

M.O.714

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

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## P R E F A C E

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.

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## 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 ( $60^{\circ}08'N$ , $1^{\circ}11'W$ )*

The Observatory is set on a ridge of high ground about 85 m. above M.S.L. and about  $2\frac{1}{2}$  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 ( $55^{\circ}19'N$ , $3^{\circ}12'W$ )*

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 ( $51^{\circ}28'N$ , $0^{\circ}19'W$ )*

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. Rigaud<sup>1</sup>, R.H. Scott<sup>2</sup>, C. Chree<sup>3</sup>, O.J.R. Howarth<sup>4</sup>, R.S. Whipple<sup>5</sup>, F.J.W. Whipple<sup>6</sup> and A.J. Drummond<sup>7</sup>.

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).

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1 RIGAUD, G.; Dr. DEMAINEBRAY 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 3γ 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 1γ 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 1000γ for Lerwick and 750γ 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  $\delta D$  and  $\delta I$  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  $\alpha_n$  in the two equivalent series  $\sum (a_n \cos 15nt^\circ + b_n \sin 15nt^\circ)$  and  $\sum c_n \sin(15nt^\circ + \alpha_n)$ . In the former series  $t$  is reckoned in hours from midnight G.M.T., whilst the published values of  $\alpha_n$  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 $\gamma$ .

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

Similarly at Eskdalemuir  $H$  increased by  $23\gamma$ ,  $D$  (west) decreased by  $6'$ , and  $Z$  increased by  $25\gamma$ . The changes deduced in  $X$ ,  $Y$ ,  $I$  and  $F$  are  $+28\gamma$ ,  $-23\gamma$ ,  $-0.9$  and  $+31\gamma$ . The ranges between the extreme values recorded during 1959 were  $H$   $4102\gamma$ ,  $D$   $4^{\circ}24.3$  and  $Z$   $1469\gamma$ . The range of  $4^{\circ}24.3$  in declination corresponded to a range of  $1287\gamma$  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  $150\gamma$  lower than previously. On September 28, 1958, the instrument suffered a further slight jar and a further change in reading was found; the  $150\gamma$  correction now became  $126\gamma$ . 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<sup>(1)</sup> and Waters and Francis<sup>(2)</sup>.

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  $\gamma_p$  is the gyromagnetic ratio of the proton. The value adopted for  $\gamma_p$  is  $2.67513 \times 10^4$  radians gauss<sup>-1</sup> sec<sup>-1</sup><sup>(5)</sup>; this is the value as measured by Driscoll and Bender<sup>(3,4)</sup> and recommended provisionally at the meeting of the International Association of Geomagnetism and Aeronomy in Helsinki in 1960<sup>(5)</sup>.

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.

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(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  $\Delta Z$  in  $Z$  caused by an error  $\Delta H$  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  $6\gamma$  (and may well be much less) the corresponding error in  $Z$  is small ( $2\gamma$  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

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

Lerwick

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

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:-

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

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  $1.7\gamma$ . 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-Gauguin 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  $1\gamma$ ; 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  $6\gamma$  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  $-8.5\gamma$ . 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  $\alpha$  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 13 $\gamma$  low. This was generally confirmed when it was installed at Lerwick in 1939 as it then gave results 11 $\gamma$  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 + 11 $\gamma$ ) 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 5 $\gamma$  lower than the Abinger Schuster-Smith Coil; that is, values of  $H$  according to the Lerwick standard (Coil value + 11 $\gamma$ ) were 6 $\gamma$  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 + 5 $\gamma$ ). 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 7 $\gamma$ . 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 + 12 $\gamma$ ), using the new calibration of the potentiometer. Although this avoided a discontinuity, it established a new standard for  $H$  at Lerwick which was 7 $\gamma$  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 2 $\gamma$ ) 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	$\gamma$ +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	$\gamma$
Jan. 1933	Travelling Kew instrument	0
Sept. 1946	Q.H.M. 89	-5
Apr. 1948	Q.H.M. 89	+6
May-Nov. 1950	Q.H.M. 91, 92	+6
July 1954	Q.H.M. 120	+10
May 1959	Q.H.M. 119A, 120, 477, 478, 479	+5
Apr. 1960	Q.H.M. 119A, 120	+4
		+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  $6\gamma$  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  $6\gamma$  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  $Z_{\text{pvm}}$  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-Gauguin 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  $6\gamma$  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  $\Phi$ ; 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 ( $\text{metre}^{-1}$ ).

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  $\delta v$  is the potential acquired by the plate in  $t$  seconds. The value of  $\delta v$  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  $\lambda$  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

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\*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  $Z\pm$  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  $10^{-18}$  ampere per square centimetre and the unit of conductivity is  $10^{18}$  per ohm per centimetre.

#### NOTES ON THE RESULTS

While no detailed discussion of the results is attempted here, it is perhaps of interest to point out 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  $1.9 \text{ mg.m}^{-3}$ , this value occurring on January 28, from 22h. to 23h. There were ten days on which the mean hourly concentration of pollution reached  $1.0 \text{ mg.m}^{-3}$ ; the number of hours credited with  $1.0 \text{ mg.m}^{-3}$  or more was thirty-three, of which thirty were in January and three in February.

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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.

1 LERWICK (H)													14,000γ (0.14 C.G.S. unit) +													JANUARY 1959																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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**MAGNETIC DECLINATION (WEST)**  
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

2 LERWICK (D)													9° +												JANUARY 1959																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT  
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

23

3 LERWICK (Z)		47,000γ (0.47 C.G.S. unit) +																						JANUARY 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 6000+	
		γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ		
1 q		261	261	262	263	263	265	266	268	271	266	266	266	261	264	264	264	265	266	267	269	270	269	269	268	266	374	
2 q		267	266	266	266	266	266	263	260	265	263	265	265	261	262	260	260	260	259	260	259	260	262	261	262	263	304	
3		257	250	238	241	241	248	253	262	269	259	259	255	250	252	254	259	259	260	262	266	271	277	278	280	258	200	
4		278	274	272	272	271	266	271	269	267	262	263	267	266	265	246	248	265	288	317	319	306	286	270	264	274	572	
5		260	256	254	251	249	247	246	245	247	245	244	244	245	263	291	277	270	306	353	371	272	211	183	235	261	265	
6 d		265	293	298	287	281	271	263	274	282	275	283	285	287	294	318	312	315	349	383	370	296	257	231	229	292	998	
7 d		194	208	242	248	205	210	229	242	255	266	279	288	286	287	285	283	286	289	294	276	306	304	284	215	261	261	
8		206	218	234	255	269	282	281	280	275	272	273	274	275	278	281	284	287	310	341	336	332	340	229	195	275	607	
9 d		216	286	286	275	272	274	275	274	274	271	269	271	278	291	301	336	398	303	437	407	363	331	169	278	297	1135	
10 d		138	179	250	266	271	247	246	272	284	277	287	312	337	350	372	407	410	377	321	281	265	309	191	135	283	784	
11		103	164	250	266	268	266	276	273	274	280	281	285	290	295	300	300	298	297	294	291	304	304	298	319	274	576	
12		335	323	294	303	299	289	283	281	278	288	285	284	282	282	284	281	278	278	284	313	299	289	278	258	289	948	
13		261	265	270	268	271	270	270	272	271	280	271	271	275	279	281	288	288	291	286	295	288	277	272	269	276	629	
14		267	266	267	269	269	269	269	271	269	262	263	259	262	262	259	265	271	274	277	277	277	275	270	270	268	439	
15		276	274	266	227	226	242	233	246	265	269	270	270	272	275	279	279	279	277	276	276	277	275	275	275	266	379	
16		272	265	268	268	268	267	270	269	269	263	257	263	290	325	323	339	351	336	337	332	305	277	245	225	287	884	
17		232	250	251	258	248	258	269	273	277	280	282	282	290	296	332	324	322	305	309	306	287	275	273	270	281	749	
18		262	251	235	194	223	235	251	264	268	277	280	283	283	288	290	290	313	334	307	285	272	229	205	220	264	339	
19		241	247	248	246	236	251	258	257	257	254	239	247	253	260	274	276	271	272	282	281	275	265	249	240	257	179	
20 q		238	241	242	244	245	247	250	254	254	256	273	279	263	263	263	260	261	260	260	261	260	255	254	253	256	136	
21 q		249	246	247	252	255	257	257	259	263	265	265	269	268	268	267	267	266	268	273	276	274	269	268	267	263	315	
22		263	263	258	261	260	260	256	250	257	245	244	245	247	253	253	256	255	257	253	260	260	255	257	253	255	121	
23		227	228	232	238	243	246	248	248	253	254	258	259	261	261	267	269	269	268	268	268	268	268	267	270	256	138	
24 q		269	268	266	264	263	259	255	256	258	261	262	263	265	265	263	264	264	262	262	261	260	262	262	262	262	296	
25		260	254	256	255	256	255	251	252	252	255	257	261	259	273	284	294	344	408	382	341	298	286	283	275	283	791	
26 d		269	270	271	269	263	266	265	266	264	275	271	271	287	288	279	273	285	292	286	281	275	269	263	262	273	560	
27		260	262	264	265	265	264	264	265	265	270	265	268	268	267	270	271	276	281	305	317	314	306	291	282	276	625	
28		256	256	259	266	262	261	269	270	271	282	284	284	280	278	280	287	284	285	288	285	292	298	306	287	278	670	
29		269	268	269	267	268	268	267	267	266	274	270	276	277	283	296	314	350	336	310	336	277	249	234	202	279	693	
30		239	263	270	258	254	251	252	265	270	265	265	263	269	269	269	269	270	268	270	272	268	268	267	265	264	339	
31		264	263	239	227	235	235	221	232	249	247	253	266	271	267	276	273	271	278	278	278	278	266	258	259	258	184	
Mean		247	254	259	258	257	258	259	263	266	266	267	270	273	277	283	286	293	295	301	298	285	276	256	253	271		
Sum 7000+		654	878	1024	989	965	992	1027	1136	1239	1258	1283	1375	1458	1603	1761	1869	2081	2134	2322	2246	1849	1563	940	844		Grand Total 201,490	

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

4 LERWICK		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 14,000γ +	Minimum 14,000γ +	Range	Maximum 9° +	Minimum 9° +	Range	Maximum 47,000γ +	Minimum 47,000γ +	Range					
	h. m. γ	γ h. m. γ	γ h. m. γ	γ	h. m. γ	γ h. m. γ	γ	h. m. γ	γ h. m. γ	γ				°A.	
1 q	19 12 537	514 11 14 23	13 25 55.4	49.4 07 42 6.0	08 17 272	259 12 49 13	0,1,1,1,1,1,1,1	7	0	80.0					
2 q	20 10 547	510 11 25 37	13 17 57.1	49.5 07 39 7.6	11 05 269	256 18 06 13	1,0,1,1,1,1,1,1	7	0	79.9					
3	02 30 548	506 10 59 42	12 02 57.3	48.0 08 17 9.3	23 29 281	233 02 35 48	2,2,2,2,2,1,2,1	14	0	79.8					
4	19 37 542	516 13 51 26	17 34 67.1	47.1 07 54 20.0	19 15 324	243 15 15 81	1,1,1,2,2,3,3,2	15	0	79.4					
5	19 43 586	225 20 42 361	21 42 124.3	7.7 21 54 116.6	19 38 391	65 21 40 326	1,1,1,2,3,4,6,7	25	1	77.9					
6 d	18 29 573	452 23 56 121	19 10 65.9	24.5 21 21 41.4	18 30 393	210 23 55 183	4,3,2,2,2,3,4,4	24	1	77.8					
7 d	19 10 578	393 00 36 185	06 58 55.7	26.7 24 00 29.0	20 55 327	156 00 38 171	4,3,3,2,1,2,5,5	25	1	77.7					
8	18 02 596	424 02 06 172	22 28 71.6	24.0 00 05 47.6	18 12 375	142 23 02 233	4,3,2,2,2,3,4,5	25	1	77.7					
9 d	17 05 1469	9 23 35 1460	17 06 134.1	-2.0 23 54 136.1	16 52 496	84 17 08 412	5,2,1,2,3,9,5,7	34	2	77.5					
10 d	18 11 835	215 00 04 620	18 15 78.4	13.8 22 02 64.6	15 54 427	-66 00 02 493	6,3,3,4,4,5,7,5	37	2	77.4					
11	23 41 584	277 00 11 307	00 15 59.2	22.6 01 10 36.6	24 00 367	-26 00 13 393	6,2,1,1,2,2,2,4	20	1	77.0					
12	01 25 577	480 00 44 97	18 14 59.5	36.0 00 01 23.5	00 02 370	246 23 44 124	4,2,1,2,2,2,3,2	18	1	77.3					
13	22 46 535	482 09 41 53	13 39 57.0	45.6 19 48 11.4	19 52 305	251 00 01 54	2,1,2,2,1,2,2,1	13	0	77.7					
14	22 24 543	507 10 49 36	14 21 59.0	38.1 23 07 20.9	19 25 279	256 14 34 23	1,1,2,1,2,1,1,3	12	0	77.7					
15	04 24 538	500 03 02 38	13 52 57.5	36.6 04 43 20.9	15 30 281	208 03 48 73	2,3,3,2,2,1,1,1	15	0	77.5					
16	15 11 572	498 12 42 74	15 23 65.2	35.5 21 46 29.7	16 15 367	219 23 38 148	1,0,1,2,3,3,3,4	17	1	77.6					
17	13 49 546	484 02 22 62	13 53 64.7	41.5 19 56 23.2	14 23 339	218 00 09 121	3,3,2,2,3,3,3,1	20	1	77.4					
18	22 47 553	475 02 09 78	02 50 60.4	35.0 22 13 25.4	17 08 349	178 03 08 171	3,3,2,2,2,4,3,3	22	1	77.6					
19	05 33 534	496 12 20 38	13 38 57.8	34.7 19 28 23.1	18 45 291	229 04 12 62	1,2,2,3,2,1,3,2	16	0	77.7					
20 q	21 19 549	499 12 11 50	13 42 55.0	42.9 21 15 12.1	11 01 285	237 00 23 48	1,0,1,3,1,1,2,3	12	0	75.5					
21 q	06 23 539	500 12 36 39	17 36 55.8	47.7 08 19 8.1	19 29 277	244 01 55 33	1,0,1,1,1,1,1,1	7	0	77.8					
22	07 26 558	512 12 58 46	14 35 55.9	43.8 24 00 12.1	20 00 266	240 10 14 26	1,1,2,1,1,1,2,2	11	0	77.3					
23	00 15 567	496 12 41 71	14 43 57.3	43.5 00 03 13.8	19 10 273	217 00 29 56	3,2,1,2,2,1,2,1	14	0	77.0					
24 q	05 55 545	508 12 18 37	12 53 53.2	46.3 00 01 6.9	00 34 272	252 07 05 20	1,1,1,1,1,1,1,1	8	0	77.0					
25	18 13 842	499 14 16 343	18 17 83.5	39.3 18 48 44.2	18 04 449	248 01 33 201	1,0,1,3,3,4,6,2	20	1	77.2					
26 d	11 57 540	439 12 44 101	16 03 64.4	46.2 10 17 18.2	22 59 299	260 23 46 39	1,2,1,3,4,3,2,1	17	1	77.6					
27	21 04 544	492 10 57 52	17 58 60.3	44.5 09 32 15.8	19 34 320	257 00 41 63	1,1,1,2,2,2,2,3	14	0	77.8					
28	22 10 548	478 12 06 70	18 43 57.8	40.1 02 19 17.7	22 21 312	232 00 56 80	3,2,1,2,2,2,3,2	17	0	78.0					
29	20 34 596	488 13 10 108	16 26 72.7	29.4 20 33 43.3	16 48 369	186 23 32 183	1,1,1,2,2,4,4,4	19	1	78.2					
30	19 22 555	506 10 40 49	12 14 57.5	31.9 00 10 25.6	19 17 279	214 00 01 65	3,2,1,2,2,2,3,0	15	0	78.6					
31	21 37 550	490 09 17 60	13 42 56.9	41.0 03 02 15.9	14 33 282	207 03 03 75	3,3,3,2,1,2,2,2	18	1	78.2					
Mean	- - 604	447 - - 157	- - 65.7	35.8 - - 29.9	- - 329	199 - - 130	-	-	0.55	77.8					

**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) +												FEBRUARY 1959											
	Hour G.M.T.																								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	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24		11,000+										
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ											
1	527	517	517	523	523	538	539	534	527	501	503	509	509	509	513	515	510	516	513	529	529	530	532	529	521	1492										
2	527	524	521	523	528	534	530	532	525	502	492	488	492	481	507	522	539	555	545	552	536	529	528	514	522	1526										
3	504	505	517	513	510	516	517	519	513	512	488	470	486	502	521	530	507	509	529	537	532	531	529	464	511	1261										
4 d	415	453	491	501	490	516	527	521	517	513	492	493	509	487	517	505	547	547	543	563	509	487	376	443	498	962										
5	504	514	512	502	480	496	510	509	506	501	484	490	497	518	509	564	556	534	520	535	516	513	523	523	513	1316										
6	505	480	492	512	516	523	521	521	520	506	484	486	487	493	510	516	519	530	528	528	502	514	523	522	510	1238										
7	515	517	517	520	525	527	524	526	520	504	501	493	491	498	505	514	514	520	525	525	524	525	528	530	516	1388										
8	527	526	527	529	530	532	534	530	516	507	502	490	494	509	510	523	535	531	536	536	540	549	521	463	521	1497										
9	443	453	449	475	495	520	508	479	484	496	499	494	496	506	527	517	519	527	527	528	524	523	521	518	501	1028										
10 q	514	520	524	521	521	521	523	521	521	513	507	501	502	504	509	520	518	521	526	536	534	529	536	534	520	1476										
11	532	534	534	537	541	543	544	547	562	526	464	505	520	527	518	545	535	527	520	522	517	527	512	408	523	1547										
12	488	516	510	482	455	505	520	519	518	510	486	476	494	495	505	506	518	521	530	518	525	532	531	518	507	1178										
13	535	524	521	520	523	527	534	532	529	519	502	502	514	521	538	536	529	536	532	518	519	520	520	499	523	1550										
14	494	502	497	481	499	512	516	518	516	511	498	499	504	536	539	615	637	612	537	529	503	502	503	499	523	1559										
15	500	491	492	445	389	478	492	506	499	483	457	486	509	535	530	522	563	567	594	515	505	510	512	513	504	1093										
16 d	518	463	417	519	480	516	536	525	512	503	506	500	507	532	530	559	716	608	720	494	490	247	181	258	493	837										
17	257	256	360	360	479	507	513	497	496	510	512	516	520	506	513	523	519	521	535	525	521	514	512	510	478	482										
18 q	507	513	510	516	521	520	521	521	517	507	498	494	494	497	507	513	512	518	532	530	529	529	528	531	515	1365										
19	524	516	518	507	510	514	521	515	529	524	507	507	508	517	525	521	510	522	521	524	530	530	530	530	519	1460										
20 q	530	529	529	528	528	529	530	525	519	507	501	497	502	510	513	518	521	521	525	529	532	533	534	535	522	1525										
21 q	535	532	532	533	536	539	540	536	526	512	498	491	492	505	518	520	524	525	531	532	526	529	536	536	524	1584										
22	538	544	545	541	539	545	545	538	536	510	505	524	521	525	531	531	534	536	532	542	541	538	538	526	534	1805										
23	536	514	516	528	530	527	529	521	484	488	485	491	496	499	507	514	518	521	525	530	529	530	529	530	516	1377										
24 q	529	529	531	531	533	532	530	529	522	507	498	490	492	498	509	518	523	531	534	533	535	539	539	542	523	1554										
25 d	541	548	551	554	555	561	528	473	499	509	484	466	493	513	728	737	789	698	651	680	573	499	471	422	566	2583										
26 d	439	440	368	388	466	483	418	378	483	486	472	468	491	501	540	542	527	523	523	531	527	484	458	475	475	411										
27	489	481	478	479	471	501	517	516	517	505	492	482	493	517	527	553	599	753	569	542	519	517	500	462	520	1479										
28 d	447	453	418	477	498	514	515	509	500	489	487	489	506	534	556	619	616	610	576	569	472	408	424	351	502	1037										
Mean	497	496	496	502	506	521	521	514	515	506	493	493	501	510	527	542	552	551	546	537	523	508	499	489	514											
Sum 13,000+	920	894	894	1045	1171	1576	1582	1397	1413	1161	804	797	1019	1275	1762	2178	2454	2440	2279	2032	1639	1218	975	685		Grand Total 345,610										

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

2	LERWICK (D)												9° +												FEBRUARY 1959	
	Hour G.M.T.																									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	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	1000.0+
1	45.5	47.7	48.7	49.3	47.2	45.0	47.8	48.4	46.7	49.1	51.9	53.4	56.3	57.6	54.5	55.4	56.2	54.4	47.8	46.7	47.7	46.0	47.2	48.2	49.9	198.7
2	49.5	48.9	48.5	47.5	43.9	44.0	49.9	51.4	44.7	45.6	50.6	50.4	56.2	58.3	62.0	61.6	63.2	60.4	60.2	56.7	52.7	51.5	48.7	46.7	52.2	253.1
3	39.6	44.7	49.6	52.5	48.5	49.5	50.3	47.7	46.0	46.4	48.6	53.2	55.5	53.5	55.3	54.4	58.2	54.8	57.3	53.7	48.7	46.7	41.0	27.0	49.3	182.7
4 d	25.1	41.2	41.8	49.6	45.8	48.7	45.8	46.4	44.6	45.8	46.2	51.0	57.3	58.2	61.9	57.3	62.6	58.1	58.0	45.8	35.8	39.3	42.9	40.6	47.9	149.8
5	42.2	48.5	48.6	46.2	45.3	44.9	46.0	46.2	45.6	46.6	46.7	52.5	57.1	60.6	61.1	59.7	57.1	60.4	51.5	44.8	45.0	46.6	42.8	37.6	49.3	183.6
6	41.7	39.8	47.6	47.8	49.4	48.0	47.4	46.1	45.3	45.9	46.0	48.3	54.6	55.4	57.9	57.3	53.6	51.5	51.1	33.4	43.2	46.2	47.0	47.5	48.0	152.0
7	46.5	45.8	47.8	50.6	49.3	45.9	46.9	46.2	46.2	47.9	49.3	52.2	54.3	53.2	54.5	56.1	53.4	51.7	47.7	50.6	48.6	46.7	48.2	49.6	49.5	189.2
8	50.1	49.8	49.8	48.5	48.2	47.9	45.8	46.2	46.7	46.2	49.4	50.9	53.6	58.0	58.0	57.0	56.3	54.4	52.9	52.1	50.6	37.1	35.9	39.1	49.4	184.5
9	38.8	33.1	29.6	42.9	47.6	45.5	46.4	56.5	54.4	51.4	52.5	53.3	55.8	56.8	60.3	59.4	55.1	53.9	51.0	51.5	51.3	49.7	47.6	42.6	49.5	187.0
10 q	43.5	45.3	46.2	47.2	47.7	48.2	47.9	47.9	47.5	47.4	48.2	49.6	52.6	53.2	53.7	55.1	53.6	53.2	52.8	53.0	52.9	48.4	46.8	47.2	49.5	189.1
11	47.9	48.4	49.6	49.3	52.5	47.2	47.4	47.2	46.9	56.3	63.7		63.2	66.9	68.8	66.9	58.2	51.6	54.1	51.8	49.4	48.6	44.8	39.5	52.8	267.4
12	38.4	45.3	46.4	42.9	48.4	46.7	46.5	46.5	46.4	47.4	51.0	51.3	55.6	55.8	57.0	53.4	53.3	46.9	48.4	46.2	45.3	46.7	48.6	48.7	167.7	
13	39.1	42.8	46.7	47.8	47.8	48.7	48.7	47.7	46.0	46.2	47.2	50.8	56.1	58.0	53.2	56.5	49.7	55.1	52.5	37.6	51.3	48.2	42.4	43.9	48.5	164.0
14	41.7	45.3	44.3	49.4	49.8	51.5	53.6	51.3	48.2	47.5	48.8	53.2	56.8	54.6	60.4	62.1	54.4	59.7	50.1	48.4	47.2	49.4	45.5	48.2	50.9	221.4
15	45.5	45.7	41.7	43.8	51.6	52.8	60.4	48.2	44.9	45.3	55.5	55.6	56.7	55.3	59.7	59.2	50.4	42.9	56.8	50.4	50.6	49.1	48.2	48.2	50.8	218.5
16 d	49.1	59.2	51.5	47.2	46.7	32.3	57.7	54.1	51.0	43.0	45.2	49.0	52.7	58.3	61.1	63.3	55.4	51.5	60.2	54.5	46.5	40.5	38.6	32.1	50.0	200.7
17	18.9	32.3	16.0	36.2	35.7	49.4	53.6	49.4	43.2	45.8	49.1	48.5	48.7	48.6	45.8	44.0	44.7	46.0	47.2	50.3	48.8	50.6	50.8	52.2	44.0	55.8
18 q	53.3	53.6	51.8	48.2	47.7	46.5	46.2	45.1	43.6	44.0	45.8	48.8	51.2	51.2	50.6	50.8	48.4	48.0	49.6	52.2	50.8	50.8	51.4	52.3	49.2	181.9
19	52.3	48.2	51.0	54.4	54.9	52.8	50.1	54.4	48.2	47.2	49.3	52.2	52.2	53.2	52.8	50.8	51.2	50.0	50.1	50.2	50.7	50.5	49.6	49.3	51.1	225.6
20 q	49.4	49.3	48.8	48.6	48.6	48.6	47.9	47.0	46.5	46.7	48.4	51.0	53.2	54.4	53.6	53.3	51.7	51.3	51.3	50.8	50.4	49.9	49.8	49.7	50.0	200.2
21 q	49.6	49.6	48.7	48.7	48.6	48.6	48.0	47.5	46.7	45.2	46.2	49.9	51.9	52.6	54.6	53.4	52.2	50.3	51.3	50.0	49.3	47.7	48.5	50.4	49.6	189.5
22	51.0	50.6	49.3	48.8	48.7	54.1	47.4	47.2	47.2	52.0	56.3	58.7	57.6	58.3	57.8	56.1	52.3	52.6	50.6	51.5	52.2	51.5	50.6	51.5	52.2	253.9
23	45.8	44.9	43.1	41.9	42.1	45.5	45.8	47.2	55.6	55.8	50.7	52.4	51.5	54.4	54.5	53.4	51.5	51.5	50.7	50.6	49.7	49.6	49.3	49.3	49.5	186.8
24 q	49.4	49.5	49.5	49.1	48.7	48.4	47.8	47.0	45.8	45.6	48.5	51.7	55.2	55.5	55.6	54.3	52.5	51.7	51.6	50.8	50.6	50.2	49.9	49.6	50.4	208.5
25 d	50.1	49.9	49.6	49.7	50.5	54.4	57.0	56.8	50.4	47.4	48.4	60.0	67.4	66.4	57.3	68.8	62.6	78.9	63.5	60.2	50.6	36.2	37.6	40.5	54.8	314.2
26 d	16.5	29.9	33.1	39.0	33.3	41.6	47.7	60.2	50.8	48.1	50.0	51.7	57.8	58.2	56.4	57.8	47.8	50.4	52.5	46.4	48.6	29.9	33.3	40.2	45.1	81.2
27	40.5	44.8	48.2	44.9	45.1	46.3	47.2	46.5	47.4	47.2	49.1	53.4	55.4	60.0	62.8	65.2	66.9	64.0	42.6	51.5	53.2	47.2	47.5	42.6	50.8	219.5
28 d	51.8	46.7	34.2	46.3	46.4	45.8	46.2	46.2	46.5	48.7	52.5	55.6	55.6	61.6	60.8	58.2	56.5	46.9	51.0	52.3	47.2	50.1	42.1	38.1	49.5	187.3
Mean	43.3	45.7	45.1	47.1	47.1	47.5	49.1	49.0	47.3	47.2	49.6	52.6	55.4	56.7	57.2	57.2	54.6	53.9	52.3	49.9	48.9	46.5	45.5	44.7	49.7	
Sum 1200.0+	12.8	80.8	61.7	118.3	120.0	128.8	173.4	172.5	123.3	122.3	187.7	272.3	352.1	388.1	402.0	400.8	329.0	308.5	262.9	196.2	169.8	103.5	74.7	52.3		Grand Total 33413.8



