the exposure factor is then calculated and observations are made on available fine days.

The absolute measurements at Kew yielding the exposure factors are made with special (Wilson) apparatus in an underground laboratory; these are described on page 16.

At all three observatories, for any given month, a mean exposure factor is used and this is a smoothed running mean using also observations made during the preceding and following months.

A plan, Fig.3, in the 1961 *Observatories' Year Book*, shows the site of the absolute potential gradient measurements at Lerwick and of the position of the electrograph from 14 July 1961 to 28 January 1963, when it was moved to a position 2 metres away to the east. The boom projects 58 cm from the north-east wall of the electrograph room at a height of

220 cm above the ground. The instrument is 160 m from the site of the absolute potential gradient measurements (it is to be noted that at both sites the insulators are made of polytetrafluoroethylene which is kept clean). The electrograph is of the valve voltmeter pattern as described by A. W. Brewer (*Journal of Scientific Instruments*, 30, 1953, p.91). A pen record is obtained on a chart 7·5 cm wide, which normally moves at a speed of 1·2 cm per hour. The scale value of the electrograph is 3 volts per mm on its sensitive scale, and about 15 volts per mm on its insensitive scale. The boom is automatically earthed at each hour, and then operates on the sensitive scale. When the voltage exceeds 90 volts, the electrograph automatically changes to its insensitive scale. Full scale deflection on the insensitive scale is obtained with about 540 volts, so with an exposure factor of around 2·5 the electrograph can record a range of +1350 to −1350 volts per metre in the open. Scale value measurements are made once weekly, using dry batteries and a calibrated voltmeter.

The insulation is tested daily and, even in wet weather, is good. In fine weather the rate of leak is so small, that the time taken for the instrument to lose half its potential has never been measured; only after 15 minutes has a movement of the pen been detectable.

Tests of the rate of rise of potential of the electrograph and boom with the polonium collector fitted are made at intervals. The time taken for the potential to rise to half its final value is 2-3 seconds. The rate of leak is thus so very much less than the rate of charging that the difference between the potential of the boom and that of the air surrounding it is negligible.

It is to be noted that the positive and negative scale values of the Benndorf electrometer (which was replaced by the valve voltmeter in January 1961) at Lerwick differed by about 20 per cent. The values were used respectively for the derivation of positive and negative potentials, except that during the period 1954-60 it was decided to calculate the potential gradient for 0a days from the positive scale factor and those for all other days from a mean of positive and negative factors.

The electrograph at Eskdalemuir consists essentially of a quadrant electrometer with a small mirror on the vane which reflects a light spot on to a sheet of bromide paper wrapped around a drum rotated by clockwork. From 1936 until 1954 the electrograph boom projected through a pipe in the north wall a few feet to the west of its present position; it now projects through a wooden door a distance of 66 cm, so that the collector is flush with the outer wall of the building and 4·8 m above ground level.

The boom is supported on polythene insulators which are inspected regularly and cleaned as necessary of dust and spider webs. A leak test is carried out about three times per week; about 120 volts are applied to the boom and 5 per cent loss of potential over 2 minutes is accepted as satisfactory.

The scale value of the record was approximately 1·9 volts per millimetre during 1964 and this, combined with an exposure factor of about 7·9, means that one millimetre on the record corresponded approximately to 15 volts per metre in the potential gradient over an open level surface; a full scale deflection corresponds to ±1000 volts per metre.

The Kew electrograph, which is also a quadrant electrometer recording photographically, is situated in the main observatory building. Its boom is supported on sulphur insulators which are kept dry and warm with two small electric heaters. The radio-active collector is 90 cm from the window of the building through which the boom projects at 360 cm above ground level. The insulators and boom are inspected regularly and kept free from dust and spider webs; provided the electric heaters are also functioning, the insulator then remains satisfactory but a leak test is performed at about monthly intervals (the loss of potential should be negligible [less than 5 per cent in two minutes]). The scale value of the electrograph has been fixed at about 17 volts per metre per millimetre, and the full scale deflections correspond to about +1600 volts per metre and −1000 volts per metre.

Valve voltmeters, as now in use at Lerwick, have also been recording continuously at Kew since May 1958, and at Eskdalemuir since April 1959, in addition to the electrostatic instruments.

Kew: air-earth current and conductivity

Measurements of the air-earth current and potential gradient are made in an underground laboratory using a modified Wilson apparatus which was devised by C. T. R. Wilson (*Proceedings of the Cambridge Philosophical Society*, London, **13**, 1906 pp.184 and 363) and is described in detail by F. J. Scrase (*Geophysical Memoir*, London, **7**, No. 60, 1934). From these observations the conductivity can be calculated.

Briefly, the apparatus consists of an insulated brass plate, mounted with its top surface flush with the ground level, and connected to a sensitive electrometer. The test plate can be covered when necessary with an earthed cylindrical cover, and can be maintained at any desired potential (usually zero) by a small charged variable capacitor (called the compensator). The method of using the instrument at Kew differs slightly from that adopted by Wilson, who used the readings of the position of the compensator to obtain the charge on the test plate. At Kew the compensator is used merely to keep the plate at zero potential, and the charge is measured by reading the deflection of the electrometer.

The sequence of measurements is as follows; firstly a measurement of potential gradient, secondly a measurement of air-earth current made by accumulating the charge on the test plate for a period of five minutes and lastly another measurement of potential gradient. This sequence is normally repeated four times. There are thus eight measurements of potential gradient in a complete set of operations; in four of these the test plate is first exposed to the field, earthed, shielded and then the potential (v) of the plate is measured with the electrometer; in the remaining four measurements the plate is first shielded, earthed and then exposed to the field and its potential measured. These two slightly different procedures are adopted for convenience and give negligibly different results. If A is the area of the test plate (in square centimetres) and C is the capacity of the system (in farads) then the potential gradient F (in volts per centimetre) is given by

$$F = 4\pi \, (9 \times 10^{11}) \, Cv/A$$

The potential gradient found in this way is, to a close approximation, equal to that found by measuring the potential at a height of 1 m in the open part of the grounds with a stretched wire apparatus.

The air-earth current (i) is measured by finding the potential (δv) acquired by the plate during a period of t seconds because of the charge collected. The relationship is:

$$i = C\delta v/At$$

The value of δv that is used is a mean result from the four observations each lasting five minutes. From the mean values of i and F the conductivity λ is deduced. There is a slight difference (about 1%) in the capacity of the system when shielded and when unshielded; a mean of the two values is used when computing the potential gradient but the shielded value is that applicable to, and used for, the air-earth current measurements.

The conductivity is that due to positive ions only since measurements are made only with positive fields. No measurements are made in precipitation or fog.

TABULATIONS

The potential gradient tables have been entirely recast in this volume of the *Observatories' Year Book* to bring them more into line with recent requirements as discussed by the International Year of the Quiet Sun (IQSY) Working Group of the Joint Committee on Atmospheric Electricity cf the International Association of Meteorology and Atmospheric Physics (IAMAP) and the International Association of Geomagnetism and Aeronomy (IAGA).

In 1957 (see *Observatories' Year Book* 1957 p.17) the change was made that only hours without precipitation were considered in obtaining the means - also, for this purpose, hours for which the mean was indeterminate, because of large fluctuations, were excluded. In the present year the further change was made to exclude consideration of periods with hydrometeors (according to the World Meteorological Organisation definition); the main change is that periods with fog are now excluded as well as periods with precipitation. Thus tables 17 (for Lerwick), 35 (for Eskdalemuir) and 37 (for Kew) contain mean values of potential gradient for those periods of 60 minutes, ending at exact hcurs G.M.T., which are without hydrometeors. Hours with hydrometeors are left blank, and hours for which no record is obtained, because of instrumental faults, contain a – . A distinction has also been drawn between "fair weather hours" and those hours without hydrometeors which are "non-fair weather hours". The criteria used to distinguish between these classes, which follow below, are at present, to a certain extent experimental, although based on the recommedndations of the Working Group, but it is hoped that, in the future, a set of objective rules can be drawn up.

The criteria for fair weather hours that have been used are:-

a. There must be no hydrometeors.

b. There must be no low stratus cloud (low normally means at a height up to 100 metres above station level, but at Lerwick this limiting height is generally interpreted as being 300 metres).

c. There must be generally not greater than one eighth of cumuliform cloud, but there can be up to three eighths if there is no apparent effect on the potential gradient record.

d. The surface wind should normally be less than Beaufort force 5 (that is a mean hourly wind speed of less than 8 metres per second).

These weather criteria could not be applied as strictly at Kew, where weather observations are made only every 3 hours from 06 to 21 G.M.T. daily, as at Lerwick and Eskdalemuir, where full observations are made throughout the 24 hours. At Lerwick there are occasions of very high potential gradients in hazy fine weather, usually with southeast winds, and, at this Observatory occasions with visibility of 5 kilometres or less are excluded. These criteria are supplemented by detailed study of the electrograms for the elimination of purely local effects.

For Lerwick and Eskdalemuir up to, and including 1956, the selection of the special Oa days - when no negative potential was recorded and there were no complete hours during which the range of potential gradient exceeded 1000 volts per metre - was made solely by reference to the electrogram. Similarly a "selected quiet day" at Kew was one of 10 selected calendar days in each month, characterised by no negative potential gradient, no large irregular movements, no indication of inferior insulation and no large non-cyclic change; when there were not 10 such calendar days in a month, it was sometimes possible to make the number up by using other spells of 24 hours. The daily mean potential gradient, for these Oa days, and for the selected quiet days, was found by taking the average of the 24 hourly values.

In 1957, when changes were made in the tabulation and publication of the hourly potential gradient tables, it was decided that, although no change was to be made in the criteria given above for Oa and selected quiet days, an additional criterion should be that hours with precipitation on these days should not be used in deriving the Oa and selected quiet day means.

As stated above, there has been a further change in the present year in that hours with hydrometeors have been omitted from the main tables. However, to give an overlap with the previous period Oa and selected quiet days have been chosen according to the 1957-63 criteria and this procedure will continue up to and including 1966. All "precipitation hours" are, of course, included in the class of "hydrometeor hours", but the latter also includes other, non-precipitation, hours; thus the mean for an Oa day may occasionally include measurements for more hours than are shown in the main tables.

From this present year the annual Oa day means have been computed by taking an average of the monthly means. It was decided to recompute the annual Oa day means for all years back to the previous change on 1 January 1957 on the present basis, and these values are given in the Errata section on pages xii-xiv of the present *Year Book*. No change has been required in the procedure for the selected quiet days at Kew, since there have, in fact, been an equal (or substantially equal) number of days used in each month.

Table 18 (for Lerwick), 36 (for Eskdalemuir), and 38 (for Kew), contain monthly mean hourly values of the potential gradient, transferred from tables 17, 35 and 37 respectively, together with seasonal and annual hourly mean values. For this purpose Winter is taken as January, February, November and December, the Equinox is March, April, September and October and Summer is May to August.

In all the tables 17, 18, 35, 36, 37 and 38, mean values for each month have been computed by averaging the mean for each hour, means for all hours without hydrometeors and means for fair weather hours being given separately; seasonal and annual values are the averages of the monthly mean values.

Table 39 contains the results of the measurements of the potential gradient, air-earth current and conductivity due to positive ions, made with the Wilson apparatus at Kew. Each entry is the mean value for a period of twenty minutes centred about 1430 G.M.T. on the date in question. Monthly and annual means are also given (the annual means being calculated as described in the previous paragraph).

It should be pointed out that the unit of potential gradient used in Table 39 is volts per centimetre (not volts per metre as in the other tables); the unit of air-earth current is 10^{-18} ampere per square centimetre and the unit of conductivity is 10^{-18} per ohm per centimetre.

NOTES ON THE RESULTS

While no detailed discussion of the results is attempted here it is perhaps of interest to point out that marked changes have occurred since around 1951; those occurring in the period 1951-59 were discussed by K. H. Stewart in the *Quarterly Journal of the Royal Meteorological Society*, **86**, 1960, p.399 and attributed to the deposition on the ground of radio-active debris from nuclear explosions for test purposes. There is further discussion of the matter by R. A. Hamilton in the same *Journal* in **91**, 1965, p.348 (and in the Discussion in **93**, 1967, p.139) and (with J. G. Paren) in the *Meteorological Magazine*, London, **96**, 1967, p.81, in relation to Lerwick and Eskdalemuir measurements.

AIR POLLUTION

On 1 January 1962 the use of the Owens air pollution recorder at Kew Observatory was discontinued and the Warren Spring Laboratory (Department of Scientific and Industrial Research until 31 March 1965, then Ministry of Technology) automatic smoke sampler was introduced for measuring the variation of air pollution. This was foreshadowed when the new instrument was described in the Introduction to the *Observatories' Year Book*, 1961. This description is repeated below for convenience; for a description of the Owens instrument reference should be made to the Report on observations in the year 1917-18, *London Meteorological Office, Advisory Committee on Atmospheric Pollution*. The new instrument was installed during February 1961 in the building known as the Clinical House, with the level of the intake about 2 metres above that of the adjacent ground.

This automatic sampler was designed at the Warren Spring Laboratory and operates on a similar principle to their standard daily instrument. Air is drawn by a small pump through a filter and thence through an air meter. The filter material is, however, a continuous roll of glass fibre "paper", and the clamp, which defines the areas of the paper through which the air is drawn, can be released automatically by a time switch. When this happens the filter paper is also wound on a suitable distance, so that when the clamp is allowed to reposition itself the air is drawn through a fresh area of the paper and a new stain is produced.

The instrument is operated from an hourly time switch so that 24 stains are produced every day. The air meter is only read once a day but it has been found that by using a constant voltage transformer to supply the power for the electric pump the rate of air flow is substantially constant. During periods of light pollution a pump sampling 5·5 cu ft an hour is used but during times of heavy pollution a different pump sampling only 2·8 cu ft an hour is used.

The stains are much larger in diameter than those produced by the Owens recorder and the darkness is measured with a photo-electric reflectometer. This results in a much more accurate and sensitive reading. It is estimated that the minimum concentration of smoke that can be reliably detected by this apparatus is about 5 microgrammes per cubic metre whereas with the Owens instrument the limit is at least twenty times this value.

The relation between the reflectometer reading of the glass fibre stain, the volume of air passed and the smoke concentration was not known at the beginning of this work. A reliable calibration has, however, been determined at Kew by comparing the results from daily and hourly measurements on the same day. Full details of this calibration are given in a paper by R. H. Collingbourne and H. E. Painter (*Air and Water pollution*, London, 8, 1964, p.159).

The new instrument was run side by side with the Owens recorder for 10 months in 1961 and considerable systematic differences were found between the results of the two instruments. These were only in part due to the greater sensitivity of the new instrument. In the table below is given the mean relation between the monthly mean hourly values of smoke concentration as found from the two instruments.

Relation between monthly mean hourly values of smoke concentration
as found by the two recording instruments in 1961
unit: microgrammes per cubic metre

Owens	Warren Spring	Ratio	Owens	Warren Spring	Ratio
75	27	2·8	160	230	0·7
100	45	2·2	200	310	0·65
120	85	1·4	300	460	0·65
140	175	0·8			

It is seen that the Owens instrument reads too high at low concentrations and too low at high concentrations. It undoubtedly well underestimates the peak concentrations. A fuller discussion of the comparison between the Owens instrument and the new sampler is in preparation; meanwhile the discontinuity in the records should be noted. The average diurnal change in air pollution will also be much more accurately measured with the new instrument.

A summary of the results obtained at Kew is given in Table 40. In this table are hourly means of the concentration of suspended matter, in microgrammes per cubic metre, for each month, the seasons and the year. Winter is taken as the months January, February, November and December, Spring as March and April, Summer as May to August and Autumn as September and October.

In addition there are standard instruments at Kew, Eskdalemuir and Lerwick for the measurement of daily smoke concentration in the air. Data so obtained are incorporated in the records of the National Survey of Air Pollution maintained by Warren Spring Laboratory. Summaries of these data appear monthly and are also included in the Annual Table of Observations. Both may be obtained on request from the Director, Warren Spring Laboratory, Gunnels Wood Road, Stevenage, Hertfordshire, England.

During 1964 the highest estimate of pollution at Kew was 1300 microgrammes per cubic metre, this value occurring from 19-20 hours G.M.T. on 6 January. There were 5 days on which the concentration reached at least 1000 microgrammes per cubic metre for at least one hour. The total number of hours credited with 1000 microgrammes per cubic metre or more was 8 (6 in January and 2 in February).

Late in 1960 there was also installed at Kew Observatory, on behalf of Warren Spring Laboratory, standard daily apparatus for the measurement of the concentration of sulphur dioxide in the atmosphere. Air which has already been passed through a smoke filter is bubbled through a weak solution of hydrogen peroxide causing the sulphur dioxide to be converted to sulphuric acid which remains in solution. The acidity of the hydrogen peroxide solution is then found by titration against a 1/250 normal solution of sodium borate, using B.D.H. 4·5 (a narrow range indicator); from this result, knowing the volume of air, the average sulphur dioxide concentration can be calculated. Measurements are made 24 hourly and, since January 1961, the results have been passed at monthly intervals to Warren Spring Laboratory and published by them alongside the smoke pollution data (see above).

Full descriptions of the methods of measuring smoke and sulphur dioxide are given in the Instruction Manual of the National Survey of Smoke and Sulphur Dioxide. This may be obtained from the Warren Spring Laboratory (address as above) on request. Summarised details of these and other methods of measuring a variety of pollutants are given in the four parts of British Standard 1747.

NOTE ON THE TABLES: Where figures are in italics they are maximum and/or minimum values. All times are in G.M.T.

LERWICK

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

1 LERWICK (H) — 14,000γ (0·14 C.G.S. unit) + — JANUARY 1964

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	Sum 14,000γ+
	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	γ
1	619	617	619	622	624	625	624	630	632	633	635	634	637	639	641	634	628	635	638	632	630	635	632	628	630	1123
2 d	626	627	630	617	614	634	627	618	618	559	577	612	640	627	614	605	579	584	586	616	614	586	595	591	608	596
3 d	601	587	552	598	615	610	611	608	607	606	596	599	604	613	610	616	602	605	605	626	615	617	612	605	605	520
4	612	601	576	594	611	617	619	619	615	613	613	616	609	612	617	605	616	613	609	614	605	606	630	611	611	653
5	615	612	612	610	612	615	624	612	607	616	615	612	615	615	614	619	619	618	623	626	621	612	609	611	615	764
6	613	611	612	612	622	625	626	623	619	613	606	610	613	618	617	618	619	619	618	619	623	623	619	619	617	817
7	618	619	619	619	624	622	624	627	621	612	613	607	603	598	611	619	619	619	608	609	612	617	618	619	616	777
8	616	617	617	618	619	624	628	625	626	620	616	606	610	617	624	628	630	630	629	622	625	624	624	614	621	909
9	604	614	619	618	616	626	627	631	626	621	622	619	620	624	628	616	609	619	621	645	612	599	584	582	617	802
10 d	589	605	613	618	627	622	629	627	620	617	613	606	603	613	616	610	604	619	617	616	613	616	601	617	614	731
11	624	619	612	616	622	623	624	624	621	617	615	610	616	620	619	621	624	624	621	616	607	610	618	619	618	842
12	632	616	618	618	619	623	626	623	621	617	615	616	618	621	620	618	624	624	624	622	613	619	618	617	620	882
13	618	619	622	626	623	627	624	625	627	623	617	613	611	617	624	628	628	627	626	625	622	617	620	621	622	930
14 q	622	622	622	622	623	624	626	626	625	621	615	614	617	624	628	629	628	627	627	626	626	626	626	624	624	970
15 q	623	624	624	624	624	626	627	628	627	626	625	624	625	628	630	631	630	629	631	630	630	628	627	626	627	1047
16 d	628	630	624	636	638	650	640	629	637	622	585	574	599	620	620	626	646	635	621	605	614	620	618	614	622	931
17	607	593	590	609	624	626	629	622	625	615	599	590	608	612	612	623	623	624	623	616	616	618	620	618	614	742
18	618	615	613	614	625	625	626	627	622	621	621	616	619	620	623	627	625	623	613	616	620	621	620	623	621	893
19	623	622	623	624	625	627	629	629	629	624	619	620	624	627	619	618	622	616	613	620	617	619	621	619	622	929
20	618	613	620	622	627	630	627	625	626	619	609	608	607	620	623	619	624	625	626	624	623	623	623	622	621	903
21 q	623	620	623	623	625	624	627	627	625	623	619	615	616	623	626	627	627	628	629	630	630	627	623	625	624	985
22 q	628	626	631	630	630	634	638	636	630	623	618	614	613	616	622	626	618	617	620	623	624	626	628	628	625	999
23	627	626	629	631	631	632	634	632	630	628	626	632	635	639	636	636	629	623	630	630	630	629	627	624	630	1126
24	628	620	621	628	634	637	641	632	635	629	623	614	613	622	620	630	622	615	611	619	619	624	617	626	624	980
25	634	620	622	624	626	626	624	630	624	621	620	614	619	625	629	630	631	627	627	623	633	585	596	609	622	919
26	613	619	620	622	623	625	624	625	624	619	613	613	612	610	621	624	623	621	621	624	614	623	626	623	620	882
27 q	620	621	624	624	626	626	628	629	628	624	621	619	619	621	625	627	627	627	627	625	628	627	626	627	625	996
28	630	630	627	627	628	630	638	640	638	631	623	618	617	621	623	630	630	628	627	626	636	630	638	624	629	1090
29	620	613	621	621	623	627	626	642	627	615	612	619	594	603	617	612	603	610	619	619	610	613	620	619	617	805
30	624	624	630	620	628	627	625	626	620	615	612	616	618	617	627	628	619	626	627	629	626	630	629	626	624	969
31 d	624	624	626	630	633	634	637	635	632	603	580	576	612	624	623	615	621	621	649	591	609	617	643	627	620	886
Mean	619	617	617	620	624	627	628	627	625	618	613	611	615	619	622	622	621	621	621	621	620	618	620	618	620	
Sum 18,000γ+	1197	1126	1111	1217	1341	1423	1459	1432	1364	1146	993	956	1066	1206	1279	1295	1249	1258	1266	1264	1217	1167	1208	1158		Grand Total 461,398

GEOMAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

2 LERWICK (D) — 9° + — JANUARY 1964

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	Sum 500·0'+
	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'
1	25·6	25·9	25·9	26·3	26·6	26·5	27·2	26·6	25·6	26·4	27·6	29·1	29·8	29·7	28·9	28·2	29·1	29·4	29·1	28·7	26·7	26·7	26·6	26·3	27·4	158·5
2 d	26·6	27·2	27·9	31·1	28·4	42·2	31·0	28·2	25·7	23·8	37·5	30·7	30·4	33·4	32·4	28·2	21·3	11·0	19·1	16·6	16·3	20·7	25·2	25·8	26·7	140·7
3 d	28·4	23·8	34·4	28·5	26·7	26·9	27·9	27·7	27·5	27·2	27·6	27·2	26·6	26·2	27·8	25·4	19·2	14·0	24·7	20·4	23·6	22·9	24·1	29·3	25·7	118·0
4	25·1	23·3	27·8	29·2	22·5	25·7	27·6	28·4	27·0	26·3	27·6	27·5	28·4	26·3	26·5	19·0	26·2	25·6	16·8	23·9	21·9	20·0	23·3	21·9	24·9	97·8
5	24·5	25·2	23·7	25·2	26·7	27·6	27·8	27·2	27·2	25·8	26·3	27·5	28·6	28·2	26·4	26·1	26·2	26·2	23·0	23·7	23·5	21·5	22·4	23·7	25·6	114·2
6	24·0	25·6	27·5	26·6	24·1	25·3	26·0	26·8	26·6	26·4	26·7	27·5	27·9	28·3	27·5	27·2	27·5	27·2	27·1	26·0	24·5	23·0	24·5	24·7	26·2	128·5
7	24·9	25·6	26·8	26·9	26·5	26·6	26·5	26·1	26·1	27·2	28·3	28·3	32·8	31·3	29·3	29·5	27·5	27·5	25·1	25·7	24·8	23·7	23·2	21·6	26·7	141·8
8	22·3	25·2	25·8	26·1	26·2	26·1	25·8	25·7	25·8	26·2	26·9	27·2	29·4	30·1	29·1	29·6	30·1	30·2	31·0	21·5	27·0	25·1	21·3	23·0	26·5	136·7
9	12·9	19·6	25·0	22·3	23·6	27·5	27·1	26·1	25·7	26·0	27·3	27·4	29·7	29·1	30·4	32·7	30·6	29·4	27·0	17·3	22·2	12·2	0·5	16·0	23·7	67·6
10 d	22·7	28·4	22·4	26·5	26·3	32·5	33·9	28·5	25·5	25·2	27·1	28·5	29·1	30·0	30·8	27·2	27·1	27·3	26·5	25·0	23·9	16·0	24·7	25·3	26·7	140·4
11	22·3	25·4	21·7	25·4	25·1	25·0	25·3	26·1	25·7	25·7	26·6	28·3	28·8	29·6	28·5	27·5	27·1	27·2	26·1	25·7	20·4	23·6	25·3	24·7	25·7	117·1
12	21·8	21·4	24·0	25·9	25·8	25·8	25·5	25·6	25·8	26·5	27·2	27·8	28·4	28·1	27·7	27·1	27·0	26·3	26·7	25·2	23·7	22·1	24·5	25·1	25·6	115·0
13	25·0	25·2	24·7	27·4	25·2	25·7	25·7	25·8	24·6	24·7	26·0	27·6	29·3	29·8	28·0	27·5	27·0	26·6	26·6	26·1	24·9	23·6	25·6	21·8	26·0	124·4
14 q	24·7	26·3	26·4	26·4	26·5	26·4	25·9	25·0	24·4	25·3	26·7	27·7	29·4	29·5	28·2	27·1	27·1	27·1	26·9	26·9	25·7	24·8	25·2	25·7	26·5	135·3
15 q	25·8	26·2	26·7	26·6	26·8	26·6	26·2	25·7	25·6	26·3	26·9	27·6	28·6	28·1	27·6	27·6	28·8	28·5	27·5	27·2	26·6	25·7	24·9	24·2	26·8	142·3
16 d	23·4	22·3	21·8	25·4	26·7	27·3	26·8	24·6	25·6	26·8	29·6	33·0	30·5	29·1	31·0	36·3	31·4	20·4	14·2	25·7	20·3	19·8	22·3	23·9	25·8	118·2
17	26·5	22·5	26·6	25·9	25·7	26·6	27·7	31·2	29·6	27·5	29·7	29·0	29·0	30·8	26·6	26·4	27·0	26·7	26·3	25·2	24·8	24·8	24·8	23·6	26·9	144·5
18	24·2	26·4	28·4	24·7	25·9	25·6	25·8	26·0	25·7	26·2	27·2	28·0	29·0	28·0	28·1	27·4	27·1	26·6	20·2	22·5	25·5	25·0	25·2	25·3	26·0	124·0
19	25·9	26·2	26·7	27·0	26·6	26·2	26·3	26·7	27·2	27·7	27·9	28·5	29·2	29·6	28·1	27·5	28·5	27·2	27·8	24·7	15·4	24·6	25·3	21·8	26·4	132·6
20	20·5	21·2	25·8	27·2	27·2	26·5	26·3	25·7	26·2	26·2	25·7	27·4	28·2	29·0	28·8	28·6	27·6	27·4	27·1	26·7	25·5	24·0	23·9	24·3	26·1	127·0
21 q	24·9	26·1	27·8	26·4	26·7	27·0	26·5	25·9	24·9	24·9	26·2	27·0	27·7	27·9	27·2	27·0	26·9	26·8	26·8	26·7	26·5	25·7	25·6	25·6	26·4	134·7
22 q	25·7	27·2	28·9	25·4	25·9	25·5	25·4	26·1	25·4	25·6	26·2	27·5	28·7	28·8	27·9	26·9	26·3	27·2	27·9	26·9	26·0	26·1	26·3	26·6	26·7	140·4
23	26·6	26·6	27·1	26·2	25·8	26·1	26·1	25·8	25·5	26·1	27·0	28·8	30·1	30·4	29·8	29·8	30·3	30·5	28·6	27·2	26·5	26·2	26·0	24·1	27·4	157·2
24	22·7	23·7	24·2	26·5	23·9	23·7	25·5	26·1	26·1	27·1	28·4	30·3	31·3	35·3	29·6	31·4	28·9	27·6	28·7	27·1	25·4	23·2	23·8	18·4	26·6	138·9
25	23·7	22·3	23·0	24·6	23·8	24·1	28·3	27·7	25·6	25·6	26·2	27·4	28·6	30·3	30·1	28·3	27·8	28·3	28·3	29·1	8·7	5·8	15·7	21·9	24·4	85·2
26	23·7	23·9	27·6	24·9	25·8	26·2	26·4	25·5	25·4	25·4	27·0	27·4	29·1	30·7	30·5	30·3	29·1	28·1	23·9	20·1	25·0	23·5	21·5	23·4	26·0	124·4
27 q	25·7	27·6	26·3	26·2	25·9	26·1	26·0	25·9	24·7	24·6	25·9	27·0	27·8	28·8	28·1	27·2	26·9	26·4	26·4	23·0	23·3	23·7	23·9	25·2	25·9	122·6
28	26·0	25·9	26·4	25·9	26·4	26·5	27·2	27·5	27·6	26·4	26·4	27·2	28·5	29·4	28·1	27·2	27·2	26·7	26·7	20·7	23·3	24·2	27·0	23·0	26·3	131·4
29	24·9	18·4	21·3	20·4	24·2	25·2	29·1	28·1	27·4	27·3	27·2	29·6	33·7	33·3	32·0	29·3	24·7	26·6	25·2	24·9	21·8	22·9	23·6	24·8	26·1	125·9
30	26·0	26·2	27·7	26·2	24·9	26·4	26·5	26·7	27·6	28·3	28·1	28·6	30·3	29·8	28·1	28·3	25·7	26·5	27·0	26·4	26·4	23·3	21·1	26·2	26·8	142·3
31 d	26·4	26·4	27·0	26·6	26·6	26·6	26·6	26·6	26·6	27·8	30·8	33·9	31·4	30·6	31·2	26·4	27·6	19·4	4·4	22·7	20·1	23·0	20·8	22·0	25·5	111·5
Mean	24·3	24·7	26·0	26·1	25·8	26·8	27·0	26·6	26·1	26·2	27·6	28·4	29·4	29·7	28·9	28·0	27·3	26·0	24·9	24·5	23·2	22·5	23·2	23·9	26·1	
Sum 600·0'+	153·4	167·2	207·3	209·9	199·0	232·0	235·9	225·6	209·9	212·5	255·8	280·5	310·3	319·5	294·3	268·2	244·8	205·9	172·7	159·5	120·2	97·4	118·1	139·2		Grand Total 19439·1

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

3 **LERWICK (Z)** 47,000γ (0·47 C.G.S. unit) + JANUARY 1964

	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	Sum 8000γ+
	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	γ
1	378	378	378	378	377	376	374	370	370	367	364	363	362	366	369	375	378	376	375	378	377	372	371	370	373	942
2 *d*	370	370	368	365	315	280	281	313	350	394	426	442	468	420	418	428	459	471	440	404	369	380	350	337	384	1218
3 *d*	321	329	291	310	353	370	376	380	384	386	390	394	401	402	399	394	404	417	403	392	377	385	385	335	374	978
4	337	354	349	317	345	362	368	378	384	385	384	383	385	386	391	408	390	394	404	388	396	387	365	368	375	1008
5	370	367	367	372	375	378	377	384	384	382	382	383	383	384	386	386	386	386	386	381	381	384	378	373	380	1115
6	368	367	366	365	369	372	373	373	376	379	384	384	380	377	378	378	378	381	383	384	382	378	378	377	376	1030
7	376	372	372	371	370	375	375	376	378	380	381	385	383	386	392	386	385	386	394	395	392	386	380	378	381	1154
8	379	377	378	377	377	376	378	377	377	379	382	386	380	380	379	378	378	378	386	403	397	403	414	411	385	1230
9	418	392	380	377	374	368	368	370	373	378	376	381	380	381	380	386	404	402	409	415	390	396	360	360	384	1218
10 *d*	316	273	337	360	361	353	345	359	370	376	378	383	385	382	383	394	402	387	386	386	386	385	378	341	*367*	806
11	362	367	371	368	370	372	374	375	376	379	381	381	382	382	383	382	380	378	382	385	394	392	384	385	379	1085
12	372	365	366	370	372	373	372	374	375	375	375	377	378	383	385	384	381	381	378	379	385	384	381	381	377	1046
13	378	378	373	359	362	364	368	369	369	371	372	374	376	376	376	376	376	376	376	376	376	378	375	370	373	944
14 *q*	369	371	373	375	374	373	372	370	371	371	372	372	370	370	373	375	376	375	375	375	375	375	375	376	373	953
15 *q*	375	374	374	374	374	373	371	370	368	368	368	368	368	371	375	376	376	376	376	376	375	377	377	378	373	958
16 *d*	376	370	367	362	362	360	363	367	363	368	377	385	387	395	402	460	541	498	421	410	407	382	365	357	*394*	1445
17	358	330	344	344	369	378	376	382	385	387	389	392	391	391	398	394	389	387	387	392	391	387	381	380	379	1102
18	378	373	363	366	366	371	374	375	376	375	376	379	379	379	379	381	381	385	393	390	381	381	379	377	377	1057
19	376	376	376	376	377	379	379	378	376	378	378	376	373	375	383	388	387	395	403	398	401	387	379	374	382	1168
20	345	355	359	366	371	373	379	379	378	379	379	379	380	379	379	381	379	381	381	382	383	381	379	377	375	1004
21 *q*	373	373	369	372	374	377	378	379	381	380	378	375	374	374	374	374	375	378	378	378	379	379	382	379	376	1033
22 *q*	375	375	363	363	366	369	369	371	374	378	377	375	375	376	375	378	383	385	384	383	383	380	378	377	375	1012
23	376	376	371	369	369	370	371	374	375	376	375	369	369	371	373	372	378	383	379	379	379	379	381	383	375	997
24	379	379	375	370	365	366	366	369	369	371	373	377	379	379	403	389	389	395	404	396	393	391	390	386	381	1153
25	366	375	374	374	372	370	367	361	372	374	374	377	377	377	377	378	378	379	379	385	404	377	379	376	376	1022
26	370	364	364	360	369	371	371	372	374	377	380	380	382	387	386	386	383	382	387	386	387	387	383	379	378	1067
27 *q*	377	372	370	374	374	371	371	371	373	374	374	378	378	378	379	379	379	378	374	380	372	368	370	372	374	986
28	372	372	376	376	374	374	369	369	369	371	374	376	379	381	383	383	381	380	380	383	380	392	383	381	377	1058
29	381	364	358	347	358	360	356	351	365	371	371	376	396	412	410	412	422	408	395	388	388	377	369	373	379	1108
30	367	370	350	363	367	371	374	374	374	374	374	374	380	386	387	386	392	387	383	379	379	374	367	367	375	999
31 *d*	369	371	372	373	373	373	372	371	369	369	381	381	386	382	386	401	401	415	408	408	410	386	338	335	380	1130
Mean	369	365	*364*	364	367	368	368	370	373	377	379	381	383	383	385	389	*393*	393	390	388	386	383	376	371	378	
Sum 11,000γ+	427	329	294	293	374	398	407	481	578	672	745	805	866	868	941	1048	1191	1180	1089	1034	969	870	654	513		Grand Total 281,026

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH HOUSE

4 **LERWICK** JANUARY 1964

	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-hr range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph house 200°A+
1 *q*	1011 1111	7	0001 1111	5	1011 1110	6	0000 0010	1	0	86·4
2 *d*	1445 4443	29	0345 4332	24	1444 4443	28	0444 4343	26	2	86·3
3 *d*	4322 2433	23	4322 2333	22	4321 2423	21	3411 1233	18	1	86·3
4	3311 2333	19	3311 2223	17	3311 2333	19	3320 1222	15	1	87·0
5	2121 2131	13	1121 1121	10	2111 2131	12	0010 0011	3	1	87·0
6	2111 1112	10	0111 1011	6	2100 1112	8	1000 0000	1	0	86·7
7	0111 2111	8	0111 2111	8	0101 2111	7	0000 1011	3	1	86·4
8	2001 1042	10	0001 1012	5	2000 1042	9	1000 0022	5	1	86·6
9	4312 1244	21	2111 1233	14	4312 1244	21	3111 0233	14	1	87·0
10 *d*	4332 2223	21	3221 2213	16	4332 1123	19	4121 1203	14	1	87·3
11	3211 1122	13	2111 1111	9	3211 1122	13	2100 0011	5	0	87·0
12	2100 0122	8	2100 0111	6	2100 0022	7	2100 0010	4	0	87·0
13	2201 0012	8	0100 0001	2	2201 0012	8	0100 0001	2	0	86·9
14 *q*	1000 0001	2	0000 0000	0	1000 0001	2	1000 0000	1	0	86·2
15 *q*	0000 0001	1	0000 0001	1	0000 0001	1	0000 1000	1	0	86·1
16 *d*	1223 3543	23	1223 3442	21	1123 2543	21	0112 2532	16	1	86·0
17	3332 2111	16	2332 1111	14	3222 2111	14	3321 1000	10	1	86·2
18	2211 1130	11	1111 0120	7	2211 1130	11	1100 0120	5	1	86·6
19	0000 1142	8	0000 1121	5	0000 1142	8	0000 1111	4	1	86·5
20	3101 1001	7	1100 1001	4	3101 0001	6	2100 0000	3	0	86·3
21 *q*	2000 0000	2	0000 0000	0	2000 0000	2	0000 0000	0	0	86·3
22 *q*	2010 1110	6	1000 1100	3	2010 0110	5	1000 0100	2	0	86·7
23	0001 1101	4	0001 1100	3	0000 1101	3	0000 0100	1	0	87·0
24	1211 3213	14	1211 2213	13	1210 3213	13	1100 2112	8	1	86·8
25	3020 0154	15	3010 0134	12	3020 0054	14	2000 0034	9	1	86·2
26	3110 1032	11	2010 1011	6	3110 1032	11	2100 1012	7	1	86·1
27 *q*	1000 0032	6	0000 0012	3	1000 0032	6	0000 0012	3	1	86·2
28	1110 1132	10	0000 1122	6	1110 1032	9	0000 0001	1	1	86·5
29	3332 3333	23	2232 3222	18	3322 2333	21	2221 3212	15	1	86·3
30	2111 2203	12	2111 2203	12	2111 1203	11	2100 1101	6	1	86·5
31 *d*	1003 3553	20	0003 3343	16	1002 3553	19	0002 1324	12	2	86·3
								Mean	0·71	86·5

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

1 LERWICK (H) — 14,000γ (0·14 C.G.S. unit) + — FEBRUARY 1964

Day	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	Sum 14,000γ+
Hour G.M.T.	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	γ
1	612	620	615	619	615	625	628	626	623	615	619	622	625	629	630	628	621	617	615	613	633	637	616	620	622	923
2	622	620	621	622	626	628	625	625	628	620	615	619	622	620	619	616	613	623	628	629	627	626	627	626	623	947
3 q	625	625	625	626	628	629	631	629	626	625	626	626	623	627	625	627	626	627	628	630	627	626	625	627	627	1039
4	628	628	628	627	633	635	635	630	615	609	620	619	622	612	602	616	623	624	628	629	627	622	623	620	623	955
5	624	623	620	624	626	624	631	634	628	623	619	618	618	622	627	635	634	634	633	636	632	627	586	594	624	972
6 d	610	601	593	619	627	621	589	626	619	601	602	620	607	625	624	620	616	623	620	633	629	619	640	616	617	800
7	619	620	616	608	624	627	628	628	623	601	602	612	612	620	622	626	612	600	613	617	619	626	631	621	618	827
8 d	605	588	621	626	626	626	626	627	627	621	621	617	615	619	624	635	624	624	631	625	621	531	524	597	*613*	708
9	589	600	613	608	620	626	627	629	623	607	601	602	600	611	615	624	626	631	630	620	620	623	622	616	616	783
10	627	621	619	619	624	623	630	627	627	616	609	606	610	617	626	632	627	627	627	629	628	627	614	616	622	928
11 q	621	621	622	623	624	626	628	627	628	626	619	616	616	622	625	629	629	631	631	631	630	630	625	625	625	1005
12	624	624	623	625	627	630	640	652	647	640	617	611	619	630	608	631	627	620	627	627	626	627	625	625	627	1052
13 d	628	627	608	535	606	637	610	618	626	621	597	578	603	604	619	635	660	650	605	604	614	609	622	615	614	731
14	619	620	621	616	619	625	628	631	621	614	608	601	608	620	627	617	627	630	625	622	624	624	616	624	620	887
15	619	624	624	628	630	631	631	631	628	625	618	617	618	612	619	627	633	635	623	617	625	627	628	628	625	998
16 q	629	631	631	629	631	632	638	634	632	627	620	609	615	619	627	627	621	629	630	627	617	619	625	624	626	1023
17	630	627	630	632	633	636	637	637	632	623	613	610	613	623	624	623	627	620	615	619	616	629	631	630	625	1010
18 q	629	630	630	630	631	632	631	636	631	622	612	611	617	624	630	624	630	618	613	623	620	624	626	628	625	1002
19 q	628	628	629	630	627	630	632	632	629	624	619	615	616	620	625	627	629	630	631	631	632	632	631	631	627	1058
20	630	630	631	631	632	634	638	642	637	631	629	630	627	635	652	643	619	635	687	630	626	619	569	551	*629*	1088
21	558	599	603	614	615	618	626	628	619	610	608	604	597	605	611	617	619	620	637	625	627	620	621	620	613	721
22	619	620	620	621	622	624	628	626	619	611	610	609	612	611	610	627	630	625	627	623	619	623	623	623	620	882
23	621	622	623	625	625	626	629	625	627	620	615	611	610	615	616	623	627	620	616	625	627	630	628	626	622	932
24	626	627	627	630	633	633	633	635	634	630	627	616	611	613	624	625	630	633	630	628	627	623	618	626	627	1040
25 d	632	634	634	637	635	638	644	644	639	630	605	605	615	617	623	634	642	627	651	639	611	612	622	618	629	1088
26 d	621	620	617	582	611	621	626	627	616	612	595	580	586	605	525	630	631	630	630	630	630	627	623	623	617	798
27	602	597	623	617	626	627	625	626	623	616	612	611	613	622	624	626	627	617	631	616	633	636	627	627	621	904
28	632	637	632	630	623	619	622	620	619	612	594	601	613	612	623	627	640	623	631	625	628	629	628	627	623	947
29	626	626	624	619	630	626	622	631	622	615	605	605	610	620	627	631	630	629	625	631	627	642	628	633	624	984
Mean	619	620	621	619	625	628	628	*631*	627	619	612	*610*	613	618	623	627	628	626	628	625	625	622	618	619	622	
Sum 17,000γ+	955	990	1023	952	1129	1210	1218	1284	1168	947	757	701	773	931	1053	1182	1200	1158	1218	1134	1122	1046	924	957		Grand Total 433,027

GEOMAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

2 LERWICK (D) — 9° + — FEBRUARY 1964

Day	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	Sum 500·0′+
Hour G.M.T.	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	24·7	24·1	26·2	26·7	26·5	26·2	26·3	26·7	26·8	27·2	27·1	27·9	29·6	29·5	28·7	27·7	28·2	27·2	27·0	25·4	24·9	25·2	23·8	25·0	26·6	138·6
2	25·2	24·7	24·6	24·9	25·4	25·1	25·0	24·9	26·2	27·1	27·9	28·6	29·3	29·9	28·1	28·1	25·1	26·5	26·8	26·3	25·7	25·6	25·6	25·9	26·4	132·5
3 q	26·2	26·3	26·5	26·6	26·6	26·0	25·9	25·9	25·7	25·8	27·0	28·0	29·1	29·5	27·6	27·5	27·2	27·2	26·9	26·6	26·1	23·3	23·4	23·9	26·5	134·8
4	25·7	26·2	25·7	26·9	25·9	24·8	24·7	25·1	24·9	30·7	29·5	29·3	29·9	32·1	34·0	31·5	31·9	29·5	27·2	26·1	25·2	20·5	19·2	24·6	*27·1*	151·1
5	24·4	24·2	24·2	25·6	21·8	22·7	24·0	24·2	24·7	25·4	26·7	29·3	30·1	30·0	29·6	30·0	29·6	30·8	30·2	28·5	27·5	6·3	2·6	11·6	24·3	84·0
6 d	21·5	30·5	27·4	27·4	23·9	30·8	31·8	25·4	26·5	25·2	27·5	28·4	28·8	28·1	33·4	27·6	29·8	27·9	24·7	14·5	21·5	25·2	16·8	23·3	26·2	127·9
7	24·7	24·5	25·4	31·6	25·7	23·9	25·2	25·0	26·2	25·4	26·5	29·1	29·8	31·1	30·6	29·5	28·4	24·2	30·7	27·7	24·7	23·3	15·0	19·7	26·2	127·9
8 d	22·3	23·3	24·7	23·9	24·2	24·5	24·5	24·4	24·3	24·7	25·8	28·6	28·5	28·7	29·5	31·2	33·3	35·9	32·0	23·9	22·8	16·0	−2·9	−0·6	*23·9*	73·5
9	8·0	18·4	21·0	24·7	27·7	26·5	25·8	25·8	25·2	26·2	27·4	28·3	30·1	31·3	31·0	29·8	26·7	19·9	23·3	25·2	23·8	21·8	23·1	26·9	24·9	97·9
10	26·8	25·9	26·0	27·2	26·0	26·1	25·0	23·8	23·7	24·1	26·0	28·5	29·7	30·4	29·5	29·0	28·4	27·2	26·7	26·3	25·2	17·3	20·7	22·2	25·9	121·7
11 q	23·6	24·9	25·6	26·2	25·9	25·8	25·7	25·1	25·0	24·9	25·8	27·4	28·2	28·6	28·5	27·6	26·6	26·3	26·2	25·9	25·7	25·2	23·3	23·4	25·9	121·4
12	25·6	26·2	26·6	26·7	25·5	25·2	26·5	24·8	25·5	27·1	26·6	27·8	29·4	32·2	29·9	27·7	27·4	21·6	24·2	26·2	25·5	22·7	20·6	23·7	26·1	125·2
13 d	24·3	27·1	30·7	35·2	29·7	24·0	31·0	32·3	29·1	27·2	28·4	28·8	29·8	34·5	33·9	33·6	19·1	22·3	21·9	22·6	21·1	19·4	19·1	22·3	27·0	147·4
14	26·3	26·4	26·7	28·9	31·8	26·9	25·7	25·6	25·0	24·8	27·0	29·3	28·9	30·3	30·5	27·7	27·2	26·5	21·1	25·3	25·1	23·9	21·1	18·0	26·3	130·0
15	22·0	24·0	25·1	26·2	26·1	26·0	26·0	25·5	27·0	26·5	27·5	28·7	29·3	30·8	30·0	28·9	27·2	26·5	23·8	22·1	26·4	25·7	25·4	25·5	26·3	132·2
16 q	25·8	25·6	26·2	26·2	26·1	25·5	25·4	25·6	26·5	26·1	27·2	28·6	30·2	30·1	29·7	28·1	27·2	26·5	26·2	25·7	22·3	23·3	23·5	24·3	26·3	131·9
17	25·2	25·3	27·1	27·2	26·2	25·6	25·4	25·1	25·2	25·4	26·9	28·3	30·3	32·2	32·2	30·1	28·8	27·1	18·4	17·4	23·9	26·4	26·2	26·0	26·3	131·9
18 q	25·6	26·2	26·2	25·9	25·9	25·9	26·1	26·2	25·3	26·1	27·4	27·9	29·4	30·6	29·8	28·5	26·8	31·1	28·3	26·7	24·7	24·2	25·0	25·2	26·9	145·0
19 q	25·2	25·3	25·4	26·0	24·2	24·3	24·7	25·1	25·2	25·2	26·1	27·2	28·8	29·6	29·1	27·8	27·0	27·0	26·8	26·6	26·3	25·9	25·7	25·5	26·3	130·0
20	25·3	25·3	25·2	25·3	25·3	24·9	25·0	25·2	25·3	26·0	27·5	30·6	30·1	32·5	33·9	38·0	39·2	35·9	25·5	21·3	27·2	25·1	−0·5	2·3	25·9	121·4
21	9·0	16·9	17·7	20·6	23·4	25·7	24·7	26·0	24·7	24·5	26·5	29·8	29·9	30·1	31·0	30·1	28·1	20·9	20·4	26·4	24·1	24·3	24·6	24·9	24·3	84·3
22	25·1	24·6	26·0	25·1	24·8	25·0	24·2	24·2	24·2	25·0	25·9	28·1	30·0	31·9	30·1	29·3	30·8	28·2	20·8	27·2	24·3	21·1	22·4	22·1	25·9	120·4
23	24·0	25·4	25·4	25·3	25·1	25·1	24·8	24·1	23·3	23·2	24·8	27·1	28·6	30·2	29·9	29·1	28·1	25·3	18·9	26·2	25·4	23·8	24·5	25·1	25·5	112·7
24	25·3	25·2	24·7	24·4	24·4	24·1	24·4	24·1	24·1	24·0	26·3	29·5	30·5	30·4	32·7	29·9	27·5	27·8	27·0	27·1	26·1	24·3	17·9	23·9	26·1	125·6
25 d	25·7	27·0	27·7	25·2	23·7	25·0	25·4	25·4	25·3	25·7	27·5	29·9	31·1	31·4	30·4	29·3	28·9	28·6	23·4	5·0	16·6	20·2	24·9	25·5	25·4	108·8
26 d	26·1	26·4	25·7	26·7	28·3	22·1	25·1	25·3	25·1	26·7	28·6	30·8	33·6	31·2	32·1	28·0	27·2	26·7	26·2	26·0	25·5	25·2	23·5	16·6	26·6	138·7
27	17·0	27·5	25·1	24·0	24·1	24·4	24·2	23·9	23·4	24·2	26·2	29·7	30·6	31·9	31·2	29·3	27·2	23·1	9·5	23·5	20·7	21·1	23·2	23·7	24·5	88·7
28	22·4	24·2	22·4	20·8	20·8	25·2	27·2	27·1	24·2	24·4	24·7	27·6	30·9	30·1	29·9	25·4	25·7	23·8	26·0	25·7	25·8	25·2	25·0	25·2	25·4	109·7
29	24·6	25·3	26·3	28·4	26·4	24·0	23·8	25·0	23·3	24·4	25·5	27·6	29·1	29·5	29·0	27·6	26·9	25·9	24·2	25·5	25·2	23·3	23·7	25·7	25·8	120·2
Mean	23·4	25·1	25·4	26·2	25·6	25·2	25·6	25·4	25·2	25·6	26·8	28·6	29·8	*30·6*	30·5	29·2	28·1	26·8	24·6	24·2	24·5	22·6	*20·2*	21·8	25·9	
Sum 500·0′+	177·6	226·9	237·5	259·8	241·4	231·3	243·5	236·8	230·9	243·2	277·8	330·7	363·6	388·7	385·8	347·9	315·5	277·4	214·3	202·9	209·3	154·8	86·4	131·4		Grand Total 18015·4

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

3 LERWICK (Z) — 47,000γ (0·47 C.G.S. unit) + — FEBRUARY 1964

Day	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
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	353	344	361	369	374	374	374	375	377	379	376	372
2	333	353	368	371	374	375	378	378	376	375	377	374
3 *q*	376	376	374	375	376	377	377	377	377	377	375	375
4	372	370	370	370	369	370	370	370	374	366	361	369
5	372	370	368	361	359	365	366	368	370	370	370	370
6 *d*	349	316	268	314	344	344	333	350	363	377	378	372
7	372	373	371	350	336	353	356	362	368	381	381	381
8 *d*	376	336	324	362	371	374	376	377	378	382	380	382
9	317	329	346	354	354	372	382	381	382	390	387	389
10	351	364	372	375	377	382	378	381	381	382	382	385
11 *q*	378	382	382	382	381	381	381	380	377	377	377	378
12	379	379	379	375	374	372	364	353	360	360	366	373
13 *d*	347	367	364	265	257	297	331	347	355	366	374	392
14	375	379	379	376	356	365	374	374	379	378	378	384
15	370	375	378	378	379	378	378	377	373	369	368	368
16 *q*	375	374	374	377	379	379	378	378	375	374	375	377
17	369	369	368	368	371	375	375	374	375	376	377	377
18 *q*	371	372	372	375	376	376	377	375	377	376	377	375
19 *q*	377	376	376	372	376	377	377	377	378	378	377	376
20	375	375	374	373	374	375	373	372	376	376	369	368
21	315	330	321	337	360	360	369	375	379	386	386	386
22	380	378	377	374	376	376	376	377	379	378	377	375
23	369	368	372	375	376	375	375	376	377	382	379	377
24	381	380	379	377	371	370	370	369	372	374	372	376
25 *d*	376	374	368	362	367	366	362	365	368	369	376	377
26 *d*	378	379	360	346	321	344	368	378	384	384	386	405
27	365	327	342	368	377	379	382	380	382	382	380	379
28	372	361	349	351	361	365	352	364	372	377	385	384
29	382	383	384	374	360	370	378	377	384	385	386	386
Mean	366	364	363	*362*	363	368	370	372	375	377	377	379
Sum 10,000γ+	605	559	520	506	526	666	730	787	868	926	932	982

Day	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	Sum 8000γ+
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	373	374	378	381	385	390	393	399	374	357	365	368	374	965
2	374	379	387	390	397	390	384	382	380	379	378	377	376	1029
3 *q*	371	370	378	378	379	379	379	379	381	383	380	378	377	1047
4	372	379	387	385	384	383	382	381	383	389	379	376	375	1011
5	369	369	369	369	370	374	379	378	383	397	334	351	369	851
6 *d*	391	397	390	406	407	396	402	393	378	382	370	370	*366*	790
7	382	384	381	381	398	423	408	411	415	405	385	365	380	1122
8 *d*	383	384	384	390	404	413	436	441	432	328	287	318	376	1018
9	390	391	398	391	397	395	387	390	391	391	390	372	378	1066
10	385	387	390	387	386	386	385	382	385	385	389	388	381	1145
11 *q*	379	382	381	381	381	381	377	377	377	377	381	380	380	1110
12	377	384	404	405	404	421	401	389	388	385	383	372	381	1147
13 *d*	400	399	409	440	493	523	467	447	447	400	365	370	*384*	1222
14	382	379	386	395	390	387	393	387	384	381	385	375	380	1121
15	373	384	386	386	387	386	393	397	384	379	377	376	379	1099
16 *q*	375	372	379	388	392	387	386	387	394	385	380	377	380	1117
17	374	376	383	386	386	396	407	395	387	377	377	374	379	1092
18 *q*	370	372	378	387	395	403	407	395	394	388	382	377	381	1147
19 *q*	372	372	375	376	377	378	378	378	378	378	377	377	376	1033
20	366	361	361	378	394	404	465	439	404	394	378	311	381	1135
21	395	395	393	390	395	393	387	384	386	386	384	384	374	976
22	376	381	390	386	386	389	394	387	393	387	382	369	381	1143
23	378	377	379	379	382	391	402	386	385	385	384	384	380	1113
24	383	383	384	384	384	386	386	386	386	385	386	377	379	1100
25 *d*	376	378	381	379	387	433	502	390	367	385	388	387	383	1183
26 *d*	409	400	399	399	395	390	386	385	384	385	385	376	380	1126
27	385	387	390	395	395	408	417	403	386	368	376	376	380	1129
28	386	394	400	404	411	407	400	400	394	386	385	384	381	1144
29	385	385	386	391	392	395	394	388	387	376	368	369	382	1165
Mean	380	382	386	389	394	400	*403*	394	390	382	375	371	378	
Sum 10,000γ+	1031	1075	1186	1287	1433	1587	1677	1436	1307	1083	880	758		Grand Total 263,346

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH HOUSE

4 LERWICK — FEBRUARY 1964

Day	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-hr range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph house 200°A+
1	2201 2223	14	2101 2223	13	2201 1023	11	2101 1132	11	1	86·2
2	2111 2200	9	2011 1200	7	2110 2100	7	3000 1100	5	0	86·5
3 *q*	0000 1002	3	0000 1001	2	0000 1002	3	0000 1001	2	0	86·6
4	0122 2112	11	0122 2102	10	0112 2112	10	0002 1001	4	1	86·2
5	1211 1115	13	0010 1114	8	1211 1115	13	0000 0014	5	1	86·0
6 *d*	4343 3343	27	3343 3333	25	4333 3343	26	4332 2222	50	1	85·9
7	2312 1334	19	1212 1313	14	2311 1334	18	1311 0323	14	1	85·9
8 *d*	3101 1246	18	3000 1225	13	3101 1246	18	4200 0334	16	2	86·2
9	4212 2323	19	3211 2221	14	4212 2323	19	3310 1112	12	1	86·7
10	2101 0123	10	1001 0112	6	2100 0123	9	2100 0011	5	1	87·0
11 *q*	1000 0001	2	1000 0000	1	1000 0001	2	0000 0000	0	0	86·6
12	1122 3332	17	0122 3221	13	1122 2332	16	0021 2222	11	1	86·3
13 *d*	3423 3433	25	3423 3422	23	3322 3433	23	2422 2543	24	1	86·4
14	0211 2133	13	0111 2122	10	0201 2133	12	1200 1112	8	1	86·1
15	2011 2130	10	1000 2120	6	2011 1030	8	1000 2020	5	1	86·0
16 *q*	0011 1121	7	0011 1111	6	0010 1021	5	0010 1111	5	0	86·2
17	0000 1230	6	0000 1210	4	0000 1230	6	0001 1220	6	1	86·0
18 *q*	0010 1211	6	0000 1211	5	0010 1211	6	0000 0211	4	0	85·6
19 *q*	0000 0000	0	0000 0000	0	0000 0000	0	0000 0000	0	0	85·5
20	0002 3346	18	0002 3344	16	0002 2246	16	0001 0354	13	2	85·7
21	3312 1331	17	3211 1220	12	3312 0331	16	3210 1110	9	1	86·1
22	1100 1132	9	0000 1112	5	1100 1132	9	0000 1012	4	1	86·0
23	2010 0331	10	0010 0211	5	2000 0331	9	0000 0120	3	1	85·5
24	0101 2213	10	0001 2102	6	0101 1213	9	0001 0001	2	0	85·3
25 *d*	1112 1272	17	0012 1272	15	1110 1252	13	0001 0451	11	1	85·9
26 *d*	1323 3203	17	1323 3201	15	1322 1103	13	2312 2102	13	1	85·9
27	4211 1342	18	3100 1232	12	4211 1342	18	3100 0231	10	1	86·0
28	2222 2320	15	2222 2310	14	2222 2320	15	2221 1210	11	1	86·3
29	1221 1112	11	0211 1112	9	1221 0112	10	0201 0011	5	0	86·3
								Mean	0·79	86·1

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

1 LERWICK (H) — 14,000γ (0·14 C.G.S. unit) + — MARCH 1964

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	Sum 14,000γ+
	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	γ
1	629	627	626	627	629	631	631	630	624	616	608	611	614	628	631	636	631	631	630	629	630	633	633	632	627	1047
2 q	632	631	630	631	633	633	633	631	623	616	608	605	610	620	629	632	630	630	633	633	634	635	636	641	628	1069
3	637	634	633	633	633	636	637	637	636	622	612	615	620	633	641	635	635	638	641	643	633	638	634	627	633	1183
4 d	632	631	627	594	565	572	616	622	613	615	600	597	601	645	633	629	663	681	622	590	580	499	581	562	607	570
5 d	491	388	484	615	626	625	622	608	601	612	613	612	601	615	639	640	629	619	630	620	633	623	594	567	*596*	307
6	615	619	597	594	615	623	623	623	615	601	597	605	615	621	626	634	636	616	630	627	628	623	627	627	618	837
7	616	606	623	618	624	623	624	627	624	613	612	613	616	627	624	632	629	627	629	633	627	620	623	632	623	942
8	633	613	605	627	626	625	619	620	597	601	598	597	603	630	634	634	627	628	631	628	630	620	628	623	620	877
9	616	623	610	591	607	631	634	616	620	608	608	614	615	620	627	631	627	629	628	628	627	627	627	627	620	891
10	626	626	626	624	624	625	627	627	624	621	616	613	619	625	627	640	637	625	627	630	625	627	625	627	626	1013
11	627	628	627	627	634	637	629	627	620	604	600	611	619	617	615	627	629	631	632	635	634	632	635	636	626	1013
12	634	630	619	593	629	616	618	623	624	600	604	605	609	617	629	624	628	625	626	625	626	630	631	628	621	893
13	625	626	626	625	632	635	634	631	623	616	613	600	616	625	637	642	637	635	633	633	631	624	633	627	627	1059
14	630	633	630	629	627	628	629	634	619	612	604	601	608	623	637	627	624	631	624	623	615	623	627	631	624	969
15	630	630	623	629	638	633	628	629	623	613	608	611	619	627	634	627	629	631	628	636	627	628	632	634	627	1047
16	640	631	620	617	627	632	630	629	623	612	606	610	617	625	639	637	636	641	642	647	647	644	642	643	631	1137
17	644	641	634	631	633	635	641	626	627	626	613	599	609	622	629	629	626	627	629	637	638	637	637	634	629	1104
18 q	631	630	630	631	633	636	637	632	627	616	605	600	605	608	619	626	627	631	637	637	637	640	638	636	627	1049
19 q	634	633	634	634	638	640	641	637	628	619	614	610	608	616	620	626	624	630	635	640	639	643	642	644	630	1129
20	642	638	639	639	636	635	637	635	635	631	621	617	619	621	630	632	629	632	645	627	629	638	640	637	633	1184
21	638	628	623	630	645	644	634	626	620	611	609	609	612	619	628	632	634	644	652	656	640	634	633	637	631	1138
22 d	637	631	632	636	639	642	646	641	637	624	620	615	623	641	648	612	653	642	656	668	630	612	609	628	634	1222
23 d	619	608	618	603	561	615	627	616	605	598	540	578	604	625	617	623	644	642	637	648	625	635	641	637	615	766
24	632	627	624	619	626	624	631	616	607	590	592	601	603	609	620	637	650	665	632	629	628	631	632	631	623	956
25	632	619	609	621	622	626	619	608	612	609	603	605	622	627	637	638	630	630	641	652	635	628	637	625	624	987
26	623	607	627	608	617	635	627	612	608	598	599	604	612	616	633	627	632	628	631	632	633	631	631	633	621	904
27	633	630	630	631	632	633	631	625	619	614	612	612	615	620	623	627	627	630	634	636	635	635	635	635	627	1054
28 q	634	631	631	633	634	634	632	624	615	605	601	601	605	616	623	630	631	634	637	638	638	641	641	638	627	1047
29	637	637	637	637	637	639	639	631	619	605	593	590	594	606	619	625	633	638	641	648	648	646	642	647	629	1088
30 d	644	644	642	627	604	649	628	623	617	614	609	604	610	616	649	675	721	702	635	631	624	630	620	620	*635*	1238
31 q	620	620	620	620	620	619	618	612	601	593	590	591	608	619	627	627	632	634	640	637	637	636	633	632	620	886
Mean	626	619	621	622	624	629	630	625	619	611	*604*	605	611	622	630	632	636	*636*	635	635	630	627	630	628	625	
Sum 18,000γ+	1413	1200	1236	1274	1346	1511	1522	1378	1186	935	728	756	951	1279	1524	1593	1720	1727	1668	1676	1543	1443	1519	1478		Grand Total 464,606

GEOMAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

2 LERWICK (D) — 9° + — MARCH 1964

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	Sum 400·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	25·2	25·5	26·6	26·3	25·7	25·0	24·6	23·8	23·0	23·8	25·2	28·6	30·4	30·8	29·0	27·5	26·4	26·4	26·2	25·4	24·1	25·0	24·7	25·1	26·0	224·3
2 q	25·4	25·5	25·6	25·6	25·5	25·1	24·7	24·1	23·3	22·8	24·0	27·1	29·7	30·3	29·5	28·1	26·9	26·4	26·4	26·3	26·1	25·8	25·4	25·5	26·0	225·1
3	24·6	24·3	23·5	23·9	24·1	23·4	23·8	23·3	23·1	24·0	25·8	29·5	31·1	31·5	31·4	30·5	29·3	27·7	28·1	28·6	27·2	16·6	16·0	22·1	25·6	213·4
4 d	24·4	23·8	16·3	3·3	13·9	23·9	20·5	20·8	20·7	24·0	29·6	28·6	35·7	34·6	31·6	33·5	20·8	4·9	8·3	18·6	14·0	22·3	15·5	7·8	*20·7*	97·4
5 d	11·2	30·6	24·2	18·9	19·8	20·7	21·8	23·8	27·4	27·3	26·4	28·5	31·2	29·4	32·3	23·5	30·5	27·0	7·9	14·7	3·4	15·0	17·9	24·5	22·4	137·9
6	25·2	21·8	21·8	25·2	22·3	21·9	22·6	23·3	23·3	23·5	27·0	29·8	32·0	32·0	31·2	28·6	23·8	25·2	22·0	25·4	22·3	24·2	25·2	26·4	25·3	206·0
7	26·2	27·4	21·3	22·3	24·2	23·3	23·3	23·8	23·8	24·7	26·4	28·7	30·5	32·8	29·8	28·2	29·9	29·1	24·7	21·8	20·2	24·2	24·6	21·5	25·5	212·7
8	17·6	18·8	28·6	21·6	19·4	20·8	23·4	26·4	27·2	31·5	31·8	34·5	34·5	32·5	29·6	29·3	27·2	27·2	27·8	25·2	22·3	26·2	29·1	21·8	26·4	234·3
9	22·6	22·3	21·8	22·3	23·9	18·7	22·3	23·3	26·2	27·2	28·8	30·1	29·8	29·1	27·6	26·4	25·0	26·2	26·4	26·4	26·2	26·0	26·1	25·8	25·4	210·5
10	25·2	25·0	24·7	24·2	24·2	23·9	23·9	24·3	24·7	25·4	27·2	29·8	30·6	29·8	27·4	26·1	26·3	24·3	27·2	22·0	21·3	23·8	24·8	26·4	25·5	212·5
11	25·2	25·2	23·9	24·5	24·9	23·0	24·2	26·7	26·7	27·2	32·0	30·4	32·0	32·0	30·3	29·4	28·4	28·1	27·3	26·2	24·0	24·4	25·7	26·0	27·0	247·7
12	25·7	26·4	26·0	32·8	23·3	20·7	19·9	23·6	24·2	25·0	26·5	28·4	30·1	31·0	31·0	30·1	24·4	27·0	25·4	23·6	24·2	25·2	25·2	24·8	26·0	224·5
13	26·2	26·7	26·1	28·1	23·8	23·3	24·0	23·8	23·3	24·3	26·1	28·6	31·0	32·2	30·9	28·8	27·3	26·3	26·0	25·2	23·1	20·4	20·4	24·9	25·9	220·8
14	25·8	27·4	24·7	23·3	23·9	24·2	23·3	22·8	23·8	25·7	28·6	31·0	33·6	32·5	31·5	27·3	26·1	24·5	16·5	19·6	15·7	19·9	23·2	24·6	25·0	199·5
15	24·9	27·2	27·3	25·9	24·8	23·9	23·3	22·7	23·4	24·2	26·7	29·5	31·8	32·2	32·0	29·7	27·2	27·1	21·8	16·3	22·2	21·6	23·1	20·2	25·4	209·0
16	23·5	21·3	24·4	26·0	24·4	23·3	23·1	22·7	23·3	24·7	28·3	31·5	33·5	32·9	32·5	31·4	29·4	29·3	28·6	28·5	28·2	26·8	25·6	24·8	27·0	248·0
17	24·8	24·2	24·6	26·1	25·5	25·0	25·9	26·6	27·9	27·5	27·5	28·3	29·3	30·5	30·2	27·7	26·6	26·0	26·0	25·9	25·7	25·6	25·0	24·9	26·6	237·3
18 q	24·9	24·4	24·8	24·9	24·7	24·5	24·2	23·9	23·2	24·4	25·6	27·0	29·3	30·3	29·9	28·4	27·3	26·7	26·7	24·7	25·8	25·8	25·6	25·0	25·9	222·0
19 q	24·7	24·9	24·9	24·9	25·1	25·3	24·7	24·0	22·9	22·7	24·7	27·5	29·6	30·8	30·6	29·6	28·1	27·4	27·0	26·4	26·1	24·4	25·2	25·5	26·1	227·0
20	24·8	24·7	24·6	24·6	24·6	24·7	24·2	24·3	24·2	25·3	27·8	30·5	33·1	33·4	32·3	31·7	30·2	30·0	29·1	15·7	22·3	26·3	26·3	25·3	26·7	240·0
21	27·6	22·1	17·4	18·1	18·4	22·4	22·5	22·5	22·2	22·8	24·2	26·7	28·6	29·6	29·8	28·8	27·5	28·5	29·6	31·3	30·1	27·4	24·8	26·7	25·4	209·6
22 d	24·7	24·7	24·7	25·3	24·3	23·9	24·2	22·9	22·7	24·6	26·6	28·5	31·6	35·9	37·0	35·6	34·4	29·3	26·1	7·8	11·3	20·0	4·5	15·9	24·4	186·5
23 d	18·2	21·8	23·9	20·7	27·6	24·3	24·8	25·3	23·9	25·3	23·8	27·4	30·0	30·4	29·8	28·6	20·4	21·8	20·9	17·7	23·7	26·3	27·1	25·7	24·6	189·4
24	26·4	25·8	25·4	28·8	26·4	28·4	26·7	25·7	26·8	28·2	26·1	28·7	30·1	27·7	29·4	18·9	23·8	21·2	26·0	26·5	27·7	27·5	26·4	26·1	26·4	234·7
25	24·8	24·2	31·8	23·7	23·8	24·3	24·1	24·0	23·9	25·2	27·3	30·8	32·5	31·9	27·9	27·0	25·9	21·9	24·4	22·2	22·4	24·2	27·2	24·2	25·8	219·6
26	24·9	25·2	27·0	24·2	24·4	22·4	22·3	20·8	21·9	24·3	27·9	30·0	31·9	30·0	29·4	26·7	25·5	25·2	25·8	26·4	26·2	25·7	25·5	25·5	25·8	219·1
27	25·1	25·5	25·0	24·8	25·0	24·5	24·0	23·8	23·1	24·0	26·4	28·1	28·9	28·6	27·2	26·2	25·5	26·1	26·5	26·4	26·0	26·0	25·3	25·2	25·7	217·2
28 q	25·3	25·0	25·0	25·1	24·6	24·3	23·3	21·9	20·9	22·0	23·9	26·6	29·3	30·3	29·0	28·1	27·2	27·0	26·6	26·2	26·1	26·0	26·0	25·7	25·6	215·4
29	25·4	25·2	25·2	25·0	24·4	23·8	22·7	20·7	19·8	20·8	23·3	27·0	30·9	32·8	32·2	30·1	28·4	27·2	26·6	26·9	24·8	26·1	26·0	25·8	25·9	221·1
30 d	25·7	25·8	23·7	23·6	31·6	28·1	22·7	28·1	26·7	28·3	29·7	31·6	36·9	29·0	36·6	37·0	36·4	21·8	27·2	25·9	25·8	23·3	25·6	24·9	*28·2*	276·0
31 q	24·5	24·3	24·0	24·0	23·9	22·5	21·1	20·7	21·3	23·9	27·0	29·5	30·4	29·8	28·5	26·7	25·7	25·6	23·7	26·6	26·6	25·3	25·0	25·0	25·2	205·6
Mean	24·2	24·7	24·5	23·8	23·9	23·7	23·4	23·7	23·8	25·0	26·9	29·1	*31·3*	31·2	30·6	28·7	27·1	25·6	24·6	23·6	*23·1*	24·1	23·8	24·0	25·6	
Sum 700·0′+	50·7	67·0	58·8	38·0	42·4	33·5	26·1	34·4	38·8	74·6	132·2	202·8	269·9	266·6	247·4	189·5	141·8	92·4	62·8	30·4	15·1	47·3	38·0	43·6	25·8	Grand Total 19044·1

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

3 LERWICK (Z) — 47,000γ (0·47 C.G.S. unit) + — MARCH 1964

	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	Sum 8000γ+
	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	γ
1	370	377	379	381	385	386	386	386	387	384	382	380	377	377	381	386	388	389	388	388	388	381	379	380	383	1185
2 q	379	381	382	383	385	385	383	383	385	385	380	379	378	377	379	381	383	386	385	385	384	381	380	372	382	1161
3	369	370	372	373	377	377	377	375	375	378	377	370	368	368	370	377	379	381	381	383	396	370	341	361	374	965
4 d	369	361	270	266	255	186	267	326	351	369	370	395	402	433	407	408	452	509	424	424	406	321	250	233	352	454
5 d	208	197	190	283	344	361	365	375	381	370	372	374	383	394	413	433	408	408	412	388	359	317	336	306	349	377
6	304	351	356	346	347	367	373	375	382	381	382	372	377	385	397	411	420	406	397	385	386	386	381	367	376	1034
7	353	302	333	346	353	367	370	371	372	374	374	372	371	372	385	388	390	390	400	379	390	393	385	374	371	904
8	352	363	353	327	355	363	366	365	371	370	372	374	374	380	403	400	390	386	384	394	393	383	331	356	371	905
9	353	365	367	339	315	338	356	371	375	376	376	376	378	381	383	386	388	386	383	383	382	383	383	383	371	906
10	384	384	384	382	380	379	378	378	379	379	378	377	378	381	386	387	390	402	405	397	389	387	387	386	385	1237
11	384	383	383	382	378	373	374	372	374	382	378	378	383	390	390	390	384	381	380	382	384	385	381	381	381	1152
12	380	377	342	252	231	294	322	351	362	372	365	368	374	379	388	402	413	392	386	385	386	381	378	378	361	658
13	377	379	381	375	369	369	370	370	371	372	376	379	374	371	377	381	384	382	382	383	384	385	375	375	377	1041
14	372	365	374	379	380	379	379	376	379	375	375	373	372	374	381	392	392	391	406	406	404	390	382	374	382	1170
15	373	361	362	360	362	371	377	378	378	375	374	374	374	374	380	398	397	402	407	401	387	382	374	358	378	1079
16	348	345	363	368	372	377	379	380	379	376	372	369	367	371	376	382	384	381	381	378	378	379	378	376	373	959
17	374	372	377	372	370	368	364	371	367	368	370	381	377	373	381	397	400	397	390	385	381	379	377	377	378	1068
18 q	377	377	377	378	379	380	380	380	378	377	377	378	374	372	377	380	382	382	382	385	384	380	378	377	379	1091
19 q	376	376	376	376	376	376	375	377	377	375	371	366	366	366	370	376	379	379	379	380	381	380	377	375	375	1005
20	373	373	373	372	374	374	371	373	371	367	361	361	364	369	376	387	390	389	385	410	397	382	378	378	377	1048
21	356	302	302	317	312	321	331	345	353	361	362	364	367	367	368	374	375	373	371	380	409	409	397	373	358	589
22 d	355	371	373	371	369	369	367	371	371	374	374	375	370	372	394	442	444	442	434	484	430	403	318	312	387	1285
23 d	334	355	359	365	325	322	355	366	377	385	409	409	397	403	398	398	419	417	407	389	388	380	355	345	377	1057
24	359	372	371	366	334	354	353	370	378	380	383	386	396	411	408	431	432	435	408	398	389	385	385	383	386	1267
25	372	377	321	341	361	368	373	378	378	378	378	378	378	386	398	399	398	398	391	377	362	364	342	353	373	949
26	353	332	346	355	352	348	364	375	378	377	377	379	383	388	388	388	386	385	381	379	379	382	382	381	372	938
27	379	382	381	382	382	381	381	380	378	374	375	377	378	380	382	382	382	380	378	377	378	376	377	378	379	1100
28 q	378	381	382	382	382	381	381	382	380	378	377	374	372	375	378	377	379	380	379	377	377	376	374	377	378	1079
29	377	378	380	380	380	380	379	381	381	378	377	370	364	364	369	378	381	383	382	377	377	375	377	370	377	1038
30 d	373	376	375	377	377	332	349	352	358	355	358	358	367	381	387	429	522	569	509	460	422	385	368	377	397	1516
31 q	383	386	388	389	391	392	392	391	389	387	384	382	378	379	383	388	389	392	395	390	389	388	385	384	387	1294
Mean	361	360	357	357	357	359	366	372	375	375	375	376	376	380	386	395	400	402	396	393	388	379	367	365	376	
Sum 11,000γ+	194	171	72	65	52	118	337	524	615	632	636	648	661	793	953	1228	1400	1473	1272	1189	1039	748	391	300		Grand Total 279,511

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH HOUSE

4 LERWICK — MARCH 1964

	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph house 200°A+
1	1000 1020	4	1000 1000	2	1000 0020	3	1000 1000	2	0	86·5
2 q	0000 0001	1	0000 0001	1	0000 0001	1	0000 0001	1	0	86·8
3	1011 1114	10	0001 1113	7	1011 1114	10	1000 0013	5	1	86·8
4 d	3523 4646	33	3423 4546	31	3522 3645	30	4443 3536	32	2	86·6
5 d	6232 3344	27	6232 3344	27	5232 3344	26	4420 3343	23	2	86·4
6	3312 2332	19	3311 2321	16	2212 2332	17	4211 2212	15	1	86·3
7	3211 2243	18	2111 2233	15	3211 2142	16	3200 1032	11	1	86·6
8	3322 2234	21	3221 2232	17	3322 2134	20	2310 3133	16	1	86·8
9	2322 0100	10	2322 0100	10	1322 0100	9	2320 0000	7	1	87·0
10	0000 1132	7	0000 1131	6	0000 0132	6	0000 0121	4	1	87·0
11	1122 1111	10	0022 1110	7	1112 1111	9	0000 1000	1	0	86·8
12	3321 3311	17	3321 3111	15	3321 1311	15	3431 2211	17	1	86·7
13	1212 2122	13	1102 2112	10	1211 1022	10	1101 0001	4	1	86·0
14	2011 2133	13	1011 2121	9	2011 1033	11	1000 1122	7	1	86·0
15	2210 1232	13	2110 1221	10	2200 1232	12	2200 1122	10	1	85·8
16	2210 2211	11	2210 2211	11	2210 0110	7	2100 1100	5	1	85·7
17	2122 2110	11	2122 2110	11	2121 1100	8	1111 1110	7	1	86·0
18 q	0011 1110	5	0011 1100	4	0010 0110	3	0000 0010	1	0	85·8
19 q	0010 1101	4	0000 1100	2	0010 0001	2	0000 0000	0	0	85·8
20	0011 1141	9	0011 1120	6	0011 1141	9	0000 1131	6	1	85·3
21	4211 1122	14	3210 0121	10	4211 1012	12	4120 0033	13	1	85·5
22 d	1112 4454	22	1002 4444	19	1111 3354	19	2101 3244	17	2	85·4
23 d	3434 3441	26	2424 3331	22	3333 1441	22	3322 1332	19	1	85·9
24	1323 3421	19	1223 3420	17	0322 2421	16	1321 2320	14	1	85·8
25	3221 3332	19	3121 3332	18	3211 2232	16	3310 2132	15	1	85·9
26	3311 2110	12	3311 2110	12	3211 1010	9	2110 0000	4	1	86·2
27	1000 0000	1	1000 0000	1	1000 0000	1	0000 0000	0	0	86·0
28 q	0000 0000	0	0000 0000	0	0000 0000	0	0000 0000	0	0	86·1
29	0000 1121	5	0000 1111	4	0000 0021	3	0000 1001	2	0	86·0
30 d	2322 4523	23	1312 4522	20	2322 2423	20	0311 2543	19	2	86·3
31 q	0011 0120	5	0001 0010	2	0010 0120	4	0000 0010	1	0	86·1
								Mean	0·84	86·2

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

1 LERWICK (H) — 14,000γ (0·14 C.G.S. unit) + — APRIL 1964

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	Sum 14,000γ+
	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	γ
1 d	632	630	631	634	637	637	635	627	619	608	602	608	615	620	654	635	706	857	761	673	594	467	444	134	611	660
2 d	535	586	557	594	587	597	612	605	589	571	574	571	593	605	615	625	674	689	638	633	620	597	594	631	604	492
3	592	572	569	560	586	616	623	618	601	589	575	585	590	605	613	623	632	655	636	633	633	628	628	641	608	603
4	616	619	616	622	627	623	628	616	597	587	587	594	603	613	630	637	637	628	628	633	634	637	627	619	619	858
5	616	618	627	626	615	624	627	619	610	600	590	601	614	625	631	631	631	641	642	645	633	622	621	625	622	934
6	629	630	628	627	624	631	627	619	605	595	589	594	604	614	623	632	639	646	642	646	639	638	635	619	624	975
7	629	634	627	635	637	633	628	613	611	609	605	603	612	627	626	631	641	652	657	662	646	637	643	646	631	1144
8	624	638	635	633	633	633	632	621	609	583	558	574	598	624	626	623	621	630	638	645	645	644	644	641	623	952
9	633	633	630	639	627	632	637	630	620	605	593	597	607	626	637	630	629	634	633	637	639	639	639	639	628	1055
10	637	635	634	635	634	635	633	626	616	609	593	591	609	621	623	626	632	634	637	642	644	645	644	646	628	1081
11	643	642	641	641	642	642	638	634	623	607	598	607	623	594	646	623	643	654	641	640	637	638	633	634	632	1164
12 q	633	631	630	631	630	631	623	616	607	601	601	606	610	617	625	631	637	642	640	644	645	647	644	637	627	1059
13	637	637	633	631	632	632	631	625	615	605	600	597	601	615	623	627	638	648	642	651	651	652	652	648	630	1123
14 q	646	641	638	637	638	637	636	627	613	605	595	592	601	619	623	625	634	638	642	643	646	645	643	643	629	1107
15	642	641	641	642	642	643	641	633	623	614	606	595	597	609	637	647	652	653	651	648	646	646	645	667	636	1261
16	626	623	623	627	639	633	627	616	611	608	600	600	607	610	633	638	647	643	646	646	646	648	651	651	629	1099
17	652	620	636	625	638	641	623	638	631	619	608	604	609	620	634	617	636	651	645	642	644	641	639	634	631	1147
18	635	637	634	633	634	637	641	639	629	624	625	616	583	633	634	667	664	659	667	650	641	641	648	637	638	1308
19 d	603	616	623	629	624	633	638	633	623	594	608	619	612	624	636	647	637	643	646	645	645	631	616	626	627	1051
20	633	612	622	633	633	630	626	616	597	611	607	602	608	621	630	648	650	646	663	644	642	647	644	633	629	1098
21	603	603	616	631	636	635	631	627	619	608	603	608	616	625	626	634	642	649	651	647	651	630	632	635	627	1058
22 q	633	633	633	633	633	631	629	626	620	611	603	610	616	626	632	634	641	645	646	645	645	646	643	643	632	1157
23 q	637	639	641	639	637	638	641	640	627	619	613	612	619	627	633	637	641	648	652	649	650	648	643	642	636	1272
24 q	644	643	641	640	639	641	638	631	625	613	610	616	618	631	636	641	637	646	652	651	652	652	650	648	637	1295
25	643	647	639	638	639	639	637	637	630	616	623	612	600	630	630	634	645	640	659	652	644	656	633	624	635	1247
26	643	643	645	633	626	623	637	620	609	604	600	605	610	622	631	636	644	652	654	652	648	645	645	642	632	1169
27 d	643	636	637	644	646	642	629	623	628	615	608	608	636	626	647	706	738	737	692	671	619	602	618	579	643	1430
28 d	515	435	618	624	621	582	622	605	575	561	583	598	618	619	629	628	633	641	655	657	643	640	640	619	607	561
29	611	583	588	617	627	621	627	627	620	606	596	593	605	623	630	641	630	652	674	652	645	640	636	637	624	981
30	638	636	634	632	631	633	633	630	621	613	613	615	620	627	636	643	656	656	656	662	655	574	517	462	621	893
Mean	623	620	626	629	630	630	631	625	614	604	599	601	609	620	631	637	646	657	653	648	641	631	626	613	627	
Sum 17,000γ+	1703	1593	1767	1865	1894	1905	1930	1737	1423	1110	966	1033	1254	1598	1929	2097	2387	2709	2586	2440	2222	1923	1791	1382		Grand Total 451,244

GEOMAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at exrct hours, G.M.T.

2 LERWICK (D) — 9° + — APRIL 1964

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	Sum 500·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1 d	24·9	24·2	24·0	24·0	23·8	23·6	22·7	21·7	22·3	24·7	27·5	30·9	32·5	34·2	37·4	39·1	40·2	40·1	29·5	27·0	11·9	9·9	10·0	-20·6	24·4	85·5
2 d	20·6	20·7	26·6	21·6	18·7	21·7	20·8	21·7	21·6	22·5	24·4	28·3	30·3	33·4	32·3	29·3	24·6	17·6	24·4	20·9	23·1	18·3	20·9	21·8	23·6	66·1
3	23·7	18·3	22·2	22·1	22·7	18·9	19·8	19·6	20·7	22·2	26·3	29·7	30·9	32·6	30·0	29·9	28·3	19·4	24·9	26·9	22·8	23·8	26·1	25·3	24·5	87·1
4	23·2	18·3	21·6	24·9	22·7	23·7	22·7	20·8	22·3	25·8	27·4	30·7	33·5	33·6	30·1	27·9	27·9	26·8	26·1	26·4	26·1	20·3	20·6	22·0	25·2	105·4
5	21·0	19·8	21·2	22·4	26·2	24·7	21·2	20·6	22·3	26·1	28·4	32·9	34·1	33·6	32·8	30·2	27·0	26·3	26·1	26·5	22·4	31·0	25·8	16·2	25·8	118·8
6	21·9	23·6	23·4	22·9	24·5	23·7	21·0	19·5	20·5	22·6	25·6	27·5	29·8	30·3	29·4	27·6	26·5	26·5	26·4	26·3	26·4	26·0	26·6	31·4	25·4	109·9
7	26·5	23·0	22·6	22·7	22·1	22·8	22·0	21·8	24·6	25·7	28·3	31·1	32·5	35·2	35·5	32·6	30·7	29·6	30·5	27·3	20·1	25·6	25·1	24·1	26·7	142·0
8	25·0	25·5	22·8	23·5	23·5	22·7	21·0	20·4	21·3	24·1	26·9	31·4	31·4	31·5	31·4	28·5	27·0	26·4	26·4	25·6	17·2	19·3	25·2	25·4	25·1	103·4
9	27·6	27·5	27·4	22·2	20·8	24·0	23·7	23·3	23·2	26·0	28·5	32·0	33·1	33·1	31·8	28·3	26·5	25·2	25·3	25·5	25·7	25·6	25·9	25·8	26·6	138·0
10	26·2	26·2	24·8	23·8	23·8	23·5	22·6	22·6	23·8	24·1	26·0	29·2	31·7	32·9	30·7	28·4	26·5	25·7	26·0	26·4	26·2	25·8	25·6	26·6	26·2	129·1
11	25·6	25·1	24·7	24·0	23·7	23·1	22·7	22·9	22·7	26·1	31·4	32·9	35·2	36·5	34·1	31·6	27·1	23·7	22·8	16·9	23·6	23·6	23·6	25·6	26·2	129·2
12 q	25·2	25·5	24·7	24·3	23·6	22·5	21·8	21·6	22·2	25·2	27·9	30·3	31·0	30·5	29·2	27·6	26·6	26·6	27·3	27·4	27·3	26·8	26·2	25·5	26·1	126·8
13	25·2	25·8	25·6	24·0	22·8	21·7	20·6	19·8	20·0	22·1	25·4	27·7	30·6	32·4	30·8	28·7	27·1	26·5	27·3	27·3	26·8	26·6	26·1	25·1	25·7	116·0
14 q	25·1	24·5	24·5	23·9	23·6	23·3	22·2	21·7	21·2	23·6	26·2	30·5	34·2	34·5	33·1	29·7	27·5	26·5	26·1	26·0	26·0	24·6	24·6	25·1	26·2	128·2
15	24·7	24·7	24·1	23·5	22·8	22·4	21·7	20·9	21·1	23·5	27·4	32·0	37·2	38·0	35·1	33·2	27·6	24·0	26·1	26·6	25·8	24·3	23·8	19·8	26·3	130·3
16	18·0	20·6	20·7	22·3	20·0	18·3	19·7	20·8	22·7	22·7	25·8	30·3	32·5	33·3	30·9	29·7	28·7	26·6	25·5	26·7	26·7	26·6	26·1	24·6	25·0	99·8
17	25·6	24·8	25·8	10·9	13·1	18·9	26·7	27·6	26·1	24·5	27·1	30·0	32·2	32·4	33·2	31·3	28·6	29·6	27·1	26·6	19·8	21·9	24·2	25·0	25·5	113·0
18	24·6	24·0	23·2	22·6	22·2	22·2	21·5	21·1	23·2	23·9	25·9	29·5	33·4	36·1	35·8	36·7	24·5	30·0	29·4	23·3	24·3	24·0	21·5	23·4	26·1	126·3
19 d	24·1	28·7	27·9	22·2	23·8	22·8	21·7	20·6	21·6	22·9	25·4	28·5	30·6	30·3	28·5	25·9	26·1	26·5	25·8	26·9	22·4	24·5	18·9	24·7	25·1	101·3
20	25·1	25·1	26·0	23·7	22·7	22·2	21·8	23·8	24·2	24·9	25·7	27·3	29·1	29·9	27·8	27·0	23·5	25·6	22·6	25·6	25·3	24·4	29·0	17·2	25·0	99·5
21	12·8	20·7	25·5	23·8	21·7	20·8	20·4	21·0	22·4	24·5	26·1	27·5	29·3	30·5	28·4	27·1	25·8	25·3	24·7	25·1	21·7	19·8	23·7	25·2	23·9	73·8
22 q	25·1	24·5	24·4	23·8	22·8	22·6	21·8	21·8	22·2	23·2	24·5	25·7	27·6	28·4	28·1	27·5	27·0	27·1	26·8	26·8	25·6	25·3	24·5	24·8	25·1	101·9
23 q	24·8	24·8	25·9	24·0	24·1	23·6	22·2	20·8	21·2	22·7	25·4	27·5	29·4	29·5	28·6	27·5	27·1	26·7	26·5	26·2	26·3	23·9	25·2	25·4	25·4	109·3
24 q	24·8	24·1	24·0	23·6	22·8	22·0	20·7	19·1	19·2	20·8	24·6	28·0	29·6	30·7	30·4	30·0	28·6	28·0	27·0	26·9	26·6	26·4	25·8	25·2	25·4	108·9
25	24·2	22·8	21·8	22·9	22·2	20·6	20·7	20·8	20·6	23·3	26·6	30·5	33·5	33·7	33·2	31·4	30·8	29·1	27·8	24·6	22·6	23·7	19·1	25·9	25·5	112·4
26	21·9	21·7	17·8	16·1	13·2	21·6	18·7	17·8	21·8	25·2	29·4	30·4	30·8	30·4	29·3	28·1	27·5	26·7	26·7	23·6	25·1	25·5	24·6	26·2	24·2	80·1
27 d	25·0	23·6	22·5	16·2	19·9	19·0	19·1	23·7	23·8	26·2	28·5	30·3	34·2	34·0	35·9	34·8	34·8	35·2	32·9	25·2	17·9	14·9	14·7	4·0	24·8	96·3
28 d	5·7	21·6	11·9	9·3	18·3	17·6	20·7	24·6	22·2	25·5	27·3	31·2	29·6	28·4	31·3	30·3	28·3	27·4	26·4	19·9	23·1	24·4	25·2	26·0	23·2	56·2
29	19·7	31·7	22·7	20·2	17·7	18·6	19·9	20·6	19·1	20·8	23·7	27·6	28·5	29·7	28·4	28·3	27·4	27·8	22·2	25·5	25·9	25·0	24·8	25·4	24·2	81·2
30	24·8	24·7	24·2	24·1	23·6	22·9	22·6	21·7	21·6	22·8	25·5	28·3	30·4	30·8	30·6	30·3	31·2	28·5	27·5	27·0	21·3	9·1	8·1	14·1	24·0	75·7
Mean	23·1	23·9	23·5	21·9	21·8	21·9	21·5	21·5	22·1	23·9	26·6	29·7	31·6	32·3	31·5	29·9	28·0	27·0	26·5	25·4	23·5	23·0	23·0	21·9	25·2	
Sum 600·0′+	92·6	116·1	104·5	55·5	53·4	56·0	44·7	44·7	61·7	118·2	199·1	289·7	348·7	370·4	344·1	298·5	241·0	211·0	194·1	162·9	106·0	90·9	91·5	56·2		Grand Total 18151·5

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

3 LERWICK (Z) — 47,000 (0·47 C.G.S. unit) + — APRIL 1964

	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	Sum 8000γ+
	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	γ
1 *d*	385	387	386	385	385	386	388	388	384	378	372	369	376	378	386	396	436	573	555	505	445	408	317	259	*401*	1627
2 *d*	293	340	350	367	378	394	391	395	402	402	400	400	405	404	410	408	420	422	432	416	364	317	316	317	381	1143
3	292	263	297	309	318	338	363	383	388	391	390	388	400	404	410	402	399	404	400	390	386	389	382	353	368	839
4	335	313	350	349	355	370	369	379	383	382	381	378	378	379	385	399	409	410	400	392	389	382	365	367	375	999
5	363	367	367	371	368	360	371	375	378	377	378	370	371	377	383	387	385	382	382	388	400	365	334	344	373	943
6	374	379	382	381	379	379	384	388	386	384	382	380	379	380	383	386	382	381	386	386	389	389	383	331	381	1133
7	311	346	362	363	366	369	370	375	374	374	373	374	373	377	381	382	392	391	392	408	432	399	384	373	377	1041
8	378	365	374	377	378	379	381	384	382	386	394	386	385	384	380	388	389	388	386	386	394	384	378	383	383	1189
9	378	365	357	357	367	375	372	374	377	381	381	380	380	381	389	398	400	399	391	389	389	386	384	384	381	1134
10	386	384	386	385	383	382	382	381	381	382	384	382	378	382	388	385	383	383	383	381	379	380	380	379	382	1179
11	382	384	388	384	381	381	381	380	378	377	373	380	389	400	398	417	426	434	438	419	392	379	379	380	393	1420
12 *q*	382	387	389	389	389	388	389	386	382	373	370	371	374	380	384	389	389	389	389	382	380	379	381	383	383	1194
13	382	384	381	381	384	389	384	381	378	373	368	370	370	371	373	378	378	381	381	376	374	372	373	374	377	1056
14 *q*	377	380	381	382	382	381	380	380	380	374	372	372	373	377	382	382	383	381	380	379	377	375	375	373	378	1078
15	373	375	378	380	381	382	382	381	379	377	372	371	366	371	372	385	411	418	409	399	393	382	372	307	380	1116
16	316	333	351	353	360	369	374	375	371	368	365	363	363	371	372	377	383	393	398	390	384	381	374	372	369	856
17	365	344	278	287	304	338	352	336	348	363	366	371	371	373	389	417	418	400	401	399	391	381	377	380	365	749
18	380	380	380	381	381	380	373	374	373	372	370	373	373	362	382	407	476	452	445	436	398	370	362	322	388	1302
19 *d*	306	293	318	337	368	374	376	380	382	389	384	382	390	394	398	411	416	395	388	386	383	347	342	353	371	892
20	354	360	360	365	370	374	374	373	383	380	381	382	379	373	375	381	398	402	398	389	383	373	337	291	372	935
21	308	306	329	355	370	374	375	374	373	376	381	380	374	376	385	383	382	381	384	389	383	376	373	378	369	865
22 *q*	384	385	385	385	385	384	382	381	381	380	374	369	370	373	375	375	380	383	382	383	383	381	383	377	380	1120
23 *q*	384	383	375	376	380	378	377	377	378	378	376	374	369	372	374	375	376	376	376	377	376	380	382	382	377	1051
24 *q*	382	384	384	384	385	383	383	381	379	379	374	367	367	368	369	375	377	377	377	376	376	376	376	376	377	1055
25	379	372	375	377	379	377	375	369	366	366	359	364	368	370	380	384	393	394	385	397	396	372	349	325	374	971
26	331	354	351	348	350	331	336	349	350	350	358	364	367	375	377	385	390	394	395	395	386	385	377	366	365	764
27 *d*	349	357	351	351	363	370	375	365	358	359	359	359	365	374	383	424	478	515	524	461	312	305	330	267	377	1054
28 *d*	237	130	142	248	287	292	335	346	358	375	375	379	415	420	403	403	394	387	392	404	399	385	344	291	*339*	141
29	265	219	231	292	317	339	345	358	366	375	374	374	375	384	395	393	396	396	401	393	386	384	382	377	355	517
30	374	378	383	384	385	386	386	385	384	382	376	373	373	375	378	381	385	402	418	407	408	353	255	172	370	883
Mean	350	347	351	359	366	370	373	375	376	377	375	375	377	380	385	392	401	*406*	406	399	388	375	361	*345*	375	
Sum 10,000γ+	505	397	521	783	978	1102	1205	1253	1282	1303	1262	1245	1316	1405	1539	1753	2024	2183	2168	'1978	1627	1235	846	336		Grand Total 270,246

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH HOUSE

4 LERWICK — APRIL 1964

	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph house 200°A+
1 *d*	0001 3777	25	0001 3777	25	0001 2557	20	0001 1557	19	2	86·3
2 *d*	5222 2443	24	5222 1443	23	4221 2343	21	5211 1242	18	1	86·4
3	3412 2333	21	3412 2322	19	3211 2333	18	3321 2123	17	1	86·2
4	3111 1213	13	1111 1213	11	3110 1103	10	3221 1222	15	1	86·2
5	2211 1124	14	2201 1122	11	2211 1024	13	1111 1124	12	1	86·3
6	1111 0112	8	1100 0112	6	1111 0002	6	1100 1104	8	1	86·4
7	2120 2232	14	1020 2222	11	2110 1131	10	3110 1132	12	1	86·1
8	3122 2133	17	2112 2110	10	3121 1033	14	2011 1111	8	1	86·0
9	1211 2100	8	1201 2100	7	1210 0100	5	2211 1100	8	1	86·1
10	0002 1000	3	0002 1000	3	0000 0000	0	0001 1000	2	0	87·0
11	0112 4331	15	0012 4311	12	0111 2331	12	0102 2331	12	1	86·8
12 *q*	0010 0101	3	0000 0101	2	0010 0000	1	0000 1001	2	0	86·6
13	1000 0211	5	0000 0211	4	1000 0000	1	1000 0110	3	0	86·7
14 *q*	0001 2001	4	0001 2000	3	0001 0001	2	0000 1000	1	0	86·3
15	0012 3313	13	0012 3113	11	0001 2313	10	0001 1214	9	1	86·2
16	2221 2211	13	2211 2210	11	2221 1211	12	3100 1220	9	1	86·2
17	3331 1333	20	3331 1322	18	3331 1133	18	4331 2321	19	1	86·5
18	0012 4433	17	0012 4433	17	0011 2433	14	0002 2434	15	1	86·5
19 *d*	3213 2334	21	3113 2313	17	3212 1234	18	3311 1312	15	1	86·7
20	2132 1234	18	2132 1232	16	2121 1234	16	1111 1224	13	1	86·7
21	3111 1232	14	2101 1232	12	3110 1032	11	2201 1121	10	1	86·6
22 *q*	0000 0001	1	0000 0000	0	0000 0001	1	0000 0000	0	0	86·9
23 *q*	1110 0011	5	1000 0010	2	1110 0001	4	1000 0001	2	0	86·8
24 *q*	0001 1111	5	0001 1111	5	0000 0000	0	0000 0001	1	0	86·7
25	1112 3234	17	1102 3223	14	1111 1134	13	1100 1124	10	1	86·4
26	2321 1221	14	2221 1211	12	2321 1121	13	3322 1011	13	1	86·1
27 *d*	2222 3455	25	1122 3454	22	2221 2455	23	1111 2564	21	2	86·7
28 *d*	6333 3233	26	6333 3223	25	5332 2133	22	5432 3224	25	2	87·0
29	4211 2231	16	4201 2230	14	4111 1131	13	4321 2120	15	1	86·9
30	0000 1335	12	0000 1335	12	0000 0234	9	0000 1236	12	2	87·0
								Mean	0·90	86·5

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

1 LERWICK (H) 14,000γ (0·14 C.G.S. unit) + MAY 1964

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	Sum 14,000γ+
	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	γ
1 d	445	443	537	625	622	618	611	599	595	598	594	588	627	619	626	632	649	650	643	643	640	641	638	643	*605*	526
2	630	630	623	625	629	627	600	571	593	600	600	607	617	625	631	637	628	634	639	645	643	639	634	614	622	921
3	629	627	632	638	634	629	623	613	601	600	604	606	615	621	628	635	639	641	643	647	643	642	647	636	628	1073
4	634	632	633	634	633	630	626	625	618	610	607	608	618	626	632	642	647	651	652	645	642	641	644	645	632	1175
5	650	652	655	655	652	648	631	629	622	613	601	614	629	637	632	632	639	640	641	642	642	639	636	636	636	1267
6	636	636	636	636	636	633	633	628	625	618	611	615	620	622	632	639	647	654	656	648	642	641	641	640	634	1225
7 q	640	639	637	634	633	634	634	629	620	619	624	628	631	636	636	636	636	640	645	646	644	644	643	641	635	1249
8 q	641	640	638	637	637	635	632	630	626	620	619	622	629	639	640	637	640	645	648	647	649	648	649	648	637	1296
9 q	647	646	645	643	642	639	637	636	631	628	628	632	633	640	639	645	648	650	651	652	648	647	645	645	642	1397
10	649	655	657	654	654	651	645	639	633	622	624	634	653	655	649	686	660	676	702	670	610	521	452	410	628	1061
11	443	534	539	553	601	572	597	604	610	622	622	615	618	619	625	629	643	646	654	654	645	643	640	641	607	569
12 q	636	635	634	632	632	632	631	628	621	615	613	617	621	626	628	636	645	650	651	647	645	641	640	640	633	1196
13	639	636	636	637	638	637	633	626	617	608	609	615	629	654	672	640	638	681	678	700	676	640	636	640	*642*	1415
14 d	644	640	637	640	641	632	618	613	589	586	607	620	628	627	703	739	667	659	657	653	650	649	647	637	641	1383
15 d	641	634	633	538	450	604	597	614	607	595	599	606	618	623	644	639	656	656	654	655	647	638	645	586	616	779
16	561	626	628	628	608	633	635	613	564	584	600	612	626	633	637	651	645	654	664	670	657	645	642	640	627	1056
17	643	640	638	637	637	633	619	611	605	589	605	615	619	630	645	650	634	637	649	647	655	650	632	632	631	1152
18	634	635	636	636	633	629	625	625	615	604	599	614	618	623	630	634	641	643	647	651	653	647	644	641	632	1157
19	637	639	640	635	635	636	633	628	616	607	611	620	628	633	636	646	647	667	651	647	647	645	641	638	636	1263
20 q	633	633	635	637	637	636	631	625	616	615	618	617	625	636	652	647	651	642	645	651	649	646	644	643	636	1264
21	641	637	639	638	634	627	626	622	618	618	612	616	623	640	639	646	655	666	655	659	655	651	648	643	638	1308
22	642	643	641	643	642	636	627	621	619	622	618	620	629	641	641	644	651	662	666	662	661	658	655	655	642	1399
23	651	647	647	637	630	633	626	621	616	614	612	611	616	628	630	635	652	659	664	664	664	664	673	673	640	1367
24 d	644	640	645	630	617	638	624	610	606	586	603	607	622	622	652	672	665	681	664	668	648	641	650	630	636	1265
25 d	635	638	638	640	639	639	632	625	593	526	582	622	624	631	648	676	677	692	691	681	658	644	640	627	637	1298
26	622	626	627	632	632	625	615	610	608	611	611	616	626	636	631	628	644	642	655	653	653	651	647	647	631	1148
27	645	640	631	632	634	629	603	600	614	617	603	608	623	650	636	639	647	648	662	668	658	651	651	647	635	1236
28	636	636	632	624	626	634	633	624	614	603	604	618	632	637	649	665	648	662	675	662	652	650	644	644	638	1304
29	640	639	636	624	628	633	630	622	611	606	600	600	602	620	639	657	666	664	665	656	648	648	651	641	634	1226
30	636	638	635	640	641	636	635	629	623	615	604	608	613	619	615	627	643	659	663	667	658	656	650	651	636	1261
31	647	644	641	631	637	640	638	633	622	615	614	618	628	628	641	645	655	661	659	659	655	652	654	652	640	1369
Mean	624	628	631	630	627	631	625	619	612	*606*	608	615	624	631	640	647	649	655	*658*	657	650	642	639	633	633	
Sum 18,000γ+	1351	1480	1561	1525	1444	1558	1380	1203	968	786	858	1049	1340	1576	1838	2066	2103	2312	2389	2359	2137	1913	1803	1606		Grand Total 470,605

GEOMAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

2 LERWICK (D) 9° + MAY 1964

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	Sum 400·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1 d	22·3	8·4	15·6	21·2	19·0	20·1	21·5	20·9	22·3	22·9	24·4	26·8	28·8	30·1	31·7	30·2	23·7	24·6	27·5	27·4	26·0	25·0	25·1	23·3	23·7	168·8
2	22·5	23·2	23·3	24·7	22·2	21·1	21·2	26·7	27·9	27·8	28·4	29·0	30·3	30·4	28·1	25·4	26·1	25·6	25·7	25·6	25·2	21·0	20·5	25·4	25·3	207·3
3	22·3	21·1	21·1	18·4	20·6	20·6	20·3	20·6	22·4	24·9	27·0	29·9	30·7	30·3	28·7	27·0	26·4	26·0	24·5	23·7	25·1	25·1	24·4	23·6	24·4	184·7
4	24·0	24·4	24·5	22·3	22·3	21·6	21·5	20·9	21·1	23·3	25·2	26·5	28·4	29·1	27·5	26·9	26·4	26·4	26·4	25·4	26·2	26·0	25·1	23·7	24·8	195·1
5	26·8	23·6	21·1	21·2	21·7	22·0	22·3	23·6	23·2	24·7	26·6	29·9	30·6	28·2	29·0	27·1	25·4	25·0	25·0	24·9	25·7	25·9	25·8	25·1	25·2	204·4
6	25·1	24·4	23·8	22·8	21·7	21·0	20·6	21·7	22·9	24·2	25·5	26·4	27·5	27·5	27·3	27·3	27·5	27·1	26·2	25·8	25·1	25·9	25·5	24·6	24·9	197·4
7 q	24·9	25·1	24·9	25·2	24·3	21·6	21·7	22·2	23·8	25·5	26·9	29·1	28·7	27·8	27·0	26·1	26·1	26·0	25·9	25·8	25·9	25·8	25·5	25·0	25·5	210·8
8 q	24·8	24·5	23·9	23·1	22·1	21·0	21·2	21·5	22·2	23·8	25·5	28·0	29·1	29·1	27·9	26·7	26·9	27·0	27·1	26·9	26·5	26·1	25·9	25·4	25·3	206·2
9 q	25·0	24·6	23·5	22·8	21·2	20·7	21·0	21·4	22·9	24·5	26·2	28·0	29·7	29·5	28·8	28·0	27·1	27·8	27·9	27·6	27·1	26·3	25·6	25·0	25·5	212·2
10	25·1	23·9	24·4	22·1	21·0	19·1	18·6	19·6	21·5	24·4	26·6	29·4	31·3	32·0	31·6	34·4	32·4	32·1	30·5	22·9	16·9	8·8	-5·6	4·2	22·8	147·2
11	-7·5	-0·7	-3·4	23·0	13·9	12·0	16·1	17·3	23·2	26·0	27·9	28·4	28·0	27·6	27·7	28·1	27·9	27·0	26·3	25·3	25·1	23·7	24·0	23·0	*20·4*	89·9
12 q	23·4	23·8	23·0	22·6	21·5	21·0	21·1	21·0	21·9	24·3	26·1	28·0	29·5	29·9	28·3	26·4	25·5	25·1	25·1	25·0	24·9	24·8	24·4	24·6	24·6	191·2
13	24·1	23·8	23·5	22·8	21·3	20·3	19·8	19·3	20·3	22·5	25·8	29·2	32·4	33·1	34·5	35·0	32·5	34·2	30·9	26·0	18·4	19·7	21·2	23·4	25·6	214·0
14 d	22·9	22·5	22·2	22·0	19·7	17·4	16·4	19·3	22·2	26·0	29·0	29·4	31·0	32·2	35·2	25·7	30·3	30·8	29·8	28·1	27·4	26·0	26·5	25·5	*25·7*	217·5
15 d	24·3	24·2	24·8	24·4	27·7	22·9	23·5	19·6	21·7	25·1	25·1	27·6	29·1	29·2	29·7	26·1	26·2	28·9	28·5	27·2	25·1	24·3	23·1	17·8	25·3	206·1
16	28·4	18·2	21·0	21·1	19·2	19·8	20·1	21·0	22·8	26·0	27·4	28·7	30·9	28·8	30·0	29·0	27·2	27·6	27·3	20·1	21·3	27·0	26·3	25·3	24·8	194·5
17	24·7	25·3	23·4	22·2	21·2	20·5	19·8	20·5	22·3	24·5	27·2	30·0	31·5	30·8	28·0	26·4	27·1	26·3	26·3	26·9	26·2	21·4	20·4	23·1	24·8	196·0
18	24·7	23·9	23·3	22·3	21·4	21·1	21·3	21·1	21·3	22·8	25·5	26·1	27·8	27·7	27·2	27·1	27·2	26·4	26·2	26·2	26·1	25·9	25·3	24·7	24·7	192·6
19	24·2	24·1	23·4	23·8	23·9	21·8	20·7	20·6	21·4	23·4	25·9	28·0	30·1	30·0	29·2	28·2	27·3	27·0	24·2	25·2	26·2	26·1	24·1	23·8	25·1	202·6
20 q	24·0	24·0	23·9	22·6	20·7	19·2	18·1	17·9	20·0	22·8	26·3	27·9	28·5	28·3	27·3	26·3	26·0	26·0	26·1	26·3	26·2	26·1	25·6	25·1	24·4	185·2
21	24·4	24·3	24·2	23·3	22·4	21·2	20·8	21·2	22·2	24·3	26·4	30·1	31·4	31·8	29·8	28·5	28·0	27·9	26·3	26·4	24·6	25·4	26·3	23·3	25·6	214·5
22	24·4	23·8	23·3	22·1	20·4	18·5	18·0	19·4	21·8	23·9	26·8	29·0	29·9	29·8	27·9	27·8	28·0	28·5	28·2	28·0	26·1	24·3	24·1	23·4	24·9	197·4
23	23·2	23·6	22·8	22·6	22·3	19·4	19·6	19·4	21·2	23·9	27·0	29·7	30·0	30·3	29·9	28·3	27·2	26·5	26·4	26·3	26·8	26·2	27·0	27·5	25·3	207·1
24 d	18·3	10·7	13·6	12·7	13·2	8·8	14·1	15·4	19·3	23·8	27·8	32·9	35·0	34·9	31·1	32·9	30·7	27·8	27·1	22·7	25·3	23·2	22·0	25·2	22·9	148·5
25 d	21·7	23·2	23·3	21·7	20·3	19·0	20·1	18·7	18·8	24·0	30·9	29·6	31·4	32·1	32·1	26·2	29·8	29·1	26·6	23·3	24·1	24·3	25·9	26·3	25·1	202·5
26	26·3	23·8	23·8	22·2	21·1	19·8	20·2	20·2	20·6	23·8	26·6	28·9	29·4	29·9	28·8	28·8	28·1	26·6	26·4	25·7	24·9	24·9	25·2	25·1	25·0	201·1
27	25·2	23·9	20·7	17·3	17·1	16·2	21·2	27·2	26·2	26·0	28·1	30·9	30·9	29·9	27·7	27·1	27·7	28·4	28·0	27·0	26·6	25·9	22·4	23·6	25·2	205·2
28	23·4	22·7	24·2	24·9	23·1	20·6	19·4	20·6	22·2	25·3	28·2	30·4	30·7	30·3	30·0	30·3	27·8	28·1	29·0	25·7	25·2	25·2	22·0	21·1	25·4	210·4
29	24·0	23·4	23·4	24·4	24·0	19·9	19·3	20·3	21·0	22·2	23·5	24·9	27·4	28·8	28·9	28·1	27·4	27·1	26·0	26·1	25·5	25·2	21·8	18·9	24·2	181·5
30	22·5	22·3	22·0	20·5	20·1	19·4	19·3	20·1	21·0	22·3	25·0	28·8	31·3	33·1	32·4	30·3	28·4	27·2	26·9	25·4	25·9	26·1	26·8	22·4	25·0	199·5
31	23·9	24·3	24·0	24·3	22·3	19·3	18·4	19·5	21·2	23·8	26·1	28·7	30·0	30·0	29·6	28·2	27·1	26·2	26·0	25·9	25·5	25·1	25·1	25·2	25·0	199·7
Mean	23·0	21·9	21·8	22·1	21·1	*19·6*	19·9	20·6	22·0	24·3	26·6	28·7	30·0	*30·1*	29·5	28·2	27·6	27·4	26·9	25·6	25·1	24·4	23·5	23·3	24·7	
Sum 600·0′+	113·3	78·3	76·5	86·6	52·9	6·9	17·2	38·7	82·8	152·7	224·9	290·2	331·3	332·5	312·9	273·9	255·4	250·3	234·3	194·8	177·1	156·7	127·3	123·6	25·1	Grand Total 18391·1

