

AIR MINISTRY
METEOROLOGICAL OFFICE

THE
OBSERVATORIES'
YEAR BOOK

1959

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

LONDON: HER MAJESTY'S STATIONERY OFFICE
1961

Universal Decimal Classification

550.38(058)

551.506.1

551.510.42(058)

551.594(058)

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 terrestrial magnetism.

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 terrestrial magnetism and atmospheric electricity tables; full details of the new tables are given in the Introduction to this volume.

Because of the importance of the observations made during the period of the International Geophysical Year the volumes for the years 1957 and 1958 were actually published before several earlier volumes.

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 to the Director-General, Meteorological Office, London Road, Bracknell, Berkshire.

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 (the last named from May, 1958). Daily measurements of evaporation (from April, 1958) and atmospheric pollution. Routine radio sonde and radar wind upper air measurements (twice and four times daily respectively). Regular measurements, normally several times a day, of the total amount of ozone. Chemical sampling of the air and rain water (from January, 1958).

Eskdalemuir Observatory

Full hourly synoptic observations 06-21h. G.M.T. (Three-hourly 06-21h. G.M.T. before May, 1958). 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 (the last from May, 1958). Daily measurements of evaporation (from October, 1957), atmospheric pollution and soil temperatures (at depths of 30 and 122cm.). Regular measurements, several times a day, of the total amount of ozone and occasional *umkehr* measurements of the vertical distribution. Chemical sampling of the air and rain water (from October, 1957). Sampling for radioactivity of particulate matter in the air near the surface.

Kew Observatory

Three-hourly synoptic observations 06-21h. 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, net flux of radiation. Daily measurements of evaporation, atmospheric pollution and soil temperatures (at depths of 10, 20, 30 and 122cm.). Records from a set of Galitzin seismographs (3 components) and a short period vertical seismograph.

CONTENTS

	PAGE
Preface	iii
Errata in previous volumes	vi
Introduction	3

LERWICK OBSERVATORY

Terrestrial magnetism

TABLES

1	Hourly values of horizontal component; hourly, daily and monthly sums and means	22
2	Hourly values of declination; hourly, daily and monthly sums and means	22
3	Hourly values of vertical component; hourly, daily and monthly sums and means	23
4	Daily extremes of magnetic elements, magnetic character figures (K and C) and temperature in magnet house	23
5	Mean monthly and annual values of magnetic elements	46
6	Monthly, seasonal and annual means of daily range	46
7	Frequency distribution of daily range	46
8	Diurnal inequalities of the magnetic elements, all days; monthly, seasonal and annual means	47
9	Diurnal inequalities of the magnetic elements, international quiet days; monthly, seasonal and annual means	48
10	Diurnal inequalities of the magnetic elements, international disturbed days; monthly, seasonal and annual means	49
11	Range of mean diurnal inequalities for the months, seasons and year	50
12	Average departure of diurnal inequalities from daily mean	50
13	Monthly, seasonal and annual values of non-cyclic changes of horizontal component, declination and vertical component	50
14	Average range of diurnal inequality 1932-53 with 1959 as a percentage of this	50
15	Ratio of range of inequality at Lerwick to that at Eskdalemuir	50
16	Noteworthy magnetic disturbances recorded at Lerwick	51

Aurora

17	Auroral log	53
18	General auroral table - British Isles	55

Atmospheric Electricity

19	Hourly values of potential gradient, reduced to open-level surface; hourly, daily, monthly and annual means	56
20	Electrical character of each day and approximate duration of negative potential gradient	62

ESKDALEMUIR OBSERVATORY

Terrestrial magnetism

21	Hourly values of horizontal component; hourly, daily and monthly sums and means	64
22	Hourly values of declination; hourly, daily and monthly sums and means	64
23	Hourly values of vertical component; hourly, daily and monthly sums and means	65
24	Daily extremes of magnetic elements, magnetic character figures (K and C) and temperature in magnet house	65
25	Mean monthly and annual values of magnetic elements	88
26	Monthly, seasonal and annual means of daily range	88
27	Frequency distribution of daily range	88
28	Diurnal inequalities of the geographical components of magnetic force, all days; hourly, seasonal and annual means	89

ESKDALEMUIR OBSERVATORY - *continued*

TABLES	PAGE
29 Diurnal inequalities of the magnetic elements, all days; hourly, seasonal and annual means	90
30 Diurnal inequalities of the geographical components, international quiet days; hourly, seasonal and annual means	91
31 Diurnal inequalities of the magnetic elements, international quiet days; hourly, seasonal and annual means	92
32 Diurnal inequalities of the geographical components, international disturbed days; hourly, seasonal and annual means	93
33 Diurnal inequalities of the magnetic elements, international disturbed days; hourly, seasonal and annual means	94
34 Range of mean diurnal inequalities for the months, seasons and year	95
35 Monthly, seasonal and annual values of non-cyclic changes of horizontal component, declination and vertical component	95
36 Average range of diurnal inequality 1932-53 with 1959 as a percentage of this	95
37 Harmonic components of the diurnal inequality of magnetic force	96
38 Noteworthy magnetic disturbances recorded at Eskdalemuir	97

Atmospheric electricity

39 Hourly values of potential gradient, reduced to open-level surface; hourly, daily, monthly and annual means	100
40 Electrical character of each day and approximate duration of negative potential gradient	106

KEW OBSERVATORY

Atmospheric electricity

41 Hourly values of potential gradient, reduced to open-level surface; hourly, daily, monthly and annual means	108
42 Electrical character of each day and approximate duration of negative potential gradient	114
43 Values of potential gradient, air-earth current and conductivity measured by the Wilson apparatus together with monthly and annual means	115

Atmospheric pollution

44 Monthly, seasonal and annual means for each hour	116
---	-----

ERRATA IN PREVIOUS VOLUMES

Kew Observatory

All the absolute electrical observations in the underground chamber by the Wilson method since 1930 have been of potential gradient and air-earth current, from which the conductivity due to positive ions has been derived. Most headings of the contents of this table in previous volumes of the *Observatories' Year Book* have wrongly included the term "ionic charges". These have, in fact, not been measured as routine at Kew since the Ebert apparatus was dismantled in 1929. (See *Observatories' Year Book*, 1930, p.352).

Observatories' Year Book, 1957

Page 5, para. 6, line 6. For "H" read "Z"

ERRATA IN PREVIOUS VOLUMES-*continued**Observatories' Year Book, 1957*

Page 61. Delete footnote and replace by "The potential gradient is reckoned as positive when the potential increases upwards. The symbol Z indicates either that the trace fluctuates rapidly so that estimation of a mean value is impracticable, or that the trace is limited by the range of the instrument (see Introduction); and the suffix +, - or \pm indicates that the mean value is plainly positive, plainly negative, or indeterminate in sign. The occurrence of precipitation of any sort is indicated by an asterisk. Round brackets round any hourly mean indicates that the record during that hour is somehow imperfect."

Observatories' Year Book, 1958

Preface, para. 3, line 2. For "this volume" read "the volume for 1957"

Page 4, para. 4, last line. For "vertical" read "virtual"

Page 5, para. 3, line 6. For "H" read "Z"

Page 10, last para., line 2. For "indicator" read "inductor"

Page 15, para. 1, line 3. For "12 and 20 volts" read "17 and 19 volts"

Page 59, last col., 5th December. Entry should read "Variable cloud, soon beoming cloudy"

OBSERVATORIES' YEAR BOOK, 1959

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 M.S.L. and about 2½ km. to the south-west of the small fishing town of Lerwick (population about 6000). The surrounding country is desolate moorland. Views of the station are given in Figs.2 and 4 together with a contoured map of the surroundings, Fig.1, and a site plan, Fig.3 in the *Observatories' Year Book* for 1938. An account of the history of the Observatory is given by W.G. Harper (*Met. Mag.*, London, 79, 1950, p.309).

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

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

In the *Observatories' Year Book* for 1938 a general view of the Observatory and its grounds is given in Fig.12; Fig.13 is a site plan and Fig.11 is a contoured map of the surrounding country. The history of the Observatory is described by M.J. Blackwell in a paper marking the fiftieth anniversary of the commencement of observations (*Met. Mag.*, London, 87, 1958, p.129), and by J. Crichton (*Met. Mag.*, London, 79, 1950, p.337).

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

Kew Observatory lies in the centre of an area of parkland about 16 km. west of the centre of London. The ground level is about 5 m. above M.S.L. 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.

Figs.18, 19, 20 and 21 in the 1938 *Observatories' Year Book* are respectively a plan of the surrounding country (shading indicates built-up areas), an aerial photograph of the Observatory, a site plan and a photograph of the Observatory and instrument lawn.

For the early history of the Observatory reference may be made to papers by G. Rigaud¹, R.H. Scott², C. Chree³, O.J.R. Howarth⁴, R.S. Whipple⁵, F.J.W. Whipple⁶ and A.J. Drummond⁷.

Fuller descriptions of the sites of each observatory are given in the 1938 volume of the *Observatories' Year Book* (Lerwick, p.14, Eskdalemuir, p. 84, Kew, p.168).

-
- 1 RIGAUD, G.; Dr. DEMAINBRAY and the King's Observatory at Kew. *Observatory, London*, 5, 1882, p.279.
 - 2 SCOTT, R.H.; The history of the Kew Observatory. *Proc. roy. Soc. London*, 39, 1885, p.37.
 - 3 CHREE, C.; Description of the Kew Observatory, Old Deer Park, Richmond, Surrey. *Rec. roy. Soc.*, London, 1st. edn., 1897, p.137.
 - 4 HOWARTH, O.J.R.; The British Association for the Advancement of Science: a retrospect 1831-1921. London, 1922.
 - 5 WHIPPLE, R.S.; An old catalogue and what it tells us of the scientific instruments and curios collected by Queen Charlotte and King George III. *Proc. opt. Conv.*, London, Pt. II, 1926.
 - 6 WHIPPLE, F.J.W.; Some aspects of the early history of Kew Observatory. *Quart. J.R. met. Soc.*, London, 63, 1937, p.127.
 - 7 DRUMMOND, A.J.; Kew Observatory. *Weather London*, 1947, p.69.

TERRESTRIAL MAGNETISM

Regular recording of the earth's magnetic 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 magnetic disturbance that it was decided to establish another magnetic observatory in an area considered unlikely to be similarly affected. This led to the building of Eskdalemuir Observatory which was opened in 1908, but magnetic observations were also continued at Kew up to 1924.

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

The principal magnetographs at Lerwick and Eskdalemuir are La Cour instruments, each set consisting of H , D and Z variometers. The H and D magnets are about 1 cm. long and each is supported by a single quartz fibre. The Z magnet is larger: it is supported by knife-edges resting on agates and is enclosed in a sealed vessel. Detailed descriptions of these variometers are given in publications of the Danish Meteorological Institute *Communications Magnétiques*, No.11 (for H) and No.8 (for Z) and in *Observations Faites à Thule: Première Partie: Magnétisme Terrestre* (for D).

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

Scale values of H and Z are measured by passing a current through Helmholtz-Gaugain coils placed over the variometers, the resulting deflections being recorded on the photographic paper. The current is measured by a milliammeter which is periodically calibrated. It is thought that the scale values adopted, about $4\gamma/\text{mm}$. for H and about $6\gamma/\text{mm}$. for Z at both Observatories, are accurate to about 1 per cent. The scale value of D depends on the geometry of the system, with a small correction for torsion, but it may also be checked by means of a Helmholtz-Gaugain coil. It is about $1'/\text{mm}$. The H and Z variometers are capable of accurate compensation for temperature.

In addition to the La Cour standard magnetograph each Observatory also has a La Cour quick run magnetograph. This is similar to the standard set but has a time scale twelve times as great and a more complicated optical system.

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

The magnetograph house 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. and the walls are 76 cm. thick. In 1947 an electric heater was installed, controlled by a thermostat. This enables the temperature to be kept reasonably constant for periods of up to a few months at a time but the power is insufficient to maintain the same temperature throughout the year. The thermostat is re-set by several degrees at a time, so as to reduce the number of changes to a minimum. The time for a cycle of temperature 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 one degree Celsius. The supplementary magnetographs are housed in a wooden hut.

At Eskdalemuir the magnetographs are placed in an underground chamber 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 ceilings of the rooms are slightly below the undisturbed level of the surrounding ground. The roof portion of the outer containing shell is covered with a thick layer of earth which forms a mound. 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°C.

The temperature in the magnetograph house at both Lerwick and Eskdalemuir is read daily at 09h. and the readings are given in Table 4 (for Lerwick) and Table 24 (for Eskdalemuir).

Absolute measurements of each element of the magnetic field are made three times weekly and from these the base line values of the magnetograms are computed, using the mean ordinate of the variometer curve at the times of the absolute observation. The adopted values of the baseline are obtained by a graphical smoothing process. Normally one value is adopted for the whole of one day (0-24h. G.M.T.) except for known instrumental discontinuities, but at Lerwick the temperature compensation of the Z variometer is not quite perfect and a baseline change of 2 or 3 γ may occur when the room thermostat is altered. Since the magnetograph record shows that the temperature change is substantially complete in 24 hours, the adopted base line is on these occasions changed in 1 γ steps at eight or twelve hourly intervals.

TABULATIONS

Tables 1 and 21 give, for Lerwick and Eskdalemuir respectively, mean values of the horizontal component (H) of magnetic 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 22 give similar information for declination (D) and Tables 3 and 23 for the vertical component (Z). Tables 4 and 24 contain the values of the daily extremes of each component, the range during the day and the magnetic character figures K and C , together with the 09h. temperature in the magnetograph house.

Tables 1-4 are subdivided into monthly sections and the same monthly parts of each table are grouped together on facing pages. Tables 21-24 are treated similarly. The days selected by the International Association of Geomagnetism and Aeronomy (I.A.G.A.) 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 16 and 38 entitled "Noteworthy Magnetic 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 I.A.G.A.

The magnetic character figures K and C are derived in the conventional way (see for example, *I.G.Y. Instruction Manual Part IV Geomagnetism - Part I*). The lower limit for $K = 9$ is 1000 γ for Lerwick and 750 γ for Eskdalemuir.

Tables 5 (for Lerwick) and 25 (for Eskdalemuir) give the mean monthly and annual values of the magnetic 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.

Tables 6 and 7 (for Lerwick) and 26 and 27 (for Eskdalemuir) give monthly, seasonal and annual means and frequency distributions of the daily range for each component (H , D and Z). For this purpose "Winter" is defined as the four months November to February; "Equinox" as March, April, September and October; "Summer" as May to August.

Q indices which were derived for Lerwick and Eskdalemuir for the I.G.Y. period July 1, 1957 to December 31, 1958 (see *Observatories' Year Books* for 1957 and 1958) are no longer measured.

The next set of tables (8-15 for Lerwick and 28-36 for Eskdalemuir) gives data on the diurnal inequalities of each magnetic 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 13 and 35.

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 25.

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 37, in which are given the values of a_n , b_n , c_n and α_n in the two equivalent series $\sum (a_n \cos 15nt^\circ + b_n \sin 15nt^\circ)$ and $\sum c_n \sin(15\tau t^\circ + \alpha_n)$. 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 28-33 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 0.1 γ .

Tables 16 and 38 are entitled "Noteworthy Magnetic 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 I.A.G.A. 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 disturbances at one of the stations is relatively small.

The details of irregular changes in declination at Eskdalemuir which previously were given (for example, see Tables 40 and 41 of 1958 *Observatories' Year Book*) were prepared for the benefit of mine surveyors but were no longer required by them after 1958 and have therefore been omitted.

NOTES ON THE RESULTS

Comparing mean values on all days of 1959 with those of 1958 at Lerwick H increased by 16γ , D (west) decreased by $5'$ and Z increased by 30γ . The changes deduced in X , Y , I and F are $+19\gamma$, -15γ , -0.4 and $+33\gamma$. The ranges between the extreme values recorded during 1959 were H 3498γ , D $6^{\circ}25.7$ and Z 1959γ . The range of $6^{\circ}25.7$ in declination corresponded to a range of 1628γ in the component of force perpendicular to the magnetic meridian.

Similarly at Eskdalemuir H increased by 23γ , D (west) decreased by $6'$, and Z increased by 25γ . The changes deduced in X , Y , I and F are $+28\gamma$, -23γ , -0.9 and $+31\gamma$. The ranges between the extreme values recorded during 1959 were H 4102γ , D $4^{\circ}24.3$ and Z 1469γ . The range of $4^{\circ}24.3$ in declination corresponded to a range of 1287γ in the component of force perpendicular to the magnetic meridian.

ABSOLUTE STANDARDS OF MAGNETIC FORCE AT LERWICK AND ESKDALEMUIR

Vertical Component

The standard instrument in use at Lerwick from 1940 to 1952 was the Copenhagen Balance Magnetometer B.M. No.8 and a detailed account of its history up to 1947 is given in the 1938 *Observatories' Year Book* (p.20). Difficulties with its clamping mechanism were however often experienced and in 1952 the mechanism was unfortunately broken. Upon the advice of the Observatory at Rude-Skov it was replaced with a modern instrument, B.M.Z. No.83, in 1953. Since that date B.M.Z. No.83 has been used as the Lerwick standard using the original Rude-Skov calibration.

B.M.Z. No.83, on its arrival in 1953, was found to give close agreement with the existing Z standard which had been carried over from B.M. No.8, by the use of the Eskdalemuir B.M.Z. No.35 in the interim period.

On November 24, 1957, the instrument suffered an accidental knock and its readings immediately afterwards were found to be 150γ lower than previously. On September 28, 1958, the instrument suffered a further slight jar and a further change in reading was found; the 150γ correction now became 126γ . These additive corrections have been applied to the observed readings since the appropriate dates.

The standard absolute instrument for determining vertical force at Eskdalemuir is a Schulze dip inductor. This instrument measures the inclination of the magnetic field and this has to be used in conjunction with measurements of H (from the magnetograph records) to calculate Z using the relation:-

$$Z = H \tan I$$

It consists essentially of a coil which can be rotated continuously and rapidly about an axis which coincides with a diameter of the coil. This axis is itself capable of rotation about other horizontal and vertical axes, so that it can be set in any required direction in space; the azimuth and inclination of the coil axis can be read from horizontal and vertical scales respectively. The windings of the coil are connected through a commutator to a Broca galvanometer.

To determine the magnetic inclination the coil is set with its axis in the magnetic meridian (as determined by other means) and the coil rotated steadily (about 360 rev./min.). The inclination of the axis of rotation is adjusted until the galvanometer deflection is the same whatever the sense of rotation. In this position the axis of rotation of the coil is parallel to the direction of the earth's total field and the inclination can be read from the vertical circle.

Two series of settings are normally made, one with the vertical circle facing east and one with the circle facing west.

Measurements are also made regularly with a Copenhagen Balance Magnetometer B.M.Z. No.35. The results with this type of instrument have less scatter than those of the dip inductor, but its constants are liable to change (either by slow drift or sudden jump). Consequently B.M.Z. No.35 is used to identify and measure changes in the Z baseline, while the absolute value is determined by the long term measurements with the dip inductor.

Details of various inter-Observatory comparisons using a B.M.Z. as an intermediary instrument were given in the Introduction to the 1958 *Observatories' Year Book*. These however were not very satisfactory because of the liability of the B.M.Z. to changes in calibration.

During 1960 proton (sometimes called nuclear) precession magnetometers were installed at Lerwick and Eskdalemuir. The principle of these instruments has been described by Packard and Varian⁽¹⁾ and Waters and Francis⁽²⁾.

They enable the free precession frequency (f) of the proton to be measured; this is related to the total magnetic field F at the proton sample by the relation

$$f = \frac{\gamma_p F}{2\pi}$$

where f is in cycles per second and γ_p is the gyromagnetic ratio of the proton. The value adopted for γ_p is 2.67513×10^4 radians gauss⁻¹ sec⁻¹⁽⁵⁾; this is the value as measured by Driscoll and Bender^(3,4) and recommended provisionally at the meeting of the International Association of Geomagnetism and Aeronomy in Helsinki in 1960⁽⁵⁾.

The proton sample used at Lerwick and Eskdalemuir is distilled water contained in a polythene bottle placed on the axis of a solenoid. This solenoid serves firstly to provide a strong polarising field and then as a pick-up coil to detect the small precession signal. After amplification the signal is passed to a counter unit to enable its periodicity to be determined. This is done by measuring the time, in units of 10 microseconds, for a given number of cycles of precession. Usually 2048 cycles are counted; this gives an accuracy of 1 part in 10^5 (or 0.5%) when measuring the total field or the vertical component in the British Isles, because the value of f for these fields is close to 2000 cycles per second and the counting time is therefore about one second.

(1) PACKARD, M. and VARIAN, R.; Free nuclear induction in the Earth's magnetic field. *Phys. Rev.*, 93, p.941, 1954.

(2) WATERS, G.S. and FRANCIS, P.D.; A nuclear magnetometer. *J. Sci. Instr.*, 35, pp.88-93, 1958.

(3) DRISCOLL, R.L. and BENDER, P.L.; Proton gyromagnetic ratio, *Phys. Rev. Letters*, 1, pp.413-414, 1958.

(4) BENDER, P.L. and DRISCOLL, R.L.; A free precession determination of the proton gyromagnetic ratio. *I.R.E. Trans. on Instrumentation*, 1-7, pp.176-180, 1958.

(5) NELSON, J.H.; The gyromagnetic ratio of the proton. *J. Atmosph. Terr. Phys.*, 19, p.292, 1960.

The amplifier unit used must be placed within about 8 m. of the pick-up coil to avoid excessive attenuation in the precession signal but a careful investigation of the field due to this amplifier was made, and at the distances finally used (about 5.5 m. at Lerwick and 6.1 m. at Eskdalemuir) the effect of the disturbing field at the coil was completely negligible ($<0.1\gamma$). The power supplies and counter unit were placed at a great distance (at Eskdalemuir in the main office building, 230 m. away; at Lerwick in the East hut, 100 m. away). It was also proved by experiment that there was no magnetic effect associated with the pick-up coil.

The instruments have been used initially to measure the total field F , and from that to deduce the vertical component assuming the Observatory H record is correct. The equation used is

$$Z = \sqrt{F^2 - H^2}$$

and it is easily shown that the error ΔZ in Z caused by an error ΔH in the H measurements is given by

$$\Delta Z = -\left(\frac{H}{Z}\right)\Delta H$$

The ratio (H/Z) at Eskdalemuir and Lerwick is about $\frac{1}{3}$. Since we believe that the systematic errors in H do not exceed 6γ (and may well be much less) the corresponding error in Z is small (2γ or less). The 1960 comparison over a period of two months (May-June, Eskdalemuir; June-July Lerwick) of the proton magnetometer Z values (denoted here by Z_{pm}) with the Z values obtained by using the Schulze dip inductor (Eskdalemuir, denoted here Z_{DIP}) and B.M.Z.83 (Lerwick) yield the following mean results.

Eskdalemuir

$$Z_{\text{pm}} - Z_{\text{DIP}} = 0\gamma$$

Lerwick

$$Z_{\text{pm}} - Z_{\text{BMZ83}} = -8.5\gamma$$

As a test before installation at Eskdalemuir and Lerwick the proton magnetometer was taken to Hartland in April 1960. The total field as measured with this instrument was compared with the total field as computed from measurements with Hartland H and Z standard instruments (Schuster-Smith and Dye coils respectively). The mean result obtained (after testing of the instrument, one day only was available for measurement but it was magnetically quiet) was as follows:-

$$F_{\text{pm}} - F_{\text{Hartland}} = 5\gamma$$

An upper limit to the magnitude of the random errors of the proton magnetometer can be estimated from the constancy of the Z baseline measurements. Over a period of two months at Lerwick comprising observations on 33 days the standard deviation of a single observed Z baseline about a mean value was 1.7γ . This of course includes the variability of both the Z and H baselines of the variometers and the errors in reading two sets of ordinates from the charts; the effect of these cannot be estimated accurately but must certainly account for the greater part of the observed variability of the baseline measurements. It is seen that the random error of the proton magnetometer appears to be limited solely by the short term random error of the frequency measuring apparatus (1 part in 10^5 , as mentioned earlier).

The instrument is now being developed further into a proton vector magnetometer, by the construction of a Helmholtz-Gaugain coil system at the centre of which the water bottle is placed. The final form of this will enable the coils to be rotated about a horizontal axis through the centre of the coil system and perpendicular to the main axis. In this way an artificial magnetic field of adjustable magnitude and direction can be created at the bottle, and in particular it can be arranged that either the horizontal or the vertical

component can be exactly cancelled. In these cases the proton magnetometer will then measure the remaining field, that is, either the vertical or horizontal component respectively.

A full description of this instrument and the results obtained will be given in a later volume of the *Observatories' Year Book* but results have been obtained at Eskdalemuir with an experimental instrument which had only a fixed Helmholtz-Gaugain coil with a horizontal axis. This could be used for measuring Z directly; over a period of three months the difference between Z as measured directly by the proton magnetometer (Z_{pvm}) and Z as measured using the total field measurement in conjunction with the Eskdalemuir H standard (Z_{pm}) was zero within a probable error of 1γ ; that is,

$$Z_{pvm} = Z_{pm} \pm 1\gamma$$

The first proton magnetometer (and proton vector magnetometer) measurements at Eskdalemuir thus do not confirm the tentative suggestion (at the top of p.12 in the 1958 *Observatories' Year Book*) that there was an error of some $14-16\gamma$ in the Eskdalemuir Z measurements, possibly caused by an error of 6γ in the H measurements. The interpretation of the previous comparisons with Hartland and Abinger must be that the B.M.Z. is not a suitable instrument to use when the accuracy desired is of the order $1-2\gamma$.

It is seen that the difference (Eskdalemuir Z - Lerwick Z) in 1960 was in fact -8.5γ . When this is compared with the first table on p.11 of the 1958 *Observatories' Year Book* the unreliability of B.M.Z. comparison is again suggested.

It seems probable that the proton vector magnetometer will be designated the standard absolute instrument at Lerwick and Eskdalemuir; the decision as to what, if any, discontinuities in the magnetic field measurements this will involve and the exact relation between the Eskdalemuir and Lerwick Z standard on the one hand and the Hartland Z standard on the other will be made later after full trials of the instrument.

Horizontal Component

Since January 1, 1934, the standard absolute instrument for the measurement of the horizontal component at Eskdalemuir has been a Schuster-Smith coil magnetometer. A complete description of this instrument and of the method of using it is given in the *Philosophical Transactions of the Royal Society*, A.223, 1922, p.175. Essentially the instrument consists of a Helmholtz-Gaugain system of two coils of wire accurately wound on a hollow marble cylinder, and a small magnet suspended at the centre of the coil system. Current from a 100 volt storage battery (kept solely for this purpose) can be passed through the coils and can be very accurately adjusted to a series of known values by means of a potentiometer and a standard cell. A horizontal magnetic field is set up at the centre of the coil, of a magnitude slightly greater than H and approximately opposed to it in direction. The coil is then rotated in azimuth until the resultant horizontal field, as indicated by the alignment of the small magnet at the centre, is found to be exactly at right angles to the earth's field. In this position, if α is the angle between the direction of the earth's field and that set up by the coil system, A the constant of the coil (that is, the field due to unit current through the coil) and i the current, then

$$H = Ai \cos \alpha$$

Since 1939 at Lerwick the standard instrument has been a Smith portable coil magnetometer reconstructed to operate as a Schuster-Smith instrument.

In addition, three Copenhagen Quartz Horizontal Magnetometer instruments (Q.H.M's) are available for intercomparison of the H standards at each Observatory and for use as standby absolute instruments.

The coil constant of the Eskdalemuir Schuster-Smith instrument was obtained by a direct comparison with the original instrument of this type at Abinger. Its potentiometer was calibrated at the National Physical Laboratory in 1933 and again in 1938 and 1953. The recalibrations showed negligible change in the resistances.

The constant of the Lerwick coil instrument was determined in 1932 by comparison with the Schuster-Smith coil at Abinger and this constant has since been used unchanged. During the magnetometer's modification to act as a Schuster-Smith instrument, however, a small amount of magnetic material was removed from near the suspended magnet. A comparison with the Schuster-Smith magnetometer at Eskdalemuir then showed that the Lerwick instrument read 13γ low. This was generally confirmed when it was installed at Lerwick in 1939 as it then gave results 11γ below those obtained with the unifilar magnetometer currently in use as a standard. It was decided that the Lerwick standard of H should be (Coil values + 11γ) and there was no discontinuity in the published values of H , the term "Coil value" meaning the results obtained using the original value of the coil constant as determined in 1932.

However, in 1946 comparisons between Lerwick and Abinger using Q.H.M. No.89 indicated that the Lerwick Coil Magnetometer (uncorrected by any addition) gave results which were only 5γ lower than the Abinger Schuster-Smith Coil; that is, values of H according to the Lerwick standard (Coil value + 11γ) were 6γ greater than the values given by the Abinger standard.

In 1947 it seemed desirable to assimilate the standard of H at Lerwick to that at Abinger so that the revised H standard at Lerwick became (Coil value + 5γ). This assimilation was back-dated to January 1, 1934; where necessary, corrections have been published (see, for example, 1938 *Observatories' Year Book*, p.21).

The potentiometer in use with the Coil magnetometer had been calibrated at the National Physical Laboratory in 1938 and this was sent for recalibration in 1953. It was then found that the resistances had changed slightly and that the effect of this, when the new values were used, was to lower the values of H observed by 7γ . The time of this change could not be identified with certainty and it was decided that no discontinuity should be introduced and that the Lerwick H standard should be altered from June 1, 1953 to (Coil value + 12γ), using the new calibration of the potentiometer. Although this avoided a discontinuity, it established a new standard for H at Lerwick which was 7γ higher than the Abinger standard.

Comparisons were made fairly frequently between 1948 and 1957 between Lerwick and Eskdalemuir using Q.H.Ms, but it was found that reliable results (to an accuracy of 1 or 2γ) could not be obtained by using only one Q.H.M. or by using Q.H.Ms sent through the post. It has been found necessary to use at least three instruments, carried personally by a responsible person, with comparisons at one station made both immediately before and immediately after the travelling.

The results of what appear to be the most reliable comparisons between Lerwick and Eskdalemuir Coil instruments are given below, (the figure for the Lerwick Coil is that obtained from the use of the original coil constant without the addition of any constant factor and using the 1938 potentiometer calibration up to 1953 and the 1953 potentiometer calibration after that).

Date	Instruments used for comparison	Difference Eskdalemuir H - Lerwick H^*
Dec. 1938	Direct	γ +13
Sept. 1946	Q.H.M. 89	+11
Apr. 1948	Q.H.M. 89	+13.5
June-Sept. 1950	Q.H.M. 90, 91, 92	+12
May-June 1957	Q.H.M. 119A, 120, 121A	+15
Apr. 1959	Q.H.M. 119A, 120, 121A	+11
June 1960	Q.H.M. 119A, 120	+14

*uncorrected coil values.

This evidence suggests that there has been no detectable change in the relationship between the two coils and suggests also that the change in the Lerwick potentiometer resistances occurred between 1950 and the recalibration in 1953, and that the standards currently in use at the two Observatories are in good agreement.

Comparisons between the H standards at Eskdalemuir and Abinger (1954 and earlier) and between Eskdalemuir and Hartland (1959) are given below. The table shows the difference Eskdalemuir minus Abinger (or Hartland). The comparison in 1933 has however a much higher probable error than the later observations.

Date	Instruments used for comparison	Difference Eskdalemuir H - Abinger H or Hartland
Dec. 1930	Direct at Abinger	γ 0
Jan. 1933	Travelling Kew instrument	-5
Sept. 1946	Q.H.M. 89	+6
Apr. 1948	Q.H.M. 89	+6
May-Nov. 1950	Q.H.M. 91, 92	+10
July 1954	Q.H.M. 120	+5
May 1959	Q.H.M. 119A, 120, 477, 478, 479	+4
Apr. 1960	Q.H.M. 119A, 120	+6

There is therefore no reliable evidence of a change in the relationship between the Eskdalemuir and Abinger/Hartland Schuster-Smith coil instruments over the last 13 years at least, although a change of some 6γ is indicated following the installation of the coil instrument at Eskdalemuir. When compared with the results shown for the comparison between Lerwick and Eskdalemuir, these seem to indicate that all three coil instruments have remained in a very constant relationship to each other over the past 13 years and possibly therefore since they were installed in their respective Observatories. There remains, however, the difference of some 6γ between Abinger (and later Hartland) H standard on the one hand, and Lerwick and Eskdalemuir H standards on the other.

Further evidence about the accuracy of the Eskdalemuir H standard can be obtained from the preliminary measurements made by the proton magnetometer mentioned above. From the measurements of Z_{pvm} and the total field F it is possible to calculate H by means of the equation

$$H = \sqrt{F^2 - Z^2}$$

The results show that the two ways of measuring H agree within a probable error of $\pm 3\gamma$; that is,

$$H_{\text{Esk}} = H_{\text{pm}} \pm 3\gamma$$

The improved Helmholtz-Gaugain system to enable H to be measured directly should enable more precision to be obtained.

These preliminary proton magnetometer and proton vector magnetometer measurements do not confirm the tentative suggestion on p.12 of the 1958 *Observatories' Year Book* that the Eskdalemuir Schuster-Smith coil reads 6γ high.

Declination

The declination is measured at each Observatory by a Kew pattern unifilar magnetometer. The azimuths of both the fixed marks were remeasured by the Ordnance Survey in 1948 and since that date the values then obtained have been used.

The 1948 determination of the azimuth of the Lerwick fixed mark confirmed that the azimuth in use up to that time (based on a determination in October 1922) was in error. From a survey of the results obtained from five determinations made at intervals from 1923 to 1948 it was concluded that (i) the original determination was in error by about $3\frac{1}{2}'$ and (ii) an apparently

uniform small drift of about 1' occurred between 1923 and 1948. Values of westerly declination published previous to 1948 are too large by amounts ranging from 3.5 in 1923 to 4.4 in 1948. The corrections for 1938 and previous years are given in the 1938 *Observatories' Year Book* (p.21) and for subsequent years in succeeding volumes. Since 1948 the correct fixed mark azimuth has been used and no corrections to the tabulated values are required.

The observation 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.

AURORA

A special watch for Aurora is kept at Lerwick Observatory. Up to 2200hr. each evening observations of the northern horizon and general meteorological conditions are made at intervals of 15 to 20 minutes; if any aurorae are seen continuous observations are made and details of the phenomena observed are noted. If necessary a second observer is called. Elevations of significant points are measured with a simple alidade.

Any aurorae which commence after 2200hr. are also noted by the staff making regular synoptic observations and upper air soundings, but these staff may not be able to devote long periods solely to recording the detailed aurorae changes. It should be noted that in former years the auroral watch was suspended during the months May to August. During 1957 and 1958 however, because of the I.G.Y., the watch was continued throughout this period although it was realised that twilight would prevent aurorae being seen for a number of weeks during mid-summer, and would in the other months severely restrict the time during which faint aurorae could be seen.

A brief account of the results obtained is given in Table 17. All dates, on which the sky remained completely overcast throughout the evening and on which, therefore, no opportunity arose of determining whether or not aurora occurred, have been omitted. Those nights on which aurora was actually observed are indicated by the symbol Φ ; other nights on which no aurora was observed, despite at least an occasional interval of more or less clear sky, are indicated by the symbol \dots . In the latter case also, remarks on the weather are added to assist the reader in judging how far the fact of no observation of aurora may be taken as showing that, in fact, there was no aurora. Each night is described by a letter code which has the following significance:-

- a = Conditions favourable for seeing aurora
 - b = Unfavourable for faint aurora (because of moonlight, mist, thin cloud etc.), but not such as to mask bright aurora
 - c = Cloudy, but aurora not seen in clear intervals
 - ca,cb = Cloudy, but with conditions a or b respectively, in the intervals.
- Changing conditions are indicated by a hyphen; for example a-c.

The detailed observations are available in manuscript and have also been sent to Mr. J. Paton of the Balfour Stewart Auroral Laboratory, University of Edinburgh [I.G.Y. World Data Centre C (Visual observations)].

Table 18 is a general auroral table giving a summary of the observations of aurorae in the British Isles. It is compiled from the detailed observations received at the Balfour Stewart Auroral Laboratory. A detailed examination of the tables for 1957 and 1958 has been made by B. McInnes and K.A. Robertson in a paper published in the *Journal of Atmospheric and Terrestrial Physics*, 19, 1960, p.115.

ATMOSPHERIC ELECTRICITY

The programme at Lerwick and Eskdalemuir is to maintain a continuous record of atmospheric electric potential gradient as it exists over open level country in the immediate

neighbourhood at the height of one metre. This is also done at Kew Observatory but there, in addition, regular measurements are made on fine afternoons of the air-earth current. 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 Potential Gradient measurements

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 is caused to take up the potential of the air because a small radioactive collector is fitted to its tip. The potential of the boom is recorded by an electrostatic voltmeter.

The collectors are of polonium deposited on a copper rod about 4 cm. long by 0.5 cm. diameter; these are recoated periodically by arrangement with the Government Chemist and a fresh collector is brought into use 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, although it is assumed that this potential is always proportional to the potential gradient in the open. Standardising 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 methods of making the standardisation 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 observed at 1 minute intervals for a period of 10-20 minutes using a Wulf electrometer, the times of observation being chosen to coincide with the minute dots on the electrograph. From the mean value of the observed potential and the mean reading of the electrograph an exposure factor is calculated. Observations are made in fine weather and as many as possible are made. Smoothed monthly means of the factors so obtained are used in the reduction of the records.

At Eskdalemuir absolute observations of potential gradient are made with a Wulf electrometer using a small pit about 50 yards 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 experimentally that 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 observations are made in fine weather and at least six per month are aimed at. From the mean potential of the Wulf electrometer over the period and the corresponding mean value of the record, the exposure factor of the electrograph is obtained.

For any given month a mean exposure factor is used and this is a smoothed running mean using observations made during the preceding and following months.

The absolute measurements at Kew are made with the Wilson apparatus in the underground laboratory; these are described below.

At Lerwick the boom potential is recorded by a Benndorf electrograph which, since 1926, has been installed in the west corner of the Office Block. Though there is distortion of the equipotential surfaces by adjacent houses etc. and though the site is a comparatively

large distance (236 m.) away from the ground where absolute determinations are made, the values of the reduction factor suggest that these disadvantages are less serious than might be anticipated.

The collector is screwed into the end of a tube which projects about 120 cm. through a window in the north-west wall about 190 cm. from the corner of the building and 476 cm. above ground. The inner end of the tube is supported from a wooden framework by metal rods embedded in cast sulphur insulators; an electrical heater, which is situated below the tube, keeps the insulation dry even in wet weather. Draughts through the hole in the window are practically eliminated by a system of baffles.

A detailed description of the electrometer is to be found in the *Physikalische Zeitschrift*, Leipzig for 1906 (p.98) whilst the general principle is described in Mathias' "*Traité d'électricité atmosphérique et tellurique*" (p.54) and in Chauveau's "*Electricité atmosphérique*" (p.61).

The scale value of the record has varied from time to time following adjustments but has usually been kept between 25 and 30 volts per millimetre, which, combined with an exposure factor of between 1.0 and 1.3, permits a range from about +1500 to -1500 volts per metre in the open to be recorded. Tests of the scale value of the record are made daily with the aid of batteries after removing the collector from the boom; the insulation is also tested regularly. Considering the climatic difficulties, the behaviour of the instrument in the matter of insulation has been satisfactory, especially since electrical heating was installed in the room. The rate of leak has been small and normally was such that the instrument would lose half its potential in 20-30 minutes.

Tests of the rate of rise of potential of the Benndorf recorder and electrograph boom with a polonium collector fitted, after being earthed, have been made frequently. It was found that with a freshly plated collector the potential rose from zero to half the final value in about 4-6 seconds, but that this time increased after the collector had been in use. This loss of efficiency was found to depend almost as much on the weather as on the radio active decay of the polonium. The regular use of fresh collectors ensures that the time taken for the Benndorf to reach half its final potential is not allowed to exceed 7 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.

The electrograph at Eskdalemuir consists essentially of 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 small wooden door in the wall of a room.

The boom is supported on insulators, formerly of sulphur but, since October 1957, of polythene. Tests of the insulation of the boom and electrograph are made frequently (about 3 times per week). The insulation was in general very satisfactory throughout the year.

The scale value of the record was between 1.5 and 1.8 volts per millimetre during 1959 and this, combined with an exposure factor of about 10, means that one millimetre on the record corresponded to between 15 and 18 volts per metre in the potential gradient over an open level surface.

The Kew electrograph, which is also a quadrant electrometer recording photographically, was moved in April 1940 from a low building known as the Clinical House to a room in the main Observatory Building; the new position is 18 m. to the East of the former position. In March 1941 a metal fire escape was erected on this wall above the boom and this reduced the recorded potential by nearly 50%. This was compensated by increasing the sensitivity of the recorder by an approximately similar amount. The radioactive collector is now 90 cm. from the window of the building through which the boom projects and 360 cm. above ground level.

The scale value of the electrograph has been fixed at about 17 volts per metre per millimetre.

The electrograph became unreliable in May 1953 and from then until the end of 1955 the continuous records of potential gradient have not been published. Reliable recording started again on January 1, 1956.

Valve voltmeters were constructed on the pattern described by A.W. Brewer (*Journal of Scientific Instruments*, 30, 1953, p.91) and have been recording continuously at Kew since May, 1958, at Eskdalemuir since April 1959 and at Lerwick since June 1959. These give pen records and will eventually replace existing electrographs.

Air-earth current and conductivity measurements at Kew

Measurements of the air-earth current and potential gradient are made in an underground laboratory using a modified Wilson apparatus. From these observations the conductivity can be calculated. The apparatus was devised by C.T.R. Wilson* and is described in detail by F.J. Scrase†. Briefly, it 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 potential gradient is measured by the charge induced on the plate when it is exposed to the earth's field, and the air-earth current is measured by finding the charge collected by the plate during a known period (usually five minutes).

The potential gradient F is given in volts per centimetre by the formula

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

where C is the capacity, in farads, of the system (when shielded), v is the potential acquired by the test plate after being exposed to the field, earthed and then shielded, and A is the area of the test plate‡. 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 is given in amperes per square centimetre by the formula

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

where δv is the potential acquired by the plate in t seconds. The value of δv used is the mean result from four observations, each lasting five minutes. The observations of the current are sandwiched between measurements of the field strength, and from the mean values of i and F the conductivity λ is deduced. This conductivity is that due to positive ions only since measurements are made only with positive fields. No observations are made in precipitation and fog.

From July 1, 1949 to the end of 1955 trouble was experienced with the Wilson test plate apparatus and the observations of air-earth current and conductivity during the period have subsequently been found to be unreliable. These observations have not therefore been published. The observations of the potential gradient with this apparatus during this time were checked, however, on a number of occasions by simultaneous observations of the potential of a stretched wire at one metre above the ground level; the differences between the two methods of observations occasionally reached 15 per cent but the mean difference was only 4 per cent, the Wilson measurements being the greater. In view of the trouble with the

*WILSON, C.T.R.: *Camb. Proc. Phil. Soc.* 13, 1906, pp.184 and 363

†SCRASE, F.J.: *London, Met. Off. Geophys. Mem.* VII, No.60, 1934

‡In practice, at present, half the potential gradient observations are made by a slightly different procedure, less desirable in principle, but giving negligibly different results; the plate is shielded, earthed and then exposed to the field and its potential measured.

apparatus it was decided that from July 1949 onwards until the end of 1955 the stretched wire observations should be the standard and that, before being used for electrograph standardisations, the Wilson observations should be corrected to allow for the differences between the two. Throughout this doubtful period the observations of potential gradient with the Wilson apparatus have been considered of sufficient value to publish, but the differences found between these observations and those made with the stretched wire apparatus must be borne in mind.

The instrument was overhauled late in 1955 and from January 1, 1956 the records and tabulations are considered reliable.

TABULATIONS

Table 19 (for Lerwick), 39 (for Eskdalemuir) and 41 (for Kew) contains the mean value of the potential gradient for periods of 60 minutes ending at exact hours G.M.T. The entry for these hours, however, for which the mean is indeterminate because of large fluctuations, is made according to the following code:- Z+ means an indeterminate but positive value, Z- an indeterminate but negative value and Z± an hour when the gradient was indeterminate in both magnitude and sign. In addition the entry for hours when precipitation is observed or recorded is marked with an asterisk.

Mean values and sums are given for each hour and for the months and year, using only hours without precipitation and for which the entry is not Z. The number of hours used for each mean is given. Estimated values are entered in brackets and are included in the sums and means. Besides this the monthly and annual mean potential gradient are given, using only the entries for 0a days (or for "selected quiet days" at Kew Observatory). The definition of 0a days is given in the next paragraph; the definition of "selected quiet days" at Kew is as follows:- normally 10 quiet days are selected in each month, these being calendar days characterised by no negative potential gradient, no large irregular movements, no indication of inferior insulation and no large non-cyclic change. When there are not 10 calendar days in a month the number can sometimes be made up by using other spells of 24 hr. The purpose of these entries is to enable comparison to be made with previous years for which corresponding information has been published

In Tables 20, 40 and 42 (for Lerwick, Eskdalemuir and Kew respectively) the duration of negative potential is tabulated and an electrical character figure is assigned to each day.

At Kew the following scheme is used for the latter entries:-

- 0 denotes a day during which, midnight to midnight, no negative potential was recorded.
- 1 denotes the existence of negative potential at one or more times during the same period but with a total duration of less than three hours.
- 2 denotes negative potential extending in the aggregate to three hours or more during the same period.

Besides allocating each day a number as done at Kew, Lerwick and Eskdalemuir Observatories also allocate to each day a symbol, either "a", "b" or "c". The definition of these is as follows:-

- a denotes that within the 24 periods of 60 minutes for which an estimate of the mean potential gradient has to be made there was in no case a range of potential gradient in the open exceeding 1000 volts per metre.
- b denotes that a range of 1000 volts per metre or more was reached in one hour at least but in fewer than six individual hours.

c denotes that a range of 1000 volts per metre or more was reached in at least six individual hours.

During periods of defective record the sign of the gradient is assumed positive when no precipitation was recorded. If precipitation was recorded for less than one hour during such defective periods, an approximate value for the duration of negative potential for that hour has been assigned and the total for the day is given in brackets. If this cannot be done the entry for any day with a defective record is -. When, because of oscillating gradients, there is uncertainty as to the times of change of sign, half the total duration of doubtful sign is accounted negative.

Table 43 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 h. on the date in question. Monthly and annual means are also given.

It should be pointed out that the unit of potential gradient is volts per centimetre (not volts per metre as in the other tables); the unit of air-earth current is 10^{-10} ampere per square centimetre and the unit of conductivity is 10^{10} 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 various marked changes which have occurred since around 1950. Most obvious is the large and continuing fall in the potential gradient at Eskdalemuir. At Kew the air-earth current and conductivity are now about twice the previous long term average but the potential gradient is almost unchanged. At Lerwick the potential gradient has fallen slightly. These changes appear to be linked with the deposition on the ground of radioactive debris from nuclear weapon tests; they are discussed by K.H. Stewart in the *Quarterly Journal of the Royal Meteorological Society*, 86, 1960, p.399.

ATMOSPHERIC POLLUTION

The Owens atmospheric pollution recorder at Kew Observatory was originally installed in 1926 in the building known as the Clinical House. It was transferred in July 1953 to a site in the large Calibration hut some 25 m. to the South-west. The level of the intake is about two metres above that of the adjacent ground.

The instrument is described in the Report on observations in the year 1917-18, *London, Meteorological Office, Advisory Committee on Atmospheric Pollution*. Briefly, it consists of a device for passing a fixed volume of air through a filter paper clamped between two halves of a circular orifice; the density of the black stain is then taken as being proportional to the weight of suspended solid matter in unit volume of air. In the Kew instrument each sample of air (6.4 litres) takes about twenty minutes to flow through the filter paper and a sample is taken approximately once an hour.

The density of the stain is measured by comparing it visually with a standard set of shades. The standard set now in use was originally supplied by the Department of Scientific and Industrial Research (D.S.I.R.) in 1942 and was recalibrated in 1948 and 1958.

In addition to the Owens recorder, from which of course the diurnal variation of pollution can be measured, D.S.I.R. have installed daily smoke filters at Kew, Lerwick and Eskdalemuir. These consist of an electrically operated pump which draws air through a filter paper continuously, an air meter being used to measure the volume of air. They are used to obtain the mean daily pollution concentration.

A summary of the results obtained at Kew with the Owens filter is given in Table 44. In this table are hourly means of the concentration of suspended matter, in milligrams per cubic metre, for each month, the seasons and the years. 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.

The data from this instrument are also published in a different form in the various Reports of the Atmospheric Pollution Research Committee, (*D.S.I.R.*, "*The Investigation of Atmospheric Pollution*", H.M.S.O. published yearly). The results of the observations made with the daily smoke filters are also published in these volumes.

During 1959 the highest estimate of pollution was 1.9 mg.m^{-3} , this value occurring on January 28, from 22h. to 23h. There were ten days on which the mean hourly concentration of pollution reached 1.0 mg.m^{-3} ; the number of hours credited with 1.0 mg.m^{-3} or more was thirty-three, of which thirty were in January and three in February.

NOTE ON THE TABLES: Where figures are in italics they are maximum and/or minimum values.

LERWICK

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

Table with columns for Hour G.M.T. (0-1 to 23-24), 14,000γ (0.14 C.G.S. unit) +, JANUARY 1959, and Sum 11,000+. Rows 1 q to 31 d, plus Mean and Sum 15,000+.

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

Table with columns for Hour G.M.T. (0-1 to 23-24), 9° +, JANUARY 1959, and Sum 1100.0+. Rows 1 q to 31 d, plus Mean and Sum 1400.0+.

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

Table 1: LERWICK (H) showing magnetic force values for 28 days in February 1959. Columns include hour (0-1 to 23-24), mean, and sum. Includes a Grand Total of 345,610.

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

Table 2: LERWICK (D) showing magnetic declination values for 28 days in February 1959. Columns include hour (0-1 to 23-24), mean, and sum. Includes a Grand Total of 33,413.8.

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

Table with columns for hour (1-24), magnetic force values (gamma), mean, and sum (8000+). Includes sub-headers for '1 LERWICK (H)' and '14,000 gamma (0.14 C.G.S. unit) +'. Rows include data for hours 1 through 31 and a final mean/sum row.

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

Table with columns for hour (1-24), magnetic declination values (degrees), mean, and sum (1000.0+). Includes sub-headers for '2 LERWICK (D)' and '9 degrees +'. Rows include data for hours 1 through 31 and a final mean/sum row.

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

Table 3: LERWICK (2) 47,000γ (0.47 C.G.S. unit) + MARCH 1959. A grid of magnetic force data for various hours and days, including a 'Mean' row and a 'Sum 7000+' row.

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

4 LERWICK

MARCH 1959

Table 4: LERWICK TERRESTRIAL MAGNETIC ELEMENTS. Columns include Horizontal force, Declination, Vertical force, 3-hr. range indices K, Sum of K indices, Magnetic character of day (0-2), and Temperature in magnet house 200+. Rows list data for each hour of the day (1-24) and a 'Mean' row.

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

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

Table 1: LERWICK (H) 14,000γ (0.14 C.G.S. unit) + APRIL 1959. Columns include Hour G.M.T. (0-1 to 23-24), Mean, and Sum 11,000+. Rows 1-30 show hourly data with values ranging from 450 to 550.

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

Table 2: LERWICK (D) 9° + APRIL 1959. Columns include Hour G.M.T. (0-1 to 23-24), Mean, and Sum 1100.0+. Rows 1-30 show hourly data with values ranging from 40.0 to 55.0.

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

Table with columns for Hour G.M.T., 1-24 hours, Mean, and Sum 11,000+. Includes sub-header '1 LERWICK (B)' and '14,000γ (0.14 C.G.S. unit) +'. Rows 1-31 show hourly data for May 1959.

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

Table with columns for Hour G.M.T., 1-24 hours, Mean, and Sum 1000.0+. Includes sub-header '2 LERWICK (D)' and '9° +'. Rows 1-31 show hourly data for May 1959.

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

Table with columns for Hour G.M.T. (0-1 to 24), Mean, and Sum 12,000+. Rows are labeled 1 LERWICK (B) and include data for hours 1 through 30. A Grand Total of 388,976 is provided at the bottom.

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

Table with columns for Hour G.M.T. (0-1 to 24), Mean, and Sum 1100.0+. Rows are labeled 2 LERWICK (D) and include data for hours 1 through 30. A Grand Total of 34994.9 is provided at the bottom.

TERRESTRIAL MAGNETIC 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 1959

Hour G.M.T.	47,000γ (0.47 C.G.S. unit) +																								Mean	Sum 6000+
	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		
1	207	202	219	231	243	245	250	260	268	266	269	266	269	272	276	269	265	272	277	282	277	278	270	255	258	188
2	251	257	263	268	265	261	263	262	253	249	250	248	250	274	277	284	330	318	306	297	290	284	267	159	268	426
3	109	174	172	175	214	239	246	258	259	261	260	263	263	265	279	313	324	330	320	307	294	294	288	280	258	187
4 d	274	219	195	259	272	264	245	220	220	232	233	249	258	268	271	283	299	322	310	284	268	270	247	145	254	107
5	201	239	245	240	228	226	255	277	283	284	278	261	265	259	281	286	304	304	292	290	299	289	276	271	268	433
6	272	274	274	274	278	278	277	276	276	267	270	259	260	275	280	273	284	287	317	313	290	280	276	250	277	660
7	237	260	272	274	263	250	259	272	276	270	267	257	253	262	266	279	283	282	278	288	286	287	280	274	270	475
8	272	274	272	274	275	270	269	271	265	244	243	239	244	250	260	278	297	310	309	310	300	290	281	275	274	572
9	268	263	266	268	268	253	241	247	261	270	274	274	301	310	280	274	292	314	324	317	314	294	281	277	280	731
10	266	211	194	203	181	205	243	261	270	270	267	264	272	277	280	286	282	281	277	282	285	288	282	274	258	201
11	265	261	267	270	272	280	279	276	276	261	253	255	282	282	272	333	361	374	334	307	288	284	278	277	287	887
12 q	276	276	277	278	279	285	288	282	274	270	270	272	266	261	263	268	271	269	286	300	295	290	278	273	277	647
13 q	272	272	275	272	277	282	283	284	287	282	274	266	262	263	268	270	259	263	268	271	272	270	270	270	272	532
14	269	270	269	270	270	269	275	280	277	272	268	262	267	282	294	292	272	269	268	268	272	270	256	247	271	508
15	251	263	270	275	275	275	280	279	271	257	257	256	256	256	261	267	274	276	274	270	274	280	280	277	269	454
16 q	271	269	254	240	229	230	246	260	266	270	269	263	261	268	272	276	276	278	285	282	274	279	287	286	266	391
17 q	280	280	279	276	272	271	270	270	268	262	263	263	261	255	253	251	249	252	267	279	270	270	250	255	266	374
18	263	267	255	247	230	241	253	260	260	263	261	260	262	275	274	276	273	277	284	289	284	280	279	272	266	385
19	272	270	270	263	261	264	257	255	253	255	255	255	250	255	257	269	269	268	270	272	270	277	276	275	264	338
20	263	243	235	250	263	270	268	262	259	259	259	259	259	259	262	265	272	281	277	268	272	276	274	266	261	323
21	266	259	264	268	267	270	270	264	263	261	255	252	247	257	270	270	282	274	282	286	287	280	274	272	268	440
22	266	266	266	259	255	265	276	277	272	260	252	246	242	257	268	287	295	284	268	274	274	274	260	263	267	406
23	254	254	261	272	278	278	274	274	273	264	259	259	253	254	254	253	277	314	314	308	306	292	249	268	273	542
24	199	50	18	-9	145	227	263	290	304	303	305	300	288	284	286	295	302	314	316	294	290	282	267	233	244	-154
25 q	231	238	255	270	282	285	286	288	294	286	276	269	269	268	273	276	282	284	282	279	275	277	272	241	272	538
26	223	213	232	247	244	257	263	266	279	282	288	279	286	297	319	326	337	322	302	297	297	289	281	280	279	706
27 d	281	278	279	280	282	284	286	282	282	270	268	263	253	259	257	356	383	351	388	344	301	219	184	234	286	864
28 d	200	134	124	94	119	148	179	201	231	258	284	297	321	347	408	414	400	400	388	351	330	343	312	278	273	561
29 d	191	234	247	257	205	182	212	235	237	269	321	284	267	275	316	351	377	360	324	317	297	147	156	239	263	300
30 d	187	145	180	192	263	279	282	290	307	311	300	342	351	387	429	468	451	372	330	302	282	277	255	253	301	1235
Mean	245	237	238	241	249	254	261	266	269	268	266	266	268	275	284	297	304	303	300	294	287	277	266	257	270	
Sum 7000+	337	115	149	237	455	633	839	979	1066	1034	1047	982	1038	1256	1509	1895	2131	2098	2008	1832	1617	1308	978	714		Grand Total 194,257

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

4 LERWICK JUNE 1959

	TERRESTRIAL MAGNETIC ELEMENTS										3-hr. range indices K	Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +	
	Horizontal force			Declination			Vertical force								
	Maximum 14,000γ +	Minimum 14,000γ +	Range	Maximum 9° +	Minimum 9° +	Range	Maximum 47,000γ +	Minimum 47,000γ +	Range						
1	h. m. 597	γ h. m. 487 00 04	γ 110	h. m. 16 18	56.8	35.7 00 14	21.1	h. m. 19 00	γ 284	h. m. 190 00 50	γ 94	3,2,2,1,1,2,2,3	16	0	84.0
2	18 22 650	418 23 52	232	14 50 61.6	36.4 06 05	25.2	16 52 343	87 23 50	256	2,2,2,3,4,3,4,5	25	1	84.1		
3	16 20 627	447 12 01	180	16 20 58.0	27.6 03 54	30.4	16 48 339	95 00 11	244	4,4,2,3,4,3,3,1	24	1	84.2		
4 d	20 22 607	364 23 43	243	13 48 59.0	27.0 23 58	32.0	17 44 330	84 23 42	246	4,3,3,3,3,3,3,5	27	1	84.5		
5	16 03 581	479 00 00	102	15 16 57.8	28.2 00 00	29.6	17 02 316	105 00 00	211	5,3,3,3,3,3,2,2	24	1	84.3		
6	17 24 633	470 10 40	163	12 47 58.3	38.4 07 54	19.9	18 57 333	237 23 41	96	1,1,2,3,3,4,3,3	20	1	84.1		
7	18 33 606	491 10 39	115	12 51 57.3	37.1 07 32	20.2	19 32 291	230 00 22	61	3,3,2,1,2,3,2,1	17	1	84.3		
8	18 19 618	492 08 41	126	18 14 56.3	38.3 05 54	18.0	17 55 317	235 11 43	82	1,1,2,2,3,3,2,2	16	1	84.3		
9	18 20 636	462 10 41	174	14 29 61.0	33.9 08 55	27.1	18 06 332	235 06 11	97	2,3,3,3,3,3,3,2	22	1	84.3		
10	20 08 576	453 04 04	123	01 25 57.3	36.9 07 44	20.4	15 30 290	166 04 54	124	4,3,3,2,2,2,1,1	18	1	84.0		
11	14 53 721	439 10 25	282	14 44 61.6	38.0 09 15	23.6	17 05 387	241 11 24	146	1,1,1,4,5,4,3,1	20	1	84.0		
12 q	18 01 607	478 09 28	129	16 10 56.8	37.7 08 40	19.1	19 26 305	259 13 19	46	1,1,2,1,2,3,3,1	14	0	84.0		
13 q	18 37 570	472 11 32	98	16 02 56.8	40.2 06 35	16.6	08 40 289	257 16 25	32	1,1,2,1,1,2,1,1	10	0	84.1		
14	22 09 583	492 10 08	91	13 37 53.9	35.6 07 02	18.3	14 52 306	240 23 52	66	1,2,1,3,3,3,2,2	17	0	84.3		
15	20 45 580	477 11 07	103	13 48 57.9	35.2 08 12	22.7	07 16 283	241 00 00	42	2,3,3,2,2,2,1,1	16	0	84.2		
16 q	20 42 597	493 09 35	104	20 49 54.5	39.0 06 38	15.5	22 30 289	223 05 06	66	2,2,2,2,3,2,2,2	17	0	84.0		
17 q	18 39 610	492 09 59	118	20 29 57.0	39.0 07 00	18.0	19 21 284	241 22 46	43	1,1,0,2,2,2,2,3	13	0	84.0		
18	18 27 608	494 10 43	114	14 07 60.1	36.0 06 40	24.1	19 49 290	223 04 32	67	2,2,1,2,3,3,2,2	17	0	83.9		
19	18 00 613	473 09 57	140	14 38 62.1	37.7 05 09	24.4	21 35 280	247 12 10	33	1,2,2,2,3,2,2,1	15	0	83.6		
20	18 32 592	490 10 30	102	14 02 60.8	35.6 06 45	25.2	16 53 282	232 02 10	49	3,2,2,2,3,2,2,2	18	0	83.4		
21	18 05 620	491 11 17	129	14 28 59.3	37.3 06 22	22.0	20 06 296	244 12 24	52	2,1,1,1,2,3,2,2	14	0	83.4		
22	19 01 630	475 10 10	155	13 55 64.7	34.3 07 39	30.4	16 17 300	239 12 17	61	1,1,2,3,3,3,2,2	17	0	84.0		
23	18 09 669	434 22 42	235	15 48 62.3	36.0 06 04	26.3	17 55 326	215 22 37	111	2,2,2,2,1,4,3,5	21	1	84.1		
24	18 54 666	346 03 33	320	13 32 59.2	18.6 02 42	40.6	17 56 326	-51 03 07	377	6,6,3,2,1,3,4,3	28	1	84.3		
25 q	20 28 598	475 09 58	123	13 52 60.0	37.8 07 38	22.2	08 28 296	220 23 56	76	2,1,1,2,2,2,1,3	14	0	84.6		
26	16 58 627	455 10 11	172	14 05 61.4	34.9 00 21	26.5	16 55 343	205 01 33	138	3,3,3,2,3,3,3,1	21	1	84.6		
27 d	17 02 800	375 22 23	425	22 19 85.6	35.6 06 59	50.0	18 01 416	129 22 17	287	1,1,1,2,6,5,5,5	2				

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

1 LERWICK (B)		14,000γ (0.14 C.G.S. unit) +																				JULY 1959				
	Hour G.M.T.		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 8000+
	0-1	1-2																								
1 q	511	509	500	506	506	509	505	490	488	483	481	482	492	507	521	527	545	555	569	563	559	555	552	524	518	4439
2	509	505	497	482	429	436	458	486	506	522	507	503	496	512	547	568	554	565	563	550	547	541	538	535	515	4356
3 q	536	532	533	548	551	541	528	517	498	478	470	476	493	519	541	550	563	565	569	566	558	558	559	556	534	4805
4	554	557	561	562	562	555	544	534	519	506	483	491	499	514	542	587	559	566	617	641	616	574	566	566	553	5275
5	548	547	561	564	552	556	558	538	527	519	509	520	530	548	552	566	590	584	607	619	608	598	574	563	551	5405
6	546	549	549	553	551	544	540	534	518	502	498	511	530	562	542	566	590	584	586	570	581	571	562	549	549	5188
7	545	552	547	525	551	555	558	546	522	499	515	519	524	536	553	560	572	594	586	584	565	549	546	548	548	5151
8	548	547	547	537	531	540	537	522	496	487	504	507	531	527	559	559	566	601	621	602	573	560	552	545	546	5099
9	539	546	548	542	514	524	498	509	527	513	511	514	507	511	535	565	625	588	582	582	602	581	561	554	545	5078
10	526	515	534	557	528	543	552	527	538	531	506	502	502	511	529	549	570	588	590	582	568	564	552	548	542	5012
11	545	479	468	507	500	508	503	517	509	496	486	491	503	512	546	566	655	639	756	713	694	689	659	378	555	5319
12	301	360	501	528	549	561	557	540	522	518	507	499	504	536	586	552	570	563	562	548	541	545	540	530	522	4520
13 q	517	512	504	504	521	521	509	512	502	499	495	504	508	520	539	576	580	556	547	551	563	556	551	528	528	4675
14	528	514	514	498	477	491	532	506	478	485	496	492	498	600	631	557	549	600	589	558	546	541	534	538	531	4752
15 d	536	486	480	389	451	512	517	527	68	72	384	410	607	920	1113	1835	1083	661	558	728	351	356	49	-289	533	4804
16 d	-51	204	313	368	444	467	459	445	454	473	483	504	508	542	569	613	580	561	568	578	526	522	526	504	465	3160
17 d	479	495	502	471	382	413	445	462	461	439	466	475	501	519	542	568	698	884	855	938	643	334	153	228	515	4353
18 d	375	70	8	-181	-6	-300	-12	219	425	479	493	519	502	500	551	585	615	550	611	592	568	459	472	443	356	537
19	360	326	374	440	442	476	473	485	475	478	491	502	523	533	586	630	649	605	598	562	558	541	513	510	505	4130
20	480	477	487	489	508	508	493	474	467	463	462	476	498	503	529	550	589	611	602	596	573	553	542	519	519	4449
21	521	515	508	506	488	512	512	502	491	481	469	476	478	518	547	565	555	601	591	585	577	554	536	534	526	4622
22	522	510	519	525	530	527	515	506	508	492	473	483	497	525	553	566	560	556	546	556	559	567	562	527	529	4684
23	469	456	534	532	520	490	499	519	512	495	484	476	493	475	508	520	542	550	559	572	574	543	536	531	516	4389
24	528	542	534	540	538	527	512	511	511	506	502	533	502	537	547	581	582	627	642	613	575	552	502	502	544	5046
25 d	506	462	484	517	508	487	512	507	470	460	490	498	509	519	546	565	568	612	673	634	568	548	477	501	526	4621
26	519	502	504	428	486	515	517	498	480	478	482	495	487	534	554	577	634	693	654	594	538	491	430	398	520	4488
27	466	466	339	467	511	502	493	486	490	457	468	488	511	522	531	559	584	613	603	574	568	522	529	525	511	4274
28	512	483	512	521	532	528	506	493	489	489	486	486	514	520	512	521	531	552	575	573	562	550	532	536	521	4515
29 q	528	521	521	469	485	511	511	515	508	496	485	495	497	528	530	539	553	554	565	553	552	544	542	536	522	4538
30 q	533	525	527	537	540	536	529	518	508	493	486	483	499	507	523	538	542	550	554	549	555	560	558	555	529	4705
31	553	552	552	545	508	525	528	527	521	510	496	485	514	506	519	533	553	585	582	585	570	556	527	540	536	4872
Mean	487	478	486	483	490	488	496	499	483	477	486	493	508	536	564	603	597	598	603	600	565	539	510	485	523	
Sum 14,000+	1089	816	1062	976	1189	1120	1388	1472	988	799	1068	1295	1757	2623	3483	4693	4506	4536	4692	4600	3528	2710	1821	1050		Grand Total 389,261

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

2 LERWICK (D)		9° +																				JULY 1959				
	Hour G.M.T.		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 1000.0+
	0-1	1-2																								
1 q	46.0	44.8	45.0	44.1	42.6	40.0	38.5	37.1	37.9	41.2	45.3	47.6	49.6	52.9	54.4	53.3	52.2	50.5	50.3	50.8	50.8	51.3	49.8	45.5	46.7	121.5
2	43.4	43.6	40.0	41.4	50.3	50.0	41.7	40.5	39.8	40.0	44.8	48.7	52.2	54.6	54.4	54.4	52.2	51.8	52.0	51.5	51.0	49.6	47.9	46.4	47.6	142.2
3 q	46.0	45.6	44.1	40.2	41.2	41.2	40.2	38.8	39.5	42.6	47.0	52.1	56.3	58.5	58.8	57.5	56.1	54.6	53.7	52.7	51.3	50.3	49.8	49.2	48.6	167.3
4	48.2	47.2	46.2	44.8	43.3	41.7	41.1	40.2	40.7	41.7	49.1	56.6	60.4	59.0	57.0	55.4	52.0	53.9	57.3	54.4	55.4	51.3	55.1	47.5	50.0	199.5
5	43.4	44.6	44.4	45.4	47.4	47.9	46.0	47.9	46.2	48.6	49.6	52.2	55.6	56.8	56.6	54.6	52.0	47.6	47.4	46.3	47.0	52.3	51.3	50.8	49.2	181.9
6	49.2	48.1	48.2	45.7	42.6	41.5	39.8	41.9	42.6	46.6	50.6	54.2	57.7	55.6	56.8	57.8	55.6	53.2	52.6	50.8	50.6	52.2	49.3	45.3	49.5	188.5
7	47.6	46.1	46.3	51.4	41.7	40.5	40.7	41.2	42.6	49.1	49.2	49.9	53.2	53.3	55.2	55.2	54.1	53.4	52.1	52.9	52.9	51.8	49.8	48.7	49.1	178.9
8	47.7	46.9	47.6	52.0	46.7	43.0	42.4	41.8	47.4	49.6	52.7	51.1	51.8	54.4	54.6	51.9	54.1	53.7	51.6	51.9	51.8	50.3	50.2	49.6	49.8	194.8
9	48.6	49.1	47.3	49.3	50.3	49.3	48.1	49.7	47.7	46.1	48.2	49.9	52.0	52.5	55.9	56.8	55.1	49.6	50.4	51.0	49.6	46.7	50.0	52.0	50.2	205.2
10	48.8	44.4	48.7	51.9	55.1	44.6	45.2	44.7	43.8	42.2	43.3	47.5	51.1	53.1	53.3	53.3	52.5	50.4	50.2	49.6	48.6	48.8	47.3	48.8	171.7	
11	49.2	54.6	48.2	40.7	41.0	43.7	46.0	41.9	39.5	40.9	45.6	50.8	54.8	58.0	57.4	58.7	58.8	63.8	64.5	63.0	65.5	63.8	66.4	52.2	52.9	269.0
12	52.2	39.9	38.4	36.7	32.8	32.9	34.5	36.2	39.2	42.1	44.0	46.3	47.2	50.9	49.9	55.7	57.1	54.8	54.7	53.9	52.8	51.8	50.6	49.6	46.0	104.2
13 q	45.7	46.3	44.1	41.7	41.3	41.2	40.7	39.4	38.4	39.7	42.1	46.1	48.1	52.0	53.3	53.0	52.7	52.7	52.1	51.4	50.6	49.2	47.4	47.0	46.5	116.2
14	47.1	49.1	49.1	49.4	50.6	43.8	40.1	41.1	42.5	47.3	47.8	48.8	53.2	54.1	51.6	55.9	56.9	56.1	52.7	50.2	52.5	52.6	50.6	48.7	49.7	191.8
15 d	50.6	46.3	40.5	56.4	30.5	32.8	34.1	34.4	12.7	-27.9	4.6	34.3	35.4	34.5	52.7	47.7	139.6	134.5	118.0	98.4	82.2	48.9	73.9	43.4	52.4	258.5
16 d	27.5	29.4	34.6	38.1	37.9	33.9	33.2	33.2	32.8	34.9	37.7	43.0	48.1	52.4	51.9	50.9	51.9	50.0	50.8	52.0	50.8	51.1	55.7	55.7	43.2	37.5

TERRESTRIAL MAGNETIC 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 1959

	Hour G.M.T.																						Mean	Sum 4000+	
	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
1 q	263	277	278	278	286	290	296	299	301	297	288	281	281	282	284	286	285	290	286	284	282	271	233	283	2780
2	219	207	134	139	131	127	176	233	270	290	293	292	302	304	317	328	339	322	304	290	282	282	281	282	256
3 q	281	279	262	259	274	281	281	278	280	281	269	259	250	249	254	261	268	274	274	272	273	272	275	277	270
4	280	281	280	282	281	280	278	279	283	282	282	275	270	274	277	280	314	309	289	300	285	243	270	229	279
5	235	250	268	277	276	248	256	268	268	269	275	268	287	297	302	302	292	310	327	339	324	298	288	284	284
6	284	285	281	279	284	284	282	280	284	284	285	284	287	301	324	316	300	298	297	296	295	290	286	277	290
7	263	265	253	239	247	267	267	275	286	288	280	284	276	290	308	324	334	334	334	312	298	289	284	280	287
8	280	283	280	263	229	244	259	273	277	274	274	282	288	304	318	353	333	314	331	331	314	300	286	275	290
9	277	288	291	285	259	233	252	242	252	261	272	268	280	293	293	290	297	342	334	319	309	319	305	282	285
10	234	215	200	232	235	226	243	268	270	285	294	296	296	296	290	290	290	288	290	296	292	290	286	281	270
11	274	205	146	152	174	231	223	241	258	270	272	270	275	288	290	294	274	308	320	408	424	410	375	242	276
12	197	168	223	245	284	297	302	304	300	294	297	299	310	320	384	351	334	322	306	294	285	286	284	277	290
13 q	265	260	235	250	267	279	280	279	287	287	284	274	284	294	297	326	339	314	296	289	286	287	284	272	284
14	263	249	235	210	221	239	263	284	290	296	297	307	312	344	408	352	310	294	320	317	298	288	282	284	290
15 d	272	176	152	67	117	227	262	277	426	292	227	270	320	515	403	-131	-593	-120	212	272	217	167	466	210	196
16 d	285	253	277	294	327	341	341	343	341	337	334	319	319	313	320	320	326	327	315	285	302	305	290	231	310
17 d	240	284	301	297	239	198	243	272	290	302	304	310	328	336	331	325	307	326	324	243	274	103	297	317	283
18 d	173	408	243	203	140	320	207	274	279	354	352	337	331	332	331	319	310	316	326	324	320	309	237	221	290
19	213	188	160	156	210	258	280	304	325	329	324	314	305	315	322	317	326	324	304	312	296	282	255	261	278
20	238	226	239	237	245	265	284	292	294	292	300	307	304	302	297	297	304	326	335	318	310	298	263	170	281
21	190	239	253	273	277	280	286	290	287	290	289	281	277	280	297	312	306	297	308	308	306	284	278	263	281
22	242	205	223	255	277	287	290	292	292	293	288	282	281	286	300	328	334	312	296	288	289	280	213	205	277
23	170	129	205	250	274	265	257	258	272	273	278	274	274	287	282	283	286	289	286	286	300	312	295	278	265
24	237	199	240	265	279	287	290	279	270	263	260	260	270	257	274	286	297	297	316	302	297	255	163	195	264
25 d	213	176	168	210	245	245	263	279	290	297	299	297	294	297	313	326	314	306	313	295	286	297	230	188	268
26	234	234	221	200	232	266	277	297	304	306	304	299	297	288	301	305	325	315	332	314	238	237	163	76	265
27	159	207	146	184	237	257	274	284	299	302	310	317	312	305	308	308	314	314	327	307	286	213	245	272	270
28	269	203	213	249	278	292	294	293	295	292	290	290	288	295	312	301	300	294	299	305	294	290	274	270	283
29 q	276	269	262	242	204	225	249	267	280	281	277	279	280	277	280	282	284	290	286	287	289	289	282	282	272
30 q	278	274	273	274	281	286	286	288	284	280	274	273	264	265	268	277	286	286	284	282	279	276	277	278	278
31	276	270	263	257	264	241	254	257	263	270	277	277	280	297	297	304	311	321	334	330	312	273	253	264	281
Mean	245	240	232	236	244	260	268	279	290	291	289	288	291	303	309	294	279	295	307	303	295	278	275	250	277
Sum 7000+	580	452	205	303	574	1066	1295	1649	1997	2011	1949	1925	2022	2383	2582	2112	1646	2139	2505	2405	2142	1606	1538	756	Grand Total 205,842

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

4 LERWICK

JULY 1959

	TERRESTRIAL MAGNETIC ELEMENTS										3-hr. range indices K	Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +
	Horizontal force			Declination			Vertical force							
	Maximum 14,000γ +	Minimum 14,000γ +	Range	Maximum 9° +	Minimum 9° +	Range	Maximum 47,000γ +	Minimum 47,000γ +	Range					
1 q	h. m. γ	γ h. m. γ	h. m. γ	h. m. γ	h. m. γ	h. m. γ	h. m. γ	h. m. γ	h. m. γ	h. m. γ	2.1, 1.1, 1.1, 2.1, 1.3	12	0	84.5
2	18 14 573	477 10 54 96	14 12 54.7	36.2 07 42	18.5 08 50 304	214 24 00 90	16 34 343	109 05 21 234	4.4, 5.2, 3.2, 2.1, 1	23	1	84.2		
3 q	19 08 576	467 10 40 109	14 08 59.3	37.8 07 13	21.5 09 06 282	246 13 19 36	20 34 664	475 10 42 189	2.2, 2.2, 3.1, 1.1, 1	14	0	84.6		
4	18 56 628	489 10 50 139	12 43 58.7	39.3 20 02	19.4 19 53 347	229 00 08 118	18 56 628	489 10 50 139	1.1, 1.1, 3.3, 4.4, 4.4	21	1	84.7		
5	16 59 598	494 10 47 104	15 18 60.4	38.9 06 23	21.5 14 47 334	268 24 00 66	16 59 598	494 10 47 104	3.3, 2.2, 3.2, 3.2	20	1	84.6		
6	17 35 608	484 09 18 124	03 17 58.0	38.6 05 36	19.4 16 36 346	220 03 46 126	17 35 608	484 09 18 124	1.1, 2.2, 3.3, 3.2, 2	16	1	85.0		
7	18 10 638	477 09 14 161	14 08 56.1	40.4 06 58	15.7 15 37 365	224 04 16 141	18 10 638	477 09 14 161	2.3, 3.3, 3.3, 4.2	21	1	85.2		
8	16 40 650	479 06 43 171	15 16 57.9	42.5 21 02	15.4 17 43 354	223 05 05 131	16 40 650	479 06 43 171	2.3, 3.2, 2.4, 3.3	22	1	85.1		
9	18 46 600	494 11 04 106	03 58 59.6	39.0 01 53	20.6 13 02 300	170 01 52 130	18 46 600	494 11 04 106	4.3, 3.3, 1.2, 2.1	19	1	85.0		
10	18 45 799	104 23 47 695	20 15 68.7	26.5 23 43	42.2 20 20 443	125 02 12 318	18 45 799	104 23 47 695	5.4, 3.2, 3.5, 5.7	34	2	84.9		
11	14 22 605	196 00 10 409	00 07 71.3	31.1 04 30	40.2 14 28 399	96 01 00 303	14 22 605	196 00 10 409	6.3, 2.2, 4.3, 2.2	24	1	85.0		
12 q	16 01 606	487 10 56 119	14 51 55.1	36.1 08 33	19.0 16 31 341	233 02 43 108	16 01 606	487 10 56 119	2.3, 2.1, 3.3, 2.3	19	1	84.9		
13	14 19 657	463 04 55 194	16 14 57.8	37.0 07 00	20.8 14 30 423	201 04 04 222	14 19 657	463 04 55 194	3.3, 3.2, 5.4, 3.1	24	1	84.9		
14 d	15 26 2733	-765 22 47 3498	16 48 261.8	-123.9 09 15 385.7	22 46 779	-1179 16 00 1958	15 26 2733	-765 22 47 3498	5.5, 9.9, 9.9, 8.9	63	2	84.7		
15 d	19 09 643	-370 00 44 1013	19 08 96.4	-29.3 21 29 125.7	23 20 604	-122 23 56 726	19 09 643	-370 00 44 1013	8.5, 4.3, 4.4, 4.4, 4.4	36	2	84.8		
16 d	19 28 1099	-149 23 33 1248	01 26 87.7	-25.3 05 29 113.0	01 39 696	-47 00 13 743	19 28 1099	-149 23 33 1248	4.5, 4.3, 3.6, 8.8	41	2	84.9		
17 d	15 58 779	-659 05 37 1438	16 58 57.1	25.7 02 14 31.4	16 34 353	126 02 52 227	15 58 779	-659 05 37 1438	8.8, 8.4, 4.6, 4.6	48	2	85.2		
18 d	16 41 715	272 01 40 443	16 25 57.7	33.9 23 55 23.8	18 08 345	140 24 00 205	16 41 715	272 01 40 443	5.5, 3.3, 4.5, 3.3	31	1	85.3		
19	17 27 628	444 09 47 184	14 08 58.6	33.0 00 35 25.6	15 40 320	139 00 02 181	17 27 628	444 09 47 184	3.3, 2.3, 3.4, 3.5	26	1	85.3		
20	17 41 606	457 10 56 149	14 09 60.7	36.0 06 07 24.7	16 04 341	180 23 00 161	17 41 606	457 10 56 149	4.3, 2.2, 4.3, 3.3	24	1	85.5		
21	22 04 597	464 10 50 133	14 22 57.1	35.5 08 00 21.6	21 14 318	105 01 10 213	22 04 597	464 10 50 133	3.3, 2.2, 3.3, 2.4	22	1	85.5		
22	20 23 580	416 00 48 164	17 11 60.5	32.6 22 44 27.9	18 48 329	146 22 09 183	20 23 580	416 00 48 164	4.3, 3.2, 3.2, 2.3	22	1	85.6		
23														