**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) +																							MARCH 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 8000+
		γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
1 d		396	445	488	413	350	449	485	452	480	495	480	476	468	507	578	654	646	573	521	534	521	493	493	475	495	3872
2		475	478	444	486	470	477	513	514	509	491	490	474	481	536	543	549	517	542	553	534	485	496	481	496	501	4034
3		511	472	474	477	452	496	521	527	505	506	507	508	507	534	515	545	537	563	538	527	523	461	498	511	509	4215
4		507	517	522	521	521	521	514	506	515	507	502	498	493	498	509	536	529	542	558	525	525	519	529	524	518	4438
5		520	507	499	507	509	527	521	518	510	504	503	502	506	515	518	539	532	556	548	530	547	545	529	527	522	4519
6		522	527	521	518	523	529	531	525	518	510	504	506	506	509	512	514	520	527	538	540	537	534	533	531	522	4535
7		529	528	526	530	529	529	527	527	524	513	512	511	511	516	520	534	552	560	547	544	546	534	521	506	528	4676
8		484	450	426	524	524	513	526	528	523	507	497	492	494	497	511	530	539	524	532	539	537	537	533	527	512	4294
9 q		528	525	526	532	537	532	534	529	518	501	492	492	492	504	507	514	520	518	528	534	538	539	537	535	521	4512
10 q		535	535	535	534	535	538	540	534	518	496	483	472	477	488	505	517	527	534	539	541	543	544	545	547	523	4562
11 q		545	546	547	547	547	550	549	544	529	507	492	490	499	501	516	527	532	538	546	555	551	551	551	551	534	4811
12		540	515	531	537	545	549	542	539	526	507	503	478	508	485	502	528	528	521	545	537	535	537	537	537	525	4612
13		540	538	537	532	531	537	539	542	529	518	504	502	500	498	509	517	531	525	531	537	542	537	521	529	526	4626
14		540	539	537	536	535	540	535	535	527	508	501	488	491	494	510	525	532	533	537	540	538	538	537	542	527	4638
15		538	535	525	526	542	542	542	537	527	514	504	492	489	500	509	510	520	529	537	542	544	545	544	547	527	4640
16 q		530	543	538	540	540	539	541	539	531	514	501	492	492	501	509	520	523	533	540	547	550	551	551	547	530	4712
17		547	552	544	538	537	542	540	534	526	516	497	492	489	502	518	523	530	536	539	545	543	549	545	542	530	4726
18		543	540	540	537	532	529	537	537	525	518	517	514	519	519	522	526	535	530	535	542	545	549	563	548	533	4802
19		550	549	547	547	547	544	546	546	538	527	512	506	517	513	523	532	526	537	546	549	546	546	546	547	537	4887
20		546	546	544	547	542	538	538	534	527	518	506	501	507	510	514	515	527	534	539	547	544	545	548	549	532	4766
21		547	547	545	544	544	542	540	534	524	503	494	498	506	517	512	535	543	529	537	507	540	542	543	542	530	4715
22 q		546	545	542	541	541	540	536	527	510	498	493	500	506	506	511	521	532	542	544	547	548	552	552	555	531	4735
23		555	552	549	560	549	556	547	545	532	502	491	492	497	503	515	530	541	528	546	551	549	549	539	537	534	4815
24		536	534	541	538	538	538	540	535	518	495	466	456	472	500	517	520	527	553	557	540	544	547	549	551	525	4612
25		549	548	551	520	515	531	535	525	524	492	476	471	488	513	557	600	592	605	631	536	497	535	541	521	536	4853
26 d		517	517	518	519	523	525	523	510	495	488	502	445	478	737	698	510	501	557	642	532	535	483	204	103	503	4062
27 d		347	133	242	201	82	178	-6	-47	376	468	466	521	531	696	565	818	915	906	676	321	-5	-47	216	378	372	931
28 d		493	496	478	449	431	467	492	493	479	481	472	490	500	547	709	869	658	694	704	510	290	106	19	161	479	3488
29 d		141	124	225	365	446	404	368	429	466	462	465	471	518	672	657	656	747	605	543	546	525	503	503	500	473	3341
30		496	489	431	433	474	507	487	499	481	460	481	489	498	493	514	532	536	535	541	531	529	504	513	516	499	3969
31		512	511	498	509	516	514	510	510	489	474	472	476	477	484	522	526	524	560	577	558	520	508	457	496	508	4200
Mean		505	496	499	503	500	510	506	503	510	500	493	490	497	526	536	557	559	560	558	531	510	498	493	499	514	
Sum 15,000+		665	383	471	608	507	823	693	607	799	500	285	195	417	1295	1627	2272	2319	2369	2295	1468	812	432	278	478		Grand Total 382,598

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

2 LERWICK (D)													9° +												MARCH												1959																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Hour G.M.T.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							</

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

27

3 LERWICK (Z)		47,000γ (0.47 C.G.S. unit) +																				MARCH 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			
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ		
1 d	159	141	196	194	152	132	190	188	211	244	259	266	261	261	284	367	352	352	346	339	260	170	163	145	235	632	
2	195	233	196	215	206	197	215	226	245	257	267	280	277	286	311	322	304	303	297	289	186	190	213	199	246	909	
3	221	186	194	209	221	202	231	245	256	259	254	261	266	269	273	276	308	321	317	292	268	157	196	196	245	878	
4	194	217	252	258	256	256	256	259	257	259	260	262	273	281	276	283	297	304	297	290	295	289	279	271	268	1421	
5	268	239	225	211	212	220	235	246	251	256	251	257	261	263	272	279	290	302	312	315	266	255	256	255	258	1197	
6	256	225	219	242	250	250	252	251	256	260	254	254	257	267	272	272	278	272	270	266	263	263	263	260	257	1172	
7	262	261	260	259	255	255	257	254	260	250	249	250	251	257	262	275	301	337	355	333	326	327	299	256	277	1651	
8	216	208	145	236	255	253	246	258	265	259	265	268	269	270	270	273	285	283	269	266	267	268	275	278	256	1147	
9 q	271	269	265	262	263	266	265	267	270	260	260	269	269	278	281	291	298	294	286	276	270	267	265	265	272	1527	
10 q	266	267	269	270	271	270	271	272	274	273	269	268	264	262	261	263	266	267	265	265	263	263	262	262	267	1403	
11 q	263	265	265	265	267	267	267	267	267	268	262	257	255	259	260	263	265	263	263	265	270	266	263	260	264	1332	
12	250	217	248	260	260	254	245	249	255	259	259	265	271	285	280	298	308	318	302	324	294	273	269	268	271	1511	
13	262	257	250	247	259	265	269	268	267	265	267	268	278	289	290	284	286	288	279	273	269	272	268	252	270	1472	
14	259	262	267	267	265	265	265	258	259	264	264	270	268	270	277	276	275	279	281	278	275	272	263	250	268	1429	
15	255	261	258	239	247	260	266	267	268	266	266	265	258	253	260	267	268	268	267	266	267	268	268	255	262	1283	
16 q	257	245	256	254	263	264	265	266	268	269	265	260	253	250	251	254	260	263	266	263	263	263	263	265	260	1246	
17	260	253	254	260	260	263	258	260	265	266	265	262	261	260	260	263	264	266	267	265	266	266	262	264	262	1290	
18	265	263	263	263	267	269	269	270	275	270	268	262	260	263	262	259	260	263	260	263	263	262	258	262	264	1339	
19	262	260	260	260	260	260	260	262	262	260	257	254	253	260	260	269	270	268	266	266	266	263	262	262	262	1282	
20	262	262	261	254	257	260	262	263	263	260	256	255	257	263	263	264	266	263	262	261	262	265	263	262	260	1263	
21	259	258	258	262	263	263	267	269	268	263	257	250	247	258	269	270	281	284	270	266	269	265	263	265	264	1344	
22 q	260	260	263	263	263	264	267	267	266	257	251	245	246	254	260	262	262	262	263	263	263	262	263	256	260	1242	
23	257	250	245	231	245	246	245	249	252	257	256	257	258	257	257	262	278	284	267	260	263	262	271	269	257	1178	
24	267	265	247	253	258	261	263	263	263	268	271	269	257	253	260	268	270	275	294	299	288	278	269	264	268	1423	
25	263	265	263	242	149	182	227	231	232	254	263	260	258	261	271	319	384	363	356	287	254	293	288	288	269	1453	
26 d	277	273	273	276	276	273	271	272	273	270	260	280	307	362	445	389	350	343	346	304	332	321	130	311	301	2214	
27 d	133	29	174	53	-126	14	26	-4	124	248	274	287	327	352	183	50	91	221	270	254	214	109	144	76	147	-1477	
28 d	236	289	301	296	297	278	285	284	284	275	274	288	310	310	369	391	447	407	334	382	431	212	494	358	326	2832	
29 d	137	80	244	192	198	193	207	211	257	284	294	312	330	359	384	376	306	381	386	379	311	309	307	297	281	1734	
30	292	286	252	222	240	261	272	286	290	308	298	304	311	304	301	312	309	316	312	302	291	257	244	266	285	1836	
31	272	259	241	237	262	262	266	271	281	284	283	291	296	297	311	306	304	310	329	269	272	259	144	195	271	1501	
Mean	244	236	244	240	235	239	247	248	257	264	265	268	271	278	282	284	290	297	295	288	276	256	256	253	263		
Sum 7000+	556	305	564	452	271	425	640	695	984	1192	1198	1296	1409	1613	1736	1805	1980	2219	2153	1921	1550	944	926	830		Grand Total 195,664	

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

4 LERWICK

MARCH 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										
	h. m.	γ	γ	h. m.	γ	h. m.	γ	h. m.	γ	γ	h. m.	γ							
1 d	15 33	717	305	00 06	412	14 50	65.8	14.3	00 32	51.5	15 39	404	111	05 18	293	5,5,4,3,5,5,5,5	37	2	79.3
2	20 10	700	369	20 15	331	20 13	98.1	19.2	20 28	78.9	20 20	368	93	20 50	275	4,3,4,2,4,4,6,4	31	1	79.2
3	17 10	576	363	21 28	213	21 26	65.0	33.7	23 17	31.3	18 16	338	101	21 28	237	3,3,3,3,3,3,4,5	27	1	79.3
4	18 40	578	481	00 29	97	15 15	58.2	35.9	18 10	22.3	18 08	330	180	00 50	150	4,2,2,2,2,2,3,2	19	1	79.3
5	20 23	571	489	01 40	82	18 46	60.0	33.9	04 00	26.1	19 18	327	196	04 00	131	3,2,2,1,2,3,4,3	20	1	79.2
6	19 04	545	502	12 18	43	14 31	57.0	38.5	02 44	18.5	16 48	280	207	01 54	73	3,2,1,1,2,1,2,0	12	0	79.4
7	17 47	571	500	23 26	71	16 42	68.8	39.5	24 00	29.3	18 22	370	225	24 00	145	1,1,1,2,2,4,3,4	18	1	79.4
8	16 04	545	372	02 10	173	14 12	56.1	31.8	00 38	24.3	17 16	290	114	02 20	176	4,3,2,1,1,2,1,2	16	1	79.0
9 q	20 57	541	488	12 34	53	13 33	58.0	41.8	08 28	16.2	16 13	301	255	03 02	46	2,1,1,1,1,1,1,0	8	0	78.6
10 q	22 29	548	468	11 26	80	14 05	57.4	40.8	09 10	16.6	09 32	276	260	22 30	16	0,0,2,2,1,1,0,0	6	0	78.6
11 q	19 19	563	486	11 23	77	12 32	59.5	42.8	08 20	16.7	19 59	272	252	12 33	20	1,0,1,1,1,1,1,1	7	0	78.8
12	06 00	559	470	11 09	89	12 22	64.6	37.1	01 38	27.5	19 15	338	193	01 26	145	3,2,2,3,3,3,3,1	20	1	78.9
13	21 19	553	481	13 30	72	14 10	58.9	28.9	21 27	30.0	13 34	295	241	03 28	54	1,2,2,2,3,2,1,4	17	1	79.1
14	23 28	547	478	11 38	69	13 07	58.1	45.8	06 20	12.3	17 55	284	246	23 36	38	1,2,2,2,2,1,1,2	13	0	79.1
15	23 25	557	485	12 17	72	14 27	59.6	43.3	08 07	16.3	22 38	270	234	03 24	36	2,2,1,2,1,1,0,2	11	0	79.2
16 q	21 43	555	489	12 11	66	14 05	57.1	43.8	08 30	13.3	09 33	271	239	01 05	32	2,0,1,2,1,1,1,1	9	0	79.3
17	01 13	557	485	12 19	72	22 42	57.0	43.8	08 28	13.2	18 10	269	249	01 15	20	2,1,2,2,1,2,1,2	13	0	79.4
18	22 09	579	512	11 16	67	22 05	54.1	44.6	09 02	9.5	08 25	275	250	22 11	25	0,2,1,1,2,2,1,3	12	0	79.2
19	18 59	560	500	11 30	60	12 39	58.2	44.5	07 38	13.7	15 50	275	250	12 12	25	1,1,1,2,2,2,2,1	12	0	79.3
20	23 09	553	498	10 58	55	13 01	58.6	44.8	07 18	13.8	15 05	268	250	03 19	18	1,2,2,1,2,2,1,1	12	0	79.2
21	02 05	550	487	10 57	63	13 29	61.6	42.4	07 35	19.2	17 14	288	245	12 15	43	1,1,1,2,2,2,2,1	12	0	79.2
22 q	23 06	562	491	10 37	71	13 56	60.2	43.1	08 11	18.9	08 15	269	243	12 00	26	1,1,2,2,2,2,1,2	13	0	79.3
23	03 26	570	485	10 12	85	12 28	59.0	42.4	07 40	16.6	17 05	288	219	03 32	69	2,3,2,1,1,2,2,2	15	1	79.3
24	18 24	563	451	11 40	112	13 38	62.6	42.1	07 11	20.5	19 22	303	237	02 43	66	2,1,2,3,3,3,2,1	17	0	79.5
25	18 15	705	421	26 14	284	15 03	70.7	34.9	20 02	35.8	18 13	405	141	04 11	264	1,4,2,2,4,4,6,2	25	1	80.0
26 d	13 48	882	-266	23 08	1148	20 57	81.6	-10.2	22 08	91.8	14 37	469	64	23 03	405	1,1,3,4,7,4,6,8	34	2	80.1
27 d	16 25	1190	-303	21 38	1495	16 28	149.2	-44.7	11 15	193.9	00 02	415	-63	03 44	478	7,7,8,5,7,7,9,8	58	2	80.3
28 d	18 15	1029	-225	22 35	1254	23 32	108.1	-26.0	23 59	134.1	22 41	554	-71	21 34	625	5,4,3,3,6,7,9,7	44	2	80.4
29 d	15 56	800	-81	00 14	881	12 40	64.5	-23.2	00 25	87.7	18 55	405	-12	01 00	417	7,6,5,4,6,6,6,2	40	2	80.3
30	18 07	550	390	02 43	160	12 40	57.8	39.0	07 37	18.8	09 37	322	211	03 53	111	4,4,3,4,2,2,3,3	25	1	80.1
31	19 00	603	406	22 50	197	22 47	68.0	26.4	22 24	41.6	18 35	344	74	22 37	270	3,3,2,2,3,3,4,5	25	1	80.2
Mean	- -	628	370 - -	258	- -	66.9	29.5 - -	37.4	- -	328	175 - -	153	-	-	-	-	0.71	-	79.4

**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) +												APRIL 1959	
	Hour G.M.T.																									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	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	11,000+
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	1058
2	510	491	446	506	507	492	485	514	498	489	479	475	477	490	504	513	520	523	523	521	523	523	524	525	502	1502
3	525	524	521	523	521	523	525	523	514	498	482	481	488	487	514	530	538	557	559	551	547	532	521	518	521	1502
4	504	505	516	522	523	523	526	523	510	491	486	471	489	509	520	528	546	531	523	528	532	538	541	526	517	1411
5	510	519	521	521	533	530	530	520	505	485	473	475	478	493	505	518	534	536	548	547	546	537	532	530	518	1426
5 q	529	534	525	531	535	535	535	524	500	479	468	479	482	503	519	529	532	537	539	544	541	541	543	543	522	1527
6	542	538	541	540	542	544	544	534	515	487	478	486	497	512	531	552	557	561	564	557	552	544	538	541	533	1797
7	538	537	534	532	531	531	535	538	527	509	498	488	482	492	501	529	541	549	556	571	557	542	532	524	528	1674
8	519	512	510	523	525	536	544	529	500	482	477	463	473	466	477	542	582	622	588	571	566	552	451	312	513	1322
9 d	196	302	336	470	506	478	513	518	491	470	470	465	481	486	498	506	524	527	564	576	563	568	567	549	484	624
10 d	552	542	455	463	530	537	506	455	355	453	494	516	547	667	832	810	970	699	648	517	504	489	494	496	564	2531
11	487	450	452	471	458	478	480	486	467	458	454	471	481	485	496	509	518	529	554	566	565	545	522	514	496	896
12	518	511	511	520	519	528	536	530	517	497	475	464	467	471	485	508	524	535	546	544	541	540	529	527	514	1343
13	530	529	534	532	535	538	536	519	501	490	475	475	472	472	500	520	534	548	545	547	551	549	549	548	522	1529
14	543	541	525	530	544	546	540	530	520	503	488	486	488	503	515	519	539	552	558	559	562	548	534	506	528	1679
15	458	476	531	541	543	548	542	535	520	506	494	484	484	498	510	529	527	535	559	554	552	544	544	544	523	1558
16	549	541	545	541	543	543	546	545	531	516	506	487	499	514	527	539	545	555	551	560	555	544	541	540	536	1863
17	538	537	537	539	539	540	537	530	522	509	495	483	506	519	519	544	544	545	555	559	551	549	552	547	533	1796
18 q	534	525	524	530	532	533	528	519	509	497	496	492	495	499	505	525	527	546	547	556	549	547	548	547	525	1610
19 q	545	544	543	541	545	544	539	532	524	508	503	496	505	503	514	520	532	551	558	555	552	555	551	541	533	1801
20 q	544	544	543	541	541	538	538	534	528	522	510	500	507	507	508	520	545	552	553	553	550	552	552	553	535	1835
21	557	558	539	539	547	553	548	535	520	496	486	492	490	494	511	518	535	549	556	552	545	543	544	544	531	1751
22 q	540	537	537	538	541	541	541	534	518	498	482	468	478	492	510	525	540	542	546	551	549	549	549	546	527	1652
23 d	545	545	547	544	546	547	543	537	520	501	496	524	509	529	516	564	639	766	860	854	683	545	455	508	576	2823
24 d	542	520	508	494	490	473	508	508	496	488	483	507	558	536	609	596	573	528	515	508	526	519	508	516	521	1509
25	509	501	498	516	492	477	503	497	494	486	472	464	497	497	530	539	611	625	587	568	543	517	487	523	518	1433
26	527	508	484	512	518	523	523	512	488	479	478	489	480	487	509	542	564	598	606	569	549	516	483	441	516	1385
27	463	492	504	501	504	524	490	503	503	492	479	479	494	511	538	564	576	611	589	559	552	534	530	514	521	1506
28	511	512	508	525	523	525	516	516	494	480	481	477	486	508	527	544	546	579	593	571	554	515	441	442	516	1374
29 d	457	465	479	494	508	504	506	516	508	497	492	487	508	533	565	604	709	798	677	592	565	539	527	507	543	2037
30	504	509	508	497	494	518	522	509	513	505	486	474	480	547	617	661	699	687	638	591	557	526	512	498	544	2052
Mean	511	512	509	519	524	525	525	520	504	492	485	483	493	507	530	548	572	579	577	565	553	538	523	516	525	
Sum 14,000+	1326	1349	1262	1577	1715	1750	1765	1605	1108	771	536	498	778	1210	1912	2447	3171	3373	3305	2951	2582	2142	1701	1470		Grand Total 378,304