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

3 LERWICK (Z) 47,000γ (0·47 C.G.S. unit) + MAY 1964

Day	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	Sum 8000γ+
	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	γ
1 *d*	80	161	177	290	361	383	387	393	389	390	390	395	411	405	393	392	413	421	403	395	391	384	385	369	357	558
2	364	370	377	375	382	386	386	382	366	367	368	374	375	382	391	398	392	386	383	383	386	377	369	354	378	1073
3	322	341	346	354	370	378	384	385	385	378	375	371	369	377	379	384	390	391	391	391	388	386	378	378	375	991
4	378	381	380	382	384	383	384	380	377	377	372	367	365	368	373	377	383	384	386	391	390	387	384	382	380	1115
5	366	359	370	376	378	373	378	377	379	376	378	370	382	396	395	396	393	391	391	392	391	388	389	388	382	1172
6	386	385	385	385	385	383	378	381	378	374	372	368	366	371	374	376	378	379	387	394	394	389	386	386	381	1140
7 *q*	385	384	383	378	369	367	371	370	372	373	368	372	375	381	384	385	384	383	387	388	387	387	386	387	379	1106
8 *q*	387	387	387	387	386	384	382	377	371	368	366	365	365	366	374	376	377	379	378	378	381	382	383	384	378	1070
9 *q*	387	387	386	386	385	384	383	382	376	372	374	374	374	375	376	386	396	396	392	385	385	384	384	385	383	1194
10	385	384	383	385	384	383	381	375	367	370	367	365	365	381	402	415	479	477	472	459	406	358	312	215	386	1270
11	162	179	174	160	190	273	329	365	370	375	377	382	384	391	394	400	398	396	390	389	391	389	387	382	*334*	27
12 *q*	384	387	391	390	390	386	382	378	377	375	376	375	374	382	390	392	392	391	390	389	387	385	384	384	385	1231
13	386	389	391	392	393	393	393	390	384	375	364	356	354	363	377	419	406	375	381	403	450	390	377	379	387	1280
14 *d*	375	380	386	388	391	391	385	377	375	370	363	366	368	384	398	515	459	417	409	417	405	396	368	355	*393*	1438
15 *d*	361	381	377	314	197	264	329	356	366	366	367	375	377	382	386	414	414	400	384	381	383	382	364	318	360	638
16	237	271	325	346	334	343	355	364	381	373	370	370	373	398	387	382	387	383	385	403	393	377	373	362	361	672
17	362	359	369	372	374	372	377	381	374	383	375	370	380	389	401	412	397	385	384	386	386	384	372	367	380	1111
18	372	377	379	382	383	385	384	383	379	378	371	367	370	372	377	378	379	379	382	381	383	387	385	386	379	1099
19	384	379	379	380	377	376	378	380	383	380	372	364	364	368	370	373	379	380	396	393	387	386	386	385	379	1099
20 *q*	383	383	382	381	382	379	380	380	376	371	369	367	365	368	376	383	389	397	388	384	384	383	384	385	380	1119
21	385	386	384	384	386	385	382	382	378	371	373	369	372	373	372	374	379	382	390	385	387	385	380	379	380	1123
22	380	383	385	384	384	382	382	378	369	366	372	371	371	375	383	381	376	374	375	378	378	376	374	372	377	1049
23	375	378	380	382	376	372	373	375	372	364	363	364	366	372	379	380	379	381	378	376	376	375	369	346	373	951
24 *d*	312	310	347	316	262	285	332	345	359	364	355	364	381	397	403	410	427	425	420	399	388	383	348	326	361	658
25 *d*	337	363	375	382	385	382	383	382	382	409	375	374	373	375	398	438	435	431	420	390	366	389	379	351	386	1274
26	294	335	361	378	384	388	390	386	382	373	371	368	373	382	394	387	387	392	389	389	386	385	382	381	377	1037
27	375	369	352	351	361	365	363	355	347	356	372	369	369	382	397	396	401	397	389	390	391	385	369	356	373	957
28	371	376	380	379	373	375	380	383	383	383	376	373	375	376	381	391	409	399	392	402	399	387	371	366	383	1180
29	374	380	382	383	375	379	384	385	380	368	364	364	369	375	383	386	391	390	390	390	385	383	375	372	379	1107
30	372	371	374	375	378	383	383	383	375	371	369	364	363	372	376	378	384	384	385	389	390	383	365	313	374	980
31	354	367	374	376	375	382	382	379	378	366	363	364	365	365	368	373	373	377	379	378	378	375	373	372	372	936
Mean	*348*	356	362	364	362	369	375	377	375	374	371	370	372	379	385	395	*398*	394	393	392	389	383	375	363	376	
Sum 10,000γ+	775	1042	1221	1293	1234	1444	1640	1689	1630	1582	1487	1457	1533	1743	1931	2247	2326	2222	2166	2148	2072	1887	1621	1265		Grand Total 279,655

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH HOUSE

4 LERWICK MAY 1964

Day	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph house 200°A+
1 *d*	6222 2312	20	6222 2211	18	5221 1312	17	5512 2222	21	2	87·1
2	2231 2213	16	1231 2212	14	2221 1103	12	2121 1213	13	1	87·0
3	2101 1011	7	2001 1011	6	2101 0011	6	2200 1001	6	1	86·6
4	0000 1000	1	0000 1000	1	0000 0000	0	0000 0000	0	0	87·0
5	2212 2010	10	0112 2010	7	2212 2000	9	2111 2000	7	1	87·0
6	0001 1220	6	0001 1220	6	0000 0000	0	0000 1010	2	1	87·0
7 *q*	0100 0000	1	0000 0000	0	0100 0000	1	0100 0000	1	0	87·0
8 *q*	0000 0000	0	0000 0000	0	0000 0000	0	0000 0000	0	0	87·0
9 *q*	0000 0100	1	0000 0100	1	0000 0000	0	0000 0000	0	0	87·0
10	2121 3356	23	2111 3356	22	2120 1344	17	1110 3445	19	2	87·0
11	6530 0211	18	6430 0210	16	5530 0001	14	4530 0100	13	2	87·1
12 *q*	0000 0000	0	0000 0000	0	0000 0000	0	0000 0000	0	0	87·2
13	0000 3443	14	0000 3432	12	0000 1243	10	0001 2343	13	1	87·1
14 *d*	1121 5522	19	1121 5522	19	1121 2312	13	1011 3523	16	2	87·1
15 *d*	2632 3225	25	2632 3215	24	1432 1223	18	2532 1214	20	2	87·0
16	4333 2241	22	4333 2221	20	3222 2141	17	4230 2131	16	1	87·0
17	2122 3212	15	0012 3212	11	2121 3102	12	1110 3212	11	1	87·2
18	0112 2000	6	0112 2000	6	0111 1000	4	0000 0000	0	0	87·2
19	1111 0221	9	0101 0220	6	1110 0011	5	0110 0011	4	0	87·1
20 *q*	0000 2110	4	0000 2110	4	0000 0000	0	0000 1000	1	0	87·2
21	0111 2212	10	0001 2211	7	0110 1012	6	0001 1101	4	1	87·6
22	0111 2110	7	0001 2100	4	0110 0010	3	0101 1100	4	0	87·7
23	1101 1113	9	0101 1113	8	1100 0002	4	1101 0102	6	1	87·9
24 *d*	3433 3333	25	3323 3332	22	3432 2233	22	3432 2233	22	1	88·0
25 *d*	1044 3442	22	1044 3432	21	1023 2342	17	3023 3344	22	2	87·8
26	2110 2210	9	2010 2210	8	2110 1100	6	4000 2100	7	1	88·0
27	2132 3212	16	1122 3212	14	2131 1112	12	2122 2213	15	1	88·2
28	1101 1322	11	0101 1322	10	1100 0122	7	1101 1222	10	1	88·3
29	1211 2112	11	0201 2112	9	1210 0002	6	1110 1001	5	1	88·7
30	1001 2123	10	1001 2122	9	1000 0013	5	1000 1004	6	1	88·7
31	1210 1000	5	0100 1000	2	1210 0000	4	2101 0000	4	0	88·1
								Mean	0·87	87·4

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

1 LERWICK (H) — 14,000γ (0·14 C.G.S. unit) + — JUNE 1964

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	Sum 14,000γ+
	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	γ
1	650	648	647	645	640	642	639	634	625	616	612	610	627	627	638	644	654	661	662	663	664	660	658	646	642	1412
2	643	642	642	642	642	639	634	628	621	610	607	613	621	625	628	637	645	656	672	668	667	660	653	651	639	1346
3 q	651	650	646	644	648	648	640	630	623	613	608	614	620	624	639	654	659	662	662	657	657	653	654	653	642	1409
4	649	647	650	650	650	645	637	629	619	615	620	625	621	627	645	637	654	653	660	660	654	650	646	646	641	1389
5 q	643	641	640	645	646	644	639	632	626	620	617	617	621	626	630	645	645	654	660	657	654	650	648	646	639	1346
6 q	646	648	650	651	651	649	643	634	620	605	606	605	628	623	622	636	648	653	654	654	654	650	648	643	638	1321
7	644	643	643	646	644	638	630	624	617	611	617	627	639	646	641	641	646	650	657	672	666	668	663	659	643	1432
8	660	646	643	649	650	646	635	623	608	622	632	645	646	647	638	637	643	657	669	672	664	657	650	649	645	1488
9	645	645	642	643	642	629	627	632	636	633	628	640	643	635	657	650	645	644	658	658	658	665	675	676	*646*	1506
10 d	682	685	679	635	537	406	468	583	634	613	590	615	600	650	600	601	624	642	654	673	654	649	637	621	*614*	732
11 d	620	620	543	598	642	634	623	602	600	592	594	615	614	623	620	658	668	668	657	657	655	655	650	644	627	1052
12 d	637	634	619	613	639	646	633	622	618	617	613	604	607	619	631	646	654	669	664	657	649	648	639	617	633	1195
13	619	624	631	626	614	625	618	617	614	607	598	608	617	621	628	641	649	652	656	656	660	650	649	646	630	1126
14	642	641	642	640	626	621	625	619	607	600	603	606	603	606	622	641	653	655	660	665	658	658	654	639	633	1186
15	644	642	640	638	646	646	641	631	623	623	623	616	621	629	637	645	655	661	665	663	659	656	655	646	642	1405
16 q	642	635	639	643	646	642	635	632	631	621	613	613	617	626	632	641	649	657	661	661	656	646	644	641	638	1323
17	640	638	637	638	642	637	637	635	631	629	625	623	621	615	631	644	654	663	666	666	660	653	648	646	641	1379
18	643	643	644	646	649	650	644	634	625	620	617	617	623	642	640	660	669	672	677	681	668	648	639	644	646	1495
19	647	642	641	642	639	635	627	623	621	616	610	617	625	631	639	646	657	669	668	672	664	650	635	635	640	1351
20 d	621	622	602	635	650	642	633	625	615	608	607	621	623	597	656	642	647	655	665	684	662	650	650	648	636	1260
21 d	648	645	631	640	642	639	636	628	624	607	625	622	625	627	631	636	643	650	677	691	659	651	645	642	640	1364
22	642	642	641	642	642	642	640	636	630	617	611	614	620	637	653	650	657	671	672	667	660	653	655	644	643	1438
23	637	639	645	641	638	631	633	635	631	617	610	613	607	632	641	635	646	657	657	657	661	657	639	635	637	1294
24	638	635	636	640	640	637	631	622	615	612	610	616	627	635	642	647	654	654	675	672	668	652	643	641	639	1342
25	634	646	643	633	635	641	614	594	596	614	618	621	626	636	636	648	656	663	660	657	654	650	646	644	636	1265
26	641	640	638	642	639	630	626	621	616	616	617	623	634	643	660	654	659	653	657	656	655	651	645	643	640	1359
27	639	635	636	638	638	635	629	628	626	617	611	620	634	647	654	634	643	647	656	664	661	662	651	648	640	1353
28	646	646	646	644	642	641	634	627	620	614	613	624	639	628	657	668	694	688	664	657	648	641	638	641	644	1460
29	640	640	640	635	635	635	633	627	621	607	614	624	631	639	645	633	645	656	660	659	657	652	649	647	639	1324
30 q	646	645	644	644	642	641	634	628	622	619	617	623	623	625	638	645	650	654	660	660	657	654	653	653	641	1377
Mean	643	642	637	639	638	631	627	625	621	614	*613*	618	623	630	638	643	652	658	663	*665*	659	653	649	645	639	
Sum 18,000γ+	1279	1249	1120	1168	1136	936	818	735	615	431	386	551	703	888	1131	1296	1565	1746	1885	1936	1763	1599	1459	1334		Grand Total 459,729

GEOMAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

2 LERWICK (D) — 9° + — JUNE 1964

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	Sum 500·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	24·9	24·0	22·8	21·7	19·1	18·3	17·6	19·0	21·6	23·5	26·1	28·4	30·5	31·9	31·6	30·6	29·5	28·3	27·9	27·3	27·3	26·0	24·0	24·1	25·3	106·0
2	24·3	23·7	23·2	22·9	21·5	20·6	19·6	19·8	21·0	23·4	25·7	26·7	27·9	27·8	27·8	27·9	27·8	27·9	28·2	27·2	24·7	25·2	25·7	24·9	24·8	95·4
3 q	24·5	23·6	23·4	23·0	23·3	21·1	20·8	20·1	20·9	22·5	26·1	29·7	31·2	30·5	28·3	26·6	25·8	26·4	27·8	27·4	26·8	26·1	26·1	26·0	25·3	108·0
4	24·7	24·0	24·0	22·6	20·5	19·3	18·9	18·8	20·9	23·3	25·0	28·1	30·2	30·3	30·6	28·0	26·1	25·2	26·0	26·1	26·3	26·3	25·2	25·5	24·8	95·9
5 q	24·9	24·9	24·7	23·7	21·9	20·8	20·5	21·2	22·0	24·2	26·5	28·9	29·9	28·7	27·8	27·5	26·1	25·6	25·7	25·8	26·1	26·5	26·4	25·8	25·3	106·1
6 q	24·9	24·9	23·8	23·2	20·9	18·9	18·2	19·0	20·2	24·2	28·3	32·1	32·8	32·7	30·0	26·9	25·0	24·8	24·7	25·5	25·9	25·9	25·3	24·9	25·1	103·0
7	25·4	24·0	23·2	22·3	20·9	19·5	19·0	19·8	21·1	23·9	27·4	30·0	30·6	30·0	28·9	26·9	26·8	26·6	26·1	28·0	28·0	26·7	20·9	22·1	24·9	98·1
8	22·1	20·1	20·0	20·9	20·3	20·3	17·9	17·6	23·1	28·9	29·7	30·1	32·2	31·1	30·4	30·0	28·6	28·2	27·8	27·9	23·2	26·0	25·4	25·1	25·3	106·9
9	23·5	21·9	20·7	19·7	19·1	16·7	17·6	19·1	22·4	24·8	27·9	30·1	31·7	33·3	34·5	34·0	30·5	27·3	27·0	27·1	26·4	26·0	26·2	26·1	*25·6*	113·6
10 d	26·8	27·2	26·3	34·0	23·6	28·8	16·6	23·6	17·4	21·6	27·2	24·6	28·6	27·2	27·6	28·3	27·2	25·8	25·5	22·3	28·7	24·8	20·1	25·5	25·4	109·3
11 d	19·6	20·1	17·5	18·2	18·3	19·3	19·6	19·1	20·8	21·0	25·7	26·2	29·0	30·7	29·3	29·0	27·0	24·8	26·6	26·8	26·8	16·8	21·5	23·3	23·2	57·0
12 d	23·8	24·8	28·1	22·6	20·5	21·8	19·9	19·4	19·3	18·1	19·9	24·6	28·8	30·3	31·9	31·3	29·3	25·6	23·0	24·8	24·9	20·7	18·5	19·8	23·8	71·7
13	25·7	25·1	23·1	22·5	23·6	21·0	20·0	21·5	21·4	22·3	23·7	26·9	28·9	30·3	30·0	28·9	27·5	27·1	26·9	26·5	25·4	23·0	24·5	23·0	24·9	98·8
14	22·1	21·6	22·0	22·6	23·3	23·5	22·1	20·0	19·9	22·3	25·0	27·0	27·6	28·4	28·3	27·8	27·0	26·8	27·2	27·8	26·5	25·2	25·2	27·9	24·9	97·1
15	24·7	21·0	21·0	21·6	19·2	17·3	18·4	20·2	21·5	23·2	24·6	26·4	28·1	28·2	27·9	28·9	27·9	27·3	26·5	26·9	26·9	25·7	24·6	24·5	24·3	82·5
16 q	25·9	25·8	24·0	21·8	19·5	18·8	19·0	20·7	21·4	22·5	23·8	23·8	25·6	26·9	27·7	27·1	26·0	26·0	26·0	25·5	25·6	26·0	25·7	24·9	24·2	80·0
17	24·2	23·4	23·2	22·3	20·6	19·6	20·0	20·0	20·3	21·2	22·9	24·6	26·9	28·0	28·4	27·4	26·3	25·3	25·1	25·0	25·0	25·2	24·5	24·2	23·9	73·6
18	23·9	24·1	22·5	21·0	19·7	18·6	18·1	18·5	19·3	21·4	23·5	26·4	29·1	31·9	32·1	31·4	30·1	28·8	28·8	25·7	26·6	23·2	20·0	22·1	24·5	86·8
19	23·0	21·6	21·6	21·2	20·7	20·2	20·4	20·9	20·9	22·2	23·9	26·9	29·9	30·8	31·0	29·4	28·9	28·3	26·6	27·5	27·3	25·1	22·2	17·3	24·5	87·8
20 d	16·2	13·3	12·6	16·7	15·7	14·8	15·2	16·7	19·1	21·6	23·2	25·3	27·9	31·7	31·8	32·7	31·5	29·8	26·6	17·5	19·8	23·1	24·0	23·7	*22·1*	30·5
21 d	24·0	20·6	17·8	18·5	18·0	17·6	17·5	18·2	18·6	21·6	23·5	26·3	28·6	29·9	30·3	29·0	26·2	25·3	23·7	23·4	24·4	24·5	24·5	23·5	23·1	55·5
22	23·2	22·9	22·7	22·3	21·3	20·6	20·5	20·3	19·7	21·2	24·0	26·9	29·4	30·0	29·9	28·4	27·6	28·1	26·9	26·2	25·8	25·8	22·1	21·8	24·5	87·6
23	21·1	21·7	22·9	21·6	20·4	19·1	18·0	17·5	20·0	22·4	24·3	27·7	29·7	29·6	29·6	27·3	26·4	25·3	24·3	24·9	23·7	21·3	19·7	21·4	23·3	59·9
24	22·8	22·0	22·0	21·5	20·0	19·1	19·0	18·1	19·0	20·3	23·5	27·0	29·6	30·3	29·8	28·6	27·8	26·5	26·4	27·3	21·2	22·3	24·5	24·0	23·9	72·6
25	24·6	24·7	20·5	20·2	20·6	16·0	19·4	23·5	22·8	25·5	24·7	25·1	27·0	30·3	29·7	26·9	26·1	25·7	25·2	24·6	24·6	24·2	23·5	22·6	24·1	78·0
26	23·2	23·3	23·5	20·5	18·3	17·9	17·2	17·3	18·4	21·6	24·7	28·5	29·4	30·3	30·0	28·7	26·7	26·8	26·3	25·8	25·6	24·4	21·9	21·7	23·8	72·0
27	24·1	23·5	22·5	21·2	20·0	19·2	19·9	20·4	20·4	21·6	24·7	28·3	29·5	31·1	32·3	29·7	27·7	26·6	27·6	27·4	25·3	24·6	24·9	24·3	24·9	96·8
28	23·5	22·9	22·8	21·6	21·6	20·9	19·9	19·9	20·2	22·9	25·4	28·5	29·9	28·9	29·2	29·0	29·0	27·0	28·1	28·1	27·4	26·2	24·9	25·5	25·1	103·3
29	24·8	24·3	22·8	21·6	20·9	19·1	19·5	20·2	22·0	23·8	24·5	25·5	27·8	29·4	31·3	30·4	27·4	27·2	26·6	26·2	25·5	25·0	24·6	24·1	24·8	94·5
30 q	23·8	23·4	23·3	21·8	20·2	18·7	18·0	18·2	19·0	21·1	23·5	25·3	26·9	28·8	28·6	28·1	28·1	27·1	26·5	26·2	25·7	25·5	24·8	24·3	24·0	76·9
Mean	23·7	22·9	22·3	21·8	20·5	19·6	*18·9*	19·6	20·5	22·6	25·0	27·2	29·2	*30·0*	29·9	28·9	27·6	26·7	26·4	26·0	25·6	24·6	23·7	23·8	24·5	
Sum 500·0′+	210·2	188·4	168·5	155·3	113·5	87·4	68·3	88·6	114·6	178·1	248·9	315·9	375·2	399·3	396·6	366·7	327·9	301·5	291·6	278·7	267·4	237·3	211·4	213·9	24·8	Grand Total 17605·2

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

3 LERWICK (Z) 47,000γ (0·47 C.G.S. unit) + JUNE 1964

	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	Sum 8000γ+
	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	γ
1	370	371	373	373	375	376	376	373	366	360	356	348	349	357	370	375	373	377	375	375	375	378	371	371	369	863
2	373	376	376	376	378	379	381	380	377	369	363	358	352	359	364	369	371	371	370	377	377	373	372	371	371	912
3 *q*	371	371	373	373	369	369	370	370	371	369	367	362	365	370	371	371	369	371	369	372	372	372	371	371	370	879
4	371	371	371	371	371	374	370	366	364	362	358	357	363	365	363	378	378	382	377	378	378	377	377	376	371	898
5 *q*	375	374	374	371	374	373	370	368	365	359	361	363	368	373	377	377	381	378	375	374	374	375	375	377	372	931
6 *q*	377	376	377	377	376	374	372	370	372	370	364	364	364	375	375	372	377	375	372	371	371	376	377	378	373	952
7	378	378	379	379	380	382	378	374	373	369	363	358	358	363	370	377	379	379	376	368	370	367	368	369	372	935
8	369	377	378	377	376	374	376	374	369	353	353	352	349	351	365	376	377	373	374	376	383	378	378	377	370	885
9	378	377	379	380	380	379	371	363	358	357	357	354	361	373	373	391	410	405	381	371	368	366	365	369	374	966
10 *d*	368	363	354	307	153	113	206	300	361	373	380	383	387	393	422	409	405	409	414	414	400	396	337	319	*349*	366
11 *d*	319	320	271	241	341	368	373	384	386	389	384	389	399	394	410	395	418	432	416	399	390	387	367	375	373	947
12 *d*	377	377	351	324	334	351	371	382	381	373	377	379	382	382	383	390	393	414	428	410	399	395	381	373	379	1107
13	370	367	380	383	384	382	395	395	388	375	381	382	378	381	383	390	396	392	388	388	386	390	377	376	384	1207
14	375	375	378	381	380	379	375	380	383	381	378	370	364	368	368	375	380	384	382	383	389	384	381	371	378	1064
15	337	347	358	371	375	381	382	383	386	386	382	382	384	384	386	386	385	385	388	388	388	388	382	377	379	1091
16 *q*	376	367	366	376	379	386	387	385	385	379	376	376	378	380	384	386	385	384	386	391	394	392	387	386	382	1171
17	385	385	384	384	382	382	379	379	378	377	379	378	378	377	371	368	373	377	379	384	387	386	385	383	380	1120
18	382	379	380	382	382	381	382	386	382	378	373	370	372	379	387	387	388	390	394	397	390	379	362	379	382	1161
19	383	384	384	384	384	386	386	382	378	370	373	370	368	371	373	379	382	386	394	395	400	398	389	369	382	1168
20 *d*	356	336	319	322	321	339	363	375	375	368	363	364	375	395	383	409	402	396	395	389	382	383	382	381	370	873
21 *d*	369	303	318	349	368	375	371	370	371	377	373	373	368	367	373	381	386	390	388	389	387	390	387	386	371	909
22	385	385	385	386	385	385	383	378	380	380	378	372	375	380	387	401	409	417	418	412	406	399	388	388	390	1362
23	382	386	387	390	390	390	382	381	380	382	385	381	382	382	390	400	399	398	397	390	388	383	378	371	386	1274
24	368	380	389	390	391	392	394	395	393	390	389	382	378	378	380	390	396	397	395	400	397	392	390	389	389	1335
25	386	362	373	377	334	353	363	365	371	373	381	382	390	397	399	400	399	394	396	394	393	393	392	391	382	1158
26	392	393	394	393	396	399	397	393	392	393	393	391	388	391	396	406	417	417	412	409	402	397	396	391	*398*	1548
27	389	391	394	397	399	400	400	397	392	389	383	376	379	382	382	390	395	401	404	400	401	399	391	387	392	1418
28	388	390	390	394	397	394	396	391	388	383	378	370	369	381	382	400	424	447	434	412	406	399	394	383	395	1490
29	386	385	388	389	392	392	390	390	383	382	386	386	384	385	395	401	408	399	393	392	392	391	389	386	390	1364
30 *q*	384	385	388	389	391	391	391	390	389	385	379	371	374	378	376	378	386	389	389	388	387	387	385	382	385	1232
Mean	374	371	370	369	*368*	370	374	377	378	375	374	371	373	377	381	387	391	*394*	392	389	388	386	379	377	379	
Sum 11,000γ+	219	131	111	86	37	99	230	319	337	251	213	143	181	311	438	607	741	809	759	686	632	570	374	302		Grand Total 272,586

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH HOUSE

4 LERWICK JUNE 1964

	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph house 200°A+
1	0000 2211	6	0000 2211	6	0000 0001	1	0000 2100	3	1	87·3
2	0100 1111	5	0000 1111	4	0100 1010	3	0000 0101	2	0	87·0
3 *q*	0101 1000	3	0001 1000	2	0100 0000	1	0101 1000	3	0	87·1
4	1000 1210	5	1000 1210	5	0000 0100	1	0001 1110	4	0	87·2
5 *q*	1100 0110	4	0000 0110	2	1100 0000	2	1001 0100	3	0	87·3
6 *q*	0101 2000	4	0001 2000	3	0101 1000	3	0100 1001	3	0	87·9
7	0001 1122	7	0001 1122	7	0000 0012	3	0000 1012	4	1	88·0
8	2122 2121	13	2112 2110	10	2121 1021	10	1111 2111	9	1	88·5
9	1222 3311	15	0222 3311	14	1110 2200	7	0111 2211	9	1	88·2
10 *d*	2754 4333	31	1754 4333	30	2533 1133	21	265- -224	-	2	88·3
11 *d*	5433 3323	26	5433 3322	25	3221 2223	17	5522 2332	24	2	88·9
12 *d*	3312 2322	18	2312 2322	17	3212 1222	15	3212 1332	17	1	89·0
13	2212 2212	14	2212 2211	13	2211 1112	11	1112 1101	8	1	89·2
14	1111 2112	10	0111 2112	9	1110 0002	5	0111 1012	7	1	88·9
15	3211 1211	12	3101 1211	10	2210 0001	6	2111 1101	8	1	88·6
16 *q*	1101 1001	5	1101 1001	5	1000 0000	1	1100 1000	3	0	88·4
17	0111 2100	6	0011 2100	5	0110 0000	2	0101 1010	4	0	87·8
18	0002 3122	10	0002 3112	9	0000 1022	5	0000 1113	6	1	87·9
19	0001 0112	5	0001 0112	5	0000 0012	3	0001 0012	4	1	87·9
20 *d*	3212 4231	18	3212 4230	17	2211 2131	13	3221 2220	14	1	87·5
21 *d*	3122 1230	14	3112 1230	13	3121 0120	10	4211 0010	9	1	87·4
22	0000 1322	8	0000 1322	8	0000 0212	5	0000 1221	6	1	87·8
23	1011 2122	10	0011 2122	9	1011 0022	7	0001 1111	5	1	88·5
24	2000 0131	7	2000 0121	6	2000 0031	6	2000 0010	3	1	89·0
25	2331 2110	13	2231 2110	12	2321 1000	9	2322 1100	11	1	89·0
26	1111 1212	10	0011 1211	7	1110 0102	6	0001 1110	4	0	89·2
27	0000 2212	7	0000 2212	7	0000 1112	5	0000 1101	3	1	89·1
28	0111 3321	12	0001 3321	10	0111 1211	8	0000 1331	8	1	88·8
29	1101 2210	8	0101 2210	7	1101 0100	4	0001 1100	3	0	88·3
30 *q*	0100 1010	3	0000 1010	2	0100 0000	1	0001 1000	2	0	88·3
								Mean	0·73	88·2

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

D

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

1 LERWICK (H) 14,000γ (0·14 C.G.S. unit) + JULY 1964

	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	Sum 15,000γ+
	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	γ
1	650	645	645	645	646	643	641	639	635	627	620	621	629	637	641	648	646	649	654	662	664	662	658	654	644	461
2	653	651	650	650	650	646	642	639	633	630	628	632	631	633	644	650	659	663	664	665	667	664	661	665	649	570
3 d	666	660	661	656	642	646	644	645	644	631	628	630	643	641	644	652	667	669	655	661	661	661	631	635	649	573
4	639	622	626	639	633	619	613	627	628	617	623	634	632	632	640	639	641	649	662	658	656	652	651	653	637	285
5	648	639	637	639	637	641	639	638	635	627	622	626	631	638	648	648	653	654	649	659	660	662	645	645	643	420
6	640	635	639	640	640	640	639	639	641	641	632	628	635	632	628	642	657	662	669	665	662	654	650	655	644	465
7 d	655	649	641	638	637	657	652	644	628	614	607	614	634	640	629	643	657	666	694	683	686	646	660	619	646	493
8 d	627	632	634	572	625	644	635	630	628	624	615	599	624	644	673	646	659	669	684	696	671	659	659	658	642	407
9	639	623	644	645	641	631	635	641	627	615	613	618	625	640	649	676	661	677	668	668	680	657	653	595	643	421
10	617	643	607	611	640	643	634	622	606	593	601	607	624	635	648	657	654	654	653	657	657	650	651	648	634	212
11	644	638	634	644	646	647	642	635	623	612	609	613	626	634	650	660	674	663	666	664	655	653	651	649	643	432
12	646	645	648	648	649	649	642	633	620	606	600	604	618	643	651	654	660	660	661	653	652	650	650	649	641	391
13	646	645	646	648	650	646	640	634	624	606	604	614	619	636	654	657	651	652	652	656	656	651	651	646	641	384
14 q	643	643	643	644	644	640	635	637	637	632	627	622	622	629	639	652	658	654	655	657	649	646	646	646	642	400
15 q	644	645	643	642	642	639	632	628	626	621	620	615	616	627	637	640	643	650	657	661	663	660	657	655	640	363
16	653	651	650	648	646	649	642	637	633	622	613	620	630	628	634	649	656	649	668	663	663	660	658	654	645	476
17 d	642	636	645	639	642	642	641	638	628	625	629	624	623	651	617	677	664	709	690	688	667	656	646	650	649	569
18 d	635	583	621	584	555	615	626	634	633	625	614	585	614	634	652	646	656	665	667	659	650	645	637	634	*628*	69
19	633	622	622	630	635	626	626	617	624	613	591	616	627	627	632	637	650	649	657	665	659	677	632	625	633	192
20	604	581	617	629	634	631	626	616	608	593	606	617	629	628	640	641	640	648	664	656	650	646	645	642	629	91
21	642	638	640	639	639	636	634	632	622	614	612	612	618	616	632	650	654	673	681	668	655	657	647	645	640	356
22	641	642	639	630	633	635	637	626	611	615	612	613	621	625	628	640	647	667	673	665	660	657	655	642	638	314
23	641	637	637	641	640	636	629	629	621	608	610	617	627	640	639	639	648	654	659	662	661	646	643	641	638	305
24 q	641	644	643	644	644	643	640	635	627	619	614	611	627	642	642	642	650	648	655	662	660	656	654	657	642	400
25	650	646	650	647	645	640	635	632	630	627	630	633	639	647	644	654	653	653	656	661	662	657	653	656	646	500
26	654	647	648	646	644	642	640	634	630	630	627	625	628	638	651	650	659	658	657	654	653	654	653	653	645	475
27 q	653	651	651	650	652	653	646	639	631	625	621	621	622	629	642	648	653	658	661	666	664	661	658	657	646	512
28 q	653	650	650	653	653	649	649	646	642	635	624	624	628	635	640	649	654	657	661	664	661	658	658	660	648	553
29	660	656	654	653	654	654	654	643	640	635	633	614	615	638	650	638	660	665	673	681	668	654	650	649	*650*	591
30	647	644	643	642	639	645	646	636	636	626	621	622	625	622	642	657	658	664	662	665	660	654	646	639	643	441
31	638	632	635	640	638	636	631	614	616	607	614	623	633	647	654	660	655	651	655	661	665	661	652	654	641	372
Mean	643	638	640	638	639	641	638	633	628	620	*617*	618	626	635	642	650	655	660	664	*665*	661	656	650	646	642	
Sum 19,000γ+	944	775	843	776	815	863	767	639	467	215	120	154	415	688	914	1141	1297	1459	1582	1605	1497	1326	1161	1030		Grand Total 477,493

GEOMAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

2 LERWICK (D) 9° + JULY 1964

	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	Sum 500·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	24·2	24·8	23·2	22·4	21·1	19·2	17·8	18·3	19·9	22·1	23·3	26·3	28·5	29·6	29·0	27·9	27·8	28·0	27·0	26·0	26·0	26·0	25·5	25·1	24·5	89·0
2	24·8	23·9	23·1	21·4	20·1	19·3	19·0	19·3	21·0	22·9	23·9	24·8	26·1	27·8	29·3	30·3	29·4	29·4	28·0	27·1	26·7	26·2	25·2	24·6	*24·7*	93·6
3 d	23·9	22·9	20·1	18·4	14·9	17·2	19·5	20·3	21·6	21·9	25·4	27·4	31·1	32·6	31·4	32·3	32·5	30·0	28·4	27·8	28·7	21·1	12·0	14·4	24·0	75·8
4	15·9	19·6	18·1	20·6	18·9	19·7	18·9	19·1	19·9	22·0	24·1	25·6	27·4	27·8	26·9	26·0	25·4	25·4	26·2	25·7	25·4	24·5	22·8	21·4	22·8	47·3
5	21·8	20·7	21·3	21·6	20·3	19·9	19·6	19·7	20·8	21·7	22·9	25·6	28·4	27·7	27·5	26·4	25·6	24·6	25·3	26·2	26·3	21·4	23·0	23·6	23·4	61·9
6	23·0	26·3	22·7	19·7	17·8	16·9	16·4	16·9	19·1	20·7	22·9	25·1	26·8	27·2	27·1	27·3	26·9	26·1	26·2	26·2	25·6	24·5	23·4	22·3	23·2	57·1
7 d	22·0	22·6	22·9	21·8	21·9	17·1	18·1	18·7	21·3	22·7	25·4	26·6	28·3	30·4	31·7	29·5	29·6	28·1	28·8	20·9	26·7	21·1	18·1	20·2	23·9	74·5
8 d	22·9	23·5	21·2	27·2	23·2	17·4	15·0	15·8	18·2	19·3	21·9	23·0	26·2	28·1	29·6	27·2	26·6	26·5	26·4	23·6	18·4	21·3	19·8	18·9	22·5	41·2
9	18·9	29·1	24·6	21·5	18·0	17·4	17·9	17·9	19·1	21·2	22·9	25·7	28·9	30·2	28·9	28·5	27·4	25·5	25·6	26·4	22·0	23·5	23·7	26·2	23·8	71·0
10	19·7	18·0	18·6	21·6	19·8	19·4	19·7	19·7	17·0	19·1	22·9	26·1	28·1	28·4	28·2	28·2	26·0	24·7	24·0	24·3	24·2	23·7	23·7	23·8	22·9	48·9
11	26·2	25·8	21·8	19·3	19·3	18·9	19·1	19·8	21·2	23·1	24·3	26·8	29·4	29·8	29·1	29·1	26·6	26·6	25·0	22·2	25·2	26·4	25·6	25·6	24·4	86·2
12	23·9	24·0	21·9	21·7	20·0	18·4	18·4	17·9	18·8	20·8	23·6	27·4	30·4	31·1	30·4	28·7	26·5	25·6	25·1	24·2	23·9	24·7	24·9	27·6	24·2	79·9
13	24·7	24·8	24·9	20·6	19·4	17·6	17·8	19·0	20·8	21·7	23·6	26·2	28·3	28·7	27·6	26·7	25·2	24·5	24·8	24·3	24·4	24·6	24·6	23·1	23·7	67·9
14 q	23·1	22·6	23·2	21·3	19·4	18·7	20·4	22·4	22·9	24·6	25·6	27·7	29·4	29·3	27·9	26·9	26·3	25·5	24·8	24·5	24·7	24·4	24·0	23·9	24·3	83·5
15 q	23·5	23·4	23·6	22·0	20·2	17·5	16·7	17·2	17·5	19·7	22·2	25·2	27·5	28·4	27·4	26·4	26·0	25·7	25·7	25·7	25·5	25·4	25·2	24·6	23·4	62·2
16	23·6	22·7	21·9	20·5	18·9	17·1	17·1	17·7	19·6	21·9	25·2	26·0	28·5	28·4	28·9	27·8	27·8	26·6	27·5	26·5	25·9	25·2	25·4	20·5	23·8	71·2
17 d	18·4	25·7	18·4	15·8	17·4	16·8	18·6	18·9	18·4	19·1	21·8	26·4	29·4	33·2	33·1	35·0	37·2	33·4	23·7	27·7	27·7	25·7	24·6	22·8	24·5	89·2
18 d	23·7	23·7	23·7	17·8	25·6	25·7	17·4	17·7	18·5	20·4	22·7	23·5	28·4	30·2	30·2	27·4	27·6	25·5	25·2	25·4	24·7	24·0	26·7	27·1	24·3	82·8
19	24·3	25·5	21·6	21·6	17·6	19·8	18·0	16·0	17·7	20·2	21·8	22·3	25·8	28·1	29·0	28·9	29·2	28·5	28·0	27·6	26·1	16·4	14·0	19·6	22·8	47·6
20	16·5	14·2	16·4	14·0	17·9	18·2	18·3	17·5	18·5	19·8	20·3	22·3	26·2	27·4	27·3	27·0	26·3	25·6	25·9	21·3	24·6	24·4	23·7	23·3	*21·5*	16·9
21	23·4	24·6	21·0	19·4	19·2	18·7	19·3	19·5	19·9	21·5	24·2	27·5	30·4	29·1	28·1	27·5	26·1	26·5	26·8	27·2	26·2	26·2	27·0	23·1	24·3	82·4
22	22·7	22·3	21·8	22·6	22·6	22·0	20·6	17·7	19·6	21·8	22·6	25·2	28·1	28·6	26·5	26·7	26·6	26·1	21·7	25·0	25·0	23·6	20·1	23·2	23·4	62·7
23	21·5	24·0	24·2	20·2	18·4	17·4	17·4	18·1	18·9	19·7	20·8	25·3	27·7	27·5	26·2	25·6	26·0	25·6	25·2	22·6	22·8	23·4	23·7	23·1	22·7	45·3
24 q	23·1	22·5	22·0	21·7	20·7	19·9	18·1	18·4	14·8	20·8	23·6	25·6	27·6	29·1	28·1	26·0	24·9	23·5	24·2	24·8	24·5	24·3	22·8	23·2	23·1	54·2
25	22·2	21·3	20·1	18·8	18·5	17·6	18·0	18·8	20·2	23·2	25·2	28·5	29·6	31·0	30·3	29·1	28·5	26·7	25·8	24·4	24·9	24·6	23·2	23·6	23·9	74·1
26	22·6	21·8	21·8	21·1	20·3	18·4	17·4	18·0	17·9	19·8	23·9	29·4	31·6	32·4	30·9	28·9	26·5	25·3	24·7	24·5	24·4	24·5	23·7	23·3	23·9	73·1
27 q	23·0	22·7	22·8	21·6	20·5	19·0	17·6	17·3	17·9	20·4	24·0	27·5	30·4	31·0	29·5	27·6	25·8	24·4	24·6	25·3	25·4	25·5	24·4	23·2	23·8	71·4
28 q	21·5	22·6	20·8	20·0	19·7	19·5	19·3	19·3	19·3	20·3	22·3	25·1	28·2	29·9	29·6	28·7	26·7	25·5	25·3	25·1	25·1	24·6	24·2	23·0	23·6	65·7
29	22·8	22·7	21·3	20·5	19·4	17·8	17·9	15·2	17·8	20·1	23·0	27·6	32·9	34·3	33·3	28·2	28·1	26·6	26·6	26·6	13·3	21·3	23·3	23·0	23·5	63·6
30	24·6	25·1	18·4	19·4	17·8	16·2	15·8	17·9	19·2	20·7	24·5	27·0	31·1	30·1	29·4	29·3	28·1	28·1	26·6	19·9	22·4	20·7	21·3	22·3	23·2	55·9
31	23·2	20·7	21·3	19·8	17·0	16·4	15·5	14·2	15·3	17·1	20·1	24·5	26·9	29·7	29·6	27·2	26·8	25·6	26·2	23·0	24·1	25·6	24·6	23·6	22·4	38·0
Mean	22·4	23·0	21·6	20·5	19·5	18·5	*18·1*	18·2	19·1	21·0	23·3	25·9	28·6	*29·6*	29·1	28·1	27·4	26·5	25·8	24·9	24·5	23·8	23·0	23·0	23·6	
Sum 500·0′+	195·6	214·1	168·7	135·9	105·8	75·1	60·6	64·2	92·6	150·3	220·9	303·2	387·6	417·1	402·0	372·3	350·0	319·8	299·3	272·0	260·8	238·8	214·2	213·2	23.6	Grand Total 17534·1

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

3 LERWICK (Z) — 47,000γ (0·47 C.G.S. unit) + — JULY 1964

	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	Sum 8000γ+
	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	γ
1	381	381	379	382	383	386	388	389	390	386	381	376	372	369	369	372	388	390	384	381	382	385	384	384	382	1162
2	383	384	384	386	387	390	389	388	386	374	371	370	375	375	371	375	375	376	384	387	386	385	385	383	381	1149
3 *d*	380	379	375	377	380	376	370	372	372	375	366	359	367	379	387	385	387	396	403	394	387	318	319	337	373	940
4	346	332	337	361	372	375	369	370	375	375	375	374	373	373	373	380	382	382	379	382	385	387	386	380	372	923
5	372	372	374	375	377	376	378	382	381	374	373	374	374	374	375	378	379	384	385	384	387	384	388	388	379	1088
6	385	371	355	363	373	370	369	366	366	374	382	376	373	376	382	382	382	383	384	384	384	389	389	383	377	1041
7 *d*	383	383	375	355	347	337	349	358	365	365	365	365	364	384	410	412	406	392	384	407	396	329	316	277	368	824
8 *d*	308	329	365	333	303	339	365	375	376	380	387	391	383	381	376	403	394	393	397	374	384	384	339	337	367	796
9	346	322	327	354	373	376	375	375	383	383	381	376	375	375	382	386	403	406	406	390	364	362	366	307	371	893
10	282	289	327	339	359	375	379	382	384	387	382	382	381	393	395	396	393	396	394	390	386	385	384	383	373	943
11	375	341	344	362	376	382	384	384	385	379	375	372	375	379	382	393	404	410	407	407	394	389	384	384	382	1167
12	384	384	384	391	392	387	389	389	388	384	384	379	379	377	383	391	393	393	393	395	393	389	384	371	387	1276
13	370	373	368	377	385	388	387	391	388	386	387	387	388	378	382	393	397	401	402	398	393	393	385	384	387	1281
14 *q*	383	384	387	387	391	392	390	387	391	387	383	385	382	381	383	387	390	391	392	393	393	391	389	387	*388*	1306
15 *q*	386	385	384	385	388	390	390	388	381	378	377	376	371	371	377	381	383	383	385	386	388	389	389	387	383	1198
16	383	385	385	386	387	384	386	389	389	389	386	373	370	375	378	374	378	386	384	390	391	391	386	373	383	1198
17 *d*	376	364	347	366	374	376	377	376	376	376	376	375	376	380	387	376	402	440	471	427	412	400	383	373	387	1286
18 *d*	366	260	258	248	260	284	345	379	389	389	390	403	401	392	406	418	414	411	411	408	402	395	371	357	*365*	757
19	357	362	368	371	378	372	373	382	382	378	385	369	371	379	377	379	381	381	382	392	387	366	359	354	374	985
20	310	265	288	353	375	381	383	384	382	394	398	390	386	387	388	393	388	384	385	397	390	387	386	387	373	961
21	385	377	371	377	378	380	380	381	381	381	380	379	381	385	386	387	388	389	399	409	406	387	352	371	383	1190
22	385	387	387	381	367	362	361	371	378	379	380	378	375	386	393	394	396	399	409	395	392	382	380	373	383	1190
23	367	376	377	383	385	386	385	385	387	387	387	387	386	388	391	394	395	392	390	391	389	389	389	389	386	1275
24 *q*	389	389	389	389	389	388	388	389	389	388	388	389	383	385	389	389	389	389	387	385	385	386	384	376	387	1291
25	373	375	376	382	383	383	382	380	375	371	370	370	373	376	377	380	386	389	389	389	388	387	385	380	380	1119
26	376	382	384	385	387	386	383	382	376	372	371	372	375	375	378	390	395	397	391	388	386	382	381	381	382	1175
27 *q*	380	381	382	384	385	385	385	383	380	377	376	377	373	373	374	386	392	392	391	388	386	383	382	381	382	1176
28 *q*	377	376	374	378	383	384	385	386	384	380	375	373	371	372	378	381	387	389	389	387	385	384	380	378	381	1136
29	377	378	379	381	381	379	376	376	375	369	366	371	366	367	397	412	388	392	393	397	426	399	388	379	384	1212
30	366	326	345	363	371	366	372	376	378	373	371	371	371	378	379	379	387	389	394	406	395	387	383	369	375	995
31	344	346	354	368	373	382	385	390	389	383	380	376	371	376	381	389	387	390	389	388	387	388	386	371	378	1073
Mean	367	*359*	362	369	372	375	378	381	381	380	379	377	376	379	383	388	391	393	*395*	393	391	382	376	370	379	
Sum 11,000γ+	375	138	229	422	542	617	717	805	821	773	748	695	661	739	886	1035	1109	1185	1233	1189	1109	852	662	464		Grand Total 282,006

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH HOUSE

4 LERWICK — JULY 1964

	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph house 200°A+
1	1101 0100	4	0001 0100	2	1101 0000	3	1000 0100	2	0	88·3
2	0000 1101	3	0000 1101	3	0000 0000	0	0001 1100	3	0	88·0
3 *d*	2332 3234	22	1222 3223	17	2331 2134	19	1111 2133	13	1	88·1
4	3222 1111	13	2222 1110	11	3111 0001	7	3111 1111	10	1	87·7
5	1011 0112	7	1001 0112	6	1010 0012	5	0011 0111	5	1	88·0
6	2011 2111	9	1001 2111	7	2010 0001	4	2111 1111	9	1	88·1
7 *d*	1211 3334	18	1211 3334	18	1211 2133	14	1221 3334	19	1	88·0
8 *d*	3423 4233	24	3413 4233	23	3321 1032	15	4322 2233	21	1	87·8
9	3221 2234	19	3121 2224	17	3211 1133	15	3220 0234	16	1	88·0
10	3322 2211	16	3312 2210	14	3222 1101	12	3211 2100	10	1	87·8
11	2100 2221	10	2100 2210	8	2100 1121	8	3200 1110	8	1	87·8
12	1111 2122	11	0001 2120	6	1110 0012	6	0101 0011	4	1	88·3
13	1101 2111	8	0001 2111	6	1100 0000	2	1101 1111	7	1	88·5
14 *q*	0110 0110	4	0000 0110	2	0110 0000	2	0010 0000	1	0	88·5
15 *q*	0000 0000	0	0000 0000	0	0000 0000	0	0000 0000	0	0	88·8
16	0201 2222	11	0001 2221	8	0200 1102	6	0101 1111	6	1	89·4
17 *d*	3221 4531	21	2111 4531	18	3221 1330	15	3101 2542	18	1	91·1
18 *d*	4423 3322	23	4323 3321	21	3422 2322	20	5332 2213	21	1	90·8
19	2212 1123	14	2112 1123	13	2211 1013	11	2112 ----	-	1	91·1
20	4212 2120	14	4112 2120	13	4212 1020	12	43-1 1120	-	1	91·0
21	2101 1232	12	0001 1232	9	2100 1112	8	2001 1123	10	1	88·5
22	1122 3222	15	1122 3222	15	1121 1122	11	1221 2221	13	1	88·4
23	2110 1120	8	1010 1120	6	2110 0020	6	2010 1100	5	1	88·3
24 *q*	0001 1001	3	0001 1001	3	0000 0001	1	0001 0001	2	0	88·4
25	1001 2111	7	0001 2111	6	1001 1001	4	0001 1000	2	1	88·3
26	1011 1110	6	0010 1110	4	1011 0000	3	1001 1000	3	0	88·2
27 *q*	0000 1001	2	0000 1000	1	0000 0001	1	0000 0000	0	0	88·0
28 *q*	1000 1000	2	1000 1000	2	1000 0000	1	1000 0000	1	0	88·3
29	1023 3342	18	0013 3331	14	1021 2142	13	0002 3332	13	1	88·1
30	3222 3232	19	2212 3222	16	3221 2132	16	3221 1122	14	1	88·0
31	2111 2222	13	1111 2222	12	2111 0120	8	2110 0111	7	1	88·3
								Mean	0·74	88·6

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

1 LERWICK (H) — 14,000γ (0·14 C.G.S. unit) + — AUGUST 1964

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	Sum 15,000γ+
	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	γ
1	636	646	631	633	638	638	634	626	625	620	616	619	633	637	643	657	655	655	657	657	657	656	648	645	640	362
2	641	640	639	639	637	633	631	630	633	628	624	619	620	629	632	637	641	645	655	659	656	653	652	659	639	332
3	646	645	645	639	642	644	645	637	627	620	617	616	614	628	644	645	642	645	653	657	661	661	660	664	642	397
4 d	664	674	624	624	671	600	619	617	601	616	611	591	595	617	637	679	656	653	665	656	649	652	655	640	636	266
5 d	639	627	627	634	629	639	638	634	631	618	612	626	614	638	650	643	678	664	686	670	654	653	648	631	641	383
6	641	627	609	620	626	616	624	628	623	616	617	619	620	628	637	644	645	644	645	645	645	645	648	648	*632*	160
7	648	638	621	629	645	648	645	632	627	628	627	619	630	634	638	649	645	648	665	663	653	650	653	645	641	380
8	642	640	638	645	645	642	643	642	630	617	609	609	616	630	642	650	653	659	661	652	649	649	649	648	640	360
9	644	646	636	636	652	648	645	646	641	629	614	609	617	634	639	648	645	660	670	652	655	651	641	644	642	402
10 q	645	642	642	643	642	640	638	632	631	626	624	616	616	621	628	637	643	646	653	657	655	654	652	655	639	338
11 d	650	666	647	653	648	645	625	633	628	620	613	615	622	645	653	645	674	695	672	686	658	639	580	613	643	425
12 d	649	622	624	641	649	645	642	637	602	607	609	606	616	634	624	634	647	660	662	655	653	645	644	636	635	243
13	631	636	637	638	635	624	621	627	621	617	614	616	622	631	642	645	652	657	653	662	653	648	649	652	637	283
14	647	645	642	642	641	639	634	626	617	610	607	616	631	641	647	652	651	653	651	657	649	645	645	648	639	336
15 q	646	646	642	642	639	639	635	628	620	620	620	626	637	642	649	649	653	656	656	657	653	649	645	651	642	400
16	647	646	647	653	653	649	641	634	637	630	624	624	634	642	653	657	657	650	650	656	652	654	653	643	645	486
17	652	648	634	639	642	642	636	631	624	616	624	630	634	637	641	653	648	657	651	653	653	651	651	651	642	398
18	653	651	647	649	652	646	645	637	630	616	619	623	624	627	630	639	645	657	664	659	653	651	652	648	642	417
19	647	645	645	646	646	645	636	624	615	612	605	611	626	640	641	648	648	648	653	657	655	652	653	649	639	347
20	642	641	642	645	644	643	641	636	627	617	617	625	635	649	652	650	649	650	659	661	659	656	651	652	643	443
21	650	650	646	645	647	647	646	639	633	629	635	638	639	645	655	656	655	658	664	657	659	657	656	661	649	567
22	660	662	650	648	656	657	651	647	644	635	626	625	630	642	645	647	647	652	658	659	657	648	648	649	648	543
23	653	646	646	646	648	645	642	639	633	628	621	621	627	637	641	643	643	650	652	655	653	652	653	651	643	425
24 q	649	649	647	648	648	645	642	637	626	623	627	627	631	639	645	645	645	649	657	660	656	659	656	657	644	467
25	655	652	645	653	655	650	649	642	636	626	621	623	631	647	664	645	672	664	653	657	665	657	657	654	*649*	573
26	650	657	644	638	636	638	628	630	630	622	620	622	633	647	636	644	644	650	660	656	654	655	664	638	641	396
27	639	643	646	635	649	646	641	637	625	618	620	624	629	624	643	641	660	651	658	656	655	651	649	646	641	386
28 q	645	645	644	643	642	641	639	635	625	618	614	617	622	627	631	636	642	647	653	655	651	648	646	645	638	311
29	645	648	646	648	649	652	652	645	638	625	617	620	626	631	637	641	634	649	647	649	656	666	660	648	643	429
30 q	646	646	645	645	645	643	639	634	627	622	623	628	629	636	643	649	650	653	660	663	663	657	655	657	644	458
31 d	655	652	651	649	654	652	653	645	633	628	626	628	620	634	642	641	651	659	669	664	659	657	651	653	647	526
Mean	647	646	640	641	645	641	639	634	627	621	*619*	620	625	635	642	647	651	654	*659*	658	655	652	649	648	641	
Sum 19,000γ+	1057	1021	829	888	1005	881	800	667	440	257	173	208	373	693	904	1049	1170	1284	1412	1402	1300	1221	1124	1081		Grand Total 477,239

GEOMAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

2 LERWICK (D) — 9° + — AUGUST 1964

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	Sum 500·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	27·2	24·1	18·5	20·7	21·7	20·6	19·8	18·0	17·3	18·7	21·2	24·9	28·5	29·2	28·4	27·3	26·9	25·8	24·7	24·3	23·1	25·5	24·6	24·5	23·6	65·5
2	23·1	22·2	21·0	20·5	19·5	19·1	18·6	19·9	20·2	21·8	22·8	24·8	27·1	29·0	27·7	26·4	25·1	24·9	23·9	25·2	25·5	25·3	24·9	23·2	23·4	61·7
3	20·4	22·8	21·7	21·0	22·1	21·1	20·3	20·6	21·0	23·3	25·7	28·0	29·3	30·0	29·4	27·8	25·6	24·6	24·6	24·8	26·4	26·6	25·8	25·8	24·5	88·7
4 d	25·0	26·6	28·2	8·1	15·0	31·9	24·5	17·8	20·0	22·4	24·5	27·4	28·4	28·4	27·2	22·2	25·6	24·4	22·1	24·3	24·9	24·6	25·1	23·8	23·9	72·4
5 d	19·9	20·0	22·4	21·9	23·3	21·6	21·6	20·6	20·9	23·6	25·8	28·5	29·5	29·3	30·0	25·6	24·5	26·4	18·8	22·2	20·7	23·5	23·0	23·2	23·6	66·8
6	19·3	24·9	27·3	23·7	23·2	20·3	18·1	17·3	19·0	21·2	22·2	24·3	26·0	25·6	25·1	25·5	25·4	25·2	24·7	24·2	23·8	23·5	24·0	22·0	*23·2*	55·8
7	21·7	20·5	26·6	21·6	23·2	27·1	28·3	26·2	25·2	24·2	24·6	28·6	29·2	31·7	32·2	30·8	29·7	25·3	25·1	27·1	26·0	25·7	24·2	24·5	*26·2*	129·3
8	25·1	23·9	26·2	23·9	22·8	22·3	23·1	21·4	21·2	21·6	23·2	26·8	30·2	30·4	28·5	26·3	25·4	24·7	24·1	23·4	25·0	25·2	23·8	24·1	24·7	92·6
9	24·4	26·1	23·1	30·0	26·1	20·0	18·8	19·2	20·6	22·2	24·6	27·6	30·3	32·0	31·0	30·0	28·9	26·7	26·2	23·2	24·4	24·0	22·9	23·6	25·2	105·9
10 q	23·7	23·1	22·3	22·3	21·6	20·4	18·8	18·3	19·3	19·6	21·9	25·1	28·1	29·5	29·7	28·1	25·8	24·5	23·8	24·7	24·5	24·8	25·1	23·8	23·7	68·8
11 d	25·1	23·7	17·5	20·5	16·4	15·9	17·9	20·8	21·2	21·4	23·6	28·3	31·2	35·3	36·1	33·9	30·3	29·1	24·6	23·7	21·2	19·8	27·8	21·2	24·4	86·5
12 d	18·1	20·9	26·6	22·4	20·4	18·8	19·3	18·2	19·9	23·9	26·0	28·7	30·9	33·6	32·1	28·1	26·1	26·5	25·9	18·2	20·1	21·2	23·9	24·2	23·9	74·0
13	26·1	25·3	23·4	21·1	21·5	20·5	18·9	17·7	19·9	21·8	24·5	27·5	29·4	29·9	28·5	27·1	26·1	25·9	23·5	22·0	24·3	25·2	26·7	23·1	24·2	79·9
14	21·9	21·0	20·2	20·8	21·2	20·7	20·1	20·3	21·0	23·5	26·9	28·6	30·0	30·3	28·6	27·1	26·3	26·1	24·5	24·9	26·7	25·7	24·0	23·0	24·3	83·4
15 q	23·2	21·0	19·8	19·8	20·3	19·8	19·1	19·1	19·8	21·3	24·7	27·4	29·0	28·5	27·1	25·6	25·1	24·9	25·3	25·3	23·9	22·4	23·1	23·7	23·3	59·2
16	23·8	25·3	22·3	20·2	19·1	19·8	18·4	19·7	20·8	23·4	25·9	27·0	28·7	30·2	29·6	28·5	27·0	24·1	25·1	25·1	24·7	23·9	21·0	23·2	24·0	76·8
17	23·9	20·6	19·3	21·0	21·0	19·1	19·1	19·3	20·6	23·9	25·1	28·8	30·3	30·1	28·0	27·4	26·3	24·0	24·0	25·1	25·1	24·9	24·6	24·6	24·0	77·1
18	23·6	20·7	22·2	22·2	18·6	19·1	17·3	20·0	20·6	23·4	24·1	27·5	31·0	30·7	29·3	27·8	25·6	25·0	21·3	24·1	23·5	24·3	23·6	23·9	23·7	69·4
19	24·0	23·4	23·1	23·1	22·4	21·8	21·0	21·6	21·7	23·6	28·0	31·7	32·9	32·5	30·2	28·1	24·6	23·9	23·9	24·1	22·2	24·3	21·9	19·6	24·7	93·6
20	22·6	22·0	21·0	21·4	20·9	20·3	20·5	21·0	22·3	24·2	26·1	28·0	29·2	29·6	27·4	25·1	23·5	23·7	25·6	25·3	23·7	20·8	24·6	23·8	23·9	72·6
21	23·7	23·3	21·8	21·4	21·3	20·6	20·6	21·1	23·6	26·0	29·2	31·9	33·8	31·6	28·2	26·7	24·6	23·3	26·6	27·1	26·8	25·1	25·0	24·9	25·3	108·2
22	24·6	23·8	24·9	17·3	18·3	16·9	18·1	21·4	23·4	26·1	27·4	30·4	28·8	30·0	29·0	27·0	25·9	25·3	24·7	24·1	24·4	22·3	22·7	23·2	24·2	80·0
23	23·6	23·7	22·6	22·0	21·2	20·5	20·2	20·1	21·0	23·7	27·4	30·5	32·7	32·1	29·1	26·1	23·7	22·2	23·1	24·3	24·3	24·1	23·9	23·5	24·4	85·6
24 q	23·1	22·7	22·6	22·7	22·1	21·6	21·1	20·3	20·1	21·2	23·9	26·2	28·1	28·4	27·4	26·1	25·3	24·0	24·5	24·7	23·0	24·9	24·8	24·2	23·9	73·0
25	23·7	22·7	22·7	21·1	18·8	18·9	19·7	19·1	20·6	22·0	23·4	25·9	28·5	30·9	31·8	32·0	32·0	34·3	32·5	28·0	26·9	25·8	24·2	24·2	23·6	25·6	114·4
26	19·6	14·8	18·5	22·3	21·0	18·5	17·3	19·5	21·2	23·6	26·4	30·1	32·3	33·8	30·5	28·4	27·1	26·1	26·1	25·8	25·8	25·5	21·0	20·5	24·0	75·7
27	20·6	21·1	19·9	18·8	18·5	19·6	19·8	19·6	20·6	23·3	25·6	28·6	32·7	31·9	30·2	28·0	25·2	23·9	22·2	23·2	24·0	23·8	23·7	23·3	23·7	68·1
28 q	23·4	23·3	23·0	22·7	22·1	21·3	20·2	19·9	21·0	23·0	25·0	29·0	30·7	30·0	28·0	26·2	24·9	23·9	23·2	21·2	22·8	22·3	23·6	23·1	23·9	73·8
29	25·2	24·1	23·3	22·5	21·8	21·0	20·5	20·1	20·8	23·2	25·9	28·8	30·0	30·3	30·0	28·1	26·0	24·5	24·0	24·1	24·8	22·5	21·0	23·4	24·4	85·9
30 q	23·4	22·6	21·3	20·5	20·5	19·8	19·7	19·1	19·5	21·8	24·6	27·8	30·0	29·8	28·2	26·9	25·8	26·0	26·5	26·3	26·2	25·8	22·9	23·6	24·1	78·6
31 d	23·8	24·0	23·7	23·9	22·0	20·9	21·0	21·1	23·0	25·1	27·4	30·9	31·9	31·0	29·5	28·0	27·1	26·2	26·1	26·2	18·4	18·9	23·8	24·8	24·9	98·7
Mean	23·1	22·7	22·5	21·3	20·9	20·7	20·0	*20·0*	20·9	22·9	25·2	28·1	30·0	*30·5*	29·3	27·5	26·3	25·3	24·4	24·4	24·1	23·9	23·9	23·5	24·2	
Sum 600·0′+	116·8	104·2	97·0	61·4	47·9	40·6	21·1	19·8	48·7	109·4	181·1	272·2	331·1	346·5	308·2	252·2	213·7	183·6	156·7	155·1	146·0	140·6	141·2	126·9	23·8	Grand Total 18022·0

GEOMAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

3 LERWICK (Z) — 47,000γ (0·47 C.G.S. unit) + — AUGUST 1964

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	Sum 8000γ+
	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	γ
1	361	336	346	356	371	381	390	389	388	385	382	382	382	385	381	380	381	383	385	391	393	385	385	384	378	1082
2	384	383	383	383	384	384	383	380	376	373	371	368	367	374	378	382	380	383	386	384	387	385	385	369	380	1112
3	368	376	376	380	379	379	379	383	383	378	376	379	381	376	377	390	395	398	390	390	384	384	384	382	382	1167
4 d	382	371	287	227	274	296	284	323	357	368	378	385	384	392	415	430	414	400	396	393	396	389	370	357	361	668
5 d	364	371	373	376	383	387	384	386	390	391	392	382	394	395	400	420	427	418	412	409	401	384	371	344	390	1354
6	361	362	351	343	338	357	374	382	382	378	377	380	383	390	392	391	390	387	385	384	384	384	386	375	376	1016
7	357	356	306	301	305	303	313	326	343	354	364	373	385	402	406	409	413	415	405	396	396	391	382	377	366	778
8	378	380	382	382	389	390	387	389	389	388	383	380	382	390	390	393	400	393	400	402	395	389	383	380	388	1314
9	382	373	373	353	344	364	382	384	385	385	385	383	380	389	392	400	405	409	414	421	409	400	394	388	387	1294
10 q	390	390	391	392	395	400	397	394	388	385	385	387	388	391	395	398	402	405	402	400	399	396	392	386	394	1448
11 d	381	368	329	338	361	378	385	379	376	377	375	373	369	378	387	421	433	445	459	411	359	371	314	260	376	1027
12 d	316	342	360	364	383	390	395	396	400	385	383	380	376	380	398	398	399	405	411	425	416	403	391	383	387	1279
13	378	376	385	389	395	395	396	396	397	394	391	388	380	385	389	396	399	399	406	406	405	402	383	354	391	1384
14	366	374	382	387	392	393	396	397	395	389	383	376	378	388	393	395	397	398	402	401	399	395	397	392	390	1365
15 q	382	381	387	388	391	391	396	397	395	388	384	380	382	387	391	396	395	393	391	392	399	393	395	386	390	1360
16	377	375	371	380	386	386	388	390	385	382	379	374	372	372	376	386	397	400	394	392	396	391	390	390	385	1229
17	377	376	369	370	382	386	388	388	386	382	375	378	380	386	390	396	407	409	405	395	393	390	390	388	387	1286
18	386	387	388	388	385	387	386	384	379	378	380	378	378	378	382	388	388	393	400	395	393	388	381	382	385	1252
19	386	388	388	388	388	389	389	389	386	380	380	380	372	374	386	395	404	398	395	395	393	389	381	378	387	1291
20	380	383	385	387	388	387	387	388	388	387	379	372	370	372	379	388	390	388	386	386	387	388	383	383	384	1211
21	383	383	387	388	387	386	381	381	379	376	372	369	370	376	386	390	396	401	393	389	386	386	383	379	384	1207
22	379	363	358	351	359	364	369	366	364	360	367	369	361	369	378	387	390	388	386	388	390	393	386	382	374	967
23	373	376	380	388	390	392	390	387	382	376	377	378	385	390	395	401	405	404	395	389	389	388	388	388	388	1306
24 q	389	390	394	394	394	395	395	392	386	379	372	370	376	378	384	389	390	390	388	389	393	386	386	386	387	1285
25	387	388	390	379	381	383	386	383	380	379	373	370	369	370	379	395	396	426	437	415	396	389	387	385	388	1323
26	371	367	371	379	379	381	387	384	382	377	376	378	371	371	379	386	393	395	396	400	396	388	363	359	380	1129
27	359	373	379	378	379	388	392	391	387	379	376	376	376	383	386	398	405	409	405	402	395	393	389	388	387	1286
28 q	387	388	388	392	395	395	396	397	396	389	385	376	376	379	385	388	390	389	391	391	390	389	388	386	389	1326
29	377	371	378	383	387	388	388	390	389	387	386	376	371	371	378	386	395	392	396	389	386	371	367	370	382	1172
30 q	375	377	378	378	379	383	386	385	384	380	376	370	371	370	369	371	376	376	376	378	380	384	388	386	378	1076
31 d	379	377	371	370	362	366	364	367	369	371	370	369	378	376	379	385	380	381	388	393	398	381	372	268	371	914
Mean	375	374	371	369	374	379	381	383	383	380	379	377	377	381	387	395	398	399	399	397	393	389	382	371	383	
Sum 11,000γ+	615	601	486	452	605	744	813	863	866	780	732	679	687	817	995	1228	1332	1370	1375	1291	1183	1045	834	515		Grand Total 284,908

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH HOUSE

4 LERWICK — AUGUST 1964

	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph house 200°A+
1	3200 2121	11	2100 2111	8	3200 0021	8	2200 1011	7	1	88·0
2	0000 0112	4	0000 0111	3	0000 0012	3	0000 0102	3	0	88·0
3	2111 2211	11	1111 2211	10	2100 0000	3	2111 1000	6	1	87·8
4 d	4532 3322	24	4432 3322	23	3531 2322	21	4442 3312	23	2	87·7
5 d	2112 3333	18	2112 3333	18	2111 1333	15	1011 2223	12	1	88·1
6	3210 0002	8	3200 0000	5	3110 0002	7	3210 0001	7	1	88·3
7	3322 2221	17	2212 2211	13	3321 1220	14	3132 2121	15	1	88·5
8	1110 0011	5	1000 0010	2	1110 0011	5	1000 0010	2	0	88·3
9	2301 2231	14	1201 2231	12	2300 0111	8	2301 1011	9	1	88·3
10 q	1000 0000	1	0000 0000	0	1000 0000	1	0000 0000	0	0	88·5
11 d	3332 4445	28	3222 4445	26	3331 2344	23	3311 2345	22	2	88·4
12 d	3222 3232	19	3222 3221	17	3221 1132	15	3211 2122	14	1	88·3
13	2111 1122	11	2111 1121	10	2110 0022	8	1010 0003	5	1	88·5
14	0000 1122	6	0000 1121	5	0000 0122	5	1000 1011	4	0	88·3
15 q	1000 0011	3	1000 0001	2	1000 0011	3	0000 0010	1	0	88·2
16	2111 1213	12	1011 1212	9	2110 0103	8	1000 0111	4	1	88·0
17	3100 1210	8	2100 1210	7	3100 0110	6	2101 1110	7	1	87·8
18	1211 2121	11	1111 2111	9	1211 1021	9	0101 1111	6	1	87·3
19	0011 2212	9	0001 2201	6	0010 0112	5	0001 1100	3	1	87·0
20	1000 1123	8	0000 1111	4	1000 0023	6	0000 0111	3	1	87·0
21	0011 1210	6	0001 1110	4	0010 0210	4	0100 1100	3	1	86·9
22	2121 2111	11	2101 2110	8	2121 1001	8	2101 1111	8	1	86·6
23	1000 1100	3	1000 1100	3	1000 0000	1	1001 1100	4	0	87·3
24 q	0000 0120	3	0000 0110	2	0000 0020	2	0000 0010	1	0	87·5
25	1100 2322	11	1100 2322	11	1100 0211	6	1100 1331	10	1	87·7
26	3220 3113	15	2010 3113	11	3220 2002	11	2001 1112	8	1	87·4
27	2211 2210	11	1211 2210	10	2111 2100	8	2101 1110	7	1	87·8
28 q	0000 0020	2	0000 0010	1	0000 0020	2	0000 0000	0	0	87·8
29	1001 1202	7	0001 1202	6	1000 0002	3	1001 0011	4	1	87·2
30 q	0100 0011	3	0000 0010	1	0100 0001	2	0000 1001	2	0	86·7
31 d	1101 2233	13	1101 2213	11	1101 1033	10	1111 1125	13	1	87·0
								Mean	0·77	87·7

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

1 LERWICK (H) — 14,000γ (0·14 C.G.S. unit) + — SEPTEMBER 1964

Day	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	Sum 14,000γ+
	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	γ
1	630	642	627	604	633	632	636	624	624	627	621	616	617	632	640	644	660	661	654	657	652	639	650	626	635	1248
2	601	636	628	630	642	645	641	630	623	617	617	624	635	641	646	649	648	644	651	663	666	652	648	650	639	1327
3	649	649	650	647	649	645	640	636	633	624	621	621	629	638	638	650	644	654	653	647	656	643	649	651	642	1416
4	650	650	648	642	642	646	642	632	627	615	614	603	623	642	635	638	641	649	653	653	649	652	637	636	638	1319
5	637	634	641	630	641	644	640	632	624	616	616	619	629	634	637	640	642	642	644	650	652	650	649	649	637	1292
6	647	645	642	642	642	642	642	637	623	613	616	623	643	659	642	642	645	650	647	650	668	644	656	631	641	1391
7 d	636	643	648	649	649	651	647	634	626	627	622	617	622	647	647	657	656	652	675	656	649	648	641	647	644	1446
8 d	639	638	608	635	642	632	622	595	607	606	598	621	632	638	651	656	654	668	667	650	652	643	642	634	635	1230
9	642	641	635	600	623	652	642	637	627	614	605	611	616	626	644	651	646	649	653	645	636	621	640	637	633	1193
10	631	596	604	647	650	646	643	637	628	621	616	617	621	630	636	647	647	648	649	648	646	653	641	642	635	1244
11	639	640	638	639	638	637	635	632	624	617	613	620	624	633	640	642	641	644	648	649	649	650	653	645	637	1290
12	646	645	642	641	642	641	635	628	619	615	613	616	624	634	641	645	649	649	649	653	653	652	650	651	639	1333
13 q	649	646	645	644	644	643	641	638	632	623	623	617	623	632	638	641	641	647	650	650	650	643	643	646	640	1349
14 q	645	645	643	642	643	643	642	638	636	624	618	615	617	626	636	647	645	648	649	649	648	648	648	653	639	1348
15 q	648	646	645	645	646	646	649	641	634	626	625	624	628	630	635	641	648	652	651	655	652	650	650	653	643	1420
16	657	653	653	649	650	648	652	651	642	631	628	626	639	651	648	654	655	664	668	662	667	662	643	641	*650*	1594
17	641	633	635	644	646	646	646	635	631	624	622	631	625	634	635	630	630	642	645	645	643	649	645	646	638	1303
18	645	641	645	644	646	649	649	645	635	620	617	616	624	636	639	646	648	648	647	649	648	649	655	646	641	1387
19 q	646	644	645	648	648	648	647	643	633	620	617	618	624	633	641	645	645	646	650	653	653	653	651	650	642	1401
20 q	651	650	649	650	650	648	645	642	633	623	619	620	625	632	640	645	647	649	649	651	649	648	651	651	642	1417
21	651	651	651	653	653	655	653	644	635	628	622	627	636	644	651	651	650	651	656	659	662	660	656	661	648	1560
22 d	671	634	565	484	623	634	640	625	616	613	613	614	617	620	632	638	643	635	639	635	636	639	651	637	*623*	954
23	634	631	638	639	641	634	631	612	616	617	616	609	625	627	634	636	637	640	645	646	645	643	642	638	632	1176
24	636	637	636	634	638	643	645	639	632	612	599	609	619	629	632	632	637	639	646	657	637	636	644	646	634	1214
25	648	643	640	639	638	644	644	635	626	622	620	621	628	630	633	638	641	640	643	643	645	645	642	639	637	1287
26	641	638	638	638	640	641	643	641	624	616	611	610	613	621	626	631	636	642	644	645	645	646	647	645	634	1222
27	645	644	645	645	645	648	646	644	644	640	632	626	624	625	631	635	640	649	652	651	647	648	630	641	641	1377
28 d	625	609	605	639	647	645	651	650	618	599	589	612	614	649	656	742	660	617	628	655	630	619	635	633	634	1227
29	634	632	630	629	631	625	628	625	623	618	615	616	615	616	619	633	635	638	641	643	642	643	643	647	630	1121
30 d	634	636	641	639	611	637	656	632	625	621	619	617	613	613	628	629	634	651	630	631	635	633	634	645	631	1144
Mean	642	639	635	634	641	643	642	635	627	620	*616*	618	624	633	638	646	645	647	649	*650*	649	645	645	644	638	
Sum 18,000γ+	1248	1172	1060	1011	1233	1290	1273	1034	820	589	477	536	724	1002	1151	1375	1345	1408	1476	1500	1462	1361	1366	1317		Grand Total 459,230

GEOMAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

2 LERWICK (D) — 9° + — SEPTEMBER 1964

Day	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	Sum 500·0'+
	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'
1	14·4	20·3	25·9	23·9	19·2	18·7	19·4	20·6	20·2	22·2	25·2	27·2	28·8	28·5	28·8	28·4	28·9	17·1	26·1	26·1	25·3	18·1	16·7	16·1	22·8	46·1
2	27·7	25·2	22·1	21·4	20·5	20·6	20·5	19·8	20·7	22·6	26·0	26·5	28·1	28·8	26·5	25·2	25·6	25·2	25·1	20·4	22·4	23·2	22·3	24·7	23·8	71·1
3	26·2	22·1	18·3	20·9	19·1	21·2	20·6	20·8	21·6	23·2	25·9	29·5	30·2	30·5	28·6	27·1	24·1	21·2	20·9	21·2	19·1	23·5	24·4	24·3	23·5	64·5
4	23·8	23·9	23·7	23·3	23·2	21·8	21·7	21·2	21·3	23·6	27·1	28·8	32·9	32·0	30·3	27·1	24·8	23·3	23·2	21·6	20·9	21·1	20·0	19·0	24·1	79·6
5	21·9	23·0	22·9	21·0	23·1	20·6	19·2	19·6	21·4	23·9	25·9	29·0	30·8	30·0	28·0	26·0	24·9	23·9	23·9	24·3	24·1	23·9	23·6	23·7	24·1	78·6
6	23·2	22·2	22·2	21·5	21·5	21·1	20·6	20·6	21·3	23·6	26·6	29·0	31·0	32·8	29·9	27·5	26·3	25·5	23·2	24·7	26·4	20·8	5·8	15·1	23·4	62·4
7 d	12·5	15·2	17·4	18·8	19·3	19·0	18·3	18·2	19·3	22·2	27·4	31·7	32·7	34·3	32·6	30·8	27·5	23·2	20·6	16·9	19·2	20·0	10·6	17·6	21·9	25·3
8 d	18·2	20·8	27·1	23·2	18·5	20·6	23·2	22·2	22·7	27·0	30·8	32·0	34·0	31·1	28·9	24·9	25·8	17·8	15·8	21·0	17·7	20·7	22·4	25·8	23·8	72·2
9	25·0	23·6	22·4	22·3	25·5	21·4	18·7	19·3	20·3	21·8	25·7	28·6	31·4	29·5	29·6	25·4	20·6	19·9	17·1	22·2	22·7	27·5	22·4	20·8	23·5	63·7
10	21·7	19·3	29·0	20·9	20·3	19·9	19·9	19·9	20·1	21·0	23·8	25·9	28·0	29·7	28·9	27·7	26·6	25·8	24·6	21·2	23·4	20·3	22·8	25·0	23·6	65·7
11	23·7	23·3	21·5	17·0	17·9	18·9	20·5	20·7	20·8	21·6	23·2	25·5	27·6	28·1	28·3	26·5	24·7	24·0	24·2	23·9	23·8	23·4	22·2	22·2	23·1	53·5
12	22·6	22·3	23·9	21·7	20·0	20·0	19·6	19·4	20·2	21·7	24·3	26·5	27·6	27·7	26·7	25·7	25·2	24·9	24·5	24·7	24·3	24·2	23·4	22·8	23·5	63·9
13 q	23·0	21·9	21·5	21·3	20·9	20·9	20·5	20·4	20·9	21·7	23·4	23·9	25·9	26·9	26·7	26·4	25·7	25·3	24·4	24·0	22·1	21·7	22·7	21·5	23·1	53·6
14 q	22·2	22·7	21·9	22·0	21·9	21·5	20·6	20·3	20·8	21·4	22·8	24·6	26·5	27·7	27·9	27·6	25·8	24·4	24·0	23·5	23·5	23·4	23·0	22·8	23·5	62·8
15 q	22·7	22·2	22·3	22·3	21·8	21·5	19·9	18·9	19·6	21·1	22·9	25·2	26·8	27·2	27·0	26·2	26·0	25·2	24·8	24·8	24·4	23·8	23·2	23·2	23·5	63·0
16	22·7	22·4	22·1	22·2	21·6	21·2	21·2	20·3	19·4	20·8	23·1	25·5	29·9	34·1	36·6	41·5	36·8	32·4	32·4	26·6	21·1	16·2	17·9	22·1	*25·4*	110·1
17	21·8	22·7	18·3	20·4	21·2	21·7	21·3	21·5	21·2	22·4	24·0	26·3	28·0	29·5	29·4	28·0	25·7	24·5	23·8	22·9	18·9	19·2	20·3	20·5	23·1	53·5
18	22·3	22·3	22·5	20·8	21·0	20·7	20·6	20·6	20·4	21·3	22·9	25·3	28·0	29·0	28·1	26·8	25·5	24·5	24·2	23·7	23·4	21·6	20·9	21·8	23·3	58·2
19 q	21·4	22·8	23·3	22·6	22·8	22·5	21·8	20·7	20·8	21·8	23·8	26·0	28·1	29·3	29·1	27·3	26·2	25·1	25·1	24·4	24·0	23·5	23·3	23·3	24·1	79·0
20 q	22·8	23·0	22·8	22·8	22·5	22·3	21·8	21·1	20·5	21·4	23·4	26·4	28·8	28·0	27·0	25·2	24·3	23·8	23·3	23·9	23·8	23·2	20·4	21·7	23·5	64·2
21	23·4	23·2	22·8	21·4	21·4	21·2	20·5	20·2	20·4	21·4	23·0	26·2	29·0	29·6	29·0	27·7	26·3	25·5	25·8	25·0	24·3	21·1	22·4	23·8	23·9	74·6
22 d	23·5	13·7	16·0	8·3	10·7	15·9	17·6	19·4	20·4	21·0	23·1	25·8	27·7	28·3	27·7	26·5	26·4	25·0	23·0	21·4	24·1	25·7	22·0	21·7	*21·5*	14·9
23	21·8	23·0	21·3	19·2	19·1	19·8	19·6	20·7	24·7	24·4	25·9	25·2	26·2	26·4	26·0	25·8	25·2	24·4	24·2	24·4	24·3	22·8	19·7	18·5	23·0	52·6
24	21·2	21·0	20·6	20·3	22·4	21·2	21·4	21·3	20·0	21·0	24·4	27·0	27·7	29·0	28·6	24·7	25·8	25·2	24·2	9·8	16·0	22·8	22·7	22·7	22·5	41·0
25	22·0	21·3	19·4	17·6	21·4	22·0	21·9	21·2	21·2	22·2	24·0	26·0	27·4	27·1	26·4	25·2	24·1	23·4	23·1	22·8	22·8	22·0	20·0	23·1	22·8	47·6
26	22·2	23·5	22·9	22·6	22·2	21·8	20·7	19·7	21·2	22·2	23·9	25·7	27·7	28·5	27·2	25·6	24·5	24·0	24·0	23·9	23·7	23·2	23·1	22·8	23·6	66·8
27	22·7	22·5	22·2	22·6	22·7	22·4	22·2	21·8	21·3	21·2	22·3	24·4	26·2	27·7	28·9	28·3	26·7	25·3	25·6	25·5	25·4	17·1	11·6	9·0	22·7	45·6
28 d	15·4	14·3	22·7	21·2	20 3	21 3	22 9	23 8	22 7	27·5	27·7	28·1	30·9	30·2	33·8	27·7	22·0	26·8	25·2	13·2	17·0	18·8	20·9	21·0	23·1	55·4
29	21·3	22·2	21·7	22·5	22·4	23·2	22·7	21·5	19·9	20·8	21·7	24·3	26·6	26·9	26·1	25·5	24·7	24·3	23·8	23·8	23·5	22·8	22·1	23·4	23·2	57·7
30 d	19·3	22·2	21·9	20·4	24·1	32·2	28·1	26·0	25·6	24·1	21·6	26·2	27·5	30·0	26·7	27·5	23·3	17·5	16·2	21·3	21·0	20·8	21·1	24·3	23·7	68·9
Mean	21·7	21·6	22·1	20·9	20·9	21·2	20·9	20·7	21·0	22·4	24·5	26·7	28·7	*29·3*	28·6	27·2	25·7	23·9	23·5	22·4	22·4	21·9	*20·5*	21·5	23·4	
Sum 600·0'+	52·6	48·1	62·6	26·4	28·5	37·1	27·5	21·7	30·9	72·1	135·8	202·3	262·0	278·4	259·3	215·8	170·0	118·4	106·3	73·1	72·6	56·4	13·9	44·3	23.5	Grand Total 16816·1

GEOMAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

3 LERWICK (Z) — 47,000γ (0·47 C.G.S. unit) + — SEPTEMBER 1964

	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	Sum 8000γ+
	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	γ
1	315	351	350	308	323	338	342	359	376	383	385	380	380	379	383	390	406	434	410	398	398	382	347	331	*369*	848
2	299	285	335	360	370	377	383	388	388	386	380	381	380	384	388	389	393	393	389	386	370	371	379	378	372	932
3	356	350	359	369	362	369	375	379	379	379	378	377	378	386	391	391	399	401	408	407	370	385	387	388	380	1123
4	389	388	387	389	388	388	387	387	387	387	382	390	385	388	398	396	396	396	397	399	398	350	342	368	386	1262
5	378	383	379	381	375	383	388	388	385	382	380	378	381	387	396	404	404	403	396	388	387	388	388	387	387	1289
6	382	386	389	391	394	395	394	389	388	381	377	371	376	382	394	397	398	398	402	398	387	391	360	335	386	1255
7 *d*	340	349	371	388	391	390	386	387	385	379	378	387	397	398	403	416	435	459	445	370	353	343	284	290	380	1124
8 *d*	348	370	339	341	361	379	381	384	385	372	379	382	391	396	403	416	416	418	409	398	395	386	377	366	383	1192
9	356	376	378	347	338	352	376	380	382	383	386	382	390	399	400	418	429	424	413	401	405	352	319	349	381	1135
10	299	284	283	330	362	377	383	387	385	382	377	369	370	372	376	381*	387*	385	404	404	399	384	387	381	*369*	848
11	362	352	354	366	380	386	390	397	398	390	382	380	379	377	382	387	388	392	389	390	390	388	383	386	382	1168
12	388	386	382	382	387	392	396	396	392	393	382	380	381	382	382	386	389	391	393	392	392	395	394	393	389	1326
13 *q*	392	390	392	392	392	392	391	389	390	390	391	389	381	378	378	375	375	374	377	379	379	380	379	377	384	1222
14 *q*	376	376	380	381	382	384	386	386	382	381	384	384	380	380	376	376	379	382	382	383	385	384	386	379	381	1154
15 *q*	380	380	380	382	384	384	386	389	385	380	378	377	379	378	378	380	381	383	382	384	387	387	387	387	382	1178
16	383	383	381	379	374	377	376	378	382	383	379	380	380	385	397	413	443	449	475	467	459	430	417	399	*403*	1669
17	386	340	367	363	376	376	378	385	387	387	386	384	386	386	391	395	400	402	396	396	399	387	384	381	384	1218
18	379	381	385	390	392	391	393	390	393	399	395	392	395	390	392	395	396	396	396	396	397	398	387	392	392	1410
19 *q*	392	395	396	396	395	393	392	395	396	395	394	389	389	392	399	400	402	400	397	397	399	397	399	400	396	1499
20 *q*	400	398	400	399	402	397	398	400	399	398	394	390	386	389	391	398	400	400	398	396	398	396	396	393	397	1516
21	394	398	401	400	399	398	399	397	394	394	393	388	383	384	391	393	395	394	392	392	390	392	394	391	394	1446
22 *d*	375	363	247	162	284	359	382	394	391	398	396	393	393	389	394	398	406	409	407	405	400	393	372	386	371	896
23	394	394	389	394	392	394	392	392	389	384	385	389	390	391	393	396	397	396	395	394	393	394	397	392	392	1416
24	393	393	395	396	393	392	390	391	392	396	398	389	387	390	398	405	403	398	399	390	387	388	388	386	393	1437
25	377	374	379	381	388	389	389	390	390	389	389	387	386	386	389	389	393	394	394	394	393	392	389	385	388	1306
26	382	385	385	389	390	392	393	393	394	391	388	385	384	384	389	392	393	393	393	392	391	390	388	388	389	1344
27	386	386	385	385	386	387	389	389	386	385	385	385	385	384	384	385	388	391	391	393	396	403	374	353	386	1261
28 *d*	349	328	332	319	350	367	375	379	388	392	397	395	405	432	442	486	478	451	416	410	380	372	345	354	389	1342
29	372	385	389	389	389	390	389	396	398	397	396	395	398	398	400	398	398	395	394	394	395	396	395	381	393	1427
30 *d*	376	385	384	382	368	336	333	354	372	380	388	390	388	408	427	416	418	411	416	407	399	394	380	349	386	1261
Mean	370	370	369	*368*	376	381	384	387	388	387	386	385	385	389	393	399	403	*404*	402	397	392	386	377	374	385	
Sum 11,000γ+	98	94	73	31	267	424	512	608	638	616	582	538	563	654	805	961	1085	1112	1055	900	771	588	304	225		Grand Total 277,504

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH HOUSE

4 LERWICK — SEPTEMBER 1964

	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph house 200°A+
1	4320 3323	20	3320 3313	18	4320 1323	18	3330 1323	18	1	87·3
2	3212 1132	15	3202 1121	12	3111 1032	12	3111 1122	12	1	87·4
3	3201 2231	14	2100 2231	11	3201 1231	13	2100 1131	9	1	87·4
4	0112 2122	11	0112 2122	11	0101 0021	5	0001 1113	7	1	87·9
5	1211 1001	7	1201 1000	5	1211 0001	6	1101 1101	6	1	88·0
6	1001 2124	11	0001 2123	9	1000 1024	8	0000 2123	8	1	88·0
7 *d*	3223 3244	23	2223 3244	22	3222 2244	21	3112 1344	19	1	88·0
8 *d*	3333 2333	23	3333 2332	22	3322 2333	21	3312 1222	16	1	87·8
9	2322 2333	20	2312 2233	18	2221 1333	17	2321 2224	18	1	87·5
10	3210 1223	14	3200 1222	12	3210 0023	11	3310 0-12	-	1	87·0
11	2210 1001	7	0000 1001	2	2210 0001	6	2210 0000	5	0	86·6
12	1100 1000	3	1000 1000	2	1100 0000	2	1100 0000	2	0	86·0
13 *q*	1000 0011	3	0000 0010	1	1000 0011	3	0000 0000	0	0	85·8
14 *q*	0000 0101	2	0000 0101	2	0000 0001	1	0000 0000	0	0	86·1
15 *q*	0000 0000	0	0000 0000	0	0000 00 0	0	0000 0000	0	0	86·7
16	0101 3333	14	0001 2222	9	0100 3333	13	0100 2323	11	1	87·4
17	3211 2122	14	1111 2112	10	3201 2122	13	3210 2001	9	1	87·6
18	1100 2012	7	1100 2012	7	1100 0001	3	0010 0002	3	0	87·7
19 *q*	0000 1000	1	0000 1000	1	0000 0000	0	0000 1000	1	0	87·2
20 *q*	0000 0012	3	0000 0001	1	0000 0012	3	0000 0000	0	0	86·4
21	0001 0012	4	0001 0012	4	0000 0012	3	0000 0001	1	0	85·3
22 *d*	6821 2222	25	6821 2212	24	4621 1022	18	6620 0112	18	2	85·0
23	1122 0012	9	0121 0011	6	1122 0002	8	1111 0001	5	1	85·3
24	1112 2231	13	0112 2231	12	1112 1131	11	0101 1110	5	1	86·4
25	2200 0001	5	1100 0000	2	2200 0001	5	2100 0000	3	0	87·0
26	1010 0000	2	0010 0000	1	1010 0000	2	0000 0000	0	0	87·8
27	0000 0113	5	0000 0113	5	0000 0003	3	0000 0003	3	1	88·0
28 *d*	3333 4652	29	3333 4642	28	3222 3552	24	3321 3433	22	2	87·8
29	1101 1002	6	1101 1002	6	1001 1002	5	2010 0002	5	1	87·4
30 *d*	2332 2433	22	1332 2323	19	2322 2432	20	2332 3223	20	1	87·3
								Mean	0·70	87·0

q denotes an international quiet day and *d* an international disturbed day. *Estimated

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

1 LERWICK (H) 14,000γ (0·14 C.G.S. unit) + OCTOBER 1964

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	Sum 15,000γ+
	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	γ
1	623	631	638	644	634	640	644	635	624	620	618	612	621	629	631	629	625	635	637	638	640	643	641	640	632	172
2	634	640	638	640	644	642	640	635	633	629	626	622	622	626	631	634	637	645	640	637	644	637	641	643	636	260
3	641	638	640	644	645	645	646	645	639	633	629	631	630	639	646	644	632	630	647	652	653	655	657	647	642	408
4 *d*	649	631	640	640	637	640	643	646	637	624	616	629	630	633	642	650	659	641	640	648	644	637	595	619	636	270
5 *d*	647	642	609	607	636	637	638	633	639	635	630	626	623	616	633	643	641	645	647	656	648	642	666	651	637	290
6	642	634	638	642	642	643	644	644	643	642	634	630	630	626	626	626	632	636	646	650	662	647	647	642	639	348
7	620	616	598	621	628	634	649	642	637	621	616	622	625	631	635	643	644	642	644	648	651	656	636	635	633	194
8	638	637	638	637	648	652	645	632	626	624	618	620	621	632	648	644	646	662	654	628	623	621	633	633	638	260
9	639	639	635	634	639	652	657	633	605	593	596	606	612	622	631	638	638	644	647	646	648	646	643	637	633	180
10	636	636	640	642	643	644	644	641	634	624	615	611	616	626	632	637	648	644	645	645	645	645	644	646	637	283
11 *q*	643	644	642	641	642	644	646	643	640	632	625	627	632	641	643	642	646	639	641	644	649	653	651	652	642	402
12	644	644	644	646	648	651	652	637	638	635	630	615	608	620	636	637	626	626	631	630	637	644	640	641	636	260
13	637	632	627	643	636	636	640	637	622	620	622	622	624	619	621	627	625	635	640	643	638	645	644	644	632	179
14	640	640	639	634	636	650	647	645	635	632	630	624	628	637	641	642	641	642	643	645	647	648	648	646	640	360
15	651	641	644	643	645	648	650	646	629	624	621	619	626	631	636	630	642	639	641	638	637	638	642	641	638	302
16	646	641	641	643	640	646	654	650	646	635	629	625	629	638	641	638	639	639	640	646	646	648	656	647	642	403
17	644	646	643	647	650	648	645	654	647	636	625	626	629	630	638	637	630	643	648	650	651	649	650	651	642	417
18	649	648	649	646	646	650	649	647	642	635	631	636	628	639	660	654	641	641	644	633	644	636	643	646	*643*	437
19 *d*	640	642	645	647	645	647	626	642	635	630	627	627	636	658	631	679	647	649	643	643	641	625	632	627	640	364
20	596	588	632	637	634	635	639	636	628	621	614	621	627	630	632	641	637	645	646	646	645	651	641	639	*632*	161
21 *d*	632	637	632	629	638	642	640	627	627	624	613	623	626	629	630	631	631	631	651	647	623	641	635	628	632	167
22 *q*	635	637	636	638	639	640	643	639	626	623	620	619	623	629	636	639	639	640	642	643	644	644	644	644	636	262
23 *q*	642	641	640	641	643	643	642	639	630	624	620	623	630	636	639	641	643	646	647	646	643	643	645	645	639	332
24	644	644	644	644	645	648	647	644	639	629	623	628	636	641	647	650	650	652	648	646	639	639	645	643	642	415
25	655	642	643	645	647	647	648	651	643	632	622	617	622	628	637	643	647	650	651	651	650	647	647	653	642	418
26 *d*	657	650	646	650	653	657	660	655	612	591	605	610	609	618	624	631	633	634	636	635	638	635	634	634	634	207
27	635	636	636	636	636	636	644	647	645	636	621	614	617	622	628	634	636	639	641	640	638	646	640	637	641	635	245
28	639	637	639	639	640	642	642	643	639	630	620	628	629	635	632	632	636	640	642	648	646	644	643	643	638	308
29	641	641	635	628	644	646	643	637	634	632	624	621	625	630	636	636	632	626	630	636	643	643	644	645	635	252
30 *q*	641	640	639	639	640	643	642	643	640	628	619	611	615	623	629	633	635	638	641	642	643	642	643	646	636	255
31 *q*	642	641	640	641	644	644	645	643	636	628	623	627	628	635	638	641	643	645	647	649	650	645	644	641	640	360
Mean	639	637	637	639	641	645	*645*	642	634	626	*621*	622	625	631	636	640	639	641	643	643	644	643	642	642	637	
Sum 19,000γ+	822	756	750	808	887	980	997	889	641	407	255	275	362	555	716	828	804	865	939	947	958	929	911	890		Grand Total 474,171

GEOMAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

2 LERWICK (D) 9° + OCTOBER 1964

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	Sum 500·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	23·2	25·7	21·5	20·1	22·3	26·2	22·5	21·7	22·4	24·5	25·1	27·2	27·7	28·7	27·7	27·3	24·8	20·6	23·2	23·4	23·4	23·2	22·9	23·4	24·1	78·7
2	26·3	26·2	22·0	21·4	21·2	21·9	21·4	20·7	20·4	22·1	23·7	25·3	26·4	26·8	26·4	25·5	24·5	23·9	24·4	24·1	18·6	22·3	23·3	22·9	23·4	61·7
3	23·4	25·3	24·5	21·6	21·7	22·3	21·7	21·0	21·1	21·5	22·9	25·8	27·4	30·1	30·6	33·9	32·1	28·5	23·9	25·5	26·2	23·6	21·5	21·5	24·9	97·6
4 *d*	20·2	26·2	24·3	17·1	13·9	21·2	22·3	21·5	21·4	21·6	23·9	26·3	28·7	29·2	29·7	30·6	30·5	15·6	23·3	16·2	12·6	12·5	17·6	19·1	21·9	25·5
5 *d*	15·1	11·3	14·8	24·3	22·1	22·3	22·3	21·6	21·4	21·0	22·3	24·6	26·5	26·0	25·4	29·1	20·3	23·8	24·8	15·8	22·1	22·8	20·8	25·5	21·9	26·0
6	18·6	19·0	23·0	22·7	22·7	22·4	22·4	21·9	21·7	22·1	23·1	24·7	27·2	28·6	26·2	24·3	22·1	24·1	22·9	19·5	17·0	19·5	18·5	17·6	22·2	31·8
7	13·9	13·7	14·7	20·6	20·6	22·9	22·3	20·9	19·6	20·6	21·7	24·6	27·4	28·2	28·3	27·2	25·4	22·7	23·4	23·4	17·7	12·6	16·6	20·5	*21·2*	9·5
8	22·8	24·1	24·3	24·5	24·3	23·9	24·5	23·2	21·3	23·0	23·7	27·6	29·0	30·3	26·1	27·5	23·9	15·8	16·0	15·9	19·4	18·9	14·1	14·7	22·5	38·8
9	15·7	19·9	20·7	22·3	21·8	20·4	22·3	21·7	20·4	24·6	25·6	30·7	28·2	28·4	28·0	26·7	25·4	23·6	23·9	22·7	23·1	18·3	18·0	18·8	23·0	51·2
10	21·3	23·3	22·6	22·9	22·9	22·6	22·4	21·3	20·2	20·5	22·9	25·8	28·1	29·7	29·3	27·3	25·6	24·9	24·0	22·8	22·9	22·8	22·9	22·8	23·8	71·8
11 *q*	22·8	23·0	22·8	23·0	22·5	22·4	22·2	20·9	19·8	20·7	22·8	25·7	27·4	28·5	27·8	27·3	26·0	24·5	24·1	23·3	21·0	17·6	17·3	18·6	23·0	52·0
12	22·0	22·9	22·9	22·8	23·1	22·9	22·4	23·5	24·4	25·0	27·5	32·0	33·4	34·3	33·6	33·0	29·0	24·4	22·6	20·2	19·8	22·2	20·4	22·3	25·3	106·6
13	22·2	24·4	23·4	20·3	19·5	21·8	21·5	21·7	22·4	23·8	25·3	26·9	29·2	28·6	27·3	27·3	27·0	25·8	24·5	23·4	22·3	19·6	22·7	22·9	23·9	73·8
14	24·5	22·5	20·0	17·4	21·1	21·1	21·8	21·8	21·7	22·7	25·3	27·9	28·7	28·8	27·8	25·5	24·4	23·9	23·9	23·7	23·5	23·0	23·0	22·7	23·6	66·7
15	25·0	21·6	21·4	21·7	21·9	21·8	21·4	20·8	20·8	22·5	24·5	27·8	29·1	28·2	26·9	24·5	23·5	24·2	24·2	18·9	20·0	20·3	20·6	22·5	23·1	54·1
16	22·4	22·3	22·4	22·4	23·5	23·4	22·9	21·7	21·6	22·3	24·4	26·5	27·8	28·3	26·8	25·7	24·6	24·1	24·3	24·3	23·5	22·4	22·5	22·5	23·9	72·6
17	22·5	24·1	21·4	22·3	22·4	22·5	24·1	23·9	23·1	24·2	25·9	28·6	31·7	32·4	31·3	32·6	28·4	25·4	24·5	23·9	23·6	23·2	23·3	23·3	*25·4*	108·6
18	23·0	22·6	21·6	21·6	22·4	20·4	21·5	21·1	21·4	22·9	24·5	28·1	27·6	28·8	31·0	29·7	30·0	28·4	26·3	22·5	18·8	21·5	20·7	19·7	24·0	76·1
19 *d*	19·8	19·5	20·5	22·1	22·3	22·4	26·1	22·7	23·4	23·2	25·5	27·7	31·7	38·4	35·8	38·4	27·3	31·7	23·5	22·5	21·1	14·9	13·2	17·6	24·6	91·3
20	23·9	25·5	24·4	22·3	22·5	22·3	22·3	21·6	21·2	22·5	24·0	28·4	29·1	27·5	26·4	25·8	23·8	24·9	24·4	25·0	17·6	15·2	21·1	21·9	23·5	63·6
21 *d*	26·4	23·8	23·8	24·9	23·1	22·8	22·6	24·1	24·5	23·4	24·0	25·3	26·4	27·2	26·8	26·7	21·1	21·5	15·5	9·3	14·9	16·6	15·5	15·8	21·9	26·0
22 *q*	22·7	23·9	22·9	22·3	22·6	22·6	21·2	21·3	20·9	21·3	22·8	25·3	26·4	26·7	30·9	24·9	24·2	23·4	22·9	22·6	22·6	22·6	22·3	22·5	23·4	61·8
23 *q*	22·6	22·8	23·0	23·3	23·3	23·0	22·7	21·9	21·2	22·3	23·5	25·4	26·3	26·3	25·4	24·2	24·1	24·2	24·3	24·2	23·9	23·3	22·8	22·5	23·6	66·5
24	22·5	22·4	22·5	22·8	22·5	22·3	22·3	22·1	21·3	21·4	23·0	25·5	27·3	27·1	26·2	25·1	24·8	24·6	23·4	23·3	22·3	22·3	22·3	22·4	23·4	61·8
25	15·5	19·0	21·4	21·1	20·9	21·9	21·9	21·5	21·4	21·4	22·8	24·9	26·9	27·2	25·5	24·4	23·9	24·0	23·9	23·7	23·5	22·1	20·4	20·8	22·5	40·0
26 *d*	23·3	18·6	20·5	22·0	22·4	23·2	24·4	23·2	20·2	25·5	25·1	26·8	26·1	26·7	24·3	23·8	23·3	21·9	21·1	22·2	17·9	19·4	21·1	21·6	22·7	44·6
27	23·8	22·4	21·8	23·0	23·4	22·1	22·1	22·2	22·2	23·0	24·8	27·8	29·8	29·2	27·2	24·7	22·1	24·0	24·0	21·6	18·5	21·0	21·6	22·1	23·5	64·4
28	22·6	24·8	22·3	22·3	22·1	22·3	22·2	22·2	21·7	22·2	23·4	25·4	26·5	26·8	25·4	24·5	24·4	24·9	24·9	22·3	19·6	21·5	21·5	22·4	23·2	56·2
29	22·3	22·7	22·0	25·9	22·8	23·4	21·7	21·6	22·2	23·1	25·3	26·3	27·0	26·7	26·4	25·3	25·5	24·2	22·3	22·3	22·3	21·8	21·7	20·2	23·5	65·0
30 *q*	21·5	20·4	20·8	21·3	20·8	19·9	20·5	20·6	21·0	21·9	23·8	25·9	27·8	27·3	27·2	26·9	25·4	23·7	23·0	22·9	22·8	22·3	22·4	22·3	23·0	52·4
31 *q*	22·8	22·4	22·1	22·1	21·5	21·6	21·5	21·4	21·4	22·3	23·5	25·4	25·8	25·5	24·4	23·5	23·5	23·4	23·3	23·2	22·9	23·0	21·1	20·5	22·8	48·1
Mean	21·8	22·1	21·8	22·1	21·9	22·3	22·4	21·9	21·5	22·5	24·1	26·7	28·0	*28·6*	27·8	27·2	25·2	23·9	23·3	21·8	20·8	*20·3*	20·5	21·1	23·3	
Sum 600·0′+	74·6	86·3	76·3	84·4	80·1	92·2	93·4	77·3	67·7	99·1	146·6	226·2	268·6	286·5	262·1	243·2	180·9	140·6	120·7	74·6	45·4	30·3	33·8	53·9		Grand Total 17344·8

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

3 LERWICK (Z) — 47,000γ (0·47 C.G.S. unit) + — OCTOBER 1964

Day	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	Sum 8000γ+
	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	γ
1	363	337	369	377	380	372	379	386	390	390	391	394	391	393	403	407	406	404	395	391	390	390	390	386	386	1274
2	383	362	370	377	381	382	385	386	386	384	383	385	386	387	388	392	391	391	395	396	390	391	387	387	385	1245
3	388	388	381	382	382	383	383	382	385	386	386	387	387	390	401	421	443	456	423	400	392	391	386	385	395	1488
4 d	374	343	340	325	352	364	368	374	381	383	386	386	384	386	386	396	410	503	452	404	320	357	358	262	375	994
5 d	305	327	341	335	352	353	374	385	386	385	387	391	396	386	406	400	414	413	400	395	385	390	374	343	376	1023
6	359	376	377	382	386	383	382	379	377	378	373	374	374	378	387	405	415	402	392	387	381	374	360	333	380	1114
7	299	279	299	322	345	347	360	370	377	381	378	378	382	382	385	389	395	398	393	390	386	361	361	368	*364*	725
8	373	378	378	382	382	378	382	388	391	390	390	391	392	394	410	417	421	413	416	395	398	369	346	317	387	1291
9	328	366	382	382	372	374	376	382	395	405	396	391	392	395	399	404	401	400	400	399	396	387	372	369	386	1263
10	371	375	382	387	391	391	392	395	395	394	391	387	386	386	389	392	395	396	398	399	394	394	390	387	390	1357
11 q	387	386	386	389	390	391	392	395	395	392	388	384	381	382	389	393	398	401	399	398	394	378	377	374	389	1339
12	381	383	383	385	386	386	388	390	385	382	382	391	400	420	449	469	453	440	417	413	402	386	368	384	*401*	1623
13	387	382	360	352	366	377	383	389	395	391	389	388	390	400	408	411	411	404	402	400	403	398	395	390	390	1371
14	378	344	353	357	368	372	379	382	387	388	389	390	391	391	390	391	391	390	391	392	391	391	392	390	382	1178
15	374	371	374	378	382	384	385	390	395	395	392	389	388	390	395	405	399	399	398	400	398	395	391	386	390	1353
16	371	378	383	385	387	381	382	385	388	390	390	391	389	388	391	395	395	396	398	396	395	392	376	374	387	1296
17	377	378	382	383	383	385	383	382	384	388	391	392	394	397	405	411	409	402	397	396	395	396	395	392	392	1397
18	393	393	390	389	382	375	379	383	386	386	388	387	392	391	396	413	412	408	409	424	430	409	379	311	392	1405
19 d	313	355	372	381	383	380	383	378	382	383	383	385	389	405	439	499	497	491	464	427	379	329	330	349	395	1476
20	341	301	355	383	391	393	391	392	394	394	395	395	395	401	400	401	402	396	392	392	402	387	386	385	386	1264
21 d	379	364	380	385	382	385	387	391	387	391	395	395	395	398	408	414	423	421	409	381	387	385	382	376	392	1400
22 q	378	381	390	394	395	394	392	394	396	394	392	390	388	391	395	397	396	396	395	392	390	388	388	388	391	1394
23 q	390	392	392	394	394	393	394	394	395	392	387	384	385	390	395	397	396	394	393	393	392	391	390	388	392	1405
24	388	389	390	391	391	391	391	390	390	390	387	383	381	383	388	391	391	391	393	394	396	393	385	368	389	1325
25	343	358	364	375	382	387	388	389	391	390	389	387	387	391	392	392	394	394	393	393	393	394	391	382	385	1239
26 d	372	369	374	378	382	377	377	382	400	415	407	399	401	404	405	405	405	407	405	405	404	399	394	389	394	1455
27	381	386	388	391	389	389	391	392	395	399	400	398	398	402	405	402	404	399	399	402	395	393	393	391	395	1482
28	387	377	377	383	387	390	391	391	394	396	396	392	391	395	400	397	395	395	395	396	387	389	392	392	391	1385
29	392	387	385	382	373	381	387	390	394	395	396	395	395	399	400	404	405	411	410	406	398	396	393	382	394	1456
30 q	370	364	369	375	380	382	387	388	391	395	397	400	398	400	399	399	399	396	394	394	394	394	394	392	390	1351
31 q	391	388	391	390	389	387	387	389	391	395	395	395	395	396	395	394	391	389	388	388	388	390	392	389	391	1383
Mean	368	*366*	373	377	380	381	384	387	390	391	390	389	390	393	400	407	408	*409*	403	398	392	386	381	371	388	
Sum 11,000γ+	416	357	557	671	785	807	898	983	1078	1117	1089	1074	1093	1191	1398	1603	1657	1696	1505	1338	1145	977	807	509		Grand Total 288,751