TERRESTRIAL MAGNETIC 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 1959					
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 9000+
1	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	γ
2	535	541	536	518	516	538	541	501	512	517	490	493	509	545	530	587	595	616	599	569	562	558	554	553	542	542	4015
3	524	523	508	494	488	486	500	507	502	489	481	483	501	521	541	557	549	577	574	577	558	550	548	549	524	524	3587
4	545	538	508	512	534	539	527	489	512	520	507	491	466	487	505	526	579	581	572	584	570	547	533	530	529	529	3702
5	537	535	526	509	519	526	525	519	504	495	460	506	503	510	553	525	564	588	592	584	567	538	515	527	530	530	3727
6	528	531	536	538	534	524	507	504	491	481	486	493	503	520	556	569	567	610	592	584	567	553	539	531	535	535	3844
7	526	526	528	532	526	532	532	534	513	499	502	502	469	500	497	523	600	707	692	605	584	558	543	493	543	543	4023
8	462	535	535	523	539	541	525	514	513	497	483	474	482	515	528	567	634	609	586	587	581	546	547	532	536	536	3855
9	525	534	533	539	541	535	517	501	487	482	480	502	499	519	567	590	567	564	556	559	548	551	562	525	532	532	3774
10	493	504	513	543	545	535	518	491	471	476	471	448	481	526	579	619	660	714	647	617	577	553	535	532	544	544	4048
11	523	528	508	476	519	533	528	512	497	483	479	481	496	512	510	508	552	549	598	586	554	543	544	539	523	523	3558
12	526	531	523	515	534	535	534	524	506	486	484	499	508	520	549	585	569	548	550	545	542	546	543	539	531	531	3741
13 q	545	545	544	539	534	530	524	519	516	513	512	504	510	511	526	547	570	556	555	552	554	553	548	537	535	535	3844
14 q	536	538	538	538	539	530	529	518	509	499	493	492	494	505	536	539	541	555	558	573	569	554	554	547	533	533	3784
15	541	542	544	541	538	537	533	527	519	504	490	497	508	530	530	538	538	547	567	551	559	554	549	547	535	535	3831
16 d	544	546	529	547	546	544	539	533	519	497	498	505	519	531	564	556	542	569	603	606	608	582	481	506	542	542	4014
17 d	474	548	542	545	549	523	472	393	424	422	499	491	895	1122	833	841	1103	772	750	562	404	309	171	-5	368	368	4639
18	-69	-120	-26	-82	163	67	99	287	370	447	500	566	679	746	702	709	789	724	536	528	512	416	453	497	396	396	493
19	503	501	486	367	390	432	430	426	471	484	454	436	463	541	541	562	558	612	612	549	542	528	517	504	496	496	2909
20 d	526	515	484	476	426	483	481	476	489	476	463	464	478	504	508	530	536	565	617	598	560	540	531	525	510	510	3251
21 d	517	530	508	482	461	567	549	550	538	518	515	495	509	532	545	546	556	551	554	555	554	546	538	539	531	531	3755
22	550	490	494	508	507	515	500	503	498	467	474	478	478	507	519	543	601	612	633	588	541	520	493	406	518	518	3425
23 d	352	481	492	504	522	512	470	481	517	501	474	477	497	509	525	530	586	567	564	567	590	539	519	530	513	513	3306
24	515	489	517	519	481	500	525	527	512	486	478	497	499	536	561	541	573	651	615	572	542	536	517	468	527	527	3657
25	462	507	486	512	513	499	523	502	483	473	482	492	499	503	530	546	558	556	559	557	555	546	530	508	516	516	3381
26	527	524	539	542	523	513	516	507	497	474	470	483	484	495	542	614	595	546	549	551	549	553	547	532	528	528	3672
27 q	523	523	532	534	532	527	517	496	479	481	480	478	482	505	529	538	542	548	552	559	557	548	542	540	523	523	3553
28 q	528	532	534	535	534	528	518	506	493	479	481	487	499	518	524	531	534	537	548	549	549	545	540	540	523	523	3560
29	539	539	538	537	534	526	520	513	499	484	474	479	491	505	521	527	533	534	540	550	553	553	552	553	525	525	3594
30	560	556	551	544	543	540	543	538	520	501	485	480	508	512	526	557	544	542	559	580	593	583	578	572	542	542	4015
31	548	546	538	535	520	521	520	521	500	485	491	494	505	513	540	564	562	559	551	557	548	543	538	540	531	531	3739
Mean	500	507	505	499	506	508	503	498	495	486	484	488	513	542	549	566	591	591	585	570	555	537	522	508	525	525	3533
Sum 15,000+	487	700	663	454	690	757	590	429	343	79	4	133	903	1789	2010	2541	3328	3315	3152	2672	2206	1633	1194	757			Grand Total 390,829

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

2 LERWICK (D)		9° +																				AUGUST 1959					
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 800.0+
1	48.2	44.6	43.8	49.7	49.2	45.4	43.5	46.7	48.6	44.7	46.5	52.3	56.3	56.0	56.5	56.7	55.7	53.1	46.7	51.6	52.3	51.5	50.2	47.5	49.9	49.9	397.3
2	39.9	38.7	43.0	42.1	39.2	42.7	45.7	47.8	46.5	42.1	44.3	49.3	52.6	53.0	52.9	51.7	49.3	48.6	49.3	46.4	50.5	50.2	49.4	49.7	46.9	46.9	324.9
3	47.3	49.7	45.9	40.9	36.3	35.8	38.8	41.1	44.3	43.0	44.9	46.5	49.9	52.6	54.8	52.8	51.7	49.4	48.4	49.7	49.1	47.8	48.8	48.1	46.6	46.6	317.6
4	46.7	47.4	47.3	43.3	40.1	38.5	40.1	39.2	39.7	39.2	45.4	49.7	53.0	55.0	51.9	49.9	51.9	48.8	46.7	49.3	49.7	46.4	39.4	48.1	46.1	46.1	306.7
5	47.3	46.9	47.5	45.6	44.0	43.3	43.2	41.1	42.1	45.9	48.8	53.1	55.1	54.7	54.0	50.2	48.4	48.6	46.2	50.2	50.9	49.0	47.8	47.8	48.0	48.0	351.7
6	47.8	47.6	47.2	46.0	49.6	43.7	40.5	41.7	44.3	46.9	47.8	53.8	55.7	56.7	56.5	51.7	51.0	53.1	52.2	47.1	45.6	50.1	50.3	49.6	49.0	49.0	376.5
7	39.1	42.6	45.3	47.5	45.3	38.9	42.3	43.9	41.9	44.3	50.2	53.6	56.5	58.7	58.6	56.0	48.3	49.9	50.6	49.2	46.1	50.4	51.1	49.5	48.3	48.3	359.8
8	45.4	47.8	45.6	44.0	41.3	39.4	41.1	43.0	46.6	47.8	50.2	53.4	56.0	57.0	57.7	54.2	50.2	49.6	49.5	50.4	50.0	49.7	49.7	48.9	48.3	48.3	358.5
9	39.2	43.0	47.5	40.5	39.9	38.9	38.2	39.5	44.0	46.5	50.7	54.5	58.0	60.1	59.7	55.0	54.5	56.9	56.9	51.9	51.7	50.5	50.5	49.3	49.1	49.1	377.4
10	48.0	47.1	48.3	48.8	38.7	38.5	36.5	37.5	39.4	43.0	45.3	49.9	53.4	54.3	53.3	52.6	50.1	48.3	49.7	49.0	49.0	50.9	49.3	46.9	47.0	47.0	327.8
11	51.9	43.8	45.4	47.6	38.2	37.7	37.8	39.8	41.7	42.3	45.6	49.7	53.9	54.5	54.3	52.9	46.4	48.4	49.9	50.4	49.7	49.3	47.8	47.3	46.9	46.9	326.3
12 q	46.7	46.9	45.9	44.5	42.4	41.1	37.9	37.6	38.9	40.6	43.5	47.2	51.3	53.6	55.3	55.5	55.0	51.3	49.5	49.3	47.2	47.5	45.7	46.5	46.7	46.7	320.9
13 q	43.0	44.7	44.9	43.5	44.0	42.3	40.6	39.9	40.7	43.0	46.5	49.5	54.5	56.7	55.5	52.9	49.9	49.9	50.7	51.7	51.4	50.7	48.8	48.2	47.6	47.6	343.5
14 q	46.7	46.1	45.9	43.7	41.3	39.0	39.1	38.5	39.7	41.9	46.3	49.7	53.1	56.0	56.7	55.7	52.3	50.3	50.5	49.5	50.0	49.3	47.5	47.5	47.3	47.3	336.3
15	45.3	44.9	46.0	43.4	41.4	39.9	37.7	37.9	37.6	42.5	48.3	54.1	60.2	61.7	62.2	58.8	55.9	54.5	55.6	57.3	56.7	54.9	41.1	42.4	49.2	49.2	380.3
16 d	30.0	32.9	40.6	39.8	37.3	30.3	29.9	51.2	53.9	54.8	48.0	50.2	51.7	54.0													

TERRESTRIAL MAGNETIC 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 1959

	Hour G.M.T.																								Mean	Sum 5000+
	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		
1	251	212	229	222	227	239	249	275	268	275	285	290	289	308	322	316	332	334	347	309	297	292	284	274	280	1726
2	234	243	208	140	188	219	234	240	260	280	286	284	280	286	292	299	319	328	339	326	302	292	288	284	269	1451
3	280	238	200	186	217	269	273	282	275	277	283	286	300	298	305	327	341	331	310	300	298	297	286	282	281	1741
4	282	282	282	277	274	270	274	283	282	278	294	283	305	307	328	349	331	331	331	320	308	278	226	247	293	2022
5	277	286	284	288	295	295	293	294	290	280	274	274	276	290	302	331	337	328	341	321	299	296	282	285	297	2118
6	282	283	276	273	270	263	276	280	283	280	260	260	263	283	289	296	322	363	428	395	340	305	293	225	295	2088
7	153	237	263	270	258	276	289	286	289	292	289	293	289	292	300	310	357	376	363	354	334	307	292	275	293	2044
8	246	256	269	283	291	295	295	291	287	283	281	276	281	278	291	323	336	317	301	290	286	283	262	241	285	1842
9	228	222	189	263	283	291	295	295	289	283	282	282	277	301	335	390	409	378	350	340	345	350	313	296	304	2286
10	286	292	269	222	242	271	291	303	301	297	301	295	283	286	307	309	316	326	323	332	330	298	281	260	293	2021
11	231	229	239	236	256	275	289	301	303	292	283	274	276	279	282	299	336	319	296	289	289	288	289	281	280	1731
12 q	275	277	275	279	283	286	289	289	281	276	277	277	276	278	273	273	280	287	285	285	286	289	287	281	281	1744
13 q	267	274	276	279	279	271	268	273	273	272	274	267	265	265	272	286	291	287	281	277	286	292	286	282	277	1643
14 q	281	279	274	266	267	271	277	281	278	275	271	268	269	269	281	283	291	286	281	286	282	284	288	285	278	1673
15	281	275	254	246	261	269	272	272	265	256	252	253	248	256	260	297	295	292	298	313	312	291	175	200	266	1393
16 d	133	226	272	281	274	276	273	226	157	162	200	279	334	286	373	386	313	306	326	303	265	169	114	24	248	958
17 d	330	410	-97	76	-92	24	175	214	277	291	366	381	394	393	428	430	403	352	339	327	293	199	190	236	264	1339
18	262	276	287	247	216	182	212	231	248	275	285	284	287	293	338	350	362	342	334	309	295	277	271	229	279	1692
19	269	285	236	217	196	169	222	234	268	293	305	304	292	293	303	303	307	304	319	355	321	303	285	281	278	1664
20 d	265	263	259	242	161	191	234	242	252	262	262	267	267	273	297	311	307	296	291	288	289	287	287	281	266	1374
21 d	215	198	218	238	243	268	279	276	283	287	289	296	296	295	308	333	343	356	321	316	276	241	200	145	272	1520
22	115	128	212	260	285	291	279	247	266	293	296	293	295	296	298	300	297	325	328	313	278	224	234	262	267	1415
23 d	266	208	219	238	248	236	234	260	283	295	293	294	314	324	340	342	326	350	348	338	297	291	222	209	282	1775
24	169	209	209	246	269	242	262	283	299	314	309	307	306	301	299	326	330	313	301	296	295	293	276	244	279	1698
25	247	229	252	269	273	276	286	293	291	296	295	292	289	284	288	327	350	332	306	299	295	286	273	257	287	1885
26	221	256	275	283	287	291	293	296	296	291	286	283	276	274	281	284	283	286	289	289	292	289	287	283	282	1771
27 q	254	210	232	265	279	286	291	294	293	286	279	271	265	266	276	283	284	283	281	286	286	285	286	284	275	1605
28 q	283	283	283	285	286	288	288	288	284	279	273	271	273	273	274	275	276	273	271	274	276	279	279	281	279	1695
29	268	272	274	280	280	281	278	276	276	276	275	268	265	289	311	314	309	300	287	281	276	269	273	276	281	1754
30	293	294	291	291	295	294	293	296	305	308	300	301	306	317	324	323	338	331	324	307	301	291	291	287	304	2301
31	287	288	287	281	283	289	294	295	293	288	289	296	299	313	311	307	314	305	303	307	296	283	256	254	292	2018
Mean	249	255	242	249	247	256	270	274	277	280	284	285	288	292	306	319	324	321	317	311	298	281	263	253	281	
Sum 7000+	731	920	496	729	674	944	1357	1496	1595	1692	1794	1849	1935	2046	2488	2882	3035	2937	2842	2625	2225	1708	1156	831		Grand Total 208,987

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

4 LERWICK

AUGUST 1959

	TERRESTRIAL MAGNETIC ELEMENTS												3-hr. range indices K	Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +			
	Horizontal force			Declination			Vertical force												
	Maximum 14,000γ +	Minimum 14,000γ +	Range	Maximum 9° +	Minimum 9° +	Range	Maximum 47,000γ +	Minimum 47,000γ +	Range										
1	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	4,3,3,3,4,4,3,2	26	1	85.4			
2	16 00	649	473	11 58	176	16 04	59.6	41.4	02 23	18.2	18 15	365	188	00 54	177	4,4,3,1,3,3,3,1	22	1	85.4
3	18 17	610	470	10 34	140	18 20	54.4	30.7	00 58	23.7	18 56	347	129	03 42	218	4,4,3,3,3,2,1	23	1	85.2
4	17 52	602	444	12 34	158	14 23	55.8	34.1	04 52	21.7	16 47	351	176	03 37	175	2,3,1,4,4,3,3,4	24	1	85.0
5	17 34	606	452	10 18	154	13 31	56.0	30.3	22 21	25.7	15 10	356	207	22 55	149	1,2,1,2,4,4,3,2	19	1	85.1
6	17 40	633	478	09 33	155	13 18	56.1	40.1	07 33	16.0	18 21	350	268	11 00	82	1,3,3,2,3,6,5,4	27	1	85.0
7	17 57	765	441	24 00	324	18 11	59.7	38.1	06 10	21.6	18 48	444	173	24 00	271	5,3,2,2,3,4,3,3	25	1	85.1
8	16 42	659	404	00 18	255	13 41	60.0	33.3	00 29	26.7	17 19	383	138	00 17	245	3,1,2,3,3,3,2,3	20	1	85.0
9	15 22	611	472	10 53	139	14 20	59.1	35.9	23 49	23.2	15 52	343	230	23 07	113	4,3,3,3,4,4,3,3	28	1	85.0
10	17 01	727	432	11 45	295	18 22	68.2	37.2	06 47	31.0	16 55	424	155	02 22	269	3,4,2,1,3,3,3,3	22	1	85.0
11	18 26	601	440	03 10	161	03 26	59.5	35.5	06 53	24.0	20 02	324	197	03 52	145	3,3,2,2,3,3,1,1	18	0	85.1
12 q	15 50	596	479	10 47	117	00 18	57.4	36.0	04 46	21.4	16 30	342	217	00 52	125	1,1,1,1,2,2,1,2	11	0	85.5
13 q	16 42	574	498	11 33	76	15 00	56.0	36.2	07 12	19.8	07 10	291	265	24 00	26	2,1,1,2,2,2,2,1	13	0	85.7
14 q	19 51	582	483	11 14	99	13 32	57.7	39.4	07 50	18.3	16 30	293	260	13 34	33	1,1,1,2,2,2,1,2	12	0	85.3
15	18 30	579	482	10 28	97	13 57	58.0	36.5	07 12	21.5	16 46	294	265	03 13	29	3,2,1,3,4,4,3,5	25	1	85.8
16 d	15 04	635	395	22 10	240	21 58	75.2	29.8	22 23	45.4	19 57	326	154	24 00	172	5,3,5,5,7,7,7,7	46	2	85.8
17 d	16 23	1219	-141	23 58	1360	16 03	87.9	-26.3	24 00	114.2	15 50	427	-186	21 49	613	8,8,7,5,5,7,4,5	49	2	85.7
18	17 22	1030	-454	03 33	1484	04 26	77.4	-108.7	01 40	186.1	03 33	601	-351	02 32	952	3,4,4,3,4,4,4,3	29	1	85.2
19	18 40	660	306	03 23	354	13 48	61.6	28.1	18 34	33.5	18 27	370	174	05 30	196	4,4,4,2,2,3,4,2	25	1	85.7
20 d	18 17	628	369	04 58	259	13 45	57.6	30.3	05 34	27.3	19 32	374	139	04 56	235	3,5,4,4,4,3,3,3	29	1	85.0
21 d	20 41	594	372	04 23	222	14 25	61.9	23.8	04 35	38.1	15 54	313	115	04 32	198	4,3,3,3,3,4,5,5	30	1	86.0
22	18 18	682	312	23 43	370	00 17	63.7	30.8	06 18	32.9	17 48	370	1						

TERRESTRIAL MAGNETIC 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 1959				
	Hour G.M.T.		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 10,000+
	0-1	1-2																								
1	518	492	514	519	527	529	517	498	503	490	473	476	504	505	497	575	630	667	616	592	546	536	535	535	533	2794
2	530	470	407	485	458	467	518	495	444	428	445	485	480	491	490	510	536	536	589	600	547	488	488	498	495	1885
3	468	513	527	521	514	518	523	516	492	471	478	483	488	497	525	572	591	631	664	585	565	548	285	-100	495	1875
4 d	119	151	214	86	344	410	360	347	379	397	428	500	508	520	642	764	783	676	626	576	489	309	148	382	423	158
5	413	294	362	495	523	523	512	495	491	474	482	503	531	510	505	517	541	570	587	567	551	516	351	315	485	1628
6	55	376	440	491	509	513	504	495	483	472	472	478	489	512	524	532	530	532	536	540	539	543	539	537	485	1641
7 q	532	524	523	521	516	512	505	493	480	469	465	477	491	501	528	538	560	548	539	545	546	543	539	539	518	2434
8 q	536	540	529	526	526	526	517	503	489	479	486	496	497	498	508	529	530	558	546	547	551	542	530	543	522	2532
9 q	539	536	532	528	529	528	520	508	496	485	479	491	498	517	523	539	533	526	538	549	549	543	544	547	524	2577
10 q	542	540	537	534	533	530	524	519	510	500	497	506	515	533	530	533	538	556	560	552	555	559	556	538	533	2797
11	544	538	529	524	515	539	537	524	511	499	489	504	491	510	513	536	539	537	546	557	557	558	549	537	528	2683
12	535	518	491	524	532	533	523	511	502	494	484	491	501	516	530	552	546	549	557	553	546	546	546	547	526	2627
13	540	533	536	536	536	534	529	517	514	506	504	508	517	524	524	523	536	544	549	551	553	562	575	486	531	2737
14	520	518	519	529	530	528	528	521	491	499	496	504	491	523	519	515	540	553	545	549	548	558	543	543	525	2610
15	533	542	546	541	539	537	527	511	503	498	504	507	504	524	521	526	569	557	559	555	554	553	537	539	533	2786
16	529	482	484	494	486	511	517	511	496	480	475	480	490	507	536	518	533	543	549	556	558	539	541	543	515	2358
17	547	546	549	545	537	534	534	526	521	513	501	508	492	502	543	522	531	551	564	569	580	539	531	537	534	2822
18	504	517	530	537	537	530	528	535	503	490	475	497	512	515	530	516	542	560	568	558	551	541	469	449	521	2494
19	479	410	486	478	387	513	521	508	495	487	484	519	494	515	522	517	523	534	541	545	545	549	557	559	507	2168
20 d	554	547	551	545	526	519	513	521	498	501	495	472	510	604	547	618	568	680	658	623	580	415	353	259	532	2757
21 d	192	459	260	329	473	435	404	431	472	486	484	479	503	571	655	687	748	635	567	558	547	509	515	498	496	1897
22 d	395	266	-54	210	413	422	463	436	456	458	460	481	477	521	591	588	552	554	589	552	527	520	522	527	455	922
23	516	513	516	521	514	516	524	511	488	489	487	498	511	510	536	565	596	585	572	549	435	421	412	349	506	2134
24	488	492	459	484	485	498	512	520	498	494	488	496	519	545	507	547	536	536	539	545	517	498	517	507	509	2227
25 d	439	313	475	433	465	528	524	506	484	499	498	511	488	547	565	638	785	651	569	543	536	423	420	507	514	2347
26	510	443	441	510	518	523	521	506	491	481	481	487	515	519	498	511	542	535	542	546	527	518	498	484	506	2147
27	481	513	517	526	528	540	524	528	518	510	491	494	498	524	553	548	584	546	541	540	516	523	507	529	524	2579
28	524	460	470	511	530	531	517	523	509	508	498	497	517	507	511	503	521	556	532	537	534	537	526	524	516	2383
29 q	507	501	523	530	530	528	526	522	514	491	484	493	506	517	527	506	515	523	534	537	539	539	547	536	520	2475
30	532	529	536	537	536	540	539	538	527	518	501	486	505	534	540	539	530	530	548	528	529	526	523	510	528	2661
Mean	471	469	465	485	503	513	510	503	492	485	483	494	501	521	538	553	570	569	566	557	541	517	490	477	511	
Sum 13,000+	1121	1076	949	1550	2096	2395	2311	2075	1758	1566	1484	1807	2042	2619	3140	3584	4108	4059	3970	3704	3217	2501	1703	1300		Grand Total 368,135

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

2 LERWICK (D)		9° +																				SEPTEMBER 1959				
	Hour G.M.T.		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 1000.0+
	0-1	1-2																								
1	44.9	44.7	41.1	41.1	43.8	45.4	44.5	47.5	45.9	49.3	50.2	50.9	55.3	55.1	52.8	51.3	47.3	45.4	48.8	47.4	41.1	44.6	46.1	46.9	47.1	131.4
2	48.6	46.3	33.4	32.9	43.0	44.5	39.6	43.7	42.5	48.3	51.9	53.4	53.4	53.6	51.5	49.9	46.9	45.4	45.9	45.4	46.1	40.9	42.1	44.7	45.6	93.9
3	47.1	45.9	44.7	41.6	43.6	40.9	31.5	40.1	43.0	49.3	53.1	55.3	55.0	55.5	54.1	51.2	51.7	44.6	47.5	48.3	45.7	19.0	14.8	44.8	74.7	
4 d	32.0	23.1	18.5	26.2	41.1	41.6	48.8	47.3	39.7	52.3	55.5	58.6	56.7	55.0	62.5	56.8	51.2	53.1	50.7	48.6	46.6	46.1	40.8	41.1	45.6	93.9
5	37.7	34.4	40.3	38.2	38.2	38.8	38.7	41.3	41.4	45.3	48.3	50.4	55.0	55.1	53.0	50.2	48.3	44.5	38.2	43.2	48.6	53.8	42.7	38.7	44.3	64.3
6	29.8	30.1	35.0	35.8	38.2	38.5	38.9	38.9	41.6	45.4	48.3	52.6	54.5	54.9	51.7	49.0	47.3	46.4	46.4	48.2	48.8	48.8	48.3	46.9	44.3	64.3
7 q	45.9	46.6	44.0	42.6	41.7	40.1	38.9	37.7	38.8	43.4	47.6	51.7	53.4	52.8	52.6	51.7	50.7	49.3	49.7	49.7	47.8	46.9	48.8	46.9	46.6	119.3
8 q	45.9	44.0	44.7	44.3	44.2	42.9	40.1	40.3	42.1	46.5	49.9	54.3	55.8	56.8	55.5	52.3	47.1	48.8	50.5	50.0	49.9	48.4	50.4	49.5	48.7	154.2
9 q	45.4	44.4	43.5	41.8	42.4	41.1	39.9	39.5	41.6	44.3	47.3	51.7	53.6	54.3	53.3	51.9	49.7	49.5	50.2	50.7	49.7	48.7	46.7	43.5	46.9	124.7
10 q	44.0	44.7	44.0	42.3	42.8	42.7	42.7	41.1	40.6	43.2	48.0	51.5	53.3	54.8	53.8	52.1	51.7	53.1	52.1	52.1	51.4	50.7	38.9	42.6	47.3	134.2
11	43.0	44.0	42.5	42.8	41.7	41.1	40.1	40.6	41.8	45.4	49.5	55.0	56.5	57.4	55.0	52.2	51.7	51.2	51.7	51.7	46.4	42.4	46.9	39.9	47.1	130.5
12	39.2	33.6	35.3	44.2	41.1	40.6	40.1	41.9	43.0	45.4	48.0	51.7	53.1	53.6	52.3	49.9	45.4	47.4	50.7	49.1	49.7	49.1	49.2	47.3	45.9	100.9
13	50.7	45.4	42.7	40.9	41.1	41.6	42.1	42.5	43.5	47.6	49.5	50.2	51.7	52.1	52.6	51.2	50.7	50.9	51.9	50.7	50.2	46.7	34.9	32.9	46.4	114.3
14	42.5	44.7	43.0	41.9	36.3	39.0	42.1	41.5	43.3	44.5	48.5	52.1	52.6	56.7	55.7	52.6	51.7	50.5	50.2	49.4	48.6	36.8	41.1	45.9	46.3	111.2
15	44.7	44.0	42.7	43.0	42.7	41.6	39.5	39.2	37.7	45.6	49.9	53.4	52.8	54.5	52.6	50.7	52.1	48.3	49.5	50.1	36.8	35.1	47.3	47.1	45.9	100.9
16	47.1	45.4	28.4	30.1	39.7	42.5	43.0	41.1	42.3	45.2	49.3	52.1	54.1	53.1	54.1	50.5	48.6	50.0	49.7	46.7	41.6	46.7	47.8	47.1	45.7	96.2
17	45.4	44.5	43.7	42.6	42.7	41.9	43.7	43.8	42.8	44.5	47.3	51.9	51.2	52.1	56.7	53.2	49.5	50.7	51.9	51.0	40.4	36.0	45.7	46		

TERRESTRIAL MAGNETIC 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 1959

	Hour G.M.T.																								Mean	Sum 6000+
	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		
1	257	191	200	238	259	267	273	269	263	276	289	301	305	328	340	344	394	445	411	380	308	281	285	289	300	1193
2	272	191	141	169	176	162	224	262	285	299	308	295	287	287	293	295	306	324	339	358	308	249	267	260	265	357
3	180	209	256	284	283	273	269	278	284	289	293	292	292	291	293	321	354	386	401	373	336	313	183	539	303	1272
4 d	340	214	193	260	240	231	222	241	280	320	297	298	340	330	352	412	450	495	423	370	321	201	-19	68	287	879
5	147	105	178	238	293	292	315	313	316	319	313	313	321	339	341	333	326	337	343	326	299	216	1	64	266	388
6	-57	84	260	292	301	310	316	316	314	315	315	311	309	312	319	326	319	317	314	305	299	296	294	292	282	779
7 q	291	289	293	301	305	309	309	309	305	300	299	291	291	293	293	299	303	319	309	301	297	291	289	289	299	1175
8 q	289	286	293	291	291	293	297	297	291	285	281	284	293	296	303	316	328	315	303	297	297	301	299	239	294	1065
9 q	260	281	288	289	289	291	297	299	296	289	286	283	280	277	281	291	301	298	289	289	293	296	293	278	288	914
10 q	281	283	285	285	288	289	289	289	289	283	276	276	271	271	275	272	276	278	286	293	289	292	279	265	282	760
11	266	283	285	264	236	246	265	275	273	284	283	276	285	289	296	304	303	299	289	286	299	285	256	220	277	647
12	142	199	214	226	262	279	282	285	286	289	289	287	285	287	295	316	338	319	301	303	298	293	287	284	277	646
13	269	235	269	281	283	286	289	292	289	289	287	286	287	285	287	287	283	283	281	283	286	283	184	142	272	526
14	229	254	219	249	244	241	258	266	262	265	279	289	298	299	319	326	311	312	308	299	299	286	276	277	277	656
15	271	273	273	279	280	281	283	283	276	273	271	276	284	287	293	299	311	340	318	304	284	239	245	267	283	790
16	262	189	173	201	219	251	273	289	291	295	286	285	286	291	305	327	330	326	325	296	269	276	283	286	276	614
17	283	285	286	288	291	287	286	279	277	279	283	281	286	285	293	326	323	312	303	309	313	319	289	276	293	1039
18	258	237	251	261	272	281	285	288	290	289	287	278	278	293	319	332	315	310	338	346	318	259	145	66	275	596
19	97	131	180	215	170	192	254	284	294	295	290	274	284	277	277	280	282	284	285	284	282	281	277	274	252	43
20 d	272	275	243	243	252	241	225	248	274	280	298	315	332	395	435	414	399	440	464	394	239	135	10	6	285	829
21 d	-23	178	154	168	143	175	131	151	244	290	296	313	345	372	391	392	436	386	334	310	302	221	256	230	258	195
22 d	172	137	107	4	122	187	243	310	316	321	330	334	329	326	371	373	371	350	347	293	267	291	284	259	269	444
23	246	268	278	286	290	285	291	293	300	295	300	306	305	308	312	340	388	368	347	363	252	172	194	140	289	927
24	186	246	224	214	226	258	274	287	304	308	308	303	315	352	390	361	361	333	326	336	311	259	270	241	291	993
25 d	170	149	181	191	157	218	258	281	293	306	326	350	341	357	398	444	448	410	376	376	357	232	175	232	293	1026
26	279	249	188	227	258	277	287	296	304	298	300	308	335	347	324	308	321	339	330	324	285	292	269	181	289	926
27	215	224	248	272	289	277	274	282	289	293	305	322	329	334	362	381	399	354	321	320	277	280	241	280	299	1168
28	285	230	196	258	274	277	274	267	280	292	296	293	296	300	311	308	298	308	345	332	313	300	273	259	286	865
29 q	248	235	250	277	286	287	287	287	288	292	287	289	298	313	324	321	306	301	297	290	290	292	287	284	288	916
30	284	277	282	286	287	284	284	284	286	285	293	298	300	322	343	366	373	351	329	316	303	298	270	261	303	1262
Mean	222	223	230	245	252	261	271	280	288	293	295	297	303	311	325	334	342	341	333	322	296	268	231	235	283	
Sum 6000+	671	687	888	1337	1566	1827	2114	2400	2639	2793	2851	2907	3087	3343	3735	4014	4253	4239	3982	3656	2882	2029	942	1048		Grand Total 203,890

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

4 LERWICK

SEPTEMBER 1959

	TERRESTRIAL MAGNETIC ELEMENTS												3-hr. range indices K	Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +	
	Horizontal force			Declination			Vertical force										
	Maximum 14,000γ +	Minimum 14,000γ +	Range	Maximum g° +	Minimum g° +	Range	Maximum 47,000γ +	Minimum 47,000γ +	Range								
1	h. m.	γ	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	4,3,2,3,3,5,5,2	27	1	84.6
2	17 12	689	460	01 38	229	13 00	56.9	30.3	20 27	26.6	17 20	457	151	01 43	306	1	84.7
3	18 57	627	352	05 03	275	13 22	56.2	26.1	02 25	30.1	19 18	376	111	02 01	265	1	84.8
4 d	18 15	684	-637	23 22	1321	11 24	57.1	-37.1	23 33	94.2	23 34	780	85	22 27	695	2	85.0
5	16 12	902	-234	03 29	1136	14 57	67.7	-30.4	03 31	98.1	00 11	606	-135	22 13	741	2	84.9
6	17 51	619	163	01 30	456	23 52	61.8	17.4	23 55	44.4	18 22	358	-83	23 51	441	2	84.9
7 q	21 20	544	-88	00 42	632	13 03	57.6	16.2	00 07	41.4	15 20	327	-170	00 54	497	1	85.0
8 q	16 47	591	459	10 21	132	12 50	54.3	36.1	08 15	18.2	17 40	323	284	23 10	39	0	85.0
9 q	17 10	567	462	09 54	105	14 12	58.6	38.5	06 47	20.1	16 20	332	226	23 23	106	0	85.3
10 q	23 06	557	473	10 10	84	13 44	55.0	38.0	07 26	17.0	16 50	306	250	00 01	56	0	85.0
11	22 24	580	490	10 00	90	13 45	56.4	30.9	22 44	25.5	22 10	297	248	23 53	49	0	85.0
12	21 33	567	471	12 40	96	13 37	61.5	35.7	23 43	25.8	15 46	309	158	24 00	151	1	85.2
13	15 35	568	467	10 25	101	13 35	54.9	27.3	02 09	27.6	16 15	342	131	00 21	211	1	85.0
14	22 03	643	463	23 19	180	00 50	57.8	23.1	23 02	34.7	08 02	293	124	23 17	169	1	85.0
15	16 50	565	479	08 13	86	13 59	59.4	28.8	21 45	30.6	15 22	330	181	00 00	149	1	84.8
16	16 24	597	491	09 40	106	13 26	59.9	26.4	20 55	33.5	17 39	353	224	21 51	129	1	84.8
17	19 53	572	436	02 14	136	14 55	55.5	23.5	02 40	32.0	16 15	332	146	02 12	186	1	84.7
18	20 50	625	483	12 21	142	14 40	59.5	27.4	21 02	32.1	20 59	336	266	23 00	70	1	84.4
19	18 43	579	374	23 12	205	23 09	63.4	23.3	22 28	40.1	18 58	363	-12	24 00	375	1	84.3
20 d	23 23	564	283	04 20	281	11 59	60.5	22.4	01 38	38.1	08 55	298	-22	00 02	320	1	84.7
21 d	19 41	944	-227	23 57	1171	19 46	93.0	-14.6	20 00	107.6	17 49	508	-208	23 55	716	2	84.7
22 d	16 49	1014	-16	00 07	1030	06 37	88.4	-25.8	00 27	114.2	16 43	506	-204	00 15	710	2	84.7
23	14 53	648	-412	02 06	1060	03 02	66.2	17.5	05 13	48.7	18 26	395	-88	03 20	483	1	84.7
24	16 29	642	276	21 01	366	21 02	67.7	21.4	23 15	46.3	16 34	407	81	23 20	326	1	84.3
25 d	13 50	574	420	00 00	154	12 17	56.2	25.3	00 03	30.9	14 29	401	113	00 10	288	1	84.0
26	16 25	937	231	01 20	706	16 37	64.1	17.2	01 49	46.9	16 20	497	111	22 00	386	2	84.2
27	12 53	564	353	02 07	211	23 14	58.9	29.8	19 40	29.1							

TERRESTRIAL MAGNETIC 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 1959

	Hour G.M.T.																										Mean	Sum 5000+
	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				
1 d	219	175	189	164	123	164	206	241	244	269	299	321	347	360	371	429	381	364	378	350	286	130	230	290	272	1530		
2	289	271	272	286	213	133	181	229	261	278	288	298	301	298	298	297	292	290	287	291	288	292	310	305	273	1548		
3 d	301	303	301	294	288	282	268	265	277	285	288	288	301	309	334	398	405	407	409	360	285	267	280	67	303	2262		
4 d	55	64	97	81	120	170	248	277	297	304	305	322	349	400	385	373	391	386	337	326	281	268	210	187	260	1233		
5	249	250	161	119	173	212	256	282	289	328	301	307	329	348	359	382	433	497	469	407	265	197	236	191	293	2040		
6 d	134	222	216	225	223	188	216	251	288	333	362	351	370	395	386	391	437	392	371	350	293	233	258	273	298	2158		
7	270	265	265	252	251	270	289	298	299	301	306	311	310	305	301	303	308	302	303	305	307	235	171	225	281	1755		
8	249	267	273	273	277	281	288	294	299	301	301	295	294	295	301	305	307	302	297	295	293	292	292	285	290	1956		
9	284	272	269	280	284	286	288	290	292	295	295	293	290	290	290	296	305	295	295	308	303	292	290	288	290	1970		
10 q	283	278	278	281	284	285	285	289	290	292	293	292	288	286	284	286	292	299	294	300	297	295	290	280	288	1921		
11 q	273	275	282	284	285	284	282	283	284	285	286	285	284	282	285	286	286	288	288	292	292	288	282	278	284	1819		
12	283	287	289	286	285	283	283	285	288	286	283	281	281	281	281	286	290	294	300	316	342	319	296	292	292	1997		
13 q	294	292	290	287	286	285	284	284	284	284	283	282	276	275	278	283	284	284	282	280	282	285	286	286	284	1818		
14	278	281	285	287	285	283	281	281	279	278	276	277	277	277	285	291	295	298	298	315	335	330	313	281	270	1959		
15	253	260	278	283	265	267	276	282	283	281	277	279	285	290	298	318	312	297	293	296	249	200	245	275	277	1642		
16 q	282	287	288	288	288	288	288	287	285	282	281	277	281	281	285	291	294	289	288	288	291	287	283	283	286	1862		
17	285	286	287	285	286	283	280	280	279	274	277	276	281	289	290	296	298	301	324	334	334	323	297	295	293	2040		
18	271	215	150	214	241	272	284	287	288	291	286	285	290	314	324	317	361	350	321	312	289	259	236	220	278	1677		
19	222	247	258	254	272	289	293	294	295	296	298	296	298	302	300	299	300	296	305	297	287	287	287	280	285	1842		
20	232	268	283	287	286	285	287	287	285	287	289	291	291	292	295	295	295	291	291	291	288	287	285	274	285	1852		
21	283	285	285	285	286	286	287	291	292	291	289	285	280	281	279	280	285	287	286	285	285	280	266	262	283	1801		
22	258	245	258	263	270	268	277	281	281	292	298	306	325	347	357	371	377	357	334	317	309	281	249	236	298	2157		
23	244	209	190	221	249	272	283	284	288	290	295	302	295	295	295	298	300	298	296	293	292	289	289	289	277	1656		
24	288	288	287	285	287	289	291	291	295	293	291	288	291	301	301	295	304	298	291	291	292	299	289	265	291	1990		
25	259	232	216	200	190	233	250	268	271	277	288	305	308	306	319	322	346	332	311	302	296	290	232	174	272	1527		
26	203	209	251	273	272	280	244	256	272	285	285	296	305	306	335	434	422	421	365	352	325	255	211	236	296	2093		
27	260	273	274	274	268	270	270	272	285	289	296	304	311	311	317	316	312	311	298	292	291	288	287	288	290	1957		
28 q	281	285	285	285	281	280	279	279	285	287	285	283	279	278	278	280	281	280	281	282	285	287	288	289	283	1783		
29	288	285	283	283	281	281	280	278	283	283	283	281	284	285	287	294	291	285	285	285	285	286	286	284	284	1826		
30	275	198	152	219	242	260	266	272	276	272	273	275	278	285	285	285	285	285	299	303	283	176	127	118	250	989		
31 d	203	270	290	289	285	285	283	281	281	288	288	302	345	338	342	380	429	476	419	284	218	92	166	205	293	2039		
Mean	253	253	251	254	256	261	270	278	284	289	292	295	301	307	311	322	329	327	320	310	292	264	259	251	285			
Sum 7000+	848	844	782	887	926	1094	1373	1619	1795	1976	2044	2128	2323	2513	2636	2982	3201	3153	2910	2621	2046	1173	1035	790		Grand Total 211,699		

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

4 LERWICK

OCTOBER 1959

	TERRESTRIAL MAGNETIC ELEMENTS													3-hr. range indices K	Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 + °A.		
	Horizontal force					Declination			Vertical force										
	Maximum 14,000γ +	Minimum 14,000γ +	Range	Maximum 9° +	Minimum 9° +	Range	Maximum 47,000γ +	Minimum 47,000γ +	Range	Maximum 47,000γ +	Minimum 47,000γ +	Range							
1 d	h. m.	γ	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	4,4,4,4,4,4,5,7	36	1	84.8		
2	18 23	559	398	04 30	161	04 45	59.7	36.8	08 23	22.9	22 57	316	123	05 18	193	3,5,4,3,1,2,2,2	22	1	84.8
3 d	17 00	908	-181	23 02	1089	17 28	91.5	-30.8	22 45	122.3	18 15	486	-99	23 15	585	1,2,3,2,3,6,8,7	32	2	85.0
4 d	13 38	656	164	04 08	492	12 53	61.5	-3.0	03 00	64.5	13 38	426	22	02 40	404	5,6,4,3,4,3,4,4	33	1	85.0
5	18 03	882	-68	20 56	950	21 07	117.4	8.7	03 19	108.7	17 15	531	-109	20 55	640	5,5,3,2,3,6,8,7	39	2	85.0
6 d	16 50	630	264	00 02	366	07 05	59.4	7.8	00 18	51.6	16 15	473	76	00 25	397	6,4,4,4,4,4,5,4	35	1	85.0
7	21 20	581	462	01 16	119	22 25	61.0	31.0	20 10	30.0	11 30	318	151	22 23	167	3,3,2,2,3,2,2,4	21	1	84.9
8	19 00	546	485	10 21	61	14 22	53.2	41.6	08 27	11.6	15 46	309	240	00 00	69	3,2,2,2,1,2,1,1	14	0	85.0
9	19 20	546	491	11 50	55	01 29	54.0	36.3	19 43	17.7	19 59	327	259	01 53	68	3,1,1,1,1,1,3,1	12	0	84.9
10 q	18 01	564	492	11 52	72	14 18	53.9	38.9	17 37	15.0	17 26	304	276	23 46	28	1,1,1,1,1,3,2,1	11	0	84.3
11 q	20 29	558	507	12 32	51	20 32	54.1	38.9	22 11	15.2	20 28	297	270	00 36	27	1,0,1,1,1,1,3,2	10	0	84.0
12	16 50	568	508	11 03	60	14 40	56.5	32.9	21 10	23.6	20 53	353	278	14 18	75	1,0,1,0,2,2,3,3	12	0	83.7
13 q	19 09	562	510	12 13	52	13 26	54.1	41.6	09 29	12.5	00 51	295	274	11 57	21	1,0,1,1,1,1,1,1	7	0	83.5
14	22 08	579	486	11 42	93	12 51	63.1	30.2	22 03	32.9	19 29	338	255	24 00	83	1,1,1,3,3,2,3,3	17	0	83.5
15	21 56	566	474	21 07	92	20 26	60.8	33.7	21 50	27.1	15 42	326	179	21 21	147	2,2,2,2,2,2,4,4	20	1	83.7
16 q	24 00	553	509	11 02	44	12 32	52.4	40.6	20 30	11.8	20 24	295	277	11 22	18	1,0,0,0,0,1,3,1	6	0	83.7
17	20 26	587	496	10 50	91	12 36	60.8	32.5	21 47	28.3	20 20	359	268	09 24	91	1,0,1,3,3,2,4,3	17	1	83.9
18	16 24	567	420	10 41	147	13 43	63.9	20.7	02 28	43.2	16 39	384	115	02 20	269	5,4,2,3,3,4,4,4	29	1	84.1
19	23 58	565	469	00 00	96	13 52	53.2	36.0	18 51	17.2	18 40	313	194	00 03	119	3,3,2,2,1,1,3,3	18	1	83.9
20	00 00	564	491	12 43	73	00 14	53.2	40.7	00 46	12.5	15 47	296	217	00 09	79	3,1,2,2,1,1,1,1			

TERRESTRIAL MAGNETIC 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 1959				
	Hour G.M.T.												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 11,000+
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12														
1 d	456	492	481	520	502	505	533	495	473	446	506	532	560	593	547	524	553	546	523	513	506	492	445	447	508	1190
2 d	353	415	234	414	433	469	528	493	448	479	502	515	528	564	597	591	612	634	615	532	358	460	491	257	480	522
3 d	279	424	380	451	521	512	499	513	495	504	495	508	518	527	543	580	573	571	528	521	507	498	495	520	498	962
4	517	521	522	524	524	521	523	517	506	500	494	509	523	546	599	629	578	530	514	526	472	462	392	412	515	1361
5	359	494	444	442	491	498	517	485	503	519	498	509	491	520	534	526	530	535	532	543	542	536	541	535	505	1124
6	524	519	492	515	535	540	522	529	530	520	498	506	507	513	522	524	530	535	542	540	521	548	528	534	524	1574
7	535	535	536	535	529	532	536	539	533	526	514	503	500	510	520	525	520	534	529	527	523	529	540	540	527	1650
8	541	541	541	531	544	548	542	539	537	527	508	507	504	513	511	524	527	536	536	532	537	543	541	541	531	1751
9	537	537	539	545	547	551	551	548	546	539	528	521	517	524	537	538	549	535	538	558	577	537	542	539	541	1980
10	542	527	526	528	534	542	545	541	545	542	525	513	511	518	528	536	543	551	550	549	554	553	559	539	538	1901
11 q	534	539	537	536	540	542	540	540	535	524	514	510	510	517	526	531	536	541	546	547	547	548	538	537	534	1815
12 q	540	538	543	541	540	542	545	547	546	536	526	519	522	524	529	537	548	550	561	554	552	551	545	549	541	1985
13	532	535	539	538	542	545	552	553	549	537	526	529	530	537	553	551	556	560	558	565	565	581	563	549	548	2145
14	536	517	498	528	536	540	545	541	529	528	524	513	500	523	532	543	536	533	534	548	550	545	523	548	531	1750
15 q	545	530	530	530	534	536	537	535	529	521	512	506	510	515	522	528	532	537	540	541	541	541	545	545	531	1742
16	539	541	542	544	548	549	549	549	542	530	520	511	512	523	529	523	535	542	525	528	526	519	528	534	533	1788
17	532	534	527	510	532	548	545	539	532	523	516	498	496	516	516	519	524	532	536	536	539	541	537	530	527	1658
18	534	532	534	535	537	541	549	551	543	531	529	518	513	519	516	521	533	547	585	528	535	537	539	535	535	1842
19	536	535	537	540	545	541	545	533	523	512	511	517	510	512	516	522	528	532	537	539	539	537	545	537	530	1729
20 q	535	539	537	536	544	545	545	540	534	523	517	516	516	523	530	535	537	541	545	543	541	541	545	545	536	1853
21	545	545	544	545	552	553	552	552	545	530	528	521	529	542	578	615	556	513	524	527	519	501	505	452	536	1873
22	476	520	528	519	541	554	551	545	527	518	513	513	510	520	524	533	534	541	554	556	552	540	537	527	531	1733
23	461	442	400	425	440	450	483	467	505	499	475	494	504	531	582	551	542	524	528	529	542	521	530	533	498	958
24 q	531	528	520	530	530	534	536	536	533	524	519	519	528	525	520	524	531	535	536	535	534	536	540	541	530	1725
25	538	530	535	538	543	547	549	549	538	529	525	517	516	527	513	513	516	527	532	534	531	521	519	513	529	1700
26	530	534	534	539	540	548	552	539	537	525	505	503	499	521	526	531	535	543	543	548	547	537	532	512	532	1760
27	533	526	527	526	533	539	536	535	532	529	527	527	533	538	545	547	545	556	558	551	547	540	536	539	538	1905
28 d	529	567	588	436	218	189	388	475	498	496	461	479	526	539	527	516	510	511	511	532	527	453	482	490	477	448
29	480	463	475	501	522	527	527	526	522	518	492	482	505	513	546	535	520	523	517	522	521	512	517	513	512	1279
30 d	519	516	519	524	526	529	540	544	526	492	521	524	523	529	622	758	730	768	552	519	518	513	434	439	549	2185
Mean	505	517	506	514	517	521	532	530	525	518	511	511	515	527	540	548	547	549	541	537	529	526	521	511	525	
Sum 15,000+	148	516	189	426	503	617	962	895	741	527	329	339	451	822	1190	1430	1399	1463	1229	1123	870	773	614	332		Grand Total 377,888

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

2 LERWICK (D)		9° +																				NOVEMBER 1959				
	Hour G.M.T.												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 900.0+
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12														
1 d	38.7	45.3	43.4	47.3	41.1	52.6	45.9	46.4	46.7	50.2	50.1	49.5	51.5	50.3	53.0	47.5	47.1	43.5	44.9	39.9	36.7	45.4	35.8	36.8	45.4	189.6
2 d	45.7	45.9	42.1	42.1	64.1	55.1	46.4	44.6	51.9	52.8	50.1	49.6	52.0	55.5	49.2	51.6	53.8	49.2	38.2	32.2	34.4	24.0	32.1	31.2	45.6	193.8
3 d	34.8	25.1	40.6	46.8	44.5	44.4	43.3	47.8	47.2	44.7	44.0	46.2	52.1	50.7	43.0	47.8	44.9	41.9	34.8	41.6	41.4	37.6	38.7	41.7	42.7	125.6
4	44.7	45.4	46.0	45.3	44.8	43.8	45.3	45.9	44.7	45.1	46.1	48.8	56.2	54.1	56.5	53.3	50.2	49.4	47.2	22.1	38.2	37.5	37.7	34.4	45.1	182.7
5	40.7	41.1	35.1	46.3	42.7	45.7	46.4	48.0	47.8	47.5	47.3	46.7	48.2	49.9	43.6	47.1	43.5	44.0	45.3	37.7	41.6	45.3	46.0	43.8	44.6	171.3
6	44.7	42.3	37.7	39.6	41.1	43.5	46.9	48.0	45.9	45.7	46.9	49.5	51.9	51.2	50.7	44.0	43.4	44.8	42.5	41.1	39.0	29.1	40.1	44.0	43.9	153.6
7	44.9	46.3	45.6	45.4	47.5	46.5	44.7	43.8	42.3	42.1	44.5	47.1	49.3	50.3	49.8	47.2	46.2	45.8	36.9	44.6	35.5	43.0	44.9	46.4	45.0	180.6
8	46.6	45.9	44.9	47.4	43.4	44.3	44.5	45.3	45.6	44.2	45.6	48.5	50.1	51.9	49.3	50.1	49.5	49.3	47.5	46.4	44.7	46.4	46.9	47.0	46.9	225.3
9	46.2	45.4	44.9	45.3	44.8	45.6	45.4	44.9	44.5	44.7	46.4	48.3	49.2	50.9	51.2	52.1	53.2	53.2	44.9	33.2	37.7	41.4	44.0	46.2	208.0	
10	35.9	36.3	40.8	42.1	43.5	43.0	43.0	43.9	43.0	44.6	46.2	48.3	51.9	53.6	54.5	52.4	53.1	53.1	52.1	49.7	47.9	47.3	35.7	40.4	45.9	202.3
11 q	40.1	42.2	44.9	44.5	44.2	43.6	44.8	44.5	43.7	43.3	44.6	46.9	48.5	50.1	50.4	49.3	49.2	48.4	49.2	48.3	46.9	45.9	44.9	42.6	45.9	201.0
12 q	42.9	43.2	42.5	40.5	42.1	43.6	44.5	44.7	44.0	43.0	45.6	46.4	49.1	50.6	50.1	50.3	50.6	51.2	54.5	53.3	46.4	46.3	44.7	34.9	46.0	205.0
13	39.9	43.5	43.9	44.2	44.5	44.5	46.1	45.3	44.3	44.0	44.4	49.0	48.8	52.6	55.5	55.1	55.5	57.1	54.9	52.2	49.4	44.0	33.4	41.8	47.2	233.9
14	41.1	42.1	30.8	36.0	39.7	42.5	42.5	43.0	41.9	43.3	47.2	52.1	49.3	54.3	56.0	52.0	50.2	45.3	48.2	45.3	41.1	39.2	41.5	44.4	44.5	169.0
15 q	45.1	45.9	45.7	46.4	46.3	45.5	44.7	43.7	43.0	43.8	45.4	47.3	49.2	50.1	50.3	49.3	48.7	47.1	47.1	46.4	45.1	44.9	46.6	44.5	46.3	212.1
16	46.4	46.9	46.4	46.4	45.9	45.5	45.2	44.6	43.5	42.7	44.0	46.4	48.4	50.1	49.7	51.1	50.2	43.0	45.4	41.8	39.7	38.7	41.6	44.5	45.3	188.1
17	47.8	47.5	45.9	53.4	52.1	48.1	45.3	42.6	42.5	44.1	46.9	49.2	52.9	52.7	51.2	48.8	46.5	45.3	45.4	45.8	45.5	45.9	46.1	44.5	47.3	236.0
18	42.1	41.0	42.9	43.																						

TERRESTRIAL MAGNETIC 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 1959						
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 5000+	
1 d	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	286	1861
2 d	186	225	227	248	235	175	197	247	273	294	305	340	362	404	372	374	380	379	383	332	290	267	173	193	183	243	835	
3 d	105	98	28	9	54	126	219	265	292	277	292	310	376	380	408	393	465	366	298	346	171	183	191	183	243	2079		
4	149	190	187	217	255	266	279	290	296	311	326	318	320	340	375	390	418	388	366	346	313	230	235	274	295	2644		
5	290	298	300	302	303	299	294	294	307	318	332	342	353	360	394	431	465	410	356	288	193	223	262	230	319	1848		
6	177	140	175	210	257	263	273	296	306	320	332	346	322	327	345	330	326	316	312	308	296	295	290	286	285	1770		
7	267	181	175	221	254	271	275	277	283	296	304	307	307	302	306	321	330	340	335	303	302	271	261	281	282	2210		
8	288	293	293	293	295	278	287	293	302	306	306	305	305	308	310	311	323	312	320	310	287	293	296	296	300	2290		
9	294	293	290	273	234	250	271	283	292	300	306	308	308	312	334	330	316	320	352	373	339	312	301	299	304	2151		
10	298	298	296	291	289	287	288	291	295	296	298	298	296	292	291	294	295	312	330	352	285	275	300	304	298	2071		
11 q	295	296	299	300	294	286	287	290	293	290	294	296	296	293	294	296	298	300	303	303	298	300	283	287	295	2059		
12 q	283	283	294	296	295	293	290	291	293	297	299	300	296	292	294	294	293	290	292	293	296	298	303	304	294	2090		
13	305	303	289	283	285	288	288	285	289	295	297	298	294	294	294	294	290	292	295	323	319	306	301	283	295	2052		
14	296	298	293	293	292	289	282	280	285	290	292	289	286	285	289	291	293	295	304	308	308	318	296	300	294	2207		
15 q	291	232	185	227	270	284	283	285	291	296	296	303	336	338	335	374	378	372	336	313	315	287	293	287	300	2105		
16	281	285	291	296	296	298	297	297	298	300	301	300	302	300	301	303	303	302	300	298	296	295	283	282	296	2310		
17	291	294	296	296	295	295	293	292	296	296	295	295	295	296	302	308	314	354	372	375	352	335	305	291	310	2433		
18	291	289	265	270	219	220	260	280	290	294	295	304	313	314	312	308	306	303	300	296	293	292	293	290	287	1897		
19	281	277	273	269	261	271	278	278	280	280	288	288	292	303	318	315	306	310	363	286	310	304	295	293	292	2009		
20 q	291	291	295	295	295	295	294	296	303	311	306	311	314	316	326	333	330	320	310	304	299	298	289	287	305	2309		
21	284	259	260	278	287	289	291	295	300	303	296	296	296	293	292	294	295	296	296	298	298	298	290	291	291	1975		
22	291	290	290	287	275	278	283	285	290	295	295	298	303	327	379	461	457	388	370	376	351	336	312	290	325	2807		
23	269	279	290	282	238	264	277	288	296	296	298	304	311	303	302	304	310	318	344	360	352	318	306	300	300	2209		
24 q	267	215	148	140	195	213	235	258	277	304	326	345	348	372	406	380	376	396	391	350	279	285	295	298	296	2099		
25	295	289	274	273	290	296	298	302	303	307	308	307	305	308	315	315	313	311	318	318	318	322	316	313	303	304	2299	
26	292	292	286	292	294	295	295	295	298	296	298	302	304	310	326	336	343	339	344	348	344	328	312	227	308	2396		
27	263	289	290	285	289	285	282	285	287	293	303	306	305	304	306	303	300	298	300	298	304	316	316	326	297	2133		
28 d	302	304	307	306	302	293	290	290	296	301	303	306	304	302	301	299	302	302	312	335	316	321	320	314	305	2308		
29	279	341	247	54	35	68	106	207	246	291	314	350	332	344	350	348	335	326	323	350	346	231	282	272	266	1377		
30 d	261	225	207	223	271	287	293	302	304	310	320	330	328	333	358	366	360	353	346	328	315	300	294	293	304	2307		
Mean	268	264	254	253	258	263	273	283	292	299	304	311	315	321	332	339	345	335	333	326	305	292	286	278	297	213,855		
Sum 7000+	1031	925	616	584	741	896	1174	1501	1754	1976	2121	2316	2456	2643	2971	3165	3345	3061	2975	2771	2139	1759	1588	1347	297	Grand Total		

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

4 LERWICK		TERRESTRIAL MAGNETIC ELEMENTS										3-hr. range indices K		Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +			
		Horizontal force			Declination			Vertical force											
		Maximum 14,000γ +	Minimum 14,000γ +	Range	Maximum 9° +	Minimum 9° +	Range	Maximum 47,000γ +	Minimum 47,000γ +	Range									
		h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ								
1 d	13 22	616	401	00 05	215	05 27	63.5	25.5	20 11	38.0	16 59	419	137	22 30	282	4,4,4,4,4,3,4,4	31	1	81.7
2 d	17 34	855	-193	23 52	1048	20 16	86.6	10.9	17 38	75.7	16 55	500	-42	02 54	542	6,6,4,4,5,7,7,8	47	2	81.6
3 d	17 50	666	7	00 14	659	20 58	61.6	-3.2	00 20	64.8	16 30	471	81	00 23	390	7,5,3,3,3,5,5,5	36	2	81.6
4	15 31	664	341	22 34	323	20 28	63.7	-5.8	19 15	69.5	16 06	482	119	20 27	363	1,2,3,3,4,5,6,4	28	1	81.0
5	19 50	571	307	00 30	264	13 09	52.9	30.0	19 45	22.9	14 23	352	111	00 20	241	5,4,3,3,3,2,3,2	25	1	80.8
6	21 35	576	477	10 47	99	00 56	58.0	17.5	21 28	40.5	18 10	350	152	01 36	198	4,4,2,3,2,2,3,4	24	1	81.2
7	20 11	565	489	12 30	76	05 05	52.6	21.1	20 08	31.5	18 22	330	269	05 29	61	1,3,2,2,2,2,4,3	19	1	81.2
8	04 56	559	497	12 04	62	13 30	53.6	41.3	04 56	12.3	19 19	382	227	04 22	155	1,3,2,2,2,2,3,2	17	1	81.2
9	19 51	596	516	12 40	80	18 13	54.2	23.3	20 45	30.9	19 45	376	250	20 50	126	1,1,0,2,2,2,4,4	16	0	81.4
10	22 19	587	503	12 28	84	13 57	55.9	28.6	22 15	27.3	22 13	310	273	22 45	37	3,1,1,2,2,1,2,3	15	0	81.0
11 q	21 32	553	505	12 05	48	14 17	51.4	39.2	00 12	12.2	23 52	310	278	01 21	32	2,1,0,1,1,1,1,1	8	0	80.7
12 q	23 17	579	514	11 54	65	19 01	59.0	31.3	23 16	27.7	19 38	338	269	23 23	69	2,2,0,1,1,1,3,3	13	0	80.5
13	21 54	608	522	10 51	86	14 55	61.5	27.8	22 21	33.7	21 45	330	278	22 28	52	2,1,1,2,3,2,2,4	17	1	80.3
14	23 19	571	482	12 12	89	13 20	61.5	27.0	02 27	34.5	15 40	412	152	02 18	260	5,3,2,3,3,3,4,3	26	1	80.4
15 q	00 45	554	505	11 55	49	14 16	51.3	41.1	00 00	10.2	16 48	305	275	23 57	30	2,0,1,1,1,1,0,2	8	0	80.6
16	07 08	552	508	11 40	44	18 08	52.9	37.4	21 14	15.5	17 46	393	285	22 51	108	1,0,1,2,1,4,3,3	15	0	80.7
17	05 15	556	485	12 13	71	03 39	58.3	41.6	07 10	16.7	12 54	318	201	05 00	117	2,3,3,2,2,1,0,1	14	0	81.0
18	18 54	767	497	19 30	270	18 40	56.7	16.7	18 56	40.0	18 50	411	249	19 24	162	1,2,1,2,2,2,6,1	17	1	81.0
19	06 05	553	502	14 50	51	14 14	55.0	41.3	23 17	13.7	14 58	338	280	22 52	58	1,1,2,2,2,2,0,1	11	0	80.6
20 q	22 23	554	514	10 04	40	13 57	50.5	40.2	02 25	10.3	09 10	304	240	01 53	64	3,1,1,1,0,0,0,1	7	0	81.0
21	15 15	629	392	23 54	237	15 47	69.9	36.7	22 52	33.2	15 59	485	269	23 43	216	0,2,1,2,4,4,3,4	20	1	81.0
22	20 12	579	400	00 00	179	04 02	60.5	32.6	00 25	27.9	20 11	376	227	04 20	149	4,3,3,2,2,2,3,3	22	1	81.3
23	14 29	618	377	02 51	241	13 55	64.3	8.0	02 42	56.3	14 33	425	99	03 57	326	5,4,4,3,4,3,5,3	31	1	

TERRESTRIAL MAGNETIC 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 1959				
	Hour G.M.T.		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 12,000+
	0-1	1-2																								
1	484	517	494	453	495	513	520	511	514	490	479	493	518	523	523	523	523	533	534	526	526	523	527	529	511	271
2	528	515	511	518	516	500	539	533	523	504	501	501	518	529	537	579	524	526	519	512	487	495	517	510	518	442
3 d	510	508	493	498	510	505	497	502	496	489	495	519	594	597	583	635	530	534	541	540	549	537	482	497	527	641
4	495	506	495	497	519	522	529	531	525	512	512	514	510	510	518	528	530	529	527	532	526	517	528	534	519	446
5 d	533	531	532	535	537	538	538	550	538	527	533	536	515	532	639	1063	984	705	618	605	514	419	487	496	584	2005
6	487	478	479	482	495	506	499	500	501	508	508	515	516	514	511	511	518	521	514	512	521	522	526	521	507	165
7 q	508	498	504	517	523	521	522	523	519	517	516	516	518	516	515	516	518	528	531	531	531	530	537	524	520	479
8	524	526	525	525	528	529	529	529	532	528	526	529	528	529	530	535	544	533	543	542	541	534	540	541	532	770
9	535	529	531	532	535	535	535	541	548	545	539	533	535	535	534	541	548	549	549	552	556	558	552	549	541	996
10 q	554	538	533	535	541	544	544	544	543	542	541	539	538	538	540	545	549	548	549	544	541	542	541	544	542	1017
11 q	542	539	538	537	537	541	552	542	541	537	536	538	539	540	545	548	546	548	552	552	552	548	550	545	544	1045
12	542	543	537	551	540	550	549	544	541	532	535	535	535	530	535	545	545	550	542	547	548	529	486	497	537	888
13	513	444	489	528	526	534	537	537	539	532	532	529	529	532	534	538	543	542	539	547	542	555	504	498	528	663
14 d	500	439	451	494	510	540	544	512	505	512	506	504	541	554	545	555	584	590	515	518	519	512	510	520	520	480
15	510	523	515	515	520	503	510	517	506	505	504	529	525	529	534	534	529	535	523	529	533	537	545	545	523	555
16	520	522	513	529	541	543	544	544	532	517	509	513	525	526	514	531	536	518	526	523	520	521	517	511	525	595
17	509	518	526	530	532	534	541	543	536	529	525	523	519	525	532	533	535	538	530	530	530	533	540	536	530	727
18	550	539	537	538	545	550	549	540	544	534	531	534	529	518	529	525	534	541	544	545	538	533	530	537	898	
19	538	538	530	519	538	545	553	548	540	517	515	517	519	556	563	536	529	532	532	531	534	534	532	527	534	823
20	525	525	529	535	538	540	540	542	543	539	534	529	525	526	531	535	538	532	530	532	535	532	536	533	533	804
21 q	535	538	538	541	544	544	547	547	544	540	535	531	528	530	536	541	544	545	550	551	550	547	545	540	541	991
22 q	533	535	536	540	545	548	553	554	554	548	542	542	543	547	549	549	558	549	548	555	558	552	541	534	546	1113
23	538	540	540	539	543	547	547	546	548	543	532	526	529	537	547	561	651	643	544	571	549	537	526	472	548	1156
24	487	515	529	526	523	530	534	541	531	506	496	512	517	526	535	536	535	537	541	541	544	545	545	537	528	669
25	531	532	534	545	551	546	545	547	544	531	519	523	526	526	528	524	534	537	527	528	536	540	537	547	535	838
26	541	541	534	536	532	540	547	546	549	544	537	515	503	535	526	536	552	538	536	521	520	543	496	449	530	717
27 d	446	490	500	535	538	544	542	542	532	511	503	522	535	530	538	552	548	529	528	522	517	518	522	442	520	486
28 d	480	517	500	517	534	523	535	534	531	530	519	507	519	532	555	568	565	586	564	558	527	519	509	504	531	732
29	487	491	506	495	494	524	535	527	526	506	503	507	518	519	516	520	528	532	533	535	536	538	531	532	518	439
30	537	537	539	543	536	544	540	534	532	523	520	520	497	507	516	519	525	532	530	532	528	533	533	537	529	694
31	535	538	541	546	543	543	547	539	536	535	525	520	521	525	528	537	538	539	538	535	534	533	539	540	536	855
Mean	518	518	518	524	529	533	537	535	532	524	520	522	526	531	538	558	557	548	539	539	535	530	526	520	531	
Sum 16,000+	57	50	59	231	409	526	643	590	493	233	108	171	312	473	666	1299	1265	998	694	698	569	421	314	121		Grand Total 395,400

544 at 0-1h. January 1, 1960.

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

2 LERWICK (D)		9° +																				DECEMBER 1959				
	Hour G.M.T.		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 1000.0+
	0-1	1-2																								
1	34.5	45.0	44.2	44.6	45.3	48.1	52.2	50.1	47.7	48.4	48.6	50.3	52.8	54.0	55.9	47.8	45.8	42.9	42.0	42.2	42.7	44.0	42.9	44.4	46.5	116.4
2	40.5	40.9	43.8	48.0	50.3	48.9	49.8	49.9	46.3	46.2	48.0	51.1	50.1	51.8	49.1	43.8	48.9	47.9	41.9	36.4	42.2	39.7	40.7	34.6	45.5	90.8
3 d	29.2	34.6	37.5	47.7	49.2	60.7	57.4	50.1	49.6	46.3	55.3	49.1	50.7	51.3	53.0	42.5	51.8	49.0	41.1	39.4	41.1	31.4	38.6	47.5	46.0	104.1
4	46.9	46.2	40.4	40.7	45.0	44.3	45.5	46.0	44.6	45.7	47.7	48.2	50.1	50.3	50.3	49.8	50.0	49.2	48.2	47.0	44.1	37.6	43.6	45.1	46.1	106.7
5 d	45.9	45.9	46.2	45.8	46.0	46.3	45.3	48.1	47.7	46.2	49.7	50.8	55.8	54.4	48.9	64.3	56.8	55.8	73.0	63.1	52.5	14.6	33.3	40.5	49.0	176.7
6	44.2	44.6	42.7	43.3	44.1	45.1	45.1	44.1	43.6	45.2	45.9	48.6	45.8	44.9	48.6	48.0	47.9	48.7	42.7	40.1	40.0	45.5	45.1	45.1	45.0	78.9
7 q	41.7	41.0	36.7	44.1	44.6	45.8	44.6	44.4	44.1	45.2	46.3	46.7	47.2	47.5	48.2	50.5	48.6	46.9	46.9	46.5	45.5	45.1	41.5	43.4	45.1	83.0
8	43.3	44.2	44.9	44.1	44.0	44.3	44.1	44.9	45.3	46.3	46.7	47.1	47.1	47.0	47.7	48.4	50.1	50.7	48.6	48.9	46.0	43.0	41.2	43.2	45.9	101.1
9	45.1	45.0	44.6	45.1	44.1	44.2	43.9	46.2	45.2	45.7	47.9	47.9	50.3	50.1	49.1	49.0	49.4	50.7	48.0	49.1	46.8	47.7	48.8	46.2	47.0	128.1
10 q	44.3	44.2	43.9	43.8	43.0	44.0	44.3	44.8	44.9	46.7	47.2	47.7	48.0	48.0	47.9	48.4	50.0	48.4	47.8	49.1	46.2	41.5	45.3	46.0	46.1	105.4
11 q	46.0	46.0	45.7	45.0	44.4	44.8	46.5	45.1	45.1	46.1	46.3	48.0	48.8	48.8	49.1	49.9	49.6	50.8	50.3	48.5	48.4	47.0	44.2	41.3	46.9	125.7
12	45.0	44.9	42.8	41.5	41.3	42.2	45.1	45.0	45.3	45.5	46.3	50.0	50.9	51.8	50.8	50.0	49.4	50.7	49.1	48.8	38.4	28.8	27.6	33.5	44.4	64.7
13	36.7	43.9	46.9	42.4	44.3	43.3	45.3	45.0	44.9	45.1	46.6	47.8	47.8	48.8	49.1	48.9	50.6	54.5	51.3	49.4	49.6	47.1	28.6	30.8	45.4	88.7
14 d	38.4	43.6	30.9	38.1	41.3	45.2	48.4	47.3	43.1	44.1	45.5	51.9	53.9	50.7	54.6	53.5	47.1	47.8	38.3	46.0	43.1	40.2	34.4	39.3	44.4	66.7
15	41.5	45.9	49.9	44.8	45.3	50.6	54.0	61.1	57.5	51.6	50.0	50.7	48.6	49.6	49.4	44.4	43.6	43.4	42.1	44.1	43.1	43.2	27.9	33.7	46.5	116.0
16	38.3	41.4	48.0	45.4	45.7	46.5	47.9	49.0	49.9	48.8	47.7	48.6	50.1	52.6	50.7	52.0	41.4	48.4	46.7	44.9	40.2	36.3	36.8	37.3	45.6</	

MEAN MONTHLY AND ANNUAL VALUES OF TERRESTRIAL MAGNETIC ELEMENTS
 For all, a, quiet, q, and disturbed, d, days for H, D and Z and for all days for H, W, I and F

5 LERWICK

	Horizontal (H) force			Declination (D) (west)			Vertical (Z) force			North component (X) all days	West component (-Y) all days	Inclination (I) (north) all days	Total force (F) all days
	a	q	d	a	q	d	a	q	d				
	14,000γ +			9° +			47,000γ +						
	γ	γ	γ				γ	γ	γ	γ	γ	°	γ
Jan.	520	528	515	50.5	51.1	49.4	271	262	281	14307	2482	72 55.5	49451
Feb.	514	521	507	49.7	49.7	49.4	261	268	256	14301	2478	72 55.7	49440
Mar.	514	528	464	49.4	50.2	47.5	263	265	258	14301	2477	72 55.7	49441
Apr.	525	529	538	48.9	48.8	50.2	275	270	291	14313	2476	72 55.2	49456
May	526	529	511	48.3	48.3	47.9	269	271	251	14313	2474	72 55.1	49450
June	540	539	540	48.6	48.5	48.3	270	271	276	14328	2477	72 54.1	49456
July	523	526	479	48.1	47.4	47.4	277	277	270	14311	2472	72 55.4	49457
Aug.	525	530	508	47.0	47.2	44.6	281	278	266	14314	2468	72 55.3	49462
Sept.	511	523	484	45.9	47.1	45.6	283	290	278	14301	2461	72 56.3	49460
Oct.	524	535	501	46.0	46.9	43.5	285	285	285	14313	2464	72 55.5	49465
Nov.	525	534	503	45.9	46.4	44.4	297	296	285	14314	2464	72 55.7	49477
Dec.	531	539	536	46.2	46.1	46.0	302	299	298	14320	2466	72 55.4	49484
Year	523	530	507	47.9	48.1	47.0	278	278	275	14311	2472	72 55.5	49458

DAILY RANGE AND MEAN MONTHLY VALUES

6 LERWICK

	Mean daily range						Mean daily range expressed as percentage of yearly mean					
	1959			Mean 1932-53			1959			Mean 1932-53		
	H	D	Z	H	D	Z	H	D	Z	H	D	Z
	γ	γ	γ	γ	γ	γ	%	%	%	%	%	%
January	157	126	130	100	102	104	64	88	70	63	90	78
February	217	169	206	124	113	123	89	118	111	78	100	92
March	258	157	153	216	149	176	105	109	83	135	132	132
April	212	127	147	204	120	163	87	89	79	128	106	122
May	265	132	178	195	111	141	108	92	95	122	98	106
June	199	115	143	150	94	109	81	80	77	94	83	82
July	411	182	260	158	96	110	168	127	140	99	85	83
August	268	138	191	178	111	135	109	96	103	111	98	101
September	367	173	291	209	133	170	150	121	157	131	118	128
October	227	143	192	188	129	164	93	99	103	118	114	123
November	204	141	180	107	101	112	80	98	97	67	89	84
December	168	126	163	89	93	96	69	88	88	56	82	72
Winter	187	141	170	105	103	109	76	98	91	66	91	82
Equinox	266	150	196	204	134	168	109	105	105	128	119	126
Summer	286	142	193	170	103	123	117	99	104	106	91	92
Year	246	144	186	160	113	133	..	..	..	..	..	..

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

FREQUENCY DISTRIBUTION OF DAILY RANGE

7 LERWICK

Range	Number of cases, 1959			Percentage distribution					
	H	D	Z	H		D		Z	
				1959	1932-53	1959	1932-53	1959	1932-53
γ				%	%	%	%	%	%
0 - 9	0	0	0	0.0	0.0	0.0	0.0	0.0	0.3
10 - 19	0	0	8	0.0	1.4	0.0	0.4	2.2	6.8
20 - 29	4	2	24	1.1	4.9	0.6	2.3	6.6	10.5
30 - 39	11	3	20	3.0	6.3	0.8	4.0	5.5	9.3
40 - 49	18	11	17	4.9	7.5	3.0	7.3	4.7	7.2
50 - 59	15	25	14	4.1	9.3	6.9	10.0	3.9	6.2
60 - 69	24	24	30	6.6	9.1	6.6	12.3	8.2	5.1
70 - 79	24	44	11	6.6	8.6	12.1	10.5	3.0	4.4
80 - 89	25	30	8	6.9	7.4	8.2	9.2	2.2	3.9
90 - 99	24	28	15	6.6	5.8	7.7	7.0	4.1	3.4
100 - 109	18	31	9	4.9	4.3	8.5	5.6	2.5	3.3
110 - 119	13	23	10	3.6	3.5	6.3	4.0	2.7	2.9
120 - 129	14	20	13	3.9	2.9	5.5	3.6	3.6	2.6
130 - 139	9	19	7	2.5	2.2	5.2	3.1	1.9	2.6
140 - 149	9	11	13	2.5	2.4	3.0	2.9	3.6	2.3
150 - 159	6	9	4	1.7	1.6	2.5	1.8	1.1	2.0
160 - 169	12	8	7	3.3	1.5	2.2	1.9	1.9	1.8
170 - 179	13	10	15	3.6	1.1	2.7	1.4	4.1	1.4
180 - 189	9	6	11	2.5	1.1	1.7	1.5	3.0	1.4
190 - 199	4	5	5	1.1	1.0	1.4	1.1	1.4	1.5
200 +	113	56	124	31.0	18.3	15.3	10.0	34.0	21.1
Days omitted	0	0	0	..	..	..	..	..	..