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

2 LERWICK (D)													9° +												APRIL 1959										
	Hour G.M.T.																																		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	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	1100·0+									
1	45·3	43·8	42·6	33·8	35·7	41·2	48·0	45·6	42·6	45·3	47·8	51·7	52·6	52·8	52·0	50·2	49·3	49·5	49·1	50·1	49·2	49·1	48·6	48·5	46·9	24·4									
2	48·1	48·2	47·2	47·0	46·4	45·7	43·8	42·3	40·1	40·8	45·3	50·5	55·8	57·3	58·8	57·8	55·3	53·2	51·4	49·3	50·1	46·9	46·0	45·8	48·9	73·1									
3	45·5	40·2	40·6	38·7	42·4	42·8	42·7	40·0	43·6	46·7	49·5	53·5	58·0	59·6	59·2	56·7	53·1	49·1	49·1	49·6	49·6	49·6	48·4	43·5	48·0	51·7									
4	40·5	42·4	43·3	45·7	46·2	43·8	42·9	39·5	39·0	43·4	47·5	52·4	55·0	55·9	54·3	52·2	51·0	48·6	48·9	48·6	51·0	50·6	49·5	47·8	47·5	40·0									
5 q	46·7	46·3	46·0	44·8	43·8	44·3	44·2	42·8	41·4	42·9	46·7	53·1	57·1	58·1	57·2	54·4	51·0	50·1	49·4	47·9	50·6	51·3	51·0	51·0	48·8	72·1									
6	50·8	52·4	49·8	48·2	46·8	45·7	43·8	41·4	40·2	42·8	47·3	52·0	56·4	57·3	56·9	55·4	53·8	51·2	48·6	50·4	50·6	48·6	47·7	50·6	49·5	88·7									
7	50·1	49·1	47·6	46·1	45·8	44·3	42·4	40·8	39·0	40·6	45·9	51·9	55·5	57·8	57·2	55·6	53·0	51·5	52·0	46·2	41·4	49·7	46·2	38·9	47·9	48·6									
8	41·0	35·2	35·7	33·5	35·7	38·0	41·8	41·2	40·9	43·9	49·1	55·3	60·1	59·2	58·1	61·3	60·2	58·7	54·9	53·9	52·0	54·1	38·8	34·3	47·4	36·9									
9 d	29·1	23·1	27·6	30·4	34·7	43·8	53·0	49·6	46·8	54·1	52·2	54·7	56·2	56·2	55·3	54·3	52·4	51·5	52·4	44·6	54·4	52·3	49·1	48·4	46·9	26·2									
10 d	46·7	45·5	48·5	38·8	39·5	41·0	41·5	43·4	46·8	46·7	45·5	52·4	59·1	53·6	57·9	66·1	73·2	64·8	55·3	56·6	45·8	43·8	46·6	46·6	50·2	105·7									
11	47·6	52·1	50·6	50·5	50·7	51·4	48·3	46·4	48·4	51·9	54·1	56·2	56·8	58·8	56·9	54·9	52·8	52·9	53·4	53·9	53·2	42·2	39·3	44·1	51·1	127·4									
12	45·3	45·6	45·7	45·8	43·9	42·8	42·8	41·9	39·0	40·6	44·3	49·4	53·3	55·3	55·3	53·4	51·4	49·6	48·4	48·5	49·3	49·6	46·2	46·7	47·3	34·1									
13	48·9	50·8	49·1	46·0	43·9	43·7	42·7	42·4	42·3	44·4	47·4	52·0	55·6	56·3	56·4	55·4	53·2	50·9	49·1	49·6	49·2	48·5	48·6	48·8	49·0	75·2									
14	49·4	51·2	55·6	47·2	46·4	45·9	46·5	46·7	45·1	46·1	49·5	52·9	56·2	58·6	58·2	56·3	54·2	52·0	50·7	51·9	51·0	47·6	47·5	44·7	50·5	111·4									
15	44·7	38·1	43·5	44·8	44·8	45·8	46·7	45·4	44·2	44·6	46·6	49·5	52·5	54·2	53·3	53·1	51·9	50·6	50·3	49·2	49·1	50·3	49·8	50·3	48·1	53·3									
16	50·5	53·4	51·0	48·6	47·9	48·2	44·9	44·6	44·9	46·4	49·5	53·4	55·0	56·4	54·4	51·9	51·8	48·2	49·1	49·7	46·5	48·8	50·4	49·6	49·8	95·1									
17	48·8	47·8	47·5	47·4	46·5	45·3	43·7	41·4	42·9	44·3	48·3	52·2	54·6	55·2	52·2	49·6	49·5	49·1	50·3	49·9	49·1	49·0	48·3	47·5	48·3	60·4									
18 q	43·8	44·8	48·6	47·7	45·7	44·5	42·8	42·6	41·9	42·8	48·5	49·6	53·4	55·8	55·4	54·6	52·8	51·1	50·5	50·9	51·6	51·1	50·9	49·9	48·7	68·3									
19 q	48·6	48·2	47·5	46·8	46·5	45·8	44·3	42·9	42·7	45·3	46·3	47·7	51·4	53·9	54·6	54·3	53·0	52·5	50·1	50·8	51·2	52·0	48·4	46·5	48·8	71·3									
20 q	49·4	49·6	48·4	47·4	44·8	42·7	41·4	40·9	41·0	42·9	46·3	48·5	54·3	55·8	55·5	54·7	53·4	51·7	50·8	51·0	51·3	50·8	50·6	50·3	48·9	73·5									
21	50·6	48·8	46·2	46·4	46·7	45·1	42·8	40·8	44·1	45·5	51·3	52·7	54·6	57·4	57·4	54·4	51·8	50·1	49·7	50·8	50·8	50·6	50·4	50·7	49·6	89·7									
22 q	50·4	49·0	48·6	47·4	46·2	44·6	42·9	41·7	41·2	42·6	45·5	49·1	53·4	56·0	55·6	54·6	52·6	50·7	50·3	50·2	50·3	50·6	50·7	50·3	48·9	74·5									
23 d	50·1	49·9	49·7	49·1	47·5	45·5	42·8	40·7	40·3	42·8	46·5	54·5	60·4	66·4	64·8	68·6	67·9	72·7	83·4	90·3	68·1	49·5	45·0	43·2	55·8	239·4									
24 d	45·4	43·4	39·4	39·4	40·6	41·0	37·8	37·0	40·4	43·2	48·1	55·3	62·5	64·0	68·6	62·5	54·2	47·2	47·7	48·4	50·2	41·8	44·8	45·7	47·9	48·6									
25	46·5	47·6	49·8	47·6	47·6	49·5	44·8	43·6	39·3	41·8	46·2	52·5	58·1	59·8	61·2	58·7	59·6	57·0	51·4	52·2	48·9	44·8	44·8	46·0	50·0	99·3									
26	47·5	47·7	42·4	37·6	42·2	42·8	41·4	43·0	42·0	45·5	47·6	52·4	54·0	54·8	53·9	54·0	54·2	52·2	52·2	51·8	48·4	46·0	41·2	44·3	47·5	39·1									
27	46·0	42·0	44·1	39·8	40·0	37·8	39·3	44·7	44·8	45·5	49·6	54·3	60·7	62·1	61·8	60·0	56·4	52·2	52·5	53·8	53·2	50·0	42·8	44·6	49·1	77·4									
28	40·5	41·9	40·0	39·8	40·2	40·0	39·9	40·7	40·2	45·5	49·6	52·9	55·6	57·7	57·0	55·2	54·4	53·3	54·0	55·3	49·2	48·9	44·3	41·2	47·4	36·9									
29 d	43·1	44·6	42·4	42·7	41·9	41·5	42·4	42·7	45·5	47·6	49·6	52·2	56·3	61·6	63·9	59·9	59·9	69·0	53·7	51·4	49·4	51·0	47·7	45·5	50·2	105·9									
30	45·3	46·2	43·1	42·4	39·8	39·1	40·0	41·7	41·9	43·4	47·0	50·1	54·2	61·1	61·1	61·6	57·5	59·7	49·6	51·3	51·2	50·0	48·6	46·5	48·9	72·4									
Mean	46·2	45·6	45·4	43·7	43·7	43·8	43·4	42·6	42·4	44·7	47·9	52·2	56·0	57·6	57·5	56·4	54·8	53·4	51·9	51·9	50·5	49·0	47·1	46·4	48·9										
Sum 1200·0+	186·2	168·9	162·1	111·4	110·8	114·0	101·9	78·4	72·5	139·9	235·6	364·9	478·7	529·0	524·4	491·4	444·8	400·9	358·3	357·5	315·9	269·1	212·2	191·8		Grand Total 35220·6									

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

29

3	LERWICK (Z)												47,000γ (0.47 C.G.S. unit) +												APRIL 1959											
	Hour G.M.T.																									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	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	6000+										
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	261	263									
2	232	250	178	221	250	224	196	204	254	280	286	288	289	288	286	284	283	280	281	281	281	283	282	282	282	261	263									
3	283	282	281	281	281	281	282	284	286	285	286	277	276	280	278	288	295	304	319	320	310	298	293	288	288	289	938									
4	271	235	238	241	257	269	276	280	278	281	279	283	288	293	296	299	304	308	295	283	280	279	272	269	277	654										
5	232	247	255	260	262	270	277	280	278	276	276	273	272	273	274	277	280	283	278	281	281	286	288	284	273	543										
q	285	269	254	265	266	268	270	275	280	278	272	265	262	262	269	275	281	280	280	280	276	273	270	271	272	526										
6	271	262	255	264	268	268	270	271	275	274	266	258	257	265	267	273	286	301	306	300	299	296	284	278	276	614										
7	280	280	281	280	277	276	271	267	269	268	265	263	262	263	275	284	292	300	301	303	281	271	258	260	276	627										
8	242	219	206	213	233	235	236	247	261	262	265	272	289	311	292	288	321	350	354	333	333	312	290	201	273	564										
9	205	106	187	221	255	242	246	261	281	304	290	299	297	294	298	298	300	306	312	345	298	265	252	278	268	440										
d	283	289	233	180	249	257	269	261	278	222	246	270	308	410	469	407	277	396	407	335	317	294	294	286	302	1237										
11	281	253	252	275	261	249	267	292	298	286	291	298	292	288	284	287	290	289	286	288	317	319	280	180	279	703										
12	261	270	278	277	273	267	267	273	278	279	280	281	285	285	281	284	292	292	293	291	286	280	280	277	280	710										
13	261	251	249	267	273	276	278	283	283	280	276	274	273	271	269	274	280	286	296	293	286	277	274	268	275	598										
14	267	268	252	234	260	267	271	273	275	279	272	267	265	265	275	274	275	275	274	274	276	288	275	231	268	432										
15	159	137	218	256	267	267	269	270	276	283	285	281	279	273	273	275	279	280	280	296	286	281	276	271	263	317										
16	262	252	246	263	270	272	271	268	263	267	272	278	269	268	268	268	273	279	280	278	281	284	279	276	270	487										
17	275	276	276	275	275	275	274	273	272	272	272	273	269	281	293	301	293	282	275	280	281	274	263	260	277	640										
18	239	237	254	266	273	276	279	276	270	271	272	271	264	262	267	269	273	276	279	277	275	273	273	272	269	444										
19	273	275	273	272	270	269	269	269	268	266	265	263	262	265	267	268	272	270	273	273	272	269	270	273	269	466										
q	268	269	273	273	273	273	270	267	265	261	261	263	265	270	273	272	267	267	270	270	270	270	269	269	269	448										
21	264	252	243	244	240	244	258	265	264	269	270	277	275	278	284	301	301	292	284	276	273	271	270	271	269	466										
22	273	275	276	276	276	273	270	270	271	275	274	270	263	263	264	267	269	271	271	270	270	267	265	269	270	488										
23	270	272	273	275	273	272	270	267	265	265	263	252	263	273	296	299	368	426	429	394	368	374	338	309	306	1354										
d	329	338	322	303	299	277	267	267	264	251	261	281	309	342	369	412	397	368	314	287	277	281	235	242	304	1292										
25	254	258	246	256	261	223	242	258	274	285	293	289	292	303	300	306	321	340	330	306	286	251	179	241	275	594										
26	287	277	183	164	216	271	281	281	281	275	272	270	281	282	287	286	294	313	312	312	306	291	204	182	267	408										
27	175	192	221	216	204	211	229	224	238	250	262	268	280	300	315	329	350	354	322	306	298	295	244	213	262	296										
28	222	224	223	223	233	237	251	258	269	267	271	282	279	279	295	309	314	316	316	304	283	247	183	124	259	209										
d	156	168	201	201	234	242	235	244	254	260	266	275	275	291	328	372	414	343	364	339	340	313	275	251	277	641										
30	240	234	240	234	227	235	251	260	268	275	279	280	276	283	333	383	350	352	310	290	321	305	280	247	281	753										
Mean	253	247	246	249	259	259	262	266	271	271	273	275	277	285	294	300	303	309	306	299	294	286	267	254	275											
Sum 7000+	600	417	367	476	756	766	862	968	1136	1145	1188	1241	1316	1561	1825	2009	2091	2279	2191	1965	1808	1567	995	623		Grand Total 198,152										

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

4 LERWICK												APRIL 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										
	h. m.	γ	γ	h. m.	γ	h. m.	γ	h. m.	γ	γ	h. m.	γ							
1	18 56	532	424	02 14	108	12 08	53.5	32.2	03 22	21.3	12 23	293	166	02 32	127	4,3,4,1,1,1,1,0	15	1	80.3
2	20 37	562	475	11 00	87	14 11	59.3	39.0	08 11	20.3	19 07	324	272	12 00	52	1,0,2,2,2,2,3,2	14	0	80.2
3	16 11	554	466	11 26	88	13 04	60.4	35.8	01 03	24.6	17 09	312	227	01 16	85	3,3,2,2,2,2,1,3	18	0	80.4
4	18 50	555	469	10 52	86	13 20	56.4	38.0	08 24	18.4	22 05	291	222	00 35	69	2,2,2,2,2,2,1,1	14	0	80.2
5 q	19 12	547	467	10 17	80	13 21	58.8	41.0	08 32	17.8	00 25	288	246	02 26	42	2,0,2,2,2,2,1,1	12	0	80.2
6	18 10	580	476	10 18	104	13 22	58.1	39.8	08 22	18.3	18 32	310	250	02 00	60	2,1,2,2,2,2,3,2	16	0	80.2
7	20 02	588	474	12 22	114	14 04	58.6	30.7	20 00	27.9	19 54	312	254	22 34	58	1,1,1,2,2,2,4,3	16	0	80.0
8	17 42	642	275	23 52	367	12 57	63.1	27.3	23 00	35.8	18 13	362	174	23 38	188	3,3,2,2,3,4,4,6	27	1	80.1
9 d	18 31	637	483	00 19	720	21 09	63.5	0.9	00 28	62.6	19 14	378	60	00 53	318	7,5,3,2,1,2,4,4	28	2	80.0
10 d	16 18	1771	206	08 16	965	16 33	99.5	21.2	09 32	78.3	14 17	517	116	03 04	401	6,5,6,6,7,7,6,3	46	2	80.0
11	22 42	658	412	22 34	246	13 37	62.6	14.2	22 51	48.4	22 42	370	119	23 18	251	3,2,3,3,2,3,3,6	25	1	79.9
12	18 23	550	461	11 26	89	13 22	56.1	38.6	08 58	17.5	17 04	295	238	00 00	57	3,2,2,2,2,3,1,2	17	0	80.2
13	20 46	566	457	12 57	109	14 10	58.1	40.9	07 45	17.2	18 51	298	238	01 48	60	2,1,2,1,2,2,2,2	14	0	80.2
14	20 43	569	464	24 00	105	02 40	65.0	40.0	23 40	25.0	21 34	293	167	24 00	126	3,3,2,2,2,2,1,4	19	1	80.4
15	18 52	579	421	00 17	158	13 56	55.0	30.3	01 34	24.7	19 56	301	95	01 23	206	5,2,2,1,1,2,3,1	17	1	80.3
16	19 23	566	480	11 35	86	13 06	57.2	42.8	06 57	14.4	20 49	286	239	02 14	47	2,1,1,2,2,2,2,1	13	0	80.6
17	19 14	569	473	11 38	96	13 37	56.2	39.7	07 36	16.5	15 53	302	249	24 00	53	1,1,2,2,3,2,2,1	14	0	80.8
18 q	18 58	562	488	10 39	74	14 15	56.3	41.3	01 46	15.0	18 11	283	225	01 10	58	2,1,1,1,1,2,2,0	10	0	80.3
19 q	22 27	562	493	11 22	69	14 46	54.7	41.8	08 10	12.9	23 03	278	261	10 40	17	1,0,1,1,2,3,1,2	11	0	80.2
20 q	24 00	559	496	11 36	63	13 53	56.7	40.0	07 28	16.7	14 34	277	257	10 05	20	1,2,0,2,2,2,1,1	11	0	80.2
21	01 36	562	482	12 02	80	14 37	59.1	39.0	07 38	20.1	15 43	306	235	04 52	71	2,2,2,2,2,3,2,0	15	0	80.1
22 q	19 33	554	465	11 32	89	13 48	56.5	40.9	08 08	15.6	03 11	277	261	12 55	16	1,1,1,2,2,1,0,1	9	0	80.0
23 d	19 19	961	405	21 54	556	19 54	116.1	33.7	22 17	82.4	19 43	627	251	19 33	376	0,1,1,3,4,6,6,6	27	1	80.6
24 d	14 46	651	455	07 11	196	14 44	71.1	27.9	07 57	43.2	15 53	423	210	22 23	213	4,3,4,3,4,4,3,4	29	1	80.7
25	17 32	663	454	22 20	209	14 22	64.8	33.8	22 22	31.0	17 24	370	155	22 37	215	3,3,3,2,3,5,4,4	27	1	80.8
26	17 55	621	408	23 54	213	22 08	59.1	28.6	22 42	30.5	17 42	323	148	23 40	175	4,4,2,2,2,4,4,4	26	1	80.8
27	17 22	625	430	00 01	195	13 35	63.2	35.9	06 27	27.3	17 03	379	156	00 46	223	4,2,3,2,3,3,3,4	24	1	80.8
28	18 40	599	360	23 22	239	13 50	58.1	26.0	22 54	32.1	17 00	320	-6	23 01	326	2,2,2,2,2,3,3,6	22	1	80.8
29 d	17 47	911	435	00 59	476	17 53	92.8	36.0	02 00	56.8	16 48	434	127	00 39	307	4,3,2,2,4,6,5,3	29	1	80.5
30	16 08	763	463	11 52	300	16 58	67.1	37.7	05 19	29.4	16 00	412	221	04 01	191	2,3,2,3,5,5,4,3	27	1	80.7
Mean	- -	634	422 - -	212	- -	63.9	33.8 - -	30.1	- -	341	194 - -	147	- -	- -	- -	- -	0.57	- -	80.3

**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) +														MAY 1959																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	Hour G.M.T.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					

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

2 LERWICK (D)													9° +												MAY 1959	
	Hour G.M.T.																									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	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	1000.0+
1	48.3	47.7	47.0	46.2	49.6	47.9	46.5	45.3	46.0	46.2	47.1	51.2	55.1	57.2	57.3	54.0	52.4	50.3	48.1	47.4	46.3	43.3	46.5	46.2	48.9	173.1
2	47.2	44.4	41.9	39.3	37.8	36.9	36.9	38.3	39.1	41.2	44.8	49.3	53.5	54.0	52.7	51.4	49.8	48.9	49.1	49.8	51.8	51.8	46.5	45.8	45.9	102.2
3	47.4	48.4	47.5	47.0	45.8	43.9	42.0	40.7	42.2	44.8	49.4	53.0	55.6	55.8	53.7	52.2	50.4	50.8	51.5	52.2	52.1	49.7	52.2	54.0	49.3	182.3
4	46.8	47.6	47.9	46.5	46.0	44.4	43.9	42.6	42.4	47.9	54.0	56.6	59.0	58.0	57.2	54.3	52.7	51.3	52.1	51.5	52.9	56.7	52.4	46.6	50.5	211.3
5	28.7	12.2	16.2	29.7	29.6	33.1	36.6	40.0	42.3	47.0	49.2	52.0	57.7	59.9	58.7	55.2	52.9	51.3	51.3	51.2	49.6	49.5	48.3	47.6	43.7	49.8
6 q	47.4	47.2	46.0	44.7	43.3	41.7	40.8	40.3	41.0	44.4	47.9	52.3	55.5	55.9	55.2	53.3	51.0	49.3	49.4	49.9	50.4	51.0	50.1	49.4	48.2	157.4
7	49.0	48.5	47.2	45.5	44.5	41.7	40.7	39.9	39.8	43.1	48.4	54.0	56.9	57.0	55.1	53.0	51.8	50.3	49.8	51.4	52.2	52.8	53.2	52.2	49.1	178.0
8 d	53.4	45.5	45.5	43.4	48.5	56.6	45.0	38.8	45.5	47.0	52.1	55.2	59.6	58.7	59.4	58.1	55.2	49.3	50.4	49.8	49.5	49.3	48.9	49.6	50.6	214.3
9	44.1	46.4	53.0	46.1	42.2	40.6	38.9	39.9	40.6	43.6	47.0	52.7	57.5	58.4	59.0	56.3	53.9	52.3	51.3	52.1	51.3	51.0	52.2	47.6	49.1	178.0
10	48.6	47.9	45.4	45.7	44.1	45.4	42.5	45.1	43.7	46.5	52.7	54.2	57.2	58.8	57.8	55.1	52.2	50.5	50.7	49.6	52.0	51.3	51.6	50.8	50.0	199.4
11	53.7	50.3	46.1	46.0	42.8	40.8	42.5	39.7	40.0	42.7	45.7	50.3	54.1	55.1	55.3	53.7	52.1	47.5	50.8	52.7	51.8	54.4	53.7	59.7	49.2	181.5
12 d	53.0	47.4	39.3	39.4	32.0	33.9	29.2	41.2	38.8	39.3	48.6	49.3	50.3	56.8	54.8	58.1	86.7	62.5	56.2	54.1	54.2	53.2	60.9	55.2	49.8	194.4
13	52.0	51.2	49.3	45.5	44.1	40.9	38.4	39.8	42.6	45.7	47.2	48.6	51.1	52.3	53.4	53.2	51.3	50.3	49.4	48.5	48.4	47.6	50.3	50.3	48.0	151.4
14 q	50.0	49.5	48.1	46.2	42.4	39.8	39.5	39.7	40.7	42.4	44.8	47.0	49.1	49.4	49.6	50.8	50.3	49.4	49.4	50.5	50.1	50.3	49.8	48.2	47.0	127.0
15 d	47.9	49.8	49.8	47.0	43.4	41.4	38.8	38.0	43.1	47.5	48.2	54.4	54.6	55.8	50.8	51.3	51.4	48.3	49.4	50.8	45.5	43.5	35.7	31.1	46.6	117.5
16 d	25.2	39.7	38.6	30.9	53.2	54.3	44.5	48.4	49.4	45.8	45.8	49.6	53.4	53.1	50.8	50.3	50.3	50.0	48.9	49.4	49.4	49.4	46.0	41.9	46.6	118.3
17	43.7	43.1	42.4	42.0	40.4	39.1	40.6	39.6	40.6	47.4	49.6	53.7	54.1	52.9	52.9	52.0	48.3	46.5	49.8	52.0	52.7	52.0	52.0	52.7	47.5	140.1
18	52.1	54.1	53.5	50.6	53.7	44.8	43.1	42.4	44.8	45.4	48.2	50.3	52.2	53.7	52.1	50.3	49.9	44.3	46.8	51.2	51.0	54.6	45.3	45.0	49.1	179.4
19	46.6	46.8	50.3	40.2	40.4	39.3	36.1	34.1	35.4	39.9	45.5	50.6	53.7	55.0	54.0	52.3	49.2	48.1	48.9	51.4	50.5	50.8	44.3	45.2	46.2	108.6
20	50.8	53.2	49.2	45.4	41.9	39.7	38.7	38.8	40.8	44.5	48.3	52.9	55.0	55.2	55.1	54.2	53.5	53.1	52.4	51.8	42.5	46.6	49.4	45.5	48.3	158.5
21	43.8	44.1	42.7	40.2	37.8	42.7	41.7	41.9	42.2	45.5	50.8	55.4	59.2	59.4	58.5	56.2	56.1	54.6	53.7	51.6	49.4	44.3	49.1	49.1	48.7	170.0
22	48.7	49.8	45.6	39.6	40.6	39.6	37.8	40.8	41.0	47.9	52.0	55.3	57.8	59.2	56.9	53.0	51.4	54.3	53.7	53.1	53.7	54.2	50.5	47.4	49.3	183.9
23	43.3	39.8	42.4	48.3	38.1	34.2	36.2	37.6	41.5	43.6	47.5	51.5	55.6	57.3	56.9	55.2	53.2	52.0	51.8	53.2	52.1	51.4	50.3	51.1	47.7	144.1
24 d	49.7	43.9	38.8	39.9	36.9	33.9	25.8	37.8	41.9	44.4	47.0	55.2	61.3	64.2	61.8	64.9	58.5	54.6	53.9	53.5	56.1	32.8	33.1	19.0	46.2	108.9
25	32.6	28.4	37.6	40.7	41.7	41.7	45.5	50.7	52.4	48.9	48.2	51.8	54.2	54.4	55.3	54.4	52.7	51.3	50.4	50.1	49.6	49.6	47.9	47.2	47.4	137.3
26	50.3	46.5	44.1	43.3	42.4	41.2	38.9	37.8	38.0	39.6	42.9	46.4	50.1	53.2	54.7	54.6	53.7	53.2	51.3	52.2	49.8	48.4	50.0	48.4	47.1	131.0
27 q	45.9	48.0	43.8	44.1	42.5	40.9	40.7	40.5	42.6	44.8	48.2	53.0	56.0	56.3	55.7	55.8	54.8	53.2	52.7	52.7	50.6	50.1	50.2	49.4	48.9	172.5
28 q	47.9	46.5	45.3	44.4	42.6	41.4	41.6	42.0	42.9	44.8	47.2	52.0	55.1	55.6	54.2	52.9	51.8	51.3	51.2	52.2	52.0	52.2	50.9	50.4	48.7	168.4
29 q	47.0	46.5	45.1	44.6	43.6	42.4	41.2	40.6	40.7	43.8	48.0	52.8	55.1	55.1	54.6	54.6	53.7	52.3	52.1	51.6	51.6	51.2	51.3	49.4	48.7	169.4
30	47.6	47.3	46.8	46.1	44.6	42.3	41.6	40.9	41.8	45.6	51.3	56.3	58.7	58.3	56.2	54.3	52.4	52.5	51.5	52.3	52.1	51.4	50.8	50.8	49.7	193.5
31	51.3	48.5	48.6	49.6	51.3	44.8	42.8	40.2	40.6	44.6	48.5	52.2	57.0	59.9	60.6	57.0	56.2	55.4	53.9	52.0	55.1	53.2	53.7	51.8	51.2	228.8
Mean	46.6	45.5	44.7	43.5	42.8	41.7	40.0	40.7	42.1	44.7	48.3	52.2	55.3	56.3	55.5	54.3	53.5	51.3	51.0	51.3	50.9	49.9	49.3	47.7	48.3	
Sum 1200.0+	244.0	210.2	185.0	148.1	127.8	91.3	39.0	63.4	104.4	185.8	296.1	419.1	515.3	545.9	520.3	482.0	459.8	389.0	381.9	391.8	376.3	348.1	327.1	278.6		Grand Total 35930.3