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH HOUSE

4 LERWICK — OCTOBER 1964

Day	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph house 200°A+
1	3211 1201	11	1211 1100	7	3211 0201	10	3121 1100	9	1	87·0
2	2000 1131	8	1000 1120	5	2000 0031	6	2000 0010	3	1	87·2
3	2000 2322	11	0000 2322	9	2000 2322	11	1000 2331	10	1	87·9
4 d	3322 2445	25	3122 2345	22	3322 1444	23	3321 0555	24	2	87·9
5 d	4322 3333	23	3322 3323	21	4221 2332	19	3311 2223	17	1	88·4
6	2011 2333	15	1011 2333	14	2011 2332	14	200- ---3	-	1	88·1
7	3320 1133	16	3320 1123	15	3220 0133	14	3320 1112	13	1	88·1
8	1221 3432	18	1221 3332	17	1021 2432	15	1110 2223	12	1	88·0
9	2232 2122	16	1232 2121	14	2221 1122	13	3221 1112	13	1	88·0
10	1001 1110	5	0001 1110	4	1000 0000	1	1000 0000	1	0	87·2
11 q	0000 1122	6	0000 1122	6	0000 0121	4	0000 0011	2	0	87·2
12	1022 3323	16	0022 3312	13	1012 2323	14	0002 3323	13	1	87·2
13	2201 2122	12	1100 1111	6	2201 2022	11	2210 2111	10	1	87·7
14	3211 1001	9	1211 1000	6	3201 0001	7	3211 0000	7	1	87·5
15	2011 1222	11	2010 1210	7	2001 1222	10	2010 0101	5	1	87·8
16	1100 0011	4	1100 0011	4	1000 0001	2	1100 0001	3	0	87·5
17	1110 1200	6	0110 1200	5	1110 1200	6	0001 1100	3	1	87·4
18	1112 3223	15	0112 3223	14	1111 1222	11	0211 1124	12	1	87·5
19 d	3322 3444	25	2322 3434	23	3222 3443	23	4111 3443	21	2	87·4
20	4112 2243	19	4101 2233	16	2112 1243	16	4101 1121	11	1	87·4
21 d	2222 1332	17	1212 1132	13	2121 1332	15	2111 1131	11	1	87·6
22 q	2111 0000	5	1011 0000	3	2111 0000	5	1000 0000	1	0	87·1
23 q	0000 0000	0	0000 0000	0	0000 0000	0	0000 0000	0	0	87·3
24	0000 0122	5	0000 0112	4	0000 0022	4	0000 0003	3	1	90·5
25	2010 0002	5	2010 0001	4	2000 0002	4	2100 0001	4	1	89·6
26 d	2133 2121	15	2133 2121	15	2133 1121	14	1122 0011	8	1	86·9
27	2101 1121	9	0001 1020	4	2100 1121	8	1000 0120	4	1	87·8
28	2000 1121	7	1000 1021	5	2000 0121	6	2000 1121	7	1	88·2
29	2200 0112	8	2200 0111	7	0200 0102	5	1210 0111	7	1	88·3
30 q	1010 0000	2	1010 0000	2	1000 0000	1	2010 0000	3	0	88·8
31 q	1000 0001	2	0000 0001	1	1000 0001	2	0000 0001	1	0	88·8
								Mean	0·84	87·8

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

1 LERWICK (H) — 14,000γ (0·14 C.G.S. unit) + — NOVEMBER 1964

	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	Sum 15,000γ+
	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	γ
1 d	642	641	642	649	651	660	661	659	649	639	636	638	638	650	652	650	648	633	632	638	647	639	600	607	642	401
2 d	630	631	627	635	631	632	641	639	632	627	622	623	629	635	641	641	641	642	641	641	641	640	645	641	635	248
3	635	630	636	639	636	639	640	639	637	632	627	628	633	636	641	642	642	643	644	644	646	646	645	645	639	325
4	644	645	647	639	650	642	642	641	638	634	630	637	639	632	629	638	641	645	641	644	646	641	635	658	641	378
5	639	634	633	635	639	643	642	640	635	629	628	632	632	615	635	639	632	647	641	632	622	637	643	642	*635*	246
6	641	639	638	639	643	644	643	643	640	635	628	627	629	630	637	639	643	646	643	643	645	644	644	645	639	348
7 q	643	643	641	642	645	645	645	643	638	632	630	630	635	640	643	647	649	647	649	651	650	649	648	650	643	435
8	645	649	650	657	665	665 ·	661	655	647	643	639	639	640	636	646	646	649	650	646	651	636	631	641	643	647	530
9 d	640	629	651	660	627	653	653	653	643	624	620	621	632	632	638	632	633	631	635	634	622	631	642	653	637	289
10	643	633	623	638	643	646	646	647	636	632	632	634	635	635	646	644	647	649	641	636	639	640	644	642	640	351
11	641	641	642	646	652	651	649	649	637	629	630	635	640	639	641	645	646	650	650	650	647	646	642	645	643	443
12	642	640	638	645	648	643	647	649	643	639	634	633	636	640	643	637	633	639	638	636	641	634	634	642	640	354
13	641	639	640	641	646	649	643	640	639	631	626	631	629	633	635	633	640	646	641	642	645	646	645	643	639	344
14 q	642	642	642	644	645	646	646	642	640	636	632	632	636	641	643	643	643	642	643	647	648	647	647	647	642	416
15 d	646	645	644	646	647	648	649	647	646	643	649	650	652	643	632	642	651	665	642	648	651	648	632	647	646	513
16	626	626	631	640	642	642	641	627	623	627	631	632	636	639	639	631	634	641	645	643	639	643	636	651	636	265
17	643	636	639	643	645	645	642	645	641	637	635	635	636	640	639	635	643	647	647	643	647	644	643	642	641	392
18	642	640	641	643	646	646	647	641	641	641	641	641	642	646	648	650	649	642	643	644	648	644	647	654	644	467
19 q	643	639	639	643	643	647	647	645	643	640	639	639	643	647	647	647	647	649	649	648	647	647	649	644	645	471
20	643	643	646	649	646	647	648	647	646	640	639	648	649	646	646	645	647	648	651	651	650	647	647	644	646	513
21	646	644	646	648	651	651	651	651	649	647	644	647	648	652	650	647	647	649	648	648	650	652	651	654	*649*	571
22	648	646	643	647	651	654	658	656	651	651	644	639	642	645	643	642	640	642	641	638	642	645	633	631	645	472
23 d	635	648	651	658	665	650	643	647	651	633	613	630	631	644	635	629	627	613	613	624	630	632	634	632	636	268
24 q	627	632	632	632	636	640	641	639	636	633	635	636	638	642	641	640	641	641	642	643	643	642	641	642	638	315
25 q	641	641	641	643	645	647	647	646	645	644	643	644	645	647	651	650	650	657	658	657	650	650	649	649	647	540
26	648	647	649	647	664	661	660	657	650	634	631	634	638	639	640	641	624	620	628	630	628	631	623	632	640	356
27	636	636	638	641	643	648	646	641	639	635	634	638	641	644	644	645	649	651	651	646	639	638	648	644	642	415
28	645	642	641	642	644	647	650	649	645	642	637	639	644	642	649	648	637	623	627	639	650	644	646	645	642	417
29	642	641	641	642	644	646	648	647	644	640	638	642	646	649	649	651	652	650	644	649	650	649	647	650	646	501
30	664	640	648	652	657	639	647	647	646	647	640	639	645	647	649	650	650	651	651	- 649	647	640	644	632	647	521
Mean	641	639	641	644	646	647	*647*	646	642	637	*634*	636	639	640	642	642	643	643	642	643	643	642	641	643	642	
Sum 19,000γ+	243	182	220	325	390	416	424	371	250	96	7	73	159	206	272	269	275	299	265	289	286	267	225	296		Grand Total 462,105

GEOMAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

2 LERWICK (D) — 9° + — NOVEMBER 1964

	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	Sum 500·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1 d	22·1	23·0	22·7	23·4	22·6	21·0	21·9	21·6	21·5	22·4	25·3	27·7	27·8	28·6	29·3	26·3	29·0	25·0	24·0	22·6	22·9	22·0	6·7	9·8	22·9	49·2
2 d	21·0	16·2	22·9	20·5	20·3	19·6	20·1	21·5	20·6	21·5	24·4	25·3	25·4	25·8	25·6	25·8	25·2	24·0	23·5	23·0	22·6	21·5	22·9	18·7	22·4	37·9
3	19·0	19·6	21·1	21·1	21·3	20·9	20·9	20·7	20·5	21·5	22·9	25·3	26·2	25·5	25·0	24·6	22·6	23·5	23·1	22·5	22·3	22·3	22·3	22·5	22·4	37·2
4	22·9	22·9	22·8	25·5	22·5	21·4	21·4	21·1	21·6	22·5	24·3	27·5	29·1	29·7	26·9	25·3	24·8	24·2	23·3	23·2	22·7	22·1	19·8	22·2	23·7	69·7
5	18·9	19·0	20·2	21·4	22·3	22·1	21·7	21·6	21·5	22·0	23·3	25·6	27·4	26·8	25·7	27·2	24·3	24·1	22·3	8·8	17·0	21·4	20·5	21·6	*21·9*	26·7
6	21·3	21·5	22·3	22·5	22·6	22·3	22·3	22·0	22·0	23·4	23·8	26·0	26·2	27·3	25·5	25·0	24·0	23·4	22·5	21·1	19·4	20·5	22·2	22·3	23·0	51·4
7 q	22·6	22·0	22·7	22·8	22·6	22·5	22·3	22·3	21·8	22·2	23·3	24·4	24·9	24·7	24·2	23·7	23·6	23·4	23·4	23·3	22·8	22·5	22·3	20·9	23·0	51·2
8	21·5	22·3	22·2	22·9	24·0	24·5	23·9	23·1	22·4	22·4	23·1	25·3	26·1	25·3	24·8	24·2	24·2	24·5	24·3	14·8	13·4	16·7	19·8	20·9	22·4	36·6
9 d	22·9	24·1	22·4	16·5	24·4	23·1	23·8	22·7	24·2	24·5	26·3	25·5	28·0	27·3	27·4	26·7	25·9	16·1	20·2	17·5	15·3	18·1	18·5	21·5	22·6	42·9
10	19·5	19·4	31·9	23·4	22·4	22·3	22·3	22·4	22·0	22·0	22·6	25·4	26·2	24·4	25·0	24·4	23·9	24·0	22·8	18·6	17·9	19·9	20·8	22·2	22·7	45·7
11	22·7	23·3	22·9	23·3	22·9	22·3	22·1	22·1	21·9	22·8	25·4	26·4	27·0	25·6	24·8	24·3	23·6	24·0	23·8	22·2	23·2	22·3	22·2	22·2	23·5	63·3
12	24·1	24·8	24·2	22·6	20·6	21·4	22·5	22·2	21·5	22·1	23·4	24·6	25·4	25·3	24·9	23·4	22·3	23·9	23·5	21·8	17·6	15·5	20·1	21·7	22·5	39·4
13	22·3	22·9	23·0	23·4	23·4	22·6	22·2	23·1	23·4	23·1	24·2	25·8	26·1	25·6	25·4	24·6	23·3	22·3	22·9	22·2	22·1	22·1	22·3	22·3	23·4	60·6
14 q	22·6	22·6	22·8	22·8	22·7	22·4	22·1	22·2	22·2	23·4	25·3	26·7	26·5	25·5	24·4	23·9	23·9	24·1	22·9	22·5	22·6	22·6	22·7	22·7	23·4	62·1
15 d	22·8	23·0	23·0	23·2	22·9	22·4	22·3	22·3	22·3	23·4	26·2	27·1	27·8	30·5	34·8	35·9	29·7	33·2	22·4	23·5	23·3	22·4	18·7	15·1	24·9	98·2
16	19·5	20·2	21·4	21·5	20·5	22·7	22·3	27·7	29·1	28·0	26·7	25·5	25·7	26·3	26·5	27·1	27·0	24·9	23·5	22·3	16·6	18·7	20·5	23·9	23·7	68·1
17	19·5	22·0	21·1	20·6	20·6	20·8	21·0	21·9	21·9	21·6	23·5	24·7	25·7	26·3	27·0	27·0	24·9	23·4	23·9	22·3	22·5	22·3	21·9	21·9	22·8	48·3
18	22·0	20·1	21·5	22·1	22·4	22·4	22·3	22·3	22·4	22·9	24·5	24·6	24·6	25·0	24·4	24·2	24·6	22·9	21·5	22·8	22·6	21·9	21·3	19·4	22·7	44·7
19 q	20·8	22·3	21·8	22·2	22·4	21·9	22·0	22·2	22·0	22·3	23·2	24·3	24·5	24·4	23·9	23·6	23·3	23·4	23·3	22·8	22·4	22·3	21·6	21·6	22·7	44·5
20	22·0	22·1	21·0	21·4	20·8	21·4	21·8	22·1	22·4	23·0	22·9	24·4	25·3	24·5	24·0	23·4	23·3	22·9	22·7	22·6	22·3	22·3	21·6	22·2	22·6	42·4
21	23·3	22·8	22·8	23·4	23·3	23·3	23·1	22·6	22·8	23·4	24·3	24·4	24·9	24·8	23·9	23·4	23·0	23·0	22·3	22·3	22·3	22·0	22·3	22·7	23·2	56·4
22	22·3	22·6	22·6	23·5	22·8	22·9	23·3	23·2	22·6	23·5	24·6	25·5	24·9	24·9	24·2	24·3	24·4	24·9	24·5	23·0	21·7	15·5	12·4	17·7	22·6	41·8
23 d	23·5	22·3	21·5	18·6	23·7	27·2	25·3	25·6	25·0	24·5	29·3	27·7	28·8	30·1	30·5	34·4	31·8	27·3	22·3	20·5	19·6	19·9	20·3	19·8	*25·0*	99·5
24 q	20·1	20·6	21·1	20·5	20·6	21·5	22·3	22·9	22·5	22·4	23·0	24·0	24·4	23·9	23·3	22·9	23·3	23·0	22·6	22·5	22·3	22·1	22·0	22·3	22·3	36·1
25 q	22·1	22·3	22·3	22·6	23·0	23·3	22·8	22·5	22·4	22·9	23·4	24·0	24·3	23·8	23·8	24·0	23·9	23·9	24·1	24·3	23·3	22·6	22·3	22·5	23·2	56·4
26	22·8	23·3	23·6	25·1	22·2	21·0	22·5	22·9	22·9	22·0	23·3	25·5	27·7	29·0	33·6	32·3	34·6	24·3	22·3	22·4	21·6	17·8	14·8	18·7	24·0	76·2
27	21·1	21·1	21·1	21·6	22·3	22·3	22·3	22·3	22·2	22·8	23·4	24·3	24·4	24·0	22·5	23·3	23·4	23·4	24·4	24·1	18·6	21·6	21·7	21·7	22·5	39·9
28	21·4	21·4	22·9	21·4	20·1	21·0	22·0	21·3	21·9	23·4	23·6	24·9	25·3	25·5	24·8	24·7	26·2	15·5	19·5	22·5	20·6	21·3	21·5	22·2	22·3	34·9
29	22·3	22·1	22·3	22·3	22·4	22·3	22·3	22·4	22·4	22·9	23·4	24·3	24·3	24·8	24·3	24·0	23·9	24·2	23·6	23·6	22·6	22·3	22·5	19·5	23·0	51·0
30	11·6	21·1	22·6	23·3	23·2	26·8	25·7	22·3	23·3	23·3	24·0	24·3	25·5	24·9	24·3	24·3	24·1	23·4	23·3	23·0	22·3	20·5	20·4	17·2	22·7	44·7
Mean	21·3	21·8	22·6	22·2	22·2	22·4	22·4	22·5	22·5	22·9	24·2	25·4	26·0	*26·0*	25·8	25·6	25·1	23·7	23·0	21·6	20·9	20·8	*20·3*	20·7	23·0	
Sum 600·0′+	40·5	52·9	76·7	65·4	67·8	71·6	72·8	75·1	75·2	88·1	126·9	161·0	180·4	180·1	174·7	168·2	152·0	110·1	88·7	48·6	26·4	25·0	8·9	19·9	22·9	Grand Total 16557·0

GEOMAGNETIC FORCE: VERTICAL COMPONENT
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

3 LERWICK (Z) 47,000γ (0·47 C.G.S. unit) + NOVEMBER 1964

Day	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	Sum 9000γ+
	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	γ
1 d	410	388	391	388	383	376	375	377	380	382	381	380	382	385	391	391	405	459	478	433	403	396	389	333	394	456
2 d	358	370	385	381	385	381	385	386	389	390	391	392	394	398	398	399	398	396	396	396	395	395	377	370	388	305
3	382	381	381	378	388	389	390	389	388	390	391	392	395	396	398	400	400	398	395	392	391	390	391	392	391	377
4	393	394	392	391	382	389	388	388	387	388	391	388	394	403	408	405	401	399	400	396	393	394	400	369	393	433
5	370	378	384	389	392	393	393	391	391	391	389	389	395	406	402	405	407	399	400	408	399	394	391	391	394	447
6	391	394	394	396	395	392	392	392	392	390	390	392	393	396	400	399	397	397	396	396	393	389	388	389	393	443
7 q	389	389	392	395	393	393	393	393	393	392	390	388	387	391	393	394	396	394	393	391	390	390	390	388	392	397
8	390	387	390	387	384	383	383	386	389	388	386	386	388	392	393	395	395	396	396	395	391	387	379	382	389	328
9 d	382	344	314	333	337	328	359	373	379	386	386	390	394	396	400	406	410	419	410	410	414	401	371	329	378	71
10	353	374	358	357	379	386	390	390	394	395	394	392	393	396	396	396	395	395	398	402	398	394	390	390	388	305
11	390	390	391	390	388	389	391	391	394	394	392	392	394	395	395	394	394	394	393	393	395	394	396	394	393	423
12	388	379	373	372	375	381	383	387	391	390	390	390	391	392	396	400	405	402	406	405	400	389	391	391	390	367
13	390	389	388	386	386	386	389	392	392	392	392	393	398	403	404	403	400	400	400	399	397	397	396	395	394	467
14 q	395	393	392	391	390	391	391	392	393	391	393	394	393	395	396	396	396	396	396	394	392	392	393	392	393	437
15 d	393	392	391	391	389	388	389	389	390	391	387	389	392	397	406	405	406	422	461	424	405	398	404	374	399	573
16	371	387	396	395	392	388	387	388	384	383	387	391	395	399	402	407	408	402	400	403	408	397	398	382	394	450
17	380	395	398	395	391	390	389	386	390	390	391	394	395	398	400	403	399	396	396	397	394	395	395	397	394	454
18	396	396	396	395	392	391	389	390	389	387	390	390	392	394	395	396	395	398	396	395	392	395	394	388	393	431
19 q	387	392	395	395	393	391	390	389	389	389	390	391	392	394	396	398	396	396	393	393	392	391	391	394	392	417
20	395	394	394	390	390	390	390	387	387	387	387	385	387	391	395	396	397	394	393	390	389	390	390	392	391	380
21	391	393	394	393	392	392	390	388	387	385	385	385	387	389	392	394	394	394	393	392	390	385	384	380	390	349
22	380	385	388	388	391	390	387	387	385	381	382	384	384	387	392	396	398	401	403	406	400	389	382	374	389	340
23 d	363	354	362	362	356	355	362	368	377	387	391	394	408	412	454	490	486	490	472	440	422	409	402	397	405	713
24 q	393	386	390	392	394	395	396	397	396	394	393	392	390	391	393	394	396	396	397	397	396	396	395	392	394	451
25 q	392	391	391	392	392	393	393	393	392	390	388	389	389	389	387	389	390	390	392	393	395	395	395	392	391	392
26	390	389	386	386	373	380	380	384	387	393	395	395	393	399	413	430	457	456	435	416	413	399	402	394	402	645
27	388	390	390	389	387	385	388	392	395	395	393	389	388	389	391	391	390	390	392	402	410	412	399	395	393	430
28	395	393	383	371	376	384	386	388	391	391	393	395	394	397	395	397	402	420	416	402	398	395	393	393	394	448
29	395	396	395	393	392	391	389	392	392	393	393	392	392	394	393	393	392	393	397	394	394	395	399	399	394	448
30	390	395	391	392	390	391	390	388	388	388	390	391	390	392	393	394	392	390	390	392	394	402	397	395	392	405
Mean	386	386	385	385	385	385	387	388	389	389	390	390	392	~~394~~ 395	399	402	403	406	406	~~398~~ 402	398	395	392	385	392	
Sum 11,000γ+	580	578	565	553	547	551	597	633	671	683	691	704	759	~~956~~ 856	967	1056	1097	1172	1183	~~946~~ 1046	943	845	762	543		Grand Total 282,582

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH HOUSE

4 LERWICK NOVEMBER 1964

Day	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph house 200°A+
1 d	1110 2234	14	0110 2224	12	1100 1234	12	0110 1344	14	1	88·2
2 d	3221 0103	12	3221 0102	11	3221 0003	11	2211 0003	9	1	88·1
3	2100 0100	4	1000 0000	1	2100 0100	4	1100 0100	3	0	88·1
4	0102 2003	8	0101 2003	7	0102 2002	7	0100 2103	7	1	88·0
5	2101 2241	13	1100 2221	9	2101 1141	11	2000 2110	6	1	88·2
6	1000 1020	4	0000 0000	0	1000 1020	4	0000 0000	0	1	88·3
7 q	1000 0001	2	0000 0001	1	1000 0001	2	0000 0000	0	0	88·0
8	1111 1032	10	1110 1032	9	1011 1032	9	0110 0011	4	1	87·8
9 d	3311 1333	18	3311 1223	16	3311 1333	18	4221 1114	16	1	87·9
10	4211 1021	12	3010 1010	6	4201 0021	10	3310 0010	8	1	88·1
11	0011 0010	3	0011 0000	2	0000 0010	1	0010 0000	1	0	88·1
12	1100 1122	8	0100 1122	7	1100 0122	7	2110 0121	8	1	88·1
13	0000 0100	1	0000 0100	1	0000 0100	1	0000 0100	1	0	88·0
14 q	0000 0000	0	0000 0000	0	0000 0000	0	0000 0000	0	0	88·1
15 d	0001 3334	14	0001 2323	11	0000 3334	13	0000 2343	12	1	88·0
16	2222 0123	14	2110 0112	8	1222 0123	13	2101 0112	8	1	87·6
17	2110 0110	6	1000 0110	3	2110 0010	5	2100 0100	4	0	87·6
18	1010 0212	7	1010 0102	5	1000 0211	5	1000 0001	2	0	87·0
19 q	1000 0000	1	0000 0000	0	1000 0000	1	1000 0000	1	0	87·0
20	1101 0001	4	0001 0001	2	1100 0001	3	0100 1000	2	0	87·8
21	0000 0001	1	0000 0001	1	0000 0001	1	0000 0000	0	0	88·2
22	1001 1013	7	1001 1002	5	0001 0013	5	1001 0012	5	1	88·1
23 d	2323 3321	19	2223 3220	16	2323 3321	19	2222 4232	19	1	88·2
24 q	1000 0000	1	1000 0000	1	1000 0000	1	1000 0000	1	0	87·8
25 q	0000 0010	1	0000 0010	1	0000 0000	0	0000 0000	0	0	87·9
26	0201 3313	13	0201 1212	9	0201 3303	12	0200 2322	11	1	87·5
27	1000 0022	5	0000 0022	4	1000 0022	5	0010 0022	5	1	87·6
28	2111 1331	13	2011 1221	10	2111 1331	13	2111 1220	10	1	87·0
29	0000 0113	5	0000 0113	5	0000 0003	3	0000 0001	1	0	87·4
30	4221 0012	12	3221 0002	10	4220 0012	11	1000 0001	2	1	87·2
								Mean	0·57	87·8

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

1 LERWICK (H) — 14,000γ (0·14 C.G.S. unit) + — DECEMBER 1964

	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	Sum 15,000γ+
	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	γ
1	639	639	646	647	649	653	650	641	636	629	639	644	643	639	633	633	641	645	645	645	654	643	643	643	642	419
2	642	642	642	644	646	646	645	644	644	639	639	641	642	647	649	651	653	653	648	647	645	644	649	649	645	491
3	646	646	645	644	646	648	649	649	645	640	636	632	639	647	650	654	653	648	638	640	638	641	643	643	644	460
4	644	643	643	643	646	647	647	646	643	641	639	639	639	643	648	653	653	642	643	643	646	647	646	644	645	468
5 *q*	643	645	645	643	644	647	647	648	646	639	637	638	642	646	648	650	650	650	649	648	648	649	649	648	646	499
6	648	648	648	649	652	655	655	653	650	647	644	642	641	643	644	646	647	646	646	648	650	645	650	653	648	550
7 *d*	652	651	651	653	657	660	660	661	659	655	645	638	632	644	650	641	624	628	635	639	641	650	630	634	645	490
8	637	640	644	644	647	644	651	652	647	641	637	635	639	642	642	642	640	646	646	644	645	646	648	650	644	449
9	647	647	647	648	651	653	654	654	650	645	639	641	646	646	648	646	647	646	643	644	644	647	652	651	647	536
10	645	644	644	646	652	654	651	653	652	648	642	639	640	643	645	648	650	650	650	650	650	649	649	648	648	542
11	648	648	649	650	650	653	654	654	650	646	644	646	647	648	646	650	654	654	651	648	645	645	647	647	649	574
12 *q*	648	648	648	650	650	652	654	654	653	649	646	647	648	652	655	656	657	657	657	655	652	650	652	645	651	635
13 *d*	650	651	649	650	654	658	660	660	659	655	651	645	652	659	662	665	654	638	642	652	652	646	646	645	*652*	655
14	640	639	642	644	646	646	652	655	652	640	630	635	638	641	642	642	646	643	645	641	642	636	641	645	643	423
15	642	647	649	650	648	640	656	650	646	643	641	636	636	645	647	649	648	650	650	651	648	647	647	646	646	512
16 *d*	656	648	648	650	648	656	660	664	658	651	642	646	644	617	619	643	649	650	649	647	642	639	642	649	647	517
17 *d*	639	606	645	634	635	644	651	650	641	632	639	636	638	642	639	630	630	636	646	643	641	638	628	632	*637*	295
18	642	638	635	644	647	650	647	646	646	644	645	644	639	643	646	648	650	650	646	642	641	639	640	643	644	455
19 *d*	639	639	642	645	646	648	654	655	650	642	640	641	642	638	642	639	625	632	636	623	634	635	639	644	640	370
20	643	644	645	647	649	650	650	650	650	650	643	642	645	647	647	645	644	643	636	642	650	647	653	650	646	512
21	645	645	648	650	652	652	652	654	651	647	642	644	645	647	651	649	636	639	639	645	647	647	647	647	647	521
22	653	647	647	649	650	650	653	655	653	650	646	643	647	648	644	649	650	651	653	652	650	647	647	654	649	588
23	647	647	648	649	652	647	650	655	654	652	648	643	646	645	645	647	643	647	650	650	647	644	645	646	648	547
24	649	648	650	651	653	652	653	650	649	649	647	649	650	651	653	649	648	648	649	646	646	648	650	650	649	588
25	650	650	649	650	651	653	654	653	652	651	652	651	655	655	650	650	654	656	651	648	653	650	658	640	651	636
26	639	641	645	648	650	652	650	651	650	647	643	642	643	644	643	648	648	648	647	649	650	651	653	651	647	533
27 *q*	647	646	646	648	650	652	655	654	654	654	652	651	655	657	654	655	654	653	651	651	651	650	648	651	652	639
28	645	646	648	651	652	653	654	653	652	649	646	645	648	654	657	657	657	658	655	651	642	645	651	651	651	620
29	647	647	648	647	650	651	650	646	649	651	650	647	647	649	653	656	655	650	651	650	651	650	648	647	650	590
30 *q*	647	650	647	647	648	650	651	653	653	648	645	646	650	653	655	655	655	655	655	654	653	651	649	646	651	616
31 *q*	647	645	647	648	653	652	655	654	653	649	648	647	647	649	652	654	655	655	654	654	652	651	650	648	651	619
Mean	645	644	646	647	649	651	*652*	652	650	646	643	*642*	644	646	647	648	647	647	647	647	647	646	647	647	647	
Sum 19,000γ+	1006	965	1030	1063	1124	1168	1224	1217	1147	1023	937	915	965	1024	1059	1100	1070	1067	1056	1042	1050	1017	1040	1040		Grand Total 481,349

647 at 0-1h. 1 January 1965.

GEOMAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

2 LERWICK (D) — 9° + — DECEMBER 1964

	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	Sum 500·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	22·7	25·3	23·9	21·3	21·4	22·2	22·2	22·7	25·3	25·4	23·8	24·7	26·3	26·3	24·2	25·4	24·3	23·4	22·6	22·2	20·2	20·6	21·5	21·6	23·3	59·5
2	21·4	21·4	22·2	23·2	22·8	22·3	22·4	22·4	22·8	22·8	23·2	24·5	25·1	25·2	24·5	24·1	24·1	24·1	24·5	23·5	22·8	22·2	20·4	21·9	23·1	53·8
3	22·2	22·2	21·6	21·6	22·0	21·9	22·1	22·1	21·8	22·3	24·3	25·4	26·4	26·7	25·4	23·8	24·8	25·2	23·4	17·6	19·9	21·4	22·2	21·9	22·8	48·1
4	21·9	21·1	21·3	21·6	22·2	22·3	22·3	22·1	22·1	22·7	23·5	25·1	26·4	25·8	25·4	25·0	25·3	21·0	22·2	22·8	21·6	21·8	21·7	21·4	22·9	48·6
5 *q*	21·6	22·2	21·8	22·2	22·7	22·5	22·2	22·1	22·1	21·9	22·5	23·9	24·4	24·6	24·2	23·4	23·4	23·2	22·9	22·3	22·2	22·2	22·0	22·0	22·7	44·5
6	22·4	22·8	23·2	23·3	23·2	23·2	23·2	22·5	22·5	22·4	23·1	24·3	25·1	25·4	25·5	24·4	24·3	24·3	23·5	22·6	19·4	21·3	21·3	22·2	23·1	55·4
7 *d*	22·2	23·1	23·5	24·1	24·1	24·1	23·4	23·2	22·6	22·4	23·3	25·1	26·9	25·4	26·2	27·1	27·9	28·1	22·8	22·5	20·2	14·8	9·8	16·8	22·9	49·6
8	20·4	24·4	22·2	23·0	21·4	24·3	23·7	22·7	22·3	22·2	22·5	23·3	24·7	25·2	24·7	24·9	24·1	23·5	22·6	21·4	21·2	21·5	21·6	21·6	22·9	49·4
9	22·2	22·8	22·6	23·2	22·5	23·2	23·1	22·9	23·1	23·5	25·1	25·4	26·0	24·8	24·2	24·2	23·8	24·4	23·3	22·2	21·4	20·5	25·4	20·2	23·3	60·0
10	21·5	22·2	22·3	22·7	23·2	22·7	23·2	23·1	22·4	22·0	22·2	23·3	24·2	24·4	23·9	23·2	22·9	23·1	22·7	22·0	22·0	22·2	22·2	22·2	22·7	45·8
11	22·2	22·4	23·2	22·9	23·4	22·9	22·5	22·3	22·3	22·6	23·3	24·7	25·0	24·4	23·5	23·8	23·4	23·1	23·0	23·0	21·5	20·4	21·4	22·0	22·9	49·2
12 *q*	22·2	22·3	23·2	23·4	23·2	23·0	23·1	22·9	22·6	22·8	23·3	24·1	24·4	24·6	24·4	24·1	23·7	23·5	23·3	23·1	22·6	20·4	21·4	19·8	23·0	51·4
13 *d*	21·6	21·2	22·8	23·1	23·8	23·1	23·3	23·3	23·2	23·4	24·1	24·5	24·8	26·2	26·2	25·9	27·7	27·2	24·9	18·8	17·9	21·6	21·5	21·5	*23·4*	61·6
14	21·2	23·1	23·1	22·9	22·8	23·3	24·9	23·3	23·4	23·4	24·3	26·2	26·5	27·0	27·2	25·4	24·3	19·6	21·5	22·3	18·6	15·7	17·3	19·6	22·8	46·9
15	21·2	25·2	22·9	22·4	20·2	24·3	22·2	22·3	22·1	22·0	22·6	23·5	23·6	24·4	23·9	23·1	22·3	22·5	22·2	20·9	22·2	21·5	21·1	21·3	22·5	39·9
16 *d*	23·8	22·6	23·2	23·3	25·1	23·6	22·8	23·4	23·3	23·2	23·1	24·0	26·0	27·6	28·4	24·8	24·4	23·8	23·8	23·0	21·7	19·1	16·0	15·7	23·2	55·7
17 *d*	20·1	32·0	21·1	22·2	22·5	23·2	22·3	22·8	23·3	24·0	23·6	24·5	25·3	25·3	25·8	25·2	23·8	22·5	18·0	16·4	20·2	18·0	18·0	17·2	22·4	37·3
18	20·6	23·1	23·6	22·2	22·8	23·0	23·5	22·6	21·6	21·9	22·1	22·2	23·5	24·1	23·8	23·2	23·3	23·6	23·8	23·3	22·2	21·1	20·6	21·0	22·6	42·7
19 *d*	20·4	21·4	21·1	22·2	20·9	21·4	21·6	22·4	22·5	22·6	23·5	24·5	25·0	24·6	25·3	26·4	23·4	25·3	23·1	13·1	20·6	18·2	20·9	21·6	*22·2*	32·0
20	21·8	22·3	22·6	23·2	23·3	23·1	23·1	22·6	22·5	22·7	22·7	24·3	24·9	24·8	23·8	23·3	23·3	23·3	20·2	22·1	22·8	22·6	20·7	18·7	22·7	44·7
21	20·3	21·9	22·4	23·0	22·3	23·8	24·0	23·8	22·3	21·9	22·2	23·2	24·2	24·1	23·8	24·2	24·1	24·5	22·8	22·5	21·9	21·9	21·9	22·2	22·9	49·2
22	23·3	21·9	23·0	23·3	23·3	23·2	22·4	21·9	21·6	21·7	22·3	23·7	25·3	24·8	23·8	23·6	23·8	23·8	23·5	23·0	22·6	22·1	21·9	22·1	23·0	51·9
23	21·4	22·8	22·6	22·8	23·2	23·5	24·1	23·5	23·1	23·4	23·2	24·5	25·3	25·3	24·6	25·2	24·4	24·2	23·5	22·8	22·4	20·9	19·7	21·7	23·3	58·1
24	22·4	22·6	22·9	23·2	23·4	23·4	22·5	22·2	21·9	22·5	24·3	25·4	25·6	25·3	24·2	23·3	23·1	23·2	23·3	22·8	20·1	21·1	22·2	22·3	23·1	53·2
25	22·4	22·6	22·8	22·9	22·9	22·9	22·6	22·3	22·4	23·5	24·3	25·3	26·0	25·7	25·1	25·1	24·2	24·7	25·3	24·6	22·2	20·6	14·7	17·5	23·0	52·6
26	16·4	20·3	21·0	22·0	22·2	22·7	22·6	22·3	22·2	22·5	23·5	25·3	25·2	25·2	24·2	24·7	24·5	23·7	24·2	23·2	22·7	22·1	22·9	22·2	22·8	47·8
27 *q*	22·3	21·9	22·2	22·2	22·3	22·6	22·4	22·6	22·6	23·2	24·1	25·2	25·2	24·7	23·8	23·7	23·3	23·2	23·1	22·7	22·8	22·4	22·2	22·3	23·0	53·0
28	22·2	21·3	21·9	20·6	22·2	22·3	22·2	22·2	21·9	22·2	23·1	24·1	24·6	24·3	23·8	23·8	23·9	23·9	23·8	18·2	20·5	22·8	22·4	22·4	22·5	40·6
29	22·4	22·9	22·4	22·3	23·2	22·6	21·9	22·7	22·9	22·2	23·6	26·0	25·4	25·7	25·4	25·1	25·2	24·8	24·1	22·7	22·2	22·1	21·8	21·8	23·4	61·4
30 *q*	21·4	20·2	22·0	22·5	22·1	21·7	21·8	21·8	22·2	22·9	24·1	25·1	25·3	25·4	24·3	23·9	23·5	23·5	23·3	22·8	22·3	22·2	22·1	21·4	22·8	47·8
31 *q*	22·2	22·7	22·7	22·5	23·2	22·9	22·7	22·1	22·2	22·4	23·2	24·6	25·3	25·4	24·9	24·1	23·3	23·8	23·4	22·4	21·5	22·3	22·1	22·2	23·1	54·1
Mean	21·6	22·7	22·5	22·6	22·7	22·9	22·8	22·6	22·5	22·7	23·3	24·5	25·2	*25·3*	24·8	24·4	24·1	23·8	23·1	21·7	21·4	20·9	*20·7*	20·9	22·9	
Sum 600·0′+	70·3	104·2	97·3	101·3	103·8	111·1	106·3	101·1	99·1	104·6	124·0	159·9	181·9	182·7	168·4	157·4	147·8	138·0	114·6	72·8	62·4	47·6	40·9	48·3		Grand Total 17045·8

22·5 at 0-1h. 1 January 1965.

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

3 LERWICK (Z) 47,000γ (0·47 C.G.S. unit) + DECEMBER 1964

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	Sum 9000γ+
	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	γ
1	390	382	381	387	388	385	386	388	388	393	388	389	394	401	411	413	408	405	399	398	391	392	394	396	394	447
2	396	396	397	394	393	393	390	389	389	389	390	391	392	395	397	396	396	395	396	396	398	398	395	392	394	453
3	394	395	396	395	394	391	390	389	389	390	390	394	395	396	399	399	400	403	412	417	411	400	397	396	397	532
4	396	397	397	398	396	394	394	393	392	391	392	393	395	397	397	397	399	408	408	404	400	396	394	395	397	523
5 *q*	395	394	393	396	396	396	396	393	393	393	394	395	395	395	398	399	399	398	398	396	394	393	393	393	395	485
6	393	393	394	394	394	393	393	393	392	391	392	393	395	397	398	399	400	401	402	400	397	395	391	389	395	479
7 *d*	389	388	389	389	390	389	389	388	387	387	389	391	393	390	394	402	426	436	432	417	412	394	379	383	397	523
8	386	380	379	381	384	388	391	392	395	394	393	392	393	394	398	402	405	404	404	403	402	398	394	393	394	445
9	392	392	391	393	393	393	393	393	393	394	394	393	393	393	394	398	398	401	403	402	403	398	376	365	393	438
10	381	386	389	390	390	392	393	392	393	393	393	393	391	392	393	393	395	396	397	397	395	395	394	393	392	416
11	393	392	390	390	390	391	393	393	393	392	390	394	390	392	395	394	394	395	396	397	399	399	398	396	394	446
12 *q*	394	393	392	391	390	390	390	391	392	392	392	391	391	390	388	389	389	389	391	393	394	396	392	396	391	396
13 *d*	391	388	388	388	388	387	385	385	387	389	390	391	390	388	386	384	393	417	428	422	416	411	405	400	396	497
14	399	396	393	392	392	391	387	386	390	393	399	397	397	397	399	399	399	403	400	401	401	399	393	389	395	492
15	388	377	373	384	387	384	375	384	389	394	397	400	403	400	399	397	397	395	394	394	395	395	395	395	391	391
16 *d*	382	386	390	390	387	377	377	381	385	389	392	394	400	419	443	407	398	395	396	396	400	407	399	390	395	480
17 *d*	387	320	302	360	374	378	382	387	393	397	395	397	398	400	404	409	410	409	405	399	396	396	392	384	*386*	274
18	375	386	395	393	393	393	393	395	393	395	395	397	400	401	401	400	399	399	400	401	402	402	405	404	397	517
19 *d*	405	405	402	399	396	395	393	390	392	395	395	395	399	406	409	411	422	423	418	430	400	404	403	400	*404*	687
20	401	401	400	400	399	397	396	395	394	392	395	396	395	398	401	402	403	403	406	404	396	396	391	382	398	543
21	387	392	394	396	396	396	395	393	393	394	395	393	394	394	396	400	406	406	406	403	400	397	395	393	396	514
22	383	385	391	395	396	397	397	396	395	393	393	391	392	396	398	399	399	399	399	398	397	399	396	385	395	469
23	388	391	393	393	393	395	392	391	392	390	390	392	394	395	395	398	402	400	399	400	401	402	399	395	395	480
24	392	392	391	391	392	392	392	393	394	393	393	392	392	392	392	395	398	398	399	400	401	398	394	393	394	459
25	391	391	390	391	391	392	393	395	395	395	392	390	387	389	391	392	391	393	397	401	399	400	389	387	393	422
26	389	392	392	391	391	391	393	395	396	396	396	394	394	396	398	397	397	399	400	400	401	400	399	399	396	496
27 *q*	400	397	396	394	393	393	392	394	395	396	396	395	394	392	392	393	395	395	396	396	397	398	399	393	395	481
28	396	396	392	390	390	390	391	392	395	397	398	397	395	395	394	393	392	392	392	397	401	403	400	397	395	475
29	396	395	394	393	390	390	390	392	392	394	395	396	397	397	397	396	395	397	396	397	396	396	398	399	395	478
30 *q*	397	393	392	392	393	392	391	391	391	393	394	396	396	396	396	395	394	393	392	393	393	393	395	397	394	448
31 *q*	397	397	395	393	391	390	388	388	388	390	391	392	393	396	396	395	393	393	394	394	394	393	393	394	393	428
Mean	392	389	*389*	391	391	391	390	391	392	393	393	394	394	396	398	398	400	401	*402*	401	399	398	395	392	395	
Sum 12,000γ+	143	68	51	123	130	115	100	117	145	174	188	204	227	279	349	343	392	440	455	446	382	343	237	163		Grand Total 293,614

394 at 0-1h. 1 January 1965.

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH HOUSE

4 LERWICK DECEMBER 1964

	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph house 200°A+
1	2112 2111	11	1102 1111	8	2111 2011	9	1000 2110	5	1	87·0
2	1100 0012	5	0000 0011	2	1100 0012	5	0000 0000	0	0	87·1
3	0000 1130	5	0000 1110	3	0000 1130	5	0000 0010	1	1	86·4
4	0000 1220	5	0000 1200	3	0000 1220	5	0000 0110	2	1	86·1
5 *q*	1000 0000	1	0000 0000	0	1000 0000	1	0000 0000	0	0	86·0
6	0000 0021	3	0000 0021	3	0000 0021	3	0000 0010	1	0	86·0
7 *d*	1101 2223	12	0001 2222	9	1101 1123	10	0000 0322	7	1	86·6
8	2211 0010	7	1110 0010	4	2211 0010	7	1100 0000	2	1	86·4
9	0100 0013	5	0000 0001	1	0100 0013	5	0000 0003	3	1	86·2
10	0000 0010	1	0000 0000	0	0000 0010	1	1000 0000	1	0	86·3
11	0000 0011	2	0000 0000	0	0000 0011	2	0000 0000	0	0	86·9
12 *q*	0000 0001	1	0000 0001	1	0000 0001	1	0000 0000	0	0	86·1
13 *d*	1100 1231	9	1000 1231	8	1100 1131	8	0000 0321	6	1	86·8
14	1012 1323	13	0012 1112	8	1011 1323	12	0000 0101	2	1	86·1
15	3211 1011	10	1211 1000	6	3210 0011	8	2120 0000	5	1	86·0
16 *d*	2112 3012	12	2112 3012	12	1111 2012	9	1110 3112	10	1	86·3
17 *d*	4221 1232	17	3221 1122	14	4111 1232	15	4210 0012	10	1	86·2
18	2111 0011	7	1101 0001	4	2111 0011	7	2000 0000	2	1	86·5
19 *d*	1111 1242	13	0010 1221	7	1101 1242	12	0100 1230	7	1	86·2
20	0001 0022	5	0001 0022	5	0001 0022	5	0000 0012	3	1	86·6
21	1000 1210	5	0000 1210	4	1000 0000	1	1000 0110	3	1	86·5
22	2000 0001	3	1000 0001	2	2000 0001	3	1000 0001	2	0	86·3
23	1010 0002	4	0010 0000	1	1000 0002	3	1000 0001	2	1	86·2
24	0000 0122	5	0000 0110	2	0000 0022	4	0000 0000	0	1	86·5
25	0000 1023	6	0000 1013	5	0000 0023	5	0000 0002	2	1	86·2
26	3000 1001	5	0000 0000	0	3000 1001	5	1000 0000	1	0	86·1
27 *q*	0000 0001	1	0000 0001	1	0000 0001	1	0000 0001	1	0	85·4
28	0100 0031	5	0000 0011	2	0100 0031	5	0000 0010	1	1	86·2
29	0011 0100	3	0010 0100	2	0011 0000	2	0000 0000	0	0	86·1
30 *q*	1000 0000	1	1000 0000	1	1000 0000	1	0000 0000	0	0	86·2
31 *q*	0000 0010	1	0000 0000	0	0000 0010	1	0000 0000	0	0	86·0
								Mean	0·61	86·3

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

MEAN MONTHLY AND ANNUAL VALUES OF GEOMAGNETIC ELEMENTS

For all, *a*, quiet, *q*, and disturbed, *d*, days for *H*, *D* and *Z* and for all days for *X*, −*Y*, *I* and *F*

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	Horizontal (*H*) component			Declination (*D*) (west)			Vertical (*Z*) component			North component (*X*) all days	West component (−*Y*) all days	Inclination (*I*) (north) all days	Total force (*F*) all days
	a	*q* 14,000γ +	*d*	*a*	*q* 9° +	*d*	*a*	*q* 47,000γ +	*d*				
	γ	γ	γ	′	′	′	γ	γ	γ	γ	γ	° ′	γ
Jan.	620	625	614	26·1	26·5	26·1	378	375	380	14422	2397	72 51·0	49582
Feb.	622	626	618	25·9	26·4	25·8	378	379	378	14425	2396	72 50·9	49583
Mar.	625	627	618	25·6	25·8	24·1	376	380	372	14427	2395	72 50·7	49582
Apr.	627	632	618	25·2	25·6	24·2	375	379	374	14429	2394	72 50·5	49582
May	633	637	627	24·7	25·0	24·5	376	381	371	14436	2393	72 50·2	49584
June	639	640	630	24·5	24·8	23·5	379	376	368	14442	2393	72 49·8	49589
July	642	644	643	23·6	23·6	23·9	379	384	372	14445	2390	72 49·6	49590
Aug.	641	641	640	24·2	23·8	24·2	383	387	377	14445	2392	72 49·7	49593
Sept.	638	641	633	23·4	23·5	22·8	385	388	382	14442	2388	72 50·0	49595
Oct.	637	638	636	23·3	23·2	22·6	388	391	386	14441	2388	72 50·1	49597
Nov.	642	643	639	23·0	22·9	23·6	393	392	393	14446	2387	72 49·9	49603
Dec.	647	650	644	22·9	22·9	22·8	395	394	395	14451	2388	72 49·6	49606
Year	634	637	630	24·4	24·5	24·0	382	384	379	14438	2392	72 50·2	49590

ALL DAYS

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

6 LERWICK 1964

HORIZONTAL COMPONENT

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
	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.	−0·8	−3·2	−3·6	−0·3	+3·8	+6·3	+7·6	+6·6	+4·5	−2·6	−7·4	−8·7	−5·1	−0·7	+1·8	+2·2	+0·8	+1·0	+1·4	+1·2	−0·2	−1·9	−0·5	−2·2
Feb.	−3·0	−1·9	−0·7	−3·1	+2·9	+5·7	+6·1	+8·3	+4·3	−3·2	−9·9	−11·8	−9·2	−3·9	+0·3	+4·9	+5·4	+3·8	+6·1	+3·1	+2·7	+0·2	−4·1	−3·0
Mar.	+1·7	−5·0	−4·0	−2·8	−0·3	+4·9	+5·2	+0·7	−5·6	−13·7	−20·3	−19·5	−13·1	−2·6	+5·4	+7·5	+11·6	+12·0	+10·0	+10·2	+6·0	+2·7	+5·1	+3·9
Apr.	−3·4	−6·9	−1·1	+2·0	+3·1	+3·5	+4·2	−2·1	−12·6	−23·1	−27·8	−25·7	−18·2	−6·9	+4·3	+9·9	+19·4	+30·3	+26·2	+21·2	+14·0	+4·1	−0·4	−14·0
May	−8·4	−4·1	−1·6	−2·7	−5·3	−1·7	−7·3	−13·0	−20·7	−26·5	−24·2	−18·1	−8·6	−1·0	+7·3	+14·8	+16·0	+22·6	+25·2	+24·2	+17·0	+9·9	+6·2	0·0
June	+4·1	+3·1	−1·2	+0·3	−0·6	−7·3	−11·2	−14·0	−18·0	−24·1	−25·6	−20·2	−15·1	−8·9	−0·8	+4·7	+13·7	+19·7	+24·3	+25·9	+20·3	+14·8	+10·1	+6·0
July	+1·6	−3·9	−1·7	−3·9	−2·6	−1·0	−4·2	−8·3	−13·8	−22·0	−25·0	−23·9	−15·5	−6·7	+0·6	+7·9	+12·9	+18·3	+22·1	+22·9	+19·4	+13·9	+8·6	+4·3
Aug.	+5·5	+4·4	−1·9	+0·1	+3·9	−0·2	−2·7	−7·0	−14·4	−20·2	−23·0	−21·8	−16·6	−6·1	+0·6	+5·3	+9·2	+12·8	+17·1	+16·7	+13·3	+10·9	+7·7	+6·4
Sept.	+3·8	+1·3	−2·5	−4·2	+3·3	+5·2	+4·6	−3·3	−10·5	−18·2	−21·9	−20·0	−13·7	−4·4	+0·6	+8·0	+7·0	+9·1	+11·4	+12·1	+10·9	+7·6	+7·7	+6·1
Oct.	+2·1	0·0	−0·3	+1·7	+4·2	+7·1	+7·8	+4·3	−3·8	−11·3	−16·2	−15·6	−12·7	−6·5	−1·4	+2·3	+1·5	+3·4	+5·9	+6·2	+6·4	+5·6	+5·0	+4·3
Nov.	−0·4	−2·4	−1·2	+2·4	+4·5	+5·4	+5·7	+3·9	−0·2	−5·3	−8·2	−6·0	−3·2	−1·6	+0·5	+0·5	+0·7	+1·5	+0·4	+1·2	+1·0	+0·4	−1·0	+1·4
Dec.	−1·6	−2·9	−0·9	+0·2	+2·2	+3·6	+5·5	+5·2	+2·9	−1·1	−3·9	−4·5	−3·0	−1·1	+0·1	+1·4	+0·5	+0·3	0·0	−0·5	−0·2	−1·2	−0·5	−0·5
Year	+0·1	−1·8	−1·7	−0·9	+1·6	+2·6	+1·8	−1·6	−7·3	−14·3	−17·8	−16·3	−11·2	−4·2	+1·6	+5·8	+8·2	+11·2	+12·5	+12·0	+9·2	+5·6	+3·7	+1·1
Winter	−1·5	−2·6	−1·6	−0·2	+3·3	+5·3	+6·2	+6·0	+2·9	−3·1	−7·3	−7·7	−5·1	−1·8	+0·7	+2·3	+1·9	+1·7	+2·0	+1·3	+0·8	−0·6	−1·5	−1·1
Equinox	+1·1	−2·7	−2·0	−0·8	+2·6	+5·2	+5·5	−0·1	−8·1	−16·6	−21·5	−20·2	−14·4	−5·1	+2·2	+6·9	+9·9	+13·7	+13·4	+12·4	+9·3	+5·0	+4·3	+0·1
Summer	+0·7	−0·1	−1·6	−1·5	−1·1	−2·5	−6·3	−10·6	−16·7	−23·2	−24·5	−21·0	−13·9	−5·7	+1·9	+8·2	+12·9	+18·3	+22·2	+22·4	+17·5	+12·4	+8·1	+4·2

DECLINATION

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
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
Jan.	−1·83	−1·37	−0·09	0·00	−0·36	+0·71	+0·84	+0·50	0·00	+0·08	+1·48	+2·28	+3·23	+3·53	+2·72	+1·88	+1·13	−0·13	−1·20	−1·63	−2·90	−3·62	−2·97	−2·28
Feb.	−2·51	−0·82	−0·45	+0·31	−0·31	−0·67	−0·24	−0·48	−0·68	−0·26	+0·94	+2·75	+3·90	+4·75	+4·66	+3·35	+2·24	+0·92	−1·25	−1·65	−1·42	−3·31	−5·66	−4·11
Mar.	−1·38	−0·85	−1·12	−1·79	−1·65	−1·93	−2·18	−1·91	−1·77	−0·60	+1·25	+3·52	+5·69	+5·59	+4·96	+3·09	+1·55	−0·03	−0·99	−2·04	−2·53	−1·48	−1·79	−1·61
Apr.	−2·12	−1·34	−1·73	−3·36	−3·43	−3·34	−3·72	−3·72	−3·15	−1·27	+1·43	+4·44	+6·41	+7·14	+6·26	+4·74	+2·82	+1·82	+1·26	+0·22	−1·68	−2·18	−2·16	−3·34
May	−1·71	−2·84	−2·90	−2·57	−3·66	−5·13	−4·81	−4·12	−2·69	−0·44	+1·89	+4·00	+5·32	+5·36	+4·73	+3·47	+2·87	+2·72	+2·19	+0·92	+0·35	−0·31	−1·26	−1·38
June	−0·78	−1·51	−2·17	−2·61	−4·00	−4·87	−5·52	−4·83	−3·96	−1·85	+0·51	+2·74	+4·72	+5·53	+5·44	+4·44	+3·14	+2·27	+1·94	+1·51	+1·13	+0·12	−0·74	−0·65
July	−1·13	−0·53	−1·99	−3·06	−4·03	−5·01	−5·49	−5·37	−4·44	−2·59	−0·32	+2·35	+5·06	+6·01	+5·54	+4·57	+3·85	+2·89	+2·21	+1·33	+0·98	+0·26	−0·53	−0·56
Aug.	−1·11	−1·50	−1·74	−2·89	−3·32	−3·56	−4·19	−4·23	−3·29	−1·35	+0·98	+3·91	+5·82	+6·30	+5·08	+3·27	+2·02	+1·06	+0·19	+0·13	−0·16	−0·33	−0·32	−0·77
Sept.	−1·61	−1·75	−1·27	−2·47	−2·41	−2·11	−2·44	−2·63	−2·33	−0·95	+1·17	+3·39	+5·37	+5·93	+5·28	+3·84	+2·31	+0·60	+0·18	−0·91	−0·94	−1·47	−2·90	−1·88
Oct.	−1·56	−1·17	−1·49	−1·24	−1·37	−0·98	−0·95	−1·46	−1·77	−0·77	+0·77	+3·34	+4·70	+5·29	+4·50	+3·88	+1·88	+0·58	−0·07	−1·55	−2·49	−2·99	−2·86	−2·22
Nov.	−1·64	−1·23	−0·44	−0·81	−0·83	−0·61	−0·56	−0·49	−0·49	−0·05	+1·24	+2·37	+3·02	+3·02	+2·82	+2·62	+2·08	+0·67	−0·03	−1·36	−2·12	−2·16	−2·69	−2·33
Dec.	−1·29	−0·19	−0·42	−0·29	−0·21	+0·03	−0·13	−0·29	−0·36	−0·18	+0·44	+1·60	+2·31	+2·34	+1·88	+1·52	+1·21	+0·90	+0·14	−1·21	−1·54	−2·02	−2·24	−2·00
Year	−1·56	−1·26	−1·32	−1·73	−2·13	−2·29	−2·45	−2·42	−2·08	−0·85	+0·98	+3·06	+4·63	+5·07	+4·49	+3·39	+2·26	+1·19	+0·38	−0·52	−1·11	−1·62	−2·18	−1·93
Winter	−1·82	−0·90	−0·35	−0·20	−0·43	−0·13	−0·02	−0·19	−0·38	−0·10	+1·03	+2·25	+3·11	+3·41	+3·02	+2·34	+1·67	+0·59	−0·59	−1·46	−1·99	−2·78	−3·39	−2·68
Equinox	−1·67	−1·28	−1·40	−2·21	−2·21	−2·09	−2·32	−2·43	−2·25	−0·90	+1·15	+3·67	+5·54	+5·99	+5·25	+3·89	+2·14	+0·74	+0·09	−1·07	−1·91	−2·03	−2·43	−2·24
Summer	−1·18	−1·59	−2·20	−2·78	−3·75	−4·64	−5·00	−4·64	−3·59	−1·56	+0·77	+3·25	+5·23	+5·80	+5·20	+3·94	+2·97	+2·23	+1·63	+0·97	+0·57	−0·07	−0·71	−0·84

VERTICAL COMPONENT

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
	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.	−9·1	−12·2	−13·5	−13·4	−10·8	−10·1	−9·7	−7·3	−4·3	−1·2	+1·2	+3·0	+5·1	+5·1	+7·4	+10·9	+15·6	+15·1	+12·3	+10·5	+8·3	+5·2	−1·8	−6·3
Feb.	−12·7	−14·3	−15·5	−16·1	−15·5	−10·6	−8·4	−6·4	−3·5	−1·6	−1·4	+0·3	+2·0	+3·5	+7·4	+10·8	+15·8	+21·2	+24·3	+15·9	+11·6	+3·8	−3·2	−7·4
Mar.	−14·6	−15·3	−18·5	−18·8	−19·2	−17·1	−10·0	−4·0	−1·0	−0·5	−0·3	+0·1	+0·5	+4·7	+9·9	+18·8	+24·3	+26·7	+20·2	+17·5	+12·7	+3·3	−8·2	−11·2
Apr.	−25·1	−28·8	−24·6	−16·0	−9·4	−5·3	−1·8	−0·3	+0·8	+1·4	+0·1	−0·6	+1·9	+4·8	+9·3	+16·4	+25·5	+30·7	+30·3	+23·9	+12·3	−0·9	−13·8	−30·8
May	−28·3	−19·7	−13·9	−11·6	−13·5	−6·7	−0·4	+1·2	−0·7	−2·3	−5·4	−6·2	−3·9	+2·9	+9·0	+19·2	+21·7	+18·4	+16·6	+16·0	+13·5	+7·6	−1·0	−12·5
June	−4·6	−7·6	−8·2	−9·0	−10·7	−8·6	−4·3	−1·3	−0·7	−3·6	−4·8	−7·1	−5·9	−1·6	+2·7	+8·3	+12·8	+15·0	+13·4	+11·0	+9·1	+7·1	+0·5	−1·9
July	−12·1	−19·8	−16·8	−10·6	−6·7	−4·4	−1·0	+1·7	+2·3	+0·7	0·0	−1·8	−2·8	−0·4	+4·4	+9·1	+11·6	+14·0	+15·6	+14·1	+11·6	+3·2	−2·8	−9·1
Aug.	−8·3	−8·7	−12·5	−13·5	−8·5	−4·2	−1·8	−0·2	−0·2	−2·9	−4·5	−6·2	−6·0	−1·7	+3·9	+11·6	+14·9	+16·0	+16·3	+13·6	+10·0	+5·6	−1·3	−11·4
Sept.	−15·5	−15·6	−16·3	−17·8	−9·8	−4·6	−1·7	+1·5	+2·4	+1·8	+0·7	−0·9	0·0	+3·1	+8·0	+13·3	+17·4	+18·3	+16·4	+11·2	+7·0	+0·9	−8·6	−11·2
Oct.	−19·8	−21·7	−15·4	−11·6	−7·9	−7·2	−4·3	−1·6	+1·4	+2·8	+1·9	+1·4	+2·0	+5·2	+11·7	+18·4	+20·2	+21·4	+15·3	+9·9	+3·6	−1·7	−7·2	−16·8
Nov.	−6·5	−6·6	−6·9	−7·4	−7·6	−7·4	−5·9	−4·7	−3·4	−3·1	−2·8	−2·3	−0·5	+6·0	+6·5	+9·4	+10·7	+13·3	+13·6	+5·7	+5·7	+2·3	−0·4	−7·7
Dec.	−3·0	−5·3	−6·0	−3·5	−3·4	−3·8	−4·4	−3·7	−2·9	−1·9	−1·5	−0·9	−0·3	+1·5	+3·7	+3·6	+5·0	+6·7	+7·1	+6·9	+4·7	+3·6	0·0	−2·2
Year	−13·3	−14·6	−14·0	−12·4	−10·3	−7·5	−4·5	−2·1	−0·8	−0·9	−1·4	−1·8	−0·7	+2·8	+7·0	+12·5	+16·3	+18·1	+16·8	+13·0	+9·2	+3·3	−4·0	−10·7
Winter	−7·8	−9·6	−10·5	−10·1	−9·3	−8·0	−7·1	−5·5	−3·5	−1·9	−1·1	0·0	+1·6	+4·0	+6·3	+8·7	+11·8	+14·1	+14·3	+9·7	+7·6	+3·7	−1·3	−5·9
Equinox	−18·7	−20·3	−18·7	−16·1	−11·6	−8·5	−4·5	−1·1	+0·9	+1·4	+0·6	0·0	+1·1	+4·5	+9·7	+16·7	+21·9	+24·3	+20·5	+15·6	+8·9	+0·4	−9·5	−17·5
Summer	−13·3	−13·9	−12·9	−11·2	−9·9	−6·0	−1·9	+0·3	+0·2	−2·0	−3·7	−5·3	−4·7	−0·2	+5·0	+12·0	+15·3	+15·9	+15·5	+13·7	+11·0	+5·9	−1·1	−8·7

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

INTERNATIONAL QUIET DAYS

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

7 LERWICK 1964

HORIZONTAL COMPONENT

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
	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.	-1·8	-2·3	-0·2	-0·4	+0·6	+1·9	+4·2	+4·2	+2·0	-1·5	-5·4	-7·8	-7·0	-2·5	-1·2	+3·0	+1·0	+0·7	+1·8	+1·8	+2·6	+1·9	+1·0	+1·0
Feb.	+0·4	+0·9	+1·4	+1·5	+2·1	+3·8	+5·9	+5·5	+3·2	-1·3	-6·8	-10·7	-8·6	-3·7	+0·4	+0·7	+0·9	+1·0	+0·5	+2·3	-0·8	+0·1	+0·4	+0·9
Mar.	+3·7	+2·5	+2·5	+3·3	+5·1	+5·9	+5·7	+0·7	-7·7	-16·7	-22·9	-25·1	-19·3	-10·7	-2·9	+1·7	+2·3	+5·3	+9·9	+10·5	+10·5	+12·5	+11·5	+11·7
Apr.	+6·2	+5·0	+4·1	+3·6	+3·0	+3·2	+1·0	-4·4	-14·1	-22·6	-28·0	-25·2	-19·6	-8·4	-2·7	+1·2	+5·6	+11·4	+14·0	+14·0	+15·1	+15·2	+12·2	+10·2
May	+2·7	+1·9	+1·2	-0·1	-0·5	-1·5	-3·7	-7·1	-13·8	-17·3	-16·3	-13·5	-8·9	-1·3	+2·4	+3·5	+7·3	+8·7	+11·3	+11·9	+10·4	+8·5	+7·5	+6·7
June	+5·8	+4·0	+4·0	+5·6	+6·8	+5·0	-1·6	-8·6	-15·4	-24·2	-27·6	-25·4	-18·0	-15·0	-7·6	+4·4	+10·4	+16·2	+19·6	+18·0	+15·8	+10·8	+9·6	+7·4
July	+3·3	+3·0	+2·4	+3·1	+3·4	+1·2	-3·1	-6·6	-11·0	-17·1	-22·4	-25·0	-20·5	-11·2	-3·6	+2·7	+8·0	+9·8	+14·3	+18·4	+15·8	+12·7	+11·0	+11·4
Aug.	+4·8	+4·1	+2·6	+2·7	+1·8	+0·1	-2·8	-8·3	-15·6	-19·7	-19·8	-18·7	-14·4	-8·5	-2·2	+1·7	+5·2	+8·7	+14·4	+16·9	+14·2	+11·9	+9·4	+11·5
Sept.	+6·7	+5·0	+4·3	+4·7	+5·1	+4·4	+3·7	-0·7	-7·5	-18·0	-20·7	-22·3	-17·7	-10·6	-3·1	+2·7	+4·1	+7·2	+8·7	+10·5	+9·3	+7·2	+7·5	+9·5
Oct.	+2·2	+2·1	+1·0	+1·6	+3·2	+4·3	+5·2	+3·0	-4·0	-11·5	-17·0	-17·0	-12·8	-5·7	-1·4	+0·8	+2·8	+3·1	+5·2	+6·4	+7·4	+6·9	+7·0	+7·2
Nov.	-4·0	-3·7	-4·2	-2·3	-0·3	+1·8	+2·1	-0·1	-2·8	-6·1	-7·4	-6·9	-3·8	+0·3	+1·8	+2·3	+2·9	+4·0	+5·1	+6·1	+4·4	+3·9	+3·6	+3·3
Dec.	-3·6	-3·3	-3·5	-2·8	-1·1	+0·5	+2·4	+2·5	+1·7	-2·2	-4·5	-4·3	-1·6	+1·3	+2·7	+4·0	+4·1	+3·9	+3·2	+2·3	+1·1	+0·2	-0·5	-2·5
Year	+2·2	+1·6	+1·3	+1·7	+2·4	+2·5	+1·6	-1·7	-7·1	-13·2	-16·6	-16·8	-12·7	-6·3	-1·3	+2·4	+4·5	+6·7	+9·0	+9·9	+8·8	+7·7	+6·7	+6·5
Winter	-2·3	-2·1	-1·6	-1·0	+0·3	+2·0	+3·7	+3·0	+1·0	-2·8	-6·0	-7·4	-5·3	-1·1	+1·5	+2·5	+2·2	+2·4	+2·7	+3·1	+1·8	+1·5	+1·1	+0·7
Equinox	+4·7	+3·7	+3·0	+3·3	+4·1	+4·5	+3·9	-0·3	-8·3	-17·2	-22·1	-22·4	-17·3	-8·9	-2·5	+1·6	+3·7	+6·7	+9·5	+10·3	+10·6	+10·5	+9·5	+9·7
Summer	+4·1	+3·3	+2·5	+2·8	+2·9	+1·2	-2·8	-7·7	-13·9	-19·6	-21·5	-20·7	-15·5	-9·0	-2·7	+3·1	+7·7	+10·9	+14·9	+16·3	+14·0	+11·0	+9·4	+9·3

DECLINATION

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
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
Jan.	-1·10	+0·22	+0·76	-0·26	-0·10	-0·15	-0·46	-0·74	-1·46	-1·12	-0·08	+0·90	+1·98	+2·16	+1·34	+0·70	+0·74	+0·73	+0·64	-0·32	-0·84	-1·26	-1·28	-1·00
Feb.	-1·08	-0·70	-0·38	-0·18	-0·62	-0·85	-0·80	-0·78	-0·82	-0·74	+0·34	+1·46	+2·78	+3·32	+2·58	+1·54	+0·60	+1·27	+0·52	-0·06	-1·34	-1·98	-2·18	-1·90
Mar.	-0·83	-0·98	-0·93	-0·89	-1·03	-1·46	-2·19	-2·87	-3·47	-2·64	-0·75	+1·75	+3·87	+4·50	+3·71	+2·39	+1·25	+0·82	+0·29	+0·25	+0·35	-0·34	-0·35	-0·45
Apr.	-0·62	-0·95	-0·92	-1·71	-2·25	-2·82	-3·89	-4·63	-4·42	-2·53	+0·10	+2·77	+4·74	+5·09	+4·26	+2·83	+1·73	+1·36	+1·11	+1·03	+0·74	-0·23	-0·36	-0·43
May	-0·62	-0·65	-1·21	-1·78	-3·09	-4·35	-4·42	-4·25	-2·89	-0·86	+1·15	+3·15	+4·06	+3·87	+2·81	+1·66	+1·27	+1·33	+1·37	+1·28	+1·07	+0·77	+0·36	-0·03
June	+0·01	-0·26	-0·94	-2·09	-3·62	-5·12	-5·49	-4·94	-4·08	-1·89	+0·86	+3·18	+4·49	+4·74	+3·70	+2·45	+1·42	+1·20	+1·35	+1·30	+1·24	+1·21	+0·88	+0·40
July	-0·80	-0·88	-1·17	-2·32	-3·54	-4·72	-5·22	-4·72	-5·17	-2·48	-0·10	+2·58	+4·98	+5·90	+4·85	+3·48	+2·30	+1·30	+1·28	+1·44	+1·39	+1·20	+0·48	-0·06
Aug.	-0·42	-1·24	-1·97	-2·18	-2·46	-3·20	-4·00	-4·44	-3·83	-2·40	+0·24	+3·32	+5·40	+5·46	+4·31	+2·80	+1·60	+0·88	+0·88	+0·66	+0·31	+0·26	+0·12	-0·10
Sept.	-1·10	-1·00	-1·17	-1·32	-1·54	-1·78	-2·60	-3·24	-3·01	-2·04	-0·26	+1·70	+3·70	+4·30	+4·01	+3·02	+2·08	+1·24	+0·80	+0·60	+0·03	-0·40	-1·00	-1·02
Oct.	-0·70	-0·67	-0·85	-0·78	-1·03	-1·27	-1·56	-1·95	-2·31	-1·48	+0·11	+2·37	+3·56	+3·69	+3·97	+2·18	+1·47	+0·67	+0·34	+0·07	-0·53	-1·42	-1·99	-1·89
Nov.	-1·28	-0·96	-0·78	-0·74	-0·66	-0·59	-0·62	-0·50	-0·74	-0·28	+0·72	+1·76	+2·00	+1·54	+1·00	+0·70	+0·68	+0·65	+0·34	+0·16	-0·24	-0·50	-0·74	-0·92
Dec.	-0·99	-1·06	-0·54	-0·37	-0·22	-0·38	-0·49	-0·62	-0·58	-0·29	+0·52	+1·66	+1·99	+2·02	+1·40	+0·91	+0·52	+0·52	+0·27	-0·26	-0·64	-1·03	-0·96	-1·38
Year	-0·79	-0·76	-0·84	-1·22	-1·68	-2·22	-2·62	-2·81	-2·73	-1·56	+0·24	+2·22	+3·63	+3·88	+3·16	+2·05	+1·31	+1·00	+0·77	+0·51	+0·13	-0·31	-0·59	-0·73
Winter	-1·11	-0·63	-0·23	-0·39	-0·40	-0·49	-0·59	-0·66	-0·90	-0·61	+0·37	+1·45	+2·19	+2·26	+1·58	+0·96	+0·63	+0·79	+0·44	-0·12	-0·77	-1·19	-1·29	-1·30
Equinox	-0·81	-0·90	-0·97	-1·17	-1·46	-1·83	-2·56	-3·17	-3·30	-2·17	-0·20	+2·15	+3·97	+4·39	+3·99	+2·61	+1·63	+1·02	+0·63	+0·49	+0·15	-0·60	-0·93	-0·95
Summer	-0·46	-0·76	-1·32	-2·09	-3·18	-4·35	-4·78	-4·59	-3·99	-1·91	+0·54	+3·06	+4·73	+4·99	+3·92	+2·60	+1·65	+1·18	+1·22	+1·17	+1·00	+0·86	+0·46	+0·05

VERTICAL COMPONENT

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
	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.	-0·7	-1·5	-4·8	-2·9	-2·1	-1·9	-2·3	-2·3	-1·2	-0·3	-0·7	-0·9	-1·5	-0·7	+0·6	+1·9	+3·3	+3·9	+2·9	+3·9	+2·2	+1·3	+1·9	+1·9
Feb.	-3·4	-2·8	-3·1	-2·6	-1·2	-0·8	-0·8	-1·4	-1·9	-2·4	-2·6	-2·6	-5·4	-5·2	-0·5	+3·2	+6·0	+6·8	+6·6	+4·4	+6·1	+3·4	+1·2	-1·0
Mar.	-1·7	0·0	+0·7	+1·4	+2·3	+2·6	+1·9	+2·4	+1·5	+0·2	-2·5	-4·4	-6·7	-6·4	-2·9	+0·2	+2·1	+3·6	+3·7	+3·2	+2·7	+0·8	-1·5	-3·2
Apr.	+2·6	+4·7	+3·6	+4·1	+5·0	+3·7	+3·0	+1·9	+0·8	-2·3	-6·0	8·5	-8·6	-5·1	-2·4	+0·1	+1·8	+2·1	+1·6	+0·3	-0·8	-0·9	+0·2	-0·9
May	+4·2	+4·6	+4·8	+3·4	+1·4	-1·0	-1·4	-3·6	-6·6	-9·2	-10·4	-10·4	-10·4	-6·6	-1·0	+3·4	+6·6	+8·2	+6·0	+3·8	+3·8	+3·2	+3·2	+4·0
June	+0·2	-1·7	-0·8	+0·8	+1·4	+2·3	+1·6	+0·2	0·0	-3·9	-7·0	-9·2	-6·6	-1·1	+0·2	+0·4	+3·2	+3·1	+1·8	+2·8	+3·2	+4·1	+2·6	+2·4
July	-1·2	-1·3	-1·0	+0·4	+3·0	+3·5	+3·4	+2·4	+0·8	-2·3	-4·4	-4·2	-8·2	-7·9	-4·0	+0·6	+4·0	+4·5	+4·6	+3·6	+3·2	+2·3	+0·6	-2·4
Aug.	-2·8	-2·3	+0·2	+1·3	+3·3	+5·4	+6·5	+5·5	+2·4	-3·3	-7·0	-10·9	-8·8	-6·5	-2·6	+0·9	+3·1	+3·2	+2·1	+2·5	+4·8	+2·1	+2·4	-1·5
Sept.	-0·1	-0·2	+1·5	+1·9	+2·9	+2·0	+2·5	+3·7	+2·3	+0·8	+0·1	-2·3	-5·1	-4·6	-3·7	-2·3	-0·7	-0·2	-0·9	-0·3	+1·5	+0·8	+1·3	-0·9
Oct.	-7·4	-8·4	-5·0	-2·2	-1·0	-1·2	-0·2	+1·4	+3·0	+3·0	+1·2	0·0	-1·2	+1·2	+4·0	+5·4	+5·4	+4·6	+3·2	+2·4	+1·0	-2·4	-2·4	-4·4
Nov.	-1·3	-2·2	-0·5	+0·6	-0·1	+0·2	+0·1	+0·4	+0·1	-1·2	-1·7	-1·6	-2·3	-0·4	+0·5	+1·8	+2·3	+2·0	+1·7	+1·2	+0·5	+0·4	+0·3	-0·8
Dec.	+3·0	+1·1	0·0	-0·5	-1·0	-1·5	-2·2	-2·3	-1·8	-0·9	-0·2	+0·1	+0·2	+0·1	+0·4	+0·5	+0·4	-0·1	+0·6	+0·7	+0·8	+0·9	+0·8	+0·9
Year	-0·7	-0·8	-0·4	+0·5	+1·2	+1·1	+1·0	+0·7	-0·1	-1·8	-3·4	-4·6	-5·4	-3·6	-0·9	+1·3	+3·1	+3·5	+2·8	+2·4	+2·4	+1·3	+0·9	-0·5
Winter	-0·6	-1·3	-2·1	-1·3	-1·1	-1·0	-1·3	-1·4	-1·2	-1·2	-1·3	-1·3	-2·3	-1·5	+0·3	+1·9	+3·0	+3·1	+3·0	+2·5	+2·4	+1·5	+1·1	+0·3
Equinox	-1·7	-1·0	+0·2	+1·3	+2·3	+1·8	+1·8	+2·3	+1·9	+0·4	-1·8	-3·8	-5·4	-3·7	-1·3	+0·9	+2·1	+2·5	+1·9	+1·4	+1·1	-0·4	-0·6	-2·3
Summer	+0·1	-0·2	+0·8	+1·5	+2·3	+2·5	+2·5	+1·1	-0·9	-4·7	-7·2	-8·7	-8·5	-5·5	-1·9	+1·3	+4·2	+4·7	+3·6	+3·2	+3·7	+2·9	+2·2	+0·6

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

INTERNATIONAL DISTURBED DAYS

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

8 LERWICK 1964

HORIZONTAL COMPONENT

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
	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.	-0·2	+0·7	-4·9	+6·0	+11·5	+16·1	+15·0	+9·5	+8·9	-12·4	-23·7	-20·5	-2·2	+5·5	+2·7	+0·6	-3·5	-1·1	+1·8	-3·1	-0·9	-2·6	-0·1	-3·1
Feb.	+1·6	-3·7	-3·1	-17·8	+3·3	+10·9	+1·4	+10·7	+7·7	-0·6	-13·7	-17·7	-12·4	-3·7	+5·3	+13·2	+17·3	+13·1	+9·8	+8·5	+3·3	-18·0	-11·5	-3·9
Mar.	-12·9	-37·2	-16·9	-2·5	-18·5	+3·0	+10·3	+4·5	-2·9	-5·0	-21·1	-16·3	-9·7	+10·8	+19·7	+18·3	+44·5	+39·6	+18·5	+13·9	+0·9	-17·8	-8·5	-14·7
Apr.	-32·7	-37·7	-5·0	+6·7	+4·7	-0·1	+8·9	+0·3	-11·4	-28·5	-23·3	-17·5	-3·5	+0·5	+18·0	+29·9	+59·3	+95·1	+60·1	+37·5	+6·0	-30·9	-35·9	-100·5
May	-25·3	-28·1	-9·1	-12·5	-33·3	-0·8	-10·7	-14·9	-29·1	-48·9	-30·1	-18·5	-3·3	-2·7	+27·5	+44·5	+35·7	+40·6	+34·7	+32·9	+21·5	+15·5	+16·9	-2·5
June	+11·6	+11·1	-15·2	-5·8	-8·0	-36·7	-31·4	-18·0	-11·8	-22·7	-24·2	-14·6	-16·2	-6·9	-2·4	+6·6	+17·2	+26·7	+33·4	+42·4	+25·8	+20·5	+14·2	+4·4
July	+2·4	-10·6	-2·2	-24·8	-22·4	-1·7	-3·0	-4·4	-10·4	-18·8	-24·0	-32·2	-15·0	-0·6	+0·4	+10·2	+18·0	+33·1	+35·4	+34·8	+24·4	+10·8	+4·0	-3·4
Aug.	+11·1	+7·8	-5·7	-0·2	+9·8	-4·1	-5·0	-7·2	-21·3	-22·6	-26·1	-27·2	-26·9	-6·8	+0·9	+8·0	+20·8	+25·9	+30·4	+25·8	+14·3	+8·8	-4·7	-5·8
Sept.	+7·6	-1·3	-20·0	-24·1	+1·1	+6·4	+9·9	-6·1	-15·0	-20·1	-25·2	-17·1	-13·8	+0·1	+9·4	+31·1	+16·1	+11·2	+14·5	+12·1	+7·0	+3·1	+7·2	+5·9
Oct.	+9·2	+4·6	-1·5	-1·2	+6·0	+8·8	+5·6	+4·8	-5·9	-15·0	-17·6	-12·8	-11·0	-5·0	-3·9	+11·0	+6·4	+4·2	+7·6	+10·0	+2·9	+0·2	-3·4	-4·0
Nov.	-0·7	-0·6	+3·7	+10·3	+4·9	+9·2	+10·1	+9·7	+4·9	-6·2	-11·3	-6·9	-2·9	+1·4	+0·3	-0·5	+0·7	-2·6	-6·7	-2·3	-1·1	-1·4	-8·7	-3·3
Dec.	+2·8	-5·4	+2·6	+2·0	+3·6	+8·9	+12·6	+13·6	+9·0	+2·6	-1·0	-3·2	-2·8	-4·4	-2·0	-0·8	-8·0	-7·5	-2·8	-3·6	-2·4	-2·8	-7·4	-3·6
Year	-2·1	-8·4	-6·4	-5·3	-3·1	+1·7	+2·0	+0·2	-6·4	-16·5	-20·1	-17·0	-10·0	-1·0	+6·3	+14·3	+18·7	+23·2	+19·7	+17·4	+8·5	-1·2	-3·2	-11·2
Winter	+0·9	-2·3	-0·4	+0·1	+5·8	+11·3	+9·8	+10·9	+7·6	-4·1	-12·4	-12·1	-5·1	-0·3	+1·6	+3·1	+1·6	+0·5	+0·5	-0·1	-0·3	-6·2	-6·9	-3·5
Equinox	-7·2	-17·9	-10·9	-5·3	-1·7	+4·5	+8·7	+0·9	-8·8	-17·1	-21·8	-15·9	-9·5	+1·6	+10·8	+22·6	+31·6	+37·5	+25·2	+18·4	+4·2	-11·3	-10·1	-28·3
Summer	-0·1	-4·9	-8·1	-10·8	-13·5	-10·8	-12·5	-11·1	-18·1	-28·3	-26·1	-23·1	-15·3	-4·3	+6·6	+17·3	+22·9	+31·6	+33·5	+34·0	+21·5	+13·9	+7·6	-1·8

DECLINATION

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
	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'
Jan.	-0·58	-0·45	+0·63	+1·54	+0·87	+5·03	+3·16	+1·05	+0·11	+0·08	+4·45	+4·59	+3·52	+3·79	+4·57	+2·62	-0·75	-7·65	-8·30	-3·99	-5·23	-5·60	-2·65	-0·81
Feb.	-1·82	+1·05	+1·44	+1·88	+0·16	-0·53	+1·76	+0·76	+0·26	+0·09	+1·76	+3·50	+4·56	+4·97	+6·06	+4·14	+1·86	+2·47	-0·16	-7·40	-4·30	-4·61	-9·52	-8·38
Mar.	-3·22	+1·28	-1·50	-5·70	-0·62	+0·12	-1·26	+0·12	+0·22	+1·84	+3·16	+4·86	+9·02	+7·80	+9·40	+7·58	+4·44	-3·10	-5·98	-7·12	-8·42	-2·68	-5·94	-4·30
Apr.	-4·15	-0·45	-1·64	-5·55	-3·31	-3·27	-3·21	-1·75	-1·92	+0·15	+2·41	+5·63	+7·23	+7·85	+8·86	+7·67	+6·59	+5·15	+3·59	-0·23	-4·54	-5·81	-6·27	-13·03
May	-2·63	-6·73	-4·62	-4·13	-4·55	-6·89	-5·41	-5·75	-3·66	-0·17	+2·91	+4·73	+6·53	+7·17	+7·44	+3·69	+3·61	+3·71	+3·37	+1·21	+1·06	+0·03	-0·01	-0·91
June	-1·46	-2·33	-3·07	-1·54	-4·31	-3·07	-5·78	-4·13	-4·49	-2·76	+0·37	+1·87	+5·04	+6·43	+6·65	+6·52	+4·71	+2·73	+1·54	-0·57	+1·39	-1·56	-1·81	-0·37
July	-1·68	-0·19	-2·60	-3·66	-3·26	-5·03	-6·14	-5·58	-4·26	-3·19	-0·42	+1·52	+4·82	+7·03	+7·34	+6·42	+6·84	+4·83	+2·64	+1·22	+1·38	-1·23	-3·62	-3·18
Aug.	-1·78	-1·11	-0·47	-4·80	-4·73	-2·33	-3·30	-4·45	-3·15	-0·88	+1·31	+4·61	+6·22	+7·37	+6·83	+3·40	+2·57	+2·37	-0·66	-1·23	-3·09	-2·56	+0·57	-0·71
Sept.	-5·02	-5·57	-1·78	-4·43	-4·23	-1·00	-0·79	-0·89	-0·66	+1·55	+3·32	+5·95	+7·76	+7·97	+7·14	+4·67	+2·19	-0·74	-2·65	-4·05	-3·00	-1·61	-3·40	-0·73
Oct.	-1·65	-2·73	-1·84	-0·53	-1·85	-0·23	+0·93	+0·01	-0·44	+0·33	+1·55	+3·53	+5·27	+6·89	+5·78	+7·11	+1·89	+0·29	-0·97	-5·41	-4·90	-5·37	-4·97	-2·69
Nov.	-1·11	-1·84	-1·07	-3·12	-0·78	-0·91	-0·88	-0·82	-0·85	-0·30	+2·73	+3·10	+3·99	+4·90	+5·95	+6·26	+4·76	+1·55	-1·08	-2·14	-2·83	-2·78	-6·15	-6·58
Dec.	-1·18	+1·26	-0·47	+0·18	+0·48	+0·28	-0·12	+0·22	+0·17	+0·32	+0·72	+1·72	+2·80	+3·02	+3·57	+3·08	+2·64	+2·58	-0·28	-4·04	-2·69	-4·46	-5·56	-4·24
Year	-2·19	-1·44	-1·42	-2·49	-2·18	-1·49	-1·75	-1·77	-1·56	-0·25	+2·02	+3·80	+5·56	+5·27	+6·63	+5·26	+3·45	+1·18	-0·75	-2·81	-2·93	-3·19	-4·11	-3·83
Winter	-1·17	+0·01	+0·13	+0·12	+0·18	+0·97	+0·98	+0·30	-0·08	+0·05	+2·41	+3·23	+3·72	+4·17	+5·04	+4·03	+2·13	-0·26	-2·45	-4·39	-3·76	-4·36	-5·97	-5·00
Equinox	-3·51	-1·87	-1·69	-4·05	-2·50	-1·09	-1·08	-0·63	-0·70	+0·97	+2·61	+4·99	+7·32	+7·63	+7·79	+6·76	+3·78	+0·40	-1·50	-4·20	-5·21	-3·87	-5·15	-5·19
Summer	-1·89	-2·59	-2·69	-3·53	-4·21	-4·33	-5·16	-4·98	-3·89	-1·75	+1·04	+3·18	+5·65	+7·00	+7·07	+5·01	+4·43	+3·41	+1·72	+0·16	+0·19	-1·33	-1·22	-1·29

VERTICAL COMPONENT

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
	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.	-29·4	-37·2	-32·8	-25·8	-27·0	-32·7	-32·4	-21·8	-12·6	-1·2	+10·6	+17·2	+25·6	+16·4	+17·8	+35·6	+61·6	+57·7	+31·8	+20·2	+10·0	+3·8	-16·6	-38·8
Feb.	-12·6	-23·5	-41·0	-48·0	-45·8	-32·9	-23·8	-14·4	-8·2	-2·3	+1·0	+7·8	+14·0	+13·7	+14·8	+25·0	+39·4	+53·1	+60·8	+33·4	+23·8	-1·9	-18·8	-13·6
Mar.	-44·6	-40·4	-59·0	-40·0	-38·4	-58·5	-31·8	-14·4	-4·8	-1·8	+4·2	+9·8	+11·4	+24·2	+27·4	+49·6	+76·6	+96·5	+64·8	+56·6	+28·6	-11·2	-47·0	-57·8
Apr.	-59·8	-72·4	-64·4	-36·2	-17·6	-10·7	-0·8	+1·0	+3·0	+6·8	+4·2	+4·0	+16·4	+20·2	+22·2	+34·6	+55·0	+84·5	+84·4	+60·6	+6·8	-21·4	-44·0	-76·4
May	-78·4	-52·4	-38·9	-33·4	-52·2	-30·4	-8·2	-0·8	+2·9	+8·4	-1·4	+3·4	+10·6	+17·2	+24·3	+62·4	+58·2	+47·4	+35·8	+25·0	+15·3	+15·4	-2·6	-27·6
June	-10·6	-28·5	-45·8	-59·7	-65·0	-59·1	-31·6	-6·1	+6·4	+7·7	+7·0	+9·3	+13·8	+17·9	+25·8	+28·5	+32·4	+39·9	+39·8	+31·9	+23·2	+21·9	+2·4	-1·5
July	-9·1	-28·7	-27·7	-35·9	-38·9	-29·2	-10·5	+0·3	+3·9	+5·3	+5·1	+6·9	+6·5	+11·5	+21·5	+27·1	+28·9	+34·8	+41·5	+30·3	+24·5	-6·5	-26·1	-35·5
Aug.	-12·6	-11·2	-33·1	-42·0	-24·4	-13·6	-14·6	-6·8	+1·3	+1·4	+2·6	+0·8	+3·2	+7·2	+18·7	+33·8	+33·6	+32·8	+36·2	+29·2	+16·9	+8·6	-13·4	-54·6
Sept.	-24·2	-22·8	-47·2	-63·4	-31·0	-15·5	-10·4	-2·2	+2·4	+2·4	+5·8	+7·6	+13·0	+22·8	+32·0	+44·6	+48·8	+47·9	+36·8	+16·2	+3·6	-4·2	-30·2	-32·8
Oct.	-37·7	-34·6	-24·8	-25·5	-16·0	-14·4	-8·5	-4·2	+1·0	+5·1	+5·4	+5·0	+6·7	+9·6	+22·6	+36·5	+43·6	+60·8	+39·7	+16·2	-11·2	-14·3	-18·6	-42·4
Nov.	-11·4	-23·1	-24·0	-21·7	-22·6	-27·1	-18·6	-14·1	-9·6	-5·5	-5·4	-3·7	+1·4	+4·9	+17·2	+25·5	+28·4	+44·5	+50·8	+27·9	+15·2	+7·1	-4·0	-32·1
Dec.	-4·7	-18·1	-21·3	-10·3	-8·5	-10·4	-10·3	-9·3	-6·7	-4·1	-3·3	-1·9	+0·5	+5·1	+11·7	+7·1	+14·3	+20·4	+20·3	+17·3	+9·3	+6·9	+0·1	-4·1
Year	-27·9	-32·7	-38·3	-36·8	-32·3	-27·9	-16·8	-7·7	-1·7	+1·9	+3·0	+5·5	+10·3	+14·2	+21·3	+34·2	+43·4	+51·7	+45·2	+30·4	+13·8	+0·3	-18·2	-34·8
Winter	-14·5	-25·5	-29·8	-26·5	-26·4	-25·8	-21·3	-14·9	-9·3	-3·3	+0·7	+4·9	+10·4	+10·0	+15·4	+23·3	+35·9	+43·9	+40·9	+24·7	+14·6	+4·0	-9·8	-22·1
Equinox	-41·6	-42·5	-48·9	-41·3	-25·7	-24·8	-12·9	-4·9	+0·4	+3·1	+4·9	+6·6	+11·9	+19·2	+26·1	+41·3	+56·0	+72·4	+56·4	+37·4	+6·9	-12·8	-34·9	-52·3
Summer	-27·7	-30·2	-36·4	-42·7	-45·1	-33·1	-16·2	-3·3	+3·6	+5·7	+3·3	+5·1	+8·5	+13·5	+22·6	+37·9	+38·3	+38·7	+38·3	+29·1	+20·0	+9·9	-9·9	-29·8

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

RANGE OF MEAN DIURNAL INEQUALITIES FOR THE MONTHS SEASONS AND YEAR OF 1964

The ranges are derived from the diurnal inequalities printed in Tables 6-8

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	All days			Quiet days			Disturbed days		
	H	D	Z	H	D	Z	H	D	Z
	γ	′	γ	γ	′	γ	γ	′	γ
Jan.	16·3	7·15	29·1	12·0	3·62	8·7	39·8	13·33	100·4
Feb.	20·1	10·41	40·4	16·6	5·50	12·2	35·3	15·58	108·8
Mar.	32·3	8·22	45·9	37·6	7·97	10·4	81·7	17·82	155·5
Apr.	58·1	10·86	61·5	43·2	9·72	13·6	195·6	21·89	160·9
May	51·7	10·49	50·0	29·2	8·48	18·6	93·4	14·33	140·8
June	51·5	11·05	25·7	47·2	10·23	13·3	79·1	12·43	104·9
July	47·9	11·50	35·4	43·4	11·12	12·8	67·6	13·48	80·4
Aug.	40·1	10·53	29·8	36·7	9·90	17·4	57·6	12·17	90·8
Sept.	34·0	8·83	36·1	32·8	7·54	8·8	56·3	13·54	112·2
Oct.	24·0	8·28	43·1	24·4	6·28	13·8	28·6	12·52	103·2
Nov.	13·9	5·71	21·3	13·5	3·28	4·6	21·6	12·84	82·9
Dec.	10·0	4·58	13·1	8·6	3·40	5·3	21·6	9·13	41·7
Year	30·3	7·52	32·7	26·7	6·69	8·9	43·3	10·74	90·0
Winter	13·9	6·80	24·8	11·1	3·56	5·2	23·7	11·01	73·7
Equinox	35·2	8·42	44·6	33·0	7·69	7·9	59·3	13·00	124·7
Summer	46·9	10·80	29·8	37·8	9·77	13·4	62·3	12·23	83·8

AVERAGE DEPARTURE

Arithmetical average of diurnal inequalities in Tables 6-8 taken regardless of sign

10 LERWICK 1964

	All days			Quiet days			Disturbed days		
	H	D	Z	H	D	Z	H	D	Z
	γ	′	γ	γ	′	γ	γ	′	γ
Jan.	3·1	1·53	8·3	2·4	0·85	2·0	6·5	3·00	25·7
Feb.	4·5	1·99	9·7	2·7	1·20	3·1	8·9	3·06	23·9
Mar.	7·2	2·14	11·6	8·8	1·60	2·4	15·3	4·15	37·5
Apr.	11·9	3·05	13·1	10·4	2·15	3·0	27·3	4·59	33·6
May	11·9	2·82	10·5	7·0	2·01	5·1	22·5	3·79	27·2
June	12·3	2·79	6·7	11·9	2·37	2·5	17·8	3·10	25·7
July	11·0	2·92	7·4	10·0	2·60	3·1	14·5	3·67	20·7
Aug.	9·5	2·40	7·7	9·2	2·19	3·8	13·6	2·94	18·9
Sept.	8·2	2·34	8·5	8·4	1·79	1·8	11·9	3·38	23·7
Oct.	5·7	2·08	9·6	5·8	1·54	3·0	6·8	2·80	21·0
Nov.	2·5	1·49	6·1	3·5	0·80	1·0	4·6	2·77	18·6
Dec.	1·8	1·03	3·6	2·5	0·82	0·9	4·8	1·92	9·4
Year	6·4	2·12	8·3	6·3	1·57	1·9	9·3	2·85	22·9
Winter	2·9	1·45	6·8	2·5	0·89	1·6	4·5	2·29	19·1
Equinox	7·6	2·37	10·5	8·3	1·75	1·8	13·8	3·52	28·5
Summer	10·7	2·71	7·9	9·5	2·29	3·1	15·7	3·24	22·9

NON-CYCLIC CHANGE

11 LERWICK 1964

	All days			Quiet days			Disturbed days		
	H	D	Z	H	D	Z	H	D	Z
	γ	′	γ	γ	′	γ	γ	′	γ
Jan.	0·0	−0·03	−1·1	+3·5	+0·72	+0·6	−1·1	+0·73	−12·8
Feb.	+0·4	+0·07	+0·9	+1·5	−0·19	−0·8	−6·1	−3·51	−4·9
Mar.	0·0	−0·02	+0·5	+6·5	+0·12	−1·7	−13·3	+0·18	−12·7
Apr.	−5·9	−0·23	−8·6	+2·1	−0·14	−0·9	−7·7	−0·76	−24·0
May	+6·4	+0·18	+7·9	+2·9	+0·46	+0·5	+16·1	+1·61	+26·9
June	0·0	+0·02	+0·3	+0·1	+0·05	+1·6	−9·4	+0·58	+5·2
July	−0·2	+0·04	−0·5	+5·8	+0·07	−3·2	−9·9	−1·22	−19·8
Aug.	−0·1	−0·19	−2·4	+4·9	+0·64	−1·8	−12·3	−1·51	−24·7
Sept.	−0·3	+0·14	+2·1	+2·0	+0·20	−1·2	−6·5	+4·21	+4·0
Oct.	+0·2	−0·08	+1·4	+3·0	+0·24	+5·0	−11·5	−0·41	+1·5
Nov.	−0·2	−0·05	−0·2	+4·3	+0·69	+0·1	−2·1	−1·99	−11·6
Dec.	+0·4	+0·08	0·0	+0·8	+0·01	−2·5	−6·7	−1·12	−2·3
Year	+0·1	−0·01	0·0	+3·1	+0·24	−0·4	−5·9	−0·27	−6·3
Winter	+0·1	+0·02	−0·1	+2·5	+0·31	−0·7	−4·0	−1·47	−7·9
Equinox	−1·5	−0·05	−1·1	+3·4	+0·11	+0·3	−9·7	+0·81	−7·8
Summer	+1·5	+0·01	+1·3	+3·4	+0·31	−0·7	−3·9	−0·13	−3·1

AVERAGE RANGE OF DIURNAL INEQUALITY 1932-53 WITH 1964 AS PERCENTAGE OF THIS

12 LERWICK

		All days			International quiet days			International disturbed days		
		H	D	Z	H	D	Z	H	D	Z
		γ	′	γ	γ	′	γ	γ	′	γ
Year	1932-53	49·4	9·36	53·3	37·4	8·68	10·3	131·6	14·22	131·1
	1964(%)	61	80	61	71	77	86	33	76	69
Winter	1932-53	24·4	7·87	41·1	15·1	4·65	7·7	85·0	13·84	116·6
	1964(%)	57	86	60	74	77	68	28	80	63
Equinox	1932-53	59·2	10·94	68·8	42·3	9·54	12·9	193·4	18·89	168·9
	1964(%)	59	77	65	78	81	61	31	69	74
Summer	1932-53	72·6	12·72	53·0	57·5	12·77	17·0	156·9	15·61	134·0
	1964(%)	65	85	56	66	77	79	40	78	63

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

RATIO OF RANGE OF INEQUALITY AT LERWICK TO THAT AT ESKDALEMUIR 1964

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Type of day	Element	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
q	H	0·91	0·92	1·07	1·14	1·55	1·17	1·11	1·13	1·09	1·00	1·01	0·95
d	H	0·69	1·05	2·27	3·49	1·36	1·42	1·31	1·44	1·44	0·86	0·82	0·85
q	D	0·97	1·16	0·96	0·96	1·06	1·08	1·12	1·06	0·97	0·99	1·01	1·02
d	D	1·34	1·16	1·32	1·47	1·09	1·08	1·11	1·08	1·20	1·20	1·19	1·17
q	Z	1·50	1·30	0·73	0·75	0·87	0·61	0·74	1·05	0·59	1·37	0·79	0·47
d	Z	2·22	2·30	2·14	2·00	2·66	1·85	2·01	2·35	1·91	2·54	2·32	2·14

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(a) Disturbances without sudden commencement All times G.M.T.

Serial Number	From		To		Range (γ)			Notes
	Date	Hour	Date	Hour	*H*	*D*	*Z*	
1a	2 Jan.	03	5 Jan.	03	190	218	271	
2a	3 Mar.	21	6 Mar.	02	511	284	454	
3a	1 Apr.	09	3 Apr.	06	1128	654	547	
4a	27 Apr.	05	29 Apr.	20	456	207	449	
5a	13 May	09	16 May	22	526	137	414	
6a	10 June	03	12 June	08	473	169	386	

(b) Disturbances with sudden commencement (ssc) All times G.M.T.

Serial Number	Date	Time of sudden commence-ment	End of disturbance		With initial reversed stroke			Magnitude of main stroke (γ)			Range of following disturbance (γ)		
			Date	Hour	*H*	*D*	*Z*	*H*	*D*	*Z*	*H*	*D*	*Z*
		h. m.						γ	γ	γ			
1b	12 Feb.	06.05	-	-	No	Yes	-	+6	−16	0		small	
*2b	20 Feb.	11.37	-	-	Yes	No	-	+12	+12	0		small	
3b	29 Mar.	14.09	-	-	Yes	Yes	-	+15	−6	0		small	
4b	13 Apr.	16.26	-	-	Yes	No	Yes	+14	−4	−5		small	
5b	17 Apr.	00.20	-	-	Yes	Yes	Yes	+10	−8	−6		small	
6b	10 May	00.37	11 May	07	Yes	Yes	Yes	+18	−18	−5	422	303	382
7b	23 May	22.29	-	-	Yes	No	Yes	+29	−2	−10		small	
*8b	2 July	23.24	-	-	?	?	?	+11	−8	−6		small	
9b	4 Aug.	01.30	-	-	No	Yes	Yes	+18	−21	−8		small	
10b	6 Sept.	19.55	-	-	No	-	Yes	+31	0	−10		small	
11b	21 Sept.	11.47	22 Sept.	23	No	Yes	No	+11	−8	−4	846	315	334
12b	3 Oct.	12.43	-	-	Yes	No	-	+22	+8	0		small	

*ssc not well defined at Lerwick

In the case of an ssc*, that is, an ssc preceded, on at least one component, by one or more small oscillations, timing of the sudden commencement has been made from the main stroke.

(c) Disturbances due to solar flare (sfe) - None

15 LERWICK 1964

	G.M.T.	17	18	19	20	21	22	23	24	01	02	03	04	05	06	07	Notes
Jan.	4/5	O	O	O	O	L	L	O	O	O	O	O	O	O	O	O	N(1)
	5/6	X	O	O	O	O	O	O	O	O	X	X	X	X	X	X	
	8/9		X	L	L	X	X	X	X	X	X	X	X	X	X	X	N(1)
	9/10		X	X	X	L	X	X	X	X	X	X	X	X	X	X	A,N(1 to 2)
	10/11		X	X	X	X	X	L	L	L	O	O	O	X	X	X	N(1)
	11/12		L	L	X	X	X	X	X	X	O	X	X	X	X	X	N(1)
	12/13		X	O	O	X	X	X	X	X	X	X	X	X	X	X	
	14/15		O	X	X	X	X	X	X	X	X	X	X	X	X	X	
	16/17		X	X	X	X	X	X	X	X	X	X	X	X	O	O	
	17/18		X	X	X	O	O	O	X	O	O	X	X	X	X		
	18/19		X	X	X	O	X	O	X	X	X	X	X	X	X		
	19/20		X	X	X	X	X	O	O	X	X	X	X	X	O		
	20/21		O	O	X	X	O	O	O	X	O	X	X	X	X		
	21/22		X	O	O	O	O	O	O	O	O	O	O	O	X		
	22/23		X	X	X	X	X	X	X	X	X	X	O	X	X		
	23/24		X	X	X	X	X	X	X	X	X	X	X	X	O		
	24/25		X	X	X	O	O	O	O	X	X	X	X	X	X		
	30/31		X	X	X	X	O	O	O	X	O	O	O	O	O		

	G.M.T.	17	18	19	20	21	22	23	24	01	02	03	04	05	06	07	Notes
Feb.	1/2		O	O	O	X	O	O	O	O	O	O	X	X	X		
	3/4		X	X	X	X	O	O	X	X	X	X	X	O	O		
	4/5		X	X	X	X	X	X	O	X	X	X	X	X	X		
	5/6		O	X	X	O	X	X	X	L	L	O	X	O	O		N(1)
	8/9		X	X	X	X	X	X	L	X	X	X	X	X	X		N(1)
	10/11		X	X	X	X	X	O	L	L	L	L	O	X	O		N(1)
	11/12		O	O	X	O	X	X	X	X	X	X	X	X	X		
	12/13		X	O	O	O	L	L	X	X	X	L	L	O	O		N,A,R(1)
	13/14		X	L	L	L	L	L	X	X	X	X	O	X	X		N,A(1 to 2)
	14/15		O	O	O	O	O	L	X	X	X	X	X	X	X		N(1)
	15/16		X	O	X	X	X	X	X	X	X	X	X	X	X		
	16/17		X	X	X	X	X	X	X	O	X	O	X	O	X		
	17/18		X	O	O	X	X	X	X	X	O	X	X	X	X		
	21/22			X	X	X	X	X	X	O	O	X	X	X	X		
	28/29			X	X	X	X	X	X	X	X	X	O	O	X		

"In order to save space all nights during which the sky was overcast throughout have been omitted from the table; otherwise a symbol is given for each hourly observation during the hours of darkness according to the following code;"

L = aurora is observed
O = observing conditions are good and aurora is clearly absent
X = observing conditions made a decision about the presence of aurora impossible
? = aurora is suspected but observing conditions are not good enough for a firm decision.

15 LERWICK (condt.) 1964

	G.M.T.	17	18	19	20	21	22	23	24	01	02	03	04	05	06	07	Notes
Mar.	2/3			O	O	O	X	X	X	X	X	X	X	X	X		
	3/4			X	O	X	X	X	X	X	X	X	X	L	X		N,R(1 to 3)
	4/5			O	O	O	L	L	L	X	X	X	X	X	X		R,B,V,N,A(1 to 2)
	5/6			X	X	X	X	X	X	O	O	O	O	O			
	9/10			X	X	O	O	O	O	O	O	O	O	O			
	10/11			X	L	L	X	O	O	O	X	X	X	X			N(1)
	16/17				X	O	O	X	O	L	X	X	X	X			N(1)
	25/26				X	X	X	O	O	O	O	O	O	O			
	26/27					X	X	X	O	X	X	O	O				
	27/28					X	X	X	X	O	O	X	X				
	28/29					O	O	X	X	X	X	X	X				
	30/31					L	?	O	O	O	X	X	X				N(1)
	31/1					O	X	X	X	X	X	X	X				

	G.M.T.	17	18	19	20	21	22	23	24	01	02	03	04	05	06	07	Notes
Apr.	1/2					X	X	L	L	L	X	X	X				R,N,A,B,P(1 to 3)
	2/3					X	X	X	X	L	?	X	X				N(1)
	3/4					X	X	X	X	O	O	O	X				
	4/5					O	O	O	O	L	O	O	O				N(1)
	5/6					O	L	X	X	X	X	X	X				P(1)
	6/7					O	O	L	X	X	O	O					N(1)
	11/12					O	O	O	X	X	X	X					
	12/13					O	O	O	O	X	X	X					
	13/14					X	X	X	X	O	O	O					
	14/15						X	X	X	X	O	X					
	16/17						O	X	X	X	X	X					
	24/25						X	X	X	O	X						
	26/27						X	O	X	X	X						
	28/29						O	O	O	O	O						
	29/30						X	X	X	X	O						
	30/1						O	O	X	X	X						N,R(1 to 2) 23h 30m

When aurora was observed a brief note has been added describing the structure, form and brightness according to the following code:-

Structure.
- H = homogeneous
- S = striated
- R = rayed

Form.
- A = arc
- B = band
- P = patch
- V = veil
- R = rays
- N = not identifiable

Brightness Index.
- 1 = comparable with Milky Way
- 2 = comparable with moonlit cirrus cloud
- 3 = comparable with brightly moonlit cirrus cloud or moonlit cumulus cloud
- 4 = much brighter than 3

Complete definitions of these terms are given in the International Auroral Atlas (1963).