ALL DAYS

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

8 LERWICK

	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
HORIZONTAL FORCE																								
Jan.	-14.3	-5.6	-3.8	-1.3	+1.8	+2.2	+3.7	+1.7	-1.5	-8.3	-10.8	-12.0	-11.2	-6.9	+0.9	+4.4	+15.8	+27.8	+22.8	+9.6	+2.7	+0.9	-5.7	-12.9
Feb.	-17.2	-18.1	-18.1	-12.7	-8.2	+6.4	+6.5	-0.1	+0.4	-8.6	-21.3	-21.6	-13.6	-4.5	+12.9	+27.8	+37.6	+37.2	+31.4	+22.6	+8.5	-6.5	-15.2	-25.6
Mar.	-8.9	-18.1	-15.1	-10.8	-14.0	-3.9	-8.0	-10.8	-4.6	-14.3	-21.1	-24.1	-16.9	+11.3	+22.2	+42.9	+44.5	+46.0	+43.7	+16.9	-4.1	-16.5	-21.4	-14.9
Apr.	-14.5	-13.9	-16.7	-6.2	-1.6	-0.4	0.0	-5.2	-21.8	-33.0	-40.9	-42.2	-32.8	-18.4	+5.0	+22.8	+46.9	+53.7	+51.4	+39.6	+27.3	+12.6	-2.0	-9.7
May	-25.3	-13.8	-13.3	-15.2	-3.0	-2.3	-5.8	-18.2	-28.4	-36.6	-41.2	-38.3	-26.6	-8.9	+0.2	+15.7	+48.2	+58.4	+59.4	+48.8	+37.7	+22.8	-3.2	-11.1
June	-12.1	-12.2	-7.3	-10.6	-8.4	-6.7	-13.6	-23.9	-38.2	-48.6	-52.0	-45.7	-30.3	-13.2	+15.7	+36.1	+54.2	+61.7	+56.0	+43.0	+37.1	+17.0	+4.1	-2.1
July	-36.5	-45.3	-37.3	-40.2	-33.2	-35.5	-26.8	-24.1	-39.7	-45.8	-37.1	-29.8	-14.9	+13.0	+40.8	+79.8	+73.8	+74.7	+79.8	+76.8	+42.2	+15.8	-12.8	-37.7
Aug.	-25.7	-18.8	-20.0	-26.8	-19.2	-17.0	-22.4	-27.6	-30.4	-38.9	-41.3	-37.2	-12.3	+16.3	+23.4	+40.5	+65.9	+65.5	+60.2	+44.8	+29.7	+11.2	-2.9	-17.0
Sept.	-40.6	-42.1	-46.3	-26.3	-8.1	+1.9	-0.9	-8.8	-19.4	-25.8	-28.5	-17.8	-9.9	+9.3	+26.7	+41.5	+59.0	+57.3	+54.4	+45.5	+29.3	+5.4	-21.2	-34.6
Oct.	-3.9	-5.1	-9.5	-3.0	-0.9	+9.1	+10.5	+4.5	-2.2	-12.2	-22.2	-21.5	-12.9	-4.2	+3.8	+17.2	+29.8	+31.1	+28.4	+18.6	-2.8	-19.8	-16.3	-16.5
Nov.	-20.0	-7.6	-18.6	-10.6	-8.1	-4.2	+7.2	+5.0	-0.2	-7.2	-13.9	-13.5	-9.9	+2.6	+14.8	+22.9	+21.7	+24.0	+16.1	+12.6	+4.1	+1.0	-4.4	-13.8
Dec.	-13.5	-13.7	-13.5	-7.8	-2.1	+1.6	+5.5	+3.8	+0.5	-7.8	-11.9	-9.8	-5.3	0.0	+6.1	+26.6	+25.5	+16.8	+7.1	+7.2	+3.0	-1.7	-5.2	-11.4
Year	-19.4	-17.9	-18.3	-14.3	-8.7	-4.1	-3.7	-8.6	-15.5	-23.9	-28.5	-26.1	-16.4	-0.3	+14.4	+31.5	+43.6	+46.2	+42.6	+32.2	+17.9	+3.5	-8.9	-17.3
Winter	-16.3	-11.3	-13.5	-8.1	-4.1	+1.5	+5.7	+2.6	-0.2	-8.0	-14.5	-14.2	-10.0	-2.2	+8.7	+20.4	+25.1	+26.5	+19.3	+13.0	+4.6	-1.6	-7.6	-15.9
Equinox	-17.0	-19.8	-21.9	-11.6	-6.1	+1.7	+0.4	-5.1	-12.0	-21.3	-28.2	-26.4	-18.1	-0.5	+14.4	+31.1	+45.1	+47.0	+44.5	+30.1	+12.4	-4.6	-15.2	-18.9
Summer	-24.9	-22.5	-19.5	-23.2	-15.9	-15.4	-17.1	-23.5	-34.2	-42.5	-42.9	-37.7	-21.0	+1.8	+20.0	+43.0	+60.5	+65.1	+63.9	+53.3	+36.7	+16.7	-3.7	-17.0
DECLINATION																								
Jan.	-4.15	-3.94	-2.92	-2.36	-2.31	-1.87	-1.62	-1.81	-1.79	-0.50	+0.61	+2.00	+3.88	+4.80	+4.58	+4.99	+4.90	+4.57	+3.35	+0.47	-1.04	-2.09	-3.73	-4.02
Feb.	-6.41	-3.99	-4.66	-2.64	-2.58	-2.27	-0.67	-0.70	-2.46	-2.50	-0.16	+2.86	+5.71	+6.99	+7.49	+7.45	+4.89	+4.14	+2.53	+0.14	-0.80	-3.18	-4.19	-4.99
Mar.	-4.18	-5.43	-4.21	-4.61	-3.93	-4.72	-3.62	-3.52	-5.19	-3.61	-0.10	+4.19	+7.42	+8.75	+8.17	+7.14	+5.98	+5.52	+3.02	+1.27	+1.10	-1.73	-3.92	-3.79
Apr.	-2.70	-3.29	-3.52	-5.20	-5.23	-5.12	-5.51	-6.31	-6.50	-4.25	-1.07	+3.24	+7.05	+8.71	+8.56	+7.47	+5.91	+4.44	+3.03	+3.00	+1.61	+0.06	-1.85	-2.53
May	-1.72	-2.80	-3.61	-4.81	-5.46	-6.64	-8.33	-7.54	-6.21	-3.60	-0.03	+3.94	+7.03	+8.03	+7.20	+5.96	+5.25	+2.97	+2.73	+3.06	+2.56	+1.64	+0.97	-0.59
June	-1.72	-2.53	-4.62	-5.35	-5.51	-7.45	-8.53	-8.55	-8.05	-5.20	-1.63	+3.03	+6.54	+8.00	+8.29	+7.00	+5.97	+5.53	+4.60	+4.27	+4.01	+1.82	+1.09	-1.01
July	-1.53	-2.27	-3.20	-3.63	-5.85	-7.59	-8.38	-9.15	-9.27	-7.79	-3.42	+1.14	+4.37	+6.28	+6.67	+6.14	+8.23	+7.79	+6.86	+6.02	+4.81	+1.98	+2.61	-0.82
Aug.	-1.93	-4.53	-3.42	-3.72	-5.22	-6.53	-7.54	-6.08	-5.37	-3.89	-0.72	+3.54	+7.04	+8.49	+7.69	+6.01	+4.19	+3.06	+2.69	+2.69	+1.94	+2.30	+0.16	-0.85
Sept.	-4.33	-4.98	-6.22	-5.30	-4.85	-3.42	-2.26	-2.58	-3.13	+0.05	+3.13	+6.21	+7.70	+8.32	+7.67	+5.74	+3.73	+2.75	+1.79	+1.59	-0.35	-2.31	-4.62	-4.33
Oct.	-3.33	-2.79	-4.96	-4.49	-3.26	-1.92	-1.19	-1.10	-1.55	-1.08	+1.13	+4.14	+6.50	+6.57	+7.07	+5.89	+4.27	+3.50	+2.08	+0.79	-1.62	-4.68	-5.27	-4.70
Nov.	-4.08	-2.74	-3.25	-3.34	-1.67	-0.93	-0.40	-0.44	-0.32	+0.94	+3.10	+3.10	+5.10	+6.61	+6.11	+5.92	+4.61	+2.85	+0.65	-1.85	-3.62	-3.69	-4.37	-4.34
Dec.	-4.53	-2.57	-1.88	-1.31	-0.48	+0.65	+1.11	+1.07	+0.54	+0.32	+1.23	+2.70	+3.94	+4.38	+4.46	+3.54	+2.73	+2.50	+0.81	-0.03	-2.01	-5.54	-6.03	-5.60
Year	-3.38	-3.49	-3.87	-3.90	-3.86	-3.98	-3.96	-3.89	-4.12	-2.70	-0.01	+3.34	+6.02	+7.16	+7.00	+6.10	+5.05	+4.13	+2.85	+1.79	+0.56	-1.29	-2.43	-3.13
Winter	-4.79	-3.31	-3.18	-2.41	-1.76	-1.11	-0.53	-0.46	-1.04	-0.75	+0.65	+2.67	+4.66	+5.69	+5.66	+5.47	+4.28	+3.51	+1.83	-0.32	-1.85	-3.63	-4.58	-4.74
Equinox	-3.63	-4.12	-4.73	-4.90	-4.32	-3.79	-3.15	-3.38	-4.09	-2.22	+0.77	+4.45	+7.17	+8.09	+7.87	+6.56	+4.97	+4.05	+2.48	+1.66	+0.19	-2.17	-3.91	-3.84
Summer	-1.73	-3.03	-3.71	-4.38	-5.51	-7.05	-8.19	-7.83	-7.23	-5.12	-1.45	+2.91	+6.25	+7.70	+7.46	+6.28	+5.91	+4.84	+4.22	+4.01	+3.33	+1.93	+1.21	-0.82
VERTICAL FORCE																								
Jan.	-23.9	-16.7	-12.0	-13.2	-13.9	-13.0	-11.9	-8.3	-5.0	-4.4	-3.6	-0.7	+2.0	+6.7	+11.8	+15.3	+22.1	+23.8	+29.9	+27.4	+14.7	+5.4	-14.7	-17.8
Feb.	-38.6	-39.6	-37.5	-29.0	-34.5	-37.0	-30.0	-23.2	-14.4	-1.0	+4.4	+7.4	+12.6	+21.4	+30.8	+40.6	+52.3	+43.0	+44.5	+40.4	+23.1	+5.1	-11.2	-29.6
Mar.	-19.3	-27.4	-19.0	-22.6	-28.5	-23.4	-16.5	-14.8	-5.5	+1.3	+1.5	+4.6	+8.3	+14.8	+18.8	+21.0	+26.7	+34.5	+32.3	+24.8	+12.8	+6.7	-7.3	-10.4
Apr.	-21.9	-28.0	-29.6	-26.1	-16.7	-16.3	-13.1	-9.6	-4.0	-3.7	-2.3	-0.6	+2.0	+10.2	+19.0	+25.1	+27.8	+34.1	+31.2	+23.5	+18.4	+10.4	-8.7	-21.1
May	-29.6	-31.7	-31.3	-23.0	-17.3	-16.3	-7.1	-3.1	-0.6	-0.4	+0.5	+1.2	+5.0	+11.0	+18.4	+24.3	+26.2	+31.4	+29.7	+29.6	+21.4	+7.8	-12.8	-33.3
June	-25.2	-32.6	-31.5	-28.6	-21.3	-15.4	-8.5	-3.8	-0.9	-2.0	-1.6	-3.7	-1.9	+5.4	+13.8	+26.7	+34.6	+33.5	+30.5	+24.6	+17.4	+7.1	-3.9	-12.7
July	-32.1	-36.3	-44.3	-41.0	-32.4	-16.5	-9.0	+2.3	+13.5	+14.1	+12.0	+11.2	+14.4	+26.0	+32.4	+17.3	+2.2	+18.1	+30.0	+26.7	+18.2	+1.0	-1.3	-26.5
Aug.	-31.5	-25.4	-39.1	-31.6	-33.4	-24.6	-11.3	-6.8	-3.6	-0.5	+2.8	+4.5	+7.3	+10.9	+25.2	+37.9	+42.8	+39.6	+36.6	+29.6	+16.7	0.0	-17.8	-28.3
Sept.	-60.8	-60.3	-53.5	-38.6	-31.0	-22.3	-12.7	-3.2	+4.9	+9.9	+11.8	+13.7	+19.7	+28.2	+41.4	+50.6	+58.6	+58.1	+49.5	+38.7	+13.0	-15.6	-51.8	-48.3
Oct.	-31.4	-31.5	-33.5	-30.2	-28.8	-23.4	-14.5	-6.5	-0.8	+4.9	+7.2	+9.9	+16.2	+22.3	+26.3	+37.5	+44.5	+43.0	+35.2	+25.8	+7.3	-20.9	-25.4	-33.2
Nov.	-29.3	-32.9	-43.1	-44.2	-39.0	-33.8	-24.6	-13.6	-5.2	+2.2	+7.0	+13.4	+18.2	+24.4	+35.4	+41.8	+47.7	+38.4	+35.5	+28.7	+7.6	-5.1	-10.7	-18.8
Dec.	-27.8	-26.8	-26.0	-25.7	-22.3	-20.2	-18.8	-13.3	-8.1	-2.7	+2.1	+7.6	+15.2	+19.7	+25.7	+27.7	+28.1	+23.8	+24.0	+21.5	+15.1	+5.7	-6.0	-18.5
Year	-30.9	-32.4	-33.4	-29.5	-26.6	-21.9	-14.8	-8.7	-2.5	+1.5	+3.5	+5.7	+9.9	+16.7	+24.9	+30.5	+34.5	+35.1	+34.1	+28.4	+15.5	-0.5	-14.3	-24.9
Winter	-29.9	-29.0	-29.7	-28.0	-27.4	-26.0	-21.3	-14.6	-8.2	-1.5	+2.5	+6.9	+12.0	+18.1	+25.9	+31.3	+37.5	+32.3	+33.5	+29.5	+15.1	+2.8	-10.7	-21.2
Equinox	-33.3	-36.8	-33.9	-29.4	-26.3	-21.3	-14.2	-8.5	-1.3	+3.1	+4.5	+6.9	+11.5	+18.9	+26.4	+33.5	+39.4	+42.4	+37.1	+28.2	+12.9	-8.2	-23.3	-28.3
Summer	-29.6	-31.5	-36.5	-31.1	-26.1	-18.2	-9.0	-2.9	+2.1	+2.8	+3.4	+3.3	+6.2	+13.3	+22.5	+26.5	+26.5	+30.6	+31.7	+27.6	+18.4	+4.0	-8.9	-25.2

"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)

9 LERWICK

	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
HORIZONTAL FORCE																								
Jan.	+1.6	+2.1	+2.4	+3.3	+5.3	+7.0	+7.7	+4.3	-0.6	-6.7	-11.0	-16.3	-16.0	-10.7	-6.2	-4.7	-1.9	+1.8	+4.7	+7.1	+7.6	+8.9	+5.4	+4.9
Feb.	+2.2	+3.7	+4.3	+5.0	+6.9	+7.3	+8.0	+5.5	+0.1	-11.6	-20.5	-26.3	-24.4	-18.1	-9.7	-3.0	-1.3	+2.3	+8.8	+11.1	+10.3	+11.0	+13.7	+14.7
Mar.	+9.1	+11.0	+9.8	+11.1	+12.2	+12.0	+12.3	+6.8	-6.6	-24.5	-35.6	-38.6	-34.5	-27.8	-18.2	-7.9	-1.0	+5.2	+11.7	+17.0	+18.2	+19.7	+19.4	+19.2
Apr.	+9.8	+8.3	+5.8	+7.7	+10.3	+9.6	+7.7	+0.1	-12.8	-27.7	-36.8	-41.5	-35.2	-27.7	-17.4	-4.7	+6.7	+17.0	+20.1	+23.3	+19.6	+20.3	+20.0	+17.5
May	+4.2	+2.1	+0.8	+4.1	+4.7	+3.8	-1.1	-9.1	-20.0	-32.3	-39.6	-38.5	-32.6	-15.5	-6.0	+5.7	+16.5	+23.4	+26.7	+25.1	+24.2	+22.1	+18.4	+12.9
June	+6.5	+5.3	+5.0	+5.5	+2.9	-0.9	-7.5	-20.3	-35.6	-49.5	-50.9	-44.7	-29.3	-17.1	-4.0	+1.3	+13.3	+33.3	+44.7	+38.1	+44.2	+28.1	+19.5	+12.1
July	-1.4	-6.5	-9.4	-13.5	-5.8	-2.7	-10.0	-15.9	-25.6	-36.5	-43.0	-38.3	-28.6	-10.1	+4.4	+19.7	+30.2	+29.7	+34.4	+30.1	+31.0	+28.3	+26.0	+13.5
Aug.	+7.7	+7.3	+9.5	+7.9	+5.7	0.0	-5.3	-13.5	-22.9	-34.3	-40.1	-38.3	-29.7	-16.3	-2.7	+6.3	+13.1	+15.6	+23.5	+24.9	+26.7	+21.7	+18.5	+14.7
Sept.	+7.8	+4.7	+5.4	+4.3	+3.3	+1.4	-5.1	-14.5	-25.6	-38.7	-41.2	-30.9	-22.0	-10.3	-0.2	+5.5	+11.7	+18.8	+19.9	+22.5	+24.6	+21.7	+19.8	+17.1
Oct.	+6.7	+3.5	+3.3	+5.3	+5.1	+5.5	+5.5	+3.3	-4.3	-15.1	-23.3	-27.7	-25.7	-20.1	-12.9	-3.5	+2.7	+7.7	+14.3	+13.9	+13.9	+13.9	+13.9	+12.7
Nov.	+2.6	+0.5	-0.9	+0.2	+3.3	+5.5	+6.2	+5.3	+1.1	-8.8	-16.7	-20.3	-17.2	-13.5	-8.9	-3.4	+2.5	+6.5	+11.2	+9.7	+8.7	+9.0	+8.3	+9.1
Dec.	-4.3	-9.1	-8.9	-4.7	-0.7	+0.8	+4.9	+3.3	+1.5	-1.9	-4.7	-5.5	-5.5	-4.5	-1.7	+1.1	+4.3	+4.8	+7.3	+7.9	+7.7	+5.1	+4.1	-1.3
Year	+4.4	+2.7	+2.3	+3.0	+4.4	+4.1	+1.9	-3.7	-12.6	-24.0	-30.3	-30.6	-25.1	-16.0	-7.0	+1.0	+8.1	+13.8	+18.9	+19.2	+19.7	+17.5	+15.7	+12.3
Winter	+0.5	-0.7	-0.8	+0.9	+3.7	+5.1	+6.7	+4.6	+0.5	-7.3	-13.2	-17.1	-15.8	-11.7	-6.6	-2.5	+0.9	+3.9	+8.0	+8.9	+8.6	+8.5	+7.9	+6.9
Equinox	+8.3	+6.9	+6.1	+7.1	+7.7	+7.1	+5.1	-1.1	-12.3	-26.5	-34.2	-34.7	-29.3	-21.5	-12.2	-2.7	+5.0	+12.2	+16.5	+19.2	+19.1	+18.9	+18.6	+16.6
Summer	+4.3	+2.1	+1.5	+1.0	+1.9	+0.1	-6.0	-14.7	-26.0	-38.1	-43.4	-40.0	-30.1	-14.7	-2.1	+8.3	+18.3	+25.4	+32.3	+29.5	+31.5	+25.1	+20.6	+13.3
DECLINATION																								
Jan.	-1.02	-1.11	-0.54	-0.91	-1.27	-1.50	-1.81	-2.09	-1.94	-1.23	-0.34	+0.81	+2.68	+3.25	+2.50	+2.07	+1.95	+2.22	+1.33	+0.59	-0.24	-1.63	-0.80	-0.97
Feb.	-0.71	-0.28	-0.74	-1.39	-1.48	-1.68	-2.19	-2.84	-3.72	-3.97	-2.32	+0.46	+3.07	+3.64	+3.88	+3.63	+1.94	+1.16	+1.57	+1.62	+1.06	-0.35	-0.46	+0.10
Mar.	-1.29	-2.00	-1.31	-1.91	-2.43	-3.00	-3.85	-5.55	-6.61	-5.34	-2.25	+2.01	+5.51	+6.74	+6.19	+4.71	+2.87	+2.20	+1.87	+1.77	+1.37	+0.88	+0.03	-0.61
Apr.	-0.86	-1.26	-1.02	-2.02	-3.44	-4.45	-5.72	-6.66	-7.20	-5.54	-2.78	+0.76	+5.08	+7.08	+6.82	+5.68	+3.72	+2.39	+1.38	+1.32	+2.16	+2.32	+1.48	+0.76
May	-0.65	-0.75	-2.63	-3.49	-5.41	-7.04	-7.53	-7.67	-6.71	-4.25	-1.07	+3.13	+5.87	+6.17	+5.57	+5.19	+4.03	+2.82	+2.67	+3.09	+2.65	+2.77	+2.17	+1.07
June	-0.78	-1.61	-2.02	-2.97	-4.52	-6.61	-7.94	-8.65	-8.36	-6.11	-2.84	+1.05	+4.34	+6.19	+6.84	+6.99	+6.16	+4.83	+4.10	+4.11	+4.32	+3.55	+0.88	-0.95
July	-0.98	-1.12	-1.59	-3.38	-4.24	-7.21	-8.06	-8.88	-8.48	-6.09	-2.40	+1.66	+5.04	+7.91	+8.08	+6.50	+5.24	+4.15	+3.84	+3.16	+2.78	+2.63	+1.42	+0.02
Aug.	+0.15	-0.16	-1.67	-3.32	-4.69	-6.56	-7.93	-8.60	-7.59	-5.06	-1.09	+2.64	+6.33	+8.02	+7.63	+5.86	+3.67	+2.24	+2.49	+2.70	+2.27	+1.86	+0.61	+0.20
Sept.	-3.65	-2.80	-2.92	-4.01	-4.12	-4.98	-6.15	-6.72	-5.80	-2.21	+1.40	+5.02	+6.77	+7.26	+6.42	+4.47	+2.70	+2.74	+3.09	+3.08	+2.36	+1.51	-1.96	-1.50
Oct.	-1.98	-2.37	-2.38	-2.37	-2.50	-2.51	-2.60	-3.07	-3.66	-3.05	-0.64	+2.25	+4.46	+5.41	+5.30	+4.37	+3.24	+1.15	+2.30	+2.19	+0.22	-0.71	-1.44	-1.61
Nov.	-2.59	-1.53	-1.45	-1.81	-2.03	-1.92	-1.43	-1.75	-2.33	-2.47	-0.71	+0.95	+3.19	+3.91	+4.17	+3.65	+3.23	+2.28	+2.55	+2.21	-0.05	-0.71	-1.13	-4.23
Dec.	-2.46	-2.27	-2.76	-1.44	-1.62	-0.89	-0.68	-0.98	-1.12	-0.39	+0.40	+1.50	+2.06	+2.59	+3.06	+3.72	+3.70	+3.27	+2.00	+1.96	+0.80	-2.63	-4.16	-3.66
Year	-1.40	-1.44	-1.75	-2.42	-3.15	-4.03	-4.66	-5.29	-5.29	-3.81	-1.22	+1.85	+4.53	+5.68	+5.54	+4.74	+3.54	+2.62	+2.43	+2.32	+1.64	+0.79	-0.28	-0.95
Winter	-1.69	-1.30	-1.37	-1.39	-1.60	-1.50	-1.53	-1.91	-2.28	-2.01	-0.74	+0.93	+2.75	+3.35	+3.40	+3.27	+2.71	+2.23	+1.86	+1.59	+0.39	-1.33	-1.64	-2.19
Equinox	-1.95	-2.11	-1.91	-2.58	-3.12	-3.73	-4.58	-5.50	-5.82	-4.03	-1.07	+2.51	+5.45	+6.62	+6.18	+4.81	+3.13	+2.12	+2.16	+2.09	+1.53	+1.00	-0.47	-0.74
Summer	-0.57	-0.91	-1.98	-3.29	-4.71	-6.85	-7.87	-8.45	-7.79	-5.38	-1.85	+2.12	+5.39	+7.07	+7.03	+6.13	+4.77	+3.51	+3.27	+3.27	+3.01	+2.70	+1.27	+0.09
VERTICAL FORCE																								
Jan.	-5.1	-5.4	-5.3	-4.1	-3.5	-3.0	-3.7	-2.5	+0.3	+0.4	+4.3	+6.5	+1.7	+2.6	+1.5	+1.1	+1.3	+1.2	+2.5	+3.3	+2.9	+1.6	+0.9	+0.5
Feb.	-4.7	-3.7	-3.0	-1.9	-1.7	-4.1	-4.1	-4.1	-1.6	+6.7	+2.5	-0.7	-0.9	-0.1	+0.4	+4.7	+5.5	+5.7	+0.5	+0.1	+2.6	+3.3	+0.3	-1.7
Mar.	-1.2	-3.4	-0.9	-1.8	+0.8	+1.6	+2.4	+3.2	+4.5	+0.8	-3.2	-4.8	-7.2	-4.0	-1.9	+2.0	+5.6	+5.2	+4.0	+1.8	+1.3	-0.4	-1.4	-3.0
Apr.	-2.1	-4.8	-3.8	+0.7	+1.8	+2.0	+1.9	+1.6	+1.0	+0.5	-1.0	-3.4	-6.5	-5.4	-1.8	+0.5	+2.6	+3.0	+4.9	+4.2	+2.8	+0.7	-0.4	+1.0
May	+0.7	-1.8	-3.1	+3.6	+4.0	+6.5	+6.4	+5.6	+2.9	-5.0	-9.7	-12.6	-10.1	-7.8	-0.9	+1.2	+0.2	+2.1	+4.8	+3.8	+3.9	+2.6	+0.9	+1.8
June	-4.7	-3.7	-2.6	-3.5	-2.9	-0.1	+4.1	+6.1	+7.6	+4.5	-0.5	-4.1	-6.9	-7.7	-4.8	-2.5	-3.3	-1.5	+6.9	+11.5	+6.6	+6.5	+0.7	-5.7
July	-4.7	-5.4	-15.3	-16.6	-14.9	-5.0	+1.1	+5.0	+9.1	+8.0	+1.1	-4.0	-5.5	-3.8	-0.7	+9.2	+15.1	+13.6	+7.9	+5.6	+4.5	+4.0	+0.5	-8.8
Aug.	-6.0	-13.4	-10.0	-3.2	+0.8	+2.4	+4.6	+7.0	+3.8	-0.4	-3.2	-7.2	-8.4	-7.8	-2.8	+2.0	+6.4	+5.2	+1.8	+3.6	+5.2	+7.8	+7.2	+4.6
Sept.	-16.5	-15.4	-8.5	-1.6	+1.5	+3.6	+5.5	+6.0	+3.5	-0.4	-4.5	-5.6	-3.7	-0.2	+4.9	+9.6	+12.5	+12.0	+6.5	+3.8	+2.9	+4.2	-0.9	-19.2
Oct.	-2.4	-1.7	-0.4	0.0	-0.2	-0.7	-1.4	-0.6	+0.6	+0.7	+0.4	-2.4	-3.6	-4.1	-2.0	+0.4	+2.4	+2.5	+1.2	+3.8	+5.0	+3.5	+0.8	-1.8
Nov.	-6.4	-12.3	-14.5	-10.8	-5.5	-3.3	-3.2	-2.1	+0.5	+4.4	+4.1	+4.1	+2.6	+1.3	+3.1	+4.0	+2.7	+2.1	+4.2	+4.9	+10.1	+6.6	+1.9	-3.5
Dec.	-0.5	-6.9	-6.7	-2.9	-2.7	-1.8	-2.9	-2.1	-1.9	-2.7	-1.5	-1.3	-0.5	-1.1	+0.1	+0.7	+0.1	+2.8	+4.3	+3.9	+5.7	+7.9	+6.3	+3.7
Year	-4.5	-6.5	-6.2	-3.5	-1.9	-0.2	+0.9	+1.9	+2.5	+1.5	-0.9	-3.0	-4.1	-3.2	-0.4	+2.7	+4.3	+4.5	+4.1	+4.6	+4.5	+4.0	+1.4	-2.7
Winter	-4.2	-7.1	-7.4	-4.9	-3.3	-3.1	-3.5	-2.7	-0.7	+2.2	+2.3	+2.1	+0.7	+0.7	+1.3	+2.6	+2.4	+2.9	+2.9	+4.3	+5.3	+4.9	+2.3	-0.3
Equinox	-5.5	-6.3	-3.4	-0.7	+1.0	+1.6	+2.1	+2.5	+2.4	+0.4	-2.1	-4.1	-5.3	-3.4	-0.2	+3.1	+5.8	+5.7	+4.1	+3.4	+3.0	+2.0	-0.5	-5.7
Summer	-3.7	-6.1	-7.7	-4.9	-3.3	+0.9	+4.1	+5.9	+5.9	+1.8	-3.1	-7.0	-7.7	-6.8	-2.3	+2.5	+4.6	+4.9	+5.3	+6.1	+5.1	+5.2	+2.3	-2.0

"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)

10 LERWICK

	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
HORIZONTAL FORCE																								
	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.	-66.9	-22.7	-15.1	-15.5	-11.7	-11.3	-6.1	-7.5	-7.3	-15.9	-14.7	-8.7	-6.5	-2.7	+19.1	+26.5	+81.5	+140.3	+72.1	+16.1	-0.9	-2.5	-49.9	-89.7
Feb.	-34.9	-35.5	-58.0	-19.1	-9.1	+11.1	-2.1	-25.7	-4.8	-6.9	-18.7	-23.7	-5.7	+6.5	+67.2	+97.5	+132.1	+90.3	+95.7	+60.5	+7.2	-81.9	-124.9	-117.1
Mar.	-85.3	-121.1	-74.0	-74.7	-97.7	-59.5	-91.7	-96.7	-5.0	+14.7	+12.9	+16.5	+34.9	+167.7	+177.2	+237.3	+229.3	+202.9	+153.1	+24.5	-91.0	-156.5	-177.1	-140.7
Apr.	-79.4	-62.9	-72.8	-44.7	-21.7	-30.0	-22.5	-30.9	-62.8	-55.9	-50.8	-37.9	-17.2	+12.5	+66.2	+78.3	+145.3	+125.8	+115.1	+71.7	+30.4	-5.7	-27.6	-22.5
May	-44.0	-5.1	-22.4	-64.2	-8.8	-21.3	-11.0	-40.8	-43.8	-35.7	-39.6	-40.8	-13.2	+17.1	+13.0	+49.2	+155.4	+113.1	+96.4	+71.6	+50.8	+27.1	-85.0	-118.0
June	-72.0	-55.2	-33.6	-36.6	-31.8	-29.4	-47.4	-48.2	-61.0	-70.4	-65.2	-53.2	-27.2	+20.8	+5.8	+143.4	+167.8	+140.8	+75.8	+45.2	+32.2	-20.6	-35.0	-35.0
July	-109.9	-135.6	-121.5	-166.2	-123.2	-163.1	-94.8	-47.0	-103.3	-94.4	-15.7	+2.2	+46.5	+121.0	+185.3	+354.2	+229.8	+174.7	+174.0	+215.0	+52.3	-35.2	-143.5	-201.6
Aug.	-110.7	-120.6	-101.1	-113.7	-75.9	-73.6	-79.1	-56.1	-39.7	-40.0	-14.9	-2.7	+103.9	+180.6	+123.9	+127.9	+216.3	+154.0	+109.5	+52.9	+2.5	-42.6	-73.7	-127.1
Sept.	-144.2	-136.8	-194.8	-163.4	-39.8	-21.2	-31.2	-35.8	-26.2	-15.8	-11.0	+4.6	+13.2	+68.6	+136.0	+175.0	+203.2	+155.2	+117.6	+86.4	+51.8	-48.8	-92.4	-50.2
Oct.	-48.2	-15.4	-29.0	-18.2	-34.4	-1.4	+5.0	-10.8	-3.0	+3.2	-4.4	-5.0	+20.8	+53.8	+52.0	+77.8	+121.8	+87.0	+67.2	+27.4	-80.2	-120.8	-64.8	-80.4
Nov.	-75.3	-19.8	-62.1	-33.6	-62.6	-61.7	-5.0	+1.4	-14.5	-19.2	-5.5	+9.0	+28.5	+47.8	+64.7	+91.2	+93.0	+103.5	+43.2	+20.8	-19.3	-19.4	-33.1	-72.0
Dec.	-42.4	-39.2	-41.0	-20.4	-10.4	-6.2	-5.0	-8.2	-15.8	-22.4	-25.0	-18.6	+4.6	+12.8	+35.8	+138.4	+106.0	+52.4	+17.0	+12.4	-11.0	-35.2	-34.2	-44.4
Year	-76.1	-64.2	-68.8	-64.2	-43.9	-39.0	-32.6	-33.9	-32.3	-29.9	-21.1	-13.2	+15.2	+58.9	+86.3	+133.1	+156.8	+128.3	+94.7	+58.7	+2.1	-45.2	-78.4	-91.6
Winter	-54.9	-29.3	-44.1	-22.1	-23.5	-17.0	-4.5	-10.0	-10.6	-16.1	-16.0	-10.5	+5.2	+16.1	+46.7	+88.4	+103.1	+96.6	+57.0	+27.5	-6.0	-34.7	-60.5	-80.8
Equinox	-89.3	-84.1	-92.7	-75.3	-48.4	-28.0	-35.1	-43.5	-24.3	-13.5	-13.3	-5.5	+12.9	+75.7	+107.9	+142.1	+174.9	+142.7	+113.3	+52.5	-22.3	-82.9	-90.5	-73.5
Summer	-84.1	-79.1	-69.7	-95.2	-59.9	-71.9	-58.1	-48.0	-61.9	-60.1	-33.9	-23.6	+27.5	+84.9	+104.5	+168.7	+192.3	+145.7	+113.9	+96.2	+34.5	-17.8	-84.3	-120.4
DECLINATION																								
	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.	-10.42	-7.43	-4.32	-2.85	-0.85	-0.54	-1.23	-0.57	-0.78	+1.33	+1.14	+3.03	+5.10	+6.05	+6.18	+7.09	+9.01	+9.88	+6.09	-0.61	-0.12	-5.25	-9.18	-10.75
Feb.	-10.93	-4.06	-7.40	-3.09	-4.90	-4.88	+1.43	+3.30	-0.78	-2.85	-0.98	+4.02	+8.71	+11.10	+10.06	+11.63	+7.54	+7.72	+7.59	+2.40	-3.70	-10.25	-10.54	-11.14
Mar.	-14.42	-21.31	-15.23	-15.76	-8.91	-10.95	+3.26	+1.97	-5.63	-2.84	+2.63	+8.39	+13.24	+16.25	+15.15	+14.18	+17.25	+21.47	+14.76	+3.83	+5.81	-5.66	-16.73	-14.23
Apr.	-7.34	-8.91	-8.70	-10.13	-9.38	-7.57	-6.72	-7.53	-6.26	-3.33	-1.84	+3.61	+8.68	+10.15	+11.88	+12.01	+11.30	+10.83	+8.28	+8.05	+3.36	-2.53	-3.58	-4.33
May	-2.11	-2.68	-5.55	-7.82	-5.15	-3.92	-11.29	-7.10	-4.21	-3.14	+0.39	+4.80	+7.89	+9.78	+7.57	+8.60	+12.47	+5.00	+3.81	+3.58	+2.99	-2.30	-3.03	-8.58
June	-1.12	-3.63	-8.81	-6.60	-7.05	-8.47	-9.66	-9.45	-11.23	-5.44	-3.17	+3.77	+7.26	+8.17	+8.29	+6.42	+8.89	+10.91	+7.04	+6.97	+6.75	-0.04	+2.41	-2.21
July	-3.25	-3.38	-6.72	-5.01	-11.46	-11.78	-11.97	-15.12	-18.74	-21.23	-11.52	-1.94	+0.65	+2.02	+5.36	+4.11	+23.40	+23.02	+21.57	+18.56	+14.42	+1.09	+10.08	-2.16
Aug.	-8.53	-21.11	-13.77	-7.09	-5.93	-5.80	-10.17	-3.25	-3.27	-1.55	-0.65	+5.13	+8.73	+10.41	+9.45	+11.17	+11.51	+8.22	+7.59	+6.95	+3.67	+4.51	-0.43	-5.79
Sept.	-10.95	-9.76	-8.70	-5.21	-5.08	-1.34	+7.83	+2.58	+2.96	+0.81	+4.62	+7.76	+8.77	+10.26	+9.96	+8.69	+6.84	+5.42	+0.41	+0.66	-4.54	-7.35	-10.94	-7.78
Oct.	-7.66	-6.99	-10.50	-9.93	-7.52	-1.39	+2.00	+2.51	+4.18	+3.01	+5.54	+9.49	+10.58	+7.87	+10.76	+10.35	+7.72	+6.55	+2.04	-0.09	-9.16	-13.85	-9.20	-6.31
Nov.	-5.40	-2.91	-2.17	-11.06	+0.31	+2.43	+0.80	+1.35	+3.37	+3.54	+4.53	+4.41	+7.58	+8.59	+6.09	+8.78	+7.11	+1.93	-4.23	-4.36	-5.23	-7.97	-9.36	-8.13
Dec.	-6.57	-6.44	-5.37	-1.81	+0.07	+4.28	+3.79	+2.07	+0.89	-0.26	+2.77	+3.79	+7.69	+6.90	+6.07	+4.99	+1.77	+2.20	+2.15	-0.15	-2.83	-12.82	-8.71	-4.47
Year	-7.39	-8.22	-8.10	-7.20	-5.49	-4.16	-3.20	-2.44	-3.79	-2.66	+0.29	+4.69	+7.91	+8.96	+8.90	+9.00	+10.40	+9.43	+6.43	+3.82	+0.95	-5.20	-5.77	-7.16
Winter	-8.33	-5.21	-4.81	-4.70	-1.34	+0.32	+1.20	+1.54	+0.67	+0.44	+1.87	+3.81	+7.27	+8.16	+7.10	+8.12	+6.36	+5.43	+2.90	-0.68	-2.97	-9.07	-9.45	-8.62
Equinox	-10.09	-11.74	-10.78	-10.26	-7.72	-5.31	-0.04	-0.12	-2.67	-0.59	+2.74	+7.31	+10.32	+11.13	+11.94	+11.31	+10.78	+11.07	+6.37	+3.11	-1.13	-7.35	-10.11	-8.16
Summer	-3.75	-7.70	-8.71	-6.63	-7.40	-7.49	-10.77	-8.73	-9.36	-7.84	-3.74	+2.94	+6.13	+7.59	+7.67	+7.57	+14.07	+11.79	+10.00	+9.01	+6.96	+0.81	+2.26	-4.69
VERTICAL FORCE																								
	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.	-64.7	-34.0	-11.7	-12.2	-22.7	-27.6	-25.5	-15.6	-9.3	-8.4	-3.3	+4.2	+13.9	+20.8	+29.9	+41.0	+57.7	+40.8	+63.1	+41.8	+19.9	+12.8	-53.5	-57.4
Feb.	-41.2	-66.2	-66.3	-26.2	-40.6	-47.0	-44.4	-41.4	-30.9	-4.8	+7.0	+14.2	+24.8	+41.8	+61.7	+76.4	+103.6	+71.0	+90.2	+80.8	+21.5	-43.2	-68.4	-72.4
Mar.	-69.4	-95.4	-20.2	-55.6	-98.4	-79.7	-62.0	-67.6	-28.0	+6.4	+14.4	+28.8	+49.2	+71.0	+75.2	+56.8	+51.4	+81.1	+78.6	+73.8	+51.8	-33.6	-10.2	-20.4
Apr.	-42.7	-56.8	-48.2	-55.3	-29.4	-33.4	-33.9	-31.4	-23.0	-30.9	-26.2	-16.0	-0.9	+30.6	+60.6	+66.3	+59.8	+76.4	+73.9	+48.6	+28.6	+14.1	-12.6	-18.2
May	-74.0	-72.8	-54.2	-44.6	-51.8	-67.9	-32.0	-11.8	+0.8	+6.2	+19.6	+26.8	+35.8	+49.4	+63.2	+61.2	+47.2	+60.7	+81.6	+71.2	+57.6	+30.4	-84.0	-118.6
June	-48.9	-73.6	-70.5	-59.2	-47.4	-44.1	-34.8	-30.0	-20.1	-7.6	+5.7	+11.4	+14.5	+31.6	+60.7	+98.8	+106.4	+85.5	+72.4	+44.0	+20.1	-24.4	-44.7	-45.8
July	-33.0	-10.1	-41.4	-55.3	-56.0	-3.3	-6.4	+19.5	+55.6	+46.9	+33.6	+37.1	+48.8	+89.1	+70.0	-37.7	-136.8	-38.5	+28.4	+14.3	+10.2	-33.3	+34.4	-36.1
Aug.	-24.6	-5.4	-92.1	-51.4	-99.6	-67.4	-27.4	-22.8	-15.9	-7.0	+15.6	+37.0	+54.6	+47.8	+82.9	+94.0	+72.0	+65.6	+58.6	+48.0	+17.7	-29.0	-63.8	-87.4
Sept.	-91.9	-87.5	-102.5	-104.9	-95.3	-67.8	-62.3	-31.9	+3.3	+25.3	+31.3	+43.9	+59.3	+77.9	+111.3	+128.9	+142.7	+138.0	+110.7	+70.5	+19.1	-62.1	-136.9	-119.1
Oct.	-102.8	-78.4	-66.5	-74.6	-77.4	-67.4	-41.0	-22.2	-7.8	+10.7	+23.2	+31.6	+57.2	+75.2	+78.5	+109.0	+123.4	+119.8	+97.6	+48.8	-12.5	-87.2	-56.4	-80.8
Nov.	-83.2	-58.4	-93.8	-124.2	-111.6	-99.1	-66.8	-26.2	-4.4	+12.4	+23.4	+41.6	+62.6	+87.0	+103.4	+110.0	+139.8	+97.5	+70.0	+60.6	+9.2	-37.0	-49.0	-63.8
Dec.	-90.0	-72.8	-71.8	-53.8	-46.4	-44.4	-36.4	-21.0	-8.6	+4.6	+20.2	+31.4	+47.6	+67.0	+83.6	+73.2	+64.8	+21.2	+23.4	+42.6	+18.6	-3.4	-9.6	-40.0
Year	-63.9	-59.3	-61.6	-59.8	-64.7	-54.1	-39.4	-25.2	-7.4	+4.5	+13.7	+24.3	+38.9	+57.4	+73.4	+73.2	+69.3	+68.4	+70.7	+53.7	+21.8	-24.7	-46.2	-63.3
Winter	-69.8	-57.9	-60.9	-54.1	-55.3	-54.5	-43.3	-26.1	-13.3	+0.9	+11.8	+22.9	+37.2	+54.1	+69.7	+75.1	+91.5	+57.6	+61.7	+56.5	+17.3	-17.7	-45.1	-58.4
Equinox	-76.7	-79.5	-59.3	-72.6	-75.1	-62.1	-49.8	-38.3	-13.9	+2.9	+10.7	+22.1	+41.2	+63.7	+81.4	+90.3	+94.3	+104.3	+90.2	+60.4	+21.7	-42.2	-54.0	-59.6
Summer	-45.1	-40.5	-64.5	-52.6	-63.7	-45.7	-25.1	-11.3	+5.1	+9.6	+18.6	+28.1	+38.4	+54.5	+69.2	+54.1	+22.2	+43.3	+60.3	+44.4	+26.4	-14.1	-39.5	-72.0

"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 FOR 1959

AVERAGE DEPARTURE

The ranges are derived from the diurnal inequalities printed in Tables 8 to 10

Arithmetical averages of diurnal inequalities in Tables 8 to 10 taken regardless of sign

11 LERWICK

	All days			Quiet days			Disturbed days		
	H	D	Z	H	D	Z	H	D	Z
Jan.	42.1	9.14	53.8	25.2	5.34	11.9	230.0	20.63	127.8
Feb.	63.2	13.90	91.9	41.0	7.85	11.4	257.0	22.77	176.0
Mar.	70.1	14.18	63.0	58.3	13.35	12.8	414.4	42.78	181.5
Apr.	95.9	15.21	63.7	64.8	14.28	11.4	224.7	22.14	133.2
May	100.6	16.36	64.7	66.3	13.84	19.1	273.4	23.76	200.2
June	113.7	16.84	67.2	95.6	15.64	19.2	239.8	22.14	180.0
July	125.6	17.50	76.7	77.4	16.96	31.7	555.8	44.63	225.9
Aug.	107.2	16.03	81.9	66.8	16.62	21.2	343.4	32.62	193.6
Sept.	105.3	14.54	119.4	65.8	13.98	31.7	398.0	21.21	279.6
Oct.	53.3	12.34	78.0	43.0	9.07	9.1	242.6	24.61	226.2
Nov.	44.0	10.98	91.9	31.5	8.40	24.6	178.8	19.84	264.0
Dec.	40.3	10.49	55.9	17.0	7.88	14.8	182.8	20.51	173.6
Year	74.7	11.28	68.5	50.3	10.97	11.1	248.4	18.62	138.1
Winter	42.8	10.48	67.4	26.0	5.68	12.7	183.9	17.61	161.3
Equinox	75.2	12.99	79.2	53.9	12.44	12.1	267.6	23.68	183.8
Summer	108.0	15.89	68.2	75.7	15.52	13.8	312.7	24.84	141.2

12 LERWICK

	All days			Quiet days			Disturbed days		
	H	D	Z	H	D	Z	H	D	Z
Jan.	7.9	2.85	13.3	6.2	1.45	2.7	29.6	4.57	28.8
Feb.	15.9	3.52	27.1	9.6	1.84	2.7	47.3	6.29	49.4
Mar.	19.0	4.38	16.8	16.2	3.01	2.8	105.9	11.24	53.4
Apr.	21.6	4.42	16.8	17.0	3.41	2.4	53.8	7.35	38.2
May	24.3	4.28	17.2	16.2	3.93	4.3	49.5	5.57	51.0
June	27.1	5.01	16.1	21.7	4.45	4.5	60.1	6.41	45.9
July	41.4	5.24	19.9	20.6	4.37	7.1	129.6	10.36	40.7
Aug.	29.8	4.15	21.2	16.9	3.89	5.2	89.3	7.28	49.5
Sept.	27.5	4.06	33.2	15.7	3.90	6.4	84.3	6.22	80.2
Oct.	12.7	3.49	23.3	11.1	2.57	1.8	43.0	6.88	64.6
Nov.	11.0	2.99	25.0	7.5	2.18	5.1	41.9	5.07	68.1
Dec.	8.6	2.50	18.0	4.4	2.09	3.0	31.6	4.12	41.5
Year	19.3	3.67	20.0	12.4	2.97	3.1	61.2	5.90	47.5
Winter	10.6	2.87	20.6	6.3	1.87	3.1	36.7	4.60	46.4
Equinox	18.9	4.02	22.1	14.5	3.13	3.1	68.5	7.17	56.9
Summer	30.1	4.67	18.3	17.9	4.13	4.5	80.7	7.23	39.5

NON-CYCLIC CHANGE

13 LERWICK

	All days			Quiet days			Disturbed days		
	H	D	Z	H	D	Z	H	D	Z
Jan.	-0.2	-0.14	-0.3	+2.7	+0.11	+3.6	-21.5	-0.11	-27.4
Feb.	-5.4	-0.52	-2.9	+11.0	+1.18	+1.1	-72.9	-6.61	-42.5
Mar.	+4.2	+0.45	+1.4	+7.5	+0.48	-3.8	-83.9	+0.85	+2.5
Apr.	+0.1	+0.07	+1.2	+6.2	+1.52	+0.2	+52.1	-2.91	+32.9
May	+0.2	-0.05	-1.5	+6.7	+0.19	+0.1	-98.0	-7.71	-43.8
June	+0.1	-0.03	+1.8	+2.6	-1.44	-4.4	-16.0	-2.46	-25.3
July	+0.8	+0.03	0.0	+9.7	+0.60	-6.9	+24.1	-1.27	-10.8
Aug.	-0.6	-0.05	-0.1	+5.2	-1.09	+3.2	-37.9	+1.91	-27.1
Sept.	-0.7	-0.03	-0.5	+5.0	+1.13	+0.9	+77.3	+4.34	-60.5
Oct.	-1.7	-0.24	-1.4	+6.9	-0.03	-0.7	+14.4	+1.86	+21.7
Nov.	+0.5	-0.81	+0.6	+3.2	-0.55	+2.7	-6.3	+0.04	-4.0
Dec.	+2.6	+0.37	+2.4	+0.7	-0.68	+0.4	+1.6	+3.83	+33.3
Year	0.0	-0.08	+0.1	+5.5	+0.12	+0.3	-13.9	-0.69	-12.6
Winter	-0.6	-0.29	-0.1	+3.9	+0.01	+1.9	-24.8	-0.71	-10.1
Equinox	+0.5	+0.06	+0.2	+6.4	+0.77	-0.9	+15.0	+1.03	-0.9
Summer	+0.1	-0.03	+0.1	+6.1	-0.43	-2.0	-31.9	-2.38	-26.7

AVERAGE RANGE OF DIURNAL INEQUALITY 1932-53 WITH 1959 AS PERCENTAGE OF THIS

14 LERWICK

		All days			International quiet days			International disturbed days		
		Z	H	D	Z	H	D	Z	H	D
Year	1932-53	53.3	49.4	9.36	10.3	37.4	8.68	131.1	131.6	14.22
	1959(%)	142	162	149	177	145	137	150	224	186
Winter	1932-53	41.1	24.4	7.87	7.7	15.1	4.65	116.6	85.0	13.84
	1959(%)	179	194	141	204	190	158	159	250	151
Equinox	1932-53	68.8	59.2	10.94	12.9	42.3	9.54	168.9	193.4	18.89
	1959(%)	118	137	129	126	137	133	121	165	146
Summer	1932-53	53.0	72.6	12.72	17.0	57.5	12.77	134.0	156.9	15.61
	1959(%)	137	154	131	134	133	123	149	225	197

"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 1959

15 LERWICK

Type of day	Element	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
q	D	0.91	0.93	1.05	1.01	1.07	1.08	1.09	1.06	1.04	1.01	1.13	1.24
d	D	1.26	1.19	1.48	1.04	1.38	1.25	1.56	1.61	1.22	1.26	1.34	1.16
q	H	0.88	1.00	1.10	1.15	1.15	1.14	1.14	1.20	1.07	1.13	0.92	0.98
d	H	7.01	4.42	2.48	2.38	2.15	1.90	1.06	2.19	4.56	4.86	4.01	4.23
q	Z	1.98	0.90	0.56	0.53	0.65	0.71	1.09	0.82	1.34	0.52	2.32	1.48
d	Z	1.85	1.52	1.02	1.44	2.25	1.80	1.25	1.23	1.41	2.05	1.94	1.59

16 LERWICK

(a) Disturbances without sudden commencement

Serial Number	From		To		Range (γ)			Notes
	Date	Hour	Date	Hour	H	D	Z	
1a	Jan. 5	10	Jan. 7	14	361	491	326	Continued as 10b
2a	Feb. 10	12	Feb. 17	21	1114	474	550	
3a	Feb. 24	23	Mar. 4	03	927	522	511	
4a	Apr. 8	12	Apr. 9	11	725	262	306	
5a	May 15	07	May 17	01	767	294	494	
6a	June 27	07	June 29	07	519	273	351	
7a	Sept. 23	11	Sept. 29	03	706	213	416	
8a	Oct. 3	11	Oct. 7	07	1089	624	640	
9a	Nov. 30	06	Dec. 1	21	704	306	452	

(b) Disturbances with sudden commencement (ssc)

Serial Number	Date	Time of sudden commencement h. m.	End of disturbance		With initial reversed stroke			Magnitude of main stroke			Range of following disturbance (γ)		
			Date	Hour	H	D	Z	H	D	Z	H	D	Z
1b	Jan. 9	14 59	Jan. 11	15	Yes	Yes	Yes	+16	-21	+4	1460	573	562
2b	Jan. 25	08 59			No	Yes	-	+7	+16	0		Small	
3b	Feb. 22	00 46			Yes	Yes	Yes	+15	-10	-3		Small	
4b	Mar. 26	08 42	Apr. 1	09	Yes	Yes	Yes	-44	+22	-18	1495	816	762
5b	Apr. 9	18 28	Apr. 12	14	Yes	Yes	Yes	+83	-20	-28	965	359	401
6b	Apr. 23	10 36	Apr. 30	24	No	No	No	+30	+8	-3	601	380	634
7b	May 11	23 28	May 14	01	No	-	Yes	+70	*	-34	1496	573	742
8b	May 24	05 40	May 26	06	Yes	Yes	Yes	-40	+43	+8	887	316	791
9b	June 11	09 09			Yes	Yes	Yes	-45	+29	-12		Small	
10b	June 29	07 28	June 30	08	No	No	No	-28	+42	-13	550	306	362
11b	June 30	08 01	June 30	24	Yes	No	Yes	-23	+27	-10		Small	
12b	July 11	16 25	July 12	20	Yes	Yes	Yes	+164	-57	-90	695	189	347
13b	July 15	08 03	See 14b		Yes	Yes	Yes	-89	-103	+33	3498	1624	1958
14b	July 17	16 38	July 21	08	No	Yes	Yes	+223	-95	-104	1758	530	818
15b	Aug. 16	04 04	See 16b		No	Yes	-	+17	-14	0	1673	830	952
16b	Aug. 20	04 12	Aug. 24	18	Yes	Yes	Yes	-184	-101	-84		Small	
17b	Sept. 3	21 59	Sept. 6	20	Yes	Yes	No	-13	+13	-23	1539	441	950
18b	Sept. 20	11 57	Sept. 22	21	Yes	Yes	Yes	+74	+20	+27	1426	500	716
19b	Oct. 29	23 47	Nov. 3	24	No	No	Yes	+22	-8	-10	1134	418	621
20b	Nov. 27	23 51	Nov. 29	08	No	No	Yes	+37	-20	-27	682	425	486
21b	Dec. 5	06 59	Dec. 7	05	Yes	Yes	Yes	-11	+14	-7	1260	530	871
22b	Dec. 23	15 25			No	No	Yes	+20	-10	-8		Small	

*Indeterminate

(c) Disturbances due to solar flare (sfe)

Serial Number	Date	Commence- ment	Max.	End	Movement (γ)			K	K'	Notes
					H	D	Z			
		h. m.	h. m.	h. m.						
1c	Jan. 14	14 05	14 23	14 40	+15	-16	+3	2	1	S.E.A.
2c	Mar. 24	10 03	10 15	10 30	-24	0	0	3	2	Large S.E.A.
3c	Apr. 8	09 15	09 21	09 45	-7	+9	0	2	2	S.W.F., large S.E.A.
4c	Apr. 15	08 43	08 52	08 57	-9	+8	0	2	1	Small S.E.A.
5c	Apr. 27	08 54	08 58	09 10	-7	+4	0	3,2	3,2	Small S.W.F., S.E.A.
6c	May 8	14 21	14 30	15 15	+44	-22	0	3,3	3,3	S.W.F., S.E.A.
7c	June 16	06 23	06 32	06 38	-11	+6	0	2	2	S.E.A.
8c	June 18	11 39	11 42	11 52	-5	-12	+3	2,3	1,3	S.W.F., S.E.A.
9c	Sept. 1	16 56	17 12	17 45	+52	+34	+33	5	4	Partial S.W.F., S.E.A.

S.E.A. = Sudden enhancement atmospherics
S.W.F. = Short wave fade out

18 BRITISH ISLES

Date	\bar{Q}_1	Forms	Time	\bar{Q}_2	Date	\bar{Q}_1	Forms	Time	\bar{Q}_2	Date	\bar{Q}_1	Forms	Time	\bar{Q}_2
JANUARY					APRIL (contd.)					SEPTEMBER				
4-5	59	HA	1800-2400		12-13	60	HA	0250-0400	66	1-2	60	HA, RA, R, S	2150-0400	64
5-6	54	HA, RA, HB, KB, R, S, F	1755-0630	59	13-14	60	G			2-3	55	HA, RA, KB, R, S	2100-0230	64
6-7	59	HA, RA, R, S, F	1700-0500	65	14-15	61	RA, R, S	2330-0200	66	3-4	50	HA, RA, HB, KB, R, S, P, F	2105-0400	58
7-8	58	HA, RA, HB, R	1800-0600	65	15-16	61	G			4-5	54	HA, RA, KB, R, S, P, F	1945-0300	61
8-9	54	HA, RA, KB, R, S, F	1750-0530	63	23-24	51	HA, RA, HB, KB, R, S, P	2100-2400	58	5-6	56	HA, RA, HB, KB, R, S, P, F	2010-0400	64
9-10	53	HA, RA, HB, KB, R, S, P, F	1700-0700	58	24-25	57	G			7-8	63	R, S, P	2045-0300	
10-11	54	HA, RA, HB, KB, R, S, F	1740-0600	62	25-26	56	G			8-9	59	RA, R	2230-0300	
11-12	57	HA, R, S	2230-0400	64	26-27	55	HA, RA, HB, R	2145-0300	65	10-11	61	HA, RA, R	2100-0100	66
12-13	57	G			27-28	56	G			12-13	61	G		
14-15	60	HA, RA, R, S	2030-0600	66	28-29	54	HA, RA, HB, KB, R	2150-0200	63	13-14	61	KB, R, F	2050-0300	66
15-16	61	G			29-30	56	G			15-16	61	G		
16-17	61	G			30-1	59	HA, R, S	2115-0100	66	17-18	59	G		
17-18	63	G			MAY					20-21	62	HA, RA, KB, R, S, P, F	1950-0520	62
25-26	60	G			2-3	59	G			21-22	56	HA, RA, HB, KB, R, S, F	1935-0400	62
28-29	60	HA	1920-0500	66	3-4	57	G			22-23	59	R	1950-2250	
29-30	60	G			4-5	54	HA, RA, HB, KB, R	2110-0400	62	23-24	57	HA, RA, KB, R, S, P, F	1930-0415	63
30-31	61	G			7-8	60	G			25-26	58	RA, KB, R, S, F	1930-0215	65
31-1	61	R	2000-0600		8-9	59	R			26-27	58	HA, HB, KB, S, P	1950-0300	63
FEBRUARY					10-11	60	G			28-29	60	G		
1-2	61	HB	2300-0600		11-12	57	G			29-30	61	G		
2-3	58	HA, RA, HB, R	1840-0615	64	12-13	54	RA, R	2210-2340		30-1	61	HA	2105-0400	66
3-4	55	HA, RA, HB, KB, R, S	1820-0600	64	13-14	60	HA	2225	65	OCTOBER				
4-5	54	HA, RA, KB, R, S, P, F	1850-0600	64	23-24	58	G			1-2	58	HA, RA, HB, KB, R	1900-0400	64
5-6	59	HA, RA, R	1900-0200	65	24-25	58	G			2-3	61	HA, RA, R, S	2050-0200	66
6-7	60	S	2100-0500		25-26	58	G			3-4	53	HA, RA, HB, KB, R, S, P, F	1900-0500	59
7-8	60	RA, S	2240-2350		31-1	58	G			4-5	57	HA, RA, KB, R, S, F	1920-0500	64
8-9	59	HA, RA, R, S, P, F	2000-0500	64	JUNE					5-6	54	HA, RA, KB, R, S, P	1915-0500	60
10-11	60	HA, HB	2150-0500	66	4-5	57	G			6-7	61	HA, R, S	1950-0450	66
11-12	58	HA, RA, R, F	2000-0400	65	6-7	59	G			7-8	62	G		
14-15	59	HA, RA, R, S, P, F	1900-0600	64	23-24	55	G			19-20	60	G		
16-17	56	HA, RA, R, S, P	1900-0600	60	29-30	54	G			21-22	60	HA, RA, R	2140-2300	67
22-23	59	G			JULY					22-23	61	R	1850-2050	
25-26	56	HA, RA, KB, R, S	1900-0500	61	1-2	56	G			24-25	59	HA, RA, HB, S	1815-0600	67
26-27	54	HA, RA, R, S	1850-0300	65	4-5	58	G			25-26	60	HA, RA, R, S, F	2100-0600	66
27-28	58	HA, RA, KB, R, S, F	2000-0400	66	6-7	59	G			29-30	58	G		
28-1	53	HA, RA, HB, KB, R, S, P, F	1850-0500	60	10-11	60	G			30-31	53	HA, RA, KB, R, S	1800-0200	61
MARCH					1-2	56	G			31-1	56	HA, RA, HB, KB, R, S, P	1850-0500	59
1-2	59	HA, RA, HB, KB, R, S, F	1930 0600	65	4-5	58	G			NOVEMBER				
2-3	62	G			10 11	56	G			1-2	58	G		
3-4	56	HA, RA, KB, R, S	1950 0300	64	11-12	57	G			2-3	58	HA, RA, KB, R, S, P, F	1730-0600	62
4-5	61	G			15-16	50	RA, KB, R, S, P	2225-0130	54	3-4	56	HA, RA, KB, R	1740-2400	63
5-6	60	G			16-17	59	G			4-5	56	HA, RA, R, S, P, F	1730-0500	65
7-8	58	HA, RA, HB, R, S, P, F	2000-0400	62	17-18	50	HA, KB, R, S	2100-0200	56	6-7	61	G		
8-9	61	HA, RA, HB	2250-0400	67	18-19	54	G			7-8	60	HA, RA	2150-0400	63
12-13	61	RA, HB, R	2005-0300	67	24-25	58	HA	2315	65	9-10	59	R, S	1910-0400	
14-15	61	G			25-26	58	R	2200-2230		12-13	62	RA, R	2300-0300	
15-16	61	G			27-28	57	G			21-22	59	G	2000-2200	65
24-25	60	G			28-29	58	G			22-23	59	HA, RA, R, S	2350-0700	
25-26	57	KB	1930-2250		AUGUST					24-25	59	HA, RA, KB, R, S	1950-0150	66
26-27	53	HA, RA, KB, R, S, P, F	1930-0500	58	6-7	59	HA, RA, R, S	2205-0200	66	25-26	58	RA, R, S	2050-0600	
27-28	52	HA, RA, HB, KB, R, S, P, F	1930-0400	60	7-8	59	R	2250-0135		26-27	58	HA, RA, R, S	1810-0240	65
28-29	50	HA, RA, HB, KB, R, S, P, F	1930-0430	55	8-9	60	G			27-28	52	HA, RA, HB, KB, R, S, P, F	1830-0640	61
29-30	57	G			10-11	61	G			29-30	59	G		
30-31	61	R	2050-2300		15-16	58	HA, RA, KB, R	2040-0200	63	30-1	58	HA, RA, HB, KB, R, S, F	1700-0600	64
31-1	56	G			16-17	53	HA, RA, KB, R, S, F	2115-0315	62	DECEMBER				
APRIL					17-18	57	G			2-3	58	HA, RA, KB, R, S	1800-0600	65
2-3	61	G			18-19	57	G			3-4	58	HA, RA, HB, KB, R, S	1850-0450	64
3-4	59	HA, R	2050-0300		19-20	57	G			5-6	50	HA, RA, HB, KB, R, S, P, F	1750-0500	57
4-5	60	G			20-21	57	G			11-12	62	R	0250-0300	63
6-7	58	G			22-23	61	R, F	0050-0200	61	13-14	60	RA, KB, R	2150-0150	64
7-8	57	R, S, P	2100-0345		23-24	60	G			22-23	62	G		
8-9	54	HA, RA, HB, KB, R, S, P, F	2030-0430	60	25-26	59	G			23-24	56	HA, R, S	1710-0100	61
9-10	54	KB, R, S	2115-0400		26-27	59	G			26-27	58	G		
10-11	57	KB	2030-0300	65	28-29	59	G			27-28	58	HA, RA, R	1850-0700	66
11-12	57	R, S	2100-0300	64	30-31	60	G			28-29	58	HA, RA, HB, KB, R, S, F	1720-0500	65

The above table was compiled in the Balfour Stewart Auroral Laboratory of the University of Edinburgh from all data available for the longitude of the British Isles, using mainly observations made at British Meteorological Office stations and by British voluntary observers, but including also some of the data from the Faroes, from Ireland and from France. Acknowledgements are made to the Directors of the Meteorological Services of Denmark (for the Faroes data), Ireland and France.

In the table, \bar{Q}_1 is the lowest geomagnetic latitude from which aurora was seen in the longitudes considered. On any night, if more than a horizon glow was seen from the British Isles, the other forms reported are listed and the period of time (G.M.T.) during which the display was observed from the British Isles is stated. The standard abbreviations are used for the forms and types of activity: G = horizon glow; HA = homogeneous arc; RA = rayed arc; HB = homogeneous band; KB = rayed band; R = rays; S = surface; P = pulsating; F = flaming. If the forms could not be determined because of cloud or twilight, but auroral light was positively identified, the abbreviation L is used. Under \bar{Q}_2 is given the lowest geomagnetic latitude of overhead occurrence in the longitudes considered. In the absence of direct visual observations, \bar{Q}_2 is deduced from elevation measurements 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 (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

19 LERWICK		Factor 0.95 (metre ⁻¹)																				JANUARY 1959			
	Hour G.M.T.																						Mean		
	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
	<i>volts per metre</i>																								
1	40	50*	45*	55*	110*	60	Z*	-15*	50	70	-10*	40*	35*	75	115	125	145	115	110	300*	Z**	Z**	Z**	-195*	91 (10)
2	-110*	65	Z**	Z**	Z**	80*	140*	80	60	55	225*	210*	190*	110*	205*	160*	130	175*	125	110	135*	110	145	80	96 (10)
3	85*	Z**	85	70*	Z**	85	Z**	140*	Z**	--	--	--	Z**	Z**	Z**	Z**	Z**	110*	100	130	40*	-40*	Z**	Z**	100 (4)
4	195*	Z**	Z**	140*	78*	Z*	195	225*	Z**	Z**	Z**	Z**	Z**	Z**	175	135*	115*	140	110*	145	130	125	120*	195	158 (7)
5	180	Z**	Z**	Z**	100*	85*	65*	Z**	Z**	--	145*	Z**	Z**	Z**	Z**	Z**	320	320	Z**	300	125	225	430*	Z**	230 (5)
6	535	140	130	110	Z**	Z**	350*	305*	Z**	--	185	155	170	175	190	215	245	365	420	195*	170*	145	135	145	216 (16)
7	125	145	170	165	140	90	70	95	100	115	150	150	275	Z*	Z**	Z**	Z**	Z**	Z**	150*	120*	105	115	170	136 (16)
8	195	240	Z*	Z**	120	Z**	-85*	120	215	--	Z**	Z**	Z**	-15*	450*	220*	160	165	Z*	Z**	145	130	120	135	159 (11)
9	Z**	Z**	Z**	320*	Z**	Z**	0*	315*	95	100	150	135*	160	160*	50*	195	Z*	Z*	Z**	Z**	Z**	Z**	110	Z*	135 (6)
10	205	365	155	80	345	80	-85	Z**	95	Z*	170*	Z**	Z**	365*	390	Z*	Z*	Z**	Z**	Z**	Z**	Z**	Z**	Z**	192 (8)
11	Z**	Z**	Z**	Z**	Z**	Z**	Z**	Z*	Z*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13	140	-85	Z*	175	250	105	Z*	Z**	265*	Z**	Z**	170*	190	85	100	65	75*	Z**	Z**	265*	250	80	85	85	125 (4)
14	75	65	45*	80*	130*	80	55	60	85	135*	140*	130	130	145	130	125	130	120	130	105	115	120	115	90	106 (19)
15	75	75	85	75	75	70	Z**	65*	85	100	120*	155*	115*	130	195*	140*	105*	115	110	115	125	125	120	125*	99 (15)
16	120*	110	110	105	110	125	130*	130	265*	80	35	50	80	80	80	85	115	85	90	95	90	120*	70*	90*	92 (18)
17	255*	Z**	-55	90	55	60	70	60	75	55*	140*	260	150	175	280	190	150	200	195	210	190	175	160	140	141 (20)
18	125	135	115	110	110	100	110	100	85	110	140	115	120	135*	110*	105	110	90*	230*	125*	160*	160	195	150*	120 (17)
19	145*	150*	260*	640*	Z**	Z**	Z**	Z**	Z**	Z**	Z**	Z**	--	--	--	--	--	--	--	--	--	--	--	--	--
20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26	--	--	--	--	--	--	--	--	--	--	--	95	95	120	105	90	55	95	95	95	115	125	200	190	113 (13)
27	95	95	125	125	105	155	200	355	235	185	235	395	450	Z*	Z*	425	275	310	230	215	215	145	160	135	221 (22)
28	100	100*	150*	160	240	280	230	295	320	--	420	310	220	275	250	365	310	235	235	270	215	200	200	170	252 (21)
29	140	150	130	140	120	65	60	65	100*	65	10*	40*	90*	180*	175	80*	145*	165*	150	95	90	85	80	80	106 (16)
30	60	50	-35*	35	65*	50*	Z**	55	65	70	70	Z**	35	40*	55*	60	60	55	50	60	55	80	80	65	59 (17)
31	70	85	55*	60*	80*	80	75	65	70	55	20	30	25	35	30	35	30	15	30	40	50	55	65	75	49 (21)
Mean	144 (15)	117 (14)	105 (10)	114 (12)	152 (11)	103 (14)	98 (10)	123 (12)	118 (13)	91 (11)	156 (9)	169 (10)	162 (13)	129 (10)	168 (12)	160 (13)	147 (13)	167 (14)	148 (14)	142 (14)	136 (14)	128 (18)	130 (17)	123 (15)	135 (308)
	Mean for 0a days																							144 (3)	

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

19 LERWICK		Factor 1.03 (metre ⁻¹)																				FEBRUARY 1959			
	Hour G.M.T.																						Mean		
	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
	<i>volts per metre</i>																								
1	45	40	40	60	70	60	40	20	40	70	70	70	85	95	100	100	110	75	70	70	90	95	85	100	71 (24)
2	35	35	45	50	35	60	55	45	50	40	60	65	75	75	55	55	80	85	85	40	40	45	50	65	55 (24)
3	50	50	55	35	35	50	60	80	85	40	60	75	85	65	70	85	80	75	85	55	85	80	105	90	68 (24)
4	80	80	80	60	60	65	65	85	95	85	105	120	120	135	140	135	105	140	135	170	160	160	180	190	115 (24)
5	170	150	160	170	170	175	195	170	200	145	135	130	135	130	130	110	120	110	100	120	110	110	120	90	140 (24)
6	70	95	100	75	70	75	70	65	100	95	95	95	120	75	85	95	90	155	75*	80*	-215*	75*	-90	-180*	81 (19)
7	-165*	-40*	35	30	60	-90*	-220*	20*	60*	85*	35*	85*	75*	85*	65	85	35	95	70	160	135	100	110	150	87 (13)
8	140	160	240	220	240	295	195	120	105	110	90	75	100	105	105	105	120	110	125	150	100	115	390	525	168 (24)
9	345	285	225	225	180	230	245	285	285	165	275	230	190	225	200	225	260	225	220	155	200	225	170	175	227 (24)
10	155	160	170	150	160	175	205	140	170	155	135	180	135	165	200	155	130	170	135	130	135	105	105	110	151 (24)
11	105	110	115	135	200	210	335	425	425	390	310	285	320	300	300	290	280	250	230	205	195	195	165	150	247 (24)
12	120	140	135	140	130	135	135	135	140	140	140	135	125	180	165	175	160	135	150	150	130	145	135	105	141 (24)
13	110	130	150	155	150	175	175	150	145	155	195	215	220	215	230	225	245*	70*	300	335	385	380	325	--	215 (21)
14	--	--	--	--	--	--	--	--	--	--	70*	55*	75*	90	95	Z**	130*	145	140	Z**	105	95	Z**	70*	106 (7)
15	65	45*	35	40	50	60	55	50	50	55	25	50	80	55	80	75	100	145	225	260	220	145*	155*	170*	89 (20)
16	210*	160	165	175	190	150	60*	90*	95*	95*	115	70	95	75	5*	70	80	95	110*	90	90	75	35*	60	110 (16)
17	55	50	60	60	55	60	45*	50*	95*	20*	35	60	90	95	100	100	95	105	125	140	150	135	110	85	88 (20)
18	95	95	100	110	100	100	100	100	115	115	95	160	135	130	120	125	135	Z**	145*	175*	185*	185*	255*	95*	114 (17)
19	65	55	0*	70*	60	25*	10*	30*	20*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	60 (3)
20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	70	100*	160	145	125	45*	125*	100	120 (5)
26	70	70	75	70	65	60	65	90	85	25*	30*	90*	5*	130*	-55*	-30*	-45*	120*	130	190	145	140	145	120	101 (15)
27	165	110	110*	145*	115	15*	160*	140*	0*	-5*	-95*	80*	85	75	95	125	130	150	145	150	135	175	185	165	134 (15)
28	140	130	135	180	170	150	120	110	95	95	100	105	120	130	135	130	140	145	140	155	145	135	125		

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

19 LERWICK		Factor 1.08 (metre ⁻¹)																				MARCH 1959						
	Hour G.M.T.		volts per metre																				Mean					
	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			
1	120	115	115	115	115	110	105	115	130	140	130	140	265	260	290	310	245	245	230	230	225	190	170	176	(24)			
2	170	160	120	125	115	140	160	175	245	240	330	410	275	250	175	225	425	315	540	695	790	Z+	Z+	810*	290	(21)		
3	Z+*	Z+*	430*	465*	370*	-110*	-430*	30*	175*	315	370	370	460	525	440*	-10*	-470*	-210*	-270*	-245*	160*	195*	170	210	346	(7)		
4	115	115	160	130	85	75	75	70	60	40	85	45	75	155	175	115	140	105	115	120	100	140	90	85	103	(24)		
5	50*	85*	100	135	190	200	240	210	215	165	150	190*	-325*	-240*	180*	220*	275*	290*	265	260	270	275	305	395*	213	(14)		
6	575*	415	445	445*	365	365	470	495	460	335	335	-415*	Z+*	Z+*	Z+*	Z-*	-10*	85*	-140*	-150*	-150*	-100*	10*	50*	409	(9)		
7	75*	65*	65	65*	55	55	75	65	80	90*	100*	85	-	-	-	-	-	-	-	-	-	65*	-5	0	53	(9)		
8	0	-10	-5	-5	0	5	15	25	Z+*	20	130*	165	60	75	90	80	65	50	50	55	55	50	65	65	44	(22)		
9	50	65	95	100	105	110	125	130	135	130	120	130	140	160	170	165	155	155	175	185	200	195	165	170	139	(24)		
10	150	160	140	170	170	175	180	190	195	120	100	115	95	110	105	90	100	90	115	145	130	130	140	205	138	(24)		
11	125	125	150	165	160	190	195*	210*	210*	140*	130	130	150	195	190	160*	175	170*	95*	130*	150*	130	110	170	153	(15)		
12	175	125*	75*	155*	90*	130*	-130*	205*	140	130*	170*	195	200	200	260	265*	70*	35*	100	120	150*	100*	60*	75*	174	(8)		
13	65	60	80	75	60	60	60	75	75	80	80	65	80	110	105	115	115	170	190	175	170	185	150	160	107	(24)		
14	210	175	160	160	165	105*	210*	210*	210	160	190	210	220	215*	140*	-645*	-155*	155*	825*	255*	190*	130*	Z-*	-130*	186	(10)		
15	25*	-55*	75*	55*	80*	265*	90	45*	Z+*	90	65	45	Z+*	100	125*	65	55	45	45	55	65	65	70	65	66	(14)		
16	105	100	95	80	65	75*	75	70*	75	75	85	85	100	115	100	100	90	100	100	110	120	100	95	100	94	(22)		
17	85	85	90	95	85	105	125	110	270	290	195	155	95	50	95	130	155	120	115	125	105	105	120	126	(24)			
18	115	110	120	160	100	80	85	100	100	45	0*	25*	90	90	100	130	100	85	65	65	90	100	115	110	98	(22)		
19	85	60	75	75	80	90	80	65	70	85	65	65	30*	30*	25	70	85	100	115	85	125	125	100	105	84	(22)		
20	130*	135	140	140	120	130	125	120	130	125	105	110	115	105	90	80	60	50	75	95	105	150	140	140	112	(23)		
21	175	165	165	140	125	150	145	140	150	135	175	175	180	170	175	180	165	165	185	185	180	170	150	95	160	(24)		
22	75	90	60	45	60	100	125	100	95	100	110	130	105	125	120	160	170	145	150	170*	200*	225*	305*	165*	109	(19)		
23	160*	125*	140*	65*	75*	110	80	100	115	110	130	160	150	115	120	135	105	140	145	190	225	190	265	645	170	(19)		
24	530	500	425*	375*	325	405	375	555	700	630	350	155	165	140	195	170	225	155	125	290	165	175	135	150*	308	(21)		
25	110*	140*	120*	125	-90*	180*	60*	90*	140*	135*	150	150	200	220	-	-	85	240	415	405	470	475	460	415	292	(13)		
26	160	170	65*	120*	100	85	105	100	115	100	85	50	-10	0	-10*	5*	0	10	0	15*	10	0	5	-5	57	(19)		
27	-10	-5	-5	10	15	30	90	170	210	210	380*	265*	265	295	350	190*	35*	125*	220*	240*	45*	20*	40*	70	121	(14)		
28	85*	65	65	85	90	100	110	115	165	150	115	90	100	80	90	85	60*	90	90	110	125	110	100	100	101	(22)		
29	80	75	50	45	50	140	205	270	185	205	260	515	415	350	515	575	515	505	550	485	435	400	350	240	309	(24)		
30	220	255	260	225	190	210	240	215	225	215	210	230	255	255	225	205	210	225	240	240	255	225	205	210	227	(24)		
31	190*	170	160*	150*	150*	165	180*	235*	295*	245*	-695*	-65*	15*	35*	240	-	-	-	-	-	-	-	-	-	192	(3)		
Mean	133	140	119	109	120	136	143	161	180	165	166	160	165	170	173	158	158	152	176	201	202	169	154	158	157	(564)		
	(21)	(24)	(23)	(22)	(25)	(25)	(25)	(23)	(26)	(26)	(24)	(26)	(25)	(25)	(23)	(20)	(22)	(22)	(24)	(22)	(22)	(22)	(24)	(23)				
																										Mean for 0a days	[183	(12)]

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

19 LERWICK		Factor 1.11 (metre ⁻¹)																				APRIL 1959					
	Hour G.M.T.		volts per metre																				Mean				
	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		
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	125	140	120	135	110	105	105	105	118	(8)
2	100*	95	85	105	100	85	155	145	110	75	-315*	60*	-30*	65*	10*	85*	140*	250*	315*	135*	390*	220	265	315	146	(12)	
3	230	195	135	130	110	145	140	135	110	60	35	5*	-25*	40*	60	60	295	115*	70	75	65	65	70	55	112	(20)	
4	40	65	65	65	55	75	65	95	105	65*	-55*	-210*	-435*	-435*	-345*	-225*	10*	40*	110*	5	265*	5*	140	75*	70	(11)	
5	55	65	65	55	55	40	5	20	20	0	-15	0	0*	-95*	-50*	0*	-280*	-70*	-525*	-260*	-105*	-75*	15*	30	(12)		
6	Z+*	5	-105*	30	210*	55*	70*	Z+*	Z+*	Z+*	55*	145*	55*	Z+*	245*	55*	60*	65*	35*	40*	65*	65*	25*	40*	17	(2)	
7	40*	85	85*	100*	70*	105*	40	100	55	55	75	15	-5*	-30*	-65*	-35*	5*	35	15	25	65	65	50	50	52	(14)	
8	70	60*	60*	65	50*	-40*	-130*	5*	-235*	-125*	125	-110*	100	-35*	145*	145	215	215	220	220*	105*	125*	195*	245*	144	(8)	
9	85	125	55*	45	55	75	55	85	85	135	315*	125*	Z+*	-15*	175*	15*	35*	0*	105*	100*	80*	Z+*	135*	Z+*	83	(9)	
10	280*	175	140	135	105	105	125	Z+*	Z+*	Z+*	110	110	110	145	140	130	125	95	155	315	Z+*	105	85	0	127	(19)	
11	Z+*	65	45	55*	45*	220	75	170	100	100	75	105	105	135	145	170	155	155	150	145	215	175	160	180	135	(21)	
12	140*	145	115*	125*	145*	135	140	145	175	150	180	135	120	125	90*	120*	75*	65*	70*	60	100	120	105	110	130	(15)	
13	110	95	80	55	100	30*	-280*	-155*	105*	85	140	90	70	50	75	110	130	105	310	405	Z+*	Z+*	-395*	105*	126	(16)	
14	390	310	185	205	180	195	180	165	275	145*	-15*	-255*	75*	135	175	205	255	345	245	170	170	315	265	315	234	(20)	
15	445	505	370	380	420	280*	175	105	105	30	-35*	-555*	-210*	350	385	365	525	645	595	665	630	385	360	335	389	(20)	
16	205	185	160	175	145	175	185	160	110	150	150	145	125	60	15	65	130	150	230	390	230	290	295	305	176	(24)	
17	285	225	110	110	70	85	105	140	140	85*	100	100	85	80	65*	55*	75*	85	105	105	110	115	105	70*	119	(19)	
18	100*	210	140*	175*	105	105	75	75	100	95	75	90	90	75	70	70	75	75	85	90	85	105	100	85	92	(21)	
19	135	140	105	75	100	90*	75*	70	90	70	50	65	65	75	100	45	75	60	65	75	65	85	45	30	77	(22)	
20	30	40	45	65	50	40	65	100	100	80	100	145	95*	110*	65*	35*	-5*	285*	180*	320*	175*	135	90	100	79	(15)	
21	135	85	100	75	45	25*	-40*	45*	65	65*	110*	75*	70*	-75*	-295*	40*	130*	135*	190	170	150	195	240	165	135	(12)	
22	145*	135*	175*	180*	135*	85*	30*	5*	80*	70*	40*	145*	125*	135*	105*	60*	65*	65									

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

19 LERWICK		Factor 1.06 (metre ⁻¹)																				MAY 1959				
	Hour G.M.T.		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	
	0-1	1-2																								
volts per metre																										
1	65	115	70	130	60	75	75	100	65	65	90	115	110	140	Z**	115*	95	90	100	90	90	100	80	100	92	(22)
2	70	Z**	Z**	160*	-210*	15*	90*	100*	85*	70	-35*	Z**	110	130	200	130	130	Z**	Z**	165*	-65*	165*	-100*	35*	122	(6)
3	100	85	65*	65*	100*	-295*	-35*	130*	365*	50*	265	35*	-110*	65*	Z**	Z**	Z**	Z**	100*	95	100*	0*	85*	136	(4)	
4	65*	65*	90*	70*	105*	95*	95	80*	80*	85	85	60	75	60	65*	50*	65	65*	Z**	75*	75	90	60*	35	73	(10)
5	35	45	55	65	65	65	75	100	120	(35)	(35)	(0)	50*	35*	60	Z**	100	Z+	100*	65*	50*	50	35	35*	59	(16)
6	35	65	65	50*	35*	65*	Z**	Z**	230*	125*	110	100	95	100	100	90	90	-35*	35*	80	35*	-155*	90	75	84	(13)
7	65	55	45	40	55	60	95	90	110	135	105	110	160	175	215	210	215	350	280	265	195	215	210	153	(24)	
8	250	170*	230*	80	Z**	Z**	Z**	Z**	330*	140*	90*	100	130	100	130	130	140	130	120	120	125	140	125	120	129	(15)
9	140	160	275	265	215	225	570	680*	375*	100*	100	95	190	265	200	230	255	200	165	180	140	190	130	70	203	(21)
10	85*	115*	110	155	135*	80	110	135	135	135	160	160	135	105	95	110	80	90	95	160	265	300	310	310	154	(21)
11	295	265	245	245	255	215	240	240	205	120	90	115	130	150	135	130	135	130	130	115	175	195	190	235	183	(24)
12	295	285	290	270	260	235	240	240	240	235	220	140	125	90	120	80	65	75	85	100	Z**	185*	65	175	(22)	
13	65	35	0*	35*	-20*	90*	110*	65	30*	5	-60	-20	-55*	-85	25	0	0	-155	-245	-175	-55	-100	60	30	-36	(17)
14	0	35	5	-95	65	60	95	130	130	45	120	165	175	95	105	55	100	100	75	65	110	125	165	240	90	(24)
15	325	325	160	155	100	80	125	140	105	85	110	75	75	35	35	30	65	55	55	55	15	15	15	45*	97	(23)
16	35*	45*	15*	65*	35*	30*	50*	50	35	90*	60*	50	55	65	60	105	40	65	50	55	55	45	65	0	53	(15)
17	0	-45	-45	-90	-65	5	40	75	90	90	75	75	65	75	70	65	60	30	25	10*	65*	15	15	0	29	(22)
18	-35	-35	-5	-35	15	-35*	0*	65	100	115	140	160	155	165	165	165	155	140	65	65	50	35	35	25	77	(22)
19	-15	-	-	-	-	-	-	120	105	125	135	130	160	165	200	165	140	110	65	60	0	-30	-35	94	(17)	
20	0	40	35	35	5	0	-20	55	85	100	125	125	100	120	105	100	80	85	115	120	90	90	90	65	72	(24)
21	-5	-65	-55	-40	-65	35	60	75	70	(100)	(115)	(130)	(130)	125	130	165	175	140	130	165	140	135	130	125	85	(24)
22	85	75	80	80	90	80	85	95	105	95	55	50	45	80	85	95	125	110	135	125	105	90	80	85	89	(24)
23	50	50	65	35	75	85	90	100	165	115	35	-10	25	35	0	-5	-60	0	-65	-15	45	75	75	95	44	(24)
24	90	70	75	85	95	85	65	65	125	60	65	80	85	75	80	75	75	100	85	65	0	-35	-15	0	63	(24)
25	-50	-65	-115	-130	-100	-100	-100	-35	-35	-35	-35	-100	-100	-115	-130	-115	-50	0*	85*	35*	35*	35*	15*	50	76	(18)
26	15	35	35	10	35	25	-25	-35	35	35	35	50	90	90	90	100	85	15	-85	-75	-90	-35	0	22	(24)	
27	0	35	35	35	35	35	35	60	75	35*	60*	35	30*	35*	35*	40	85	100	70	65	60	45	25	25*	49	(18)
28	60*	60	50	35*	60*	50	35*	35*	5*	-*	-	-	-	-	-	-	-	-	-	-	-	5	50	50	26	(8)
29	55	75	100	85	60*	50*	35*	65	90	25	55	50	15	-15*	-10*	-25*	30*	-5*	-75*	-45*	110*	-*	-*	-*	61	(10)
30	-*	-	-	-	-	-	-	105	100*	100*	120	100	100	110	105	110	100	100	115	90	105	100	75	90	102	(14)
31	65	65	40	65	85	80	90	95	95	40	30*	55*	65	65	65	125	135	155	130*	105*	160*	350*	240*	130*	83	(16)
Mean	77	74	70	66	68	72	102	90	103	81	93	80	94	93	96	96	97	95	76	77	88	75	82	85	85	(566)
	(26)	(24)	(23)	(22)	(19)	(20)	(20)	(22)	(23)	(23)	(24)	(27)	(25)	(26)	(25)	(25)	(28)	(23)	(23)	(24)	(22)	(24)	(24)	(24)		
	Mean for 0a days																							[145	(4)]	

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

19 LERWICK		Factor 1.01 (metre ⁻¹)																				JUNE 1959				
	Hour G.M.T.		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	
	0-1	1-2																								
volts per metre																										
1	90*	90	90	60	60	60	90	60	90	60	60*	60	60	60	30	30	30	60	60	30*	60*	60	90	60	63	(20)
2	90	90*	90*	120*	90*	60*	90*	90*	120*	60*	-30*	-90*	30*	90*	-30*	60*	90*	90	90	120	120	120	150	150	116	(8)
3	120	120	90	90	60	60	90*	60	90	60	0	60	30	0	30	60*	60*	60*	60*	90*	120*	60*	0*	0*	62	(14)
4	-30*	-120*	-30*	-180*	30*	90	120	90	60	60	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	(19)
5	60*	60	60	60	90	120	120	150	120	90	120	150	150	30	Z**	Z**	-720*	-330*	90*	-450*	30*	Z**	Z**	150*	99	(14)
6	Z**	-870*	-630*	-240*	180	240	210	120	180	Z+	360	180	240	330	450	480	450	390	540	480	450	240*	270*	Z**	330	(16)
7	Z+	420	360	270	270	210	180	180	120	60	90	120	120	90*	30*	60	30*	60*	0*	60	90	90	60	90	158	(18)
8	90*	60*	0*	-120*	120*	120*	90*	120*	150*	120	120	150*	150	120	150	150	150	180*	150*	150*	-90*	60*	-150*	90*	137	(7)
9	120	120*	120	120	120	120	120	120	120	60	120	90*	120	120	120	120	120	120	120	90	-*	210*	60	60	109	(20)
10	-60*	90*	60	60	60	90	90*	60*	90*	30*	60*	90*	60*	90*	90	90	90	60	60	90	90	90	60	90	80	(15)
11	50	50	25	25	50	75	75	75	75	75	75	75	75	50	75	75	100	150	75	75	100	100*	100*	100*	71	(21)
12	120	30*	0*	0*	-60*	0*	30*	90*	120*	90	60	60	30	30	0	30	30	30	30	30	30	60	30	30	43	(16)
13	25	25	25	25	25	25	25	25	25	25	25	25	50	50	50	50	50	50	75	75	75	75	50	50	44	(24)
14	50	50	25	50	25*	25*	25*	25*	25*	25*	25*	25*	25*	25*	25*	25*	25*	25*	50*	50	50	50*	50*	25*	46	(6)
15	30*	30*	30*	30*	60	30*	60*	60	60	60	60	90	90	90	90	60	60	60	60	60	60	60	60	60*	69	(17)
16	60*	90*	60*	60*	60*	60*	30*	30*	60*	60*	60*	60*	60*	60*	90*	90*	210*	210*	180*	150	120*	60	90*	120*	105	(2)
17	90*	60*	60*	90*	120*	150*																				

POTENTIAL GRADIENT (reduced to open level surface)
 Mean values for periods of sixty minutes between exact hours