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

31

3 LERWICK (Z)		47,000γ (0.47 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 5000+
	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	
2	250	270	277	275	267	224	235	248	256	263	270	284	291	291	291	297	295	303	301	300	298	291	285	273	276	1635
3	274	263	248	229	229	241	258	267	275	279	279	275	272	273	278	281	287	289	281	273	270	273	275	264	268	1433
4	270	273	271	271	268	268	270	273	271	267	262	260	264	269	271	275	284	284	275	278	275	285	261	197	268	1442
5	236	264	269	271	269	266	263	263	260	261	251	254	261	268	280	313	325	324	316	316	298	268	231	208	272	1535
6	199	125	37	50	152	254	277	278	274	275	283	282	285	298	308	310	300	294	283	275	275	273	273	273	247	933
6 q	275	277	278	277	274	273	275	274	273	264	259	256	259	261	267	271	271	270	267	267	268	266	266	269	269	1457
7	270	273	275	278	275	273	271	268	269	258	251	252	258	260	264	271	278	277	287	277	271	264	258	251	268	1429
8	232	234	264	268	247	154	154	207	227	235	258	278	306	318	289	279	274	281	278	272	271	268	268	246	255	1108
9	252	254	232	237	262	263	269	267	274	274	271	274	275	275	283	307	303	300	321	307	295	281	266	255	275	1597
10	244	264	267	275	281	279	281	281	275	280	281	275	271	278	279	279	291	300	316	306	290	279	275	273	280	1720
11	262	236	256	269	277	282	283	278	278	271	274	278	285	291	291	289	291	314	318	314	298	278	264	208	279	1685
12 d	134	123	206	243	240	223	255	281	285	285	296	300	327	327	341	372	263	332	467	447	408	361	234	243	291	1993
13	278	285	285	293	300	287	289	296	305	307	313	321	326	333	319	305	309	300	302	300	304	291	278	282	300	2208
14 q	282	280	285	292	291	291	291	291	289	285	281	277	285	298	315	308	298	291	294	291	289	285	282	281	290	1952
15 d	282	275	267	258	267	278	285	286	278	269	260	269	262	266	305	287	287	303	323	328	320	258	104	71	266	1388
16 d	-16	62	48	36	-10	1	138	169	208	244	271	277	283	286	291	291	290	285	283	278	283	288	250	220	198	-244
17	256	273	280	281	283	283	277	275	273	275	275	283	302	296	290	286	318	339	316	291	280	278	277	273	286	1860
18	267	214	213	220	199	188	223	235	252	269	275	272	278	278	284	287	295	321	319	316	301	243	206	243	258	1198
19	268	266	225	231	242	261	275	281	281	286	287	283	291	291	291	294	302	298	295	294	282	275	246	241	274	1586
20	256	224	233	256	264	269	264	262	261	254	249	246	246	258	262	271	278	291	294	307	318	287	275	271	267	1396
21	260	248	228	245	253	247	242	252	259	262	259	260	268	279	275	284	289	306	323	322	305	255	241	261	268	1423
22	275	263	196	233	266	280	284	280	276	275	265	269	264	271	298	338	341	314	313	306	295	276	266	235	278	1679
23	222	216	227	218	240	269	278	278	270	267	259	253	254	262	274	286	297	312	321	311	301	284	274	271	269	1444
24 d	252	196	198	226	251	258	262	252	260	252	267	264	255	304	344	331	376	356	311	285	260	231	-22	-119	244	850
25	97	139	220	273	286	290	274	242	230	247	261	271	284	291	301	315	325	326	321	310	291	273	267	253	266	1387
26	196	223	264	279	287	289	291	292	294	289	287	275	270	276	276	279	284	292	306	292	279	277	270	267	276	1634
27 q	263	249	234	261	268	275	276	275	271	263	257	253	251	251	260	265	268	274	276	276	278	278	273	275	265	1370
28 q	273	272	273	274	273	276	277	276	271	261	253	253	255	255	256	256	260	269	275	271	270	270	271	270	267	1410
29 q	267	270	271	271	271	274	271	268	267	259	258	255	256	253	254	263	261	263	269	271	271	271	269	271	266	1374
30	270	269	268	268	268	271	271	275	278	271	265	255	242	247	258	258	260	265	268	269	271	273	271	270	266	1381
31	267	266	263	258	254	238	251	263	271	271	267	261	258	267	305	335	342	331	332	298	278	290	280	200	277	1646
Mean	239	237	237	246	251	252	262	266	268	268	269	270	274	280	287	293	295	300	298	298	290	277	256	235	269	
Sum 7000+	413	346	358	616	794	825	1110	1233	1311	1318	1344	1365	1484	1671	1900	2083	2142	2304	2251	2248	1993	1570	934	296		Grand Total 199,909

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

4 LERWICK														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 14,000γ +		Minimum 14,000γ +		Range	Maximum 9° +		Minimum 9° +		Range	Maximum 47,000γ +		Minimum 47,000γ +					Range	
	h. m.	γ	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ				°A.
1	20 31	568	477	12 42	91	14 22	58.9	41.5	21 25	17.4	17 24	305	214	05 34	91	2,3,2,2,2,2,2,2	17	0	80.3
2	20 37	562	488	11 45	74	13 27	54.6	35.8	05 58	18.8	17 29	291	225	04 24	66	3,2,2,2,1,1,2,2	15	0	80.6
3	22 58	591	490	12 20	101	23 13	62.6	40.2	07 24	22.4	21 26	291	165	23 10	126	1,0,1,1,1,2,1,4	11	0	80.3
4	20 26	599	340	24 00	259	21 52	61.8	40.0	08 31	21.8	16 55	329	172	23 45	157	3,1,2,2,2,2,2,5	19	1	80.1
5	18 04	561	31	00 49	530	13 15	62.2	-6.4	01 52	68.6	15 20	314	-24	02 56	338	6,6,2,3,3,2,2,1	25	1	80.0
6 q	18 47	563	473	11 49	90	13 04	56.3	39.6	07 45	16.7	02 40	281	254	11 23	27	0,0,1,1,1,2,0,0	5	0	79.9
7	23 47	598	475	10 35	123	13 31	57.9	37.6	08 03	20.3	18 26	291	242	23 50	49	1,0,1,2,2,1,1,3	11	0	79.8
8 d	00 00	582	422	10 27	160	14 30	62.8	34.8	07 26	28.0	13 32	325	123	05 47	202	3,5,4,4,3,3,2,2	26	1	80.2
9	17 28	622	456	11 37	166	14 26	62.7	36.8	07 41	25.9	18 27	326	210	02 55	116	3,3,2,3,2,4,4,2	23	1	80.6
10	17 42	650	472	10 32	178	13 35	59.5	36.4	07 07	23.1	18 52	323	234	00 15	89	3,2,3,3,4,4,2,3	24	1	80.7
11	18 18	655	467	10 41	188	24 00	66.6	34.2	08 05	32.4	17 51	325	156	24 00	169	2,2,3,3,3,4,3,4	24	1	80.9
12 d	16 43	1664	168	03 51	1496	16 52	153.5	17.3	04 15	136.2	18 32	491	-251	16 51	742	5,7,5,4,5,8,6,6	46	2	81.2
13	20 57	593	452	08 44	141	14 55	54.6	38.0	06 32	16.6	13 38	340	271	00 00	69	1,2,3,2,3,3,3,3	20	0	81.6
14 q	18 15	552	469	12 11	83	15 31	51.9	38.8	07 00	13.7	14 48	316	275	11 37	41	1,2,1,1,3,2,1,1	12	0	81.9
15 d	18 00	752	213	22 28	539	13 41	60.8	22.0	22 50	38.8	18 58	337	34	22 34	303	2,2,2,4,5,6,5,6	32	1	82.0
16 d	22 23	583	-15	00 40	598	04 40	74.8	5.2	00 42	69.6	22 09	300	-157	00 40	457	7,6,5,3,2,2,2,4	31	2	82.2
17	16 17	634	461	10 34	173	12 09	58.1	37.1	08 41	21.0	17 02	343	246	00 00	97	2,1,2,3,3,4,3,2	20	1	82.5
18	18 28	665	399	22 24	266	21 55	62.6	28.0	22 33	34.6	17 55	337	159	05 16	178	4,4,3,2,2,4,4,5	28	1	82.4
19	19 26	606	424	10 38	182	19 52	59.7	32.8	07 07	26.9	16 56	307	202	02 49	105	3,3,2,3,3,3,3,3	23	1	82.0
20	18 54	613	488	09 16	125	00 56	58.0	37.0	20 29	21.0	20 17	335	215	01 10	120	3,2,1,2,2,3,3,2	18	1	84.0
21	18 54	632	475	09 45	157	13 23	60.5	36.0	21 34	24.5	18 39	330	215	02 29	115	3,3,2,2,2,4,3,3	22	1	84.2
22	17 54	616	480	09 07	136	13 22	60.7	36.4	06 21	24.3	16 05	348	183	02 18	165	4,3,2,2,3,3,3,3	23	1	84.0
23	18 31	612	466	09 42	146	14 03	58.3	33.0	05 45	25.3	18 03	324	206	01 12	118	3,3,2,3,2,3,3,2	21	0	84.1
24 d	16 16	633	-254	23 14	887	15 37	66.7	-8.3	23 12	75.0	16 30	391	-400	23 13	791	4,3,4,4,4,4,4,8	35	2	84.2
25	17 20	625	-90	00 18	715	14 35	56.1	16.0	00 34	40.1	17 00	338	13	00 20	325	8,3,3,3,3,4,3,3	30	2	84.1
26	17 38	598	474	10 41	124	19 50	55.2	37.4	08 27	17.8	18 42	309	177	00 31	132	4,1,1,2,2,3,3,2	18	0	84.2
27 q	20 32	561	480	10 51	81	13 35	56.8	38.8	07 00	18.0	20 50	280	223	02 23	57	3,2,1,2,1,1,1,1	12	0	84.2
28 q	21 36	568	499	12 45	69	13 13	56.0	40.6	05 10	15.4	05 16	278	250	10 53	28	1,1,1,1,1,0,1,1	7	0	84.1
29 q	18 58	575	497	11 26	78	12 55	55.6	39.9	08 10	15.7	05 18	275	250	14 11	25	1,1,1,2,0,1,1,1	8	0	84.2
30	20 03	582	488	14 19	94	12 43	59.1	40.6	07 44	18.5	08 32	280	241	12 43	39	2,1,1,2,3,2,2,1	14	0	84.0
31	18 24	662	491	24 00	171	14 57	62.8	37.0	07 47	25.8	15 40	351	166	23 27	185	1,3,2,2,4,3,4,4	23	1	84.2
Mean	- -	641	376 - -	265	- -	62.8	31.4 - -	31.4 - -	323	145 - -	178	- -	- -	- -	- -	0.71	- -	- -	82.2

**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) +																								JUNE 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 12,000+
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
1	505	506	515	530	529	534	533	522	511	507	506	511	519	529	537	546	571	569	581	565	571	570	561	547	536	536	875
2	541	552	544	537	540	529	521	511	509	516	505	506	537	519	522	589	600	630	620	588	576	555	532	466	544	544	1045
3	492	511	504	496	504	513	518	511	500	483	479	468	478	530	572	578	606	605	591	581	565	552	540	543	530	530	720
4 d	540	499	533	544	540	523	485	508	515	483	486	486	514	512	527	549	583	582	578	579	594	564	553	460	531	531	737
5	510	535	528	510	526	538	533	523	510	501	492	505	501	525	529	552	564	554	565	571	569	559	554	546	533	533	800
6	548	547	545	550	550	552	550	543	524	515	492	489	515	527	519	557	570	618	596	597	573	573	553	546	548	548	1149
7	538	544	546	547	542	538	539	525	507	501	498	500	524	524	549	558	560	572	591	579	584	565	557	554	543	543	1042
8	553	548	544	550	548	548	545	519	500	503	504	500	509	532	554	583	576	599	614	597	590	576	562	552	550	550	1206
9	557	556	561	559	549	537	555	552	518	476	475	495	498	489	530	548	574	613	621	597	580	570	560	550	547	547	1120
10	541	517	522	487	479	522	530	523	509	492	497	508	518	537	548	558	565	566	571	571	571	556	549	550	533	533	787
11	546	550	548	540	545	542	533	529	514	505	485	525	511	529	601	596	628	566	568	569	561	555	543	536	547	547	1125
12 q	538	541	537	539	537	531	520	504	492	483	483	484	497	513	528	534	541	574	587	569	575	550	549	546	531	531	752
13 q	546	547	546	546	547	541	536	526	505	486	477	485	507	523	533	543	555	563	566	563	561	557	553	554	536	536	866
14	555	552	552	554	548	547	541	530	521	504	497	518	530	512	540	518	555	555	558	566	569	576	569	547	542	542	1014
15	552	561	560	558	552	538	511	485	499	498	499	488	495	514	535	547	564	573	570	568	575	566	561	556	539	539	925
16 q	560	556	552	542	537	542	536	520	507	496	505	512	532	523	527	528	542	570	584	582	592	576	558	546	543	543	1025
17 q	544	545	548	552	546	539	532	523	512	499	496	511	527	541	557	563	571	589	601	582	596	576	557	549	548	548	1156
18	543	538	538	528	540	545	540	529	514	507	501	505	518	514	535	536	571	591	566	581	579	568	555	555	542	542	997
19	557	553	550	540	542	523	519	516	503	487	486	488	511	520	555	566	569	586	581	566	574	563	560	556	540	540	971
20	562	543	540	550	551	550	537	523	511	504	499	496	507	517	546	557	559	572	585	578	578	563	561	548	543	543	1037
21	543	549	549	548	548	541	529	521	514	504	498	495	512	531	545	555	559	591	597	593	587	572	560	552	546	546	1093
22	550	549	548	548	552	550	534	514	493	492	493	499	516	514	533	563	576	594	619	611	596	575	573	578	549	549	1170
23	563	556	554	553	553	546	539	525	507	495	491	486	501	513	528	584	616	650	661	632	611	557	485	503	550	550	1209
24	488	389	450	414	469	522	529	523	516	496	477	476	488	502	512	528	552	578	642	616	580	563	540	540	516	516	390
25 q	542	535	539	546	545	540	536	523	513	486	482	482	488	512	532	536	555	568	583	592	594	579	578	563	539	539	939
26	534	537	540	548	537	549	540	511	470	467	461	472	499	519	536	551	597	611	592	557	555	550	540	538	534	534	811
27 d	537	538	540	540	540	529	522	512	501	504	505	501	522	514	636	632	746	769	658	579	576	525	493	511	560	560	1430
28 d	425	463	436	384	445	494	471	453	450	462	488	499	516	559	682	771	766	695	623	600	598	572	539	537	539	539	928
29 d	481	527	544	537	480	485	483	478	456	480	441	483	529	552	512	656	731	675	617	600	552	419	429	498	527	527	645
30 d	355	395	477	510	534	520	500	506	471	417	452	463	481	665	820	807	711	681	601	566	539	515	509	517	542	542	1012
Mean	528	528	533	530	532	534	527	516	502	492	488	495	510	527	556	576	594	602	596	583	577	557	544	538	540	540	
Sum 14,000+	1846	1839	1990	1887	1955	2008	1797	1488	1062	749	650	836	1300	1811	2680	3289	3833	4059	3887	3495	3321	2717	2333	2144			Grand Total 388,976

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

2 LERWICK (D)		9° +																								JUNE 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 1100.0+
1		40.2	41.8	40.2	38.9	38.5	39.8	40.2	43.1	44.8	45.0	47.7	51.3	53.4	54.6	55.2	55.6	55.8	54.6	54.2	52.7	52.5	49.8	47.0	43.9	47.5	40.8
2		43.6	46.4	43.7	42.4	42.4	38.8	39.8	42.0	44.4	46.6	49.6	53.4	57.1	56.4	58.0	58.7	53.5	56.8	55.6	54.6	54.6	53.3	50.6	48.2	49.6	90.5
3		45.0	44.6	39.7	30.6	33.1	38.5	40.0	44.1	44.6	42.5	47.5	51.3	54.2	55.8	56.6	53.9	54.4	52.2	52.7	54.1	56.4	53.2	51.4	49.5	47.7	45.9
4	d	48.4	50.3	44.5	42.4	42.7	42.2	47.0	50.3	44.8	47.2	49.2	53.3	56.3	58.0	57.2	56.0	56.6	56.5	54.9	53.1	54.2	41.8	50.7	40.2	49.9	97.8
5		41.0	47.4	48.1	49.7	47.7	42.8	40.7	40.2	40.4	43.3	48.1	51.6	52.4	55.1	55.1	56.2	54.1	51.9	51.7	50.5	48.1	48.3	49.7	48.1	48.4	62.2
6		48.4	47.5	46.5	45.5	44.8	43.9	42.4	40.7	42.8	43.4	47.4	53.2	57.2	56.6	56.1	54.9	53.7	53.5	49.6	48.4	51.5	53.0	50.8	46.6	49.1	78.4
7		49.6	46.4	45.3	46.5	48.9	47.0	41.2	38.5	41.7	44.8	47.6	51.7	56.3	56.8	56.7	56.1	54.8	53.6	53.1	52.5	51.5	50.3	49.4	49.7	91.8	
8		48.2	46.6	44.8	43.5	41.3	40.5	41.0	43.8	45.5	48.1	49.4	50.2	52.5	54.4	53.9	53.3	53.0	51.8	53.9	52.3	52.8	45.5	49.8	51.2	48.6	67.3
9		50.2	49.4	46.5	47.3	51.3	48.4	46.2	44.7	37.6	37.1	43.6	52.4	53.7	57.7	59.4	58.1	56.8	53.2	54.2	53.2	50.2	51.3	52.8	50.2	50.2	105.5
10		51.1	50.0	43.1	43.6	52.0	43.2	40.0	38.5	41.0	46.5	46.5	49.3	52.1	54.5	54.3	52.9	52.7	52.2	51.1	49.9	49.3	49.1	48.4	49.3	48.4	60.6
11		49.2	47.2	47.2	45.7	42.5	41.2	41.3	41.2	42.3	41.2	48.2	49.6	55.3	55.6	58.9	50.1	48.4	50.4	51.4	51.8	53.2	52.2	51.3	49.4	48.5	64.8
12	q	48.3	47.5	46.5	44.8	43.6	40.7	40.9	39.8	38.4	39.8	43.4	47.6	51.4	53.1	54.7	55.9	55.2	54.9	52.4	50.3	50.8	50.3	50.3	49.6	47.9	50.2
13	q	48.6	47.8	47.0	46.0	43.6	42.9	41.0	40.7	41.6	42.7	43.4	46.7	52.0	53.5	54.4	55.4	55.2	52.9	51.1	51.2	50.6	50.5	49.8	48.2	48.0	56.8
14		47.4	46.7	46.7	46.0	44.4	39.1	37.4	37.8	40.0	42.6	46.0	49.8	52.4	53.0	52.1	52.4	52.0	52.3	52.4	52.2	52.0	52.0	47.2	49.5	47.6	43.4
15		48.1	48.5	47.5	46.6	44.5	41.2	39.3	39.3	40.4	47.7	48.3	53.2	56.8	57.2	55.2	52.7	51.4	51.1	51.2	51.0	50.8	51.2	50.8	49.4	48.9	73.4
16	q	50.3	49.2	48.6	47.6	45.5	42.5	40.7	39.9	39.8	43.7	47.5	50.8	52.4	53.4	53.0	52.7	52.2	50.4	50.2	52.0	53.0	52.2	49.8	51.1	48.7	68.5
17	q	49.4	46.5	44.8	43.7	42.6	40.9	39.7	39.7	40.2	42.4	45.6	49.4	51.8	54.2	55.6	56.3	55.8	54.5	55.1	55.2	56.0	55.0	47.4	47.4	48.7	69.2
18		46.4	44.6	45.4	41.8	40.7	38.5	38.0	37.4	40.7	45.5	49.6	54.6	57.5	57.0	57.5	56.6	55.8	55.0	52.8	52.0	52.0	48.4	48.6	48.8	48.5	65.2
19		48.4	46.6	46.2	44.7	43.1	39.7	41.8	41.7	45.4	47.5	51.8	56.3	60.0	61.0	61.2	57.1	54.8	54.1	54.1	52.9	51.4	49.0	48.9	48.9	50.3	106.6
20		49.5	51.8	46.4	42.2	40.1	37.9	37.4	38.8	38.9	41.4	46.5	51.9	56.1	58.8	59.1	57.6	54.1	53.2	54.2	52.0	51.4	52.1	50.5	43.7	48.6	65.6
21		45.5	46.3	43.8	43.3	41.1	39.6	38.3	40.7	40.0	42.8	46.7	51.1	55.6	57.8	58.1	57.8	54.4	55.2	53.2	51.3	48.9	48.1	48.9	47.4	48.2	55.9
22		46.7	44.8	46.2	46.7	44.1	42.6	37.8	35.8	39.5	41.8	48.9	53.3	59.7	63.0	62.8	60.0	57.1	57.0	58.0	56.4	54.2	53.0	50.1	49.8	50.4	109.3
23		50.8	48.1	46.7	43.5	41.6	38.2	39.3	38.6	38.9	42.6	47.2	53.0	57.8	59.1	59.1	59.9	59.2	52.7	55.8	56.0	55.6	49.3	43.5	42.5	49.1	79.0
24		44.6	38.3	34.0	29.1	36.9	42.4	40.2	39.5	40.7	41.4	46.0	50.3	54.6	58.0	57.9	55.1	52.0	48.6	45.0	51.2	50.4	48.7	48.6	44.1	45.7	2.4
25	q	42.0	43.4	45.5	45.5	44.6	42.4	40.5	39.1	40.7	43.3	48.4	53.2	56.6	59.2	59.0	57.1	54.9	53.9	54.2	54.3	53.7	52.2	49.6	41.4	48.9	74.7
26		38.3	41.5	41.5	44.3	47.6	42.8	44.3	41.7	40.9	44.3	48.5	53.7	57.7	60.1	59.9	58.2	50.3	51.8	52.1	52.2	52.2	51.4	49.8	49.1	77.3	
27	d	48.4	47.2	45.5	44.6	42.6	40.7	39.5	37.8	39.0	41.9	45.6	53.2	59.4	63.3	65.6	54.7	64.2	66.9	54.9	54.4	56.3	53.2	53.9	46.2	50.8	119.0
28	d	46.0	32.0	24.9	34.1	36.9	35.4	36.4	38.9	38.7	46.0	45.4	47.3	50.4	49.4	48.6	53.2	58.2	61.4	55.8	58.0	54.8	53.4	53.2	53.2	46.3	11.6
29	d	50.3	44.4	46.6	50.3	45.4	42.8	33.8	28.2	27.9	34.5	38.7	55.5	58.2	59.4	55.9	55.6	55.1	59.0	59.2	58.1	57.9	49.3	51.3	46.5	48.2	57.7
30	d	42.7	49.4	35.9	37.0	38.6	38.0	36.4	39.0	34.9	44.6	46.7	51.0	53.4	52.2	55.6	54.0	51.8	52.2	51.8	52.7	52.0	49.7	44.4	44.3	46.2	8.3
Mean		46.9	46.1	44.0	43.3	43.1	41.1	40.1	40.1	40.5	43.4	47.0	51.6	55.1	56.6	56.9	55.6	54.6	54.1	53.2	52.9	52.6	50.4	49.7	47.6	48.6	
Sum 1200.0+		206.6	182.2	119.3	97.9	92.7	34.6	2.5	1.5	16.5	102.2	209.0	349.2	454.3	498.2	506.7	468.1	437.5	423.8	395.9	386.5	378.3	312.6	291.0	227.8		Grand Total 34994.9

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

33

3 LERWICK (Z)		47,000γ (0.47 C.G.S. unit) +																								JUNE 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 6000+
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
1	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	270	267	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	271	270	270	268	262	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	262	265	272	281	277	268	272	276	274	266	261	263	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	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	268	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		TERRESTRIAL MAGNETIC ELEMENTS												3-hr. range indices K		Sum of K indices	Magnetic character of day (0-2)	Temperature in magnet house 260 +
Horizontal force						Declination			Vertical force			Range						
Maximum 14,000γ +	Minimum 14,000γ +	Range	Maximum 9° +	Minimum 9° +	Range	Maximum 47,000γ +	Minimum 47,000γ +	Range										
	h. m. γ	γ h. m.	γ	h. m. γ	γ h. m.	γ	h. m. γ	γ h. m.	γ	h. m. γ	γ h. m.	γ						
1	18 06	597	487 00 04	110	16 18	56.8	35.7 00 14	21.1	19 00	284	190 00 50	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	233 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	26	1	85.0		
28 d	15 32	794	281 00 52	513	17 30	65.8	20.7 02 48	45.1	15 20	428	77 03 20	351	5,5,4,3,5,5,4,4	35	2	85.6		
29 d	16 04	766	332 21 47	434	21 40	75.4	2.8 21 11	72.6	15 57	402	40 21 37	362	4,4,4,4,4,5,6,6	37	2	85.4		
30 d	15 03	847	216 00 53	631	14 58	62.9	31.0 08 14	31.9	15 45	481	103 01 30	378	6,4,3,4,6,5,4,3	35	2	84.9		
Mean	- -	640	441 - -	199	- -	60.7	33.4 - -	27.3	- -	326	183 - -	143	-	-	0.67	84.3		