15 LERWICK (contd.) 1964

	G.M.T.	17	18	19	20	21	22	23	24	01	02	03	04	05	06	07	Notes
May	10/11							X	L	X							R(1 to 2)

	G.M.T.	17	18	19	20	21	22	23	24	01	02	03	04	05	06	07	Notes
Sept.	1/2					O	O	O	X	X	X	X					
	6/7					X	X	X	X	O	O	X	X				
	8/9					O	O	L	L	O	O	O	O				N(1)
	9/10					O	L	O	X	O	X	X	X				N(1)R(1 to 2)
	11/12					O	O	O	O	O	O	O	O				
	12/13					O	X	X	X	X	X	X	X				
	14/15				X	X	X	X	X	X	X	X	O				
	15/16				O	O	O	O	O	O	O	X	X				
	17/18				X	X	X	X	X	O	O	O	O				
	18/19				X	X	X	X	O	O	O	X	X				
	19/20				X	X	O	O	O	O	O	O	X				
	20/21				O	X	O	X	X	O	O	O	X				
	25/26				X	X	X	X	O	O	O	O	O				
	26/27				O	O	O	O	O	O	O	X	X				
	29/30				O	O	O	O	O	O	O	O	O				
	30/1				O	X	X	X	X	X	X	X	X				

	G.M.T.	17	18	19	20	21	22	23	24	01	02	03	04	05	06	07	Notes
Oct.	1/2				O	O	O	O	O	O	O	O	O				
	2/3				O	O	X	X	O	O	O	O	O				
	3/4				L	X	L	X	O	L	L	X	X	X			N(1)
	8/9				X	X	X	O	L	L	O	O	O	O			N(1)
	9/10				O	O	L	O	L	O	O	O	O	O			N(1)
	12/13			X	X	X	X	X	X	X	X	X	O	X			
	13/14			O	O	O	X	O	X	X	X	X	X	X			
	14/15			X	X	X	X	X	X	X	X	X	X	O			
	16/17		X	X	X	X	X	X	O	X	X	X	X	X	X		
	17/18		X	O	X	X	X	X	O	O	X	X	X	X	X		
	18/19		X	X	X	X	X	X	X	X	X	X	X	O	O		
	20/21		O	O	O	O	X	O	O	O	O	O	O	X	X		
	22/23		X	O	O	X	O	X	X	X	X	X	X	X	X		
	24/25		O	O	O	O	O	O	O	O	O	O	O	O	O		
	31/1	X	X	X	O	O	X	O	O	X	X	X	X	X	X	X	

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15 LERWICK (contd.) 1964

	G.M.T.	17	18	19	20	21	22	23	24	01	02	03	04	05	06	07	Notes
Nov.	1/2	X	L	X	X	O	X	L	L	L	L	L	O	O	O	O	N,R,HA(1)
	4/5	X	X	X	X	X	X	X	X	X	X	O	O	O	X	X	
	5/6	X	X	X	X	O	O	O	O	O	O	O	X	X	X	X	
	6/7	X	X	X	X	X	O	O	O	O	O	O	O	O	O	O	
	7/8	X	X	X	X	X	X	X	X	X	X	O	O	X	X	X	
	9/10	X	O	O	O	X	X	X	X	X	X	X	X	X	X	X	
	10/11	X	X	X	X	X	X	X	O	O	O	O	O	O	O	O	
	11/12	X	X	X	X	O	X	X	X	O	O	X	X	X	X	X	
	12/13	O	O	O	X	X	X	O	X	X	X	X	X	O	X	X	
	13/14	X	X	X	X	X	X	O	O	O	X	X	X	X	X	X	
	14/15	X	X	X	X	X	X	X	X	X	O	X	X	X	X	X	
	15/16	X	X	O	X	X	X	X	X	O	O	O	O	O	O	O	
	16/17	X	X	X	X	X	X	X	O	O	O	O	X	X	X	X	
	17/18	X	X	O	O	O	X	X	X	X	X	X	X	O	O	O	
	20/21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	
	22/23	X	X	X	X	O	X	X	X	X	X	X	X	X	X	X	
	23/24	X	X	X	X	X	X	X	X	X	X	X	X	O	X	X	
	24/25	O	O	O	X	O	O	X	X	X	X	X	X	X	X	X	
	25/26	O	O	O	O	X	O	O	O	X	X	X	X	X	X	X	
	26/27	X	X	O	O	O	O	O	X	O	O	X	X	X	X	X	
	27/28	X	X	O	L	L	L	X	X	X	X	X	X	X	X	X	N,R(1)
	28/29	O	O	O	X	X	X	X	X	X	X	X	X	X	X	X	
	29/30	O	O	O	O	O	O	O	L	O	O	O	O	O	O	O	A,N(1)
	30/1	X	X	X	O	X	X	X	X	X	X	X	X	X	X	X	

	G.M.T.	17	18	19	20	21	22	23	24	01	02	03	04	05	06	07	Notes
Dec.	1/2	X	X	O	O	O	O	X	O	X	X	X	X	X	X	X	
	2/3	X	X	X	X	O	O	O	X	X	X	O	X	O	O	X	
	3/4	X	X	X	X	O	X	X	X	X	X	X	X	X	X	X	
	6/7	O	O	O	X	X	X	X	X	O	O	O	O	O	O	X	
	8/9	O	O	X	X	X	X	X	X	X	O	X	X	X	X	X	
	9/10	X	X	X	X	X	L	L	O	O	O	O	O	O	O	O	N(1)
	10/11	O	O	O	O	X	O	X	O	O	O	O	O	O	O	O	
	11/12	X	X	X	X	X	X	X	X	X	X	X	X	X	O	X	
	12/13	X	X	X	X	X	X	X	O	X	X	X	O	X	X	X	
	14/15	O	O	X	X	X	X	X	X	O	O	O	X	O	O	O	
	19/20	X	X	O	O	O	O	O	X	O	X	X	X	X	O	O	
	20/21	X	X	X	X	X	X	X	X	O	O	O	O	O	O	O	
	23/24	X	X	X	X	X	X	X	O	X	O	X	X	O	O	O	
	24/25	O	O	X	X	X	O	O	X	X	X	X	X	X	X	X	
	25/26	O	O	O	O	O	X	X	X	X	X	X	X	X	X	X	
	27/28	O	O	X	X	X	X	O	O	X	O	X	X	X	X	X	
	28/29	X	X	X	X	O	O	O	O	O	O	O	O	X	X	X	
	29/30	X	X	X	X	X	X	X	X	X	X	O	O	X	O	O	
	30/31	X	X	X	X	O	O	O	X	X	X	X	X	X	X	X	
	31/1	X	X	O	O	X	X	X	X	X	X	X	O	O	O	O	

When aurora was observed a brief note has been added describing the structure, form and brightness according to the following code:-

Structure.
- H = homogeneous
- S = striated
- R = rayed

Form.
- A = arc
- B = band
- P = patch
- V = veil
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Brightness Index.
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16 BRITISH ISLES

1964

DATE	Φ_1	FORMS	TIME	Φ_2
JANUARY				
2-3	59	N	2300-0045	
4-5	61	N,R	2000-2200	
8-9	59	HA	1830-2400	
9-10	59	HA	1840-2330	66
10-11	61	N,R	2245-0045	
11-12	63	N	1745-1850	
16-17	62	N	0250-0400	
31-1	62	N	2030	
FEBRUARY				
5-6	57	HA,HB,R	2130-0200	65
7-8	60	N,R	2240 and 0053-0100	68
8-9	56	RA,RB	1845-0020	65
10-11	63	N	2325-0250	
12-13	61	HA,R	2145-0405	67
13-14	57	HA,RA	1830-2330	65
14-15	61	N	2000-2325	
20-21	54	HB,RB	1843-0125	64
25-26	57	Hidden by cloud	2255	
MARCH				
3-4	59	HA,RA	2150 and 2350-0450	
4-5	55	HA,p_2RA	2307-0045	62
5-6	58	HA,RA	1900-0050	65
8-9	59	HA,RA	2155-0350	67
10-11	63	N	1950-2120	
16-17	62	N	2100 and 0030-0050	
22-23		Overcast. Aurora present but forms and positions unidentifiable.		

DATE	Φ_1	FORMS	TIME	Φ_2
MARCH (contd.)				
30-31	62	N	2045-2150	
APRIL				
1-2	54	HA,p_2RA,p_2RB	2015-0230	61
2-3	58	HB	2050-0130	
4-5	63	N	0120-0130	
5-6	61	R	2115-2150	
6-7	63	N	2315	
15-16	60	N,RA	2155-2255 and 0200	65
27-28	55	Hidden by cloud	0100	
28-29	61	N	2255	
29-30	59	N	2115	
30-1	55	HA,R	2110-0200	64
MAY				
10-11	59	RB	2320-0315	65
13-14	58	Cloud conceals form	2250-0040	66
25-26	58	N	2145-2400	
AUGUST				
31-1	60	HA	2155-0255	65
SEPTEMBER				
1-2	58	N	2130-2200	
6-7	58	HA,RA	2130-0150	65
7-8	59	HA,RB	2120-2400	

DATE	Φ_1	FORMS	TIME	Φ_2
SEPTEMBER (contd.)				
8-9	62	N	2100-2330	
9-10	58	HB,RB	1930-2150	
16-17	58	N	2050-0215	
21-22	60	RA,RB	0150-0625	65
28-29	59	HA	1940-2150	
29-30	59	N	2130-2325	
OCTOBER				
3-4	56	HA,RA	2150-0350	65
4-5	57	HA,p_1RA	1950-0100	62
8-9	61	N	2000-0200	
9-10	60	N	1840-2325	
12-13	60	N,R	2100-2200	
13-14	61	N	2330-0200	
18-19	61	N	2050-2200	
19-20	59	N	1900-2300	
NOVEMBER				
1-2	60	HA,RA,RB	1800-0250	66
8-9	59	HA	2100-0315	
15-16	63	N	1905-1920	
23-24	59	R	1800	
27-28	63	R	1955-2200	
29-30	61	HA,RA	2250-0100	66
DECEMBER				
9-10	63	N	2150-2315	
25-26	61	N	2150	

The above table was compiled in the Balfour Stewart Auroral Laboratory of the University of Edinburgh from all data available for the sector between geomagnetic longitudes 70° and 90°E., using mainly observations made at British Meteorological Office stations and by British voluntary observers on land and in ships and aircraft, but including also data from Iceland, Faroe, Ireland and France. Acknowledgment is made to the authorities in these countries responsible for the organization and collection of observations.

In the table, Φ_1 is the lowest geomagnetic latitude from which aurora was seen in the longitudes considered.

On any night, if more than a glow on the northern horizon was seen from the British Isles, the other forms reported are listed and the period of time (GMT), during which the display was observed from the British Isles is stated.

The standard abbreviations used are those defined in the International Auroral Atlas, (1963). The system of reporting defined therein came into operation on 1 January 1964.

N denotes an aurora, the form of which is not identifiable because of adverse observing conditions. It includes the glow on the horizon, since this is the upper part of a display, the identifiable portion of which is below the horizon.

HA = homogeneous arc; RA = rayed arc; HB = homogeneous band; RB = rayed band; R = isolated rays; P = patch of diffuse luminosity. The two types of pulsing of auroral forms described as pulsation and flaming are designated by the symbols p_1 and p_2 respectively.

Under Φ_2 is given the lowest geomagnetic latitude in which aurora was situated overhead in the longitudes considered. In the absence of direct visual observations Φ_2 is deduced from measurements of elevation made in other latitudes, assuming a height of 100 km for the lower edges of arcs and bands.

Because of varying observing conditions, these data are in some cases incomplete; aurora may have been overhead in latitudes lower than those listed and other forms may have occurred. Fuller details may be obtained from the laboratory on request.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

17 LERWICK — Factor 2·72 — JANUARY 1964

Day	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	
	volts per metre																									
1			80	80	85	85	85	80	85	85	170	110	145	130	120	140	130^+	130^+	150^+	155^+	215^+	190^+	155^+	230^+		
2	240^+	260^+	250^+	240^+		260^+	230^+		290^+	290^+	290^+	290^+							215^+	230^+	205^+					
3							175^+										95^+	95^+	95^+	90^+	85^+	85^+	70^+	70^+		
4	70^+	65^+	60^+	65	65	70	70	70	80	85	85	90	90	95	150^+	110^+			145^+	70	65	60	55	55		
5	50	50	50	35	40	40	40	50	50	50	60	55	60	85	80	85	110	110	95	85	85	60	80	80		
6	55	40	40	35	40	50	60	50	60	85	95	95	125	120	110	95							65^+	85^+		
7 Oa	130^+			60^+	70^+	85^+	95^+	90^+			110^+	110^+	115^+	110^+	100^+	100^+	95^+	85^+	60^+	85^+				70^+	92	(17)
8 Oa	60^+	60^+	60^+	60^+	55^+	55^+	55^+	60^+	60^+	70^+	70^+	70^+	85^+	95^+	110^+	100^+	85^+	100^+	115^+	110^+	110^+	110^+	85^+		80	(23)
9								25^+			70^+	25^+			70^+	95^+	120^+	120^+	130^+	155^+	55^+	95^+				
10 Oa							70^+	95^+	95^+	110^+	95^+	90^+	100^+	95	80	110	70	70	65	100	95	70	70	80	87	(18)
11 Oa	80	70	70	85	70	60	60	60	70	60	70	90	90	95	100	100	85	120	140	125	95	90	80	65^+	85	(24)
12	40^+	50^+	40^+	55^+	55^+	55^+	60^+	70^+	65^+	65^+				60	65	80^+	90^+	90^+	70	70	65	65	65	65		
13	50^+	50^+	55^+				60^+	60^+	70^+	60^+	70^+	85^+									65^+					
14	60^+								180^+	70^+	85^+	60^+					60	80		70^+				50^+		
15	35	50		35	40	50		40	35^+	30^+	35	35	30	35	55	65	60	55	50	55	55	40	40	55		
16 Oa	40	35	40	40	40	50	50	50	40	50	55	60	65	80	70	70	70	85^+	85^+	90^+	85^+	90^+	85^+	90^+	63	(24)
17 Oa	95^+	100^+	90^+	90^+	95	115^+	150^+	125^+	95	90	125	190^+	190^+	170	170	170	170^+	155^+	140^+	125^+	120^+	130^+	140^+	145^+	133	(24)
18 Oa	170^+	170^+	215^+	265	250	205	215	180	155	145	145	185	220	240	325	325^+	300^+	275	250^+	275^+	245^+	245	270^+	185^+	227	(24)
19 Oa	170	110	85	50					90^+	85^+	80^+	80^+	70^+	80^+	85^+	80^+	70^+	70	70	85	95	115^+	140^+	95^+	90	(20)
20	85	95^+	190^+	205^+	160^+	150^+	130^+	115^+	130^+			130^+			95^+	120^+	100^+	95^+	60^+		80^+	70^+	70^+			
21	65^+	65^+	60^+	60^+	65^+	70^+	80^+	90^+	95^+									80^+	80^+	65^+	65^+	60	55	50		
22	40	40	40	40	50	50	40	70					80^+	80^+	70^+	65^+	60	65	65^+	70^+	80^+	65^+	65^+	65^+		
23				50^+	55^+	55^+	40^+	35^+						50^+	60^+	60^+				50^+	35^+	35	35	40		
24	35	35	35	30	40^+														70^+			55^+	50^+	50		
25	40	40	40	30							50	65	70	70	70	80	70									
26																					100	90	95	60		
27	60	65	70											120^+	145^+						265^+	35^+				
28						70^+	40^+			65^+	65^+	65^+	70	70	70^+			80^+	70^+	65^+	60		60			
29												65^+	80^+	90^+	35^+	95^+	100^+	60^+	.	65^+	100^+					
30					60		95^+								100^+								145^+			
31			50	50	40	40	30	35	55			85	100	115												
Mean	80 (21)	76 (19)	81 (20)	79 (21)	72 (19)	85 (19)	88 (22)	73 (20)	95 (19)	88 (17)	96 (19)	97 (22)	99 (18)	99 (21)	102 (23)	107 (20)	102 (19)	101 (20)	106 (21)	104 (22)	105 (24)	88 (21)	90 (22)	84 (20)	92	
Fair Weather Mean	63 (11)	53 (10)	55 (11)	65 (13)	73 (12)	70 (10)	72 (9)	69 (10)	77 (9)	81 (8)	89 (10)	87 (10)	97 (11)	104 (14)	113 (11)	102 (9)	73 (8)	106 (8)	82 (6)	84 (7)	79 (9)	81 (10)	63 (10)	59 (9)	79	
																					Mean of Oa days				[107	(8)]

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

17 LERWICK — Factor 2·82 — FEBRUARY 1964

Day	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	
	volts per metre																									
1																		115^+	100^+				80	70		
2	60	65	65	65	80		85^+																			
3									95^+		140^+		130^+													
4							95																			
5	80^+				80^+		70^+							110^+					85^+	85^+	110		85^+			
6	70^+	55	50			70	65	60	65	70	85	85	120	100	95									65^+		
7 Oa								60^+					80^+	70^+	80^+			80^+	85^+			115^+			81	(7)
8 Oa						70^+	70^+	80^+	70^+	65^+	60^+	60^+										80^+	60^+	65^+	68	(10)
9		55		55			80				115^+	115^+	120^+	110^+	90^+	120^+	95^+	55^+								
10							35		35	50	65	65	70	70	80	65	55	60	60	60	40	40	60	50		
11 Oa	50	50	55	50	50	50	40	50	50	50	60	60	60	65	65	60	65	70	65	60	65	70	55	40	56	(24)
12	35	35	35	40	35	35	30	30	35	35	55	65	65	60	50	40	40	55	40	50	55	50	40	50		
13 Oa	110	70	50	50	40	35	30	50	65	155^+	185^+	85	70	85	90	85	65	70	65	70	70	70	65	65	75	(24)
14	55			65	60	60	60	70	65	55		70		65	65			85	85	90	95	90	85	90		
15 Oa	90	85	80	70			95		85^+	85^+	85	90	95	90	90			130	125		140				96	(15)
16		70	65	70	60	70	70	55	65	65	60	50	50	40	60					95	85	90^+	85^+	85^+		
17	80^+	70^+	70^+			70^+	50^+					145^+							100	110	110	95	100	95		
18	80	70^+	60^+	60^+	65	55^+	60^+	85^+	100	100	100^+	115^+		90	110^+	95^+	70^+	80	55	50	60	40	35			
19					40	50	50	55	50					60	60	70	65	65	70	70	60	60	60	50		
20 Oa	65	55	50	40	40	50	40	50	50	55	50		50	65	60	55	65	70	65	65	60	60	55	50	55	(23)
21 Oa	40	30	25	35	35	35	30	30				110	100		115^+	145^+	155^+	145^+	110^+	110^+	90^+	90^+		110^+	81	(19)
22	115^+	120^+	100^+	110^+	95^+	95^+	95^+	100^+	115^+	115^+	120^+	110^+		120^+										95^+		
23 Oa	110^+			130^+	125^+	125^+	130^+	120^+	130^+	145^+	170^+	170^+	170^+	180^+	180^+	215^+	205^+	190^+	170^+	220^+	230^+	155^+			163	(20)
24																										
25								210^+	210^+		160^+	180^+			170^+						230^+	85^+	110^+	85^+		
26				205^+	170^+	170^+	160^+	190^+			230^+	180^+												185^+		
27 Oa	155^+	150^+	155^+	155^+	140^+	140^+	155^+	140^+	95^+												230^+			165^+	153	(11)
28 Oa	205^+	250^+						395^+	360^+	395^+	385^+	420^+	480^+	505^+	505^+	480^+	445^+	310^+	290^+	215^+	185^+	140^+	160^+	180^+	332	(24)
29	170^+	325^+			55^+	95^+	155^+	140^+	145^+	160^+	140^+	170^+	210^+	230^+	360^+	395^+	490^+	470^+	385^+	335^+	300^+	300^+	240^+	205^+		
Mean	92 (17)	97 (16)	66 (13)	80 (15)	73 (16)	75 (17)	76 (23)	104 (19)	99 (19)	107 (15)	126 (18)	123 (19)	125 (15)	118 (18)	129 (18)	152 (12)	151 (12)	128 (16)	115 (17)	112 (15)	123 (18)	96 (17)	86 (16)	95 (19)	106	
Fair Weather Mean	65 (9)	57 (10)	53 (9)	54 (10)	51 (10)	51 (9)	52 (12)	50 (9)	58 (10)	60 (8)	66 (7)	76 (9)	76 (9)	72 (11)	71 (10)	63 (6)	59 (6)	76 (9)	73 (10)	72 (10)	79 (12)	64 (9)	63 (10)	62 (9)	63	
																					Mean of Oa days				[116	(10)]

The potential gradient is reckoned as positive when the potential increases upwards. The small $^+$ denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for Oa days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

17 LERWICK — Factor 2·84 — MARCH 1964

Day	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	
	volts per metre																									
1 Oa	205+			170+	215+	170+	250+	230+	170+	250+	220+	215+	220+	265+	190+	170+	210+	205+	150+	155	160	180	190	85+	193	(24)
2	65+	55+																70+	70+	70	70					
3		50+							60+	60+	80+						130+	125+	110+	95+	100	65				
4	65		85+	80	90	80	60	55	60	60	70	90	85	85	90	95	90				55	50	50	50		
5	35	35	40	50		55	55			35+	90+		100	85	90	80	85			65	50		85	60		
6 Oa	80	80	60	55	55	60	55	55	145+	110+	205+	85	80	85	70	60	50	55	60	65	50	50	55	40	73	(24)
7	35	35	30	30	35	35	30	35	35	35	40	40			30	25+	35+	50+	65+	55+	65+	50+	50+	50+		
8	35+	25+	20+			55+	60+	60+	50+	50+	65+	65+	80+	80+	70+	65+	70+	70+	80+	80	85	80	70	65		
9	70	70	60	50	55	35	35	50	60	50	55	55+	60+						60+	65	65	65	60	60		
10 Oa	55	50	50	50	40	40	50	50	40	60	55	60	55	85	95	-	-	-	115	95	85	120	110	85	69	(21)
11 Oa	85	100	70	80	65	60	50	85	80	70	80	70	65	70	70	80	70	80	70	70	65	60	55	55	71	(24)
12	50	55	60	70	95	110								90+			130+	155+	145+	150+	140+			145		
13 Oa	150+	150+	130+	145+	130+	140+	130+	140+	120+	130+	120+	110+	90+			140+	95+	140+	115+	100+	125+	130+	130+	120+	126	(22)
14 Oa	120+	125+	115+	110+	115+	130+	115+	110+	110+	110+			120+	130+			130+	140+	140+	130+	145+	140+	145+	140+	126	(20)
15 Oa	125+	140+	120+	100+	110+	115+	115+	110+	115+					145+	150+	155+	170+	170+	180+	180+	180+	175+	170+	155+	144	(20)
16 Oa	130+	125+	115+	120+	120+	115+	115+	120+	120+	115+	115+	130+	155+	175+	160+	170+	175+	200+	190+	185+	180+	160+	160+	155+	146	(24)
17 Oa	155+	145+	130+	140+	130+	125+	130+	140+	140+	140+	150+	170+	180+	190+	180+				150+	150+	150+	130+	115+		147	(20)
18 Oa	95+	110+				110+	115+	125+						160+	170+		190+		175+						139	(9)
19	110+							115+																		
20	145+																									
21														95+	90+	120+	100+			140+						
22 Oa																								55+	55	(1)
23 Oa	50+																			110+	100+	95+	80+	140+	96	(6)
24	145+	120+	100+	95+	120+																					
25																						55+	50+	60+		
26 Oa	55	50	40	40	40	35	40	50	50	85	85	85	85	85	85	85	85	85	90	120	100	110	130	125	77	(24)
27 Oa	115	110+	100+	110+	95+	95+	90+	115+	115+	115+	95+	115+	115+	155+	145+	170+	155+	185+	200+	215+	230+	230+	205+	200+	145	(24)
28 Oa	185+	185+	170+	170+	170+	160+	155+	160+	155+	145+	140+	130+	150+	145+	155+	180+	160+	190+	200+	180+	210+	160+	160+	140+	165	(24)
29	140+	115+	100+	110+				120				160	190	185	180	180	155	125	110	120	100	115	110	80		
30 Oa	70	50	70	70	70	50	60	70	90	100	115	120	140	145	150	140	120	110	110	70	80	85	80	70	93	(24)
31	85	70	80	60	50	55	50	60	95	85	85	85	100	95	100	110	95	65	100	95	120	70	50	50		
Mean	98 (27)	89 (23)	83 (21)	91 (21)	95 (19)	87 (21)	88 (20)	98 (21)	95 (19)	95 (19)	104 (18)	105 (17)	115 (18)	127 (20)	119 (19)	119 (17)	119 (21)	123 (18)	122 (22)	115 (24)	113 (24)	108 (22)	105 (22)	95 (23)	105	
Fair Weather Mean	67 (12)	59 (10)	56 (10)	58 (11)	59 (10)	56 (11)	49 (10)	63 (10)	64 (8)	68 (8)	73 (8)	88 (9)	100 (9)	102 (9)	96 (10)	104 (8)	94 (8)	87 (6)	94 (7)	89 (12)	85 (14)	88 (12)	87 (12)	67 (11)	77	
Mean of Oa days																									[117	(16)]

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

17 LERWICK — Factor 2·87 — APRIL 1964

Day	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	
	volts per metre																									
1	50	45	45	45	40	40	45	50	50				80	80	85	100							80	80		
2	70	50			65	85							90+	90	100						105	100				
3	50	50	50	50	45	40	50	45	40	45	50	50	45	40	45				60			50	50	50		
4	45	45	50	45					65	60	70	145	80	80	80				60	25+		0+		65		
5	65	60	50	50	45	45	60	65	70		65			70	65	70	60	60	50	60	50	50	50	45		
6	40	40	40	40	45				65	80	80	85	85	85	90	105					105	90				
7	60	65	65	65	65	65	65	60	70	80	80	85	90+	100+												
8			90	80	70			100+	105+	90+	90	105	110	110	115											
9			60+			70+	60+	60+	65+	40+	50+				60									70		
10			60	50		60	70	70			90	85	85	90	105	110	105	105	105	130	170					
11	210								105+	100+	100+	100+	105+	115+	110+	115+	105+		130+	130+	130+	125+	195+	130+		
12	130+													85+	90+	85+	70+			85	85	70	70	70		
13				60	50				85				115+		90+	105+	105+	105	130	125	175			65		
14	60	60	60	50	50	65	90	100	105	100+		105+				115+			220+		130+					
15		100+	105+	85+			115+	65+	100+	105+	85+	85+	105+	130+	105+	115+	125+	100	80	125	65	85	70	105		
16 Oa	105	85	65	85	130+	195+	180+	220+	150+	145+	115+	105+	165+	180+			250+	270+	270+	150+	180+	125+	325+		174	(24)
17																										
18									105+	65+	80+	60+	30+	15	15	25	30	50	60+	80+	90+	130+	110+	110+		
19	85+	115+	105+			65+	65+				115+	65+	105+	105+										145+		
20	80+	85+	65+	115+	115+										80+	180+	290+	520+	585+	675+	600+	430+	235+	195+		
21	195+	235+	195+	210+			195+	210+	180+					210+	180+	170+	155+	170+	170+			50+	60+	60+		
22	65+	65+	65+	65+	40+	25+						45+	200+	245+	270+	260+	195+	235+	220+	210+	195+					
23	115+	105+	100+	90+	100+	80+									30+	40+	45+	60+		60+			50+	80+		
24		65+			60+				105+			85+	80+	80	90	90	100	105	100	115	115	115	65	50		
25	45	45	40	40	40	50	70	85	105	110	105	100+	115+	105+	100+	100+	85+	100+								
26																115+	125+	145+	170+	200+						
27				105+	85	80	70	130+	195+				310+	430+	440+	275+	250+	220+	215	180			390			
28																	145+	145+	145+	145+	135+	135+	115+	105+		
29	90+	85	80	70	70	70								110+	100+	105+	85+									
30	90+	80+	65+	65+	65+			105+	105+	105+	100+	90+	85+	80+	80+	100+	100+	105+	110+	100+		65+	65+			
Mean	87 (19)	78 (19)	73 (20)	73 (20)	66 (18)	69 (15)	87 (13)	97 (14)	98 (19)	87 (13)	85 (15)	87 (16)	109 (19)	120 (22)	110 (23)	119 (20)	128 (19)	156 (16)	160 (18)	153 (17)	155 (15)	108 (15)	128 (15)	88 (16)	105	
Fair Weather Mean	73 (11)	57 (11)	58 (12)	56 (13)	56 (12)	60 (10	65 (8)	68 (7)	73 (9)	75 (5)	79 (8)	92 (6)	81 (6)	74 (10)	77 (11)	83 (6)	74 (4)	88 (6)	100 (8)	117 (7)	109 (8)	80 (7)	111 (7)	67 (9)	78	
Mean of Oa days																									[174	(1)]

The potential gradient is reckoned as positive when the potential increases upwards. The small + denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for Oa days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

17 LERWICK — Factor 2·84 — MAY 1964

Day	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	
	volts per metre																									
1	85+			70+				115+	115+	130+	180+							105+			130	90	80	80		
2 Oa	70	65	50	50	50	50	60	60	70	65	70	70	80	80	100+	105+	135+	110	135	135	145	180			88	(22)
3																		105+	105+	100+	80+	70+	60+	160+		
4 Oa	80	105	110	170	135+	125+	175+	190+	200+	175	180	200	215	215	180	195			90+	100	85		90	70	148	(21)
5	80+	70+	65+	50+	60+	70+	70+	80+	80+	80+	80+	85+	100+			130+	135+									
6				80+	70+	195+								85+	85+	90+	100+	110+	90				150	125		
7	105	90	90	100	115	115	285	235+	150+	150+																
8				235+										115+	105+	110+	110+				110+	100+	90+	90+		
9	85+	85+	85+	80+	60+			80+						115	195	265	305+	245+	210+	200+	160+	155+				
10			70+	65	70	70	70+	90+	85+	85+	80+	90+	115+	100+	115+	110+	125+	115+	110+	105+	90+		80+	65+		
11			60+	50+	60+	70+	70+	60+	50+	45	50	40	45	60	65	85	80	65	90	90+	65+	50+	50	40		
12	50							130+					235+	300+			375+	455+	265+	170+	125+	105+	105+	100+		
13	90+	85+	80+	80+	80+	80+	85+			85+	85+		105+	105+	85+	85+	85+	65+	70+	70+	50+					
14			50+	50+	50	50	60+	50+	50+			65+	65+													
15		50	45	40	30	45		65+	70+						90+	100+	80+	85+	70+	70+	65		65			
16	45	40	40				60	65	60	50	50															
17															50+	130+						135+	285+	235+		
18 Oa	65+	105+	160+	155+	150+	115	125	145	155	150	125	145	195+	260+	285+	195+	195+					390+	340+	310+	188	(20)
19														70+	80+	110+	115+	105+	105+	105+	85+	90+	105+	110+		
20 Oa	105+	110+	105+	105+	100+	100	85	80	80	65	85	85	80	90	105	115	105	100	85	70	65	65	130+		96	(24)
21					235+	210+	220+	285+	245+	285	280	245	245	280	310	220	180	210	195	195+	170+	160+	135+	115+		
22	100+	105+	170+	180+	220+	220+	220+	220+	215	170	145	100	80	70	65	65	50	85	85	105+		90+	85+	65		
23					20+	25+	-5+	40+	30+	50+																
24							65+										65+	50+	60+	50+	65+	50+	65+	65+		
25 Oa	60+	50+	50+		45+	40+		90+				65	45	5	15	30	45		40+	40+				40	52	(24)
26 Oa	25+				80+				100+	110+	100+	110+	105+	115+	100+	125+	115+	110+	105+	110+	100+	110+	115+		94	(24)
27 Oa		105+	80+	85+	90+	65+	80+	90+	85+	85+	85	85+	85	85	100	110+	90+	90+	105+	105+	105	110	115	90	93	(24)
28 Oa	85	65	50	70	70	65	70	90	90	105	110+	105+	90+	100+	100+	90+	105	90	80	90	90	105	115	90	88	(24)
29 Oa	85	80	90	80	50	60	65	65	65	65	65	70	65	60	60	60	65	65	65	85	85	90	80	70	70	(24)
30	50	50	60	50	50	50	45	50	70	70	80	90	85	85	90	85	85	90					70	65		
31 Oa	70	65	65	60	65	70	70	70	70	65	70+	85+	85+	90+	105+	125+	110+	110+	105	100	80	80	70	70	81	(24)
Mean	74 (18)	78 (17)	79 (20)	91 (21)	85 (23)	91 (21)	99 (20)	106 (23)	102 (21)	104 (20)	107 (18)	102 (17)	112 (19)	118 (21)	113 (22)	119 (23)	124 (23)	122 (21)	108 (21)	105 (20)	97 (20)	117 (19)	113 (22)	103 (20)	103	
Fair Weather Mean	71 (9)	68 (9)	67 (9)	76 (9)	61 (9)	72 (11)	96 (9)	78 (8)	97 (9)	109 (12)	110 (11)	111 (10)	103 (10)	104 (11)	132 (9)	124 (9)	89 (8)	102 (8)	103 (9)	97 (6)	94 (9)	103 (7)	89 (10)	73 (11)	93	
Mean of Oa days																									[100	(10)]

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

17 LERWICK — Factor 2·71 — JUNE 1964

Day	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	
	volts per metre																									
1	65	65	60	60	60	70	60	60	60			80	70								70	95	95	100		
2	90	80	85		95	95	120+	140+	145+	140+	145+	140+	150+	155+	155+	170+	180+	180+	180+	170+	155+	155+	140+	120+		
3	95+	80+	70+	40+	40+	35+	30+	20+	10+	-5+	-20+	0+	5+	20+	20+	20	25	25	0+	-50	-5	-50	-40	-25		
4	-55	-55	-50	-65	-30	-25	-155	-215	-170	-230	-180	-85	-55	20	95	85	80	85								
5																										
6				145+	190+	160+	100+	90+			50+	40+	30+	70+	80+	65+	60+	115+	170+	180+	150+	180+	120+	155+		
7	170+	145+	115+																							
8									90+	30+	40+	35+	95+	85+						85+	90+	80+	80+	65		
9	60	40	40	50	55	70	85	85	90	95	110	120	170	170	200	210	200+	215+	145+	240+	310+					
10											130+	100	100	180+	300+	240	300+				95	95	95	90		
11	60				55+	110+	155+	230+	205+	240+						180+	140+	145+	140+	160+	145+	130+	145	155		
12	175	100+	110+	90+	100+		100+	110+	115+	120	120	100	100	110	190	250	265									
13																										
14		190+	155+	175+	190+	180+	100+	115+	110+	125	130+	100+	150+	145+									115+	120+		
15	115	115	100		120+	110+			110+	115+	85+		70+	70+	110+	120+										
16			125+												85+					90	90	85	80			
17 Oa									85	70	80	80	80	70	85	90	85	85	85	80	80	100	70	65	81	(16)
18	70	80	70	70	65		60+	85+	120					85+	100+	100+	90+	85	85	70	80	80				
19		65	60				65+			90+	85+	95+		110+	120+			90+	95+	95+	85	85	80	80		
20 Oa	85	80	85	85	85	85	80	85	80+	70+	85+	85+	85+	85+	90+	100+	115+	115+	100+	100	110	140+	100+	90+	93	(24)
21 Oa	85+	95	90	95	95	70	65	90	90	65	85			110	125	100	85	80	70	70	70	65	60	60	83	(22)
22 Oa	30	60	65	65	40	50	65	85	70	65	65	85	85	70	95	100	85	60	85	85	85	85	65	60+	71	(24)
23 Oa	85+	55+	60+	60	55	50	55	60	70	85	85	95	95	95	120	125	120	80	90+				130+	110+	85	(21)
24	95+							185+	50+	95+	110+	130+	95+							125+	60+					
25								120+	150+				100+	130+	150+	115+	130+	120+	175+	155+	155+	145+	115+	85		
26	110	130	155	155	230	180	165	230+	230+		210+	140+														
27					155+		145+	130+	125+	120+	140+	125+	125+	125+	125+	125+	140+	130+	140+	130+				265+		
28			100+	90+	100+	110+			115+	130+		110+	115+		130+	130+	125+	145+	140+	145+						
29		90+						70+	95+	100+	115+	110+	110+	100+	110+	110+	130+	120+	100+	85+	85	90	100	85		
30	80										110+	110+	80+					80+	95+							
Mean	83 (17)	83 (17)	83 (18)	80 (14)	94 (18)	90 (15)	76 (17)	93 (19)	93 (22)	80 (19)	85 (21)	85 (21)	88 (21)	100 (20)	124 (20)	128 (19)	131 (18)	109 (18)	111 (17)	112 (18)	106 (18)	98 (16)	91 (17)	99 (17)	97	
Fair Weather Mean	74 (12)	69 (11)	69 (11)	64 (9)	75 (10)	72 (9)	53 (8)	36 (7)	52 (8)	49 (8)	52 (7)	72 (8)	81 (8)	92 (7)	130 (7)	136 (9)	106 (7)	71 (7)	81 (4)	64 (7)	77 (11)	73 (10)	75 (10)	76 (10)	75	
Mean of Oa days																									[83	(5)]

The potential gradient is reckoned as positive when the potential increases upwards. The small + denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for Oa days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

17 LERWICK — Factor 2·64 — JULY 1964

Day	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	
	volts per metre																									
1		100+	90	70	85	60	70+	65+	80+	80+	80+	85+	90+	95+			40+	70+	60+	95+						
2								100+		115+	115+	110+	85+							85	90	80+				
3										65+	70+	80	70	80	90	95	95	95	95	85	85	85	70	80		
4 Oa	80	65	65	70	70	70	80	90	95	100+	100+	95+	115	115	120	120+	110+	115+	90	90	85	70	60	65	89	(24)
5 Oa						95	95	70	100+	95+	90+	95+	90	90	85	95	90	90	90	85	80	70	65	65	86	(19)
6	60	55	35													115+			100+							
7																				385+	430+	445+	275+	300		
8	215	170	115	95+	125+	190+																				
9				95+					180+							125+	95+	110+	100+	90+	95+	85+	85+			
10	100+	80+			50+	55+										80+										
11			80	50																	115+					
12						145+			120+			120+	95+		120+	125+	100+	85+		110+				70		
13	60+		60+	65+	70+				130	130	110	115	95	85	95	155	190	170	180	200	205+	215+	175+	200+		
14	265+	370+	335+	265+	240+	190+	145+	120+	155+								420+	465+	490+	540+	575+	635+	465+	480+		
15 Oa	505+	410+	490+	565+	625+	625+	540+	480+	300+	265+	200+	140+	120+	145+	150+	140+	130+	125+	120+	145	125	115	150	180	283	(24)
16 Oa	100+	100+	100+	95+	95+	95+	100+	110+			135+	135+	95+	90	70	95	110	95	85	145	180	300	215	95	120	(22)
17	95			30	40	65+			70			90+	110+			60	90	145	185+	130+	165+	125+	95	100		
18 Oa	150	85	90	145		165	95+		150	160	130	140+						35+	50+	70+	80+	130+			142	(20)
19																				-+						
20												40+			130+	40+	55+	60+	70+	50+	90+			80+		
21	70+						110+	85+	100+	90	90	90	115+	80+	90+	70+	35+	50	35	65	70	85	70	65		
22 Oa	50	60	65	60	55	70	85	85	80	95	85	65	35	40	60	55	65	85	85	70	80	70	70	70	68	(24)
23	65	60	70	55	70	90	85					145+	80+	55+	85+	85+	100+	145+								
24									50+	130+				150+												
25	190+	155+			190+	170+	140+	140+	140+	140+	120+			120+	120+	100+	110+	115+	125	125		130	125	120		
26		95+			100+									65+	65+	60+										
27																										
28				120+																			100+	110+		
29 Oa	95	90					85	95	95	100	100	100	95	90	110	115	115	110	115	145	165	195	225	185	121	(20)
30	180	190+	215+							130+	60+	65+	55+	50+	55+	50+	55+	60+	55+	40+						
31	185+	145+	115+			155+	145+			130+	125+		130+													
Mean	145 (17)	139 (16)	138 (14)	127 (14)	140 (13)	149 (15)	137 (13)	131 (11)	123 (15)	122 (15)	107 (15)	101 (17)	92 (16)	90 (15)	96 (15)	94 (19)	111 (18)	117 (19)	118 (18)	137 (20)	160 (17)	177 (16)	150 (15)	142 (16)	127	
Fair Weather Mean	110 (9)	84 (7)	76 (8)	69 (7)	64 (5)	92 (6)	86 (5)	85 (4)	103 (6)	115 (5)	103 (5)	90 (5)	83 (6)	84 (7)	90 (7)	96 (7)	108 (7)	105 (8)	100 (9)	113 (11)	107 (9)	124 (9)	115 (10)	116 (12)	97	
Mean of Oa days																									[130	(7)]

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

17 LERWICK — Factor 2·63 — AUGUST 1964

Day	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	
	volts per metre																									
1			95+				95+	80+									85+							90+		
2	90+	60+								55	65	85	80	85	80	80	90	85	80	80	80	85	125	65		
3				55																						
4 Oa		85+	80+	70+	85+	80	70	70	70	70	80	60	70	50	50										122	(22)
5	200	200	170									155+	160+				300+	300+		350+						
6			60	90	155	120	130	100	130	90	110	90		110+			115	125	125	145+	55+	85+				
7	150+	100+	85+											215								110+	85+	60+		
8	85+									100+											170+					
9 Oa				190+	160+	180+	170+	175+	220+	290+	275	290	265	210	190	210+	300+						100+	85+	208	(21)
10	60+	65+	50+	50+							200+				80+	80+	80+	65+	95+	90+	95+	110+	110+	120+		
11													150+	140+	180+	95+	25+	10+								
12								150+	110+	95+	115+	50+	80+	40+	50+	85	80+	85+	110+			70	85	85		
13									90			50+	35+	40+	35+	30+	40+	50+	50+	70+						
14													95+	110	110	115	110	85	95	80	85	70	70	65		
15	60	60	60	55	55	65	80	85	90	85	80		55	70	70	70	65	65	65	65	60	55	55	50		
16	50	40		30	40	55	65	70	60	85	70	90+			90+	85+	65+	50+	55+	80	70	80	60	50		
17	55	50	55	55	65	80	65	40	85																	
18																					90+	80+	55+			
19		60	60	60	60	65	65	70	65		60+	80+	80+	85	85	80	85	85	90	85			80			
20	80	80	80	80	80	80	85	80	95	95	95				85	70	85	85	85	70	80		70	65		
21							115+	120+	85	85	85+		85+	90+	90+	130+	125+	150+	180+	250+	235+	215+	220+	235+		
22	265+	325+	275+	220+	245+						115+		0+	40+			35+	40+	60+	65+	70+	85+	80+	90+		
23	65+	60+	60+	50+	60	65	70	80	85	65																
24					35+					120+	145+			35+	35+			80+	65+	80	65	80	70	60		
25	60	50	35	30	35	50	80	140	120	115	100	100	110	110												
26			480+	430+	300+	265+	220+				40+	60+					55+	80+	90	95	90	85	85	80		
27	65+	60+	65+	55+	60+	80+	90	110							80+	50+	-20+	-5	-50	-35	-70	-85	-50	10		
28	60	50+	70+	65+	35	35	70	85	70	70	70															
29			90+		110+	100+	110+	95+						95+	50+	50+	100+	100+					85+	90+		
30 Oa	85	70	80	70	80	85	90	100+	110+	95+	100+	80+	95+	95+	95+	65+	70+	110+	120	120	85	85	90	65	89	(24)
31	65	80	70	70	70	50+					95+	90	100	95	110	115	115	90	80	70	85	80	85	80		
Mean	93 (16)	88 (17)	106 (19)	96 (18)	96 (18)	91 (16)	98 (17)	97 (17)	99 (15)	101 (15)	106 (18)	98 (13)	97 (15)	95 (18)	87 (18)	88 (16)	95 (21)	87 (20)	82 (17)	103 (17)	84 (16)	81 (16)	82 (19)	80 (18)	93	
Fair Weather Mean	79 (9)	77 (9)	74 (9)	59 (10)	67 (11)	71 (11)	80 (12)	85 (11)	87 (11)	81 (10)	105 (9)	125 (5)	113 (6)	114 (9)	104 (7)	88 (7)	95 (7)	77 (8)	78 (10)	72 (11)	63 (10)	61 (10)	69 (12)	61 (11)	83	
Mean of Oa days																									[140	(3)]

The potential gradient is reckoned as positive when the potential increases upwards. The small + denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for Oa days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

17 LERWICK — Factor 2·61 — SEPTEMBER 1964

Hour G.M.T. — volts per metre

	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
1 Oa	90	85	70	70	50+	80+	70+	110+	110+	120+	150+	215+	150+	120+	140+					85	60	90	110	125+	116 (24)
2 Oa	140+	120+	160+	170+	150+	145+	155+	155+	190+	170+	170+	155+	150+	150+	150+	140	150	170	200+	220+	230+	250+	205+	205+	171 (24)
3	240+	240+	250+	240+	300+			300+				205+	170+	250+	205+	70+	35+	130+							
4																			35+	120+	20+	65+	20+	25+	
5	-10+	65+											205+	170+	170+										
6						240+	155+	145+			90+	95+	100	80	80						40+	25+	5+	25+	
7	30	30	10+	25+	50+	70+	95+	100+															150+	95+	
8	85+			65+								80			265+	130+	60	60	60	55	55	60	60	55	
9	50	40	40	35	35	35	40	70	70	70						65	60	65	60	65	70		55	60	
10 Oa	40	40	35	35	35	35	60	85	95	95	95	100	110	110	95	85	95	90	85	85	85	85	85	110	78 (24)
11	95	65	80	70	70	70	80	65									130	120	100	100	100	95	85	90	
12 Oa	65	60	60	60	60	60	70	80	85	85	85	95	100	100	100	115	110	115	100	85	95	85	80		85 (23)
13																									
14																			540+	-			-	-	
15		-	-	-	-	-	-	-	100+	110+	130	170	170	275+	265+					120	95	90	140	175	
16	130	-	-	-	-	-	-	-	160	130	145	150+	155+	180	265+	335+	385+	430+	300+	275+	325+	290+	95+		
17				55+	65+	70+					100	100	120										80	85	
18	70	65	60	55		70					50								70	70	80	70	60	55	
19	55	55	60	55	60	80	85	110	145	145	120	95	95			90	90		95	85	70	65	65	65	
20			55										95	95				100	100						
21	60+				50	55	65	65	65	70	80		65	70		60	80	70	65	65	95	90	90	95	
22	85	95	90+																160+		145+	140+	125+	120+	
23 Oa	115+	110+	95+	90+											115+										126 (10)
24											420+	310+	370+	430+	490+	550+	565+	550+	600+	575+	515+	480+	410+		
25 Oa		360+	325+	360+	360+	325+	250+	235+	155+	180+	145+	140+	170+	150+	300+	265+	300+	265+	230+	230+	205+	205+	145+	140	237 (23)
26	90	110	95	140	175	125	170	160	175	145	150	190	275	360	335	300	290	300	325	230	170	155	90	85	
27	5	10	20			-85	-180+		-240		-230+			-50+	-100+	-80+	-50+	-10+							
28					145+							100+	85+	60+			70+	55+							
29	60+	50+															90	95	95	90	85	70	65	55	
30 Oa	55	55	60	60	55			85	85	70	80	95	95	110	115	120	110	110	125	140	130	130	130	80	95 (22)
Mean	77 (20)	92 (18)	92 (17)	99 (16)	111 (15)	92 (15)	86 (13)	126 (14)	92 (13)	116 (12)	111 (16)	143 (16)	149 (18)	156 (17)	187 (16)	160 (14)	151 (17)	160 (17)	176 (19)	150 (18)	133 (20)	134 (19)	107 (22)	92 (19)	125
Fair Weather Mean	66 (13)	59 (12)	58 (11)	64 (9)	67 (8)	66 (8)	81 (7)	90 (8)	71 (9)	101 (8)	103 (10)	116 (8)	123 (10)	138 (8)	145 (5)	122 (8)	115 (11)	118 (11)	107 (12)	98 (13)	92 (13)	90 (12)	85 (14)	88 (13)	94
Mean of Oa days																									[130 (7)]

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

17 LERWICK — Factor 2·62 — OCTOBER 1964

Hour G.M.T. — volts per metre

	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
1 Oa	60	80	80	50	70	70+	65+	65+		100	85	95	100	110	100	115	110	115	145	140	125	115	90	85	94 (23)
2 Oa	70	65	65	55	55	65	70	85	115	100	100	110	95	100	90	85	85	70+	70+	70+	100+	115+	95+	90+	84 (24)
3 Oa	85+	80+	70+	65	65	85	80	85	95	100+	95+	115+	125+	115+	115+	115+	135+	120+	120+	130+	120+	125+	125+	140+	104 (24)
4 Oa	150+	175+	170+	170+	175+	185+	180+	175+	180+	185+	205+	215+	215+	210+	215+	210+	210+	215+	235+	230+	235+	240+	240+	200	201 (24)
5	140+	145+	130+	145+	145+	230+	205+	240+	265+	245+	250+	245+	275+	205+	70+	20+									
6													240+	115+	110+										
7																									
8						65+	70+			85+	90+			50				70	85	70			60	60	
9	50	50	40	65	85	85						80+	85+				85	80	80	60	70	80	70	60	
10 Oa	55	50	35	50	50	55	55	65	70	70	70	65	70	70	50	65	70	70	70	65			60	55	61 (22)
11	50+	55+	35+																					100+	
12																									
13				80	90	90	85	150						120+	170+			155+		110	120	130	90	70	
14																					110+	60+	95	80	
15 Oa	65	55	50	50	55	65	65	60	80	100	115	110	85	95	90	85	55	85	85	85	65	55	50	50	73 (24)
16	60	70			50	65	70	110+			110	110	160	190	180	250	220	215	150	170	170	180	125	120	
17 Oa	110	120	90	85	60	55	65	85	115	90	65	55	55	85	70	80	120	115	140	90	95	50	60	125	87 (24)
18 Oa	125	130	180	125+	110+	170+	230+	180+			265+	300+	215+	220+											187 (12)
19			95+			100+	100+	100+	155+	150+	145+	130+	115+	155+	145+	155+	155+	140+							
20 Oa					95+	100+	120+	130+	145+	125+	140				125+		100+	110	110		100	95		70	112 (14)
21 Oa	70	60	60	50	50	50	60	85	80	95	120	95	115	100	110		110	95			95+	70+	80+	65+	82 (21)
22	70+																		155+	215+	325+				
23																							-	-	
24 Oa	-	-	-	-	-					85+	85				115	100	100	85	85	80	80	60	65	60	83 (12)
25	50	50	50	50	55	60	55	55	55	80	85	95	120+	145+	155+	140+	95+	85+					145		
26 Oa	120	145	115+	115+	175+	240+	310+	410+						455+	395+								430+	335+	366 (19)
27 Oa	430+	455+	410+	310+	310+	240+	180+	215+	205+	190+	110+	95+	180+	155+	205+	200+	600+				420+	420+	395+	360+	329 (24)
28 Oa	325+	250+	290+	290+	310+	360+	410+	410+	360+	325+	290+	310+	350+	350+	325+	275+	210+	230+	265+	275+	240+	180+	175+	160+	290 (24)
29	175+	170+	160+	170+	175+	155+	145+	150+	155+	150+															
30		50+	50+							95+					120	100	5	10	25	70	35	20	20	20	
31	20	20	20	20	20	50+	0+	-20+	-20+	-5+	20	50	50	30+							25	60	70	60	
Mean	114 (20)	114 (20)	110 (20)	108 (18)	110 (20)	120 (22)	125 (21)	141 (20)	137 (15)	124 (19)	129 (19)	134 (17)	147 (18)	154 (20)	148 (20)	133 (15)	145 (17)	115 (18)	121 (15)	124 (15)	141 (18)	121 (17)	127 (20)	113 (21)	127
Fair Weather Mean	71 (12)	75 (12)	67 (10)	56 (11)	59 (12)	67 (10)	67 (9)	72 (9)	87 (7)	91 (7)	90 (11)	87 (9)	91 (8)	100 (8)	103 (9)	110 (8)	96 (10)	95 (11)	97 (10)	94 (10)	89 (10)	85 (10)	77 (13)	70 (13)	83
Mean of Oa days																									[154 (14)]

The potential gradient is reckoned as positive when the potential increases upwards. The small + denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for Oa days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

17 LERWICK — Factor 2·71 — NOVEMBER 1964

volts per metre

Day	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	
1	50+	30+	50+	40+		95+	70+							130	85	120+		85			90	80	60			
2 Oa	60	60	60	65	55	40	40	50	60	80	85	85	85	70	65	60+	80+	80+	90+	80+	85+	70+	60+	60	68	(24)
3 Oa	55	50	50	55	60	50	55	60	55	55	55	65	70	80	95	90	95+	80+	95+	115+			60+	65+	69	(22)
4 Oa	65	35	35	40	50	40	55	50	55	65	60	60	60	65	85			115	100	100	90	85	65	60	65	(22)
5	65	60	65	60	55	50			50					85		80+		100	115			85	85			
6	70		55	40+			50		55	60	70	85	90	90	85	80	90	90	80	70	70	65	60	60		
7	40	35	40	40	50	60	70	70	70	65	65	70	85	80	90	95	95	85	70			85+	100+	85+		
8 Oa	70+	55+	60	70	85	85	80	85	80	95	95	110	100	120	110	90	95	110	95	100	90	85	85	70	88	(24)
9 Oa	70	65+	70	85	90	90	90	90	90	125	130	150	155	180	165	150	150	180	170	180	200+		120+	90+	125	(23)
10	110+	120+								90+	90+	95+	110+	115+	110+	120+	110+	100	85	150	265+	310+				
11 Oa	290+	360	360	300	420	400	290	310	300	385	445+	420+	420+	410+	445+	360+	240+	190+	200	300	300	290	260+	155+	327	(24)
12	145+	155+	150+			110	90	70	55	60	65	65	65	80	80	70	65	80	85				125+			
13			100						95+	90+	90+	100	120	120									110+	90+		
14	80+	85+																								
15																	120+	130+	145+	140+						
16		80+		115	85		100			95	95	95	80			140+	205+						95+	95+		
17	90	80	65	65	55	60		120+										165+					85+			
18					70	80	70	70	65	70	65	65	95	130	85	85	85	90+	95+							
19							-	-	110+	120+	115+	120+	120+	125+	130+	120+	-									
20							155+			145+					95+	120+	95+				145+	125+	110+	85+		
21	90+	80+				110+	115	100	90	80	90	85									120+	110+	120+	110+		
22	55+									115+	120	110+	100+	80+			115+	100+	110+			110+		85		
23	80	80						95				95+								335+	115+					
24									110+	125+	115+	90+				110+		115+	145+					110+		
25	60+					170+				95+				145+	110+			130+				95	95	85		
26	80	70	65	65								210+	230+	265+	230+			140+	160+	170+	240+	145+				
27		145+					100+	100+	100+												140	140				
28															200+			170+	155	170	155	130	250	420		
29		100	85	110								110	110	95	110	110	110	115	125	110	95	80	70	70		
30	60	60	50	55	50	60	60	70	90	110		95+				120	150	190	190	230						
Mean	84 (20)	90 (20)	85 (16)	80 (15)	94 (12)	100 (15)	93 (16)	96 (14)	90 (17)	106 (20)	109 (17)	113 (21)	123 (17)	130 (19)	132 (18)	118 (18)	119 (16)	120 (22)	122 (19)	161 (14)	147 (15)	123 (17)	106 (19)	106 (17)	110	
Fair Weather Mean	67 (11)	88 (12)	83 (14)	87 (13)	94 (12)	94 (12)	90 (13)	93 (12)	86 (13)	103 (13)	83 (12)	88 (13)	93 (12)	102 (13)	96 (11)	99 (9)	105 (8)	114 (11)	123 (12)	157 (9)	129 (8)	113 (10)	96 (8)	114 (8)	100	
Mean of Oa days																									[122	(6)]

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

17 LERWICK — Factor 2·71 — DECEMBER 1964

volts per metre

Day	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	
1				185								325	250		145	160	150	145	155	155	130	155				
2	90+											120+														
3																								95+		
4										100+	95+	120+		140								85	65	65		
5			65	70	60	50	50	55	80	120	155	180	185	145	120	145										
6																110	120	110	120	100						
7		80+	70+	70	80	70			95+	100+	115+	95	80	100	145		145	130	150							
8											180+		155+				145+	150+	160+							
9		185+										180+			205		275+							130+		
10		115+	115+	300+	125+	140+				215+	265+								175+	325+						
11		-	-	-									120+	120+	125+	125+	170+	190+	205+	250+	230+					
12						95+	125+			120+	120+															
13	115				110	110						140+			115+	120	95	95	95	95						
14	80				65		70	85	85	100	145												110+	130+		
15	155+	85	180+		265+	65				60+	85	130			110	100	95	95	85	300						
16																										
17						60+	70	70	85	80	85	70	80		85	95	80	85	80		70	60	55	55		
18 Oa	65	55	60	55	60	60	60	65	70	85	95	115	115	150	130	130	120	125	100	145	115	100	85	85	94	(24)
19	80												110+	130+	140+	115+		125	125	125	155					
20		65	60				70	80	85	85	70	70	85	80	85	95	100	95	90	95						
21 Oa	110	100	90	70	70	90	90	110	85	125	120	95	90	80	65	80				110					93	(17)
22 Oa			40+			50+													130+			95+	95+		111	(7)
23						80+		95+										80+	35+			90	90			
24											325+															
25											240+	275+	85+	85+	35	60		70	50	55						
26		-150+	-140+	-40	-35	-70		-	125	110	130	140								205	170+	210+				
27 Oa	180+	170	145	145	145	125	150	155	170	155	160	185+	240+	240+				240	185	180	170	150	150	140	170	(21)
28	140	205+	155+				190	170	180													140	145	115		
29	130	70		130	110	145	170													170+	185+					
30				155+	140+	140+	215+	140+	145+	155+												275+				
31	155+	140+													130+	130+	130+									
Mean	118 (11)	93 (12)	76 (11)	114 (10)	100 (12)	81 (15)	115 (11)	103 (10)	110 (11)	115 (14)	149 (16)	150 (15)	133 (12)	127 (10)	117 (14)	113 (13)	135 (12)	124 (14)	121 (16)	165 (14)	153 (8)	136 (10)	99 (8)	102 (8)	119	
Fair Weather Mean	103 (7)	91 (6)	84 (5)	86 (8)	74 (9)	72 (9)	102 (9)	99 (8)	107 (9)	107 (8)	116 (9)	137 (9)	126 (7)	116 (6)	102 (9)	109 (10)	113 (8)	119 (11)	112 (11)	142 (11)	128 (5)	111 (7)	98 (6)	92 (5)	106	
Mean of Oa days																									[117	(4)]

The potential gradient is reckoned as positive when the potential increases upwards. The small + denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for Oa days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).

18 LERWICK 1964

	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
	volts per metre																								
	No hydrometeors																								
Jan.	80	76	81	79	72	85	88	73	95	88	96	97	99	99	102	107	102	101	106	104	105	88	90	84	92
Feb.	92	97	66	80	73	75	76	104	99	107	126	123	125	118	129	152	151	128	115	112	123	96	86	95	106
Mar.	98	89	83	91	95	87	88	98	95	95	104	105	115	127	119	119	119	123	122	115	113	108	105	95	105
Apr.	87	78	73	73	66	69	87	97	98	87	85	87	109	120	110	119	128	156	160	153	155	108	128	88	105
May	74	78	79	91	95	91	99	106	102	104	107	102	112	118	113	119	124	122	108	105	97	117	113	103	103
June	83	83	83	80	94	90	76	93	93	80	85	85	88	100	124	128	131	109	111	112	106	98	91	99	97
July	145	139	138	127	140	149	137	131	123	122	107	101	92	90	96	94	111	117	118	137	160	177	150	142	127
Aug.	93	88	106	96	96	91	98	97	99	101	106	98	97	95	87	88	95	87	82	103	84	81	82	80	93
Sept.	77	92	92	99	111	92	86	126	92	116	111	143	149	156	187	160	151	160	176	150	133	134	107	92	125
Oct.	114	114	110	108	110	120	125	141	137	124	129	134	147	154	148	133	145	115	121	124	141	121	127	113	127
Nov.	84	90	85	80	94	100	93	96	90	106	109	113	123	130	132	118	119	120	122	161	147	123	106	106	110
Dec.	118	93	76	114	100	81	115	103	110	115	149	150	133	127	117	113	135	124	121	165	153	136	99	102	119
Year	95	93	89	93	95	94	97	105	103	104	109	111	116	119	122	121	126	122	122	128	126	116	107	100	109
Winter	93	89	77	88	85	85	93	94	99	104	120	121	120	119	120	123	127	118	116	135	132	111	95	97	107
Equinox	94	93	89	93	95	92	97	115	105	105	107	117	130	139	141	133	136	139	145	135	135	118	117	97	115
Summer	99	97	101	99	106	105	103	107	104	102	101	96	97	101	105	107	115	109	105	114	112	118	109	106	105
	Fair weather																								
Jan.	63	53	55	65	73	70	72	69	77	81	89	87	97	104	113	102	73	106	82	84	79	81	63	59	79
Feb.	65	57	53	54	51	51	52	50	58	60	66	76	76	72	71	63	59	76	73	72	79	64	63	62	63
Mar.	67	59	56	58	59	56	49	63	64	68	73	88	100	102	96	104	94	87	94	89	85	88	87	67	77
Apr.	73	57	58	56	56	60	65	68	73	75	79	92	81	74	77	83	74	88	100	117	109	80	111	67	78
May	71	68	67	76	61	72	96	78	97	109	110	111	103	104	132	124	89	102	103	97	94	103	89	73	93
June	74	69	69	64	75	72	53	36	52	49	52	72	81	92	130	136	106	71	81	64	77	73	75	76	75
July	110	84	76	69	64	92	86	85	103	115	103	90	83	84	90	96	108	105	100	113	107	124	115	116	97
Aug.	79	77	74	59	67	71	80	85	87	81	105	125	113	114	104	88	95	77	78	72	63	61	69	61	83
Sept.	66	59	58	64	67	66	81	90	71	101	103	116	123	138	145	122	115	118	107	98	92	90	85	88	94
Oct.	71	75	67	56	59	67	67	72	87	91	90	87	91	100	103	110	96	95	97	94	89	85	77	70	83
Nov.	67	88	83	87	94	94	90	93	86	103	83	88	93	102	96	99	105	114	123	157	129	113	96	114	100
Dec.	103	91	84	86	74	72	102	99	107	107	116	137	126	116	102	109	113	119	112	142	128	111	98	92	106
Year	76	70	67	66	67	70	74	74	80	87	89	97	97	100	105	103	94	97	96	100	94	89	86	79	86
Winter	75	72	69	73	73	72	79	78	82	88	88	97	98	99	95	93	87	104	97	114	104	92	80	82	87
Equinox	69	63	60	59	60	62	65	73	74	84	86	96	99	103	105	105	95	97	99	99	94	86	90	73	83
Summer	85	75	71	67	67	77	79	71	85	89	93	99	95	99	114	111	99	89	91	87	85	90	87	81	87
																					Annual mean for Oa days				[124]

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

ESKDALEMUIR

F

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

19 ESKDALEMUIR (H) — 16,000γ (0·16 C.G.S. unit) + — JANUARY 1964

Day	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	Sum 20,000γ+
	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	γ
1	864	864	865	869	871	872	873	879	879	881	883	883	886	886	886	878	874	883	884	876	877	880	876	873	877	1042
2 d	873	874	879	874	869	920	869	868	852	789	807	822	831	850	845	833	798	811	819	859	847	828	851	849	847	317
3 d	854	846	845	855	858	853	857	852	850	846	835	837	842	850	852	859	843	847	850	870	857	859	855	874	852	446
4	858	846	843	862	852	864	862	863	857	857	857	858	851	862	859	855	862	858	856	857	847	852	876	856	857	570
5	862	861	857	857	859	862	871	856	856	862	859	855	858	857	858	864	863	863	863	871	864	857	857	858	860	650
6	860	858	862	862	866	869	871	868	865	855	848	851	857	863	861	862	863	864	863	864	867	869	866	865	862	699
7	864	864	865	865	869	867	871	874	869	867	858	849	847	842	859	863	864	862	850	854	858	864	864	865	861	674
8	862	864	862	864	866	870	873	872	873	864	858	850	855	862	870	874	878	877	874	866	873	864	859	861	866	791
9	852	862	869	865	860	875	877	880	870	867	868	863	864	869	873	855	850	863	854	878	857	843	843	839	862	696
10 d	873	866	857	863	874	876	878	873	864	859	854	845	847	863	862	852	849	864	863	861	860	859	862	869	862	693
11	866	865	858	865	867	869	871	871	866	862	861	857	862	866	866	868	871	870	867	862	854	859	865	865	865	753
12	882	865	867	866	867	870	872	870	867	864	862	862	862	865	866	865	871	871	870	868	859	866	865	865	867	807
13	866	867	869	877	871	874	873	874	875	869	862	858	857	865	873	876	874	874	872	872	866	864	870	867	869	865
14 q	870	869	870	870	870	871	874	874	872	866	859	860	866	872	875	875	874	873	873	871	872	872	872	870	870	890
15 q	869	870	870	870	871	873	875	875	874	872	872	871	873	876	877	877	875	875	877	876	875	873	873	869	873	958
16 d	874	880	875	885	886	899	886	875	885	869	827	818	842	856	856	826	825	835	864	849	858	862	865	859	861	656
17	861	854	847	860	867	872	875	854	853	859	842	834	853	855	854	867	868	868	866	860	861	862	865	862	859	619
18	862	864	865	862	872	871	872	874	868	866	863	857	860	868	871	873	870	867	857	865	867	866	865	869	866	794
19	868	867	869	872	871	873	876	877	878	869	864	865	872	873	861	865	868	859	858	868	863	868	868	865	868	837
20	872	861	868	868	874	876	873	871	871	861	852	851	849	866	867	867	872	870	872	870	868	870	869	868	867	806
21 q	868	867	872	869	871	872	875	873	870	868	865	860	862	867	872	875	875	875	876	878	877	874	871	873	871	905
22 q	875	874	882	877	877	880	885	884	877	870	863	861	856	863	869	872	864	865	869	871	873	875	875	876	872	933
23	872	871	876	878	877	879	881	879	877	874	873	883	883	885	883	881	872	868	876	876	876	874	874	871	877	1039
24	872	867	866	879	879	880	886	879	880	877	868	856	853	861	862	873	864	857	854	864	862	866	864	864	868	833
25	875	867	869	872	872	872	875	876	869	865	864	857	864	871	874	874	876	872	872	866	859	830	845	856	866	792
26	862	862	871	866	866	868	870	871	868	863	857	855	852	851	865	867	867	868	863	870	857	863	870	867	864	739
27 q	866	870	869	870	870	871	873	875	872	869	867	864	862	865	868	871	871	871	871	870	874	875	872	873	870	879
28	877	876	873	872	874	875	883	886	884	874	866	861	861	863	866	874	874	873	873	870	883	866	882	870	873	956
29	867	866	873	866	870	872	880	887	874	861	859	862	827	836	855	849	839	854	864	863	854	863	864	863	861	668
30	871	873	885	866	872	871	870	871	867	862	858	860	859	857	871	871	863	873	873	874	872	876	874	870	869	859
31 d	868	870	871	876	878	881	882	882	880	865	820	818	854	871	866	856	862	845	880	836	847	861	895	868	864	732
Mean	867	865	867	869	870	874	875	873	870	863	857	854	857	863	866	865	863	864	865	866	864	863	867	865	865	
Sum 26,000γ+	885	830	869	922	966	1097	1109	1063	962	752	551	483	567	756	842	817	739	775	823	855	784	760	872	819		Grand Total 643,898

GEOMAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

20 ESKDALEMUIR (D) — 10° + — JANUARY 1964

Day	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	Sum 100·0'+
	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'
1	6·9	7·1	7·4	7·9	7·9	7·9	8·1	7·6	6·8	7·2	8·3	9·6	10·3	10·4	9·7	9·0	9·8	10·1	9·5	9·0	7·6	7·6	7·2	7·1	8·3	100·0
2 d	7·7	8·1	8·8	13·3	8·8	17·0	9·3	8·1	6·8	7·8	17·0	14·1	10·2	12·5	12·1	8·7	-0·8	-1·8	3·1	-1·4	-1·5	3·1	5·9	6·5	7·6	83·4
3 d	7·8	5·9	14·3	8·5	7·9	8·1	9·1	8·6	8·2	8·1	8·9	8·9	8·3	8·5	8·9	7·3	2·5	0·5	7·0	3·2	5·2	4·6	5·5	8·4	7·3	74·2
4	5·8	5·0	8·9	8·8	5·2	7·8	8·5	8·9	7·9	7·9	8·9	8·8	9·0	7·9	7·7	3·9	7·4	6·8	1·8	5·3	4·1	3·0	4·2	4·2	6·6	57·7
5	5·8	6·1	5·3	7·1	8·0	8·7	8·4	8·2	8·1	6·8	7·1	8·8	9·7	9·6	7·9	7·4	7·5	7·7	5·6	5·5	5·3	4·2	4·7	5·2	7·0	68·7
6	5·5	6·8	8·1	7·9	6·0	6·8	7·1	7·6	7·2	7·1	7·9	8·6	9·7	9·7	8·5	8·3	8·6	8·1	8·0	7·3	6·6	5·0	6·1	6·2	7·4	78·7
7	6·3	6·8	7·9	8·1	7·6	7·9	7·6	7·3	7·0	7·9	9·0	9·1	12·7	11·8	10·6	10·2	8·5	8·3	6·3	7·0	6·2	5·4	4·9	4·1	7·9	88·5
8	5·0	6·2	6·9	7·0	7·3	7·4	7·1	6·9	6·8	6·8	7·5	7·9	10·0	10·8	9·7	9·8	10·4	10·2	10·8	5·0	8·0	6·9	3·5	5·1	7·6	83·0
9	2·0	2·5	6·8	4·7	5·9	8·1	8·0	7·1	6·2	6·8	7·5	8·5	10·6	10·3	11·2	13·1	10·5	9·7	7·7	1·4	4·3	-3·1	-11·5	1·2	5·6	35·5
10 d	5·1	8·6	4·8	7·5	7·9	11·9	12·1	8·1	6·3	6·2	7·8	9·2	10·5	10·8	10·9	8·5	8·4	8·5	7·6	6·6	5·2	0·6	6·5	5·6	7·7	85·2
11	4·4	6·1	4·4	6·5	6·8	6·3	6·9	7·1	6·3	6·8	7·3	8·9	9·5	10·3	9·7	8·8	8·1	7·9	7·0	6·8	3·4	5·8	6·5	6·2	7·0	67·8
12	3·5	3·4	5·8	7·2	7·0	6·9	6·8	6·8	6·8	7·1	8·1	8·9	9·7	9·8	9·2	8·1	7·9	7·7	7·5	6·8	5·7	5·3	6·2	6·3	7·0	68·5
13	6·8	6·9	6·8	7·2	6·9	6·9	6·9	6·2	5·6	5·6	6·9	8·7	10·7	11·4	9·0	8·1	7·9	7·5	7·5	7·0	6·4	5·6	6·5	4·2	7·2	73·2
14 q	6·5	7·6	7·7	7·8	7·7	7·5	7·1	6·4	5·8	6·0	7·4	8·8	10·5	10·7	9·4	8·0	8·2	8·1	7·9	7·8	6·8	6·2	6·3	6·5	7·6	82·7
15 q	7·1	7·4	7·8	7·9	7·9	7·7	7·3	6·8	6·7	7·4	8·0	8·2	9·7	9·3	8·8	8·6	9·5	8·9	8·2	7·9	7·4	6·7	6·2	6·0	7·8	87·4
16 d	5·4	4·6	4·4	6·8	8·0	8·2	7·3	6·0	6·3	6·9	10·6	13·2	10·8	9·9	11·8	15·5	11·6	2·8	0·6	6·8	1·1	2·2	3·6	4·6	7·0	69·0
17	6·8	3·7	8·6	7·2	7·5	7·9	8·7	11·6	9·9	8·9	10·7	10·1	10·7	11·4	8·0	8·1	8·1	7·8	7·5	6·3	6·2	6·1	5·8	5·4	8·0	93·0
18	5·7	7·7	8·7	6·8	7·1	6·8	6·9	7·0	6·3	6·9	7·5	8·2	9·7	9·5	9·5	8·4	8·1	7·7	3·1	5·5	6·9	6·3	6·2	6·2	7·2	72·7
19	6·8	7·0	7·7	8·0	7·8	7·5	7·3	7·6	7·1	7·7	8·4	9·3	10·2	10·3	8·9	8·8	9·0	8·2	8·4	6·6	-0·6	6·3	6·4	4·0	7·4	78·7
20	2·4	4·6	7·1	8·7	8·4	7·6	7·5	7·0	7·0	7·0	6·9	9·1	9·7	10·6	9·8	9·4	8·7	8·6	7·9	7·7	6·8	5·7	5·5	5·9	7·5	79·6
21 q	6·1	7·0	8·0	7·8	7·9	8·1	7·6	6·9	5·8	5·6	6·7	7·7	8·5	9·0	8·4	8·0	7·9	7·8	7·8	7·7	7·2	6·8	6·8	6·8	7·4	77·9
22 q	6·9	8·0	8·8	6·8	7·0	6·8	6·4	6·9	6·2	6·1	6·8	8·0	9·6	10·2	8·8	7·4	7·1	8·2	8·6	7·8	7·2	7·1	7·3	7·4	7·6	81·4
23	7·4	7·6	7·8	7·1	7·0	7·2	7·1	6·8	6·4	6·9	8·2	9·9	10·8	11·4	10·0	9·9	10·3	10·4	9·0	7·9	7·3	7·1	7·0	5·8	8·2	96·3
24	4·5	5·8	5·8	7·9	5·6	5·5	7·0	6·9	6·9	7·6	8·8	10·6	11·6	15·0	9·6	11·0	9·0	8·3	9·3	7·9	7·0	5·0	5·1	1·7	7·6	83·4
25	4·0	4·1	5·1	6·2	5·5	5·7	9·5	7·0	6·7	6·0	6·9	8·3	10·1	11·3	10·8	9·3	8·7	8·6	8·8	9·5	-6·4	-4·9	-0·5	4·2	6·0	44·5
26	5·2	5·2	8·7	6·5	7·0	7·4	7·6	6·8	6·3	6·2	7·2	8·1	9·8	11·8	11·5	10·9	9·6	8·9	6·7	3·0	6·7	5·8	4·0	5·1	7·3	76·0
27 q	6·8	8·4	7·0	7·3	6·8	7·1	7·1	6·8	5·7	5·5	6·8	8·0	9·1	9·7	9·5	8·5	8·0	7·7	7·3	4·8	5·5	5·5	5·6	6·4	7·1	70·9
28	7·0	6·9	7·3	6·9	7·5	7·7	7·9	7·5	7·7	6·8	7·1	8·0	9·8	11·0	9·7	8·5	7·9	7·8	7·9	4·6	5·4	5·8	7·1	4·4	7·4	78·2
29	6·7	1·6	4·2	3·6	6·1	6·2	9·6	7·9	8·1	7·9	7·7	9·1	13·5	13·5	12·3	9·6	6·8	7·8	6·7	6·2	3·9	4·2	5·2	6·0	7·3	74·4
30	6·8	7·3	7·6	7·3	6·5	7·5	7·2	7·1	7·9	8·1	8·5	9·0	11·0	10·5	9·3	9·3	6·8	7·5	7·9	7·4	7·4	4·5	4·1	6·8	7·6	83·3
31 d	7·4	7·7	7·9	7·7	7·9	7·7	7·5	7·1	7·2	7·7	11·4	14·4	11·7	11·6	11·7	7·9	8·0	0·6	-8·3	5·3	3·9	4·7	1·8	3·2	6·8	63·7
Mean	5·7	6·2	7·3	7·4	7·2	7·8	7·8	7·4	6·9	7·0	8·3	9·3	10·3	10·7	9·8	9·0	8·1	7·3	6·6	6·1	5·0	4·7	4·8	5·4	7·3	
Sum 100·0'+	78·1	91·7	126·4	130·0	122·4	141·8	142·5	128·6	114·0	117·3	157·8	188·0	217·7	230·5	202·9	178·3	150·0	126·9	104·7	90·2	56·2	45·1	49·7	66·7		Grand Total 5457·5

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

21 ESKDALEMUIR (Z) 45,000γ (0·45 C.G.S. unit) + JANUARY 1964

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	Sum 10,000γ+
	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	γ
1	427	427	427	426	425	425	422	421	420	418	419	418	415	419	423	426	426	423	422	425	425	424	425	424	423	152
2 *d*	423	422	420	418	399	379	381	394	409	430	435	443	467	456	454	457	473	476	461	444	434	436	425	418	431	354
3 *d*	411	412	393	401	416	423	426	427	429	431	432	435	438	442	438	438	443	446	439	436	430	431	431	416	428	264
4	415	420	419	405	414	419	422	425	426	426	426	427	428	431	437	444	435	434	439	433	434	432	423	426	427	240
5	425	423	424	426	426	426	426	427	427	427	427	427	430	432	436	434	433	433	433	430	430	431	430	428	429	291
6	425	425	423	423	425	426	426	426	427	427	428	430	428	429	431	431	431	431	431	431	431	430	428	427	428	270
7	426	426	426	426	425	426	426	426	426	427	427	431	428	430	433	431	432	433	437	437	436	433	432	431	430	311
8	429	427	427	426	426	426	426	426	426	426	428	430	426	429	430	428	426	426	429	436	433	438	444	443	430	311
9	446	434	427	426	425	421	421	422	425	425	425	425	425	426	427	432	438	437	441	444	436	442	431	425	430	326
10 *d*	402	390	407	415	417	414	409	416	421	425	426	427	426	425	427	435	437	433	432	431	432	433	429	416	*422*	125
11	422	421	425	423	423	425	425	426	426	429	427	426	427	429	429	430	429	428	430	431	437	434	431	431	428	264
12	426	423	421	421	424	425	425	426	426	423	424	425	429	431	432	431	429	429	428	427	431	431	430	430	427	247
13	428	427	426	419	420	420	420	422	423	426	426	426	422	425	427	427	427	426	426	426	427	428	428	427	425	199
14 *q*	426	426	426	426	426	425	423	423	426	426	425	422	418	420	426	426	426	426	426	426	426	427	427	427	425	201
15 *q*	427	426	426	426	425	424	423	422	422	421	423	422	421	424	427	426	426	426	426	426	426	427	427	427	425	196
16 *d*	426	424	422	418	416	415	416	419	417	417	420	426	430	435	443	457	484	481	459	444	444	435	429	424	*433*	401
17	422	413	415	414	422	425	424	426	427	430	430	431	431	434	438	437	434	432	431	433	432	431	430	429	428	271
18	428	426	422	425	422	423	425	425	425	426	427	431	429	427	431	430	428	430	433	432	429	429	428	427	427	258
19	426	426	426	426	426	426	426	426	426	425	425	423	422	426	432	433	431	434	437	436	437	431	426	426	428	278
20	416	418	417	420	421	422	425	426	425	422	424	425	426	427	430	431	428	429	427	427	427	427	426	426	425	192
21 *q*	425	425	421	423	423	425	425	426	427	426	422	421	420	423	426	426	426	426	426	425	425	425	425	425	424	187
22 *q*	422	421	416	419	420	420	420	420	422	422	421	420	420	420	423	427	429	430	427	427	427	426	425	423	423	147
23	422	422	421	420	421	421	421	421	422	421	420	416	415	419	424	422	425	426	425	426	426	426	426	427	422	135
24	426	425	424	420	419	419	419	420	420	420	420	419	421	426	434	433	432	434	437	434	434	434	434	433	427	237
25	425	425	422	422	422	422	419	417	422	421	420	420	420	422	425	426	426	426	426	429	440	434	433	429	425	193
26	426	422	420	419	420	422	423	425	425	426	426	426	426	427	428	428	427	427	428	431	431	433	432	429	426	227
27 *q*	426	422	421	422	422	422	422	422	423	426	426	426	426	425	428	429	427	426	426	426	425	422	423	422	424	185
28	422	421	422	421	420	420	420	420	420	420	422	421	420	425	428	427	426	426	425	428	427	432	430	431	424	174
29	428	425	420	412	414	415	411	409	415	419	423	425	431	441	444	445	448	440	434	433	432	431	427	427	427	249
30	425	425	415	418	420	420	421	421	421	423	425	425	426	432	433	432	433	430	427	426	426	426	425	424	425	199
31 *d*	429	431	431	431	429	428	426	426	423	426	409	426	431	430	434	440	440	448	445	438	440	433	418	412	430	324
Mean	424	423	421	*421*	421	421	421	422	423	424	425	426	427	429	431	433	*434*	434	433	431	431	431	428	426	427	
Sum 13,000γ+	152	100	52	37	53	49	44	78	119	157	158	195	222	287	378	419	455	452	413	378	370	352	278	210		Grand Total 317,408

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH CHAMBER

22 ESKDALEMUIR JANUARY 1964

	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph chamber 200°A+
1	0012 2232	12	0012 2232	12	0011 1110	5	0000 1000	1	1	84·6
2 *d*	2455 4443	31	2454 4443	30	1435 4443	28	1333 2222	18	2	84·6
3 *d*	4322 3444	26	3222 3344	23	4322 3433	24	2201 1122	11	1	84·5
4	4322 3334	24	3322 3334	23	4311 2332	19	1210 2111	9	1	84·5
5	2122 2131	14	2122 2131	14	2111 2131	12	0000 1000	[illegible]	1	84·5
6	2101 2011	8	1101 2001	6	2101 1011	7	0000 0000	0	0	84·5
7	0012 3121	10	0012 3121	10	0001 2111	6	0001 0000	1	1	84·5
8	1001 1132	9	0001 1122	7	1001 1032	8	0001 0011	3	1	84·5
9	4322 2344	24	2322 2343	21	4322 1244	22	2000 1122	8	1	84·5
10 *d*	4332 3323	23	4222 3323	21	4331 1123	18	3120 0102	9	1	84·5
11	2122 2122	14	2122 2122	14	2111 1121	10	0000 0010	1	1	84·5
12	3200 1221	11	3200 1221	11	2100 1111	7	1000 1000	2	1	84·5
13	2210 1012	9	1210 1002	7	2210 1012	9	0100 0000	1	0	84·5
14 *q*	1000 0000	1	0000 0000	0	1000 0000	1	0000 0000	0	0	84·5
15 *q*	0000 0002	2	0000 0002	2	0000 0001	1	0000 0000	0	0	84·5
16 *d*	2234 4543	27	2234 4443	26	2122 2543	21	0001 2331	10	1	84·5
17	3233 2121	17	3233 2121	17	3222 2111	14	0210 1000	4	1	84·5
18	2212 2230	14	1211 2230	12	2212 1130	12	0001 0010	2	1	84·5
19	0000 2242	10	0000 2232	9	0000 1142	8	0000 1011	3	1	84·5
20	3111 2101	10	2111 2101	9	3101 1001	7	1000 0000	1	1	84·5
21 *q*	1000 0000	1	1000 0000	1	1000 0000	1	0000 0000	0	0	84·5
22 *q*	2100 1100	5	2100 1100	5	2100 1100	5	0000 0100	1	0	84·5
23	1002 1201	7	1002 1201	7	0000 1101	3	0000 0000	0	0	84·5
24	2222 3323	19	2222 3323	19	1211 3213	14	0000 2100	3	1	84·5
25	4121 2154	20	4121 2144	19	3020 0054	14	1010 0020	4	1	84·5
26	2111 2032	12	2111 2022	11	2010 1032	9	1000 0000	1	1	84·4
27 *q*	1000 0022	5	0000 0022	4	1000 0022	5	0000 0000	0	0	84·4
28	1121 2133	14	1121 2133	14	1110 2032	10	0000 1001	2	1	84·4
29	3332 3323	22	2232 3323	20	3322 3323	21	1011 2101	7	1	84·4
30	3111 3213	15	3111 3213	15	2111 2203	12	1000 0000	1	1	84·4
31 *d*	1014 4554	24	1014 4444	22	1002 3553	19	0001 1222	8	1	84·4
								Mean	0·77	84·5

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

19 ESKDALEMUIR (H) | 16,000γ (0·16 C.G.S. unit) + | FEBRUARY 1964

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	Sum 20,000γ+
	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	γ
1	859	864	859	863	860	871	872	871	864	855	861	864	867	874	874	871	862	859	856	857	879	880	859	870	865	771
2	873	863	866	867	871	873	872	871	875	867	861	864	866	863	860	859	856	868	873	874	873	871	871	870	868	827
3 q	870	870	870	871	874	875	876	875	872	871	871	871	871	872	868	872	871	873	874	875	872	870	867	872	872	923
4	874	875	875	871	880	880	883	876	859	860	867	864	864	851	847	861	867	870	874	874	871	863	867	868	868	841
5	870	869	867	874	872	870	878	880	880	870	863	863	863	866	872	882	878	880	879	884	877	863	846	839	870	885
6 d	860	869	863	868	868	869	847	872	871	845	851	863	844	867	856	860	854	865	855	873	874	859	883	862	862	698
7	864	864	864	870	874	873	874	874	870	843	847	856	852	859	864	867	847	839	855	859	858	863	872	865	861	673
8 d	855	865	871	868	870	870	871	875	874	866	866	860	858	863	868	874	860	860	858	858	861	828	820	843	861	662
9	845	852	858	861	867	868	870	875	867	854	848	845	842	851	858	867	867	873	875	864	863	866	866	870	861	672
10	878	866	863	868	870	868	876	875	871	861	855	850	852	859	867	876	871	870	872	875	873	868	859	861	867	804
11 q	867	866	867	869	870	872	873	875	875	872	865	862	860	868	872	875	875	877	876	875	875	874	870	869	871	899
12	870	871	871	872	873	877	891	902	893	888	863	858	863	867	845	871	866	856	873	872	870	871	870	873	872	926
13 d	875	872	870	852	878	883	863	867	871	867	839	813	847	844	851	847	854	855	842	851	860	858	867	858	858	584
14	864	865	867	866	872	870	871	875	863	859	852	843	856	864	866	859	870	871	868	865	868	867	856	871	865	748
15	864	866	868	874	875	875	876	876	875	873	868	864	863	852	864	871	875	878	864	864	871	873	873	872	870	874
16 q	874	876	876	875	876	878	884	882	882	875	867	855	862	868	871	871	866	874	875	871	864	864	869	870	872	925
17	877	874	878	880	880	883	885	886	882	870	856	851	858	866	865	869	871	856	859	866	866	876	877	875	871	906
18 q	874	875	875	876	877	879	878	883	876	867	855	855	865	871	872	865	868	858	859	870	866	871	874	874	870	883
19 q	874	874	875	878	873	877	879	879	875	869	864	861	861	866	871	873	875	876	878	877	879	878	878	877	874	967
20	876	877	878	878	879	882	888	891	884	878	878	878	872	886	895	882	863	874	864	863	873	862	841	821	873	963
21	828	866	856	860	861	864	871	873	859	851	848	843	833	844	850	858	859	860	879	871	870	866	867	865	858	602
22	866	866	867	867	867	871	874	872	866	864	859	856	856	851	852	872	872	867	871	868	867	868	868	871	866	778
23	868	869	869	871	871	872	875	872	875	869	863	860	860	863	860	867	869	862	863	874	872	875	872	872	868	843
24	873	874	873	876	881	878	881	884	881	876	874	863	854	859	867	874	874	873	871	871	871	869	866	874	872	937
25 d	878	881	883	885	880	884	890	892	887	875	853	855	861	864	871	881	878	845	837	872	850	854	864	864	870	884
26 d	868	869	872	854	876	867	869	869	862	856	840	816	828	853	863	874	877	875	875	874	874	871	868	866	863	716
27	857	866	868	863	869	871	870	873	867	858	858	854	858	870	868	870	871	854	869	859	878	881	871	871	866	794
28	875	888	881	878	868	867	871	868	863	855	836	845	855	854	866	870	880	865	876	868	874	875	874	873	868	825
29	871	872	872	872	879	868	868	878	864	859	844	846	854	863	871	872	873	873	869	876	872	885	876	880	869	857
Mean	867	870	870	870	873	874	875	877	873	865	858	854	857	862	865	869	868	866	867	869	870	868	866	866	867	
Sum 24,000γ+	1147	1224	1222	1227	1311	1335	1376	1441	1303	1073	872	778	845	998	1074	1210	1169	1106	1139	1200	1221	1169	1111	1116		Grand Total 603,667

GEOMAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

20 ESKDALEMUIR (D) | 10° + | FEBRUARY 1964

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	Sum 100·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	6·0	5·2	7·6	7·9	8·1	7·2	7·3	7·2	7·2	7·7	7·8	8·8	10·6	10·7	9·2	8·5	8·8	8·1	7·9	6·9	6·0	5·4	5·1	6·1	7·6	81·3
2	6·3	6·3	6·3	6·6	6·8	6·4	6·3	6·2	7·0	7·2	8·1	9·1	9·9	10·6	9·5	9·4	6·7	7·8	7·8	7·1	6·8	6·7	6·3	6·8	7·4	78·0
3 q	6·9	7·0	7·3	7·6	7·5	6·9	6·8	6·8	6·2	6·8	7·8	8·1	8·8	9·8	8·8	8·1	8·1	8·1	7·9	7·6	7·1	5·3	5·5	5·5	7·3	76·3
4	6·8	6·9	6·9	8·1	6·9	6·3	6·0	5·9	5·6	10·2	9·0	9·8	10·7	12·3	13·8	11·6	11·5	9·6	8·0	7·3	6·8	4·1	1·8	6·0	8·0	91·9
5	5·6	5·7	5·5	6·1	3·5	4·7	5·5	5·7	5·7	5·9	7·1	9·9	10·7	10·8	10·3	10·7	10·8	10·1	10·3	9·0	8·2	-3·3	-10·5	-2·2	6·1	45·8
6 d	4·1	10·8	7·7	6·8	6·1	11·4	12·3	6·8	7·0	5·5	9·0	9·8	9·3	9·8	13·1	7·9	9·9	8·1	6·4	-0·4	4·1	6·5	0·0	4·9	7·4	76·9
7	6·0	5·9	6·1	11·0	6·5	5·4	6·1	5·9	6·8	6·2	6·9	9·5	10·3	11·7	11·0	9·8	8·7	6·8	10·7	8·4	6·7	9·0	-1·3	1·9	7·3	76·0
8 d	5·1	9·1	5·7	5·2	5·5	5·9	6·0	5·8	5·5	5·4	6·1	9·0	9·3	9·8	10·5	11·5	12·1	14·1	11·2	5·5	3·4	-2·3	-16·7	-10·0	5·5	32·7
9	-6·2	1·7	3·9	6·6	8·5	7·5	6·9	6·7	5·8	6·4	7·8	9·0	10·4	11·6	11·5	10·4	7·8	2·3	5·4	6·3	5·4	4·1	4·9	7·3	6·3	52·0
10	6·7	6·7	7·0	8·0	7·2	7·3	6·1	5·3	4·5	4·8	6·3	9·2	10·7	11·3	10·4	9·6	8·9	7·9	7·4	7·0	6·2	1·0	3·5	4·2	7·0	67·2
11 q	4·9	6·4	6·9	7·5	7·0	6·9	6·8	6·3	6·0	5·6	6·0	8·5	9·5	9·7	9·6	8·6	7·6	7·1	6·9	6·8	6·7	6·2	4·9	5·1	7·0	67·5
12	6·9	7·1	7·7	7·2	6·8	6·2	7·1	5·1	5·8	6·8	6·1	8·1	9·8	12·5	10·1	9·1	8·1	4·3	6·4	6·9	6·3	4·3	3·0	4·8	6·9	66·5
13 d	5·1	7·7	10·7	15·1	9·0	5·5	10·6	11·7	8·8	6·8	8·0	10·6	12·7	14·5	14·4	12·7	-0·5	3·4	4·1	4·2	4·0	2·9	0·4	4·6	7·8	87·0
14	6·9	7·0	7·7	9·5	10·0	7·4	6·8	6·3	5·8	5·3	6·9	9·8	10·3	11·1	11·6	8·8	8·3	7·3	4·0	6·7	6·1	5·6	3·6	1·5	7·3	74·3
15	4·2	5·8	6·8	7·3	7·2	6·9	7·1	6·4	7·3	6·6	7·3	8·9	10·7	11·6	11·1	9·9	8·2	7·4	5·1	5·3	7·1	6·7	6·3	6·5	7·4	77·7
16 q	6·8	6·2	6·8	7·1	7·1	6·8	6·8	6·7	6·7	5·7	7·1	8·8	10·7	10·7	10·6	9·1	8·4	7·5	7·1	6·8	4·6	4·7	5·0	5·7	7·2	73·5
17	5·9	6·5	7·8	8·0	7·1	6·9	6·6	6·3	6·1	5·6	7·0	9·0	11·3	12·7	12·8	10·8	9·5	7·5	2·1	1·3	6·0	7·4	6·9	6·8	7·4	77·9
18 q	6·4	6·8	6·9	6·9	7·0	6·9	7·3	6·9	5·5	5·7	7·1	8·8	10·6	11·6	10·5	9·1	8·0	10·7	9·0	7·6	6·0	6·0	6·1	6·1	7·6	83·5
19 q	6·2	6·3	6·6	6·7	5·7	6·0	6·2	6·3	6·2	5·9	6·5	7·8	9·5	10·2	10·0	8·9	8·0	8·0	7·8	7·6	7·2	6·8	6·7	6·3	7·2	73·4
20	6·2	6·2	6·3	6·2	6·3	6·2	6·4	6·2	5·8	6·1	7·7	10·6	10·9	13·3	13·6	16·2	16·8	14·2	5·3	4·2	8·2	6·4	-13·8	-10·6	6·9	64·9
21	-4·5	0·2	1·3	2·9	6·2	7·1	6·2	6·8	5·9	5·8	7·1	9·7	10·5	11·0	12·3	11·1	9·1	4·3	3·4	7·3	5·3	5·6	6·1	6·2	6·1	46·9
22	6·3	6·0	7·0	6·2	6·3	6·1	5·5	5·4	5·3	5·5	6·5	8·4	10·6	12·5	10·9	10·2	10·9	9·0	4·3	8·0	6·1	3·7	4·2	4·0	7·0	68·9
23	5·5	6·3	6·4	6·5	6·4	6·3	6·1	5·7	4·4	4·2	5·0	7·2	9·4	10·4	10·4	10·0	9·0	7·0	3·1	7·8	6·5	5·6	5·8	6·2	6·7	61·2
24	6·4	6·3	5·8	5·6	4·9	5·5	5·8	5·3	4·9	4·6	6·2	9·2	11·1	10·9	13·1	10·6	8·4	8·4	7·6	7·6	7·1	5·7	1·2	5·6	7·0	67·8
25 d	6·7	7·6	8·0	6·0	5·6	6·5	6·3	6·4	6·1	5·5	7·6	9·9	11·5	12·1	11·2	10·4	9·1	7·6	5·0	-10·2	0·3	2·7	6·3	6·7	6·5	54·9
26 d	6·9	7·4	5·9	8·6	8·8	3·9	6·3	5·8	5·6	6·8	9·1	11·6	14·5	12·4	13·0	9·2	7·7	7·5	7·2	6·7	6·6	6·0	4·9	0·6	7·6	83·0
27	2·4	8·3	5·7	5·6	5·7	6·0	5·8	5·2	4·5	4·5	6·9	9·9	11·5	12·2	11·7	9·7	7·9	5·0	-4·5	5·0	2·7	2·9	4·5	5·2	6·0	44·3
28	4·2	4·6	4·0	2·7	2·9	7·1	8·1	6·9	4·4	4·7	4·6	8·3	11·7	11·0	11·2	7·9	6·3	5·6	6·6	6·4	6·3	6·0	5·8	5·8	6·4	53·1
29	5·5	6·2	7·2	8·7	6·8	5·3	5·3	5·5	4·2	4·5	5·5	7·3	9·6	10·2	9·9	8·6	7·5	6·7	5·5	6·3	6·2	4·4	5·0	5·5	6·6	57·4
Mean	5·0	6·3	6·5	7·2	6·7	6·5	6·8	6·3	5·9	5·9	7·0	9·1	10·6	11·3	11·2	9·9	8·7	7·6	6·2	5·8	5·9	4·7	2·5	3·9	7·0	
Sum 000·0′+	146·2	184·2	189·5	208·2	193·4	188·5	196·4	183·5	170·6	172·3	204·1	264·6	307·1	329·0	326·1	288·4	251·6	221·4	179·0	167·0	170·0	136·1	71·5	113·1		Grand Total 4861·8

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

21 ESKDALEMUIR (Z) — 45,000γ (0·45 C.G.S. unit) + — FEBRUARY 1964

	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	Sum 10,000γ+
	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	γ
1	419	416	420	421	425	424	425	425	425	426	427	427	426	427	431	431	432	432	433	436	426	420	422	425	426	221
2	409	416	421	422	423	423	425	423	421	422	423	425	426	426	433	435	437	433	431	427	426	426	426	426	425	205
3 *q*	426	426	426	426	426	425	425	423	422	422	422	425	422	422	427	427	426	426	426	426	426	426	427	426	425	201
4	422	422	422	422	421	422	420	420	420	415	415	419	420	426	429	432	431	431	431	429	430	433	434	426	425	189
5	425	425	423	420	420	421	420	420	420	420	419	420	418	420	421	425	424	425	426	426	427	439	426	421	423	151
6 *d*	419	401	387	399	411	410	403	413	416	421	419	420	426	429	431	440	438	437	440	438	430	431	430	425	*421*	114
7	424	425	423	413	410	414	415	417	420	423	422	424	420	423	425	430	437	448	440	441	443	440	434	423	426	234
8 *d*	426	410	408	418	420	422	422	423	425	426	425	426	427	427	427	432	437	438	448	451	450	427	420	418	427	253
9	411	411	416	416	415	422	425	425	426	427	425	425	426	428	431	432	434	436	431	431	433	433	432	426	426	217
10	416	420	422	421	423	425	425	426	426	426	424	424	425	428	432	431	430	430	428	428	429	432	432	431	426	234
11 *q*	427	427	426	426	426	425	425	425	426	426	424	423	425	426	426	426	426	426	426	426	426	426	427	427	426	219
12	427	427	426	423	423	423	417	412	416	414	416	415	417	424	435	439	438	445	438	432	432	432	432	428	426	231
13 *d*	417	421	420	380	374	388	399	405	414	418	417	421	428	430	439	458	485	491	468	460	461	445	430	429	429	298
14	428	428	428	426	416	420	423	424	427	427	427	427	426	425	430	435	434	433	434	432	429	430	433	431	428	273
15	427	427	427	427	427	427	427	423	423	421	416	416	421	428	431	434	434	432	433	434	428	427	427	427	427	244
16 *q*	427	427	426	427	427	426	424	423	422	422	421	421	419	419	426	432	433	430	428	428	432	430	429	428	426	227
17	424	424	422	421	422	422	422	421	422	429	423	425	422	426	431	432	431	437	441	438	432	428	427	426	427	248
18 *q*	426	426	427	427	427	427	426	424	427	427	427	423	421	423	428	434	439	439	439	436	434	431	429	427	429	294
19 *q*	427	427	427	426	426	427	426	426	427	427	424	421	418	419	423	427	428	427	427	426	426	426	426	425	425	209
20	427	425	424	424	424	424	423	422	424	422	418	413	413	414	418	428	427	426	470	460	439	438	442	423	428	268
21	419	417	415	416	421	421	424	427	429	430	428	426	428	433	435	436	441	444	436	433	433	433	431	430	429	286
22	430	429	428	428	428	428	428	428	428	427	422	418	424	429	433	433	436	436	438	434	435	435	433	428	*430*	316
23	426	425	425	427	427	427	427	427	427	428	425	422	422	422	423	426	429	435	440	434	432	432	432	432	428	272
24	429	428	428	427	425	424	423	422	424	424	421	420	424	424	427	428	429	431	431	431	431	432	434	428	427	245
25 *d*	425	424	421	418	418	418	417	418	421	426	424	417	417	421	425	427	434	453	474	473	431	435	434	433	429	304
26 *d*	429	428	422	412	400	410	418	423	427	427	427	431	433	433	437	440	437	433	430	429	429	429	432	433	427	249
27	425	408	411	422	423	424	426	425	427	428	425	422	424	428	430	432	433	438	443	435	429	422	424	423	426	227
28	423	419	411	411	415	413	410	415	422	424	427	424	426	431	435	437	442	436	435	434	433	429	429	429	425	210
29	429	428	427	422	417	420	422	424	429	429	429	427	425	427	428	431	431	432	431	429	429	425	426	423	427	240
Mean	424	422	421	420	*419*	421	421	422	424	424	423	422	423	425	429	433	435	437	*438*	436	432	431	430	427	427	
Sum 12,000γ+	289	237	209	168	160	202	212	229	283	304	262	247	269	338	447	550	613	660	696	637	541	492	457	377		Grand Total 296,879

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH CHAMBER

22 ESKDALEMUIR — FEBRUARY 1964

	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph chamber 200°A+
1	2212 2133	16	2212 2133	16	2211 1123	13	0000 0011	2	1	84·4
2	3121 2210	12	3121 2210	12	2110 2100	7	1000 1000	2	1	84·4
3 *q*	0000 1012	4	0000 1011	3	0000 1002	3	0000 0000	0	0	84·4
4	0133 3212	15	0133 3212	15	0113 2112	11	0001 1001	3	1	84·3
5	1211 2135	16	1111 2134	14	1210 1115	12	0000 0012	3	1	84·3
6 *d*	4443 3333	27	2443 3333	25	4343 3333	26	3221 1111	12	1	84·3
7	2323 2433	22	2223 2423	20	2311 1333	17	0200 0202	6	1	84·3
8 *d*	3101 1346	19	3001 1345	17	3101 1346	19	2000 0122	7	1	84·3
9	2222 3323	19	2222 3322	18	2212 2323	17	1100 1101	5	1	84·3
10	3111 1223	14	3111 1212	12	2110 0123	10	1000 1000	2	1	84·3
11 *q*	1000 1001	3	1000 1001	3	1000 0001	2	0000 0000	0	0	84·3
12	1133 3333	20	0033 3333	18	1122 2322	15	0011 2111	7	1	84·3
13 *d*	3434 3433	27	2334 3433	25	3432 3433	25	1221 2322	15	1	84·3
14	0222 3233	17	0122 3223	15	0212 2132	13	0100 1001	3	1	84·2
15	3111 2130	12	1111 2130	10	3111 1130	11	0000 0010	1	1	84·3
16 *q*	1012 1221	10	1012 1221	10	1011 1021	7	0000 0000	0	0	84·3
17	1001 2330	10	1001 2320	9	1000 2230	8	0000 0110	2	1	84·3
18 *q*	0011 1221	8	0011 1221	8	0011 1211	7	0000 0000	0	0	84·3
19 *q*	0100 0000	1	0100 0000	1	0100 0000	1	0000 0000	0	0	84·3
20	0013 3445	20	0013 3434	18	0012 2245	16	0000 1232	8	1	84·3
21	4322 1231	18	3222 1231	16	4312 1231	17	1000 0110	3	1	84·2
22	1120 2132	12	0120 2122	10	1100 1132	9	0000 0010	1	1	84·3
23	1010 1332	11	1010 1322	10	1000 0331	8	0000 0110	2	1	84·3
24	0112 2113	11	0112 2112	10	0101 1113	8	0000 0001	1	1	84·3
25 *d*	1123 2462	21	1123 2462	21	1111 1262	15	0000 1340	8	1	84·2
26 *d*	1323 3203	17	0323 3202	15	1322 2103	14	1210 0000	4	1	84·2
27	4222 2343	22	3222 2343	21	4211 1343	19	2000 0220	6	1	84·3
28	3333 3320	20	3233 3320	19	2332 2310	16	2110 1100	6	1	84·3
29	1221 1223	14	1221 1223	14	1221 0112	10	0100 0000	1	1	84·3
								Mean	0·86	84·3

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

19 ESKDALEMUIR (H) 16,000γ (0·16 C.G.S. unit) + MARCH 1964

	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	Sum 20,000
	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	γ
1	874	873	872	873	875	876	877	876	869	861	853	854	861	876	875	880	876	876	876	875	875	878	878	877	872	936
2 q	877	877	877	878	880	881	881	880	870	862	853	852	858	866	876	879	877	876	879	880	881	882	882	887	875	991
3	883	880	880	880	880	882	883	885	882	868	859	863	872	883	890	884	883	883	886	889	875	887	886	871	880	1114
4 d	880	880	898	849	856	868	886	868	859	859	847	823	833	846	861	860	868	852	852	816	824	851	859	855	856	550
5 d	828	821	836	857	863	863	863	849	850	856	856	852	834	856	856	864	862	864	864	854	890	875	841	852	*854*	506
6	866	860	849	854	862	864	866	867	859	847	844	853	855	860	860	855	871	859	872	872	869	869	872	878	862	683
7	873	869	869	863	868	864	868	871	871	860	858	858	865	872	866	874	869	869	864	873	862	863	866	867	867	802
8	879	857	868	879	865	868	863	868	848	856	849	851	855	875	867	873	870	871	872	870	872	864	887	869	867	796
9	869	864	861	859	874	874	878	859	871	859	858	860	862	866	870	873	870	872	872	873	872	872	874	874	868	836
10	871	871	871	871	871	872	875	872	870	866	859	860	864	868	868	881	878	863	867	874	867	872	870	873	870	874
11	875	874	873	873	882	884	874	877	863	849	849	858	863	860	859	869	875	878	877	879	878	878	880	882	871	909
12	882	879	884	894	882	862	866	868	870	847	857	856	856	863	864	857	869	869	870	867	873	873	876	871	869	855
13	872	873	873	876	879	881	881	878	871	863	859	844	866	877	883	884	881	879	875	875	873	868	878	874	873	963
14	876	883	875	874	871	875	876	880	866	860	849	849	859	875	880	869	870	872	860	864	855	866	872	878	869	854
15	877	882	875	876	885	877	876	879	869	863	856	856	868	877	880	866	877	869	868	883	873	874	879	883	874	968
16	896	882	868	869	875	878	878	877	872	863	856	859	866	876	886	883	883	887	888	894	893	888	888	890	879	1095
17	890	887	878	883	884	885	894	875	879	878	863	844	857	870	871	866	866	870	875	881	883	882	882	880	876	1023
18 q	878	877	877	878	880	883	885	882	875	863	851	845	851	854	862	869	875	879	884	884	886	890	888	887	874	983
19 q	878	881	883	884	887	891	892	889	878	871	863	861	858	861	864	870	870	873	876	879	879	886	887	886	877	1047
20	887	883	887	886	884	884	887	884	886	883	871	869	866	868	876	873	874	878	890	866	881	887	887	885	*880*	1122
21	905	890	879	880	892	890	881	874	871	862	859	859	863	872	879	878	881	892	899	895	876	875	876	887	880	1115
22 d	884	876	879	883	886	890	894	890	888	875	871	866	875	894	872	845	877	881	881	857	864	853	881	871	876	1033
23 d	863	857	864	855	843	871	879	867	856	849	785	828	849	864	863	865	863	875	871	894	869	883	893	889	862	695
24	880	874	875	875	883	875	879	859	858	841	840	844	839	846	856	866	872	887	871	872	876	878	876	876	867	798
25	880	870	884	867	868	872	867	857	864	860	854	856	871	873	882	879	875	876	882	899	886	875	891	875	873	963
26	875	872	876	884	873	886	874	859	858	847	847	847	855	866	877	874	878	873	876	878	878	876	876	878	870	883
27	878	877	876	877	878	879	879	874	868	863	859	860	866	870	871	875	875	878	881	882	881	881	880	880	875	988
28 q	881	879	879	880	881	881	879	874	864	855	851	849	857	866	871	881	880	880	882	883	885	886	886	885	875	995
29	885	886	885	885	886	889	890	881	869	855	847	842	847	857	870	875	881	883	886	893	895	895	888	894	878	1064
30 d	894	893	891	876	869	902	876	878	868	867	859	854	857	857	881	882	874	856	854	866	866	879	869	866	872	934
31 q	866	866	866	866	867	867	866	860	852	842	841	842	859	868	875	874	878	879	884	883	882	880	880	880	868	823
Mean	877	874	875	874	875	878	878	873	867	860	852	*852*	858	867	871	872	874	874	875	876	875	876	*878*	877	871	
Sum 26,000γ+	1202	1093	1108	1084	1129	1214	1213	1057	894	650	423	414	607	882	1011	1023	1098	1099	1134	1150	1119	1166	1228	1200		Grand Total 648,198

GEOMAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

20 ESKDALEMUIR (D) 10° + MARCH 1964

	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	Sum 000·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	5·9	6·3	7·3	7·2	6·9	6·2	5·6	4·6	3·4	3·6	5·5	9·0	10·9	11·1	9·4	8·3	7·1	7·2	7·0	6·4	5·4	5·9	5·6	6·0	6·7	161·8
2 q	6·1	6·3	6·5	6·7	6·8	6·3	5·9	5·0	4·2	3·7	4·3	7·6	10·9	11·5	10·5	9·5	8·2	7·9	8·0	7·5	7·3	7·1	6·9	6·6	7·1	171·3
3	5·9	6·1	5·5	5·6	6·0	5·4	5·5	5·0	4·5	4·9	6·3	10·0	12·5	12·7	12·5	11·3	10·2	9·2	9·3	9·2	8·2	0·8	−0·2	4·2	7·1	170·6
4 d	5·9	4·8	−0·8	−8·8	1·5	4·7	2·7	2·9	2·7	6·1	10·9	10·7	16·4	15·5	11·0	13·1	2·5	−6·1	−6·8	2·5	−0·3	5·3	−0·6	−4·6	*3·8*	91·2
5 d	−0·1	14·1	8·9	1·6	2·6	3·6	4·2	5·3	8·1	8·0	8·0	9·2	12·2	11·3	13·1	6·2	10·8	8·1	−4·8	−1·3	−8·9	−2·6	1·5	7·1	5·3	126·2
6	5·7	4·4	4·6	7·8	4·4	4·4	4·8	4·9	4·9	5·3	8·6	10·6	12·7	13·2	12·0	10·9	6·4	7·3	5·8	7·2	5·6	6·0	6·6	7·7	7·2	171·8
7	7·2	6·0	3·4	4·8	5·5	5·4	5·2	5·3	5·3	5·7	8·0	9·9	11·6	13·1	10·9	10·0	10·5	9·8	6·3	2·5	2·9	7·0	6·5	5·3	7·0	168·1
8	0·4	2·4	9·5	2·6	1·7	3·3	4·5	7·2	7·9	11·2	11·8	14·7	14·7	13·8	11·6	10·3	8·6	8·2	8·9	8·1	4·3	6·3	7·4	4·3	7·7	183·7
9	4·5	4·1	4·5	5·9	6·5	1·6	4·0	4·8	7·8	8·0	9·9	10·9	10·9	10·1	9·0	7·5	6·3	7·2	7·4	7·5	7·3	7·2	7·3	7·0	7·0	167·2
10	6·7	6·5	6·3	5·9	5·8	5·7	5·6	5·8	5·9	6·4	8·1	10·5	11·6	10·7	8·3	7·2	7·0	6·2	8·2	3·8	3·6	5·8	6·5	7·7	6·9	165·8
11	6·7	6·9	5·9	6·4	6·4	4·6	5·4	7·4	7·0	8·0	11·9	10·9	12·8	13·3	11·6	10·6	9·7	8·9	8·0	7·4	5·9	6·6	7·1	7·2	8·2	196·6
12	7·1	7·0	6·2	11·4	2·7	2·6	2·5	5·0	5·4	5·4	7·1	8·9	11·1	11·9	11·9	10·8	7·1	7·9	6·8	5·2	6·2	6·3	6·3	5·9	7·0	168·7
13	7·1	7·5	7·5	9·1	5·5	5·1	5·3	4·8	4·3	4·7	6·7	9·1	12·9	13·5	12·2	10·0	8·5	7·3	7·4	6·4	4·7	3·2	2·8	6·1	7·2	171·7
14	7·0	7·3	6·5	5·3	6·2	6·2	5·1	4·1	4·5	5·8	8·6	11·7	14·4	13·6	12·8	9·0	7·3	6·1	0·5	2·9	−0·4	2·5	5·3	6·2	6·6	158·5
15	6·3	7·9	8·9	7·6	6·1	5·6	5·5	4·3	3·8	4·8	7·2	9·9	12·9	13·6	13·1	10·9	8·7	8·4	4·3	0·6	4·5	4·2	4·8	2·7	6·9	166·6
16	4·5	3·2	6·2	7·9	6·5	5·6	5·3	4·7	4·4	5·9	9·1	12·2	14·4	14·2	13·5	12·2	10·1	9·9	9·5	9·5	8·8	7·7	6·8	6·3	8·3	198·4
17	6·2	5·2	6·0	7·3	7·3	6·5	6·9	7·3	8·0	7·1	7·8	8·8	10·2	11·2	11·2	9·3	8·4	7·7	7·8	7·3	7·1	6·9	6·2	6·2	7·7	183·9
18 q	6·2	5·8	6·3	6·5	6·6	6·4	6·2	5·5	4·0	4·7	6·1	7·8	10·4	11·6	11·5	9·9	8·8	8·0	7·9	6·6	7·3	7·1	6·9	6·3	7·3	174·4
19 q	6·1	6·2	6·3	6·5	6·7	6·9	6·5	5·7	3·9	3·6	5·5	8·2	10·8	11·7	11·6	10·9	9·5	8·9	8·2	8·0	7·3	6·4	6·5	6·7	7·4	178·6
20	6·3	6·2	6·2	6·3	6·3	6·4	5·9	5·7	5·0	5·6	10·9	11·2	13·2	13·5	13·0	12·3	11·0	10·7	9·5	−0·4	4·7	7·3	7·0	6·1	7·9	189·9
21	8·6	3·2	−0·2	0·8	0·2	3·3	3·8	3·7	3·2	3·2	5·1	8·6	10·5	10·9	10·5	9·4	8·4	9·0	9·7	10·6	10·1	8·1	6·5	6·6	6·4	153·8
22 d	5·5	6·0	6·0	6·4	5·5	5·4	5·2	4·0	3·8	5·1	7·4	9·1	11·7	15·1	16·3	15·1	13·5	10·5	5·9	−7·1	−2·7	1·4	−9·4	−2·5	5·7	137·2
23 d	1·1	4·3	5·5	4·6	10·5	6·1	6·0	4·9	4·2	5·9	6·1	9·5	10·8	11·8	10·5	9·6	3·2	4·7	2·4	1·1	5·1	6·8	6·5	5·8	6·1	147·0
24	6·5	6·7	6·6	9·1	6·3	8·8	6·6	6·5	6·8	8·4	7·1	10·1	11·6	10·4	10·7	2·1	5·8	3·2	6·8	7·6	8·6	8·0	7·3	6·6	7·4	178·2
25	5·1	5·6	10·2	5·0	5·6	5·7	5·4	5·0	4·6	5·6	8·1	11·6	13·6	13·0	8·9	7·6	6·7	4·1	5·5	3·1	3·8	5·0	7·6	5·6	6·7	162·0
26	6·4	6·7	6·9	6·1	6·3	3·2	3·8	2·2	2·6	4·3	8·5	10·6	12·6	11·2	10·5	7·8	6·5	6·2	6·6	7·3	7·0	6·6	6·6	6·4	6·8	162·9
27	6·0	6·5	6·1	6·0	6·1	5·9	5·3	4·7	3·9	4·7	7·1	9·1	10·3	9·9	9·1	7·6	6·8	6·9	7·4	7·2	6·7	6·5	6·3	6·1	6·8	162·2
28 q	6·1	6·0	5·9	5·9	5·9	5·7	4·6	2·9	1·9	2·9	4·7	7·7	10·4	11·4	10·5	9·3	8·6	7·8	7·5	6·9	6·7	6·7	6·5	6·5	6·6	159·0
29	6·0	5·9	5·9	5·8	5·7	5·1	4·0	2·1	0·7	1·8	3·9	7·5	11·9	14·3	13·4	11·3	9·4	8·4	7·0	7·4	6·0	6·5	6·5	6·4	6·8	162·9
30 d	6·0	6·1	4·7	5·1	12·2	6·6	4·0	7·4	6·1	6·9	9·0	11·5	16·0	13·9	15·9	15·7	14·0	2·8	7·5	6·9	6·7	4·6	6·0	5·8	*8·4*	201·4
31 q	5·5	5·4	5·1	5·1	5·0	4·1	2·6	1·6	2·1	4·3	7·5	10·5	11·8	11·3	9·8	7·7	6·9	6·5	4·9	6·8	6·8	5·9	5·6	5·5	6·2	148·3
Mean	5·6	6·0	5·9	5·6	5·7	5·2	5·0	4·9	*4·7*	5·5	7·6	9·9	12·2	*12·4*	11·5	9·8	8·3	7·1	6·1	5·3	5·0	5·6	5·3	5·5	6·9	
Sum 100·0′+	74·5	86·6	84·4	73·5	77·3	62·4	53·9	50·3	44·9	71·6	136·8	207·6	278·7	284·3	256·8	203·4	156·5	118·9	90·4	64·7	56·3	73·1	63·2	69·8	6.9	Grand Total 5139·9

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

21 ESKDALEMUIR (Z) 45,000γ (0·45 C.G.S. unit) + MARCH 1964

	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	Sum 9000γ+
	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	γ
1	422	423	424	424	425	425	427	428	428	425	422	419	417	422	427	429	429	428	428	428	428	426	425	424	425	1203
2 *q*	425	425	425	425	425	424	423	424	424	424	422	418	413	417	421	424	427	425	424	424	423	423	423	422	423	1150
3	420	421	422	422	422	421	419	420	421	420	415	404	405	412	417	419	421	422	423	423	429	427	415	417	419	1057
4 *d*	418	421	387	383	374	347	369	395	404	409	408	415	417	436	438	439	468	487	463	454	453	411	397	390	416	983
5 *d*	374	342	348	390	412	420	422	425	424	422	418	412	418	428	440	456	447	447	453	442	434	410	415	405	417	1004
6	402	417	418	414	417	423	423	422	424	424	420	411	420	425	436	446	453	446	441	434	434	432	429	425	427	1236
7	421	401	410	415	417	422	423	423	424	424	417	415	415	417	428	432	435	435	440	435	438	436	434	433	425	1190
8	422	423	417	410	418	422	422	418	421	417	417	415	416	424	439	438	434	432	432	434	436	433	414	421	424	1175
9	421	423	424	414	401	411	415	421	419	421	420	421	423	428	429	433	433	431	429	429	430	430	429	429	423	1164
10	429	429	428	428	428	427	426	427	428	428	424	422	424	425	429	433	434	439	440	439	435	433	433	430	430	1318
11	431	430	429	428	427	424	424	423	424	427	424	424	427	430	433	433	429	428	428	429	432	432	429	428	428	1273
12	428	427	414	375	371	389	401	412	420	424	418	417	422	423	434	439	447	434	431	432	432	430	430	429	420	1079
13	428	427	428	424	422	422	422	422	424	424	423	421	417	420	426	431	431	428	429	430	433	434	430	428	426	1224
14	427	422	425	427	428	427	427	427	428	425	420	417	417	422	430	435	434	434	442	441	446	439	433	429	429	1302
15	428	422	421	418	420	422	424	424	424	422	419	418	421	424	431	440	437	440	442	440	434	432	429	425	427	1257
16	416	416	421	422	423	424	425	425	425	421	417	416	416	419	427	428	428	427	425	423	424	427	428	428	423	1151
17	427	427	427	424	422	421	418	420	417	417	417	423	421	421	427	437	438	435	432	429	428	428	427	427	425	1210
18 *q*	427	428	427	427	427	427	427	427	425	423	422	419	418	421	425	429	429	428	428	428	428	427	426	425	426	1218
19 *q*	424	425	425	425	424	423	422	422	422	418	413	406	407	410	417	425	427	428	428	428	427	425	425	423	422	1119
20	423	424	423	422	423	422	421	421	417	410	403	406	411	419	427	433	434	432	430	442	433	427	424	424	423	1151
21	415	397	397	399	397	397	401	405	406	406	405	406	408	411	417	422	424	423	421	426	435	436	436	427	*413*	917
22 *d*	418	422	423	421	421	420	419	421	419	418	418	418	417	418	432	447	456	454	458	483	460	447	422	408	431	1340
23 *d*	413	417	418	422	404	403	417	422	423	421	434	432	428	430	430	435	452	447	445	438	433	429	420	416	426	1232
24	418	422	422	419	410	412	414	422	422	418	421	421	424	435	439	453	458	465	445	439	433	431	431	431	429	1305
25	427	428	406	411	418	421	423	424	422	418	417	415	418	422	433	439	438	435	435	429	423	423	413	418	423	1156
26	418	411	414	416	412	412	417	422	421	418	418	421	425	429	432	429	430	428	427	426	428	429	429	429	423	1141
27	428	428	428	428	428	428	428	429	428	425	423	422	422	424	429	429	427	425	422	422	426	427	427	428	426	1231
28 *q*	428	428	428	427	427	426	428	428	427	423	421	418	414	418	425	427	427	427	426	425	425	425	425	427	425	1200
29	425	425	425	425	424	424	425	424	422	418	413	406	401	406	417	424	427	428	424	422	421	424	424	421	421	1095
30 *d*	422	423	423	424	418	404	411	409	412	408	405	404	407	419	432	454	486	522	489	465	450	434	427	428	*432*	1376
31 *q*	432	432	432	432	432	433	434	433	428	424	420	418	420	425	430	432	433	434	434	432	432	433	431	430	430	1316
Mean	421	419	418	417	417	417	419	421	422	420	418	*416*	417	422	429	435	438	*439*	436	435	433	429	425	423	424	
Sum 12,000γ+	1057	1006	959	941	917	923	997	1065	1073	1025	954	900	929	1080	1297	1470	1573	1594	1514	1471	1423	1300	1180	1125		Grand Total 315,773

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH CHAMBER

22 ESKDALEMUIR MARCH 1964

	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph chamber 200°A+
1	2011 1121	9	2011 1101	7	1011 0020	5	0000 0000	0	0	84·3
2 *q*	0000 0001	1	0000 0001	1	0000 0001	1	0000 0000	0	0	84·3
3	1011 2134	13	1011 2134	13	1011 1114	10	0000 0012	3	1	84·3
4 *d*	4433 3645	32	4433 3545	31	3423 3645	30	3332 3424	24	2	84·3
5 *d*	5232 4354	28	5232 4354	28	4222 3344	24	3211 3232	17	2	84·3
6	4323 3432	24	4323 3432	24	2212 2332	17	2101 2211	10	1	84·3
7	3222 2243	20	3122 2243	19	3211 2133	16	2101 1011	7	1	84·3
8	3332 3234	23	3232 3234	22	3311 3134	19	1100 2112	8	1	84·3
9	2332 1100	12	2332 1100	12	1322 0100	9	0210 0000	3	1	84·3
10	0000 1332	9	0000 1331	8	0000 1131	6	0000 0010	1	1	84·3
11	1223 2221	15	1123 2221	14	1222 1111	11	0000 0000	0	1	84·3
12	3322 3322	20	2322 3322	19	3321 1211	14	2321 0100	9	1	84·3
13	1213 3112	14	1113 3112	13	1212 1012	10	0000 0000	0	1	84·3
14	2122 3133	17	2022 3132	15	2111 1133	13	0000 0011	2	1	84·3
15	3221 2232	17	3221 2232	17	2211 1232	14	1000 1111	5	1	84·3
16	3111 2322	15	3111 2322	15	3211 1111	11	1000 0000	1	1	84·3
17	2233 3210	16	2133 3210	15	2222 1100	10	0001 0100	2	1	84·3
18 *q*	0022 1010	6	0012 1010	5	0021 0010	4	0000 0000	0	0	84·3
19 *q*	0020 1101	5	0020 1100	4	0010 1101	4	0000 0000	0	0	84·3
20	0112 2242	14	0012 2232	12	0111 1141	10	0000 0020	2	1	84·3
21	4321 1233	19	4321 1233	19	4211 1112	13	3000 0022	7	1	84·3
22 *d*	2112 5454	24	2112 5444	23	1111 3354	19	0000 2233	10	1	84·3
23 *d*	3335 3442	27	2335 3442	26	3333 2441	23	1212 0221	11	2	84·3
24	2323 3522	22	2323 3522	22	1322 2421	17	0210 2220	9	1	84·2
25	3222 3343	22	3222 3343	22	3221 2332	18	2200 1011	7	1	84·2
26	2322 3121	16	2322 3121	16	2212 1011	10	1110 0000	3	1	84·2
27	2010 1101	6	2010 1101	6	1010 0000	2	0000 0000	0	0	84·2
28 *q*	0010 1000	2	0000 1000	1	0010 0000	1	0000 0000	0	0	84·2
29	0000 2222	8	0000 2222	8	0000 1021	4	0000 0000	0	0	84·2
30 *d*	2423 4533	26	2423 4433	25	2423 2513	22	0200 3432	14	1	84·2
31 *q*	0011 1121	7	0001 1111	5	0010 0120	4	0000 0000	0	0	84·2
								Mean	0·84	84·3

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at exact hours G.M.T.