19 LERWICK		Factor 1.02 (metre ⁻¹)																							JULY 1959	
	Hour G.M.T.												volts per metre												Mean	
	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		
1	30	30	30	30	30	30	30*	55*	55	30	110	85	30*	0*	0*	0*	0*	85*	170*	225	170	110*	85*	55*	71 (12)	
2	30*	55*	55*	85	110	85	110	55*	55	85	55	55	55*	55*	30	0*	0*	30*	30	55	55	85	110	85	73 (15)	
3	45	45	45	45	45	45	45*	70*	70*	70	90	90	70	70	70*	70*	45*	45*	70*	90*	45*	62 (13)				
4	55*	30*	30*	30*	85*	55*	310*	195*	225*	Z+	225	310	365	170	250	280*	85*	110	140	140	110	Z+	195	Z+	201 (10)	
5	280	390	560	365	Z+*	Z+*	Z+	Z+	390	225	225	250	195	85	Z+*	Z+*	Z-*	170	140	140*	170*	170	170	170	252 (15)	
6	140	170	170	195	170	195	170	140	110*	110	140	110	140	140	110*	110*	140*	225*	85*	55*	225*	225*	Z-*	152 (14)		
7	Z-*	Z-*	140*	Z-*	250*	365*	250*	140	110	110	170	140	140	85	110	110	110	110	110	110	85	85	85	85	113 (17)	
8	85*	85*	85*	55*	55*	85*	55*	55*	55*	110*	-	-	-	-	-	0	55*	55*	140	85	85	55	55	55*	72 (7)	
9	55*	85	110	140	140	110	140	110	110	85	85	55	55	55	55	30	55	55	85	110	85	85	85	110	88 (23)	
10	90	70	45	45	45	45	45	45	45	70	45	45	90	90	230	185	255	300	140	140	140	185	160	90	110 (24)	
11	170	225	225	140*	55*	85*	0*	195*	280*	225*	225	280	420	365	250	195	140	170*	110*	85	85*	55*	55*	30*	235 (11)	
12	30*	55*	140*	195*	170	170*	170*	Z+*	Z+*	Z+*	225	450	110	Z-*	195*	110*	Z-*	110*	170	140	110	Z-	Z+*	Z+*	196 (8)	
13	-85*	Z+*	30*	85*	225	Z+*	Z-*	Z-*	110*	85	-30*	-30*	0*	-*	-*	110	85*	110*	140*	110	55*	30*	55*	55*	133 (4)	
14	70	45*	45	90	70	90	70	70	70	45	70	45	70	70	115	90	70	70	90	90	70	70	45	45	71 (23)	
15	45	45	45	25	45	45	90	45	70	45	70	25	70	140	230	205	205	205	300	390	485	415	620	(620)	187 (24)	
16	(550)	(575)	(665)	(575)	300	230	140	90	115	255	205	140	160	230	345	485	(550)	(575)	(575)	435	505	600	485*	230*	377 (22)	
17	110*	-*	505*	140*	225*	335	140	110	140	110	110	170	195	170	225	225*	30	55	110	110	140*	85*	110	Z+	141 (15)	
18	475	420	475	505	85*	85*	335	365	280	225*	390*	(55)*	(140)*	(250)*	-*	170*	365*	310*	195	110	170*	Z+*	Z+*	195*	351 (9)	
19	320	255	320	435	205	255	460	275	140	70	70	115	90	115	140	205	230	255	230	185	185	230	185	185	215 (24)	
20	160	320	415*	345*	255*	300*	300	70*	45*	160*	160	90	90	255	255	345	320	205	275	320	185	140	70	70	209 (17)	
21	70	115	70	70	70	45	70	90	70	90	115	90	90	70	70	45	70*	70*	90	90*	115*	115*	90*	90	79 (18)	
22	90	70	70*	70*	70	115*	70*	45*	70*	45	140	90	90	45	90	160	160	160	140	160	185	160	185	160	122 (18)	
23	140	110	55	55	55	55	140	170	170	85	55	55	55	55	30*	30	55	-30	0	30	55	55*	55*	85*	70 (20)	
24	90*	185*	70*	205*	160*	205	230	345	185	90	90	70	90	70	70	45	70	45	45*	45*	45	70	45	45	106 (17)	
25	45	25	45	45	25	25	45	45	45	45	45	45	90	185	185	205	205	140	90	185	205	185	160	185	104 (24)	
26	185	185	185	185	185	140	70	45	45	25	25	0	25	25	45	90	70	90	45	70	90	70	70	90	86 (24)	
27	45	45	45	90	70*	70*	115*	70*	70*	70	70	70	70	45	140	70*	115*	115*	140	140	140	115	140	160	95 (16)	
28	435	485	320	140	140*	90	115	70	115	70	115	70	70	70	45	70	45	45	70	70	70*	90	45	45	122 (22)	
29	30	30	0*	55*	55	30	30	55	55	55	55	110	55*	85*	55*	85	85*	85*	110*	140	110	110	85	110	72 (16)	
30	70	45	70	70	70	70	70	90	70	90	70	45	70	70	70	70	70	70	90	90	90	70	70	70	72 (24)	
31	55	55	55	55	30	55	55	55	55	55	55	55	30	30	30	30	55	30	30	30	0	30	30	55	42 (24)	
Mean	161	173	179	162	106	108	141	123	114	90	118	104	118	113	139	133	146	140	143	144	146	152	130	130	133 (530)	
	(22)	(22)	(20)	(20)	(20)	(21)	(20)	(19)	(21)	(26)	(28)	(28)	(25)	(24)	(23)	(21)	(19)	(19)	(24)	(26)	(22)	(20)	(21)	(19)		
																									Mean for 0a days [134 (15)]	

POTENTIAL GRADIENT (reduced to open level surface)
 Mean values for periods of sixty minutes between exact hours

19 LERWICK		Factor 1.04 (metre ⁻¹)																							AUGUST 1959	
	Hour G.M.T.												volts per metre												Mean	
	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		
1	50	50	50	25	25*	50*	50	50	50	50	50	50	70	70	70	70	50	70	70	70	70*	95*	70	70	58 (20)	
2	80	80	55*	55*	55*	80	110	80	80*	25*	55*	55*	160*	160*	135*	110*	110	80	55*	80*	80*	80	80	80	86 (10)	
3	50*	50*	50*	50*	70*	70*	70*	70*	50	70	70	95	95	95	95	70	70	70	70	50	50*	70	50	50*	73 (14)	
4	25*	55	55	55	55	55*	55*	55*	80	80	80*	55*	80*	55	55*	135*	215*	215*	160*	160*	-*	-*	-*	-*	59 (6)	
5	-*	-*	-*	-*	-*	-*	-*	-*	-*	80*	55	55*	25*	25*	25*	25*	25*	80*	110*	135	135*	110	110	110	104 (5)	
6	110	110	80	80	80	55*	80*	80*	80	55	55	55*	55*	80*	80	110	110*	80*	110	110*	80*	110*	110	110*	88 (12)	
7	80*	55*	110	135	110*	80*	110	110	110	55	55	55	55	55	55	55	55	55	55	80	80*	80*	80*	80*	77 (16)	
8	80*	110*	190	160	160	110	80*	135*	110*	110	80*	80*	110*	135	135	160	80	55	55	110	55	80	80	55	108 (16)	
9	25	25	25*	50*	50	25*	25*	70*	50*	50	50	50	70	70	70	70	50	50	50	50	50	120	95	59 (18)		
10	70	70	70	50	25	50	120	95	145	120	95	120	120	120	145	145	145	95	70	170	145	145	95	70	104 (24)	
11	80	80	80	80	135	110	190	215	190	135	215	135	55	135*	Z+*	Z+*	245*	160*	190	Z+*	Z+*	Z+*	Z+*	135*	135 (14)	
12	110*	80*	55*	0*	135*	80	0*	215	135	80	80	55	55	25	25	0	25	25	25	25	55	55	80	80	65 (18)	
13	80	55	55	55	55	55	80	80	160	110	110	110	80	80	55	55	25*	55*	80*	110	110	80	380	215	101 (21)	
14	110	55	55	110*	110*	160	215	135	190	270	325	270	190*	-25*	295*	380*	405*	325*	430	405	Z+*	Z+*	Z+*	Z+*	218 (12)	
15	Z+*	Z+*	325	215	215	215	215	190	215	190	215	245	325	325	405	Z+*	Z+*	Z+*	Z+*	405	270	270	190	160	255 (18)	
16	120	145	70	95	120	120	120	95	70	70	-	-	-	-	-	-	-	-	-	25	25	25	25	25	77 (15)	
17	55	55	55	80	80	80	110	160	160	160	80*	80*	160*	0*	25*	Z+*	245*	270*	160	110	135*	135*	80	25	98 (14)	
18	25*	80*	110*	135*	190*	-25*	Z-*	Z-*	Z-*	25*	135*	215*	190*	160*	80*	160	160	190	215	190	215	135	160	110	171 (9)	
19	160	295	430	460	245	245	245	245	245	270	295	245	245	215	190	215	270	295	215	160	245	215	215	190	254 (24)	
20	190	190	215	215	215	245	Z+	Z+	Z+	Z+	Z+	295	245	215	160	190	160	190	270	270	295	295	380	295	238 (19)	
21	325	245	295	325	430	380	405	485	405	350	325	245	215	190	215	190	55	110	135	350	Z+*	Z+*	Z+	Z+	284 (20)	
22	Z+	245	215	Z+	215	190	270	110	55	25	25	-80	-55	-25	0	25	25	25	25	25	55	80	80	135*	73 (21)	
23	160*	190	215	215	80	Z-*	215*	270*	135	80	25	55	55	25	25	25	25	25	25	25	55	55	110	80	79 (20)	
24	80	55	55	55	55	25	55	110	Z+	215	55	135*	Z-*	215*	245*	110*	110*	135*	0*	0*	25*	135*	80*	55*	76 (10)	
25	80*	110	110	80*	55*	80	80	80	80	80	55	25														

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

19 LERWICK												Factor 1.10 (metre ⁻¹)												SEPTEMBER 1959		
	Hour G.M.T.		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	
	0-1	1-2																								
volts per metre																										
1	25*	25	50	25	25	50	50	50	50*	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49 (22)
2	75	125	125	100	100	150	200	275	200	125	75	50	75	125	125	75	100	100	150	75	75	75	50	50	50	111 (24)
3	50	50	75	75	75	75	75	100	75	50	50	75	50	50	75	100	75	75	75	175	250	375	300	300	300	114 (24)
4	300	125	100	125	200	175	175	150	125	75	50	50	50	50	50	50	75	125	100	75	50	100	125	100	125	106 (24)
5	125	125	75	75	100	150	200	225	175	125	125	100	100	100	75	50	25	125	100	75	50	50	50	50	50	102 (24)
6	85	115	175	205	230	145	85	115	115	115	85	85	85	85	145	205	145	175	205	230	145	85	60	-60*	136 (23)	
7	85*	85	85	60	60	30	60*	60	85	30	30	30	30	30	30	30	30	60*	60*	60	85	85	85	85	85	55 (20)
8	75	75	75	75	75	75	75	75*	75*	50	25	50*	50*	75	100	100	175	200	350	275	300	200	150	125	133 (20)	
9	175	145	60	145	175	85*	145*	85*	85*	145*	85*	60	60	85	85	85	85	85	85	115	85	85	60	60	98 (18)	
10	60	30	30	30	60	60	60	30*	60*	60	60	85	85	85	60*	145*	260*	290*	230*	205*	230	175	115*	115*	78 (15)	
11	175	205	145	115	230	260	260	230	175	85	30	0	30	60	60	60	60	85	85	145	145	145	175	115	128 (24)	
12	60	30	30	30*	30*	0	60*	60*	60*	60*	0	60*	30*	30	30	60	60	60	60	60	60	85	60	60	50 (15)	
13	30*	60*	30	60	30	30	60	60	60	60	60	60	30	30	30	30	30	30*	60*	60*	60*	30	30	30	40 (18)	
14	60	60	60	30	60	30	60*	85*	85*	60*	60*	60*	60*	60	60	60*	60	60	60	-115*	Z*	30*	60*	60*	55 (11)	
15	50	50	50	50	50	50	75	75	75	75	50	50	50	50	75	50	50	50	50*	100*	75	75	50	50	59 (22)	
16	75	50	50	50	50	75	75	75	75	75	75	75	75	100	75	75	50	25	25	50	50	50	50	50	63 (24)	
17	60	60	60	60	60	60	60	60	60	60	60	60	60	60	85	60	60	60	30	30	30	30	30	30	54 (24)	
18	30	60	60	60	60	30	60	85	85	85	85	115	145	145	145	115	115	85	85	115	115	85	85	60	87 (24)	
19	60	60	60	60	60	60	60	85	85	85	60	60	60	85	60	30	60	30	60	60	60	60	60	60	62 (24)	
20	60	60	60	60	60	60	60	-30*	85*	85*	145*	115*	115	85	85	85	85	85	Z±*	85	85	60	60	60	73 (18)	
21	85	85	85	85	85	85	85	145	85	60	60	60*	85*	85	85	30*	60*	85*	145*	Z±*	Z±*	145*	-	-	86 (14)	
22	-*	-*	-	-*	-	-	-*	-*	-*	85*	Z±*	Z±*	Z±*	Z±*	Z±*	205*	Z±*	145*	85	205*	175	Z±*	Z±*	Z±*	130 (2)	
23	115*	85	85*	85	60	85	85	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	30	30	62 (22)	
24	25	25	25	25	25	50	50	100	75	100	100	100	100	100	125	100	75	100	100	150	125	75	75*	75*	80 (22)	
25	75	75	50	50	50*	50*	25	75	100	50*	125	250	300	Z+	Z+	Z+	325	250	275	300	475	Z+	Z+	350	194 (16)	
26	Z+	405	230*	-30*	0*	60*	60*	115	85	60	60	60*	60	30	60	60	60	60	60	60	85	115*	115*	85*	90 (14)	
27	115*	145*	85	85	85*	85*	30*	30*	30*	30	-	-	-	-*	-*	-*	-*	-30*	0*	0*	30*	0*	30*	30*	57 (4)	
28	50*	125*	75*	75	75	75	75	75	75	75	50	50	50	25	25	75*	50	50	75	200	150	125	125	100	80 (19)	
29	100	75	75	50	50	50	50	75	225	250	175	175	150	200	100	175	200	225	250	225	375	550	400	250	185 (24)	
30	300	300	250	250	275	250	250	325	400	325	350	350	350	400	425	450	450	475	525	500	500	475	425	300	371 (24)	
Mean	98 (22)	99 (26)	78 (26)	80 (27)	93 (24)	86 (25)	98 (23)	119 (22)	112 (23)	90 (24)	82 (24)	89 (22)	93 (24)	86 (27)	89 (26)	94 (24)	102 (25)	111 (24)	131 (22)	133 (25)	146 (24)	135 (25)	118 (23)	110 (22)	103 (579)	
																							Mean for 0a days			110 (12)

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

19 LERWICK												Factor 1.14 (metre ⁻¹)												OCTOBER 1959	
	Hour G.M.T.		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
	0-1	1-2																							
volts per metre																									
1	285	260	260	260	285	285	285	310	310	310	365	415	520	545	545	440	390	390	340	340	210	260	365	155	339 (24)
2	210	150	30	0	30	120	30	90	150	90	60	-60	-30	-30*	0	-30	-30	0	30	0	60	90	60	60	48 (23)
3	50	50	25	50	50	130	80	50	80	50	80	50	80	80	50	50	25	25	25	25	25	25	25	25	51 (24)
4	50	50	80	130	155	130	50	25	25	25	25	0	25	25	25	25	25	25	80	130	260	310	310	25	85 (24)
5	50	130	180	180	210	235	235	210	50	80	80	105	130	155	210	210	235	210	235	210	180	210	210	180	172 (24)
6	105	105	80	80	80	105	80	80	105	130	155	180	260	260	285	235	210	235	260	260	260	235	210	235	175 (24)
7	155	105	155	180	180	180	155	155	180	260	285	285	260	260	260	285	365	340	365	340	365	440	340	235	255 (24)
8	180	210	180	235	235	260	235	235	210	310	340	340	365	390	310	210	235	180	180	210	155	80	80	105	228 (24)
9	80	80	80	80	105	105	105	105	105	105	130	105	155	155	180	155	155	210	260	180	260	235	235	180	148 (24)
10	155	80	80	50	50	50	50	80	50	25	25	25	50	50	50	50	50	50	50	50	50	50	50	50	55 (24)
11	60	30	60	60	30	60	90	90	90	90	90	90	60	90	150	180	210	210	270	240	150	120	90	60	111 (24)
12	60	60	60	30	30	30	30	30	30	30	60	120	150	150	180	150	180	180	210	150	120*	90	60	30*	100 (22)
13	0*	0*	0*	0*	0*	0	0	0	0	30	30	30	30	30	30	30	30	30	30	0	30*	210	450	300	68 (18)
14	155	130	180	180	180	180	155	180	235	180	180	155	130	235	340	260	365	310	285	210	210	180	130	155	204 (24)
15	130	180	180	80	105	130	130	155	130	105	130	180	260	210	210	260	285	285	210	155	180	180	155	155	174 (24)
16	155	180	210	210	180	235	260	260	260	235	210	180	210	210	260	285	365	365	390	390	415	390	390	340	274 (24)
17	310	260	210	210	210	210	260	285	310	285	285	210	180*	180	210	210	235	235	260	235*	285*	235	210	180	238 (21)
18	210	240	210*	210*	210	210*	270*	270*	210*	180*	180*	30*	-150*	-390*	-270*	-570*	-300*	60*	120	120	150	120	90	90	150 (9)
19	90	90	90	120	180	150	120*	-300*	-270*	Z*	Z±*	270*	240	240	180	150	90	-120*	360	Z±*	Z±*	60*	0*	165 (12)	
20	30	30	120	120	120	240*	Z±*	150	150*	60*	90*	120*	120*	120*	120	120	90	120	120	90	90	60	60	96 (16)	
21	90	60	60	60	90	120	150*	150*	180*	90*	-30*	30*	120*	60*	90*	120	150	120	150	120	90	120	330*	90	103 (14)
22	150*	120	660	Z±*	240*	270*	Z±*	Z±*	Z±*	Z±*	270	390*	150	210	300*	240*	180*	180*	180	150	150	120	60*	-30*	223 (9)
23	-30*	60*	-120*	-30*	-60*	90	120	90	90*	60*	90*	30*	0*	30*	-30*	60*	60*	-90*	Z*	Z*	-90*	-30*	-30*	0*	100 (3)
24	60	60	-30*	60	60	60	0*	-150*	0*	Z±*	30*	390*	150*	Z±*	Z±*	Z±*	Z±*	150	Z±*	Z±*	-420*	270*	240	120	101 (8)
25	150	360	Z±*	Z±*	Z±*	330	120	90	-30*	0*	180	300*	150	Z±*	Z±*	Z±*	210	270	210*	330*	240*	150*	Z±*	Z±*	

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

19 LERWICK												Factor 1.07 (metre ⁻¹)												NOVEMBER 1959		
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	Z→	60*	60	Z-	85	Z→	85	85	85	175	85*	85	85	85*	115	115	115	115	115	115	85	85	85	60	97 (18)	
2	85	85	115	115*	260*	290	260*	260*	230	230	205	205	175*	205*	175*	60*	60*	230*	145	Z+	230*	145	145	Z→	173 (10)	
3	205	Z+	Z+	Z+	Z→	Z→	Z→	Z→	Z→	Z→	Z→	Z→	145	115	Z→	60*	115	145	115	145	115	85	60*	60*	132 (9)	
4	30	30	30	30	30	30*	60*	-30*	-260*	-610*	-175*	-	-	-	85*	115	115*	145*	60*	85	85	115	60	30	58 (11)	
5	30	30	60	60	60	-115*	-60*	-60*	0*	60*	60	85	85	60	60	60	85	85	60*	60*	60*	85*	115*	145*	145	69 (14)
6	85*	115*	205*	205*	145*	230*	375*	580*	610*	610*	550*	520*	435*	320*	260*	290*	260*	115*	30*	-85*	-350*	-175*	115*	30*	-	(0)
7	30*	60	30	30	30	60	60*	60*	60	85	60	85*	85*	85	85	115	145*	85*	Z→	85*	85	85	85	60	68 (15)	
8	60	60	60	60	60	85	85	85	85	85	115	145	175	175	175*	Z→	-375*	145*	60*	0*	30*	60*	85*	145	99 (15)	
9	115	Z→	Z→	115	175*	85*	115*	205	175*	230	175*	205*	30*	Z→	Z→	Z→	Z→	Z→	Z→	Z→	Z→	Z→	Z→	Z→	Z→	166 (4)
10	Z+	260	Z→	Z→	115	350*	115*	205*	145	115	85*	115*	115	115	145	145	Z+	Z→	640*	Z→	350*	115	175	175*	145	(10)
11	175*	Z→	Z→	85*	Z→	115*	Z→	175*	Z→	-	-	230	260	205	550	205	205*	145*	115*	145	115*	115*	145	85*	249 (7)	
12	85*	60	30	Z→	Z→	30	30*	30*	30	60	115	60	Z+	60	60	60	85	145	60	85	60	30	30*	60	64 (16)	
13	30	115	85	175	60	115	115	Z→	115	85	115	175	175	145	175	145	30*	Z→	Z→	405*	175	145	-175*	127 (18)		
14	-85*	115	145	205*	-85*	145	175*	85*	-175*	-85*	30*	30*	0*	-30*	Z→	Z→	Z→	115*	Z→	30*	-290*	Z→	Z→	Z→	135 (3)	
15	Z→	30*	Z→	145	205	Z→	Z→	175	60*	30*	0*	60*	0*	-115*	-260*	-30*	-115*	0*	-115*	30*	60*	60*	30*	-145*	175 (3)	
16	-175*	-230*	-115*	-85*	115*	Z→	145*	145	175	-30*	30	-30*	30*	60*	-85*	-60*	145*	30*	115*	145*	230*	175*	60*	60	103 (4)	
17	145*	145*	115*	60*	145*	145	145	115	145	85	115	145	175	175	175*	175*	145*	145*	175*	145*	175*	145*	175	145	175	145 (12)
18	115*	145*	145	175*	175*	175*	175*	175*	145*	175*	145*	145	145*	175*	175	175	175	175	175	175	145	145	145	175	163 (13)	
19	145	115	85	115*	85*	60*	145*	85*	-30*	-30*	Z→	-205*	-115*	30*	85*	145*	350*	435	435	375	350	290	230	273 (9)		
20	115*	Z→	Z→	85*	145*	290	375	350	405	435	435	465	550	465	495	550	580	405	320*	290*	435*	350	580	Z→	449 (15)	
21	290	320	230	205	175	205	290	205	205	175	175	145	145	205	205	205	230	205	205	175	230	580	260	228 (24)		
22	610	375	375	405	465*	260*	205	205	260	175	85	85	85	115	115	145	145	145	60*	-115*	-60*	60*	350*	214 (17)		
23	290*	260*	85*	0*	85	145	145	115	115	145	145	145	145	60*	30*	0*	205*	350	290*	230*	0*	145*	175	205	160 (12)	
24	205	205	230	260	175*	145*	115*	85*	145*	230*	175*	60*	-30*	30*	30*	145	175	145	175	115	85	85*	115	115	164 (12)	
25	85	60	115	115	205	320	520	320	260	435	550	375	350	320	115*	145*	-	-	580	465	375	375	405	465	335 (20)	
26	375	435	260	60*	85*	0*	30*	30*	-30*	-115*	-205*	60*	85*	115*	115	145	175	175	175	145	175	175	145	85	198 (13)	
27	85	60	115	145	205	290	320	230	205	145	175	145*	205*	260	145	175	175	115	85	85	85	60*	85*	115	161 (20)	
28	85	60	60	60	115	175	260	230	205	175	145*	60*	175*	175*	175*	230*	175*	Z→	230*	205*	260	205	175	157 (12)		
29	175	230	205	230	230	145*	-175*	-175*	Z→	115*	-85*	Z→	-30*	60*	0*	115*	145*	Z→	260*	205	Z→	Z→	-230*	-320*	213 (6)	
30	-350*	Z→	0*	30*	85*	Z→	Z→	175	Z→	145*	Z→	230*	Z→	115*	175	175	175	175*	175*	Z→	Z→	205	175	205	184 (7)	
Mean	163 (16)	149 (18)	128 (19)	145 (14)	119 (14)	177 (13)	231 (11)	188 (15)	170 (16)	177 (15)	170 (14)	178 (14)	192 (13)	179 (14)	187 (14)	165 (16)	181 (13)	186 (12)	201 (12)	185 (13)	162 (11)	185 (16)	211 (18)	154 (18)	173 (349)	
	Mean for 0a days																								[- (0)]	

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

19 LERWICK												Factor 0.92 (metre ⁻¹)												DECEMBER 1959		
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	150	125	Z→	Z→	Z→	-50*	Z→	-50*	25*	Z→	Z→	Z→	Z→	Z→	Z→	Z→	Z→	-175*	-150*	-400*	-100*	-75*	25*	-75*	137 (2)	
2	125*	150*	150	150	150	150	150	125	100*	75*	125*	125*	75*	Z→	Z→	-25*	-25*	-175*	75*	100*	Z→	Z→	100*	75	136 (7)	
3	125	50*	50	50	50	75	100	100	125	150	175	175	200	325	Z→	Z+	200	Z→	Z-	175	125	100	75	125	132 (19)	
4	100	75	75	100	175	150	150	125	125	150	150	200	225	225	150	175	175	250	200	175	Z+	175*	225*	125	155 (20)	
5	75	-25*	-75*	0*	-25*	50*	-100*	50*	75*	100*	50*	100*	75*	-25*	50*	75*	Z→	150*	100	100*	50*	100*	200*	Z→	87 (2)	
6	125*	125	150	Z→	150	150	125	100*	100*	100*	Z→	Z→	Z→	Z→	Z→	Z→	75*	75*	50*	75*	75*	50*	50*	50*	140 (5)	
7	50*	50*	75*	100*	125*	125*	125*	150*	125*	100*	175*	250*	350*	250*	200*	225*	175*	150*	200*	400*	225*	200*	500*	100*	-	(0)
8	75*	75*	75*	75*	75*	75*	75*	75*	75*	-	-	275*	Z→	200*	100*	250*	400*	175*	325*	175*	225*	200*	150*	175*	-	(0)
9	175*	175*	125*	100*	100*	100*	100*	100	100	100*	100*	125*	125*	125*	150*	150*	175*	225*	125*	125*	100*	100*	100*	100	100 (3)	
10	65	65	90	65*	65	65*	90*	90*	90	-	-	-	-	-	110	110*	110*	90*	110*	90	110*	90	65*	90*	83 (8)	
11	100	100	125	125	125	125	125	150	100*	125*	150*	Z→	Z→	Z→	500*	125	125	125	125	125	100	100	100	100	116 (17)	
12	100	100	75	100	75	50	75	75	100	100	100	100	125*	100*	75*	100*	100	125*	75*	50*	75*	125*	75*	0*	85 (13)	
13	125*	125	125	125	125	125	125	150	175	175	-	-	175	200	150	150	175*	125*	75*	-25*	-125*	-75*	25*	-50*	148 (13)	
14	0*	75	100	100	100	125	125	150	150	175	200	175	150	150	150	150	125	125	125	125	125	125	125	100*	134 (22)	
15	100*	Z+	125	100	100	100	100	100	100	125	125	125	125	75*	125	100*	125*	125*	125	125	125	100	100	100	113 (18)	
16	50*	125*	150*	100	150	125	125	100	100	100	75*	-150*	-75*	125	125	125	125	125	125	125	100	150	200	200*	175*	125 (16)
17	-225*	25*	Z→	-200*	Z→	Z→	-	-	-	175	175	175	125	150	150	175	250	150*	50*	175	250	175	75*	100*	180 (11)	
18	75	75*	75*	125	100	100	100	100*	125*	Z→	Z→	Z→	Z→	50*	Z→	100	75*	75*	125*	150*	125*	150*	175*	100*	96 (7)	
19	Z→	75	100	100	100																					

20 LERWICK

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient
1	2c	hr. 3.1	1a	hr. 0.1	0a	hr. 0.0	-	hr. -	1b	hr. 0.1	1b	hr. 0.4
2	1c	2.0	0a	0.0	0a	0.0	1b	2.0	2c	3.1	1a	2.1
3	1c	2.1	0a	0.0	2b	6.8	1b	0.7	2c	5.3	1a	1.0
4	1c	2.0	0a	0.0	0a	0.0	2b	5.6	1b	0.2	1a	2.9
5	1c	1.6	0a	0.0	1b	1.4	2a	8.5	1b	0.4	2b	6.5
6	1c	0.8	1b	1.6	1c	6.1	1c	2.3	1b	1.4	2b	3.9
7	1c	0.7	2a	3.5	1a	(0.3)	1a	1.9	0a	0.0	1b	0.5
8	1c	(2.0)	0a	0.0	1b	1.2	2b	3.5	1b	1.7	1b	2.2
9	2c	3.1	0a	0.0	0a	0.0	1c	2.8	1b	0.4	1b	0.4
10	1c	1.8	0a	0.0	0a	0.0	1c	1.1	0a	0.0	1a	0.7
11	-	-	0a	0.0	1a	0.2	1b	0.1	0a	0.0	0a	0.0
12	(2c)	-	0a	0.0	1b	2.6	1a	0.1	1b	1.0	1a	1.7
13	1c	-	1a	0.3	0a	0.0	2b	3.4	2a	8.1	0a	0.0
14	1a	0.2	1b	-	2b	3.5	1b	1.0	1a	1.5	0a	0.0
15	0a	0.0	0a	0.0	1c	1.2	1b	2.5	1a	0.2	1a	0.1
16	1b	0.1	1a	0.5	1a	0.1	0a	0.0	1a	0.8	1a	0.1
17	1b	0.6	1a	0.5	0a	0.0	1a	0.1	2a	4.9	1b	-
18	1b	0.4	1b	0.3	1a	0.2	1b	0.1	2a	4.3	1b	2.4
19	-	-	(2b)	-	1a	0.1	1a	0.1	(1a)	-	1b	1.2
20	-	-	-	-	0a	0.0	1b	0.6	1a	0.7	1a	0.2
21	-	-	-	-	0a	0.0	1a	1.9	2a	3.4	0a	0.0
22	-	-	-	-	1a	0.1	1a	0.4	0a	0.0	1b	1.9
23	-	-	-	-	1b	0.1	0a	0.0	1a	3.0	1c	1.9
24	-	-	-	-	0a	0.0	0a	0.0	1a	0.9	1b	1.1
25	-	-	(1a)	-	1b	0.6	2b	4.5	2a	13.8	0a	0.0
26	(0a)	(0.0)	1a	2.4	1a	2.7	2b	5.7	2a	4.1	0a	0.0
27	0a	0.0	2a	3.2	1a	2.4	1b	1.1	1a	0.2	1a	0.3
28	1a	0.1	0a	0.0	1a	0.1	2b	4.8	2a	-	0a	0.0
29	1a	0.5	0a	0.0	0a	0.0	1c	1.6	2a	-	0a	0.0
30	1b	0.8	0a	0.0	0a	0.0	1b	2.1	1a	-	0a	0.0
31	1a	0.2	-	-	1b	2.2	-	-	1a	0.3	-	-
Total	-	22.1	-	12.4	-	31.9	-	58.5	-	59.8	-	31.5
No. of days used	-	21	-	20	-	31	-	29	-	27	-	29
Mean	-	1.1	-	0.6	-	1.0	-	2.0	-	2.2	-	1.1

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient
1	1b	hr. 2.3	0a	hr. 0.0	0a	hr. 0.0	0a	hr. 0.0	1b	hr. 0.6	2c	hr. 17.1
2	1a	0.3	1a	0.1	0a	0.0	2a	5.4	1b	0.4	2b	3.6
3	0a	0.0	0a	0.0	0a	0.0	0a	0.0	1c	(2.2)	1b	1.1
4	1b	0.5	1a	-	0a	0.0	0b	0.0	2a	(3.7)	1b	0.7
5	1c	1.8	1a	-	0a	0.0	0a	0.0	1a	(2.1)	2b	6.0
6	1b	0.8	1a	0.2	1b	0.2	0a	0.0	2b	3.2	1c	1.8
7	1b	1.9	1a	0.3	1a	0.2	0a	0.0	1b	1.0	1c	0.4
8	1a	-	1a	0.1	0a	0.0	0a	0.0	1b	1.8	1b	0.1
9	1a	0.1	0a	0.0	1a	0.3	0a	0.0	2c	3.5	1b	0.1
10	0a	0.0	0a	0.0	1a	0.5	0a	0.0	1c	0.9	0a	0.0
11	1a	0.3	1c	1.3	1a	0.4	1a	0.1	1c	-	1b	0.6
12	1c	1.6	1a	1.5	1a	0.7	1a	0.6	1b	0.9	1b	0.8
13	2b	-	1b	0.3	1a	0.3	1b	1.8	1b	1.8	2a	3.6
14	0a	0.0	1c	1.7	1b	1.2	0a	0.0	2c	11.1	1a	0.2
15	0a	0.0	1c	0.3	0a	0.0	0a	0.0	2c	8.2	1b	0.1
16	0a	0.0	(0a)	-	0a	0.0	0a	0.0	2b	6.9	1b	1.1
17	1b	0.7	1b	1.2	1a	0.3	0a	0.0	1a	0.5	2c	-
18	1c	2.8	2b	4.1	1a	0.2	2b	5.4	1a	0.1	1c	2.2
19	0a	0.0	1b	0.1	1a	0.5	2c	4.9	2b	4.5	2b	3.4
20	0a	0.0	1b	0.6	1b	0.6	1b	0.6	1b	2.3	2c	4.4
21	0a	0.0	1b	0.6	1b	1.5	1b	1.1	1a	0.1	1c	1.9
22	0a	0.0	2b	3.9	1c	-	1c	(1.2)	1b	2.0	1c	1.1
23	1a	1.0	1b	0.4	1b	0.1	2b	8.2	1a	1.6	2c	7.3
24	0a	0.0	1b	1.8	0a	0.0	1c	2.5	1a	0.4	1b	1.5
25	0a	0.0	1b	1.1	0b	0.0	1c	2.0	1b	0.5	1c	1.0
26	0a	0.0	1b	2.3	1b	1.3	1b	1.0	2a	3.2	2c	10.5
27	0a	0.0	1b	2.1	2b	-	2c	-	1b	0.1	2c	6.1
28	0a	0.0	1a	1.1	0a	0.0	(1c)	-	1b	1.2	1b	1.1
29	1a	0.4	1b	1.6	0a	0.0	1a	0.5	2c	9.7	1b	1.9
30	0a	0.0	1a	0.1	0a	0.0	0a	0.0	2c	4.2	2b	5.1
31	1a	0.7	1a	1.5	-	-	1b	0.6	-	-	2b	-
Total	-	15.2	-	28.3	-	8.3	-	35.9	-	78.7	-	84.8
No. of days used	-	29	-	28	-	28	-	29	-	29	-	29
Mean	-	0.5	-	1.0	-	0.3	-	1.2	-	2.7	-	2.9

Annual values: Character 0 1 2
No. of days used 90 203 58

Duration: Total 467.4 hr.
No. of days 329
Mean 1.42 hr.

ESKDALEMUIR

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

21 ESKDALEMUIR (H)		16,000γ (0.16 C.G.S. unit) +																				JANUARY 1959					
	Hour G.M.T.		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 17,000+	
	0-1	1-2																									
1 q	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	750	1006
2 q	751	751	752	754	757	757	757	753	747	735	733	732	738	744	751	751	752	755	757	758	757	755	757	755	750	1006	
3	753	753	752	753	756	757	757	755	749	741	735	735	737	740	746	751	752	752	761	762	766	760	757	757	752	1037	
4	759	762	768	763	763	758	756	748	740	733	730	735	741	742	743	745	748	751	757	760	758	754	753	752	751	1019	
5	752	749	752	748	748	751	751	751	755	753	755	749	739	740	740	742	732	732	730	736	733	738	743	741	744	860	
6 d	744	747	748	750	755	749	745	741	735	728	732	723	726	725	713	721	733	715	690	698	683	695	713	695	725	404	
7 d	711	717	713	705	704	714	717	719	722	715	701	703	703	699	698	726	734	701	704	702	725	725	725	721	713	104	
8	704	727	718	719	749	751	739	728	725	710	698	690	700	716	724	729	730	726	730	750	710	719	734	745	724	371	
9 d	716	709	707	718	724	727	732	734	734	726	712	712	720	726	734	732	737	725	736	711	711	706	759	694	723	342	
10 d	704	708	723	732	736	731	730	723	726	720	725	721	714	717	720	741	751	753	695	710	721	721	662	641	718	231	
11	669	686	686	694	709	719	713	709	690	680	677	680	696	696	734	711	719	710	695	672	670	683	683	687	695	-332	
12	677	694	712	710	712	714	710	711	706	702	704	705	708	718	721	721	724	728	732	740	727	731	724	713	714	144	
13	702	734	716	711	713	721	724	723	714	717	719	724	737	746	748	747	748	753	752	732	741	740	744	752	732	558	
14	742	742	742	747	748	750	749	744	736	718	722	717	718	723	730	734	733	731	742	731	744	746	750	746	737	685	
15	748	747	749	749	753	755	757	751	749	745	736	734	731	738	755	751	742	743	748	751	753	751	754	733	747	923	
16	726	733	732	751	747	731	747	736	729	727	728	723	726	726	725	724	730	737	745	747	750	750	746	745	736	661	
17	744	745	746	747	750	755	754	755	749	744	746	733	708	711	728	727	708	715	728	739	743	749	752	754	739	730	
18	739	733	725	730	744	750	743	734	727	714	708	708	709	715	716	713	710	727	727	735	739	742	741	741	728	470	
19	740	735	731	732	742	744	740	740	732	721	715	705	706	706	717	727	705	715	731	740	744	757	754	740	730	519	
20 q	737	743	743	741	749	751	750	750	738	721	718	717	712	720	728	729	732	735	727	736	729	736	740	742	734	624	
21 q	746	746	746	747	749	751	746	741	735	726	724	724	729	735	739	742	740	746	751	755	749	758	751	748	744	851	
22	746	750	751	754	755	757	758	754	746	735	726	720	720	725	731	735	742	744	746	754	754	751	753	744	744	851	
23	752	754	757	759	759	758	765	773	758	756	753	742	735	738	742	740	745	750	753	742	751	754	754	755	752	1045	
24 q	777	756	758	755	757	760	764	766	764	758	749	737	730	737	735	740	748	752	757	763	758	758	757	753	754	1089	
25	750	749	752	753	755	761	764	761	754	745	740	732	733	742	746	744	748	752	755	757	757	757	756	756	751	1019	
26 d	754	761	755	755	755	757	759	758	757	764	748	750	756	742	737	744	746	712	720	725	739	739	725	725	745	883	
27	735	737	739	741	727	730	737	738	734	732	741	742	684	704	720	736	727	722	725	729	734	735	737	739	730	525	
28	741	742	743	744	749	750	750	742	735	732	727	725	728	737	740	744	749	753	740	736	738	740	742	744	740	771	
29	749	725	732	735	743	745	741	747	742	721	709	698	702	717	725	730	747	743	747	754	750	749	750	754	736	655	
30	756	753	752	751	751	754	753	747	745	736	739	736	724	716	713	721	718	732	748	733	782	756	751	768	743	835	
31	740	732	737	756	746	751	748	741	744	748	734	737	734	736	736	735	741	754	759	767	763	759	757	756	746	911	
Mean	736	738	739	740	744	745	746	743	737	730	727	723	721	725	731	734	736	736	736	738	740	741	741	737	736	736	
Sum 22,000+	819	872	901	952	1067	1104	1124	1032	852	640	520	415	357	492	653	760	807	804	828	865	931	981	976	854		Grand Total 547,606	

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

22 ESKDALEMUIR (D)		10° +																				JANUARY 1959				
	Hour G.M.T.		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 800.0+
	0-1	1-2																								
1 q	35.0	35.1	35.2	35.4	35.3	35.2	34.7	34.2	34.4	35.5	36.7	37.3	38.9	40.0	38.6	37.4	37.2	37.3	37.2	36.4	35.7	35.2	35.1	35.0	36.2	68.0
2 q	35.0	35.0	35.1	35.2	35.0	34.9	34.6	34.3	34.2	34.7	35.4	37.9	39.9	40.9	39.0	38.9	39.0	38.8	37.9	36.8	35.9	35.5	35.4	35.3	36.4	74.6
3	35.4	35.9	35.4	34.7	34.4	34.4	36.0	33.6	33.3	33.6	34.5	37.3	39.9	40.3	38.9	38.5	38.7	38.5	38.4	37.1	36.7	36.0	34.9	34.0	36.3	70.4
4	33.2	33.3	33.4	33.6	33.5	33.5	33.4	33.1	33.0	34.0	36.8	38.3	38.3	39.6	41.2	41.7	40.1	43.5	42.6	38.3	34.9	34.7	34.3	34.5	36.4	72.8
5	34.7	35.3	35.6	35.3	35.1	34.3	34.0	34.0	34.0	34.3	35.7	37.9	43.3	43.4	39.0	41.7	38.7	41.0	34.9	39.2	28.3	28.5	15.6	27.3	35.0	41.1
6 d	27.0	34.2	35.0	33.6	34.1	33.7	31.2	32.5	32.2	34.4	33.4	35.9	38.7	41.8	40.1	39.8	40.9	38.9	38.1	35.5	31.7	24.6	29.2	26.2	34.3	22.7
7 d	25.7	29.7	29.8	33.0	34.0	33.2	35.1	32.3	31.6	34.0	33.2	35.0	38.0	39.2	38.4	37.2	37.9	38.5	36.8	31.8	32.3	33.6	32.0	26.1	33.7	8.4
8	23.4	24.3	26.5	29.9	33.2	34.2	33.6	32.8	32.3	34.0	35.4	36.5	37.5	39.7	38.9	38.9	40.0	41.0	37.4	34.4	34.5	31.9	32.7	28.4	33.8	11.4
9 d	24.9	26.9	31.7	31.6	32.0	32.7	33.2	33.3	33.9	34.8	36.7	37.1	41.3	42.2	41.6	40.1	49.6	45.5	46.2	37.5	39.0	22.2	18.1	17.8	34.6	29.9
10 d	18.3	20.3	28.3	30.9	33.7	37.0	34.5	38.2	37.0	39.5	38.3	41.5	40.9	42.7	42.6	41.9	40.0	41.8	37.2	26.8	31.4	30.6	20.6	25.5	34.1	19.5
11	26.8	26.9	30.3	30.3	31.7	31.8	33.8	34.6	33.7	35.7	36.2	37.3	39.0	41.4	39.9	40.3	39.3	37.3	36.6	35.9	33.8	33.6	32.6	29.5	34.5	28.3
12	30.0	29.6	28.2	31.3	33.0	32.6	33.0	32.9	33.1	34.4	35.8	37.1	38.9	39.1	37.0	35.6	37.2	38.7	40.2	38.0	35.1	35.0	34.3	32.1	34.7	32.2
13	33.1	33.9	34.8	35.0	34.8	34.5	33.7	33.3	33.2	36.4	38.7	39.5	40.3	40.9	40.0	36.9	37.5	37.3	37.6	35.0	33.5	34.1	33.8	33.7	35.9	61.5
14	34.0	34.2	34.9	34.9	34.6	34.4	34.2	33.4	33.7	34.9	35.7	36.8	37.6	38.8	40.3	39.3	38.3	39.2	38.7	37.3	35.5	34.4	30.0	29.4	35.6	54.5
15	31.0	30.9	31.3	31.6	26.1	31.2	32.9	32.7	32.6	32.8	35.0	36.2	39.1	40.2	40.2	38.4	38.0	37.0	36.7	35.6	34.5	34.4	34.5	34.1	34.5	27.0
16	34.5	34.1	34.7	34.9	35.0	34.7	34.0	33.7	34.1	36.0	39.2	40.9	43.8	43.6	41.2	43.3	38.3	39.5	42.1	37.9	34.0	28.6	30.6	34.4	36.8	83.1
17	36.4	33.6	32.6	36.3	35.2	35.9	34.																			

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

23 ESKDALEMUIR (Z)		45,000γ (0.45 C.G.S. unit) +												JANUARY 1959												
	Hour G.M.T.												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 7000+
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12														
1 q	326	325	325	325	324	324	324	325	324	325	326	323	320	323	328	325	326	324	326	326	324	323	323	325	790	
2 q	322	321	321	321	321	321	322	323	323	326	324	320	319	324	326	321	323	321	324	324	321	323	321	322	732	
3	320	318	313	314	315	316	319	324	327	326	323	313	309	313	319	320	320	320	321	325	326	328	330	320	688	
4	328	327	326	325	325	324	324	325	324	318	315	311	311	312	317	323	333	338	353	357	354	344	338	329	886	
5	331	328	326	325	324	325	326	326	326	324	321	311	317	331	343	338	339	353	377	381	359	348	336	343	1042	
6 d	344	351	352	347	343	338	336	337	338	338	343	341	339	342	357	355	355	368	379	378	354	346	330	327	1338	
7 d	313	315	322	323	303	303	309	317	324	330	343	344	342	342	342	340	338	339	343	342	355	354	346	325	954	
8	317	320	323	327	331	335	336	337	334	332	331	326	327	333	339	343	342	350	363	372	378	385	340	327	1148	
9 d	339	350	347	342	338	336	335	336	336	342	342	339	338	348	358	374	413	507	436	423	407	414	348	324	1772	
10 d	302	326	340	345	344	331	332	340	349	350	357	365	393	400	427	431	424	426	428	406	384	386	371	336	1893	
11	309	316	343	347	344	343	344	343	346	350	349	348	349	354	359	353	349	348	348	347	354	353	356	369	1321	
12	374	364	357	358	354	350	348	348	349	347	344	342	342	342	343	338	335	334	339	351	347	344	341	335	1326	
13	336	337	338	337	338	337	337	335	335	336	331	331	332	335	340	343	342	344	342	347	344	339	335	333	1104	
14	332	332	331	332	332	331	330	330	327	325	324	326	326	326	328	323	332	334	335	346	336	336	336	331	945	
15	338	338	335	320	319	320	314	320	330	327	324	322	318	321	323	325	325	327	325	325	325	323	323	322	789	
16	319	319	318	317	317	316	319	319	321	321	317	323	336	350	358	367	370	369	366	362	355	346	334	321	1060	
17	320	327	327	327	326	327	332	334	335	335	337	338	345	349	368	365	358	355	355	346	338	336	334	340	1169	
18	331	330	321	311	315	318	324	330	332	331	331	331	330	333	339	342	353	363	354	347	344	330	319	320	979	
19	327	328	331	326	323	326	328	331	334	334	336	338	336	333	338	341	338	338	346	349	342	338	338	335	1034	
20 q	332	331	331	331	331	331	332	332	332	334	338	336	326	323	331	332	331	332	333	334	334	332	331	331	961	
21 q	331	330	330	330	330	329	330	332	332	334	332	335	331	330	333	332	332	332	335	337	336	334	332	331	970	
22	331	330	326	326	324	323	322	320	321	325	323	323	321	321	326	326	327	327	328	332	331	329	329	328	819	
23	317	315	314	315	317	319	320	320	321	321	320	321	320	318	321	326	326	326	326	327	327	326	327	330	720	
24 q	331	330	327	327	326	325	324	323	324	326	326	323	320	323	324	324	326	324	324	324	325	326	326	325	804	
25	326	325	324	324	324	323	322	321	318	319	318	316	325	331	338	358	382	415	370	348	342	342	341	337	1076	
26 d	338	336	335	334	331	330	331	332	332	330	324	324	331	329	328	330	338	342	340	339	338	336	335	334	997	
27	335	333	333	334	332	331	331	332	331	330	325	327	324	323	330	332	333	335	343	350	353	350	344	340	1031	
28	331	331	332	332	330	330	332	332	333	333	332	330	327	330	334	337	335	333	334	335	340	345	349	344	1021	
29	333	332	332	331	330	329	328	329	327	327	328	327	324	325	341	353	360	330	350	361	344	328	324	315	1008	
30	324	331	334	329	327	324	324	327	331	330	330	331	334	331	332	335	336	333	333	334	331	331	331	331	934	
31	330	330	320	318	319	309	308	312	320	320	326	332	334	332	336	336	338	338	338	338	338	332	328	330	862	
Mean	329	330	330	329	328	327	327	329	330	330	330	330	330	333	339	341	344	348	350	349	345	342	335	331	335	
Sum 10,000+	187	226	234	200	157	125	144	193	239	242	241	226	237	321	519	577	655	792	859	834	702	590	399	274	Grand Total 249,173	

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

24 ESKDALEMUIR		TERRESTRIAL MAGNETIC ELEMENTS										JANUARY 1959							
	Horizontal force					Declination			Vertical force			3-hr. range indices K	Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +				
	Maximum 16,000γ +		Minimum 16,000γ +		Range	Maximum 10° +		Minimum 10° +		Range	Maximum 45,000γ +					Minimum 45,000γ +		Range	
	h. m.	γ	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ					h. m.	γ	h. m.	γ
1 q	21 52	759	730	11 32	29	13 22	40.3	34.1	07 54	6.2	14 20	329	318	12 17	11	0,0,1,0,1,0,0,0	2	0	84.7
2 q	20 07	770	726	11 24	44	13 47	41.7	34.0	08 19	7.7	14 11	329	317	11 57	12	0,0,0,2,1,1,1,1	6	0	-
3	02 22	775	723	12 10	52	12 01	41.4	33.1	08 30	8.3	23 57	330	308	12 52	22	2,2,2,2,3,1,2,1	15	0	84.6
4	10 45	759	715	17 50	44	17 41	46.6	32.4	07 52	14.2	19 29	358	305	11 53	53	1,0,1,2,2,3,3,1	13	0	84.2
5	21 32	774	552	21 48	222	21 44	53.2	6.3	21 56	46.9	20 03	389	252	21 47	137	2,1,0,3,3,4,4,6	23	1	-
6 d	21 57	748	679	17 53	69	14 08	43.4	19.7	21 22	23.7	18 55	384	324	24 00	60	4,2,3,2,3,3,4,3	24	1	84.1
7 d	19 09	793	687	11 23	106	13 56	39.7	17.1	24 00	22.6	20 54	361	300	04 42	61	4,3,3,2,2,2,4,4	24	1	83.9
8	22 15	820	682	23 29	138	18 24	43.0	16.2	00 06	26.8	21 31	388	314	00 27	74	4,2,2,2,2,3,4,5	24	1	84.1
9 d	17 05	987	488	23 33	499	17 04	72.4	5.4	23 37	67.0	17 08	620	280	23 40	340	4,2,2,2,3,7,4,6	30	1	84.1
10 d	18 10	760	639	19 47	121	18 11	49.2	12.0	01 06	37.2	19 05	461	280	00 09	181	4,3,3,3,4,3,5,4	29	1	84.0
11	19 59	753	624	00 22	129	13 36	42.0	12.6	01 10	29.4	23 58	385	293	00 16	92	4,2,1,2,2,1,3,3	18	1	84.1
12	18 07	770	692	00 47	78	18 09	42.0	25.5	00 01	16.5	00 00	384	333	17 50	51	4,2,1,2,2,2,3,3	19	1	84.1
13	22 43	757	713	09 38	44	13 29	41.7	32.2	00 00	9.5	19 54	351	330	12 15	21	1,1,2,1,1,2,3,1	12	0	84.1
14	06 22	771	725	10 49	46	14 20	43.1	27.1	23 07	16.0	21 11	338	321	09 43	17	0,0,2,2,3,2,2,3	14	0	84.1
15	20 55	756	719	11 36	37	14 07	40.9	25.0	04 39	15.9	17 20	329	312	06 37	17	2,3,2,1,1,1,2,1	13	0	84.1
16	21 35	770	684	16 22	86	12 24	47.4	25.9	21 47	21.5	16 24	373	313	10 27	60	1,0,0,3,3,4,3,3	17	1	83.8
17	05 18	762	693	13 24	69	13 52	47.4	29.7	19 54	17.7	14 31	370	316	00 06	54	2,3,3,2,3,3,3,2	21	1	83.8
18	21 28	783	678	16 59	105	15 47	42.7	25.1	20 59	17.6	17 08	368	304	03 07	64	3,3,2,2,2,4,3,4	23	1	83.8
19	04 18	755	706	12 10	49	13 37	42.1	24.9	19 27	17.2	19 17	350	321	04 22	29	2,2,3,2,2,1,3,1	16	0	83.8
20 q	21 20	765	719	11 20	46	14 02	39.8	30.4	21 13	9.4	10 41	339	321	13 22	18	1,0,1,1,1,1,2,2	9	0	83.8
21 q	06 42	759	713	12 34	46	14 06	40.												

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

23 ESKDALEUIR (Z)		45,000γ (0.45 C.G.S. unit) +												FEBRUARY 1959												
Hour	G.M.T.												Mean	Sum 7000+												
	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
1	326	323	325	324	318	316	319	324	331	331	331	332	332	331	344	344	339	338	342	342	338	336	334	331	331	951
2	330	329	330	330	325	317	307	305	316	327	326	330	332	336	339	348	354	365	365	370	373	359	353	353	338	1119
3	358	343	337	338	335	332	332	336	342	342	338	336	341	339	351	368	360	353	357	365	372	357	353	338	347	1323
4 d	324	308	315	324	324	325	326	334	340	336	335	331	331	336	338	337	352	370	375	391	379	357	336	315	339	1139
5	331	332	335	334	325	309	313	324	332	337	339	339	342	353	356	377	387	376	367	357	353	349	344	329	343	1240
6	303	306	312	321	331	335	336	336	341	341	344	344	336	336	340	352	352	347	348	357	351	350	343	334	337	1096
7	324	331	332	331	330	332	332	332	336	341	340	336	336	339	341	348	353	348	348	343	343	343	341	339	338	1119
8	338	338	338	336	333	331	331	331	331	328	324	325	324	327	331	333	335	336	335	340	351	338	320	333	333	989
9	269	282	281	278	295	310	313	307	304	310	319	324	327	335	343	344	343	342	342	339	339	341	343	344	320	674
10 q	341	338	338	338	336	335	333	331	332	338	339	338	334	335	335	338	338	337	336	335	338	343	343	339	337	1088
11	338	335	333	331	321	321	322	321	319	326	330	331	336	349	365	382	387	372	357	356	355	361	362	340	344	1250
12	331	339	339	336	321	327	332	332	335	330	327	327	327	328	336	353	353	347	353	348	343	336	325	296	334	1021
13	302	320	325	328	330	331	328	328	329	327	327	326	328	335	361	365	369	353	359	381	360	350	327	313	338	1102
14	315	311	312	304	307	304	303	312	318	323	320	319	326	353	353	378	415	423	408	388	370	355	339	330	341	1186
15	316	303	312	308	264	251	254	281	305	316	318	326	339	366	367	361	388	390	388	384	359	348	343	341	330	928
16 d	337	304	285	316	296	298	266	277	301	316	319	324	326	334	346	359	419	411	399	385	381	336	247	269	327	851
17	296	266	262	262	275	294	302	320	335	339	342	346	351	353	354	358	355	348	347	347	346	342	340	339	326	819
18 q	339	338	339	342	341	340	340	341	342	343	336	328	326	329	332	333	337	337	337	336	337	338	336	335	337	1082
19	332	329	327	319	313	309	316	312	322	333	338	334	341	344	354	359	354	350	349	347	340	339	338	338	335	1037
20 q	337	336	335	334	334	334	334	335	336	336	330	325	324	323	326	331	335	332	332	332	334	334	334	334	332	977
21 q	333	332	332	331	330	329	328	331	333	338	330	320	317	320	324	333	338	341	336	338	342	339	335	332	332	962
22	332	331	331	330	322	303	308	315	318	320	315	314	313	316	325	336	338	334	333	332	331	332	333	332	325	794
23	318	325	313	319	319	306	308	312	312	315	320	326	330	321	327	337	338	335	333	332	333	333	334	334	324	780
24 q	333	334	334	335	334	334	332	332	335	336	327	324	324	329	333	340	340	337	335	334	332	331	331	331	333	987
25 d	331	330	328	326	324	311	304	301	300	308	321	324	320	341	427	482	496	543	499	474	443	409	387	366	375	1995
26 d	347	340	319	305	309	330	323	324	308	334	342	347	353	365	378	382	393	375	366	359	333	340	326	331	343	1229
27	336	334	327	318	312	320	334	332	330	335	331	326	326	326	334	344	377	445	426	384	370	368	358	337	347	1330
28 d	309	310	307	321	329	341	343	341	338	338	334	335	324	367	380	416	428	434	407	417	392	324	333	308	353	1476
Mean	326	323	321	322	319	319	319	322	326	330	330	330	331	338	348	359	367	369	363	361	355	347	338	330	337	
Sum 8000+	1126	1047	1003	1019	933	925	919	1007	1121	1244	1242	1237	1266	1466	1740	2038	2273	2319	2179	2108	1927	1701	1456	1248		Grand Total 226,544

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

24 ESKDALEUIR		TERRESTRIAL MAGNETIC ELEMENTS										3-hr. range indices K		Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +			
Hour	G.M.T.	Horizontal force			Declination			Vertical force			K	K	Magnetic character	Temperature					
		Maximum 16,000γ +	Minimum 16,000γ +	Range	Maximum 10° +	Minimum 10° +	Range	Maximum 45,000γ +	Minimum 45,000γ +	Range									
1	04 52	766	703	14 20	63	13 43	43.8	29.9	05 27	13.9	h. m.	γ	h. m.	γ	2, 2, 2, 2, 3, 2, 3, 2	18	0	83.5	
2	06 35	772	678	13 01	94	14 14	46.5	21.0	23 58	25.5	20 12	380	302	07 33	78	2, 2, 2, 3, 3, 3, 3, 4	22	1	83.3
3	21 08	782	671	10 53	111	13 54	43.4	14.7	24 00	28.7	20 13	378	327	24 00	51	3, 2, 2, 3, 3, 3, 3, 4	23	1	83.1
4 d	23 48	770	663	22 59	107	13 57	49.4	19.8	20 59	29.6	19 46	399	297	22 51	102	4, 3, 3, 3, 4, 4, 4, 5	30	1	83.2
5	19 40	773	689	10 30	84	14 58	47.9	20.9	22 55	27.0	16 06	399	304	05 32	95	3, 3, 3, 3, 3, 3, 3, 3	24	1	83.5
6	00 19	778	681	10 22	97	15 22	44.2	19.9	19 41	24.3	19 06	362	298	00 34	64	4, 2, 1, 3, 3, 3, 4, 3	23	1	83.7
7	18 48	765	688	13 03	77	15 21	41.2	27.9	18 40	13.3	16 27	354	321	00 16	33	2, 2, 2, 2, 3, 2, 3, 1	17	0	83.4
8	21 14	783	697	11 56	86	14 58	44.8	18.9	21 39	25.9	21 22	355	293	24 00	62	2, 1, 2, 2, 3, 3, 3, 4	20	1	83.4
9	00 14	788	689	13 17	99	14 38	44.5	19.0	02 07	25.5	23 56	347	262	00 29	85	4, 4, 3, 2, 3, 2, 2, 3	23	1	83.4
10 q	22 59	773	715	11 27	58	15 23	40.6	28.1	00 00	12.5	21 50	348	330	07 40	18	2, 1, 0, 2, 1, 2, 2, 3	13	0	83.2
11	08 15	804	654	10 08	150	14 17	56.5	18.2	23 56	38.3	16 48	389	315	23 42	74	1, 3, 3, 5, 5, 4, 3, 4	28	1	83.2
12	23 19	792	678	11 02	114	14 14	44.8	18.9	00 00	25.9	15 49	357	290	23 42	67	3, 3, 3, 4, 3, 3, 3, 3	25	1	83.3
13	22 07	808	681	18 56	127	15 44	44.2	22.5	22 48	21.7	19 23	384	292	00 00	92	3, 1, 1, 3, 3, 4, 4, 4	23	1	83.0
14	16 41	795	657	12 50	138	14 52	48.6	26.8	00 00	21.8	17 27	426	298	03 31	128	3, 2, 3, 3, 4, 5, 3, 3	26	1	83.0
15	05 32	794	656	09 59	138	14 50	47.4	26.1	00 39	21.3	16 56	399	244	06 01	155	3, 4, 4, 3, 3, 4, 4, 1	26	1	82.9
16 d	18 58	914	592	23 00	322	19 03	69.9	14.2	21 38	55.7	18 54	440	220	22 48	220	4, 5, 4, 3, 4, 5, 7, 6	38	2	83.0
17	05 46	753	639	01 01	114	06 47	38.7	11.7	00 38	27.0	16 00	358	229	01 57	129	5, 4, 3, 2, 2, 2, 2, 1	21	1	83.0
18 q	23 49	761	717	12 37	44	00 58	38.0	27.8	09 11	10.2	09 30	343	324	12 16	19	2, 1, 1, 1, 1, 2, 1, 1	10	0	83.2
19	05 32	770	702	12 50	68	03 19	41.7	30.7	09 18	11.0	15 36	360	308	05 40	52	3, 3, 3, 2, 2, 2, 2, 1	18	0	83.1
20 q	22 24	755	690	11 29	65	13 29	39.6	29.8	10 00	9.8	00 00	337	323	13 42	14	0, 1, 1, 2, 2, 1, 1, 1	9	0	83.0
21 q	06 43	764	714	11 26	50	14 22	41.5	28.3	09 51	13.2	20 10	343	315	12 09	28	1, 0, 2, 2, 2, 1, 2, 2	12	0	83.0
22	05 32	799	725	15 31	74	11 07	45.5	29.1	07 48	16.4									

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

21 ESKDALEMUIR (H)		16,000γ (0.16 C.G.S. unit) +																				MARCH 1959				
Hour G.M.T.		16,000γ (0.16 C.G.S. unit) +																			Mean	Sum				
0-1 1-2 2-3 3-4 4-5 5-6 6-7 7-8 8-9 9-10 10-11 11-12		16,000γ (0.16 C.G.S. unit) +																			Mean	Sum				
γ γ		16,000γ (0.16 C.G.S. unit) +																			γ	16,000+				
1 d	704	709	720	692	702	719	722	713	712	711	687	693	691	723	748	754	768	730	716	722	754	752	732	724	721	1298
2	707	718	728	735	715	731	755	742	735	710	696	685	693	728	723	734	727	740	758	736	770	717	720	733	727	1436
3	741	737	720	725	705	738	742	749	727	723	729	722	720	744	732	750	730	754	742	746	753	753	733	751	736	1666
4	748	736	739	742	742	743	734	732	739	730	724	710	708	710	727	737	732	741	767	734	735	736	748	745	735	1639
5	746	748	733	743	735	750	741	741	735	730	723	720	721	728	732	742	738	750	742	741	769	745	749	746	739	1748
6	745	760	743	737	744	750	754	749	743	739	733	732	728	729	731	733	737	747	757	761	759	757	755	754	745	1877
7	753	749	748	751	751	751	750	749	743	738	735	732	729	733	739	744	749	749	740	748	749	732	738	739	743	1839
8	726	732	747	740	745	742	752	751	744	732	719	707	714	718	732	745	748	744	756	761	758	758	752	745	740	1768
9 q	747	744	751	752	756	754	754	748	736	719	712	710	712	722	725	729	734	738	752	760	763	763	761	761	742	1803
10 q	760	759	759	759	760	763	765	760	743	727	715	704	709	722	736	749	756	761	762	765	766	766	768	768	750	2002
11 q	766	768	771	771	770	773	774	768	756	738	723	719	725	731	743	752	758	763	768	774	772	773	772	773	758	2201
12	767	752	751	759	768	776	770	766	753	734	721	700	721	703	721	728	740	738	757	747	759	761	759	760	746	1911
13	763	763	765	756	755	760	763	766	755	741	725	719	713	710	721	738	746	745	756	762	766	755	751	752	748	1946
14	760	760	759	758	759	761	761	768	756	736	725	706	714	717	731	744	751	752	758	758	760	762	761	768	749	1985
15	759	757	755	759	766	764	765	761	752	743	731	716	718	728	733	733	744	751	760	765	766	766	765	770	751	2027
16 q	757	766	759	762	764	763	765	764	754	738	726	718	721	731	738	747	748	756	762	769	772	774	771	768	754	2093
17	768	773	766	760	761	766	766	758	748	737	721	714	711	725	740	745	751	756	759	766	764	769	769	764	752	2057
18	766	764	763	761	757	755	762	756	749	742	741	739	745	748	751	754	756	751	758	763	766	769	787	768	757	2271
19	771	771	771	769	768	767	768	766	763	756	739	741	743	740	746	748	748	755	766	768	768	769	769	769	760	2121
20	767	767	767	770	765	760	760	758	751	743	735	733	734	732	737	739	751	756	759	767	764	766	770	772	755	2123
21	769	769	768	766	766	765	763	758	748	730	725	730	738	739	738	754	754	746	761	765	760	765	762	764	754	2103
22 q	768	767	765	765	763	763	760	755	743	731	729	734	736	736	736	745	756	762	764	768	769	773	775	778	756	2141
23	777	779	774	789	769	778	775	770	753	730	719	719	722	732	745	756	755	748	771	773	771	771	761	763	758	2200
24	759	759	770	761	761	761	765	764	746	721	687	678	702	729	743	745	752	767	768	756	765	770	775	776	749	1980
25	774	774	777	771	784	756	763	758	747	711	694	694	707	730	774	778	752	774	784	761	734	746	755	739	752	2037
26 d	740	741	743	743	746	748	749	738	722	711	706	651	667	790	660	674	700	732	747	740	744	695	676	572	714	1135
27 d	683	621	589	647	627	599	548	494	579	622	634	657	650	757	913	1033	1067	941	778	657	616	592	666	679	694	649
28 d	688	690	681	672	655	694	709	705	694	700	688	681	671	719	764	810	703	767	773	711	654	641	426	582	687	478
29 d	664	609	619	679	693	678	663	699	695	667	658	654	679	765	755	770	871	733	710	721	739	707	718	718	703	864
30	719	715	707	713	717	731	715	721	703	670	689	681	692	696	716	732	739	736	748	744	750	746	745	735	719	1260
31	736	742	742	734	739	737	738	735	708	688	688	682	684	692	722	728	737	759	768	774	741	736	747	731	729	1488
Mean	745	742	740	743	742	745	744	741	733	721	712	706	710	729	740	754	758	756	757	751	751	745	740	741	739	
Sum 21,000+	2098	1999	1950	2041	2008	2096	2071	1964	1732	1348	1077	881	1018	1607	1952	2370	2498	2442	2467	2283	2276	2085	1936	1967		Grand Total 550,166

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

22 ESKDALEMUIR (D)		10° +																				MARCH 1959				
Hour G.M.T.		10° +																			Mean	Sum				
0-1 1-2 2-3 3-4 4-5 5-6 6-7 7-8 8-9 9-10 10-11 11-12		10° +																			Mean	Sum				
° °		10° +																			°	700.0+				
1 d	18.2	23.7	29.3	30.6	36.9	26.6	30.3	36.4	37.8	33.7	35.7	40.3	40.1	42.0	46.2	33.2	34.0	35.8	40.0	33.8	26.6	35.0	22.9	21.6	32.9	90.7
2	28.1	31.0	33.1	31.2	27.6	31.6	33.4	34.9	34.3	34.0	35.9	39.2	41.2	42.7	41.7	39.5	38.0	33.9	25.6	29.4	28.7	26.4	30.1	30.8	33.4	102.3
3	30.7	28.6	29.8	32.5	35.2	33.6	30.2	31.0	29.4	31.9	34.6	38.1	36.1	43.2	40.7	42.1	35.7	34.1	33.7	34.7	34.0	34.3	28.1	25.5	33.7	107.8
4	29.2	27.9	29.7	29.3	31.1	29.6	29.0	30.0	30.1	31.6	33.7	38.1	39.1	34.6	39.7	40.0	36.8	35.1	28.7	32.7	32.3	30.0	32.3	33.1	32.7	83.7
5	33.0	33.3	29.7	25.2	26.0	27.2	27.9	28.8	28.1	30.9	33.3	36.4	40.3	42.2	41.9	41.9	40.6	38.5	36.9	34.8	32.5	29.9	29.8	30.4	33.3	99.5
6	31.4	31.0	27.4	30.6	32.7	31.7	31.6	31.7	31.7	31.6	33.0	36.9	39.1	40.2	40.2	39.0	37.6	35.9	33.6	33.4	34.2	33.4	33.2	33.2	33.9	114.3
7	32.9	32.2	31.9	31.1	31.1	31.0	30.8	30.0	28.5	29.1	31.6	36.7	39.9	42.0	42.6	44.2	46.3	43.5	38.8	37.5	35.4	31.7	28.5	27.0	34.8	134.3
8	22.5	27.3	27.4	28.2	29.4	31.3	30.6	29.5	29.5	30.3	31.4	34.2	37.8	38.9	39.3	39.1	37.6	36.8	36.7	36.2	35.3	35.7	34.9	33.0	33.0	92.9
9 q	31.2	30.7	31.7	30.7	29.7	30.6	30.7	29.6	27.7	29.3	31.5	34.6	37.7	40.7	40.0	39.0	37.4	36.7	36.0	35.5	34.7	34.3	34.2	34.3	33.7	108.5
10 q	34.4	34.4	34.3	34.2	34.0	33.3	32.3	29.5	27.1	26.5	30.1	34.7	38.8	40.8	41.1	39.8	37.4	36.6	37.2	36.4	36.0	35.4	34.0	34.7	34.7	133.0
11 q	34.4	34.5	34.4	34.3	34.1	33.5	32.5	30.0	28.8	28.8	31.6	36.0	41.0	41.5	41.4	40.0	38.0	37.3	37.1	36.6	36.1	35.7	35.1	34.3	35.3	147.0
12	32.4	28.7	31.1	32.6	32.5	34.3	33.6	30.0	28.6	29.3	34.2	36.8	45.6	43.6	42.9	42.6	40.3	37.6	35.5	32.0	32.5	34.7	34.2	34.0	35.0	139.6
13	33.0	33.1	33.7	33.0	33.5	32.6	32.5	31.5	29.6	29.3	31.2	36.1	40.3	40.9	41.1	40.1	37.6	36.7	37.5	36.3	35.3	25.0	29.7	31.1	34.2	120.7
14	33.3	33.5	33.7	33.5	33.9	32.7	33.9	34.3	33.1	30.8	32.0	33.4	37.8	40.6	41.4	40.7	38.6	36.6	36.1	36.1	35.2	33.0	33.6	33.5	35.2	141.3
15	32.9	32.7	35.8	36.0	33.6	32.2	32.1	30.8	29.8	29.9	32.7	36.1	38.0	40.7	42.4	41.0	39.7	37.9	37.4	36.6	36.2	35.0	32.7	31.2	35.1	143.4
16 q	33.0	30.4	32.0	32.4	32.6	32.6	32.6	31.4	30.4	29.9	32.5	36.0	38.8	40.1	40.7	40.0	38.6	37.7	37.5	37.0	36.7	36.4	35.0	33.3	34.9	137.6
17	33.1	32.4	32.6	32.3	32.9	33.2	33.9	31.8	30.5	30.8	33.0	37.1	38.8	40.5	40.2	37.7	36.1	35.3	35.3	35.4	35.9	36.1	36.8	35.1	34.9	136.8
18																										

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

23 ESKDALEMUIR (Z)		45,000γ (0.45 C.G.S. unit) +																				MARCH 1959				
	Hour G.M.T.																						Mean	Sum 7000+		
	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
1 d	305	310	323	316	284	289	309	302	313	331	330	331	331	338	364	424	430	418	392	388	366	327	326	316	340	1163
2	327	336	317	322	323	316	320	324	332	328	332	337	338	344	365	373	364	366	364	359	331	329	328	322	337	1097
3	324	311	312	315	318	312	324	329	335	335	332	331	333	340	343	350	369	382	375	361	354	319	331	329	336	1064
4	325	330	340	341	341	341	340	340	338	339	338	335	339	347	347	355	363	367	367	365	370	367	355	349	347	1339
5	347	336	331	326	325	326	330	338	339	332	330	330	331	337	343	352	355	365	365	365	346	346	343	340	341	1178
6	338	327	324	330	331	332	332	336	335	334	324	323	327	332	336	343	348	347	345	344	343	343	343	342	336	1059
7	341	341	340	339	338	337	336	338	338	338	331	328	333	337	338	344	361	380	390	382	379	383	374	359	350	1405
8	344	333	295	330	334	334	330	334	336	336	335	337	337	336	339	343	352	344	339	340	342	343	346	349	337	1088
9 q	347	346	341	341	340	340	342	347	349	341	338	336	333	337	342	347	350	347	343	341	339	338	337	336	342	1198
10 q	336	336	336	336	336	335	336	340	342	346	336	318	314	315	318	327	331	330	328	328	328	328	319	319	330	918
11 q	330	330	330	328	328	328	329	332	330	331	323	312	310	317	320	324	327	326	326	328	330	328	330	329	326	826
12	328	320	326	327	327	324	318	320	320	321	319	321	320	331	330	346	351	354	349	355	311	336	334	334	330	922
13	331	329	326	322	326	328	330	332	334	329	327	324	326	331	335	335	343	343	336	334	332	341	337	330	332	961
14	329	330	330	331	329	328	327	323	324	325	324	323	320	322	326	330	336	337	336	336	335	333	330	324	329	888
15	326	327	324	317	320	324	326	328	330	326	319	312	308	308	315	323	327	329	328	328	328	330	331	328	323	762
16 q	326	323	324	326	326	326	326	326	327	324	315	301	299	301	308	314	319	323	326	326	326	326	326	327	320	691
17	327	323	322	324	325	325	323	325	327	327	321	317	309	312	317	321	326	327	327	326	326	326	326	326	323	754
18	326	326	326	326	327	329	329	332	332	327	321	314	312	315	317	319	324	325	323	324	326	325	321	325	324	771
19	324	323	323	324	324	324	325	327	325	320	315	308	311	313	320	328	327	328	327	328	327	326	326	325	323	748
20	325	324	324	321	323	324	325	323	321	316	309	307	312	318	321	321	323	324	323	326	328	327	326	324	321	715
21	323	323	322	324	324	326	330	332	329	325	312	298	304	313	321	328	337	338	330	330	331	330	329	328	324	787
22 q	325	323	324	324	324	326	327	328	326	315	309	300	304	309	316	323	324	325	326	326	326	326	326	323	321	705
23	322	319	316	308	313	315	315	319	321	319	312	305	309	313	316	322	334	334	327	324	326	327	331	329	320	676
24	329	327	319	319	321	322	326	328	331	328	323	308	298	308	316	324	325	334	343	343	339	334	330	327	325	802
25	326	325	324	317	281	293	310	316	320	322	320	310	308	314	323	351	375	374	380	362	355	351	344	342	331	943
26 d	339	337	335	335	334	331	330	331	330	320	307	311	312	358	418	383	367	376	405	390	382	354	302	204	341	1191
27 d	251	195	219	193	114	152	146	148	240	316	326	350	377	402	514	519	508	580	589	499	307	233	266	292	322	736
28 d	343	338	362	357	353	346	353	354	349	344	339	346	361	366	417	495	480	453	482	449	388	312	169	254	368	1830
29 d	235	224	250	251	304	296	286	292	315	325	336	342	358	401	429	430	447	436	412	405	378	370	364	358	343	1244
30	355	354	336	319	326	338	341	349	347	351	347	342	347	353	358	366	367	371	368	367	356	343	337	344	349	1382
31	344	339	330	330	337	337	338	342	342	339	335	333	336	341	354	359	359	370	380	359	354	348	314	319	343	1239
Mean	326	322	321	320	318	319	321	324	328	329	325	322	324	333	346	355	360	363	363	356	342	334	326	324	333	
Sum 9000+	1098	985	951	919	856	904	959	1035	1177	1210	1085	990	1057	1309	1726	2019	2149	2253	2251	2038	1609	1349	1100	1053		Grand Total 248,082

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

24 ESKDALEMUIR		TERRESTRIAL MAGNETIC ELEMENTS										3-hr. range indices K		Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +		
	Horizontal force			Declination			Vertical force			K	C	Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +				
	Maximum 16,000γ +	Minimum 16,000γ +	Range	Maximum 10° +	Minimum 10° +	Range	Maximum 45,000γ +	Minimum 45,000γ +	Range									
1 d	h. m. 15 53	γ 797	γ h. m. 646 15 18	151	h. m. 14 08	47.5	15.1	h. m. 00 19	32.4	h. m. 15 46	γ 442	274	05 01	168	4,4,4,3,4,5,4,4	32	1	82.5
2	20 09	847	669 10 56	178	13 39	45.6	17.5	20 24	28.1	15 34	376	307	20 52	69	3,3,4,3,4,4,5,4	30	1	82.5
3	21 13	809	688 04 24	121	13 34	44.7	21.7	23 16	23.0	17 23	386	307	21 39	79	3,3,2,3,3,4,4,4	26	1	82.5
4	18 40	792	694 11 52	98	12 52	41.1	24.8	18 18	16.3	18 06	376	321	00 48	55	3,2,3,3,3,3,4,2	23	1	82.6
5	20 23	799	711 11 28	88	18 08	43.1	23.5	03 54	19.6	18 12	370	323	03 56	47	3,2,2,2,2,2,4,3	20	1	82.5
6	01 46	766	723 12 18	43	14 20	40.8	26.4	02 43	14.4	17 10	349	321	02 18	28	3,2,1,1,2,1,1,1,1	12	0	82.5
7	20 53	759	721 21 19	38	16 41	47.6	26.0	24 00	21.6	18 25	394	327	11 09	67	1,0,0,2,1,2,3,3	12	0	82.6
8	02 04	789	702 11 51	87	14 12	40.0	20.9	00 35	19.1	16 41	353	281	02 22	72	4,3,1,2,1,2,1,2	16	1	82.7
9 q	20 56	764	706 10 59	58	13 31	41.5	27.0	08 30	14.5	16 10	352	332	12 42	20	2,1,1,1,1,1,1,1	9	0	82.7
10 q	22 29	772	700 11 26	72	14 03	41.4	24.4	09 11	17.0	08 17	343	313	12 52	30	0,0,2,2,2,1,0,1	8	0	82.7
11 q	19 19	786	714 11 42	72	12 30	42.9	27.6	08 23	15.3	07 40	332	309	12 30	23	1,0,1,1,2,1,2,1	9	0	82.8
12	05 49	790	684 13 08	106	12 42	47.5	25.2	01 38	22.3	17 00	358	313	01 23	45	3,3,3,3,4,3,3,2	24	1	82.8
13	07 33	774	692 13 28	82	14 00	43.1	21.0	21 28	22.1	16 54	346	320	03 13	26	2,2,2,3,3,3,2,4	21	1	82.7
14	07 27	775	698 11 37	77	12 59	42.0	30.0	09 54	12.0	16 50	338	320	12 52	18	1,1,3,3,2,2,1,2	15	0	82.6
15	23 27	779	710 12 00	69	14 23	43.3	28.5	08 06	14.8	22 17	332	307	12 32	25	2,2,1,2,2,2,1,2	14	0	82.6
16 q	21 42	779	716 12 00	63	14 47	41.3	28.9	08 27	12.4	00 15	329	298	12 35	31	2,1,1,2,2,1,2,1	12	0	82.5
17	22 30	781	706 12 20	75	14 02	41.2	29.4	08 27	11.8	09 15	329	308	12 32	21	2,2,2,2,2,2,2,2	16	0	82.5
18	22 08	812	737 10 57	75	14 02	38.2	29.4	09 02	8.8	08 00	332	312	12 23	20	0,1,0,2,2,2,1,4	12	0	82.7
19	18 57	781	729 10 38	52	12 39	41.6	28.5	08 38	13.1	18 34	330	305	11 45	25	1,1,2,2,3,2,2,1	14	0	82.5
20	03 12	779	724 13 39															

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

21 ESKDALEMUIR (H)		16,000γ (0.16 C.G.S. unit) +																				APRIL 1959				
	Hour G.M.T.											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 17,000+	
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11															11-12
1	734	733	739	734	730	741	743	742	712	699	691	686	689	702	717	728	737	740	741	739	739	741	743	742	727	442
2	744	742	740	741	741	742	746	744	734	720	701	701	705	709	732	745	753	764	762	758	759	750	738	736	738	707
3	746	746	749	747	742	746	745	745	733	710	704	687	702	722	733	741	754	742	744	751	754	760	762	753	738	718
4	742	743	746	746	757	750	750	742	727	708	693	696	703	716	731	741	754	754	769	764	766	758	754	750	740	760
5 q	750	759	752	754	758	758	759	749	729	708	698	706	712	731	744	753	750	756	757	763	763	765	766	766	746	906
6	764	768	765	762	766	767	768	758	739	717	712	718	724	734	756	769	769	767	770	768	763	758	758	763	754	1103
7	761	760	758	756	754	756	762	766	753	734	717	704	705	720	733	754	761	759	766	778	779	764	757	746	750	1003
8	749	746	750	752	751	761	769	753	722	705	696	679	675	669	701	744	765	788	763	766	761	754	702	696	734	617
9 d	674	700	707	723	731	735	749	746	713	681	686	674	684	689	702	719	735	741	772	773	785	789	774	764	727	446
10 d	768	759	764	745	750	762	739	700	632	612	731	717	699	714	722	770	931	773	725	712	708	711	715	716	736	675
11	712	713	708	711	711	716	706	702	689	683	669	672	692	700	713	729	737	751	773	778	766	748	754	750	720	283
12	729	736	736	744	750	757	766	756	740	721	696	681	681	692	714	733	743	753	759	761	759	761	749	749	736	666
13	757	761	760	754	759	762	761	739	722	711	696	690	686	701	729	742	758	764	757	764	771	769	768	770	744	851
14	764	766	764	758	767	768	763	755	740	729	714	711	714	724	731	746	765	777	782	783	783	768	761	756	754	1089
15	735	756	753	761	766	773	769	761	743	725	710	702	705	722	735	751	753	759	777	766	771	766	768	768	750	995
16	773	771	768	761	765	769	774	773	763	741	728	707	723	736	750	759	766	768	770	775	771	765	762	762	758	1200
17	760	758	759	761	761	765	761	760	749	737	721	707	723	731	736	756	761	768	778	776	771	772	775	774	755	1120
18 q	765	752	749	752	753	754	750	748	742	730	721	717	719	724	729	746	749	765	768	775	770	769	770	769	749	986
19 q	767	765	767	763	768	767	765	765	756	742	736	725	729	728	741	748	753	773	775	773	772	777	773	764	758	1192
20 q	767	766	765	763	762	762	764	765	763	755	739	731	730	729	735	748	770	775	774	773	773	775	775	775	760	1234
21	780	783	762	764	775	773	767	763	750	725	716	710	716	716	729	732	753	768	775	772	766	765	765	767	754	1092
22 q	763	760	760	761	764	765	765	757	742	717	706	697	707	722	740	752	765	764	768	772	773	772	772	769	751	1033
23 d	769	768	770	769	769	772	769	766	754	723	726	745	727	764	745	786	808	850	854	793	700	748	715	709	762	1298
24 d	714	706	710	710	706	712	729	719	708	703	703	722	720	706	746	735	742	729	738	736	750	741	747	740	724	372
25	735	735	738	745	738	732	735	722	710	693	672	673	699	701	734	751	793	795	779	778	764	757	755	741	736	675
26	746	751	764	757	732	735	734	728	707	695	694	699	690	703	725	752	768	784	796	767	759	744	744	735	738	709
27	751	741	744	744	752	753	732	751	739	720	698	694	701	710	729	746	751	782	765	770	786	754	763	751	743	827
28	743	745	744	752	748	752	744	746	722	715	706	704	705	718	727	742	762	779	791	781	773	755	749	746	744	849
29 d	739	748	734	749	746	743	743	743	735	724	712	704	720	728	730	763	798	832	796	757	749	747	749	737	747	926
30	739	742	735	737	734	744	746	734	735	723	700	686	694	735	755	764	826	821	837	788	751	740	737	736	747	939
Mean	748	749	749	749	750	753	752	747	730	717	706	701	706	717	731	748	768	771	773	767	762	758	754	750	744	
Sum 21,000+	1440	1479	1460	1475	1506	1592	1573	1398	903	506	192	45	179	496	944	1445	2030	2141	2181	2010	1855	1743	1620	1500		Grand Total 535,713