**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) +												JULY 1959	
	Hour G.M.T.	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean	Sum 8000+
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
1 q	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	607	619	608	598	574	563	551	559	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.	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 1000.0+
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	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	
17 d	51.5	45.6	42.6	43.1	45.5	44.8	39.0	36.9	33.7	35.9	42.4	48.7	50.6	52.1	51.8	52.2	52.4	56.0	70.0	79.2	72.5	36.4	59.8	44.7	49.5	187.4	
18 d	47.7	49.5	39.5	36.9	27.8	25.7	31.6	19.1	26.3	43.6	49.2	51.2	51.6	51.4	52.3	54.4	58.4	56.1	50.4	50.8	51.3	56.1	49.2	40.7	44.6	70.8	
19	40.4	38.8	36.9	38.8	37.2	37.4	37.4	34.0	34.5	35.9	40.6	44.8	49.1	50.8	51.3	53.4	50.3	50.3	52.4	50.3	51.5	52.0	51.3	48.6	44.5	68.0	
20	48.3	45.3	44.8	45.0	42.9	39.9	38.1	38.8	36.9	40.7	43.1	48.4	53.3	55.6	55.6	55.2	56.1	54.0	51.6	53.9	53.0	51.6	48.2	45.9	47.8	146.2	
21	37.4	38.1	39.6	42.6	40.2	40.3	37.6	38.3	38.8	41.9	45.0	49.6	53.7	57.1	56.8	53.0	52.7	55.2	53.8	52.3	44.9	47.2	48.8	49.2	46.4	114.1	
22	49.4	50.3	45.7	42.4	39.0	39.6	39.6	39.6	41.1	44.5	50.1	53.5	57.1	59.0	59.1	54.2	51.3	51.9	51.6	51.7	51.3	49.8	43.6	44.8	48.3	160.2	
23	45.3	44.7	43.6	41.1	40.2	41.5	43.2	41.4	40.6	41.5	44.6	49.2	54.7	56.0	56.8	55.8	55.3	53.5	52.9	52.3	49.2	45.1	47.6	47.8	47.7	143.9	
24	50.6	42.9	43.1	42.5	41.0	38.1	37.7	38.2	38.6	40.1	47.6	50.2	51.3	54.9	54.7	57.1	56.7	58.2	54.4	53.1	47.3	42.9	43.0	37.3	46.7	121.5	
25 d	43.6	49.4	46.3	37.6	38.1	41.0	39.4	37.9	37.9	44.5	45.6	50.2	54.7	56.8	55.2	52.5	51.8	55.6	55.8	49.5	52.4	50.1	48.9	41.8	47.4	136.6	
26	44.6	42.4	46.7	46.5	41.4	36.4	35.9	35.9	40.5	43.2	47.3	51.8	52.0	54.2	53.9	55.7	52.2	56.1	55.8	53.2	48.7	45.8	46.5	51.0	47.4	137.7	
27	47.2	46.8	53.2	45.8	40.5	40.7	40.2	39.7	39.6	40.8	42.6	48.7	52.3	56.4	54.5	52.2	50.6	51.8	48.5	52.3	53.8	51.6	49.3	47.7	47.8	146.8	
28	51.6	54.7	48.9	43.2	37.8	36.4	35.3	36.9	38.3	40.8	43.7	47.7	52.2	54.5	53.7	52.6	50.2	50.8	47.1	48.4	49.7	49.5	46.2	46.8	46.5	117.0	
29 q	47.6	49.6	49.4	49.1	48.4	38.6	39.3	39.4	40.1	42.4	45.8	49.9	54.7	58.7	56.9	53.5	52.1	50.5	50.8	48.8	48.4	49.1	47.5	46.6	48.2	157.2	
30 q	46.6	44.9	46.3	44.8	42.1	39.8	37.8	37.7	38.5	40.5	44.6	49.4	53.3	54.3	53.8	52.0	49.9	49.3	49.1	48.9	49.6	50.1	49.4	48.6	46.7	121.3	
31	49.4	50.4	51.4	48.6	51.1	46.5	45.6	42.4	43.9	47.3	50.1	53.0	57.9	60.0	56.4	54.4	51.3	49.4	47.7	50.5	51.0	52.1	44.8	44.0	50.0	199.2	
Mean	46.5	45.8	44.9	44.4	42.2	40.5	39.7	38.9	38.8	40.3	44.6	49.2	52.4	54.3	54.7	54.2	56.3	55.9	54.9	54.1	52.9	50.0	50.7	47.2	48.1		
Sum 1200.0+	242.4	219.4	190.7	177.2	108.5	54.7	30.0	6.2	2.6	48.3	183.9	325.4	425.2	484.4	496.6	480.3	545.0	531.4	502.5	476.6	439.0	351.2	370.7	264.4		Grand Total 35756.6	

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

35

3 LERWICK (Z)												47,000γ (0·47 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 4000+											
	0-1	1-2																																			
1 q	263	277	278	278	286	290	296	299	301	297	288	281	281	282	284	286	285	290	286	284	282	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	2144											
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	2483											
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	2703											
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	2808											
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	2963											
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	2877											
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	2965											
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	2843											
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	2483											
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	2624											
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	2963											
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	2815											
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	2963											
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	703											
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	3445											
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	2791											
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	2966											
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	2680											
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	2743											
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	2751											
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	2638											
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	2363											
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	2338											
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	2441											
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	2365											
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	2487											
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	2780											
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	2519											
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	2673											
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	2745											
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 + °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									
	h. m.	γ	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ									
1 q	18 14	573	477	10 54	96	14 12	54·7	36·2	07 42	18·5	08 50	304	214	24 00	90	2,1,1,1,1,2,1,3	12	0	84·5	
2	15 46	575	402	05 33	173	05 40	57·7	30·0	03 07	27·7	16 34	343	109	05 21	234	4,4,5,2,3,2,2,1	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	2,2,2,2,3,1,1,1	14	0	84·6	
4	20 34	664	475	10 42	189	20 48	62·1	39·4	07 28	22·7	16 54	323	214	23 18	109	1,1,1,3,3,4,4,4	21	1	84·7	
5	18 56	628	489	10 50	139	12 43	58·7	39·3	20 02	19·4	19 53	347	229	00 08	118	3,3,2,2,3,2,3,2	20	1	84·6	
6	16 59	598	494	10 47	104	15 18	60·4	38·9	06 23	21·5	14 47	334	268	24 00	66	1,1,2,2,3,3,2,2	16	1	85·0	
7	17 35	608	484	09 18	124	03 17	58·0	38·6	05 36	19·4	16 36	346	220	03 46	126	2,3,3,3,3,3,3,1	21	1	85·0	
8	18 10	638	477	09 14	161	14 08	56·1	40·4	06 58	15·7	15 37	365	224	04 16	141	1,3,2,3,3,3,4,2	21	1	85·2	
9	16 40	650	479	06 43	171	15 16	57·9	42·5	21 02	15·4	17 43	354	223	05 05	131	2,3,3,2,2,4,3,3	22	1	85·1	
10	18 46	600	494	11 04	106	03 58	59·6	39·0	01 53	20·6	13 02	300	170	01 52	130	4,3,3,3,1,2,2,1	19	1	85·0	
11	18 45	799	104	23 47	695	20 15	68·7	26·5	23 43	42·2	20 20	443	125	02 12	318	5,4,3,2,3,5,5,7	34	2	84·9	
12	14 22	605	196	00 10	409	00 07	71·3	31·1	04 30	40·2	14 28	399	96	01 00	303	6,3,2,2,4,3,2,2	24	1	85·0	
13 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	2,3,2,1,3,3,2,3	19	1	84·9	
14	14 19	657	463	04 55	194	16 14	57·8	37·0	07 00	20·8	14 30	423	201	04 04	222	3,3,3,2,5,4,3,1	24	1	84·9	
15 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	5,5,9,9,9,9,8,9	63	2	84·7	
16 d	19 09	643	-370	00 44	1013	23 51	59·8	-4·8	00 44	64·6	00 39	400	166	00 17	234	8,5,4,3,4,4,4,4	36	2	84·8	
17 d	19 28	1099	-149	23 33	1248	19 08	96·4	-29·3	21 29	125·7	23 20	604	-122	23 56	726	4,5,4,3,3,6,8,8	41	2	84·9	
18 d	15 58	779	-659	05 37	1438	01 26	87·7	-25·3	05 29	113·0	01 39	696	-47	00 13	743	8,8,8,4,4,6,4,6	48	2	85·2	
19	16 41	715	272	01 40	443	16 58	57·1	25·7	02 14	31·4	16 34	353	126	02 52	227	5,5,3,3,4,5,3,3	31	1	85·3	
20	17 27	628	444	09 47	184	16 25	57·7	33·9	23 55	23·8	18 08	345	140	24 00	205	3,3,2,3,3,4,3,5	26	1	85·3	
21	17 41	606	457	10 56	149	14 08	58·6	33·0	00 35	25·6	15 40	320	139	00 02	181	4,3,2,2,4,3,3,3	24	1	85·5	
22	22 04	597	464	10 50	133	14 09	60·7	36·0	06 07	24·7	16 04	341	180	23 00	161	3,3,2,2,3,3,2,4	22	1	85·5	
23	20 23	580	416	00 48	164	14 22	57·1	35·5	08 00	21·6	21 14	318	105	01 10	213	4,3,3,2,3,2,2,3	22	1	85·6	
24	18 17	661	472	22 19	189	17 11	60·5	32·6	22 44	27·9	18 48	329	146	22 09	183	3,2,2,4,3,3,4,4	25	1	85·9	
25 d	18 36	714	416	01 36	298	14 05	61·2	31·0	23 03	30·2	14 52	336	159	23 26	177	4,3,3,4,3,4,5,5	31	1	86·0	
26	17 30	744	352	03 22	392	19 07	62·8	32·0	07 26	30·8	18 24	349	35	23 52	314	3,5,3,3,4,5,5,5	33	1	86·1	
27	17 34	634	293	02 22	341	02 23	60·9	35·3	08 22	25·6	18 50	332	89	00 00	243	5,4,3,3,2,3,4,4	28	1	86·5	
28	18 35	584	465	01 17	119	02 22	56·6	33·1	05 56	23·5	14 22	323	180	01 50	143	4,3,2,2,3,3,2,3	22	1	86·5	
29 q	18 22	570	438	03 42	132	13 29	59·6	36·5	06 05	23·1	17 31	293	194	04 27	99	2,3,3,2,2,1,2,1	16	0	86·2	
30 q	21 11	563	476	11 17	87	13 41	54·4	37·0	07 13	17·4	07 04	290	261	12 41	29	1,1,0,1,1,1,2,1	8	0	85·8	
31	17 41	600	478	11 27	122	13 25	61·6	41·4	07 37	20·2	18 32	339	235	05 30	104	2,3,2,2,3,3,3,3	21	0	85·6	
Mean	-	-	717	306	-	411	-	68·1	24·9	-	43·2	-	376	115	-	260	-	-	1·00	85·3

**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) +												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+								
	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									
1	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									
2	524	523	508	494	488	486	500	507	502	489	481	483	501	521	541	557	549	577	574	577	558	550	548	549	529	524	3587									
3	545	538	508	512	534	539	527	489	512	520	507	491	466	487	505	526	579	581	572	584	570	547	533	530	524	529	3702									
4	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	527	3727									
5	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									
6	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	4023										
7	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	3855										
8	525	534	533	539	541	535	517	501	487	482	480	502	499	519	567	590	567	564	556	550	548	551	562	525	532	3774										
9	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	4048										
10	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	3558										
11	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	3741										
12 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	3844										
13 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	3784										
14 q	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	3831										
15	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	4014										
16 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	568	4639										
17 d	-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	493										
18	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	2909										
19	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	3251										
20 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	3755										
21 d	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	3425										
22	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	3306										
23 d	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	3657										
24	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	3381										
25	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	3672										
26	523	532	532	534	532	527	517	496	479	481	480	478	482	505	529	538	542	548	552	559	557	548	542	540	523	3553										
27 q	528	523	534	535	534	528	518	506	493	479	481	487	499	518	524	531	534	537	548	549	549	545	540	540	523	3560										
28 q	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	3594										
29	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	4015										
30	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	3739										
31	542	542	539	532	540	539	528	510	482	463	468	466	489	489	493	526	531	549	572	580	557	542	533	521	522	3533										
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											
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	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	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	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	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	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	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	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	38.9	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	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	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	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	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	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	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	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	51.8	60.9	59.1	62.6	63.4	55.1	50.4	45.5	46.6	12.7	46.4	312.7											
17 d	9.0	-45.3	-20.3	20.5	39.9	50.1	36.6	44.6	35.8	36.4	37.0	43.5	47.6	45.1	46.4	51.2	58.6	49.4	51.6	51.4	45.8	56.8	42.1	45.0	36.6	78.8											
18	45.6	44.6	43.3	41.5	39.5	44.0	39.2	41.5	45.9	42.5	47.1	51.7	54.7	59.7	58.4	56.8	52.6	52.3	42.4	48.1	49.5	48.2	50.9	50.7	47.9	350.7											
19	45.3	44.7	49.2	37.3	45.1	34.2	39.4	41.6	38.2	42.4	44.9	49.2	53.9	56.8	55.7	56.0	52.3	52.6	52.8	44.9	46.6	48.2	49.0	47.2	47.0	327.5											
20 d	47.1	44.5	41.1	39.6	35.1	37.1	32.9	35.9	39.2	41.6	44.9	54.3	57.1	59.5	58.6	56.7	54.9	53.4	51.9	52.3	49.7	47.8	46.2	48.3	47.1	329.7											
21 d	46.4	36.1	43.0	43.8	41.1	35.3	35.1	38.2	39.5	41.7	45.5	50.9	54.7	57.7	55.7	53.1	52.4	50.5	47.1	50.9	47.8	47.6	44.0	41.1	45.8	299.2											
22	49.9	50.7	46.5	45.7	42.8	40.4	45.9	50.1	43.8	43.4	46.7	51.5	55.7	57.6	55.5	53.8	54.5	52.1	51.2	50.3	45.9	45.2	39.6	44.8	48.5	363.6											
23 d	47.8	49.2	49.7	43.8	39.9	41.1	37.6	36.8	38.2	40.7	44.3	49.7	55.5	58.7	57.7	56.9	55.5	48.1	46.9	48.0	47.6	47.8	41.9	46.9	47.1	330.3											
24	49.9	43.6	48.6	45.4	40.1	43.2	40.1	39.2	37.5	40.8	44.0	49.5	53.1	53.8	53.1	48.7	46.9	48.5	49.7	50.2	49.4	45.1	44.4	46.7	46.3	311.5											
25	44.5	50.1	45.9	44.2	43.0	42.1	40.3	37.9	37.9	41.5	46.1	50.9	55.6	56.0	56.8	51.9	49.0	47.9	49.4	49.5	49.1	50.1	46.9	44.7	47.1	331.3											
26	49.9	46.4	44.6	42.3	41.2	40.2	39.7	37.8	41.2	44.7	47.8	51.6	54.1	55.2	54.3	51.7	49.0	48.3	48.3	48.3	46.1	48.0	47.3	49.1	47.0	327.1											
27 q	53.2	51.1	45.2	42.5	41.5	39.7	39.0	38.1	38.8	42.8	46.8	51.2	53.4	54.0	52.4	50.3	48.2	47.4	48.4	49.1	49.1	48.4	48.3	47.4	46.9	326.3											
28 q	46.9	46.2	45.5	45.0	43.1	40.9	39.5	38.7	39.7	42.2	47.2	51.4	55.1	55.6	54.0	50.7	48.7	48.1	49.1	49.7	49.4	49.2	48.5	47.2	47.2	331.6											
29	45.4	44.6	42.4	44.0	44.4	43.7	42.8	42.6	43.5	45.4	49.3	48.2	51.0	51.4	43.0	40.7	44.9	42.1	44.6	44.6	47.8	54.1	54.2	58.7	46.4	313.4											
30	56.0	47.6	47.8	47.3	47.2	46.4	43.0	39.8	41.4	39.0	43.0	46.3	49.4	50.2	49.1	46.4	43.0	42.4	44.8	48.0	49.3	50.2	49.3	48.1	46.5	315.0											
31	47.5	47.1	48.2	47.3	42.5	40.6	38.7	38.7	39.7	42.3	47.4	49.7	52.9	53.8	52.8	50.2	46.2	45.3	45.9	46.4	43.4	47.3	45.1	44.0	46.0	303.0											
Mean	45.1	42.5	43.6	43.3	41.8	40.5	39.4	40.9	41.6	43.1	46.3	50.5	54.0	55.5	54.7	53.0	51.2	50.1	49.7	49.7	48.9	49.3	47.1	46.1	47.0												
Sum 1200.0+	196.9	115.9	150.8	141.1	94.6	54.4	22.7	67.9	90.2	135.9	234.3	366.1	475.0	519.7	495.2	442.6	386.4	351.7	339.9	339.8	316.8	327.7	261.7	229.9		Grand Total 34957.2											

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

37

3 LERWICK (Z)

47,000γ (0.47 C.G.S. unit) +

AUGUST 1959

	Hour G.M.T.	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean	Sum 5000+
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	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 + °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											
	h. m.	γ	γ	h. m.	γ	h. m.	h. m.	γ	γ	h. m.	γ									
1	16 00	649	473	11 58	176	16 04	59.6	41.4	02 23	18.2	18 15	365	188	00 54	177	4,3,3,3,4,4,3,2	26	1	85.4	
2	18 17	610	470	10 34	140	18 20	54.4	30.7	00 58	23.7	18 56	347	129	03 42	218	4,4,3,1,3,3,3,1	22	1	85.4	
3	17 52	602	444	12 34	158	14 23	55.8	34.1	04 52	21.7	16 47	351	176	03 37	175	4,4,3,3,3,3,2,1	23	1	85.2	
4	17 34	606	452	10 18	154	13 31	56.0	30.3	22 21	25.7	15 10	356	207	22 55	149	2,3,1,4,4,3,3,4	24	1	85.0	
5	17 40	633	478	09 33	155	13 18	56.1	40.1	07 33	16.0	18 21	350	268	11 00	182	1,2,1,2,4,4,3,2	19	1	85.1	
6	17 57	765	441	24 00	324	18 11	59.7	38.1	06 10	21.6	18 48	444	173	24 00	271	1,3,3,2,3,6,5,4	27	1	85.0	
7	16 42	659	404	00 18	255	13 41	60.0	33.3	00 29	26.7	17 19	383	138	00 17	245	5,3,2,2,3,4,3,3	25	1	85.1	
8	15 22	611	472	10 53	139	14 20	59.1	35.9	23 49	23.2	15 52	343	230	23 07	113	3,1,2,3,3,3,2,3	20	1	85.0	
9	17 01	727	432	11 45	295	18 22	68.2	37.2	06 47	31.0	16 55	424	155	02 22	269	4,3,3,3,4,4,4,3	28	1	85.0	
10	18 26	601	440	03 10	161	03 26	59.5	35.5	06 53	24.0	20 02	342	197	03 52	145	3,4,2,1,3,3,3,3	22	1	85.0	
11	15 50	596	479	10 47	117	00 18	57.4	36.0	04 46	21.4	16 30	342	217	00 52	125	3,3,2,2,3,3,1,1	18	0	85.1	
12 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	1,1,1,1,2,2,1,2	11	0	85.5	
13 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	2,1,1,2,2,2,2,1	13	0	85.7	
14 q	18 30	579	482	10 28	97	13 57	58.0	36.5	07 12	21.5	16 46	294	265	03 13	29	1,1,1,2,2,2,2,1	12	0	85.3	
15	15 04	635	395	22 10	240	21 58	75.2	29.8	22 23	45.4	19 57	326	154	24 00	172	3,2,1,3,4,4,3,5	25	1	85.8	
16 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	5,3,5,5,7,7,7,7	46	2	85.8	
17 d	17 22	1030	-454	03 33	1484	04 26	77.4	-108.7	01 40	186.1	03 33	601	-351	02 32	952	8,8,7,5,5,7,4,5	49	2	85.7	
18	18 40	660	306	03 23	354	13 48	61.6	28.1	18 34	33.5	18 27	370	174	05 30	196	3,4,4,3,4,4,4,3	29	1	85.2	
19	18 17	628	369	04 58	259	13 45	57.6	30.3	05 34	27.3	19 32	374	139	04 56	235	4,4,4,2,2,3,4,2	25	1	85.7	
20 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	3,5,4,4,4,3,3,3	29	1	85.0	
21 d	18 18	682	312	23 43	370	12 17	63.7	30.8	06 18	32.9	17 48	370	121	23 34	249	4,3,3,3,3,4,5,5	30	1	86.0	
22	20 44	622	288	00 29	334	10 47	59.3	30.5	20 42	28.8	18 16	338	78	00 50	260	5,3,4,3,3,3,4,3	29	1	86.5	
23 d	17 47	692	359	23 56	333	13 20	63.2	33.4	07 02	29.8	17 37	368	133	24 00	235	4,3,3,3,4,5,4,5	31	1	86.6	
24	16 47	573	406	00 27	167	10 14	57.3	33.4	06 59	24.3	15 53	341	114	00 13	227	4,3,3,3,3,3,1,3	23	1	86.3	
25	15 38	648	460	10 08	188	14 38	57.9	35.8	07 40	22.1	16 07	353	218	01 31	135	3,3,2,3,3,4,2,3	23	1	86.1	
26	20 00	565	472	11 42	93	13 59	55.4	36.9	07 06	18.5	08 05	299	206	00 19	93	3,1,2,1,2,1,2,2	14	0	85.8	
27 q	18 56	552	472	09 48	80	00 10	55.7	36.8	07 53	18.9	08 06	295	202	01 41	93	3,2,1,2,1,1,0,0	10	0	85.2	
28 q	24 00	562	472	10 37	90	13 01	56.2	38.0	07 22	18.2	06 21	289	269	11 10	20	0,1,1,2,1,2,1,1	9	0	85.0	
29	20 25	601	468	11 24	133	23 57	61.3	36.7	15 31	24.6	15 16	321	260	12 05	61	3,2,1,2,2,3,3,3	20	1	84.5	
30	15 57	586	474	09 14	112	10 24	61.6	38.2	09 30	23.4	16 40	344	281	00 00	63	3,2,2,2,2,3,2,1	17	0	84.8	
31	19 17	593	459	09 36	134	12 52	55.1	37.7	07 08	17.4	16 23	317	248	23 52	69	1,2,2,2,3,3,2,3	18	0	84.6	
Mean	--	653	385	--	268	--	60.8	28.1	--	32.8	--	354	163	--	191	--	--	0.77	--	85.4

**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.																												
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean	Sum 10,000+			
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ			
1	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	547	526	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	520	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.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

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

39

3 LERWICK (Z)		47,000γ (0.47 C.G.S. unit) +																				SEPTEMBER 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 6000+
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
1	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	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	
d	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	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	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	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	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	290	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	
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	-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	
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	
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	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	
q	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		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	h. m.	γ				°A.	
1		17 12	689	460 01 38	229	13 00	56.9	30.3 20 27	26.6	17 20	457	151 01 43	306	4,3,2,3,3,5,5,2	27	1	84.6	
2		18 57	627	352 05 03	275	13 22	56.2	26.1 02 25	30.1	19 18	376	111 02 01	265	5,5,4,4,2,3,4,4	31	1	84.7	
3		18 15	684	-637 23 22	1321	11 24	57.1	-37.1 23 33	94.2	23 34	780	85 22 27	695	4,2,2,2,3,4,5,9	31	2	84.8	
4	d	16 12	902	-234 03 29	1136	14 57	67.7	-30.4 03 31	98.1	00 11	606	-135 22 13	741	7,8,5,5,6,6,6,7	50	2	85.0	
5		17 51	619	163 01 30	456	23 52	61.8	17.4 23 55	44.4	18 22	358	-83 23 51	441	6,4,3,3,4,4,3,6	33	2	84.9	
6		21 20	544	-88 00 42	632	13 03	57.6	16.2 00 07	41.4	15 20	327	-170 00 54	497	7,3,3,2,2,2,1,0	20	1	85.0	
7	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	1,1,2,2,3,3,2,1	15	0	85.0	
8	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	1,1,2,3,2,3,1,3	16	0	85.3	
9	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	3,1,2,2,1,2,1,2	14	0	85.0	
10	q	22 24	580	490 10 00	90	13 45	56.4	30.9 22 44	25.5	22 10	297	248 23 53	49	1,1,1,2,2,2,1,3	13	0	85.0	
11		21 33	567	471 12 40	96	13 37	61.5	35.7 23 43	25.8	15 46	309	158 24 00	151	2,3,3,3,3,2,3,4	23	1	85.2	
12		15 35	568	467 10 25	101	13 35	54.9	27.3 02 09	27.6	16 15	342	131 00 21	211	4,3,2,2,2,3,2,1	19	1	85.0	
13		22 03	643	463 23 19	180	00 50	57.8	23.1 23 02	34.7	08 02	293	124 23 17	169	3,1,2,1,2,2,1,5	17	1	85.0	
14		16 50	565	479 08 13	86	13 59	59.4	28.8 21 45	30.6	15 22	330	181 00 00	149	3,2,3,3,3,3,2,3	22	1	84.8	
15		16 24	597	491 09 40	106	13 26	59.9	26.4 20 55	33.5	17 39	353	224 21 51	129	2,1,2,2,3,3,4,4	21	1	84.8	
16		19 53	572	436 02 14	136	14 55	55.5	23.5 02 40	32.0	16 15	332	146 02 12	186	4,3,2,2,3,2,3,3	22	1	84.7	
17		20 50	625	483 12 21	142	14 40	59.5	27.4 21 02	32.1	20 59	336	266 23 00	70	2,2,1,2,3,3,4,4	21	1	84.4	
18		18 43	579	374 23 12	205	23 09	63.4	23.3 22 28	40.1	18 58	363	-12 24 00	375	3,2,2,3,3,3,4,6	26	1	84.3	
19		23 23	564	283 04 20	281	11 59	60.5	22.4 01 38	38.1	08 55	298	-22 00 02	320	5,6,3,4,4,2,1,2	27	1	84.7	
20	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	4,4,3,3,5,5,7,8	39	2	84.7	
21	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	7,6,6,3,6,7,5,5	45	2	84.7	
22	d	14 53	648	-412 02 06	1060	03 02	66.2	17.5 05 13	48.7	18 26	395	-88 03 20	483	8,7,5,4,5,4,5,3	41	2	84.7	
23		16 29	642	276 21 01	366	21 02	67.7	21.4 23 15	46.3	16 34	407	81 23 20	326	3,1,2,3,3,4,6,6	28	1	84.3	
24		13 50	574	420 00 00	154	12 17	56.2	25.3 00 03	30.9	14 29	401	113 00 10	288	5,3,3,3,4,3,4,3	28	1	84.0	
25	d	16 25	937	231 01 20	706	16 37	64.1	17.2 01 49	46.9	16 20	497	111 22 00	386	6,5,3,3,4,6,4,6	37	2	84.2	
26		12 53	564	353 02 07	211	23 14	58.9	29.8 19 40	29.1	13 10	358	137 23 11	221	5,3,3,2,4,3,4,5	29	1	84.8	
27		16 50	610	450 00 35	160	20 00	56.9	29.8 00 47	27.1	16 40	409	201 01 03	208	3,2,2,3,3,4,4,4	25	1	85.0	
28		17 48	564	392 02 58	172	12 44	53.2	27.9 02 30	25.3	18 40	357	136 01 57	221	5,3,2,2,3,3,3,3	24	1	84.6	
29	q	22 45	572	474 09 50	98	12 08	54.2	34.6 00 41	19.6	14 58	326	231 01 54	95	3,2,1,2,2,2,0,3	15	0	84.8	
30		18 56	558	476 12 09	82	13 07	57.6	32.2 18 54	25.4	15 44	378	249 23 00	129	1,1,1,2,3,3,3,3	17	0	84.7	
Mean		- -	642	275 - -	367	- -	61.0	20.0 - -	41.0	- -	389	97 - -	291	-	-	1.03	84.8	