19 ESKDALEMUIR (H) — 16,000γ (0·16 C.G.S. unit) + — APRIL 1964

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	Sum 20,000γ+
	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	γ
1 d	879	878	880	882	885	886	883	876	868	859	857	859	863	871	891	880	909	898	849	843	795	794	846	871	867	804
2 d	850	842	836	847	841	848	858	849	830	813	816	811	829	843	849	868	890	902	866	864	884	859	856	882	*851*	433
3	867	851	848	849	857	871	870	862	847	830	821	826	824	841	848	864	871	891	876	879	879	875	877	899	859	623
4	872	872	863	875	875	875	880	860	844	836	836	840	847	858	870	873	871	867	875	880	882	886	878	867	866	782
5	864	866	873	873	869	876	875	866	858	850	840	856	867	873	878	880	880	892	888	890	881	893	883	874	873	945
6	874	875	874	874	874	876	873	865	855	847	840	845	853	860	868	879	886	892	886	891	883	884	885	894	872	933
7	886	879	874	881	881	881	876	859	859	856	856	853	858	868	868	875	882	895	899	892	878	885	890	893	876	1024
8	875	883	880	879	879	879	878	869	858	835	811	828	851	874	874	867	869	876	883	890	886	893	890	887	871	894
9	886	890	883	889	872	880	886	879	868	855	843	849	857	874	880	875	875	878	878	882	884	884	884	885	876	1016
10	884	883	883	884	883	883	883	876	867	857	839	842	861	867	873	876	880	880	882	888	890	891	890	893	876	1035
11	889	888	886	888	890	889	887	882	875	858	851	852	858	841	884	869	870	886	868	878	883	880	879	881	875	1012
12 q	878	878	877	878	877	876	868	864	857	855	857	860	863	868	876	880	882	886	886	892	894	894	892	884	876	1022
13	883	883	882	879	879	880	882	876	868	859	854	847	853	868	871	876	886	893	891	898	898	899	897	892	879	1094
14 q	890	886	885	885	886	887	884	875	864	856	842	838	848	868	874	876	883	886	888	889	892	890	888	887	877	1047
15	888	890	889	890	890	891	890	881	871	859	851	841	847	859	886	890	888	890	891	892	893	892	893	924	882	1176
16	879	871	871	880	885	878	875	867	865	862	851	851	855	858	879	882	887	883	889	890	892	894	898	897	877	1039
17	903	889	912	886	891	890	883	898	881	870	859	851	855	863	870	851	878	893	885	886	888	886	883	880	880	1131
18	881	882	880	880	880	885	892	893	883	876	872	854	836	880	878	895	876	882	889	882	887	888	895	901	881	1147
19 d	873	883	882	873	868	880	883	880	867	839	857	863	854	863	869	878	878	888	892	890	888	890	870	875	874	983
20	879	869	871	878	880	878	873	866	848	862	855	849	856	868	873	886	885	882	901	887	888	897	909	897	877	1037
21	859	863	867	876	879	880	878	874	868	859	849	852	862	867	868	882	887	894	889	886	888	877	881	881	874	966
22 q	879	878	879	879	878	877	876	875	869	859	855	862	867	875	880	885	886	890	891	890	889	891	889	890	879	1089
23 q	884	886	890	883	884	886	890	888	879	868	863	864	874	878	882	886	887	894	896	894	895	894	891	890	884	1226
24 q	893	891	889	888	886	887	886	880	873	862	863	871	875	882	886	887	886	893	895	895	898	900	897	898	*886*	1261
25	892	895	885	885	885	886	886	886	879	866	870	859	849	876	876	883	883	883	901	890	888	901	883	890	882	1177
26	888	893	897	886	872	883	885	867	863	858	849	850	855	864	875	879	884	895	893	894	892	890	892	893	879	1097
27 d	895	889	890	888	891	886	874	875	878	867	860	856	883	872	882	909	906	894	880	886	888	863	871	867	881	1150
28 d	833	859	918	875	879	845	875	858	825	809	826	833	836	849	864	866	878	886	893	893	879	883	899	891	864	752
29	883	896	871	874	875	869	875	873	865	854	844	842	849	864	865	879	872	890	906	891	886	882	879	880	873	964
30	883	881	878	878	876	878	878	873	866	861	860	862	868	872	882	888	898	891	893	901	890	854	861	863	876	1035
Mean	879	879	880	879	878	879	879	873	863	853	*846*	849	855	865	874	879	883	*888*	887	887	885	883	884	887	875	
Sum 25,000γ+	1369	1369	1393	1362	1347	1366	1382	1192	898	597	447	466	653	964	1219	1364	1493	1650	1599	1603	1538	1489	1526	1606		Grand Total 629,892

GEOMAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

20 ESKDALEMUIR (D) — 10° + — APRIL 1964

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	Sum 100·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1 d	5·6	5·1	5·1	5·1	5·1	4·8	4·0	−1·5	3·3	5·4	8·6	12·4	13·4	14·4	16·8	16·8	17·8	9·5	−0·5	3·9	−8·9	−7·6	−4·3	−13·8	5·0	20·5
2 d	2·3	3·5	8·8	3·9	1·8	4·0	2·9	2·7	2·7	3·7	5·3	8·7	12·3	14·4	13·5	10·5	6·0	−0·7	5·4	3·0	3·3	1·1	2·2	3·0	5·2	24·3
3	4·7	1·9	5·0	5·0	6·0	2·1	1·8	1·1	1·8	2·3	7·1	10·5	13·1	14·3	12·0	11·2	9·6	1·6	5·9	7·5	4·7	5·0	6·5	4·8	6·1	45·5
4	5·0	0·2	3·8	5·8	4·0	5·2	3·7	1·9	3·0	6·2	7·8	11·2	14·6	15·1	11·4	9·4	8·6	7·7	7·0	7·0	6·8	3·0	2·6	3·7	6·4	54·7
5	2·9	2·5	2·9	3·9	6·9	5·8	2·9	1·7	2·8	6·0	9·3	13·6	15·3	14·5	13·1	10·5	7·5	6·4	6·0	6·2	3·2	8·8	5·5	−1·6	6·5	56·6
6	3·9	4·8	4·8	4·1	5·6	4·6	2·3	0·6	1·4	3·5	5·9	8·5	11·3	11·4	10·4	8·8	7·4	6·8	6·6	6·5	6·7	6·4	6·2	9·2	6·2	47·7
7	5·9	3·8	4·0	3·9	3·2	3·8	2·8	2·3	4·0	5·6	8·1	11·0	13·1	15·3	15·0	12·4	11·0	9·8	10·3	7·5	2·6	6·5	6·0	5·2	7·2	73·1
8	6·7	6·0	4·2	4·5	4·9	4·4	2·3	1·6	1·7	4·3	7·8	11·8	11·6	12·4	11·9	9·7	8·2	7·3	7·3	6·0	0·9	1·4	5·7	5·7	6·2	48.3
9	7·9	7·1	6·9	2·8	3·2	5·1	4·3	3·8	3·4	6·2	8·7	12·0	13·2	13·9	12·9	9·1	7·6	5·9	5·9	6·1	6·4	6·1	6·5	6·5	7·1	71·5
10	6·5	6·5	5·8	5·2	5·0	4·4	3·7	3·4	4·0	4·5	6·7	10·4	12·9	14·0	12·1	9·5	7·6	6·9	6·8	7·0	6·9	6·7	6·6	7·3	7·1	70·4
11	6·0	5·9	5·8	5·2	5·1	4·6	4·3	3·6	3·2	6·0	11·5	13·4	16·3	15·3	14·0	6·5	6·0	4·8	4·1	0·5	4·9	4·7	5·2	6·4	6·8	63·3
12 q	5·8	6·1	5·8	5·4	5·0	3·9	3·1	2·2	2·8	5·1	8·5	10·5	11·5	11·4	10·4	8·7	7·6	7·4	7·8	7·8	7·7	7·3	6·8	5·9	6·9	64·5
13	5·8	6·0	5·8	4·9	4·4	3·5	2·4	1·2	1·1	2·7	5·6	8·6	11·4	12·9	11·6	9·6	8·4	7·5	8·0	7·7	7·2	6·8	6·4	5·5	6·5	55·0
14 q	5·5	5·1	5·1	5·0	4·8	4·3	3·4	2·5	1·3	3·2	6·5	10·6	15·0	15·8	14·1	10·8	8·7	7·4	6·8	6·8	6·5	5·8	5·7	5·8	6·9	66·5
15	5·6	5·7	5·0	4·8	4·7	4·1	3·6	1·9	1·8	3·0	7·7	12·3	17·4	17·7	15·5	13·0	9·1	6·0	6·8	6·9	6·2	4·7	4·3	0·0	7·0	67·8
16	0·1	2·5	2·9	3·8	1·9	0·8	1·3	1·6	3·1	2·9	5·8	9·7	12·9	13·9	11·8	10·5	9·3	7·7	6·4	7·0	7·0	6·8	6·4	5·0	5·9	41·1
17	5·1	5·8	4·8	−3·9	−3·3	0·8	7·8	7·3	5·7	4·7	7·1	9·6	11·8	13·1	13·7	11·8	10·4	9·7	7·6	7·2	2·7	3·5	5·1	5·7	6·4	53·8
18	5·0	4·8	4·0	3·8	3·6	3·6	2·8	2·4	3·5	3·8	5·8	9·6	13·1	15·8	15·3	15·8	7·1	10·3	9·2	4·2	4·9	4·2	3·0	2·5	6·6	58·1
19 d	5·4	8·3	7·0	3·9	5·8	4·4	3·3	2·2	2·5	3·5	5·8	8·5	11·9	11·8	9·4	7·9	7·5	6·9	6·9	7·1	3·9	−3·2	1·7	5·6	5·7	38·0
20	5·4	6·4	6·7	4·3	3·8	3·4	2·9	3·6	4·3	5·4	6·4	7·8	10·5	10·5	9·1	7·8	5·3	6·1	3·6	6·0	5·9	5·4	7·8	0·3	5·8	38·7
21	−2·4	3·7	6·6	5·0	3·6	2·8	2·1	2·0	3·0	5·0	6·7	8·0	10·5	11·7	8·9	8·5	6·9	5·8	5·3	5·5	2·9	1·8	4·7	5·8	5·2	24·4
22 q	5·8	5·7	5·5	5·0	4·4	4·1	3·2	3·0	2·3	2·9	4·8	6·5	8·9	9·7	9·1	8·2	7·8	7·8	7·5	7·3	6·4	5·9	5·7	5·5	6·0	43·0
23 q	5·6	5·6	6·3	4·9	5·2	4·6	3·4	1·8	1·9	3·0	5·9	8·3	10·5	10·5	9·4	8·4	7·8	7·2	6·7	6·6	6·5	5·1	5·8	5·8	6·1	46·8
24 q	5·3	4·9	4·9	4·5	4·1	3·3	2·2	0·4	0·3	1·2	4·9	8·5	10·6	11·6	11·0	10·3	8·8	8·5	7·3	7·1	6·8	6·8	6·1	5·8	6·1	45·2
25	5·1	3·8	3·4	4·6	3·8	2·2	2·5	2·3	1·9	3·7	7·8	10·8	13·3	14·1	13·0	11·4	10·6	9·6	7·8	5·1	3·8	4·5	0·4	5·8	6·3	51·3
26	3·1	2·3	−0·7	−1·6	−2·9	2·9	−0·9	−1·6	1·2	4·1	8·1	10·0	10·7	10·9	9·7	8·6	8·4	7·4	6·9	4·5	5·8	6·0	5·6	6·1	*4·8*	14·6
27 d	4·8	4·1	3·0	−0·9	1·7	0·4	0·9	3·9	3·6	5·1	7·6	9·0	13·2	13·3	14·7	14·0	13·4	13·0	10·5	5·2	−1·8	−3·1	−3·7	−9·5	5·1	22·4
28 d	−2·8	6·9	−6·8	−6·3	−0·2	0·8	2·1	4·1	2·9	6·5	7·5	11·5	11·6	10·4	12·0	10·5	8·8	8·0	6·6	2·1	4·6	4·9	5·0	6·5	4·9	17·2
29	1·0	7·1	2·3	2·2	0·3	1·2	1·5	1·1	0·2	2·1	5·0	8·5	10·1	11·3	9·9	9·3	8·6	8·5	2·4	5·7	5·9	5·6	5·5	5·6	5·0	20·9
30	5·4	5·4	5·1	5·1	4·9	4·3	3·8	2·8	2·1	3·3	6·1	8·1	10·8	11·3	11·1	10·6	10·9	8·9	8·4	6·8	1·7	−6·9	−6·2	−6·0	4·9	17·8
Mean	4·4	4·9	4·5	3·5	3·5	3·5	2·9	*2·2*	2·6	4·2	7·0	10·0	12·4	*13·1*	12·1	10·3	8·8	7·3	6·6	5·9	4·4	3·8	4·2	3·5	6·1	
Sum 000·0′+	132·0	147·5	133·8	103·9	106·4	104·2	86·4	65·9	76·8	124·9	210·4	299·9	372·8	392·7	362·8	310·1	262·7	219·7	197·3	177·8	132·1	114·0	124·8	104·1		Grand Total 4363·0

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

21 **ESKDALEMUIR (Z)** 45,000γ (0·45 C.G.S. unit) + APRIL 1964

Day	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	Sum 9000γ+
	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	γ
1 *d*	429	429	429	429	428	428	428	428	423	417	410	407	413	418	431	429	447	561	568	520	520	464	422	358	*443*	1636
2 *d*	388	424	422	429	433	435	436	438	438	436	433	429	433	437	445	447	461	468	463	457	438	421	418	414	435	1443
3	400	392	395	400	404	411	422	428	428	429	424	422	430	436	443	445	446	451	446	436	435	434	431	422	425	1210
4	417	410	421	419	422	424	425	429	430	426	422	418	418	427	435	445	446	446	440	435	433	433	428	427	428	1276
5	427	428	428	428	423	421	424	424	422	422	420	414	418	427	433	436	436	435	433	434	438	429	415	421	427	1236
6	428	429	430	430	428	430	435	435	429	427	423	420	421	425	431	434	434	434	433	433	434	434	435	420	430	1312
7	404	416	422	422	423	423	427	428	425	422	418	415	415	420	427	429	435	435	437	445	452	440	434	431	427	1245
8	428	424	427	427	427	428	429	430	428	422	422	416	417	418	422	428	429	431	431	433	438	433	428	429	427	1245
9	427	418	415	415	420	420	423	425	424	418	417	413	412	417	424	430	435	435	432	429	429	429	429	428	423	1164
10	428	428	425	424	424	423	425	426	420	417	415	410	408	413	419	422	425	425	425	421	422	421	425	422	421	1113
11	425	425	425	422	421	421	423	420	416	412	408	411	422	428	433	439	449	453	456	448	436	431	429	428	428	1281
12 *q*	428	429	429	429	429	429	431	428	422	415	411	411	415	421	425	428	429	432	428	428	427	427	428	428	425	1207
13	429	429	427	425	428	428	428	428	425	418	411	408	406	408	417	421	422	427	422	422	422	422	424	425	422	1122
14 *q*	427	428	428	428	427	426	427	427	423	417	415	412	408	417	423	423	427	427	425	424	425	427	428	427	424	1166
15	425	427	427	427	427	427	428	425	425	424	417	413	408	411	422	432	446	451	445	439	435	434	429	407	427	1251
16	406	411	417	417	420	422	422	422	418	416	411	405	407	414	423	424	429	433	435	433	429	427	425	424	420	1090
17	421	411	392	393	395	403	404	399	405	410	408	410	411	418	429	441	442	439	440	436	434	429	428	428	418	1026
18	428	428	428	428	428	427	425	424	422	418	417	416	411	413	422	440	467	463	463	460	444	432	427	419	431	1350
19 *d*	401	390	400	409	420	422	427	428	424	421	420	418	420	427	435	445	442	437	433	431	432	422	417	417	422	1138
20	417	417	418	422	422	423	423	422	423	422	421	417	411	414	421	429	437	440	439	434	432	427	411	396	422	1138
21	399	396	403	414	422	423	424	424	423	421	421	420	415	419	423	422	427	429	433	433	432	429	427	427	421	1106
22 *q*	427	427	427	428	428	428	428	428	423	418	414	411	410	416	420	421	422	427	427	427	427	428	428	427	424	1167
23 *q*	427	427	423	422	423	424	424	424	424	421	417	410	408	413	418	421	422	423	424	424	423	425	426	427	422	1120
24 *q*	427	427	427	425	425	425	427	428	426	421	417	410	406	411	415	420	422	425	425	423	422	422	424	425	422	1125
25	424	422	422	422	423	423	421	418	416	413	410	408	407	414	422	425	431	430	431	436	438	429	423	409	422	1117
26	410	416	415	413	415	404	403	408	408	403	404	408	413	420	425	429	432	433	435	435	429	428	428	421	418	1035
27 *d*	415	416	413	415	417	418	419	415	413	409	403	401	403	408	421	447	475	491	493	471	433	414	416	403	426	1229
28 *d*	382	330	332	365	379	381	395	403	407	408	417	421	432	436	436	435	434	433	435	443	439	433	422	427	*409*	825
29	387	367	369	388	396	404	406	411	416	417	416	413	417	425	433	435	435	436	443	437	431	429	429	424	415	964
30	424	427	428	428	428	428	428	428	424	418	417	413	411	417	423	427	427	434	440	440	447	434	399	371	423	1161
Mean	417	415	415	418	420	421	423	423	422	419	416	*413*	414	420	427	432	437	*443*	443	439	436	430	424	418	424	
Sum 12,000γ+	505	448	464	543	605	629	687	701	650	558	479	400	426	588	796	949	1111	1284	1280	1167	1076	887	733	532		Grand Total 305,498

Hour G.M.T.

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z AND C) AND TEMPERATURE IN MAGNETOGRAPH CHAMBER

22 **ESKDALEMUIR** APRIL 1964

Day	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph chamber 200°A+
1 *d*	0002 3656	22	0002 3456	20	0001 1656	19	0000 2655	18	2	84·2
2 *d*	5332 3453	28	5332 3453	28	3331 1443	22	4100 1231	12	1	84·2
3	3312 3333	21	3312 3323	20	3311 2333	19	2210 1112	10	1	84·2
4	3221 2213	16	3221 2212	15	3111 0103	10	2110 0000	4	1	84·1
5	2212 2224	17	2112 2223	15	2201 1024	12	0000 0012	3	1	84·1
6	2111 0123	11	2111 0123	11	2111 0113	10	0000 0002	2	0	84·1
7	2121 2232	15	2121 2232	15	2121 1131	12	2000 0021	5	1	84·1
8	3123 3233	20	3123 3221	17	3122 1133	16	1000 0011	3	1	84·2
9	2312 2210	13	2202 2210	11	2311 1100	9	1000 0000	1	1	84·2
10	0013 1000	5	0003 1000	4	0011 0000	2	0000 0000	0	0	84·2
11	0122 4331	16	0112 4331	15	0122 2331	14	0000 1220	5	1	84·2
12 *q*	1010 1112	7	0010 1112	6	1010 0000	2	0000 0000	0	0	84·2
13	1110 1222	10	1100 1222	9	1100 0100	3	0000 0000	0	1	84·3
14 *q*	1002 2001	6	1002 2000	5	1001 1001	4	0000 0000	0	0	84·3
15	0013 3314	15	0013 3314	15	0011 2203	9	0000 0102	3	1	84·3
16	2212 3321	16	2212 3321	16	2211 1211	11	1000 0100	2	1	84·3
17	3332 3433	24	3332 3423	23	3331 1132	17	3210 0000	6	1	84·3
18	0013 5443	20	0013 5443	20	0012 3433	16	0000 2322	9	1	84·3
19 *d*	4224 3344	26	3224 3324	23	4222 2244	22	2100 0001	4	1	84·3
20	3232 2344	23	3232 2343	22	3121 1234	17	0000 0102	3	1	84·3
21	4112 2233	18	3112 2232	16	4110 1033	13	1100 1010	4	1	84·4
22 *q*	0001 1011	4	0001 1011	4	0000 0001	1	0000 0000	0	0	84·4
23 *q*	1110 1111	7	1110 1111	7	1110 0011	5	0000 0000	0	0	84·5
24 *q*	0011 2222	10	0001 2222	9	0011 0000	2	0000 0000	0	0	84·5
25	2113 3234	19	2013 3233	17	1112 2134	15	0001 0112	5	1	84·5
26	2332 2231	18	2322 2231	17	2331 1121	14	2210 0001	6	1	84·5
27 *d*	2223 3544	25	2223 3544	25	2222 2344	21	0000 2442	12	2	84·4
28 *d*	5444 3333	29	5344 3333	28	5433 3133	25	4322 2013	17	2	84·5
29	4212 3241	19	4212 3241	19	4212 1230	15	3100 0110	6	1	84·5
30	1010 1334	13	1000 1334	12	0010 1224	10	0000 0124	7	1	84·4
								Mean	0·86	84·3

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

19 ESKDALEMUIR (H) — 16,000γ (0·16 C.G.S. unit) + — MAY 1964

	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	Sum 20,000γ+
	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	γ
1 d	880	836	868	870	863	860	856	843	843	846	844	832	860	862	872	876	876	882	886	888	886	886	884	892	*866*	791
2	875	875	871	876	875	874	849	837	854	855	853	857	862	872	874	876	875	880	886	891	886	886	879	875	871	893
3	887	875	883	881	878	875	868	859	851	852	852	856	866	867	873	877	880	885	887	893	888	888	894	883	875	998
4	883	881	883	880	880	880	875	877	871	864	864	866	873	876	882	890	892	896	896	886	888	887	891	892	881	1153
5	908	901	901	902	900	897	881	878	876	868	854	868	877	887	881	880	881	884	885	886	888	885	882	882	885	1232
6	884	884	883	883	883	884	883	876	878	874	866	869	871	871	876	888	893	900	899	891	888	889	890	887	883	1190
7 q	888	887	886	885	885	883	882	880	874	877	880	881	880	881	881	881	881	886	888	888	888	890	889	888	884	1209
8 q	887	887	885	885	885	883	881	882	882	881	879	880	886	888	887	885	888	891	893	894	896	896	898	897	887	1296
9 q	894	894	893	892	890	887	885	884	884	886	883	884	885	887	889	888	889	893	895	897	895	895	894	893	*890*	1356
10	901	905	910	901	902	900	895	897	892	880	880	891	899	895	884	914	866	895	914	883	859	827	818	826	885	1234
11	830	858	858	881	870	837	849	845	856	864	862	856	854	856	860	868	880	886	894	893	885	886	885	888	867	801
12 q	882	881	879	878	877	878	879	875	868	864	862	865	872	875	876	885	893	895	894	892	889	886	886	887	880	1118
13	885	883	883	883	885	884	880	871	863	859	861	864	879	898	901	868	894	935	925	925	879	883	883	887	886	1258
14 d	891	886	883	887	887	880	867	864	842	844	864	871	877	863	914	881	890	898	897	893	895	894	900	890	882	1158
15 d	886	881	866	850	849	879	852	860	859	847	848	851	856	860	879	868	890	898	898	897	886	881	893	863	872	917
16	885	886	877	880	871	883	883	864	816	836	850	862	868	868	881	887	882	898	902	898	898	891	889	888	877	1043
17	888	888	883	882	885	883	864	861	857	843	859	863	859	874	879	887	881	887	895	894	899	894	886	881	878	1072
18	884	882	881	882	883	878	873	871	866	857	854	866	869	872	875	880	887	888	894	896	897	894	892	887	879	1108
19	884	888	886	882	885	884	879	871	860	858	864	872	879	882	885	892	892	907	887	893	892	893	886	886	883	1187
20 q	881	881	883	885	886	885	879	873	868	869	871	872	879	886	894	890	891	884	892	898	895	893	892	890	884	1217
21	887	885	887	885	882	876	874	873	872	874	864	871	873	886	888	897	900	906	897	903	898	898	897	890	886	1263
22	892	890	889	892	890	884	874	869	873	870	861	870	878	888	889	895	900	908	910	906	906	905	904	903	889	1346
23	898	896	897	886	885	883	875	868	868	867	867	866	869	875	875	883	898	905	909	909	909	910	928	929	890	1355
24 d	906	894	900	899	905	886	868	855	852	838	858	853	859	859	887	898	887	901	895	906	890	886	906	887	882	1175
25 d	883	882	882	885	886	886	880	872	841	774	844	869	874	880	879	899	898	907	910	910	892	885	890	891	879	1099
26	887	875	877	878	880	871	860	856	858	861	863	868	873	876	871	881	887	886	898	895	894	895	893	894	878	1077
27	894	893	889	885	884	878	856	859	866	864	847	856	868	886	876	880	886	895	906	910	899	896	900	896	882	1169
28	885	885	884	882	881	884	880	873	860	851	855	867	877	886	897	903	884	905	915	897	896	897	896	894	885	1234
29	888	886	886	879	882	881	875	869	860	859	856	856	855	866	880	897	904	904	905	900	894	895	901	893	882	1171
30	888	888	886	888	890	885	882	878	875	868	859	863	861	862	861	875	887	900	904	909	902	902	906	913	885	1232
31	893	892	890	864	887	888	886	882	875	875	871	869	878	878	887	892	901	903	902	902	900	897	899	900	888	1311
Mean	887	884	885	883	883	881	873	869	863	*859*	861	866	871	876	882	886	888	896	*899*	897	892	890	891	889	881	
Sum 26,000γ+	1484	1405	1429	1368	1371	1296	1070	922	760	625	695	834	1016	1162	1333	1461	1533	1788	1858	1823	1657	1590	1631	1552		Grand Total 655,663

GEOMAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

20 ESKDALEMUIR (D) — 10° + — MAY 1964

	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	Sum 000·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1 d	-0·1	-1·6	-0·9	2·4	1·3	2·1	2·4	1·7	3·1	3·4	5·7	7·9	10·8	10·9	12·0	10·5	6·0	6·0	7·6	7·4	6·1	5·7	5·5	3·8	5·0	119·7
2	3·8	4·1	4·9	5·8	3·9	2·5	2·8	7·5	7·6	7·0	8·0	8·9	11·1	11·2	8·7	6·8	6·8	6·1	6·0	5·9	5·5	3·1	1·9	5·1	6·0	145·0
3	2·8	2·1	2·2	0·6	2·3	1·9	1·6	1·6	2·9	4·9	8·1	9·6	11·2	11·1	9·3	7·5	7·1	6·9	5·8	4·9	5·8	5·8	4·7	4·3	5·2	125·0
4	4·8	5·0	5·3	3·8	3·3	2·9	2·8	2·0	1·9	3·8	6·0	7·7	9·3	9·7	8·5	7·8	7·0	6·6	6·5	5·9	6·8	6·7	6·0	4·9	5·6	135·0
5	6·7	4·0	2·7	2·8	2·8	2·5	3·2	3·7	3·1	4·7	7·3	10·2	10·5	8·5	8·6	7·4	5·9	5·6	5·6	5·5	6·1	6·1	6·0	5·8	5·6	135·3
6	5·5	5·1	4·7	3·9	3·2	2·4	1·8	3·0	4·0	4·9	5·7	6·3	6·9	7·5	7·8	8·1	8·1	7·5	6·7	6·3	6·3	6·4	6·0	5·4	5·6	133·5
7 q	5·5	5·5	5·3	5·3	4·9	2·8	2·7	2·9	3·8	5·7	7·4	9·2	9·0	8·8	7·8	7·0	6·7	6·8	6·7	6·5	6·5	6·4	6·1	5·9	6·1	145·2
8 q	5·5	5·4	5·0	4·4	3·6	2·8	2·8	2·8	2·9	3·9	6·0	8·5	9·4	9·6	8·3	6·8	7·0	7·1	7·4	7·1	6·7	6·5	6·1	5·8	5·9	141·4
9 q	5·7	5·1	4·5	4·1	3·2	2·3	2·3	2·5	3·5	4·8	6·8	8·0	9·8	10·4	9·5	8·4	7·8	8·0	7·8	7·3	6·8	6·5	5·9	5·7	6·1	146·7
10	5·2	4·3	4·9	3·3	2·2	0·0	-0·2	0·0	2·0	4·2	6·9	10·2	11·8	12·3	11·7	13·5	11·5	11·1	7·7	1·2	-3·6	-7·8	-13·3	-11·6	3·6	87·5
11	-22·2	-12·6	-11·0	1·5	-5·5	-3·7	-1·5	-1·0	3·1	5·1	7·5	8·5	8·8	8·7	9·0	8·9	8·6	7·6	6·4	5·8	5·6	4·8	4·9	4·1	*2·1*	51·4
12 q	4·6	4·7	4·2	4·0	3·3	2·2	2·0	1·7	2·9	4·3	6·5	8·8	10·6	11·2	9·4	7·7	6·5	5·9	5·6	5·4	5·1	5·1	5·0	5·0	5·5	131·7
13	5·0	4·8	4·7	4·4	3·4	2·3	1·6	1·1	1·3	2·9	5·9	8·8	12·0	13·2	14·1	14·4	12·1	13·1	9·2	3·8	-1·0	0·1	2·3	4·1	6·0	143·6
14 d	3·7	3·7	3·7	3·4	1·5	-0·5	-1·5	-0·2	1·8	5·5	7·9	9·5	12·2	13·1	15·5	8·7	10·5	10·5	9·3	8·3	7·3	6·3	6·4	5·4	*6·3*	152·0
15 d	4·1	5·1	5·3	5·8	11·8	3·0	4·1	1·3	2·1	5·0	5·6	8·1	9·6	10·4	10·6	7·7	7·5	8·6	8·4	7·4	5·6	5·0	3·7	1·4	6·1	147·2
16	8·5	-0·4	3·3	3·0	2·3	1·8	1·3	1·8	3·3	5·9	7·3	8·8	11·7	10·4	10·6	9·2	8·0	8·2	7·5	1·4	3·1	7·2	6·4	5·3	5·7	135·9
17	5·5	5·3	4·6	3·7	3·0	2·0	1·1	1·6	2·9	4·1	7·0	10·2	12·1	11·5	9·6	7·9	7·6	6·2	6·3	6·7	6·0	2·8	1·3	3·5	5·5	132·5
18	5·1	4·5	4·1	3·7	3·0	2·3	2·3	1·6	2·1	3·8	6·1	7·2	8·7	8·5	8·4	7·9	7·7	6·8	6·5	6·4	5·9	5·9	5·8	5·2	5·4	129·5
19	5·2	5·1	4·5	5·0	4·8	3·0	2·8	1·5	2·6	4·1	6·0	8·7	11·1	10·6	9·8	8·7	7·6	7·2	5·0	5·7	6·4	6·3	4·3	4·2	5·8	140·2
20 q	4·9	4·9	5·0	4·3	2·7	0·6	-0·5	-0·6	0·9	3·2	6·8	8·0	8·9	9·2	8·4	7·3	6·6	6·3	6·6	6·6	6·6	6·5	6·0	5·7	5·2	124·9
21	5·2	5·1	5·1	4·3	3·9	2·4	1·7	2·1	2·7	4·4	7·0	10·6	11·7	11·8	9·7	8·5	8·4	7·7	6·6	6·1	4·9	5·7	6·2	3·9	6·1	145·7
22	4·9	4·4	4·3	3·4	1·8	-0·3	-0·9	0·9	2·7	3·9	7·3	9·4	11·3	11·1	9·0	7·9	7·7	7·9	7·9	7·7	6·5	5·1	4·8	4·5	5·5	133·2
23	3·9	4·2	3·9	4·0	4·0	1·2	0·7	1·0	1·6	3·7	7·2	9·6	11·3	11·5	10·6	9·1	7·9	6·9	6·5	6·3	6·6	6·6	6·2	6·4	5·9	140·9
24 d	-0·6	-5·6	-2·6	-3·4	-5·6	-8·1	-4·5	-2·8	1·2	3·9	8·7	12·5	15·2	6·1	12·4	12·7	10·7	7·7	6·8	3·4	5·8	4·2	2·2	4·5	3·5	84·8
25 d	2·8	4·0	4·2	3·3	2·1	0·7	1·4	0·2	0·4	6·6	10·1	9·6	11·6	12·1	12·7	7·6	9·3	8·3	5·3	3·3	3·5	4·8	5·2	5·2	5·6	134·3
26	5·9	4·1	4·1	3·4	2·4	1·2	0·8	0·5	1·3	3·9	6·8	9·0	10·8	11·0	9·7	9·3	8·6	7·1	6·6	5·7	5·1	5·0	5·3	5·2	5·5	132·8
27	4·8	4·0	1·3	0·0	-0·4	-1·6	2·4	6·2	4·4	5·2	8·6	9·8	10·8	10·5	8·4	7·9	8·7	8·6	7·5	6·5	6·4	6·0	3·7	3·6	5·6	133·3
28	4·4	4·0	5·2	6·0	4·2	1·9	1·2	1·9	3·1	5·9	8·8	10·5	11·0	10·4	10·2	10·4	7·9	7·7	7·9	5·3	5·3	5·1	3·0	1·8	6·0	143·1
29	4·6	4·1	4·4	5·7	5·2	1·6	1·2	1·4	1·5	2·3	3·3	5·1	7·8	9·6	9·9	9·2	8·5	7·2	6·3	6·0	5·8	5·3	2·3	1·2	5·0	119·5
30	3·6	3·2	3·6	2·8	2·0	1·2	1·2	1·3	1·4	2·7	4·6	8·6	10·7	13·2	12·3	10·4	8·8	7·8	6·8	5·8	5·9	5·9	6·2	3·9	5·6	133·9
31	4·7	4·9	5·0	5·8	3·8	1·2	0·4	1·1	2·1	4·1	6·6	8·3	10·6	10·6	10·6	9·5	8·3	6·9	6·2	5·9	5·8	5·7	5·6	5·8	5·8	139·5
Mean	3·7	3·2	3·4	3·6	2·7	*1·2*	1·3	1·6	2·6	4·5	6·9	8·9	*10·6*	10·5	10·1	8·9	8·1	7·6	6·9	5·7	5·3	5·0	4·3	4·0	5·4	
Sum 000·0′+	114·0	100·5	105·5	110·5	84·4	36·6	39·5	50·3	80·2	137·8	213·5	276·1	328·3	324·7	313·1	274·7	251·4	235·9	213·0	177·5	165·2	154·8	131·7	125·0	5·8	Grand Total 4044·2

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

21 **ESKDALEMUIR (Z)** 45,000γ (0·45 C.G.S. unit) + MAY 1964

	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	Sum 9000γ+
	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	γ
1 *d*	328	337	347	389	418	427	429	429	426	422	421	421	428	429	432	433	446	451	443	437	434	431	430	427	417	1015
2	424	425	428	427	430	433	432	423	418	416	413	414	418	427	434	439	435	434	433	432	433	430	428	421	427	1247
3	411	416	417	419	425	429	429	427	423	418	412	407	411	419	425	430	434	435	433	432	430	428	426	426	423	1162
4	428	429	429	429	429	429	428	425	422	416	411	407	407	414	422	428	430	430	430	433	430	429	429	429	425	1193
5	419	419	422	424	426	423	425	423	422	415	408	407	415	423	429	433	434	434	434	434	432	430	430	430	425	1191
6	429	429	429	429	430	428	426	426	422	414	410	407	408	412	418	422	425	428	433	436	434	430	430	429	424	1184
7 *q*	428	429	429	428	424	426	425	422	419	414	412	412	416	421	426	429	429	429	430	430	430	429	429	429	425	1195
8 *q*	429	428	428	427	429	429	427	423	418	412	409	405	405	411	418	422	423	425	425	425	425	426	427	427	422	1123
9 *q*	426	426	426	426	426	426	425	420	416	413	412	410	408	411	417	425	430	432	430	429	429	428	428	427	423	1146
10	427	425	423	425	425	424	420	414	414	413	407	405	408	419	430	441	462	469	479	481	464	447	432	400	431	1354
11	372	370	365	343	346	377	398	411	411	412	417	417	422	428	433	436	437	440	437	436	436	435	434	431	*410*	844
12 *q*	430	430	431	431	432	430	429	428	423	421	416	414	414	418	423	429	430	432	430	429	428	429	429	430	427	1236
13	429	430	430	431	432	433	430	430	424	415	408	402	401	408	423	436	432	424	428	446	465	443	434	432	428	1266
14 *d*	429	430	432	433	434	434	430	422	419	412	408	408	412	422	434	487	469	453	446	444	439	437	428	421	*433*	1383
15 *d*	423	429	428	405	347	371	397	409	411	411	412	418	427	429	434	446	445	441	437	438	440	437	430	419	420	1084
16	384	396	411	419	415	417	423	424	428	421	418	417	418	430	430	435	440	439	440	450	445	433	430	429	425	1192
17	429	428	430	434	434	433	433	430	425	419	413	412	419	428	438	446	441	436	434	432	433	434	430	426	430	1317
18	425	428	429	431	433	434	433	430	425	416	411	411	415	422	427	430	431	432	432	432	430	430	429	429	427	1245
19	430	429	429	429	428	428	429	428	426	419	409	405	405	411	418	425	430	434	439	435	433	431	431	432	426	1213
20 *q*	429	429	429	429	431	432	432	430	423	419	415	406	407	413	423	429	437	436	433	431	430	430	429	429	426	1231
21	429	429	428	429	430	431	429	426	421	415	412	410	415	424	423	425	428	432	435	433	433	432	430	429	426	1228
22	429	429	429	429	429	429	427	425	417	415	416	414	415	422	425	424	425	426	426	427	428	428	425	425	424	1184
23	425	425	425	426	424	424	423	422	417	411	405	405	407	418	425	425	426	428	428	426	425	425	423	416	421	1104
24 *d*	406	405	416	408	383	384	396	404	403	403	404	409	417	426	435	440	448	454	453	446	438	434	424	409	419	1045
25 *d*	412	419	425	428	429	430	428	428	422	424	415	418	419	422	433	453	455	457	459	453	440	438	432	425	432	1364
26	401	412	420	427	430	432	432	429	422	417	411	411	419	426	433	430	432	435	435	433	433	432	430	429	425	1211
27	426	423	416	416	419	418	418	408	411	412	413	409	411	422	432	434	439	438	436	437	437	434	430	423	423	1162
28	423	426	426	423	423	423	424	424	424	422	419	416	416	420	425	432	440	439	437	440	437	432	426	425	427	1242
29	424	426	429	428	426	426	426	422	413	406	402	402	408	421	428	432	437	436	434	430	429	429	428	425	424	1167
30	424	425	426	428	428	429	428	423	420	414	410	408	404	416	419	424	429	432	436	439	435	432	426	408	423	1163
31	418	422	426	426	428	429	429	427	422	411	407	407	412	421	424	428	431	434	434	432	429	428	426	424	424	1175
Mean	418	419	421	422	421	423	425	423	420	415	411	*410*	413	420	427	434	437	*437*	437	437	435	432	429	425	425	
Sum 12,000γ+	946	1003	1058	1076	1043	1118	1160	1112	1007	868	756	714	807	1033	1236	1448	1530	1545	1539	1538	1484	1391	1293	1161		Grand Total 315,866

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH CHAMBER

22 **ESKDALEMUIR** MAY 1964

	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph chamber 200°A+
1 *d*	5333 3322	24	5333 3322	24	3221 2312	16	3300 1101	9	2	84·5
2	2232 2212	16	2232 2212	16	2221 1002	10	0010 0001	2	1	84·5
3	2111 1112	10	2101 1112	9	2111 0011	7	1100 0000	2	1	84·5
4	1011 1121	8	0001 1121	6	1011 0011	5	0000 0000	0	0	84·5
5	2323 3120	16	2323 3120	16	2211 1100	8	0000 0000	0	1	84·5
6	0011 2230	9	0011 2230	9	0010 0100	2	0000 0000	0	0	84·5
7 *q*	1111 1000	5	0111 1000	4	1111 0000	4	0000 0000	0	0	84·5
8 *q*	0000 0000	0	0000 0000	0	0000 0000	0	0000 0000	0	0	84·5
9 *q*	0100 1210	5	0000 1210	4	0100 1100	3	0000 0000	0	0	84·5
10	3122 3444	23	3122 3443	22	2121 1244	17	0000 2234	11	1	84·5
11	5421 1222	19	4421 1222	18	5421 0001	13	2320 0000	7	1	84·5
12 *q*	1010 0100	3	0010 0100	2	1010 0000	2	0000 0000	0	0	84·5
13	0012 3554	20	0012 3553	19	0000 2244	12	0000 0132	6	2	84·5
14 *d*	2133 4533	24	2133 4533	24	1122 3311	14	0000 2311	7	1	84·5
15 *d*	2543 3334	27	2543 3334	27	2432 1223	19	1420 1002	10	2	84·6
16	4343 3342	26	4343 3332	25	4232 2141	19	3000 1020	6	1	84·8
17	1223 3222	17	1223 3222	17	1121 2112	11	0000 1001	2	1	84·8
18	1213 2100	10	1213 2100	10	1111 1000	5	0000 0000	0	1	84·8
19	2111 0231	11	2111 0231	11	1110 0011	5	0000 0000	0	1	84·8
20 *q*	0111 2220	9	0010 2220	7	0111 1000	4	0000 0000	0	0	84·8
21	0102 2322	12	0002 2321	10	0101 1112	7	0000 1000	1	1	84·8
22	0112 2111	9	0112 2110	8	0110 0010	3	0000 0000	0	0	84·8
23	2201 2213	13	2201 2213	13	1200 0002	5	0000 0001	1	1	84·8
24 *d*	4433 3333	26	4333 3333	25	4422 2232	21	2311 1122	13	1	84·8
25 *d*	2145 4443	27	1045 4443	25	2123 2342	19	0011 2123	10	2	84·9
26	3110 3320	13	3010 3320	12	2100 1100	5	2100 0000	3	1	84·9
27	2233 3323	21	2233 3323	21	1231 2112	13	1011 1101	6	1	84·9
28	1213 2333	18	1113 2332	16	1200 0123	9	0000 1111	4	1	85·0
29	1211 1122	11	1211 1122	11	1210 0002	6	0000 0000	0	0	85·0
30	2002 2123	12	2002 2123	12	1001 1013	7	0001 2112	7	1	85·0
31	2211 2100	9	1111 2100	7	2200 0000	4	2000 0000	2	0	85·0
								Mean	0·81	84·7

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

19 ESKDALEMUIR (H) — 16,000γ (0·16 C.G.S. unit) + — JUNE 1964

	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	Sum 20,000γ+
	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	γ
1	899	897	897	895	892	892	890	886	876	868	870	869	881	876	886	898	903	907	910	890	891	905	906	895	891	1379
2	892	891	890	892	892	888	881	876	873	867	862	863	871	874	874	881	893	906	917	912	912	906	903	902	888	1318
3 q	902	899	896	894	900	898	893	884	872	865	865	864	867	869	886	898	904	909	910	904	904	902	902	902	891	1389
4	899	897	898	900	899	893	885	881	875	874	878	879	871	875	889	880	897	899	907	906	902	900	895	894	891	1373
5 q	891	891	890	895	895	894	889	886	885	883	876	872	871	872	876	892	890	900	908	905	903	901	859	896	888	1320
6 q	896	898	898	901	902	900	893	883	869	857	856	858	878	869	876	887	894	900	902	902	902	900	898	894	888	1313
7	895	894	893	894	893	889	880	875	869	872	881	890	893	896	890	890	893	898	905	919	917	920	911	914	895	1471
8	913	896	895	898	900	898	886	870	863	879	889	902	905	904	890	884	891	905	914	914	906	905	899	901	896	1507
9	897	896	894	893	892	882	883	887	890	887	881	889	886	880	900	892	878	887	905	910	908	914	922	923	895	1476
10 d	932	937	934	928	903	810	801	848	869	857	841	861	851	878	847	874	874	882	886	907	893	891	902	879	879	1085
11 d	883	879	875	871	886	883	871	847	849	840	839	854	853	862	856	897	883	890	896	899	900	895	898	888	875	994
12 d	887	887	888	882	894	895	875	867	867	868	865	856	852	863	881	890	895	894	891	897	893	890	890	871	881	1138
13	875	878	881	879	874	877	860	863	863	860	837	851	859	866	871	881	887	897	901	901	902	890	898	892	877	1043
14	890	889	890	890	879	878	877	870	855	851	852	856	855	861	871	888	898	900	906	909	902	904	901	898	882	1170
15	901	888	890	885	895	896	889	878	871	873	868	859	862	869	879	890	899	908	907	907	905	901	902	895	888	1317
16 q	894	888	889	890	893	891	886	885	880	874	867	861	864	867	875	884	894	904	905	905	899	893	892	890	886	1270
17	889	886	885	888	889	888	888	885	883	880	873	867	867	864	881	894	901	909	909	908	902	899	895	893	888	1323
18	892	893	890	893	897	897	891	882	874	870	866	864	869	880	885	904	912	913	914	918	909	901	888	888	891	1390
19	893	888	888	889	886	882	876	874	873	869	865	875	880	881	886	890	900	909	907	910	904	895	885	882	887	1287
20 d	876	881	874	895	903	893	880	874	868	868	861	875	863	847	896	885	893	898	904	926	901	893	896	897	885	1247
21 d	905	912	878	886	887	886	882	874	868	855	870	867	874	876	877	879	887	891	912	926	894	893	891	890	886	1260
22	892	890	890	890	892	891	890	887	877	868	863	865	868	880	890	886	896	863	907	906	899	897	900	892	887	1279
23	888	889	893	886	886	882	882	883	880	866	859	863	859	883	885	878	892	898	902	903	904	902	890	886	885	1239
24	892	883	885	890	890	886	879	869	866	863	859	871	885	890	895	895	899	900	916	917	907	897	890	891	888	1315
25	892	904	893	893	902	895	867	856	847	865	866	862	864	873	878	890	899	906	904	903	899	895	894	892	885	1239
26	890	890	890	891	887	881	877	874	867	863	863	869	881	887	902	894	897	896	899	900	902	898	893	892	887	1283
27	888	885	885	887	887	883	876	878	872	869	864	874	884	891	903	882	891	891	900	907	910	907	903	900	888	1317
28	897	896	896	895	894	895	884	880	874	867	871	881	891	877	898	902	917	906	901	901	894	889	887	893	891	1386
29	890	889	889	886	885	883	883	878	875	860	863	875	881	883	886	878	887	903	905	906	902	898	897	896	887	1278
30 q	894	893	893	893	890	890	883	880	873	871	872	875	873	876	890	893	896	901	907	906	905	903	902	902	890	1361
Mean	894	893	891	892	892	887	879	875	871	867	865	869	872	876	883	889	895	899	905	907	902	899	896	894	887	
Sum 25,000γ+	1824	1784	1727	1749	1764	1596	1377	1260	1123	1009	942	1067	1158	1269	1499	1656	1840	1970	2157	2224	2071	1984	1889	1828		Grand Total 638,767

GEOMAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

20 ESKDALEMUIR (D) — 10° + — JUNE 1964

	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	Sum 00·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	5·1	4·6	3·9	2·9	1·4	0·7	−0·3	0·2	2·2	3·4	6·3	8·8	11·0	11·6	11·8	10·7	9·6	8·6	7·7	7·1	7·0	6·3	4·7	5·0	5·8	140·3
2	5·2	4·8	4·6	4·3	3·2	2·0	0·9	1·2	2·2	4·5	6·1	7·1	8·5	8·6	8·8	8·6	8·0	8·0	8·1	7·1	5·2	5·6	6·1	5·7	5·6	134·4
3 q	5·2	4·4	4·2	4·1	4·2	2·2	1·5	1·2	1·7	2·9	6·4	10·6	11·8	10·7	8·8	7·6	6·6	6·7	7·9	7·8	7·1	6·6	6·8	6·5	6·0	143·5
4	5·1	4·8	5·1	4·1	2·7	1·2	0·0	−0·2	1·2	3·3	5·1	8·6	10·3	10·6	10·7	8·8	6·9	5·9	6·1	6·1	6·2	6·3	5·7	6·2	5·5	130·8
5 q	5·2	5·4	5·5	5·1	3·5	2·4	1·6	2·1	2·9	4·7	7·8	9·8	10·6	9·7	8·9	8·4	6·8	6·0	5·8	5·9	6·1	6·3	6·6	6·2	6·0	143·3
6 q	5·2	5·4	4·9	4·8	2·4	0·0	−0·6	0·3	0·9	4·1	8·4	11·1	12·9	12·8	9·9	7·0	5·5	5·1	5·1	5·5	6·1	6·2	5·9	5·7	5·6	134·6
7	5·9	5·1	4·3	3·7	2·6	1·1	0·5	0·6	1·7	3·8	6·8	10·5	11·2	10·6	9·2	7·9	6·9	6·0	6·2	7·8	7·6	6·6	2·2	3·2	5·5	132·0
8	2·9	1·5	1·9	2·6	2·0	1·3	−0·8	0·1	3·9	7·6	8·6	10·1	11·0	10·5	10·3	10·2	8·8	7·8	7·1	6·9	4·0	5·9	5·7	5·8	5·7	135·7
9	4·1	3·1	2·6	1·9	1·1	−0·9	−0·7	0·3	2·8	5·5	7·5	10·0	12·3	13·6	14·8	13·6	11·5	8·6	7·0	6·7	6·2	6·3	6·6	6·6	6·3	151·1
10 d	7·0	6·9	6·2	11·8	6·8	11·1	3·1	5·8	2·6	5·2	9·8	9·1	11·2	11·6	11·4	9·5	8·0	7·0	6·2	3·1	7·9	4·8	1·1	5·2	7·2	172·4
11 d	0·3	1·4	3·4	−0·4	0·2	0·1	−0·3	0·5	1·8	2·6	6·7	7·6	9·9	11·8	10·8	9·6	8·3	5·7	7·0	6·6	6·6	0·0	3·4	4·2	4·5	107·8
12 d	4·8	5·9	8·1	4·1	2·6	2·9	1·2	0·4	0·3	−0·6	1·2	5·0	9·5	11·7	12·6	12·3	10·6	6·9	5·1	5·7	5·6	1·9	0·5	2·0	5·0	120·3
13	6·7	6·5	4·9	4·6	6·3	3·1	2·0	2·6	1·5	2·4	4·6	8·9	10·6	11·1	11·2	10·6	8·8	7·7	7·1	6·9	5·3	3·9	3·9	3·9	6·0	145·1
14	3·2	3·2	3·7	4·2	5·1	5·1	3·1	1·1	1·2	2·8	5·2	7·0	8·3	8·9	9·2	8·8	7·9	7·5	7·7	7·6	6·9	5·7	5·7	7·7	5·7	136·8
15	4·2	2·4	3·0	3·9	2·0	0·3	0·2	1·7	2·6	3·7	5·0	6·2	8·5	8·8	9·3	9·8	8·5	7·4	6·9	7·3	7·0	6·5	5·4	5·1	5·2	125·7
16 q	6·0	6·1	4·7	3·5	1·8	1·2	1·3	2·4	3·1	3·9	4·0	4·2	7·0	8·6	9·1	8·2	7·4	6·7	6·2	5·7	5·9	6·3	6·0	5·6	5·2	124·9
17	5·2	4·8	4·5	4·2	2·9	1·8	1·8	2·1	2·3	2·9	3·9	5·7	7·9	8·8	9·2	8·2	6·9	6·2	5·6	5·2	5·6	5·8	5·7	5·5	5·1	122·7
18	5·2	5·3	4·1	3·5	2·2	1·1	0·1	0·5	1·1	2·4	4·2	7·9	11·0	13·2	12·6	11·9	10·6	8·9	8·6	6·0	6·1	3·1	1·5	3·2	5·6	134·3
19	4·6	3·3	3·2	3·1	2·6	1·7	1·5	2·1	2·0	2·6	4·8	8·4	11·8	12·2	12·0	10·6	9·7	8·7	7·1	7·6	7·0	5·5	3·7	0·4	5·7	136·2
20 d	−1·2	−2·7	−2·4	−1·0	−1·8	−2·7	−2·4	−0·9	0·3	3·0	3·7	6·0	9·2	11·8	12·2	12·2	11·5	10·4	7·7	0·1	1·2	4·1	5·1	4·9	3·7	88·3
21 d	4·1	1·0	0·4	0·6	0·0	−0·5	−0·5	−0·5	0·1	3·0	5·1	6·9	9·3	11·3	11·4	10·5	7·7	6·6	4·8	3·4	4·9	5·5	5·6	5·1	4·4	105·8
22	4·2	4·0	4·0	3·9	2·8	2·2	2·0	1·6	1·3	2·1	4·8	7·4	9·8	10·9	11·0	9·8	8·8	8·7	7·5	6·4	5·9	5·9	3·2	3·9	5·5	132·1
23	3·1	3·7	4·4	3·6	2·5	1·1	−0·4	−0·4	2·2	3·4	6·5	8·3	10·1	11·0	11·1	8·6	7·6	6·1	5·1	5·2	4·8	2·8	1·8	3·2	4·8	115·4
24	3·2	3·4	3·8	3·4	2·1	1·0	0·6	−0·4	0·4	1·8	4·4	7·8	10·4	10·7	10·5	9·4	8·3	7·1	7·1	7·4	2·4	3·2	5·2	5·1	4·9	118·3
25	5·9	4·8	2·6	2·7	2·4	−2·3	0·2	3·9	3·2	5·9	5·2	5·5	7·9	11·1	10·8	8·8	7·6	6·6	5·9	5·2	5·1	4·9	4·6	3·9	5·1	122·4
26	4·4	4·7	5·1	2·9	1·2	0·4	−0·8	−0·9	−0·2	3·0	6·2	9·4	10·7	11·6	11·9	10·1	8·1	7·5	6·7	6·4	6·0	4·9	3·2	3·6	5·3	126·1
27	4·8	4·7	4·0	3·3	2·3	1·3	2·1	2·1	2·4	3·2	5·9	8·3	10·7	11·9	12·6	10·4	9·2	7·9	7·9	7·7	5·5	5·0	5·2	4·7	6·0	143·1
28	4·2	4·1	4·1	3·6	3·4	2·3	1·2	0·9	1·4	3·4	5·9	8·6	9·2	8·8	9·7	9·7	8·9	7·3	8·1	7·9	7·5	6·6	5·8	5·9	5·8	138·5
29	5·5	5·1	4·2	3·4	3·2	1·3	1·2	2·2	3·2	4·3	6·3	7·6	8·8	9·8	11·2	10·1	8·8	8·2	7·1	6·6	5·9	5·8	5·6	5·2	5·9	140·6
30 q	4·7	4·3	4·7	3·8	2·1	1·1	0·0	0·1	0·5	2·1	4·1	6·3	8·3	9·4	9·5	9·4	8·9	7·8	7·1	6·6	6·1	5·9	5·3	4·8	5·1	122·9
Mean	4·5	4·1	3·9	3·5	2·5	1·5	0·6	1·1	1·8	3·5	5·7	8·0	10·0	10·8	10·7	9·7	8·4	7·3	6·8	6·2	5·8	5·1	4·6	4·8	5·5	
Sum 00·0′+	134·0	122·0	117·7	106·2	75·8	43·6	19·3	32·7	52·8	102·9	170·5	238·7	299·7	323·7	322·5	291·3	252·7	219·6	203·5	185·5	174·7	154·2	137·8	144·0		Grand Total 3925·4

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

21 ESKDALEMUIR (Z) — 45,000γ (0·45 C.G.S. unit) + — JUNE 1964

Day	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	Sum 9000γ+
	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	γ
1	423	427	425	428	430	430	430	425	418	411	404	396	400	408	416	422	426	428	424	424	423	424	425	423	420	1090
2	424	425	426	426	427	429	430	430	424	414	407	406	405	409	416	422	424	425	430	430	428	425	424	424	422	1130
3 *q*	423	424	425	425	424	424	421	422	422	417	408	411	412	418	423	427	429	429	429	428	428	426	425	425	423	1145
4	425	425	425	426	429	430	428	424	419	414	412	411	415	418	421	429	434	434	430	430	429	429	429	428	425	1194
5 *q*	426	425	424	426	430	429	426	423	417	408	406	406	411	420	424	426	433	431	429	427	426	426	425	425	423	1149
6 *q*	425	425	426	426	428	428	426	424	421	415	405	402	405	415	417	422	428	427	426	425	425	426	427	427	422	1121
7	426	425	425	428	429	430	430	428	425	423	406	402	408	413	418	425	429	429	427	422	423	424	425	423	423	1143
8	421	423	423	423	422	423	425	422	416	410	409	404	402	406	414	422	423	424	427	428	430	428	427	425	420	1077
9	424	424	424	425	426	427	421	420	418	413	408	405	410	421	425	429	438	435	430	425	423	421	420	421	422	1133
10 *d*	420	420	413	393	330	301	329	372	411	414	416	415	424	433	446	439	439	442	447	452	442	440	422	408	*411*	868
11 *d*	411	409	386	374	407	418	421	428	426	424	424	427	433	434	440	436	453	457	449	442	439	440	428	429	426	1235
12 *d*	429	429	417	407	411	416	424	428	422	424	422	421	424	427	427	429	435	447	453	446	439	439	433	431	428	1280
13	425	425	428	428	428	430	436	434	427	415	417	418	419	425	428	433	437	435	434	432	434	434	428	428	428	1278
14	427	427	428	428	428	427	424	425	426	428	422	411	406	410	417	423	429	433	431	431	432	431	429	428	425	1201
15	416	417	420	427	429	432	434	434	431	428	422	418	422	424	428	432	432	433	434	433	432	431	429	428	428	1266
16 *q*	425	422	424	428	430	433	429	427	427	423	417	416	421	425	428	429	432	433	433	434	434	428	429	429	427	1256
17	428	428	428	429	431	429	428	424	422	424	425	423	421	417	414	418	426	428	431	433	432	430	428	428	426	1225
18	427	426	428	429	430	431	429	428	427	421	413	409	411	421	425	428	431	439	440	442	440	435	427	429	428	1266
19	428	429	428	429	429	429	428	427	421	416	414	409	408	414	422	427	428	432	435	436	440	439	437	431	427	1236
20 *d*	423	417	408	404	404	410	413	414	411	403	401	404	410	421	427	433	434	435	468	440	438	432	429	428	421	1107
21 *d*	423	399	404	415	421	423	420	421	420	419	418	415	410	410	416	417	427	433	434	436	434	431	430	429	421	1105
22	428	428	428	428	428	429	428	427	425	418	412	412	414	421	428	435	436	445	447	444	441	438	433	431	429	1304
23	428	428	429	432	432	431	428	427	422	418	416	413	413	418	425	433	434	435	435	431	431	431	428	428	427	1246
24	421	424	428	428	428	428	429	431	428	424	420	415	415	416	421	427	429	431	435	436	435	432	428	428	427	1237
25	426	417	421	420	404	410	413	407	413	416	413	410	418	427	429	432	435	435	433	433	433	431	431	430	422	1137
26	429	429	428	429	431	432	427	424	423	425	425	422	422	429	433	437	442	442	440	436	435	435	434	432	*431*	1341
27	428	428	429	429	431	433	430	428	428	422	415	406	418	424	422	427	429	433	433	434	435	432	429	428	427	1251
28	428	428	429	430	431	429	429	425	423	418	409	405	410	417	425	434	449	460	453	445	437	433	432	428	429	1307
29	428	428	429	429	429	431	429	426	422	421	419	418	421	427	429	431	435	433	434	433	432	431	429	428	428	1272
30 *q*	428	428	428	428	430	430	429	428	428	422	414	409	410	416	418	424	429	432	431	429	428	427	425	425	425	1196
Mean	425	424	423	423	422	423	423	423	422	418	414	*411*	414	419	424	428	433	435	*436*	434	433	431	428	427	425	
Sum 12,000γ+	743	709	684	677	667	682	694	703	663	548	419	339	418	584	722	848	985	1055	1082	1017	978	929	845	805		Grand Total 305,796

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH CHAMBER

22 ESKDALEMUIR — JUNE 1964

Day	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph chamber 200°A+
1	0101 3311	10	0101 3311	10	0100 1101	4	0000 0000	0	1	85·0
2	0101 3222	11	0001 3222	10	0100 1011	4	0000 0000	0	1	85·0
3 *q*	1112 2011	9	1102 2011	8	1110 0000	3	0000 0000	0	0	85·0
4	2000 2311	9	2000 2311	9	1000 0100	2	0000 0000	0	1	85·0
5 *q*	1100 1210	6	0000 1210	4	1100 0000	2	0000 0000	0	0	85·2
6 *q*	0111 2001	6	0001 2001	4	0111 0000	3	0000 0000	0	0	85·3
7	0000 2033	8	0000 2033	8	0000 0013	4	0000 0000	0	1	85·4
8	3222 2121	15	3222 2121	15	2221 1021	11	0000 0000	0	1	85·5
9	1122 3322	16	1122 3322	16	1100 1100	4	0000 0100	1	1	85·5
10 *d*	2654 5444	34	2654 5444	34	2533 2134	23	1551 2013	18	2	85·5
11 *d*	4333 4423	26	4333 4423	26	4322 2223	20	4410 1221	15	1	85·5
12 *d*	3223 3323	21	2223 3323	20	3112 1123	14	2210 0210	8	1	85·6
13	2323 2322	19	2223 2322	18	1321 1122	13	0121 0001	5	1	85·6
14	1222 2222	15	1222 2222	15	1111 1002	7	0000 0001	1	1	85·6
15	3211 2222	15	2201 2222	13	3210 1101	9	1000 0000	1	1	85·6
16 *q*	2111 1111	9	2101 1111	8	1111 0000	4	0000 0000	0	0	85·5
17	0121 2101	8	0021 2101	7	0110 1000	3	0000 0000	0	0	85·5
18	1002 3223	13	0002 3223	12	1001 1122	8	0000 0002	2	1	85·5
19	1002 2222	11	1002 2222	11	0001 0012	4	0000 0000	0	0	85·5
20 *d*	3213 5341	22	3213 5341	22	2111 2131	12	2101 1000	5	1	85·5
21 *d*	4123 2330	18	4123 2330	18	3121 0120	10	3100 0100	5	1	85·5
22	0001 2322	10	0001 2322	10	0001 0212	6	0000 0100	1	1	85·5
23	2012 3223	15	1012 3223	14	2011 0022	8	0000 0000	0	1	85·5
24	2010 1232	11	2000 1232	10	1010 0032	7	1000 0000	1	1	85·6
25	2332 2221	17	2332 2221	17	2332 1110	13	1210 0000	4	1	85·6
26	1112 2212	12	0112 2212	11	1111 0101	6	0000 0000	0	1	85·7
27	1011 3322	13	1011 3322	13	0010 2221	8	0000 0000	0	1	85·7
28	0112 4432	17	0112 4432	17	0111 2211	9	0000 0110	2	1	85·7
29	1112 2320	12	0112 2320	11	1110 1100	5	0000 0000	0	1	85·7
30 *q*	1101 1120	7	0101 1120	6	1100 0010	3	0000 0000	0	0	85·7
								Mean	0·80	85·5

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

19 ESKDALEMUIR (H) — 16,000γ (0·16 C.G.S. unit) + — JULY 1964

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	Sum 21,000γ+
	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	γ
1	899	898	897	894	894	890	891	889	884	880	874	876	881	890	897	896	890	895	906	910	910	909	906	902	894	458
2	901	898	897	896	896	894	892	887	885	886	886	883	880	878	894	902	908	910	909	910	915	912	909	914	*898*	542
3 d	916	912	911	901	892	899	895	896	894	882	882	886	885	878	885	897	907	905	897	906	913	924	884	886	897	533
4	889	889	878	888	882	870	865	881	882	872	873	882	881	882	887	884	884	895	906	902	900	896	896	900	886	264
5	898	891	886	888	886	892	889	886	888	892	881	879	884	887	896	895	900	896	894	906	906	906	894	894	892	414
6	892	896	896	887	891	889	890	894	894	890	878	876	882	878	877	890	901	905	911	912	908	899	900	906	893	442
7 d	905	900	898	894	899	909	898	890	880	871	870	871	884	878	874	885	894	910	936	911	925	928	909	905	897	524
8 d	893	892	886	875	896	892	881	874	874	865	855	842	873	887	914	886	900	907	914	932	905	901	915	913	891	372
9	890	897	895	893	885	879	884	889	872	862	862	868	877	889	892	920	901	911	911	914	928	905	905	893	893	422
10	892	899	867	874	892	890	881	869	847	840	852	855	873	873	890	897	897	897	895	900	900	896	896	894	882	166
11	897	900	886	890	893	895	891	874	868	865	865	868	870	874	894	904	908	902	903	906	901	898	897	896	889	345
12	894	897	894	894	898	899	889	879	867	858	850	857	865	889	894	900	902	906	905	896	896	896	898	905	889	328
13	894	893	897	892	899	896	889	879	871	851	855	865	865	881	893	896	891	893	894	899	900	897	901	893	887	284
14 q	891	891	891	892	892	889	889	888	882	880	875	866	867	872	881	897	904	900	899	901	896	894	894	894	889	325
15 q	893	894	893	891	890	888	883	881	879	877	872	870	872	877	882	887	889	896	903	907	909	908	905	905	890	351
16	902	900	899	897	897	900	892	885	880	872	873	877	888	877	881	897	902	896	916	908	909	906	908	908	895	470
17 d	891	898	896	884	891	892	893	891	883	878	879	881	873	889	872	910	903	917	905	917	910	902	902	899	894	456
18 d	897	893	908	876	856	884	868	878	872	867	857	823	860	876	880	876	889	894	903	896	894	892	896	896	880	131
19	885	885	874	884	884	881	874	865	880	869	848	873	878	873	878	884	897	899	905	905	904	921	893	884	884	223
20	889	876	878	876	879	879	876	869	865	845	854	865	875	873	881	884	885	890	904	896	895	893	891	889	*879*	107
21	891	893	890	885	886	883	880	874	868	862	858	857	858	862	873	891	897	915	915	900	899	905	904	891	885	237
22	888	890	888	885	890	891	884	873	857	863	863	869	873	866	872	880	888	903	909	903	898	896	895	888	884	212
23	885	888	888	887	886	883	874	872	864	852	858	861	872	879	881	882	892	899	902	903	904	889	890	887	882	178
24 q	889	891	890	892	891	891	884	880	871	864	861	858	879	888	887	890	895	893	900	907	903	900	900	904	888	308
25	898	896	897	893	892	888	884	881	881	880	881	883	886	893	891	900	895	896	899	904	905	900	898	902	893	423
26	899	894	897	896	892	892	892	885	884	883	883	879	877	888	901	898	900	898	900	900	898	901	899	900	893	436
27 q	900	899	900	898	900	902	895	890	883	878	871	870	874	882	889	891	895	902	905	910	909	908	905	903	894	459
28 q	899	900	899	898	899	896	895	891	890	883	875	873	877	882	884	892	897	901	904	908	904	904	906	908	894	465
29	907	904	901	900	903	904	904	895	893	887	885	862	863	876	879	880	904	907	921	916	902	897	897	898	895	485
30	907	905	888	892	889	896	890	887	888	877	876	875	869	871	887	898	903	906	902	902	904	898	894	893	892	397
31	894	887	887	888	887	887	886	864	863	861	865	867	877	891	895	898	897	895	898	904	908	906	896	904	888	305
Mean	896	895	892	890	891	891	886	882	877	871	*868*	*868*	875	880	887	893	897	901	905	*906*	905	903	899	899	890	
Sum 26,000γ+	1765	1746	1652	1580	1607	1620	1478	1336	1189	992	917	917	1118	1279	1481	1687	1815	1939	2071	2091	2058	1987	1883	1854		Grand Total 662,062

GEOMAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

20 ESKDALEMUIR (D) — 10° + — JULY 1964

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	Sum 00·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	4·9	5·2	4·0	4·1	2·8	1·1	0·1	0·9	1·9	3·7	4·7	7·6	8·9	9·6	9·6	8·6	8·8	9·0	7·7	6·6	6·6	6·6	6·2	5·9	5·6	135·1
2	5·4	5·0	4·7	3·6	2·6	1·3	0·8	1·2	2·2	3·3	4·2	6·3	7·7	9·5	10·8	11·4	10·2	9·9	8·9	8·2	7·6	6·9	6·2	5·8	6·0	143·7
3 d	5·1	4·4	1·8	1·2	−1·5	1·2	1·2	2·2	2·4	2·6	6·1	7·9	12·1	13·2	12·2	12·4	12·6	10·9	8·8	8·2	8·1	2·2	−5·1	−1·0	5·4	129·2
4	−0·6	0·4	1·7	2·8	1·5	2·2	1·2	1·5	2·2	3·6	5·2	7·4	8·3	8·9	8·7	7·8	6·7	6·6	7·1	6·8	6·5	5·7	4·6	3·6	4·6	110·4
5	3·4	2·7	3·7	3·8	2·8	2·2	1·6	1·9	2·7	3·2	4·6	6·9	9·3	9·1	8·5	7·5	6·6	6·1	6·4	7·1	7·0	3·2	4·4	5·0	5·0	119·7
6	5·0	7·0	4·1	2·3	1·2	0·0	−0·8	−0·4	1·1	2·0	3·5	6·1	7·9	8·7	8·9	9·0	8·5	7·1	6·8	6·5	6·0	5·2	4·4	3·4	4·7	113·5
7 d	3·9	4·0	4·3	3·4	4·2	−0·9	−0·2	0·4	2·4	3·3	4·9	7·4	9·6	11·5	12·3	10·9	10·1	8·7	8·5	2·2	6·1	3·0	0·7	2·1	5·1	122·8
8 d	4·7	5·0	3·9	9·6	4·3	−0·5	−2·4	−1·1	0·2	0·5	3·0	5·5	8·5	10·2	10·9	9·2	8·1	7·7	7·4	4·3	0·9	2·8	2·4	1·2	4·4	106·3
9	3·3	4·2	5·2	3·3	1·2	0·5	0·9	0·3	1·5	2·9	4·3	7·4	10·2	11·6	10·6	10·3	8·9	6·9	6·7	6·8	2·4	4·2	5·6	8·0	5·3	127·2
10	2·4	0·4	3·7	4·6	3·1	2·4	2·1	1·7	−0·9	1·2	4·6	7·5	9·6	10·5	9·8	9·9	7·5	6·1	5·3	5·5	5·2	5·2	5·1	5·2	4·9	117·7
11	6·5	5·6	3·9	1·9	2·3	1·4	1·4	2·3	2·7	3·4	4·5	6·9	10·6	11·4	10·6	10·3	8·6	7·9	6·6	4·0	6·6	6·9	6·5	6·3	5·8	139·1
12	5·1	5·7	4·5	4·4	3·3	1·3	0·4	0·1	0·6	2·4	4·3	7·9	11·5	12·9	12·1	10·6	8·1	7·0	6·3	5·7	5·5	6·0	6·2	7·8	5·8	139·7
13	5·8	5·9	6·1	3·4	2·4	0·7	0·3	1·3	2·2	2·3	4·2	7·6	9·2	10·0	9·6	9·1	7·2	5·8	6·0	5·7	5·5	5·9	5·6	4·7	5·3	126·5
14 q	4·7	4·3	4·6	4·0	2·8	1·6	2·6	3·9	4·1	5·2	6·8	9·2	11·4	11·2	10·3	9·0	7·6	7·0	6·0	5·8	6·0	5·8	5·6	5·4	*6·0*	144·9
15 q	5·0	4·9	5·3	3·9	2·8	0·5	−0·8	−0·7	−0·5	1·2	3·9	6·1	8·6	9·8	9·2	7·8	7·2	6·9	6·8	6·8	6·6	6·1	6·0	5·9	5·0	119·3
16	5·0	4·4	3·9	2·9	1·9	0·3	0·5	0·5	1·5	3·9	6·0	6·9	9·0	9·8	10·5	9·1	9·0	8·1	8·5	7·9	7·1	6·6	6·5	2·5	5·5	132·3
17 d	1·6	6·1	1·2	−0·2	0·8	−1·4	1·3	1·2	0·3	0·9	3·5	7·7	10·4	14·1	13·4	15·0	16·2	12·9	5·9	7·3	7·9	6·5	5·7	4·2	5·9	142·5
18 d	6·1	5·4	3·3	1·4	9·2	5·8	0·2	0·7	1·2	2·7	5·5	6·9	9·2	11·6	11·5	8·9	9·0	6·3	6·1	6·1	5·6	5·5	6·9	7·9	6·0	143·0
19	5·5	6·3	4·4	3·7	0·7	1·9	0·2	−0·9	0·2	2·2	3·0	3·9	7·0	9·1	10·2	10·1	10·2	9·5	8·9	8·5	7·2	−0·7	0·7	2·0	4·7	113·8
20	0·4	−1·0	−1·6	−0·8	0·8	0·6	0·5	0·2	0·3	1·8	2·9	4·1	8·4	8·8	8·8	8·7	7·7	6·8	6·8	3·9	5·7	5·6	4·9	4·9	*3·7*	89·2
21	4·3	5·5	2·5	1·5	1·3	1·1	1·2	1·2	1·3	3·0	5·2	8·7	11·7	11·2	10·4	9·0	7·6	7·7	7·3	7·6	7·4	5·6	6·2	4·8	5·6	133·3
22	4·7	4·5	3·9	4·8	4·1	3·7	1·3	0·1	1·8	3·6	4·1	6·5	8·6	9·8	9·0	8·8	8·2	7·4	3·9	5·6	5·7	4·3	5·4	4·4	5·2	124·2
23	3·3	5·6	5·8	2·8	1·3	0·3	−0·1	0·2	0·7	1·3	2·4	6·0	9·3	9·5	8·4	7·5	7·6	6·5	6·0	4·4	4·1	4·8	5·1	4·7	4·5	107·5
24 q	4·8	4·5	4·2	4·0	3·2	2·4	0·5	1·2	1·9	2·6	4·9	7·3	9·7	10·5	9·0	7·4	6·5	5·5	5·5	5·8	5·5	5·5	4·5	4·3	5·1	121·2
25	3·6	3·0	2·4	1·6	1·1	−0·1	0·4	0·9	1·8	4·2	5·8	8·6	10·5	11·4	10·6	9·8	8·9	7·8	7·1	5·8	6·0	5·4	4·7	4·6	5·2	125·9
26	3·8	3·8	3·9	3·7	1·9	1·0	0·3	0·6	0·3	2·0	5·2	10·4	13·1	13·8	12·5	10·3	8·4	6·5	5·7	5·8	5·6	5·7	5·0	4·9	5·6	134·2
27 q	4·3	4·4	4·3	3·8	3·0	1·4	0·4	0·0	0·0	1·6	4·3	9·1	11·8	12·1	11·2	9·2	7·3	6·0	5·8	6·2	6·5	6·4	5·5	4·7	5·4	129·3
28 q	3·3	4·4	3·0	2·8	2·5	2·2	1·9	1·6	1·5	1·9	3·5	6·1	9·1	10·5	10·9	10·0	8·2	7·3	6·9	6·6	6·2	5·8	5·4	4·9	5·3	126·5
29	4·2	4·1	3·3	3·2	2·2	0·6	0·2	−2·3	−0·6	2·1	4·2	7·5	12·1	14·3	14·5	10·5	9·7	7·9	7·8	6·8	−3·1	3·2	4·8	4·4	5·1	121·6
30	5·7	4·3	1·1	1·5	1·2	−1·5	−1·0	0·9	1·1	1·8	5·4	7·5	10·7	10·3	10·1	10·2	9·2	8·5	7·6	2·8	3·8	2·6	3·2	4·0	4·6	111·0
31	4·0	3·1	3·2	2·5	0·0	−0·8	−2·4	−2·8	−1·5	−0·5	2·6	5·9	8·5	10·5	10·2	9·1	8·3	6·9	7·1	4·7	5·0	6·1	5·2	4·5	4·1	99·4
Mean	4·2	4·3	3·6	3·1	2·3	1·1	*0·5*	0·6	1·2	2·5	4·4	7·1	9·8	*10·8*	10·5	9·6	8·7	7·6	6·9	6·0	5·6	5·0	4·7	4·5	5·2	
Sum 00·0′+	129·2	133·1	110·3	95·5	71·0	32·5	13·8	18·8	36·6	75·9	137·3	220·8	302·5	335·4	325·3	297·4	268·7	235·2	212·2	186·0	172·8	154·6	144·1	141·0	5·4	Grand Total 3850·0

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

21 ESKDALEMUIR (Z) — 45,000γ (0·45 C.G.S. unit) + — JULY 1964

Day	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
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	425	424	423	425	425	426	428	428	427	420	417	412
2	425	425	425	427	428	428	428	427	420	411	409	413
3 d	421	421	420	422	422	420	417	418	413	412	411	404
4	414	408	410	417	421	424	420	416	415	410	410	411
5	423	422	422	424	424	424	424	427	423	413	407	409
6	427	418	413	419	422	423	420	415	417	420	421	417
7 d	424	423	420	414	406	402	406	410	407	400	393	393
8 d	399	404	415	399	392	406	418	424	423	424	425	421
9	415	404	404	411	421	422	422	423	424	422	417	410
10	392	393	401	405	415	418	422	428	428	428	419	418
11	423	411	411	417	422	423	426	424	420	412	409	411
12	428	428	428	429	431	431	430	429	429	425	420	417
13	422	423	420	425	428	429	429	428	424	424	423	421
14 q	427	428	428	429	432	431	426	425	427	427	424	419
15 q	428	428	427	428	430	433	431	426	421	415	417	410
16	424	424	425	427	428	428	428	428	428	423	413	409
17 d	423	421	412	419	423	423	423	415	412	413	416	409
18 d	421	387	377	371	370	378	402	419	426	424	419	422
19	417	418	420	421	424	422	421	423	419	412	412	411
20	401	386	390	412	419	422	422	423	422	423	426	428
21	430	425	423	424	427	427	426	428	427	424	419	416
22	430	430	430	426	419	416	417	420	422	421	420	418
23	423	424	424	427	429	430	431	432	430	429	429	427
24 q	431	431	430	430	431	429	429	432	431	426	423	419
25	424	424	424	426	427	427	426	424	420	415	411	412
26	425	427	424	423	422	423	424	424	419	419	414	411
27 q	426	426	426	426	429	428	427	426	424	423	421	418
28 q	426	424	423	424	426	427	426	428	427	423	419	417
29	426	426	426	426	427	425	423	422	423	419	412	409
30	420	406	413	419	423	422	424	424	423	419	411	406
31	413	412	417	422	425	428	425	424	422	419	419	417
Mean	421	418	418	420	421	422	423	424	422	419	416	414
Sum 12,000γ+	1053	951	951	1014	1068	1095	1121	1140	1093	995	906	835

Day	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	Sum 9000γ+
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	411	410	414	421	429	430	428	424	424	424	424	425	423	1144
2	417	420	420	413	418	421	424	424	423	423	424	423	421	1116
3 d	405	411	424	425	429	436	436	433	433	410	408	411	419	1062
4	411	412	418	424	426	428	429	429	429	428	429	427	419	1066
5	405	418	422	422	423	427	429	428	430	429	429	428	422	1132
6	413	414	417	421	424	428	429	429	427	429	429	429	422	1121
7 d	405	411	419	428	433	431	430	440	436	416	409	396	415	952
8 d	412	419	425	431	432	433	435	433	439	434	415	410	419	1068
9	407	414	423	424	432	440	439	432	425	421	419	400	420	1071
10	417	416	428	432	432	433	433	431	429	428	428	428	421	1102
11	412	419	423	430	438	441	440	440	434	430	429	429	424	1174
12	416	422	429	432	438	437	434	434	432	429	427	422	428	1277
13	423	426	433	436	439	440	438	435	433	429	428	428	429	1284
14 q	416	420	426	429	432	432	431	432	431	428	427	427	427	1254
15 q	405	415	422	428	428	428	428	427	428	427	426	425	424	1181
16	406	413	417	421	422	423	424	427	427	427	426	423	423	1141
17 d	409	416	419	423	431	451	466	457	444	436	426	423	425	1210
18 d	418	422	430	441	443	447	446	443	440	436	424	420	418	1026
19	411	416	418	421	424	423	426	430	434	430	419	419	420	1091
20	425	428	430	434	431	432	433	440	434	433	432	430	423	1156
21	416	422	428	433	432	434	441	444	442	435	422	425	428	1270
22	414	421	431	434	435	440	445	437	435	431	431	426	427	1249
23	424	431	434	435	435	435	433	435	435	434	431	431	430	1328
24 q	419	423	428	429	430	431	430	430	430	430	429	426	428	1277
25	414	416	422	423	426	430	431	431	431	430	430	429	424	1172
26	413	419	424	430	434	436	433	430	429	426	426	427	424	1182
27 q	415	413	422	429	435	435	432	430	429	429	428	429	426	1226
28 q	416	418	423	428	430	432	431	430	430	428	427	425	425	1208
29	408	409	430	435	431	435	435	438	451	437	431	429	426	1233
30	409	416	423	429	431	431	435	441	440	431	429	424	423	1149
31	415	416	425	430	432	434	430	430	430	430	430	424	424	1169
Mean	413	418	424	428	431	433	434	434	433	429	425	423	423	
Sum 12,000γ+	807	945	1147	1271	1355	1434	1454	1444	1414	1288	1192	1118		Grand Total 315,091

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH CHAMBER

22 ESKDALEMUIR — JULY 1964

Day	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph chamber 200°A+
1	2102 1210	9	1102 1210	8	2111 0110	7	0000 0000	0	0	85·7
2	1000 2212	8	1000 2212	8	0000 0101	2	0000 0000	0	0	85·7
3 d	2333 3334	24	2223 3334	22	2331 2234	20	0101 0111	5	1	85·7
4	2333 2221	18	2333 2221	18	2111 1001	7	1100 0000	2	1	85·7
5	2112 2223	15	2112 2223	15	1110 0012	6	0000 0000	0	1	85·7
6	2112 2222	14	1112 2222	13	2111 0101	7	1001 0000	2	1	85·8
7 d	2312 3344	22	1302 3344	20	2312 2133	17	1210 0123	10	1	85·8
8 d	3322 4343	24	3322 4343	24	3321 2132	17	2210 0012	8	1	85·8
9	4222 2333	21	3222 2333	20	4221 1133	17	2100 0112	7	1	85·8
10	4322 3321	20	4322 3321	20	3222 1100	11	1000 0000	1	1	85·8
11	3111 3221	14	3011 3220	12	2111 1121	10	2000 0000	2	1	85·7
12	1111 2132	12	1111 2132	12	1111 1011	7	0000 0000	0	1	85·7
13	2112 3221	14	1112 3221	13	2110 0000	4	0100 0000	1	1	85·7
14 q	0111 1110	6	0100 1110	4	0011 0000	2	0000 0000	0	0	85·7
15 q	1000 0000	1	0000 0000	0	1000 0000	1	0000 0000	0	0	85·7
16	1211 3333	17	1111 3332	15	0211 1113	10	0000 0000	0	1	85·7
17 d	3123 4542	24	3113 4542	23	3121 2321	15	1000 1431	10	2	85·7
18 d	4433 3323	25	3433 3322	23	4422 2313	21	3221 1101	11	1	85·7
19	3233 2234	22	3233 2234	22	2211 1123	13	0101 0012	5	1	85·7
20	3223 3231	19	3223 3231	19	3211 1120	11	2200 1010	6	1	85·7
21	2102 2233	15	1102 2233	14	2101 1112	9	0000 0012	3	1	85·7
22	2232 3332	20	2232 3332	20	1121 2122	12	0110 0100	3	1	85·7
23	3111 2230	13	2011 2230	11	3110 0120	8	0000 0000	0	1	85·7
24 q	0002 2112	8	0002 2112	8	0000 0001	1	0000 0000	0	0	85·7
25	1102 2221	11	1102 2221	11	1101 1101	6	0000 0000	0	1	85·8
26	2111 2200	9	2011 2200	8	1110 0000	3	0000 0000	0	0	85·7
27 q	0001 2011	5	0001 2011	5	0000 0000	0	0000 0000	0	0	85·7
28 q	2000 1011	5	2000 1011	5	1000 0001	2	0000 0000	0	0	85·7
29	1123 3442	20	1023 3442	19	1122 2242	16	0000 2121	6	1	85·7
30	3323 3332	22	3323 3331	21	3221 2122	15	2000 0011	4	1	85·7
31	3222 2322	18	3222 2322	18	2121 1121	11	1000 0000	1	1	85·7
								Mean	0·77	85·7

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

19 ESKDALEMUIR (H) — 16,000γ (0·16 C.G.S. unit) + — AUGUST 1964

	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	Sum 21,000γ+
	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	γ
1	894	901	882	882	887	886	880	878	879	874	870	869	880	878	892	904	901	900	900	899	899	900	895	893	888	323
2	890	888	886	886	883	883	882	882	887	884	879	873	872	875	877	884	890	892	898	902	898	899	899	911	887	300
3	890	894	894	889	892	892	891	884	879	875	872	866	864	879	890	889	886	887	896	902	907	909	907	914	889	348
4 d	911	930	934	907	919	886	884	873	856	863	858	841	849	858	860	901	885	895	907	897	892	896	910	892	888	304
5 d	888	879	881	881	878	882	887	881	877	870	864	882	863	887	894	877	910	900	913	903	891	903	902	888	887	281
6	888	885	874	877	883	861	870	873	872	871	870	871	871	874	879	888	890	890	890	888	889	889	893	899	881	135
7	901	894	901	894	905	902	895	885	878	878	874	866	862	872	878	890	887	884	903	899	894	894	898	890	889	324
8	890	890	889	890	891	889	889	883	870	859	859	864	870	878	887	893	895	901	899	890	891	896	896	894	886	253
9	891	897	885	903	905	891	890	886	882	872	860	864	874	880	887	911	891	903	907	889	896	896	888	893	889	341
10 q	891	891	890	890	889	886	887	882	882	871	866	862	860	867	872	881	887	890	897	901	900	899	897	901	885	239
11 d	899	921	917	903	893	893	876	881	879	872	867	865	873	879	888	871	904	910	894	922	902	886	888	891	891	374
12 d	898	876	883	890	893	890	890	885	851	858	861	862	871	878	867	878	894	901	900	890	891	891	892	888	882	178
13	883	888	886	884	886	876	874	875	869	865	866	864	870	874	882	888	894	898	893	905	897	894	903	886	883	200
14	894	892	888	887	887	887	882	872	862	857	860	871	882	885	891	894	894	897	897	901	896	893	893	897	886	259
15 q	895	893	889	889	887	888	882	878	871	872	876	881	884	886	891	894	898	900	901	902	898	894	892	899	889	340
16	896	897	894	898	898	895	886	881	886	880	879	880	889	896	900	900	895	892	895	900	896	900	900	891	893	424
17	902	894	888	884	889	889	884	879	876	873	878	880	881	880	882	891	883	893	894	898	898	897	898	899	888	310
18	901	895	895	898	896	892	890	884	886	873	867	870	871	876	879	883	888	898	902	902	898	899	900	895	889	338
19	893	893	893	894	893	889	877	871	865	866	859	865	882	892	889	891	888	889	894	900	896	898	899	897	886	273
20	888	886	888	891	891	889	886	879	870	866	868	875	889	897	897	893	894	896	905	905	901	899	896	896	889	345
21	896	897	892	891	894	893	893	886	879	879	886	889	893	898	898	898	896	901	905	902	903	902	903	910	895	484
22	910	912	910	894	901	900	897	897	895	890	876	882	891	894	891	893	893	898	903	903	902	894	894	896	897	516
23	903	895	896	894	895	893	891	889	886	882	872	872	877	882	885	887	889	894	898	902	900	899	900	899	891	380
24 q	897	897	895	897	896	893	889	884	879	878	877	880	885	891	893	894	896	897	905	906	903	907	905	907	894	451
25	904	900	898	903	903	898	897	890	884	877	877	878	886	894	905	886	907	894	892	903	913	904	906	904	896	503
26	903	904	891	889	889	887	876	884	883	878	874	874	888	901	892	892	893	895	905	899	901	905	920	896	892	419
27	892	891	894	890	897	893	890	891	881	874	874	875	879	874	890	884	901	893	901	901	901	897	896	894	890	353
28 q	891	891	890	890	889	890	887	872	871	866	867	871	872	875	879	881	888	894	898	901	898	897	896	894	885	248
29	898	897	895	896	898	900	898	894	887	877	868	874	876	881	884	887	880	895	893	896	903	913	908	895	891	393
30 q	894	894	893	893	892	891	887	882	876	871	871	877	878	887	894	896	898	903	907	910	909	905	902	903	892	413
31 d	902	900	901	901	903	901	903	896	882	878	873	881	871	892	893	891	900	905	909	908	906	905	903	940	898	544
Mean	896	895	893	892	894	890	887	883	877	873	870	872	876	883	887	890	893	896	900	901	899	899	899	899	889	
Sum 26,000γ+	1773	1762	1692	1655	1702	1585	1490	1357	1180	1049	968	1024	1153	1360	1486	1590	1695	1785	1901	1926	1869	1860	1879	1852		Grand Total 661,593

GEOMAGNETIC DECLINATION (WEST)
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

20 ESKDALEMUIR (D) — 10° + — AUGUST 1964

	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	Sum 100·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	6·8	3·4	1·1	2·6	2·8	2·0	1·5	0·5	-0·4	0·3	2·4	5·4	8·9	9·4	9·0	8·3	7·1	6·1	5·1	5·1	3·9	5·5	5·0	5·0	4·5	6·8
2	4·0	3·3	2·6	2·1	1·7	1·1	0·3	1·2	1·5	3·1	4·0	5·8	7·6	9·2	8·8	7·4	6·0	5·8	4·7	5·7	5·9	5·6	5·5	4·0	4·5	6·9
3	2·3	3·9	3·0	2·5	3·5	2·3	1·5	1·7	2·0	3·8	5·9	8·5	10·1	10·5	9·9	8·6	6·5	5·8	5·4	5·2	6·3	6·5	6·0	6·0	5·3	27·7
4 d	5·1	6·5	8·5	-6·5	-3·3	10·8	3·2	-1·8	1·3	3·3	5·5	7·8	9·2	10·1	9·2	5·0	6·2	5·2	2·8	4·7	5·2	4·9	4·7	4·0	4·7	11·6
5 d	2·0	1·9	3·9	3·4	4·6	2·6	2·5	1·9	2·5	4·2	6·7	8·7	9·7	10·5	11·1	7·8	6·0	7·6	0·0	1·8	1·0	3·9	3·3	4·8	4·7	12·4
6	2·7	5·2	7·5	4·5	3·3	1·8	0·1	-0·7	0·9	2·5	3·3	5·2	6·7	6·5	6·4	6·5	6·2	5·5	5·0	4·8	4·4	4·3	4·2	3·7	4·2	0·5
7	2·2	2·0	5·6	3·1	3·1	5·0	6·0	5·1	4·8	4·3	5·2	8·8	9·9	12·4	12·1	10·5	8·8	5·8	5·4	6·1	5·8	0·9	4·2	4·9	5·9	42·0
8	5·1	4·5	6·2	4·2	3·8	3·6	3·8	2·2	1·7	2·3	3·9	7·4	10·5	10·5	9·2	7·5	6·3	5·4	4·0	4·5	5·4	5·3	3·9	4·1	5·2	25·3
9	4·8	5·6	3·9	8·2	5·8	1·8	1·1	0·9	1·8	2·9	4·7	7·5	10·6	12·1	10·7	10·1	8·5	7·8	5·9	3·8	4·3	4·0	3·8	4·0	5·6	34·6
10 q	4·2	3·9	3·8	3·8	3·4	2·1	0·5	0·4	0·6	0·4	3·3	6·2	9·2	10·9	11·1	9·5	7·0	5·1	4·5	4·8	4·8	5·0	5·1	4·0	4·7	13·6
11 d	4·9	4·7	1·2	2·4	-2·0	-1·2	-0·1	1·9	1·1	2·0	4·4	8·7	11·2	14·4	15·1	13·3	10·5	8·4	4·9	2·5	-0·5	0·7	8·4	2·2	5·0	19·1
12 d	0·2	3·7	7·4	3·8	2·0	0·3	1·1	0·2	1·0	4·5	7·1	9·1	11·1	13·4	12·0	8·0	7·3	6·9	5·8	0·0	1·9	2·5	4·6	4·9	4·9	18·8
13	6·7	5·5	4·6	2·9	3·2	2·2	1·1	-0·3	1·1	2·9	5·4	8·8	10·1	10·6	9·6	8·2	7·2	6·5	4·6	3·6	5·1	5·7	6·0	2·8	5·2	24·1
14	2·9	2·3	1·8	2·4	2·9	2·4	1·5	1·1	1·8	4·1	7·3	8·9	10·6	10·5	9·1	7·5	6·8	6·5	5·5	5·3	6·7	5·8	4·7	3·9	5·1	22·3
15 q	3·7	2·4	1·6	1·3	2·3	1·7	1·0	0·7	1·0	2·9	5·1	7·6	9·6	9·5	8·2	7·2	5·9	5·2	5·4	5·5	4·1	3·5	4·6	4·4	4·3	4·4
16	3·7	5·0	3·2	2·0	1·0	1·3	-0·1	1·0	1·7	3·7	6·4	8·3	9·8	9·9	9·3	8·4	7·2	4·9	5·3	5·5	5·0	4·1	2·4	3·4	4·7	12·4
17	3·9	2·2	0·4	2·4	2·8	0·8	0·8	0·7	2·0	4·7	6·6	9·4	11·0	10·9	9·2	8·3	6·8	4·5	4·9	5·3	5·5	5·0	5·1	5·0	4·9	18·2
18	3·7	2·1	3·4	3·3	0·8	1·0	-0·6	1·1	1·3	3·1	4·8	7·7	11·4	11·2	9·9	8·5	6·7	5·6	2·6	4·0	4·2	4·7	3·8	4·5	4·5	8·8
19	4·6	4·0	3·8	3·8	3·7	2·9	2·1	2·2	2·2	4·1	8·5	12·3	13·2	12·5	11·0	9·0	5·8	4·6	4·6	4·4	3·0	4·2	2·9	0·5	5·4	29·9
20	3·1	3·0	2·5	2·8	2·6	1·8	2·0	2·4	3·0	4·7	6·7	8·7	10·5	10·6	8·4	5·9	4·2	4·4	5·6	5·6	4·3	2·2	5·0	4·8	4·8	14·8
21	4·4	4·0	3·1	2·9	2·8	1·8	1·6	2·0	4·6	7·1	10·0	12·4	13·2	11·3	8·7	7·3	5·7	3·9	6·4	7·1	6·5	5·7	5·3	5·0	5·9	42·8
22	4·8	3·0	4·9	-0·5	-1·6	-0·6	-0·3	1·2	2·8	5·2	7·7	10·5	8·4	9·4	9·0	7·8	6·7	5·7	5·3	4·7	5·0	3·5	3·3	3·8	4·6	9·7
23	3·7	4·0	3·2	3·1	2·8	2·3	1·9	1·3	1·8	3·8	8·0	11·3	13·3	13·1	10·4	7·3	4·6	3·3	3·7	4·6	4·8	4·5	4·3	3·9	5·2	25·0
24 q	3·8	3·7	3·7	3·8	3·6	3·0	2·4	1·2	0·9	2·5	4·9	7·2	9·0	9·1	8·2	6·8	6·0	5·0	5·0	5·2	4·0	5·1	4·9	4·8	4·7	13·8
25	4·1	3·5	3·7	2·0	0·3	1·4	0·5	1·5	2·5	4·0	6·4	7·8	10·2	10·5	10·7	10·7	12·3	11·1	8·1	6·9	5·7	4·6	4·6	3·9	5·7	37·0
26	-0·6	-2·5	-0·2	3·5	1·9	-0·6	-0·6	1·2	2·1	4·0	6·8	10·9	12·4	14·6	10·6	9·0	7·4	6·7	6·5	6·1	5·8	5·3	1·2	1·3	4·7	12·8
27	2·2	2·4	1·5	1·0	0·5	1·1	1·1	0·7	1·1	2·8	5·8	8·6	12·7	12·1	11·4	9·0	6·6	4·9	3·3	3·7	4·3	4·0	4·0	3·8	4·5	8·6
28 q	3·9	3·9	3·8	3·5	3·4	2·9	2·0	1·4	2·0	3·1	6·1	9·9	11·8	10·7	8·7	7·1	5·9	4·7	3·8	2·4	3·2	3·2	4·0	3·9	4·8	15·3
29	5·4	4·1	3·9	3·6	3·1	2·8	2·0	1·6	2·0	3·7	6·7	9·4	10·7	10·6	9·8	8·8	7·2	5·4	4·8	4·7	5·0	2·4	2·0	3·8	5·1	23·5
30 q	3·7	3·4	2·5	2·0	2·0	1·2	1·1	0·4	1·0	2·8	5·7	8·0	10·4	10·4	8·8	7·6	6·5	6·4	6·6	6·5	6·4	6·2	4·2	4·5	4·9	18·3
31 d	4·3	3·8	4·4	4·9	2·3	1·3	1·2	1·1	2·6	5·0	7·6	11·1	12·1	11·5	10·0	8·5	7·5	6·6	6·1	6·6	1·0	1·0	3·7	0·3	5·2	24·5
Mean	3·7	3·5	3·6	2·7	2·2	2·0	1·4	1·2	1·8	3·5	5·9	8·6	10·5	10·9	9·9	8·2	6·9	5·9	4·9	4·7	4·5	4·2	4·3	3·9	4·9	
Sum 00·0′+	116·3	108·4	110·5	84·8	69·1	62·9	42·2	36·0	56·3	107·8	182·9	267·9	325·1	338·9	305·6	255·4	213·4	181·3	151·6	146·7	138·0	129·8	134·7	119·9	4·7	Grand Total 3685·5

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

21 ESKDALEMUIR (Z) — 45,000γ (0·45 C.G.S. unit) + — AUGUST 1964

	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	Sum 9000γ+
	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	γ
1	416	408	413	416	420	424	426	425	426	420	419	419	420	426	427	429	428	430	431	432	434	429	429	428	424	1175
2	429	427	429	429	430	430	427	424	420	412	408	406	406	413	417	423	425	424	426	429	430	429	428	422	423	1143
3	422	422	424	424	425	426	428	429	421	416	413	410	413	415	423	431	434	437	433	432	430	428	429	426	425	1191
4 *d*	424	419	386	367	382	383	377	392	401	412	415	418	415	425	437	450	447	442	441	437	436	434	424	419	416	983
5 *d*	420	422	420	423	424	427	428	430	431	430	427	419	418	420	424	438	449	448	450	448	444	431	428	414	430	1313
6	420	419	413	411	408	414	424	427	423	415	418	419	420	424	430	430	430	428	429	429	430	430	430	426	423	1147
7	417	414	395	392	388	385	388	394	398	406	412	412	419	423	431	436	437	439	437	436	433	431	431	425	416	979
8	425	424	424	424	425	427	427	430	429	424	419	413	414	424	431	436	437	435	436	437	432	430	430	429	428	1262
9	428	423	424	409	407	415	424	428	430	428	422	416	408	419	426	431	433	437	442	445	440	436	435	431	427	1237
10 *q*	431	430	430	431	431	432	431	433	424	424	424	417	417	420	425	430	434	435	435	431	430	429	429	427	428	1280
11 *d*	424	417	403	403	413	418	416	415	412	409	406	406	407	414	420	439	448	458	461	452	428	429	404	384	420	1086
12 *d*	402	411	412	416	423	424	424	424	423	416	412	404	404	412	423	427	433	437	440	446	441	435	429	427	423	1145
13	424	423	426	430	431	430	430	430	429	427	422	415	412	419	426	431	434	435	437	436	435	430	424	414	427	1250
14	418	421	424	427	429	430	430	429	424	422	406	406	412	421	429	434	435	435	434	435	434	431	433	431	426	1230
15 *q*	425	424	426	427	430	430	431	431	429	424	415	415	418	424	430	436	436	435	431	431	434	433	431	429	428	1275
16	423	421	420	424	426	427	430	430	427	423	417	412	412	414	419	427	433	435	430	430	430	430	429	430	425	1199
17	424	424	423	420	426	429	429	429	424	415	413	417	418	424	431	437	441	443	438	433	431	430	429	427	427	1255
18	426	429	426	426	427	429	427	426	419	414	413	413	416	417	422	426	432	434	440	435	431	430	427	426	425	1211
19	427	427	428	428	429	430	431	429	422	417	412	407	408	417	426	433	440	438	436	435	435	433	431	430	427	1249
20	426	427	428	429	430	430	430	431	430	424	413	410	409	415	424	431	431	430	429	429	431	432	429	429	426	1227
21	429	427	428	428	428	429	427	427	425	420	417	417	417	420	427	433	436	437	431	430	430	430	430	428	427	1251
22	426	420	413	415	416	418	419	416	415	409	409	403	403	406	416	424	430	428	427	429	431	432	430	429	419	1064
23	423	423	423	426	428	429	429	426	424	419	416	413	419	424	428	434	435	433	429	426	427	427	427	427	426	1215
24 *q*	427	427	429	429	429	430	430	427	423	417	413	412	412	418	423	425	424	425	425	425	428	424	424	424	424	1170
25	424	425	426	423	422	423	422	423	423	418	412	403	401	408	420	425	429	441	444	437	430	430	428	428	424	1165
26	423	423	419	419	419	420	423	420	419	415	413	412	405	405	412	422	427	430	430	430	429	427	419	417	420	1078
27	417	422	424	423	423	424	425	422	416	411	409	412	412	418	424	433	438	441	439	433	430	429	429	429	424	1183
28 *q*	426	426	428	429	430	430	431	430	427	424	418	412	408	418	423	427	430	430	430	430	429	430	428	427	426	1221
29	423	423	424	426	428	429	430	430	429	424	423	413	413	417	422	428	431	434	434	431	430	426	422	422	425	1212
30 *q*	424	425	426	427	427	429	430	430	429	420	415	414	415	415	417	420	424	424	424	424	424	424	426	426	423	1159
31 *d*	425	424	421	420	418	418	418	417	417	415	412	408	412	416	423	424	425	428	431	431	435	430	426	389	420	1083
Mean	423	423	421	420	422	423	424	424	422	418	415	412	412	418	424	431	434	435	435	434	432	430	427	423	424	
Sum 12,000γ+	1118	1097	1035	1021	1072	1119	1142	1154	1089	970	863	773	783	951	1156	1350	1446	1486	1480	1444	1392	1329	1248	1120		Grand Total 315,638

Column headings: Hour G.M.T.