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

22 ESKDALEMUIR (D)		10° +																				APRIL 1959					
	Hour G.M.T.											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 700.0+		
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11															11-12	
1	29.8	29.7	27.8	22.5	24.2	27.9	31.4	28.8	26.3	29.3	32.5	36.0	37.3	38.0	38.0	36.1	34.3	33.7	33.9	34.6	34.1	33.8	33.4	33.0	31.9	66.4	
2	32.9	32.8	32.5	32.1	31.8	31.4	30.2	28.0	25.7	25.3	28.8	35.0	40.0	41.6	42.8	41.4	38.8	36.6	34.8	33.3	34.1	31.3	30.6	30.9	33.4	102.7	
3	30.3	27.0	26.9	25.2	28.0	28.4	28.2	25.7	27.4	30.3	33.4	38.1	42.6	43.4	42.9	40.2	37.2	33.7	33.8	34.0	33.9	33.9	33.1	29.7	32.8	87.3	
4	26.7	28.1	29.1	31.2	30.6	29.5	28.3	24.9	23.6	27.1	31.5	37.0	39.9	40.9	39.3	36.9	35.8	33.2	33.0	32.7	34.5	34.4	33.8	32.6	32.3	74.6	
5 q	32.1	31.4	31.0	30.2	29.3	29.8	29.3	27.1	25.1	25.9	30.1	37.2	41.4	42.5	41.8	38.7	35.5	34.3	33.5	32.7	34.5	34.9	34.8	34.7	33.2	97.8	
6	34.5	35.3	33.3	32.6	31.6	35.3	29.0	26.5	24.5	26.9	31.6	36.6	40.5	42.2	41.2	39.2	37.2	35.1	32.7	34.2	34.2	33.0	32.8	34.3	33.9	114.3	
7	34.1	33.4	32.4	31.6	31.2	30.3	28.9	26.8	24.2	25.2	29.8	35.0	38.8	41.1	41.6	40.3	38.0	35.8	35.2	30.5	27.1	33.4	30.9	26.3	32.6	81.9	
8	27.4	23.7	23.8	21.5	24.0	25.1	26.6	25.6	25.3	26.5	31.5	37.2	42.3	43.3	41.9	44.7	43.3	39.9	36.9	36.5	34.6	35.6	25.4	23.2	31.9	66.7	
9 d	22.0	18.6	22.1	20.4	23.9	32.2	35.9	32.4	31.0	35.3	34.5	37.5	40.2	41.1	39.9	38.9	37.1	35.9	36.0	31.1	37.4	35.2	31.2	32.5	32.6	82.3	
10 d	31.2	30.5	34.3	26.4	27.1	27.8	28.3	29.6	36.0	31.0	33.5	30.0	36.7	45.0	45.8	49.5	49.9	44.8	38.6	33.0	34.9	28.8	29.2	31.9	32.0	34.8	134.9
11	32.6	37.5	36.1	35.0	35.5	35.7	32.8	31.7	32.1	34.1	37.8	40.3	41.5	43.2	41.9	40.0	37.0	35.7	36.9	36.9	35.4	28.1	25.5	27.9	35.5	151.2	
12	30.7	30.6	30.8	30.9	29.9	29.0	28.3	27.0	24.3	25.4	28.6	33.2	37.4	40.1	40.2	38.2	36.4	34.7	33.0	33.0	33.4	33.6	31.3	31.3	32.1	71.3	
13	32.7	34.4	32.7	31.2	29.8	30.0	28.7	27.4	26.4	27.7	30.6	35.0	39.2	40.7	41.1	39.6	37.7	35.5	33.8	34.1	33.0	32.1	31.8	32.6	33.3	98.8	
14	33.0	34.4	37.9	31.5	31.6	31.3	31.8	31.0	29.2	29.7	32.1	35.5	39.4	42.2	42.3	40.7	38.4	35.9	34.5	34.7	34.3	31.6	31.2	29.7	34.3	123.9	
15	28.7	25.4	28.3	29.8	30.2	30.9	31.3	29.0	27.8	28.5	30.5	33.2	36.4	38.0	37.9	37.4	36.0	35.1	33.9	32.8	33.1	33.9	33.6	33.7	32.3	75.4	
16	33.5	35.4	33.3	32.8	32.8	32.9	30.3	29.3	28.1	28.4	32.0	36.2	38.1	40.1	38.2	36.0	34.3	32.9	33.2	33.5	31.4	33.1	34.0	33.8	33.5	103.6	
17	33.1	32.6	32.2	32.1	31.6	30.8	29.3	27.2	27.4	28.5	32.4	36.0	39.1	39.9	37.0	34.4	33.8	33.3	33.4	33.0	33.2	33.1	32.5	31.8	32.8	87.7	
18 q	28.7	29.7	33.1																								

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

21 ESKDALEMUIR (H)		16,000γ (0.16 C.G.S. unit) +																				MAY 1959				
	Hour G.M.T.		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 17,000+
	0-1	1-2																								
1	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	777
2	745	739	741	740	736	758	759	751	740	725	713	704	699	703	726	731	755	753	761	767	768	762	749	752	741	777
3	752	747	746	742	749	753	756	762	754	736	718	712	711	720	727	740	753	755	761	770	781	776	767	765	748	953
4	763	766	766	766	769	766	759	748	737	732	728	724	720	730	744	757	757	767	782	777	786	773	789	795	758	1201
5	767	759	768	767	767	768	766	756	747	729	728	724	743	752	770	768	762	779	792	778	794	805	767	768	765	1352
6	686	687	720	714	734	744	744	746	740	721	696	697	708	721	740	741	751	767	767	759	757	760	761	760	734	621
6 q	757	757	757	759	761	759	759	744	730	719	712	709	711	724	734	740	761	772	777	777	773	772	769	767	750	1000
7	769	766	764	761	764	764	761	753	756	725	714	710	717	737	753	768	772	779	779	787	786	787	795	813	762	1280
8 d	799	773	774	777	766	787	778	727	707	692	672	691	721	711	742	754	757	763	771	781	775	773	773	770	751	1034
9	760	771	779	767	769	765	761	748	730	711	698	690	690	717	747	735	761	798	786	769	786	778	779	784	753	1079
10	772	766	767	766	766	767	748	737	732	714	704	716	719	723	727	756	776	810	793	790	771	772	771	771	756	1134
11	780	767	756	766	767	768	755	747	732	722	701	708	712	736	739	753	786	816	829	808	801	783	782	816	764	1330
12 d	813	802	768	744	759	734	764	703	692	729	712	694	682	725	756	786	1066	888	789	752	740	727	739	725	762	1289
13	730	729	729	723	722	730	710	713	686	688	684	678	689	679	684	708	728	756	764	774	785	784	756	739	724	368
14 q	740	741	740	739	742	749	749	742	726	708	698	691	689	714	720	746	755	758	762	755	754	754	756	752	737	680
15 d	751	754	745	737	748	749	746	742	732	721	734	701	714	744	690	723	751	853	842	819	772	742	715	711	747	936
16 d	690	735	710	705	720	705	646	686	697	699	686	678	679	688	704	729	744	757	764	771	774	770	786	745	719	268
17	744	748	747	751	755	755	748	734	720	704	698	705	698	728	744	776	786	782	779	773	769	766	770	777	748	957
18	767	772	757	769	745	747	749	724	715	698	693	699	701	711	717	745	784	804	829	792	769	767	747	752	748	953
19	752	750	752	747	756	751	741	729	717	691	671	697	698	708	729	736	736	763	786	802	778	780	757	759	741	786
20	764	764	755	755	750	740	735	727	720	721	737	741	745	747	757	757	783	786	807	797	787	767	766	757	757	1165
21	754	748	753	755	744	736	735	736	724	716	724	732	739	737	757	767	798	811	807	795	773	777	767	754	756	1139
22	758	758	763	749	748	741	726	712	709	710	722	722	745	763	772	755	763	806	795	782	772	775	761	760	753	1067
23	766	737	735	747	747	743	732	713	725	703	709	726	737	740	747	752	769	794	794	784	775	767	763	764	749	969
24 d	763	776	755	752	754	743	708	727	710	708	672	680	724	748	713	777	763	746	758	758	783	794	728	667	738	707
25	691	733	760	748	752	738	713	702	701	693	698	685	676	686	714	731	764	795	778	782	775	754	749	737	731	555
26	755	741	743	747	748	751	742	734	721	715	698	707	718	724	740	755	779	794	783	785	774	768	765	758	748	945
27 q	756	759	747	752	755	752	746	735	725	719	719	729	733	748	753	762	766	768	771	773	772	770	768	762	752	1040
28 q	759	760	760	760	763	757	751	748	745	744	743	738	732	746	763	775	778	779	776	781	783	784	778	772	761	1275
29 q	767	765	765	768	767	764	762	758	751	743	736	732	730	739	749	762	780	789	797	788	785	781	778	769	764	1325
30	774	780	780	782	782	779	765	747	737	726	728	743	752	761	752	762	780	782	787	796	792	786	786	790	769	1449
31	790	782	785	787	780	790	782	768	751	737	729	736	762	807	773	775	785	809	816	803	779	756	760	774	776	1616
Mean	756	756	754	753	754	753	745	735	726	716	709	710	716	730	738	752	776	786	787	781	776	771	764	761	750	
Sum 21,000+	2434	2432	2387	2342	2385	2353	2096	1799	1509	1199	985	1017	1194	1617	1883	2322	3049	3379	3382	3225	3069	2910	2697	2585		Grand Total 558,250

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

22 ESKDALEMUIR (D)		10° +																				MAY 1959				
	Hour G.M.T.		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 700.0+
	0-1	1-2																								
1	31.7	32.0	31.6	31.3	34.2	32.5	30.0	28.2	27.7	28.0	29.4	33.7	38.1	39.8	39.6	37.3	36.5	34.4	32.3	31.8	30.4	28.7	30.8	31.0	32.5	81.0
2	31.5	29.8	28.3	26.4	24.9	24.1	24.1	29.3	29.2	26.1	29.1	33.3	38.1	39.0	37.8	36.4	34.9	33.8	33.6	34.0	35.0	35.0	31.6	31.3	31.5	56.6
3	32.5	32.9	32.1	31.8	30.8	28.8	27.0	25.8	27.2	28.0	32.0	36.8	39.7	40.1	38.6	37.2	35.5	35.2	35.0	35.6	35.3	33.5	35.1	34.6	33.4	101.1
4	31.3	32.7	32.8	31.8	31.5	29.8	28.9	27.5	27.4	32.2	36.0	39.2	41.7	41.6	40.6	37.7	36.6	34.9	34.5	34.4	35.2	37.8	34.1	32.5	34.3	122.7
5	28.8	14.3	16.5	21.6	17.9	21.0	23.3	25.5	26.1	29.4	32.1	35.0	40.3	43.4	42.9	39.9	37.2	35.0	34.7	34.7	33.8	33.6	32.9	32.5	30.5	32.4
6 q	32.2	31.9	31.0	30.2	29.1	27.4	26.3	25.3	30.6	27.9	30.9	35.9	38.8	39.3	28.7	37.0	34.6	33.4	33.0	33.5	34.2	34.5	33.9	33.5	32.2	73.1
7	33.0	32.7	32.1	31.3	30.3	28.0	26.7	25.6	24.7	27.1	31.8	37.0	41.0	41.9	39.8	37.5	36.2	34.4	33.8	34.6	34.8	35.4	35.7	35.1	33.4	100.5
8 d	35.4	29.6	30.5	29.2	35.3	37.2	29.3	25.4	30.5	29.4	34.9	37.7	42.5	42.0	43.0	41.8	37.8	34.5	34.3	33.6	33.0	32.9	32.9	33.0	34.4	125.7
9	29.3	31.3	35.5	30.7	28.3	26.0	24.4	24.1	24.4	26.2	29.0	35.2	40.0	41.6	42.3	40.4	38.3	36.1	34.6	35.2	33.9	33.7	35.0	31.6	32.8	87.1
10	32.2	32.3	30.7	31.4	29.9	30.3	27.5	29.4	27.8	30.8	35.5	37.5	40.8	43.0	42.3	39.5	36.7	34.6	32.8	32.6	34.5	34.3	34.4	34.1	34.0	114.9
11	35.8	33.6	31.6	31.4	29.2	27.0	27.5	24.0	24.5	25.8	29.3	34.9	39.1	40.5	40.0	38.5	36.3	31.3	32.1	33.4	33.1	35.9	35.6	40.8	33.0	91.2
12 d	36.1	32.8	29.1	33.1	24.0	24.2	20.0	27.2	23.5	26.2	32.3	33.9	36.8	41.1	40.3	40.2	51.9	33.3	35.0	35.5	36.6	36.5	42.2	38.3	33.8	110.1
13	35.4	34.9	33.5	31.3	30.7	27.0	24.6	25.2	28.1	30.0	32.0	33.9	36.7	37.8	38.4	38.2	36.8	34.7	33.0	32.0	31.4	30.6	33.1	33.9	32.6	83.2
14 q	34.0	33.7	32.9	31.7	28.9	26.8	25.8	24.9	24.6	25.2	29.1	32.5	34.7	35.6	35.9	36.1	35.2	33.7	33.5	34.3	34.2	34.3	33.5	32.6	31.8	63.7
15 d	32.5	33.7	33.6	32.2	29.4	27.2	24.6	23.9	26.9	30.1	32.6	36.7	37.7	39.9	36.0	36.3	36.0	32.0	29.0	30.7	26.0	27.2	23.0	20.8	30.7	37.8
16 d	22.5	26.2	29.0	27.6	36.5	36.3	31.6																			

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

23 ESKDALEMUIR (2)

45,000γ (0.45 C.G.S. unit) +

MAY 1959

	Hour G.M.T.												Mean	Sum 7000+													
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12															
1	337	343	347	347	339	320	324	327	328	329	332	332	335	342	345	353	356	361	361	361	359	357	353	347	343	1235	
2	344	341	335	327	327	330	336	344	350	346	340	332	324	327	333	338	344	347	343	340	342	339	340	342	338	338	1109
3	336	337	338	338	336	336	336	337	333	326	316	311	313	323	330	335	341	342	340	340	341	344	337	312	332	978	
4	322	331	333	335	335	332	332	331	321	319	312	310	314	321	334	347	358	364	366	366	357	344	337	327	335	1048	
5	268	259	248	239	286	330	343	344	331	327	335	340	331	327	335	349	350	351	349	344	344	344	344	344	324	784	
6 q	344	343	343	342	342	340	343	343	335	325	316	309	312	316	321	327	333	338	338	337	338	337	338	338	333	998	
7	338	339	340	341	340	340	340	339	330	317	309	302	309	292	332	338	343	347	346	342	339	335	332	330	332	960	
8 d	322	324	332	336	329	287	286	305	305	313	313	316	330	346	340	339	339	343	340	338	340	338	338	333	326	832	
9	335	333	320	324	335	336	340	343	341	333	321	313	314	319	330	341	344	351	363	355	350	344	336	334	336	1055	
10	328	333	335	338	342	343	347	343	339	330	330	319	318	328	332	333	346	356	367	361	350	342	340	339	339	1139	
11	335	327	321	338	344	346	349	347	338	328	318	316	324	333	340	341	347	365	371	369	359	344	338	316	340	1154	
12 d	289	289	310	307	308	311	321	327	331	324	321	326	335	343	357	389	450	470	480	446	412	387	342	337	355	1512	
13	348	351	351	354	353	348	349	348	347	349	349	346	350	361	357	355	362	361	361	361	364	358	350	347	353	1480	
14 q	346	345	349	351	355	355	354	350	347	337	328	321	329	341	353	357	357	354	355	349	347	343	343	343	346	1309	
15 d	343	342	338	334	339	344	347	345	336	322	309	312	313	326	344	344	350	374	390	390	384	357	313	296	341	1192	
16 d	246	262	261	230	203	202	244	259	279	308	315	321	323	330	339	344	350	349	350	349	351	350	340	328	301	233	
17	334	339	342	343	344	345	342	339	332	332	330	329	338	341	345	351	369	377	366	351	343	343	343	341	344	1259	
18	339	321	315	318	302	299	306	313	315	319	320	319	322	327	332	345	357	376	387	381	371	349	334	337	333	1004	
19	343	342	326	329	331	342	348	350	350	336	320	316	327	333	340	344	353	355	358	360	353	350	342	335	341	1183	
20	336	323	324	334	338	342	342	339	328	318	312	304	309	318	325	332	343	353	358	367	375	358	347	344	336	1069	
21	339	334	324	328	332	326	327	331	327	321	312	312	316	322	337	336	339	358	370	373	369	348	335	338	336	1054	
22	339	336	314	323	334	338	338	332	326	320	313	313	316	325	347	362	362	362	366	362	353	345	343	335	338	1104	
23	330	325	324	314	325	338	340	338	331	318	316	313	310	316	326	337	348	362	370	364	360	351	344	341	335	1041	
24 d	335	316	314	321	329	330	326	324	324	320	312	310	315	339	358	361	379	376	358	342	333	336	263	179	325	800	
25	209	290	319	340	347	348	336	317	312	318	322	328	330	335	348	360	372	379	373	370	361	349	344	342	335	1049	
26	320	323	336	342	347	347	349	347	342	332	332	329	327	331	334	338	347	355	359	354	344	342	338	338	340	1153	
27 q	336	331	326	331	333	337	338	335	327	318	315	312	311	315	324	328	334	338	336	338	339	339	336	337	330	914	
28 q	336	336	337	338	338	339	336	334	329	320	310	306	308	313	317	324	330	331	334	333	332	332	332	332	328	877	
29 q	332	332	333	335	334	332	331	330	327	321	314	307	308	312	319	322	328	332	337	337	334	332	331	334	327	854	
30	333	331	332	332	333	335	335	335	333	326	314	301	293	304	316	322	324	331	333	334	336	335	333	331	326	832	
31	330	331	328	327	327	333	327	332	333	327	320	312	314	334	321	365	369	369	378	372	355	352	345	324	338	1115	
Mean	325	326	326	327	329	330	333	333	330	325	320	317	320	327	336	344	352	359	361	358	353	346	337	329	335		
Sum 9000+	1072	1109	1095	1136	1207	1221	1312	1328	1233	1087	931	828	914	1148	1419	1657	1924	2127	2203	2088	1932	1725	1433	1197		Grand Total 249,326	

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

24 ESKDALEMUIR

MAY 1959

	TERRESTRIAL MAGNETIC ELEMENTS										3-hr. range indices K	Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +
	Horizontal force			Declination			Vertical force							
	Maximum 16,000γ +	Minimum 16,000γ +	Range	Maximum 10° +	Minimum 10° +	Range	Maximum 45,000γ +	Minimum 45,000γ +	Range					
1	h. m. γ	γ h. m.	γ	h. m.	h. m.	γ	h. m.	γ	h. m.	γ	1, 3, 1, 2, 3, 2, 2, 2	16	0	82.8
2	20 02 775	687 12 41	88	14 18	41.0	27.2	08 36	13.8	17 40	363	319 05 44	44	0	82.7
3	20 08 787	705 12 48	82	13 26	39.6	23.4	05 55	16.2	08 43	351	324 12 18	27	0	82.7
4	23 00 849	713 12 20	136	12 58	41.3	25.4	07 23	15.9	21 27	346	308 23 19	38	1	82.7
5	21 53 826	722 09 19	104	14 12	42.4	25.6	08 32	16.8	19 23	367	307 10 55	60	1	83.2
6 q	00 03 774	597 00 52	177	14 25	44.5	5.7	01 55	38.8	17 53	353	215 03 51	138	1	83.0
7	18 44 782	699 11 57	83	13 29	39.8	24.5	07 46	15.3	01 00	344	306 11 13	38	0	83.3
8 d	23 47 823	703 12 01	120	13 29	42.9	23.5	08 03	19.4	17 53	348	301 11 52	47	0	83.0
9	00 00 809	656 09 53	153	14 32	45.7	21.8	07 22	23.9	13 37	349	277 05 58	72	1	82.9
10	17 23 828	664 11 37	164	14 23	45.7	21.4	07 40	24.3	18 22	365	311 11 55	54	23	83.0
11	17 40 848	694 10 09	154	13 53	43.9	22.9	07 05	21.0	18 17	370	315 12 03	55	24	83.0
12 d	18 20 846	688 11 29	158	23 46	47.0	20.3	08 02	26.7	18 47	372	296 24 00	76	27	83.1
13	16 49 1276	641 09 07	635	16 44	74.5	16.9	06 37	57.6	16 57	631	262 03 58	369	44	83.1
14 q	20 58 802	670 13 46	132	14 42	39.0	23.8	07 01	15.2	20 38	364	343 00 00	21	23	83.6
15 d	18 03 766	680 12 10	86	15 32	36.6	24.3	08 51	12.3	16 00	360	320 11 32	40	15	83.3
16 d	18 01 928	676 11 52	252	13 41	44.7	15.5	22 48	29.2	18 53	396	279 24 00	117	30	83.1
17	22 33 809	602 06 39	207	04 40	45.7	17.8	01 06	27.9	20 37	352	187 05 09	165	29	83.3
18	16 12 822	682 12 18	140	12 03	41.4	22.8	08 38	18.6	17 42	378	327 10 50	51	21	83.4
19	18 28 840	688 10 38	152	21 53	42.2	21.7	22 33	20.5	18 06	388	292 05 07	96	26	83.3
20	19 27 811	662 10 29	149	14 30	40.0	19.5	07 30	20.5	19 40	363	313 10 59	50	23	83.4
21	18 38 812	714 09 15	98	14 27	39.4	21.9	07 21	17.5	20 23	380	302 11 53	78	20	82.9
22	17 33 824	705 09 45	119	12 52	43.8	23.6	21 33	20.2	19 27	375	309 10 42	66	22	-
23	17 22 814	703 08 11	111	13 21	44.1	22.5	06 20	21.6	18 03	367	310 10 40	57	23	83.4
24 d	18 30 802	693 09 42	109	14 00	42.0	21.0	05 43	21.0	18 42	371	309 12 26	62	21	83.2
25	21 42 845	621 23 27	224	13 12	48.8	6.4	21 49	42.4	16 34	385	148 23 23	237	32	83.2
26	17 29 806	621 00 32	185	14 29	40.9	14.6	01 00	26.3	17 31	382	146 00 32	236	27	83.2
27 q	19 44 799	692 10 40	107	14 32	39.4	23.3	08 32	16.1	18 23	361	314 00 46	47	17	83.2
28 q	20 28 777	714 09 32	63	13 33	41.1	24.3	06 59	16.8	20 10	340	310 11 55			

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

21 ESKDALEMUIR (H)		16,000γ (0.16 C.G.S. unit) +																				JUNE 1959				
	Hour G.M.T.		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 17,000+
	0-1	1-2																								
1	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
2	742	742	744	750	749	755	752	740	730	729	727	737	741	747	755	765	787	786	789	779	786	786	779	768	757	1165
3	763	771	761	759	765	752	746	743	745	750	741	735	754	737	750	797	786	820	812	795	785	771	768	768	766	1374
4	766	754	758	734	734	744	745	732	721	709	700	691	705	744	775	766	793	791	789	787	781	765	761	767	751	1012
5	770	769	762	757	759	745	727	751	743	721	719	713	735	739	755	770	787	781	790	798	814	770	781	757	759	1213
6	743	759	755	760	769	766	746	732	722	716	716	730	726	753	745	768	766	767	778	779	778	771	777	768	754	1090
7	770	768	768	771	770	770	768	758	743	734	712	716	735	741	745	780	781	818	782	797	786	787	775	777	765	1352
8	765	763	765	771	770	771	761	743	729	725	724	726	747	746	771	772	778	791	806	788	795	779	776	775	764	1337
9	775	770	767	771	770	772	768	745	733	743	739	735	738	753	773	789	788	794	815	796	795	785	779	773	769	1466
10	784	780	781	780	776	774	784	780	741	704	702	717	703	704	745	764	780	805	816	798	786	783	778	770	764	1335
11	770	773	763	738	756	755	755	743	730	716	718	725	728	749	765	771	783	784	786	783	783	768	768	772	758	1182
12	770	769	767	764	766	759	754	751	743	736	723	747	725	750	811	763	797	751	772	781	780	774	765	758	761	1276
13	759	761	757	759	759	752	741	732	725	719	715	713	726	739	752	759	765	797	794	777	786	769	769	769	754	1094
14	768	767	767	768	769	761	752	740	721	707	702	710	728	738	748	764	778	783	782	781	779	774	774	774	756	1144
15	775	772	774	774	773	769	763	752	744	732	725	734	737	725	747	747	777	778	781	785	787	795	792	774	763	1312
16	774	779	777	775	772	759	739	717	727	731	732	721	719	736	757	769	777	785	789	786	792	781	778	775	760	1247
17	779	775	776	772	770	767	759	742	729	720	725	734	747	738	743	746	760	780	791	794	802	790	772	767	762	1278
18	766	767	767	771	770	761	754	749	736	725	728	735	750	764	783	792	800	808	813	794	814	802	787	775	771	1511
19	768	764	773	763	778	772	764	747	735	733	731	732	742	734	753	767	788	804	809	800	792	781	775	779	766	1384
20	779	776	775	768	770	749	748	742	735	717	713	718	741	753	780	787	792	805	796	784	790	781	771	779	765	1359
21	790	782	773	772	773	770	760	750	740	731	725	718	732	742	766	776	775	790	807	790	792	781	783	772	766	1390
22	769	774	772	771	772	763	749	745	737	729	730	730	745	753	764	781	780	809	807	801	799	783	780	773	767	1416
23	775	773	775	777	779	772	757	736	718	721	716	723	740	734	757	777	788	807	836	822	809	795	794	797	770	1478
24	789	781	777	774	777	772	765	750	734	727	722	718	730	742	758	808	822	842	847	825	807	772	747	752	772	1538
25	772	752	784	737	729	745	739	728	719	706	689	682	697	711	721	736	755	777	822	814	789	779	766	770	747	919
26	767	757	758	764	761	760	754	740	719	704	705	705	710	729	746	755	772	786	801	809	810	794	798	797	758	1201
27	768	767	767	774	770	774	769	733	694	692	686	690	701	713	725	746	778	795	799	777	776	771	764	760	750	989
28	758	759	760	764	765	757	748	744	731	737	738	737	753	743	846	785	867	867	791	780	794	786	763	745	772	1518
29	738	754	725	736	753	752	732	699	683	687	692	690	695	730	781	827	845	829	790	795	780	756	755	767	750	991
30	757	757	766	765	758	756	730	707	697	686	643	702	747	759	712	778	815	803	799	795	794	757	733	733	748	949
Mean	766	766	765	763	764	761	752	739	726	718	713	717	729	741	762	773	788	798	799	792	791	778	772	769	760	760
Sum 21,000+	1986	1984	1952	1883	1933	1818	1551	1185	784	532	404	523	863	1215	1862	2200	2635	2928	2962	2761	2728	2336	2163	2057		Grand Total 547,245

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

22 ESKDALEMUIR (D)		10° +																				JUNE 1959				
	Hour G.M.T.		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 700.0+
	0-1	1-2																								
1	26.7	27.3	26.2	25.3	25.2	25.8	25.5	26.7	28.4	29.5	31.7	35.1	37.4	39.0	39.7	38.9	38.4	37.6	36.9	35.9	35.1	33.4	31.0	29.3	31.9	66.0
2	28.6	31.0	29.4	28.8	28.7	25.1	25.2	26.4	27.7	29.9	33.0	36.7	40.5	40.3	41.4	41.4	37.2	38.5	36.2	35.8	35.2	34.4	33.8	31.4	33.2	96.3
3	28.5	29.2	25.8	20.5	22.8	25.8	28.0	27.8	27.1	31.8	34.9	37.8	39.6	40.7	38.5	37.9	34.8	35.3	35.3	37.2	35.2	34.5	33.4	32.0	32.0	67.9
4	32.9	33.5	28.1	29.0	28.9	28.6	32.7	31.9	27.7	30.8	32.7	36.3	40.1	40.4	39.8	38.9	38.8	38.4	36.9	35.4	35.4	26.1	32.5	26.3	33.4	102.1
5	26.4	31.8	33.5	34.6	31.0	27.4	25.8	25.4	27.4	31.8	35.2	36.4	38.9	39.3	39.6	37.7	36.0	34.7	33.5	31.4	31.2	32.8	31.7	32.5	78.9	
6	32.7	32.0	31.6	30.5	29.9	28.4	27.1	25.1	27.2	27.7	31.9	36.3	40.8	40.6	39.6	38.0	37.0	36.0	32.8	31.6	33.9	34.4	32.6	30.1	32.8	87.8
7	32.6	30.0	30.5	31.5	33.2	30.0	25.3	23.6	25.5	28.2	31.5	35.2	40.0	40.8	40.6	39.8	38.4	37.1	35.7	35.2	38.7	34.5	33.5	33.0	33.5	104.4
8	32.5	31.2	29.9	29.3	27.5	26.0	25.4	28.0	28.6	29.6	31.6	32.7	36.1	37.6	38.0	38.1	37.5	35.4	34.6	34.6	34.5	29.0	33.3	34.1	32.3	75.6
9	33.8	33.2	31.6	31.8	35.0	31.8	29.2	27.1	23.6	25.8	31.0	36.4	39.0	40.7	42.5	41.5	39.9	36.7	36.7	35.3	33.4	34.1	34.5	33.4	34.1	118.0
10	34.0	33.0	28.2	30.9	35.5	28.0	26.0	24.4	26.3	29.8	30.8	33.6	36.8	38.9	38.2	36.7	36.4	35.5	34.3	33.3	32.5	32.7	31.9	33.0	32.5	80.7
11	32.7	31.0	31.7	30.8	28.0	26.6	26.3	25.9	26.9	26.5	32.5	34.9	38.8	38.7	40.8	35.3	34.4	35.5	34.8	34.3	35.4	34.4	33.9	33.1	32.6	83.2
12	32.6	32.1	31.3	30.2	28.9	26.6	26.1	24.5	23.5	24.3	27.9	31.4	34.8	37.2	38.7	39.0	38.8	37.7	34.9	33.6	33.5	33.7	33.8	33.2	32.0	68.3
13	32.6	31.6	31.4	31.0	28.9	28.1	26.3	25.7	25.8	25.9	27.3	31.0	36.2	38.1	38.5	38.9	37.8	35.6	34.1	34.6	33.6	33.6	33.2	32.2	32.2	72.0
14	31.9	31.2	31.5	31.0	29.7	25.2	23.2	23.6	25.0	27.2	30.6	34.6	37.3	38.3	37.9	36.9	35.8	35.2	35.0	34.8	35.0	34.5	30.3	32.7	32.0	68.4
15	31.9	32.4	32.0	31.1	29.2	25.6	23.8	24.3	25.7	29.9	31.4	35.1	39.3	40.6	39.1	37.2	35.7	34.6	34.1	33.9	33.6	34.0	33.5	33.0	32.5	81.0
16	33.6	32.5	32.2	31.7	29.9	26.6	24.6	23.7	23.6	26.7	30.6	33.6	36.4	37.1	36.5	36.2	36.0	34.5	33.7	34.4	34.6	34.2	33.0	34.1	32.1	70.0
17	33.0	31.1	30.5	29.5	28.2	26.1	24.7	24.7	25.2	26.3	29.2	33.0	36.9	38.3	39.3	39.0	38.0	36.7	37.1	37.1	36.7	36.2	31.5	31.3	32.5	79.6
18	30.5	29.7	29.6	27.9																						

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

23 ESKDALEMUIR (Z)		45,000γ (0.45 C.G.S. unit) +																				JUNE 1959				
	Hour G.M.T.												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 7000+
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12														
1	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	919
2	321	316	320	324	326	326	327	327	331	330	323	319	320	329	332	332	337	343	343	342	343	341	335	330	330	999
3	331	330	332	334	334	338	334	328	323	320	308	299	304	318	326	338	355	363	366	358	357	350	341	312	333	999
4	314	299	297	300	312	319	324	327	325	318	313	314	312	320	336	352	364	373	370	363	354	351	347	342	331	946
5	339	319	314	332	337	336	327	315	313	302	297	307	313	320	324	334	348	357	355	346	342	352	339	315	328	883
6	321	327	327	323	318	316	330	340	339	335	320	309	313	315	330	334	348	353	350	351	354	352	342	340	333	987
7	338	338	338	338	342	343	343	342	339	330	323	311	311	321	327	332	342	351	364	362	349	344	343	335	338	1106
8	326	332	338	338	334	328	334	338	334	324	315	305	312	320	321	330	336	341	343	345	345	343	339	337	332	958
9	336	336	335	337	336	336	334	330	324	316	307	299	303	315	324	336	344	359	359	361	358	354	344	342	334	1025
10	336	335	337	337	336	330	326	324	326	321	320	319	330	332	341	350	358	370	377	372	365	354	347	344	341	1187
11	340	321	316	313	294	301	319	332	336	331	323	323	330	335	339	343	343	343	347	347	349	349	344	342	332	960
12	338	337	338	340	343	345	342	336	328	315	301	304	329	331	334	364	377	381	374	361	349	345	343	342	342	1197
13	342	342	343	343	344	348	347	341	334	327	321	318	318	324	330	332	335	335	347	353	352	347	342	338	338	1103
14	338	339	342	342	343	343	344	344	342	334	324	315	315	329	335	335	335	335	336	338	336	334	333	333	335	1044
15	333	334	335	336	338	341	340	338	335	330	328	321	325	330	340	340	342	341	338	337	338	338	335	330	335	1043
16	331	332	337	341	342	342	341	335	332	325	314	300	308	315	323	335	334	334	346	341	342	343	341	340	332	974
17	337	336	332	327	322	321	325	331	332	324	318	316	319	327	330	332	335	342	347	346	343	344	344	342	332	972
18	340	340	341	341	342	341	339	339	335	330	321	321	324	322	326	324	322	332	341	344	343	343	337	336	334	1024
19	337	337	331	329	321	326	332	333	332	320	308	297	307	320	324	326	332	339	344	344	343	341	335	332	329	890
20	331	331	330	327	327	333	327	324	313	309	307	307	305	310	320	327	331	336	338	334	335	336	334	333	325	805
21	329	319	316	323	330	334	330	327	321	318	315	315	313	316	322	327	335	336	333	336	335	334	332	331	326	827
22	330	326	327	328	328	331	332	328	324	324	316	308	304	313	324	326	332	333	341	343	343	340	334	331	328	866
23	329	328	327	321	321	326	328	327	324	314	304	299	300	308	317	329	339	339	338	338	337	334	331	332	325	790
24	327	327	328	334	336	338	330	325	321	318	309	299	301	309	313	320	336	356	366	368	364	360	344	340	332	969
25	320	266	239	225	267	304	326	344	353	348	338	331	332	330	331	338	351	359	370	365	355	348	340	328	325	808
26	325	325	329	334	340	342	344	347	344	335	324	315	313	317	326	330	339	341	342	339	338	338	336	330	333	993
27	321	316	320	324	324	330	330	328	324	320	319	316	320	330	340	349	365	371	361	350	347	344	341	340	335	1030
28	341	339	339	340	342	344	342	335	329	321	313	302	297	305	321	367	388	416	429	389	363	342	322	335	344	1261
29	324	298	293	265	263	276	284	293	299	305	322	327	343	355	390	428	440	434	418	393	384	383	364	348	343	1229
30	323	331	335	336	313	301	312	318	314	316	326	320	328	336	354	389	438	431	408	397	384	336	315	341	346	1302
31	321	289	307	323	336	344	347	353	351	342	334	340	342	374	440	474	455	437	407	387	374	361	349	344	364	1731
Mean	331	325	325	325	326	329	331	332	329	323	317	313	316	324	335	346	354	359	360	355	351	346	339	336	335	919
Sum 9000+	919	745	743	755	791	883	940	949	877	702	511	376	491	726	1040	1373	1631	1775	1798	1651	1520	1383	1179	1070	919	Grand Total 240,828

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

24 ESKDALEMUIR		TERRESTRIAL MAGNETIC ELEMENTS										3-hr. range indices K		Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +	
		Horizontal force			Declination			Vertical force			K	K					
		Maximum 16,000γ +	Minimum 16,000γ +	Range	Maximum 10° +	Minimum 10° +	Range	Maximum 45,000γ +	Minimum 45,000γ +	Range							
1	h. m.	γ	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	3, 2, 2, 2, 2, 2, 3, 2	18	0	83.3		
2	18 02	807	724	00 06	83	14 22	40.1	23.2	06 22	16.9	18 32	345	315	01 18	30	1	83.3
3	18 24	849	713	13 14	136	13 32	43.3	23.2	06 05	20.1	18 52	367	284	24 00	83	2	83.3
4	16 19	821	671	11 59	150	14 53	41.4	19.0	03 28	22.4	17 53	375	282	00 02	93	3	83.1
5	20 31	824	692	11 24	132	12 22	41.1	18.2	23 57	22.9	17 40	360	293	10 09	67	3	83.3
6	15 57	795	707	10 18	88	15 17	41.2	19.3	00 00	21.9	20 13	355	308	11 53	47	4	83.0
7	17 23	834	694	10 31	140	12 43	42.2	23.8	07 52	18.4	18 58	367	304	12 00	63	2	83.1
8	18 33	818	716	10 28	102	12 42	41.4	22.5	07 52	18.9	20 22	346	302	11 51	44	3	83.1
9	18 14	828	725	08 38	103	14 49	39.1	24.1	05 51	15.0	19 04	362	296	11 49	66	1	83.1
10	18 17	830	688	10 38	142	14 18	43.3	22.5	08 53	20.8	18 34	379	319	10 07	60	3	83.0
11	18 27	791	707	09 38	84	13 24	39.6	22.6	07 44	17.0	21 04	351	288	04 52	63	3	83.2
12	14 53	910	682	10 26	228	14 43	43.8	23.6	09 13	20.2	16 57	386	297	10 36	89	1	83.2
13	17 42	822	711	11 35	111	16 08	39.6	22.7	09 08	16.9	20 02	354	315	12 11	39	1	83.2
14	18 36	788	698	10 28	90	15 53	39.3	25.4	09 28	13.9	06 24	344	310	12 08	34	1	83.2
15	22 07	803	706	13 14	97	14 13	39.5	22.0	06 58	17.5	14 49	343	319	11 53	24	1	83.3
16	20 02	798	713	07 54	85	14 07	41.2	21.6	06 08	19.6	18 32	347	298	11 46	49	0	83.4
17	20 42	813	717	09 36	96	13 43	37.5	23.1	08 13	14.4	18 30	347	315	11 34	32	2	83.3
18	20 27	827	721	09 58	106	14 53	40.2	24.3	06 59	15.9	19 18	346	318	10 55	28	0	83.3
19	18 24	814	715	13 34	99	14 07	43.8	21.9	06 40	21.9	19 08	346	296	11 43	50	2	83.3
20	17 43	792	702	09 55	90	14 37	44.6	24.0	07 12	20.6	18 35	338	302	12 03	36	1	83.4
21	18 31	817	715	10 31	102	14 02	44.4	21.7	06 44	22.7	17 13	337	311	12 45	26	0	83.4
22	18 06	836	724	10 32	112	14 15	42.3	23.2	08 20	19.1	20 03	347	301	12 22	46	2	83.5
23	19 02	845	694	10 50	151	14 13	45.6	20.1	07 37	25.5	17 29	342	298	11 05	44	1	83.4
24	18 10	860	710	10 46	150	15 47	45.1	21.9	06 03	23.2	19 11	370	297	11 56	73	3	83.4
25	18 54	845	678	10 57	167	14 22	42.4	15.2	03 00	27.2	18 39	372	215	03 34	157	4	83.4
26	20 23	817	697	09 34	120	13 51	43.6	23.7	07 37	19.9	07 20	348	309	11 54	39	2	83.4
27	18																

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

21 ESKDALEMUIR (H)		16,000γ (0.16 C.G.S. unit) +																				JULY 1959				
	Hour G.M.T.												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 16,000+
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12														
1 q	738	735	735	732	731	730	723	708	703	700	698	697	705	722	737	744	762	768	783	779	776	772	776	764	738	1718
2	747	754	769	750	726	722	708	720	720	721	713	708	700	713	733	757	747	768	773	770	768	762	760	758	740	1767
3 q	761	760	767	768	768	762	753	738	714	701	700	705	725	750	767	774	784	785	787	785	777	778	778	776	757	2163
4	776	778	780	781	783	776	767	754	739	722	703	710	724	735	768	806	764	789	834	839	838	795	793	790	773	2544
5	772	772	777	785	779	784	775	757	747	742	730	738	737	751	762	781	801	802	807	791	800	786	782	775	772	2533
6	770	774	776	777	775	773	767	760	740	726	717	728	746	765	750	784	804	793	797	785	792	788	783	775	769	2445
7	776	782	779	775	777	779	781	764	733	723	735	730	743	743	754	760	769	789	787	795	782	774	772	773	766	2375
8	773	774	777	781	780	775	765	752	727	726	734	728	749	737	762	757	775	807	809	803	783	774	775	770	766	2393
9	763	764	766	769	757	764	733	752	754	735	726	727	719	722	749	779	817	769	779	788	803	780	774	779	761	2268
10	766	766	767	787	776	792	785	756	757	752	724	710	706	718	742	763	783	800	803	793	782	779	775	771	765	2353
11	772	764	760	761	752	749	756	749	735	718	710	710	717	721	757	779	869	841	925	861	856	863	857	804	783	2786
12	763	720	759	762	765	772	765	748	733	731	717	705	699	722	740	749	767	777	780	772	770	767	761	750	2011	
13 q	748	747	745	738	749	748	741	742	726	730	727	728	717	724	747	765	772	768	770	773	783	774	774	754	1990	
14	758	754	760	758	740	740	758	734	706	707	708	699	707	758	761	752	765	805	784	767	769	767	762	761	1980	
15 d	772	764	759	742	713	735	737	742	236	339	601	650	706	770	864	2012	2253	1433	756	849	946	776	404	474	835	4033
16 d	557	623	616	600	641	659	643	632	639	653	660	686	693	720	739	784	753	749	770	790	730	733	750	749	690	569
17 d	707	709	716	701	665	687	674	676	672	652	672	680	688	707	740	759	897	1069	1081	1109	859	819	668	700	763	2307
18 d	729	668	633	599	554	448	501	535	611	642	677	686	690	694	732	785	801	759	801	789	772	737	738	708	679	289
19	693	680	712	718	694	698	690	688	672	668	681	702	718	722	772	804	822	799	799	767	767	764	747	743	730	1520
20	735	732	737	738	745	733	717	695	681	678	679	690	715	722	739	764	795	798	796	794	777	769	775	776	741	1780
21	752	742	739	737	728	744	733	718	710	695	682	690	695	730	752	765	772	809	792	789	785	772	761	766	744	1858
22	760	758	756	753	750	748	736	727	725	706	691	703	714	740	762	762	763	775	771	779	777	790	803	758	750	2007
23	746	745	762	754	745	732	739	747	732	714	696	693	702	692	724	748	766	773	780	791	782	755	757	758	743	1833
24	774	777	757	762	763	752	741	743	741	739	736	748	726	762	760	790	792	835	836	821	799	791	762	750	769	2457
25 d	747	756	758	750	740	728	740	726	691	676	704	707	718	723	738	760	765	812	851	839	786	763	752	757	749	1987
26	747	742	751	724	742	741	734	706	699	692	692	704	704	764	749	781	817	862	836	804	787	743	739	736	750	1996
27	740	731	712	735	746	733	724	708	701	683	681	696	712	731	739	770	781	809	793	787	798	771	753	751	741	1785
28	751	754	753	747	746	742	723	713	708	707	703	701	726	727	720	739	749	775	782	777	777	768	759	758	742	1805
29 q	752	752	757	732	747	745	738	743	732	721	715	719	725	753	755	761	769	770	784	770	769	763	765	758	750	1995
30 q	757	752	756	758	760	758	752	742	727	718	715	716	730	733	744	755	757	767	771	768	776	780	778	775	752	2045
31	775	777	780	771	746	762	760	755	750	739	718	718	738	725	742	749	758	781	778	785	779	785	765	765	758	2201
Mean	748	745	747	743	738	736	731	723	699	695	701	707	716	732	752	808	832	821	806	803	792	775	755	751	752	
Sum 21,000+	2177	2106	2171	2045	1883	1811	1659	1430	661	556	745	912	1194	1696	2300	4038	4789	4436	3995	3909	3545	3038	2404	2293	Grand Total 559,793	

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

22 ESKDALEMUIR (D)		10° +																				JULY 1959				
	Hour G.M.T.												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 600.0+
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12														
1 q	30.8	30.1	30.7	29.9	28.2	25.1	23.4	22.6	22.9	26.0	29.6	31.8	33.7	36.5	38.4	37.2	35.7	34.2	33.5	33.5	33.6	32.6	29.6	31.0	143.1	
2	28.2	28.6	25.8	27.5	35.5	34.4	27.5	25.4	24.9	25.7	29.0	32.8	36.6	38.8	39.6	38.6	36.3	35.7	35.4	34.3	33.6	33.0	32.2	31.1	32.1	170.5
3 q	30.7	30.2	29.1	26.4	27.4	26.3	24.6	22.9	23.7	26.8	30.4	34.9	38.7	41.6	42.6	40.9	39.1	37.5	36.2	35.7	34.5	34.0	33.5	32.9	32.5	180.6
4	32.4	31.9	31.4	30.4	29.0	27.1	26.4	25.5	25.4	26.2	33.5	39.7	42.7	42.6	41.2	39.1	35.8	37.3	38.7	35.5	35.0	32.9	35.9	31.0	33.6	206.6
5	28.0	29.6	30.0	30.1	32.9	31.1	29.0	29.6	28.3	29.5	31.9	34.6	38.1	40.1	40.0	37.9	35.4	32.3	30.9	29.7	30.6	34.4	33.6	33.7	32.6	181.3
6	32.8	32.3	32.9	30.7	28.5	26.8	24.8	25.8	26.5	30.3	33.7	37.1	40.2	40.2	40.8	41.0	38.0	35.1	34.6	33.6	33.0	34.2	31.9	29.5	33.1	194.3
7	31.1	30.4	30.7	34.7	27.6	26.0	24.9	25.4	26.4	31.7	32.7	33.6	35.9	37.0	38.7	39.2	38.0	36.8	35.0	34.9	35.0	34.1	33.1	31.3	32.7	184.2
8	31.7	31.1	32.0	34.9	30.2	27.4	26.7	26.5	30.2	32.6	34.8	34.1	35.7	37.9	38.9	36.9	38.0	36.6	33.6	33.7	33.8	33.1	33.6	32.9	33.2	196.9
9	32.5	32.2	31.5	32.6	34.5	32.3	32.0	32.4	29.5	29.8	31.5	33.5	36.5	38.2	40.6	40.7	38.9	39.9	34.3	33.9	31.5	29.8	33.3	34.6	33.8	210.5
10	32.2	29.7	33.3	35.7	37.3	29.6	28.4	28.3	26.5	24.7	26.3	30.7	34.6	37.1	38.0	38.4	38.0	36.4	34.2	33.1	32.7	32.2	32.6	31.3	32.6	181.3
11	32.9	36.8	32.4	26.9	28.5	29.0	30.6	26.0	24.3	25.9	29.8	34.3	38.6	41.5	41.9	41.4	41.4	45.0	44.5	42.7	44.0	42.2	42.7	39.4	35.9	262.7
12	34.6	25.4	25.9	24.4	21.5	20.1	20.9	21.7	23.5	25.9	28.5	30.8	32.7	36.7	36.8	39.8	40.2	37.3	36.4	35.6	34.8	33.9	33.4	32.1	30.5	132.9
13 q	29.7	30.0	28.7	28.2	27.9	27.3	26.5	25.7	24.9	25.6	28.0	30.6	33.1	36.6	38.3	37.1	35.8	36.1	35.3	34.3	33.2	32.1	31.1	31.0	31.1	147.1
14	31.5	32.7	33.5	33.6	34.6	29.4	25.6	26.3	27.9	30.5	31.6	33.8	38.5	41.0	38.7	40.5	40.5	38.3	34.5	33.7	35.0	34.8	33.6	32.3	33.9	212.4
15 d	34.1	29.3	26.3	34.3	19.4	20.7	20.8	21.7	12.0	-3.1	2.7	27.7	27.8	37.0	47.4	32.2	96.3	81.2	66.0	54.5	46.6	28.6	32.2	23.6	34.1	

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

23 ESKDALENIUR (Z)		45,000γ (0.45 C.G.S. unit) +																				JULY 1959					
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 7000+
1	q	342	344	342	341	342	346	353	355	358	346	336	327	328	335	336	341	346	348	348	348	347	347	342	330	343	1228
2	q	323	319	290	282	270	271	285	303	327	340	342	341	345	350	356	364	370	369	363	354	348	348	346	345	331	951
3	q	343	343	338	336	342	343	343	342	340	330	313	302	304	304	313	324	332	336	338	336	336	334	335	335	331	942
4	q	335	336	336	338	339	340	337	339	339	334	328	315	311	318	324	334	349	347	342	354	354	342	343	331	336	1065
5	q	330	330	334	337	338	329	330	330	326	329	326	320	332	346	347	353	356	368	376	381	372	355	347	343	343	1235
6	q	342	342	341	340	344	344	345	344	342	336	335	336	336	350	361	356	355	360	357	355	354	351	349	345	347	1320
7	q	337	337	332	324	331	338	342	347	351	348	346	346	336	344	354	359	367	372	374	363	353	346	343	342	347	1332
8	q	342	342	340	332	324	327	330	330	333	331	328	326	327	336	346	358	360	365	377	374	362	354	344	339	343	1227
9	q	339	339	341	336	330	318	320	313	318	325	327	317	323	331	336	340	355	373	363	360	361	364	351	342	338	1122
10	q	328	320	313	326	320	316	324	333	339	342	339	337	339	342	342	344	349	354	356	355	349	346	341	339	337	1093
11	q	336	312	286	289	290	309	309	314	323	328	322	318	320	332	337	343	343	348	364	393	399	393	382	330	334	1020
12	q	303	316	339	344	353	361	361	358	353	347	343	338	341	347	369	367	368	367	361	353	347	347	345	344	349	1372
13	q	342	340	331	333	339	342	341	342	343	334	330	317	324	332	339	353	363	358	349	346	344	343	342	338	340	1165
14	q	333	325	322	309	309	315	328	336	341	339	338	337	335	354	383	370	361	365	371	364	353	346	342	342	342	1218
15	d	338	315	302	265	278	314	330	332	365	336	313	314	330	454	492	710	254	262	398	492	364	440	224	148	349	1370
16	d	231	313	354	373	389	408	414	411	411	406	402	393	386	385	396	408	406	400	394	384	377	373	364	345	380	2123
17	d	342	355	365	359	327	309	337	352	358	362	359	360	371	382	385	384	384	399	402	428	366	353	234	183	352	1456
18	d	285	239	216	142	177	121	163	277	338	383	398	397	390	388	399	392	400	388	400	408	404	378	353	350	324	786
19	q	326	305	304	302	315	342	356	376	385	381	382	378	373	381	388	393	402	393	386	381	376	367	353	353	362	1698
20	q	344	335	337	332	333	341	350	353	353	351	353	357	353	348	356	363	370	388	393	385	377	369	355	324	355	1520
21	q	324	337	342	347	348	351	357	358	358	354	347	341	336	344	357	365	366	370	373	373	374	363	355	351	354	1491
22	q	342	327	330	339	349	353	355	357	358	351	342	336	338	346	355	371	376	371	361	354	355	353	334	326	349	1379
23	q	317	294	320	335	346	343	341	344	342	341	342	331	331	342	343	348	351	355	358	359	364	370	358	353	343	1228
24	q	338	324	334	342	349	353	351	343	338	326	323	324	320	320	332	346	354	365	382	352	348	355	321	329	340	1169
25	d	330	309	304	322	334	332	343	352	353	354	349	343	342	346	358	368	372	370	390	399	381	371	347	330	350	1399
26	q	339	338	331	312	326	346	350	358	358	354	349	341	337	341	358	364	380	392	398	393	370	356	330	290	350	1411
27	q	307	323	284	302	330	337	343	348	350	344	343	348	352	354	358	361	373	377	385	376	366	336	338	346	345	1281
28	q	346	321	322	336	352	359	360	358	354	346	338	337	334	339	350	350	353	355	363	364	358	356	349	346	348	1346
29	q	347	343	339	332	315	324	330	336	342	333	330	331	335	333	340	346	353	358	355	354	354	353	349	348	341	1180
30	q	347	345	343	344	349	354	355	354	353	341	332	326	319	324	336	343	347	349	347	347	344	343	343	343	343	1228
31	q	343	339	335	334	336	327	332	336	338	338	333	330	327	338	344	353	364	374	382	377	370	354	350	350	346	1304
Mean		330	326	324	322	327	330	336	343	348	345	341	337	338	348	358	370	361	364	371	373	362	358	339	328	345	
Sum 9000+		1221	1107	1047	985	1124	1213	1415	1631	1787	1710	1588	1464	1475	1786	2090	2471	2179	2296	2506	2562	2227	2106	1509	1160		Grand Total 256,659

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

24 ESKDALENIUR		TERRESTRIAL MAGNETIC ELEMENTS										3-hr. range indices K		Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +				
		Horizontal force			Declination			Vertical force												
		Maximum 16,000γ +	Minimum 16,000γ +	Range	Maximum 10° +	Minimum 10° +	Range	Maximum 45,000γ +	Minimum 45,000γ +	Range										
		h. m. γ	γ h. m.	γ	h. m.	h. m.	h. m.	h. m. γ	γ h. m.	γ										
1	q	18 12	787	695	10 54	92	14 48	38.9	21.9	07 42	17.0	08 38	359	322	24 00	37	1,1,1,1,1,2,1,2	10	0	83.5
2	q	02 30	784	696	12 10	88	14 18	41.4	21.4	02 58	20.0	16 32	371	267	04 38	104	3,4,3,2,1,3,1,1	18	1	83.5
3	q	19 07	797	697	10 05	100	14 13	43.1	22.2	07 13	20.9	00 12	403	301	11 43	102	1,2,2,1,3,2,2,1	14	0	83.5
4	q	20 42	866	696	10 32	170	12 40	43.3	24.5	09 01	18.8	20 03	363	309	12 19	54	1,0,1,3,3,5,4,3	20	1	83.6
5	q	20 08	823	714	10 48	109	13 36	41.2	25.8	20 02	15.4	19 46	384	319	11 31	65	3,3,3,3,3,2,3,2	22	1	83.6
6	q	19 50	817	714	10 47	103	15 18	43.2	24.2	06 22	19.0	14 43	364	333	10 25	31	1,1,2,2,4,3,3,2	18	1	83.6
7	q	17 37	805	700	09 02	105	15 06	40.7	24.2	07 07	16.5	18 14	376	319	03 40	57	2,3,3,3,3,4,2,2	22	1	83.6
8	q	18 11	830	714	09 12	116	14 31	40.4	25.5	07 32	14.9	18 40	381	319	04 20	62	2,3,3,3,4,4,3,2	24	1	83.6
9	q	16 42	834	705	12 38	129	15 03	41.5	27.0	21 02	14.5	17 27	376	310	07 41	66	1,3,3,2,3,4,4,3	23	1	83.6
10	q	18 46	810	703	12 49	107	03 57	40.3	23.4	09 49	16.9	18 53	358	308	02 08	50	3,3,3,3,2,2,3,1	20	1	83.5
11	q	16 27	1001	700	10 27	301	16 28	51.1	23.2	08 38	27.9	20 23	401	282	23 47	119	3,4,3,2,3,6,5,5	31	1	83.5
12	q	00 23	798	680	12 49	118	15 52	42.1	19.1	05 29	23.0	14 40	375	286	00 57	89	4,3,3,3,4,3,2,2	24	1	83.6
13	q	16 02	798	706	13 12	92	14 49	39.8	23.6	08 33	16.2	16 33	363	315	11 33	48	2,2,2,2,3,3,2,3	19	1	83.6
14	q	17 53	814	691	11 11	123	13 57	42.2	23.3	06 58	18.9	14 33	388	303	04 02	85	2,3,3,2,4,3,3,1	21	1	83.7
15	d	15 55	3430	-652	08 52	4102	16 52	218.0	-46.3	09 13	264.3	15 41	927	-542	16 50	1469	3,4,7,7,6,9,7,7	50	2	83.6
16	d	19 09	849	430	00 46	419	14 30	39.6	11.7	00 39	27.9	06 22	418	224	00 00	194	6,5,4,3,4,4,5,4	35	2	83.7
17	d	16 41	1373	370	23 00	1003	19 04	59.3	3.1	21 20	56.2	19 42	497	69	22 58	428	3,4,3,3,3,7,7,8	38	2	83.7
18	d	16 00	966	358	05 48	608	01 26	57.4	12.6	08 30	44.8	18 54	415	39	05 50	376	7,7,6,5,4,6,4,5	44	2	83.8
19	q	16 42	879	646	10 12	233	13 43	38.5	17.1	07 13	21.4	16 42	408	293	01 02	115	4,3,3,4,4,5,4,3	30	1	83.8
20																				

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

21 ESKDALEMUIR (H)		16,000γ (0.16 C.G.S. unit) +																				AUGUST 1959				
	Hour G.M.T.		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 16,000+
	0-1	1-2																								
1	779	775	767	758	757	775	769	731	745	742	718	710	727	736	741	794	789	802	792	777	780	778	776	777	762	2295
2	764	752	764	761	735	730	742	739	724	706	700	705	726	734	749	762	751	776	768	787	778	771	768	772	749	1964
3	767	783	759	766	762	754	752	710	737	743	722	707	681	703	725	738	775	789	784	796	780	766	758	758	751	2015
4	759	759	755	742	748	756	756	739	735	705	689	731	712	730	744	733	774	792	794	792	780	764	756	749	750	1994
5	749	751	761	759	756	749	731	724	718	717	718	717	725	732	759	756	763	799	781	785	781	771	762	754	751	2018
6	752	754	755	754	760	758	755	746	732	727	737	725	708	725	725	749	791	856	787	773	782	770	765	755	756	2141
7	743	755	758	757	773	761	751	737	728	715	699	694	703	728	736	766	799	780	773	774	783	763	766	759	750	2001
8	755	759	755	759	758	753	739	724	716	711	705	722	720	740	770	780	769	774	774	771	769	770	787	752	751	2032
9	741	748	762	758	761	755	739	710	694	694	689	671	700	728	756	768	785	840	818	786	761	747	751	753	746	1915
10	747	751	750	740	747	752	736	719	710	697	691	695	710	716	710	720	754	759	793	780	763	765	767	768	739	1740
11	763	760	753	753	753	751	745	734	720	714	717	729	733	743	763	782	763	764	774	771	765	769	765	765	752	2049
12 q	769	771	768	763	758	754	746	744	747	745	742	733	728	730	755	768	785	773	773	773	775	771	768	765	759	2204
13 q	759	761	760	760	765	759	759	748	736	729	722	723	726	737	758	757	758	773	778	793	784	775	776	771	757	2167
14 q	767	768	772	768	765	763	760	750	742	733	728	730	734	747	745	756	755	767	785	775	783	776	773	773	759	2215
15	768	773	768	776	771	770	765	760	745	731	734	741	754	758	784	754	765	787	807	807	805	801	762	766	769	2452
16 d	765	770	760	766	778	751	711	672	701	694	734	689	805	924	796	815	1023	889	807	754	695	706	646	602	761	2253
17 d	505	502	680	542	653	550	550	559	571	598	592	653	721	782	748	769	850	849	720	733	737	742	718	729	669	53
18	725	726	718	678	701	711	677	673	691	690	660	650	674	733	714	734	741	791	789	755	758	749	748	746	718	1232
19	743	741	752	724	726	737	715	705	702	680	664	675	691	709	720	741	748	775	803	775	769	756	754	751	731	1556
20 d	751	756	742	734	765	806	775	786	756	737	729	708	723	743	745	752	765	770	768	772	774	762	754	762	756	2135
21 d	787	729	736	746	745	734	721	724	714	683	690	690	689	711	721	731	780	778	822	787	772	754	744	722	738	1710
22	729	752	736	736	741	733	715	726	729	704	681	689	705	721	734	741	789	761	765	777	809	771	746	745	739	1735
23 d	754	753	761	748	732	748	757	744	722	699	687	698	688	726	745	731	776	805	779	771	765	760	756	748	744	1853
24	751	753	744	743	743	746	741	724	691	676	686	697	701	713	734	731	763	767	775	773	771	763	754	748	737	1688
25	756	765	756	761	745	737	737	725	716	694	686	694	698	718	749	787	778	759	771	767	767	774	768	765	745	1873
26	757	756	753	753	753	746	737	714	701	704	700	704	712	731	748	754	763	765	767	775	774	766	760	764	744	1857
27 q	768	768	756	754	753	750	737	724	714	705	706	715	731	741	744	749	753	758	766	766	767	765	762	760	746	1912
28 q	759	760	758	758	753	748	741	734	726	717	710	705	717	731	743	750	758	761	766	772	776	776	775	778	749	1972
29	783	779	768	766	765	762	767	759	743	728	718	717	740	729	734	767	756	761	778	794	806	798	793	788	762	2299
30	765	765	758	756	741	746	736	732	712	701	707	706	716	723	744	765	759	764	760	773	769	766	761	764	745	1889
31	766	765	764	761	761	759	747	731	706	699	698	693	713	701	713	741	745	765	779	783	771	767	760	751	743	1839
Mean	750	750	753	745	749	745	736	724	717	707	702	704	717	736	744	756	778	785	781	776	773	765	758	753	746	
Sum 21,000+	2246	2260	2349	2100	2224	2104	1809	1447	1224	918	759	816	1211	1823	2052	2441	3123	3349	3196	3067	2949	2732	2499	2360		Grand Total 555,058

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

22 ESKDALEMUIR (D)		10° +																				AUGUST 1959				
	Hour G.M.T.		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 600.0+
	0-1	1-2																								
1	32.1	28.6	29.0	33.7	33.2	29.7	27.2	29.9	30.6	27.8	29.4	35.0	38.9	39.7	39.4	40.0	29.2	34.9	30.0	33.9	34.7	34.5	33.3	31.3	32.7	186.0
2	25.7	24.4	29.0	26.4	26.9	28.3	28.8	29.8	28.8	26.3	29.1	33.5	36.4	37.2	37.2	35.6	33.8	33.6	31.9	30.1	33.0	33.2	32.6	33.1	31.0	144.7
3	31.0	32.1	31.2	26.5	22.8	21.9	23.5	24.7	27.0	25.5	28.3	31.3	33.9	36.5	38.7	37.1	35.9	32.8	30.8	31.7	31.0	30.7	32.0	31.4	30.3	128.3
4	30.9	31.4	31.3	28.7	26.4	24.6	24.9	28.4	23.9	25.5	31.3	34.6	37.3	40.0	37.9	36.0	35.6	32.7	29.8	31.2	32.0	29.5	25.4	31.4	30.9	140.7
5	31.6	31.3	31.8	30.8	29.2	28.2	27.5	25.5	25.9	29.8	32.2	36.2	38.7	38.6	37.7	34.6	32.8	31.7	29.1	32.1	32.8	31.3	31.2	31.7	31.8	162.3
6	31.7	31.8	31.3	30.8	32.9	26.8	23.7	26.3	29.2	30.7	37.7	37.7	39.9	41.2	40.4	37.7	35.6	34.1	30.7	29.7	28.2	31.9	32.8	33.7	32.2	172.5
7	26.4	28.7	29.8	32.8	29.8	24.6	26.8	26.8	25.4	27.8	32.4	35.6	39.3	42.7	43.0	41.3	34.7	33.6	33.7	31.7	29.6	33.4	33.9	32.8	32.4	176.6
8	30.6	31.5	30.6	29.9	27.7	25.7	26.8	27.4	29.5	31.0	33.5	37.2	39.8	40.9	42.3	39.2	35.4	33.8	32.7	33.6	33.3	33.0	31.8	25.5	32.6	182.7
9	25.6	28.9	30.7	27.0	26.6	25.0	23.3	24.0	27.5	29.3	33.9	37.6	41.8	44.2	44.4	39.6	38.2	37.0	33.7	29.7	30.7	32.7	33.0	32.5	32.4	176.9
10	31.8	31.5	32.3	33.3	25.0	24.2	22.8	22.5	23.3	27.5	30.4	34.6	37.4	39.5	39.1	38.0	35.0	33.3	32.7	31.5	32.2	33.9	32.8	31.3	31.5	155.9
11	33.7	29.2	30.3	31.5	25.2	24.6	24.3	24.8	25.5	26.2	29.9	34.2	37.2	37.8	37.5	36.2	31.0	32.3	32.8	33.5	33.2	32.8	31.3	31.0	31.1	146.0
12 q	30.3	30.6	29.5	29.2	27.9	26.3	23.8	23.1	24.1	25.9	28.6	31.7	35.3	37.9	39.8	39.7	38.5	35.6	34.0	33.1	31.8	32.1	30.6	31.1	31.3	150.5
13 q	28.7	29.7	29.7	28.9	29.2	27.1	25.2	24.3	25.1	26.1	29.7	33.1	37.6	39.4	39.1	36.7	33.8	33.4	33.9	34.3	33.7	33.3	32.4	31.7	31.5	156.1
14 q	30.7	30.0	29.6	27.9	26.4	24.5	24.3	23.5	24.2	26.1	29.9	33.2	36.5	39.8	40.2	39.2	35.8	33.6	33.3	33.0	33.1	32.7	31.4	31.2	31.3	150.1
15	29.5	29.3	30.3	27.4	26.0	24.8	23.4	23.6	22.9	26.1	31.4	36.5	41.8	43.1	44.1	40.5	38.2	36.8	36.5	36.9	36.1	34.1	26.2	27.2	32.2	172.7
16 d	18.9	19.8	26.0	25.3	22.9	17.2	18.4	32.0	35.1	36.9	36.5	39.0	47.6	42.8	38.3	47.6	32.6	30.1	35.7	29.8	29.5	24.0	27.1	14.7		

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

23 ESKDALEMUIR (Z)		45,000γ (0.45 C.G.S. unit) +																				AUGUST 1959				
	Hour G.M.T.																				Mean	Sum 7000+				
	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	γ	
1	342	329	330	324	325	330	335	342	341	344	344	339	343	358	367	373	379	386	390	370	360	355	354	352	351	1412
2	342	342	326	299	309	316	323	327	332	332	333	335	336	352	361	364	372	377	382	375	364	356	354	350	344	1259
3	351	338	322	315	326	344	347	351	347	348	343	332	337	341	347	359	372	376	370	366	366	361	355	354	349	1368
4	353	352	351	348	348	348	348	350	346	341	347	344	348	349	365	372	373	381	383	374	366	355	341	338	355	1521
5	347	350	349	352	355	355	355	355	355	353	342	330	327	332	346	351	366	370	377	381	365	362	359	353	353	1485
6	351	350	348	350	347	345	350	353	351	344	337	331	335	339	351	355	372	399	435	418	393	371	361	340	359	1626
7	318	337	343	344	343	344	354	353	353	343	331	327	332	336	344	357	384	393	389	385	381	359	351	347	352	1448
8	339	338	341	346	351	354	353	350	342	341	340	336	335	335	350	369	376	370	365	354	350	348	344	342	349	1369
9	336	333	316	338	350	355	357	354	347	342	330	327	324	340	366	395	412	429	423	419	403	390	373	364	363	1723
10	357	358	351	332	342	351	359	364	359	351	346	340	337	342	349	354	362	370	376	378	378	370	357	348	342	1495
11	330	330	331	328	339	346	355	360	351	339	331	324	330	339	353	367	380	370	361	355	354	351	353	349	347	1326
12 q	346	345	346	347	349	348	348	346	342	336	336	331	332	333	335	342	347	344	350	348	349	348	348	346	343	1242
13 q	339	340	342	343	344	341	335	334	332	333	330	324	316	319	334	349	355	355	350	348	353	354	351	349	340	1170
14 q	348	347	345	342	343	347	347	348	348	342	330	330	327	335	344	346	352	352	348	348	348	350	351	349	344	1267
15	348	346	336	333	339	341	343	341	331	327	320	321	312	319	330	347	347	353	362	367	367	366	337	335	340	1168
16 d	320	336	346	348	348	348	343	311	286	274	273	304	372	531	511	486	570	512	480	440	383	343	275	197	372	1937
17 d	160	170	134	75	99	148	194	252	328	371	408	430	462	489	495	495	508	480	407	389	386	349	337	353	330	919
18	355	359	361	333	312	301	311	317	328	335	338	332	333	353	374	384	389	389	400	380	367	362	355	338	350	1406
19	348	354	336	325	301	292	311	319	336	348	346	340	336	341	351	359	363	366	385	400	382	367	360	357	347	1323
20 d	349	348	345	337	300	302	320	321	327	323	320	316	319	332	349	355	357	355	354	349	349	348	348	348	336	1071
21 d	326	320	320	324	325	336	338	336	336	333	331	334	336	342	354	370	382	396	390	382	362	344	332	308	344	1257
22	275	288	315	332	343	348	342	332	342	350	347	341	343	344	350	355	362	373	372	365	359	337	341	344	342	1200
23 d	342	321	322	327	324	321	329	342	350	348	344	342	350	355	367	374	369	399	408	388	370	358	343	329	351	1422
24	307	320	317	330	342	328	342	346	351	355	354	347	338	343	355	371	372	370	361	358	354	355	351	341	346	1308
25	339	329	337	342	344	346	349	350	350	348	346	330	332	331	339	371	385	372	353	351	349	345	340	334	346	1312
26	321	331	339	345	347	351	350	348	342	327	328	321	316	318	330	341	345	344	343	344	346	345	345	341	338	1108
27 q	330	313	320	333	339	344	351	351	346	340	326	319	314	323	336	344	344	342	342	343	344	343	342	341	336	1070
28 q	341	341	343	344	346	346	347	348	340	332	320	314	318	320	325	335	338	335	335	339	341	341	341	341	336	1071
29	337	339	339	340	341	344	345	347	339	328	322	322	323	335	353	360	358	354	345	342	341	337	337	338	340	1166
30	343	347	347	348	351	355	360	364	363	356	347	343	341	352	363	371	379	376	368	357	354	349	348	347	355	1529
31	345	345	344	343	347	352	356	356	349	356	355	355	356	348	349	356	362	363	362	366	363	354	345	341	353	1468
Mean	332	332	330	328	330	333	339	341	341	340	337	334	338	350	360	369	379	379	377	370	363	353	346	339	347	
Sum 10,000+	285	296	242	167	219	327	497	568	588	529	433	358	465	840	1148	1442	1736	1758	1670	1463	1236	957	714	508		Grand Total 258,446

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

24 ESKDALEMUIR		TERRESTRIAL MAGNETIC ELEMENTS										3-hr. range indices K	Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +				
	Horizontal force			Declination			Vertical force			°A.									
	Maximum 16,000γ +	Minimum 16,000γ +	Range	Maximum 10° +	Minimum 10° +	Range	Maximum 45,000γ +	Minimum 45,000γ +	Range										
1	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	3,3,4,4,4,4,3,2	27	1	83.8					
2	18 18	812	691	10 32	121	14 06	39.0	19.9	00 58	19.1	18 42	384	296	03 31	88	3,3,3,2,2,3,4,2	22	1	83.8
3	17 54	813	662	12 28	151	15 03	39.5	20.9	06 00	18.6	16 58	377	311	03 43	66	3,2,4,3,4,4,3,1	24	1	83.8
4	17 26	812	670	09 57	142	13 30	40.5	20.9	22 21	19.6	18 19	385	331	23 02	54	2,3,1,4,4,4,3,3	24	1	83.8
5	17 37	822	712	10 01	110	13 13	39.8	24.9	07 47	14.9	18 17	385	327	11 23	58	2,1,2,2,3,4,3,2	19	1	83.8
6	17 43	878	681	12 17	197	14 11	42.5	22.6	06 10	19.9	18 53	445	324	24 00	121	1,3,2,3,3,5,5,3	25	1	83.8
7	16 42	814	686	11 48	128	13 40	44.1	23.1	00 33	21.0	17 12	396	313	00 22	83	3,3,2,3,3,4,3,2	23	1	83.8
8	15 23	801	699	10 24	102	14 18	43.3	24.3	23 37	19.0	16 22	377	331	13 10	46	2,1,2,3,3,3,1,4	19	1	83.8
9	17 52	853	663	11 43	190	14 47	45.1	22.3	06 50	22.8	17 32	431	308	02 21	123	4,1,3,3,4,4,5,2	26	1	83.8
10	18 20	802	683	10 16	119	13 33	41.6	21.1	06 53	20.5	19 55	380	326	03 50	54	3,4,2,1,4,4,3,2	23	1	83.8
11	15 51	791	711	09 43	80	13 43	38.4	23.4	06 41	15.0	16 29	384	325	00 35	59	3,3,1,2,3,3,1,2	18	0	83.8
12 q	16 12	790	723	12 36	67	15 03	40.3	22.2	07 10	18.1	17 30	351	331	12 02	20	2,1,2,2,2,2,1,2	14	0	83.8
13 q	19 42	803	714	11 06	89	13 30	40.5	23.9	07 35	16.6	16 24	356	316	12 33	40	1,2,1,2,2,2,3,2	15	0	83.8
14 q	18 27	800	721	10 27	79	13 53	41.7	22.2	07 11	19.5	16 43	353	327	12 23	26	2,1,1,1,3,3,3,1	15	0	83.8
15	21 58	859	706	15 40	153	14 42	47.2	19.6	22 38	27.6	21 11	374	311	12 29	63	2,1,1,3,4,5,3,5	24	1	83.8
16 d	16 37	1158	545	23 59	613	16 03	60.0	-12.6	21 49	72.6	16 22	646	166	23 54	480	4,4,5,6,7,7,6,6	45	2	83.8
17 d	17 30	954	240	03 32	714	05 34	53.4	-16.5	02 11	69.9	16 43	532	9	03 24	523	7,8,5,5,5,6,5,5	46	2	83.8
18	18 40	837	641	10 55	196	13 39	45.6	18.9	18 34	26.7	18 31	407	296	05 23	111	2,3,4,3,4,4,4,3	27	1	83.8
19	18 13	822	651	10 34	171	13 43	42.3	18.8	05 32	23.5	19 40	405	273	04 59	132	3,4,3,3,2,3,4,3	25	1	83.8
20 d	20 42	842	679	11 19	163	14 24	45.3	11.5	07 32	33.8	16 50	359	281	04 38	78	2,5,5,5,4,3,4,3	31	1	83.8
21 d	18 19	874	634	09 46	240	13 47	43.7	19.0	06 17	24.7	18 06	403	281	24 00	122	5,3,3,4,3,4,5,4	31	1	83.8
22	20 47	848	671	10 22	177	14 05	43.1	18.8	20 43	24.3	1								

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

21 ESKDALEUIR (H)		16,000γ (0.16 C.G.S. unit) +																				SEPTEMBER 1959				
	Hour G.M.T.											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 16,000+	
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11															11-12
1	745	757	753	749	753	756	740	734	727	709	691	689	714	706	707	759	779	786	775	766	759	756	755	759	743	1824
2	767	755	731	759	727	754	746	722	679	661	674	702	700	709	709	733	745	745	771	772	750	733	728	736	729	1508
3	753	755	753	744	746	755	755	740	719	695	696	702	714	727	751	766	771	786	788	761	764	759	734	360	729	1494
4 d	686	693	706	622	715	693	674	640	620	624	662	695	691	717	776	789	803	736	745	743	719	710	701	732	704	892
5	713	702	701	732	740	736	721	710	704	682	695	706	716	699	710	729	751	763	773	769	773	783	750	702	727	1460
6	685	691	714	725	735	737	726	716	94	676	675	681	696	721	733	743	749	749	756	762	761	763	760	758	725	1406
7 q	753	749	745	743	740	737	731	718	705	689	680	693	708	721	748	757	775	756	759	764	766	763	761	759	738	1720
8 q	758	760	753	752	754	752	744	729	721	710	714	713	711	720	729	741	750	774	769	769	771	762	761	778	746	1895
9 q	761	755	755	753	755	753	744	729	717	709	702	711	720	738	744	754	750	752	763	774	770	766	769	768	746	1912
10 q	765	763	761	759	757	757	753	745	734	729	727	732	742	756	754	760	764	778	779	773	778	780	780	767	758	2193
11	763	758	758	761	760	764	760	749	735	725	717	727	711	728	738	748	757	755	769	778	775	778	779	779	753	2072
12	780	743	738	760	752	752	743	735	728	719	708	715	726	738	750	752	749	762	773	767	770	770	769	771	749	1970
13	780	762	758	757	758	754	748	737	735	730	727	732	738	745	745	747	757	766	770	771	775	781	821	731	755	2125
14	736	752	763	756	760	749	747	720	722	722	719	720	710	733	723	728	750	758	759	768	770	774	764	766	745	1869
15	759	766	768	763	760	758	749	737	733	730	730	727	724	742	745	750	776	757	769	773	774	785	758	759	754	2092
16	764	761	749	745	734	745	741	728	715	706	704	706	716	730	746	727	745	757	762	779	782	763	764	768	743	1837
17	771	770	775	767	761	758	759	756	749	737	725	729	720	731	759	733	751	768	785	782	770	737	753	760	754	2106
18	758	771	764	762	757	751	748	735	720	708	701	721	735	734	738	733	758	774	758	758	765	774	781	773	749	1977
19	731	712	743	746	727	759	738	720	703	697	701	738	713	740	747	746	752	774	762	767	767	771	779	781	742	1797
20 d	777	771	793	773	762	769	760	745	725	720	708	681	704	737	745	739	730	745	724	740	777	705	716	681	739	1727
21 d	680	727	712	725	737	725	739	699	685	681	679	666	676	706	755	794	760	799	754	750	738	747	735	743	725	1412
22 d	747	703	654	692	713	704	693	664	671	659	655	669	681	708	730	746	726	743	769	766	744	737	745	754	711	1073
23	749	740	742	744	738	743	749	732	707	708	701	702	721	724	745	742	745	762	760	735	725	724	703	726	732	1567
24	727	730	723	747	732	735	742	743	713	708	704	709	712	708	684	728	731	744	747	747	743	738	743	751	729	1489
25 d	731	716	738	736	752	757	752	736	708	705	698	700	696	725	724	752	807	768	740	720	722	732	725	738	732	1578
26	731	722	743	746	740	741	743	727	714	710	705	699	704	716	713	727	739	741	750	759	750	740	752	757	732	1569
27	739	743	744	745	748	763	750	752	738	727	701	708	708	722	724	721	740	742	754	756	747	752	744	751	738	1719
28	752	748	730	739	752	753	751	755	734	728	727	723	735	726	721	725	743	760	731	748	756	758	755	753	742	1803
29 q	740	745	752	752	752	751	750	747	740	715	716	720	724	729	735	722	740	745	758	762	762	762	765	758	743	1842
30	757	755	758	760	760	765	765	762	752	741	718	707	728	738	738	730	733	744	764	750	749	748	753	744	747	1919
Mean	745	743	743	744	746	747	742	729	715	705	702	707	713	726	735	744	754	759	761	761	759	755	753	739	739	
Sum 21,000+	1358	1275	1277	1314	1377	1426	1261	862	447	160	60	223	394	774	1066	1321	1626	1772	1836	1829	1772	1651	1603	1163		Grand Total 531,847

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

22 ESKDALEUIR (D)		10° +																				SEPTEMBER 1959				
	Hour G.M.T.											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 600.0+	
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11															11-12
1	29.3	29.3	26.4	27.0	29.0	29.2	28.0	29.1	26.9	30.3	32.9	34.7	39.1	39.3	37.5	35.9	31.9	28.7	30.0	27.9	23.0	28.3	30.1	31.2	30.6	135.0
2	31.8	29.9	22.9	22.3	29.2	28.6	23.5	27.2	26.5	32.6	34.3	35.7	36.6	37.1	35.9	34.7	31.9	30.2	28.9	25.9	27.7	25.6	27.7	38.5	30.2	125.2
3	32.3	29.9	29.0	27.7	29.6	26.3	24.9	23.3	25.7	30.3	33.8	37.5	38.2	38.7	38.2	35.5	34.2	32.9	24.8	29.7	31.1	29.5	15.5	19.6	29.9	118.2
4 d	24.8	20.3	18.2	29.6	31.9	30.1	33.6	33.3	26.9	39.1	37.2	41.1	40.9	39.7	44.5	39.3	34.0	33.9	30.9	26.0	27.4	29.1	24.7	25.8	31.8	162.3
5	24.9	24.4	30.7	24.7	24.6	24.3	23.8	25.2	25.4	29.2	31.8	34.8	38.6	39.4	38.1	34.7	32.3	28.1	22.3	25.8	30.6	33.5	26.5	23.8	29.1	97.5
6	25.1	23.0	26.2	24.9	24.9	24.3	23.6	23.3	24.7	28.4	31.9	36.7	39.1	39.5	36.7	34.1	32.2	31.0	30.8	31.9	32.0	31.8	31.4	30.3	29.9	117.8
7 q	29.7	29.9	28.6	27.7	26.9	25.2	23.7	22.4	22.6	26.6	31.1	35.5	37.0	37.0	37.2	35.3	34.0	32.6	33.2	33.2	31.4	31.2	32.2	30.8	30.6	135.0
8 q	29.9	28.6	29.3	29.2	28.6	27.5	25.1	24.5	25.2	28.7	32.9	36.8	38.9	40.5	39.3	36.3	32.2	32.7	33.1	32.8	32.5	31.6	33.0	31.7	31.7	160.9
9 q	28.8	28.4	27.9	26.7	26.8	25.8	24.7	24.3	25.9	27.6	31.4	35.8	37.4	38.1	36.7	35.2	33.2	33.4	33.3	32.8	32.1	30.6	27.8	30.8	138.1	
10 q	28.5	28.7	28.0	27.2	27.4	27.1	26.9	25.1	24.3	26.8	30.8	34.1	36.2	38.4	36.2	34.8	34.8	35.8	35.3	35.3	34.3	33.5	25.2	26.9	30.9	141.6
11	27.6	28.5	27.8	27.7	27.2	25.0	24.2	25.2	25.9	28.9	32.4	37.5	38.9	40.8	38.3	36.2	34.9	34.7	34.8	34.6	31.2	28.6	29.9	25.4	31.1	146.2
12	21.7	20.4	23.4	28.6	26.9	25.9	25.2	26.3	26.7	29.0	31.8	35.9	37.2	37.6	36.8	34.3	30.3	31.6	33.9	32.4	33.1	32.6	32.2	30.8	30.2	124.6
13	32.9	28.6	27.6	26.0	26.3	26.7	26.8	26.5	27.5	30.8	33.2	34.5	35.7	36.5	36.6	34.9	34.1	34.2	34.9	33.6	33.2	30.4	20.2	19.9	30.5	131.6
14	28.3	29.2	27.1	26.3	22.8	24.7	26.1	25.9	27.8	28.3	32.1	37.4	37.5	41.2	39.7	37.3	35.7	34.0	33.8	33.1	32.4	24.3	28.0	29.9	31.0	142.9
15	29.1	28.6	27.4	27.8	27.7	26.3	24.5	24.0	26.8	29.0	32.8	36.9	37.0	38.3	36.9	34.8	34.6	32.0	33.0	33.2	24.0	21.7	31.3	30.9	30.4	128.6
16	30.6	27.8	16.7	18.3	26.7	27.6	27.3	25.6	26.5	29.6	32.9	36.5	38.4	37.6	38.5	35.0	33.5	33.9	33.9	30.6	27.7	31.5	31.8	30.9	30.4	129.4
17	29.4	28.9	28.4	27.7	27.6	27.1	28.6	28.3	27.0	27.9	30.9	35.5	34.9	35.9	39.8	36.7	34.3	34.3	35.0	33.7	24.8	21.7	29.8	30.4	30.8	138.6
18	32.1	29.2																								