**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) +													OCTOBER 1959																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	Hour	G.M.T.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			</

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

2	LERWICK (D)												9° +										OCTOBER 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 900.0+	
1 d	48.2	36.8	34.9	32.8	41.7	44.5	46.4	45.8	53.9	49.7	50.3	54.7	53.9	54.1	55.0	50.3	49.0	47.5	39.4	39.0	35.4	26.7	36.8	44.5	44.6	171.3	
2	42.8	41.6	42.1	40.5	50.3	50.7	48.4	50.2	43.5	44.8	47.2	53.0	51.9	51.8	50.2	49.3	50.3	50.4	51.5	50.2	49.5	48.8	47.0	45.1	48.0	251.1	
3 d	45.3	43.4	43.5	43.5	42.4	41.6	44.9	44.5	44.0	43.8	46.3	51.9	54.9	55.3	54.1	55.3	55.8	57.4	46.2	49.3	33.9	32.5	21.1	27.9	44.9	178.8	
4 d	22.9	21.3	9.6	11.7	15.8	33.1	39.9	42.3	43.3	46.2	49.0	50.7	54.9	46.7	52.5	53.6	53.9	46.8	47.7	43.9	32.8	39.6	44.1	34.8	39.0	37.1	
5	40.9	44.4	42.1	17.7	35.8	40.7	42.5	43.0	45.4	47.3	50.7	54.0	54.5	57.0	59.1	58.0	62.2	66.5	47.3	46.0	56.7	51.9	41.4	42.8	47.8	247.9	
6 d	26.7	36.5	32.1	33.4	33.9	45.4	51.1	54.2	51.2	46.9	50.2	54.5	50.9	45.5	53.1	51.7	34.9	48.2	44.9	45.0	22.5	31.5	43.0	44.9	43.0	132.2	
7	45.9	50.8	46.9	46.5	49.2	43.0	43.8	43.5	44.5	44.7	47.4	48.3	52.3	51.7	52.7	51.1	49.3	48.8	49.8	49.3	46.6	49.3	55.7	38.6	47.9	249.7	
8	45.0	45.1	45.3	44.9	45.3	44.5	44.4	43.7	42.6	43.4	44.9	48.2	50.1	51.0	52.2	50.2	48.6	48.2	45.4	45.4	47.2	47.3	46.4	47.0	46.5	216.3	
9	46.5	49.5	44.0	45.8	45.0	44.6	43.6	44.5	45.4	44.8	45.7	47.8	49.8	51.2	52.8	51.5	48.3	48.8	48.8	43.5	40.6	44.9	45.6	44.6	46.6	217.6	
10 q	43.6	43.0	43.5	44.5	44.4	44.4	44.0	43.5	42.8	43.3	45.3	47.8	50.9	52.3	53.0	52.1	51.1	42.4	48.0	49.7	48.5	46.5	46.1	45.6	46.5	216.3	
11 q	44.3	44.0	44.5	44.5	44.2	44.5	44.2	43.5	43.0	43.3	45.3	48.3	51.8	53.1	52.7	51.4	50.2	49.6	50.1	50.0	48.1	43.0	40.5	42.5	46.5	216.6	
12	43.3	44.3	44.5	44.9	45.3	45.0	44.6	43.8	43.0	43.5	45.9	49.5	53.1	52.9	54.6	53.1	53.0	54.1	53.1	50.2	46.4	37.9	44.7	47.1	47.4	237.8	
13 q	46.4	46.3	45.4	44.7	44.5	44.5	44.4	43.4	43.0	43.5	46.7	50.5	52.4	53.4	52.6	51.5	50.3	50.4	50.1	49.7	48.3	48.1	47.2	45.9	47.6	243.2	
14	43.5	44.5	45.2	45.7	45.6	44.9	43.5	43.0	42.5	42.8	45.9	49.3	56.0	54.9	55.9	54.1	51.2	50.2	49.4	47.3	45.5	41.2	35.1	35.9	46.4	213.1	
15	40.8	39.7	41.1	44.2	45.2	43.0	43.8	42.5	43.0	44.9	48.2	50.7	53.9	52.6	54.9	48.0	47.3	49.7	49.6	47.8	53.4	41.9	40.1	44.0	46.3	210.3	
16 q	44.9	44.9	45.0	44.7	44.6	44.5	44.1	44.4	44.3	45.2	47.8	50.2	51.7	51.9	51.7	51.1	50.4	49.7	49.9	48.6	43.5	46.9	47.4	47.2	47.3	234.6	
17	47.1	46.1	45.4	45.9	44.9	45.1	44.7	44.5	43.8	45.4	49.3	53.1	54.2	56.1	56.5	54.3	54.5	56.5	54.5	51.0	46.7	38.9	36.5	41.3	48.2	256.3	
18	40.8	35.3	31.3	38.4	40.6	43.1	42.9	42.2	41.5	44.2	45.2	49.4	57.2	56.9	55.0	55.7	45.4	45.3	48.4	43.5	32.3	34.1	39.2	43.5	43.8	151.4	
19	45.7	48.5	45.0	44.9	43.8	46.4	44.4	44.0	43.0	43.0	44.5	47.2	50.1	51.5	50.7	49.8	48.5	47.4	41.3	43.5	48.0	47.1	46.6	43.7	46.2	208.6	
20	46.0	42.5	43.0	44.4	43.5	43.6	45.3	47.1	49.3	47.3	47.8	48.7	50.3	51.5	50.5	49.2	47.6	47.1	47.1	46.9	46.1	46.4	46.5	46.4	46.8	224.1	
21	45.9	45.9	45.8	45.9	45.6	45.0	44.4	42.5	41.1	41.1	43.1	46.3	50.1	51.7	52.9	52.0	49.5	47.7	47.6	48.4	47.7	43.7	39.9	42.4	46.1	206.2	
22	44.3	43.8	42.8	44.2	45.4	44.7	45.4	46.7	48.1	46.5	47.3	49.3	49.6	50.1	48.8	50.2	43.8	45.4	46.2	40.9	40.6	36.8	33.9	36.3	44.6	171.1	
23	40.9	47.3	40.4	39.8	41.1	41.6	41.8	42.7	44.1	45.2	47.8	50.7	52.1	50.8	49.5	47.1	46.0	46.2	47.1	47.2	47.2	47.3	47.0	46.9	46.3	45.7	196.9
24	45.9	46.0	46.2	46.3	45.8	45.4	44.5	43.1	42.5	43.2	46.5	49.4	52.1	54.2	53.6	50.7	49.3	48.8	48.0	48.3	47.1	44.5	43.9	44.0	47.1	229.3	
25	46.3	47.8	38.4	41.6	35.8	42.1	44.7	46.2	45.4	47.0	47.3	50.9	54.1	55.0	53.6	54.1	51.7	46.9	46.7	47.2	46.2	39.2	32.0	26.2	45.3	186.4	
26	34.9	38.7	42.6	44.5	44.5	47.4	50.3	50.2	45.9	47.2	50.7	49.8	53.3	54.0	57.0	57.4	60.1	52.1	48.2	47.2	43.7	36.1	34.8	37.9	47.0	228.5	
27	41.8	42.5	41.5	44.8	43.1	45.4	47.0	49.5	46.4	47.8	47.7	49.9	51.7	53.0	50.7	48.7	48.3	45.4	47.0	47.3	46.3	44.9	43.8	44.4	46.6	218.9	
28 q	45.5	44.5	44.3	44.3	44.4	44.1	44.9	44.4	43.2	44.0	46.3	49.0	50.1	50.9	51.1	50.3	48.8	48.2	48.0	47.5	47.3	46.5	46.2	45.3	46.6	219.1	
29	45.4	45.5	45.2	45.2	44.3	44.6	46.0	46.3	44.5	44.4	46.4	48.0	52.0	51.7	51.9	50.2	50.1	49.2	48.4	47.9	47.3	47.2	46.5	46.5	47.3	235.5	
30	45.4	45.1	26.1	40.6	43.5	43.4	44.5	44.0	37.9	42.8	45.2	49.9	51.9	52.1	49.9	48.8	47.0	49.5	51.7	49.5	43.3	33.1	17.5	24.3	42.8	127.0	
31 d	36.2	44.6	45.0	46.5	46.2	46.0	45.3	43.3	46.1	46.0	49.5	53.2	55.9	55.3	56.7	58.4	62.6	50.4	49.6	39.9	47.2	18.0	26.6	33.9	45.9	202.4	
Mean	42.7	43.2	41.1	41.5	42.8	44.1	44.8	44.9	44.5	44.9	47.1	50.2	52.5	52.6	53.1	51.9	50.3	49.5	48.1	46.8	44.4	41.3	40.7	41.3	46.0		
Sum 1200.0+	123.1	140.2	72.7	87.3	125.7	166.8	189.7	192.5	178.2	193.2	261.4	355.0	427.7	430.2	445.5	409.2	359.0	334.8	291.0	251.1	176.0	81.5	63.0	80.8		Grand Total 34235.6	

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

41

3 LERWICK (Z)		47,000γ (0.47 C.G.S. unit) +																							OCTOBER 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+
		γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
1 d	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	305	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	285	291	295	298	298	315	335	330	313	281	270	290	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	270	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	284	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		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	γ h. m.	γ	h. m. γ	γ h. m.	γ	h. m. γ	γ h. m.	γ							
1 d	14 43 621	139 21 42	482	14 49 57.9	17.5 21 56	40.4	15 14 445	γ 4 21 41	449	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 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 23 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	12	0	83.0			
21	16 08 555	495 11 11	60	14 01 53.6	38.2 22 28	15.4	08 26 293	257 23 54	36	0,0,1,1,1,2,1,3	9	0	82.4			
22	14 58 592	467 21 42	125	15 03 57.6	30.2 21 56	27.4	16 36 403	229 23 44	174	2,2,2,2,3,3,3,3	20	1	82.0			
23	07 26 544	484 10 19	60	12 44 53.2	37.9 02 18	15.3	11 33 306	158 02 05	148	4,3,2,2,1,1,0,0	13	0	81.9			
24	19 17 553	505 10 39	48	13 31 56.6	41.7 09 30	14.9	16 35 306	251 23 34	55	0,0,1,1,2,2,1,3	10	0	82.1			
25	05 15 561	466 23 55	95	13 51 59.6	23.4 23 42	36.2	16 56 355	154 04 05	201	3,4,3,3,3,3,2,4	25	1	81.6			
26	15 25 668	466 00 12	202	15 24 69.3	27.9 22 04	41.4	15 25 466	185 22 09	281	3,3,3,2,4,5,3,4	27	1	81.3			
27	06 45 552	485 11 56	67	13 44 53.7	39.1 00 01	14.6	15 05 322	250 00 01	72	2,2,2,2,2,2,1,1	14	0	81.3			
28 q	22 09 553	502 11 50	51	13 31 51.9	42.3 08 37	9.6	23 06 291	276 12 52	15	1,0,1,1,1,0,0,0	5	0	81.1			
29	23 52 575	514 12 59	61	12 49 54.0	43.0 08 59	11.0	15 13 295	274 23 57	21	0,0,1,0,2,1,1,2	7	0	81.0			
30	20 10 597	-279 22 46	876	01 35 63.3	-8.7 22 45	72.0	19 48 364	-95 23 06	459	5,3,2,2,3,2,5,8	30	2	80.9			
31 d	16 55 805	58 21 24	747	20 22 75.3	-12.6 21 20	87.9	17 12 526	-39 21 51	565	5,2,2,3,3,6,7,7	35	2	81.1			
Mean	- - 604	377 - -	227	- - 61.0	26.9 - -	34.0	- - 359	167 - -	192	-	-	0.65	83.3			

**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.																										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	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	11,000+	
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
1 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.																										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	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	900.0+				
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	50.3	51.2	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	43.4	43.6	43.6	44.6	46.4	48.2	48.9	50.8	50.8	49.8	52.4	51.8	48.8	49.9	47.4	49.2	46.7	47.2	42.9	44.6	44.6	46.0	213.3				
19	45.1	45.8	46.9	46.5	45.8	46.9	45.9	47.9	45.6	46.5	46.0	48.8	50.8	53.7	53.6	49.8	49.1	49.7	47.1	46.0	46.0	45.1	44.9	42.2	47.3	235.7				
20 q	45.0	47.0	42.2	46.0	44.9	45.5	45.8	45.3	45.0	44.2	46.0	48.1	49.2	49.9	50.1	49.8	48.8	47.9	47.9	47.7	47.3	46.7	46.2	44.6	46.7	221.1				
21	46.0	46.9	47.0	48.0	47.5	43.6	44.0	45.1	46.0	46.2	49.2	51.8	55.0	56.1	61.2	66.2	56.4	49.1	45.2	45.5	46.1	40.7	39.8	39.8	48.4	262.4				
22	36.9	42.6	47.6	52.6	48.8	45.8	47.9	47.0	46.0	47.1	47.5	51.8	50.3	53.9	52.7	52.7	51.8	51.1	49.9	46.7	42.2	44.1	45.8	46.1	47.9	248.9				
23	30.5	24.1	14.2	24.9	26.0	38.6	40.2	49.4	48.4	45.3	46.3	52.3	54.0	59.2	54.8	56.0	59.2	56.7	46.9	37.4	27.3	43.6	45.8	46.0	42.8	127.7				
24 q	45.9	46.0	49.4	45.5	44.3	44.2	45.0	45.0	44.6	45.3	46.8	48.0	51.9	50.8	51.9	51.5	50.8	48.8	46.0	47.3	46.0	44.6	43.9	44.2	47.0	221.7				
25	43.1	47.8	48.4	45.9	46.0	46.0	46.0	45.9	47.0	48.6	50.9	50.6	54.6	60.5	59.4	57.5	52.7	48.9	49.0	47.9	45.8	44.6	42.2	35.9	48.5	265.2				
26	43.6	46.5	46.1	45.8	47.0	48.4	47.7	47.7	49.0	47.7	47.6	54.3	52.5	52.4	51.3	49.8	48.3	48.2	47.8	47.9	47.5	46.9	41.6	41.2	47.8	246.8				
27	35.7	41.1	43.6	43.2	44.0	43.2	43.6	45.7	45.0	46.0	47.8	50.8	51.9	52.5	52.7	52.8	52.7	54.7	54.4	47.9	51.1	48.7	42.2	41.3	47.2	232.6				
28 d	31.7	42.0	38.0	-15.5	28.7	37.4	45.1	43.0	45.3	41.7	45.9	45.3	51.6	53.7	53.5	49.9	48.4	46.0	45.5	46.2	39.3	34.2	33.1	38.4	40.3	68.4				
29	39.3	45.5	45.6	46.2	43.5	44.2	44.0	43.0	43.4	44.1	44.4	41.1	45.1	47.7	47.7	50.1	53.2	52.6	50.3	46.0	45.4	39.1	44.2	42.9	41.7	45.3	187.3			
30 d	44.1	49.1	47.0	46.0	45.1	44.6	45.3	46.9	47.7	50.3	54.5	53.4	52.7	54.7	53.7	69.1	63.3	51.0	37.4	40.3	44.0	40.9	35.5	33.2	47.9	249.8				
Mean	41.8	43.2	42.7	42.6	44.3	45.0	45.0	45.5	45.5	45.6	46.9	49.0	51.0	52.5	52.0	51.8	50.5	48.8	46.6	44.1	42.4	42.2	41.5	41.6	45.9					
Sum 1200.0+	55.2	95.7	80.1	77.5	127.5	149.8	150.0	165.7	164.4	168.0	205.7	270.9	330.6	375.8	360.8	355.3	316.2	263.2	197.1	122.2	71.3	67.1	46.6	47.5		Grand Total 33064.2				

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	186	225	227	248	235	175	197	247	273	294	305	340	362	404	372	374	380	379	383	332	290	267	173	193	276	1861							
2	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	835							
3	d	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	2079							
4		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	2644							
5		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	1848							
6		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	1770							
7		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	2210							
8		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	2290							
9		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	2151							
10		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	2071							
11	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	2059							
12	q	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	2090							
13		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	2052							
14		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	2207							
15	q	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	2105							
16		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							
17		291	289	265	270																													

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

4		LERWICK											NOVEMBER 1959												
TERRESTRIAL MAGNETIC ELEMENTS																									
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 14,000γ +			Minimum 14,000γ +			Range	Maximum g° +			Minimum g° +			Range	Maximum 47,000γ +			Minimum 47,000γ +			Range					
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				
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	5,4,3,3,3,3,2,2	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	81·5
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	3,1,1,2,2,1,1,3	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	5									

$q$  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.

1	LERWICK (H)												14,000γ (0.14 C.G.S. unit) +												DECEMBER 1959																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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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																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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**TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT**  
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

45

3 LERWICK (Z)												47,000γ (0.47 C.G.S. unit) +												DECEMBER 1959												Mean	Sum 6000+
	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													
	0-1	1-2																																			
1	246	285	280	232	239	271	271	298	312	319	325	337	367	377	367	368	369	351	320	306	310	310	300	287	310	1447											
2	272	283	278	281	271	240	259	283	298	305	310	356	359	362	384	434	374	348	354	345	315	264	259	234	311	1468											
3 d	218	210	190	185	202	205	212	254	284	310	344	353	401	407	376	462	401	382	361	356	382	352	318	258	309	1423											
4	256	258	274	246	274	300	307	308	315	314	312	312	311	304	305	313	319	324	326	325	333	337	312	301	304	1286											
5 d	300	303	302	303	304	306	304	301	298	302	300	307	328	376	431	249	243	106	197	258	228	215	288	314	286	863											
6	317	303	301	300	304	312	323	322	321	317	318	316	318	319	321	323	320	325	349	347	336	329	318	314	320	1673											
7 q	308	281	281	305	309	316	317	318	316	313	312	313	313	313	319	323	320	316	314	315	315	314	312	316	312	1479											
8	315	313	312	310	310	342	306	308	308	310	309	306	308	306	306	304	303	321	317	315	333	340	342	339	316	1583											
9	332	325	318	310	304	300	300	294	293	296	297	300	300	300	300	298	295	299	300	298	299	300	305	306	303	1269											
10 q	296	303	303	298	294	293	294	293	294	293	297	300	300	302	301	298	295	297	297	302	308	310	304	301	299	1173											
11 q	301	300	300	298	295	293	283	287	288	290	293	294	298	295	295	297	298	297	296	300	300	301	300	298	296	1097											
12	297	296	297	264	272	274	279	285	289	291	286	289	292	298	300	300	300	301	310	310	326	318	291	283	294	1048											
13	300	264	232	243	283	290	291	295	295	297	297	297	301	301	303	303	302	308	316	311	324	347	320	271	295	1091											
14 d	266	240	162	216	218	232	252	274	291	314	345	339	345	369	379	369	412	377	333	333	324	315	291	283	303	1279											
15	283	271	286	269	258	247	240	237	258	279	297	310	338	335	339	347	351	363	380	329	316	306	281	244	299	1164											
16	252	266	272	272	287	289	288	284	287	295	305	305	306	313	330	337	368	363	347	347	347	310	272	268	305	1310											
17	274	282	287	292	296	297	295	291	291	294	298	300	304	301	305	305	304	306	313	314	316	312	297	285	298	1159											
18	269	277	287	292	293	291	291	291	283	288	289	294	300	306	312	320	315	309	310	312	312	316	294	283	297	1134											
19	261	260	267	254	258	261	270	274	276	285	293	304	331	367	356	363	354	356	363	333	316	311	306	302	305	1321											
20	285	264	261	281	283	288	291	291	291	291	293	294	293	293	294	296	300	313	328	329	318	316	309	302	296	1106											
21 q	294	287	282	284	288	290	293	293	294	293	293	291	293	292	292	291	291	291	293	295	300	304	300	291	292	1015											
22 q	291	287	293	293	293	292	291	291	291	290	290	288	286	285	286	287	289	306	314	300	298	303	308	305	294	1057											
23	293	293	293	293	291	287	279	287	289	295	295	295	295	293	293	293	282	445	386	387	372	337	290	291	315	1554											
24	281	278	297	307	309	305	301	298	303	311	320	321	314	313	327	331	320	312	306	305	304	303	303	307	307	1376											
25	310	304	295	286	279	283	287	291	295	301	301	301	303	302	303	306	304	303	315	320	308	301	296	282	299	1176											
26	275	283	283	283	282	262	259	272	283	294	298	306	311	310	333	347	363	386	393	341	316	277	230	225	301	1212											
27 d	125	181	231	243	254	250	272	282	288	301	303	336	333	349	359	348	356	341	345	321	270	290	276	160	284	814											
28 d	132	193	247	275	281	276	269	275	287	287	300	313	322	325	364	429	403	391	372	436	380	302	270	276	309	1405											
29	286	267	264	279	263	259	279	294	308	318	316	318	340	330	326	322	325	313	306	304	300	300	295	279	300	1191											
30	271	284	291	287	285	291	283	285	289	293	296	302	322	329	345	351	349	341	339	328	314	302	295	293	307	1365											
31	294	291	287	283	291	293	293	294	293	291	296	300	300	301	306	306	308	308	306	306	307	297	293	289	297	1133											
Mean	274	275	276	276	280	282	283	289	294	299	304	310	317	322	328	330	330	326	326	323	317	308	296	283	302												
Sum 8000+	500	532	553	564	670	735	779	950	1108	1279	1428	1597	1832	1973	2157	2220	2233	2099	2106	2028	1827	1539	1175	787		Grand Total 224,671											

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

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

4 LERWICK													DECEMBER 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	
	h. m.	γ	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	γ	h. m.	γ	γ	h. m.	γ			
1	17 40	552	424	03 16	128	14 11	58.9	28.0	00 09	30.9	13 10	387	211	03 55	176	4,4,3,3,3,3,3,2	25	1	81.3	
2	15 30	638	468	21 53	170	12 55	56.9	23.9	23 48	33.0	15 39	473	209	24 00	264	3,3,3,3,3,4,4,4	27	1	81.1	
3 d	15 40	769	402	22 02	367	05 38	70.0	9.8	15 50	60.2	15 40	551	167	03 27	384	4,4,4,4,4,6,3,5	34	1	81.2	
4	23 39	536	456	03 06	80	12 22	51.8	33.0	21 20	18.8	21 02	344	240	03 34	104	3,3,1,1,1,2,3,3	17	0	80.9	
5 d	15 19	1266	6	19 13	1260	19 13	124.9	-1.1	21 32	126.0	18 54	642	-229	19 13	871	0,0,3,3,6,8,8,6	34	2	81.0	
6	13 10	543	469	02 03	74	13 09	53.6	33.1	19 05	20.5	18 12	358	296	02 05	62	2,3,2,2,3,2,3,2	19	1	81.0	
7 q	22 20	551	487	01 38	64	15 40	51.0	33.9	02 10	17.1	16 03	326	263	01 57	63	3,2,0,0,1,1,0,2	9	0	81.0	
8	16 51	552	518	00 31	34	16 57	52.5	38.1	22 37	14.4	20 58	350	302	16 37	48	1,1,1,0,1,2,3,2	11	0	80.8	
9	21 10	563	525	01 34	38	13 09	55.2	43.2	06 10	12.0	00 00	335	289	08 05	46	2,1,2,2,2,2,1,2	14	0	78.5	
10 q	00 07	586	531	02 46	55	16 46	50.8	38.8	21 24	12.0	21 07	315	282	00 16	33	3,1,1,0,1,1,2,3	12	0	78.3	
11 q	22 56	563	533	10 58	30	17 25	51.8	39.6	23 24	12.2	22 35	305	279	06 27	26	1,2,1,1,1,2,1,2	11	0	78.5	
12	21 02	580	469	22 48	111	13 49	53.8	17.1	22 02	36.7	20 51	341	253	03 30	88	2,2,2,2,2,1,3,4	18	1	78.1	
13	21 10	604	393	21 51	211	17 18	57.3	15.7	22 32	41.6	22 19	385	214	02 50	171	4,2,1,1,1,2,3,5	19	1	78.2	
14 d	17 45	847	260	01 55	587	01 48	62.1	15.1	18 02	47.0	16 18	477	119	02 01	358	6,4,3,3,3,6,5,3	33	1	78.3	
15	23 02	573	483	05 59	90	07 02	63.4	22.0	22 23	41.4	18 21	400	229	07 02	171	3,3,3,3,2,3,4,4	25	1	78.9	
16	06 56	548	497	23 51	51	15 33	54.2	30.1	16 40	24.1	16 32	394	246	00 27	148	3,2,2,2,2,4,2,4	21	1	78.8	
17	07 53	549	501	00 11	48	09 17	50.7	34.6	00 01	16.1	20 35	319	271	00 10	48	3,1,2,2,1,1,1,2	13	0	78.6	
18	00 24	565	510	13 19	55	08 11	53.2	40.4	01 15	12.8	15 17	324	259	00 28	65	2,1,2,2,2,2,1,2	14	0	78.7	
19	14 18	573	506	12 51	67	14 41	63.7	39.8	04 16	23.9	18 13	373	248	01 04	125	2,2,2,2,3,3,3,1	18	0	78.8	
20	07 06	545	515	01 30	30	19 01	51.9	39.4	23 05	12.5	18 46	337	240	02 00	97	3,1,1,1,1,2,2,2	13	0	78.7	
21 q	18 11	554	526	12 50	28	14 20	50.4	38.3	23 32	12.1	21 41	308	280	02 36	28	2,1,1,1,1,0,1,2	9	0	78.5	
22 q	21 27	564	523	22 36	41	17 22	53.9	31.3	21 46	22.6	18 32	321	282	13 41	39	2,0,1,0,1,2,2,3	11	0	78.3	
23	17 02	974	437	23 17	537	16 43	67.6	9.5	23 29	58.1	16 59	520	254	22 57	266	2,1,3,2,2,7,4,5	26	1	78.3	
24	07 02	552	476	00 20	76	14 20	57.3	26.5	00 01	30.8	14 45	336	269	01 07	67	3,1,3,3,2,2,1,1	16	1	78.7	
25	23 44	562	515	10 48	47	03 22	50.9	39.8	23 37	17.1	19 04	330	269	23 53	61	2,2,1,1,1,1,2,2	12	0	78.7	
26	21 39	573	363	23 47	210	17 20	60.4	12.9	21 37	47.5	18 18	420	156	23 54	264	2,2,3,3,3,3,4,5	25	1	78.8	
27 d	15 28	594	387	00 29	207	12 54	63.4	18.4	20 00	45.0	15 56	383	68	24 00	315	4,3,3,3,3,4,4,5	29	1	78.9	
28 d	17 06	771	422	00 26	349	13 31	60.9	27.7	00 37	33.2	17 05	507	67	00 03	440	5,3,3,3,4,6,4,4	32	1	78.8	
29	06 53	544	467	01 11	77	04 18	54.2	37.6	00 02	16.6	12 37	348	243	02 01	105	3,3,3,2,3,2,1,2	19	1	78.9	
30	05 17	549	482	12 53	67	16 13	56.1	38.4	19 13	17.7	15 12	354	266	00 11	88	2,2,2,2,3,3,3,2	19	1	78.7	
31	03 07	550	517	12 02	33	02 51	51.0	29.4	20 32	21.6	20 33	315	277	03 10	38	2,2,2,2,1,1,0,3,2	13	0	78.7	
Mean	-	-	622	454	-	168	-	58.5	28.5	-	30.0	-	383	220	-	163	-	-	0.58	79.2