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH CHAMBER

22 ESKDALEMUIR — AUGUST 1964

	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph chamber 200°A+
1	3211 2222	15	3111 2212	13	3210 1021	10	2000 0000	2	1	85·7
2	0100 1222	8	0000 1222	7	0100 0112	5	0000 0001	1	0	85·7
3	2110 2321	12	2110 2321	12	2110 0000	4	0000 0000	0	1	85·8
4 *d*	4543 3333	28	4433 3333	26	3542 3222	23	3332 0001	12	2	85·9
5 *d*	2223 3444	24	2223 3444	24	2111 2333	16	0000 0012	3	1	86·0
6	3311 1002	11	3311 1002	11	3211 0002	9	1100 0000	2	1	86·1
7	3323 3332	22	2223 3332	20	3311 2211	14	2100 0000	3	1	86·1
8	2110 0122	9	1000 0122	6	2110 0012	7	0000 0000	0	0	85·9
9	2312 3332	19	2212 3332	18	2300 1121	10	0200 0010	3	1	86·0
10 *q*	1010 0011	4	1010 0011	4	1010 0001	3	0000 0000	0	0	86·0
11 *d*	4333 5544	31	4333 5543	30	3332 2344	24	2200 0133	11	2	86·0
12 *d*	3233 3332	22	3233 3332	22	3222 2132	17	2100 0120	6	1	86·0
13	2111 2232	14	2111 2232	14	2111 1122	11	0000 0001	1	1	86·1
14	2101 1222	11	2001 1221	9	0101 0122	7	0000 0000	0	0	86·2
15 *q*	2100 1112	8	2000 1112	7	1100 0011	4	0000 0000	0	0	86·4
16	2122 2322	16	2122 2322	16	2111 0102	8	1000 0000	1	1	86·3
17	3211 2210	12	3201 2210	11	2110 0110	6	0100 0110	3	1	86·3
18	2222 2222	16	2122 2222	15	2211 1121	11	0000 0000	0	1	86·2
19	0012 3212	11	0012 3212	11	0011 1112	7	0000 0000	0	1	86·2
20	1100 2223	11	1000 2222	9	0100 1023	7	0000 0000	0	1	86·2
21	1111 2211	10	1001 2211	8	0111 1210	7	0000 0000	0	0	86·3
22	3202 2221	14	2202 2221	13	3201 1011	9	2100 0000	3	1	86·3
23	2101 2210	9	2001 2210	8	1100 0000	2	1000 0000	1	0	86·3
24	0011 0222	8	0011 0222	8	0010 0020	3	0000 0000	0	0	86·3
25	2110 3332	15	2110 3332	15	1110 1211	8	0000 0210	3	1	86·3
26	3221 3224	19	3121 3224	18	3221 2103	14	1000 0001	2	1	86·3
27	2222 3321	17	2222 3321	17	2111 2110	9	0000 0000	0	1	86·3
28 *q*	0000 1121	5	0000 1121	5	0000 0020	2	0000 0000	0	0	86·3
29	1002 1222	10	1002 1222	10	1000 1002	4	0000 0000	0	0	86·2
30 *q*	0001 1111	5	0001 1111	5	0000 0001	1	0000 0000	0	0	86·4
31 *d*	2212 2234	18	1112 2224	15	2211 1034	14	0000 0013	4	1	86·4
								Mean	0·71	86·1

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

19 ESKDALEMUIR (H) — 16,000γ (0·16 C.G.S. unit) + — SEPTEMBER 1964

	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	Sum 21,000γ+
	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	γ
1	879	891	890	879	891	885	887	872	871	875	867	864	871	883	882	884	892	893	896	900	898	896	906	888	885	240
2	885	900	876	879	889	889	885	876	871	868	871	878	887	894	894	895	893	888	899	911	913	901	894	899	889	335
3	908	900	897	898	896	894	884	884	881	874	873	872	880	883	880	891	884	898	892	891	901	894	898	900	890	353
4	898	899	897	890	891	892	889	881	876	865	867	857	882	891	880	888	888	893	895	894	894	915	890	888	887	300
5	887	887	893	882	894	891	886	879	874	867	869	873	882	884	885	885	888	888	892	898	898	897	896	896	886	271
6	899	894	891	893	891	888	890	884	870	867	872	880	898	908	896	894	894	899	893	896	917	888	908	886	891	396
7 *d*	891	894	893	895	897	901	899	883	871	877	872	858	875	891	887	891	886	879	899	915	896	903	911	897	890	361
8 *d*	880	888	883	891	889	876	875	846	861	861	850	871	873	885	889	893	890	905	906	895	897	891	890	891	882	176
9	892	889	888	876	886	900	888	887	875	866	853	856	857	875	884	883	881	887	895	888	879	894	892	889	882	160
10	902	871	878	889	893	888	886	881	872	866	864	866	869	875	881	894	892	898	894	897	896	899	890	896	885	237
11	898	899	892	891	888	886	883	879	873	871	869	874	880	887	889	890	891	892	896	896	897	897	900	892	888	310
12	894	893	894	891	889	887	884	878	873	869	868	870	877	884	891	896	898	897	898	901	901	899	898	899	889	329
13 *q*	897	892	893	892	892	891	891	889	885	875	870	863	874	882	889	892	893	897	898	898	898	894	894	897	889	336
14 *q*	896	896	892	892	892	892	892	892	889	881	868	866	870	878	892	899	895	897	898	898	897	897	898	906	891	373
15 *q*	898	894	894	894	894	894	898	892	887	881	880	879	883	885	889	894	899	902	901	905	902	900	901	904	894	450
16	907	905	903	901	903	896	903	899	893	885	882	878	889	893	885	889	887	893	887	884	883	898	888	894	893	425
17	898	901	889	896	899	897	896	887	884	878	875	885	878	888	887	884	880	890	893	893	892	900	896	897	890	363
18	896	892	894	893	896	900	900	896	889	871	866	865	877	888	892	896	897	896	895	897	897	896	904	897	891	390
19 *q*	893	893	896	897	897	898	898	892	883	873	870	871	881	884	890	896	893	895	900	901	900	901	900	898	892	400
20 *q*	901	900	899	900	898	897	896	891	881	874	874	875	885	890	893	895	895	896	898	900	897	897	898	899	893	429
21	901	900	900	901	901	903	902	892	882	876	871	878	891	895	900	900	900	900	906	907	911	908	905	912	*898*	542
22 *d*	928	894	897	871	877	878	883	870	856	852	855	861	870	879	883	885	883	879	886	884	883	890	900	883	880	127
23	882	883	888	886	888	884	881	862	871	869	867	857	871	876	883	884	886	888	892	893	891	890	889	885	881	146
24	886	884	885	885	889	891	896	890	883	862	850	857	871	877	875	878	884	891	892	903	887	886	891	895	883	188
25	900	893	888	887	889	893	894	887	876	871	868	870	876	879	886	890	891	890	891	891	894	893	889	890	887	276
26	889	889	888	889	889	892	894	890	877	867	862	861	868	872	874	878	886	891	893	894	895	895	896	895	884	224
27	895	893	895	896	896	898	897	896	898	896	888	876	873	874	882	887	892	898	901	900	897	896	893	897	892	414
28 *d*	889	881	881	908	896	896	900	905	866	852	841	859	855	869	869	902	880	859	878	883	882	874	890	882	879	97
29	879	879	877	878	878	875	874	873	869	862	862	861	859	862	866	878	881	885	889	891	892	892	890	900	*877*	52
30 *d*	883	886	891	889	874	911	908	884	878	872	866	865	860	849	861	869	872	883	875	877	885	883	889	901	880	111
Mean	894	892	891	890	891	892	891	884	877	871	*867*	868	875	882	885	889	889	892	894	896	896	895	*896*	895	887	
Sum 26,000γ+	831	760	722	709	742	763	739	517	315	123	10	46	262	460	534	680	671	747	828	881	870	864	884	853		Grand Total 638,811

GEOMAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

20 ESKDALEMUIR (D) — 10° + — SEPTEMBER 1964

	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	Sum 00·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	−2·9	2·5	5·4	4·3	1·2	0·0	0·2	1·7	1·6	3·0	5·6	8·2	9·8	9·7	9·7	8·9	8·7	0·8	1·6	5·7	5·4	0·1	−0·9	−1·8	3·7	88·5
2	8·7	4·0	3·1	2·9	2·2	2·0	1·5	1·4	1·8	3·4	6·6	7·4	8·5	8·5	6·6	4·7	4·9	3·9	5·5	0·5	2·7	3·1	3·8	4·8	4·3	102·5
3	5·4	2·6	−0·2	2·2	0·2	2·4	1·9	1·8	2·1	3·3	6·5	9·0	10·5	11·5	9·4	7·9	5·3	2·6	2·4	2·7	−0·2	4·4	5·0	5·0	4·3	103·7
4	4·5	4·0	4·3	4·2	4·2	3·4	2·5	1·9	1·8	3·2	6·9	9·3	13·1	12·7	10·3	7·5	5·3	3·8	3·7	2·6	2·4	1·3	0·5	0·7	4·8	114·1
5	3·2	3·9	3·3	3·3	3·6	1·5	0·4	0·4	1·7	3·8	6·6	9·3	11·2	10·4	8·5	6·6	5·5	4·3	4·3	4·6	4·7	4·2	4·0	3·9	4·7	113·2
6	3·7	3·1	3·4	2·9	2·8	2·4	1·7	−3·8	0·9	1·4	6·9	9·3	11·1	12·4	9·2	7·8	6·4	5·5	3·9	5·1	6·1	1·1	−8·8	−2·3	3·8	92·2
7 *d*	−4·4	−1·9	0·3	1·1	1·2	0·4	−0·8	−0·5	0·1	2·7	6·8	11·2	11·8	13·3	11·9	10·1	7·7	3·9	2·2	−2·4	−0·1	0·0	−6·5	−1·1	*2·8*	67·0
8 *d*	0·4	2·7	7·5	3·3	0·2	2·2	3·0	2·0	2·5	5·7	10·3	12·5	14·2	11·9	10·6	6·9	6·5	0·1	−1·7	2·1	−0·1	2·0	3·1	5·7	4·7	113·6
9	4·3	4·1	3·3	4·7	6·7	2·1	0·7	0·3	0·6	2·4	6·3	9·4	12·1	10·6	10·5	6·7	2·3	1·9	−0·4	3·0	3·7	6·5	2·8	2·0	4·4	106·6
10	1·4	2·1	7·6	1·5	1·6	1·5	1·3	1·0	0·8	1·5	3·8	6·4	8·9	10·7	10·1	8·8	7·4	6·7	5·7	3·1	4·8	2·3	4·1	5·1	4·5	108·2
11	4·4	3·7	2·7	−0·2	1·0	1·3	2·2	1·9	2·0	2·7	3·9	6·7	8·8	9·4	9·3	7·6	5·9	5·2	5·5	5·0	5·0	4·6	3·7	3·7	4·4	106·0
12	3·8	3·2	4·1	2·7	1·8	1·7	1·3	1·0	1·2	3·0	5·4	7·4	8·6	8·7	8·2	6·9	6·0	5·8	5·2	5·5	5·1	4·9	4·2	3·8	4·6	109·5
13 *q*	3·7	3·1	2·9	2·8	2·5	2·3	1·9	1·7	1·6	2·0	3·8	4·5	6·7	7·9	8·0	7·4	6·5	5·9	5·1	4·8	3·2	3·0	3·8	2·7	4·1	97·8
14 *q*	3·2	3·4	3·0	3·0	3·0	2·8	2·1	1·6	1·8	2·4	3·8	5·5	7·9	9·5	9·2	8·3	6·4	5·3	4·8	4·5	4·4	4·1	3·8	3·6	4·5	107·4
15 *q*	3·5	3·5	3·8	3·9	3·5	3·0	1·9	0·5	0·6	1·9	3·9	5·9	7·8	7·9	7·8	7·0	6·6	5·8	5·8	5·6	5·1	4·8	4·0	4·2	4·5	108·3
16	3·8	3·8	3·2	3·3	2·5	2·5	2·8	1·4	0·9	2·0	3·8	6·0	10·3	13·6	15·7	18·4	15·0	11·8	10·6	6·7	2·3	−1·1	0·3	3·3	*6·0*	142·9
17	2·8	2·1	1·5	1·5	2·3	2·7	2·3	2·6	2·3	3·3	5·1	7·8	9·1	10·0	9·8	8·5	6·8	5·9	4·8	4·2	1·2	1·1	2·0	2·1	4·2	101·8
18	3·7	3·8	3·1	2·8	3·0	2·8	2·5	1·7	1·3	2·0	3·8	6·0	8·9	9·7	9·4	7·7	6·2	5·1	5·0	4·6	4·5	3·3	2·2	3·1	4·4	106·2
19 *q*	3·1	4·1	4·6	4·0	4·1	3·9	3·4	2·1	1·4	2·0	4·2	7·2	9·4	10·7	10·0	8·4	7·0	6·0	5·9	5·5	4·8	4·6	4·2	4·1	5·2	124·7
20 *q*	3·8	4·0	3·8	3·8	3·8	3·3	2·8	1·9	1·2	1·7	4·1	7·6	9·7	9·4	8·3	6·5	5·3	4·8	4·3	4·7	4·5	3·8	2·5	2·8	4·5	108·4
21	4·1	4·1	4·0	3·2	2·8	2·4	1·4	0·6	0·7	1·3	3·8	6·8	9·3	10·5	9·8	8·2	6·9	6·1	6·5	5·5	5·4	2·8	4·0	4·6	4·8	114·8
22 *d*	3·8	−2·3	−0·1	−3·3	−7·5	−1·7	−0·6	−0·1	0·2	1·8	3·8	6·3	8·9	8·9	8·2	7·2	6·8	5·9	4·1	3·0	4·7	5·5	2·3	2·8	2·9	68·6
23	3·0	4·1	2·5	1·1	1·0	1·3	1·1	1·4	4·0	4·1	6·5	5·7	7·5	7·8	7·4	6·8	6·3	5·7	5·1	5·1	4·9	3·8	1·8	0·8	4·1	98·8
24	2·8	2·4	2·3	2·0	3·8	2·6	2·7	2·1	0·6	1·3	4·3	7·9	9·1	9·9	9·3	6·5	6·7	6·1	5·4	−5·5	0·0	4·4	3·9	3·8	3·9	94·4
25	2·5	2·5	1·7	0·2	3·4	3·5	3·3	2·1	1·8	2·7	4·7	7·5	9·1	8·5	7·6	6·5	5·1	4·7	4·3	4·0	3·9	3·4	2·0	3·8	4·1	98·8
26	3·3	4·5	3·8	3·8	3·7	3·3	2·6	1·2	1·6	2·5	3·6	5·9	8·7	9·2	8·5	7·3	6·2	5·4	5·1	5·0	4·7	4·4	4·0	3·8	4·7	112·1
27	3·7	3·5	3·4	3·8	3·9	3·9	3·8	3·5	2·6	2·1	2·6	4·8	7·2	8·5	9·5	9·2	7·9	6·6	6·5	6·0	5·8	0·0	−3·9	−7·0	4·1	97·9
28 *d*	−1·7	−1·8	4·1	1·8	2·0	2·9	3·9	3·8	2·9	8·2	8·5	8·4	10·6	11·3	13·0	5·7	1·6	7·6	6·3	−4·1	−0·5	0·3	1·5	2·1	4·1	98·4
29	2·3	3·3	3·2	4·1	3·8	4·5	3·8	2·8	1·3	1·9	2·8	5·1	7·7	8·4	7·8	7·4	6·0	5·5	5·0	4·9	4·7	4·1	3·7	3·4	4·5	107·5
30 *d*	1·3	3·6	3·1	1·8	5·9	9·5	5·9	5·7	5·8	3·9	2·2	6·5	7·8	10·3	8·6	8·6	4·7	1·1	−0·5	2·6	2·2	2·1	2·2	3·8	4·5	108·7
Mean	2·8	2·9	3·3	2·5	2·5	2·5	2·1	*1·5*	1·7	2·8	5·0	7·4	9·5	*10·1*	9·4	7·9	6·3	5·0	4·4	3·5	3·5	3·0	2·0	2·6	4·3	
Sum 00·0′+	85·2	85·7	98·7	76·5	74·2	76·4	63·5	45·7	49·7	83·2	150·9	221·5	284·3	301·8	282·2	236·0	189·9	149·8	132·0	104·6	105·3	88·9	59·3	77·3		Grand Total 3122·6

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

21 ESKDALEMUIR (Z) — 45,000γ (0·45 C.G.S. unit) + — SEPTEMBER 1964

Day	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	Sum 9000γ+
	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	γ
1	399	412	412	395	401	405	407	412	419	420	419	416	412	417	423	431	440	453	444	436	436	434	420	413	420	1076
2	392	390	405	415	420	424	428	431	428	422	417	414	414	418	425	430	428	429	431	432	425	423	425	424	420	1090
3	414	412	416	418	417	418	424	424	424	422	415	412	413	419	426	431	434	436	440	440	429	429	427	428	424	1168
4	427	427	426	426	426	428	430	430	429	426	420	419	418	421	425	429	431	433	431	437	437	420	413	422	426	1231
5	424	425	424	425	421	426	430	429	424	420	413	410	416	420	427	433	435	435	430	429	429	430	430	430	426	1215
6	427	428	428	428	428	432	433	433	429	423	412	408	412	422	427	428	431	432	434	433	428	436	436	414	427	1242
7 *d*	415	415	422	426	426	425	426	426	423	419	417	415	420	424	431	444	452	465	463	436	425	420	403	394	426	1232
8 *d*	414	421	409	408	416	420	420	419	419	412	406	413	425	431	438	445	443	447	444	434	434	429	427	424	425	1198
9	420	426	426	413	407	412	422	424	424	422	420	419	424	430	436	447	454	452	447	440	441	424	409	419	427	1258
10	399	393	388	407	418	424	429	430	430	430	420	419	418	420	424	429	435	435	438	437	431	429	430	428	423	1141
11	419	413	413	419	423	425	429	430	429	423	414	414	413	416	420	426	427	428	429	429	429	429	427	429	423	1153
12	429	429	425	425	428	430	430	429	424	419	415	413	413	414	420	424	426	426	427	427	427	427	428	428	424	1183
13 *q*	428	430	426	426	426	427	426	424	424	423	425	419	412	412	418	422	424	426	428	430	430	430	430	429	425	1195
14 *q*	430	427	427	426	427	427	430	427	424	424	424	420	419	418	420	423	426	430	430	430	430	430	430	427	426	1226
15 *q*	425	426	426	426	426	427	430	428	422	419	418	415	415	418	419	423	425	425	426	428	430	430	430	429	424	1187
16	425	424	424	424	422	424	424	425	424	421	417	413	413	417	426	432	448	454	465	469	470	459	449	441	*434*	1410
17	431	412	419	417	419	422	421	425	424	422	423	422	422	420	424	424	430	431	431	431	434	429	425	424	424	1182
18	420	420	419	423	424	424	424	425	426	424	424	423	420	420	423	424	426	429	429	429	430	430	426	426	425	1188
19 *q*	425	424	424	424	424	424	425	426	424	422	421	418	412	413	420	424	424	424	424	424	425	426	427	427	423	1151
20 *q*	429	427	427	425	424	424	426	429	429	424	419	413	410	413	418	423	425	424	424	424	425	426	426	425	423	1159
21	424	425	424	425	424	424	424	425	426	426	423	415	412	412	415	418	419	419	420	423	423	426	427	425	422	1124
22 *d*	423	415	380	307	368	401	412	417	425	430	427	423	417	418	421	428	434	436	436	436	435	431	425	429	*416*	974
23	431	430	427	430	428	427	425	425	422	421	421	422	425	424	426	428	429	429	429	429	429	430	433	431	427	1251
24	431	431	431	431	428	427	427	427	429	429	427	423	421	425	430	434	435	431	433	434	430	430	430	430	429	1304
25	426	424	425	426	426	425	425	426	426	426	424	423	424	425	429	431	433	431	431	430	430	430	431	430	427	1257
26	427	428	429	429	430	430	431	431	432	430	423	419	418	422	427	431	433	431	431	430	430	430	430	430	428	1282
27	429	429	429	429	429	427	427	427	425	424	424	422	423	422	421	423	427	431	430	430	431	437	429	423	427	1248
28 *d*	415	409	406	402	412	415	419	423	425	424	427	427	430	443	452	488	489	463	448	449	437	431	419	418	432	1371
29	425	431	432	432	432	432	436	436	436	434	433	430	426	429	431	435	437	435	434	434	434	434	434	428	433	1380
30 *d*	428	430	430	430	422	406	406	413	421	425	426	424	423	432	442	442	448	448	448	442	441	436	431	415	430	1309
Mean	422	421	420	*418*	421	423	425	426	425	423	421	418	418	421	426	432	435	*436*	435	434	432	430	427	425	426	
Sum 12,000γ+	651	633	599	537	622	682	746	776	766	706	614	543	540	635	784	950	1048	1069	1055	1012	965	905	807	740		Grand Total 306,385

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH CHAMBER

22 ESKDALEMUIR — SEPTEMBER 1964

Day	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph chamber 200°A+
1	4332 3423	24	2232 3423	21	4321 1323	19	2110 0212	9	1	86·4
2	3222 2233	19	3212 2223	17	3121 0032	12	2100 0010	4	1	86·4
3	3221 2342	19	3221 2342	19	3211 1231	14	1000 0010	2	1	86·3
4	1223 2223	17	1223 2223	17	0101 0022	6	0000 0012	3	1	86·4
5	2312 2101	12	1302 2100	9	2211 1001	8	0100 0000	1	1	86·4
6	1012 3245	18	1012 3245	18	1001 2014	9	0000 0012	3	1	86·4
7 *d*	3233 4444	27	2233 4444	26	3222 3344	23	0001 1233	10	1	86·4
8 *d*	4333 3443	27	2333 3442	24	4322 2343	23	2211 1011	9	1	86·4
9	3323 3333	23	3323 3333	23	2221 1333	17	1200 1112	8	1	86·4
10	4311 2223	18	4311 2223	18	4210 1023	13	2200 0001	5	1	86·4
11	2211 1102	10	2111 1102	9	2211 0001	7	1000 0000	1	0	86·4
12	2100 2000	5	1000 2000	3	2100 1000	4	0000 0000	0	0	86·3
13 *q*	1001 0021	5	1001 0021	5	1001 0011	4	0000 0000	0	0	86·3
14 *q*	0000 1002	3	0000 1002	3	0000 0001	1	0000 0000	0	0	86·4
15 *q*	1011 0212	8	1011 0212	8	0010 0000	1	0000 0000	0	0	86·3
16	1212 3333	18	1212 3332	17	0111 2223	12	0000 1313	8	1	86·4
17	3222 3222	18	3222 3212	17	3211 2122	14	2000 1101	5	1	86·4
18	2211 2113	13	2201 2113	12	2211 1001	8	0000 0001	1	1	86·4
19 *q*	0001 2001	4	0001 2001	4	0000 1000	1	0000 0000	0	0	86·4
20 *q*	0000 1112	5	0000 1112	5	0000 0012	3	0000 0000	0	0	86·4
21	0002 2222	10	0002 2222	10	0001 0122	6	0000 0000	0	1	86·3
22 *d*	6632 3323	28	6632 3323	28	3531 2122	19	4520 0201	14	1	86·3
23	2232 1022	14	1232 1022	13	2122 1002	10	0000 0000	0	1	86·4
24	1223 3241	18	1123 3231	16	1212 1141	13	0000 0010	1	1	86·4
25	2210 0112	9	2110 0111	7	2210 0002	7	0000 0000	0	0	86·4
26	1011 1001	5	1011 1001	5	1011 0001	4	0000 0000	0	0	86·4
27	1010 1224	11	1010 1223	10	0000 1104	6	0000 0002	2	1	86·4
28 *d*	4344 3553	31	3344 3543	29	4222 3552	25	2211 3422	17	2	86·4
29	2121 2013	12	2121 2013	12	1111 1002	7	1000 1001	3	1	86·4
30 *d*	2433 3433	25	2432 3433	24	2323 2332	20	0220 2112	10	1	86·4
								Mean	0·73	86·4

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

19 ESKDALEMUIR (H) — 16,000γ (0·16 C.G.S. unit) + — OCTOBER 1964

Day	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	Sum 21,000γ+
	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	γ
1	890	892	885	893	885	895	890	883	874	873	869	864	873	879	875	874	873	887	888	889	891	892	891	892	883	197
2	891	898	889	889	893	890	889	886	882	878	874	872	873	877	881	881	885	890	885	884	891	886	890	891	885	245
3	889	890	893	892	893	892	893	893	886	882	878	879	878	885	880	874	864	865	893	898	899	901	905	898	887	300
4 d	899	905	911	893	884	892	893	896	886	872	867	875	878	881	891	893	893	850	881	889	905	878	874	911	887	297
5 d	900	896	866	874	889	884	887	881	888	884	876	868	862	854	876	884	882	888	892	898	896	888	913	913	885	239
6	892	883	889	890	890	892	894	896	896	889	885	881	887	879	887	871	876	892	894	896	903	896	899	905	890	362
7	879	890	865	882	880	888	898	892	885	867	862	869	869	878	882	890	889	885	892	894	896	908	881	881	883	202
8	887	888	891	886	897	902	893	878	873	870	862	863	866	872	884	882	884	897	903	878	872	882	887	892	883	189
9	884	883	882	885	891	899	903	880	846	842	846	852	858	868	874	882	883	889	892	891	894	896	894	887	*879*	101
10	885	886	887	889	890	892	891	886	878	868	860	860	867	876	882	885	894	892	892	893	893	891	892	894	884	223
11 q	891	893	890	889	890	893	893	890	886	882	876	878	885	890	889	890	889	884	888	893	897	901	897	898	890	352
12	893	892	892	895	897	900	900	890	892	889	880	858	847	853	859	855	861	870	880	878	885	901	890	889	881	146
13	887	889	888	894	885	884	889	885	870	869	872	873	873	862	864	870	871	884	888	891	888	892	895	894	882	157
14	898	898	893	884	886	897	896	895	885	882	878	875	877	886	890	889	889	891	892	893	896	897	895	895	890	357
15	908	893	894	890	891	895	897	894	875	874	870	871	877	882	884	878	887	886	888	887	887	888	892	893	887	281
16	899	891	891	893	891	898	904	899	894	882	877	876	883	889	891	887	887	886	889	894	895	897	909	899	892	401
17	896	897	893	896	899	894	897	905	897	884	872	873	876	876	883	881	880	890	896	899	899	898	901	901	891	383
18	901	899	900	897	902	900	899	897	890	887	880	886	878	890	904	893	887	893	893	874	875	885	904	917	893	431
19 d	899	890	895	897	896	897	885	891	886	885	882	878	887	887	862	859	875	864	879	886	897	900	888	879	885	244
20	875	878	882	884	884	885	889	885	878	873	867	874	881	882	886	889	888	894	895	897	887	897	891	890	885	231
21 d	894	893	884	885	885	890	891	890	878	878	871	857	870	878	876	872	873	874	878	897	901	873	890	887	882	882	162
22 q	889	887	885	888	889	890	891	887	873	873	872	871	877	882	886	887	889	890	891	892	894	894	893	894	886	264
23 q	893	891	891	891	893	894	892	887	879	874	873	879	884	887	890	890	894	899	900	899	897	896	898	899	890	370
24	898	898	897	897	899	901	901	899	893	884	875	881	892	895	899	903	904	905	900	898	892	893	901	899	*896*	504
25	910	897	896	896	900	899	901	902	894	885	874	870	875	879	889	896	899	902	904	904	904	900	899	907	895	482
26 d	917	904	901	904	908	913	914	885	859	838	860	865	858	864	872	877	880	883	883	883	885	883	884	885	884	205
27	887	884	885	885	887	892	894	895	886	871	862	863	867	874	879	882	886	889	889	886	895	890	889	890	884	207
28	889	891	887	888	889	891	893	894	889	880	869	875	881	881	878	880	884	890	892	898	899	894	894	874	887	280
29	892	892	886	389	897	896	890	886	883	881	873	870	875	879	882	881	878	872	878	886	894	893	893	897	885	243
30 q	895	893	889	889	889	893	891	893	886	876	866	856	863	867	877	881	883	888	891	892	892	893	893	893	885	229
31 q	893	893	890	891	893	894	894	891	885	874	873	876	878	883	886	890	893	895	897	898	899	897	894	893	890	350
Mean	893	892	889	890	892	894	895	890	882	875	*871*	871	874	878	882	882	884	886	891	892	893	893	894	*895*	887	
Sum 26,000γ+	1700	1654	1567	1595	1647	1723	1731	1599	1352	1139	987	1001	1103	1213	1334	1347	1401	1468	1622	1639	1670	1697	1713	1732		Grand Total 659,634

GEOMAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

20 ESKDALEMUIR (D) — 10° + — OCTOBER 1964

Day	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	Sum 00·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	4·1	4·9	2·5	1·5	3·8	6·0	3·2	2·8	3·1	4·8	5·1	7·8	8·8	9·7	8·8	8·0	6·0	2·8	4·4	4·3	4·2	4·0	3·9	3·9	4·9	118·4
2	6·9	5·1	3·1	2·8	2·7	3·0	2·5	1·7	1·3	1·9	3·8	5·6	7·3	7·5	6·8	6·0	5·0	4·0	4·4	4·4	0·3	2·7	3·4	3·1	4·0	95·3
3	3·9	5·1	4·6	2·4	2·4	2·9	2·4	1·6	1·2	1·3	3·0	6·0	8·0	10·2	9·8	12·3	10·6	8·7	4·7	5·2	5·8	4·0	2·6	2·4	5·0	121·1
4 d	0·5	3·8	2·9	-1·5	-3·7	2·0	2·4	1·3	1·2	1·9	4·3	7·0	9·1	9·4	9·7	9·7	9·1	-0·8	3·2	-0·5	-5·6	-4·4	-1·5	2·0	2·6	61·5
5 d	-3·5	-6·5	-2·0	4·7	2·1	2·5	2·5	2·0	1·3	0·8	2·1	4·2	6·9	6·6	6·5	8·9	3·1	5·1	5·2	-1·1	2·6	3·6	1·0	3·8	2·6	62·4
6	-0·5	0·6	3·8	3·4	3·3	3·2	3·0	2·4	1·7	1·6	3·0	5·2	7·8	9·1	7·8	6·5	3·8	5·3	4·1	2·2	-0·2	0·8	0·0	-1·2	3·2	76·7
7	-3·3	-3·2	-0·5	2·1	2·2	3·4	2·6	1·2	0·4	0·5	1·8	4·5	7·6	8·2	8·3	7·4	5·5	3·9	3·9	3·8	-0·1	-5·1	-1·2	1·8	*2·3*	55·7
8	3·4	4·3	4·6	4·9	4·6	4·0	4·6	3·7	1·4	2·5	3·2	8·1	9·5	10·3	7·6	8·2	5·1	-1·5	-2·0	-1·6	1·1	0·3	-2·7	-2·6	3·4	81·0
9	-1·6	1·2	2·0	3·6	2·2	1·9	2·6	2·1	1·1	4·8	5·1	6·0	8·6	9·1	8·8	7·5	5·6	4·2	4·2	3·2	1·1	-0·2	-0·7	-0·6	3·4	81·8
10	2·0	3·7	3·2	3·5	3·8	3·3	3·1	1·9	0·9	1·1	3·4	6·0	8·6	10·3	9·6	7·8	6·1	5·2	4·6	3·8	3·7	3·5	3·2	3·0	4·4	105·3
11 q	3·2	3·2	3·5	3·6	3·5	3·2	3·0	2·0	0·9	1·1	3·4	5·8	7·7	8·6	8·2	7·7	6·2	5·0	4·6	3·9	1·8	-0·9	-1·0	-0·5	3·7	87·7
12	2·9	3·3	3·6	3·5	3·7	3·7	3·0	3·8	3·8	3·9	7·3	11·3	13·1	13·2	12·8	11·8	9·2	5·4	3·4	1·6	1·6	2·7	1·9	2·9	*5·6*	133·4
13	2·9	4·5	3·7	1·3	1·1	2·8	2·5	2·1	2·6	3·2	5·1	7·1	9·4	8·9	7·7	7·6	6·9	5·9	5·0	3·8	3·1	1·5	3·2	2·7	4·4	104·6
14	4·9	1·9	0·6	-0·8	2·5	1·7	2·3	2·1	1·8	2·2	4·9	7·8	8·9	9·1	8·1	6·1	5·0	4·6	4·5	3·9	3·9	3·6	3·7	3·6	4·0	96·9
15	4·1	2·3	2·1	2·5	2·5	2·7	2·3	1·3	1·1	2·5	4·7	8·1	9·6	8·7	7·8	5·7	4·5	4·7	4·4	1·1	1·8	1·9	1·9	2·5	3·8	90·8
16	2·5	3·0	3·3	3·3	4·8	3·9	3·3	2·0	1·8	2·4	4·5	7·0	8·5	9·1	7·4	6·1	5·0	4·6	4·9	4·7	4·2	3·4	2·9	3·2	4·4	105·8
17	3·0	3·9	2·4	3·1	3·3	3·0	4·5	3·4	2·6	3·2	5·8	8·7	11·4	11·6	10·6	11·1	7·8	5·8	5·1	4·2	4·0	3·8	3·8	3·8	5·4	129·9
18	3·3	3·2	2·1	2·6	3·1	1·1	2·1	1·4	1·3	2·7	4·2	7·8	7·6	8·5	9·5	8·4	8·7	7·8	6·5	3·2	1·1	3·0	2·9	0·8	4·3	102·9
19 d	0·1	0·4	2·3	3·0	3·1	2·7	5·7	2·8	2·5	3·1	5·5	6·9	11·3	16·0	13·5	16·2	7·5	9·9	5·5	4·0	1·5	-3·7	-4·2	-0·6	4·8	115·0
20	5·6	5·9	4·7	3·1	3·4	3·0	2·3	1·9	1·3	2·6	4·6	8·3	9·1	8·0	6·9	6·0	4·1	5·1	4·8	5·1	1·1	-1·8	1·3	2·3	4·1	98·7
21 d	6·2	3·9	4·3	5·5	3·8	3·5	3·4	3·9	3·2	3·0	4·9	6·2	7·4	7·9	7·3	6·8	3·7	2·7	-2·0	-8·1	-2·7	-1·2	-1·9	-1·8	2·9	69·9
22 q	4·7	3·8	3·7	3·3	3·2	3·4	2·9	1·4	1·3	1·3	3·1	5·8	6·9	7·3	6·9	5·8	5·0	4·0	3·5	3·1	3·0	3·0	2·9	3·0	3·8	92·3
23 q	3·0	3·3	3·8	3·9	3·9	3·8	3·2	2·2	1·3	2·2	3·9	5·8	7·0	7·2	6·4	5·1	4·8	4·8	4·9	4·7	4·6	4·2	3·8	3·0	4·2	100·8
24	3·1	3·0	3·1	3·7	3·6	3·2	3·1	2·6	1·3	1·1	3·7	5·9	7·7	7·8	6·9	5·4	4·9	4·7	3·9	3·6	2·8	2·5	2·6	3·0	3·9	93·2
25	-3·1	1·0	2·0	2·1	2·3	2·8	2·8	2·2	1·3	1·1	3·0	5·1	7·6	8·0	6·7	5·1	4·2	4·5	4·2	3·9	3·8	2·8	1·4	1·1	3·2	75·9
26 d	3·4	0·4	2·2	3·2	3·8	4·0	4·5	3·4	1·4	5·7	5·0	6·8	6·3	7·4	5·5	4·7	4·2	3·0	2·6	2·9	0·0	1·1	1·9	2·3	3·6	85·7
27	3·9	3·2	2·7	3·8	4·0	2·9	2·8	2·4	2·1	2·8	4·9	7·5	9·5	8·7	7·5	5·5	3·2	4·3	4·4	2·3	0·7	2·0	2·4	2·3	4·0	95·8
28	3·3	4·3	3·0	3·1	3·0	3·1	2·8	2·8	1·9	2·3	3·7	6·1	7·5	11·8	5·8	5·1	5·0	5·1	4·9	3·1	1·1	1·2	2·7	3·3	4·0	96·0
29	3·4	3·1	2·9	5·8	3·8	3·8	2·7	2·3	2·4	3·0	5·2	6·7	7·5	7·1	6·8	5·4	5·7	5·0	3·5	3·2	3·0	2·6	2·3	1·0	4·1	98·2
30 q	2·1	1·6	2·2	2·3	2·2	1·3	1·9	1·6	1·1	1·9	4·1	6·5	8·5	8·3	7·7	6·7	5·6	4·1	3·7	3·3	3·2	3·0	3·0	2·9	3·7	88·8
31 q	3·6	3·1	3·1	3·2	2·9	2·9	2·5	2·2	1·8	2·5	4·0	6·0	6·6	6·7	5·6	4·1	4·0	4·0	3·8	3·8	3·7	3·6	2·3	2·0	3·7	88·0
Mean	2·5	2·6	2·8	3·0	2·9	3·1	3·0	2·3	1·7	2·7	4·2	6·7	8·4	*9·0*	8·0	7·4	5·7	4·6	4·0	2·7	1·9	*1·5*	1·5	1·9	3·9	
Sum 00·0′+	78·0	81·3	85·5	92·5	90·9	94·7	92·5	70·5	52·4	75·0	130·3	207·6	261·3	280·3	249·3	228·7	175·1	141·9	122·8	85·0	60·2	47·5	47·8	58·4	3·8	Grand Total 2909·5

GEOMAGNETIC FORCE: VERTICAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

21 ESKDALEMUIR (Z) 45,000γ (0·45 C.G.S. unit) + OCTOBER 1964

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	Sum 10,000γ+
	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	γ
1	417	406	417	421	423	420	424	427	429	429	426	419	419	423	432	438	439	441	436	435	434	432	432	431	427	250
2	426	418	422	424	426	427	430	430	429	427	424	420	419	419	424	429	430	431	433	435	435	433	431	431	427	253
3	431	430	426	427	427	427	429	430	430	430	430	426	425	426	435	445	450	457	449	441	437	438	437	435	434	418
4 *d*	431	417	406	406	415	418	420	424	427	429	426	423	420	423	426	434	441	479	461	447	416	425	430	398	427	242
5 *d*	403	408	412	406	413	423	424	428	429	429	429	429	431	437	437	439	445	443	436	438	431	434	431	416	427	251
6	422	427	426	429	429	428	426	425	424	424	420	419	417	420	425	435	445	436	436	435	433	428	423	414	427	246
7	402	392	394	398	408	408	413	420	424	424	421	420	422	424	425	431	434	434	432	430	431	424	423	424	*419*	58
8	427	428	428	428	428	425	427	431	434	431	428	426	429	433	445	449	453	453	439	438	439	430	424	411	433	384
9	413	424	431	431	425	425	425	428	431	433	431	430	429	431	435	442	441	441	439	437	438	434	431	431	431	356
10	428	427	425	432	432	433	434	435	435	432	429	425	423	427	431	435	438	438	437	436	432	432	432	432	432	360
11 *q*	432	431	432	432	432	432	436	437	436	431	427	422	422	425	432	436	439	440	437	437	436	431	431	430	432	376
12	430	431	431	431	431	431	431	431	426	424	420	423	431	442	453	465	464	460	450	448	443	436	430	431	*437*	493
13	434	431	424	421	425	427	432	433	435	432	427	425	425	432	439	442	442	439	439	438	439	438	435	432	433	386
14	427	418	418	423	425	425	428	429	431	430	425	425	428	428	428	431	432	431	431	432	432	432	434	433	428	276
15	426	426	426	429	431	431	434	435	439	436	428	424	425	429	434	439	440	438	438	440	438	437	435	432	433	390
16	426	427	430	430	431	428	430	432	433	432	430	425	424	429	434	435	435	435	436	436	435	434	427	425	431	339
17	426	426	428	429	429	430	430	430	431	431	427	427	432	433	439	442	441	438	437	436	436	436	435	432	433	381
18	434	432	432	431	429	426	428	430	431	428	428	427	430	432	438	444	439	439	442	450	453	445	431	413	434	412
19 *d*	403	416	422	425	426	425	425	425	426	424	419	418	421	432	448	474	484	478	467	455	439	424	419	420	434	415
20	415	400	418	430	432	432	433	434	433	430	428	428	431	436	437	441	439	436	434	435	441	437	436	436	431	352
21 *d*	427	424	426	427	427	428	430	432	432	433	431	431	430	431	441	446	450	449	447	440	436	434	434	432	434	418
22 *q*	430	431	434	435	435	434	435	436	436	435	428	427	457	430	436	437	437	436	434	434	432	432	432	431	434	424
23 *q*	435	435	434	433	433	432	432	434	434	431	427	425	428	432	436	438	437	434	432	431	432	434	438	435	433	392
24	432	432	431	431	432	431	431	432	432	431	428	427	424	430	432	430	432	432	432	432	433	432	431	425	431	335
25	418	420	421	425	427	429	430	431	431	431	426	423	424	428	434	436	436	435	433	432	431	432	432	430	429	295
26 *d*	423	424	425	425	425	423	421	425	432	437	436	434	438	441	445	447	444	442	442	441	441	439	436	433	434	419
27	430	432	434	434	432	432	432	432	434	434	432	432	434	437	442	443	442	438	438	438	437	435	435	434	435	443
28	431	427	428	431	432	432	432	432	432	434	432	427	428	434	439	439	437	436	436	436	433	432	432	432	433	384
29	432	431	431	427	425	428	431	432	433	433	431	430	431	435	439	443	443	443	444	443	439	438	437	432	435	431
30 *q*	426	422	423	425	427	430	432	433	436	436	434	433	432	437	441	441	441	439	438	438	437	436	435	435	434	407
31 *q*	432	431	431	431	431	431	431	432	435	434	432	431	432	434	436	436	434	434	432	432	431	432	434	432	433	381
Mean	425	*423*	425	426	427	427	429	431	432	431	428	426	428	431	436	441	442	*442*	439	438	435	433	432	428	431	
Sum 13,000γ+	169	124	166	207	243	251	296	345	380	355	260	201	261	350	518	662	704	705	617	576	500	436	383	258		Grand Total 320,967

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH CHAMBER

22 ESKDALEMUIR OCTOBER 1964

	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph chamber 200°A+
1	3211 2201	12	3211 2201	12	3211 1200	10	2010 0000	3	1	86·4
2	2000 1130	7	2000 1120	6	2000 0030	5	1000 0000	1	0	86·4
3	2011 3332	15	0011 3332	13	2001 2322	12	0000 1221	6	1	86·3
4 *d*	3333 2454	27	3233 2454	26	3322 2444	24	3210 0343	16	2	86·3
5 *d*	4333 3344	27	4333 3334	26	4222 3342	22	1200 1212	9	1	86·3
6	3122 3333	20	2022 3333	18	3112 2332	17	1000 1202	6	1	86·3
7	3331 2234	21	3231 2223	18	3321 1134	18	2210 0001	6	1	86·3
8	2222 3442	21	2222 3342	20	1122 2442	18	0010 1112	6	1	86·3
9	3233 2132	19	3233 2122	18	3222 1132	16	2000 0000	2	1	86·3
10	2001 2210	8	1001 2210	7	2000 1000	3	0000 0000	0	0	86·2
11 *q*	1000 2222	9	1000 2222	9	0000 1121	5	0000 0000	0	0	86·2
12	2023 3323	18	0023 3323	16	2022 3213	15	0000 1101	3	1	86·1
13	2211 2222	14	2211 2222	14	2201 1112	10	2000 0000	2	1	86·1
14	3222 1000	10	3222 1000	10	3211 1000	8	2000 0000	2	1	86·1
15	3122 1222	15	3022 1211	12	2111 1222	12	1000 0001	2	1	86·1
16	2110 0012	7	2100 0012	6	2110 0001	5	0000 0001	1	0	86·1
17	2221 1201	11	1221 1201	10	2111 0100	6	0000 0001	1	0	86·1
18	1222 3233	18	0122 3233	16	1212 1223	14	0000 1113	6	1	86·2
19 *d*	3333 4444	28	3332 4444	27	2233 3443	24	2000 3331	12	1	86·1
20	3212 2243	19	3212 2233	18	3112 1243	17	2000 0010	3	1	86·1
21 *d*	3223 2343	22	2223 2343	21	3121 1332	16	1000 0111	4	1	86·2
22 *q*	1111 0000	4	1111 0000	4	1111 0000	4	0000 0000	0	0	86·2
23 *q*	0000 0000	0	0000 0000	0	0000 0000	0	0000 0000	0	0	86·0
24	0002 0223	9	0002 0223	9	0001 0123	7	0000 0002	2	0	86·1
25	3111 1002	9	2011 1002	7	3101 1001	7	0000 0000	0	0	86·1
26 *d*	3244 2221	20	3244 2221	20	2123 1121	13	0010 0000	1	1	85·8
27	1112 2131	12	1102 2131	11	1111 2121	10	0000 0000	0	1	86·0
28	2111 1021	9	2000 1021	6	2111 1021	9	1000 0000	1	0	85·9
29	2310 1122	12	2310 1121	11	1200 0102	6	0100 0000	1	1	85·9
30 *q*	2111 0000	5	2011 0000	4	1100 0000	2	1000 0000	1	0	85·9
31 *q*	1000 0002	3	1000 0002	3	1000 0001	2	0000 0000	0	0	85·8
								Mean	0·65	86·2

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

19 ESKDALEMUIR (H) 16,000γ (0·16 C.G.S. unit) + NOVEMBER 1964

Day	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	Sum 21,000γ+
	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	γ
1 d	894	892	893	902	904	910	911	908	898	889	891	896	895	905	903	902	886	861	860	889	898	893	869	874	893	423
2 d	889	882	882	886	880	885	889	888	882	878	873	872	877	884	889	889	890	890	889	889	890	888	903	891	886	255
3	886	885	892	887	886	890	889	890	888	882	878	878	883	885	891	892	891	893	894	894	895	896	895	895	889	335
4	895	897	898	895	902	893	894	892	888	882	877	884	883	876	879	887	891	394	891	895	896	891	887	916	891	383
5	893	886	885	886	888	893	891	890	886	878	875	879	875	860	884	886	884	896	890	883	875	887	893	892	885	235
6	891	889	889	890	894	896	896	894	891	884	879	877	878	880	886	889	893	895	893	894	895	896	894	894	890	357
7 q	896	893	893	894	895	896	896	894	886	881	880	884	886	888	891	896	898	899	900	902	901	899	898	901	894	447
8	898	902	901	908	917	916	910	906	898	893	889	888	888	887	894	895	898	898	895	898	887	883	892	893	897	534
9 d	895	901	908	911	887	905	903	902	892	874	871	868	880	880	882	877	879	877	884	877	868	883	899	915	888	318
10	888	881	896	888	893	895	895	896	886	882	881	883	884	883	894	892	895	897	890	888	891	892	895	892	890	357
11	891	891	892	896	903	900	901	899	884	879	877	882	885	886	890	893	895	899	899	900	898	896	893	894	893	423
12	896	896	894	898	894	893	898	899	894	888	882	880	884	888	890	883	881	887	886	887	889	887	887	892	890	353
13	891	890	890	891	895	897	893	892	889	883	877	877	874	879	881	880	888	894	890	893	895	896	896	894	889	325
14 q	892	892	892	893	896	896	896	893	890	886	879	880	886	890	892	890	891	891	894	897	899	899	898	899	892	411
15 d	895	894	894	896	898	898	890	897	889	890	897	897	896	887	877	890	899	901	882	898	902	899	881	907	894	463
16	882	875	879	887	891	891	891	884	882	881	882	881	886	886	884	878	882	891	891	891	887	893	885	906	886	266
17	891	887	889	893	895	894	894	896	893	887	884	883	886	890	887	884	894	895	895	895	896	894	894	893	891	389
18	894	891	893	895	898	897	898	892	894	895	892	891	894	897	899	899	896	891	894	894	897	892	897	903	895	483
19 q	893	890	891	893	894	896	897	894	893	890	888	889	894	898	899	896	897	898	899	897	896	898	898	894	895	472
20	894	895	896	899	897	898	898	898	895	891	893	901	901	897	896	894	897	898	901	902	901	898	898	894	897	532
21	897	896	897	900	899	903	903	903	900	898	896	896	899	902	899	897	898	899	899	899	900	903	902	906	900	591
22	901	899	896	901	903	906	911	909	906	905	898	891	895	898	895	892	892	892	891	889	892	895	886	889	897	532
23 d	898	903	905	911	919	908	895	900	901	879	868	880	875	881	857	851	857	855	860	875	882	884	885	883	884	212
24 q	879	884	881	884	887	890	892	890	887	886	888	889	890	894	891	890	890	892	892	894	894	892	891	893	889	340
25 q	890	892	893	894	896	898	899	898	898	898	896	896	895	898	903	901	901	905	908	908	899	902	901	901	899	570
26	899	899	902	902	915	911	911	908	902	884	882	882	888	884	878	877	860	864	879	882	879	883	875	884	889	330
27	888	887	888	891	893	899	896	892	891	888	891	896	898	898	897	898	900	902	902	895	887	889	899	899	894	464
28	896	894	898	898	894	896	902	899	898	892	889	890	892	891	901	896	884	872	883	888	899	896	898	896	893	442
29	895	894	893	894	895	896	899	898	895	892	891	894	898	899	901	903	903	902	896	900	900	900	898	895	897	531
30	912	895	902	906	911	894	905	899	900	895	890	891	896	898	901	899	900	903	902	899	896	892	894	884	899	564
Mean	893	892	893	896	897	898	898	897	893	887	885	886	888	889	890	890	890	891	891	893	893	893	893	896	892	
Sum 26,000γ+	799	752	802	869	919	940	943	900	776	610	534	575	641	669	711	696	710	731	729	792	784	796	781	878		Grand Total 642,337

GEOMAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

20 ESKDALEMUIR (D) 10° + NOVEMBER 1964

Day	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	Sum 00·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1 d	3·5	3·9	3·9	4·4	4·0	2·4	2·6	2·2	2·0	2·6	5·0	7·6	7·8	8·6	8·4	6·2	7·8	5·5	5·9	4·1	3·8	2·8	-5·6	-7·1	3·8	92·3
2 d	3·0	-1·6	4·4	2·0	1·6	1·8	1·4	2·2	1·3	2·3	4·7	6·1	6·2	6·7	6·3	5·9	5·2	4·4	4·0	3·5	2·9	2·2	3·1	0·0	3·3	79·6
3	0·3	1·1	3·1	2·0	2·6	2·1	2·0	1·6	1·2	1·7	3·7	6·1	7·0	6·5	5·8	5·1	3·5	4·2	3·9	3·3	3·1	3·0	3·2	3·3	3·3	79·4
4	3·8	3·8	3·6	6·0	3·3	2·5	2·3	2·0	2·0	2·7	4·2	8·0	9·8	9·7	7·4	5·7	5·2	4·6	3·9	3·8	3·3	2·7	1·4	1·5	4·3	103·2
5	0·0	1·1	2·0	2·6	3·6	3·2	2·5	2·4	2·2	2·4	3·9	6·2	7·8	7·7	6·9	7·4	5·3	4·8	3·4	-5·1	-0·8	2·4	2·3	3·0	3·2	77·2
6	2·2	2·9	3·2	3·6	3·8	3·5	3·2	3·0	2·6	3·6	4·1	6·1	6·9	7·8	6·6	5·8	5·1	4·3	3·5	2·3	1·4	2·0	3·1	3·2	3·9	93·8
7 q	3·3	2·9	3·8	3·9	3·8	3·7	3·4	3·3	2·4	2·6	4·0	5·2	6·2	5·9	5·1	4·4	4·3	4·2	4·1	4·0	3·7	3·3	3·1	2·0	3·9	92·6
8	3·0	3·2	3·5	4·0	5·0	5·1	4·0	3·5	2·7	2·6	3·4	5·4	6·2	5·9	5·2	4·5	4·9	5·2	4·7	-2·1	-2·7	-0·3	1·4	1·9	3·3	80·2
9 d	3·7	3·9	1·2	-1·4	5·6	3·3	4·1	3·3	4·7	5·1	6·6	6·0	8·0	7·9	7·8	6·8	6·4	0·4	2·4	0·0	-1·8	0·7	-0·4	1·8	3·6	86·1
10	1·3	1·1	8·5	3·8	3·4	3·2	3·0	3·0	2·4	2·7	3·5	6·1	6·8	5·5	5·8	5·2	4·7	4·7	3·4	0·4	0·4	1·4	2·3	2·9	3·6	85·5
11	3·6	3·8	3·9	4·1	3·9	3·4	2·9	2·4	2·2	3·1	5·7	6·8	7·6	6·6	5·5	5·0	4·4	4·7	4·4	3·2	3·7	3·1	2·8	2·7	4·1	99·5
12	4·3	5·0	4·2	3·7	2·0	2·6	3·3	2·7	2·0	2·3	3·7	5·3	6·1	6·1	5·8	4·2	3·7	4·6	4·2	3·0	-0·6	-2·0	1·7	2·5	3·3	80·4
13	3·1	3·9	3·8	4·2	4·3	3·3	2·9	3·7	3·6	3·4	4·5	6·4	6·7	6·6	6·1	5·2	4·0	3·2	3·8	3·1	2·9	2·7	2·6	2·5	4·0	96·5
14 q	3·3	3·3	3·6	3·8	3·4	3·1	2·8	2·7	2·6	3·2	5·3	6·9	7·2	6·6	5·1	4·4	4·5	4·5	3·8	3·2	3·1	3·1	3·1	3·0	4·0	95·6
15 d	3·7	3·7	3·8	3·9	3·9	3·3	3·1	2·9	3·0	3·9	6·8	7·3	8·3	10·6	13·1	13·7	9·0	11·0	4·4	4·2	3·7	3·0	1·4	-4·7	5·3	127·0
16	1·1	2·1	2·9	2·7	2·2	3·5	3·1	6·6	7·3	7·0	6·6	6·4	6·8	7·0	6·7	6·8	6·9	5·2	4·1	3·4	-0·7	0·7	1·5	3·1	4·3	103·0
17	1·2	2·9	2·5	2·1	2·1	1·8	2·0	2·5	2·6	2·9	4·1	5·5	6·6	6·8	7·0	7·1	5·5	4·1	4·3	3·4	3·2	3·0	2·8	3·1	3·7	89·1
18	2·9	1·6	2·6	3·1	3·1	3·1	2·9	2·9	3·1	3·3	4·8	5·2	5·6	5·6	5·0	4·8	4·9	3·9	2·9	3·8	3·2	2·4	2·0	0·4	3·5	83·1
19 q	1·7	3·1	2·9	3·2	3·3	2·8	2·7	1·9	1·7	1·6	3·3	4·9	5·2	5·1	4·2	4·0	4·0	4·0	3·8	3·3	3·0	3·0	2·3	2·2	3·2	77·2
20	3·0	3·1	2·3	2·3	2·2	2·4	2·7	2·7	2·9	3·2	3·9	5·2	5·9	5·0	4·7	4·2	4·0	3·9	3·6	3·4	3·1	3·1	2·7	2·9	3·4	82·4
21	3·6	3·6	3·9	4·2	4·1	4·0	3·8	3·3	3·2	3·3	4·1	4·9	5·6	5·3	4·6	4·2	3·9	3·8	3·1	3·0	3·0	2·6	2·6	3·1	3·8	90·8
22	2·7	3·5	3·8	4·3	3·9	3·9	3·8	3·4	2·2	3·4	4·4	5·2	5·2	5·4	5·0	5·0	5·1	5·4	5·0	3·7	2·7	-1·0	-4·0	-0·4	3·4	81·6
23 d	4·0	2·5	2·1	0·5	3·4	6·1	5·1	5·2	5·0	4·8	9·4	7·6	8·7	9·3	9·7	12·1	10·3	7·0	3·9	2·4	1·4	1·4	1·4	1·2	5·2	124·5
24 q	1·6	2·0	2·5	2·2	2·4	2·7	3·2	3·6	3·2	3·0	3·5	4·4	5·2	4·7	3·9	3·9	3·9	3·8	3·5	3·2	3·1	2·8	2·6	2·6	3·2	77·5
25 q	2·6	2·8	3·0	3·3	3·6	3·8	3·5	3·3	3·4	3·3	3·8	4·3	4·9	4·3	4·2	4·3	4·3	4·2	4·2	4·3	3·7	3·3	2·9	2·9	3·7	88·2
26	3·4	3·7	4·2	5·6	2·4	2·2	3·1	3·2	3·2	2·5	4·0	6·0	7·6	8·7	11·3	10·2	11·8	5·6	3·5	3·3	2·5	-0·4	-1·3	0·7	4·5	107·0
27	1·6	2·2	2·4	3·1	3·3	3·1	2·9	2·7	2·6	3·1	3·8	4·4	4·8	4·4	4·0	4·0	4·1	3·9	4·5	4·8	1·2	2·7	2·3	2·3	3·3	78·2
28	2·0	1·9	3·2	2·0	2·3	2·3	2·7	2·2	2·5	3·2	4·0	5·1	5·9	5·9	5·2	5·3	6·1	-0·6	1·0	3·2	1·3	2·2	2·3	3·0	3·1	74·2
29	3·0	2·8	3·1	3·1	3·1	3·0	3·0	2·9	3·1	3·2	3·7	5·0	5·5	5·4	4·9	4·7	4·3	4·6	4·1	4·0	3·3	3·1	3·1	1·3	3·6	87·3
30	-4·5	2·6	3·3	3·6	3·2	6·5	5·3	3·2	3·3	3·3	4·2	5·5	6·3	5·7	5·2	5·0	4·6	3·9	3·8	3·3	2·9	2·0	1·1	-0·5	3·5	82·8
Mean	2·4	2·7	3·4	3·2	3·3	3·3	3·1	3·0	2·9	3·2	4·6	5·8	6·6	6·6	6·2	5·8	5·4	4·4	3·8	2·8	2·1	2·0	1·7	1·5	3·7	
Sum 00·0′+	72·0	82·4	101·2	95·9	98·8	97·7	93·3	90·5	86·2	95·3	136·7	175·1	198·4	197·3	186·5	175·1	161·7	133·0	115·1	83·4	63·0	61·0	49·8	46·4		Grand Total 2695·8

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

21 ESKDALEMUIR (Z) 45,000γ (0·45 C.G.S. unit) + NOVEMBER 1964

Day	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	Sum 10,000γ+
	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	γ
1 d	430	428	431	429	427	425	424	425	425	425	420	415	420	423	427	427	436	457	466	454	442	439	444	424	432	363
2 d	421	427	430	430	430	431	431	431	432	430	426	426	431	432	435	436	436	436	436	436	436	436	432	427	431	354
3	431	431	429	427	430	431	432	432	432	431	431	431	433	436	438	438	438	436	435	435	435	434	434	435	433	395
4	433	433	432	431	428	431	431	431	432	432	431	428	432	439	441	441	438	438	438	437	436	438	441	429	434	421
5	426	428	430	431	431	432	432	432	432	431	431	431	435	439	439	442	442	440	439	444	440	436	436	435	435	434
6	436	436	436	434	432	432	431	431	431	430	430	429	430	433	437	437	436	436	435	435	434	432	431	431	433	395
7 q	433	433	434	434	433	432	432	432	434	431	426	426	428	432	435	435	434	432	431	431	431	431	431	431	432	362
8	431	431	431	428	425	425	425	425	427	425	424	424	428	431	431	433	432	432	432	434	434	432	430	430	429	300
9 d	429	414	404	408	406	403	414	420	424	426	425	427	432	435	440	442	443	448	443	444	448	443	432	414	428	264
10	420	425	414	417	426	430	431	431	433	432	431	431	432	435	438	437	436	436	436	438	436	434	432	431	431	342
11	432	432	433	433	431	431	432	432	432	431	430	432	435	438	437	436	436	434	434	434	433	434	436	434	433	402
12	431	426	424	424	425	427	430	431	431	429	427	427	429	431	435	438	441	438	441	442	442	437	436	432	432	374
13	431	431	431	431	431	431	432	431	431	430	427	428	433	438	441	441	441	439	438	437	437	436	436	436	434	418
14 q	436	436	435	343	433	432	432	432	431	431	431	431	432	435	438	438	437	436	435	434	434	432	434	433	434	412
15 d	431	431	431	431	431	431	431	431	431	430	426	426	431	434	436	434	438	446	461	450	442	438	442	436	435	449
16	426	432	434	435	434	432	432	431	430	430	430	431	432	436	438	441	441	439	438	439	442	438	437	432	435	430
17	432	434	436	436	434	434	432	431	432	431	431	431	432	435	438	438	437	437	437	438	436	436	436	436	435	430
18	436	436	434	432	431	431	431	431	431	430	430	430	431	432	433	435	436	436	435	435	435	436	436	435	433	398
19 q	432	434	435	434	432	431	431	431	432	432	432	432	432	434	436	436	435	433	432	432	432	432	432	433	433	387
20	433	434	433	431	431	431	431	431	430	430	429	428	427	431	432	432	432	431	431	431	431	432	433	434	431	349
21	432	432	431	431	431	431	430	430	429	428	426	425	427	430	432	432	432	432	431	431	431	430	430	428	430	322
22	427	428	431	431	431	431	427	427	426	425	425	427	427	431	432	434	434	435	436	438	437	436	435	430	431	341
23 d	421	418	420	420	414	411	415	416	421	425	427	431	439	442	459	474	476	474	473	460	450	445	442	441	438	514
24 q	439	436	437	437	437	437	436	436	433	433	431	431	432	433	436	436	437	436	437	436	436	436	436	434	435	448
25 q	435	435	434	434	433	433	433	432	431	428	428	430	431	432	432	432	432	433	432	432	435	433	433	432	432	375
26	431	431	430	430	424	427	426	427	428	432	432	432	432	437	442	449	459	464	456	449	446	442	442	437	438	505
27	432	433	435	435	434	432	433	435	436	434	430	427	427	428	431	431	432	432	434	437	442	442	438	436	434	406
28	435	434	427	424	425	430	431	431	431	431	431	431	432	432	433	436	437	448	445	438	436	435	434	432	433	399
29	432	435	433	432	432	432	432	432	433	432	431	431	431	432	432	431	431	432	434	432	433	434	435	437	433	381
30	433	432	430	429	427	429	427	431	431	432	431	428	429	431	432	432	432	432	433	433	435	438	438	438	432	363
Mean	431	431	430	430	429	429	430	430	430	430	429	429	431	434	436	437	438	439	439	438	437	436	435	432	433	
Sum 12,000γ+	927	926	905	898	869	876	887	899	912	897	860	857	922	1007	1086	1124	1147	1178	1184	1146	1117	1077	1064	973		Grand Total 311,733

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH CHAMBER

22 ESKDALEMUIR NOVEMBER 1964

Day	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph chamber 200°A+
1 d	1201 3334	17	1101 3334	16	1201 2234	15	0000 0322	7	1	85·8
2 d	3332 1113	17	3232 1113	16	3322 1103	15	1000 0001	2	1	85·7
3	2110 0100	5	2100 0100	4	2110 0100	5	1000 0000	1	0	85·9
4	0212 2113	12	0202 2113	11	0211 1102	8	0000 0001	1	1	85·8
5	2101 3242	15	2101 3232	14	2101 1141	11	0000 0010	1	1	85·8
6	1101 1121	8	1001 1111	6	1101 1121	8	0000 0000	0	0	85·8
7 q	1000 0001	2	1000 0001	2	1000 0001	2	0000 0000	0	0	85·5
8	2121 2133	15	2121 2133	15	2111 1032	11	0000 0000	0	1	85·6
9 d	3422 1333	21	2322 1333	19	3422 1333	21	2120 0112	9	1	85·6
10	4221 2021	14	3221 2021	13	4211 1021	12	2200 1000	5	1	85·7
11	0122 1112	10	0122 0112	9	0101 1011	5	0000 0000	0	0	85·7
12	2210 2233	15	1210 2232	13	2210 0133	12	1000 0000	1	1	85·6
13	1111 1200	7	0011 1200	5	0111 1100	5	0000 0000	0	0	85·5
14 q	0000 0000	0	0000 0000	0	0000 0000	0	0000 0000	0	0	85·5
15 d	0002 3334	15	0001 2334	13	0002 3334	15	0000 0222	6	1	85·5
16	2222 2223	17	2221 2223	16	2222 1123	15	1000 0011	3	1	85·5
17	2111 1110	8	2110 1110	7	2111 1110	8	0000 0000	0	0	85·5
18	3021 0213	12	3021 0213	12	1011 0212	8	0000 0000	0	1	85·5
19 q	2110 0001	5	2000 0001	3	2110 0000	4	0000 0000	0	0	85·4
20	1101 1001	5	1101 1001	5	1101 1001	5	0000 0000	0	0	85·5
21	0000 1012	4	0000 1002	3	0000 0011	2	0000 0000	0	0	85·5
22	2102 1123	12	2102 1123	12	1102 0013	8	0000 0001	1	1	85·4
23 d	3323 4331	22	3223 4331	21	2313 3321	18	1112 3120	11	1	85·4
24 q	1001 1001	4	1000 1001	3	1001 0000	2	0000 0000	0	0	85·3
25 q	0000 0120	3	0000 0120	3	0000 0010	1	0000 0000	0	0	85·3
26	1312 3323	18	0212 2323	15	1312 3302	15	0100 0211	5	1	85·3
27	1100 0022	6	1000 0022	5	1100 0021	5	0000 0010	1	0	85·4
28	2112 2332	16	2112 2332	16	2111 1331	13	1000 0210	4	1	85·3
29	0000 0113	5	0000 0113	5	0000 0013	4	0000 0000	0	0	85·3
30	4232 1112	16	3222 0102	12	4231 1012	14	0000 0000	0	1	85·3
								Mean	0·53	85·5

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

GEOMAGNETIC FORCE: HORIZONTAL COMPONENT

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

19 ESKDALEMUIR (H) — 16,000γ (0·16 C.G.S. unit) + — DECEMBER 1964

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	Sum 21,000γ+
	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	γ
1	893	894	899	897	900	904	901	894	891	881	894	897	894	888	881	881	893	895	896	895	905	894	894	894	894	455
2	894	894	894	896	898	898	897	896	897	891	891	892	894	896	899	903	904	904	898	897	896	896	899	902	897	526
3	898	898	896	896	898	902	902	901	897	891	888	884	890	898	902	904	903	897	884	887	891	894	896	898	896	495
4	897	896	896	895	898	899	900	899	897	892	888	888	890	894	901	906	905	891	894	896	899	900	899	898	897	518
5 *q*	896	900	898	896	898	900	900	901	899	894	890	888	893	897	900	901	902	902	900	900	900	901	901	900	898	557
6	901	900	900	902	904	907	908	906	903	900	896	894	893	893	896	898	899	898	898	900	900	899	903	907	900	605
7 *d*	904	905	905	906	911	914	914	916	914	909	897	888	884	898	902	889	869	874	886	890	891	904	887	886	898	543
8	890	899	898	897	897	897	900	905	897	892	887	886	888	893	893	890	890	895	896	894	897	897	901	899	895	478
9	898	898	899	900	902	905	905	906	902	897	889	889	895	898	900	893	898	895	894	895	896	897	913	905	899	569
10	894	894	893	896	901	903	901	904	902	897	892	888	891	892	892	899	900	900	900	900	900	898	897	897	897	531
11	897	898	900	900	902	903	904	904	901	898	895	896	896	897	894	899	904	904	901	899	894	895	897	897	899	575
12 *q*	898	899	899	901	902	904	906	906	904	900	897	899	899	903	906	906	907	908	906	904	903	902	904	897	*903*	660
13 *d*	899	900	899	901	905	909	911	912	910	904	900	894	900	910	912	916	901	880	883	897	898	895	895	895	901	626
14	888	891	893	895	896	896	904	903	901	889	877	885	887	889	890	892	894	891	895	890	891	888	892	896	892	413
15	894	904	898	897	896	895	905	900	896	893	889	883	883	892	895	896	897	899	900	900	898	896	896	895	896	497
16 *d*	908	896	896	900	900	907	909	914	907	900	891	896	892	851	854	893	899	900	897	896	890	886	891	899	895	472
17 *d*	893	902	893	881	884	891	896	899	890	882	889	887	886	888	885	876	879	884	894	893	890	886	880	882	*888*	310
18	891	888	886	893	896	899	897	895	895	893	893	892	886	890	893	896	899	898	893	890	890	888	888	891	893	420
19 *d*	888	888	891	896	896	897	902	905	898	891	888	888	888	883	887	884	871	881	884	872	884	881	888	892	888	323
20	892	893	894	897	899	899	900	900	899	898	891	892	894	896	895	892	893	891	885	895	900	896	903	902	896	496
21	896	896	899	900	902	903	904	906	902	896	890	894	895	899	902	897	885	888	890	895	896	896	896	895	897	522
22	906	898	898	899	902	902	904	906	904	900	895	893	896	896	894	898	900	901	903	902	900	896	897	907	900	597
23	896	896	898	899	902	898	903	906	905	903	897	892	893	894	895	896	892	898	901	900	898	895	897	896	898	550
24	898	898	900	901	903	902	902	900	896	897	896	895	898	902	903	898	898	899	899	897	896	899	900	900	899	577
25	900	900	900	900	903	903	904	903	902	902	903	904	909	907	903	902	906	907	902	899	902	895	907	895	902	658
26	887	891	895	899	901	903	900	900	898	895	891	891	892	893	892	897	896	896	896	899	899	900	903	899	896	513
27 *q*	896	896	896	898	900	902	906	905	903	902	901	903	906	910	910	906	903	902	901	901	901	901	899	903	902	651
28	896	895	899	900	902	904	904	904	902	893	891	892	898	903	905	907	908	908	906	903	893	896	901	902	901	612
29	896	898	899	898	902	903	900	899	901	899	897	895	895	897	902	905	904	900	902	901	901	900	898	897	900	589
30 *q*	897	900	898	897	898	900	901	903	903	896	895	895	897	903	905	906	904	904	905	903	903	902	900	896	900	611
31 *q*	897	896	898	899	904	903	906	905	904	896	895	896	897	898	902	904	905	905	904	903	903	902	900	900	901	622
Mean	896	897	897	898	900	902	903	*903*	901	896	893	*892*	893	895	897	898	897	897	897	897	897	896	897	897	897	
Sum 27,000γ+	778	801	807	832	902	952	996	1003	920	771	673	656	699	748	790	830	808	795	793	793	805	775	822	822		Grand Total 667,571

896 at 0-1h. 1 January 1965.

GEOMAGNETIC DECLINATION (WEST)

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

20 ESKDALEMUIR (D) — 10° + — DECEMBER 1964

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	Sum 00·0′+
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
1	4·0	5·5	4·1	2·4	2·5	2·9	2·9	3·7	4·9	5·2	4·1	5·0	6·8	6·6	4·7	5·9	4·9	4·0	3·4	2·8	1·3	2·1	2·5	2·6	3·9	94·8
2	2·2	2·6	2·9	3·9	3·7	3·2	3·3	3·0	3·1	2·6	3·2	4·7	5·8	6·0	5·2	4·6	4·3	4·3	4·7	3·9	3·5	2·6	1·4	2·4	3·6	87·1
3	3·0	2·9	2·7	2·7	3·0	2·6	2·7	2·5	2·2	2·4	4·2	5·7	7·1	7·4	6·0	4·2	4·9	4·9	3·8	−0·6	1·9	2·3	2·6	2·5	3·5	83·6
4	2·8	2·3	2·3	2·9	2·9	3·1	3·0	2·6	2·4	3·0	4·0	5·6	7·0	6·6	6·1	5·5	5·3	2·5	3·4	3·3	2·4	2·4	2·3	2·0	3·6	85·7
5 *q*	2·4	2·6	2·5	3·1	3·7	3·5	3·2	2·8	2·7	2·3	3·1	4·3	5·2	5·4	5·2	4·3	4·2	3·9	3·7	3·2	3·1	3·0	2·7	2·8	3·5	82·9
6	3·2	3·4	3·9	4·0	4·0	3·9	3·8	3·1	2·9	2·6	3·0	4·2	5·2	6·0	6·0	4·8	4·5	4·7	3·9	3·3	1·2	2·3	2·2	2·7	3·7	88·8
7 *d*	2·4	3·2	4·0	4·3	4·6	4·3	3·9	3·3	2·9	2·6	3·2	4·9	7·2	6·6	6·7	6·5	7·2	7·3	3·4	3·5	1·8	−1·9	−6·7	−0·9	3·5	84·3
8	1·4	4·5	2·8	3·7	2·8	5·1	4·2	3·3	2·7	2·5	3·0	4·0	5·4	6·1	5·4	5·2	4·4	4·0	3·6	2·6	2·3	2·4	2·5	2·3	3·6	86·2
9	2·7	3·2	3·3	3·9	3·4	3·9	3·9	3·3	3·4	3·7	5·0	5·4	5·9	5·1	4·8	4·6	4·2	4·7	3·9	3·2	2·4	1·7	4·1	0·5	3·8	90·2
10	2·3	2·9	3·2	3·9	4·0	3·4	3·9	3·3	2·8	2·3	2·7	3·9	4·9	5·1	4·7	3·9	3·7	3·5	3·3	2·7	2·8	3·0	2·8	2·8	3·4	81·8
11	3·1	3·2	3·6	3·6	4·0	3·7	3·2	3·1	3·0	3·1	3·8	5·1	5·5	5·2	4·7	4·7	3·9	3·6	3·4	3·6	2·5	1·9	2·4	2·8	3·6	86·7
12 *q*	2·9	3·0	3·5	3·9	3·9	3·9	3·9	3·6	3·2	2·7	3·1	4·1	4·9	5·2	4·9	4·4	3·9	3·9	3·7	3·3	3·1	1·8	2·0	0·8	3·5	83·6
13 *d*	2·1	1·6	3·2	3·8	4·3	3·8	3·9	3·9	3·5	3·5	4·2	4·7	5·3	6·7	6·3	5·5	6·2	6·8	5·6	1·3	0·1	2·7	2·2	2·1	3·9	93·3
14	2·0	3·8	3·6	3·4	3·5	4·0	5·0	3·3	3·5	3·7	4·8	6·8	6·9	7·1	7·1	5·5	4·6	1·2	2·5	2·9	0·1	−1·8	−0·1	1·0	3·5	84·4
15	2·3	5·0	3·2	3·0	2·0	5·6	2·4	2·8	2·6	2·7	3·4	4·0	4·4	5·6	4·7	3·8	3·0	3·1	3·0	1·8	2·9	2·4	2·0	1·9	3·2	77·6
16 *d*	3·4	3·3	3·8	4·0	5·2	4·1	3·2	3·5	3·4	3·2	3·2	4·4	6·3	7·2	8·5	5·6	4·6	4·2	3·9	3·4	2·8	0·6	−1·8	−1·8	3·7	88·2
17 *d*	1·2	8·3	0·5	3·1	3·9	4·2	3·1	3·5	3·9	4·0	3·9	5·1	6·0	6·2	6·3	5·4	4·4	3·4	−0·3	−1·0	1·6	−0·1	−0·5	−1·1	3·1	75·0
18	1·3	3·4	4·3	3·3	3·2	3·6	4·1	3·2	2·4	2·5	2·9	3·0	4·0	4·8	4·6	3·9	3·6	3·9	3·9	3·2	2·6	2·0	1·4	1·4	3·2	76·5
19 *d*	1·7	2·4	2·0	2·7	2·0	2·4	2·5	2·7	2·5	2·7	3·6	4·6	5·4	5·4	6·1	6·4	3·7	5·9	3·7	−3·1	1·2	−0·1	1·7	2·1	2·9	70·2
20	2·4	3·0	3·2	3·8	3·9	3·5	3·7	3·2	2·8	2·9	2·8	4·2	5·0	5·0	4·1	3·8	3·7	3·8	1·4	2·9	3·0	2·5	1·2	−0·8	3·1	75·0
21	1·3	2·6	3·1	3·5	3·8	4·1	4·2	3·2	2·3	2·1	2·6	3·3	4·5	3·3	4·0	4·4	4·0	4·8	3·3	3·1	2·5	2·3	2·3	2·4	3·2	77·0
22	2·8	2·1	3·2	3·6	3·8	3·6	2·8	2·4	1·9	1·8	2·1	3·3	5·2	5·1	3·9	3·9	4·0	4·0	3·9	3·4	3·0	2·4	2·1	1·9	3·2	76·2
23	2·3	3·0	3·1	3·5	3·9	3·9	4·6	3·9	3·2	3·3	3·0	4·2	6·0	5·5	4·5	4·7	4·4	3·9	3·5	2·8	2·6	1·3	1·2	2·3	3·5	84·6
24	2·7	3·1	3·3	3·6	3·8	3·8	3·0	2·6	2·2	2·6	3·5	5·2	6·2	5·7	4·4	3·6	3·5	3·8	3·9	3·4	1·9	1·9	2·6	2·6	3·5	82·9
25	2·7	2·9	3·1	3·2	3·3	3·4	3·1	2·9	2·7	3·5	4·2	5·0	6·1	6·0	5·0	5·0	4·6	4·9	5·2	4·5	2·7	1·4	−1·7	−0·6	3·5	83·1
26	−1·0	1·7	2·2	2·6	2·7	3·2	3·1	2·8	2·6	2·9	3·9	5·1	5·7	5·7	4·4	4·4	4·5	4·0	4·1	3·3	3·1	3·2	3·3	2·4	3·3	79·9
27 *q*	2·5	2·2	2·6	2·5	2·8	3·0	2·8	2·9	2·8	3·3	4·2	4·9	5·4	5·0	3·9	3·5	3·4	3·3	3·2	2·9	2·9	2·6	2·5	2·5	3·2	77·6
28	2·6	2·0	2·5	1·7	2·7	2·9	2·6	2·6	2·1	2·3	3·1	4·2	5·5	5·2	4·2	3·9	3·9	3·9	3·7	0·1	1·9	3·1	2·8	2·6	3·0	72·1
29	2·6	3·1	2·9	2·6	3·4	2·9	2·1	3·2	2·5	2·3	3·8	5·3	5·2	5·7	5·5	4·9	4·8	4·3	3·9	3·0	2·6	2·4	2·2	2·3	3·5	83·5
30 *q*	2·4	1·2	2·5	3·2	2·6	2·4	2·4	2·3	2·4	2·6	4·0	5·0	5·6	5·7	4·6	4·1	3·8	3·6	3·6	3·0	2·5	2·4	2·3	2·0	3·2	76·2
31 *q*	2·7	3·0	3·1	3·0	3·5	3·2	2·9	2·3	2·0	2·3	3·5	4·8	5·6	5·9	5·0	4·3	3·5	3·6	3·3	2·5	2·1	2·4	2·3	2·4	3·3	79·2
Mean	2·3	3·1	3·0	3·3	3·5	3·6	3·3	3·1	2·8	2·9	3·5	4·7	5·7	*5·7*	5·2	4·7	4·3	4·1	3·5	2·5	2·3	1·9	*1·6*	1·6	3·4	
Sum 00·0′+	72·4	97·0	94·2	102·4	106·8	111·1	103·4	94·8	87·5	89·2	109·1	144·0	175·2	178·1	161·5	145·2	133·6	127·7	109·5	78·2	70·4	57·2	48·8	50·9	3.3	Grand Total 2548·2

2·9 at 0-1h. 1 January 1965.

Mean values for periods of sixty minutes ending at exact hours, G.M.T.

21 ESKDALEMUIR (Z) 45,000γ (0·45 C.G.S. unit) + DECEMBER 1964

Day	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	Sum 10,000γ+
	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	γ
1	431	427	426	429	430	429	428	429	430	429	429	429	432	437	443	443	442	439	438	437	435	434	436	436	433	398
2	436	436	434	432	431	431	431	431	431	431	430	427	431	434	436	436	434	433	434	435	436	436	436	434	433	396
3	433	432	432	432	431	431	430	431	431	431	427	429	432	433	436	437	437	438	442	446	442	438	437	436	434	424
4	436	435	433	433	432	432	431	431	431	431	431	431	432	434	434	435	435	439	439	437	436	435	435	435	434	413
5 *q*	434	432	431	431	431	431	431	431	431	431	430	430	431	432	434	435	434	433	432	432	432	432	432	432	432	365
6	431	430	431	431	431	430	429	428	427	427	427	427	430	432	434	435	435	434	434	433	434	432	431	430	431	343
7 *d*	430	428	427	428	427	427	427	426	425	425	427	428	427	428	432	437	445	449	449	444	442	437	434	431	433	380
8	430	427	428	427	430	430	431	432	432	432	430	430	428	431	437	438	438	437	436	436	436	434	433	432	432	375
9	432	432	431	431	430	430	428	429	429	430	429	428	429	430	432	433	435	435	435	435	434	434	426	420	431	337
10	425	426	428	429	429	430	428	428	428	430	428	428	428	428	430	431	431	431	431	431	431	431	431	431	429	302
11	431	431	430	430	430	430	430	428	427	425	423	422	425	428	431	432	431	431	431	431	432	432	432	431	429	304
12 *q*	430	430	428	427	428	428	427	427	427	426	425	426	427	426	427	427	427	427	428	430	431	431	431	431	428	272
13 *d*	430	427	426	425	425	425	424	424	425	425	424	426	426	425	426	425	430	439	445	446	442	439	436	433	430	318
14	432	431	430	430	430	430	427	428	427	430	430	430	430	430	433	435	435	437	436	436	437	435	432	430	432	361
15	427	423	421	424	426	425	423	426	428	430	431	432	435	435	435	432	432	432	432	432	432	432	432	431	429	308
16 *d*	424	425	425	425	424	421	423	423	425	425	426	427	428	438	448	436	433	432	433	433	436	441	437	432	430	320
17 *d*	429	403	397	414	421	424	426	427	431	431	430	427	429	432	435	438	438	439	438	436	435	436	436	434	429	286
18	427	428	430	430	430	430	430	431	432	431	432	436	435	435	436	436	435	434	435	436	437	438	439	440	433	403
19 *d*	438	436	435	432	431	430	429	428	428	431	431	430	431	436	439	442	444	443	443	449	440	440	438	438	436	462
20	436	435	434	432	432	431	431	431	432	432	434	431	431	434	435	436	435	435	437	434	432	432	432	431	433	395
21	430	431	431	431	431	431	430	429	430	431	431	431	430	432	434	435	438	436	436	434	432	432	431	432	432	369
22	429	430	431	431	431	431	431	430	430	430	430	428	428	432	434	434	432	432	431	431	431	434	434	434	431	349
23	431	431	431	431	431	431	430	428	426	426	426	424	428	432	433	434	436	436	434	434	434	434	434	431	431	348
24	432	431	431	431	431	431	431	431	431	431	428	428	428	431	432	433	434	434	434	434	434	432	431	431	431	355
25	431	431	431	431	431	431	431	431	431	430	428	424	422	426	431	430	430	430	431	432	432	434	432	430	430	321
26	431	430	430	431	431	431	431	431	431	431	430	428	431	432	434	434	434	434	434	434	432	432	432	431	432	360
27 *q*	432	432	431	431	431	431	430	431	431	431	430	427	426	427	430	429	431	431	432	432	432	432	432	430	431	332
28	430	431	430	428	428	429	429	430	431	433	433	432	431	432	432	431	431	430	431	433	435	435	434	432	431	351
29	432	431	431	431	428	429	430	431	431	431	431	431	431	432	433	432	431	432	432	432	433	433	433	434	431	355
30 *q*	432	431	428	427	428	430	429	429	430	428	427	431	431	432	432	431	431	431	431	431	431	431	431	431	430	324
31 *q*	431	430	430	428	427	427	427	427	427	428	429	430	430	432	433	431	431	431	431	431	432	432	432	432	430	319
Mean	431	429	429	429	429	429	429	429	429	429	429	429	429	431	434	434	434	435	435	435	435	434	433	432	431	
Sum 13,000γ+	363	313	292	303	307	307	293	297	308	313	297	288	313	378	451	453	465	474	485	487	470	460	432	396		Grand Total 320,945

431 at 0-1h. 1 January 1965.

DAILY GEOMAGNETIC CHARACTER FIGURES (K, K_H, K_D, K_Z, AND C) AND TEMPERATURE IN MAGNETOGRAPH CHAMBER

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Day	3-h range indices K	Sum of K indices	3-h range indices K_H	Sum of K_H indices	3-h range indices K_D	Sum of K_D indices	3-h range indices K_Z	Sum of K_Z indices	Geomagnetic character of day, C (0-2)	Temperature in magneto-graph chamber 200°A+
1	2112 2222	14	1112 2222	13	2112 2112	12	1000 0000	1	1	85·1
2	1011 0012	6	1011 0012	6	1001 0012	5	0000 0000	0	0	85·1
3	0101 2231	10	0100 2221	8	0101 2131	9	0000 0010	1	1	85·0
4	0000 1220	5	0000 0210	3	0000 1220	5	0000 0100	1	0	85·0
5 *q*	1001 0000	2	1001 0000	2	1000 0000	1	0000 0000	0	0	85·0
6	0000 0022	4	0000 0022	4	0000 0021	3	0000 0000	0	0	84·9
7 *d*	1112 3333	17	0112 3333	16	1101 1123	10	0000 0111	3	1	84·9
8	2211 1111	10	2111 1111	9	2211 0010	7	0000 0000	0	0	84·8
9	0111 0113	8	0111 0113	8	0111 0003	6	0000 0002	2	0	84·8
10	1110 0010	4	0010 0000	1	1100 0010	3	0000 0000	0	0	84·9
11	0000 0011	2	0000 0010	1	0000 0011	2	0000 0000	0	0	84·8
12 *q*	0000 0012	3	0000 0012	3	0000 0001	1	0000 0000	0	0	84·8
13 *d*	1101 2431	13	0000 2431	10	1101 1231	10	0000 0210	3	1	84·7
14	2012 1223	13	1012 1223	12	2011 1222	11	0000 0000	0	1	84·7
15	3310 1010	9	2210 1000	6	3310 0010	8	1000 0000	1	1	84·7
16 *d*	3212 4223	19	3212 4223	19	1111 3112	11	1000 2001	4	1	84·7
17 *d*	4322 1133	19	3322 1123	17	4211 1131	14	3210 0000	6	1	84·6
18	2111 1012	9	2111 1012	9	2111 0011	7	0000 0000	0	0	84·6
19 *d*	1101 2342	14	0101 2332	12	1101 1242	12	0000 0120	3	1	84·6
20	0002 1023	8	0002 1023	8	0001 1022	6	0000 0010	1	0	84·6
21	1010 0210	5	1010 0210	5	1010 0110	4	0000 0000	0	0	84·6
22	2000 1102	6	2000 1102	6	2000 0001	3	0000 0000	0	0	84·5
23	1110 0102	6	0110 0101	4	1000 0002	3	0000 0000	0	0	84·6
24	0010 0122	6	0010 0110	3	0010 0122	6	0000 0000	0	0	84·6
25	0000 1023	6	0000 0023	5	0000 1023	6	0000 0001	1	0	84·6
26	3100 1011	7	1000 1000	2	3100 1011	7	0000 0000	0	0	84·6
27 *q*	1001 0002	4	0001 0002	3	1000 0001	2	0000 0000	0	0	84·6
28	1100 0032	7	0000 0022	4	1100 0031	6	0000 0000	0	0	84·6
29	0111 1100	5	0011 1100	4	0111 1000	4	0000 0000	0	0	84·6
30 *q*	1000 0000	1	1000 0000	1	1000 0000	1	0000 0000	0	0	84·6
31 *q*	1000 0110	3	1000 0000	1	1000 0110	3	0000 0000	0	0	84·6
								Mean	0·29	84·7

q denotes an international quiet day and *d* an international disturbed day.

K_H For horizontal component. K_D For declination. K_Z For vertical component. (See Introduction).

MEAN MONTHLY AND ANNUAL VALUES OF GEOMAGNETIC ELEMENTS

For all, *a*, quiet, *q*, and disturbed, *d*, days for *H*, *D* and *Z* and for all days for *X*, −*Y*, *I* and *F*

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	Horizontal (*H*) component			Declination (*D*) (west)			Vertical (*Z*) component			North component (*X*) all days	West component (−Y) all days	Inclination (*I*) (north) all days	Total force (*F*) all days
	a	*q* 16,000γ +	*d*	*a*	*q* 10° +	*d*	*a*	*q* 45,000γ +	*d*				
	γ	γ	γ	′	′	′	γ	γ	γ	γ	γ	° ′	γ
Jan.	865	871	857	7·3	7·5	7·3	427	424	429	16603	2964	69 37·9	48456
Feb.	867	872	863	7·0	7·3	6·9	427	426	427	16605	2963	69 37·8	48456
Mar.	871	874	864	6·9	6·9	5·9	424	425	424	16609	2963	69 37·5	48456
Apr.	875	880	868	6·1	6·4	5·2	424	423	427	16613	2960	69 37·2	48458
May	881	885	876	5·4	5·7	5·3	425	424	424	16620	2958	69 36·8	48460
June	887	889	881	5·5	5·6	4·9	425	424	422	16626	2959	69 36·4	48462
July	890	891	892	5·2	5·3	5·4	423	426	419	16629	2958	69 36·2	48462
Aug.	889	889	889	4·9	4·7	4·9	424	426	422	16628	2957	69 36·3	48462
Sept.	887	892	882	4·3	4·5	3·8	426	424	426	16627	2953	69 36·4	48463
Oct.	887	888	885	3·9	3·8	3·3	431	433	431	16627	2951	69 36·6	48468
Nov.	892	894	889	3·7	3·6	4·2	433	433	433	16632	2951	69 36·3	48472
Dec.	897	901	894	3·4	3·3	3·4	431	430	431	16638	2951	69 35·9	48472
Year	883	885	878	5·3	5·4	5·0	427	427	426	16621	2958	69 36·8	48462

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)

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NORTH COMPONENT

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
	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.	+3·2	+1·0	+1·3	+2·9	+4·5	+8·2	+8·5	+7·3	+4·6	-2·2	-9·6	-12·7	-10·8	-5·2	-1·6	-1·8	-3·6	-1·7	+0·4	+1·8	+0·6	0·0	+3·5	+1·3
Feb.	+1·4	+3·0	+2·8	+2·3	+5·7	+6·6	+7·7	+10·4	+6·1	-1·9	-9·5	-14·6	-13·5	-9·1	-6·3	-0·6	-1·0	-2·1	+0·3	+2·6	+3·3	+2·6	+2·4	+1·5
Mar.	+7·2	+3·5	+4·1	+3·5	+4·9	+8·0	+8·1	+3·3	-1·7	-10·2	-19·1	-21·5	-17·3	-8·7	-3·9	-2·0	+1·6	+2·8	+4·7	+5·8	+5·1	+6·2	+8·3	+7·3
Apr.	+5·6	+5·2	+6·3	+6·1	+5·5	+6·4	+7·3	+1·7	-8·3	-19·5	-29·0	-28·9	-24·9	-15·1	-6·0	+0·3	+5·9	+12·3	+11·2	+11·9	+11·1	+10·1	+10·9	+14·1
May	+6·8	+4·5	+5·2	+3·2	+3·9	+2·9	-4·3	-9·3	-15·4	-21·1	-21·1	-18·4	-14·1	-9·3	-3·6	+1·5	+4·6	+13·0	+15·8	+15·8	+10·8	+8·9	+11·0	+8·6
June	+7·6	+6·7	+5·1	+6·0	+7·3	+2·9	-3·7	-8·0	-12·9	-18·2	-22·4	-20·1	-19·0	-16·0	-8·3	-2·4	+4·8	+10·1	+16·6	+19·4	+14·7	+12·4	+9·7	+7·5
July	+6·5	+5·9	+3·5	+1·6	+3·1	+4·7	+0·6	-4·1	-9·2	-16·5	-20·6	-23·0	-18·8	-14·5	-7·9	-0·7	+4·3	+9·3	+13·9	+15·3	+14·6	+13·0	+9·9	+9·0
Aug.	+7·6	+7·5	+5·1	+4·8	+6·7	+3·0	+0·7	-3·3	-9·6	-15·2	-19·8	-20·5	-17·9	-11·6	-6·9	-2·0	+2·5	+6·1	+10·7	+11·6	+10·0	+10·0	+10·5	+10·1
Sept.	+8·3	+6·0	+4·3	+4·6	+5·7	+6·3	+5·9	-0·8	-7·7	-14·8	-20·6	-21·3	-16·1	-10·1	-7·1	-1·0	+0·1	+3·7	+6·9	+9·4	+9·0	+9·4	+10·7	+9·3
Oct.	+8·0	+6·5	+3·7	+4·4	+6·0	+8·3	+8·6	+5·1	-2·3	-9·9	-16·1	-17·7	-16·0	-13·1	-8·4	-7·3	-4·1	-1·1	+4·3	+5·9	+7·6	+8·9	+9·3	+9·6
Nov.	+2·2	+0·5	+1·6	+3·8	+5·5	+6·2	+6·3	+5·2	+1·1	-4·6	-8·2	-8·0	-6·6	-5·5	-3·8	-4·1	-3·2	-1·7	-1·3	+1·8	+2·1	+2·5	+2·4	+5·6
Dec.	-0·1	-0·2	0·0	+0·7	+2·7	+4·2	+5·9	+6·2	+3·8	-0·9	-4·6	-6·2	-5·5	-4·2	-2·3	-0·6	-1·1	-1·3	-0·8	0·0	+0·6	+0·2	+1·8	+1·7
Year	+5·3	+4·1	+3·6	+3·6	+5·1	+5·7	+4·3	+1·2	-4·3	-11·3	-16·7	-17·7	-15·0	-10·2	-5·5	-1·7	+0·9	+4·1	+6·9	+8·4	+7·5	+7·1	+7·5	+7·2
Winter	+1·7	+1·1	+1·5	+2·4	+4·6	+6·3	+7·1	+7·3	+3·9	-2·4	-8·0	-10·4	-9·1	-6·0	-3·5	-1·8	-2·1	-1·7	-0·3	+1·6	+1·6	+1·3	+2·6	+2·5
Equinox	+7·3	+5·3	+4·6	+4·7	+5·5	+7·2	+7·5	+2·3	-5·0	-13·6	-21·2	-22·3	-18·6	-11·7	-6·3	-2·5	+0·8	+4·4	+6·8	+8·3	+8·2	+8·6	+9·8	+10·1
Summer	+7·2	+6·1	+4·7	+3·9	+5·3	+3·4	-1·7	-6·2	-11·7	-17·8	-21·0	-20·5	-17·5	-12·9	-6·7	-0·9	+4·0	+9·7	+14·2	+15·5	+12·6	+11·1	+10·2	+8·8

WEST COMPONENT

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
	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.	-7·3	-5·5	0·0	+1·0	-0·1	+3·8	+3·9	+1·5	-1·4	-2·0	+3·2	+7·5	+12·6	+15·7	+11·8	+7·9	+2·9	-0·3	-3·6	-5·6	-11·4	-13·2	-11·9	-9·5
Feb.	-9·5	-2·6	-1·8	+1·4	-0·5	-1·3	+0·3	-1·4	-4·4	-5·5	-1·5	+8·1	+15·5	+20·1	+20·1	+14·7	+8·3	+2·8	-4·0	-5·6	-5·0	-10·9	-22·1	-15·1
Mar.	-5·1	-3·8	-4·0	-5·9	-5·1	-6·9	-8·3	-9·7	-11·4	-8·7	+0·2	+11·2	+23·4	+25·8	+22·3	+14·0	+7·1	+1·3	-3·0	-6·9	-8·3	-5·5	-6·7	-5·8
Apr.	-7·3	-4·8	-6·9	-11·9	-11·5	-11·8	-14·5	-18·9	-18·9	-12·9	-0·4	+14·5	+27·3	+32·3	+29·0	+21·4	+14·5	+8·5	+4·6	+1·5	-6·3	-9·5	-7·5	-10·4
May	-7·5	-10·1	-9·2	-8·7	-12·9	-20·7	-21·5	-20·6	-16·9	-8·6	+3·5	+14·1	+23·2	+23·5	+22·6	+17·4	+14·1	+13·2	+9·9	+4·3	+1·4	-0·6	-4·0	-5·5
June	-3·6	-5·8	-6·8	-8·5	-13·4	-19·7	-24·9	-23·4	-20·9	-13·3	-2·8	+9·1	+19·5	+24·0	+25·2	+21·0	+15·8	+11·2	+9·6	+7·1	+4·5	+0·6	-2·6	-1·9
July	-3·9	-3·3	-7·5	-10·2	-13·9	-19·7	-23·5	-23·5	-21·6	-16·5	-7·4	+5·7	+19·5	+25·6	+25·1	+21·9	+18·2	+13·7	+10·8	+6·9	+4·5	+1·4	-0·9	-1·5
Aug.	-4·7	-5·9	-6·1	-10·2	-12·4	-14·1	-17·8	-19·5	-17·4	-10·0	+1·2	+14·8	+24·4	+27·8	+23·3	+16·1	+10·1	+5·5	+1·6	+1·0	-0·8	-2·0	-1·2	-3·6
Sept.	-6·0	-6·3	-4·5	-8·1	-8·3	-7·8	-10·0	-14·2	-14·7	-10·4	-0·2	+11·4	+22·8	+26·8	+24·1	+17·5	+9·9	+3·9	+1·5	-2·6	-2·5	-5·2	-9·9	-7·1
Oct.	-5·6	-5·3	-5·2	-3·9	-3·9	-2·9	-3·2	-7·3	-11·6	-7·7	-1·5	+10·7	+19·7	+23·2	+19·0	+16·0	+7·9	+3·0	+1·0	-4·8	-8·6	-10·4	-10·2	-8·5
Nov.	-6·3	-4·9	-1·6	-2·1	-1·3	-1·3	-2·0	-2·7	-4·1	-3·7	+2·6	+9·1	+13·2	+13·2	+11·7	+9·7	+7·7	+3·1	+0·3	-4·5	-7·8	-8·1	-10·0	-10·0
Dec.	-5·5	-1·5	-1·9	-0·5	+0·6	+1·5	+0·6	-0·7	-2·4	-2·9	-0·4	+5·0	+10·1	+10·9	+8·5	+6·1	+4·2	+3·3	+0·4	-4·5	-5·7	-7·8	-9·0	-8·6
Year	-6·1	-5·0	-4·6	-5·7	-6·9	-8·4	-10·1	-11·7	-12·0	-8·5	-0·3	+10·1	+19·3	+22·4	+20·2	+15·3	+10·0	+5·8	+2·4	-1·1	-3·9	-5·9	-8·0	-7·3
Winter	-7·1	-3·7	-1·3	0·0	-0·3	+0·7	+0·7	-0·9	-3·1	-3·5	+1·0	+7·4	+12·9	+15·0	+13·0	+9·6	+5·8	+2·2	-1·8	-5·1	-7·5	-10·1	-13·2	-10·8
Equinox	-6·0	-5·1	-5·1	-7·4	-7·2	-7·3	-9·0	-12·5	-14·1	-9·9	-0·5	+11·9	+23·3	+27·0	+23·5	+17·2	+9·9	+4·2	+1·0	-3·2	-6·5	-7·7	-8·6	-7·9
Summer	-4·9	-6·3	-7·4	-9·4	-13·1	-18·5	-21·9	-21·7	-19·2	-12·1	-1·4	+10·9	+21·6	+25·2	+24·0	+19·1	+14·5	+10·9	+8·0	+4·8	+2·4	-0·2	-2·2	-3·1

VERTICAL COMPONENT

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
	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.	-2·3	-4·0	-5·7	-6·1	-5·5	-5·7	-5·8	-4·7	-3·5	-2·2	-2·1	-1·0	-0·1	+2·0	+4·8	+6·3	+7·4	+7·3	+6·1	+4·9	+4·6	+4·1	+1·7	-0·5
Feb.	-2·7	-4·6	-5·6	-6·9	-7·3	-5·8	-5·4	-4·9	-3·0	-2·2	-3·8	-4·2	-3·5	-1·1	+2·6	+6·2	+8·4	+10·0	+11·2	+9·3	+5·8	+4·2	+3·1	+0·2
Mar.	-3·2	-5·0	-6·4	-6·9	-7·7	-7·6	-5·1	-2·9	-2·7	-4·3	-6·5	-8·3	-7·3	-2·6	+4·5	+10·1	+13·4	+14·0	+11·5	+10·1	+8·6	+4·5	+0·8	-1·0
Apr.	-7·5	-9·4	-8·8	-6·2	-4·1	-3·3	-1·4	-0·9	-2·6	-5·7	-8·3	-11·1	-10·1	-4·7	+2·2	+7·3	+12·7	+18·5	+18·4	+14·6	+11·6	+5·3	+0·1	-6·6
May	-7·0	-5·0	-3·4	-2·7	-3·9	-1·3	-0·1	-1·5	-5·0	-9·4	-13·1	-14·4	-11·5	-4·1	+2·4	+9·3	+11·9	+12·4	+12·1	+12·2	+10·4	+7·5	+4·2	0·0
June	+0·1	-1·2	-1·9	-2·1	-2·5	-2·0	-1·7	-1·3	-2·6	-6·4	-10·7	-13·5	-10·8	-5·2	-0·6	+3·6	+8·0	+10·5	+11·4	+9·2	+7·9	+6·2	+3·5	+2·1
July	-2·4	-5·7	-5·7	-3·8	-2·0	-1·1	-0·2	+0·4	-1·1	-4·3	-7·2	-9·6	-10·4	-5·9	+0·6	+4·6	+7·3	+9·9	+10·5	+10·1	+9·2	+5·1	+2·0	-0·3
Aug.	-1·1	-1·7	-3·7	-4·3	-2·5	-1·0	-0·4	+0·1	-2·0	-5·9	-9·3	-12·3	-11·8	-6·5	+0·2	+6·4	+9·4	+10·8	+10·6	+9·4	+7·8	+5·8	+3·0	-1·0
Sept	-3·9	-4·4	-5·5	-7·7	-4·8	-2·8	-0·7	+0·4	0·0	-2·1	-5·0	-7·5	-7·5	-4·4	+0·6	+6·2	+9·3	+10·1	+9·7	+8·1	+6·7	+4·7	+1·3	-0·8
Oct.	-6·6	-8·0	-6·7	-5·4	-4·2	-4·0	-2·5	-0·9	+0·2	-0·6	-3·7	-5·6	-3·6	-0·8	+4·7	+9·3	+10·7	+10·6	+7·9	+6·5	+4·1	+2·0	+0·3	-3·7
Nov.	-2·1	-2·0	-2·8	-3·2	-4·0	-3·7	-3·4	-3·0	-2·6	-3·0	-4·3	-4·4	-2·3	+0·7	+3·2	+4·5	+5·2	+6·4	+6·5	+5·2	+4·2	+3·0	+2·5	-0·6
Dec.	-0·3	-1·9	-2·5	-2·3	-2·1	-2·1	-2·6	-2·5	-2·0	-1·9	-2·5	-2·8	-1·9	+0·1	+2·6	+2·6	+3·0	+3·2	+3·6	+3·7	+3·2	+2·8	+1·9	+0·7
Year	-3·3	-4·4	-4·9	-4·8	-4·2	-3·4	-2·4	-1·8	-2·2	-4·0	-6·4	-7·9	-6·6	-2·7	+2·3	+6·4	+8·9	+10·3	+10·0	+8·6	+7·0	+4·6	+2·0	-1·0
Winter	-1·9	-3·1	-4·1	-4·6	-4·7	-4·3	-4·3	-3·8	-2·8	-2·3	-3·2	-3·1	-1·9	+0·4	+3·3	+4·9	+6·0	+6·7	+6·9	+5·8	+4·5	+3·5	+2·3	-0·1
Equinox	-5·3	-6·7	-6·9	-6·5	-5·2	-4·4	-2·4	-1·1	-1·3	-3·2	-5·9	-8·1	-7·1	-3·1	+3·0	+8·2	+11·5	+13·3	+11·9	+9·8	+7·7	+4·1	+0·6	-3·0
Summer	-2·6	-3·4	-3·7	-3·2	-2·7	-1·3	-0·6	-0·6	-2·7	-6·5	-10·1	-12·5	-11·1	-5·4	+0·7	+6·0	+9·1	+10·9	+11·1	+10·2	+8·8	+6·1	+3·2	+0·2

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

ALL DAYS

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

25 ESKDALEMUIR 1964

DECLINATION (measured positive towards the west)