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

23 ESKDALEUIR (Z)		45,000γ (0.45 C.G.S. unit) +												SEPTEMBER 1959												
	Hour G.M.T.												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 7000+
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12														
1	341	321	318	328	336	341	347	343	342	342	343	344	347	356	366	381	405	431	425	413	386	362	359	355	360	1632
2	348	322	297	309	305	294	321	336	339	340	344	342	343	347	355	356	363	370	380	397	380	367	352	354	344	1261
3	321	325	339	349	349	345	345	349	345	342	340	342	342	339	346	370	385	401	430	409	384	376	311	79	344	1263
4 d	213	240	244	207	270	303	290	292	309	329	336	352	374	375	406	486	529	499	448	443	409	364	284	286	345	1288
5	310	282	294	332	358	360	373	374	373	374	374	377	380	386	382	381	382	394	408	396	375	348	283	282	357	1578
6	226	270	324	351	359	364	368	368	365	356	354	350	353	361	368	373	372	370	366	362	360	360	360	360	351	1420
7 q	360	359	360	362	363	365	365	362	355	347	343	340	341	345	351	357	363	368	359	357	356	354	351	353	356	1536
8 q	355	353	354	354	351	352	356	357	347	342	335	335	341	344	354	366	371	368	361	359	361	362	360	341	353	1479
9 q	345	352	355	356	355	356	356	356	352	345	339	337	339	341	345	355	359	352	350	351	354	355	355	350	350	1410
10 q	349	349	350	351	352	353	353	355	351	338	328	327	331	332	336	339	341	343	348	349	349	351	354	348	345	1277
11	343	347	347	340	325	328	335	339	339	336	328	325	329	333	339	350	351	350	347	345	354	351	339	329	340	1149
12	304	316	320	320	335	340	342	340	340	336	332	333	332	336	345	362	374	366	359	361	357	355	351	349	342	1204
13	343	332	340	345	347	351	355	356	354	344	338	336	337	339	342	344	344	344	344	348	348	349	321	305	342	1206
14	323	323	324	331	331	331	336	335	327	331	336	340	344	349	353	356	357	362	358	356	351	355	347	348	342	1214
15	344	343	342	343	343	345	348	348	344	336	329	328	336	340	345	349	360	371	365	359	360	343	333	342	346	1296
16	340	319	309	317	317	327	337	345	344	331	323	325	328	338	351	361	363	360	360	354	345	343	344	345	339	1126
17	345	344	343	344	344	343	342	340	336	336	334	333	335	328	335	341	347	353	352	357	367	381	360	351	345	1291
18	342	331	336	337	340	343	345	348	348	343	334	331	334	339	350	359	360	359	373	379	367	348	314	283	343	1243
19	286	298	308	318	290	298	324	339	343	342	334	323	325	333	339	341	344	347	349	348	348	348	348	347	330	920
20 d	344	343	327	328	328	320	314	332	337	342	342	348	359	392	428	429	416	435	460	440	382	351	298	275	361	1670
21 d	238	299	263	239	288	292	266	285	324	347	350	351	363	390	416	440	465	460	416	393	390	363	358	348	348	1344
22 d	323	278	176	214	274	300	327	351	359	363	368	368	374	379	407	416	406	391	397	374	357	360	357	349	345	1268
23	340	345	349	351	353	351	354	356	359	355	354	359	356	358	363	385	413	411	400	401	373	332	336	309	361	1663
24	326	339	329	322	329	336	344	351	359	363	362	357	363	382	393	394	397	385	381	383	380	361	358	345	360	1639
25 d	322	281	308	305	296	320	337	349	356	361	362	371	372	385	405	431	471	460	434	418	405	364	329	343	366	1785
26	356	344	313	332	343	351	356	360	360	354	351	352	367	374	367	365	375	382	379	379	366	365	356	322	357	1569
27	332	331	337	345	354	350	349	352	354	355	352	359	367	375	389	397	414	396	379	377	363	363	352	356	362	1698
28	356	337	324	341	350	350	348	344	348	350	345	347	352	357	368	366	360	370	385	378	370	366	357	354	355	1523
29 q	348	341	340	348	351	354	354	354	351	344	337	336	345	357	366	364	359	356	356	355	355	356	359	355	352	1441
30	352	348	349	350	350	348	349	349	350	347	348	346	346	360	371	382	386	382	377	377	373	371	362	354	359	1627
Mean	326	324	321	326	333	337	341	345	347	346	343	344	349	356	366	377	384	385	381	377	367	357	342	327	350	
Sum 9000+	775	721	619	769	986	1111	1236	1365	1410	1371	1295	1314	1455	1670	1981	2297	2532	2536	2446	2318	2025	1723	1248	817		Grand Total 252,020

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

24 ESKDALEUIR		TERRESTRIAL MAGNETIC ELEMENTS												SEPTEMBER 1959					
	Horizontal force						Declination			Vertical force			3-hr. range indices K	Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +			
	Maximum 16,000γ +		Minimum 16,000γ +		Range	Maximum 10° +		Minimum 10° +	Range	Maximum 45,000γ +		Minimum 45,000γ +					Range		
	h. m.	γ	γ	h. m.		γ	h. m.			γ	h. m.	γ						h. m.	γ
1	17 31	793	684	10 53	109	12 58	40.6	15.4	20 27	25.2	17 26	435	313	01 55	122	3, 2, 2, 3, 3, 3, 4, 2	22	1	84.1
2	18 21	783	647	09 12	136	13 19	39.1	16.6	21 33	22.5	19 22	402	286	05 16	116	4, 4, 4, 4, 3, 3, 3, 4	29	1	84.2
3	22 01	849	72	23 41	777	12 44	40.0	-0.4	22 29	40.4	18 41	435	-179	23 39	614	2, 2, 3, 3, 3, 3, 4, 9	29	1	84.3
4 d	16 13	879	492	03 39	387	14 22	47.8	12.2	00 03	35.6	16 17	542	153	03 46	389	6, 7, 5, 5, 5, 6, 4, 5	43	2	84.4
5	21 49	816	668	23 50	148	12 40	41.9	16.5	23 52	25.4	18 20	409	253	01 32	156	3, 3, 3, 4, 4, 4, 3, 5	29	1	84.6
6	16 41	764	647	00 28	117	13 00	41.7	18.3	01 04	23.4	15 38	402	187	00 53	215	4, 3, 3, 3, 3, 2, 1, 1	19	1	84.7
7 q	16 49	804	676	10 19	128	14 28	38.4	20.9	08 13	17.5	07 17	371	339	11 48	32	1, 1, 2, 2, 3, 4, 2, 2	17	0	84.4
8 q	23 18	798	691	09 51	107	14 08	41.9	23.6	06 47	18.3	16 48	371	331	10 54	40	1, 1, 2, 3, 2, 4, 1, 3	17	0	84.8
9 q	19 25	778	696	10 08	82	13 12	38.4	23.2	07 27	15.2	16 28	361	308	11 52	53	1, 1, 2, 3, 2, 3, 2, 2	16	0	84.7
10 q	22 23	797	721	10 33	76	13 51	39.2	20.4	22 47	18.8	07 40	356	326	10 57	30	1, 1, 1, 2, 2, 3, 2, 4	16	0	84.7
11	19 18	793	694	12 39	99	13 35	44.0	22.0	06 37	22.0	20 57	356	314	24 00	42	2, 2, 3, 3, 3, 2, 3, 2	20	1	84.8
12	00 21	805	694	10 22	111	13 43	39.0	18.3	00 15	20.7	16 30	374	299	00 43	75	4, 2, 2, 2, 3, 3, 2, 2	20	1	84.8
13	22 07	879	705	07 54	174	13 53	38.2	14.8	23 00	23.4	07 30	358	302	23 24	56	3, 1, 2, 2, 3, 2, 2, 5	20	1	84.8
14	21 57	782	699	12 07	83	13 57	43.7	19.2	21 42	24.5	17 32	363	314	00 00	49	3, 2, 3, 3, 4, 3, 2, 2	22	1	84.8
15	16 22	798	710	12 05	88	13 26	43.4	16.7	20 57	26.7	17 37	375	325	10 52	50	2, 1, 2, 3, 4, 4, 4, 4	24	1	84.6
16	19 54	803	694	10 03	109	14 51	39.3	13.4	02 39	25.9	16 13	366	302	02 13	64	4, 4, 2, 3, 2, 3, 3, 3	24	1	84.5
17	19 48	801	706	15 47	95	14 41	41.5	14.7	21 07	26.8	21 02	389	332	11 33	57	2, 2, 1, 2, 3, 4, 4, 4	22	1	84.5
18	23 56	820	669	10 27	151	12 34	43.9	20.0	24 00	23.9	18 57	385	263	24 00	122	3, 2, 3, 4, 4, 4, 3, 5	28	1	84.5
19	00 00	812	685	04 10	127	11 37	41.7	15.0	01 25	26.7	18 32	349	260	00 03	89	5, 4, 3, 5, 4, 3, 2, 3	29	1	84.6
20 d	20 13	847	626	23 55	221	13 34	47.9	-5.7	20 00	53.6	18 39	465	233	23 57	232	4, 4, 4, 3, 5, 5, 6, 5	36	2	84.5
21 d	17 11	879	617	00 27	262	06 34	57.3	-3.3	20 56	60.6	16 53	528	222	02 57	306	6, 5, 6, 3, 5, 5, 4, 5	39	2	84.5
22 d	18 43	827	563	08 56	264	02 04	53.2	12.1	18										

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

21 ESKDALEMUIR (H)		16,000γ (0.16 C.G.S. unit) +																				OCTOBER 1959				
	Hour G.M.T.																				Mean	Sum 17,000+				
	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
1 d	761	759	760	766	773	732	738	718	750	739	693	679	690	711	740	715	728	734	735	738	730	723	742	752	734	606
2	747	746	748	747	746	783	767	720	728	725	718	709	710	719	728	743	758	762	775	769	770	768	757	761	746	904
3 d	760	756	755	759	757	750	744	724	723	728	730	730	727	733	747	757	783	765	733	727	689	675	667	688	734	607
4 d	693	693	717	703	683	755	741	722	683	703	706	699	709	747	722	725	734	724	745	744	718	716	733	721	718	236
5	741	735	732	747	748	750	750	744	731	722	708	712	715	724	733	747	741	767	731	742	768	701	747	743	737	679
6 d	725	734	711	700	725	741	737	708	713	683	680	683	689	713	710	726	739	735	736	740	758	764	734	740	722	324
7	743	737	743	740	755	743	742	740	732	718	704	703	711	711	725	736	746	755	762	763	764	809	768	748	742	798
8	748	749	743	754	753	763	760	759	746	731	711	715	717	718	729	730	744	752	762	765	765	760	763	746	902	
9	759	766	757	757	760	767	767	762	755	742	730	723	723	725	736	741	749	762	767	754	765	765	766	753	1063	
10 q	761	760	761	762	760	764	767	762	753	740	726	718	724	732	743	749	756	766	769	765	770	771	771	771	755	1121
11 q	774	766	765	765	764	765	766	767	764	755	743	734	736	740	744	752	762	765	773	772	773	772	773	767	761	1257
12	769	767	765	766	768	769	767	763	757	750	743	739	744	746	757	762	772	760	767	762	752	762	766	771	760	1244
13 q	769	767	769	770	768	765	765	766	762	752	745	748	750	749	750	756	765	772	781	780	778	780	779	776	765	1362
14	775	771	769	770	771	770	768	769	769	754	747	730	742	736	742	749	758	768	758	754	752	765	773	775	760	1235
15	766	759	756	757	768	770	758	756	747	742	744	731	730	737	746	742	761	769	771	763	792	776	752	760	756	1153
16 q	765	761	760	762	761	761	761	760	753	745	740	741	743	748	756	762	760	760	767	768	768	772	771	773	759	1218
17	775	776	773	774	772	777	780	778	767	756	736	735	740	740	753	755	765	778	770	776	770	761	759	763	764	1329
18	773	768	747	752	762	755	756	755	735	708	677	707	716	722	720	731	740	747	756	757	768	758	750	746	742	806
19	746	750	747	744	740	751	760	754	748	730	715	721	719	720	737	745	752	759	758	765	766	765	768	784	748	944
20	772	753	757	760	763	769	765	757	757	739	720	715	715	726	735	743	750	758	763	764	766	767	767	766	752	1047
21	765	765	764	765	767	770	770	765	755	739	727	723	729	735	750	761	755	759	767	768	765	764	751	766	756	1145
22	770	780	769	773	775	782	767	761	758	736	723	716	718	725	742	731	747	735	739	738	735	735	744	750	748	949
23	748	767	762	750	752	750	753	765	746	731	710	715	727	726	735	742	744	750	756	760	763	763	762	761	747	938
24	760	762	762	763	762	763	767	765	750	742	733	733	732	740	745	751	752	762	767	767	765	758	758	762	755	1121
25	764	778	761	763	776	775	768	748	751	736	718	719	713	724	728	738	726	741	753	757	761	766	768	741	749	973
26	728	749	750	755	760	770	765	758	739	721	719	718	726	720	716	742	728	716	735	741	747	776	767	746	741	792
27	746	747	748	755	760	748	766	754	726	739	715	725	710	707	719	728	740	746	760	762	763	763	763	759	744	849
28 q	763	759	760	763	767	770	770	768	754	746	736	735	738	744	751	757	758	765	769	770	770	772	771	769	759	1225
29	768	769	769	768	770	771	774	776	767	754	744	744	744	747	750	754	761	769	771	773	772	769	773	781	764	1338
30	785	773	782	762	779	783	778	773	767	763	752	746	751	747	751	760	762	771	758	742	737	716	712	717	757	1167
31 d	745	749	748	758	765	768	769	765	756	732	720	706	700	714	719	728	737	719	721	737	712	746	704	716	735	634
Mean	757	757	755	756	759	763	761	754	747	735	723	721	724	730	737	744	751	755	757	757	757	754	755	749		
Sum 22,000+	1464	1471	1410	1430	1530	1650	1606	1382	1142	801	413	352	438	626	859	1058	1273	1391	1475	1483	1472	1463	1376	1401		Grand Total 556,966

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

22 ESKDALEMUIR (D)		10° +																				OCTOBER 1959				
	Hour G.M.T.																				Mean	Sum 600.0+				
	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
1 d	32.5	23.1	21.1	20.4	24.6	29.4	31.0	31.0	35.1	32.0	34.2	39.2	37.6	37.9	38.4	34.2	31.9	31.1	23.7	23.1	20.5	17.7	24.2	29.1	29.3	103.0
2	27.7	27.5	26.9	26.2	33.3	33.2	29.5	31.4	26.5	28.1	30.6	36.0	35.9	35.9	34.7	34.0	34.0	33.3	34.0	33.2	32.4	32.1	30.4	29.0	31.5	155.8
3 d	28.9	28.1	28.3	27.8	27.1	26.7	28.7	28.1	27.6	27.4	29.9	34.7	37.9	37.5	37.3	37.9	37.8	33.0	26.8	29.6	22.7	20.6	16.2	17.4	29.1	98.0
4 d	14.4	14.1	6.6	10.1	19.0	21.2	25.0	26.1	27.0	30.3	31.9	34.5	38.7	33.2	35.7	36.0	35.6	31.5	31.5	27.0	19.5	25.8	26.6	22.8	26.0	24.1
5	25.5	29.9	30.2	15.2	22.9	24.8	26.4	26.8	28.0	29.6	33.0	37.6	38.5	41.1	41.4	39.8	42.2	42.7	28.8	28.5	29.6	30.5	25.8	26.5	31.1	145.3
6 d	18.0	22.8	21.7	24.8	23.9	31.2	35.6	37.8	33.2	31.7	33.9	36.6	34.8	31.5	36.6	34.1	21.6	30.2	29.9	28.7	12.9	20.0	27.7	29.0	28.7	88.2
7	30.2	34.1	30.8	31.0	31.8	27.4	28.0	27.2	27.7	28.1	30.6	32.2	35.6	35.9	36.7	35.0	33.4	32.7	33.1	32.3	30.3	29.7	32.5	25.1	31.3	151.4
8	29.0	29.3	30.1	29.6	29.7	28.6	28.4	27.7	26.0	26.6	28.1	31.5	33.8	32.5	36.2	34.4	33.0	32.0	29.8	29.6	30.8	30.6	30.1	30.0	30.4	130.1
9	30.3	32.0	28.4	29.7	29.0	28.6	28.0	28.0	28.0	27.2	28.5	30.7	33.5	34.9	36.2	35.0	32.5	32.4	32.0	28.1	30.9	29.5	29.4	28.6	30.5	131.4
10 q	27.9	27.2	27.6	28.3	28.7	28.7	28.1	27.7	26.4	26.2	28.0	31.0	34.2	35.7	36.2	35.7	34.7	28.2	32.0	32.8	27.3	30.8	30.1	29.7	30.1	123.2
11 q	28.1	28.1	28.6	28.8	28.7	28.8	28.6	28.0	27.2	27.2	28.8	32.0	35.2	36.7	36.7	35.7	34.0	33.2	33.0	32.9	31.4	28.0	26.2	27.7	30.6	133.6
12	27.7	28.6	28.5	28.9	29.2	29.1	28.9	27.8	26.8	27.2	29.5	33.2	36.7	36.5	38.1	36.1	35.8	36.2	35.3	32.9	30.0	24.9	29.3	30.6	31.2	147.8
13 q	30.2	29.9	29.3	28.6	28.4	28.3	28.1	27.4	25.9	26.7	30.4	34.0	35.8	36.4	36.1	34.9	34.1	33.8	33.2	32.5	31.4	31.2	30.6	29.5	31.1	146.7
14	27.9	28.6	29.2	29.7	29.6	28.9	28.2	27.3	26.0	25.9	29.1	33.0	38.8	37.2	39.0	37.0	34.7	33.6	32.1	30.6	29.6	26.2	22.3	22.6	30.3	127.1
15	25.5	24.9	27.0	28.8	29.3	27.3	27.6	26.9	26.0	27.0	31.7	33.9	36.2	36.2	37.7	32.2	31.8	32.8	32.5	30.5	34.2	26.1	25.1	28.8	30.0	120.0
16 q	29.2	29.0	29.5	28.9	28.8	28.6	28.3	28.1	27.7	28.8	31.4	34.1	36.0	35.8	35.7	34.5	33.7	33.1	33.1	31.9	28.9	30.7	31.0	30.7	31.1	147.5
17	30.8	30.2	29.3	29.8	29.2	29.3	28.7	27.9	26.7	28.9	31.4	35.5	37.3	38.3	38.5	36.9	36.9	38.3								

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

23 ESKDALEMUIR (Z)		45,000γ (0.45 C.G.S. unit) +																				OCTOBER 1959					
	Hour G.M.T.												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 7000+	
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12															
1 d	333	317	317	306	285	291	305	321	326	343	354	360	371	380	391	420	408	394	405	400	390	342	351	360	353	1470	
2	360	355	354	358	326	285	298	314	333	340	344	348	350	349	354	355	354	351	351	354	354	357	365	365	345	1274	
3 d	362	362	360	357	354	350	342	341	347	352	353	347	349	357	373	400	432	456	446	425	351	330	299	235	362	1680	
4 d	264	298	291	282	243	280	325	340	351	356	358	366	383	431	406	401	409	401	382	382	382	368	348	335	349	1382	
5	351	348	300	290	305	318	334	346	351	356	359	360	369	374	379	398	417	466	487	429	390	312	354	341	364	1734	
6 d	318	340	333	331	327	310	313	324	341	359	377	377	394	424	414	421	447	419	402	393	385	353	352	356	367	1810	
7	352	347	347	342	338	348	354	356	357	357	358	360	360	360	361	363	367	366	365	366	367	343	317	332	353	1483	
8	340	346	348	348	351	352	354	357	362	362	360	352	351	355	360	365	367	365	362	362	359	357	359	356	356	1550	
9 q	355	348	349	351	354	355	356	357	357	356	354	349	348	348	349	358	365	362	361	366	366	359	358	356	356	1537	
10 q	355	354	352	351	354	355	355	356	358	357	354	345	343	342	343	348	355	362	359	360	359	359	356	352	353	1484	
11 q	348	348	349	350	351	351	349	349	350	349	347	344	343	343	345	349	354	354	355	356	359	357	356	351	350	1407	
12	350	351	351	350	349	349	349	353	354	348	340	333	329	329	335	345	353	351	357	364	375	374	361	356	350	1406	
13 q	355	354	351	350	349	349	349	349	347	345	340	331	328	332	340	344	345	345	347	349	349	350	350	350	346	1298	
14	348	345	347	347	345	345	345	348	346	341	334	329	328	335	339	345	353	355	362	371	371	367	359	351	348	1356	
15	340	340	344	344	335	337	341	345	346	342	336	331	333	337	346	360	360	355	354	357	343	325	337	345	343	1233	
16 q	349	350	349	348	348	348	348	348	347	342	332	327	331	336	340	348	351	348	347	348	351	348	345	345	345	1274	
17	345	344	344	343	343	342	341	341	340	331	331	328	333	334	337	347	350	352	361	368	371	371	364	360	347	1321	
18	352	336	304	317	325	337	342	344	343	343	333	330	332	347	359	360	387	382	368	364	362	351	340	332	345	1290	
19	328	332	337	333	340	345	349	354	356	358	359	355	356	358	359	358	359	360	362	358	352	352	352	348	351	1420	
20	332	343	348	349	349	349	349	349	348	348	344	344	343	346	354	356	356	354	354	354	352	352	351	351	349	1375	
21	350	350	349	349	349	350	349	353	356	349	344	339	340	337	334	341	345	348	348	347	348	348	347	343	346	1313	
22	339	333	336	336	337	335	340	344	345	349	346	349	362	377	389	396	401	389	378	372	368	359	348	340	357	1568	
23	338	322	313	321	332	341	347	348	351	349	348	344	344	349	356	361	360	357	356	354	352	351	350	350	346	1294	
24	350	350	349	349	349	349	349	351	354	347	343	340	343	352	354	351	358	355	354	352	354	359	357	347	351	1416	
25	342	331	325	316	310	325	328	337	339	341	346	352	354	356	363	371	380	374	365	362	361	359	342	322	346	1301	
26	325	322	334	343	342	333	328	333	342	342	341	344	348	351	366	410	411	409	389	384	373	355	332	334	354	1491	
27	339	343	344	343	342	340	340	340	347	347	348	348	349	351	359	362	364	364	359	355	354	352	351	351	350	1392	
28 q	345	347	348	347	345	344	343	343	344	343	339	333	333	333	335	339	343	345	345	345	347	348	349	349	343	1232	
29	348	345	345	344	343	343	341	342	344	343	336	336	335	337	340	344	344	344	344	344	344	345	348	347	344	343	1226
30	339	310	294	312	321	329	333	338	342	339	331	325	328	336	339	342	344	344	348	366	381	360	292	276	332	969	
31 d	325	338	346	346	347	345	344	345	345	348	343	345	363	369	374	389	408	439	443	394	360	312	326	336	360	1630	
Mean	341	340	337	337	335	337	340	344	347	348	346	344	347	354	358	366	373	373	371	368	362	351	346	341	350		
Sum 10,000+	577	549	458	453	388	430	540	666	769	782	732	671	773	965	1093	1347	1547	1566	1516	1401	1231	878	715	569		Grand Total 260,616	

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

24 ESKDALEMUIR		TERRESTRIAL MAGNETIC ELEMENTS										OCTOBER 1959							
	Horizontal force					Declination					Vertical force					3-hr. range indices K	Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +
	Maximum 16,000γ +	Minimum 16,000γ +	Range	Maximum 10° +	Minimum 10° +	Range	Maximum 45,000γ +	Minimum 45,000γ +	Range	Maximum 45,000γ +	Minimum 45,000γ +	Range							
1 d	h. m.	γ	γ	h. m.	γ	h. m.	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	4,4,4,4,4,3,4,4	31	1	84.5	
2	05 10	810	667	11 58	143	11 22	40.8	12.9	21 57	27.9	15 53	423	282	04 12	141	19	1	84.7	
3 d	04 37	788	694	11 42	94	04 32	40.0	21.4	08 20	18.6	00 13	362	281	05 56	81	30	2	84.8	
4 d	17 27	832	539	22 12	293	17 29	46.1	-5.9	22 48	52.0	17 12	494	193	23 03	301	30	1	84.6	
5	05 16	777	618	03 07	159	12 51	42.7	-1.6	02 57	44.3	13 35	443	224	04 27	219	29	1	84.8	
6 d	20 52	857	624	21 20	233	21 12	50.5	12.7	03 11	37.8	18 02	527	253	21 12	274	29	1	84.8	
7	21 08	800	655	09 58	145	05 02	41.6	1.9	20 24	39.7	16 34	458	301	05 32	157	33	1	84.6	
8	21 25	836	683	10 58	153	12 15	38.3	21.7	23 09	16.6	16 25	367	311	22 25	56	22	1	84.4	
9	23 22	770	704	10 17	66	14 21	37.2	25.6	08 50	11.6	16 48	367	337	00 00	30	13	0	84.4	
10 q	01 23	777	716	11 50	61	14 38	36.5	23.3	19 42	13.2	19 59	373	344	01 50	29	15	0	84.4	
11 q	18 01	787	716	11 31	71	14 16	36.8	25.5	08 37	11.3	17 33	364	340	13 39	24	12	0	84.4	
12	20 36	791	731	12 02	60	14 13	37.2	25.5	22 10	11.7	20 28	360	342	12 55	18	10	0	84.6	
13 q	16 49	782	735	12 03	47	14 36	39.6	22.0	21 10	17.6	21 03	383	327	13 12	56	14	0	84.6	
14	19 08	785	740	10 21	45	13 27	37.2	25.0	08 52	12.2	20 02	355	327	12 40	28	12	0	84.6	
15	22 07	796	714	11 40	82	12 46	44.5	19.3	22 13	25.2	21 01	373	325	12 20	48	19	0	84.6	
16 q	20 45	816	715	12 58	101	20 26	38.4	21.2	21 49	17.2	15 50	363	322	21 01	41	24	1	84.5	
17	24 00	777	737	11 01	40	12 32	39.3	27.0	20 27	12.3	20 39	353	325	11 40	28	10	0	84.5	
18	06 54	790	716	11 47	74	12 34	42.7	20.0	22 02	22.7	20 21	374	325	11 40	49	19	1	84.6	
19	04 14	795	659	10 23	136	13 41	46.2	14.9	20 46	31.3	16 45	397	298	02 22	99	29	1	84.6	
20	23 59	813	708	10 20	105	13 47	37.9	23.9	18 47	14.0	18 43	365	320	00 00	45	21	1	84.6	
21	00 00	814	711	10 56	103	13 30	36.4	25.6	00 43	10.8	16 08	356	330	00 18	26	13	0	84.6	
22	21 35	778	718	11 10	60	13 58	38.0	24.3	22 22	13.7	08 10	356	333	14 00	23	11	0	84.6	
23	01 27	798	706	11 07	92	15 01	38.3	20.0	21 42	18.3	16 34	407	329	01 33	78	21	1	84.5	
24	01 44	788	703	10 09	85	12 37	36.1	23.1	02 18	13.0	15 50	362	307	02 07	55	11	0	84.5	
25	19 08	773	725	10 37															

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

Table with 21 columns for hours (0-1 to 23-24), 2 rows for 'Mean' and 'Sum 21,000+', and 21 rows for hours (1 d to 30 d). Includes sub-headers for '21 ESKDALEMUIR (E)' and '16,000γ (0.16 C.G.S. unit) +'. Grand Total: 536,058.

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

Table with 22 columns for hours (0-1 to 23-24), 2 rows for 'Mean' and 'Sum 700.0+', and 21 rows for hours (1 d to 30 d). Includes sub-headers for '22 ESKDALEMUIR (D)' and '10° +'. Grand Total: 21459.2.

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

23 ESKDALEUIR (Z)		45,000γ (0.45 C.G.S. unit) +																				NOVEMBER 1959						
	Hour G.M.T.	1-12											12-24								Mean	Sum 8000+						
		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	
1 d	γ	316	322	321	329	325	299	306	321	331	339	345	367	387	421	411	405	409	412	393	391	379	γ	360	339	336	357	564
2 d	γ	307	294	249	236	245	272	311	332	342	341	347	358	375	397	420	417	434	446	417	401	336	338	335	310	344	260	
3 d	γ	251	301	299	310	331	339	343	345	348	356	363	365	368	380	404	414	425	406	406	391	379	347	346	357	357	574	
4	γ	360	362	362	363	362	360	357	356	360	358	362	371	375	387	407	428	438	409	387	381	346	349	334	328	371	902	
5	γ	297	297	306	307	334	335	341	347	354	363	365	373	366	373	385	380	377	371	367	366	360	356	354	354	351	428	
6	γ	347	318	310	323	337	343	343	344	344	349	354	357	358	355	361	375	380	379	377	367	366	356	345	350	352	449	
7	γ	352	354	355	355	354	348	351	352	359	360	359	355	353	356	363	368	373	368	372	366	359	356	355	354	358	597	
8	γ	354	354	351	343	331	335	342	345	352	358	359	357	355	356	372	371	368	368	378	385	377	365	359	356	358	591	
9	γ	356	355	355	353	351	349	349	350	354	352	350	348	345	344	348	350	354	360	366	375	365	358	361	360	355	508	
10	γ	360	358	356	355	352	348	347	349	351	349	348	345	351	347	350	351	354	356	356	358	356	359	359	356	353	471	
11 q	γ	354	351	354	355	355	354	352	353	354	354	352	348	343	344	348	350	351	351	351	351	354	356	359	360	352	454	
12 q	γ	359	357	351	348	348	348	347	351	355	353	351	351	349	349	350	351	352	352	353	364	368	363	362	360	354	489	
13	γ	360	359	356	354	352	351	348	345	349	349	348	341	342	338	345	351	349	351	356	360	362	369	371	365	353	471	
14	γ	361	339	318	328	340	347	347	349	352	351	347	347	360	364	371	389	394	391	378	371	371	362	363	358	358	598	
15 q	γ	354	351	354	355	355	355	355	356	359	358	358	355	353	354	356	359	360	360	360	359	357	358	357	354	352	544	
16	γ	354	355	354	354	353	351	349	349	350	351	347	344	344	349	356	359	362	377	386	392	388	382	370	359	360	635	
17	γ	355	354	343	339	319	319	333	342	345	349	351	352	357	361	361	365	365	362	361	357	356	356	356	356	351	414	
18	γ	355	351	348	344	339	343	345	344	345	345	343	345	345	354	365	362	360	362	385	366	365	361	358	355	354	485	
19	γ	355	354	354	354	354	352	351	352	356	359	359	360	363	366	371	378	375	370	366	362	360	359	357	356	360	643	
20 q	γ	354	342	342	347	350	351	353	355	359	357	352	349	350	348	352	353	355	354	354	354	354	354	351	351	352	441	
21	γ	350	351	350	348	342	343	345	347	351	351	349	351	359	373	387	413	423	406	396	395	386	388	380	368	369	852	
22	γ	353	356	358	351	335	342	345	351	354	356	356	353	360	357	358	361	364	367	377	386	389	373	366	363	360	631	
23	γ	360	340	311	306	310	318	322	329	339	354	362	368	379	389	418	411	401	402	403	393	368	358	357	357	361	655	
24 q	γ	357	355	348	348	354	356	356	358	360	362	360	360	360	362	366	368	366	365	368	367	368	367	366	362	361	659	
25	γ	356	354	349	351	353	353	352	351	352	349	344	346	349	351	360	366	374	377	379	380	381	377	372	343	359	619	
26	γ	345	351	350	349	349	348	345	347	345	352	357	355	350	354	359	361	361	360	360	360	362	366	369	374	355	529	
27	γ	362	363	363	363	361	356	354	354	358	361	359	358	362	361	362	360	360	361	364	374	367	369	373	371	362	696	
28 d	γ	363	379	363	285	207	211	248	298	328	348	351	379	373	382	391	389	382	378	377	389	394	362	368	363	346	308	
29	γ	356	340	327	332	348	356	360	365	367	368	377	374	375	380	394	398	392	389	388	378	376	368	371	365	369	844	
30 d	γ	361	354	348	350	354	355	354	351	355	360	360	365	379	397	427	462	469	500	440	406	393	389	382	367	387	1278	
Mean		347	346	340	338	337	338	342	346	351	354	355	357	359	365	374	379	381	380	377	375	368	363	360	355	358		
Sum 10,000+		424	371	205	135	100	137	252	384	529	619	640	695	785	949	1218	1365	1427	1410	1320	1243	1043	880	792	666		Grand Total 257,589	

DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

24 ESKDALEUIR		TERRESTRIAL MAGNETIC ELEMENTS											NOVEMBER 1959						
	Hour	Horizontal force			Declination			Vertical force			3-hr. range indices K	Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 200 +					
		Maximum 16,000γ +	Minimum 16,000γ +	Range	Maximum 10° +	Minimum 10° +	Range	Maximum 45,000γ +	Minimum 45,000γ +	Range									
1 d	h. m.	γ	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ			°A.					
2 d	05 30	798	661	09 06	137	05 22	41.1	16.5	20 11	24.6	13 42	428	288	05 39	140	3, 4, 5, 3, 4, 3, 3, 4	29	1	84.2
3 d	17 41	830	622	20 25	208	04 36	47.9	-2.6	18 47	50.5	17 39	506	223	02 53	283	4, 5, 5, 4, 4, 5, 6, 5	38	2	84.3
4	20 49	817	655	00 07	162	12 05	40.4	13.0	01 39	27.4	16 35	440	217	00 20	223	4, 3, 3, 4, 4, 5, 5, 5	33	1	84.3
5	19 16	805	643	20 32	162	12 49	45.3	-0.2	19 13	45.5	16 07	448	322	22 48	126	2, 2, 3, 3, 4, 4, 5, 4	27	1	84.3
6	19 52	787	677	10 30	110	13 04	37.5	20.0	19 44	17.5	14 40	389	284	00 40	105	4, 3, 3, 3, 3, 2, 3, 2	23	1	84.3
7	21 34	808	688	10 47	120	11 47	40.1	9.8	21 23	30.3	16 53	382	307	02 29	75	4, 3, 3, 3, 2, 2, 3, 4	24	1	84.3
8	20 12	800	709	12 24	91	13 13	35.7	13.7	20 07	22.0	16 06	376	344	05 20	32	1, 3, 2, 1, 1, 2, 4, 3	17	1	84.3
9	04 20	785	705	14 18	80	13 28	37.3	32.4	04 53	10.9	19 27	387	328	04 18	59	0, 3, 2, 3, 3, 2, 3, 1	17	1	84.2
10	20 49	805	738	12 38	67	13 57	37.5	16.2	20 42	21.3	19 51	385	343	13 55	42	0, 1, 0, 2, 2, 3, 4, 3	15	0	84.2
11 q	22 22	805	720	12 22	85	13 53	38.5	18.6	00 57	19.9	22 14	365	343	11 58	22	3, 2, 2, 3, 2, 2, 2, 3	19	0	84.1
12 q	21 30	772	723	12 02	49	14 17	35.4	25.0	00 11	10.4	23 25	361	343	12 52	18	2, 1, 1, 1, 2, 1, 1, 2	11	0	84.1
13	23 12	788	730	11 53	58	19 00	38.4	18.2	23 24	20.2	19 54	370	345	07 35	25	2, 2, 1, 2, 1, 2, 3, 3	16	0	83.9
14	22 02	814	739	11 48	75	14 53	43.0	15.7	22 23	27.3	22 21	373	337	13 11	36	2, 1, 1, 2, 3, 2, 2, 4	17	1	-
15 q	01 52	795	674	12 11	121	13 25	41.8	14.5	02 24	27.3	15 53	406	314	02 20	92	4, 3, 3, 3, 4, 4, 4, 3	28	1	83.8
16	22 19	777	721	11 12	56	14 13	35.4	26.0	09 18	9.4	16 45	360	349	00 50	17	3, 1, 1, 1, 1, 0, 0, 2	9	0	83.8
17	06 25	774	707	19 30	67	13 44	36.2	23.7	21 08	12.5	19 44	395	343	11 58	52	1, 0, 1, 1, 2, 3, 3, 3	14	0	83.8
18	04 30	791	693	12 12	98	03 39	40.0	25.8	09 11	14.2	16 20	366	314	04 47	52	1, 3, 2, 2, 3, 1, 1, 2	15	0	83.7
19	19 02	838	697	18 47	141	13 32	36.5	8.6	18 53	27.9	18 54	406	339	04 33	67	1, 2, 1, 2, 2, 3, 5, 2	18	1	83.7
20 q	06 05	776	707	14 49	69	13 40	37.3	25.6	23 08	11.7	15 53	379	350	07 15	29	2, 2, 3, 2, 3, 2, 1, 2	17	0	83.7
21	01 45	781	732	11 41	49	13 55	34.3	24.5	02 23	9.8	08 49	360	337	01 58	23	3, 1, 1, 1, 0, 0, 1, 2	9	0	83.7
22	04 47	783	697	16 41	86	15 44	46.4	22.0	22 51	24.4	16 23	428	340	04 48	88	1, 2, 1, 2, 3, 4, 3, 3	19	1	83.8

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

21 ESKDALEUIR (H)		16,000γ (0.16 C.G.S. unit) +																				DECEMBER 1959				
	Hour G.M.T.												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 17,000+
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12														
1	730	741	736	739	744	746	748	730	731	703	690	691	694	704	713	717	722	744	756	745	743	743	751	755	730	516
2	754	740	742	751	754	745	762	757	743	722	716	696	718	715	717	728	738	737	725	717	712	739	746	750	734	624
3 d	728	751	741	758	761	764	741	728	720	705	698	704	708	721	745	741	734	734	749	736	714	699	708	746	731	534
4	739	743	728	741	737	741	749	751	741	733	731	734	733	741	741	745	744	746	746	751	742	739	750	755	742	801
5 d	753	753	754	757	758	761	761	779	766	753	761	759	722	709	725	834	775	786	831	764	702	692	702	710	753	1067
6	707	711	707	710	715	725	716	717	719	724	726	731	732	725	728	729	737	735	730	733	742	745	751	746	727	441
7 q	736	740	728	739	743	742	745	746	743	741	739	737	736	735	732	733	741	751	755	755	753	757	760	746	743	833
8	747	750	748	749	751	753	751	751	754	748	748	750	748	750	748	751	761	744	761	758	745	742	742	750	750	1000
9	748	747	748	750	753	753	753	764	765	764	759	755	756	755	757	762	769	766	770	773	777	777	769	769	761	1259
10 q	772	761	756	756	765	764	765	766	765	765	761	759	757	757	761	766	771	769	772	765	762	765	765	767	764	1332
11 q	765	763	761	761	761	766	777	766	766	764	764	764	761	769	772	776	771	774	779	776	777	774	773	769	769	1449
12	768	769	764	779	764	772	769	768	766	758	761	763	760	750	758	762	767	771	761	767	760	737	722	721	760	1239
13	731	734	756	760	744	755	757	757	760	752	752	748	749	752	752	754	762	758	756	769	768	744	747	726	752	1043
14 d	733	736	746	733	740	772	766	736	722	714	714	710	732	721	712	730	729	726	724	730	734	728	732	743	732	563
15	742	749	749	752	759	746	752	764	743	729	726	742	724	734	735	737	734	729	718	744	753	757	761	778	744	857
16	746	745	745	753	762	764	766	767	754	736	726	734	742	738	727	736	731	730	738	735	731	747	747	738	743	838
17	739	745	750	752	752	756	765	769	759	754	743	743	737	749	752	754	757	758	753	750	749	755	761	759	753	1061
18	776	760	759	762	768	775	773	768	773	759	755	754	743	736	743	745	756	762	762	764	762	756	762	756	760	1229
19	773	764	759	757	765	771	779	775	772	746	737	733	717	735	737	734	739	737	738	749	755	755	754	750	751	1031
20	750	763	755	760	764	763	764	767	769	764	755	752	749	750	752	754	759	744	743	750	755	754	759	757	756	1152
21 q	759	763	764	765	768	767	771	771	770	765	760	756	753	756	760	765	768	771	775	776	773	770	769	765	766	1380
22 q	756	757	757	763	768	772	779	780	780	772	764	764	765	773	774	776	779	765	771	781	784	772	759	757	769	1468
23	762	760	761	761	766	769	773	770	771	761	749	743	747	757	765	777	752	740	739	744	753	753	754	708	756	1135
24	725	736	742	741	742	750	754	762	751	723	707	723	730	736	739	747	750	757	764	764	767	769	767	757	746	903
25	751	754	760	772	773	770	771	765	754	742	744	744	746	748	749	744	756	756	743	752	760	764	762	769	757	1175
26	765	764	759	760	756	776	772	769	771	766	758	730	729	755	734	737	740	727	741	746	749	758	736	715	751	1013
27 d	762	746	749	764	767	770	765	762	757	727	715	708	729	718	728	731	745	737	728	737	738	740	749	754	743	826
28 d	742	747	726	744	754	746	758	754	752	755	737	716	731	741	719	721	722	740	721	714	729	744	741	734	737	688
29	725	735	742	736	742	754	756	746	742	718	719	716	715	730	730	734	746	754	756	755	757	758	754	759	741	779
30	761	758	763	767	762	772	765	754	755	747	742	737	704	718	719	726	734	747	745	754	749	757	758	760	748	954
31	758	762	769	767	765	767	773	764	764	761	747	742	743	745	749	757	759	762	759	759	758	759	762	764	759	1215
Mean	749	750	749	753	756	760	761	759	755	745	739	737	736	739	741	749	750	752	752	750	750	751	749	749	749	749
Sum 22,000+	1203	1247	1224	1359	1423	1547	1595	1529	1409	1083	902	838	810	923	973	1203	1248	1257	1309	1313	1253	1249	1273	1233	749	Grand Total 557,403

767 at 0-1h. January 1, 1960.

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

22 ESKDALEUIR (D)		10° +																				DECEMBER 1959				
	Hour G.M.T.												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 600.0+
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12														
1	20.7	28.3	29.5	29.3	29.4	31.4	33.4	31.8	29.9	30.4	32.0	34.3	36.8	37.4	37.2	31.0	29.8	27.1	26.3	26.2	26.2	27.8	26.6	27.7	30.0	120.5
2	24.5	26.1	28.2	31.8	33.0	33.0	31.1	31.7	29.2	29.3	31.1	35.1	33.9	34.7	33.2	27.7	31.7	31.1	25.6	21.3	24.9	23.1	25.0	20.4	29.0	96.7
3 d	17.4	20.6	24.7	30.8	32.4	40.1	37.2	33.3	32.7	31.4	38.2	34.3	35.4	34.8	35.0	26.8	33.3	31.2	26.7	27.5	23.9	15.8	23.8	28.4	29.8	115.7
4	29.4	28.8	24.9	26.2	28.5	28.8	29.2	29.2	27.8	28.2	30.2	31.2	32.9	33.4	33.0	32.7	32.4	31.5	30.9	29.9	27.3	24.0	27.5	28.1	29.4	106.0
5 d	28.6	28.9	29.3	29.0	29.1	29.1	28.6	30.9	29.6	28.4	32.1	32.8	36.8	37.1	34.8	42.7	42.3	43.4	39.0	32.9	16.5	2.7	20.7	25.2	30.4	130.5
6	28.3	28.4	26.8	27.2	28.3	28.6	28.3	27.8	27.3	28.5	29.2	31.9	33.2	33.0	32.1	31.6	31.0	31.2	26.4	25.5	25.5	28.9	28.2	27.7	29.0	94.9
7 q	25.3	24.5	22.2	27.2	28.3	28.7	27.8	27.5	27.4	28.1	29.5	30.0	30.3	31.0	31.8	33.2	31.7	30.6	30.3	29.6	28.9	28.4	26.2	27.3	28.6	86.0
8	27.3	27.8	28.3	27.8	28.3	28.1	27.9	28.2	28.7	29.4	29.8	30.7	30.8	30.4	30.7	31.4	32.4	32.6	31.6	31.7	29.8	27.6	25.9	27.0	29.3	104.2
9	28.3	28.4	28.5	28.6	27.8	27.9	27.7	29.4	28.5	28.4	30.1	30.9	32.7	32.5	32.2	32.2	32.1	32.3	30.7	29.9	29.4	29.8	30.2	28.5	29.9	117.0
10 q	27.0	27.8	27.4	27.6	26.6	27.6	27.7	27.9	28.4	29.8	30.5	30.9	31.2	31.3	31.4	31.6	32.2	31.1	30.7	31.4	29.4	26.4	28.6	29.0	29.3	103.5
11 q	29.3	29.1	29.0	28.5	28.1	28.4	29.2	28.3	28.4	28.5	29.3	31.5	31.8	31.5	31.9	32.5	31.7	32.9	32.4	31.0	30.8	29.5	27.3	26.1	29.9	117.0
12	28.3	28.0	26.6	25.5	25.6	26.6	28.0	28.0	28.1	28.4	29.1	32.4	33.3	33.9	33.5	32.4	32.0	32.7	31.4	30.8	23.3	14.6	15.3	19.9	27.8	67.7
13	22.4	28.8	29.2	26.9	28.0	27.3	28.5	27.9	27.5	27.9	29.4	30.6	31.2	31.9	32.2	32.1	33.1	35.4	33.4	31.8	32.2	27.9	14.9	18.8	28.7	89.3
14 d	23.2	28.1	19.5	24.8	27.3	27.8	30.1	29.8	27.5	28.0	29.4	34.4	34.8	33.1	35.1	34.2	30.3	28.2	22.2	29.5	26.6	24.1	20.9	24.2	28.0	73.1
15	26.2	28.8	32.6	28.4	29.0	32.1	34.6	38.4	36.8	32.8	32.4	33.0	31.6	32.1	32.5	28.0	27.4	27.2	26.2	27.7	27.1	26.8	15.6	19.1	29.4	106.4
16	23.2	26.0	31.1	28.6	29.1	29.6	30.5	30.7	31.2	31.0	31.0	32.0	33.1	34.7	33.4	34.1	26.7	31.6	30.0	28.6	25.3	22.9	22.7	22.7	29.2	99

MEAN MONTHLY AND ANNUAL VALUES OF TERRESTRIAL MAGNETIC ELEMENTS
For all, a, quiet, q, and disturbed, d, days for H, D and Z and for all days for H, W, I and F

25 ESKDALEMUIR

	Horizontal (H) force			Declination (D) (west)			Vertical (Z) force			North component (X) all days	West component (-Y) all days	Inclination (I) (north) all days	Total force (F) all days
	a	q	d	a	q	d	a	q	d				
	16,000γ +			10° +			45,000γ +						
	γ	γ	γ				γ	γ	γ	γ	γ	°	γ
Jan.	736	748	716	35.3	35.9	34.5	335	327	350	16451	3075	69 44.3	48325
Feb.	733	741	721	34.6	34.4	34.1	337	334	347	16449	3071	69 44.5	48326
Mar.	739	752	704	34.0	34.6	32.5	333	328	343	16456	3070	69 44.0	48325
Apr.	744	753	739	33.1	33.1	34.0	340	332	355	16461	3066	69 43.8	48333
May	750	753	744	32.6	32.6	32.5	335	333	330	16467	3065	69 43.3	48331
June	760	760	753	32.6	32.4	32.1	335	334	345	16477	3067	69 42.6	48333
July	752	749	743	32.1	31.5	31.8	345	340	351	16470	3063	69 43.4	48341
Aug.	746	754	733	31.3	31.3	30.3	347	340	347	16464	3058	69 43.9	48341
Sept.	739	746	722	30.4	30.9	30.9	350	351	353	16458	3052	69 44.5	48340
Oct.	749	760	728	30.2	30.7	28.6	350	347	358	16468	3053	69 43.8	48344
Nov.	745	754	724	29.8	29.9	29.1	358	355	358	16464	3050	69 44.3	48350
Dec.	749	762	739	29.4	29.3	29.2	367	362	378	16469	3049	69 44.2	48360
Year	745	753	731	32.1	32.2	31.6	344	340	351	16463	3062	69 43.9	48337

DAILY RANGE AND MEAN MONTHLY VALUES

26 ESKDALEMUIR

	Mean daily range						Mean daily range expressed as percentage of yearly mean					
	1959			Mean 1932-53			1959			Mean 1932-53		
	H	D	Z	H	D	Z	H	D	Z	H	D	Z
	γ	γ	γ	γ	γ	γ	%	%	%	%	%	%
January	90	93	57	78	83	47	62	81	64	76	90	75
February	130	129	91	84	89	53	89	112	102	82	97	84
March	163	123	93	126	113	85	112	107	104	124	123	135
April	144	112	71	125	103	77	99	97	80	123	112	122
May	146	107	83	116	91	71	100	93	93	114	99	113
June	133	102	71	105	84	55	91	89	80	103	91	87
July	320	146	144	110	85	56	219	127	162	108	92	89
August	167	115	97	113	93	68	114	100	109	111	101	108
September	158	127	132	117	106	81	108	110	148	115	116	129
October	105	108	82	107	102	76	72	94	92	105	111	121
November	101	114	81	73	79	47	69	99	91	72	86	75
December	97	102	68	66	74	42	66	89	76	65	80	67
Winter	105	109	74	75	81	47	72	95	83	74	88	75
Equinox	143	117	95	119	106	80	98	102	107	117	115	127
Summer	191	117	99	111	88	63	131	102	111	109	96	100
Year	146	115	89	102	92	63	..	..	..	..	..	..

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

FREQUENCY DISTRIBUTION OF DAILY RANGE

27 ESKDALEMUIR

Range	Number of cases, 1959			Percentage distribution					
	H	D	Z	H		D		Z	
				1959	1932-53	1959	1932-53	1959	1932-53
γ				%	%	%	%	%	%
0 - 9	0	0	0	0.0	0.0	0.0	0.0	0.0	2.3
10 - 19	0	0	26	0.0	0.8	0.0	0.4	7.1	14.1
20 - 29	3	0	49	0.8	3.9	0.0	2.5	13.4	19.8
30 - 39	5	4	41	1.1	6.0	1.1	5.0	11.2	16.0
40 - 49	24	15	38	6.6	7.8	4.1	7.4	10.4	10.2
50 - 59	13	21	37	3.6	10.4	5.7	12.1	10.1	7.5
60 - 69	24	29	31	6.6	11.7	7.9	12.9	8.5	5.6
70 - 79	26	41	24	7.1	10.6	11.2	12.3	6.6	3.6
80 - 89	44	45	19	12.1	9.0	12.3	10.7	5.2	3.0
90 - 99	29	34	10	7.9	7.3	9.3	8.3	2.7	2.4
100 - 109	35	45	5	9.6	5.8	12.3	5.9	1.4	2.1
110 - 119	25	26	14	6.9	5.1	7.1	4.0	3.8	1.7
120 - 129	21	20	10	5.7	3.3	5.5	3.5	2.7	1.7
130 - 139	17	25	5	4.7	2.9	6.9	2.6	1.4	1.2
140 - 149	13	8	6	3.6	2.3	2.2	2.2	1.6	0.8
150 - 159	17	5	7	4.7	1.9	1.4	1.7	1.9	0.9
160 - 169	9	2	3	2.5	1.5	0.5	1.6	0.8	0.7
170 - 179	6	6	1	1.6	1.5	1.6	1.2	0.3	0.4
180 - 189	6	5	4	1.6	0.9	1.4	1.0	1.1	0.6
190 - 199	5	4	2	1.4	0.9	1.1	0.8	0.5	0.5
200 +	43	30	33	11.8	6.3	8.2	4.0	9.0	4.8
Days omitted	0	0	0	..	..	..	..	..	..

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)

28 ESKDALEMUIR

	Hour G.M.T.												12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12												
NORTH COMPONENT																								
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ		
Jan.	+3.1	+4.4	+4.5	+5.9	+9.6	+10.4	+11.0	+8.5	+3.0	-4.9	-9.4	-14.3	-17.6	-14.7	-9.1	-5.5	-4.0	-3.6	-2.1	+1.2	+4.5	+7.0	+4.0	
Feb.	+9.8	+6.4	+4.0	+6.3	+11.7	+18.8	+16.5	+8.9	+5.7	-5.9	-21.7	-25.0	-27.4	-24.1	-15.6	-8.0	-1.3	+7.1	+3.1	+4.3	+5.3	+6.0	+7.8	+7.4
Mar.	+8.5	+5.7	+3.4	+6.5	+4.9	+8.4	+6.9	+4.0	-1.5	-14.7	-26.1	-36.2	-34.7	-17.5	-6.5	+8.3	+14.3	+13.4	+15.9	+11.6	+11.5	+6.6	+3.0	+4.3
Apr.	+5.7	+7.3	+6.6	+8.4	+9.2	+11.9	+12.0	+7.6	-8.2	-22.3	-35.5	-44.1	-43.3	-34.8	-20.1	-2.3	+18.7	+24.4	+27.1	+21.6	+17.0	+14.4	+11.3	+7.5
May	+6.1	+7.0	+5.8	+5.0	+7.3	+7.5	+0.9	-8.8	-18.7	-29.9	-39.9	-42.4	-39.5	-27.3	-17.9	-3.3	+21.1	+33.6	+34.6	+29.4	+24.8	+20.1	+13.7	+10.7
June	+7.2	+7.6	+7.8	+5.6	+7.7	+5.8	-1.8	-13.3	-26.8	-37.4	-44.5	-44.3	-36.3	-26.3	-5.1	+7.0	+22.5	+33.4	+35.5	+29.3	+28.6	+17.2	+11.7	+9.1
July	-3.7	-5.4	-2.9	-7.0	-10.7	-11.8	-15.3	-21.7	-45.8	-50.7	-47.6	-46.0	-39.9	-26.2	-7.5	+48.8	+72.1	+62.1	+49.8	+48.0	+37.0	+22.3	+2.1	+0.1
Aug.	+5.0	+6.5	+8.8	+1.3	+6.3	+3.7	-4.5	-16.5	-23.6	-34.8	-42.8	-44.7	-35.3	-17.4	-9.5	+4.3	+28.8	+37.4	+33.3	+29.2	+25.9	+18.6	+12.3	+7.9
Sept.	+9.1	+6.5	+6.9	+8.0	+9.9	+11.1	+5.3	-7.0	-20.1	-31.9	-37.8	-35.5	-31.4	-19.6	-9.4	+0.7	+12.7	+18.9	+21.9	+22.2	+21.3	+18.0	+17.5	+2.6
Oct.	+10.5	+10.3	+9.5	+9.5	+12.1	+15.5	+13.8	+6.9	0.0	-11.2	-25.3	-30.3	-29.7	-23.9	-16.7	-9.3	-1.0	+3.6	+7.5	+8.5	+10.1	+11.5	+8.9	+9.3
Nov.	+5.6	+9.9	+7.1	+9.7	+10.9	+12.1	+14.9	+8.9	+3.0	-6.8	-18.8	-25.4	-26.1	-19.2	-12.9	-8.6	-5.8	+0.4	+2.4	+5.4	+10.1	+8.6	+7.7	+6.8
Dec.	+2.4	+2.5	+1.2	+4.9	+6.4	+9.8	+11.5	+9.2	+5.8	-4.3	-10.9	-14.5	-16.5	-13.3	-11.6	-3.3	-1.4	-0.9	+2.5	+3.0	+2.8	+4.8	+5.7	+4.1
Year	+5.8	+5.7	+5.3	+5.3	+7.1	+8.7	+5.9	-1.1	-10.7	-21.2	-30.1	-33.5	-31.5	-22.1	-11.9	+2.4	+14.7	+19.2	+19.3	+17.8	+16.6	+12.9	+9.1	+6.1
Winter	+5.3	+5.8	+4.2	+6.7	+9.7	+12.8	+13.5	+8.9	+4.3	-5.4	-15.2	-19.8	-21.9	-17.9	-12.3	-6.3	-3.1	+0.7	+1.5	+3.5	+5.6	+6.6	+7.3	+5.6
Equinox	+8.4	+7.3	+6.6	+8.1	+9.0	+11.8	+9.5	+2.8	-7.5	-20.1	-31.1	-36.5	-34.7	-23.9	-13.2	-0.6	+11.1	+15.1	+18.1	+15.9	+15.0	+12.6	+10.1	+5.9
Summer	+3.6	+3.9	+4.9	+1.3	+2.6	+1.3	-5.1	-15.1	-28.7	-38.2	-43.7	-44.3	-37.7	-24.3	-10.0	+14.2	+36.1	+41.7	+38.3	+34.0	+29.1	+19.6	+9.9	+7.0
WEST COMPONENT																								
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
Jan.	-16.3	-14.2	-9.7	-7.6	-7.5	-5.5	-5.0	-7.2	-9.4	-5.7	-1.5	+5.5	+13.8	+20.9	+20.2	+20.0	+19.7	+16.5	+13.3	+2.1	-4.0	-9.2	-14.1	-15.2
Feb.	-22.6	-15.2	-14.7	-6.0	-5.7	-5.4	-1.6	-2.5	-11.8	-14.9	-7.1	+6.5	+19.5	+27.5	+31.5	+30.2	+20.7	+14.4	+7.9	+1.1	-4.9	-12.9	-15.2	-19.0
Mar.	-15.1	-16.8	-13.7	-13.9	-11.8	-14.9	-11.1	-14.5	-25.6	-22.9	-9.2	+10.8	+26.9	+38.6	+39.9	+34.2	+24.9	+19.2	+10.2	+0.8	0.0	-6.7	-13.8	-15.5
Apr.	-9.1	-10.0	-10.6	-16.9	-16.0	-14.3	-19.0	-26.4	-32.6	-28.1	-15.5	+4.6	+24.6	+36.7	+39.3	+35.5	+28.4	+18.7	+10.8	+9.7	+5.3	+0.3	-6.5	-8.3
May	-2.2	-7.5	-8.8	-12.5	-16.8	-24.7	-33.6	-34.3	-32.1	-25.5	-10.5	+7.9	+24.0	+33.1	+29.9	+28.0	+25.8	+16.2	+12.2	+12.1	+9.3	-6.3	+3.5	0.0
June	-4.7	-8.2	-14.0	-15.4	-17.7	-28.0	-36.4	-40.9	-41.3	-30.7	-14.8	+5.0	+24.4	+34.0	+39.1	+34.7	+30.7	+26.1	+19.9	+16.9	+15.2	+5.0	+3.5	-2.6
July	-6.1	-9.3	-11.3	-11.6	-20.1	-28.0	-35.5	-41.4	-47.2	-39.2	-22.2	-1.8	+15.1	+29.7	+36.0	+39.9	+47.3	+38.0	+27.1	+21.5	+16.5	+5.8	+2.9	-5.9
Aug.	-5.4	-11.8	-7.7	-11.6	-16.2	-24.3	-31.8	-31.6	-32.1	-26.5	-11.1	+8.3	+28.5	+39.6	+37.9	+32.1	+21.4	+14.5	+9.5	+8.6	+5.5	+6.0	-0.4	-1.5
Sept.	-12.6	-14.3	-15.5	-15.1	-14.0	-11.2	-10.3	-16.9	-21.6	-11.0	+2.7	+20.2	+29.0	+35.0	+33.8	+25.0	+16.3	+10.4	+5.1	+2.7	-2.7	-7.7	-13.7	-13.6
Oct.	-11.1	-8.7	-15.1	-12.2	-8.0	-4.9	-3.7	-5.9	-11.3	-11.5	-3.7	+11.4	+23.9	+26.1	+28.7	+24.0	+16.7	+13.1	+7.2	+2.5	-7.4	-16.7	-17.7	-15.6
Nov.	-13.7	-8.6	-9.4	-8.1	-3.0	-0.6	-1.7	-2.2	-5.0	-7.6	-3.4	+8.5	+19.3	+26.7	+25.0	+21.8	+16.4	+9.5	+0.8	-7.4	-12.7	-13.8	-15.4	-15.7
Dec.	-17.0	-9.6	-6.3	-3.0	+0.7	+3.5	+4.3	+3.9	+1.1	-2.2	+1.9	+9.4	+15.6	+18.5	+18.0	+14.1	+11.3	+9.8	+1.5	-0.7	-10.3	-21.5	-22.4	-20.5
Year	-11.3	-11.2	-11.4	-11.1	-11.3	-13.1	-15.5	-18.3	-22.4	-18.8	-7.9	+8.0	+22.1	+30.5	+31.6	+28.3	+23.3	+17.2	+10.5	+5.8	+0.9	-5.5	-9.1	-11.1
Winter	-17.4	-11.9	-10.0	-6.2	-3.9	-2.0	-1.0	-2.0	-6.3	-7.5	-2.6	+7.5	+17.1	+23.4	+23.7	+21.6	+17.0	+12.6	+5.9	-1.2	-7.9	-14.4	-16.8	-17.6
Equinox	-12.0	-12.5	-13.7	-14.5	-12.4	-11.3	-11.0	-16.0	-22.8	-18.5	-6.4	+11.9	+26.1	+34.1	+35.5	+29.7	+21.5	+15.3	+8.3	+3.9	-1.2	-7.9	-12.9	-13.2
Summer	-4.6	-9.2	-10.5	-12.7	-17.7	-26.2	-34.3	-37.1	-38.2	-30.5	-14.6	+4.9	+23.0	+34.1	+35.8	+33.7	+31.3	+23.7	+17.2	+14.7	+11.7	+5.8	+2.4	-2.5
VERTICAL COMPONENT																								
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
Jan.	-6.3	-5.0	-4.8	-5.9	-7.3	-8.3	-7.7	-6.1	-4.6	-4.5	-4.5	-5.1	-4.7	-2.0	+4.4	+6.3	+8.8	+13.2	+15.4	+14.6	+10.3	+6.7	+0.6	-3.5
Feb.	-11.2	-14.0	-15.6	-15.0	-18.1	-18.5	-18.6	-15.4	-11.4	-7.0	-7.0	-7.2	-6.2	+1.0	+10.8	+21.4	+29.8	+31.3	+26.4	+23.9	+17.4	+9.4	+0.6	-6.8
Mar.	-7.8	-11.3	-12.5	-13.4	-15.5	-14.0	-12.1	-9.7	-5.2	-4.0	-8.2	-11.1	-9.1	-0.9	+12.5	+22.1	+26.2	+29.5	+29.5	+22.7	+8.7	+0.4	-7.7	-9.1
Apr.	-5.9	-8.4	-11.4	-10.1	-7.9	-9.0	-7.3	-5.4	-5.4	-8.9	-12.8	-15.5	-16.5	-10.2	+0.5	+10.6	+20.2	+25.0	+25.7	+20.4	+16.6	+12.6	+5.5	-2.4
May	-10.2	-9.0	-9.6	-8.1	-5.8	-5.4	-2.5	-1.9	-5.1	-9.7	-14.7	-18.1	-15.3	-7.7	+0.9	+8.7	+17.3	+23.8	+26.3	+22.6	+17.4	+10.9	+1.4	-6.2
June	-3.9	-9.7	-9.6	-9.3	-8.1	-5.1	-3.2	-2.9	-5.2	-11.1	-17.5	-22.0	-18.1	-10.3	+0.3	+11.3	+19.9	+24.7	+25.4	+20.5	+16.3	+11.6	+4.8	+1.2
July	-15.3	-19.0	-20.8	-22.9	-18.4	-15.4	-9.0	-2.1	+3.1	+0.5	-3.5	-7.4	-7.1	+2.9	+12.8	+25.0	+15.6	+19.5	+26.2	+28.0	+17.3	+13.3	-6.0	-17.3
Aug.	-15.6	-15.2	-17.0	-19.4	-17.8	-14.2	-8.8	-6.5	-5.9	-7.7	-10.9	-13.3	-9.8	+2.4	+12.2	+21.7	+31.2	+32.0	+29.1	+22.4	+15.1	+6.2	-1.8	-8.4
Sept.	-24.2	-26.1	-29.4	-24.4	-17.1	-13.0	-8.9	-4.5	-3.0	-4.3	-6.8	-6.3	-1.5	+5.7	+16.0	+26.6	+34.3	+34.5	+31.5	+27.3	+17.5	+7.3	-8.4	-22.8
Oct.	-9.1	-10.0	-12.9	-13.1	-15.2	-13.7	-10.3	-6.2	-2.9	-2.5	-4.1	-6.1	-2.8	+3.4	+7.5	+15.7	+22.2	+22.9	+21.2	+17.5	+12.0	+0.6	-4.7	-9.4
Nov.	-10.2	-12.1	-17.6	-19.9	-21.1	-19.9	-16.0	-11.7	-6.8	-3.7	-3.1	-1.2	+1.7	+7.3	+16.1	+21.0	+23.2	+22.5	+19.5	+17.1	+10.3	+4.9	+2.0	-2.3
Dec.	-9.3	-11.4	-13.4	-14.5	-14.4	-14.7	-14.3	-11.3	-9.0	-7.7	-6.3	-2.7	+0.1	+4.7	+9.2	+17.7	+19.2	+19.3	+19.0	+15.9	+14.9	+9.6	+2.6	-3.2
Year	-10.7	-12.6	-14.5	-14.7	-13.9	-12.6	-9.9	-7.0	-5.1	-5.9	-8.3	-9.7	-7.4	-0.3	+8.6	+17.3	+22.3	+24.9	+24.6	+21.1	+14.5	+7.8	-0.9	-7.5
Winter	-9.3	-10.6	-12.9	-13.8	-15.2	-15.3	-14.1	-11.1	-7.9	-5.7	-5.2	-4.1	-2.3	+2.7	+10.1	+16.6	+20.3	+21.6	+20.1	+17.9	+13.2	+7.7	+1.5	-3.9
Equinox	-11.7	-13.9	-16.5	-15.3	-13.9	-12.4	-9.7	-6.5	-4.1	-4.9	-8.0	-9.7	-7.5	-0.5	+9.1	+18.7	+25.7	+28.0	+27.0	+22.0	+13.7	+5.2	-3.8	-10.9
Summer	-11.3	-13.2	-14.3	-14.9	-12.5	-10.0	-5.9	-3.3	-3.3	-7.0	-11.7	-15.2	-12.6	-3.2	+6.5	+16.7	+21.0	+25.0	+26.7	+23.4	+16.5	+10.5	-0.4	-7.7

"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 MAGNETIC ELEMENTS, DECLINATION, INCLINATION, AND HORIZONTAL FORCE

ALL DAYS

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

29 ESKDALEMUIR

	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
DECLINATION (measured positive towards the west)																								
Jan.	-3.40	-3.02	-2.12	-1.76	-1.87	-1.50	-1.43	-1.78	-2.01	-0.96	+0.05	+1.65	+3.44	+4.76	+4.43	+4.24	+4.12	+3.46	+2.76	+0.38	-0.97	-2.12	-3.14	-3.21
Feb.	-4.94	-3.31	-3.13	-1.46	-1.59	-1.81	-0.95	-0.83	-2.60	-2.78	-0.62	+2.27	+4.99	+6.48	+6.97	+6.41	+4.23	+2.64	+1.47	+0.06	-1.18	-2.84	-3.36	-4.12
Mar.	-3.36	-3.60	-2.90	-3.05	-2.57	-3.32	-2.49	-3.08	-5.11	-4.08	-0.88	+3.54	+6.73	+8.44	+8.31	+6.58	+4.49	+3.37	+1.46	-0.27	-0.43	-1.61	-2.89	-3.28
Apr.	-2.04	-2.29	-2.38	-3.73	-3.57	-3.33	-4.28	-5.62	-6.27	-4.84	-1.80	+2.58	+6.60	+8.72	+8.69	+7.24	+5.03	+2.85	+1.17	+1.14	+0.42	-0.60	-1.74	-1.95
May	-0.67	-1.77	-2.00	-2.70	-3.66	-5.26	-6.82	-6.60	-5.78	-4.02	-0.62	+3.19	+6.33	+7.71	+6.71	+5.78	+4.42	+2.00	+1.17	+1.33	+0.95	+0.52	+0.20	-0.41
June	-1.21	-1.95	-3.12	-3.31	-3.85	-5.86	-7.28	-7.76	-7.33	-4.78	-1.31	+2.67	+6.28	+7.84	+8.08	+6.75	+5.36	+4.02	+2.69	+2.30	+2.00	+0.37	+0.26	-0.86
July	-1.10	-1.67	-2.18	-2.08	-3.66	-5.20	-6.60	-7.54	-7.81	-6.00	-2.70	+1.37	+4.54	+6.98	+7.55	+6.21	+6.84	+5.33	+3.61	+2.53	+1.94	+0.34	+0.50	-1.20
Aug.	-1.27	-2.62	-1.89	-2.39	-3.51	-5.04	-6.25	-5.76	-5.58	-4.04	-0.63	+3.36	+7.08	+8.65	+8.01	+6.32	+3.24	+1.53	+0.66	+0.63	+0.14	+0.51	-0.54	-0.61
Sept.	-2.88	-3.14	-3.38	-3.35	-3.19	-2.67	-2.28	-3.15	-3.61	-1.03	+1.96	+5.41	+7.02	+7.80	+7.18	+5.02	+2.81	+1.40	+0.21	-0.29	-1.35	-2.22	-3.42	-2.85
Oct.	-2.63	-2.14	-3.41	-2.82	-2.07	-1.57	-1.26	-1.46	-2.28	-1.91	+0.20	+3.44	+5.92	+6.16	+6.42	+5.19	+3.41	+2.52	+1.17	+0.19	-1.87	-3.81	-3.90	-3.49
Nov.	-2.97	-2.10	-2.17	-2.00	-1.02	-0.58	-0.89	-0.77	-1.11	-1.27	+0.01	+2.67	+4.87	+6.11	+5.52	+4.73	+3.53	+1.91	+0.08	-1.69	-2.93	-3.11	-3.39	-3.43
Dec.	-3.52	-2.04	-1.31	-0.79	-0.09	+0.34	+0.44	+0.44	0.00	-0.28	+0.78	+2.44	+3.76	+4.24	+4.06	+2.96	+2.33	+2.01	+0.21	-0.25	-2.18	-4.52	-4.74	-4.29
Year	-2.50	-2.47	-2.50	-2.45	-2.55	-2.98	-3.34	-3.66	-4.12	-3.00	-0.46	+2.88	+5.63	+6.99	+6.83	+5.62	+4.15	+2.75	+1.39	+0.51	-0.45	-1.59	-2.18	-2.47
Winter	-3.71	-2.62	-2.18	-1.50	-1.14	-0.89	-0.71	-0.73	-1.43	-1.32	+0.05	+2.26	+4.27	+5.40	+5.25	+4.59	+3.55	+2.51	+1.13	-0.37	-1.81	-3.15	-3.66	-3.76
Equinox	-2.73	-2.79	-3.02	-3.24	-2.85	-2.72	-2.58	-3.33	-4.32	-2.97	-0.13	+3.77	+6.57	+7.78	+7.65	+6.01	+3.93	+2.53	+1.00	+0.19	-0.81	-2.06	-2.99	-2.89
Summer	-1.06	-2.00	-2.30	-2.62	-3.67	-5.34	-6.74	-6.91	-6.63	-4.71	-1.31	+2.65	+6.06	+7.79	+7.59	+6.27	+4.97	+3.22	+2.03	+1.70	+1.26	+0.43	+0.11	-0.77
INCLINATION																								
Jan.	-0.16	-0.24	-0.30	-0.44	-0.72	-0.82	-0.85	-0.62	-0.19	+0.28	+0.52	+0.74	+0.87	+0.66	+0.46	+0.27	+0.24	+0.36	+0.35	+0.25	+0.01	-0.18	-0.33	-0.17
Feb.	-0.64	-0.58	-0.46	-0.71	-1.15	-1.62	-1.52	-0.93	-0.51	+0.39	+1.33	+1.38	+1.41	+1.27	+0.91	+0.68	+0.57	+0.13	+0.35	+0.29	+0.14	0.00	-0.31	-0.42
Mar.	-0.57	-0.45	-0.36	-0.58	-0.56	-0.71	-0.62	-0.33	+0.29	+1.14	+1.62	+1.97	+1.72	+0.66	+0.25	-0.42	-0.60	-0.39	-0.44	-0.22	-0.54	-0.34	-0.22	-0.32
Apr.	-0.41	-0.56	-0.59	-0.59	-0.60	-0.83	-0.73	-0.31	+0.80	+1.59	+2.20	+2.45	+2.13	+1.58	+0.85	-0.02	-1.08	-1.21	-1.28	-1.03	-0.77	-0.63	-0.53	-0.45
May	-0.63	-0.59	-0.51	-0.37	-0.42	-0.33	+0.29	+0.95	+1.49	+2.03	+2.38	+2.23	+1.92	+1.20	+0.83	+0.09	-1.27	-1.81	-1.77	-1.52	-1.31	-1.13	-0.91	-0.85
June	-0.51	-0.64	-0.58	-0.41	-0.49	-0.17	+0.48	+1.30	+2.13	+2.55	+2.67	+2.31	+1.63	+1.05	-0.13	-0.60	-1.36	-1.90	-1.95	-1.62	-1.66	-0.90	-0.69	-0.54
July	-0.06	0.00	-0.18	+0.04	+0.49	+0.73	+1.21	+1.88	+3.66	+3.81	+3.31	+2.86	+2.26	+1.43	+0.37	-3.07	-4.92	-4.06	-2.95	-2.72	-2.20	-1.21	-0.32	-0.36
Aug.	-0.64	-0.65	-0.90	-0.42	-0.65	-0.30	+0.46	+1.31	+1.80	+2.42	+2.67	+2.50	+1.73	+0.72	+0.46	-0.14	-1.38	-1.84	-1.59	-1.47	-1.40	-1.14	-0.84	-0.71
Sept.	-1.03	-0.89	-0.99	-0.94	-0.90	-0.91	-0.44	+0.56	+1.51	+2.12	+2.28	+1.93	+1.67	+1.00	+0.60	+0.30	-0.19	-0.52	-0.73	-0.81	-0.94	-0.91	-1.19	-0.57
Oct.	-0.78	-0.81	-0.76	-0.80	-1.07	-1.29	-1.11	-0.53	+0.07	+0.81	+1.61	+1.69	+1.59	+1.33	+0.93	+0.71	+0.41	+0.17	-0.06	-0.16	-0.28	-0.54	-0.48	-0.65
Nov.	-0.45	-0.85	-0.79	-1.03	-1.20	-1.28	-1.35	-0.85	-0.30	+0.45	+1.20	+1.53	+1.51	+1.11	+0.94	+0.82	+0.75	+0.41	+0.31	+0.15	-0.25	-0.27	-0.27	-0.31
Dec.	-0.18	-0.33	-0.33	-0.64	-0.78	-1.05	-1.16	-0.93	-0.61	+0.12	+0.54	+0.77	+0.90	+0.76	+0.77	+0.48	+0.43	+0.41	+0.29	+0.20	+0.31	+0.18	-0.04	-0.10
Year	-0.50	-0.55	-0.56	-0.57	-0.67	-0.72	-0.44	+0.12	+0.85	+1.48	+1.86	+1.86	+1.61	+1.07	+0.61	-0.07	-0.70	-0.85	-0.79	-0.72	-0.74	-0.59	-0.51	-0.45
Winter	-0.36	-0.49	-0.47	-0.71	-0.96	-1.19	-1.22	-0.83	-0.40	+0.31	+0.90	+1.11	+1.17	+0.95	+0.77	+0.56	+0.49	+0.33	+0.33	+0.23	+0.05	-0.07	-0.24	-0.25
Equinox	-0.69	-0.67	-0.67	-0.73	-0.78	-0.94	-0.73	-0.15	+0.67	+1.42	+1.92	+2.01	+1.78	+1.14	+0.66	+0.14	-0.36	-0.49	-0.62	-0.55	-0.63	-0.61	-0.60	-0.49
Summer	-0.46	-0.47	-0.55	-0.29	-0.26	-0.01	+0.61	+1.36	+2.27	+2.70	+2.76	+2.47	+1.88	+1.10	+0.38	-0.93	-2.23	-2.41	-2.06	-1.83	-1.64	-1.09	-0.69	-0.62
HORIZONTAL FORCE																								
Jan.	+0.1	+1.7	+2.7	+4.4	+8.1	+9.2	+9.9	+7.0	+1.2	-5.8	-9.5	-13.0	-14.8	-10.6	-5.3	-1.8	-0.3	-0.5	+0.4	+1.6	+3.7	+5.2	+5.2	+1.2
Feb.	+5.5	+3.6	+1.2	+5.1	+10.5	+17.5	+15.9	+8.3	+3.4	-8.5	-22.6	-23.4	-23.4	-18.7	-9.6	-2.3	+2.5	+9.6	+4.5	+4.4	+4.3	+3.5	+4.9	+3.8
Mar.	+5.6	+2.5	+0.8	+3.8	+2.7	+5.5	+4.8	+1.3	-6.2	-18.6	-27.3	-33.6	-29.2	-10.2	+0.9	+14.4	+18.6	+16.7	+17.5	+11.6	+11.3	+5.3	+0.4	+1.4
Apr.	+3.9	+5.3	+4.6	+5.2	+6.1	+9.1	+8.3	+2.6	-14.0	-27.1	-37.7	-42.5	-38.1	-27.5	-12.6	+4.2	+23.6	+27.4	+28.6	+23.0	+17.7	+14.1	+9.9	+5.9
May	+5.6	+5.5	+4.1	+2.6	+4.1	+2.9	+5.3	-14.9	-24.2	-34.1	-41.1	-40.2	-34.4	-20.8	-12.1	+1.9	+25.5	+36.0	+36.2	+31.1	+26.1	+20.9	+14.1	+10.5
June	+6.2	+6.0	+5.1	+2.7	+4.3	+0.6	-8.4	-20.6	-33.9	-42.4	-46.5	-42.7	-31.2	-19.6	+2.1	+13.2	+27.7	+37.6	+38.6	+31.9	+30.9	+17.8	+12.1	+8.5
July	-4.8	-7.0	-4.9	-9.0	-14.2	-16.7	-21.5	-28.9	-53.7	-57.0	-50.9	-45.6	-36.5	-20.3	-0.8	+55.3	+79.5	+68.0	+53.9	+51.1	+39.4	+23.0	+2.6	-1.0
Aug.	+3.9	+4.2	+7.2	-0.9	+3.2	-0.8	-10.2	-22.0	-29.1	-39.1	-44.1	-42.4	-29.5	-9.9	-2.4	+10.1	+32.2	+39.4	+34.5	+30.3	+26.5	+19.4	+12.0	+7.5
Sept.	+6.6	+3.8	+4.0	+5.1	+7.2	+8.9	+3.3	-10.0	-23.7	-33.4	-36.7	-31.2	-25.6	-12.9	-3.1	+5.3	+15.5	+20.5	+22.5	+22.3	+20.5	+16.3	+14.7	+0.1
Oct.	+8.3	+8.5	+6.6	+7.1	+10.4	+14.3	+12.9	+5.7	-2.1	-13.1	-25.6	-27.7	-24.8	-18.7	-11.2	-4.8	+2.1	+5.9	+8.7	+8.8	+8.6	+8.3	+5.5	+6.3
Nov.	+3.0	+8.2	+5.3	+8.1	+10.2	+11.8	+14.3	+8.4	+2.0	-8.1	-19.1	-23.4	-22.1	-14.0	-8.1	-4.5	-2.7	+2.1	+2.5	+4.0	+7.6	+5.9	+4.8	+3.8
Dec.	-0.7	+0.7	0.0	+4.3	+6.4	+10.3	+12.1	+9.8	+5.9	-4.6	-10.4	-12.5	-13.4	-9.7	-8.1	-0.7	+0.7	+0.9	+2.7	+2.8	+0.9	+0.8	+1.5	+0.3
Year	+3.6	+3.6	+3.1	+3.2	+4.9	+6.1	+3.0	-4.4	-14.6	-24.3	-31.0	-31.5	-26.9	-16.1	-5.9	+7.5	+18.7	+22.0	+20.9	+18.6	+16.5	+11.7	+7.3	+4.0
Winter	+2.0	+3.5	+2.3	+5.5	+8.8	+12.2	+13.1	+8.4	+3.1	-6.7	-15.4	-18.1	-18.4	-13.3	-7.8	-2.3	+0.1	+3.0	+2.5	+3.2	+4.1	+3.9	+4.1	+2.3
Equinox	+6.1	+5.0	+4.0	+5.3	+6.6	+9.5	+7.3	+0.1	-11.5	-23.1	-31.8	-33.7	-29.4	-17.3	-6.5	+4.8	+14.9	+17.6	+19.3	+16.4	+14.5	+11.0	+7.6	+3.4
Summer	+2.7	+2.2	+2.9	-1.1	-0.7	-3.5	-11.3	-21.6	-35.2	-43.1	-45.7	-42.7	-32.9	-17.7	-3.3	+20.1	+41.2	+45.3	+40.8	+36.1	+30.7	+20.3	+10.2	+6.4

"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)