**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 *N*, *W*, *I* and *F*

## 5 LERWICK

	Horizontal ( <i>H</i> ) force			Declination ( <i>D</i> ) (west)			Vertical ( <i>Z</i> ) force			North component ( <i>X</i> ) all days	West component ( <i>-Y</i> ) all days	Inclination ( <i>I</i> ) (north) all days	Total force ( <i>F</i> ) all days
	<i>a</i>	<i>q</i>	<i>d</i>	<i>a</i>	<i>q</i>	<i>d</i>	<i>a</i>	<i>q</i>	<i>d</i>				
	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		
	<i>H</i>	<i>D</i>	<i>Z</i>	<i>H</i>	<i>D</i>	<i>Z</i>	<i>H</i>	<i>D</i>	<i>Z</i>	<i>H</i>	<i>D</i>	<i>Z</i>
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					
	<i>H</i>	<i>D</i>	<i>Z</i>	<i>H</i>		<i>D</i>		<i>Z</i>	
				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																								
	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$
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																								
	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$
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	-0.93	-0.40	-0.44	-0.32	+0.94	+3.10	+5.10	+6.61	+6.11	+5.92	+4.61	+2.85	+0.65	-1.85	-3.54	-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																								
	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$
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	+													

## DIURNAL INEQUALITIES OF THE TERRESTRIAL MAGNETIC ELEMENTS

## 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																								
	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$
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	+15.3	+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																								
	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$
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	+1.6	+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	+9.9	+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.

DIURNAL INEQUALITIES OF THE TERRESTRIAL MAGNETIC ELEMENTS  
INTERNATIONAL DISTURBED DAYS

49

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																								
	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$
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																		

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	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	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	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 ( $\gamma$ )			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	End of disturbance		With initial reversed stroke			Magnitude of main stroke			Range of following disturbance ( $\gamma$ )		
			Date	Hour	H	D	Z	H	D	Z	H	D	Z
1b	Jan. 9	h. m. 14 59	Jan. 11	15	Yes	Yes	Yes	$\gamma$ +16	$\gamma$ -21	$\gamma$ +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 ( $\gamma$ )			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

Night

Night commencing		Night commencing		Night commencing	
	JANUARY		FEBRUARY (contd.)		MARCH (contd.)
2 a ..	Fair to fine	14 b-a	Fine. Faint homogeneous arc 23h.33m.	28 a-b	Fine. Moonlight. Faint rays 19h.50m.
3 ca ..	Variable cloud		observed each hour till 04h. de-		with homogeneous arc 20h.12m.
4 a-ca	Fine then variable cloud. Faint		veloping into rayed arc 04h.04m.		becoming active faint to moderate
	glow 17h.50m. to 19h. becoming		to 05h.02m. obscured by cloud at		corona 20h.15m. to 01h.30m., puls-
	faint homogeneous arc by 20h.		times		ating and flaming after 21h.45m.
	lasting till 21h.	15 c ..	Cloudy		Faint rayed band and draperies,
5 ca	Fair to cloudy. Faint glow 19h.50m.	16 cb-c	Cloudy to overcast. Moonlight.		flaming and pulsating, from 01h.45m.,
	developing into moderate to bright		Moderate pulsating surface seen		with corona from 02h.30m. continu-
	rayed arc 20h.10m. to 21h. then		through cloud breaks 19h.		ing till dawn
	obsured by cloud, but faint glow	17 c-ca ..	Overcast. Fine later	29 ca-c ..	Fair to cloudy then cloudy
	observed 24h.	18 cb-c ..	Variable cloud then cloudy. Moon-		
6 ca-a	Variable cloud then fair to fine.		light		APRIL
	Faint glow 17h.55m. and 18h.55m.	20 c ..	Cloudy	1 a ..	Fine
	to 19h.33m. developing into rayed	23 cb ..	Variable cloud. Moonlight	2 c ..	Mainly cloudy
	arc by 19h.40m. for short while	25 ca-cb	Variable cloud. Moonlight. Faint	3 a-c ..	Fine then cloudy later
	then back to glow which persisted		rays with corona 19h.40m. to	4 ca ..	Variable cloud
	till 02h., re-appearing 04h.		19h.50m. deteriorating to homo-	5 c ..	Overcast then mainly cloudy
7 c-ca	Cloudy soon becoming variable.		geneous band 20h. Moderate rays	7 ca	Mainly cloudy. Faint surface 22h. to
	Bright double homogeneous arc		and corona visible 23h.30m. to		22h.30m. and 01h. to 03h.15m.
	21h.35m. becoming faint single	26 a-cb	23h.35m.	8 c-ca	Cloudy then variable. Faint surface
	arc with rays by 21h.47m., and		Fine then cloudy. Moonlight. Faint		22h.30m. becoming moderate with rays,
	persisting as an arc or band till		surface 19h.50m. to 23h., with		flaming, from 23h.10m. to 01h.40m.
	02h.47m. when brightness is		rays till 20h.30m., and forming		Moderate surface seen through cloud
	moderate. Glow observed through		homogeneous arc 22h.15m.		breaks 01h.50m. to 02h.25m. Faint
	cloud breaks 06h.	27 c-cb	Mainly cloudy then fair to cloudy.		glow 02h.35m. and faint rayed band
8 ca-c	Fair to fine then overcast. Inde-		Faint homogeneous arc 02h.50m.		02h.45m. continuing till dawn
	finable aurora seen through cloud		becoming faint to moderate rayed	9 ca-a ..	Variable cloud. Fine later
	breaks 18h., 19h. and 20h. Faint		band by 03h.07m. bright at times	10 ca ..	Mainly cloudy
	homogeneous arc 21h. and 22h.		and flaming at 03h.15m. Obscured	11 a-ca	Fair to fine then fair to cloudy.
	Faint surface seen through cloud		by cloud 03h.18m.		Faint glow 21h.50m. to 22h.50m.
	breaks 23h.	28 a-b	Fine then fair to fine. Moonlight.		with faint rays from 22h.15m.
9 ca-a	Variable cloud then fine. Faint		Faint homogeneous arc 19h.56m.	12 c ..	Cloudy to overcast
	glow observed in clear periods 18h.,		becoming moderate rayed arc by	13 c-a ..	Cloudy then fine
	21h. and 22h. Bright rays 24h.		20h.31m. Bright double rayed arc	14 a-c	Fine becoming cloudy. Moonlight.
	Faint glow 01h. to 05h.		20h.38m. becoming rayed band		Faint rayed arc 24h.
10 ca-c	Variable cloud then mainly overcast.		20h.42m. then very active flaming	17 cb ..	Variable cloud. Moonlight
	Faint glow observed occasionally		corona 20h.47m. gradually fading	18 cb ..	Fair to cloudy. Moonlight
	through cloud breaks 18h. to 23h.		to faint glow by 22h.30m. Active	20 c ..	Cloudy
	with rays 19h.35m. and 20h.22m.		faint corona 22h.51m. and 23h.48m.	23 c ..	Cloudy
	to 20h.50m. Faint homogeneous		with moderate homogeneous arc.	24 c ..	Mainly cloudy
	arc 23h.50m.		Faint glow 01h., 03h. to 05h.	26 c ..	Mainly cloudy
11 ca	Mainly cloudy to overcast. Faint			27 ca-cb ..	Fair to cloudy. Moonlight
	glow seen through cloud breaks			28 c ..	Cloudy
	23h.40m. to 00h.47m.			29 ca ..	Mainly cloudy
12 ca-a ..	Cloudy, soon becoming fair to fine			30 c ..	Mainly cloudy
13 c-a ..	Cloudy then mainly fine				
14 a	Mainly fine. Faint glow 22h	1 a-b	Mainly fine. Moonlight. Faint glow		MAY
15 ca-a ..	Variable cloud then fine		19h.33m., disappearing at times	4 ca	Fair to cloudy. Faint to moderate
16 ca ..	Mainly fair to cloudy		before 22h. then becoming faint		pulsating draperies 23h.54m. with
17 c-ca	Overcast then variable cloud. Faint		surface after 01h. Moderate rays		faint corona 23h.57m. Moderate
	glow 03h.		01h.47m. gradually fading to glow		aurora visible through cloud breaks
			by 03h.10m.		00h.50m.
20 c ..	Cloudy	3 c ..	Mainly cloudy	8 a-c	Fair, cloudy later. Faint glow 23h.50m.
21 cb-c ..	Variable cloud with moonlight, then	6 ca ..	Mainly cloudy		
	cloudy	7 ca	Cloudy then mainly fine. Faint		AUGUST
22 cb-c ..	Variable cloud then cloudy. Moonlight		surface 21h.50m. to 22h.50m.,	15 b	Fine. Moonlight. Moderate rays
23 cb ..	Variable cloud. Moonlight		developing into faint rayed arc		21h.50m. to 22h.30m. Moderate
24 cb-c ..	Variable cloud then overcast. Moon-		by 23h.50m., deteriorating to		homogeneous arc 23h.50m., becoming
	light		homogeneous arc 00h.15m. to		bright then moderate rayed band
25 c-cb ..	Overcast. Fair later. Moonlight		00h.50m. then to surface 01h.15m.		00h.15m. to 01h., fading to faint
26 b-cb-b ..	Mainly fine then fine. Moonlight		Faint flaming rays 01h.50m.		glow by 01h.15m.
27 c-cb ..	Cloudy becoming variable. Moonlight		forming corona 02h.06m. Puls-	16 b	Fine. Moonlight. Active moderate
28 ca-c ..	Variable cloud then cloudy		ating rays 02h.10m. Aurora still		aurora with corona 21h.45m. to
29 ca-c	Variable cloud then mainly cloudy.		visible through cloud breaks		22h.10m., rayed arc 22h.20m., rayed
	Faint glow 19h. and 20h.		02h.50m.		band 22h.50m., then rays 23h.10m. to
30 a-cb ..	Fine then variable cloud. Moonlight				02h.15m. with corona 23h.10m. and
31 a-cb ..	Fine then variable cloud. Moonlight	8 a-ca	Fair to fine. Faint homogeneous arc		00h.40m. and bright flaming and
			01h.50m. to 02h.39m. with faint		pulsating rayed arc 00h.47m. Display
			ray structure 02h.37m. Faint		deteriorated to moderate glow 02h.23m.
			aurora visible through cloud	31 ca	Mainly cloudy. Faint to moderate sur-
			breaks till 03h.05m.		face 00h.50m. to 01h.40m. Moderate
		9 c-ca ..	Mainly cloudy		pulsating and flaming rays 01h.50m.
		12 ca-a ..	Mainly cloudy becoming fine		fading to faint surface 02h.10m.
		13 c ..	Mainly cloudy to overcast		Faint rays 02h.20m. fading by 02h.35m.
		14 c ..	Mainly overcast		
		15 c ..	Cloudy		SEPTEMBER
		16 ca ..	Variable cloud	1 a-c	Fine then cloudy. Faint glow 22h.
		17 ca ..	Mainly cloudy	2 a	Mainly fine. Faint to moderate rayed
		18 b-ca ..	Fine then variable cloud. Moonlight		21h.30m. to 23h., fading to faint
		20 c-cb ..	Cloudy then variable. Moonlight		homogeneous arc at times. Faint
		21 b ..	Fine then fair later. Moonlight		glow 24h. to 02h.30m. mostly ob-
		23 c ..	Cloudy soon becoming overcast		scured by cloud at first
		25 c ..	Overcast then mainly cloudy.		
			Moonlight		
		26 a-b	Fine. Moonlight. Faint rays		
			20h.20m. developing into corona		
			with double rayed arc 20h.43m. to		
			20h.50m. Corona continuing till		
			04h.10m. mainly faint in moonlight		
			but bright 23h.40m. to 23h.50m.		
			Rayed arc 01h.10m. to 01h.50m.		
		27 c-b ..	Cloudy becoming fine later.		
			Moonlight		

The letters a,b,c, have 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

## 18 BRITISH ISLES

Date	$\Phi_1$	Forms	Time	$\Phi_2$	Date	$\Phi_1$	Forms	Time	$\Phi_2$	Date	$\Phi_1$	Forms	Time	$\Phi_2$
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, RB, R, S, F	1755-0630	59	13-14	60	G			2-3	55	HA, RA, RB, 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, RB, 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, RB, R, S, P, F	1945-0300	61
8-9	54	HA, RA, RB, R, S, F	1750-0530	63	23-24	51	HA, RA, HB, RB, R, S, P	2100-2400	58	5-6	56	HA, RA, HB, RB, R, S, P, F	2010-0400	64
9-10	53	HA, RA, HB, RB, 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, RB, 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, RB, R	2150-0200	63	13-14	61	RB, 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								20-21	62	HA, RA, RB, R, S, P, F	1950-0520	62
25-26	60	G			MAY					21-22	56	HA, RA, HB, RB, R, S, F	1935-0400	62
28-29	60	HA	1920-0500	66						22-23	59	R	1950-2250	
29-30	60	G			2-3	59	G			23-24	57	HA, RA, RB, R, S, P, F	1930-0415	63
30-31	61	G			3-4	57	G			25-26	58	RA, RB, R, S, F	1930-0215	65
31-1	61	R	2000-0600		4-5	54	HA, RA, HB, RB, R	2110-0400	62	26-27	58	HA, HB, RB, S, P	1950-0300	63
FEBRUARY					7-8	60	G			28-29	60	G		
1-2	61	HB	2300-0600		8-9	59	R	2200-2350		29-30	61	G		
2-3	58	HA, RA, HB, R	1840-0615	64	10-11	60	G			30-1	61	HA	2105-0400	66
3-4	55	HA, RA, HB, RB, R, S	1820-0600	64	11-12	57	G							
4-5	54	HA, RA, RB, R, S, P, F	1850-0600	64	12-13	54	RA, R	2210-2340	65	OCTOBER				
5-6	59	HA, RA, R	1900-0200	65	13-14	60	HA	2225		1-2	58	HA, RA, HB, RB, R	1900-0400	64
6-7	60	S	2100-0500		23-24	58	G			2-3	61	HA, RA, R, S	2050-0200	66
7-8	60	RA, S	2240-2350		24-25	58	G			3-4	53	HA, RA, HB, RB, R, S, P, F	1900-0500	59
8-9	59	HA, RA, R, S, P, F	2000-0500	64	25-26	58	G			4-5	57	HA, RA, RB, R, S, F	1920-0500	64
10-11	60	HA, HB	2150-0500	66	31-1	58	G			5-6	54	HA, RA, RB, R, S, P	1915-0500	60
11-12	58	HA, RA, R, F	2000-0400	65	JUNE					6-7	61	HA, R, S	1950-0450	66
14-15	59	HA, RA, R, S, P, F	1900-0600	64	4-5	57	G			7-8	62	G		
16-17	56	HA, RA, R, S, P	1900-0600	60	6-7	59	G			19-20	60	G		
22-23	59	G			23-24	55	G			21-22	60	HA, RA, R	2140-2300	67
25-26	56	HA, RA, RB, R, S	1900-0500	61	29-30	54	G			22-23	61	R	1850-2050	
26-27	54	HA, RA, R, S	1850-0300	65						24-25	59	HA, RA, HB, S	1815-0600	67
27-28	58	HA, RA, RB, R, S, F	2000-0400	66						25-26	60	HA, RA, R, S, F	2100-0600	66
28-1	53	HA, RA, HB, RB, R, S, P, F	1850-0500	60						29-30	58	G		
MARCH					JULY					30-31	53	HA, RA, RB, R, S	1800-0200	61
1-2	59	HA, RA, HB, RB, R, S, F	1930 0600	65	1-2	56	G			31-1	56	HA, RA, HB, RB, R, S, P	1850-0500	59
2-3	62	G			4-5	58	G			NOVEMBER				
3-4	56	HA, RA, RB, R, S	1950 0300	64	10 11	56	G			1-2	58	G		
4-5	61	G			11-12	57	G			2-3	58	HA, RA, RB, R, S, P, F	1730-0600	62
5-6	60	G			15-16	50	RA, RB, R, S, P	2225-0130	54	3-4	56	HA, RA, RB, R	1740-2400	63
7-8	58	HA, RA, HB, R, S, P, F	2000-0400	62	16-17	59	G			4-5	56	HA, RA, R, S, P, F	1730-0500	65
8-9	61	HA, RA, HB	2250-0400	67	17-18	50	RA, RB, R, S	2100-0200	56	6-7	61	G		
12-13	61	RA, HB, R	2005-0300	67	18-19	54	G			7-8	60	HA, RA	2150-0400	63
14-15	61	G			24-25	58	HA	2315	65	9-10	59	R, S	1910-0400	
15-16	61	G			25-26	58	R	2200-2230		12-13	62	RA, R	2300-0300	
24-25	60	G			27-28	57	G			21-22	59	G	2000-2200	65
25-26	57	RB	1930-2250		28-29	58	G			22-23	59	HA, RA, R, S	2350-0700	
26-27	53	HA, RA, RB, R, S, P, F	1930-0500	58	AUGUST					24-25	59	HA, RA, RB, R, S	1950-0150	66
27-28	52	HA, RA, HB, RB, R, S, P, F	1930-0400	60	6-7	59	HA, RA, R, S	2205-0200	66	25-26	58	RA, R, S	2050-0600	
28-29	50	HA, RA, HB, RB, R, S, P, F	1930-0430	55	7-8	59	R	2250-0135		26-27	58	HA, RA, R, S	1810-0240	65
29-30	57	G			8-9	60	G			27-28	52	HA, RA, HB, RB, R, S, P, F	1830-0640	61
30-31	61	R	2050-2300		10-11	61	G			29-30	59	G		
31-1	56	G			15-16	58	HA, RA, RB, R	2040-0200	63	30-1	58	HA, RA, HB, RB, R, S, F	1700-0600	64
APRIL					16-17	53	HA, RA, RB, R, S, F	2115-0315	62	DECEMBER				
2-3	61	G			17-18	57	G			2-3	58	HA, RA, RB, R, S	1800-0600	65
3-4	59	HA, R	2050-0300		18-19	57	G			3-4	58	HA, RA, HB, RB, R, S	1850-0450	64
4-5	60	G			19-20	57	G			5-6	50	HA, RA, HB, RB, R, S, P, F	1750-0500	57
6-7	58	G			20-21	61	R, F	0050-0200	61	11-12	62	R	0250-0300	63
7-8	57	R, S, P	2100-0345		22-23	60	G			13-14	60	RA, RB, R	2150-0150	64
8-9	54	HA, RA, HB, RB, R, S, P, F	2030-0430	60	25-26	59	G			22-23	62	G		
9-10	54	RB, R, S	2115-0400		26-27	59	G			23-24	56	HA, R, S	1710-0100	61
10-11	57	RB	2030-0300	65	28-29	59	G			26-27	58	G		
11-12	57	R, S	2100-0300	64	29-30	58	G			27-28	58	HA, RA, R	1850-0700	66
					30-31	60	G			28-29	58	HA, RA, HB, RB, R, S, F	1720-0500	65
					31-1	59	R, S, P, F	2240-0300	63					

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,  $\Phi_1$  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; RB = 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  $\Phi_2$  is given the lowest geomagnetic latitude of overhead occurrence in the longitudes considered. In the absence of direct visual observations,  $\Phi_2$  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 <sup>-1</sup> )												JANUARY 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	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	Z+*	300	125	225	430*	Z+*	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	-	-	-	-	-	-	-	-	-	-	-	-	-	Z+*	Z+*	Z+*	Z+*	Z+*	Z+*	265*	250	80	85	85	125	(4)											
13	140	-85	Z+	175	250	105	Z+	Z+*	265*	Z+*	Z+*	170*	190	85	100	65	75*	Z+*	Z+*	75*	130*	120	125	85	113	(12)											
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	117	105	114	152	103	98	123	118	91	156	169	162	129	168	160	147	167	148	142	136	128	130	123	135	(308)											
	(15)	(14)	(10)	(12)	(11)	(14)	(10)	(12)	(13)	(11)	(9)	(10)	(13)	(10)	(12)	(13)	(13)	(14)	(14)	(14)	(14)	(18)	(17)	(15)													
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 <sup>-1</sup> )												FEBRUARY 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	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+*	75	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*	255*	95*	114	(17)													
19	65	55	0*	70*	60	25*	10*	30*	20*	-	-	-	-	-	-	125	-	-	-	-	-	-	-	60	(3)													
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(-)												
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(-)												
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(-)												
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(-)												
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70	100*	160	145	125	45*	125*	100	-	(-)												
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	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	115	131	(24)												
Mean	110 (19)	111 (19)	112 (19)	113 (19)	113 (21)	127 (18)	132 (16)	129 (16)	137 (16)	124 (15)	120 (17)	125 (17)	129 (18)	127 (19)	130 (19)	130 (19)	122 (19)	134 (18)	146 (19)	150 (19)	144 (20)	139 (18)	142 (17)	137 (18)	124 (435)													
																							Mean for 0a days			139 (11)												

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

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19 LERWICK												Factor 1.08 (metre <sup>-1</sup> )												MARCH 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	120	115	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	2+	2+	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	55	55	55	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	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	120	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	140*	135*	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 <sup>-1</sup> )												APRIL 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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	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*	-5*	-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*	30*	40*	75*	100*	-165	180	173 (2)	
23	50	120*	90*	155*	185*	140*	155*	140*	95*	60*	85*	85*	50	60	80	115	115	120	120	80	95	105	90	140	94 (13)	
24	100	95	95	140	120	90	60	65	65	45	60	100	(190)	(245)	315	350	315	285	265	295	335	370	290	285*	187 (23)	
25	-280*	-385*	110*	105	-65*	45*	75*	70	60	85	70	85	105	135	195	230	140	140	205	170	170	-90*	-770*	-700*	131 (15)	
26	-750*	-560*	-935*	-175*	125*	295*	355	320	335	340	285	245	270*	255	185*	255*	225*	195*	100*	105*	-350*	-245*	215*	210*	305 (7)	
27	115	Z+*	50*	105*	105	100	70	70*	75	70	-*	-	95	135	175	175	175	110*	40*	-25*	140	155	145	140	125 (15)	
28	65	55	55	70	45	40	55	40	70	80	70	95	110	100	80	55	115*	-105*	-175*	-175*	-785*	-245*	-400*	Z+*	68 (16)	
29	-115*	Z+*	-75*	120	75	60	70	100	70	70*	75	75	Z+*	Z+*	85*	100*	135*	130	135	70	65*	85	80	88 (13)		
30	80	115	205*	40	35	65	75	70	75	65	60	65	65	75	85	105	140	115	110	55*	50*	-250*	-485*	-105*	80 (18)	
Mean	146 (18)	140 (22)	115 (16)	107 (21)	104 (20)	102 (18)	108 (21)	113 (21)	108 (23)	93 (19)	96 (19)	98 (17)	99 (15)	131 (17)	140 (15)	150 (16)	187 (16)	173 (16)	178 (19)	185 (19)	165 (17)	173 (18)	155 (21)	149 (18)	133 (442)	
																							Mean for 0a days		152 (3)	