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
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
Jan.	-1·59	-1·15	-0·04	+0·09	-0·17	+0·47	+0·48	+0·04	-0·44	-0·32	+0·98	+1·96	+2·91	+3·33	+2·43	+1·65	+0·72	-0·01	-0·74	-1·19	-2·30	-2·65	-2·51	-1·95
Feb.	-1·95	-0·63	-0·46	+0·20	-0·31	-0·49	-0·21	-0·65	-1·11	-1·04	+0·05	+2·14	+3·60	+4·36	+4·25	+2·96	+1·70	+0·64	-0·81	-1·22	-1·13	-2·29	-4·52	-3·08
Mar.	-1·28	-0·89	-0·95	-1·31	-1·19	-1·67	-1·95	-2·06	-2·23	-1·37	+0·73	+3·01	+5·31	+5·49	+4·61	+2·88	+1·36	+0·15	-0·77	-1·60	-1·86	-1·33	-1·65	-1·43
Apr.	-1·66	-1·14	-1·60	-2·60	-2·51	-2·59	-3·18	-3·86	-3·50	-1·90	+0·95	+3·94	+6·37	+7·03	+6·03	+4·28	+2·70	+1·26	+0·52	-0·13	-1·66	-2·26	-1·90	-2·59
May	-1·76	-2·19	-2·04	-1·87	-2·72	-4·25	-4·17	-3·81	-2·85	-0·98	+1·45	+3·48	+5·15	+5·04	+4·66	+3·43	+2·67	+2·18	+1·43	+0·30	-0·11	-0·44	-1·19	-1·41
June	-0·98	-1·39	-1·53	-1·91	-2·92	-4·01	-4·81	-4·36	-3·69	-2·00	+0·23	+2·51	+4·54	+5·33	+5·30	+4·26	+2·97	+1·86	+1·33	+0·73	+0·37	-0·32	-0·86	-0·65
July	-1·01	-0·88	-1·62	-2·09	-2·89	-4·12	-4·73	-4·56	-4·00	-2·72	-0·75	+1·95	+4·58	+5·65	+5·31	+4·42	+3·49	+2·42	+1·67	+0·83	+0·39	-0·18	-0·53	-0·63
Aug.	-1·21	-1·45	-1·40	-2·21	-2·72	-2·93	-3·59	-3·79	-3·14	-1·47	+0·94	+3·69	+5·53	+5·98	+4·90	+3·29	+1·93	+0·89	-0·06	-0·22	-0·51	-0·76	-0·61	-1·08
Sept.	-1·50	-1·47	-1·05	-1·79	-1·87	-1·78	-2·22	-2·82	-2·68	-1·56	+0·69	+3·04	+5·14	+5·73	+5·07	+3·53	+1·99	+0·66	+0·06	-0·85	-0·83	-1·37	-2·36	-1·76
Oct.	-1·40	-1·30	-1·17	-0·94	-0·99	-0·88	-0·94	-1·65	-2·24	-1·18	+0·28	+2·77	+4·51	+5·12	+4·11	+3·46	+1·73	+0·65	+0·04	-1·18	-1·99	-2·39	-2·38	-2·04
Nov.	-1·34	-1·00	-0·37	-0·55	-0·45	-0·49	-0·63	-0·73	-0·87	-0·57	+0·82	+2·09	+2·87	+2·83	+2·48	+2·09	+1·65	+0·68	+0·10	-0·97	-1·64	-1·72	-2·08	-2·20
Dec.	-1·09	-0·29	-0·39	-0·12	+0·02	+0·16	-0·09	-0·36	-0·61	-0·54	+0·09	+1·23	+2·22	+2·33	+1·78	+1·26	+0·88	+0·70	+0·10	-0·90	-1·16	-1·57	-1·86	-1·79
Year	-1·40	-1·15	-1·05	-1·26	-1·56	-1·88	-2·17	-2·38	-2·26	-1·30	+0·54	+2·65	+4·39	+4·85	+4·24	+3·13	+1·98	+1·01	+0·24	-0·53	-1·04	-1·44	-1·87	-1·72
Winter	-1·49	-0·77	-0·31	-0·09	-0·23	-0·09	-0·11	-0·43	-0·76	-0·62	+0·49	+1·85	+2·90	+3·21	+2·73	+1·99	+1·24	+0·50	-0·34	-1·07	-1·56	-2·06	-2·74	-2·25
Equinox	-1·46	-1·20	-1·19	-1·66	-1·64	-1·73	-2·07	-2·60	-2·66	-1·50	+0·66	+3·19	+5·33	+5·84	+4·95	+3·54	+1·95	+0·68	-0·04	-0·94	-1·59	-1·84	-2·07	-1·95
Summer	-1·24	-1·48	-1·65	-2·02	-2·81	-3·83	-4·33	-4·13	-3·42	-1·79	+0·47	+2·91	+4·95	+5·50	+5·04	+3·85	+2·77	+1·84	+1·09	+0·41	+0·03	-0·43	-0·80	-0·94

INCLINATION

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
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
Jan.	-0·18	-0·10	-0·23	-0·35	-0·43	-0·72	-0·74	-0·61	-0·37	+0·11	+0·54	+0·72	+0·56	+0·21	+0·09	+0·18	+0·38	+0·29	+0·16	+0·07	+0·21	+0·25	-0·05	+0·01
Feb.	-0·05	-0·28	-0·30	-0·34	-0·55	-0·56	-0·64	-0·79	-0·42	+0·13	+0·54	+0·76	+0·62	+0·33	+0·24	+0·02	+0·17	+0·35	+0·30	+0·12	-0·02	+0·06	+0·18	+0·09
Mar.	-0·49	-0·31	-0·38	-0·33	-0·45	-0·63	-0·56	-0·18	+0·18	+0·67	+1·09	+1·07	+0·68	+0·21	+0·10	+0·22	+0·15	+0·15	+0·01	-0·05	-0·03	-0·23	-0·45	-0·44
Apr.	-0·46	-0·52	-0·55	-0·41	-0·33	-0·36	-0·34	+0·09	+0·70	+1·29	+1·70	+1·45	+1·06	+0·50	+0·11	-0·09	-0·24	-0·45	-0·33	-0·44	-0·37	-0·42	-0·62	-0·97
May	-0·53	-0·30	-0·32	-0·17	-0·20	+0·02	+0·53	+0·81	+1·08	+1·25	+1·02	+0·68	+0·37	+0·23	+0·03	-0·07	-0·17	-0·70	-0·85	-0·78	-0·47	-0·39	-0·57	-0·50
June	-0·46	-0·40	-0·30	-0·35	-0·39	-0·01	+0·49	+0·76	+1·02	+1·19	+1·23	+0·88	+0·75	+0·64	+0·24	0·00	-0·30	-0·53	-0·91	-1·12	-0·82	-0·67	-0·52	-0·42
July	-0·44	-0·49	-0·28	-0·08	-0·09	-0·11	+0·23	+0·55	+0·82	+1·16	+1·26	+1·20	+0·75	+0·51	+0·24	-0·10	-0·31	-0·52	-0·78	-0·83	-0·78	-0·74	-0·59	-0·58
Aug.	-0·47	-0·46	-0·36	-0·30	-0·35	-0·06	+0·15	+0·45	+0·78	+0·97	+1·05	+0·87	+0·59	+0·28	+0·19	+0·11	-0·05	-0·20	-0·46	-0·54	-0·45	-0·49	-0·60	-0·64
Sept.	-0·57	-0·43	-0·36	-0·40	-0·40	-0·39	-0·29	+0·23	+0·67	+1·04	+1·23	+1·08	+0·61	+0·24	+0·20	+0·01	+0·11	-0·04	-0·23	-0·39	-0·39	-0·44	-0·55	-0·55
Oct.	-0·62	-0·56	-0·35	-0·37	-0·45	-0·60	-0·59	-0·27	+0·29	+0·72	+0·98	+0·90	+0·73	+0·57	+0·44	+0·52	+0·44	+0·30	-0·10	-0·17	-0·30	-0·41	-0·49	-0·62
Nov.	-0·13	-0·02	-0·15	-0·31	-0·45	-0·48	-0·48	-0·38	-0·09	+0·27	+0·40	+0·31	+0·22	+0·22	+0·19	+0·26	+0·25	+0·23	+0·24	+0·06	+0·06	+0·01	+0·02	-0·27
Dec.	+0·07	-0·01	-0·04	-0·10	-0·24	-0·35	-0·46	-0·46	-0·27	+0·05	+0·24	+0·28	+0·20	+0·15	+0·12	+0·03	+0·09	+0·13	+0·14	+0·14	+0·11	+0·15	+0·03	0·00
Year	-0·36	-0·32	-0·30	-0·29	-0·36	-0·36	-0·23	+0·02	+0·37	+0·74	+0·94	+0·85	+0·59	+0·34	+0·18	+0·09	+0·05	-0·09	-0·23	-0·33	-0·27	-0·28	-0·35	-0·41
Winter	-0·07	-0·10	-0·19	-0·27	-0·41	-0·53	-0·58	-0·56	-0·29	+0·14	+0·43	+0·51	+0·40	+0·23	+0·16	+0·13	+0·22	+0·25	+0·21	+0·10	+0·09	+0·12	+0·04	-0·04
Equinox	-0·54	-0·45	-0·41	-0·38	-0·41	-0·49	-0·45	-0·03	+0·46	+0·93	+1·24	+1·12	+0·77	+0·37	+0·21	+0·17	+0·12	-0·01	-0·17	-0·26	-0·27	-0·37	-0·52	-0·64
Summer	-0·48	-0·41	-0·31	-0·23	-0·26	-0·04	+0·35	+0·64	+0·92	+1·14	+1·14	+0·91	+0·62	+0·42	+0·18	-0·02	-0·21	-0·49	-0·75	-0·82	-0·63	-0·57	-0·57	-0·53

HORIZONTAL COMPONENT

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
	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.	+1·9	0·0	+1·3	+3·0	+4·4	+8·7	+9·0	+7·5	+4·3	-2·5	-8·9	-11·2	-8·4	-2·4	+0·5	-0·4	-3·0	-1·7	-0·2	+0·8	-1·4	-2·3	+1·4	-0·4
Feb.	-0·3	+2·5	+2·4	+2·5	+5·5	+6·3	+7·6	+10·0	+5·2	-2·8	-9·6	-13·0	-10·6	-5·4	-2·7	+2·0	+0·5	-1·6	-0·4	+1·6	+2·4	+0·6	-1·5	-1·2
Mar.	+6·2	+2·8	+3·3	+2·4	+3·9	+6·7	+6·5	+1·6	-3·7	-11·6	-18·8	-19·2	-12·9	-4·1	+0·1	+0·5	+2·8	+3·0	+4·1	+4·5	+3·6	+5·1	+7·0	+6·2
Apr.	+4·2	+4·3	+5·0	+3·9	+3·4	+4·2	+4·6	-1·7	-11·5	-21·5	-28·6	-25·9	-19·7	-9·2	-0·8	+4·0	+8·3	+13·6	+11·8	+12·0	+9·8	+8·3	+9·4	+12·1
May	+5·4	+2·7	+3·5	+1·6	+1·6	-0·8	-8·0	-12·8	-18·1	-22·3	-20·2	-15·6	-9·8	-5·0	+0·4	+4·5	+7·0	+15·1	+17·3	+16·3	+10·9	+8·7	+10·1	+7·5
June	+6·9	+5·6	+3·8	+4·4	+4·9	-0·6	-8·0	-11·9	-16·3	-20·2	-22·5	-18·2	-15·3	-11·6	-3·8	+1·3	+7·5	+11·9	+18·0	+20·3	+15·3	+12·3	+9·1	+7·1
July	+5·7	+5·2	+2·1	-0·2	+0·6	+1·2	-3·5	-8·1	-12·8	-19·1	-21·6	-21·6	-15·1	-9·8	-3·4	+3·2	+7·4	+11·5	+15·6	+16·3	+15·2	+13·0	+9·6	+8·6
Aug.	+6·7	+6·3	+4·0	+2·9	+4·4	+0·5	-2·4	-6·7	-12·5	-16·7	-19·3	-17·6	-13·3	-6·6	-2·7	+0·8	+4·2	+7·0	+10·8	+11·6	+9·7	+9·5	+10·1	+9·3
Sept.	+7·1	+4·8	+3·4	+3·1	+4·2	+4·8	+4·1	-3·3	-10·1	-16·4	-20·3	-19·0	-11·9	-5·2	-2·8	+2·1	+1·8	+4·3	+7·1	+8·8	+8·4	+8·3	+8·8	+7·9
Oct.	+6·9	+5·5	+2·7	+3·6	+5·2	+7·6	+7·9	+3·7	-4·3	-11·1	-16·1	-15·6	-12·3	-8·8	-4·9	-4·4	-2·7	-0·6	+4·4	+5·0	+6·0	+6·9	+7·4	+8·0
Nov.	+1·1	-0·4	+1·3	+3·4	+5·2	+5·9	+5·9	+4·6	+0·4	-5·2	-7·6	-6·3	-4·2	-3·1	-1·7	-2·3	-1·8	-1·1	-1·2	+1·0	+0·7	+1·0	+0·6	+3·8
Dec.	-1·1	-0·5	-0·3	+0·6	+2·8	+4·4	+5·9	+6·0	+3·3	-1·4	-4·6	-5·2	-3·7	-2·2	-0·8	+0·5	-0·3	-0·7	-0·7	-0·8	-0·4	-1·2	+0·2	+0·2
Year	+4·2	+3·2	+2·7	+2·6	+3·8	+4·1	+2·5	-0·9	-6·3	-12·6	-16·5	-15·7	-11·4	-6·1	-1·9	+1·0	+2·6	+5·1	+7·2	+8·1	+6·7	+5·9	+6·0	+5·8
Winter	+0·4	+0·4	+1·2	+2·4	+4·5	+6·3	+7·1	+7·0	+3·3	-3·0	-7·7	-8·9	-6·7	-3·3	-1·2	-0·1	-1·1	-1·3	-0·6	+0·7	+0·3	-0·5	+0·2	+0·6
Equinox	+6·1	+4·3	+3·6	+3·3	+4·2	+5·8	+5·8	+0·1	-7·4	-15·1	-20·9	-19·9	-14·2	-6·8	-2·1	+0·5	+2·5	+5·1	+6·9	+7·6	+6·9	+7·1	+8·1	+8·5
Summer	+6·2	+4·9	+3·3	+2·2	+2·9	+0·1	-5·5	-9·9	-14·9	-19·6	-20·9	-18·3	-13·4	-8·3	-2·4	+2·5	+6·5	+11·4	+15·4	+16·1	+12·8	+10·9	+9·7	+8·1

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

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)

26 ESKDALEMUIR 1964

NORTH COMPONENT

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
	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.	-1·1	-1·4	+0·9	-0·2	+0·4	+2·1	+5·3	+5·4	+2·8	-1·1	-5·8	-8·6	-9·2	-4·6	-0·5	+2·0	-0·2	-0·1	+1·4	+2·0	+3·3	+3·4	+2·1	+1·5
Feb.	+1·0	+1·2	+1·2	+2·3	+2·7	+4·9	+6·7	+7·7	+5·2	+0·4	-6·9	-11·6	-9·9	-5·2	-3·1	-1·7	-1·2	-0·9	+0·4	+2·0	+0·3	+1·1	+1·3	+2·1
Mar.	+3·2	+3·1	+3·5	+4·1	+5·9	+7·8	+8·3	+5·7	-2·5	-12·2	-20·3	-24·7	-20·1	-14·5	-7·3	-1·3	+1·0	+3·0	+6·9	+7·8	+8·7	+11·2	+11·2	+11·6
Apr.	+5·0	+4·2	+4·3	+3·4	+3·2	+4·3	+3·3	-0·2	-7·8	-17·1	-23·8	-23·3	-19·0	-10·7	-4·6	-0·1	+2·8	+8·3	+9·9	+10·8	+12·7	+13·5	+11·1	+9·8
May	+1·9	+1·5	+1·0	+1·2	+1·5	+1·3	-0·3	-2·8	-7·1	-8·2	-10·7	-10·8	-7·7	-5·1	-2·1	-0·6	+2·3	+3·8	+6·5	+8·0	+7·0	+6·6	+6·6	+6·0
June	+6·8	+5·4	+5·0	+6·8	+9·5	+9·4	+4·1	-1·4	-9·6	-16·7	-21·8	-24·9	-21·8	-21·8	-11·2	-0·2	+5·4	+13·1	+16·6	+14·7	+13·0	+10·3	+1·3	+7·7
July	+4·3	+4·8	+4·5	+4·7	+5·6	+5·5	+2·1	-1·3	-6·4	-11·8	-19·2	-25·1	-20·9	-15·3	-10·3	-2·4	+3·3	+6·4	+10·4	+14·7	+12·4	+11·2	+10·9	+12·0
Aug.	+5·2	+5·1	+3·7	+4·2	+3·0	+2·8	+0·2	-6·0	-10·0	-15·2	-17·7	-17·3	-17·7	-12·4	-6·9	-2·4	+2·9	+7·2	+12·0	+14·5	+12·5	+11·2	+9·3	+11·9
Sept.	+6·4	+4·1	+4·0	+4·3	+4·0	+4·0	+5·3	+2·2	-3·7	-12·3	-18·4	-21·9	-15·9	-11·6	-4·5	+1·1	+1·8	+4·8	+6·9	+8·3	+7·2	+6·6	+7·3	+10·0
Oct.	+4·5	+4·1	+1·4	+2·1	+3·3	+5·4	+5·1	+3·2	-4·0	-10·3	-15·8	-17·6	-13·6	-9·4	-5·2	-2·2	+0·5	+2·6	+5·1	+6·7	+8·1	+9·1	+8·2	+8·8
Nov.	-2·6	-2·8	-3·3	-1·7	+0·1	+1·8	+2·8	+0·6	-2·1	-4·6	-7·7	-7·3	-5·2	-1·6	+0·8	+0·5	+1·1	+2·8	+4·7	+5·8	+4·3	+4·8	+4·1	+4·7
Dec.	-3·4	-1·8	-2·6	-2·4	-0·4	+1·0	+3·2	+3·6	+2·3	-2·6	-5·4	-5·6	-4·2	-0·4	+2·4	+3·1	+3·0	+3·0	+2·2	+1·7	+1·6	+1·6	+0·7	-0·5
Year	+2·6	+2·3	+2·0	+2·4	+3·3	+4·2	+3·9	+1·4	-3·6	-9·3	-14·5	-16·5	-13·8	-9·4	-4·4	-0·4	+1·9	+4·5	+6·9	+8·1	+7·6	+7·5	+6·1	+7·2
Winter	-1·5	-1·2	-1·0	-0·6	+0·7	+2·5	+4·5	+4·3	+2·1	-1·9	-6·5	-8·3	-7·1	-3·0	0·0	+0·9	+0·7	+1·1	+2·2	+2·9	+2·4	+2·7	+2·0	+2·0
Equinox	+4·7	+3·8	+3·3	+3·5	+4·1	+5·4	+5·4	+2·7	-4·5	-13·0	-19·6	-21·8	-17·2	-11·5	-5·4	-0·6	+1·5	+4·8	+7·1	+8·4	+9·2	+10·1	+9·5	+10·0
Summer	+4·6	+4·2	+3·6	+4·3	+4·9	+4·7	+1·6	-2·9	-8·3	-13·0	-17·3	-19·6	-17·1	-13·7	-7·6	-1·4	+3·5	+7·6	+11·3	+12·9	+11·2	+9·8	+7·1	+9·4

WEST COMPONENT

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
	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.	-4·3	+0·6	+1·9	+0·1	-0·1	0·0	-1·1	-2·7	-6·8	-7·1	-2·8	+1·7	+8·2	+10·5	+7·3	+3·4	+3·2	+3·1	+2·5	-1·1	-2·8	-4·6	-4·9	-4·1
Feb.	-5·0	-3·5	-1·7	-0·2	-1·6	-2·1	-1·3	-2·1	-4·8	-6·7	-3·1	+3·5	+10·9	+14·6	+12·5	+7·0	+3·5	+4·8	+2·4	+0·3	-4·7	-7·2	-7·9	-7·3
Mar.	-4·1	-4·4	-3·9	-3·2	-2·6	-3·8	-7·3	-12·9	-18·9	-17·6	-10·2	+2·7	+16·0	+20·2	+17·9	+12·4	+7·5	+5·0	+3·1	+2·5	+2·3	+0·5	-0·2	-1·0
Apr.	-3·1	-3·7	-3·5	-6·5	-7·8	-10·9	-16·0	-21·9	-24·6	-19·5	-5·5	+8·3	+21·1	+25·1	+21·2	+14·4	+9·3	+7·8	+5·9	+5·6	+4·2	+1·3	+0·2	-1·3
May	-2·2	-2·9	-4·6	-6·4	-10·8	-17·7	-19·5	-19·9	-16·0	-8·3	+2·9	+11·8	+17·5	+19·5	+14·3	+8·3	+6·3	+6·1	+6·5	+5·6	+4·2	+3·4	+1·5	+0·4
June	-0·3	-1·3	-3·0	-5·3	-12·2	-19·3	23·3	-22·0	-20·5	-13·1	-1·1	+9·7	+18·8	+19·4	+16·3	+12·7	+8·3	+6·7	+7·2	+6·2	+5·7	+5·3	+2·9	+2·3
July	-3·9	-3·3	-4·5	-7·4	-11·4	-17·6	-21·7	-20·9	-20·8	-16·3	-6·7	+6·6	+20·1	+24·7	+22·0	+16·2	+10·7	+7·1	+6·1	+7·1	+6·3	+4·8	+2·2	+0·6
Aug.	-3·3	-5·3	-7·5	-8·4	-8·3	-12·1	-16·5	-20·5	-19·9	-14·5	-1·6	+12·3	+23·3	+24·8	+20·1	+14·2	+8·3	+4·1	+3·9	+3·4	+1·1	+1·5	+0·9	+0·2
Sept.	-4·4	-3·9	-4·0	-4·5	-5·2	-6·7	-9·7	-14·5	-16·8	-14·9	-6·3	+4·1	+15·8	+20·6	+19·7	+15·0	+9·3	+5·9	+4·3	+3·8	+0·5	-1·3	-3·2	-3·6
Oct.	-1·7	-3·3	-2·5	-2·4	-2·7	-3·5	-4·7	-9·1	-13·3	-11·9	-3·3	+7·7	+15·2	+17·3	+14·8	+9·9	+6·6	+3·3	+2·3	+0·9	-1·3	-4·6	-6·6	-7·1
Nov.	-5·9	-4·4	-2·7	-1·9	-1·4	-1·6	-1·9	-3·0	-5·0	-5·1	+0·6	+6·4	+9·8	+8·3	+4·7	+3·1	+3·3	+3·2	+2·3	+1·1	-0·6	-1·7	-3·2	-4·4
Dec.	-4·3	-4·9	-2·9	-1·4	-0·2	-0·4	-0·9	-2·1	-3·1	-3·9	+0·3	+5·4	+9·3	+10·5	+7·4	+4·5	+2·7	+2·2	+1·2	-1·4	-2·7	-4·2	-4·7	-6·2
Year	-3·5	-3·4	-3·2	-4·0	-5·4	-8·0	-10·3	-12·6	-14·2	-11·6	-3·1	+6·7	+15·5	+17·9	+14·9	+10·1	+6·6	+4·9	+4·0	+2·9	+1·0	-0·6	-1·9	-2·6
Winter	-4·9	-3·1	-1·3	-0·8	-0·8	-1·0	-1·3	-2·5	-5·0	-5·7	-1·3	+4·3	+9·5	+10·9	+8·0	+4·5	+3·2	+3·3	+2·1	-0·3	-2·7	-4·4	-5·2	-5·5
Equinox	-3·3	-3·9	-3·5	-4·2	-4·6	-6·2	-9·4	-14·6	-18·4	-16·0	-6·3	+5·7	+17·0	+20·8	+18·4	+12·9	+8·2	+5·5	+3·9	+3·2	+1·4	-1·0	-2·5	-3·3
Summer	-2·4	-3·2	-4·9	-6·9	-10·7	-16·7	-20·2	-20·8	-19·3	-13·1	-1·6	+10·1	+19·9	+22·1	+18·2	+12·9	+8·4	+6·0	+5·9	+5·5	+4·3	+3·7	+1·9	+0·9

VERTICAL COMPONENT

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
	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.	+0·9	-0·3	-2·3	-1·1	-1·1	-1·1	-1·7	-1·7	-0·3	-0·1	-0·9	-2·1	-3·3	-1·9	+1·7	+2·5	+2·5	+2·5	+1·9	+1·7	+1·5	+1·1	+1·1	+0·5
Feb.	+0·4	+0·3	+0·2	+0·1	+0·2	-0·3	-1·0	-2·1	-1·4	-1·5	-2·6	-3·7	-5·2	-4·5	-0·2	+2·9	+4·2	+3·3	+3·0	+2·1	+2·6	+1·5	+1·4	+0·3
Mar.	+2·2	+2·5	+2·4	+2·2	+2·0	+1·5	+1·8	+1·8	+0·2	-2·7	-5·4	-9·2	-10·6	-6·9	-1·4	+2·4	+3·6	+3·3	+3·0	+2·4	+2·0	+1·5	+1·0	+0·4
Apr.	+4·0	+4·4	+3·6	+3·2	+3·2	+3·1	+4·2	+3·8	+0·4	-4·8	-8·4	-12·4	-13·8	-7·6	-3·0	-0·6	+1·2	+3·5	+2·6	+2·0	+1·6	+2·6	+3·6	+3·6
May	+4·0	+3·9	+4·2	+3·8	+4·0	+4·1	+3·2	+0·2	-4·6	-8·7	-11·6	-15·0	-14·4	-9·7	-3·0	+2·4	+5·4	+6·3	+5·2	+4·4	+4·0	+3·9	+4·0	+4·0
June	+1·3	+0·9	+1·5	+2·7	+4·5	+5·0	+2·3	+0·9	-0·9	-6·9	-13·9	-15·1	-12·1	-5·1	-1·9	+1·7	+6·3	+6·6	+5·9	+4·7	+4·3	+2·7	+2·3	+2·3
July	+1·4	+1·2	+0·5	+1·2	+3·4	+3·4	+1·6	+1·2	-0·3	-3·4	-5·4	-9·6	-12·0	-8·4	-2·1	+2·4	+4·8	+5·4	+4·2	+3·6	+3·3	+2·2	+1·2	+0·2
Aug.	+0·7	+0·6	+1·9	+2·7	+3·5	+4·4	+4·7	+4·3	+0·5	-4·0	-8·9	-11·9	-11·9	-6·8	-2·3	+1·7	+3·7	+4·0	+3·1	+2·3	+3·1	+2·2	+1·7	+0·7
Sept.	+3·1	+2·5	+1·6	+1·1	+1·1	+1·5	+3·1	+2·5	+0·2	-1·9	-2·9	-7·3	-10·7	-9·5	-5·4	-1·3	+0·5	+1·7	+2·1	+2·9	+3·6	+4·1	+4·3	+3·1
Oct.	-2·1	-3·2	-2·4	-1·9	-1·6	-1·4	+0·1	+1·2	+2·2	+0·3	-3·6	-5·6	+1·1	-1·6	+3·0	+4·5	+4·4	+3·4	+1·5	+1·2	+0·4	-0·1	+0·8	-0·6
Nov.	+1·8	+1·6	+1·8	+1·4	+0·4	-0·2	-0·4	-0·6	-1·0	-2·2	-3·6	-3·2	-2·2	0·0	+2·2	+2·2	+1·8	+0·8	+0·2	-0·2	+0·4	-0·4	0·0	-0·6
Dec.	+1·7	+0·9	-0·5	-1·3	-1·1	-0·7	-1·3	-1·1	-0·9	-1·3	-1·9	-1·3	-1·1	-0·3	+1·1	+0·5	+0·7	+0·5	+0·7	+1·1	+1·5	+1·5	+1·5	+1·1
Year	+1·6	+1·3	+1·0	+1·2	+1·5	+1·6	+1·4	+1·0	-0·5	-3·1	-5·8	-8·0	-8·0	-5·2	-0·9	+1·8	+3·3	+3·4	+2·8	+2·3	+2·4	+1·9	+1·9	+1·3
Winter	+1·2	+0·6	-0·2	-0·2	-0·4	-0·6	-1·1	-1·4	-0·9	-1·3	-2·3	-2·6	-2·9	-1·7	+1·2	+2·0	+2·3	+1·8	+1·5	+1·2	+1·5	+0·9	+1·0	+0·3
Equinox	+1·8	+1·5	+1·3	+1·1	+1·2	+1·2	+2·3	+2·3	+0·7	-2·3	-5·1	-8·6	-8·5	-6·4	-1·7	+1·3	+2·4	+3·0	+2·3	+2·1	+1·9	+2·0	+2·4	+1·6
Summer	+1·9	+1·7	+2·0	+2·6	+3·9	+4·2	+2·9	+1·7	-1·3	-5·7	-9·9	-12·9	-12·6	-7·5	-2·3	+2·1	+5·1	+5·6	+4·6	+3·7	+3·7	+2·7	+2·3	+1·8

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

INTERNATIONAL QUIET DAYS

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

27 ESKDALEMUIR 1964

DECLINATION (measured positive towards the west)

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
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
Jan.	−0·82	+0·17	+0·36	+0·02	−0·04	−0·07	−0·40	−0·74	−1·46	−1·39	−0·36	+0·64	+1·98	+2·27	+1·48	+0·60	+0·64	+0·63	+0·46	−0·30	−0·68	−1·05	−1·06	−0·88
Feb.	−1·04	−0·75	−0·38	−0·13	−0·42	−0·59	−0·50	−0·69	−1·16	−1·35	−0·38	+1·11	+2·54	+3·11	+2·62	+1·47	+0·74	+0·99	+0·46	−0·01	−0·96	−1·49	−1·64	−1·55
Mar.	−0·93	−0·99	−0·91	−0·79	−0·73	−1·05	−1·77	−2·79	−3·71	−3·09	−1·31	+1·43	+3·93	+4·57	+3·85	+2·53	+1·47	+0·89	+0·37	+0·23	+0·15	−0·29	−0·45	−0·61
Apr.	−0·79	−0·90	−0·86	−1·43	−1·68	−2·34	−3·33	−4·40	−4·66	−3·31	−0·26	+2·50	+4·91	+5·42	+4·42	+2·89	+1·76	+1·28	+0·83	+0·74	+0·40	−0·21	−0·36	−0·62
May	−0·51	−0·63	−0·95	−1·33	−2·21	−3·60	−3·89	−3·89	−2·95	−1·37	+0·95	+2·75	+3·79	+4·09	+2·93	+1·69	+1·17	+1·08	+1·07	+0·83	+0·59	+0·45	+0·07	−0·13
June	−0·31	−0·46	−0·78	−1·31	−2·78	−4·20	−4·81	−4·36	−3·76	−2·03	+0·56	+2·82	+4·55	+4·66	+3·66	+2·55	+1·46	+0·88	+0·85	+0·72	+0·68	+0·69	+0·54	+0·18
July	−0·93	−0·84	−1·06	−1·65	−2·48	−3·72	−4·43	−4·14	−3·94	−2·85	−0·66	+2·22	+4·77	+5·48	+4·78	+3·33	+2·02	+1·20	+0·85	+0·90	+0·82	+0·57	+0·06	−0·30
Aug.	−0·85	−1·25	−1·64	−1·83	−1·77	−2·53	−3·31	−3·89	−3·62	−2·37	+0·31	+3·07	+5·29	+5·41	+4·28	+2·93	+1·55	+0·57	+0·35	+0·17	−0·22	−0·11	−0·15	−0·39
Sept.	−1·10	−0·93	−0·94	−1·05	−1·18	−1·49	−2·14	−2·99	−3·24	−2·55	−0·60	+1·59	+3·74	+4·53	+4·10	+2·97	+1·80	+1·01	+0·62	+0·47	−0·16	−0·49	−0·90	−1·07
Oct.	−0·50	−0·81	−0·55	−0·56	−0·67	−0·89	−1·12	−1·93	−2·53	−2·02	−0·11	+2·17	+3·52	+3·81	+3·15	+2·06	+1·31	+0·57	+0·28	−0·05	−0·55	−1·24	−1·61	−1·73
Nov.	−1·09	−0·78	−0·43	−0·31	−0·29	−0·38	−0·47	−0·63	−0·93	−0·86	+0·39	+1·55	+2·15	+1·72	+0·91	+0·61	+0·61	+0·54	+0·29	+0·01	−0·27	−0·50	−0·79	−1·05
Dec.	−0·75	−0·93	−0·49	−0·19	−0·03	−0·12	−0·29	−0·55	−0·71	−0·69	+0·25	+1·29	+2·01	+2·11	+1·39	+0·79	+0·43	+0·34	+0·17	−0·35	−0·59	−0·89	−0·97	−1·23
Year	−0·80	−9·76	−0·72	−0·88	−1·19	−1·75	−2·21	−2·58	−2·72	−1·99	−0·10	+1·93	+3·60	+3·93	+3·13	+2·03	+1·25	+0·83	+0·55	+0·28	−0·07	−0·38	−0·61	−0·78
Winter	−0·93	−0·57	−0·23	−0·15	−0·19	−0·29	−0·41	−0·65	−1·07	−1·07	−0·03	+1·15	+2·17	+2·30	+1·60	+0·87	+0·61	+0·63	+0·35	−0·16	−0·63	−0·98	−1·11	−1·18
Equinox	−0·83	−0·91	−0·81	−0·96	−1·07	−1·44	−2·09	−3·03	−3·53	−2·74	−0·57	+1·92	+4·03	+4·58	+3·88	+2·61	+1·59	+0·94	+0·53	+0·35	−0·04	−0·56	−0·83	−1·01
Summer	−0·65	−0·79	−1·11	−1·53	−2·31	−3·51	−4·11	−4·07	−3·57	−2·15	+0·29	+2·71	+4·60	+4·91	+3·91	+2·63	+1·55	+0·93	+0·78	+0·65	+0·47	+0·40	+0·13	−0·16

INCLINATION

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
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
Jan.	+0·14	+0·08	−0·14	−0·01	−0·05	−0·17	−0·37	−0·36	−0·11	+0·15	+0·39	+0·49	+0·42	+0·13	−0·01	−0·11	+0·03	+0·03	0·07	−0·08	−0·15	−0·14	−0·05	−0·04
Feb.	0·00	−0·03	−0·05	−0·14	−0·15	−0·31	−0·45	−0·53	−0·32	+0·02	+0·42	+0·63	+0·40	+0·06	+0·05	+0·10	+0·14	+0·09	+0·02	−0·08	+0·10	+0·05	+0·04	−0·05
Mar.	−0·11	−0·09	−0·13	−0·18	−0·30	−0·43	−0·41	−0·17	+0·39	+0·94	+1·32	+1·36	+0·87	+0·54	+0·23	0·00	−0·06	−0·17	−0·41	−0·48	−0·55	−0·70	−0·71	−0·74
Apr.	−0·19	−0·12	−0·15	−0·07	−0·04	−0·08	+0·08	+0·36	+0·81	+1·23	+1·42	+1·12	+0·66	+0·22	−0·02	0·17	0·26	−0·55	0·65	−0·72	−0·84	−0·83	−0·64	−0·54
May	0·00	+0·03	+0·09	+0·09	+0·13	+0·22	+0·33	+0·42	+0·54	+0·42	+0·38	+0·20	−0·06	−0·13	−0·10	0·00	−0·09	−0·16	−0·37	−0·48	−0·41	−0·38	−0·35	−0·30
June	−0·41	−0·32	−0·26	−0·32	−0·37	−0·27	+0·06	+0·37	+0·84	+1·07	+1·09	+1·14	+0·91	+1·08	+0·50	−0·09	−0·30	−0·77	−1·02	−0·92	−0·81	−0·67	−0·06	−0·47
July	−0·20	−0·24	−0·23	−0·19	−0·15	−0·07	+0·15	+0·36	+0·65	+0·88	+1·20	+1·33	+0·84	+0·51	+0·37	+0·03	−0·22	−0·37	0·65	−0·95	−0·80	−0·74	−0·71	−0·79
Aug.	−0·28	−0·26	−0·11	−0·11	−0·01	+0·07	+0·30	+0·74	+0·90	+1·07	+0·96	+0·70	+0·59	+0·36	+0·16	+0·03	−0·19	−0·42	−0·75	−0·93	−0·75	−0·70	−0·58	−0·76
Sept.	−0·29	−0·16	−0·17	−0·21	−0·17	−0·15	−0·16	+0·09	+0·44	+0·93	+1·21	+1·20	+0·59	+0·28	−0·07	−0·28	−0·21	−0·34	−0·45	−0·51	−0·39	−0·32	−0·33	−0·53
Oct.	−0·33	−0·31	−0·12	−0·15	−0·23	−0·35	−0·28	−0·08	+0·47	+0·82	+0·98	+0·93	+0·74	+0·37	+0·24	+0·14	0·00	−0·12	−0·32	−0·42	−0·50	−0·55	−0·44	−0·51
Nov.	+0·28	+0·27	+0·29	+0·17	+0·02	−0·11	−0·17	−0·02	+0·17	+0·31	+0·41	+0·33	+0·17	+0·01	−0·05	−0·01	−0·07	−0·20	−0·33	−0·40	−0·26	−0·30	−0·23	−0·27
Dec.	+0·31	+0·19	+0·19	+0·14	0·00	−0·08	−0·23	−0·24	−0·13	+0·18	+0·31	+0·27	+0·14	−0·10	−0·22	−0·24	−0·21	−0·21	−0·14	−0·07	−0·04	−0·02	+0·04	+0·13
Year	−0·09	−0·08	−0·07	−0·08	−0·12	−0·14	−0·10	+0·08	+0·39	+0·67	+0·84	+0·81	+0·53	+0·28	+0·09	−0·05	−0·12	−0·27	−0·43	−0·51	−0·45	−0·44	−0·33	−0·41
Winter	+0·18	+0·13	+0·07	+0·04	−0·05	−0·17	−0·31	−0·29	−0·10	+0·16	+0·38	+0·43	+0·28	+0·03	−0·06	−0·06	−0·02	−0·07	−0·13	−0·16	−0·09	−0·10	−0·05	−0·06
Equinox	+0·65	+0·68	+0·60	+0·71	+0·79	+1·06	+1·48	+2·02	+2·16	+1·44	−0·13	−1·78	−3·02	−3·24	−2·63	−1·69	−0·99	−0·49	−0·16	−0·02	+0·26	+0·61	+0·77	+0·90
Summer	−0·23	−0·20	−0·13	−0·13	−0·10	−0·01	+0·21	+0·47	+0·73	+0·86	+0·91	+0·85	+0·57	+0·45	+0·23	−0·01	−0·20	−0·43	−0·70	−0·82	−0·69	−0·62	−0·43	−0·58

HORIZONTAL COMPONENT

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
	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.	−1·8	−1·3	+1·2	−0·2	+0·4	+2·1	+5·0	+4·8	+1·6	−2·3	−6·2	−8·2	−7·6	−2·7	+0·8	+2·6	+0·4	+0·5	+1·8	+1·8	+2·8	+2·5	+1·2	+0·8
Feb.	+0·1	+0·6	+0·9	+2·2	+2·4	+4·5	+6·4	+7·2	+4·3	−0·8	−7·3	−10·8	−7·9	−2·6	−0·9	−0·4	−0·6	−0·1	+0·8	+2·0	−0·5	−0·2	−0·1	+0·8
Mar.	+2·4	+2·3	+2·8	+3·5	+5·8	+7·0	+6·9	+3·3	−5·8	−15·1	−21·8	−23·9	−17·0	−10·7	−4·0	+0·9	+2·3	+3·8	+7·3	+8·1	+9·0	+11·1	+11·0	+11·3
Apr.	+4·4	+3·5	+3·6	+2·2	+1·8	+2·3	+0·4	−4·0	−12·0	−20·3	−24·4	−21·4	−15·0	−6·1	−0·8	+2·4	+4·4	+9·5	+10·8	+11·6	+13·2	+13·5	+11·0	+9·4
May	+1·5	+1·0	+0·2	+0·1	−0·4	−1·8	−3·7	−6·2	−9·8	−9·5	−10·0	−8·6	−4·5	−1·6	+0·4	+0·9	+3·4	+4·8	+7·5	+8·8	+7·6	+7·1	+6·8	+6·0
June	+6·6	+5·1	+4·4	+5·8	+7·2	+5·9	0·0	−5·2	−13·0	−18·7	−21·6	−22·8	−18·2	−18·1	−8·2	+2·0	+6·8	+14·1	+17·6	+15·6	+13·8	+11·1	+1·8	+8·0
July	+3·5	+4·1	+3·7	+3·3	+3·5	+2·3	−1·7	−4·9	−9·9	−14·5	−20·1	−23·5	−17·1	−10·7	−6·3	+0·5	+5·1	+7·5	+11·3	+15·7	+13·3	+11·9	+11·1	+11·9
Aug.	+4·5	+4·1	+2·3	+2·7	+1·5	+0·6	−2·7	−9·5	−13·3	−17·5	−17·7	−14·9	−13·3	−7·9	−3·3	+0·1	+4·3	+7·8	+12·5	+14·9	+12·5	+11·3	+9·3	+11·7
Sept.	+5·5	+3·4	+3·2	+3·5	+3·0	+2·8	+3·5	−0·4	−6·6	−14·7	−19·2	−20·8	−12·9	−7·8	−1·0	+3·7	+3·4	+5·8	+7·5	+8·8	+7·2	+6·3	+6·6	+9·2
Oct.	+4·1	+3·4	+0·9	+1·6	+2·8	+4·7	+4·2	+1·6	−6·3	−12·2	−16·1	−16·0	−10·7	−6·2	−2·5	−0·4	+1·6	+3·1	+5·4	+6·8	+7·7	+8·2	+6·9	+7·4
Nov.	−3·6	−3·5	−3·7	−2·0	−0·1	+1·5	+2·4	+0·1	−2·9	−5·4	−7·5	−6·1	−3·4	−0·1	+1·5	+1·0	+1·7	+3·3	+5·0	+5·9	+4·1	+4·4	+3·5	+3·9
Dec.	−4·1	−2·6	−3·1	−2·6	−0·4	+0·9	+3·0	+3·2	+1·7	−3·2	−5·3	−4·6	−2·5	+1·4	+3·7	+3·8	+3·4	+3·3	+2·4	+1·4	+1·1	+0·8	−0·1	−1·6
Year	+1·9	+1·7	+1·4	+1·7	+2·3	+2·7	+2·0	−0·8	−6·0	−11·2	−14·8	−15·1	−10·9	−6·1	−1·7	+1·4	+3·0	+5·3	+7·5	+8·5	+7·7	+7·3	+5·7	+6·6
Winter	−2·3	−1·7	−1·2	−0·7	+0·6	+2·3	+4·2	+3·8	+1·2	−2·9	−6·6	−7·4	−5·3	−1·0	+1·3	+1·7	+1·2	+1·7	+2·5	+2·8	+1·9	+1·9	+1·1	+1·0
Equinox	+4·1	+3·1	+2·6	+2·7	+3·2	+4·2	+3·7	+0·1	−7·7	−15·6	−20·4	−20·5	−13·9	−7·7	−2·1	+1·7	+2·9	+5·5	+7·7	+8·8	+9·3	+9·8	+8·9	+9·3
Summer	+4·1	+3·6	+2·7	+3·0	+2·9	+1·7	−2·0	−6·5	−11·5	−15·1	−17·3	−17·5	−13·3	−9·6	−4·3	+0·9	+4·9	+8·5	+12·2	+13·7	+11·8	+10·3	+7·3	+9·4

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

INTERNATIONAL DISTURBED DAYS

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

28 ESKDALEMUIR 1964

NORTH COMPONENT

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
	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.	+11·6	+10·3	+7·6	+12·0	+15·1	+25·5	+15·5	+12·5	+9·3	-11·3	-31·3	-32·5	-16·3	-1·9	-4·1	-13·7	-20·1	-11·9	+2·7	+0·8	+0·7	+0·4	+10·7	+8·1
Feb.	+5·5	+6·8	+8·2	+1·4	+11·3	+11·8	+4·0	+11·6	+10·3	-0·2	-13·7	-23·9	-18·8	-8·7	-5·8	+1·4	+1·[illegible]	-3·9	-9·1	+7·6	+3·7	-5·4	+4·4	+0·6
Mar.	+7·3	+0·1	+9·9	+3·2	-1·4	+14·8	+16·3	+6·8	+0·5	-3·5	-22·5	-23·0	-21·0	-7·5	-4·3	-6·3	+1·9	+2·9	+4·4	-2·1	+3·3	+6·2	+8·6	+5·3
Apr.	+0·2	+2·1	+14·8	+8·8	+7·0	+3·3	+9·1	+2·4	-12·0	-29·5	-25·7	-27·1	-20·7	-14·6	-3·7	+6·6	+19·4	+23·7	+7·7	+8·2	+3·4	-3·8	+5·0	+15·2
May	+15·8	+3·2	+10·4	+4·7	+4·4	+7·0	-7·1	-12·6	-25·3	-45·2	-26·2	-24·3	-16·4	-15·7	+3·5	+4·6	+8·8	+18·2	+18·9	+21·7	+13·1	+10·4	+18·7	+9·3
June	+17·0	+20·0	+10·2	+12·8	+16·3	-5·1	-14·9	-15·4	-13·2	-21·2	-25·7	-19·8	-26·3	-21·3	-15·2	-1·2	+1·7	+7·8	+15·4	+30·6	+14·7	+12·6	+15·7	+4·5
July	+9·4	+7·4	+10·0	-3·7	-3·2	+7·3	-0·1	-1·9	-7·5	-16·0	-22·2	-32·2	-20·5	-15·9	-12·5	-6·1	+1·7	+11·2	+17·2	+20·1	+17·0	+18·5	+12·1	+10·0
Aug.	+11·8	+12·7	+13·8	+10·1	+11·7	+3·1	+1·8	-2·1	-17·0	-19·6	-25·2	-26·1	-28·2	-16·1	-14·1	-8·5	+7·2	+11·1	+16·2	+16·3	+10·0	+9·1	+9·8	+12·1
Sept.	+15·2	+9·4	+7·3	+10·9	+7·2	+10·9	+11·9	-3·2	-14·4	-19·7	-27·3	-23·7	-21·3	-13·9	-10·2	+2·4	-1·5	-1·2	+8·0	+11·4	+8·4	+7·5	+16·3	+9·3
Oct.	+18·7	+15·3	+8·0	+6·2	+9·9	+11·0	+8·7	+2·1	-3·8	-14·1	-16·8	-15·7	-15·9	-17·3	-14·2	-12·4	-5·7	-12·3	+2·1	+10·0	+10·1	+6·8	+8·3	+11·1
Nov.	+5·8	+6·8	+8·4	+14·2	+9·0	+12·8	+11·2	+10·9	+4·3	-6·5	-10·7	-8·5	-7·3	-5·3	-11·3	-11·0	-9·6	-13·2	-13·6	-2·0	+1·0	+2·3	+2·2	+10·2
Dec.	+5·4	+4·0	+3·4	+2·7	+4·6	+9·3	+12·3	+15·1	+9·8	+3·5	-1·2	-4·4	-6·2	-10·3	-8·8	-4·4	-11·6	-11·7	-5·0	-2·0	-1·7	-0·7	-1·9	-0·2
Year	+10·3	+8·2	+9·3	+6·9	+7·6	+9·3	+5·8	+2·2	-4·9	-15·3	-20·7	-21·7	-18·2	-12·4	-8·4	-4·1	-0·6	+1·7	+5·4	+10·0	+7·0	+5·3	+9·2	+8·0
Winter	+7·1	+7·0	+6·9	+7·5	+10·0	+14·5	+10·7	+12·5	+8·4	-3·7	-14·3	-17·3	-12·1	-6·6	-7·5	-6·9	-10·1	-10·2	-6·3	+1·1	+0·9	-0·8	+3·9	+4·7
Equinox	+10·4	+6·7	+10·0	+7·3	+5·7	+10·0	+11·5	+2·0	-7·4	-16·7	-23·1	-22·4	-19·7	-13·3	-8·1	-2·4	+3·5	+3·3	+5·5	+6·9	+6·3	+4·1	+9·6	+10·2
Summer	+13·4	+10·8	+11·2	+5·9	+7·3	+3·1	-5·0	-8·0	-15·7	-25·5	-24·8	-25·5	-22·9	-17·3	-9·5	-2·7	+4·9	+12·1	+16·9	+22·2	+13·8	+12·6	+14·1	+9·0

WEST COMPONENT

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
	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.	-1·0	+0·3	+5·1	+9·4	+6·7	+21·0	+11·5	+3·6	0·0	-1·8	+13·6	+17·4	+12·1	+16·4	+18·2	+8·9	-10·4	-27·9	-25·9	-15·8	-22·3	-21·2	-11·2	-6·7
Feb.	-5·9	+9·0	+4·7	+7·2	+2·3	+0·5	+7·4	+3·8	0·0	-4·8	+2·5	+11·8	+19·1	+22·2	+26·3	+17·1	+3·7	+5·2	-2·5	-27·5	-15·7	-19·9	-39·0	-27·8
Mar.	-9·6	+6·0	-3·2	-19·8	+2·7	-0·3	-4·3	-3·6	-4·2	+2·1	+8·1	+16·5	+33·9	+36·8	+36·7	+29·2	+15·0	-8·7	-24·2	-27·5	-28·7	-12·7	-23·7	-16·7
Apr.	-10·5	+2·3	-6·2	-18·6	-10·5	-10·9	-11·0	-14·1	-13·1	-6·9	+4·3	+19·3	+32·7	+35·6	+39·7	+34·9	+30·9	+14·9	+4·4	-3·2	-24·2	-34·4	-24·1	-31·3
May	-13·8	-20·4	-15·0	-14·2	-14·7	-28·1	-25·8	-28·5	-22·4	-10·2	+6·7	+16·6	+29·8	+23·1	+37·1	+21·4	+18·9	+17·7	+14·2	+7·0	+4·0	+1·3	-0·3	-4·6
June	-6·8	-8·6	-7·3	-7·3	-14·0	-14·7	-26·3	-22·1	-22·0	-15·3	-2·9	+6·3	+19·5	+29·5	+30·8	+29·0	+21·5	+13·2	+8·7	-0·4	+4·0	-6·2	-6·3	-2·5
July	-3·7	-0·6	-10·5	-12·1	-10·4	-21·3	-26·7	-23·7	-21·6	-19·7	-7·7	+2·8	+19·3	+30·9	+31·2	+28·4	+29·5	+21·6	+12·9	+4·8	+4·8	-3·5	-14·0	-10·7
Aug.	-5·8	-1·6	+3·4	-14·6	-18·7	-10·1	-16·1	-21·5	-18·9	-8·7	+2·4	+16·3	+23·9	+32·5	+30·3	+16·7	+14·3	+12·2	-1·9	-5·9	-14·1	-9·8	+2·0	-6·1
Sept.	-16·9	-17·1	-2·8	-12·3	-15·9	-3·8	-5·5	-8·7	-10·0	-0·2	+7·7	+21·7	+30·5	+34·1	+31·4	+19·9	+8·0	-0·7	-7·2	-15·7	-11·3	-7·8	-13·5	-4·0
Oct.	-6·4	-11·7	-5·3	-0·5	-5·6	+0·3	+3·6	-2·7	-7·5	-4·4	+2·4	+11·8	+21·7	+27·8	+23·5	+27·6	+10·1	+1·3	-1·6	-17·4	-18·8	-19·8	-19·7	-8·8
Nov.	-2·3	-7·6	-4·3	-9·3	-1·1	-2·0	-2·9	-3·5	-4·4	-3·7	+9·4	+11·8	+16·5	+20·9	+22·1	+21·5	+15·7	+4·7	-3·1	-7·4	-11·0	-10·7	-20·9	-28·2
Dec.	-5·3	+2·3	-3·0	+1·2	+3·7	+3·3	+1·7	+2·4	+0·8	-0·5	+0·8	+5·8	+12·0	+13·1	+15·2	+11·5	+6·9	+8·3	-1·7	-13·4	-9·9	-16·1	-22·5	-16·7
Year	-7·3	-4·0	-3·7	-7·5	-6·3	-5·5	-7·9	-9·9	-10·3	-6·2	+3·9	+13·2	+22·6	+26·9	+28·5	+22·1	+13·6	+5·2	-2·3	-10·2	-11·9	-13·3	-16·1	-13·7
Winter	-3·6	+1·0	+0·6	+2·1	+2·9	+5·7	+4·4	+1·6	-0·9	-2·7	+6·6	+11·7	+14·9	+18·1	+20·4	+14·7	+4·0	-2·4	-8·3	-16·0	-14·7	-16·9	-23·4	-19·9
Equinox	-10·8	-5·1	-4·3	-12·8	-7·3	-3·7	-4·3	-7·3	-8·7	-2·4	+5·6	+17·3	+29·7	+33·6	+32·8	+27·9	+16·0	+1·7	-7·1	-16·0	-20·7	-18·7	-20·2	-15·2
Summer	-7·5	-7·8	-7·3	-12·1	-14·4	-18·5	-23·7	-23·9	-21·2	-13·5	-0·4	+10·5	+23·1	+29·0	+32·3	+23·9	+21·1	+16·1	+8·5	+1·4	-0·3	-4·5	-4·6	-6·0

VERTICAL COMPONENT

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
	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.	-10·7	-13·1	-14·3	-12·3	-13·5	-17·1	-17·3	-12·5	-9·1	-3·1	-4·5	+2·5	+9·5	+8·7	+10·3	+16·5	+26·5	+27·9	+18·3	+9·7	+7·1	+4·7	-2·5	-11·7
Feb.	-3·6	-10·0	-15·3	-21·4	-22·2	-17·2	-15·0	-10·4	-6·3	-3·2	-4·4	-3·8	-0·6	+1·2	+4·9	+12·6	+19·4	+23·6	+25·2	+23·4	+13·3	+6·6	+2·4	+0·8
Mar.	-15·4	-19·5	-24·6	-16·5	-18·7	-25·6	-16·9	-10·1	-8·0	-8·3	-7·8	-8·3	-7·0	+1·7	+10·0	+21·7	+37·3	+47·0	+37·1	+31·9	+21·6	+1·7	-8·2	-15·1
Apr.	-24·2	-29·5	-28·0	-17·9	-11·9	-10·4	-6·3	-4·9	-6·2	-9·1	-10·6	-12·1	-7·0	-2·1	+6·4	+13·3	+24·5	+50·8	+51·1	+37·1	+25·2	+3·5	-8·2	-23·5
May	-24·5	-20·1	-14·5	-11·5	-21·9	-14·8	-8·1	-5·7	-7·9	-9·7	-12·1	-9·3	-3·5	+1·5	+9·5	+27·7	+28·5	+27·2	+23·5	+19·5	+14·1	+11·3	+4·7	-3·9
June	-0·4	-6·9	-16·0	-23·0	-27·0	-28·1	-20·2	-9·0	-3·6	-4·9	-5·4	-5·2	-1·4	+3·3	+9·6	+9·2	+16·0	+21·1	+28·6	+21·6	+16·8	+14·7	+6·8	+3·4
July	-1·7	-8·1	-10·6	-14·3	-16·7	-13·5	-6·1	-2·1	-3·2	-4·7	-6·5	-9·5	-9·5	-3·5	+4·0	+10·3	+14·3	+20·3	+23·3	+21·9	+19·0	+7·1	-2·9	-7·3
Aug.	-2·8	-3·1	-13·4	-15·9	-9·8	-7·7	-9·2	-6·1	-5·0	-5·3	-7·4	-10·7	-10·6	-4·3	+3·6	+13·9	+18·6	+20·9	+22·8	+21·1	+15·0	+10·1	+0·4	-15·1
Sept.	-6·7	-7·7	-16·3	-31·1	-16·9	-12·3	-9·1	-6·1	-3·1	-3·7	-5·1	-5·3	-2·7	+3·9	+11·1	+23·7	+27·5	+26·1	+22·1	+13·7	+8·7	+3·7	-4·7	-9·7
Oct.	-13·8	-13·4	-13·0	-13·4	-10·0	-7·9	-7·2	-4·4	-2·0	-0·8	-3·0	-4·2	-3·2	+1·6	+8·2	+16·8	+21·6	+26·9	+19·4	+13·0	+1·4	0·0	-1·2	-11·4
Nov.	-6·4	-9·3	-9·7	-9·2	-11·3	-12·7	-9·8	-8·3	-6·3	-5·6	-8·1	-7·9	-2·2	+0·3	+6·5	+9·8	+12·9	+19·3	+23·0	+15·9	+10·7	+7·4	+5·5	-4·5
Dec.	-1·2	-7·6	-9·3	-6·6	-5·8	-6·0	-5·6	-5·8	-4·5	-4·0	-3·8	-3·8	-3·2	+0·4	+4·7	+4·2	+6·6	+9·0	+10·2	+10·2	+7·7	+7·2	+4·8	+2·2
Year	-9·3	-12·4	-15·4	-16·1	-15·5	-14·4	-10·9	-7·1	-5·4	-5·2	-6·6	-6·5	-3·5	+1·1	+7·4	+15·0	+21·1	+26·7	+25·4	+19·9	+13·4	+6·5	-0·3	-8·0
Winter	-5·5	-10·0	-12·1	-12·4	-13·2	-13·3	-11·9	-9·3	-6·5	-4·0	-5·2	-3·3	+0·9	+2·7	+6·6	+10·8	+16·3	+19·9	+19·2	+14·8	+9·7	+6·5	+2·5	-3·3
Equinox	-15·0	-17·5	-20·5	-19·7	-14·4	-14·1	-9·9	-6·4	-4·8	-5·5	-6·6	-7·5	-5·0	+1·3	+8·9	+18·9	+27·7	+37·7	+32·4	+23·9	+14·2	+2·2	-5·6	-14·9
Summer	-7·3	-9·5	-13·6	-16·2	-18·9	-16·0	-10·9	-5·7	-4·9	-6·1	-7·9	-8·7	-6·3	-0·7	+6·7	+15·3	+19·3	+22·4	+24·5	+21·0	+16·2	+10·8	+2·3	-5·7

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

INTERNATIONAL DISTURBED DAYS

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

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DECLINATION (measured positive towards the west)

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
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
Jan.	−0·61	−0·32	+0·75	+1·46	+0·80	+3·29	+1·76	+0·28	−0·33	+0·04	+3·85	+4·66	+3·01	+3·36	+3·79	+2·28	1·36	5·17	−5·30	−3·20	−4·51	−4·26	−2·63	−1·64
Feb.	−1·38	+1·57	+0·64	+1·39	+0·05	−0·32	+1·35	+0·35	−0·36	−0·95	+1·00	+3·23	+4·50	+4·77	+5·48	+3·39	+0·71	+1·18	−0·17	−5·79	−3·28	−3·79	−7·98	−5·59
Mar.	−2·18	+1·20	−0·99	−4·08	+0·60	−0·58	−1·44	−0·96	−0·87	+0·54	+2·42	+4·14	+7·56	+7·66	+7·51	+6·08	+2·94	−1·86	−5·02	−5·44	−5·87	−2·76	−5·06	−3·54
Apr.	−2·12	+0·39	−1·77	−4·04	−2·35	−2·31	−2·54	−2·91	−2·19	−0·34	+1·77	+4·83	+7·30	+7·67	+8·09	+6·76	+5·51	+2·15	+0·60	0·93	−4·97	−6·76	−5·01	−6·83
May	−3·33	−4·20	−3·38	−3·01	−3·10	−5·88	−4·93	−5·28	−3·60	−0·43	+2·28	+4·20	+6·57	+5·20	+7·32	+4·13	+3·48	+2·90	+2·17	+0·64	+0·34	−0·11	−0·72	−1·26
June	−1·96	−2·45	−1·82	−1·93	−3·40	−2·77	−4·74	−3·89	−3·94	−2·31	+0·34	+1·97	+4·86	+6·69	+6·72	+5·87	+4·26	+2·37	+1·20	−1·17	+0·28	−1·69	−1·82	−0·67
July	−1·08	−0·39	−2·46	−2·29	−1·96	−4·53	−5·34	−4·69	−4·06	−3·37	−0·76	+1·71	+4·60	+6·75	+6·70	+5·91	+5·84	+3·93	+1·98	+0·25	+0·36	−1·37	−3·24	−2·49
Aug.	−1·58	−0·77	+0·19	−3·28	−4·17	−2·13	−3·28	−4·23	−3·19	−1·08	+1·37	+4·19	+5·78	+7·09	+6·57	+3·64	+2·61	+2·05	−0·96	−1·77	−3·17	−2·28	+0·05	−1·65
Sept.	−3·92	−3·75	−0·82	−2·86	−3·44	−1·15	−1·52	−1·62	−1·50	+0·65	+2·52	+5·18	+6·86	+7·33	+6·66	+3·90	+1·66	−0·09	−1·72	−3·56	−2·56	−1·83	−3·28	−1·14
Oct.	−1·95	−2·88	−1·35	−0·31	−1·47	−0·34	+0·41	−0·61	−1·37	−0·38	+1·07	+2·93	+4·91	+6·18	+5·21	+5·97	+2·23	+0·70	−0·39	−3·85	−4·13	−4·20	−4·23	−2·15
Nov.	−0·66	−1·77	−1·16	−2·37	−0·55	−0·86	−0·99	−1·09	−1·04	−0·51	+2·26	+2·67	+3·56	+4·37	+4·82	+4·69	+3·49	+1·42	−0·13	−1·41	−2·24	−2·23	−4·26	−6·01
Dec.	−1·26	+0·33	−0·72	+0·15	+0·58	+0·33	−0·10	−0·05	−0·18	−0·23	+0·20	+1·31	+2·62	+2·99	+3·36	+2·45	+1·80	+2·09	−0·16	−2·61	−1·92	−3·19	−4·44	−3·35
Year	−1·84	−1·09	−1·07	−1·76	−1·53	−1·44	−1·78	−2·06	−1·89	−0·70	+1·53	+3·42	+5·18	+5·84	+6·02	+4·59	+2·76	+0·99	−0·66	−2·40	−2·64	−2·87	−3·55	−3·03
Winter	−0·98	−0·05	−0·12	+0·16	+0·22	+0·61	+0·51	−0·13	−0·48	−0·41	+1·83	+2·97	+3·42	+3·87	+4·36	+3·20	+1·16	−0·12	−1·44	−3·25	−2·99	−3·37	−4·83	−4·15
Equinox	−2·54	−1·26	−1·23	−2·82	−1·67	−1·09	−1·27	−1·53	−1·48	+0·12	+1·95	+4·27	+6·66	+7·21	+6·87	+5·68	+3·09	+0·23	−1·63	−3·45	−4·38	−3·89	−4·39	−3·41
Summer	−1·99	−1·95	−1·87	−2·63	−3·16	−3·83	−4·57	−4·52	−3·70	−1·80	+0·81	+3·02	+5·45	+6·43	+6·83	+4·89	+4·05	+2·81	+1·10	−0·51	−0·55	−1·36	−1·43	−1·52

INCLINATION

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
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
Jan.	−1·01	−1·00	−0·91	−1·20	−1·40	−2·34	−1·58	−1·17	−0·84	+0·69	+1·78	+1·99	+1·16	+0·15	+0·31	+1·20	+2·09	+1·79	+0·58	+0·37	+0·39	+0·33	−0·63	−0·74
Feb.	−0·38	−0·80	−0·97	−0·70	−1·31	−1·20	−0·72	−1·06	−0·83	−0·01	+0·76	+1·34	+1·00	+0·34	+0·19	+0·02	+0·37	+0·78	+1·25	+0·40	+0·27	+0·75	+0·23	+0·31
Mar.	−0·75	−0·55	−1·22	−0·39	−0·40	−1·60	−1·43	−0·65	−0·19	0·00	+1·18	+1·11	+0·81	+0·10	+0·10	+0·61	+0·62	+1·07	+0·91	+1·25	+0·65	−0·22	−0·49	−0·53
Apr.	−0·49	−0·89	−1·59	−0·80	−0·63	−0·34	−0·62	−0·11	+0·79	+1·78	+1·37	+1·25	+0·80	+0·49	−0·06	−0·51	−1·02	−0·47	+0·70	+0·42	+0·68	+0·74	−0·25	−1·21
May	−1·48	−0·47	−0·86	−0·42	−0·66	−0·50	+0·57	+1·02	+1·72	+2·84	+1·34	+1·17	+0·64	+0·79	−0·43	+0·13	0·09	−0·73	−0·82	−1·02	−0·56	−0·41	−1·11	−0·65
June	−1·04	−1·38	−0·98	−1·32	−1·57	−0·19	+0·78	+1·04	+1·03	+1·44	+1·58	+1·10	+1·46	+1·13	+0·87	−0·03	+0·04	−0·14	−0·41	−1·46	−0·60	−0·39	−0·79	−0·18
July	−0·61	−0·68	−0·79	+0·03	−0·08	−0·56	+0·17	+0·35	+0·67	+1·16	+1·38	+1·84	+0·88	+0·59	+0·55	+0·32	−0·10	−0·48	−0·70	−0·83	−0·70	−0·99	−0·70	−0·71
Aug.	−0·77	−0·89	−1·27	−0·89	−0·79	−0·28	−0·16	+0·23	+1·21	+1·25	+1·44	+1·25	+1·31	+0·57	+0·66	+0·70	−0·18	−0·35	−0·47	−0·48	−0·12	−0·23	−0·65	−1·09
Sept.	−0·96	−0·61	−0·85	−1·34	−0·70	−0·98	−0·94	+0·16	+0·98	+1·20	+1·57	+1·17	+0·97	+0·61	+0·57	+0·20	+0·69	+0·73	+0·11	−0·23	−0·20	−0·31	−1·03	−0·81
Oct.	−1·49	−1·20	−0·78	−0·73	−0·83	−0·92	−0·79	−0·21	+0·29	+0·95	+1·00	+0·79	+0·71	+0·85	+0·86	+0·91	+0·79	+1·45	+0·36	−0·13	−0·41	−0·21	−0·34	−0·91
Nov.	−0·51	−0·59	−0·74	−1·05	−0·86	−1·13	−0·94	−0·88	−0·39	+0·33	+0·39	+0·22	+0·23	+0·11	+0·65	+0·71	+0·77	+1·29	+1·49	+0·61	+0·32	+0·16	+0·24	−0·45
Dec.	−0·32	−0·47	−0·42	−0·36	−0·49	−0·79	−0·96	−1·16	−0·76	−0·32	−0·03	+0·13	+0·19	+0·53	+0·51	+0·26	+0·84	+0·89	+0·60	+0·54	+0·42	+0·41	+0·51	+0·26
Year	−0·82	−0·80	−0·95	−0·76	−0·81	−0·90	−0·55	−0·20	+0·31	+0·94	+1·15	+1·11	+0·85	+0·53	+0·40	+0·38	+0·40	+0·49	+0·30	−0·05	+0·01	−0·03	−0·42	−0·56
Winter	−0·55	−0·72	−0·76	−0·83	−1·01	−1·37	−1·05	−1·07	−0·70	−0·17	+0·73	+0·91	+0·64	+0·29	+0·42	+0·55	+1·01	+1·19	+0·98	+0·48	+0·35	+0·41	+0·08	−0·15
Equinox	−0·92	−0·81	−1·11	−0·81	−0·64	−0·96	−0·95	−0·21	+0·47	+0·98	+1·28	+1·08	+0·82	+0·51	+0·37	+0·30	+0·27	+0·70	+0·52	+0·32	+0·18	0·00	−0·53	−0·86
Summer	−0·97	−0·85	−0·98	−0·65	−0·78	−0·38	+0·34	+0·66	+1·16	+1·68	+1·43	+1·33	+1·07	+0·77	+0·41	+0·28	−0·09	−0·43	−0·60	−0·95	−0·50	−0·50	−0·81	−0·66

HORIZONTAL COMPONENT

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
	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.	+11·3	+10·2	+8·4	+13·5	+16·0	+28·8	+17·3	+13·0	+9·2	−11·5	−28·4	−29·0	−13·9	+1·0	−0·8	−11·9	−21·6	−16·6	−1·9	−2·0	−3·2	−3·3	+8·6	+6·8
Feb.	+4·4	+8·3	+8·9	+2·6	+11·5	+11·7	+5·2	+12·1	+10·1	−1·0	−13·1	−21·5	−15·2	−4·7	−1·1	+4·4	+1·7	−2·9	−9·4	+2·7	+0·9	−8·8	−2·5	−4·3
Mar.	+5·5	+1·1	+9·2	−0·3	−0·9	+14·5	+15·3	+6·1	−0·2	−3·1	−20·7	−19·7	−14·7	−0·9	+2·2	−1·1	+4·5	+1·3	+0·1	−6·9	−1·8	+3·9	+4·3	+2·3
Apr.	−1·6	+2·5	+13·5	+5·4	+5·1	+1·3	+7·0	−0·1	−14·1	−30·2	−24·5	−23·3	−14·6	−8·1	+3·3	+12·6	+24·5	+25·9	+8·4	+7·5	−0·9	−9·8	+0·7	+9·5
May	+13·1	−0·4	+7·6	+2·1	+1·8	+2·0	−11·5	−17·4	−28·8	−46·3	−24·6	−21·0	−10·9	−11·4	+10·0	+8·3	+12·0	+21·0	+21·1	+22·6	+13·6	+10·3	+18·4	+8·4
June	+15·5	+18·2	+8·8	+11·3	+13·6	−7·6	−19·3	−19·0	−16·8	−23·5	−25·8	−18·4	−22·5	−15·8	−9·6	+3·9	+5·4	+10·0	+16·7	+30·0	+15·2	+11·3	+14·4	+4·0
July	+8·6	+7·2	+8·0	−5·8	−5·0	+3·4	−4·8	−6·0	−11·2	−19·2	−23·2	−31·2	−16·8	−10·2	−6·8	−1·0	+6·8	+14·8	+19·2	+20·6	+17·6	+17·6	+9·4	+8·0
Aug.	+10·6	+12·2	+14·2	+7·4	+8·2	+1·3	−1·0	−5·8	−20·0	−20·8	−24·4	−22·8	−23·6	−10·2	−8·6	−5·4	+9·6	+13·1	+15·6	+15·0	+7·4	+7·2	+10·0	+10·8
Sept.	+12·0	+6·3	+6·7	+8·6	+4·3	+10·1	+10·8	−4·7	−15·9	−19·4	−25·5	−19·5	−15·6	−7·7	−4·5	+5·8	−0·1	−1·3	+6·6	+8·5	+6·3	+6·0	+13·7	+8·5
Oct.	+17·3	+13·0	+6·9	+6·0	+8·8	+10·9	+9·2	+1·6	−5·1	−14·6	−16·1	−13·4	−11·9	−12·2	−9·9	−7·4	−3·8	−11·9	+1·8	+6·8	+6·7	+3·2	+4·7	+9·4
Nov.	+5·3	+5·4	+7·5	+12·3	+8·7	+12·2	+10·5	+10·1	+3·5	−7·0	−8·9	−6·3	−4·3	−1·6	−7·3	−7·1	−6·7	−12·2	−13·9	−3·3	−0·9	+0·4	−1·5	+5·1
Dec.	+4·4	+4·3	+2·8	+2·9	+5·2	+9·7	+12·4	+15·3	+9·8	+3·3	−1·0	−3·3	−4·0	−7·9	−6·0	−2·3	−10·2	−10·1	−5·2	−4·3	−3·4	−3·5	−5·8	−3·1
Year	+8·9	+7·4	+8·5	+5·5	+6·4	+8·2	+4·3	+0·4	−6·6	−16·1	−19·7	−19·1	−14·0	−7·5	−3·3	−0·1	+1·8	+2·6	+4·9	+8·1	+4·8	+2·9	+6·2	+5·5
Winter	+6·3	+7·1	+6·9	+7·8	+10·3	+15·6	+11·3	+12·6	+8·1	−4·1	−12·9	−15·0	−9·3	−3·3	−3·8	−4·2	−9·2	−10·5	−7·6	−1·7	−1·7	−3·8	−0·3	+1·1
Equinox	+8·3	+5·7	+9·1	+4·9	+4·3	+9·2	+10·6	+0·7	−8·8	−16·8	−21·7	−19·0	−14·2	−7·2	−2·2	+2·5	+6·3	+3·5	+4·2	+4·0	+2·6	+0·8	+5·9	+7·4
Summer	+11·9	+9·3	+9·7	+3·7	+4·7	−0·2	−9·1	−12·1	−19·2	−27·5	−24·5	−23·3	−18·5	−11·9	−3·7	+1·5	+8·5	+14·7	+18·1	+22·1	+13·5	+11·6	+13·1	+7·8

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

RANGE OF MEAN DIURNAL INEQUALITIES FOR THE MONTHS, YEAR AND SEASONS OF 1964

The ranges are derived from the diurnal inequalities printed in Tables 24 to 29

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	All days			Quiet days			Disturbed days			All days			Quiet days			Disturbed days		
	X	*-Y*	*Z*	*X*	*-Y*	*Z*	*X*	*-Y*	*Z*	*D*	*I*	*H*	*D*	*I*	*H*	*D*	*I*	*H*
	γ	γ	γ	γ	γ	γ	γ	γ	γ	′	′	γ	′	′	γ	′	′	γ
Jan.	21·2	28·9	13·5	14·6	17·6	5·8	58·0	48·9	45·2	5·98	1·46	20·2	3·73	0·86	13·2	9·96	4·43	57·8
Feb.	25·0	42·2	18·5	19·3	22·5	9·4	35·7	65·3	47·4	8·88	1·55	23·0	4·75	1·16	18·0	13·46	2·65	33·6
Mar.	29·8	37·2	22·3	36·3	39·1	14·2	39·3	65·5	72·6	7·72	1·72	26·2	8·28	2·10	35·2	13·53	2·85	36·0
Apr.	43·1	51·2	29·6	37·3	49·7	18·2	53·2	74·1	80·6	10·89	2·67	42·2	10·08	2·26	37·9	14·92	3·37	56·1
May	36·9	45·0	26·8	18·8	39·4	21·3	66·9	65·6	53·0	9·40	2·10	39·6	7·98	1·02	18·8	13·20	4·32	68·9
June	41·8	50·1	24·9	41·5	42·7	21·7	56·9	57·1	56·7	10·14	2·35	42·8	9·47	2·16	40·4	11·46	3·15	55·8
July	38·3	49·1	20·9	39·8	46·4	17·4	52·3	57·9	40·0	10·38	2·09	37·9	9·91	2·28	39·2	12·09	2·83	51·8
Aug.	32·1	47·3	23·1	32·2	45·3	16·6	44·5	54·0	38·7	9·77	1·69	30·9	9·30	2·00	32·6	11·32	2·71	40·0
Sept.	32·0	41·5	17·8	31·9	37·4	15·0	43·6	51·2	58·6	8·55	1·80	29·1	7·77	1·74	30·0	11·25	2·91	39·2
Oct.	27·3	34·8	18·7	26·7	30·6	10·1	36·0	47·6	40·7	7·51	1·60	24·1	6·34	1·53	24·3	10·41	2·94	33·4
Nov.	14·5	23·2	10·9	13·5	15·7	5·8	27·8	50·3	35·7	5·07	0·88	13·5	3·24	0·81	13·4	10·83	2·62	26·2
Dec.	12·4	19·9	6·5	9·2	16·7	3·6	26·8	37·7	19·5	4·19	0·74	11·2	3·34	0·55	9·1	7·80	2·05	25·5
Year	26·1	34·4	18·2	24·6	32·1	11·4	32·0	44·6	42·8	7·23	1·35	24·6	6·65	1·35	23·6	9·57	2·10	28·6
Winter	17·7	28·2	11·6	12·8	16·6	5·2	32·2	43·8	33·2	5·95	1·09	16·0	3·48	0·74	11·6	9·19	2·56	30·6
Equinox	32·4	41·1	21·4	31·9	39·2	11·6	34·6	54·3	58·2	8·50	1·88	29·4	8·11	5·40	30·3	11·60	2·39	32·3
Summer	36·5	47·1	23·6	32·5	42·9	18·5	47·7	56·2	43·4	9·83	1·96	37·0	9·02	1·73	31·2	11·40	2·66	49·6

NON-CYCLIC CHANGE

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	All days			Quiet days			Disturbed days		
	H	*D*	*Z*	*H*	*D*	*Z*	*H*	*D*	*Z*
	γ	′	γ	γ	′	γ	γ	′	γ
Jan.	-0·1	-0·05	-0·4	+3·5	+0·50	-1·7	-2·5	-0·19	-3·4
Feb.	+0·5	+0·04	+0·2	+2·2	-0·09	-1·0	-6·0	-2·19	+0·6
Mar.	+0·1	0·00	+0·2	+6·7	+0·11	-2·0	-9·1	+0·18	-2·2
Apr.	-0·3	-0·29	-2·7	+3·3	-0·08	-0·4	-4·4	-0·37	-5·3
May	+0·9	+0·27	+2·4	+3·1	+0·31	-0·8	-6·3	+2·11	+9·8
June	0·0	-0·02	+0·1	+0·2	+0·04	+0·1	-8·5	+0·52	+1·8
July	0·0	+0·03	-0·2	+6·4	-0·02	-2·0	-8·1	-0·60	-5·6
Aug.	+0·3	-0·22	-0·8	+5·7	+0·53	-2·1	+6·4	-1·23	-7·9
Sept.	-0·5	+0·17	+0·7	+2·5	+0·12	-0·4	-8·6	+3·04	+0·8
Oct.	-0·1	-0·04	+0·5	+2·7	+0·18	+0·5	-11·9	+0·06	0·0
Nov.	-0·2	-0·03	+0·1	+4·7	+0·60	-2·8	+2·5	-1·88	-0·2
Dec.	+0·3	+0·03	-0·1	+1·4	-0·04	-1·2	+1·7	-0·71	+0·7
Year	+0·1	-0·01	0·0	+3·5	+0·18	-1·1	-4·6	-0·11	-0·9
Winter	+0·1	0·00	-0·1	+2·9	+0·24	-1·7	-1·1	-1·24	-0·6
Equinox	-0·2	-0·04	-0·3	+3·8	+0·08	-0·6	-8·5	+0·73	-1·7
Summer	+0·3	+0·01	+0·4	+3·9	+0·21	-1·2	-4·1	+0·20	-0·5

AVERAGE RANGE OF DIURNAL INEQUALITY 1932-53 WITH 1964 AS PERCENTAGE OF THIS

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		All days			International quiet days			International disturbed days		
		H	*D*	*Z*	*H*	*D*	*Z*	*H*	*D*	*Z*
		γ	′	γ	γ	′	γ	γ	′	γ
Year	1932-53	37·8	8·66	28·7	34·4	8·43	13·7	53·9	11·93	82·1
	1964(%)	65	83	63	69	79	83	53	80	52
Winter	1932-53	19·3	6·95	21·2	16·2	4·44	5·9	34·4	11·45	66·5
	1964(%)	83	86	55	72	78	88	89	80	50
Equinox	1932-53	43·1	10·18	37·1	39·7	9·69	14·8	75·4	15·11	108·9
	1964(%)	68	83	58	76	84	78	43	77	53
Summer	1932-53	59·7	11·84	33·9	50·4	11·76	21·9	83·7	13·11	82·4
	1964(%)	62	83	70	62	77	84	59	87	53

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

HARMONIC COMPONENTS OF THE DIURNAL INEQUALITY OF GEOMAGNETIC FORCE

Values of a_n, b_n in the series $\Sigma(a_n \cos 15nt + b_n \sin 15nt)$, t being reckoned in hours from midnight G.M.T.

Longitude of Eskdalemuir Observatory, 3°12'W.

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	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
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
												ALL DAYS												
Jan.	+4·3	+2·9	-4·2	-0·5	+2·3	-2·1	-0·5	+1·4	-8·6	+1·1	+0·1	+5·7	-1·1	-1·6	+1·1	+1·4	-0·9	-6·5	-0·7	-0·4	+0·6	-0·2	-0·3	-0·5
Feb.	+5·3	+3·2	-5·2	-1·4	+2·8	-1·1	-1·6	+1·2	-10·4	-2·0	-0·4	+8·7	-1·9	-1·8	-0·9	+3·1	+0·3	-7·5	-2·4	-1·2	+1·0	+0·7	-0·1	-0·2
Mar.	+9·9	-0·3	-6·0	+0·4	+3·2	-2·8	-0·1	+1·3	-9·3	-6·2	+5·4	+8·1	-1·9	-3·7	+1·1	+1·4	+0·6	-9·0	-4·5	-0·6	+2·4	+0·8	-1·1	-0·1
Apr.	+15·1	-4·2	-9·4	+1·3	+3·7	-2·6	+0·2	+1·0	-11·7	-13·4	+5·4	+10·0	-3·0	-2·8	+2·0	+2·0	+0·8	-10·2	-8·5	-2·3	+0·8	+0·3	-0·5	-0·1
May	+12·4	-7·6	-5·6	+2·6	-0·4	-0·8	+1·6	+0·5	-9·4	-14·9	+5·4	+6·2	-3·7	0·0	+0·6	-0·1	+3·7	-7·3	-7·0	+0·3	+1·6	-1·2	-1·4	+0·3
June	+14·6	-6·7	-7·1	+0·6	-1·0	+0·2	+0·4	+0·3	-6·5	-17·1	+5·6	+7·7	-3·0	-1·1	-0·2	+0·6	+4·6	-5·9	-5·1	-0·6	+1·9	+0·1	-0·6	+0·4
July	+13·4	-5·8	-7·0	-0·5	+1·1	-1·1	+0·3	+0·8	-5·6	-18·2	+4·9	+8·5	-2·1	-1·8	+0·3	+1·2	+2·5	-5·7	5·6	-1·9	+1·4	-0·3	-0·6	-0·1
Aug.	+13·0	-3·7	-5·4	+0·9	+1·0	-1·1	+0·3	+0·6	-8·7	-12·7	+7·5	+6·8	-3·3	-2·8	+1·0	+0·7	+3·5	-6·2	-5·9	-1·0	+2·3	-0·1	-0·8	0·0
Sept.	+12·3	-2·4	-5·4	+0·5	+1·6	-2·8	+0·5	+1·0	-9·7	-9·1	+4·5	+8·4	-2·8	-3·2	+0·9	+1·9	+0·8	-5·7	-4·6	-1·8	+2·1	+0·3	-0·5	-0·1
Oct.	+11·3	+1·4	-4·7	-1·6	+1·8	-2·4	+0·6	+1·3	-9·5	-5·3	+2·4	+8·2	-1·7	-3·0	+2·0	+1·6	-1·8	-6·0	-4·2	-0·5	+1·7	0·0	-1·1	-0·7
Nov.	+4·6	+2·3	-2·7	-0·7	+0·8	-2·1	+0·3	+0·6	-7·9	-2·3	+0·6	+5·3	-1·3	-0·7	+0·9	+0·5	+0·6	-4·9	-1·7	0·0	+0·6	-0·1	-0·5	+0·2
Dec.	+1·9	+2·1	-2·5	-0·9	+1·7	-1·3	-0·3	+0·5	-5·8	-0·7	-0·4	+4·6	-1·1	-0·8	+1·0	+1·1	+0·6	-3·2	-0·8	-0·2	+0·3	-0·4	-0·4	-0·1
Year	+9·8	-1·6	-5·4	0·0	+1·5	-1·7	+0·1	+0·8	-8·6	-8·4	+3·4	+7·3	-2·2	-1·9	+0·8	+1·3	+1·3	-6·5	-4·3	-0·8	+1·4	0·0	-0·7	-0·1
Winter	+4·1	+2·6	-3·7	-0·9	+1·9	-1·7	-0·5	+0·9	-8·2	-1·0	0·0	+6·1	-1·4	-1·2	+0·5	+1·5	+0·1	-5·5	-1·4	-0·5	+0·6	0·0	-0·3	-0·1
Equinox	+12·1	-1·4	-6·3	+0·1	+2·6	-2·7	+0·3	+1·1	-10·1	-8·5	+4·4	+8·7	-2·3	-3·1	+1·5	+1·7	+0·1	-7·7	-5·5	-1·3	+1·7	+0·4	-0·8	-0·2
Summer	+13·3	-5·9	-6·3	+0·9	+0·2	-0·7	+0·6	+0·5	-7·5	-15·7	+5·8	+7·3	-3·0	-1·5	+0·4	+0·6	+3·5	-6·3	-5·9	-0·8	+1·8	-0·4	-0·9	+0·2
												QUIET DAYS												
Year	+8·3	-1·1	-5·3	+0·1	+1·6	-1·3	-0·2	+0·9	-4·2	-8·1	+3·3	+5·8	-3·1	-2·1	+1·1	+1·3	+3·2	-1·3	-2·9	+0·1	+1·6	-0·2	-0·6	-0·2
Winter	+2·3	+0·6	-3·2	-0·5	+1·7	-1·2	-0·7	+0·9	-4·1	-2·0	+0·1	+3·9	-1·8	-1·1	+1·1	+1·4	+1·1	-1·7	-0·7	+0·2	+0·7	0·0	-0·4	-0·3
Equinox	+11·2	-1·1	-6·2	+0·3	+2·5	-2·3	-0·3	+1·2	-4·2	-9·5	+2·9	+7·6	-3·4	-3·7	+1·5	+1·6	+3·4	-0·9	-2·9	-0·5	+2·0	-0·1	-0·7	-0·2
Summer	+11·6	-2·8	-6·5	+0·4	+0·7	-0·2	+0·3	+0·4	-4·2	-13·0	+6·8	+5·9	-4·0	-1·7	+0·7	+0·8	+5·2	-1·3	-5·1	+0·7	+2·1	-0·4	-0·6	-0·3
												DISTURBED DAYS												
Year	+12·9	-1·2	-5·9	+0·6	+1·6	-2·2	+0·4	+1·6	-13·5	-6·8	+3·7	+10·7	-0·7	-2·1	+0·5	+1·1	-2·9	-17·2	-6·9	-2·3	+1·4	+2·1	-0·1	+0·4
Winter	+7·7	+7·8	-3·9	-0·4	+2·2	-3·2	-1·0	+3·0	-12·0	+1·3	+0·9	+9·0	-0·7	-1·8	0·0	+1·6	-2·0	-14·6	-3·3	-1·6	+0·7	+1·3	+0·3	-0·3
Equinox	+13·3	-2·9	-6·8	+0·6	+3·0	-3·4	+1·2	+0·5	-18·4	-4·2	+5·0	+13·0	0·8	-3·0	+1·1	+1·7	-5·7	-19·9	-11·3	-2·0	+1·5	+3·3	+0·8	+0·1
Summer	+18·1	-8·7	-7·2	+1·3	-0·1	0·0	+0·8	+0·7	-10·2	-17·6	+5·3	+10·0	-2·0	-1·5	+0·4	+0·1	-0·9	-17·7	-6·1	-3·5	+2·1	+1·5	-1·2	+1·1

HARMONIC COMPONENTS OF THE DIURNAL INEQUALITY OF GEOMAGNETIC FORCE

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

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	North component								West component								Vertical component							
	c_1	α_1	c_2	α_2	c_3	α_3	c_4	α_4	c_1	α_1	c_2	α_2	c_3	α_3	c_4	α_4	c_1	α_1	c_2	α_2	c_3	α_3	c_4	α_4
	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°
												ALL DAYS												
Jan.	5·2	59	4·2	269	3·1	141	1·5	351	8·7	281	5·7	8	1·9	225	1·8	50	6·6	191	0·8	251	0·6	119	0·6	224
Feb.	6·2	62	5·4	262	3·1	122	2·0	320	10·5	262	8·7	4	2·7	236	3·2	357	7·5	181	2·7	250	1·3	63	0·3	214
Mar.	9·9	95	6·0	280	4·2	140	1·3	6	11·1	240	9·8	40	4·1	216	1·8	51	9·0	180	4·5	269	2·5	81	1·1	280
Apr.	15·6	109	9·5	285	4·6	135	1·0	26	17·9	224	11·4	35	4·1	236	2·9	58	10·2	179	8·8	261	0·8	81	0·5	265
May	14·5	125	6·2	301	0·9	218	1·6	86	17·6	215	8·2	48	3·7	280	0·6	114	8·1	156	7·1	279	2·0	135	1·5	294
June	16·0	118	7·1	281	1·0	292	0·5	66	18·3	204	9·6	42	3·1	260	0·6	355	7·5	145	5·1	270	1·9	96	0·7	318
July	14·6	117	7·1	272	1·5	114	0·8	33	19·0	200	9·8	36	2·8	239	1·3	27	6·2	159	6·0	258	1·4	112	0·6	273
Aug.	13·5	109	5·5	285	1·5	146	0·6	39	15·4	218	10·1	54	4·3	239	1·2	68	7·1	154	5·9	267	2·3	103	0·8	285
Sept.	12·5	104	5·5	282	3·2	160	1·1	38	13·3	230	9·6	35	4·3	231	2·1	40	5·7	175	5·0	255	2·2	91	0·5	277
Oct.	11·4	86	5·0	257	3·0	153	1·4	36	10·9	244	8·5	23	3·4	220	2·6	65	6·3	200	4·2	270	1·7	99	1·4	250
Nov.	5·1	66	2·8	263	2·2	169	0·6	42	8·2	257	5·3	13	1·5	253	1·0	76	4·9	177	1·7	276	0·6	113	0·6	305
Dec.	2·9	45	2·7	257	2·1	138	0·5	342	5·9	266	4·6	1	1·3	244	1·5	55	3·3	172	0·8	261	0·5	148	0·4	269
Year	10·0	102	5·4	277	2·3	147	0·9	22	12·0	229	8·1	31	2·9	239	1·5	45	6·6	172	4·4	265	1·4	100	0·7	277
Winter	4·8	60	3·8	263	2·5	141	1·0	342	8·2	267	6·1	7	1·8	238	1·6	32	5·5	182	1·5	259	0·6	98	0·4	260
Equinox	12·2	100	6·3	277	3·7	146	1·2	26	13·2	233	9·8	33	3·9	226	2·3	55	7·7	182	5·6	263	1·8	87	0·8	265
Summer	14·6	117	6·4	285	0·7	177	0·8	63	17·4	209	9·3	45	3·3	254	0·7	49	7·2	154	6·0	269	1·9	111	0·9	295
												QUIET DAYS												
Year	8·4	101	5·3	277	2·1	137	0·9	359	9·2	210	6·7	36	3·7	245	1·7	53	3·5	115	2·9	279	1·6	107	0·6	260
Winter	2·3	78	3·2	267	2·1	134	1·1	335	4·6	247	3·9	9	2·1	250	1·7	50	2·0	151	0·8	292	0·7	102	0·5	249
Equinox	11·2	99	6·2	279	3·4	141	1·2	358	10·3	207	8·1	27	5·0	233	2·2	57	3·5	109	2·9	267	2·0	103	0·7	265
Summer	11·9	107	6·5	280	0·7	118	0·5	49	13·7	201	9·1	55	4·3	256	1·1	51	5·4	107	5·1	284	2·1	111	0·7	259
												DISTURBED DAYS												
Year	12·9	99	6·0	282	2·7	153	1·7	25	15·1	247	11·3	26	2·2	207	1·3	36	17·5	193	7·3	258	2·5	44	0·4	5
Winter	11·0	48	3·9	271	3·9	154	3·2	354	12·1	280	9·1	12	1·9	210	1·6	13	14·7	191	3·6	251	1·5	36	0·4	145
Equinox	13·6	105	6·8	282	4·5	148	1·3	82	18·8	260	13·9	27	3·1	174	2·1	45	20·7	199	11·4	266	3·6	35	0·8	95
Summer	20·0	119	7·3	286	0·1	290	1·1	61	20·3	213	11·4	34	2·5	243	0·4	87	17·7	186	7·0	246	2·6	65	1·7	326

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

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(a) Disturbances without sudden commencement All times G.M.T.

Serial Number	From		To		Range (γ)			Notes
	Date	Hour	Date	Hour	*H*	*D*	*Z*	
1a	2 Jan.	03	5 Jan.	03	204	160	113	
2a	3 Mar.	21	6 Mar.	02	180	228	178	
3a	1 Apr.	09	3 Apr.	06	329	332	299	
4a	27 Apr.	05	29 Apr.	20	179	152	178	
5a	13 May	09	16 May	22	193	135	169	
6a	10 June	03	12 June	08	187	133	172	

(b) Disturbances with sudden commencement (ssc)

Serial Number	Date	Time of sudden commence-ment	End of disturbance		With initial reversed stroke			Magnitude of main stroke (γ)			Range of following disturbance (γ)		
			Date	Hour	*H*	*D*	*Z*	*H*	*D*	*Z*	*H*	*D*	*Z*
		h. m.						γ	γ	γ			
1b	12 Feb.	06.04	-	-	No	Yes	No	+10	−19	0		small	
2b	20 Feb.	11.37	-	-	Yes	Yes	Yes	+26	−18	−4		small	
3b	29 Mar.	14.08	-	-	Yes	Yes	Yes	+20	−8	−2		small	
4b	13 Apr.	16.25	-	-	Yes	Yes	Yes	+17	−6	−1		small	
5b	17 Apr.	00.20	-	-	No	No	No	+19	−9	−3		small	
6b	10 May	00.35	11 May	07	Yes	Yes	Yes	+34	−20	−5	147	228	158
7b	23 May	22.29	-	-	No	No	No	+47	−9	−6		small	
8b	2 July	23.24	-	-	No	No	No	+20	−7	−3		small	
9b	4 Aug.	01.30	-	-	No	Yes	No	+34	−26	−5		small	
10b	6 Sept.	19.55	-	-	No	No	No	+44	−5	−4		small	
11b	21 Sept.	11.47	22 Sept.	23	No	No	No	+14	−9	−1	268	179	153
12b	3 Oct.	12.43	-	-	Yes	Yes	No	+28	−14	−4		small	

In the case of an ssc*, that is, an ssc preceded, on at least one component, by one or more small oscillations, timing of the sudden commencement has been made from the main stroke.

(c) Disturbances due to solar flare (sfe) - None

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

35 ESKDALEMUIR — Factor 8·31 — JANUARY 1964

volts per metre

Day	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	
1	75+		90+	105+	110+	80+	135+	80+	125+		100+	110+	135+	135+	140+	125+	110+						150+	150+		
2			35+			0+	40+	50+	55+		65+	60+	100+	110+	135+	135+	185+	145+	100+	140+	100+	75+	50	35		
3	30	30	40	45	70	70	95	85	90	60	80	65+	90+	90+	115+	60+	120+	70+								
4																			25+	25+		30+				
5			40	45	60	45	50	45	25	35	50	60	60	65	60	50	60	55	35	35	45	45	30	30		
6	20	30	25	25	20	25	20	30	30	30	10+	10+			45											
7																					60+	60+				
8	55	50	45+	55	40	35	45	45	45	50	60							45	55	55	50	50	50	45		
9 Oa	45	45	50	45	45	60	50	40	35	45	50	70	75	50	60	35+	50	40	60	45	30	30	35	45	47	(24)
10	30	30	30	25	30	40	45	45	50	40	45	55	35	45	40	25	30	80	75	110+	110+					
11	40+					25	45	45	40	45	50+	70+	70+	55+	55+	50+	40+	60+	60+	60+	65+	60	50	55		
12	40	35	35	35	30	30	35	35	30	40	50	60	60	85	85	40+			-15+			25+	75+	70+		
13	75+	75+	70+			10+																				
14									20+	35			5+			-30+	-5+	0+	15+	0+	15+	45	20+	35+		
15	45	20	25	15	20	15	15	15	15+	20	35	15+	45	45+	55	25+	5+	-5+	20+	20+	30+	20	20	20		
16	15+	15+	25	30	20	30	15	10+	25+	40	50+	55	80	85	55	25	20+	0+	-40+	15+	-15+	-20+	35	25		
17	35	30	40	30	40	45	45	40	35	50	55	40	60	65	40	25	30	30	30	20	20	15	10	15		
18	25	15	10	15	25	15	30	25	25	25	50	45	35	75	35+	30+	10+	35+	-30+	-20+	20+	20+	25			
19																										
20											110+	130+	120+	65+		100+	85	80	100	80	75	60	50	30		
21	30	45	30	15																						
22				40+		45+		15+		30+												85+	85+	90+		
23	25+	15+	10+			70+	145+					45+	50+						50+	30	10+		45+	45		
24	45	45	35	40	30	30	35	30	30	55	55	55	55	50	-	-	-	-	-	-	-	-	-	-		
25	45	50	45	40										65+	65+	75+	95+	60+	20+	55+				40		
26				35+	20+	45	35	50	60	70+	80	100	105+	70+	55+	40+	55+	50+	75+	55+	45+	65	40	35		
27	60	85+	50	35	15+	40	55				145+	95+														
28				50	55+	-35+			55+	75+			85+	80+	95+	95	90	70	70	70	70	75	70	50		
29																										
30																								45+		
31		30+																	75+							
Mean	41 (18)	38 (17)	38 (19)	38 (19)	39 (16)	34 (21)	52 (18)	40 (17)	44 (18)	44 (17)	63 (18)	63 (18)	70 (18)	73 (17)	71 (16)	53 (17)	61 (16)	51 (16)	41 (19)	47 (17)	45 (15)	44 (17)	50 (18)	48 (18)	49	
Fair Weather Mean	39 (13)	35 (12)	34 (14)	34 (16)	36 (14)	37 (15)	41 (15)	41 (13)	41 (12)	41 (14)	55 (11)	60 (9)	56 (9)	65 (8)	55 (8)	44 (5)	58 (6)	57 (7)	61 (7)	48 (7)	48 (6)	47 (10)	39 (12)	36 (13)	46	
Mean of Oa days																									[47	(1)]

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

35 ESKDALEMUIR — Factor 8·16 — FEBRUARY 1964

volts per metre

Day	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	
1				60+	60+	70+		95+	85+			55+	70+	85+	110+	100+	80+	80+	65	75	60	45	30	10+		
2						45+	5+	25	20+	40	60	35+								110+						
3										-20+	80+	100+		85+	80+											
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
5	60	15+	40	35	30	30	30	45	15	55	80	-	85	85	70	30	20	20	35	55	70	65	55	65		
6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
9	20+	15+	20+	25+	15+	10+	15+	20+	15+	30+	-	-	20+	15+	20+	-	-	-	-							
10	25	30	35	30	30+	30+	35+	20+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
12	-	-	-	-	-	-	-	-	-	-	-	-	35+	35+	-	-	45	20+	15+	20+	10+	20	30	20		
13	25	15	10+	0+	-15+	15+	0+	0+	65+	35	45+	55+	70	45	60+	55	55	60	95	120+	120+	45	30	60		
14	60	35	20	5+	30	25	30	10+	15+	35+	70+	50	55+	30+	45+	-10+	30+	30+	0+	45	0+	5+	45			
15			-10+	5+	-10+	20	0+	-10+	-25+	-45+	-45+	-10+	5+	20+	10+	10+	-30+	0+	-5+	-55+	-45+	25	30	15+		
16					15+	30	35	30+	30									45	10+	15+	30	25	10+	5+		
17	15+	10+	15+			15+	10+	35	35																	
18																										
19					30+	60	55+	55+	55+	55	100+	90+	105+	95+	90	75	80	65	65	85	60	60	45	40		
20 **Oa**	30	30	25	30	25	50	45	45	45	55	95	75	85	90	90	90	90	55	50	45	30	30	45	35	54	(24)
21 Oa	40	45	50	45	50	55	55	65	70	60	75	80	105	105	100	55	30	75	30	25	30	30	20	40	56	(24)
22	40	40	35	30	30	50	40	45	65	70	75	60			90	50	65	20+	30	25+						
23						-45+	-60+	-50+					-30+	-75+												
24										35	60	45	25+					60			55+		25+	-20+		
25	10+	10+	40	45	75	70	90	85	45			15+	30+	15+	60+	70+	40+	55+			25+		0+	30		
26	5+	25+	0+	10+	20+	15+	15+	25	60	55	85	105	80	55+	30+	65+	55	50+	90+	125+	70	20				
27					25+	15+	25+	25	20+								65+	75+		85+	75+	50+	55+	75+		
28											60+		35+	55+		85+	90	50	105+		95+	40+	45+	55+		
29	30+	25+	30+	20+	15+	20	35	25	35	35	45	85	55	70+	25+	20+	25	-15+	10+	-15+	0+	10+	5+	20+		
Mean	30 (12)	25 (12)	24 (13)	26 (13)	27 (16)	31 (19)	26 (18)	31 (19)	38 (17)	35 (14)	63 (14)	60 (14)	52 (16)	51 (16)	63 (14)	53 (13)	49 (15)	44 (17)	43 (14)	51 (15)	43 (16)	34 (14)	31 (15)	32 (14)	40	
Fair Weather Mean	40 (7)	33 (6)	35 (7)	36 (6)	40 (6)	41 (10)	45 (8)	42 (10)	44 (9)	49 (10)	72 (8)	71 (7)	80 (6)	81 (4)	88 (5)	59 (6)	55 (10)	54 (8)	53 (7)	55 (6)	50 (7)	37 (10)	37 (9)	41 (7)	52	
Mean of Oa days																									[55	(2)]

The potential gradient is reckoned as positive when the potential increases upwards. The small + denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for Oa days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

35 ESKDALEMUIR — Factor 8·05 — MARCH 1964

Hour G.M.T.; volts per metre

Day	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
1	20+	5+	5+	10+	5+	15+	5+	5+	20+	25+	-15+	15+	30+	20+	20+	15+	10+	45+	55+	40+	35+	25+	20+	10+	
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3										30+													55	60	
4	45+								35+	50+					60	70+	55+	80+		55	45+				
5	60	55	35	35	25+	25	30	25	55	60	75	75+	65		105+										
6				0+	30	10+	25+	10+	175+	85+	105+	95+	75+	55+	65+	50+	45	30	35	20	20	30	30	25	
7	30	50	50			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
8	30	30	20	15	20	20+	20+	20+	20+	50	55	45	55	55	50	45	40	15+			15+	20+			
9		45	70+	60+	60	50	55	55			60	50	55+	65	65	65+	60	60+			40+	45	45	35	
10								45											70+	45+			5+	15+	
11	5+	10+	15+	-20+				35+	35+	45	70	40	40+	45	40	30+	45+	5+	-5+	30+	15+	60+	35+	25+	
12	50	30	30	50	45	5+	-5+	5+	30	35	45+	30+	55+	75+	65+	90+	35+	75+	120+	105+	85+	40+	35+	5+	
13									-10+	0+	20+			15+	-75+	-35+	-35+	-40+	15+	-45+	-30+	60+	90+		
14					185+	165+	180+										0+	5+							
15																					75	60	95+	70	
16 Oa				65	60	80	70	85	70	45	65+	90+	115+	115+	120	95	115	125	145	165	145	140	120	75	100 (21)
17 Oa	75	60	75	60	60+	100+	110+	65	60+	75+	55		110	105	100	50	65	80	55	75	75	75	60	45	73 (23)
18	35	20	15	10	25	40+	65	90+	75+	65+	45+	70+	80+	85+	110+	75+	70+	75	70	45	35	40+	55+	50	
19	55	60	35	45	30	5+	35+	45	65	20+	55+														
20														85+	65+	45+	-55+	-50+	-30+	-80+	-5+	90+			
21									45+																
22												15+	20+												
23			20+	20+	10+	15+	35+	35+	30	25+	20+	20+	35+	45+			25+	15+	-5+	-10+	-30+	-40+	-25+	-20+	
24	-30+	-5+	-10+																					0+	
25										90+	110+	95+	80+	55+	30+	30+	50+	75	65	70	90	30	30	75	
26	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
27	15+	10+	10+	15+	20	15+	25	15+	25+	0+	10+	30+	50+	35+	25	40	35	40	55	45	40	20	35	25	
28	20+	20+	20+	20+	20+	20+	20+					10+					5+	10+	10+	20+	10+	20+	25+	15+	
29	10+	25+			30				50	55	25+	25+	35+	50+	60+					45+	60+	65+			
30		45	45	35	30	35	50	55	60	65+	60+	55+	55+	55+			50+								
31																	40	45			60	45	40		
Mean	33 (15)	31 (15)	29 (15)	28 (15)	41 (16)	40 (15)	48 (15)	39 (15)	49 (17)	46 (18)	51 (17)	47 (16)	60 (16)	60 (16)	57 (16)	47 (14)	34 (19)	38 (18)	47 (14)	39 (16)	41 (19)	46 (18)	44 (17)	32 (16)	43
Fair Weather Mean	51 (8)	44 (9)	38 (8)	39 (8)	35 (10)	47 (4)	49 (6)	54 (7)	51 (7)	48 (6)	63 (5)	45 (3)	77 (3)	67 (4)	66 (7)	57 (4)	57 (7)	67 (7)	71 (6)	68 (7)	67 (8)	56 (8)	52 (8)	51 (9)	55

Mean of Oa days [87 (2)]

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

35 ESKDALEMUIR — Factor 8·09 — APRIL 1964

Hour G.M.T.; volts per metre

Day	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
1																	65	60	60	70	50	40+	50	50	
2	55	55			50	50				60+	50+					75+	70		50	65	70	60	55	45	
3	60	60		55	45	45			40+	55+	50+	40+	45+	40+	45+	50+	55+	55	55	55		60	60		
4 Oa		50	50	55		45	50	55	60	65+	55+	55+		60+	60+	50+	45	50	45	45	30	30	15	25	47 (21)
5	35	40	25	25	25	30	45	40	80	80	50+	60+	40+	35+	25+	25+	5+	5+	5+	30	20	20	30	40	
6	25	20						65+	70+	65+	85+	45+	70+			70+	40+	35+	30	5+	5+	-25+	15	10+	
7	30	30	30	35	20	25	30	30	50	55+	50+	45+	60+	65+	30+	60+	85+	30	20	35	25	40	35	40	
8												30+	55+	60+	80+	65+	55+								
9							65+	80+															55+	45	
10			50	35	45	60	55	70	75	70+	65+	50+	60+	70+				55	65	75	50	35			
11								80+	75+	85+	55+													55	
12	70								35+	75	70	45+	60+				55+			55+	50+		55+	35+	
13				45	45	55		55+	45+				60+			80+	90+				75+		60	55	
14	60	50		35	25+					60+													70+	90	
15	75	70	65	55	65	70	65	85+		75+	75+														
16		70+	60+	45			70	115+	95+					50+	115+	75+	70+	55+	25+	20+	15+	10+	10+	-5+	
17	-30+	-30+							-45+		20+				15+			55	45	35	40	20	20	15	
18	25	15	20	25	20	15+	20+	30	35	65	85	75	55	80	60	60	85	40	15+	-90+	-40+	20+	-50+	-30+	
19	-15+	-15+	10+	25+																					
20								85+	105+			75+	75+	60+	60				25+	45	65	45			
21		30+	-55+	55	25+	45	45			20+	25+	-30+										30+	15+	20+	
22			10+	15+	20+				35					35+	55+	45+	45+	55+				40+	10+	10+	
23								15+			45+	60+								15+	10+				
24	15+			10	15	15		25+	40+	30+	35+	30+	35+	-	25+	35+	45+	55	55	30	30	5+	20	15	
25	30	20	20	5+	5+	10+										60									
26																									
27					90	85	65	55+	70+	105+	115+	80+	55+	70+	80+										
28												40+	30+	75+	75+	80+	70	80	75	70	80				
29	40+	60+	45+	45+													75+		75+	75+	60				
30			40+		25+			60+	65+	75+				75+	70+	80+	70+			90	75	65	50	60	
Mean	34 (14)	35 (15)	28 (13)	35 (16)	35 (15)	42 (13)	51 (10)	59 (16)	55 (17)	65 (16)	58 (16)	47 (15)	54 (13)	60 (13)	57 (14)	61 (15)	60 (17)	48 (13)	43 (15)	40 (18)	39 (18)	31 (16)	32 (18)	32 (18)	46
Fair Weather Mean	44 (9)	41 (10)	37 (7)	40 (12)	42 (10)	48 (11)	53 (8)	45 (5)	56 (6)	73 (3)	77 (2)	75 (1)	55 (1)	80 (1)	60 (2)	60 (2)	67 (5)	53 (9)	50 (10)	54 (12)	50 (12)	42 (9)	37 (11)	45 (12)	53

Mean of Oa days [47 (1)]

The potential gradient is reckoned as positive when the potential increases upwards. The small + denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for Oa days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