	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
NORTH COMPONENT																								
	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.	+2.0	+2.7	+3.1	+4.7	+7.2	+9.5	+10.5	+7.6	+1.4	-8.3	-15.0	-19.7	-18.8	-13.9	-7.7	-5.3	-3.1	-0.5	+3.8	+6.7	+8.9	+10.4	+7.1	+6.5
Feb.	+2.3	+3.0	+3.7	+4.2	+6.5	+8.2	+9.4	+8.0	+3.0	-6.7	-16.9	-24.7	-24.0	-20.2	-12.2	-7.9	-4.1	+0.7	+7.2	+9.9	+9.4	+10.6	+15.3	+15.4
Mar.	+8.4	+10.1	+9.9	+11.0	+12.1	+13.0	+14.0	+11.3	+0.2	-15.8	-27.8	-35.3	-35.1	-28.8	-21.7	-11.8	-4.3	+1.9	+7.6	+13.6	+15.2	+16.9	+17.3	+17.7
Apr.	+10.2	+8.2	+6.3	+6.9	+10.2	+10.9	+11.6	+9.3	0.0	-16.8	-29.2	-37.3	-37.0	-31.7	-21.0	-8.5	+1.0	+11.4	+14.2	+17.1	+15.4	+16.8	+17.1	+15.0
May	+3.4	+4.1	+2.6	+4.9	+8.1	+8.2	+6.4	-1.1	-12.1	-21.2	-29.1	-34.5	-37.7	-23.6	-12.0	-0.2	+11.7	+18.1	+21.8	+19.7	+18.5	+17.5	+15.5	+10.9
June	+7.7	+6.1	+5.7	+7.9	+8.2	+4.7	-2.1	-12.4	-26.8	-38.9	-41.7	-40.7	-31.8	-23.9	-11.7	-2.8	+9.7	+26.5	+32.9	+28.0	+35.7	+24.3	+19.0	+16.7
July	+2.7	+0.7	+3.6	-1.9	+4.4	+4.7	-1.7	-7.5	-21.5	-29.7	-35.9	-36.9	-32.3	-19.0	-6.1	+4.8	+15.2	+18.9	+26.8	+23.4	+25.0	+22.3	+24.0	+15.9
Aug.	+10.4	+11.9	+10.2	+9.0	+8.0	+5.8	+0.8	-6.8	-14.3	-23.2	-30.7	-34.4	-31.7	-23.5	-11.6	-2.9	+4.9	+10.7	+17.7	+19.8	+21.2	+17.3	+16.2	+15.2
Sept.	+11.5	+10.1	+8.8	+8.2	+8.1	+7.4	+2.7	-6.9	-17.3	-32.7	-38.7	-36.0	-30.6	-19.6	-9.8	-3.2	+6.9	+12.2	+16.6	+19.6	+21.1	+19.0	+21.7	+20.7
Oct.	+8.1	+4.5	+4.9	+6.2	+5.8	+7.0	+7.8	+7.1	+0.9	-9.1	-20.4	-26.1	-25.1	-21.6	-15.4	-8.4	-2.5	+4.5	+10.1	+9.5	+12.4	+13.7	+14.0	+12.2
Nov.	+6.3	+6.3	+4.0	+1.7	+5.9	+7.4	+9.3	+0.6	+3.0	-7.0	-17.5	-23.6	-20.8	-16.4	-12.2	-10.6	+0.1	+5.4	+9.1	+6.5	+8.5	+10.3	+11.7	+11.9
Dec.	-2.6	-3.6	-6.7	-4.3	-0.1	+0.7	+5.8	+4.5	+3.7	0.0	-4.6	-7.3	-9.4	-6.4	-4.8	-1.8	+1.2	+1.4	+6.6	+7.0	+7.2	+6.9	+5.8	+0.9
Year	+5.9	+5.3	+4.7	+4.9	+7.1	+7.3	+6.2	+1.1	-6.6	-17.5	-25.6	-29.7	-27.9	-20.7	-12.2	-4.9	+3.1	+9.2	+14.5	+15.1	+16.5	+15.5	+15.4	+13.2
Winter	+2.0	+2.1	+1.0	+1.6	+4.9	+6.5	+8.8	+5.1	+2.8	-5.6	-13.5	-18.8	-18.2	-14.2	-9.3	-6.4	-1.5	+1.7	+6.7	+7.5	+8.5	+9.5	+10.0	+8.7
Equinox	+9.6	+8.2	+7.5	+8.1	+9.1	+9.6	+9.0	+5.2	-4.0	-18.6	-29.1	-33.7	-32.0	-25.4	-16.9	-8.0	+0.3	+7.5	+12.2	+15.0	+16.0	+16.6	+17.5	+16.5
Summer	+6.1	+5.7	+5.6	+4.9	+7.2	+5.8	+0.8	-7.0	-18.7	-28.3	-34.4	-36.7	-33.4	-22.5	-10.3	-0.2	+10.4	+18.5	+24.8	+22.7	+25.1	+20.3	+18.7	+14.7
WEST COMPONENT																								
	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.	-4.5	-4.7	-2.3	-2.8	-3.9	-4.2	-5.8	-9.1	-10.7	-9.1	-6.7	-0.5	+9.5	+15.5	+11.7	+9.1	+8.8	+9.2	+7.2	+4.2	+0.1	-5.0	-2.9	-3.1
Feb.	-2.8	-0.3	-1.8	-3.3	-3.7	-4.9	-6.4	-9.7	-16.6	-22.5	-17.0	-5.4	+9.1	+13.8	+18.2	+13.7	+9.3	+6.3	+8.0	+7.5	+4.7	+0.6	+1.1	+2.1
Mar.	-3.8	-6.4	-4.3	-5.5	-7.2	-8.7	-12.0	-22.5	-31.9	-32.3	-20.2	-1.7	+17.2	+25.9	+26.8	+21.7	+14.1	+11.4	+11.5	+10.1	+8.1	+6.7	+2.1	+0.8
Apr.	-2.7	-3.7	-2.8	-6.1	-10.4	-14.1	-20.2	-28.6	-35.5	-33.2	-22.7	-5.5	+15.8	+27.3	+30.5	+26.4	+19.3	+13.3	+8.3	+8.2	+11.1	+11.8	+8.2	+5.2
May	-0.9	-1.9	-7.9	-9.8	-16.8	-24.9	-29.8	-34.2	-29.7	-28.1	-13.5	+5.6	+19.1	+25.7	+16.0	+25.1	+20.5	+14.9	+13.9	+14.7	+13.5	+13.3	+9.9	+5.6
June	-0.6	-4.3	-4.4	-6.8	-13.7	-25.0	-33.9	-40.5	-42.9	-38.3	-22.7	-4.2	+17.3	+26.9	+31.2	+30.9	+28.9	+24.9	+20.6	+19.0	+18.3	+14.5	+5.9	-1.2
July	-3.6	-4.1	-4.6	-9.8	-14.5	-28.6	-34.4	-40.2	-41.9	-33.1	-16.1	-0.3	+16.1	+31.7	+37.4	+31.5	+25.0	+20.9	+18.5	+14.8	+13.4	+11.9	+7.8	+2.4
Aug.	+1.5	-0.3	-6.6	-11.6	-16.4	-26.2	-33.5	-39.4	-38.0	-28.9	-11.6	+6.2	+24.2	+35.0	+35.3	+27.3	+17.0	+11.0	+12.4	+13.3	+11.6	+9.4	+5.1	+3.0
Sept.	-12.7	-9.8	-10.3	-14.0	-15.4	-19.5	-25.7	-32.4	-32.6	-20.5	-2.7	+15.6	+25.7	+31.6	+28.5	+20.1	+14.2	+14.6	+15.9	+15.5	+12.2	+8.7	-2.9	-3.8
Oct.	-7.2	-9.3	-8.7	-8.8	-8.9	-9.3	-9.5	-12.5	-18.9	-18.4	-9.4	+5.1	+17.1	+21.6	+22.8	+19.6	+14.9	+7.5	+11.0	+9.4	-1.3	-0.1	-3.0	-3.9
Nov.	-9.7	-6.9	-5.3	-7.1	-6.3	-5.4	-4.9	-8.7	-11.9	-15.4	-10.0	0.0	+13.3	+17.5	+18.5	+15.3	+14.7	+10.8	+11.2	+8.9	+0.8	-1.8	-3.8	-13.9
Dec.	-11.1	-10.3	-12.6	-6.5	-6.0	-3.9	-2.9	-4.6	-5.3	-4.2	-0.4	+5.5	+7.8	+11.3	+13.5	+15.2	+14.4	+13.5	+9.5	+8.4	+3.6	-7.8	-14.8	-12.4
Year	-4.9	-5.1	-6.0	-7.7	-10.3	-14.6	-18.3	-23.5	-26.3	-23.7	-12.7	+1.7	+16.0	+23.7	+24.2	+21.3	+16.8	+13.2	+12.4	+11.2	+8.0	+5.2	+1.1	-1.6
Winter	-7.0	-5.5	-5.5	-4.9	-5.0	-4.6	-5.0	-8.0	-11.1	-12.8	-8.5	-0.1	+9.9	+14.5	+15.5	+13.3	+11.8	+10.0	+9.0	+7.3	+2.3	-3.5	-5.1	-6.9
Equinox	-6.6	-7.3	-6.5	-8.7	-10.5	-12.9	-16.9	-24.0	-29.7	-26.1	-13.7	+3.4	+18.9	+26.6	+27.1	+22.1	+15.7	+11.7	+11.7	+10.9	+7.5	+6.8	+1.1	-0.5
Summer	-0.9	-2.7	-5.9	-9.5	-15.3	-26.2	-32.9	-38.6	-38.1	-32.1	-16.0	+1.9	+19.2	+29.9	+30.0	+28.7	+22.9	+17.9	+16.4	+15.5	+14.2	+12.3	+7.2	+2.4
VERTICAL COMPONENT																								
	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.	+1.2	+0.3	-0.4	-0.3	-0.7	-1.2	-0.7	-0.1	-0.2	+1.9	+2.0	+0.3	-4.0	-2.5	+1.2	-0.3	+0.5	-0.6	+1.3	+1.9	+1.2	+0.7	-0.6	-0.9
Feb.	+2.4	+1.5	+1.5	+1.8	+0.9	+0.3	-0.8	-0.1	+1.5	+4.0	-1.7	-7.1	-9.2	-6.9	-4.1	+0.8	+3.5	+2.7	+1.0	+0.9	+2.5	+2.8	+1.7	+0.1
Mar.	+5.0	+3.8	+3.1	+3.2	+3.0	+3.2	+4.2	+6.8	+6.9	+3.6	-3.6	-14.4	-15.8	-12.0	-7.1	-0.8	+2.4	+2.4	+2.0	+2.0	+1.9	+1.4	-0.2	-1.0
Apr.	+4.4	+2.2	+1.2	+2.8	+3.8	+4.6	+4.8	+3.8	+0.8	-2.2	-6.2	-12.4	-15.4	-14.2	-7.8	-3.0	+1.6	+3.4	+5.6	+6.2	+4.6	+3.6	+3.8	+4.0
May	+5.8	+4.5	+4.7	+6.4	+7.5	+7.7	+7.4	+5.5	+0.1	-8.8	-16.3	-21.9	-19.4	-13.5	-6.1	-1.4	+3.5	+5.7	+7.0	+5.9	+5.1	+3.6	+3.1	+3.9
June	+2.0	+1.9	+2.9	+3.0	+3.7	+4.5	+5.4	+5.9	+2.9	-4.4	-12.9	-17.5	-16.6	-10.7	-5.1	-3.8	-1.3	+2.5	+8.2	+9.5	+7.9	+6.8	+3.9	+1.3
July	+4.7	+3.4	-0.9	-2.3	-2.1	+2.2	+4.9	+6.3	+7.7	-2.8	-11.3	-18.9	-17.5	-14.0	-6.7	+1.9	+8.7	+10.2	+7.9	+6.7	+5.5	+4.4	+2.7	-0.7
Aug.	+0.7	-3.0	-1.0	+1.7	+4.0	+5.0	+5.2	+1.4	-3.5	-11.8	-16.6	-18.7	-18.7	-14.2	-5.4	+3.1	+7.0	+5.4	+4.9	+5.0	+6.8	+7.1	+6.4	+5.0
Sept.	+0.2	-0.4	+0.6	+3.0	+3.2	+4.9	+5.6	+5.6	0.0	-8.0	-14.8	-16.2	-11.8	-7.4	-0.8	+5.0	+7.4	+6.3	+3.6	+3.0	+3.8	+4.4	+4.6	-1.8
Oct.	+3.0	+3.1	+2.4	+1.7	+1.9	+2.0	+1.3	+1.5	+1.8	-0.3	-5.0	-11.5	-11.8	-10.3	-6.8	-1.9	+2.1	+3.4	+3.1	+4.1	+5.6	+4.9	+3.8	+1.9
Nov.	+0.7	-3.7	-5.1	-4.3	-2.5	2.0	-2.1	-1.1	+1.7	+2.3	+0.1	-2.3	-3.9	-3.5	-0.5	+1.3	+1.9	+1.6	+2.1	+3.7	+5.5	+4.5	+3.5	+2.1
Dec.	+3.0	+0.2	-0.9	+0.2	+0.6	+0.8	-1.4	-1.8	-3.1	-5.4	-3.2	-2.8	-2.0	-3.0	-1.7	0.0	+0.2	+1.6	+2.2	+2.0	+2.7	+4.2	+4.6	+3.0
Year	+2.8	+1.1	+0.7	+1.4	+1.9	+2.7	+2.8	+3.1	+1.8	-2.0	-7.1	-11.8	-12.2	-9.3	-4.2	+0.1	+3.1	+3.7	+4.1	+4.2	+4.4	+4.0	+3.1	+1.4
Winter	+1.8	-0.4	-1.2	-0.7	-0.4	-0.5	-1.3	-0.8	0.0	+0.7	-0.7	-3.0	-4.8	-4.0	-1.3	+0.5	+1.5	+1.3	+1.7	+2.1	+3.0	+3.1	+2.3	+1.1
Equinox	+3.1	+2.2	+1.8	+2.7	+3.0	+3.7	+4.0	+4.4	+2.4	-1.7	-7.4	-13.6	-13.7	-11.0	-5.6	-0.2	+3.4	+3.9	+3.6	+3.8	+4.0	+3.6	+3.0	+0.8
Summer	+3.3	+1.7	+1.4	+2.2	+3.3	+4.9	+5.8	+5.7	+3.0	-4.9	-13.1	-18.7	-18.1	-13.1	-5.8	-0.1	+4.5	+5.9	+7.0	+6.8	+6.3	+5.5	+4.0	+2.4

"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 MAGNETIC ELEMENTS, DECLINATION, INCLINATION, AND HORIZONTAL FORCE

INTERNATIONAL QUIET DAYS

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

31 ESKDALEMUIR

	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
DECLINATION (measured positive towards the west)																								
Jan.	-0.99	-1.04	-0.58	-0.75	-1.06	-1.20	-1.57	-2.12	-2.22	-1.53	-0.78	+0.64	+2.63	+3.64	+2.66	+2.03	+1.90	+1.88	+1.31	+0.60	-0.32	-1.41	-0.86	-0.86
Feb.	-0.65	-0.18	-0.51	-0.82	-0.98	-1.29	-1.64	-2.26	-3.47	-4.28	-2.79	-0.16	+2.73	+3.54	+4.13	+3.06	+2.04	+1.25	+1.34	+1.14	+0.59	-0.28	-0.35	-0.16
Mar.	-1.08	-1.67	-1.24	-1.53	-1.91	-2.24	-2.95	-4.97	-6.44	-5.93	-3.02	+0.99	+4.80	+6.31	+6.22	+4.83	+3.01	+2.22	+2.03	+1.53	+1.06	+0.71	-0.22	-0.51
Apr.	-0.92	-1.05	-0.80	-1.50	-2.48	-3.25	-4.52	-6.12	-7.16	-6.07	-3.48	+0.30	+4.58	+6.71	+6.94	+5.64	+3.86	+2.25	+1.14	+1.02	+1.66	+1.75	+1.02	+0.48
May	-0.32	-0.54	-1.70	-2.16	-3.70	-5.33	-6.26	-6.86	-5.54	-4.88	-1.64	+2.42	+5.28	+6.08	+3.68	+5.06	+3.70	+2.33	+1.98	+2.22	+2.02	+2.02	+1.42	+0.72
June	-0.42	-1.09	-1.10	-1.67	-3.07	-5.22	-6.77	-7.71	-7.64	-6.27	-3.02	+0.69	+4.68	+6.33	+6.74	+6.35	+5.47	+4.02	+2.93	+2.79	+2.36	+2.01	+0.48	-0.87
July	-0.83	-0.86	-1.06	-1.91	-3.10	-5.94	-6.87	-7.84	-7.64	-5.57	-1.90	+1.32	+4.45	+7.10	+7.78	+6.17	+4.48	+3.50	+2.73	+2.10	+1.76	+1.57	+0.68	-0.12
Aug.	-0.08	-0.51	-1.72	-2.67	-3.61	-5.50	-6.79	-7.69	-7.14	-4.97	-1.18	+2.55	+6.08	+7.95	+7.56	+5.63	+3.25	+1.82	+1.83	+1.95	+1.54	+1.25	+0.42	+0.03
Sept.	-3.00	-2.36	-2.41	-3.14	-3.42	-4.22	-5.30	-6.28	-5.93	-2.92	+0.90	+4.50	+6.32	+7.12	+6.11	+4.18	+2.60	+2.48	+2.60	+2.40	+1.67	+1.04	-1.40	-1.54
Oct.	-1.75	-2.05	-1.94	-2.01	-2.01	-2.15	-2.21	-2.79	-3.84	-3.37	-1.13	+2.01	+4.39	+5.17	+5.18	+4.27	+3.11	+1.35	+1.85	+1.55	-0.72	-0.53	-1.13	-1.25
Nov.	-2.20	-1.62	-1.21	-1.50	-1.50	-1.36	-1.34	-1.78	-2.51	-2.84	-1.36	+0.88	+3.46	+4.14	+4.19	+3.48	+2.96	+1.98	+1.92	+1.56	-0.15	-0.74	-1.20	-3.26
Dec.	-2.14	-1.94	-2.30	-1.16	-1.20	-0.81	-0.80	-1.10	-1.20	-0.84	+0.10	+1.38	+1.92	+2.52	+2.90	+3.14	+2.86	+2.67	+1.68	+1.44	+0.46	-1.84	-3.20	-2.54
Year	-1.20	-1.24	-1.38	-1.73	-2.34	-3.21	-3.92	-4.79	-5.06	-4.10	-1.61	+1.46	+4.28	+5.55	+5.34	+4.49	+3.27	+2.31	+1.95	+1.69	+0.99	+0.46	-0.36	-0.82
Winter	-1.49	-1.19	-1.15	-1.06	-1.19	-1.17	-1.34	-1.81	-2.35	-2.37	-1.21	+0.69	+2.69	+3.46	+3.47	+2.93	+2.44	+1.95	+1.56	+1.19	+0.15	-1.07	-1.40	-1.71
Equinox	-1.69	-1.78	-1.60	-2.05	-2.45	-2.97	-3.75	-5.04	-5.84	-4.57	-1.68	+1.95	+5.02	+6.33	+6.11	+4.75	+3.15	+2.07	+1.91	+1.63	+0.92	+0.74	-0.43	-0.71
Summer	-0.41	-0.75	-1.39	-2.10	-3.37	-5.50	-6.67	-7.53	-6.99	-5.42	-1.93	+1.75	+5.12	+6.87	+6.44	+5.80	+4.23	+2.92	+2.37	+2.27	+1.92	+1.71	+0.75	-0.06
INCLINATION																								
Jan.	-0.04	-0.11	-0.18	-0.28	-0.44	-0.60	-0.64	-0.39	+0.03	+0.71	+1.12	+1.30	+1.02	+0.66	+0.39	+0.23	+0.11	-0.09	-0.31	-0.45	-0.56	-0.60	-0.44	-0.41
Feb.	-0.05	-0.16	-0.18	-0.19	-0.36	-0.47	-0.56	-0.41	+0.04	+0.81	+1.27	+1.51	+1.23	+0.98	+0.48	+0.37	+0.24	-0.05	-0.54	-0.72	-0.61	-0.63	-0.98	-1.03
Mar.	-0.38	-0.49	-0.52	-0.57	-0.63	-0.67	-0.67	-0.30	+0.54	+1.52	+1.98	+1.98	+1.70	+1.28	+0.92	+0.49	+0.17	-0.21	-0.59	-0.97	-1.05	-1.15	-1.17	-1.20
Apr.	-0.53	-0.44	-0.35	-0.31	-0.45	-0.43	-0.39	-0.17	+0.45	+1.45	+2.04	+2.21	+1.85	+1.40	+0.81	+0.17	-0.26	-0.82	-0.90	-1.07	-1.03	-1.16	-1.13	-0.95
May	-0.07	-0.14	+0.04	-0.04	-0.14	-0.04	+0.13	+0.62	+1.16	+1.52	+1.67	+1.65	+1.76	+0.90	+0.44	-0.33	-0.93	-1.23	-1.43	-1.33	-1.25	-1.22	-1.07	-0.68
June	-0.45	-0.30	-0.25	-0.36	-0.28	+0.11	+0.69	+1.45	+2.35	+2.91	+2.70	+2.29	+1.46	+0.98	+0.26	-0.29	-1.02	-1.98	-2.21	-1.83	-2.37	-1.60	-1.23	-1.05
July	-0.02	+0.09	-0.21	+0.19	-0.17	+0.09	+0.65	+1.13	+2.11	+2.29	+2.27	+1.96	+1.49	+0.52	-0.22	-0.65	-1.09	-1.24	-1.79	-1.55	-1.67	-1.50	-1.60	-1.09
Aug.	-0.68	-0.85	-0.61	-0.41	-0.23	+0.06	+0.49	+1.05	+1.44	+1.79	+1.86	+1.77	+1.32	+0.76	+0.20	-0.06	-0.35	-0.70	-1.19	-1.34	-1.37	-1.07	-0.97	-0.91
Sept.	-0.59	-0.55	-0.44	-0.29	-0.27	-0.13	+0.27	+0.99	+1.53	+2.20	+2.21	+1.77	+1.40	+0.72	+0.27	+0.09	-0.45	-0.83	-1.19	-1.40	-1.44	-1.25	-1.27	-1.36
Oct.	-0.37	-0.10	-0.15	-0.26	-0.23	-0.30	-0.36	-0.28	+0.22	+0.81	+1.33	+1.36	+1.15	+0.90	+0.57	+0.27	+0.03	-0.30	-0.72	-0.64	-0.66	-0.78	-0.79	-0.71
Nov.	-0.28	-0.42	-0.33	-0.13	-0.37	-0.47	-0.60	+0.04	-0.01	+0.70	+1.27	+1.49	+1.11	+0.77	+0.56	+0.54	-0.14	-0.45	-0.68	-0.44	-0.43	-0.54	-0.63	-0.56
Dec.	+0.38	+0.37	+0.57	+0.37	+0.09	+0.02	-0.38	-0.28	-0.26	-0.08	+0.23	+0.35	+0.47	+0.21	+0.11	-0.07	-0.25	-0.21	-0.49	-0.51	-0.45	-0.26	-0.09	+0.17
Year	-0.26	-0.26	-0.22	-0.19	-0.29	-0.23	-0.12	+0.29	+0.80	+1.39	+1.66	+1.64	+1.33	+0.84	+0.40	+0.06	-0.33	-0.68	-1.00	-1.02	-1.07	-0.98	-0.94	-0.81
Winter	0.00	-0.08	-0.03	-0.06	-0.27	-0.38	-0.55	-0.26	-0.05	+0.54	+0.97	+1.16	+0.96	+0.66	+0.39	+0.27	-0.01	-0.20	-0.51	-0.53	-0.51	-0.50	-0.54	-0.46
Equinox	-0.47	-0.39	-0.37	-0.36	-0.39	-0.38	-0.29	+0.06	+0.69	+1.50	+1.89	+1.83	+1.53	+1.07	+0.64	+0.25	-0.12	-0.54	-0.85	-1.02	-1.04	-1.09	-1.09	-1.05
Summer	-0.31	-0.30	-0.26	-0.15	-0.21	+0.06	+0.49	+1.07	+1.76	+2.13	+2.12	+1.92	+1.51	+0.79	+0.17	-0.34	-0.86	-1.29	-1.65	-1.51	-1.67	-1.35	-1.21	-0.93
HORIZONTAL FORCE																								
Jan.	+1.1	+1.8	+2.6	+4.1	+6.4	+8.6	+9.3	+5.8	-0.6	-9.9	-16.0	-19.4	-16.7	-10.8	-5.4	-3.5	-1.4	+1.2	+5.1	+7.4	+8.8	+9.3	+6.4	+5.8
Feb.	+1.7	+2.9	+3.3	+3.5	+5.7	+7.2	+8.1	+6.1	-0.1	-10.7	-19.7	-25.3	-21.9	-17.3	-8.7	-5.3	-2.3	+1.8	+8.5	+11.1	+10.1	+10.5	+15.3	+15.5
Mar.	+7.6	+8.8	+9.0	+9.8	+10.6	+11.2	+11.6	+7.0	-5.6	-21.4	-31.0	-35.0	-31.4	-23.6	-16.4	-7.6	-1.6	+4.0	+9.6	+15.2	+16.4	+17.8	+17.4	+17.6
Apr.	+9.5	+7.4	+5.7	+5.7	+8.1	+8.2	+7.7	+3.9	-6.5	-22.6	-32.9	-37.7	-33.5	-26.2	-15.1	-3.5	+4.5	+13.6	+15.5	+18.3	+17.2	+18.7	+18.3	+15.7
May	+3.2	+3.7	+1.1	+3.0	+4.9	+3.5	+0.8	-7.3	-17.3	-26.0	-31.1	-32.9	-33.6	-18.5	-8.9	+4.4	+15.3	+20.5	+24.0	+22.1	+20.7	+19.6	+17.1	+11.7
June	+7.5	+5.2	+4.8	+6.5	+5.6	0.0	-8.3	-19.6	-34.2	-45.3	-45.2	-40.8	-28.1	-18.6	-5.8	+2.9	+14.8	+30.6	+36.1	+31.0	+38.4	+26.5	+19.8	+16.2
July	+2.0	-0.1	+2.8	-3.7	+1.7	-0.6	-7.9	-14.7	-28.8	-35.3	-38.2	-36.3	-28.8	-12.9	+0.8	+10.5	+19.5	+22.4	+29.7	+25.7	+27.0	+24.1	+25.0	+16.1
Aug.	+10.5	+11.7	+8.8	+6.7	+4.9	+0.9	-5.3	-13.9	-21.0	-28.1	-32.3	-32.7	-26.7	-16.7	-5.0	+2.1	+7.9	+12.5	+19.7	+21.9	+23.0	+18.7	+16.9	+15.5
Sept.	+9.0	+8.1	+6.8	+5.5	+5.2	+3.7	-2.0	-12.7	-23.0	-35.9	-38.6	-32.5	-25.4	-13.5	-4.4	+0.5	+9.4	+14.7	+19.2	+22.1	+23.0	+20.3	+20.8	+19.7
Oct.	+6.6	+2.7	+3.2	+4.5	+4.1	+5.2	+5.9	+4.7	-2.6	-12.3	-21.8	-24.7	-21.6	-17.3	-11.0	-4.7	+0.3	+5.8	+11.9	+11.1	+12.0	+13.5	+13.2	+11.3
Nov.	+4.4	+4.9	+3.0	+0.4	+4.6	+6.3	+8.2	-1.0	+0.8	-9.7	-19.0	-23.2	-18.0	-12.9	-8.6	-7.6	+2.8	+7.3	+11.0	+8.0	+8.5	+9.8	+10.8	+9.2
Dec.	-4.6	-5.4	-8.9	-5.4	-1.2	0.0	+5.2	+3.6	+2.7	-0.8	-4.6	-6.2	-7.8	-4.2	-2.3	+1.0	+3.8	+3.8	+8.2	+8.4	+7.7	+5.4	+3.0	-1.4
Year	+4.9	+4.3	+3.5	+3.4	+5.1	+4.5	+2.8	-3.2	-11.3	-21.5	-27.5	-28.9	-24.5	-16.0	-7.6	-0.9	+6.1	+11.5	+16.5	+16.9	+17.7	+16.2	+15.3	+12.7
Winter	+0.7	+1.1	0.0	+0.7	+3.9	+5.5	+7.7	+3.6	+0.7	-7.8	-14.8	-18.5	-16.1	-11.3	-6.3	-3.9	+0.7	+3.5	+8.2	+8.7	+8.8	+8.7	+8.9	+7.3
Equinox	+8.2	+6.7	+6.2	+6.4	+7.0	+7.1	+5.8	+0.7	-9.4	-23.1	-31.1	-32.5	-28.0	-20.1	-11.7	-3.8	+3.1	+9.5	+14.1	+16.7	+17.1	+17.6	+17.4	+16.1
Summer	+5.8	+5.1	+4.4	+3.1	+4.3	+0.9	-5.2	-13.9	-25.3	-33.7	-36.7	-35.7	-29.3	-16.7	-4.7	+5.0	+14.4	+21.5	+27.4	+25.2	+27.3	+22.2	+19.7	+14.9

"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 DISTURBED DAYS

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

32 ESKDALEMUIR

	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
NORTH COMPONENT																								
Jan.	-3.3	+4.0	+2.4	+4.0	+9.7	+13.1	+12.1	+9.2	+4.5	-5.0	-7.8	-11.2	-20.3	-15.1	-1.8	+7.6	+9.2	+1.2	-9.9	-2.3	-3.2	+5.3	-0.8	-1.7
Feb.	+15.2	+12.7	-1.9	+12.4	+22.1	+28.4	+21.3	-2.3	+3.9	-7.8	-23.9	-29.7	-32.8	-31.3	-5.5	+8.2	+14.1	+27.7	+6.1	-4.3	+4.3	-6.9	-18.6	-11.7
Mar.	+2.8	-18.1	-24.9	-9.0	-14.6	-29.3	-24.9	-35.2	-18.2	-18.1	-30.3	-43.2	-42.5	+31.7	+48.9	+92.6	+108.1	+66.9	+35.3	+9.5	-0.3	-20.7	-29.3	-37.0
Apr.	-2.0	+2.2	+2.0	+5.8	+6.6	+9.5	+10.9	+1.0	-26.3	-27.5	-25.5	-29.5	-36.6	-28.9	-21.2	+5.0	+55.6	+40.4	+35.2	+12.7	-1.0	+11.3	+3.7	-3.3
May	+19.8	+25.9	+9.1	+1.8	+8.0	+3.1	-7.6	-21.2	-31.5	-29.9	-47.4	-56.9	-45.1	-28.0	-29.0	+3.3	+64.4	+55.3	+39.6	+30.9	+24.1	+19.7	+7.1	-15.3
June	-5.2	+7.1	+2.2	+3.4	+8.2	+3.7	-14.5	-22.5	-37.7	-53.8	-60.1	-55.8	-36.0	-12.9	+23.9	+31.5	+57.7	+55.7	+31.6	+30.6	+32.9	+11.1	+1.3	-2.4
July	-38.6	-36.5	-41.5	-62.0	-73.2	-86.0	-76.1	-71.7	-159.6	-138.2	-72.1	-60.2	-45.5	-25.5	+11.7	+268.2	+330.1	+205.8	+97.9	+123.9	+68.8	+22.9	-81.3	-61.5
Aug.	-16.4	-22.1	+7.8	-21.8	+4.5	-11.7	-23.8	-32.6	-36.5	-47.9	-46.6	-48.9	-16.8	+33.7	+9.3	+16.9	+98.3	+82.4	+43.5	+28.1	+15.2	+11.2	-7.7	-18.1
Sept.	+6.4	+3.6	-1.0	-11.9	+15.4	+6.7	-3.2	-26.0	-37.1	-43.7	-43.7	-45.1	-39.2	-11.7	+15.5	+35.5	+39.3	+35.1	+26.7	+24.9	+22.9	+9.3	+9.5	+11.9
Oct.	+12.9	+14.1	+15.7	+13.8	+15.1	+21.2	+15.9	-2.3	-5.0	-12.6	-25.6	-35.3	-32.9	-11.0	-8.6	-5.2	+10.7	+4.1	+5.7	+10.6	+0.4	+5.7	-6.3	-1.2
Nov.	+8.0	+16.9	+11.6	+31.3	+7.1	+5.9	+17.3	+7.5	-9.7	-18.8	-18.9	-20.6	-21.5	-22.3	-10.3	+0.4	-6.1	+3.2	+3.6	-2.2	+6.9	+7.8	+2.8	+0.1
Dec.	+8.9	+11.8	+7.1	+12.7	+16.0	+20.6	+16.7	+11.1	+3.8	-8.0	-16.2	-22.7	-20.3	-22.4	-18.0	+8.9	0.0	+3.4	+12.2	-1.9	-10.1	-8.3	-6.6	+1.4
Year	+0.7	+1.9	-0.9	-1.6	+2.1	-1.2	-4.7	-15.5	-29.1	-34.3	-34.9	-38.3	-32.5	-12.0	+1.2	+39.4	+65.2	+48.4	+27.3	+21.7	+13.5	+5.7	-10.6	-11.5
Winter	+7.2	+11.3	+4.8	+15.1	+13.7	+16.9	+16.8	+6.4	+0.7	-9.9	-16.7	-21.1	-23.8	-22.8	-8.9	+6.3	+4.4	+8.8	+3.0	-2.7	-0.5	-0.5	-5.8	-3.0
Equinox	+5.1	+0.5	-2.1	-0.3	+5.6	+2.0	-0.3	-15.7	-21.7	-25.5	-31.3	-38.3	-37.9	-5.0	+8.7	+32.0	+53.4	+36.6	+25.7	+14.5	+5.5	+1.4	-5.6	-7.4
Summer	-10.1	-6.4	-5.6	-19.6	-13.1	-22.7	-30.5	-37.0	-66.3	-67.5	-56.6	-55.5	-35.9	-8.2	+4.0	+79.9	+137.7	+99.7	+53.2	+53.3	+35.2	+16.3	-20.2	-24.3
WEST COMPONENT																								
Jan.	-43.7	-26.5	-12.9	-8.4	-1.9	+1.4	-2.5	-1.4	-4.6	+2.1	+2.4	+13.1	+19.3	+28.1	+28.3	+29.2	+39.9	+29.3	+20.5	-4.9	-3.8	-24.5	-37.0	-41.3
Feb.	-38.9	-16.1	-23.8	-4.5	-11.4	-12.1	+5.9	+11.1	-7.9	-15.3	-9.1	+14.1	+34.5	+46.4	+48.1	+52.0	+37.2	+23.1	+20.6	-1.0	-25.2	-43.0	-40.1	-44.4
Mar.	-57.5	-63.9	-47.3	-44.7	-24.8	-33.7	-5.3	+4.9	-28.4	-19.7	+5.0	+33.6	+53.4	+83.6	+89.9	+74.2	+65.7	+61.9	+35.7	-14.6	-9.6	-31.8	-60.5	-66.1
Apr.	-24.8	-29.0	-23.5	-32.7	-29.6	-21.5	-23.1	-29.8	-27.3	-20.1	-14.2	+11.3	+36.7	+51.3	+57.9	+57.0	+48.3	+32.1	+16.9	+13.5	+0.5	-17.8	-16.0	-15.8
May	+0.8	-6.0	-12.0	-12.8	-11.4	-16.5	-42.4	-31.7	-28.1	-24.3	-9.6	+6.4	+25.8	+39.1	+31.9	+38.1	+50.8	+18.8	+12.4	+12.1	+7.9	-9.5	-13.1	-26.9
June	-1.2	-14.6	-28.6	-19.1	-22.8	-33.7	-39.7	-44.6	-51.8	-28.3	-14.2	+9.8	+28.9	+40.5	+47.0	+36.6	+42.4	+37.7	+21.8	+23.2	+20.7	-7.7	+4.7	-7.3
July	-15.7	-18.1	-33.0	-21.3	-47.1	-40.3	-51.2	-57.6	-90.3	-81.5	-52.3	-12.3	+3.2	+25.6	+43.3	+71.5	+142.2	+102.6	+67.3	+55.9	+42.6	-0.4	-4.8	-28.2
Aug.	-26.1	-52.8	-28.9	-25.6	-17.7	-22.7	-38.8	-23.7	-25.8	-21.9	-6.6	+12.8	+46.3	+58.1	+46.5	+53.0	+47.9	+20.7	+17.1	+13.0	+1.3	+2.5	-11.9	-16.4
Sept.	-24.7	-21.0	-4.3	-5.4	-9.5	+3.8	+23.7	+0.2	-22.2	-8.1	+5.5	+23.1	+31.4	+42.5	+45.9	+37.2	+22.6	+7.5	-12.3	-16.6	-26.8	-28.5	-39.9	-24.0
Oct.	-23.9	-22.7	-31.5	-26.3	-14.9	+0.1	+9.7	+7.1	+8.2	+5.4	+14.4	+31.7	+38.6	+33.3	+42.2	+38.0	+29.0	+17.0	0.0	-8.8	-40.8	-50.9	-34.2	-21.0
Nov.	-15.0	-4.5	-0.6	-22.1	+9.3	+15.2	+9.1	+3.8	+8.9	+4.8	+8.0	+13.1	+29.5	+32.3	+24.0	+31.1	+21.4	-2.9	-22.9	-21.3	-23.3	-30.9	-36.1	-30.7
Dec.	-22.7	-22.0	-14.6	-1.6	+6.7	+18.3	+15.4	+10.2	+4.4	-1.9	+10.5	+14.7	+29.3	+27.6	+25.1	+19.8	+10.8	+12.5	-2.0	-5.0	-30.3	-55.8	-33.2	-16.1
Year	-24.5	-24.8	-21.8	-18.7	-14.6	-12.2	-11.6	-12.6	-22.1	-17.4	-5.0	+14.3	+31.4	+42.8	+44.2	+44.8	+46.6	+30.0	+14.6	+3.8	-7.3	-24.9	-26.9	-28.2
Winter	-30.1	-17.3	-13.0	-9.1	+0.7	+5.7	+6.9	+5.9	+0.2	-2.6	+2.9	+13.7	+28.2	+33.6	+31.4	+33.0	+27.3	+15.4	+4.1	-8.1	-20.6	-38.5	-36.6	-33.1
Equinox	-32.7	-34.2	-26.7	-27.3	-19.7	-14.1	+1.3	-4.4	-17.5	-10.6	+2.7	+24.9	+40.1	+53.9	+59.1	+51.6	+41.4	+29.7	+10.1	-6.6	-19.2	-32.2	-37.7	-31.8
Summer	-10.6	-22.9	-25.6	-19.7	-24.7	-28.3	-43.1	-39.5	-49.0	-39.0	-20.7	+4.2	+26.0	+40.8	+42.2	+49.8	+70.9	+45.0	+29.7	+26.0	+18.1	-3.8	-6.3	-19.7
VERTICAL COMPONENT																								
Jan.	-22.4	-14.0	-10.5	-11.4	-17.8	-22.0	-21.0	-17.2	-13.9	-11.6	-7.8	-7.0	-1.0	+2.6	+12.7	+16.4	+24.0	+46.8	+35.6	+28.0	+17.9	+17.6	-3.6	-20.4
Feb.	-17.8	-29.0	-36.7	-29.0	-31.0	-26.4	-35.0	-32.0	-30.1	-21.0	-17.2	-15.2	-16.6	+1.2	+26.3	+47.8	+70.2	+79.2	+61.8	+57.8	+38.1	+5.8	-21.6	-29.6
Mar.	-48.5	-58.2	-45.2	-52.7	-65.2	-60.2	-58.3	-57.6	-33.6	-15.9	-15.4	-7.0	+4.7	+30.0	+85.4	+107.1	+103.4	+109.6	+112.9	+83.2	+21.2	-23.9	-57.6	-58.2
Apr.	-26.0	-25.1	-29.0	-27.7	-19.7	-24.6	-26.1	-23.7	-23.2	-27.9	-30.2	-26.3	-24.4	-7.9	+16.0	+35.5	+60.5	+61.6	+62.5	+45.5	+36.4	+24.1	+5.6	-5.9
May	-22.8	-23.1	-18.8	-24.1	-28.1	-35.0	-24.9	-17.7	-14.8	-12.3	-15.8	-12.7	-6.6	+7.1	+17.8	+25.7	+43.9	+52.6	+53.9	+43.3	+34.2	+23.9	-10.6	-35.1
June	-15.4	-29.9	-27.4	-25.9	-26.8	-24.9	-22.6	-22.3	-23.8	-27.9	-26.6	-25.9	-20.4	-7.1	+20.8	+53.3	+68.8	+69.9	+58.4	+37.3	+24.4	+9.7	-7.2	-8.5
July	-45.9	-44.9	-43.0	-58.9	-50.1	-54.3	-33.7	-6.3	+13.8	+17.1	+13.1	+10.3	+12.7	+39.9	+54.8	+101.3	+12.1	+12.7	+45.7	+71.1	+27.2	+31.9	-46.7	-79.9
Aug.	-47.3	-47.7	-53.4	-64.5	-67.5	-55.7	-41.9	-34.3	-21.4	-16.9	-11.5	-1.5	+21.1	+63.1	+68.4	+69.3	+90.5	+81.7	+61.1	+42.9	+23.2	+1.7	-19.7	-39.7
Sept.	-64.9	-64.8	-89.3	-94.4	-61.8	-45.9	-46.2	-31.2	-15.9	-4.6	-1.3	+5.0	+15.5	+31.2	+59.5	+87.4	+104.4	+96.1	+78.0	+60.6	+35.7	+7.4	-27.7	-32.8
Oct.	-37.7	-27.1	-28.7	-33.7	-46.9	-42.9	-32.3	-23.9	-16.1	-6.5	-1.1	+0.9	+13.9	+34.1	+33.5	+48.1	+62.7	+63.7	+57.5	+40.7	+15.5	-17.1	-22.9	-33.7
Nov.	-38.6	-28.2	-42.2	-56.2	-65.8	-63.0	-45.8	-28.8	-17.4	-9.4	-5.0	+8.6	+18.2	+37.2	+52.4	+59.2	+65.6	+70.2	+48.4	+37.4	+18.0	+1.0	-4.2	-11.6
Dec.	-43.2	-41.8	-45.8	-40.4	-40.0	-41.2	-38.2	-26.0	-18.8	-19.0	-17.2	-9.6	0.0	+17.4	+28.0	+60.0	+63.6	+52.8	+57.6	+49.8	+48.8	+19.4	-0.2	-16.0
Year	-35.9	-36.1	-39.2	-43.2	-43.4	-41.3	-35.5	-26.8	-17.9	-13.0	-11.3	-6.7	+1.4	+20.7	+39.6	+59.3	+64.1	+66.4	+61.1	+49.8	+28.4	+8.5	-18.0	-30.9
Winter	-30.5	-28.3	-33.8	-34.3	-38.7	-38.1	-35.0	-26.0	-20.1	-15.3	-11.8	-5.8	+0.1	+14.6	+29.9	+45.9	+55.9	+62.3	+50.9	+43.3	+30.7	+10.9	-7.4	-19.4
Equinox	-44.3	-43.8	-48.1	-52.1	-48.4	-43.4	-40.7	-34.1	-22.2	-13.5	-12.0	-6.9	+2.4	+21.9	+48.6	+69.5	+82.7	+82.7	+77.7	+57.5	+27.2	-2.4	-25.7	-32.7
Summer	-32.9	-36.4	-35.7	-43.3	-43.1	-42.5	-30.8	-20.1	-11.5	-10.0	-10.2	-7.5	+1.7	+25.7	+40.5	+62.4	+53.8	+54.2	+54.8	+48.7	+27.3	+16.8	-21.1	-40.8

"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 MAGNETIC ELEMENTS, DECLINATION, INCLINATION, AND HORIZONTAL FORCE

INTERNATIONAL DISTURBED DAYS

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

33 ESKDALEMUIR

	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
DECLINATION (measured positive towards the west)																								
Jan.	-8.71	-5.51	-2.70	-1.85	-0.75	-0.21	-0.97	-0.63	-1.10	+0.61	+0.77	+3.07	+4.67	+6.25	+5.80	+5.61	+7.71	+5.87	+4.51	-0.91	-0.64	-5.15	-7.45	-8.29
Feb.	-8.44	-3.74	-4.74	-1.38	-3.14	-3.52	+0.38	+2.32	-1.74	-2.80	-0.94	+3.96	+8.22	+10.56	+9.94	+10.20	+6.98	+3.62	+3.94	-0.04	-5.26	-8.44	-7.40	-8.54
Mar.	-11.72	-12.25	-8.62	-8.71	-4.46	-6.67	-0.14	+2.31	-5.06	-3.29	+2.16	+8.41	+12.40	+16.67	+16.34	+11.51	+9.22	+9.99	+5.88	-3.31	-1.92	-5.65	-11.12	-11.97
Apr.	-4.93	-5.93	-4.81	-6.81	-6.23	-4.69	-5.07	-6.05	-4.53	-3.03	-1.91	+3.39	+8.77	+11.43	+12.47	+11.31	+7.65	+4.95	+2.09	+2.25	+0.13	-4.01	-3.37	-3.07
May	-0.58	-2.19	-2.76	-2.65	-2.61	-3.44	-8.27	-5.59	-4.48	-3.77	-0.16	+3.43	+6.90	+8.95	+7.52	+7.57	+7.83	+1.72	+1.01	+1.27	+0.70	-2.65	-2.90	-4.85
June	-0.04	-3.22	-5.85	-3.98	-4.88	-6.94	-7.46	-8.16	-9.03	-3.70	-0.60	+4.08	+7.18	+8.66	+8.59	+6.20	+6.38	+5.52	+3.22	+3.54	+2.95	-1.98	+0.90	-1.38
July	-1.72	-2.28	-5.11	-1.96	-6.76	-4.90	-7.48	-8.94	-12.23	-11.26	-7.84	-0.22	+2.36	+6.12	+8.29	+4.36	+16.30	+12.98	+9.90	+6.62	+6.01	-0.94	+2.08	-3.38
Aug.	-4.65	-9.84	-6.13	-4.35	-3.75	-4.14	-6.95	-3.57	-3.85	-2.64	+0.41	+4.41	+9.97	+10.46	+9.03	+10.07	+5.99	+1.10	+1.83	+1.57	-0.31	+0.08	-2.11	-2.63
Sept.	-5.24	-4.39	-0.84	-0.65	-2.49	+0.52	+4.91	+1.01	-3.10	+0.01	+2.76	+6.35	+7.82	+9.03	+8.70	+6.19	+3.09	+0.20	-3.49	-4.29	-6.28	-6.11	-8.42	-5.29
Oct.	-5.31	-5.10	-6.95	-5.83	-3.57	-0.78	+1.37	+1.53	+1.85	+1.56	+3.87	+7.71	+9.03	+7.14	+8.85	+7.87	+5.45	+3.28	-0.21	-2.17	-8.25	-10.48	-6.67	-4.19
Nov.	-3.33	-1.54	-0.56	-5.65	+1.62	+2.86	+1.19	+0.48	+2.16	+1.67	+2.32	+3.42	+6.77	+7.36	+5.24	+6.27	+4.56	-0.70	-4.77	-4.22	-4.98	-6.55	-7.40	-6.22
Dec.	-4.92	-4.89	-3.22	-0.79	+0.76	+2.93	+2.48	+1.65	+0.74	-0.09	+2.72	+3.81	+6.68	+6.41	+5.74	+3.67	+2.18	+2.39	-0.86	-0.93	-5.74	-10.95	-6.46	-3.31
Year	-4.97	-5.07	-4.36	-3.72	-3.02	-2.41	-2.17	-1.97	-3.36	-2.23	+0.30	+4.32	+7.56	+9.09	+8.88	+7.57	+6.95	+4.24	+1.92	-0.05	-1.97	-5.24	-5.03	-5.26
Winter	-6.35	-3.92	-2.81	-2.42	-0.38	+0.51	+0.77	+0.95	+0.01	-0.15	+1.22	+3.57	+6.59	+7.65	+6.68	+6.44	+5.36	+2.79	+0.71	-1.53	-4.15	-7.77	-7.18	-6.59
Equinox	-6.80	-6.92	-5.31	-5.50	-4.19	-2.91	+0.27	-0.30	-2.71	-1.19	+1.72	+6.47	+9.51	+11.07	+11.59	+9.22	+6.35	+4.61	+1.07	-1.88	-4.08	-6.56	-7.39	-6.13
Summer	-1.75	-4.38	-4.96	-3.23	-4.50	-4.85	-7.54	-6.57	-7.40	-5.34	-2.05	+2.93	+6.60	+8.55	+8.36	+7.05	+9.13	+5.33	+3.99	+3.25	+2.34	-1.37	-0.51	-3.06
INCLINATION																								
Jan.	+0.20	-0.28	-0.26	-0.44	-1.05	-1.41	-1.28	-1.01	-0.58	+0.01	+0.29	+0.40	+1.07	+0.71	+0.09	-0.45	-0.50	+0.72	+1.28	+0.90	+0.69	+0.39	+0.42	+0.11
Feb.	-0.96	-1.35	-0.49	-1.47	-2.07	-2.36	-2.33	-0.77	-0.90	+0.18	+1.26	+1.40	+1.33	+1.52	+0.42	0.00	+0.33	-0.15	+0.87	+1.71	+0.96	+1.12	+1.18	+0.58
Mar.	-0.67	+0.54	+1.10	-0.16	-0.34	+0.91	+0.26	+0.83	+0.71	+1.04	+1.55	+2.25	+2.25	-2.42	-2.20	-4.34	-5.35	-2.45	+0.03	+1.60	+0.66	+1.16	+1.24	+1.80
Apr.	-0.21	-0.41	-0.56	-0.66	-0.56	-0.97	-1.08	-0.28	+1.49	+1.36	+1.11	+1.15	+1.35	+1.08	+1.08	-0.15	-2.75	-1.53	-0.98	+0.13	+0.95	+0.07	+0.09	+0.26
May	-1.87	-2.20	-0.91	-0.55	-1.08	-0.87	+0.40	+1.34	+2.04	+1.95	+2.84	+3.34	+2.48	+1.54	+1.95	-0.05	-3.76	-2.56	-1.42	-1.10	-0.83	-0.58	-0.57	+0.47
June	-0.04	-1.03	-0.47	-0.63	-0.92	-0.45	+0.88	+1.47	+2.51	+3.19	+3.46	+2.90	+1.50	+0.18	-1.63	-1.20	-2.60	-2.39	-0.90	-1.37	-1.80	-0.39	-0.32	+0.04
July	+1.59	+1.51	+2.05	+2.87	+4.15	+4.79	+4.79	+5.25	+11.91	+10.48	+5.69	+4.35	+3.26	+2.34	+0.05	-15.97	-23.09	-14.43	-6.12	-7.05	-4.36	-0.71	+4.24	+2.41
Aug.	+0.23	+0.92	-1.47	+0.15	-1.74	-0.33	+1.00	+1.58	+2.18	+2.99	+2.85	+3.02	+1.06	-1.37	+0.51	-0.05	-4.80	-3.65	-1.56	-0.95	-0.44	-0.73	+0.17	+0.41
Sept.	-1.72	-1.57	-2.08	-1.47	-2.41	-1.62	-1.22	+0.93	+2.31	+2.85	+2.77	+2.80	+2.57	+1.01	-0.11	-0.63	-0.29	-0.03	+0.32	+0.06	-0.30	-0.08	-0.81	-1.29
Oct.	-1.49	-1.32	-1.36	-1.42	-1.97	-2.45	-1.96	-0.52	-0.17	+0.60	+1.48	+1.96	+2.04	+1.16	+0.88	+1.06	+0.49	+1.09	+1.04	+0.41	+0.85	-0.18	+0.26	-0.50
Nov.	-1.29	-1.75	-1.79	-3.16	-2.20	-2.12	-2.37	-1.25	+0.10	+0.94	+1.02	+1.41	+1.49	+1.98	+1.67	+1.05	+1.75	+1.55	+1.24	+1.33	+0.28	-0.11	+0.16	+0.08
Dec.	-1.37	-1.54	-1.42	-1.81	-2.12	-2.59	-2.23	-1.50	-0.76	+0.08	+0.51	+1.07	+0.97	+1.56	+1.57	+0.65	+1.44	+0.93	+0.65	+1.42	+2.24	+1.71	+0.83	-0.29
Year	-0.63	-0.71	-0.63	-0.73	-1.03	-0.79	-0.43	+0.51	+1.74	+2.14	+2.07	+2.17	+1.78	+0.77	+0.35	-1.67	-3.27	-1.91	-0.47	-0.24	-0.09	+0.14	+0.58	+0.34
Winter	-0.86	-1.23	-0.98	-1.72	-1.86	-2.12	-2.05	-1.13	-0.54	+0.30	+0.77	+1.07	+1.22	+1.45	+0.94	+0.31	+0.75	+0.77	+1.01	+1.34	+1.04	+0.77	+0.65	+0.12
Equinox	-1.02	-0.69	-0.72	-0.93	-1.32	-1.03	-0.99	+0.24	+1.09	+1.47	+1.73	+2.04	+2.05	+0.21	-0.09	-1.02	-1.97	-0.73	+0.10	+0.55	+0.54	+0.24	+0.19	+0.07
Summer	-0.02	-0.20	-0.20	+0.46	+0.10	+0.78	+1.77	+2.41	+4.66	+4.65	+3.71	+3.40	+2.08	+0.67	+0.23	-4.31	-8.56	-5.75	-2.49	-2.61	-1.85	-0.61	+0.88	+0.83
HORIZONTAL FORCE																								
Jan.	-11.2	-9.9	0.0	+2.4	+9.2	+13.1	+11.4	+8.8	+3.6	-4.5	-7.2	-8.6	-16.4	-9.7	+3.4	+12.8	+16.4	+6.5	-6.0	-3.2	-3.8	+0.7	-7.6	-9.2
Feb.	+7.8	+9.5	-6.2	+11.4	+19.6	+25.7	+22.0	-0.2	+2.4	-10.5	-25.2	-26.6	-26.0	-22.3	+3.4	+17.6	+21.0	+31.5	+9.8	-4.4	-0.4	-14.7	-25.6	-19.6
Mar.	-7.8	-29.5	-33.1	-17.0	-18.9	-35.9	-25.4	-33.7	-23.1	-21.4	-28.9	-36.3	-32.0	+47.3	+64.5	+104.6	+118.3	+77.1	+41.2	+6.7	-2.1	-26.2	-39.9	-48.5
Apr.	-6.5	-3.1	-2.3	-0.3	+1.1	+5.4	+6.5	-4.5	-30.9	-30.7	-27.7	-26.9	-29.3	-19.1	-10.3	+15.3	+63.5	+45.6	+37.7	+14.9	-0.9	+7.9	+0.7	-6.1
May	+19.6	+24.4	+6.7	-0.6	+5.8	0.0	-15.2	-26.6	-36.1	-33.8	-48.4	-54.8	-39.6	-20.4	-22.7	+10.2	+72.6	+57.8	+41.2	+32.6	+25.1	+17.6	+4.6	-20.0
June	-5.3	+4.3	-3.1	-0.1	+3.9	-2.5	-21.5	-30.3	-46.5	-58.1	-61.7	-53.1	-30.1	-5.3	+32.1	+37.7	+64.5	+61.7	+35.1	+34.3	+36.1	+9.5	+2.1	-3.7
July	-40.8	-39.2	-46.8	-64.8	-80.6	-91.9	-84.2	-81.0	-173.4	-150.8	-80.4	-61.4	-44.2	-20.4	+19.4	+276.8	+350.6	+221.1	+108.6	+132.0	+75.4	+22.4	-80.8	-65.6
Aug.	-20.9	-31.4	+2.4	-26.1	+1.2	-15.6	-30.5	-36.4	-40.6	-51.1	-47.0	-45.8	-8.1	+43.8	+17.6	+26.3	+105.4	+84.8	+45.9	+30.0	+15.2	+11.5	-9.8	-20.8
Sept.	+1.8	-0.3	-1.8	-12.7	+13.4	+7.3	+1.2	-25.5	-40.6	-44.5	-42.0	-40.1	-32.8	-3.7	+23.6	+41.7	+42.8	+35.9	+24.0	+21.5	+17.6	+3.9	+2.0	+7.3
Oct.	+8.4	+9.8	+9.8	+8.8	+12.2	+20.9	+17.4	-1.0	-3.4	-11.4	-22.6	-29.0	-25.4	-4.8	-0.8	+1.8	+15.8	+7.1	+5.6	+8.8	-7.0	-3.6	-12.4	-5.0
Nov.	+5.1	+15.8	+11.3	+26.7	+8.7	+8.6	+18.7	+8.1	-7.9	-17.6	-17.1	-17.9	-15.7	-16.0	-5.7	+6.1	-2.1	+2.6	-0.7	-6.1	+2.5	+2.0	-3.9	-5.5
Dec.	+4.6	+7.6	+4.3	+12.2	+17.0	+23.6	+19.2	+12.8	+4.5	-8.2	-14.0	-19.6	-14.6	-17.0	-13.1	+12.4	+2.0	+5.6	+11.6	-2.8	-15.5	-18.4	-12.6	-1.6
Year	-3.8	-2.7	-4.9	-5.0	-0.6	-3.4	-6.7	-17.5	-32.7	-36.9	-35.2	-35.0	-26.2	-4.0	+9.3	+46.9	+72.6	+53.1	+29.5	+22.0	+11.9	+1.1	-15.3	-16.5
Winter	+1.6	+8.0	+2.3	+13.2	+13.6	+17.7	+17.8	+7.4	+0.7	-10.2	-15.9	-18.2	-18.2	-16.3	-3.0	+12.2	+9.3	+11.5	+3.7	-4.1	-4.3	-7.6	-12.4	-9.0
Equinox	-1.0	-5.8	-6.9	-5.3	+1.9	-0.6	-0.1	-16.2	-24.5	-27.0	-30.3	-33.1	-29.9	+4.9	+19.3	+40.9	+60.1	+41.4	+27.1	+13.0	+1.9	-4.5	-12.4	-13.1
Summer	-11.9	-10.5	-10.2	-22.9	-17.4	-27.5	-37.9	-43.6	-74.1	-73.5	-59.4	-53.8	-30.5	-0.6	+11.6	+87.7	+148.3	+106.3	+57.7	+57.2	+37.9	+15.3	-21.0	-27.5

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

The ranges are derived from the diurnal inequalities printed in Tables 28 to 33

34 ESKDALEMUIR

	All days			Quiet days			Disturbed days			All days			Quiet days			Disturbed days		
	N	W	Z	N	W	Z	N	W	Z	D	I	H	D	I	H	D	I	H
Jan.	28.6	37.2	23.7	30.2	26.2	6.0	33.4	83.6	69.2	8.16	1.72	24.7	5.86	1.94	28.7	16.42	2.69	32.8
Feb.	46.2	54.1	49.9	40.1	40.7	12.7	61.2	96.4	115.9	11.91	3.03	40.9	8.41	2.54	40.8	19.10	4.07	58.1
Mar.	52.1	65.5	45.0	53.0	59.1	22.7	151.3	156.0	178.1	13.55	2.68	52.2	12.75	3.18	52.8	28.92	7.60	166.8
Apr.	71.2	71.9	42.2	54.4	66.0	21.6	92.2	90.6	92.7	14.99	3.73	71.1	14.10	3.37	56.4	19.28	4.24	94.4
May	77.0	67.4	44.4	59.5	59.9	29.6	121.3	93.2	89.0	14.53	4.19	77.3	12.94	3.19	57.6	17.22	7.10	127.4
June	80.0	80.4	47.4	77.4	74.1	27.0	117.8	98.8	99.8	15.84	4.62	85.1	14.45	5.28	83.7	17.69	6.06	126.2
July	122.8	94.5	50.9	63.7	79.3	29.1	489.7	232.5	181.2	15.36	8.73	136.5	15.62	4.08	67.9	28.53	35.00	524.0
Aug.	82.1	71.7	51.4	55.6	74.7	25.8	147.2	110.9	158.0	14.90	4.51	83.5	15.64	2.23	55.7	20.30	7.82	156.5
Sept.	60.0	56.6	63.9	60.4	64.2	23.6	84.4	85.8	198.8	11.41	3.47	59.2	13.40	3.65	61.6	17.45	5.26	87.3
Oct.	45.8	46.4	38.1	40.1	41.7	17.4	56.5	93.1	110.6	10.32	2.98	42.0	9.02	2.15	38.2	19.51	4.49	49.9
Nov.	41.0	42.4	44.3	35.5	33.9	10.6	53.6	68.4	136.0	9.54	2.88	37.7	7.45	2.17	34.2	14.76	4.35	44.6
Dec.	28.0	40.9	34.0	16.6	30.0	10.0	43.3	85.1	109.4	8.98	2.06	25.5	6.34	1.08	17.3	17.63	4.83	43.2
Year	52.8	54.0	39.6	46.2	50.5	16.6	103.5	74.8	109.8	11.11	2.71	53.5	10.61	2.73	46.6	14.35	5.44	109.5
Winter	35.4	41.3	36.9	28.8	28.3	7.9	40.7	72.1	101.0	9.16	2.39	31.5	5.84	1.71	27.4	15.42	3.57	36.0
Equinox	54.6	58.3	44.5	51.2	56.8	18.1	91.7	96.8	134.8	12.10	2.95	53.0	12.17	2.98	50.1	18.98	4.02	93.2
Summer	86.0	74.0	41.9	61.8	68.6	25.7	205.2	119.9	105.7	14.70	5.17	91.0	14.40	3.80	64.1	16.67	13.22	222.4

NON-CYCLIC CHANGE

35 ESKDALEMUIR

	All days			Quiet days			Disturbed days		
	H	D	Z	H	D	Z	H	D	Z
Jan.	-0.1	-0.10	+0.1	+3.6	+0.13	-2.6	-4.1	-0.02	-7.6
Feb.	-1.4	-0.34	-0.8	+13.2	-0.85	-3.5	-26.4	-3.34	-15.7
Mar.	+0.7	+0.24	+0.6	+8.0	+0.41	-4.7	-3.4	+0.64	+6.2
Apr.	+0.3	+0.06	+0.5	+5.4	+1.21	-2.1	-1.4	+1.93	+17.3
May	+0.6	-0.07	-0.6	+7.2	+0.14	-2.6	-43.9	-4.35	-21.6
June	-0.5	+0.03	+0.7	+4.9	-0.11	-2.4	-7.1	-1.89	-4.0
July	+1.0	0.00	+0.1	+10.3	+0.39	-7.3	-12.5	-0.67	+0.6
Aug.	-0.8	-0.05	-0.2	+3.6	-0.75	+0.9	-12.8	+1.86	-12.0
Sept.	+0.1	+0.01	+0.1	+4.1	+0.76	-2.4	+33.1	-1.44	+33.4
Oct.	-0.8	-0.12	-0.6	+5.9	0.00	-2.6	-5.7	+1.63	+9.2
Nov.	+0.3	-0.18	+1.1	+2.6	-0.26	-0.1	-7.7	-0.35	+4.1
Dec.	+0.9	+0.27	0.0	+1.0	-0.22	-1.5	-7.6	+2.79	+14.6
Year	0.0	-0.02	+0.1	+5.8	+0.07	-2.6	-8.3	-0.27	+2.0
Winter	-0.1	-0.09	+0.1	+5.1	-0.30	-1.9	-11.5	-0.23	-1.1
Equinox	+0.1	+0.05	+0.1	+5.9	+0.59	-2.9	+5.7	+0.69	+16.5
Summer	+0.1	-0.02	0.0	+6.5	-0.08	-2.9	-19.1	-1.26	-9.3

AVERAGE RANGE OF DIURNAL INEQUALITY 1932-53
WITH 1959 AS PERCENTAGE OF THIS

36 ESKDALEMUIR

		All days			International quiet days			International disturbed days		
		Z	H	D	Z	H	D	Z	H	D
Year	1932-53	28.7	37.8	8.66	13.7	34.4	8.43	82.1	53.9	11.93
	1959(%)	138	142	128	121	135	126	134	203	120
Winter	1932-53	21.2	19.3	6.95	5.9	16.2	4.44	66.5	34.4	11.45
	1959(%)	174	163	132	134	169	132	152	105	135
Equinox	1932-53	37.1	43.1	10.18	14.8	39.7	9.69	108.9	75.4	15.11
	1959(%)	120	123	119	122	126	126	124	124	126
Summer	1932-53	33.9	59.7	11.84	21.9	50.4	11.76	82.4	83.7	13.11
	1959(%)	124	152	124	117	127	123	128	266	127

"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 MAGNETIC FORCE
 Values of a_n, b_n in the series $\sum(a_n \cos 15nt + b_n \sin 15nt)$, t being reckoned in hours from midnight G.M.T.
 Longitude of Eskdalemuir Observatory, $3^{\circ}12'W$.

37 ESKDALEMUIR

	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.	+8.6	+4.7	-5.1	-2.0	+1.9	-2.1	-1.1	-0.5	-11.9	-10.7	-3.6	+6.7	-1.2	-0.9	+0.9	+0.6	+0.6	-9.7	-4.0	-1.3	-0.6	+1.5	-1.1	+0.5
Feb.	+13.5	+4.5	-10.3	-2.4	+4.7	-1.3	+0.9	-0.4	-14.8	-12.0	-4.3	+9.9	-1.1	-5.4	+0.2	+1.9	-2.3	-22.1	-6.9	-0.9	+1.2	+2.8	-1.6	-1.6
Mar.	+13.6	-4.0	-13.3	+1.9	+6.4	0.0	-2.1	+1.0	-14.7	-18.4	+0.3	+13.3	-2.3	-6.2	+1.5	+2.6	-3.3	-17.7	-9.1	+0.9	+3.1	+4.4	-1.0	+0.7
Apr.	+21.4	-5.7	-19.5	-1.0	+5.5	+1.3	+0.6	-0.2	-9.3	-23.3	+2.0	+13.8	-2.3	-6.6	+1.2	+2.5	+4.1	-14.6	-9.7	-3.0	+2.3	+1.7	-0.8	-1.0
May	+23.3	-13.1	-17.9	+0.5	+2.0	+1.5	+1.9	-0.3	-5.1	-25.1	+6.9	+10.7	-3.9	-3.4	+0.4	+0.3	+3.5	-13.5	-11.7	-2.8	+0.9	+0.7	-1.0	+0.7
June	+23.2	-16.7	-17.7	+4.6	+1.6	-0.3	+0.9	+0.5	-5.4	-31.1	+4.9	+12.9	-4.4	-3.8	+0.8	+0.4	+5.6	-13.8	-11.1	-2.3	+3.6	+0.4	-0.4	0.0
July	+18.3	-36.7	-25.6	+9.1	+5.5	+3.5	+0.1	-3.8	-2.9	-35.2	-0.5	+15.5	-2.9	-2.2	+1.1	-0.8	-6.6	-17.8	-8.8	-5.6	+1.4	+0.5	-4.1	+2.4
Aug.	+21.7	-17.8	-17.0	+4.3	+1.9	+0.5	+0.9	0.0	-7.8	-24.4	+7.4	+12.5	-4.2	-5.7	-0.4	+1.2	-3.5	-20.3	-10.6	-1.2	+3.6	+1.3	-1.1	+0.3
Sept.	+20.6	-9.4	-14.0	+2.7	+0.5	-3.0	+0.7	+0.5	-15.9	-14.6	+4.0	+9.0	-3.9	-4.4	+2.4	+1.7	-10.3	-22.4	-13.1	-2.9	+1.1	+0.2	-1.3	+0.1
Oct.	+17.1	+2.9	-10.3	-1.6	+3.3	-1.3	-0.2	+0.8	-14.4	-10.5	-1.0	+9.3	-0.8	-3.0	+3.2	+3.3	-4.2	-15.1	-6.3	-1.0	+1.7	+2.9	-0.9	+0.9
Nov.	+13.7	+4.8	-8.3	-2.1	+2.7	-1.6	-1.5	+1.2	-13.9	-6.2	-1.1	+9.5	+0.4	-3.7	+1.2	+1.5	-5.6	-18.6	-2.4	-0.8	+2.7	+1.1	-0.8	-0.1
Dec.	+7.4	+3.8	-6.3	-2.3	+2.7	-1.4	-0.1	+0.1	-14.1	-1.1	-4.5	-7.4	-1.5	-0.3	+1.3	+2.7	-2.4	-16.9	-3.4	-1.0	+0.3	+0.1	-1.0	-0.6
Year	+16.9	-6.9	-13.8	+1.0	+3.2	-0.4	+0.1	-0.1	-10.8	-17.7	+0.9	+10.9	-2.3	-3.8	+1.1	+1.5	-2.0	-16.9	-8.1	-1.8	+1.8	+1.5	-1.2	+0.2
Winter	+10.8	+4.5	-7.5	-2.2	+3.0	-1.6	-0.4	+0.1	-13.7	-7.5	-3.4	+8.4	-0.8	-2.6	+0.9	+1.6	-2.4	-16.9	-4.2	-1.0	+0.9	+1.3	-1.1	-0.5
Equinox	+18.1	-4.0	-14.3	+0.5	+3.9	-0.8	-0.3	+0.5	-13.6	-16.9	+1.3	+11.3	-2.3	-5.1	+2.1	+2.5	-3.4	-17.5	-9.5	-1.5	+2.1	+2.3	-1.0	+0.2
Summer	+21.6	-21.1	-19.5	+4.6	+2.7	+1.3	+0.9	-0.9	-5.3	-28.9	+4.7	+13.0	-3.9	-3.8	+0.5	+0.3	-0.2	-16.4	-10.5	-2.9	+2.4	+0.7	-1.6	+0.9
QUIET DAYS																								
Year	+17.1	-2.1	-9.7	-1.2	+2.4	-1.4	-0.1	+0.7	-2.7	-17.9	+2.4	+9.1	-3.5	-3.9	+0.7	+1.6	+4.8	-1.3	-4.4	-1.6	+2.2	-0.1	-1.0	-0.3
Winter	+9.7	+2.2	-6.2	-2.8	+2.4	-1.2	-0.4	+0.7	-4.3	-9.5	-1.9	+5.5	-1.5	-2.3	+0.9	+2.1	+1.7	-1.7	-0.8	-1.5	+0.7	+0.1	-0.6	-0.9
Equinox	+20.2	+0.2	-10.3	-1.9	+3.4	-1.6	-0.1	+1.1	-3.3	-17.6	+2.8	+10.1	-4.3	-5.4	+1.2	+1.9	+5.4	-0.6	-5.0	-1.6	+2.6	+0.2	-1.1	-0.5
Summer	+21.5	-8.7	-12.5	+1.1	+1.4	-1.5	+0.2	+0.3	-0.5	-26.7	+6.1	+11.7	-4.7	-3.9	-0.1	+0.8	+7.4	-1.6	-7.2	-1.9	+3.4	-0.5	-1.1	+0.2
DISTURBED DAYS																								
Year	+9.5	-25.0	-21.1	+12.1	+7.3	+2.2	-0.4	-4.3	-24.0	-22.3	-4.8	+15.5	-0.4	-3.6	+2.8	+1.3	-17.8	-47.2	-15.9	+1.9	+2.2	+5.2	-3.3	+1.7
Winter	+9.4	+1.4	-11.1	+2.2	+4.2	-0.7	-0.2	-1.8	-25.6	-4.9	-7.5	+13.3	-0.1	-2.1	+2.3	+2.4	-11.6	-43.4	-12.5	+0.3	+1.3	+4.3	-2.2	-0.2
Equinox	+8.7	-15.8	-18.2	+13.3	+8.4	+1.8	-0.9	-2.8	-34.3	-17.6	-3.7	+17.4	+1.6	-5.3	+3.8	+3.4	-22.8	-50.9	-20.7	+6.6	+3.5	+9.5	-0.9	+1.8
Summer	+10.3	-60.6	-34.0	+20.7	+9.2	+5.3	-0.2	-8.3	-12.1	-44.5	-3.3	+15.8	-2.7	-3.5	+2.3	-2.2	-19.0	-47.3	-14.7	-1.1	+1.7	+1.8	-6.8	+3.6

HARMONIC COMPONENTS OF THE DIURNAL INEQUALITY OF MAGNETIC FORCE
 Values of c_n, α_n in the series $\sum c_n \sin(15nt + \alpha_n)$, t being mean local time, reckoned in hours from midnight

37 ESKDALEMUIR

	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	$^{\circ}$	γ	$^{\circ}$	γ	$^{\circ}$	γ	$^{\circ}$	γ	$^{\circ}$	γ	$^{\circ}$	γ	$^{\circ}$	γ	$^{\circ}$	γ	$^{\circ}$	γ	$^{\circ}$	γ	$^{\circ}$	γ	$^{\circ}$
ALL DAYS																								
Jan.	9.8	65	5.5	255	2.9	148	1.2	259	15.9	231	7.6	338	1.5	242	1.1	71	9.7	180	4.2	258	1.6	347	1.2	305
Feb.	14.2	75	10.6	263	4.9	115	1.0	127	19.0	234	10.9	343	5.5	201	1.9	20	22.3	189	7.0	269	3.0	32	2.3	237
Mar.	14.2	110	13.4	284	6.4	100	2.3	309	23.6	222	13.3	8	6.6	209	3.0	42	18.0	194	9.2	283	5.3	45	1.2	320
Apr.	22.1	108	19.6	273	5.7	87	0.6	123	25.0	205	13.9	15	7.0	209	2.8	39	15.2	167	10.1	259	2.9	63	1.3	232
May	26.8	123	17.9	278	2.5	63	2.0	112	25.6	195	12.8	39	5.2	238	0.5	70	13.9	169	12.0	263	1.2	62	1.2	319
June	28.6	129	18.3	291	1.6	110	1.0	73	31.6	193	13.9	27	5.8	239	0.9	79	14.9	161	11.3	265	3.6	93	0.4	278
July	41.0	157	27.1	296	6.5	67	3.8	191	35.3	188	15.6	4	3.6	242	1.3	139	19.0	203	10.5	244	1.5	81	4.8	314
Aug.	28.1	133	17.6	291	2.0	86	0.9	105	25.6	201	14.6	37	7.1	226	1.3	353	20.6	193	10.7	270	3.8	80	1.1	299
Sept.	22.6	118	14.2	287	3.1	181	0.8	65	21.6	231	9.8	30	5.9	231	2.9	68	24.7	208	13.5	264	1.1	88	1.3	285
Oct.	17.4	83	10.4	267	3.6	121	0.9	356	17.8	237	9.3	360	3.1	205	4.6	57	15.7	199	6.4	267	3.4	40	1.2	327
Nov.	14.5	74	8.6	262	3.1	130	1.9	323	15.2	249	9.6	360	3.7	183	1.9	52	19.5	200	2.5	258	2.9	76	0.8	274
Dec.	8.3	66	6.7	256	3.0	126	0.2	312	14.2	269	8.7	335	1.5	267	3.0	38	17.1	191	3.5	261	0.3	91	1.1	252
Year	18.2	115	13.8	280	3.2	106	0.1	145	20.7	215	10.9	11	4.5	221	1.9	51	17.0	190	8.3	264	2.3	60	1.3	292
Winter	11.7	71	7.9	260	3.4	128	0.4	298	15.6	245	9.0	345	2.7	207	1.9	42	17.0	191	4.3	263	1.6	43	1.2	259
Equinox	18.6	106	14.3	278	4.0	111	0.6	347	21.7	222	11.3	13	5.6	214	3.2	53	17.8	194	9.7	267	3.1	51	1.0	293
Summer	30.2	137	20.1	290	3.0	75	1.3	147	29.4	194	13.8	26	5.4	235	0.5	73	16.4	184	10.9	261	2.5	83	1.9	310
QUIET DAYS																								
Year	17.3	100	9.8	269	2.8	131	0.7	2	18.1	192	9.4	21	5.2	231	1.8	35	5.0	109	4.6	256	2.2	102	1.0	263
Winter	10.0	81	6.8	252	2.7	126	0.8	347	10.4	208	5.8	248	2.8	222	2.2	37	2.4	139	1.7	216	0.7	89	1.1	227
Equinox	20.2	93	10.5	266	3.8	124	1.1	5	17.9	194	1.5	22	6.9	228	2.3	45	5.5	99	5.3	259	2.6	96	1.2	261
Summer	23.2	115	12.6	281	2.1	147	0.4	39	26.7	184	13.2	34	6.1	240	0.8	4	7.6	105	7.5	262	3.4	108	1.2	294
DISTURBED DAYS																								
Year	26.7	162	24.4	306	7.6	83	4.3	199	32.8	230	16.3	349	3.6	196	3.1	79	50.4	204	16.1	283	5.7	32	3.7	311
Winter	9.5	85	11.4	288	4.2	109	1.9	198	26.1	262	15.3	337	2.1	191	3.3	56	44.9	198	12.5	278	4.5	26	2.2	277
Equinox	18.0	154	22.6	313	8.6	88	2.9	212	38.5	246	17.8	355	5.6	173	5.1	61	55.8	207	21.7	294	10.1	30	2.1	346
Summer	61.5	173	39.8	308	10.6	69	8.3	194	46.2	198	16.1	355	4.4	228	3.1	146	51.0	205	14.8	272	2.5	53	7.7	311

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

38 ESKDALEMUIR

(a) Disturbances without sudden commencement

Serial Number	From		To		Range (γ)			Notes
	Date	Hour	Date	Hour	H	D	Z	
1a	Jan. 5	10	Jan. 7	14	222	228	137	Continued as 10b
2a	Feb. 10	12	Feb. 17	21	322	283	220	
3a	Feb. 24	23	Mar. 4	03	538	474	358	
4a	Apr. 8	12	Apr. 9	11	217	162	151	
5a	May 15	07	May 17	01	326	147	209	
6a	June 27	07	June 29	07	237	173	187	
7a	Sept. 23	11	Sept. 29	03	198	130	240	
8a	Oct. 3	11	Oct. 7	07	318	274	334	
9a	Nov. 30	06	Dec. 1	21	130	211	213	

(b) Disturbances with sudden commencement (ssc)

Serial Number	Date	Time of sudden commencement	End of disturbance		With initial reversed stroke			Magnitude of main stroke			Range of following disturbance (γ)		
			Date	Hour	H	D	Z	H	D	Z	H	D	Z
		h. m.						γ	γ	γ			
1b	Jan. 9	14 58	Jan. 11	15	Yes	Yes	-	+18	-26	0	499	326	340
2b	Jan. 25	08 59			No	Yes	-	+7	+13	0		Small	
3b	Feb. 22	00 46			Yes	Yes	Yes	+23	-11	-2		Small	
4b	Mar. 26	08 42	Apr. 1	09	Yes	Yes	Yes	-50	+22	-3	1360	550	623
5b	Apr. 9	18 28	Apr. 12	14	Yes	Yes	No	+106	-28	-4	679	258	292
6b	Apr. 23	10 36	Apr. 30	24	Yes	Yes	No	+46	-22	-9	514	331	240
7b	May 11	23 28	May 14	01	No	-	No	+123	*	-17	635	280	369
8b	May 24	05 40	May 26	06	Yes	Yes	Yes	-50	+39	+4	224	206	239
9b	June 11	09 09			Yes	Yes	-	-29	+18	0		Small	
10b	June 29	07 28	June 30	08	No	No	No	-50	+57	+3	239	177	162
11b	June 30	08 01	June 30	24	Yes	No	No	-31	+23	+2		Small	
12b	July 11	16 25	July 12	20	No	No	No	+181	-47	-11	321	156	119
13b	July 15	08 03	See 14b		Yes	Yes	Yes	-42	-83	+7	4102	1284	1469
14b	July 17	16 38	July 21	08	No	No	No	+510	-87	-23	1015	273	458
15b	Aug. 16	04 04	See 16b		Yes	Yes	-	+21	-15	0	918	372	637
16b	Aug. 20	04 12	Aug. 24	18	Yes	Yes	Yes	+81	-83	-11		Small	
17b	Sept. 3	21 59	Sept. 6	20	Yes	Yes	-	+89	-17	0	807	234	721
18b	Sept. 20	11 57	Sept. 22	21	Yes	No	No	+67	-8	-2	316	306	374
19b	Oct. 29	23 47	Nov. 3	24	No	No	No	+39	-13	-6	208	283	294
20b	Nov. 27	23 51	Nov. 29	08	Yes	No	No	+81	-25	-9	215	285	209
21b	Dec. 5	06 59	Dec. 7	05	Yes	No	-	-10	+10	0	769	366	321
22b	Dec. 23	15 25			No	No	-	+33	-12	0		Small	

*Indeterminate

(c) Disturbances due to solar flare (sfe)

Serial Number	Date	Commence- ment	Max.	End	Movement (γ)			K	K'	
					H	D	Z			
		h. m.	h. m.	h. m.						
1c	Jan. 14	14 05	14 23	14 40	+17	-16	0	3	2	S.E.A.
2c	Mar. 24	10 03	10 15	10 30	-25	+7	0	3	3	Large S.E.A.
3c	Apr. 8	09 20	09 23	09 36	-4	+17	0	3	3	S.W.F., large S.E.A.
4c	Apr. 15	08 43	08 52	08 57	-10	+7	0	2	1	Small S.E.A.
5c	Apr. 27	08 54	08 58	09 10	-10	+5	0	3	3	Small S.W.F., S.E.A.
6c	May 8	14 21	14 30	15 15	+44	-20	0	4,4	3,4	S.W.F., S.E.A.
7c	June 16	06 23	06 32	06 38	-8	+4	0	2	2	S.E.A.
8c	June 18	11 39	11 42	11 52	-7	-9	-3	2	2	S.W.F., S.E.A.
9c	Sept. 1	16 56	17 15	17 45	+19	+31	+23	3	3	Partial S.W.F., S.E.A., reversed stroke in H

S.E.A. = Sudden enhancement atmospherics

S.W.F. = Short wave fade out

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

39 ESKDALEMUIR		Factor 9.81 (metre ⁻¹)																		JANUARY 1959						
Hour	G.M.T.												volts per metre												Mean	
	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		
1	110	115	50	65*	Z-*	Z-*	Z-*	Z-*	-30*	25*	60	35	-155*	-335*	-170*	-565*	Z+*	Z-*	Z+*	Z+*	Z+*	Z+*	Z+*	15*	74 (5)	
2	Z+*	Z+*	Z+*	Z+*	Z+*	105	190	345	155	135	140	165	135*	230	310	315	225	155	200	290	225	135	120	70	195 (18)	
3	85	135	155	100	105	135	165	100	85	85	85	90	120	130	200	200	220	155	140	125	120	125	150	165	132 (24)	
4	135	105	120	150	85	75	90	90	115	75	85	95	115	170	225	285	225	225	225	215	195	120	70	70	140 (24)	
5	60	45	45	45	40	45	45	60	75	70	105	115	135	120	95	80	80	55	-20	80	105	65	75	105	72 (24)	
6	85	115	115	90	85	65	70	50	50	70	70	70	70	75	100	65	115	150	180	200	315	300	170	245	122 (24)	
7	195	85	65	50	95	110*	110*	45*	70	70*	Z+*	Z-*	115	160	200	310*	350*	275	305*	335*	Z+*	Z+*	545*	275*	131 (10)	
8	150	380	390	450	385	290	155	170	130	125	165	125	145	195	200	135	120	Z-*	205*	175	195*	225*	265	620	239 (20)	
9	355	360	265	155	130	170	135	200	Z-*	290*	130*	170	210	200	190	195	175	145	130	170	185	140	90	135	186 (21)	
10	155	80	85	135	205	200	165	255	160	170	225	235	310	325	325	310	290	275	165	200	255	225	190	165	213 (24)	
11	105	85	85	105	95	105	85	85	80	85	120	235	410	510	860	995	1305	945	490	600	575	140	105	190	350 (24)	
12	395	310	205	135	150	155	225*	200*	155*	165*	155	165*	140*	120*	135	140	135	150	155	185	135	95	75	70	164 (17)	
13	65	65	65	45	45	45	40	50	50	50	50	65	55	65	55	35	50	50	35	35	35	60	55	50	50 (24)	
14	55	50	40	35	35	40	50	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44 (8)	
15	-	-	-	-	-	-	-	70	70	95	90	-	90	80	60	55	50	55	60	60	65	75	85	60	70 (16)	
16	85	75	75	70	55	55	50	60	65	85	105	110	120	100	90	170	250	135	90	165	70	65	50	50	94 (24)	
17	15	-15	-30	-30	10	25*	10*	0*	-45*	40*	Z-*	Z-*	-85*	105*	0*	45*	135*	75*	35*	160*	250*	560	490	143 (7)		
18	250	165	190	165	120	100	-15	120	80	310*	190*	145	165	225	225*	120*	105*	65*	70*	Z-*	Z-*	Z+*	Z+*	143 (12)		
19	Z-*	Z-*	Z+*	Z-*	Z-*	-50*	-25*	Z-*	Z-*	Z+*	Z+*	Z-*	Z-*	Z-*	Z+*	Z+*	Z-*	Z-*	Z+*	Z-*	45	60	65	Z+*	57 (3)	
20	Z-*	70*	85	60	60	75	75*	-*	-*	-	-*	-	-	-*	-	-	-	-	-	-*	-*	-*	-*	-*	70 (4)	
21	-*	-*	-	-	-	-	-	85	80	80*	65*	-	80*	85	115	80*	75*	50*	40*	25	145*	135*	Z+*	-40*	78 (5)	
22	110*	215*	400*	155*	-550*	-20*	-75*	25*	565*	270*	95*	190*	170*	260*	365	280	260	430	205	355	295	225	190	289 (10)		
23	180	240	180	125	105*	Z+*	Z+*	130	110	100*	125	170	290	255	290	290	305	420	525	390	250	210	255	305	252 (20)	
24	230	200	210	220	225	170	140	100	-	-	-	-	-	-	-	125	120	110	105	105	85	85	60	143 (16)		
25	70	50	55	65	60	50	50	60	65	80	105	110	130	135	120	65	70	75	70	95	70	90	60	45	77 (24)	
26	45	25	65	70	35	35	50	105	85	-	-	-	-	105	115	95	125	105	85	100	90	50	35	70	75 (20)	
27	50	55	50	55	80	80	90	115	120	135	140	150	230	195	190	100	105	130	140	125	120	120	85	116 (24)		
28	50	105	65	75	95	85	75	90	105	135	170	215	305	285	270	225	285	190	65	25	35*	95*	0	139 (21)		
29	190	405	285	205	275*	195*	315*	345	60	75*	165*	25*	-35*	145*	185*	270	130	25	-95*	-135*	-25	165	180	15	151 (14)	
30	-50*	-155*	-135*	215	25	50*	60*	Z-*	Z-*	-85*	45*	100*	105	85	95	95	115	135	120	110	115	110	105	105	110 (14)	
31	85	40	45	55	45	35	40	45	50	50	85	100	100	85	70	70	50	50	75	95	70	60	50	50	63 (24)	
Mean	133	136	118	114	98	101	88	125	89	94	116	131	169	173	203	203	210	186	165	152	158	126	136	142	141 (525)	
	(24)	(24)	(25)	(25)	(23)	(21)	(19)	(21)	(21)	(16)	(18)	(19)	(19)	(22)	(23)	(22)	(23)	(23)	(21)	(24)	(22)	(22)	(24)	(24)		Mean for 0a days [141 (10)]

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

39 ESKDALEMUIR		Factor 10.10 (metre ⁻¹)																		FEBRUARY 1959					
Hour	G.M.T.												volts per metre												Mean
	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	
1	45	40	35	35	35	35	35	40	35	40	45	50	55	55	60	55	40	40	40	45	55	55	40	35	44 (24)
2	35	30	30	25	25	25	20	20	30	60	60	90	100	115	80	70	45	25	30	25	35	55	55	35	47 (24)
3	30	20	20	25	25	25	25	25	10	45	55	105	110	175	115	55	35	20	0	20	20	40	80	35	46 (24)
4	45	60	55	45	55	60	55	55	-	-	90	95	90	115	120	0	100	140	40	45	35	115	120	65	73 (22)
5	45	70	45	50	70	55	70	60	90	80	60	60	55*	45*	45*	50*	40	55*	30*	60*	60*	55*	50*	50	60 (14)
6	55	40	45	30	20	60	35	25	35	35	45	80	75	55	80	55	55	60	75	55	60	55	55	55	52 (24)
7	55	60	55	20	15	10	10	60	100	150	165	170	165	135*	Z+*	-20	90	110	115	125	160	170	115	105	91 (22)
8	70	50	40	35	35	35	60	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51 (8)
9	-	-	-	-	-	-	-	65	70	100	155	-	185	195	170	105	75	175	105	0	30	15	Z-*	Z-*	103 (14)
10	0*	25*	25*	20*	15	20	10	-10	10	50	120	170	50	0	35	70	65	35	45	40	200	50	200	100	64 (20)
11	15	50	45	145	140	320	140	185	315	230	120	65	175	200	100	60	140	20	30	35	55	30	30	10	111 (24)
12	0	25	30	20	20	45	55	35	20	75	45	95	55	75	90	65	35	30	35	25	20	10	20	-10	38 (24)
13	20	15	10	15	10	20	20	25	0*	-5*	-5*	20*	10*	25*	10	20	40	25	25	55	60	35	55	-165*	27 (17)
14	115*	60	25	0	-20*	-55*	-20	5	-70*	-160*	45*	60*	60*	Z-*	Z-*	-45*	10*	35	50	40	35	45	35	35	29 (12)
15	35	35	35	35	30	20	25	25	25	35	45	60	70	25	30	25*	10*	80*	25*	235*	285*	205*	135*	Z-*	35 (15)
16	Z+*	60*	60*	40*	30*	25*	25*	10	10	10	20	-10	-25	35	30	65	55	80	80	115	140	210	175	125	66 (17)
17	35*	55*	95*	35*	65*	95*	150*	130*	10*	20	25	20	55	45	80	80	55	60	45	65	80	65	60	35	53 (15)
18	70	20	55	90	80	95	45	90	140	210	165*	100*	70*	185	310	295	120	-10*	-35*	-60*	50	80	105	145	121 (18)
19	25	20	30	30	55	40	45	45	190	105	110	150	120	70	85	75	75	75	65	90	115	105	60	50	76 (24)
20	25*	0*	Z-*	Z-*	25*	50	30*	35*	40*	Z-*	-90*	115*	60*	90	85	80	70	70	0*	80*	60	60	75	70	72 (11)
21	55	45*	45*	30	15*	-30*	-55*	20*	-265*	-175*	-255*	25*	20*	10*	25*	90*	35*	85*	70*	100*	100*	45*	25*	10*	43 (2)
22	10*	25*	40*	55*	55*	70*	70*	90*	70	20	40	35	55	55	55	55	45	20*	45*	55*	-140*	60*	120	115	60 (11)
23	80	-140*	95	70	70	20*	70	-175*	-45*	65*	65*	70	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	76 (6)
24	-	-	-	-	-	-	-*	-*	35*	135*	90*	60*	65*	80*	90*	125*	70*	55	70	175*	80*	85*	95*	110*	63 (2)
25	100*	55*	40*	55*	0*	35*	55*	100*	90*	90*	70*	25*	-125*	25*	60*	110*	60*	35*	10	105	105	65*	55*	70*	73 (3)
26	70	75	45	55	45	55	170*	130*	125*	185*	205*	145*	60*	205*	-325*	-20*	-550*	-425*	60*	95*	90*	80*	60*	50*	60 (5)
27	30*	20	25	45	50	105*	-15*	-110*																	

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

39 ESKDALEMUIR		Factor 10.69 (metre ⁻¹)																				MAY 1959					
	Hour G.M.T.		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		
	0-1	1-2																									
volts per metre																											
1	25*	15*	10*	15*	30*	40*	-100*	Z-	Z-	Z±	Z±	50*	Z±	Z±	Z±	Z±	40*	85*	60*	55	55	65	55	60	58	(5)	
2	25	20	-40*	15	15	20	40	40	30*	40	25	20*	-60*	30*	60	55	55	40	20*	-60*	35	55	35	-345*	36	(16)	
3	Z~	Z~	40	35	25	20*	60	60	65	50	55	65*	50*	60*	75	65	65*	65*	50	65	-65*	0	10	-20	43	(16)	
4	0	10	10	15	0	-10	-10	35	60	45	45	45	40	35	30	25	40	40	40	20	15	0	25	40	25	(24)	
5	-5	-5	-10	-5	0	5	30	80	60	60	50	40	30	40	50	40	60	60	55	35	-15	0	20	10	29	(24)	
6	5	5	0	25	15	15	50	60	60	65	70	75	35	40	40	65	70	45	30	30	20	10	5	10	35	(24)	
7	15	10	10	0	0	5	15	20	25	20	25	40	80	35	60	40	45	25*	-50*	Z±	Z~	Z~	-15*	95*	26	(17)	
8	105*	160*	125*	135*	155*	85*	-115*	115*	20*	0	95	75	75	60	60	75	75	60	50	20	10*	0	10	-10	46	(14)	
9	-15	15	20	20	20	15	20	70	80	60	40	40	10	0	-15	-5	15	0	20	0	-15	-20	-385	-205	-9	(23)	
10	-60	-40	-95	-20	-55	-15	10	-10	-20	10	-105	10	20	45	60	90	65	55	Z±	Z±	Z±	-45	0	-10	-5	(21)	
11	-	-	-	-	-	-	-	-	60	40	40	155	Z±	Z±	Z±	Z±	Z±	Z±	40	-25	25	-175	-325	-510	-67	(10)	
12	-500	Z~	-575*	Z~	Z~	Z~	Z~	-40	40	30	30	30	60	Z±	Z±	Z±	Z±	Z±	20	-15	-50	-115	-20	-20	-41	(14)	
13	-	-	-	-	-	-	-	-	60	45	10	20	40	45	40	20	0	0	-15	5	0	15	20	0	19	(16)	
14	10	10	15	15	15	15	15	20	20	25	35	40	25	Z±	Z±	-20	10	-5	0	-20	-75	-20	-10	-15	5	(22)	
15	15	15	15	10	15	20	20	35	55	60	45	50	55	60	55	40	40	35	25	20	20	10	0	31	(24)		
16	20	15	10	10	5	25	45	60	60	65	60	55	60	50	50	50	35	40	40	-	-	-	-	-	40	(19)	
17	-	-	-	-	-	-	-	-	-	-	-	75	50	40	50	65	75	50	40	40	-	-	-	-	-	50	(9)
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(0)	
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(0)	
20	-	-	-	-	-	-	-	-	-	60	210	415	95	65	105	85*	60*	55*	50*	60	130	195	110	135	144	(11)	
21	95	-	-	-	-	-	-	-	-	-	-	-	50	40	30	30	45	10	40*	-*	40*	75	40	50	47	(10)	
22	65	25	-15	-60	65	60	75	80	-20	-10	20	40	30	45	65	50	35	60	75	40	65	85	55	20	40	(24)	
23	60	40	30	40	25	35	40	40	45	45	45	55	40	35	60	50	45	50	45	35	20	40	25	20	40	(24)	
24	25	15	15	20	20	25	40	40	40	35	50	65	75	75	60	40	35	20	25	25	20	20	-25	33	(24)		
25	-50	-20	-25	-15	-20	-10	15	25	5	25	35	40	35	40	40	40	60	50	20	5	20	20	20	16	(24)		
26	20	20	25	20	20	20	20	15	10	15	40	45	40	40	40	30	30	40	35	25	15	15	25	40	27	(24)	
27	15	20	-5	5	10	15	20	10	30	55	65	25	40	40	30	35	40	30	30	20	10	15	10	0	24	(24)	
28	15	10	15	10	20	15	20	15	45	60	60	10	30	25	15	20	15	-5	5	20	20	20	20	20	21	(24)	
29	20	15	15	15	20	25	20	40	60	60	45	40	35	40	35	35	40	60	55	60	50	45	65	60	40	(24)	
30	50	35	50	20	15	30	40	55	50	30	40	40	40	40	45	55	40	40	50	45	60	60	75	55	44	(24)	
31	40	25	25	20	20	30	30	60	40	20*	25*	15	25*	20*	20	20*	20*	30	55	25	25	40	0	-35	26	(19)	
Mean	-6	120	73	9	12	17	29	37	40	40	45	62	45	43	49	40	41	35	34	24	17	20	-3	-12	27	(554)	
																								Mean for 0a days		[41	(3)]

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

39 ESKDALEMUIR		Factor 10.88 (metre ⁻¹)																				JUNE 1959					
	Hour G.M.T.		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		
	0-1	1-2																									
volts per metre																											
1	60*	45*	-35*	10*	55	75	105	110	100	60*	45*	25*	60	60	40	50	60	45	Z~	40*	20*	15	40	60	63	(14)	
2	40	20	10	10	20	10*	-5*	10*	10	10	0	5	40	90	60	75	65	55	60	10	40	20	20	20	35	(21)	
3	10	20	20	40	15	0	25*	60	60	65	50	75	55	70	75	70	75	70	50	50	20	10*	0*	48	(21)		
4	-	-	-	-	-	30	85	90	80	100	80	80	70	65	50	40	20	40	-	-	-	-	-	64	(13)		
5	-	-	-	-	-	-	-	-	-	-	-	Z±	440*	70	40	5*	-125*	125*	80*	70*	65*	10*	45*	100	85	74	(4)
6	45	20	60	45*	70*	65*	65*	120	110	65*	80	40*	45*	-70*	65*	110*	105	110	65	40*	40*	45	35	35	69	(12)	
7	60	35	55	55	30	30	40*	60	40*	20*	50	40	65*	-40*	40*	0*	35*	60*	60	75	45	45	15	40*	47	(14)	
8	-75*	-120*	-490*	-1020*	-450*	-95*	-100*	20*	110	80	80	Z±	Z±	Z~	100	40*	120*	Z±	35*	Z~	30*	15*	50	80	83	(6)	
9	50	45	45	25*	40*	40*	20*	20*	Z~	-30*	-115*	Z±	65*	80*	Z±	40	65*	-45*	Z~	60*	70*	40*	20	15	36	(6)	
10	10	10	15	10	10	25	35*	25*	25*	65*	75	65	50	50	50	60	50	45	40	40	20	15	10	10	33	(20)	
11	10	10	10	10	10	10	30	40	40	15	10	20	10*	15*	10*	-	-	-	-	-	-	-	-	-	18	(12)	
12	-	-	-	-	-	20	15	-10	0	55	40	70	65	50	35	20	40	70	60	60	70	45	50	55	43	(19)	
13	50	40	40	40	30	5	-25	40*	40*	25*	30	40	65	80	80	85	80	70	55	40	40	25	20	20	43	(21)	
14	20	20	20	25	20	20	45	50	90	80	80	100	105	95	120	110	100	115	105	100	75	60	50	80	70	(24)	
15	100	45	40	80	60	40	45	65	80	80	60	60	65	60	30	40	25	25	20	20	15	-15	10	40	45	(24)	
16	60	55	60	60	65*	70*	25*	-10*	10*	45*	20	20*	35*	25*	65	60	65	80	100	70	30	10	-5	-20	47	(15)	
17	-5	20	20	20	20	20	20*	25*	30*	25	45	40	30	25	80*	25*	45*	60*	100	100	95	80	60	65	45	(16)	
18	60	55	30	40	30	40	50	55	60	75	45	80	50	80	70	75	65	80	75	55	25	35	20	20	53	(24)	
19	20	15	10	15	35	20	65	55	55	60*	65*	60	55	60	50	40	40	30	35	25	20	15	15	34	(22)		
20	15	10	10	10	10	15	25	55	80	100	80	60	70	65	45	40	35	30	25	20	20	5	2				

POTENTIAL GRADIENT (reduced to open level surface)
 Mean values for periods of sixty minutes between exact hours

103

39 ESKDALEMUIR		Factor 9.52 (metre ⁻¹)																				JULY 1959				
	Hour G.M.T.		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	
	0-1	1-2																								
volts per metre																										
1	-	-	-	-	-	-	-	-	-	-	55*	80*	60*	30*	40*	35*	-70*	-310*	-100*	-40*	80*	40*	50*	-80*	-	(0)
2	70*	75	60	40*	35*	45*	70	60	70	65*	75	45	35*	65*	60*	75*	90*	120*	105	50*	2*	75*	100	73	(9)	
3	-70*	60*	55	60*	65*	75*	105*	135*	80*	45*	45	40*	45	25	25*	15*	30*	60	50	75	55*	135*	195*	125*	51	(7)
4	165*	150*	110*	70*	105*	90*	105*	250*	170*	90*	60*	75	45	65	75	105	150	120	135	80	45	-	-	-	89	(10)
5	-	-	-	110	90	65	65	65	60	45	-5*	5*	-5*	15*	-*	-*	-*	-*	-*	75	30	15	25	25	55	(11)
6	25	20	25	15	20	20	35	60	60	75	80	80	75*	80	115	95	100	90	55*	75	75	60	85	75	62	(22)
7	65	45	20	25	30	5	25	25	15	-10	10	45	15	45	60	75	85	95	75	60	25	15	15	10	36	(24)
8	15	15	15	15	15	35	75	60	50	60	60	60	60	75	75	80	85	50	60	40	40	30	35	49	(24)	
9	35	35	30	30	30	40	60	60	50	45	45	45	45	45	30	20	15	30	35	15	20	25	30	25	35	(24)
10	30	25	20	25	25	40	55	60	60	75	75	75	75	60	50	55	40	30	25	25	35	30	25	20	43	(24)
11	20	20	25	20	25	45	65	75	75	70	70	75	105	80	75	70	50*	60*	2*	2*	25*	0*	100*	180*	57	(16)
12	120*	130*	110*	90*	55*	25*	-5*	50*	95*	-15*	-105*	-240*	-370*	45*	90*	70*	50*	45*	50*	45*	60*	70	95	90	85	(3)
13	80	55	75	75	75	75	75	95	75	80	65*	60*	60*	60	70	90	100	115	95	85	95	110	105	95	85	(21)
14	75	65	90	55	50	55	65	65	60	75	70	70	75	75	75	75	60	65	45	30	20	25	40	45	59	(24)
15	40	40	35	25	25	30	25	40	55	75	75	75	65	55	65	55	45	50	55	50	35	40	30	30	46	(24)
16	30	30	35	65	40	40*	105*	55*	20*	15*	170*	90*	85*	95*	-105*	-30*	15*	2*	-20*	-135*	-305*	105*	105*	205*	40	(5)
17	165	75	80	90	130	145	90	90	75	45	45	55	35	55	50	45	60	60	55	50*	50*	50*	50	15*	75	(20)
18	Z±*	Z±*	90*	75*	45*	30	15	15*	0*	-40*	Z±*	Z±*	45*	45	60	60	85	85	30	25	15	25	25	25	40	(13)
19	-	-	-	-	-	-*	-*	-*	-*	-*	-*	-*	60	55	75	80	90	80	75	60	70	-	-	60	68	(13)
20	35	-	-	-	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-	-	-	-	-	-	-	-	-	-	35	(1)
21	-	-	-	-	-	-	-	-	95	90	75	60	60	30	90	80	55	45	35	20	-	-	-	-	61	(12)
22	-	-	-	-	-	-	-	-	95	105	100	105	-	-	-	65	70	60	45	30	40	45	45	30	64	(13)
23	30	25	20	30	30	35	45	40	80	85	75	75	50	45	30	35	45	30	25	30	40	30	25	30	41	(24)
24	25	30	35	30	35	80	75	75	60	75	75	55	45	35	60	55	50	40*	40	20	25	20	25	30	46	(23)
25	25	35	30	40	40	50	60	75	75	75	80	80	75	75	75	75	60	40	25	20	25	20	20	15	49	(24)
26	15	20	10	15	15	25	20	25*	45*	30*	20*	10*	0*	75*	10*	135*	80*	-20*	Z±*	-15*	-105*	-95*	55*	85	26	(8)
27	35	-	-	-*	-*	-*	-*	-*	Z±*	-75*	180*	105*	90	Z±*	Z±*	60	Z±*	Z±*	Z±*	Z±*	30*	30*	15	50	(4)	
28	30	30	15	10	30	105	180	135	85	65	90	55	45	80	65	125*	-*	-*	-*	-*	-*	-*	-*	68	(15)	
29	-	-	-	-	-	-*	-*	-*	-*	-*	-*	-*	-	-	55	65	75	60	65	75	50	35	25	40	55	(10)
30	40*	30*	20	30	30	30	15	10	-10*	15*	10*	10	0	75	75	70	75	70	70	60	55	35	25	30	41	(19)
31	45	30	25	20	20	30	30	25	15	70	45	60	55	60	60	55	45	30	30	40	45	30	30	35	39	(24)
Mean	43	37	36	34	41	51	57	62	64	65	65	64	55	58	66	67	69	65	55	48	41	38	39	43	53	(471)
	(19)	(18)	(20)	(18)	(19)	(19)	(20)	(18)	(19)	(19)	(19)	(20)	(19)	(21)	(21)	(22)	(20)	(20)	(21)	(21)	(19)	(18)	(19)	(22)		
																							Mean for 0a days	[50	(8)]	

POTENTIAL GRADIENT (reduced to open level surface)
 Mean values for periods of sixty minutes between exact hours

39 ESKDALEMUIR		Factor 9.38 (metre ⁻¹)																				AUGUST 1959				
	Hour G.M.T.		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	
	0-1	1-2																								
volts per metre																										
1	45	45	45	30	25	35	50	45	50	60	80	75	65	50	65	55	45	35*	80*	70	75	125	90	75	59	(22)
2	65	55	50	50	45	50*	35*	50	40*	50	40	20	35	20	15*	35*	10*	55*	60*	60	30*	40*	30	45	44	(14)
3	40	45	60	30	5	40	45*	5*	20*	30*	45	45*	45*	60*	65	60	75	75	75	50	50	65	75	60	54	(17)
4	60	35	50	50	50	50	30*	35*	50	50	65	65	30	70	45	25*	35	45	15	15	15*	40*	35	30	44	(19)
5	20	20	20	20	20	20	35	35	40	50	45	60	60	50	45	60	65	65	50	35	35	20	20	20	38	(24)
6	20	15	35	20	15	30	45	20*	50*	45*	50*	45*	25*	0*	55*	-*	-*	-	60	50	45	35	20	15	31	(13)
7	15	15	15	15	15	10*	20*	45	15	70	85	85	100	90	75	70	75	75	65	35	30	45	40	40	47	(22)
8	35	40	35	35	35	35	135	75	80	80	75	75	80	75	65	75	75	45	20	60	-10*	-5*	-5	-10	55	(22)
9	35	-60	-15	-20	5	15	5	20	20	15	35	30	35	55	45	40	30	20	10	10	20	15	5	-	16	(23)
10	-	-	-	-	-	-	30	35	30	45	45	45	35	45	35	45	50	35	35	20	20	35	20	39	(18)	
11	5	30	15	15	15	20	15	20	0	-10	15	20	10	-5	30	25	20	15*	15	5	-5	-15	15	15	12	(23)
12	35	10	15	20	20	20	30	40	50	50	50	60	50	70	60	60	60	55	50	35	15	-	-	-	41	(21)
13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	0	(1)
14	5*	-5*	15*	5*	35*	60*	185	150	125	180*	115*	60*	60*	30*	50*	35*	35	5*	-30*	Z±*	20*	15*	70*	50*	124	(4)
15	45	45	45	65	70	75	75	80	90*	105	105	95	95	85	90	95*	50*	Z±*	125*	80	75	105	95	79	(19)	
16	75	75	65	75	45	45	30	75	105	80	75	75	65	65	60	70	75	50	50	30	20	30	30	25	58	(24)
17	20	20	25	30	20	30	50	50	95	145	140	140	150	135	155	150	170	150	130	120	130	125	80	70	97	(24)
18	80	70	35	50	70	30	45	80	105	140	170	150	185	185	145	150	60	55	30	15	15	25	15	80	24	(24)
19	20	15	5	15	15	25	45	55	55	60	55	50	65	45	55	45	45	15	15	20	5	10	10	15	32	(24)
20	15	15	15	20	15	15	15	45	20	15	45	45	60	45	45	45	25	15	5	5	15	20	15	20	25	(24)
21	15	20	20	25	5	20	10	-10	0	-30	5	40	80	90	75	60	150	135	Z-	20	25	10	10	5	34	(23)
22	20	20	15	30	30	45	45	30	-10	25	35	35	35	25	35	45	65	75	75	35	140	60	70	55	43	(24)
23	5	50	10	80	50	45*	95*	125*	75*	155*	65*	100*	30*	40*	85*	45	50	60	55	80	140	240	245	95	86	(14)
24	90*	60*	60*	Z±*	-220*	65*	115*	130*	-*	-*	-*	255*	210*	60*	30	50*	35*	50	45	20*	10*	45*	50	60	47	(5)
25	75	40*	50*	80*	150	135	95	75	95	-5*	35	45*	45	30*	60*	50*	70*	80*	100	50	5*	20	20	40*	75	(12)
26	45*	75*	75	100	105	90	90	105	90	80	120	120	125	135	80	90	95	80	45	20	20	25	30	25	79	(22)
27	25	30	20	20	25	60																				

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

39 ESKDALEMUIR		Factor 9.40 (metre ⁻¹)																				SEPTEMBER 1959						
Hour	G.M.T.		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			
	0-1	1-2																										
	volts per metre																											
1	25	15	20	20	20	15	45	60	60	60	55	45	50	60	45	40	55	50	25	15	15	10	10	5	34	(24)		
2	15	10	15	15	15	15	30	40	55	55	65	60	30	45	70	60	50	30	5	10	15	20	15	15	31	(24)		
3	15	10	10	10	15	20	25	55	40	50	70	65	55	50	50	40	30	20	20	25	40	15	20	10	32	(24)		
4	20	20	20	15	20	20	35	80	40	45	50	50	50	45	30	50	35	35	-5	15	10	15	20	30	(24)			
5	20	15	10	15	20	25	30	35	50	70	75	65	55	50	50	45	55	35	15	25	25	25	10	15	35	(24)		
6	30	15	15	15	15	15	30	40	50	65	70	75	65	70	65	75	50	60	0	10	20	15	10	15	37	(24)		
7	20	20	20	25	30	15	45	75	45	25	40	50	40	50	65	60	55	45	40	15	15	15	10	15	35	(24)		
8	25	30	15	25	20	15	45	100	65	65	60	65	60	60	80	100	80	60	55	10	20	40	50	50	50	(24)		
9	50	60	80	80	50	40	95	255	180	60	80	100	105	105	90	75	75	45	10	30	30	15	20	15	73	(24)		
10	15	15	15	15	20	15	15	50	55	55	55	55	55	60	65	60	45	20	10	20	25	15	10	15	33	(24)		
11	15	15	10	10	10	10*	10	45	50	70	105	105	80	55	45	45	40	20	15	30	35	30	25	30	39	(23)		
12	25	20	30	25	20	25	40	40	40	35	35*	5*	20*	40	40	40	45	30	5	30	30	45	60	65	35	(21)		
13	45	60	30	20	15	10	15*	10*	-5*	-25*	-25	-40	-75	35	20	-25	45	60	50	35	40	30	25	35	19	(20)		
14	45	35	30	20	25	25	30	40	70	60	65	65	70	75	75	75	75	50	40	20	20	-	-	-	48	(21)		
15	-	-	-	-	-	-	-	-	45	50	55	45	65	55	60	50	45	55	50	45	50	45	25	15	47	(16)		
16	15	10	20	20	15	15*	15*	15*	20	20	-5*	5*	15*	20*	10	30	55	60	70	65	70	65	45	55	38	(17)		
17	45	20	20	25	15	15	15	20	20	-*	-*	-*	-	-	-	-	-	-	-	-	-	-	-	-	21	(9)		
18	-	-	-	-	-	-	-	-	35	-	45	-	60	40	40	35	30	30	15	15	15	20	15	30	30	(14)		
19	20	15	20	15	15	15	20	35	45	35	40	35	50	35	45	50	30	45	45	45	50	40	35	20	33	(24)		
20	10	10	15	15	45	15	25	40	55	55	60	60	55	60	60	60	55	20*	-20*	55*	5*	75*	-205*	-325*	41	(17)		
21	-175*	-10*	-295*	150*	35*	-25*	-20*	-280*	-45*	40*	35*	15*	80*	85	95	85	90	60	85	150	130*	100	85	60	89	(10)		
22	100	25*	90*	90	85	60	80	105	105	105	105	75	60*	75*	70	75	70*	60*	45*	100*	85	45	40*	35	81	(15)		
23	40*	30*	40	75	70	90	90	60	10	45	90	45	50	15	30	45	40	45	45	40	75	55	60	85	55	(22)		
24	65	85*	85*	70*	55*	65*	80*	75*	-10*	45*	105*	195*	85*	145*	150*	45*	150*	55*	-*	-	-	-	-	-*	65	(1)		
25	-*	-*	-*	-*	-*	-*	-*	-*	70*	45*	35*	145*	190	120	120*	80*	35*	130*	80*	160*	5*	45*	45*	75*	155	(2)		
26	90	80	80	45	40	-	-	75	90	105	120	120	165	95	90	100	75	45	45	60	50	30	25	15	72	(21)		
27	15	15	20	20	20	15	15	20	30	75	75	90	115	70	60	75	60	70	55	40	45	50	30	45	47	(24)		
28	30	25	20	25	25	60	75	80	105	110	100	85	85	80	90	100	75	75	40	45	35	5	25	20	59	(24)		
29	-	-	-	-	-	-	-	-	90	105	95	135	135	135	160	135	55	30	35	45	30	50	30	55	79	(15)		
30	75	60	55	45	45	65	50	60	55	70	110	115	105	150	115	85	55	30	25	35	30	35	45	40	65	(24)		
Mean	35	26	27	29	28	29	40	63	57	60	70	65	71	67	64	62	54	44	32	35	35	33	29	31	45	(580)		
	(24)	(22)	(23)	(24)	(24)	(21)	(21)	(21)	(24)	(25)	(23)	(24)	(24)	(26)	(27)	(27)	(26)	(25)	(25)	(25)	(25)	(25)	(24)	(25)		Mean for 0a days	[38	(4)]

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

39 ESKDALEMUIR		Factor 9.66 (metre ⁻¹)																				OCTOBER 1959				
Hour	G.M.T.		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	
	0-1	1-2																								
	volts per metre																									
1	75	60	55	45	45	65	50	60	55	70	110	115	105	150	115	85	55	30	25	35	30	35	45	40	65	(24)
2	130	125	85	85	95	85	55	15	95*	90*	55	60	105*	100*	75	60	30	15	10	25	75	65	60	55	63	(20)
3	60	55	45	45	45	40	30	40	30	25	30	35	45	65	70	90	60	50	30	20	15	20	20	20	41	(24)
4	25	30	15	20	20	30	35	45	20	55	100	115	130	90	75	75	60	70	65	90	60	30	25	-35	52	(24)
5	-10	-5	-10	5	10	10	15	15	15	15	-5	0	75	100	60	20	-15	15	-10	20	5	-5	-10	10	13	(24)
6	10	-5	15	15	15	15	15	15	15	10	35	75	120	135	125	95	20	0	5	0	10	20	45	55	36	(24)
7	75	100	95	105	110	145	130	160	95	110	110	105	90	75	65	85	35	55	45	50	40	30	30	25	82	(24)
8	25	30	40	45	45	45	55	80	110	95	125	150	120	100	120	70	45	10	5	-35	-10	-5	15	20	54	(24)
9	10	-5	5	25	15	55	10	-10	70	85	105	95	85	80	90	95	30	60	65	75	105	105	15	-205	44	(24)
10	10	-15	-60	10	20	60	70	105	110	70	85	65	100	125	155	95	95	35	15	60	55	80	110	120	66	(24)
11	60	55	80	80	80	80	80	75	60	35	20	15	10	20	20	50	25	10	5	15	60	50	45	10	43	(24)
12	-40	-50	-15	10	-15	25	25	30	30	50	55*	60*	55*	-105*	-*	-*	-*	-*	45	50	180	160	65	60	38	(16)
13	70	15	30	50	65	40	25	40*	-25*	-15	35*	60*	70	50	45	50	30	30	30	75	80	75	65	50	47	(20)
14	45	20	15	15	15	20*	15	60	55	65	70	65	95	95	85	65	65	25	30	230	170	105	45	105	68	(23)
15	40	25	20	15	15	25	45	85	135	80	40	50	75	80	85	105	45	35	30	30	40	40	30	35	50	(24)
16	40	45	60	65	105	75	65	80	80	95	95	95	95	85	85	95	85	45	65	70	55	60	45	55	73	(24)
17	35	30	2+	2-	-25*	95*	100*	2+	2+	2+	2+	125*	115*	65*	-25*	30*	0*	15*	-35*	-150*	-405*	2-	2-	2-	33	(2)
18	Z*	Z*	Z*	Z*	Z*	105*	150	135	105	85	80	80	80	90	110	100	Z*	0*	60*	15*	30*	2+	2-	2-	104	(9)
19	125*	2+	2-	115*	2+	2+	100*	45*	120*	135*	75*	60*	45*	25*	2-	55*	75	140	160	165	145	125	120	110	130	(8)
20	95	90	100	95	60*	-65*	60*	70*	95*	100	105	100*	85*	95	120	85	70	90*	65*	60	85	15	10	60*	80	(14)
21	95*	120*	130*	-250*	2-	2-	2-	-675*	15*	170*	305*	340*	315*	160*	85*	205	175	130	115	115	95	75	2+	115*	130	(7)
22	Z*	45*	85	105*	165*	2+	60*	2-	2+	145	2+	50*	150	130*	100	115	115	100	95	100	75	75	60	99	(13)	
23	30	60	75	85	60	65*	80	55*	55*	25	55	65	55	20	30*	60*	45*	75	75	25*	10*	15*	-15*	45*	58	(13)
24	-30*	85*	180*	170*	200*	160*	215	130*	45*	120	185	170	-5*	2-	55*	60*	2+	75*	110*	2+	2-	85	110	125	144	(7)
25	135	155	135	130	2-	-20*	2-	2-	105*	105	120	2+	2+	2-	2-	2-	2-	150	180*	165*	110*	80	75	121	(9)	
26	70	30*	10*	45*	65*	30*	30*	45*	180*	125	75*	105*	60*	25*	-115*	2-	2-	2-	2-	2-	2-	2-	2-	2-	97	(2)
27	Z*	Z*	75*	Z*																						

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient
1	2c	hr. 9.3	0a	hr. ...	1a	hr. 1.6	1a	hr. 1.5	2c	hr. 6.1	1b	hr. 2.7
2	1b	0.9	0a	...	2c	5.0	(1a)	-	1a	2.4	1a	1.3
3	0a	...	1a	1.9	1b	2.3	(1a)	(0.3)	2b	4.0	1a	1.7
4	0a	...	1a	0.8	1a	1.6	1b	1.0	1a	2.9	(1a)	-
5	1a	0.7	1a	0.8	2b	3.6	1a	1.7	2a	4.5	(1b)	-
6	0a	...	0a	...	(2b)	(3.2)	2c	4.0	1a	1.0	1a	1.9
7	1b	0.5	1b	1.4	(1a)	(0.5)	2b	3.8	2b	3.6	1a	1.3
8	1b	0.5	(0a)	(...)	1a	0.5	2b	5.2	1a	1.7	2b	9.4
9	1b	0.3	(1b)	(1.4)	1a	2.1	(1b)	-	2a	5.9	2b	3.3
10	0a	...	2a	5.4	2a	8.9	(1a)	(1.7)	2b	11.1	1a	0.2
11	0a	...	1a	2.9	2c	11.4	(2b)	(4.5)	2c	-	(1a)	-
12	0a	...	1a	2.5	2b	4.7	2b	3.7	2c	14.2	(1a)	-
13	0a	...	2b	5.3	1a	0.1	2b	7.3	(1a)	(1.9)	1a	1.4
14	(0a)	(...)	2b	7.3	2b	7.2	2b	3.9	2b	7.3	0a	...
15	(0a)	(...)	1b	1.7	1a	2.6	1a	2.3	1a	0.2	1a	1.4
16	0a	...	1b	2.6	1a	1.9	(1a)	-	(1a)	(0.7)	1a	2.8
17	2b	7.9	1a	1.0	1a	1.1	(2a)	-	(1a)	-	1a	0.8
18	2b	3.3	1a	2.7	1a	1.4	(1a)	(0.6)	(1a)	-	0a	...
19	2c	11.6	1a	0.7	1a	0.3	(0a)	(...)	(1a)	-	1a	0.1
20	(1b)	-	2b	3.9	1a	1.3	(1a)	(1.3)	(1a)	(0.1)	1a	0.2
21	(1b)	-	2a	4.9	(2a)	-	(0a)	(...)	(1a)	(1.1)	(1a)	-
22	2b	13.1	1b	0.9	(2b)	(5.8)	(1a)	-	2a	3.0	(1a)	-
23	1b	0.3	(2b)	-	1a	1.9	2a	3.1	0a	...	1a	1.1
24	(0a)	(...)	(1a)	(0.7)	2b	4.9	2b	7.1	1a	0.6	(1a)	-
25	0a	...	1a	2.4	2b	3.3	2c	6.3	2a	4.5	(2b)	-
26	(1a)	(0.2)	2b	3.3	2b	3.7	2b	9.7	1a	1.1	(2a)	-
27	0a	...	(1a)	(1.8)	2c	5.5	2b	7.2	1a	1.3	(1a)	-
28	1a	1.2	(2a)	-	1b	1.9	2c	16.7	1a	0.5	2b	4.4
29	2a	4.7			2a	7.7	1a	1.1	0a	...	2a	6.1
30	2b	5.1			1a	0.7	2a	5.6	0a	...	(0a)	(...)
31	1a	0.1			1a	0.5			1a	1.6		
Total	-	59.7	-	56.3	-	97.2	-	99.6	-	81.3	-	40.1
No. of days used	-	29	-	26	-	30	-	25	-	27	-	20
Mean	-	2.1	-	2.2	-	3.2	-	4.0	-	3.0	-	2.0

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient
1	(2a)	hr. -	1a	hr. 0.2	0a	hr. ...	1a	hr. 1.8	1a	hr. 0.1	(1b)	hr. (2.2)
2	1b	2.2	1a	0.1	1a	0.8	1a	0.1	1a	1.1	2b	4.7
3	1a	0.5	1a	1.1	1a	0.6	1a	0.1	1a	0.2	1b	2.9
4	1a	0.5	1a	1.1	1a	0.5	1a	1.1	1a	1.0	0a	...
5	(2a)	(3.0)	0a	...	1a	0.1	2a	6.4	(0a)	(...)	2c	3.5
6	0a	...	(1a)	(1.0)	1a	0.4	1a	2.1	(2a)	-	2c	5.3
7	1a	1.7	1a	0.4	1a	0.3	1a	0.1	1a	0.1	(2b)	-
8	1a	0.2	1a	2.1	1a	0.6	1a	2.7	2b	6.1	2a	4.8
9	0a	...	(2b)	(3.7)	1a	0.7	2a	3.1	2c	3.2	2b	4.7
10	0a	...	(0a)	(...)	1a	0.4	1a	2.6	1b	0.9	2a	4.5
11	1b	2.8	1a	2.6	0a	...	1a	2.1	1b	0.7	(2a)	(3.8)
12	2a	4.0	(1a)	(0.1)	1a	0.7	(2a)	(7.1)	1b	1.0	(1b)	-
13	0a	...	(1a)	-	2a	5.3	1a	1.7	2c	8.7	(2c)	9.3
14	0a	...	1b	2.6	(0a)	(...)	1a	0.8	(2c)	-	0a	...
15	0a	...	1b	1.1	(1a)	(0.1)	1a	0.1	(1a)	-	1b	2.2
16	2b	5.4	1a	0.1	1a	1.2	0a	...	(1a)	(2.5)	2b	3.5
17	1a	0.2	0a	...	(1a)	-	2c	12.1	1a	1.3	2b	5.3
18	2b	-	1a	0.4	(1a)	(0.1)	2c	7.4	2c	5.9	1b	2.7
19	(1a)	-	1a	0.3	0a	...	2b	5.0	2c	8.4	2b	3.6
20	(2a)	-	1a	0.2	2a	4.0	1a	1.4	2b	7.3	2b	7.3
21	(0a)	(...)	2b	4.6	2a	5.7	2b	5.3	(1b)	(2.7)	(1a)	-
22	(0a)	(...)	1a	2.0	1a	0.1	2b	3.1	2b	-	(2c)	-
23	0a	...	1a	1.3	1a	0.8	1a	1.9	1a	1.6	2c	4.8
24	0a	...	(2a)	(3.7)	(2a)	-	2b	3.8	2b	5.4	2c	11.2
25	1a	0.2	1a	1.4	(2a)	-	2c	4.8	2c	6.9	2c	7.0
26	2b	4.3	1a	0.1	(0a)	(...)	2c	11.0	(2b)	(4.9)	2c	7.8
27	(1c)	-	1a	0.9	0a	...	2b	6.9	2c	6.6	2c	9.5
28	(1b)	(2.1)	1a	0.9	1a	0.3	0a	...	2b	8.3	1a	0.2
29	(1a)	-	1a	0.3	(1a)	(0.1)	1a	0.9	2b	10.4	(2b)	(5.5)
30	1a	2.8	0a	...	1a	0.1	(1a)	(1.2)	1a	1.3	1b	1.3
31	1a	0.2	0a	...			1a	2.8			2b	4.7
Total	-	30.1	-	32.3	-	22.9	-	99.6	-	96.6	-	122.3
No. of days used	-	25	-	30	-	27	-	31	-	26	-	27
Mean	-	1.2	-	1.1	-	0.9	-	3.2	-	3.7	-	4.5

Annual values: Character 0 1 2
No. of days used 51 190 124

Duration: Total 838.0 hr.
No. of days 323
Mean 2.59 hr.

KEW

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

Table with columns: Hour G.M.T., Factor 4.45 (metre^-1), JANUARY 1959, Mean. Rows 1-31. Includes 'volts per metre' label and various numerical data points with error bars.

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

Table with columns: Hour G.M.T., Factor 4.33 (metre^-1), FEBRUARY 1959, Mean. Rows 1-28. Includes 'volts per metre' label and various numerical data points with error bars.

The potential gradient is reckoned as positive when the potential increases upwards. The symbol Z indicates either that the trace fluctuates rapidly so that estimation of a mean value is impracticable, or that the trace is limited by the range of the instrument (see Introduction); and the suffix +, - or ± indicates that the mean value is plainly positive, plainly negative, or indeterminate in sign. The occurrence of precipitation of any sort is indicated by an asterisk. Round brackets round any hourly mean indicates that the record during that hour is somehow imperfect.

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

Table for MARCH 1959 at KEW OBSERVATORY. Factor 4.36 (metre^-1). Columns include Hour G.M.T. (0-1 to 23-24) and Mean. Rows 1-31 show hourly potential gradient values in volts per metre. Includes a summary row for Mean and a sub-row for Mean for selected quiet days.

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

Table for APRIL 1959 at KEW OBSERVATORY. Factor 4.38 (metre^-1). Columns include Hour G.M.T. (0-1 to 23-24) and Mean. Rows 1-30 show hourly potential gradient values in volts per metre. Includes a summary row for Mean and a sub-row for Mean for selected quiet days.

Daily, monthly and annual means are computed excluding hours with precipitation and, of course, all indeterminate entries. The number of hours or days used in computing each mean is shown in round brackets. Entries in square brackets are means for selected quiet days (see Introduction) and the figure in round brackets is the number of days used in computing this mean.

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

41 KEW OBSERVATORY		Factor 4.22 (metre ⁻¹)																				MAY 1959					
	Hour G.M.T.		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		
	0-1	1-2																									
	volts per metre																										
1	210	215	135	140	115	225	285	375	340	300	210	160	160	200	190	185	135	115	Z±*	Z±*	65*	290	335	160	213	(21)	
2	215	190	175	135	135	190*	275	285	200	215	150	140*	125	135	140	125	135	150	175	210	315	365	400	115	198	(22)	
3	140	150	100	110	110	135	160	185	165	135*	90*	115*	140*	100*	-205*	Z±*	Z±*	Z±*	Z±*	Z±*	60*	185	35	160	136	(12)	
4	240	260	150	150	215	260*	460	445	350*	340	240	225	215	200	225	215	210	240	215	260	340	335	85	75	243	(22)	
5	75	60	75	140	175	165	260	360	365	365	300	300	340	340	365	390	365	365	260	215	160	90	110	85	239	(24)	
6	75	135	150	115	165	310	470	625	660	575	445	335	315	335	350	350	400	375	315	285	200	90	190	125	308	(24)	
7	-25	15	100	115	90	65	215	510	670	595	350	160	150	115	90	75	100	100	110	150	165	150	135	210	184	(24)	
8	185	135	75	125	100	135	185	300	275	215	185	150	140	140	150	150	165	165	210	290	200	150	135	225	174	(24)	
9	160	290	260	260	225	215	265	350	265	240	225	140	100*	110	110	115	115	135	140	190	260	150	-10	-25	182	(23)	
10	-75	-35	85	65	75	-70	40	Z±	390	125	135	75	90	135	125	115	140	150	165	160	200	210	190*	165*	110	(21)	
11	125	125	210	200	185	185	315	340	495	520	350	290	175	150	125	140	135	140	225	165	235	150	150	125	219	(24)	
12	85	140	125	125	115	175	325	340	460	485	350	290	225	200	-	-	250	140	85	100	65	75	175	225	207	(22)	
13	150	175	185	165	125	225	435	425	525	535	585	485	460	410	445	410	385	325	210	200	90	25	90	75	297	(24)	
14	65	50	40	90	135	190	325	560	535	450	360	325	265	235	260	350	265	185	140	215	250	285	350	350	261	(24)	
15	260	175	160	150	165	210	390	510	495	435	300	260	265	275	285	300	240	260	250	165	110	150	110	215	256	(24)	
16	100	35	100	90	165	300	315	240	215	225	235	240	265	235	210	190	200	235	285	240	240	240	240	260	213	(24)	
17	185	175	65	115	110	125	140	200	175	190	150	135	85	165	125	90	115	175	150	150	135	160	240	185	147	(24)	
18	135	140	135	110	115	135	150	200	200	215	190	160	165	235	200	175	215	240	190	175	215	210	250	300	186	(24)	
19	225	165	100	160	175	215	285	325	350	300	350	350	290	285	260	335	360	360	285	225	210	150	60	115	247	(24)	
20	100	85	115*	115*	115*	-415*	-190*	40*	285*	375*	650*	265*	350*	450*	470*	525*	460*	410	260	235*	275*	160*	175*	185	208	(5)	
21	90	115	90	65	90	150	260	340*	Z±*	Z±*	Z±*	Z±*	135	190	165	160	185	350	250	-85	Z±*	Z±*	135*	160	148	(16)	
22	160	265	Z±*	Z±*	110	150	200	285	275	215	165	185	200	190	275	290	365	410	400	350	410	285	235	240	257	(22)	
23	200	165	165	165	175	200	285	450	450	410	410	400	315	260	285	275	265	275	300	265	265	250	215	200	277	(24)	
24	140	115	135	135	140	150	110	100	150	190	200	210	200	200	165	135	125	100	125	135	165	290	340	250	167	(24)	
25	135	100	100	135	135	165	250	285	350	260	315	300	275	285	300	275	250	240	240	200	185	275	215	100	224	(24)	
26	100	140	125	100	110	190	250	340	335	300	-	-	-	-	200	300	300	335	260	290	315	265	235	210	235	(20)	
27	235	360	350	340	410	265	390	335	265	250	200	235	185	200	200	215	215	235	235	275	300	240	160	185	262	(24)	
28	140	100	100	110	185	240	275	250	265	260	240	300*	365	240	315	495	545	520*	365*	250	175*	75*	110	110*	250	(17)	
29	60*	160	60	35	190	335	390	450	475	445	350	325	235	215	215	225	250	185	135	35	40*	125	65	85	227	(22)	
30	100	110	85	90	90	75	90	165	235	235	160	135	75	85	75	85	100	100	50	75	135	110	85	108	(24)		
31	60	50	75	85	100	140	135	210	210	225	210	140	85	75	75	85	65	65	40	125	135	140	160	140	118	(24)	
Mean	133	141	128	132	148	179	264	337	350	326	274	240	215	209	212	223	227	226	204	189	210	195	176	166	211	(677)	
	(30)	(31)	(29)	(29)	(30)	(28)	(30)	(28)	(28)	(28)	(26)	(25)	(27)	(28)	(28)	(28)	(28)	(29)	(29)	(28)	(28)	(25)	(28)	(28)	(29)		
	Mean for selected quiet days																							[215	(10)]		

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

41 KEW OBSERVATORY		Factor 4.07 (metre ⁻¹)																				JUNE 1959				
	Hour G.M.T.		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	
	0-1	1-2																								
	volts per metre																									
1	115	105	100	115	115	120	180	195	155	75*	50*	55*	10*	195	155	245	145	145	145	155	130	165	115	100	145	(20)
2	130	90	90	115	115	145	340	405	340	230	220	180	165	165	155	130	115	120	115	80	130	155	120	105	165	(24)
3	65	75	90	80	130	210	260	275	230	180	145	130	130	120	105	105	115	115	115	80	130	140	145	155	139	(24)
4	145	65	35*	Z±*	75*	105	115	255	255*	260	390	360	340	385	335	260	195	185	245*	230	210*	Z±*	Z±*	Z±*	242	(15)
5	145*	55	-15*	155	155	185	205	180	130	115	80*	Z±*	100*	195	185	195	210	205	195	165	55*	140	140	120	163	(18)
6	130	145	115	155	165	210	230	220	185	165	155	130	130	140	115	75	105	115*	140*	75*	115*	165	170	165	153	(20)
7	130	130	145	145	140	140	140	165	170	165	115	100	90	75	80	90	90	100	100	105	120	140	155	185	126	(24)
8	165	165	145	165	130	145	180	185	180*	80*	75*	140*	75*	115	90*	120	195	180	140	140	140	155	165	165	155	(18)
9	130	140	115	115	120	165	180	255	205	195	Z±*	Z±*	Z±*	Z±*	180	Z±*	Z±*	100*	155*	155	165	165	155	140	161	(16)
10	130	130	155	130	180	195	230	235	220	165	165	145	140	155	155	145	115	130	145	130	145	130	140	140	156	(24)
11	120	105	145	115	90	120	235	275	275	245	185	165	130	105	90	90	100	65	55	105*	90	105	80	50	132	(23)
12	65	65	90	-25	-10	-15	0	80*	100*	385*	385*	375	275	230	300	400	310	260	255	145	100	40	80	155	155	(20)
13	105	105	55	140	90	145	90	295	405	400	335	300	255	205	155	140	170	220	140	115	55	0	90	130	173	(24)
14	145	90	130	145	140	140	155	195	235	210	210	205	210	180	165	165	145	145	130	165	210	120	75	75	158	(24)
15	90	10	65	55	55	210	335	270	300	340	335	245	220	270	220	230	270	260	270	230	205	195	180	170	210	(24)
16	115	80	145	120	65	35	120	145	170	165	-	-	170	165	145	140	140	120	120	120	100	105	90	120	123	(22)
17	145	50	105	115	130	210	230	235	260	300	275	220	165	170	145	145	145	155	155	170	165	170	145	173	(24)	
18	120	120	90	90	130	155	140	245	235	235	205	180	155	145	170	165	155	140	170	130	140	100	65	-35	144	(24)
19	35	50	40	65	75	90	220	320	320	220	155	140	130	170	245	405	360	295	170	50	105	100	50	-25	158	(24)
20	-35	40	-35	10	75	145	210	275	325	325	325															

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

41 KEW OBSERVATORY		Factor 4.42 (metre ⁻¹)																	SEPTEMBER 1959							
	Hour G.M.T.												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	
	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		
	volts per metre																									
1	405	285	180	170	165	265	335	440	515	445	355	360	325	310	380	395	370	395	360	440	345	325	310	260	339 (24)	
2	265	215	170	165	145	265	300	480	480	440	415	275	320	345	380	320	370	380	380	345	385	380	385	240	327 (24)	
3	240	200	170	170	75	85	240	420	420	380	395	385	310	300	300	325	325	320	310	290	320	285	230	180	278 (24)	
4	170	145	110	110	130	170	275	465	490	415	360	395	325	290	230	360	310	360	395	405	345	360	260	240	296 (24)	
5	180	155	155	140	140	110	205	225	300	310	290	250	225	180	205	205	170	180	-60	140	225	205	110	35	178 (24)	
6	50	95	120	120	105	110	110	145	155	155	170	190	205	165	85	Z±	165	70	170	170	215	205	215	140	145 (23)	
7	70	50	85	70	105	85*	105	110	170	200	275	290	260	240	225	310	300	180	190	70	105	85	140	170	165 (23)	
8	140	240	190	145	105	140	300	200	360	345	480	550	475	380	275	265	225	165	170	70	95	35	35	290	236 (24)	
9	215	130	85	170	95	165*	240	240	360	455	585	490	240	205	205	215	250	215	200	85	190	95	85	95	224 (23)	
10	145	170	140	140	15	140	180	335	385	385	415	475	290	265	225	225	205	205	240	140	140	180	155	120	221 (24)	
11	60	105	120	140	140	105	190	285	345	320	465	415	275	215	140	170	165	170	190	85	155	105	155	170	195 (24)	
12	140	170	140	95	155	200*	225	250	455	535	475	455	380	380	225	190	190	215	205	260	285	290	240	215	268 (23)	
13	205	180	155	155	170	180	250	230	285	310	275	240	225	200	200	190	155	145	240	290	310	300	290	260	227 (24)	
14	215	250	145	120	95	105	310	-	-	-	-	455	320	345	335	310	380	370	380	370	385	385	345	300	300 (21)	
15	250	205	200	200	205	285	430*	500	600	595	475	430	355	345	430	430	415	395	290	265	285	300	265	240	346 (23)	
16	200	180	145	165	260	250	455	655	630	500	535	465	405	380	415	395	395	385	380	385	335	325	335	380	373 (24)	
17	335	285	240	250	265	395	490	575	670	535	405	355	345	345	310	405	380	380	440	415	380	335	420	380	389 (24)	
18	300	250	240	300	310	415	660	835	645	690	575	455	415	420	420	430	465	300	275	190	250	240	360	415	411 (24)	
19	360	290	215	190	265	190	335	475	505*	515	360	320	260	275	275	265	290	285	250	215	250	200	180	170	280 (23)	
20	215	205	250	215	240	190	225	215	325*	360	240	140	120	120	140	110	75	75	85	60	140	180	240	155	174 (23)	
21	140	140	85	85	105	140	215	290	300*	285	200	155	170	155	180	130	140	140	140	110	85	140	120	45*	152 (22)	
22	35*	85*	105*	110*	130*	130*	200*	300*	210*	180*	130*	110	155	215	215	260	240	240	265	130	145	120	110	105	178 (13)	
23	85	60	120	120	75	205	260	355	560*	505	415	240	240	205	190	200	205	275	140	180	155	140	85	110	198 (23)	
24	75	70	75	225	110	75	140	275	310	345	205	215	200	200	170	165	140	155	170	145	130	75	85	75	160 (24)	
25	110	110	155	95	95	140	165	130	240	205	180	190	120*	130*	110	155	170	180	205	225	180	145	165	120	158 (22)	
26	120	155	205	170	180	205	170	240*	140*	85*	140	200	145	145	180	75	60	45	50	45	75	110	145	200	134 (21)	
27	170	130	140	155	110	140	205	275	275	275	275	205	200	180	170	165	85	105	70	120	105	95	170	140	165 (24)	
28	155	260	190	260	205	250	200	225	445*	430	335	205	205	205	230	260	275	260	320	355	265	225	140	145	243 (23)	
29	155	170	155	240	240	275	275	360	515	560	480	475	405	380	345	480	515	440	275	145	225	320	275	275	333 (24)	
30	240	230	200	215	140	180	260	490	585	310	310	300	285	320	415	415	335	395	380	310	240	240	260	230	304 (24)	
Mean	187	177	158	165	153	193	261	351	418	400	363	320	279	266	253	270	259	247	237	215	225	214	210	202	249 (690)	
	(29)	(29)	(29)	(29)	(29)	(26)	(28)	(27)	(22)	(27)	(29)	(30)	(29)	(29)	(30)	(29)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(29)		
	Mean for selected quiet days																						300	(10)		

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

41 KEW OBSERVATORY		Factor 4.46 (metre ⁻¹)																	OCTOBER 1959						
	Hour G.M.T.												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
	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	
	volts per metre																								
1	150	140	220	220	305	245	245	295	525	335	270	210	150	195	175	165	175	225	265	200	195	130*	130	115	224 (23)
2	105	115	95*	105*	105	115	140	155	175	195	165	115	140	185	165	175	185	210	245	210	185	220	235	195	168 (22)
3	290	255	290	220	185	185	265	265	350*	435	290	210	150	140	115	105	105	125	280	325	195	125	175	175	213 (23)
4	95	95	95	115	95	105	105	70	15*	220	235	165	140	130	200	270	315	325	210	165	140	105	150	125	160 (23)
5	35	85	95	175	155	140	125	155	295*	405	295	410	435	350	445	490	475	350	270	185	280	270	325	340	273 (23)
6	290	255	245	235	245	220	265	405	595	645	605	480	420	235	245	465	435	475	290	560	410	305	210	265	367 (24)
7	290	155	175	175	225	225	280	385	455*	505	395	295	235	185	150	150	140	155	225	165	45	60	95	175	212 (23)
8	165	85	125	105	115	95	185	105	270*	480	280	225	185	185	150	150	175	175	210	280	385	265	350	335	209 (23)
9	290	265	315	255	335	340	365	435	545*	435	265	245	245	235	220	235	420	560	735	785	755	665	570	480	411 (23)
10	455	350	295	295	280	265	265	290	335	305*	60*	-125*	-25*	60*	130*	130*	15*	-380*	0*	80*	335	245	445	420*	321 (12)
11	255*	200	165	140	115	140	125	150	155	165	175	140	105	165	140	255	280	340	125	35*	45*	85	140	140	164 (21)
12	200	220	185	175	245	255	210	210	265*	185*	125*	85*	15*	25*	200*	325*	360*	435	410	430	420	195	175	265	269 (15)
13	265	270	280	245	235	175	200	290	435*	525	525	385	335	265	280	225	265	350	375	395	315	270	305	295	307 (23)
14	280	265	225	225	225	185	200	270	350*	245	265	280	220	195	165	175	150	270	280	405	490	445	335	265	263 (23)
15	335	265	255	150	220	185	210	175	175*	295	435	315	315	405	420	480	475	475	445	500	525	435	325	350	347 (23)
16	315	280	210	210	225	245	255	210	225*	210	210	195	155	150	185	195	265	265	270	245	195	175	140	155	216 (23)
17	85	70	70	60	70	85	80	70	105	95	70	85	150	165	140	130	130	150	150	45*	-65*	10*	-35	15	91 (21)
18	15*	25*	-70*	0	25	55	105	155	200	210	200	195	175	140	210	225	175	105*	70	125	195	175	125	55*	145 (19)
19	Z±*	Z±*	105	105	155	185	245	405	515	435	315	270	280	245	265	305	360	405	430	410	475	410	395	295	319 (22)
20	225	210	195	255	265	270	270	430	595*	525	430	360	270	255	225	-	-	315	420	350	265	245	245		

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

113

41 KEW OBSERVATORY														Factor 4.35 (metre ⁻¹)										NOVEMBER 1959		
	Hour G.M.T.											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		
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11														11-12	
	volts per metre																									
1	265	275	215	190	350	340	375	290	335*	400	290	300	310	215	205	280	360	120	45	70	-35	85	70	45	220 (23)	
2	60	15	15	15	15*	15	105	120	215*	275	310	335	335	220*	335	360	445	435	400	410	375	275	250	190	242 (21)	
3	135	105*	85*	60	75	120	110	240*	-145	-165*	45*	-135*	45	105	-505*	-605*	-560*	-20*	35	255	470	360	240	230	150 (14)	
4	220	310	435	290	375	340	370	565	700*	720	575	565	530	400	420	410	335	230	Z±*	Z±*	155	95	215	195	369 (21)	
5	195	205	230	220	240	350	455	580	605	580	520	515	435	375	515	650	640	410	240	155	85*	190	195	335	384 (23)	
6	505	240	375	385	425	425	710	925*	745*	635	530	480	600	480	340	230	340	350	280	360	375	425	495	530	433 (22)	
7	615	135	Z±	Z±	Z±	Z±	Z±	Z±	Z±	Z±	Z±	Z±	760	720	695	460	600	770	900	1110*	915*	Z±	Z±	Z±	651 (10)	
8	Z±	Z±	Z±	Z±	Z±	Z±	Z±	905*	615*	280	615	375	480	375	275	310	300	340	310	340*	275*	230	205	145	326 (13)	
9	70	35	105	145	160	135	110	170	220*	130*	130*	105*	0*	Z±*	-400*	-25*	-165*	-435*	Z±*	Z±	85	220	230	290	146 (12)	
10	410	375	410	480	650	685	710	720	905*	575	545	480	425	410	395	350	445	480	615	685	665	685	580	505	534 (23)	
11	515	615	545	540	530	460	445	545	650*	855	785	650	685	455	395	410	290	370	565	420	70*	-650	-470	-670	373 (22)	
12	-110	105	395	Z±	Z±	Z±	Z±	Z±	Z±*	Z±*	Z±*	Z±*	615	515	565	600	925	460	1165	1180	1265*	1130	1105	1315	712 (14)	
13	685	Z±*	Z±*	Z±*	Z±*	Z±*	-35*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	300	515	Z±*	Z±*	Z±*	Z±*	Z±*	460	395	275	265	414 (7)
14	275	240	240	205	180	180	180	250	340*	325	340	340*	Z±*	Z±*	50	-20	85	60	110	85	180	145	135	120	168 (20)	
15	35	85	75	85	130	145	35*	45	155	195	195	310	325	250*	215*	Z±*	Z±*	45*	-200*	35	110	0	-145	-45	102 (17)	
16	-55	75	95	15	70	70	120	170	410	455	455	460	495	485	420	470	590	540	520	70	0	360	410	375	295 (24)	
17	385	410	375	480	460	580*	530	Z±*	Z±*	350	455	710	710	600	565	650	555	310*	Z±*	Z±*	-90*	Z±*	Z±*	-517 (14)		
18	-505*	Z±*	Z±*	-455*	-580*	-215*	290*	300*	375*	310*	565	540	470	360*	205	395	395*	-125	-70*	Z±*	Z±*	195	360	Z±	354 (8)	
19	Z±*	Z±*	Z±*	Z±*	275*	325*	310	375*	555*	555	485	220	215*	135	70	340	455	425	325*	-35*	15	190	205	205	278 (13)	
20	195	170	130	135	170	180	240	315	375*	310	250	95	155	205	255	300	395	505	540	480	435	425	350	335	286 (23)	
21	265	240	215	205	190	180	230	250	180	205	325	290	265	310	290	310	385	205	310	340*	350	360	290	205	263 (23)	
22	315	375	360	160	120	225	255	375	425	335	265	310	300	340	360	340	350	385	370	385	310	370	230	290	316 (24)	
23	215	190	75	70	75	85	120	190	340	375	375	410	335	395	425	460	495	460	505	485	400	395	370	240	312 (24)	
24	170	160	130	135	130	160	160	155	145*	240	280	350	410	420	445	505	515	435	445	530	410	350	325	280	310 (23)	
25	350	265	155	130	155	145	135	10	170*	70	-20	-45	85	190	85	-35	15	105	-20	120	85*	130	105	130	103 (22)	
26	110	75	120	95	135	0*	-315*	-315*	-80*	10	-35*	265	310	425	505	565	565	555	590	625	685	575	545	445	379 (19)	
27	Z±*	Z±*	250	240	255	300	495	565	640	665	735	650	625	470	480	540	575	520	580	530	580*	290	555	470	497 (21)	
28	485	460	445	420	335	315	335	400	495	575	530	420	575	275	Z±*	Z±*	Z±*	Z±*	240	-20	-380*	50	255	195	347 (19)	
29	135*	145	135	135	135	130	105	35	-210*	-545*	Z±*	Z±*	Z±*	Z±*	120	360	425	600	805	880	985	890	975	785	450 (17)	
30	580	435	495	425	530	555	650	665	745*	1060	1195	1010	840	735	840	870	275	460	-	-	-	-	-	-	662 (18)	
Mean	276	235	251	219	255	253	315	321	345	437	461	440	437	393	367	409	432	379	434	382	338	311	309	285	345 (554)	
	(25)	(24)	(24)	(24)	(23)	(22)	(23)	(20)	(9)	(23)	(23)	(24)	(25)	(23)	(26)	(26)	(24)	(24)	(22)	(21)	(19)	(27)	(27)	(26)		[358 (9)]

Mean for selected quiet days [358 (9)]

POTENTIAL GRADIENT (reduced to open level surface)
Mean values for periods of sixty minutes between exact hours

41 KEW OBSERVATORY Factor 4.44 (metre⁻¹) DECEMBER 1959

	Hour G.M.T.											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	
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11														11-12
	volts per metre																								
1									-*					165	280				1050	525	560*	785	1135	1225	738 (7)
2	1225	1340	1155	1235	1105	1065	995	965	805*	405	595	455	560	475	420*	405*	385*	340*	280	140*	295	150	55*	385*	769 (16)
3	595*	575*	445*	395*	375*	395*	225*	560	700	755	770	420	315	130*	210*	-20*	-460*	35*	Z±*	Z±*	-55	15	175	-405*	406 (9)
4	-45*	10*	-370*	Z±*	-295*	-110	140	265	435	455	395	405	410	385	350	315	290	305	365	395	435	420	455	420	344 (19)
5	375	360	385	420	375	430	575	655	620	595	715	725	595	545	515	525	410	490	325	15*	25*	Z±*	Z±*	Z±*	507 (19)
6	Z±*	85*	15*	80*	-55*	15*	25*	80*	105	70	60	55	-130	-90	10	55	10*	-10*	-30*	-65*	0*	15*	15*	55*	17 (8)
7	45*	-30*	-90*	0*	200*	265*	85*	420*	-220*	35*	295	280	115	105*	Z±*	45*	Z±*	Z±*	Z±*	195*	315	360	220*	225	265 (6)
8	175	155	140	140	130	130	125	175	280	295	280	245*	235	255	340	290	315*	265*	Z±*	Z±*	Z±*	-315*	165	207 (16)	
9	220	210	255	295	385	395	560	735	735*	560	770	515	490	365	365	385	500	570	595	595	490	350	340	225	442 (23)
10	130	150	185	155	165	175	220	225	385	480*	-*	Z±*	Z±*	Z±*	365*	-110*	-110*	-200*	Z±*	Z±*	105*	220	175	155	195 (12)
11	-260	Z±*	-270	-45*	70*	95*	130*	195*	270*	505*	685*	725	755	735	700	735	735	585	515	545	535	420	385	410	537 (14)
12	385	360	270	210*	200*	105*	10*	-75*	-20*	140*	280	200	210	245	325	335	410	420	545	760	605	795	785	710	449 (17)
13	455	420	335	575	430	785	735	570	505*	480	620*	715*	255*	140	350	420	410	365	500	575	365*	225*	295	435	460 (18)
14	335	195*	125*	155*	225	195	140*	200*	280*	270*	280	265*	265	290	295*	235	235	255*	210	125	150	200	130	150	216 (14)
15	155	140	60	25	10	-65*	-75*	55*	Z±*	-370*	-65*	-145*	-10*	10*	375*	715	780	700	965	1050	935*	895	375	410	483 (13)
16	200	175	175	245	115	-295*	-440*	-550*	10*	-45*	25*	15*	365*	575	-	-	560	685	365*	375	365	435	475	545	379 (13)
17	420	265	165	140	95	105	70	210	175*	185*	35*	315*	465	290*	Z±*	Z±*	490	640	575	525	465	490	335	245	335 (17)
18	105	220	220	150	165	150	165	270	365	385	420	420*	375	365	385	420	480	505	500	585	560	445	480	445	355 (23)
19	315	270	305	295	420	435	465	575	Z±*	Z±*	15	200*	105*	165*	280*	335*	140	55*	140*	130	210	385	220	185	291 (15)
20	165	175	105	85	95	95*	80*	85*	10*	-220*	-155*	-155*	21*	245	315	325	395	375	395	395	405	365	335	286 (16)	
21	290	290	280	280	315	350	340	490	840	1015	945	825	780	615	645	725	655	785	745	545	505	490	515	525	575 (24)
22	560	615	535	490	455	350	365	490	630*	595	195*	335													

ELECTRICAL CHARACTER OF EACH DAY AND APPROXIMATE DURATION OF NEGATIVE POTENTIAL GRADIENT

42 KEW OBSERVATORY

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient
1	1	0.8	0	0.0	1	0.5	0	0.0	1	1.2	1	0.8
2	1	1.9	1	0.4	2	3.9	1	0.1	0	0.0	0	0.0
3	1	2.7	0	0.0	2	12.8	1	1.2	2	5.3	0	0.0
4	1	0.6	0	0.0	2	5.2	1	1.8	1	0.2	1	1.2
5	2	4.1	1	0.5	2	4.8	2	3.5	1	0.1	1	1.2
6	1	2.9	1	0.5	1	1.5	-	-	1	0.1	0	0.0
7	2	5.9	0	0.0	2	3.2	-	-	1	1.1	0	0.0
8	1	1.0	0	0.0	2	5.3	2	3.8	1	0.1	1	0.1
9	1	1.4	1	0.1	2	11.3	2	4.6	1	1.1	1	2.4
10	1	0.7	1	0.6	1	0.4	1	0.8	2	3.0	0	0.0
11	2	3.6	1	0.1	1	2.9	1	2.1	1	0.1	1	0.1
12	2	4.0	1	1.7	0	0.0	2	3.3	1	0.3	1	2.7
13	1	0.3	1	0.1	1	0.6	1	0.1	1	0.2	1	1.1
14	1	0.1	0	0.0	1	1.2	2	3.2	0	0.0	0	0.0
15	2	4.6	1	0.4	2	3.7	1	2.4	0	0.0	1	0.4
16	2	3.4	1	0.5	1	0.4	1	3.0	1	0.2	1	0.2
17	1	2.7	1	0.3	0	0.0	1	2.7	1	0.1	1	0.1
18	1	2.6	1	2.4	1	1.2	2	6.0	0	0.0	1	0.5
19	2	3.5	0	0.0	1	2.8	0	0.0	0	0.0	1	1.4
20	2	7.6	1	0.9	2	12.5	1	0.2	1	2.2	1	0.8
21	2	3.2	2	7.3	1	1.7	1	0.9	2	3.5	1	0.8
22	2	5.9	2	4.0	2	4.4	1	0.2	1	1.3	1	0.2
23	1	0.7	1	1.0	1	0.5	1	0.1	0	0.0	1	0.4
24	0	0.0	0	0.0	1	2.2	1	1.3	0	0.0	1	1.5
25	0	0.0	0	0.0	1	1.8	2	5.5	0	0.0	1	0.7
26	0	0.0	0	0.0	0	0.0	2	5.1	0	0.0	1	0.7
27	0	0.0	1	1.6	1	0.3	1	1.3	0	0.0	0	0.0
28	1	0.1	0	0.0	1	0.5	1	1.0	1	0.1	1	1.5
29	0	0.0	0	0.0	2	6.4	1	0.2	1	0.2	1	1.2
30	2	6.4	1	0.1	1	0.1	0	0.0	1	0.2	0	0.0
31	1	1.6	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0
Total	-	72.3	-	22.4	-	92.1	-	54.5	-	20.8	-	20.0
No. of days used	-	31	-	28	-	31	-	28	-	31	-	30
Mean	-	2.3	-	0.8	-	3.0	-	1.9	-	0.7	-	0.7

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient	Character	Duration of negative potential gradient
1	0	0.0	1	1.3	0	0.0	0	0.0	1	0.6	-	hr.
2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.5
3	0	0.0	1	0.8	0	0.0	0	0.0	2	6.7	2	5.5
4	0	0.0	0	0.0	0	0.0	1	0.5	1	0.6	2	4.8
5	1	1.5	1	0.1	1	1.5	0	0.0	1	0.2	2	4.1
6	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	2	7.4
7	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3	2	7.0
8	1	0.2	1	0.1	1	1.0	1	0.1	0	0.0	2	3.5
9	2	4.7	1	1.8	1	0.1	0	0.0	2	5.6	0	0.0
10	1	2.0	1	1.7	1	0.3	2	3.5	0	0.0	2	4.6
11	2	4.4	1	0.9	1	0.1	1	0.4	2	3.3	2	3.0
12	1	1.0	0	0.0	1	0.1	1	0.7	1	2.3	1	2.0
13	0	0.0	0	0.0	0	0.0	1	0.1	2	7.5	1	0.4
14	1	0.7	0	0.0	0	0.0	0	0.0	1	0.8	0	0.0
15	1	0.3	0	0.0	0	0.0	1	0.1	2	5.5	2	6.5
16	1	0.3	1	0.1	0	0.0	0	0.0	1	1.7	2	4.3
17	1	0.2	1	0.1	0	0.0	1	2.7	2	5.8	1	0.6
18	1	0.2	0	0.0	0	0.0	1	2.7	2	8.9	1	0.1
19	1	0.1	1	2.2	0	0.0	1	0.9	2	3.3	1	2.0
20	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	2	3.4
21	1	1.3	1	1.1	1	0.2	2	3.5	0	0.0	0	0.0
22	1	0.3	1	0.4	1	0.1	0	0.0	1	0.2	2	3.0
23	0	0.0	0	0.0	1	0.3	0	0.0	0	0.0	1	0.4
24	1	0.2	0	0.0	1	0.1	1	0.1	0	0.0	1	0.9
25	1	0.2	0	0.0	0	0.0	1	0.1	2	4.0	2	4.0
26	2	3.8	1	0.2	1	0.2	1	1.0	2	4.0	2	3.1
27	1	1.0	1	0.2	1	0.4	2	5.7	1	0.3	1	1.7
28	-	-	1	2.9	0	0.0	1	0.5	2	3.0	2	3.1
29	1	2.1	0	0.0	0	0.0	1	0.1	2	5.3	2	5.0
30	1	2.4	1	0.2	0	0.0	1	2.4	-	-	0	0.0
31	0	0.0	0	0.0	0	0.0	1	0.4	-	-	1	0.9
Total	-	26.9	-	14.1	-	5.3	-	25.5	-	69.9	-	81.8
No. of days used	-	30	-	31	-	30	-	31	-	29	-	30
Mean	-	0.9	-	0.5	-	0.2	-	0.8	-	2.4	-	2.7

Annual values: Character 0 1 2
No. of days 106 185 69

Duration: Total 505.6 hr.
No. of days 360
Mean 1.40 hr.

ELECTRICAL OBSERVATIONS, UNDERGROUND LABORATORY, WILSON METHOD

Mean value for periods of twenty minutes about 14h. 30m.

F = Potential gradient, unit 1 v.cm.⁻¹. i = Air-earth current, unit 10⁻¹⁰ amp. cm.⁻²

λ+ = Conductivity due to positive ions, unit 10⁻¹⁰ ohm.⁻¹ cm.⁻¹

43 KEW OBSERVATORY

	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	...	...	...	...	...	...	...	...	...	1.57	135	86	1.85	205	111	...	...	...
2	...	...	...	...	...	...	1.35	135	100	...	...	...	...	...	...	1.49	203	136
3	...	...	...	7.61	318	42	...	...	...	4.69	256	55	...	...	...	1.08	187	173
4	...	...	...	6.04	273	45	1.99	220	111	...	...	...	2.56	288	113	3.42	236	69
5	...	...	...	...	...	...	...	...	...	...	...	...	3.74	313	84	...	...	...
6	...	...	...	3.29	128	39	2.35	268	114	...	...	...	...	...	...	...	...	...
7	...	...	...	...	...	...	...	...	...	2.16	241	112	0.80	135	169	...	...	...
8	...	...	...	...	...	...	...	...	...	3.22	332	103	1.46	269	184	...	...	...
9	3.48	176	51	2.02	121	60	6.13	209	34	...	...	...	...	...	...	1.70	238	140
10	...	...	...	...	...	...	1.94	134	69	2.88	308	107	...	...	...	1.65	227	138
11	...	...	...	3.52	160	45	...	...	...	...	...	...	1.42	252	177	0.83	132	159
12	...	...	...	...	...	...	1.88	200	106	...	...	...	3.84	243	63	3.96	283	72
13	8.77	233	27	...	...	...	1.73	184	106	...	...	...	4.24	331	78	...	...	...
14	...	...	...	...	...	...	...	...	...	...	...	...	2.43	264	109	...	...	...
15	9.16	300	33	...	...	...	...	...	...	...	...	...	...	...	...	2.40	313	130
16	4.78	202	42	3.55	244	69	2.93	239	82	...	...	...	...	...	...	...	...	...
17	...	...	...	...	...	...	5.75	308	54	1.72	152	88	...	...	...	1.53	225	147
18	...	...	...	5.53	157	28	3.09	-	-	...	...	...	...	...	...	1.63	207	127
19	...	...	...	...	...	...	4.01	212	53	...	...	...	2.35	288	123	2.64	222	84
20	...	...	...	...	...	...	0.88	56	64	3.18	271	54	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...	1.16	167	144	4.84	282	58	1.05	154	147
23	3.91	215	55	2.87	166	58	2.32	232	100	2.65	224	85	...	...	...	1.11	186	167
24	...	...	...	2.58	161	62	2.05	238	116	1.54	256	166	...	...	...	...	...	...
25	...	...	...	2.48	151	61	1.90	206	108	...	...	...	2.94	320	109	5.39	264	49
26	3.38	183	54	2.28	171	75	...	...	...	...	...	...	1.98	243	123	1.07	167	156
27	9.05	277	31	2.55	235	92	...	...	...	2.17	261	120	1.99	237	119	...	...	...
28	...	...	...	...	...	...	...	...	...	1.78	211	119	3.82	265	69	...	...	...
29	...	...	...	...	...	...	...	...	...	...	...	...	1.91	291	152	...	...	...
30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1.80	211	117
31	...	...	...	...	...	...	2.83	260	92	...	...	...	...	...	...	...	...	...
Mean	6.08	227	42	3.69	190	56	2.70	207	87	2.39	234	103	2.64	264	115	2.05	216	126
No. of days used	7	7	7	12	12	12	16	15	15	12	12	12	16	16	16	16	16	16

	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	...	...	...	...	...	...	3.65	335	92	...	...	...	...	...	...	...	...	...
2	2.21	300	136	...	...	...	...	...	...	1.79	237	132	...	...	...	4.62	-	-
3	1.15	151	131	...	...	...	3.01	350	116	...	...	...	...	...	...	...	...	...
4	...	...	...	1.49	192	129	3.03	227	75	...	...	...	...	...	...	3.46	171	49
5	...	...	...	1.29	180	140	...	...	...	...	...	...	4.99	219	44	...	...	...
6	2.28	217	95	...	...	...	...	...	...	2.39	254	106	4.07	125	31	...	...	...
7	1.61	202	125	1.26	154	122	2.43	185	76	1.56	211	135	...	...	...	...	...	...
8	1.25	216	173	...	...	...	2.50	228	91	1.52	207	136	...	...	...	3.32	177	53
9	1.08	141	131	...	...	...	2.12	199	94	2.24	201	90	...	...	...	4.24	177	42
10	4.07	336	83	...	...	...	...	...	...	...	...	...	4.07	187	46	...	...	...
11	...	...	...	1.15	189	164	1.51	198	131	...	...	...	4.03	172	43	6.74	232	34
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	...	...	...	1.57	196	125	...	...	...	3.40	114	34	...	...	...	...	...	...
14	1.99	236	119	1.92	249	130	3.40	369	109	1.64	191	116	...	...	...	...	...	...
15	1.02	139	136	...	...	...	4.47	430	96	4.62	264	57	...	...	...	...	...	...
16	1.74	248	143	...	...	...	4.09	330	81	1.91	226	118	4.31	144	33	4.75	119	25
17	1.09	250	229	1.03	165	160	...	...	...	...	...	...	...	...	...	...	...	...
18	...	...	...	2.68	219	82	...	...	...	...	...	...	...	...	...	3.84	251	65
19	...	...	...	1.49	206	138	...	...	...	2.79	203	73	...	...	...	...	...	...
20	1.85	236	128	...	...	...	...	...	...	2.38	168	71	2.84	143	50	...	...	...
21	2.40	261	109	...	...	...	...	...	...	...	...	...	...	...	...	6.40	108	17
22	3.45	271	79	...	...	...	...	...	...	2.57	172	67	...	...	...	...	...	...
23	3.96	299	76	...	...	...	...	...	...	2.36	143	60	4.22	236	56	4.79	184	38
24	3.82	276	72	1.01	182	180	...	...	...	...	...	...	4.52	182	40	...	...	...
25	...	...	...	1.90	253	133	...	...	...	...	...	...	1.45	-	-	...	...	...
26	...	...	...	1.93	207	107	...	...	...	...	...	...	...	...	...	...	...	...
27	...	...	...	...	...	...	...	...	...	...	...	...	5.17	145	28	...	...	...
28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29	...	...	...	...	...	...	...	...	...	3.45	201	58	...	...	...	...	...	...
30	...	...	...	...	...	...	...	...	...	...	...	...	8.71	181	21	4.40	250	57
31	1.39	150	108	2.19	279	127	...	...	...	...	...	...	...	...	...	...	...	...
Mean	2.14	231	122	1.61	205	134	3.02	285	96	2.47	199	89	4.40	173	39	4.66	185	42
No. of days used	17	17	17	13	13	13	10	10	10	14	14	14	11	10	10	10	9	9

Year: Mean 2.93 219 94
 No. of days used 154 151 151

AIR POLLUTION: HOURLY MEANS FOR EACH MONTH

44 KEW OBSERVATORY

Complete days only

	Hour G.M.T.																								Mean	No. of days used
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
	<i>milligrams per cubic metre</i>																									
Jan.	0.25	0.22	0.20	0.19	0.16	0.15	0.16	0.18	0.22	0.22	0.25	0.25	0.23	0.25	0.24	0.24	0.27	0.33	0.35	0.35	0.31	0.30	0.30	0.28	0.25	31
Feb.	0.19	0.15	0.15	0.14	0.13	0.14	0.15	0.16	0.18	0.18	0.19	0.20	0.18	0.17	0.17	0.17	0.20	0.23	0.25	0.25	0.24	0.24	0.23	0.21	0.19	28
Mar.	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.07	0.07	0.07	0.08	0.09	0.10	0.14	0.16	0.14	0.12	0.10	0.09	0.09	31
Apr.	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.09	0.09	0.08	0.08	0.07	0.07	30
May	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.05	31
June	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	30
July	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	31
Aug.	0.09	0.09	0.09	0.09	0.10	0.09	0.10	0.10	0.09	0.08	0.08	0.08	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.08	0.09	0.09	0.09	0.08	31
Sept.	0.14	0.14	0.14	0.14	0.14	0.15	0.15	0.15	0.16	0.14	0.13	0.11	0.09	0.08	0.07	0.07	0.06	0.07	0.09	0.09	0.11	0.12	0.12	0.12	0.12	30
Oct.	0.09	0.10	0.10	0.10	0.10	0.11	0.13	0.14	0.11	0.09	0.09	0.08	0.08	0.08	0.07	0.08	0.08	0.10	0.12	0.12	0.11	0.11	0.11	0.09	0.10	31
Nov.	0.14	0.15	0.13	0.11	0.11	0.11	0.12	0.13	0.13	0.13	0.14	0.15	0.15	0.15	0.16	0.17	0.20	0.22	0.21	0.21	0.21	0.21	0.18	0.15	0.16	30
Dec.	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.12	0.15	0.16	0.15	0.16	0.17	0.15	0.16	0.17	0.18	0.19	0.18	0.17	0.16	0.15	0.12	0.09	0.14	30
Year	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.11	0.13	0.13	0.14	0.13	0.13	0.12	0.11	0.11	364
Winter	0.17	0.15	0.15	0.13	0.13	0.13	0.13	0.15	0.17	0.17	0.18	0.19	0.18	0.18	0.18	0.19	0.21	0.24	0.25	0.25	0.23	0.23	0.21	0.18	0.19	119
Spring	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.09	0.11	0.13	0.11	0.10	0.09	0.08	0.08	61
Autumn	0.11	0.12	0.12	0.12	0.12	0.13	0.14	0.15	0.13	0.11	0.11	0.09	0.09	0.08	0.07	0.07	0.07	0.09	0.11	0.11	0.11	0.11	0.11	0.11	0.11	61
Summer	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	123