35 ESKDALEMUIR | Factor 8·17 | MAY 1964

Hour G.M.T. — volts per metre

	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
1	45	50$^+$	45$^+$	15$^+$	35$^+$	30$^+$						45$^+$		25$^+$				40$^+$	70$^+$	70$^+$	65$^+$	65	60	35	
2	55	30	30	20	25	25	30	40														125$^+$	65$^+$	80$^+$	
3						100$^+$	100$^+$	110$^+$	90$^+$	90$^+$												75			
4																						75$^+$	75$^+$	55	
5	80$^+$	90$^+$	90$^+$	95$^+$					90$^+$							75$^+$					60$^+$	45	40	50	
6	80$^+$	65$^+$	80$^+$	85$^+$	75$^+$	80$^+$	80$^+$	110$^+$				60$^+$	70$^+$	80$^+$	80$^+$	75$^+$	85$^+$	75$^+$				40$^+$	25$^+$	25$^+$	
7																									
8						40$^+$	60$^+$															75$^+$			
9	95$^+$					55$^+$	50	75$^+$	95$^+$			115$^+$	110$^+$	95$^+$	240$^+$	185$^+$	165$^+$					55	45	60	
10						30$^+$									90$^+$	80$^+$				50$^+$	65$^+$				
11																									
12					130$^+$	100$^+$	80$^+$	90$^+$	180	170$^+$	185$^+$												30$^+$	15$^+$	
13	45	50	50	55	35	45	80$^+$	75$^+$	80$^+$	75$^+$	55$^+$	60$^+$	75$^+$				60$^+$				60	65	60		
14		50	40$^+$	45$^+$	45	60	70	60	60$^+$	65$^+$	60	45$^+$	40$^+$	45$^+$	40$^+$	45	45$^+$	45$^+$	35$^+$	45	25$^+$	30	30$^+$	35$^+$	
15	35$^+$	35	30$^+$	35	45	30	40	45	55$^+$	45$^+$	45$^+$	50$^+$	55$^+$	60$^+$	50$^+$	55$^+$	35$^+$	25$^+$	30$^+$	25$^+$	10$^+$	15$^+$	15$^+$	20$^+$	
16	10	15	15	20	25	25	35	25	55$^+$	60	55	75	60	90	80	45	60	50	30	15	15$^+$	25	30	25	
17	15	10$^+$	5$^+$	20	10$^+$	5$^+$	25	20	25	30	30	35	45	60	75	80	75	60	20$^+$	-20$^+$	-80$^+$	-20$^+$	-15$^+$	-15$^+$	
18	-30$^+$	-30$^+$	-10$^+$	-40$^+$	-15$^+$		10$^+$	15$^+$														155$^+$	145$^+$		
19				50$^+$	70$^+$	55$^+$	60$^+$					50$^+$	45$^+$	25$^+$				75$^+$		25$^+$	55	55	40	20	
20	40	65$^+$													50$^+$	45$^+$	50	45	40						
21				80$^+$																					
22							115$^+$	150$^+$	95$^+$	70$^+$	45$^+$	70$^+$	50$^+$	45	30	50	45	40	25	15	15	10	10	15	
23	15	15	10$^+$	15$^+$				-5$^+$		60$^+$	45	80	60	50	45	60	60	60	45	-30$^+$	30$^+$				
24		–		–					–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
25	15$^+$	20$^+$	20	30	20	25	20$^+$	30	35	40	45	45	65	55	60	65	60	60	50	35	15	10	0$^+$	-5$^+$	
26	10	15	10	0$^+$	-5$^+$	25	45	35	35	45	40	45	60	60	80	90	80	75	65	60	60	15$^+$	-5$^+$	0$^+$	
27	20	-5$^+$						15$^+$	5$^+$	40$^+$	30	40	30	30	40	40	45	25	20	20	5$^+$	0$^+$	-15$^+$	-15$^+$	
28	0$^+$	15$^+$	10$^+$	-5$^+$	5$^+$	10$^+$	20	10	20	25	75	45	60	55	30	20$^+$	30	25	10$^+$	-10$^+$	15$^+$	15$^+$	15$^+$	5$^+$	
29	15	15$^+$	15$^+$	10$^+$	20	20	20	15	35	35	30	25	30	35	35									50$^+$	
30					45	60$^+$	130$^+$	105$^+$	50	45							115$^+$	-35$^+$	-35$^+$	-30$^+$	-25$^+$	-5$^+$	-10$^+$		
																							5$^+$	10$^+$	
Mean	32 (17)	30 (17)	29 (15)	31 (17)	35 (16)	43 (19)	56 (19)	54 (19)	63 (16)	60 (15)	57 (13)	55 (16)	57 (15)	54 (15)	68 (15)	67 (15)	67 (15)	44 (15)	31 (13)	19 (14)	24 (16)	44 (21)	31 (21)	24 (19)	45
Fair Weather Mean	27 (10)	30 (7)	25 (5)	30 (6)	37 (9)	32 (8)	37 (9)	31 (9)	33 (6)	40 (7)	46 (9)	49 (8)	51 (8)	53 (9)	53 (9)	59 (8)	56 (9)	49 (9)	39 (7)	32 (6)	41 (5)	43 (10)	41 (7)	37 (7)	40
Mean of Oa days																									Nil

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

35 ESKDALEMUIR | Factor 8·17 | JUNE 1964

Hour G.M.T. — volts per metre

	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
1	60	55	45	60	50	60	55	60	45	45$^+$	75$^+$	90	85	75$^+$	65$^+$	65$^+$	60$^+$	85$^+$	80$^+$	65$^+$	50$^+$	50	70	80	
2		60		65	70	75	95		95$^+$	80$^+$		80$^+$	95$^+$	–	–										
3									80$^+$	60$^+$	75$^+$	50$^+$			80$^+$	70	60	70	70	60	60	60	-5$^+$	-35$^+$	
4	-10$^+$	-20$^+$	-30$^+$	-45$^+$	-45$^+$							85	70			-5$^+$							45	45	
5				60	90$^+$			230$^+$	175$^+$	105$^+$	135$^+$	90$^+$	100$^+$	90$^+$	95$^+$	100$^+$	100$^+$	100	100	115$^+$	75$^+$	75$^+$	85$^+$	60	
6	70$^+$	70$^+$	60$^+$	80$^+$	60$^+$	65$^+$	55$^+$	90	105	130$^+$				40$^+$						30$^+$					
7															145$^+$	110$^+$			70$^+$	45$^+$	75$^+$	85$^+$		70	
8	85	85	75$^+$	60$^+$	75$^+$			45$^+$	–	55$^+$	60$^+$	55$^+$	65$^+$	75$^+$	75$^+$	65$^+$	50$^+$	85$^+$	55	45	30	30	35$^+$		
9	40$^+$	45$^+$																							
10										320$^+$		125$^+$	150$^+$	125$^+$	120$^+$	90$^+$	115$^+$	70$^+$		100$^+$	75$^+$				
11													105$^+$	100$^+$	105$^+$	115$^+$	90$^+$	75$^+$	105$^+$	125$^+$	55$^+$	35$^+$			
12											35$^+$	65	75	50$^+$	35$^+$	20$^+$	15$^+$	-5$^+$	-20$^+$	-25$^+$	-45$^+$	-10$^+$			
13											165$^+$	110$^+$	120$^+$	85$^+$	75$^+$	75$^+$	65$^+$	50$^+$	40$^+$	45$^+$	30$^+$				
14	25	30	35	25	30	40	45	55$^+$	60$^+$	65$^+$	65$^+$	55$^+$	40$^+$	40$^+$								125$^+$	120$^+$	75$^+$	
15	80$^+$											60$^+$	80$^+$				85	85	85	95	85$^+$	75$^+$	45$^+$		
16										115$^+$												75$^+$	90$^+$	55$^+$	
17	40$^+$	35			40	45								70$^+$	60$^+$	0$^+$	45$^+$	35$^+$	50$^+$	45$^+$	40	60	40	45	
18	55	65	60	[illegible]	60	45	50	70	90	100	110	75	75	75	65$^+$	50	75	55			30	35	40$^+$	35$^+$	
19	15$^+$	35$^+$	30$^+$	45	40			55$^+$			90$^+$	65$^+$							80$^+$		105$^+$				
20	85	80	75	95	60	85	110	115	120	95	75$^+$	50$^+$	30$^+$	50$^+$	45$^+$	40$^+$	50$^+$	65$^+$	50$^+$	35$^+$	60	45	75$^+$	25$^+$	
21	65	55	60	50	45	65	65	60	65	60$^+$	55$^+$	75$^+$	55$^+$	45$^+$	50$^+$	55$^+$	55	50	35	35	25$^+$	50	65	55	
22	45	50$^+$	55	50$^+$	45$^+$	30$^+$	30$^+$	50$^+$	50$^+$	60$^+$			50$^+$	–	45$^+$	35$^+$	40	45	50	40	20	15	10$^+$	30$^+$	
23								65	65	75	45$^+$	50$^+$	30$^+$	40$^+$	45$^+$	45$^+$	30$^+$	20$^+$	50	35	70	60	60	45	
24	65	55	55	60	50	60	60$^+$	60	80	100	65$^+$	45$^+$	50$^+$	65$^+$	45$^+$	55$^+$	75$^+$	55$^+$	45$^+$	75$^+$	60$^+$	70$^+$	70$^+$	55$^+$	
25			45	45	40			55$^+$	50$^+$	45$^+$	65$^+$	60$^+$	45$^+$	45$^+$	65$^+$	70$^+$	60	65	50	55$^+$	45	45	40	30	
26	40	45	65$^+$						105$^+$	120$^+$	60$^+$	100$^+$	175$^+$	155$^+$	135$^+$	120$^+$	85$^+$	90$^+$	100	60					
27											95$^+$	95$^+$	90$^+$	80$^+$	75$^+$	95	85	70	60	55$^+$	50	–	–	–	
28	–	–	75	80	75	50$^+$	45$^+$	55	65$^+$	70$^+$	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
29	–	–	–	–	–	–	80	75$^+$	85$^+$	65$^+$	55$^+$	45$^+$	55$^+$	60$^+$	55	55$^+$	60	90	90	80	60		65	45	
30	45	30	5$^+$	5$^+$							55$^+$	65	55	90	100$^+$	75$^+$	75$^+$	90$^+$	125$^+$	125$^+$	75	70	60	60	
Mean	50 (16)	48 (16)	47 (15)	49 (16)	49 (16)	56 (11)	63 (11)	76 (15)	83 (16)	93 (19)	77 (18)	72 (22)	77 (22)	73 (20)	75 (21)	64 (22)	65 (21)	64 (21)	65 (21)	61 (22)	51 (22)	55 (19)	56 (18)	45 (17)	63
Fair Weather Mean	57 (10)	54 (11)	56 (9)	57 (11)	51 (11)	59 (8)	71 (7)	72 (8)	81 (7)	93 (4)	110 (1)	76 (5)	72 (5)	83 (2)	55 (1)	67 (4)	65 (8)	70 (9)	68 (11)	56 (8)	49 (11)	47 (11)	56 (8)	53 (10)	66
Mean of Oa days																									Nil

The potential gradient is reckoned as positive when the potential increases upwards. The small $^+$ denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for Oa days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

35 ESKDALEMUIR — Factor 8·11 — JULY 1964

Day	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	
	volts per metre																									
1	70+	75+	85+	90+	85+	75+	50+	60+	85+	105+	110+	-	-	-	-	-	-	-	-	-	-	-	-	-		
2	-	-	-	-	-	-	-	-								115+	125+	80+			115+	105+	145+	145+		
3	55	55	40	30	50	60+	65	65	-			30	50+	50+	35+	25+	25+	15+	35+	20+	10+	25+				
4 Oa			25+	30	25	40	60	60+	65+	65+	50+	55+	60+	55+	50+	30+	30+	60	65	50	40	70	65	50	50	(22)
5	55+	50	20+	25	5+	-5+	80+	45+					50+	50+	45+	25+	30	25	40+	35+	30+	25+	30	25		
6	15+	15	20+	20+	25	30	40	70	110+	95+	80+	50+	35+	70+	70+	55+	45+	45+	30+			60+	40+			
7		35	45	120+																			160+	175+		
8	155+	145+											115+	125+	90+	95+	75+									
9							55+	55+		40+								50+			30+	25+	20+			
10					15+	20+	20+	20+	25+	55+	70+	60+	65+	65+	45+	50+		55	55+	60+						
11						110+	45+	60+	110+	65+	80+	95+	95+	100+	90+	85+	65+	80+	65	65	75	65	65	55		
12	50	5+	15+	35+	30+			65+	70+	85+	80+	85+	80+	80+	80+	80+	85+	80	65	45	20+					
13	-	-	-	-	-	-	75	80	65	120+	80+	50+	60+	75+	70+	80+	65	40	35	15	10+	10+	50	25		
14	20																	225+			65+	100+	85+	50+		
15	40+	50+	25+	45+	70+	95+	95+	45+	65+	140+	175+	170+	160+	115+	120+	120+	110+	-	120+	75	60	45	65+	60+		
16	80+	75+					125+	100+	80+	85+	110+	115+	110+	110+	85+	110+	110+	70+	60	50	55	65	15+			
17					50	50	50	65			60	30+			10+		10+	20+	30+	65+	5+	10+	5+			
18											30+	-15+	-15+			35+										
19									355+	35	45	60	50	15+	45	55+	80+	50	30+	80+	150+	85+	115+	65+		
20	75+	90+	45+	55+	35+	30+	40+			65+	60+	75+	70+	90	85+	110+	75+	40+					40+	50+		
21							135+	115+	95+	35+	45+	55+	75+							45	35	45		25		
22	45	50+	50+	45	45		275+	245+	210+	120+	85+	70+	65+	70+	65+	65+	60	70	65	45	30	30	35	50		
23	50							80+	60+	90+	110+	65	70	80	65	85	50	85	120+	125+	95+	40	55	60		
24	60	60	45	65+				60+	45+				45+				165+	115+	95+	125+						
25						225+	210+	185+	120+	70+	105+	110+	110+	75+	95	60+	75	85	75	60	70	65	50	40		
26 Oa	30	50	55	55		90	120	110	125+	80+	120+	100+	75+	70+	80+	75+	70+	75	85	60	65	105+	110+	90	82	(24)
27	90	65	70	60	65	50	75	85	80+	70+	65+	85+	45+	100+	80+	45+						65+	35+			
28		30	40+			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
29	20	45	30	30	30											165+	95+									
30							400+	205+	105+					90+												
31 Oa		125+	130+	95+	95+	85+	95+	110+	125+	110+	100+	95+		80+	85+		75+	90							107	(16)
Mean	57 (16)	60 (17)	46 (16)	53 (15)	45 (14)	68 (14)	106 (20)	90 (22)	105 (19)	81 (19)	83 (20)	72 (20)	70 (21)	78 (20)	69 (20)	75 (21)	72 (21)	69 (21)	63 (17)	60 (17)	53 (18)	55 (19)	62 (19)	64 (15)	69	
Fair Weather Mean	47 (9)	45 (9)	47 (6)	39 (7)	41 (7)	52 (5)	69 (7)	79 (6)	65 (1)	35 (1)	53 (2)	52 (3)	60 (2)	85 (2)	68 (3)	85 (1)	56 (5)	65 (11)	64 (8)	51 (10)	54 (8)	53 (8)	50 (7)	47 (9)	57	
Mean of Oa days																									[80	(3)]

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

35 ESKDALEMUIR — Factor 8·08 — AUGUST 1964

Day	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	
	volts per metre																									
1					205+	140+	125+	85+	110+	100+	55+	45+	65+	50+	85+	125+	125	135	115	100+	75+	65	45	40		
2	35	55	30	55	60	75	60			55	50	60+														
3									100+	85+	60+	110+	90+	135+	115+	75+	95+	50+	80+	85+	90+	110+	100+			
4		100+	65	70	60	50	65+	65+	80+	85	90+	90	75+	55+	45+	50+	50			50+	15+	30	25	65+		
5								105+	50			50+	25+													
6					110+	70+	155+	160+					140+	140+	130+	95+	90+	75	65	55	40	35	30	25		
7											20+		70+	-									25	30		
8	30	30	30	20	65	80	50	55	80	60+	60+	45+										15+				
9				20+	60	120+	125+	330+	190+		80+					40+	50	40	35	30	15+	30	40	50		
10	45	55	40	45	45	50	95	95	80	65+							50+	45	45	35	45	40	55+	30		
11	30+	85+	30	35	50	35	95+	25+	95	80+	80+	80+	60+	-	60+	50	50	65	75	50	40	50	60	45		
12	35	40	50+			40+	45+	50+	35+	50+	40+	55+	105+	145+	100+	15+	55+	55+	55+	65+						
13											-15+			55+	70+	100+	85+	75	70+	60+	65+	70+	70+	60		
14	60+	35+	40+	60+	60+	50+	50+	90+	90+	100+	70+	90	80	60+	65+	60+	50	45	20+				30+			
15	-50+													55+	40+	30+				25+	25+	20+				
16					60+	110+	30+					35+	70+	65+	45+	50+	45+	30	20+	15+	10+					
17																								170+		
18	160+									310+	155+		140+													
19									80	125+	80+	100+	95	-	-	35+	45+	50	45	35	50	45	80+	65+		
20	65+	60	55	70	70	50	85	130+	105	95+	110+	105+			75+	55+	30+	125+	60+	50	45	35	40	40		
21 Oa	40	35	35					60	80	70	70+	80+	60+	75+	75+	80+	80+	80+	60	80	75	35	30	20	59	(24)
22	20	15	15	30	80	280+	160+															160+	145+			
23		185+	180+	115+	135+		140+	150+	120+	60+																
24					40+	35+	30+		25+						-	-	-	-	-	55+	45+	30+	25+	20+		
25	-	-	-	-	-										25+	30+	30+	30+	30+	20+	15+	15+	20+	20+		
26	20+	20+	15+	15+	15+	20+	20+	30+	30+	45+	45+	40+	50+	-	40+	50+	50+	55+	40+	25+	5+	-5+				
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
28		20+	40	45										80+	-	-	105	105+	100+	95	105	65	40			
29		60	30	55	30	40	95	100	-	130+	105+	100+	115+	80+	65+	70+	105+	110+	80	75	80	95	30	55		
30	35	50	30	20	25	35	40	45	60	-	-	-	125+	105+	120+	95	80	50	25+	45	30	45	30	30		
31	30	35	35	50	65	65	130	120	100	125	125	145+	160+	160+	-	95	80	60	30+	25+	15+	15+	50+	20+		
Mean	40 (14)	55 (16)	45 (16)	46 (15)	68 (18)	74 (18)	85 (19)	97 (18)	84 (18)	96 (17)	71 (18)	77 (16)	90 (17)	90 (14)	72 (16)	63 (19)	67 (20)	67 (19)	55 (19)	51 (21)	44 (20)	48 (21)	49 (20)	46 (17)	66	
Fair Weather Mean	34 (8)	43 (10)	37 (12)	43 (11)	55 (11)	52 (9)	81 (7)	76 (7)	81 (9)	84 (4)	87 (2)	90 (2)	87 (2)	0 (0)	0 (0)	80 (3)	74 (8)	61 (11)	65 (8)	55 (10)	57 (9)	47 (12)	36 (11)	39 (11)	62	
Mean of Oa days																									[59	(1)]

The potential gradient is reckoned as positive when the potential increases upwards. The small + denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for Oa days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

35 ESKDALEMUIR — Factor 7·57 — SEPTEMBER 1964

Day	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	
	volts per metre																									
1	40	45	45	50	50	90+	120+	150+	170+	155+	150	125	130	130	135	175	110	120	15+	-35+	-45+	-35+	-35+	-35+		
2	-5+	-15+	55	55	115+	90+	135+	125	130	115	95	85	90	95	95	105	60	50+	-10+	-40+	10+	-10+	10+	15+		
3	25+	35	20+	-20+	15+	20+	65	80	70	60+	70	70	85	75	95	55	40	40	5+	20+	20+	20+	20+	15+		
4	10+	25	30+	15+	20	25	30	75	65	50	80	60+	50+	50+	55+	35+	35+	25+	15+	25+	30+	30+	30+	35+		
5	30+	25+							55+	25+	110+	50+										150+	120+	85		
6	105+	65		115+	85	75	95	115	120	120	115	105+	80+	80	85+	75	80	90	120+	100	115	100	95	80		
7	55	55	65	60	55	65+											85+	105+				105	75			
8						85+	75+	60+	70+		95+	75+														
9																										
10	195+									455+	150+	95+	125+	135+	130+	120+	110+	105+	125+	100	70+					
11																130+	120+	105	115+	85+	30+	90+	135+	110		
12	75	50	40	45	45	30	50	85	110	95	105	110+	105+	110+	100+	105	90	80	50	35+	15+	10+	20+	20+		
13	20	30	25	20	15+	40	35	35	5+			30+	100	95	135+				-20+		-95+	-75+	30			
14			-75+															160	170	175	165	195+	135+	95		
15	100	95	90	70	65								130+	140+	125+		135+					155+	140			
16		100	115	115		80+	65+					215+	180+	160+					225+	195+	55		160+	105+		
17	100	95	85	80	70	65	75	100	120	105+	140+	130+	135+							150+				90+		
18	95+	95		105	110	95+	115	115	135	135	135	90+	85+	95	80+	85	95	75								
19	335+	265+				110+			160	120+			125+	100+	105+		90+			100+	85+	75+	95+	35+		
20		45	80	80	50			75	140+	120+	110+	110+	80+						70	75	85	70	60	70		
21	65	60	45	40	-	-	-	-	-	-	-	135	150	90+	90			60+								
22																										
23 Oa		80+	50+	30+	15+	20+	20+	20+	20+	35+	50+	60	90	90	110	165+	65	25	20+	20+	10+	10+	10+	15+	45	(23)
24	15+	15+	15+	20+	20+	20+	30	25	45	90				105	100	30	15+	-	-	-	45+	30+				
25	-	-	-	-	-	-	-	-	-	-	-	-							225+			100+		120+		
26				120+	180+	195+	160+	110+	120+		130+	190+			120+	130	135+							220+		
27				190+	125+			125+	120	115	80+	80+	95+	95+	105	100+	105	105	110	90+	80	105	125+	130+		
28	65+	-	45	75	60	80	60	95	120	130+	80+	95+	120+	120+	110+	55+	85+	145+	125+	95	75	70+	40+	65+		
29	60	30+			60	70	70					65+	70+	75+	90+	65	90	75	50	20	10+	25+	35	45		
30	30	35	85+	70+	50+	30+	70	70	60+	60+	30+	40+	25+	-	70+	50+	30+	35+	40	30+	15+	15+	20+	15+		
Mean	74 (19)	61 (20)	48 (17)	67 (20)	63 (19)	68 (19)	75 (17)	86 (17)	97 (19)	117 (17)	101 (17)	96 (21)	103 (20)	102 (18)	102 (19)	93 (16)	83 (19)	82 (17)	81 (18)	69 (18)	41 (19)	59 (21)	66 (20)	67 (20)	79	
Fair Weather Mean	61 (9)	59 (14)	63 (11)	66 (12)	61 (11)	55 (7)	63 (11)	83 (12)	109 (11)	103 (7)	107 (7)	95 (5)	107 (6)	96 (8)	104 (7)	92 (9)	82 (9)	87 (10)	82 (6)	94 (6)	96 (6)	95 (4)	73 (6)	81 (6)	84	
Mean of Oa days																									[45	(1)]

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

35 ESKDALEMUIR — Factor 7·08 — OCTOBER 1964

Day	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	
	volts per metre																									
1		-	-	-	-	5+			20+	10+	20+	35+	30+	0+	-	-	-	30+	15+	20+	15+	15+	15+	30+		
2	30	55	50	20+	25+				40+	45+	50+	50+	20+	70+	60+	55+	40	25+	45	70	45	50	40	25+		
3	45	55	50	45	45	30	20	30	95	95+	100+	95+	125+	95+	100+	70+	65+	50	-15+	15+	5+	-5+	40	60		
4	50	45	45	35	40	35	40	55	70	60	55	80	85	95	90	90	30+	35	40	45	50	30	35	50		
5	40+	30+	45+	30+	50+	65+	80+	80+	60	40+	60	30+	50+	25+	30+	25+										
6					205+	155+	80	75	75+	100+																
7										140+													95+	85+		
8	80+	100	85	85	95	95	105	120	125	110	115+	100+	100+					110+	125+	140+	115	75	55	70		
9	55	55								100	90+	85+	100+	90	85+	70	45	50	50	40	65	50	35	5+		
10	-10+	-15+	25	50	70	45	70	70	80	75	70	60+	85+				70	50+	55	55	55	55	40	45		
11															20+	30+	75						110	100		
12	45	60	60	50	45	55	60	55	110	90	100	100	120+	95+	110+	85+				50+	60	50	45	50		
13	45	40	45	50	45	45	45+	60+	100+	105	110	115+	135+	145+	135+											
14								85+	100+	100+	165+	135+	100+	95+	110	95	70	60	55	40	55	40	45	40		
15	35	30	30	30	25+	40+	35+	45	40	70	110+	170+	125	95+	65+	65+			75+	105+	165+	55	60	35		
16 Oa	35	60	55	60	60	105	105	60	120	120	100	100+	75+	100+	95	70	65			90	80	55	30	50	77	(22)
17	45	50	80	60	75	65	60	60	100	85+	70+	70+	65+	70+	80+	85	95	35	50	35						
18								-																		
19																			-							
20										165+		95+	140+	80+	70+	150+		140+	240+	245+						
21								85	85	125+	120+	105	110+	-	110	80	60	55	70	55	70	70	40	40		
22						115+	125+	170+	125+	125+	95+	70+							160+				110+	110+		
23 Oa	95	90	95	105	105	130	115	125	135	155	195	190	135+	155	135	135	130	125	150	165	205	200	180	130	141	(24)
24	155	195	145	70	100	105	65	60	65	80	95	70	75	75												
25	165			70	100	100	70	60	60	80	95	70+	80+	75	95+	115+	75+	40	70	65	70					
26						115+				110+	135+	125+			60											
27																	-	-	-	-	-	-	-	-		
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25+	70+	75+	130+						
29	-	-	-	-	-				-	-	-	-	-	-	-	-										
30	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-						
31						-	-	-	-	-	-					-	-	-	-							
Mean	61 (15)	61 (14)	62 (13)	54 (14)	72 (15)	77 (17)	72 (15)	76 (17)	84 (19)	95 (23)	97 (20)	93 (21)	92 (19)	85 (16)	85 (17)	81 (15)	65 (13)	63 (14)	79 (16)	80 (17)	75 (14)	57 (13)	61 (16)	58 (16)	74	
Fair Weather Mean	58 (11)	70 (12)	64 (12)	59 (12)	71 (11)	74 (11)	72 (11)	69 (13)	88 (13)	95 (11)	98 (9)	109 (5)	95 (3)	98 (5)	100 (6)	89 (7)	72 (9)	56 (8)	65 (9)	66 (10)	79 (11)	66 (11)	58 (13)	61 (11)	76	
Mean of Oa days																									[109	(2)]

The potential gradient is reckoned as positive when the potential increases upwards. The small + denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for Oa days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

35 ESKDALEMUIR — Factor 7·08 — NOVEMBER 1964

Day	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
	volts per metre																								
1														25^+	-	-	-	-	-	-	-	-	-	-	
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	125	145	90	120	90	135	155	115	90		
3					60	65	55	65	70	70	80	90^+	100	100^+	95^+	90^+	95	110	140^+	85	60	70	45		
4			55	35^+	50	40	45	45							95	115	120	115	75	110	120			85	
5				70	55	55			50	60	40	50^+	70	75	80	60	50	65	55	45	30	45	50	25	
6	20^+	35	25^+	35	45	40	50	50	70	70	100	90	90	100	100	90	80	30	50	75	100	50	50	55	
7	35	45	70	60	80	60	50^+	60			100	100^+	100^+	100	115	70	50	50	40^+	40^+	70	40^+	40	45	
8	40	40	30	40	55	55	30	50	55	70	100	125	125	125	125	60	40^+	45	40^+	30^+	40	35	35	30^+	
9	45	40	30	30	40	45	50	40	65	95	115	140	125	115	-	60	60	70	55	75	70	105	75	70	
10	60	70	55	55	55	50	50	50	55	85	120	125	135	115	-	85	95	85	65	60	55	60	60	65	
11	35^+	20^+	35^+	40^+	10^+	40^+	40^+	70^+	85^+	40^+	30^+	25^+													
12			210^+	145^+	95^+	105^+	95^+	85^+	95^+	100^+	90^+	90^+	80^+	85^+			90			125^+	115	135^+	155^+	125^+	
13	100^+	60^+	55^+	40^+	65^+	60^+														140	140	115	105^+	100	
14			85^+	80^+	55^+		80^+	85^+																	
15												110^+						135^+		150					
16							95^+	100^+											190^+	170^+	175	110		90^+	
17	95	80	80	45				40	15^+	10^+	30	50^+								70^+	45	50	55	10^+	
18						-	-																		
19						170^+	105^+	95^+	125^+		85	100	75^+	85^+	115^+	110^+	115^+	180^+	170^+	250^+	205^+	100^+	125^+	110^+	
20	95^+	100^+	100^+		75^+	80^+	70^+	70^+	85^+																
21													220^+	160^+	95^+			70^+							
22			225^+	190^+	100^+	120^+	105^+			110^+	145^+			35^+	60^+	75^+	130^+	115^+							
23							70	85	65	85	95			90^+			30^+	10^+	30^+						
24																									
25					75^+		90^+	110^+	115^+	110^+	110^+	100^+	100^+	95^+	$/0^+$	70	95	95	95	70	70	65	65	50	
26	30								100	110^+									135^+		125		130^+	120^+	
27		100^+	110^+		110^+	125^+				155^+	115	55^+													
28					-	-		-	-	-	-	-	-	-						-					
29	55^+	140^+	300^+					150^+											70	95	110	125^+	80	70	
30	45	60	45	50^+	60^+	25^+	5^+																345^+	305^+	
Mean	55 (12)	66 (12)	94 (16)	65 (14)	64 (17)	71 (16)	64 (17)	74 (17)	75 (14)	84 (14)	90 (15)	89 (14)	111 (11)	93 (14)	98 (11)	86 (12)	81 (14)	86 (15)	87 (15)	101 (17)	99 (17)	81 (15)	94 (16)	85 (16)	83
Fair Weather Mean	50 (7)	53 (7)	52 (7)	48 (7)	55 (8)	51 (8)	50 (7)	54 (9)	69 (9)	76 (7)	89 (11)	116 (5)	107 (6)	105 (6)	107 (6)	84 (9)	83 (10)	79 (10)	69 (8)	95 (11)	93 (16)	75 (11)	59 (11)	63 (9)	74
Mean of Oa days																									Nil

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

35 ESKDALEMUIR — Factor 7·42 — DECEMBER 1964

Day	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
	volts per metre																								
1 Oa	270^+	180^+	120	75	75	75	60	55	100	185	180	95	170	325^+	430^+	380^+	325^+	315^+	230^+	215	175	160	120	85	183 (24)
2	50	70	65	50^+			225^+												150^+						
3	135^+	130	155	155	155	155	145	170				195	175	150^+	130^+	165^+	150	135	130	180	365^+	15^+	35^+		
4			130	175	115	120	130	120	130	175	195	255	250	205^+	190^+	165	150	260^+	215	115	100	85			
5			70																			215	120		
6																							80	90	
7	100	105	100^+	90^+	115	100	80	75															105^+		
8								90	135	165^+	180^+	220^+	180^+												
9													135^+	130^+	160^+	150	145	175	240	250	215	235	120	135	
10	95	170^+	190^+	105	80	100	90	80	75					185^+	185^+	175	175	180	130	145	90	165			
11	60^+	70^+	100	150^+										275^+	260^+	205^+	210^+	200^+	190	195	190				
12													105^+	120^+	130	130	140	150	150^+	260					
13												85^+				165	195				185	165	130		
14					120	105	115	160^+	155^+	100^+	165^+	120^+	100^+	115	100^+	150^+	100^+	150^+	130	150	155	235^+	100^+		
15					75^+	60^+	85^+			120			85^+	115^+	145^+	205^+	305^+	215^+	260^+	360^+	300^+	215^+	200^+	230^+	
16	160^+	150^+	160^+	105^+	160	195^+	235^+	180^+	190^+	145	175	165	115	100	70^+	55^+									
17				185	330^+	160	245^+	180^+				95^+	95^+						115	115	115	105	75	80	
18	75	55	70	60	55	65	60	55	65	65^+	60	55	85	80	70	45	50	85^+	90^+	85^+	20^+	30^+	55^+	45^+	
19	30	25	20	20	20	35	30	15	25		30				65^+							110		85	
20	180	120	120	105	80	75	65	65	70	80	85	80	100	150	155	155	125	85^+							
21									55^+						145^+	140^+		155^+			105				
22 Oa		115	80	90			70			100^+	75^+	80^+	105^+	105	130	180^+	165	215	185	125	130	105	90	80	117 (19)
23	70	70	75	80	100	85	70	25^+	70	80	90	110	130	150	100	20^+	135^+	140	85^+	55^+	95^+	130^+		105	
24	75	15^+	25	40	30	55	50	50	100	105	145	130	130	125	145	145	135^+	-15^+	-30^+	75^+	55^+	105^+	220^+	125	
25	140	165	190	190	220	220	225	205	220	195	235	190	190	250	275	330	310	280	235	185	225	180	80^+	90	
26	65	75	60	70	-	-			-	-															
27																								255^+	
28	190	135	145	115	105	105	105	115	120	115	175	220	270	235	180		195			230					
29																							200	195	
30	180^+	145^+	105^+		120^+							175^+	150^+	145^+	150^+	155^+	150^+	165^+	175^+	150^+	150^+		180^+	125^+	
31							80^+			105^+											255^+	225^+	160^+		
Mean	117 (16)	106 (17)	104 (19)	103 (18)	115 (17)	107 (16)	114 (19)	103 (16)	108 (14)	124 (14)	138 (13)	142 (16)	143 (18)	164 (18)	161 (20)	164 (19)	176 (18)	170 (17)	158 (17)	170 (17)	163 (18)	146 (17)	122 (17)	123 (14)	135
Fair Weather Mean	97 (11)	97 (11)	95 (15)	105 (14)	102 (14)	104 (14)	93 (14)	91 (12)	101 (11)	133 (9)	137 (10)	149 (10)	161 (10)	146 (9)	148 (8)	162 (9)	164 (11)	182 (7)	174 (9)	173 (11)	153 (11)	153 (10)	117 (8)	107 (10)	131
Mean of Oa days																									[150 (2)]

The potential gradient is reckoned as positive when the potential increases upwards. The small + denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for Oa days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

36 ESKDALEMUIR 1964

	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	23-34	Mean
	volts per metre																								
	No hydrometeors																								
Jan.	41	38	38	38	39	34	52	40	44	44	63	63	70	73	71	53	61	51	41	47	45	44	50	48	49
Feb.	30	25	24	26	27	31	26	31	38	35	63	60	52	51	63	53	49	44	43	51	43	34	31	32	40
Mar.	33	31	29	28	41	40	48	39	49	46	51	47	60	60	57	47	34	38	47	39	41	46	44	32	43
Apr.	34	35	28	35	35	42	51	59	55	65	58	47	54	60	57	61	60	48	43	40	39	31	32	32	46
May	32	30	29	31	35	43	56	54	63	60	57	55	57	54	68	67	67	44	31	19	24	44	31	24	45
June	50	48	47	49	49	56	63	76	83	93	77	72	77	73	75	64	65	64	65	61	51	55	56	45	63
July	57	60	46	53	45	68	106	90	105	81	83	72	70	78	69	75	72	69	63	60	53	55	62	64	69
Aug.	40	55	45	46	68	74	85	97	84	96	71	77	90	90	72	63	67	67	55	51	44	48	49	46	66
Sept.	74	61	48	67	63	68	75	86	97	117	101	96	103	102	102	93	83	82	81	69	41	59	66	67	79
Oct.	61	61	62	54	72	77	72	76	84	95	97	93	92	85	85	81	65	63	79	80	75	57	61	58	74
Nov.	55	66	94	65	64	71	64	74	75	84	90	89	111	93	98	86	81	86	87	101	99	81	94	85	83
Dec.	117	106	104	103	115	107	114	103	108	124	138	142	143	164	161	164	176	170	158	170	163	146	122	123	135
Year	52	51	49	50	54	59	68	69	74	78	79	76	82	82	81	76	73	69	66	66	60	58	58	55	66
Winter	61	59	65	58	61	61	64	62	66	72	89	89	94	94	98	89	92	88	82	92	87	76	74	72	77
Equinox	51	47	42	46	53	57	61	65	71	81	77	71	77	77	75	71	61	58	63	57	49	48	51	47	61
Summer	45	48	42	45	49	60	77	79	84	83	72	69	73	74	71	67	68	61	53	48	43	51	49	45	61
	Fair weather																								
Jan.	39	35	34	34	36	37	41	41	41	41	55	60	56	65	55	44	58	57	61	48	48	47	39	36	46
Feb.	40	33	35	36	40	41	45	42	44	49	72	71	80	81	88	59	55	54	53	55	50	37	37	41	52
Mar.	51	44	38	39	35	47	49	54	51	48	63	45	77	67	66	57	57	67	71	68	67	56	52	51	55
Apr.	44	41	37	40	42	48	53	45	56	73	77	75	55	80	60	60	67	53	50	54	50	42	37	45	53
May	27	30	25	30	37	32	37	31	33	40	46	49	51	53	53	59	56	49	39	32	41	43	41	37	40
June	57	54	56	57	51	59	71	72	81	93	110	76	72	83	55	67	65	70	68	56	49	47	56	53	66
July	47	45	47	39	41	52	69	79	65	35	53	52	60	85	68	85	56	65	64	51	54	53	50	47	57
Aug.	34	43	37	43	55	52	81	76	81	84	87	90	87	-	-	80	74	61	65	55	57	47	36	39	62
Sept.	61	59	63	66	61	55	63	83	109	103	107	95	107	96	104	92	82	87	82	94	96	95	73	81	84
Oct.	58	70	64	59	71	74	72	69	88	95	98	109	95	98	100	89	72	56	65	66	79	66	58	61	76
Nov.	50	53	52	48	55	51	50	54	69	76	89	116	107	105	107	84	83	79	69	95	93	75	59	63	74
Dec.	97	97	95	105	102	104	93	91	101	133	137	149	161	146	148	162	164	182	174	173	153	153	117	107	131
Year	50	50	49	50	52	54	60	61	68	73	83	82	84	87	82	78	74	73	72	71	70	63	55	55	67
Winter	57	55	54	56	58	58	57	57	64	75	88	99	101	99	99	87	90	93	89	93	86	78	63	62	76
Equinox	53	53	51	51	52	56	59	63	76	80	86	81	83	85	83	75	69	66	67	71	73	65	55	59	67
Summer	41	43	41	42	46	49	65	65	65	63	74	67	67	74	59	73	63	61	59	49	50	47	46	44	56
																				Annual mean for Oa days					[75]

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

KEW

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

37 KEW OBSERVATORY — Factor 5·16 — JANUARY 1964

	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	
												volts per metre														
1 S	400+	390+	360+	410+	490+	565+	505+	705+	915+	785+	1005+	875+	975+	655	615+	585+	635+	490+	525+	565+	575	525	470	460	603	(24)
2	340	280	270	260	230	270	350	380	210+	280+				240+	280+	240+	250+	210+	360+	370+	390	400	390	290		
3 S	280	250	170	160	170	190	230	260+	280+	380+	190+	290+	410+	360+	440	430	450	470	470	440	420	400	360	290	338	(24)
4 S	250	150	150	170	130	150	240+	240+	400+	390+	470+	430+	460+													
5		260+	400+	450+	350+	300+	240+			180+	260+	505+	400+	180+	210+	360+	300+	380+	390+	380+	320+	400+	280+	220+		
6	370+	280+	150+	400+	240+	210+	160+	360+	300+	585+	805+	545+	875+	480+	110+	280+	290+	230+	490+	535+	605+	605+	290+	200+		
7 S	130+	80+	270+	300+	320+	140+	200+	380	410	655	745	705	410	525	625+	765+	585+	545+	400+	565+	330+	310+	300+	200+	412	(24)
8 S	270	230	180	80	70	120	80	300	380	450	490	310	440	290	410	420	370	310	320	210+	180+	180+	120+	360+	274	(24)
9 S	440+	280+	190+	240+	160+	70+	40+	260	330	505	440	480	490	420	360	460	515	495	450	390	365	315	240	240	341	(24)
10	305+	305+	345+	305+	305+	265+			355	450	430	535	485	515	525	515	475	390	430	450	390	345	305	275		
11	295	250	250	265	250+	230+	115+	190+						420	400	420	380						305+	210+		
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
13	-	-	-	-	-	-	-	-	-	735+	590+	1090+	800+	660+	905+	810+	695+	755+	785+	380+	590+	820	775	800		
14																										
15											20+	20+	20+	10+	10+	20+	30+	390+	430+	400+	265+	220	250	305		
16 S	265	285	285	265	295	275	265	400	475	365	495	390	460	630	495	685	555	505	475	180	180	325	305	285	381	(24)
17	545	430	420	410	440	485	485	650	650	695	1010	1145	1020	905	715	485+	410+	685+	775+	440+	460+	440+	440+	515+		
18	450+	430+	365+	365+	555+	515+	575+	535+	555+	450+	410	535	450	430	475	275	115	345+	390+	365+	355+	240+	265+	285+		
19	505+	390										190	210	295	295	145	10	95	105							
20											400															
21																										
22	230	115	105	-20+	85	180	265	155		135	485	600	555	380	275	125	155	155	355	250	250	105	75	145		
23	0+	40+	-285+	-525+	-175+	-85+	-195+	-100+	210+	325+	250+	250+	400	400	230	275	365	345	170	135	95	125	145	115		
24	40	105	135	55	95																					
25 S												650	525	400	460	590	325	505	475	485	440	460	390	450		(24)
26 S	335	335	230	220	180	180	210	250	230	420	485	410+	380+	420	365	355	315	345	315	420	345	525	485	460	359	(24)
27 S	305	265	285	230	200	180	125	285	410			640+	555+	335+	535+	285+	495+	545+	295+		220+	200+	190+	305+		
28	145	40							185+	125+		290+	355						85				115	125		
29	95	125	85	20	30	95	355	415	500	605								40+	-10+	165	200	200	75	125		
30	60	-45+	0	30	30+			165+	335	335	365	300	300	290	280	280	260	260	185	175	200	155	105	85		
31	40	60	75	95	50										115+	85+	0+			155	165	185	200	115		
Mean	265	222	202	190	205	228	236	324	396	443	492	508	499	420	397	387	347	386	377	355	334	340	286	286	339	
	(23)	(24)	(22)	(22)	(22)	(19)	(18)	(18)	(18)	(20)	(19)	(22)	(22)	(22)	(23)	(23)	(23)	(22)	(23)	(21)	(22)	(22)	(24)	(24)		
Fair Weather Mean	233	221	189	174	165	213	263	347	407	461	523	531	469	465	409	383	330	352	320	295	309	340	293	285	332	
	(15)	(15)	(14)	(13)	(12)	(10)	(9)	(10)	(10)	(10)	(11)	(11)	(13)	(15)	(14)	(13)	(13)	(11)	(12)	(11)	(13)	(15)	(16)	(16)		
																								Mean for selected quiet days	[385	(8)]

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

37 KEW OBSERVATORY — Factor 5·08 — FEBRUARY 1964

	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	
												volts per metre														
1 S	75	50	85	115	85	60	105	185	240	240	270	270	240	165	210	250	290	365	375	345	220	210+	30+	125+	199	(24)
2 S	-10+	85	105	125	105	115	135	125	200	395	290	230	260	250	210	185	270	335	355	310	310	240	220	200	218	(24)
3 S	155	115	105	75			105	185	415	430	360+	290+		305+	220+				320+	320+	445	415	435	270		
4 S	270	230	230	210	240	290	290	365	520	625	595	425	375	290	310	290	300	290	250	280	260	270	250	165	317	(24)
5	105			115	75	125	185	335	695	710	680	665+	540+	475+	415+	335+	290+	305+	390+	155+	165+	140+	125+	140+		
6	250+	110+	110+	220+	335+	375+	110+	415+	710+	835	820	725	485	405	345	335	320	360	500+	500+	725+	1195+	665+	210+		
7	140	110	165	165	140	140	250	290	430	555	640	610	805+	820+	540+	530+	695+	765+	680+	695+	445+	500+	345+	70+		
8	140		0+	-30+	155+							220+	55+	155+	210+	220+	155+	390+	375+	85+	15+	85+	220+	195+		
9	30+	195+	155+	140+	110+	55+	95+	70+	15+	155+	110+	195+	140+	250+	335+	415+	390+	95+	165+	70+	-15+	110+	55+	95+		
10	40	20	50	30	10	30	60	250	395	520	375	375			270	290	220	240	230				105+	85+		
11 S	80	55	45	25	25	90	115	255	345	355	370	435	390	435+	275	265		265	205	115	35	80	160	185	207	(24)
12	90	55	115	105	125	140	205	345			425+	575+	550+		515+	530+	205+	125+	530+	320+	45+	160+	275+	140+		
13	160+	185+		90+	35+	45+	230	585	805	735	550	355	230	345	495	320	335	415	310	220	105	45	25	70		
14	15	30	30	30	50	30	50	60	340+					310	185+	295+					330+	410+	300+	525+		
15			200+	230+	230+	240+	150+	320+	300	360	470	430	460	390	300	410	360	120	220	260	320	260	200	90		
16	160	70													100+							120+				
17																					110	80	70	120		
18 S	140	30	10	20	70	80	270										400+		400+	270+	220+	110+	150+		233	(24)
19 S		50+	40+	50+	10+	0+	30+	170+							505	515	470	460	525	440	390	370	350	310		
20 S	250	200	150	120	150	180	230	390	565	645	755	685	565	625	685	645	470	460	480	400	390	190	100	130	423	(24)
21 S	230	160	100	70	90	60	50	120	400	400	330	505	505	480	430	370	525	665	715	585	490	440	300	260	332	(24)
22 S	180	210	190	140	200	150	280	555	555	585	715	685	605	260	210	260	270	280	200	280	360	240	80+			
23																				270	280	280	280	250		
24	170	60	100		40	90	80								200+	130+	110+	50+		240	200	310	230	190		
25	160	110	80	60										470	360	300	360	420+	220+	340+	380+	340+	260+	410+		
26	100+	200+	80+	60+	70+	120+	110+	320+	310+	320+	340	230	330	350	380	330	350	120+					230	170		
27 S	160	140	140	140	150	150	200	260	300	290	270	280	260	260	280	320	340	370	370	370	390	420	300	240	267	(24)
28	210	170	100	120	130	100	120	180			240		270	230	220	280	270	160	260	120+	40+	120+	110+	120+		
29		40+	120+	80+	440+	350+	440+								40+	280+	410+	380+	340+	110+	50+	240+	300+	380+		
Mean	137	112	104	100	128	131	162	275	419	480	453	431	393	363	317	337	339	323	366	296	258	273	220	198	276	
	(24)	(24)	(24)	(25)	(24)	(23)	(24)	(21)	(18)	(17)	(19)	(19)	(18)	(20)	(26)	(24)	(23)	(23)	(23)	(24)	(26)	(27)	(28)	(26)		
Fair Weather Mean	146	106	106	98	105	114	164	280	440	512	482	446	383	352	343	335	343	342	345	317	287	260	225	189	280	
	(19)	(18)	(17)	(17)	(16)	(16)	(18)	(16)	(14)	(15)	(16)	(14)	(13)	(14)	(16)	(16)	(15)	(14)	(13)	(13)	(15)	(14)	(14)	(14)		
																								Mean for selected quiet days	[275	(8)]

The potential gradient is reckoned as positive when the potential increases upwards. The small + denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for selected quiet days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

37 KEW OBSERVATORY — Factor 4·67 — MARCH 1964

Day	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	
											volts per metre															
1	115+	0+		10+	55+	160+	265+		160+		125+	235+	210+	125+	275+	360	295	380	415	340	285	245	200	115		
2 S	105	115	105	115							415	550	480	480	530	490	455	435	415	245	285	285	265	340	332	(24)
3 S	190	115	150	140	180	225	235	435	795	830	690	435	550	480	435	425	445	405	300	245	170	130	190	115	346	(24)
4	75					-40+	-10+	130+		560+					455+		550+			415	385	300	170	190		
5 S	85	95	105	130	170								510+		510+	475				475	455	445	330	285	380	(24)
6	225	200	210	210	210	150	200												550				320	285		
7 S	170			140								455+	360+	370+	320+	340+	340+	330+	310+	265+	255+	275+	245+	215+	250	(24)
8 S	200	150	115	105	105	105	130	150	170	225+	255+	285+	265+	265+	265+	310+	310+	320+	395+	380+	395+	380	380	445	326	(24)
9 S	405	385	330	295	320	300	300	435	510+	585+	625+	550+	605+	605+	565+	550+	605+	680+	285+	405	225	170	130	45		
10 S	10	55	55	45	55	75	55	215	350	405	295	255	245	245	235	215	225	200	360+	350	360	380	385	360	226	(24)
11	245	140	170	160	95	130	125	275	295	395	550	625+	530+	435+	300+	550+	680+	475+	295+	75+	105+	-95+	-275+	-165+		
12	-115+	-90+	-90+	0+	20+	-20+	-20+	130+	225+	115+	320+	310+	475	550	225			395	340	255	210	170	130	55		
13	235	295	275	275	275	210	190	395	395	395	295	275	255	210	180	190	150	160	275	350	350	170	310	150		
14	245	85																								
15																										
16 S						115	170	360	530	285+	405+	605+	510+	530+	520+	540+	575+	540+	480+	425	395	295	300	265		
17 S	170	115	105	115	105	75	75	180	160	170	190	235	265	405	405	360	340	330	405	300	295	210	190	125	351	(24)
18 S	85	95	95	40	105	105	75	300	475	405	340	245+	245	275	265	255	285	300							214	(24)
19			150	45+	115+												255	445	480	575	480	370	415	435		
20	380	265	255	245	285	320+	265+	350+	300+	300+	295+	225+	265+	360+			405					455	455	385		
21						115	190	295	360	265	340	360	350	310				385	530	475	370	395	380	320		
22	225	115	115	130		190	190	215	190	255+	215+			115+							95+	-80+	0+	30+		
23	0+	30	65	85	65	115	245	255	625	700	550	680	510+	45+	65+	200+	330	360	360	330	340	225+	320+	190		
24	105	55	45											370+				425	415	520	565	465	320	275		
25 S	210	225			180	225	275	380	300	265	300	360	330	285	295	265	295	265	285	275	275	300	215	160		
26 S	115	125	105	150	225	265	395	550	480	415	380	300	300	330	285	215	215	200	190	130	115	130	85	75	251	(24)
27 S	95	85	55	105	75	65		40				115	95	170	150	95+	20+	0+	-10+	-10+	45+	65+	130	55	234	(24)
28	10	30	95	30+	75+	40+	45	95	235	415	405	370	255	265	295	255	245	190		150	130	150	170	170		
29	95			55	85			85	105	130	150		140				65+					65+				
30	40	20	55	65	65	75	95		115+	150+	180+			170+		215+		245+	200+	360+			255+	130+		
31	130	190	170	150	130+	55+	160+	360+						415+			500	585	520	435	340	455	360	200		
Mean	143 (27)	121 (24)	124 (22)	118 (24)	136 (22)	133 (23)	166 (22)	268 (21)	339 (20)	363 (20)	349 (21)	373 (20)	352 (22)	325 (24)	329 (20)	332 (19)	345 (22)	350 (23)	354 (22)	324 (24)	289 (24)	244 (26)	236 (27)	194 (27)	263	
Fair Weather Mean	160 (24)	136 (22)	135 (21)	138 (20)	153 (17)	149 (17)	184 (16)	274 (17)	364 (15)	399 (12)	377 (13)	358 (11)	307 (13)	334 (12)	300 (11)	303 (10)	317 (14)	341 (16)	391 (14)	352 (19)	317 (19)	295 (20)	265 (22)	219 (23)	274	
Mean for selected quiet days																									[291	(10)]

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

37 KEW OBSERVATORY — Factor 4·88 — APRIL 1964

Day	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	
											volts per metre															
1 S	205	140	180	215	225	235	330					450+	440+	470+	430+	415+	415+			340	310	280	280	140	331	(24)
2 S	195	130	115	105	95	190				425+	430+		470+	300+	265+	290+									271	(24)
3																										
4 S									180+								280	300	265	215	190	215	235	195		
5 S	85	105	105	95	105	115	115	215	330	280	215+	215+	140+	205+	195	215	235+	275+	300	355	450	425	440	375+	190	(24)
6	500+	430+	190+	170+	290+	225+	470+	565+	-	-	575+	675+	510+	695+	425+	375+	375+	355+	180+	190+	150+	30+	85+	150+		
7	180+	40+	105+	10+	30+	75+	170+	430+	630+	600+	555+	525+	450+	440	320	235	150+	75+	55+	10+	140+	150+	65+	215+		
8 S	140	105	95	150	195	190	355	510	620	490	320	290	265	245	225	225	225	235	225	130	140	95	120	195		
9 S	195	190	170	140	95+	130+	265	355	290	235	235	255	235	225	225	245	225	245	280	290	320	310	350	235	203	(24)
10	180	105	150	170	235	290	15	470	395	320	290	255				235	280	280	215	95+	55+	245+	190+	150		
11 S	150	170	280+	170+	120	170	265	355	450	440	330	280	225	190	160	180	235	280	290	275	225	280	330	245	254	(24)
12	180	130	130	95								190+	115+				45+					130+	255	225		
13 S	245	195	190	160	180	195	350	405	405	300	310			225	275	245	190	150	235	355	375	440	365	265	272	(24)
14 S	225	170	150	150	140			275	275	245	215	215	205+	205+	245	215	265	280	310	340	190	190	235	245		
15 S	245	205	195	215	205	245	375	300	310	235+	180+	195+	205+	225+	190+	190+	215	245	275	215	245	215	85+	55+	234	(24)
16	40+	20	55	75	40						190+	235+	300+	215+	225+	300+	225+					150	255	115+		
17		215	95	-10+	55	130	115	320			245	235	255	215	215	205	265	195	290	235			225+	115+		
18	265+	255+	105+	160+	55+	85+	365	450	320	225	190	150	150	180	95											
19						-40+												170+	275	500	460	480	385	350		
20	225	170	65	30	10	10+	30+	75+	105+	235+	160+	170+	105+	115+	215+						75+	180	190			
21										300	195+							130+	205+	225+	235+		150	115		
22							205	340	330		225+	235+		225+		190+	255					245	300	245		
23 S	180				85	130			355	225		225+	195+								235	225	215	170	258	(24)
24 S	115	140	160	105	160	300	425	470	375	385	310	340	245	265	245	225	225	235	310	320	365	255	55+	85+		
25	75	10	20	30	20	40	150	160	160+	55+	115+				180	95+	140+	225	275	265	225	55+		150		
26 S	95			95	55	150	170					205	160	150	190	215	180	265	235	170+	130+	245+	275+	180+	178	(24)
27	150+	140	75	40	75	65	105+	225+	170+	255+	280	180+	190+	190+	215	215	205	215	280	245						
28		65	65	85	65	105	115					255+	280+			290+			310	310	365	375	355	245		
29	215	160	130	150	180			300	290	275		215	215	205	170				180		330	280	225	190		
30 S	180	170	150	130	180	245	330	385	350	330	280	265	195	195	195	195	170	160	180	340	395	340	300	255	246	(24)
Mean	185 (23)	150 (23)	129 (23)	114 (24)	121 (24)	149 (22)	256 (20)	348 (19)	334 (19)	308 (19)	278 (21)	272 (23)	252 (22)	256 (21)	233 (21)	238 (21)	229 (21)	227 (19)	246 (21)	258 (21)	255 (22)	243 (24)	239 (25)	196 (25)	230	
Fair Weather Mean	174 (18)	137 (20)	121 (19)	118 (19)	121 (20)	175 (16)	272 (16)	354 (15)	376 (14)	312 (13)	273 (11)	246 (11)	216 (9)	230 (11)	210 (15)	219 (13)	230 (14)	236 (14)	263 (18)	296 (16)	301 (16)	277 (18)	277 (18)	213 (17)	235	
Mean for selected quiet days																									[244	(10)]

The potential gradient is reckoned as positive when the potential increases upwards. The small + denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for selected quiet days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

37 KEW OBSERVATORY — Factor 4·88 — MAY 1964

Day	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	
	volts per metre																									
1	240	210	175	175	145	250	330	385	330	270	240	230	210	155	195	230	230	210	290	290	310	385	530	445		
2	290										125	210	185	195	220	250	250	330	435	340	310	290	250			
3 S												230	210	195	185	175	185	210	230	250	260	270	240	210		
4 S	185	165	155	155	165	195	280	345	290	220		195$^+$	195$^+$	270$^+$	260				205	220			185	145	216	(24)
5 S	125	125	135	155	210	220	310	365	330	230	210	205	155	175	175	175	165	145	145	145	185	195	210	185	195	(24)
6	185	195	155	175	155	230	270	270	270	220	175	185	175	205	205								70	85		
7	50		70	70	75	115	135	250	250	230	210	175	145	175	145	195	210			155$^+$	135$^+$	155$^+$	175	175		
8 S	135	105	105	125$^+$	155$^+$	195	270	270	240	220	210	195	210	210			205	205	175	135	260	240	205	155	192	(24)
9 S	125	145	105	115	135	145	185	240	185	195	185	175	145	145$^+$	135	145$^+$	145$^+$	165	185	195	220	185	175	115	162	(24)
10 S	70			115	105	105	145	155	135	125	105	95	95	95	95	105	105	105	135	165	145	155	125			
11 S			70	50	50				95$^+$	85$^+$	95$^+$	145$^+$	165$^+$	210	250	250	210	230	220	230	340	365	260	115	118	(24)
12	105$^+$	40$^+$	75$^+$	40$^+$	40$^+$	75$^+$	210	210$^+$	155$^+$	85$^+$	155$^+$	270	250	210	210	205	220	250	230	270	220			145		
13	95	115	70	75	50	155	165	250	260	220	230	210	175		195						175	185	145	70		
14 S	75	115	125	115	145	220	340	365	290	230	220	205	205	175	210	195	185	155	135	145	125	95$^+$	115$^+$	50$^+$	176	(24)
15 S	75$^+$	70$^+$	75$^+$	95$^+$	155$^+$	75$^+$	230	435	330	280	260	260	210	175	185	250	175	155	135	70$^+$	50$^+$	60	50	30	162	(24)
16	10	0	10	30$^+$	50$^+$	60$^+$	70$^+$	40$^+$	70$^+$	60$^+$	125	105	75	95	95	115	115	145	175$^+$	210$^+$	70$^+$	60$^+$	30	20		
17 S	10	20	10	20	40	20	60	115	155	145	175	145	95	95	50	75	70	135	115	85	135	135	155	85	89	(24)
18 S	75	60	70				30$^+$	40$^+$	105	165	145	155	135	95	125	115	145	165	195	205	210	210	230	155		
19 S	155	155	135	175	250	260	365	340$^+$	210$^+$	205$^+$							290	250	205	240	60$^+$	195$^+$	250$^+$	135	187	(24)
20 S	75	95	85	125	270$^+$	210	300	405	345	230	195	185	165	185	175	175	205	220	175	155	165	155	105	60	186	(24)
21	75	70	95	95	155	230	290	270	280	195	175	210	165	175	155											
22			40		75			60$^+$		145$^+$	155$^+$			145$^+$				300	205	115$^+$	115$^+$	50$^+$	105$^+$			
23							195	300	655	665	540	310	330$^+$	195	230	250$^+$	230$^+$	280	260			175$^+$		125		
24	145													220	155	155	145		135$^+$	220$^+$				40$^+$		
25	30									375	465	415	425	385	590$^+$	540$^+$		345$^+$	250$^+$	135$^+$	165$^+$	125$^+$	40$^+$	−10$^+$		
26	10$^+$	10$^+$	20$^+$	40$^+$					165$^+$	165$^+$	230$^+$		270$^+$	280$^+$	175$^+$	95$^+$	60$^+$	135$^+$	75$^+$	85$^+$	85$^+$	60$^+$	85$^+$	60$^+$		
27	50	40	10	10$^+$	70$^+$	50$^+$	60$^+$	330	270	310	415	365	250	260	270	310	280	220	145	75$^+$	10$^+$	70$^+$	105	85		
28	60	40	50	50	165	155	345$^+$	280$^+$	345$^+$	290$^+$	340	310	220	210	175				60$^+$	40$^+$		125$^+$	60$^+$	30		
29	40$^+$	115$^+$	50$^+$	115$^+$	10$^+$	20$^+$	105$^+$	290$^+$	230$^+$	320$^+$	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
31	-	-	-	-	-	-	-	-	-	-	-															
Mean	100 (25)	95 (20)	82 (23)	96 (22)	121 (22)	149 (20)	213 (22)	261 (23)	250 (24)	226 (26)	224 (24)	216 (24)	194 (25)	190 (26)	194 (25)	200 (20)	182 (21)	207 (21)	188 (24)	174 (24)	170 (22)	171 (23)	162 (24)	113 (24)	174	
Fair Weather Mean	108 (21)	97 (16)	87 (19)	111 (15)	128 (15)	180 (15)	240 (17)	297 (16)	278 (17)	251 (18)	237 (20)	220 (22)	186 (21)	140 (22)	193 (23)	186 (16)	188 (18)	204 (19)	201 (19)	212 (15)	219 (14)	218 (13)	180 (18)	128 (20)	187	
Mean for selected quiet days																									[168	(10)]

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

37 KEW OBSERVATORY — Factor 4·95 — JUNE 1964

Day	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	
	volts per metre																									
1	-	-	-	-	-													195					0$^+$	60$^+$		
2	165	110	70			175$^+$					-	-	265$^+$	355$^+$	285$^+$	285$^+$	315$^+$	255$^+$					−10$^+$			
3 S				90	130	195	295	385	335	255	275	235	175	235	185	195	195	185	175	175	265	245	195	185		
4 S	120	60	60	140$^+$	120$^+$	160$^+$	295$^+$	265$^+$										235$^+$			275$^+$	245$^+$	150$^+$	235$^+$	202	(24)
5 S	215$^+$										255$^+$	295$^+$	235	215	185	245	255	275	315	305	265	275	315	295		
6 S	255	100	120	90	150	195	120$^+$	245$^+$	235$^+$	205$^+$		130$^+$	175$^+$				185$^+$	140$^+$	225	215	255	215	185	195	227	(24)
7	205	205	130				100	150	195		175$^+$	160$^+$			215$^+$	295$^+$						275	265	245		
8 S	205	150	150	130	110	165	265	385	315	275	295	245	195	185	185	235	215	215	245	175	175	175	185	110	208	(24)
9 S	110	110	100	160	165	225	355	395	435	405	375	325	345	375	355	355	345	345	305	385$^+$	345$^+$	245$^+$	140$^+$	160$^+$	286	(24)
10	100	80	70	90	195	160	215	275	275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
11	-	-	-	-	-	-	-	-	-	285	265	275	235	235	235	245	235	225	215	185	235	235	195	120$^+$		
12	140	70	40	90	70$^+$	100$^+$	205$^+$	610	415	315	325	315	275	305	265$^+$	295$^+$	405$^+$									
13				20$^+$		165$^+$	130	235	255	195	225				80$^+$					205	165	225	315	305		
14 S	205	100	70								90$^+$			120$^+$	160	160	160	140	130	195	275	295	255	205		
15 S	195	175	130	140			375	385	325	315	315	255	205	225	215	225	215	215	195	195	215	225	245	185	219	(24)
16 S	195	175	185	185	235	255	255	295	335	285	225	205	195	205	205	225	195	195	185	160	175	185	150	120	224	(24)
17 S	195	175	160	160	195	205	285	295	265	235	175	235	185$^+$	70$^+$	40$^+$										199	(24)
18						60$^+$	215$^+$	295$^+$	395$^+$	355$^+$																
19						40$^+$	160$^+$	395	355	315	295	295	255	255	215	225										
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	215	195	175	160	175	165	160	140		
23	140	100	60	120	160	140	215	355	475	510	325	265	590$^+$					−50$^+$	−160$^+$	0$^+$	30$^+$	30$^+$	90$^+$	225$^+$		
24	130$^+$	120$^+$	175$^+$	195$^+$					305$^+$	255$^+$	215$^+$	265	205	185	165	185	130$^+$	110$^+$	100$^+$	150$^+$	120$^+$	80$^+$	160$^+$	80$^+$		
25	70$^+$	50$^+$	70$^+$	120$^+$	235$^+$	110$^+$	295	465	510	520	395	355	285	285	275	355$^+$	385$^+$	275$^+$	255$^+$	140$^+$	30$^+$	60$^+$	50$^+$	40$^+$		
26	60$^+$	40$^+$	150$^+$	80	110	120	160	590	670	690	510	355	255	205	175	165	205	165	140$^+$	110$^+$	60$^+$	0$^+$	20$^+$	70$^+$		
27 S	80	40	50	70	60	120	150	195	295	415	425	395	285	235	175	205	245	225	205	165	160	110	110	120	189	(24)
28	195	195	185	205	265	225	225	225$^+$				185$^+$	60$^+$	80$^+$	120$^+$	120$^+$	160$^+$	175$^+$	150$^+$	130$^+$	120$^+$	80$^+$	130$^+$	90$^+$		
29 S	100$^+$	100$^+$	205$^+$	185$^+$	195	225	345	285	315	265	295	275	265	255	245	225	185	165	160	160	130	110	110	80	203	(24)
30 S	110$^+$	165$^+$	205$^+$	195$^+$	235	255	345	345	295	335	345	315	245	205	275	255	195	150	110	225	315	265	255	160	242	(24)
Mean	152 (21)	116 (20)	119 (20)	130 (19)	164 (16)	165 (20)	238 (21)	337 (21)	350 (20)	338 (19)	290 (20)	269 (20)	247 (20)	223 (19)	203 (21)	237 (19)	234 (19)	192 (21)	174 (18)	181 (19)	189 (20)	178 (21)	160 (23)	156 (22)	210	
Fair Weather Mean	167 (15)	123 (15)	105 (15)	124 (13)	170 (13)	191 (13)	251 (16)	355 (17)	357 (17)	351 (16)	317 (16)	288 (16)	244 (15)	240 (15)	217 (15)	225 (14)	220 (13)	206 (14)	203 (13)	194 (13)	216 (13)	214 (14)	210 (14)	180 (13)	224	
Mean for selected quiet days																									[220	(10)]

The potential gradient is reckoned as positive when the potential increases upwards. The small $^+$ denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for selected quiet days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

37 KEW OBSERVATORY — Factor 4·78 — JULY 1964

Day	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	
	volts per metre																									
1	175$^+$	225$^+$	215$^+$	120$^+$	160	235	335	355	375	385	395	325	305	285	285	235	245	205	140$^+$	30$^+$	30$^+$	-60$^+$	-20$^+$	10$^+$		
2	30$^+$	40$^+$	80	80	110	120	185	245	375	345	295	265	225	205	205	225	205	225	215	235	100$^+$	-10$^+$	10$^+$	40$^+$		
3	100$^+$	160$^+$	205$^+$	110	160	295	405	435	345	285	285					305		215	160	215	185	185	90	90		
4	70	10	20	60	40	100	205	305	335	295	305	265	185	140	110	120	120	110	130	120	80	40$^+$	30$^+$	0$^+$		
5	20	20	20	20	10	50	60	70	110	100	110	120	120	130	130	120	110	120	130	150	140	205	150	100		
6 S	80	50	80	60	140	140	225	395	395	395	315	255	185	225	205	185	195	205	150	160	150	185	140	100	192	(24)
7 S	100	80	100	80	90	245	275	355	335	305	295	245	215$^+$	245$^+$	195$^+$	205$^+$	130$^+$	120$^+$	185$^+$						170	(24)
8													245$^+$		235	225	195		225$^+$		205$^+$	195$^+$	205	215		
9	160	120	100	100	100$^+$			385$^+$	365	305	285	265	225	225	205	185	175	160						215		
10	195	130	100	120	185	205	325	405	365	325	295	265	245			265	245	225	205	175	185	265	325	315		
11													175	185	215	195	205	245	235							
12												185$^+$				80$^+$	80$^+$	30$^+$	70$^+$	225$^+$	225$^+$	40$^+$	70$^+$	60$^+$		
13 S	60	110	120	80	160	245	285	325	445	345	325	325	295	265	255	235	225	205	235	215	205	235$^+$	205$^+$	70$^+$	228	(24)
14	40	30	20	20	30	60$^+$	100$^+$	120$^+$	315$^+$	245	225		225	245	285	305	315	295	285	255	305	305$^+$	255$^+$	140$^+$		
15					150	245	275			245$^+$	225$^+$	365	245	245	225	225	195	185	175	205	215	160$^+$	185$^+$	110$^+$		
16	205$^+$	275$^+$	120$^+$	215$^+$	205$^+$	185$^+$	315$^+$	415	475	415	325	235	185	205	185	185	100	110	80	-20$^+$	40$^+$	30$^+$	10$^+$	40$^+$		
17	40$^+$	40$^+$	50$^+$	60$^+$	130$^+$	120$^+$	385$^+$	395$^+$			325$^+$	335	285	255	160	195	185	120	40	80	100	80$^+$	120$^+$	140$^+$		
18 S	185$^+$	110$^+$	120$^+$	150$^+$	185$^+$		205$^+$			255$^+$	175$^+$	255	215					215$^+$	205	245	285	305	305	235		
19 S	150	130	110	150	175	160	100$^+$	100$^+$	100$^+$	120$^+$	110$^+$	110$^+$	100$^+$	100$^+$	90$^+$	80$^+$		100	100	140	150	175	185	120	151	(24)
20	160	80	120	110	70	175	245	345	365	305	245	225	205	205	185	185	150	130	120	100	120	100$^+$	100$^+$	20$^+$		
21	120$^+$	100$^+$	100$^+$	120$^+$	110$^+$	225	365	465	445	425	475	415	365	285	305	325						80$^+$	225$^+$	285$^+$		
22	60	20	0	80	60		305	365	345	355	305	275	285	245	215	225	195	160	140	110	70$^+$	70$^+$	60$^+$	0$^+$		
23	20$^+$	90$^+$	90$^+$	160$^+$	140	215	355	425	355	305	295	265	245	225	245	225	205	185	205	225	275	225	205	100		
24 S	150$^+$	110$^+$	120$^+$	160$^+$	205$^+$	140	225	325	325	305	215	215	175	175	150	150	140	130	140	205	225	265	185	185	193	(24)
25 S	205	130	185	175	175	205	305	345	295	335	315	315	275	185	140	110	100	140	110	130	150	175	150	110$^+$	198	(24)
26	80	110	90	100	100	130	265	235	225	225	195	140	130	110	120	100	90	70	70	185	120	40	100	60		
27	90	20	50	110	70$^+$	0$^+$	205$^+$					345	225	225	225	245	215	215	235	175	120	130	195	160		
28 S	140	140	120	120	120	100	150	140	120	175	245	215	185	110	130	175	175	185	235	255	265	185	195	285	174	(24)
29 S	325	265	160	90	185	195	285	395			285	235	205				185$^+$	160$^+$				110$^+$	130$^+$	120$^+$	210	(24)
30 S	110$^+$	110	110	100	140	255	405	365	395	415	345	225	205	205	185	185	150	140	110	140	120	275	255	305	219	(24)
31 S	245	245	120	100	110	160	175	245	195	205	215	225	235	215	150	120	185	195	195	215	215	205	205	215	191	(24)
Mean	123	109	101	106	126	168	258	318	322	297	275	256	221	206	194	194	175	166	162	167	165	150	153	133	189	
	(27)	(27)	(27)	(27)	(28)	(25)	(27)	(25)	(23)	(25)	(27)	(27)	(29)	(25)	(26)	(29)	(27)	(29)	(28)	(25)	(26)	(28)	(28)	(29)		
Fair Weather Mean	128	100	90	93	120	183	269	331	333	309	286	265	225	208	198	202	180	177	163	179	181	215	193	180	200	
	(17)	(18)	(19)	(20)	(21)	(21)	(21)	(21)	(21)	(22)	(23)	(25)	(26)	(23)	(24)	(26)	(24)	(25)	(24)	(22)	(20)	(14)	(15)	(15)		
Mean for selected quiet days																									[193	(10)]

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

37 KEW OBSERVATORY — Factor 4·62 — AUGUST 1964

Day	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	
	volts per metre																									
1	145	135	110	100	90	125	125	175	195	205	195	185	155	90	120	100	100	100	90	125	110	100	120	100		
2	80	110	20						155$^+$		100$^+$	125$^+$	120$^+$	155	125	110	125	120	120	155	125	205	155	120		
3 S	110	10$^+$	30$^+$	0$^+$	135$^+$	100	135	125	135	175	215	265	185	185	185	195	155	165	165	215	215	215	265	135		
4 S	185	135	100	90	110	110	305	440	390	305	315	235	195	175	165	155	145	120	110	125	100	80$^+$	80$^+$	60$^+$	170	(24)
5	50$^+$	0$^+$	0$^+$	0$^+$	20$^+$	30$^+$	80	110	125	135	135	155	135	135	110	120	110	110	100	175	205	185	90	135		
6 S	145	120	110	100$^+$	175$^+$	145$^+$	205$^+$	305$^+$	335$^+$	255	185	195	185	175	165	165	120	120	125	155			120$^+$	110		
7 S	145	110	145	155	165	245	345	370	305	255			205	165	165	145	135	110			215	255	185	255	183	(24)
8	175	175	175	145	80	185	265	225	205	175$^+$	135$^+$					-40$^+$	235$^+$	60$^+$	155$^+$	135$^+$			155	155		
9	135	110	100	100	90	145	195	255	245	175	155	165			100$^+$				145	135	120	110	125	145		
10 S	110	135	80	100	120	155	285	390	450	370	275	215	215	195	195	225	155	90	70	80	70	80$^+$			176	(24)
11	20$^+$	60$^+$				110$^+$	155$^+$	215$^+$	195$^+$	305$^+$	275	255	205	195	185	165	155	155	120	145	205	175	145	185		
12	100$^+$	90$^+$	0$^+$	-10$^+$	110$^+$					125$^+$	50$^+$	20$^+$		120$^+$	165	215	125	110	70$^+$	0$^+$	30$^+$	10$^+$	70$^+$	60$^+$		
13	90$^+$	70$^+$	70$^+$	50$^+$	80$^+$	80$^+$	100$^+$	40$^+$	120$^+$		110$^+$	70$^+$	0$^+$	100$^+$			0$^+$			80$^+$	120$^+$	90$^+$	40$^+$	20$^+$		
14	10$^+$	0$^+$						410$^+$		510$^+$	440$^+$	370$^+$	390$^+$	400$^+$	325$^+$	275$^+$	295$^+$	295$^+$	285$^+$	265$^+$	235	215	155	145		
15	110	100	40	60	80	60	165	235		235		275	215	195	155	100	110	90				30$^+$	80$^+$	60$^+$		
16 S	50	40	20	10	0	10	40	70	80	100	90	60	70	60	70	80	80	80	110	60			80$^+$	40$^+$	64	(24)
17	120	60	50	70$^+$								135$^+$				175$^+$				185$^+$	215$^+$	195	155			
18			70$^+$		135$^+$	125$^+$	225$^+$											155		175$^+$	50$^+$	80$^+$	110	30		
19 S	30		60	20	40	60	165	165$^+$	120$^+$	80$^+$	125$^+$	125$^+$	235$^+$	245	185	185	255	225	215	225	285	235	205	175		
20 S	235	235	205	205	235	265	600	665	560	450	315	295	215	155	145	145	165	135	70$^+$	50$^+$	50$^+$	40$^+$	20$^+$	20$^+$	162	(24)
21	60$^+$	50$^+$	40$^+$	50$^+$	50$^+$	50$^+$	235$^+$	305$^+$	365$^+$	335$^+$	380$^+$	430	295	295	245	235	235	215	185	120	135$^+$	50$^+$	50$^+$	70$^+$		
22	10$^+$	-20$^+$	20$^+$	80$^+$	110$^+$	110$^+$	120$^+$	225	245	235	135	100	120	100	70	80	60	80	80	100	110	40$^+$	40$^+$	60$^+$		
23 S	80$^+$	100$^+$	80$^+$	100$^+$	70$^+$	125	255	285	295	225	165	175	135	135	155	155	185	165	155	215	215	245	215	175	171	(24)
24 S	145	110	70	40$^+$						80$^+$				50$^+$	60$^+$	40$^+$	40$^+$	80$^+$	100$^+$	90$^+$	70$^+$	90$^+$	80$^+$	50$^+$		
25 S	90	100	110	100	145	215	345	355	365	275	255	225	215	185	185	255	255	285	235	225$^+$	135$^+$	120$^+$	245$^+$	245$^+$	185	(24)
26	100$^+$	185$^+$	135$^+$	120$^+$	125$^+$	175$^+$	70$^+$	325	275	235	215	235	225	235	195	215	175	225	205	285	185$^+$	175$^+$	120$^+$	100$^+$		
27	145$^+$	135$^+$	120$^+$	100$^+$	135$^+$	155$^+$	345$^+$	520$^+$	540$^+$	570	410	370	305	305	235	235	255	175			195$^+$					
28					70$^+$	60$^+$	80$^+$	235$^+$	225$^+$	355	355	345	155	175	125	125	145	10$^+$	80$^+$	40$^+$	70$^+$	30$^+$	175	175		
29 S	185	175	165	195	205	235	275	275	305	245	215	215	175	125	60	100	90	100	125	135	125	100	110	80	167	(24)
30 S	90	80	60	40	40	40	135	255	225	235	225	215	195	185	165	120	120	90	90	90	100	100	80	60	126	(24)
31 S	70	40	90	120	285	355	615$^+$	765$^+$	685$^+$	510$^+$	410$^+$	315$^+$	275$^+$	315$^+$	275$^+$	275$^+$	255$^+$	255$^+$	235$^+$	165$^+$	110$^+$	365$^+$	400	370	315	(24)
Mean	104	95	81	82	112	133	226	298	286	265	226	214	193	180	160	155	153	140	138	141	141	134	133	119	163	
	(29)	(28)	(28)	(26)	(26)	(26)	(26)	(26)	(25)	(27)	(26)	(27)	(25)	(27)	(27)	(28)	(28)	(28)	(25)	(28)	(27)	(27)	(29)	(28)		
Fair Weather Mean	124	116	95	103	120	152	232	281	275	265	229	231	190	176	155	158	150	140	136	149	162	180	167	150	172	
	(19)	(17)	(18)	(14)	(14)	(16)	(16)	(17)	(16)	(19)	(18)	(20)	(20)	(22)	(23)	(23)	(23)	(23)	(18)	(17)	(15)	(13)	(17)	(17)		
Mean for selected quiet days																									[172	(10)]

The potential gradient is reckoned as positive when the potential increases upwards. The small $^+$ denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for selected quiet days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

37 KEW OBSERVATORY — Factor 4·52 — SEPTEMBER 1964

Hour G.M.T. — volts per metre

Day	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	
1	265	140	60	70	60	195	435	495	510	375	415	375	295	325+	345+	415+	295+	185+	160+	-30+	-40+	0+	0+	20+		
2 S	20	10	40	40	0	70	215	530	550	405	275	295	285	355	245	315	335	395	415	195	110	140	140	140	230	(24)
3	100	80+	70+	120+	100+	130+	175+	255+	275+	550+	455+	475	425	375	275	225	100+	100+	110+	90+	0+	50+	140+	50+		
4	40+	110+	100+	70+	80+	100+	175+	295	455	465	455	415	335	295	265	235	20+	-70+	-60+	10+	140+	110+	20+	100		
5	40	40	40	60	90	100	225	285	375	395	325	285	165	165	110	80	10+	10+	40+	-20+						
6	60	40	60	80				140	195	195	120	110	140	60+	30+	90+	90	130	140	150	165	160	140	140		
7	90	80	70	110	160	160	385	455	375	285	225	165	130	120	90		20+	-20+	120+		110	130	160	110		
8	100	100	120	120	165	195	335	445	355	305	265	215	195	160+	0+	110+	30+	60+	40+	100+	195	195	160	160		
9	120	120	110	40				225		160	160	140	110	80	80	60	60+	0+	-60+	90+	150	165	175	160		
10	110	120	70	80	120	150	295	265	175	160	150	140	150	110	60+	80+	30+	10+	20+	60	120	110	140	140		
11 S	100	60+	60+	60+	110+	120+	60+			195	205	160+	100+	215+	175	140	30+	30+	100	150	245	255	185	165		
12 S	215	255	225	140	120	160	175	425	435	375	295	305	295	255	215	150	90	140	175	195	195	225	225	245	229	(24)
13 S	140	80	80	40	60	60	140	185	245	275	235	175	175	160	185	185	165	160	225+	195+	140+	140+	120+	30+	169	(24)
14	50+	20+	10+	10+	0+	0+					185+	160+	205+	110+	185+	175+	175+	175+	195	195		150+				
15															355	275	255	255	225	225	215	235	265	255		
16	175	120	90	100	110	150	275							335+		215+	265+	255	275	275	265	255	195	150		
17	120	110	100	90	120	185	385						275+	275+	215+	80+	-10+	120+	160	160	215	160	215	195		
18	165	120	160	160	185	195	305	415	385	295	315+	70+	70+	120+	100+	80+	20+	100+	195	285	355	375	385	285		
19 S	265	255	205	205			255	215	265	265	205	165	100	100	140	160	165	185	275	255	215	165	185	160	198	(24)
20 S	160	120	90	80	90	140	205	265	225	195	175	160	150	165	130	90	100	160	235	255	235	245	215	195	170	(24)
21 S	205	130	110	160	175	175	305	510	660	530	335	255	215	195	160	160	140	100	60	100	120	110	120	80	213	(24)
22 S	80	80	110	120	140	160	235	355	335	255	215	215	195	195	195	255	195	175	215	235	235	160+	255+	305+	205	(24)
23 S	255+	235+	185+	195+	110+	160+	165+	365	415	345	305	275	285	295	275	265	265	255	165	315	285	265	225	110	251	(24)
24 S	165	70	60	100	140	110	335	495	335	275	175	160	245	215	225	235	215	225	205	215	215	225	215	185	210	(24)
25 S	160	140	120	110	150	160	225	355	345	275	215	205		235	225	235	215	235	335	215+	120+	80+	100+	130+	200	(24)
26			70+	100+	80+	40+	100+	80+		225+	175+	195+	215+	205+	160	150	140	160	215	110+	275+	235+	305+	195+		
27	90+	80+	90+	130+	50+			375+	335+	275+	355	215	160	160	150	120	120	100	30+	140+	215+	185+	90+	110+		
28	10+	20+	30+	40+	50+	20+	40+	215+	215+	465+	475+	295	205	160	140	140	120	140	150	120	175+	120+	275+	275+		
29	160+	130+	150+	120+	160+	150+	255+	275+	520+	385+	235+	355+	395+	475+	435+	355+	265+	20+	90+	110+	235+	195+	175+	235+		
30	235+	160+	160+	80+	160+	195+	295+	395+	375+	335+	305+	255+	255+	305+	255+	295+	365+	395+	395+	435	395	375	395	285		
Mean	132 (28)	108 (28)	98 (29)	98 (29)	107 (26)	131 (25)	240 (25)	333 (25)	363 (23)	318 (26)	269 (27)	231 (27)	214 (27)	214 (29)	187 (29)	185 (29)	143 (30)	139 (30)	161 (30)	167 (29)	189 (28)	180 (29)	186 (28)	165 (28)	190	
Fair Weather Mean	136 (21)	112 (19)	101 (19)	100 (19)	118 (16)	148 (16)	278 (17)	354 (19)	369 (18)	301 (20)	255 (20)	240 (21)	213 (20)	202 (18)	190 (20)	183 (19)	174 (15)	192 (16)	207 (18)	212 (18)	213 (19)	211 (18)	208 (18)	172 (19)	204	
Mean for selected quiet days																									[207	(10)]

POTENTIAL GRADIENT (close to the ground, over an open level surface.
Mean values for hours without hydrometeors

37 KEW OBSERVATORY — Factor 4·33 — OCTOBER 1964

Hour G.M.T. — volts per metre

Day	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	
1 S	205	190	170	170	160	245	450	515	525	565	545	470	450	430	430	415	405	450	425	310	300	255	245	160	354	(24)
2 S	170	170	130	160	190	290	430	565	610	430	450	425	350	280	320	375	355	375	355	290	245	225	170	160	313	(24)
3 S	160	140	75	95	105	150	320	375	415	470	430	355	290	280	280	280	265	170	280	275	180	150	140	130	242	(24)
4	115	130	55+	30+	20+	45+	170+	265+	-20+	265+	255	205	190	140	130	115	115	75+	130+	20+	45+	225+	55+	150+		
5	205	170									225+	180+	255+	150+	160+	195+	205	170	215	205	205					
6 S		10+	65	85	105	120	205	375	300	280	310	265	245	205	225	265	280	280	330	235	300	275	245	170		
7 S	115	95	85	75									130+	340+	255+	245+	300+		340	330	280	235	205	190	225	(24)
8 S	180	140	115	130	180	195	320	395	440	425	340	320	225	280				490+	470+	620+	470+	395+	300	205	268	(24)
9	205	180	190	215	225	300	470	660+	695+	525+	375+	355+	470+													
10		255+	245	215	235	355	565	790	715	565	430	275	245				310+	415+	460+	555+	450+	535+	490+	375+		
11	365+	280+	245+	290+	180	245	280	265	265	225	170	115	75	115	150	170	170	195	205	215	150	150	150	115		
12	65	40+	0+	85+	65+				415+	-			365	280	275	280	300	310	355+	265+	275+	330+	280+	225+		
13	150+	170+		190+	115+	205+							340	340	265	300	280	130+	190+	440+	440+	355+	340+	275+		
14	190+	160+	105+	40+												460+	460+									
15					130+	95+	350+	375+	415+	365+	450+	425+	340+	355+	350+	340+								120		
16 S	85+	10+	20+	-40+	-10+	20+	150+	340	355	350	450	415	375	355	350	300	330		385	320	300	395	395	320	308	(24)
17 S	205	115	140	180	170	255	355	545	545	-	-	-	255	245	245	290	300	320	280	190+	280+	215+	235+	245+		
18	215+	280+	180+	75+	190+	195+			275+	395+	545+	375+	405	330	280	205	105+	215+	190+	340+	350	395	430	355+		
19	300+	255+	300+	290+	310+	290+	275+	290+	265+	365	450	415	290+	280+	245+	290+	160+	195+	320	320	310	215	95+	105+		
20	85+	105+	95+	95+	150+	95+	235+	95+	430+	320+	300	350	350	330	385+	405+	320+	190+	320+	395+	340+	300+	195+	225+		
21	225	190	130	95	170	180	215+	290+	395+	310+	265+				430+	395+	150+							55		
22	215+	235+	245+	265+	340+	350+	510+				450+	490+	375	340	320	365	300	300	170+	205+	170+					
23 S		140+	215	225	245	280	310+	440+		415+	355+	385+	300+	340+		255+	265+	225+	310	330	195	275	255	320		
24 S	275	225	245	245	280	350	425	460	500	500	450	415	330	350	350	300	280	355	525+	640+	600+	535+	490+	600+	328	(24)
25 S	320+	255+		190	170	150	205+	225+	300+	245+	205+	235+	255+	190+	225+	310+	280+	290+	280+	180+	95+	225+	115+	170+	324	(24)
26	205+	140+	140+	130+	265+	265+	320+	340+	405+	405+	340+	265+	280	245	280	340	245+	150+	150+	150+	-40+	340+	190+	95+		
27 S	150+	170+	75+	55+	130+	105+	95+	190+	225+	375+	470+	430+	480+	415+	405+	415+	545+	585+	715+	675+	585+	500+	440+	440+	411	(24)
28 S	265+	140+	205+	215+	65	75	205	480	545	565	425															
29						95+				470+	650+	600+	500+	355+	275+	265+	470+	395+	355+	450+	290+	300+	340+	225+		
30 S	245	190	190	170	130	150+	75+	95+	355+	395	310	275	215	225	225	205	105+	395+	430+	375+	365+	340+	265+	150+		
31 S	275+	190+	245+	180+	180+	150+	120+	180+	205+	280+	375+	430	395	355	340	330	365+	350+	320+	195+	195+	150+	40+	130+	286	(24)
Mean	200 (26)	164 (29)	150 (26)	148 (28)	166 (27)	194 (27)	294 (24)	372 (23)	399 (24)	396 (24)	385 (26)	353 (24)	313 (28)	290 (26)	288 (25)	300 (27)	284 (27)	293 (24)	327 (26)	328 (26)	284 (26)	305 (24)	254 (24)	220 (26)	279	
Fair Weather Mean	182 (13)	161 (12)	153 (13)	161 (14)	174 (15)	228 (14)	366 (11)	464 (11)	474 (11)	428 (12)	380 (14)	338 (14)	303 (19)	285 (18)	279 (16)	283 (16)	276 (13)	298 (10)	313 (11)	283 (10)	256 (11)	257 (10)	253 (10)	177 (11)	282	
Mean for selected quiet days																									[306	(10)]

The potential gradient is reckoned as positive when the potential increases upwards. The small + denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for selected quiet days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

37 KEW OBSERVATORY — Factor 4·38 — NOVEMBER 1964

volts per metre

Day	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	
1	150	200	140	55	65	115	300				200+	210+	200	170	180	235	215+									
2										330+	510+	435+	380+	360+	370+				340+	320+	330+	235+	265+	150+		
3	115+	95+		-80+	-10+	-90+		415+		565+	530+	510+	475+	510+			530+	530+	480+	360+	370	340	340	300		
4 S	115+	210+	130		150	210	310	435	575	510+	550+	550+	645+	550+	680+	615+	700+	595	615	565	550	530	360	285	440	(24)
5 S	245	255	225	225	265	275	350	500	625	690	735+	645+	660+	710+	710+	720+	680+	660+	670+	435	435	455	415	465	502	(24)
6 S	350	225	210	150	200	275	320	510	635	730	700	700	710	710+	530+	540+	635+	615+	510	550	490	530	480	360	486	(24)
7	300	245	235	255	245	265	330	435	530	480	380+	370+	320+	350+	320+	360+	435	480	500	445	380	75+	115+	225+		
8 S	-	-	-	-	-	-	-	-	-	300	265	225	330	415	370	415	445	455	490	530	490	370	285	245		
9 S	235	295	295	265	360	360	395	455	490	530	585	645	645	585	340+	370+	245+	510	480	435	480	435	360	115+	366	(24)
10	130+	20+	-165+	-40+	190+	115+	-140+	380+	475+	435+	455+	455+	415+	350+	300+	360+	330+	415+	415+	300+	300+	265+	190+	320+		
11	380+	190+	150+					115+	160+	320+	295+	435	380	295	370	415	395+	435+			265+	210+	215	295		
12	320			105+								245+	300+	330+	385+	380+		465	475	490	425	395	380	415		
13	340	210	340	340	320	300																	115+	125		
14	95	75	140	130	130	130	180				150+	190+		130	170	180	190				320	340	300	295		
15	285	255	130+					210	275	340	295	285	255	215	225	245	340	530	550	475	455	395	265			
16					105+		105+	105+							265+	300+	415+	425+	285+	330	415	300	340	300		
17	225	210	160	130+	10+												225+	210+		330	300	225	275	245		
18 S	265	210										275+	265	310	265	275	235	235	320	330	370	320	295	235		
19 S	130	115	85	95	115	130	140	225	235	320	360	320			295+			370	340	300	340	370	295	170	236	(24)
20 S	170	210	140	170	225	295	360	295	340	320	350	370	340	340	320	330	380	370	435	380	370	350	200	105	294	(24)
21 S	115	215	275	300	285	380	370	300	350	350	330	340	340	300	300	320	350	310	55+	40+	-175+	65+	225+	285+	311	(24)
22 S	360+	285+	245+	-90+	140+	265+	215+	170+	215+	265+	320+	370	330	285	265	215	320	350	380+	295+	300+	340+	340+	350+		
23 S	275+	285+	340+	275	265	265	275	340	370	395	360		320	320			300	395	405	360	285	255	285	215	317	(24)
24 S	255	245	245	245	215	190	190	265	300	210	215	265	265	275	295	215	300	275	245	225	210+	0+	30+	55+	249	(24)
25	115+	150	105	45	55	170	215	300	385	360	-	-	-			395+		380+	210+	55+	65+	0+	125+	130+		
26	115+	85+	55+	85+	105+	140+	105+	245+	300	360	385	320	370	300	275	245		395	480	475	465	435	265	210		
27 S	130	55+	40+		130	190	295	500	605	605	605	475	475	415	455	520	565	530	490	445	395	395	360	405		
28 S	380	415	465	445	415	455	445	565	575	595	605	720	645	490	490+	475+	645+	575+	540+	380+	340+	245+	320+	435+	469	(24)
29	445+	510+	480+	380+	385+	340+	475+								190+	265+	445+	500+	380+	330+	415+	475+	320+	255+		
30																510+	510+		225+							
Mean	232 (26)	211 (25)	194 (23)	166 (21)	190 (23)	227 (21)	262 (20)	338 (20)	413 (18)	429 (21)	417 (22)	407 (23)	412 (22)	379 (23)	349 (24)	371 (24)	410 (24)	440 (25)	413 (25)	367 (25)	348 (27)	309 (27)	277 (28)	259 (27)	326	
Fair Weather Mean	235 (17)	221 (16)	213 (15)	214 (14)	215 (16)	250 (16)	298 (15)	381 (14)	439 (15)	439 (15)	421 (12)	421 (13)	391 (15)	323 (15)	291 (12)	301 (12)	351 (11)	418 (15)	453 (14)	418 (17)	407 (18)	379 (17)	317 (18)	275 (17)	336	

Mean for selected quiet days [367 (10)]

POTENTIAL GRADIENT (close to the ground, over an open level surface).
Mean values for hours without hydrometeors

37 KEW OBSERVATORY — Factor 4·34 — DECEMBER 1964

volts per metre

Day	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	
1		-100+	75+	0+	185+	245+	205+	320	485	535	505	525						430+		180+	320+		385	300		
2	345+	325+	365+	250+	160+	300+	505+	465+	710+	825+	905+	915+	675+	675+	785	625	525	560	635	560	505	410	365	185		
3 S	110	35	65					345+	385+	460+	410	430	400	375	395	430	665+	485+	410+	375+	260+	245+	410+	355+		
4 S	320+	170	215	250	310	320	375	525+	580+	525+	540+	540+	580+	560+	570+	560+	560+	600+	625+	675+	720+	615+	600+	420+	374	(24)
5 S	245	180	260	245	245	215	245+	170+	300+	600+													215+	130+	461	(24)
6 S	260	110	120	170	150	160	160	120	180	235	320	345	345	365	375	365	345	355	365	310	270	290+	250	215	281	(24)
7 S	170	95			170	140	150	215		355	300+	300	345		345	355+		245+	250+	215+	160+	130+	75+		250	(24)
8				85	180	180	245	410	540	560	580	600	570	450	450	345	355	355	345	245+	65+		35+	30+		
9					65+													460	485	375				395		
10	325	290	260	290				485+	550+	655+	720+	720+	675+	615+	410+	410+	420+	335+	235+							
11								355+	320+	600+	785	635	615	525	525	440								535		
12	535	395	235		160+											-90+		20+	290+	180+	170+	95+	150+	95+		
13 S	65+	20+	10+									85+	205+	395	280	290	325	375	495	535	450	335	300	310		
14 S	320	325	365	355	365	375+	355+	580+	450+	690+	785+	635+					280+	400+						325	495	(24)
15	290+	395+	260+	180	95	185	105	195+	180+	550+	805+	935+	840+	690+	825+	860+	755+	710+	460+	495+						
16																	345+	310+	525+	300+	260+	130+	245+			
17						465+	625+	730+	840+	890+								765+	560+	860+	560+	335+	160+	20+		
18	20+	65+	140+			85+	280+	535+	720+	840+	860+	840+	840+	880+	765+	825+	765+	615+	730+	420+	485+	410+	395+	335+		
19 S	320+	185+	105+	215+	160	270	245	280	280	355	465	475	460	440	505	465	440	300	465	570	615	590	515	580		
20 S	475	375	325	365	385	395	400	460	410	395	410	450	375+				0+	0+	140+	45+	95+	95+	20+		450	(24)
21		20	75	95	140	185	270	365	475	535	475	475	710+							225+	225+	375+	450	320		
22	130+	205	195	150+	170	180+	235	420	635	720+	615+	550+	635+	655+	635+	535+	365	355	320	205				85		
23	150+	-20+	-20+	65	195	180	150	280	250+	375+	335+	430+	635	710	685	645	685	580	485	270+	385+					
24								465+	540+	655+	675+	570+	185+	150+	95+	300+	235+		320+	235+						
25 S			0+	55+	65+	20+	55+			150+	310	345	385	320	325	280	300	335	355	375	420	395	375	320		
26 S	280	245	260	335	375	410	430	410	540	690	750	720	560	655	560	600+	615+	690+	655+	850+	690+	560+			367	(24)
27							-40+	10+		0+	140+	110+	45+	205+	440+	675+	560+	410+	300+	355+	55	260+	355+	290+		
28	280	250	250	290	320	325	395	375	385	540	775	915	840	880+	655+	710+	815+	675+	675+	805+	590+	465+	150+	355+		
29	625+	465+	185+	75+	105+	85+	335	525	515											205+	410+	465+	355+	320		
30	300	290	280	280	260	245+	260+	325+	320+										485	580	600	580	465			
31 S	150+	280+	345	290	280	325	420			430+	475	635	615	515	485	495	600	690	690	710	710	600	560	460	448	(24)
Mean	272 (21)	200 (23)	190 (23)	202 (20)	206 (22)	240 (22)	278 (23)	375 (25)	460 (23)	527 (25)	563 (23)	549 (24)	524 (22)	529 (19)	505 (20)	482 (21)	474 (21)	442 (25)	452 (25)	413 (27)	392 (23)	369 (20)	310 (22)	290 (22)	385	
Fair Weather Mean	300 (11)	213 (14)	232 (14)	235 (14)	237 (16)	260 (13)	280 (14)	348 (12)	445 (10)	467 (9)	522 (12)	527 (13)	525 (11)	475 (10)	476 (12)	438 (10)	438 (9)	437 (10)	466 (11)	469 (9)	453 (8)	485 (6)	407 (9)	335 (13)	395	

Mean for selected quiet days [391 (8)]

The potential gradient is reckoned as positive when the potential increases upwards. The small + denotes a non-fair weather hour (see Introduction). No entry is made for hours with hydrometeors and dashes are inserted for hours of defective record. The number of hours or days used in computing each mean is shown in round brackets. The mean for selected quiet days (see Introduction) and the figure in round brackets, which is the number of days used in computing this mean, are entered in square brackets.

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	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
	volts per metre																								
	No hydrometeors																								
Jan.	265	222	202	190	205	228	236	324	396	443	492	508	499	420	397	387	347	386	377	355	334	340	286	286	339
Feb.	137	112	104	100	128	131	162	275	419	480	453	431	393	363	317	337	339	323	366	296	258	273	220	198	276
Mar.	143	121	124	118	136	133	166	268	339	363	349	373	352	325	329	332	345	350	354	324	289	244	236	194	263
Apr.	185	150	129	114	121	149	256	348	334	308	278	272	252	256	233	238	229	227	246	258	255	243	239	196	230
May	100	95	82	96	121	149	213	261	250	226	224	216	194	190	194	200	182	207	188	174	170	171	162	113	174
June	152	116	119	130	164	165	238	337	350	338	290	269	247	223	203	237	234	192	174	181	189	178	160	156	210
July	123	109	101	106	126	168	258	318	322	297	275	256	221	206	194	194	175	166	162	167	165	150	153	133	189
Aug.	104	95	81	82	112	133	226	298	286	265	226	214	193	180	160	155	153	140	138	141	141	134	133	119	163
Sept.	132	108	98	98	107	131	240	333	363	318	269	231	214	214	187	185	143	139	161	167	189	180	186	165	190
Oct.	200	164	150	148	166	194	294	372	399	396	385	353	313	290	288	300	284	293	327	328	284	305	254	220	279
Nov.	232	211	194	166	190	227	262	338	413	429	417	407	412	379	349	371	410	440	413	367	348	309	277	259	326
Dec.	272	200	190	202	206	240	278	375	460	527	563	549	524	529	505	482	474	442	452	413	392	369	310	290	385
Year	170	142	131	129	149	171	236	321	361	366	352	340	318	298	280	285	276	275	280	264	251	241	218	194	252
Winter	227	186	173	165	182	207	235	328	422	470	481	474	457	423	392	394	393	398	402	358	333	323	273	258	331
Equinox	165	136	125	119	133	152	239	330	359	346	320	307	283	271	259	264	250	252	272	269	254	243	229	194	240
Summer	120	104	96	103	131	154	234	303	302	281	254	239	214	200	188	197	186	176	165	166	166	158	152	130	184
	Fair weather																								
Jan.	233	221	189	174	165	213	263	347	407	461	523	531	469	465	409	383	330	352	320	295	309	340	293	285	332
Feb.	146	106	106	98	105	114	164	280	440	512	482	446	383	354	343	335	343	342	346	317	287	260	225	189	280
Mar.	160	136	135	138	153	149	184	274	364	399	377	358	307	334	300	303	317	341	391	352	317	295	265	219	274
Apr.	174	137	121	118	121	175	272	354	376	312	273	246	216	230	210	219	230	236	263	296	301	277	277	213	235
May	108	97	87	111	128	180	240	297	278	251	237	220	186	140	193	186	188	204	201	212	219	218	180	128	187
June	167	123	105	124	170	191	251	355	357	351	317	288	244	240	217	225	220	206	203	194	216	214	210	180	224
July	128	100	90	93	120	183	269	331	333	309	286	265	225	208	198	202	180	177	163	179	181	215	193	180	200
Aug.	124	116	95	103	120	152	232	281	275	265	229	231	190	176	155	158	150	140	136	149	162	180	167	150	172
Sept.	136	112	101	100	118	148	278	354	369	301	255	240	213	202	190	183	174	192	207	212	213	211	208	172	204
Oct.	182	161	153	161	174	228	366	464	474	428	380	338	303	285	279	283	276	293	313	283	256	257	253	177	282
Nov.	235	221	213	214	215	250	298	381	439	439	421	421	391	323	291	301	351	418	453	418	407	379	317	275	336
Dec.	300	213	232	235	237	260	280	348	445	467	522	527	525	475	476	438	438	437	466	469	453	485	407	335	395
Year	174	145	136	139	152	187	258	339	380	375	359	343	304	286	272	268	266	278	289	281	277	278	250	209	260
Winter	229	190	185	180	181	209	251	339	433	470	487	481	442	404	380	364	366	387	396	375	364	366	311	271	336
Equinox	163	137	127	129	141	175	275	361	396	360	321	296	260	263	245	247	249	265	293	286	272	260	251	195	249
Summer	132	109	94	108	135	177	248	316	311	294	267	251	211	191	191	193	185	182	176	183	195	207	187	159	196
																			Annual mean for selected quiet days						[268]

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

Mean value for periods of twenty minutes about 1430 G.M.T.

F = Potential gradient, unit 1 v.cm.$^{-1}$. i = Air-earth current, unit 10^{-18} amp. cm.$^{-2}$

$\lambda+$ = Conductivity due to positive ions, unit 10^{-16} ohm.$^{-1}$ cm.$^{-1}$

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	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	F	i	λ+	F	i	λ+	F	i	λ+	F	i	λ+	F	i	λ+	F	i	λ+
1	5·60	342	61	...	...	...	...	...	...	...	...	...	1·90	161	85	...	...	...
2	...	...	...	...	...	...	...	...	...	2·52	134	53	...	...	...	2·29	211	92
3	4·06	238	59	2·12	166	78	...	...	...	...	...	...	...	...	...	...	...	...
4	...	...	...	3·32	176	53	...	...	...	...	...	...	2·64	270	102	...	...	...
5	...	...	...	4·51	333	74	4·71	346	73	...	...	...	...	...	...	1·97	214	109
6	3·02	247	82	3·68	341	93	4·29	258	60	3·62	173	48	2·05	274	134	...	...	...
7	...	...	...	3·94	247	63	...	...	...	...	...	...	1·31	159	121	...	...	...
8	4·29	231	54	...	...	...	...	...	...	2·17	204	94	1·74	194	111	1·81	205	113
9	3·82	225	59	...	...	...	5·19	409	79	2·17	219	101	...	...	...	3·20	344	107
10	5·91	302	51	3·12	180	58	2·16	267	124	...	...	...	...	...	...	2·29	261	114
11	...	...	...	2·41	139	58	3·34	213	64	...	...	...	2·50	248	99	...	...	...
12	...	...	...	...	...	...	1·90	128	67	...	...	...	2·30	370	161	2·31	251	109
13	10·78	246	23	...	...	...	...	...	...	2·73	242	89	...	...	...	...	...	...
14	...	...	...	2·49	154	62	...	...	...	2·53	227	90	1·96	227	116	...	...	...
15	...	...	...	...	...	...	...	...	...	1·61	169	105	...	...	...	2·12	189	89
16	5·13	271	53	...	...	...	...	...	...	2·03	235	116	...	...	...	...	...	...
17	7·06	222	31	...	...	...	3·92	294	75	2·22	351	158	...	...	...	...	...	...
18	...	...	...	...	...	...	3·03	204	67	...	...	...	...	...	...	...	...	...
19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·14	180	84
20	...	...	...	7·02	282	40	3·03	231	76	2·12	193	91	1·63	217	133	...	...	...
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	2·49	153	61	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	5·85	291	50	...	...	...	...	...	...	...	...	...	...	...	...	1·68	228	136
25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·07	272	89
26	...	...	...	3·70	286	77	...	...	...	...	...	...	1·42	146	103	1·88	228	121
27	5·86	366	62	...	...	...	...	...	...	2·21	342	155	2·77	226	82	...	...	...
28	...	...	...	2·12	228	108	...	...	...	...	...	...	1·75	231	132	...	...	...
29	...	...	...	...	...	...	...	...	...	...	...	...	5·09	265	52	...	...	...
30	2·73	187	68				...	...	...	...	...	...	...	...	...	...	...	...
31	...	...	...				4·29	328	76				...	...	...			
Mean	5·12	255	55	3·49	230	69	3·59	268	76	2·36	226	100	2·24	230	110	2·25	235	106
No. of days used	13	13	13	11	11	11	10	10	10	11	11	11	13	13	13	11	11	11

	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	F	i	λ+	F	i	λ+	F	i	λ+	F	i	λ+	F	i	λ+	F	i	λ+
1	...	...	...	...	...	...	3·20	276	86	4·45	376	84	...	...	...	...	...	...
2	1·78	197	111	...	...	...	2·72	205	75	...	...	...	...	...	...	7·22	238	33
3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·46	246	55
4	...	...	...	1·66	182	110	2·66	264	99	...	...	...	6·59	271	41	5·67	286	50
5	...	...	...	1·13	119	105	...	...	...	1·69	138	82	7·22	318	44	...	...	...
6	...	...	...	1·77	173	98	...	...	...	2·33	272	117	5·27	338	64	...	...	...
7	...	...	...	1·80	252	140	0·71	75	106	2·43	220	91	...	...	...	...	...	...
8	...	...	...	...	...	...	0·86	110	128	...	...	...	...	...	...	4·66	288	62
9	...	...	...	...	...	...	0·83	113	136	...	...	...	3·06	195	64	...	...	...
10	...	...	...	1·77	254	144	0·49	85	173	...	...	...	...	...	...	4·08	254	62
11	...	...	...	1·93	279	145	...	...	...	...	...	...	...	...	...	5·81	276	47
12	...	...	...	...	...	...	...	...	...	2·65	176	66	4·41	283	64	...	...	...
13	2·44	259	106	...	...	...	...	...	...	2·57	221	86	...	...	...	...	...	...
14	2·58	366	143	3·23	323	100	2·31	200	87	...	...	...	...	...	...	...	...	...
15	2·10	269	128	...	...	...	...	...	...	3·27	219	67	...	...	...	7·78	215	28
16	1·82	164	90	...	...	...	...	...	...	3·53	198	56	2·83	202	71	...	...	...
17	2·23	207	93	1·90	315	166	...	...	...	...	...	...	...	...	...	...	...	...
18	...	...	...	...	...	...	0·87	90	103	...	...	...	...	...	...	7·34	337	46
19	...	...	...	...	...	...	...	...	...	2·79	268	96	...	...	...	...	...	...
20	1·76	271	154	1·64	208	127	...	...	...	3·78	382	101	3·36	170	51	...	...	...
21	2·93	341	116	2·43	230	95	1·43	167	117	...	...	...	...	...	...	...	...	...
22	2·22	224	101	...	...	...	...	...	...	3·37	259	77	...	...	...	...	...	...
23	2·31	305	132	...	...	...	2·62	306	117	...	...	...	...	...	...	...	...	...
24	1·53	264	173	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25	...	...	...	2·19	303	138	...	...	...	...	...	...	3·11	212	68	...	...	...
26	...	...	...	1·86	231	124	...	...	...	...	...	...	...	...	...	...	...	...
27	1·98	225	114	2·17	275	127	...	...	...	...	...	...	4·77	271	57	...	...	...
28	1·21	153	126	1·19	154	129	1·48	205	139	...	...	...	...	...	...	...	...	...
29	1·39	225	162	...	...	...	4·24	286	67	...	...	...	...	...	...	...	...	...
30	1·89	266	141	...	...	...	2·24	178	79	...	...	...	...	...	...	...	...	...
31	1·49	197	132	2·38	248	104				...	...	...				4·95	157	32
Mean	1·98	246	126	1·94	236	123	1·90	183	108	2·99	248	84	4·51	251	58	5·77	255	46
No. of days used	16	16	16	15	15	15	14	14	14	11	11	11	9	9	9	9	9	9

Year:		F	i	λ+
	Mean	3·18	239	88
	No. of days used	143	143	143

AIR POLLUTION: HOURLY MEANS FOR EACH MONTH

40 **KEW OBSERVATORY** — Complete days only — 1964

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
	microgrammes per cubic metre																									
Jan.	150	120	100	90	80	80	80	100	140	170	200	210	200	190	200	190	190	230	250	250	240	230	210	190	170	31
Feb.	150	130	100	80	70	70	70	100	130	140	150	150	140	110	100	90	110	150	180	190	210	210	200	170	130	29
Mar.	50	50	50	50	50	50	50	70	70	80	80	70	70	70	70	70	80	90	100	100	110	100	80	70	70	30
Apr.	40	30	30	30	30	30	40	50	50	50	40	40	30	30	30	30	30	40	50	60	60	70	60	50	40	30
May	20	20	20	20	20	30	30	40	30	30	30	20	20	20	30	30	30	30	30	30	30	40	30	30	30	31
June	20	20	20	20	20	20	30	30	30	30	30	20	20	20	20	20	20	20	20	20	30	30	30	30	20	30
July	20	20	20	20	20	20	20	30	30	30	20	20	20	20	20	10	20	20	20	20	20	30	30	30	20	31
Aug.	20	20	20	20	20	30	40	50	40	30	20	20	20	10	20	20	20	10	20	20	20	30	30	30	20	31
Sept.	40	40	40	40	30	40	50	70	70	60	50	30	30	30	30	30	30	30	40	50	50	50	50	40	40	30
Oct.	120	110	100	90	90	80	90	100	120	130	110	80	60	50	50	60	80	110	140	160	160	150	140	130	100	29
Nov.	100	80	60	60	50	50	50	60	80	80	90	90	90	90	80	100	120	150	160	170	170	160	130	110	100	29
Dec.	90	90	80	70	60	50	60	70	100	120	130	120	110	110	110	120	120	130	140	140	140	130	130	110	110	29
Year	70	60	50	50	50	50	50	60	70	80	80	70	70	60	60	60	70	80	100	100	100	100	90	80	70	360
Winter	120	110	90	70	70	60	70	80	110	130	140	140	130	130	120	130	130	170	180	190	190	180	170	150	130	118
Spring	50	40	40	40	40	40	50	60	60	70	60	50	50	50	50	50	50	70	70	80	90	90	70	60	60	60
Autumn	80	70	70	70	60	60	70	90	90	90	80	50	50	40	40	50	50	70	90	110	110	100	90	90	70	59
Summer	20	20	20	20	20	30	30	40	30	30	30	20	20	20	20	20	20	20	20	20	30	30	30	30	20	123

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