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

19 LERWICK												Factor 1.06 (metre <sup>-1</sup> )												MAY 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				
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+*	Z+*	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+*	100*	95	100*	-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	215	350	280	265	195	215	210		153	(24)	
8	250	170*	230*	80	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	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	90	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	55	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	90	100	85	15	-85	-75	-90	-35	0		22	(24)	
27	0	35	35	35	50	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	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 <sup>-1</sup> )												JUNE 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	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	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	90	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	50	50	50	50	50	50	75	75	75	75	50	50	44		44	(24)
14	50	50	25	50	25*	25*	25*	0*	25*	25*	25*	25*	25*	25*	50*	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	90	60	60	60	60	60	60	60	60*		69	(17)
16	60*	90*	60*	60*	60*	60*	60*	30*	30*	60*	60*	60*	60*	60*	90*	90*	210*	210*	180*	150	120*	60	90*	120*		105	(2)
17	90*	60*	60*	90*	120*	150*	120*	-30*	--	--	--	--	--	--	--	--	180*	30*	120*	240*	210*	90*	150*		--	(0)	
18	180*	60*	150*	90*	90*	90*	120*	120*	90*	30*	30*	60*	30*	90	90*	90	120	150	120	Z+*	-240*	120	0*	120		116	(7)
19	90*	120*	120	120	120*	150*	120*	210	180	60*	60*	60*	60	60*	60*	60	60	60	30*	60*	60	60	30	-300*		93	(11)
20	0	0	0	0	0	60	30	60	60	60	90	60	60	90	60	30*	30*	30*	90*	210	180	210	150	150		77	(20)
21	125	100	100	100	100	100	125	150	150	75	50	50	0	25	100	100	100	100	100	125	150	150	150	150		103	(24)
22	180	240	240	210	210	240	270	330	360	240	240	210	210	180	210	180	150	60*	120*	270*	Z+*	Z+*	-30*	Z+*		229	(17)
23	180*	120*	60*	180*	270	330*	240*	120*	150*	180*	240	210	180	120	60*	Z+*	240*	Z+	Z+*	Z+*	Z+*	Z+*	Z+*	Z+*		204	(5)
24	Z+*	Z+*	Z+	150	150	90*	120*	150	180	180	210	240	210	210	270	240	270	330	330	270	210	240	270	360		235	(19)
25	350	325	300	225	225	200	175	125	125	175	150	150	125	150	150	175	175	225	250	175	150	175	150	75		187	(24)
26	75	125	100	75	100	125	150	150	125	125	125	150	175	175	150	250	225	200	175	175	150	100	125	125		144	(24)
27	210	240	180	150	150	150	60	90	90	90	120	120	120	120	120	90	60	30	0	30	0	0	0	150		104	(24)
28	175	125	325	425	325	300	100	50	25	25	25	25	50	25	25	50	50	50	50	50	75	75	100	75		108	(24)
29	75	75	75	75	50	75	75	75	100	75	75	100	75	75	75	75	100	125	75	100*	75	75	75	75		78	(23)
30	75	75	75	75	75*	100	75*	50*	50*	50*	50*	50*	50	50	50	75	75	75	75	50	50	50	50		65	(17)	
Mean	112 (17)	133 (16)	125 (19)	118 (20)	128 (20)	128 (19)	120 (16)	117 (20)	117 (20)	90 (20)	116 (21)	111 (21)	105 (24)	99 (23)	112 (21)	122 (22)	122 (21)	125 (20)	129 (19)	119 (21)	116 (19)	98 (20)	92 (19)	108 (18)		115	(476)
																							Mean for 0a days			[94	(9)]

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

59

19 LERWICK												Factor 1.02 (metre <sup>-1</sup> )												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											
	volts per metre																																			
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*	70	70*	45*	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	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	110	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±*	225	450	195	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*	85*	133	(4)										
14	70	45*	45	90	70	90	70	70	45	70	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	70	90	70	70	45	70	70	70	70	70	70	90	90	90	90	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)	(14)	(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 <sup>-1</sup> )												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										
	volts per metre																																		
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*	80*	110*	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	80	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	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	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	55	55	80	80	80	65 (18)										
13	80	55	55	55	55	55	55	80	80	160	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	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	270	295	245	295	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	55	55	110	80	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	55	55*	55*	135*	160*	295*	Z±*	160*	135*	135*	0*	0*	75 (10)										
26	25*	0*	55*	55*	80*	80*	135*	110*	80*	25*	110*	Z±	55*	55*	55*	25*	55*	55	55	55	80	80*	80	80*	65 (5)										
27	80*	55*	80	55	55*	80	80	80	80*	25	25	25*	55*	55	25*	-55*	Z±	-25*	55*	80	80	80	55*	55	65 (12)										
28	55	55	55	55	55	25	80*	25	80	55*	55*	25	25	55	55	55	55	55	55	55*	25*	80	25	0*	49 (18)										
29	55	25*	55*	55	0*	0*	55*	0*	110*	110*	-25*	215*	110*	55*	135	80	80	110	110	135	110	55	55	25	84 (12)										
30	25	25	25	25	25	55	80	80	55	55	55	55	55	55	25	25	25	25	55*	55*	80*	55*	80*	80*	43 (18)										
31	80*	55*	55	80*	55*	55*	55	80	55	55	25*	25*	0	0	0	25	25	25	25	55	55	25	25	0	33 (17)										
Mean	98 (17)	109 (20)	128 (23)	125 (20)	127 (18)	126 (19)	143 (18)	136 (20)	131 (20)	118 (24)	109 (20)	117 (18)	98 (18)	96 (19)	102 (19)	91 (19)	84 (17)	84 (19)	115 (21)	137 (23)	116 (17)	109 (19)	117 (22)	97 (18)	114 (468)										
																									Mean for 0a days [74 (5)]										

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

19 LERWICK												Factor 1.10 (metre <sup>-1</sup> )												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	75	50	50	50	50	50	50	50	75	49 (22)			
2	75	125	125	100	100	150	200	275	200	125	75	50	75	125	125	75	100	100	150	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	175	250	375	300	300	114 (24)				
4	300	125	100	125	200	175	175	150	125	75	50	50	50	50	50	50	50	75	125	100	75	50	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	102 (24)			
6	85	115	175	205	230	145	85	115	115	85	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	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	115	85	85	85	60	98 (18)				
10	60	30	30	30	60	60	60	30*	60	60	85	85	85	60	60*	30*	145*	260*	290*	230*	205*	230	175	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	30	30	30	30	30	30	30*	60*	30*	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	60	-115*	2*	30*	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	75	50	59 (22)			
16	75	50	50	50	50	75	75	75	75	75	75	75	75	100	75	75	75	50	25	25	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	60	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	2*	85	85	60	60	60	73 (18)			
21	85	85	85	85	85	85	85	145	85	60	60	60*	85*	85	85	85	30*	60*	85*	145*	2*	2*	145*	-	86 (14)			
22	-*	-*	-	-*	-	-	-*	-*	-*	85*	2*	2*	2*	2*	2*	205*	2*	145*	85	205*	175	2*	2*	2*	130 (2)			
23	115*	85	85*	85	60	85	85	60	60	60	60	60	60	60	60	60	60	60	60	60	60	30	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	2*	2*	2*	325	250	275	300	475	2*	2*	350	194 (16)			
26	2*	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	99	78	80	93	86	98	119	112	90	82	89	93	86	89	94	102	111	131	133	146	135	118	110	103 (579)			
	(22)	(26)	(26)	(27)	(24)	(25)	(23)	(22)	(23)	(24)	(24)	(22)	(24)	(27)	(26)	(24)	(25)	(24)	(22)	(22)	(25)	(24)	(25)	(23)	(22)			
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 <sup>-1</sup> )												OCTOBER 1959				
	Hour G.M.T.												volts per metre															
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean			
1	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	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	51 (24)				
4	50	50	80	130	155	130	50	50	25	25	25	0	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	235	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	60	120	150	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	0	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*	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**	210	270	210*	330*	240*	150*	Z**	90*	Z**	210 (8)			
26	Z**	180*	150*	60*	90*	90*	270	120*	Z**	Z**	180*	120*	90	210*	60	60	60	120	150	300	300	90	90	90	140 (12)			
27	90	90*	150*	60*	-60*	-210*	Z**	Z**	300*	Z**	210*	180*	90*	240*	120*	90	180*	270*	300*	180*	0*	--	--	--	90 (2)			
28	--	--	--	--	--	--	--	--	--	--	Z**	Z**	270*	210	90	150	90	120	150	150	120	90	60	60	117 (11)			
29	90	90	90	90	60*	90	90	60	90	60	60	30*	60*	60*	60	30*	30*	30*	30	60	60	30*	60*	60*	73 (14)			
30	80*	50*	80	105*	50	50	50	80	105	130	105	80	80	80	105	80	50	80	80	50	80	80	80	80	79 (21)			
31	60	60	90*	60	60	60	60	60*	60*	60*	60*	60*	30*	60*	180*	210*	150*	120*	90*	60*	60*	60	30*	150*	60 (7)			
Mean	122 (25)	127 (25)	143 (22)	115 (22)	125 (23)	136 (25)	128 (23)	129 (22)	132 (19)	135 (19)	151 (20)	140 (18)	160 (21)	187 (20)	170 (23)	159 (25)	173 (24)	173 (23)	184 (26)	164 (24)	174 (22)	164 (25)	173 (23)	132 (23)	150 (542)			
																							Mean for 0a days			184 (13)		

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

61

19 LERWICK													Factor 1.07 (metre <sup>-1</sup> )													NOVEMBER 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	volts per metre												Mean					
	0-1	1-2											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	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+	Z++	230*	145	Z++	173 (10)					
3	205	Z+	Z+	Z++	Z++	Z--	Z++	30*	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	85	85	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++	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*	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	145	145	145	175	163 (13)						
19	145	115	85	115*	85*	60*	145*	85*	-30*	-30*	Z--	-205*	-115*	30*	-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	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	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 <sup>-1</sup> )												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	volts per metre												Mean				
	0-1	1-2											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	150	125	Z±*	Z±*	Z-*	-50*	Z-*	-50*	25*	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-*	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*	50*	75*	50*	50*	50*	50*	140	(5)				
7	50*	50*	75*	100*	125*	125*	150*	125*	100*	175*	250*	350*	250*	200*	200*	225*	225*	175*	150*	200*	400*	225*	200*	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	125	150	100*	125*	150*	Z±*	Z±*	500*	125	125	125	125	100	100	100	100	100	116	(17)			
12	100	100	75	100	75	50	50	75	75	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	100	125	125	150	150	175	200	175	150	150	150	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*	100*	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	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	100*	125*	Z±*	Z±*	Z±*	Z±*	50*	Z-*	100	75*	125*	150*	125*	150*	100*	96	(7)				
19	Z-*	75	100	100	100	100	75	75	75	150	175	150	175	150	150*	200*	300*	125*	0*	-50*	-300*	25*	Z-*	100*	115	(13)			
20	0*	Z±*	Z±*	Z-*	Z-*	0*	Z-*	25*	100*	125*	100*	Z-*	Z±*	125*	125	125	100	100	100	-25*	125*	125	125	75	109	(8)			
21	100	75	100	Z±*	-125*	125*	100	50*	75*	100*	125*	150*	175	100	175*	175*	Z±*	Z±*	Z±*	125	125	100	75	100	107	(11)			
22	75	100*	-50*	125	Z±*	75	Z±*	75*	175	Z±*	175	225	200	125	Z±*	200*	225	350*	Z±*	300*	Z±*	Z±*	Z±*	175*	156	(9)			
23	250*	Z±*	Z-*	-425*	-150*	-75*	-25*	Z±*	Z±*	-150*	0*	175*	Z±*	Z±*	300	300	325	Z±*	Z±*	Z-	425	Z±*	Z±*	337	(4)				
24	150	100	Z±*	25*	Z±*	225*	175*	175	150	200	175	150	250	250	250	225	200	225	250	175	175	225	150	175	186	(18)			
25	175	125	125	150	Z±*	225*	250	Z±*	Z-	Z±	Z±*	Z±*	125	Z±*	Z±*	175	150	150*	250	250*	200*	250*	225	175	(10)				
26	200*	Z±*	200	Z±*	175*	50*	-250*	0*	-75*	0*	0*	0*	50*	-50*	-25*	Z±*	Z-*	Z-*	Z±*	Z±*	100*	Z±*	-200*	Z±*	200	(1)			
27	Z-*	Z-*	Z±*	Z±*	Z±*	0*	125	125	-25*	25	100*	75	125	125*	Z-*	125*	225*	200	275	Z-	300	250	200	225*	170	(10)			
28	75	50	Z-*	50*	50*	50*	100*	125	125	100	125	125	125	100	125	75*	75*	50*	75*	100	100	75	75	50	98	(15)			
29	75	75	75	75	50	50	75	75	125	125	125	125	125	125	150	150	150	150	150	100	75*	0*	-125*	25*	107	(20)			
30	-150*	-125*	125*	-50*	-100*	-75*	50*	50*	75*	125	100*	175*	125*	Z±*	175*	175	125*	125	150	125	125	250*	100*	75	129	(7)			
31	Z±*	50*	-150*	Z-*	-300*	0*	100*	50*	50*	50*	75*	75*	-*	-*	-	-*	-*	-50*	0*	-*	-*	-*	-*	-	(0)				
Mean	103 (14)	92 (14)	109 (16)	109 (14)	108 (14)	107 (13)	119 (16)	105 (15)	121 (14)	132 (14)	152 (11)	154 (12)	164 (14)	169 (12)	159 (12)	165 (13)	173 (12)	158 (9)	165 (12)	130 (13)	155 (11)	161 (13)	114 (9)	110 (12)	134 (309)				
																							Mean for 0a days			[83 (1)]			
Annual Mean	121 (232)	122 (244)	117 (236)	111 (233)	112 (229)	116 (230)	127 (219)	127 (227)	129 (234)	114 (236)	123 (231)	122 (230)	128 (235)	127 (236)	135 (232)	132 (233)	137 (229)	138 (219)	147 (235)	146 (243)	146 (221)	139 (238)	135 (238)	124 (228)	128 (5568)				
																							Annual mean for 0a days			[131]			

## 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
		hr.		hr.		hr.		hr.		hr.		hr.
1	2c	3.1	1a	0.1	0a	0.0	-	-	1b	0.1	1b	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	1c	1.6	2a	-	0a	0.0
30	1b	0.8	-	-	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
		hr.		hr.		hr.		hr.		hr.		hr.
1	1b	2.3	0a	0.0	0a	0.0	0a	0.0	1b	0.6	2c	17.1
2	1a	0.3	1a	0.1	1a	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.																													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	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	17,000+							
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								
2	q	751	751	752	754	757	757	757	753	747	735	733	732	738	744	751	751	751	752	755	757	758	758	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		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							
6	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							
7	d	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							
8		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							
9	d	704	708	723	732	736	731	730	729	726	720	725	721	714	717	720	741	751	753	695	710	721	721	662	641	718	231							
10	d	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							
11		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							
12		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							
13		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							
14		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							
15		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							
16		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							
17		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							
18		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							
19		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							
20	q	746	746	746	747	749	751	751	746	741	735	726	724	729	735	739	742	740	746	751	755	749	758	751	748	744	851							
21	q	746	750	751	754	755	757	758	754	746	735	726	720	720	725	731	735	742	744	744	746	754	754	751	753	744	851							
22		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							
23		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							
24	q	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							
25		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							
26	d	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							
27		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							
28		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							
29		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							
30		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							
31		755	752	764	748	762	745	763	748	729	728	734	726	713	715	718	727	737	743	744	749	751	761	754	749	742	815							
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								
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.																												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	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	800·0+							
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	38·5	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	34·6	34·2	35·7	36·3	37·6	38·8	40·3	42·3	39·8	41·3	42·3	37·3	36·2	30·6	32·7	34·9	35·0	35·1	36·5	75·0							
18	34·7	31·6	37·1	30·4	28·5	31·4	33·7	33·5	32·0	32·5	34·3	36·2	38·8	38·3	41·1	41·5	37·0	32·3	36·8	35·1	30·1	29·9	29·7	34·0	34·2	20·5							
19	34·8	35·1	34·5	36·4	33·8	33·8	33·4	33·3	32·8	34·8	35·8	37·0	37·2	39·4	39·5	37·7	37·2	37·4	32·9	28·5	33·8	34·5	35·0	35·1	35·2	43·7							
20 q	35·4	35·1	35·4	35·0	34·4	34·0	33·5	33·1	33·2	34·4	35·2	36·3	37·9	39·0	38·4	37·3	37·0	36·8	35·5	34·7	35·2	31·9	35·2	35·1	35·4	49·0							
21 q	35·2	35·3	35·3	34·9	34·5	34·4	34·0	32·9	32·3	32·9	34·1	36·0	38·2	39·3	39·0	38·2	38·1	38·3	38·3	38·3	35·5	34·7	34·3	34·8	35·8	58·8							
22	34·7	35·0	35·3	35·4	35·1	35·2	34·0	33·6	34·4	35·2	35·8	37·1	37·7	39·6	39·6	39·2	38·2	37·3	37·2	34·8	35·0	35·6	35·0	33·8	36·0	63·8							
23	31·0	31·6	32·1	34·3	35·4	35·1	35·0	34·5	33·7	33·4	33·6	33·8	36·3	38·9	40·0	38·9	38·8	38·4	37·2	34·6	34·2	36·2	35·4	34·2	35·3	46·6							
24 q	33·8	33·7	35·5	35·1	34·9	34·9	34·7	34·3	34·2	34·2	34·1	35·1	37·6	38·4	37·7	37·7	37·6	37·6	37·0	36·2	35·5	35·0	35·1	34·9	35·6	54·8							
25	34·9	33·5	34·5	34·8	34·8	34·2	34·2	33·4	33·9	32·7	32·7	35·5	40·9	42·0	45·8	46·3	44·3	42·1	37·2	37·4	36·2	35·0	34·0	32·0	36·8	82·3							
26 d	33·0	33·8	34·2	34·1	34·9	34·8	33·6	33·0	32·3	32·8	34·7	38·3	36·9	37·8	38·8	41·5	42·6	37·1	36·7	36·3	34·9	35·7	35·3	35·4	35·8	58·5							
27	35·2	35·3	35·1	34·9	34·6	34·2	33·2	32·5	32·2	33·2	34·9	34·6	35·7	37·2	37·7	37·2	38·1	39·4	39·4	38·6	35·6	34·6	33·6	33·6	35·4	50·6							
28	32·6	29·8	29·1	30·5	31·3	31·4	33·1	32·7	31·9	31·7	33·0	35·5	38·2	40·3	40·5	39·9	39·2	39·9	40·7	38·8	36·1	35·4	34·7	33·4	35·0	39·7							
29	34·8	34·4	34·2	34·0	33·5	33·4	33·1	32·6	33·3	35·5	35·5	36·7	36·3	38·8	40·1	42·7	45·5	40·3	40·7	36·7	32·1	34·0	33·4	33·9	30·1	65·5							
30	27·3	30·6	31·6	31·9	30·2	31·7	32·4	31·9	32·6	32·6	32·9	35·3	36·9	37·7	37·6	37·3	37·4	37·6	38·3	35·3	36·3	34·9	34·1	34·0	34·1	18·4							
31	33·7	32·9	32·6	30·9	29·9	31·6	35·9	34·9	31·9	33·8	35·5	37·0	37·3	39·4	39·8	39·3	38·4	36·7	37·6	37·1	34·7	33·8	34·0	32·6	35·1	41·3							
Mean	31·9	32·3	33·2	33·5	33·4	33·8	33·9	33·5	33·3	34·3	35·4	37·0	38·8	40·1	39·7	39·5	39·4	38·8	38·1	35·7	34·3	33·2	32·2	32·1	35·3								
Sum 900·0+	89·5	100·9	129·3	140·1	136·5	148·3	150·3	139·3	132·7	165·0	196·4	245·7	301·6	342·2	332·3	325·9	322·4	302·3	280·3	206·5	164·7	129·0	97·5	95·2		Grand Total 26273·9							

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

65

23 ESKDALEMUIR (Z)													45,000γ (0.45 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 7000+				
	0-1	1-2																												
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	320	322	732				
3	320	318	313	314	315	316	319	324	327	326	323	313	309	313	319	320	320	321	325	326	328	330	329	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	334	329	886				
5	331	328	326	325	324	325	326	326	326	321	321	318	317	331	343	338	339	353	377	381	359	328	336	343	335	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	347	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	331	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	339	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	365	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	371	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	347	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	347	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	338	1104				
14	332	332	331	332	332	331	330	330	327	325	324	326	326	326	328	332	332	334	335	336	336	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	325	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	336	1060				
17	320	327	327	327	326	327	332	334	335	335	337	338	345	349	368	365	358	355	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	332	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	335	1034				
20 q	332	331	331	331	331	331	332	332	332	332	334	338	326	323	331	332	331	332	333	334	334	332	331	331	332	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	332	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	326	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	322	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	326	325	804				
25	326	325	324	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	333	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	335	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	334	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	334	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	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	328	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												JANUARY 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		
	h. m.	γ	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ				°A.			
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	02 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	20 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	2,3,3,2,3,2,3,2	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	0,0,2,2,2,1,3,1	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	40.5	32.1	08 28	8.4	20 02	338	327	05 25	11	1,0,1,1,2,1,2,0	8	0	83.7	
22	07 27	777	730	12 57	47	14 33	40.4	30.0	24 00	10.4	19 45	333	319	08 00	14	1,1,2,2,1,2,2,2	13	0	83.7	
23	00 12	795	709	12 40	86	14 41	41.5	29.7	00 01	11.8	23 35	331	313	01 32	18	3,1,1,2,3,2,2,1	15	0	83.7	
24 q	05 56	768	727	12 17	41	13 23	38.8	32.6	00 01	6.2	00 31	332	319	12 20	13	2,2,2,1,1,1,0,0	9	0	83.8	
25	09 11	777	679	18 22	98	18 18	49.3	27.1	18 40	22.2	18 21	446	312	12 03	134	2,1,0,3,3,4,4,5,3	22	1	83.8	
26 d	03 27	757	646	12 42	111	16 41	46.4	31.3	10 16	15.1	17 23	343	320	11 41	23	1,3,1,3,4,4,2,1	19	1	83.6	
27	21 00	758	709	10 52	49	18 00	41.7	29.7	09 31	12.0	20 52	354	321	13 32	33	0,1,2,3,2,2,2,3	15	0	83.8	
28	19 37	764	691	12 04	73	14 27	41.3	28.1	01 15	13.2	22 21	350	326	12 35	24	3,2,2,3,3,2,2,2	19	0	83.6	
29	20 38	816	701	16 53	115	16 27	49.2	23.6	20 34	25.6	19 46	365	310	23 35	55	2,1,1,2,3,3,5,4	21	1	83.3	
30	19 22	780	728	15 52	52	12 13	40.2	22.8	00 12	17.4	16 40	338	316	00 00	22	3,3,2,2,2,2,2,2	17	0	83.6	
31	02 30	774	710	13 58	64	13 55	41.1	27.0	03 02	14.1	19 56	339	305	06 38	34	3,3,3,3,2,2,2,2	20	1	83.2	
Mean	-	-	778	688	-	-	44.2	25.2	-	-	19.0	-	-	368	311	-	-	-	0.48	83.9

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) +													FEBRUARY 1959																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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MAGNETIC DECLINATION (WEST)  
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

22 ESKDALEMUIR (D)													10° +												FEBRUARY 1959																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT  
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

67

23	ESKDALEUIR (Z)													45,000γ (0.45 C.G.S. unit) +													FEBRUARY 1959																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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DAILY EXTREMES OF TERRESTRIAL MAGNETIC ELEMENTS, MAGNETIC CHARACTER FIGURES (K AND C) AND TEMPERATURE IN MAGNET HOUSE

24		ESKDALEUIR										FEBRUARY 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		
	h. m.	γ	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ	h. m.	γ			°A.			
1	04 52	766	703	14 20	63	13 43	43.8	29.9	05 27	13.9	14 53	350	313	05 10	37	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	16 05	339	296	05 38	43	2,3,3,3,2,3,2,3	21	1	82.7		
23	00 29	775	695	11 22	80	08 13	40.0	24.2	02 43	15.8	16 11	338	303	05 47	35	4,2,3,2,1,1,0,0	13	0	83.0		
24 q	23 22	778	706	11 17	72	14 47	41.6	28.9	09 30	12.7	15 50	341	324	12 43	17	0,0,1,2,2,2,1,2	10	0	83.0		
25 d	17 13	1144	632	23 55	512	17 25	102.0	13.6	23 59	88.4	17 22	632	288	08 12	344	3,4,4,4,5,6,5,5	36	2	82.5		
26 d	19 52	831	606	07 12	225	07 28	49.5	4.4	00 17	45.1	16 32	399	279	03 59	120	4,3,5,4,4,4,5,4	33	2	-		
27	17 37	887	705	01 31	182	17 40	56.6	19.6	18 03	37.0	17 43	521	306	05 00	215	3,2,2,2,3,5,4,3	24	1	82.8		
28 d	20 50	926	646	12 42	280	13 39	49.4	6.3	20 44	43.1	17 42	448	279	23 56	169	4,4,3,3,4,4,6,4	32	2	82.6		
Mean	-	-	807	677	-	-	47.9	21.5	-	-	26.5	-	-	387	296	-	-	0.82	83.1		

**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) *												MARCH 1959	
	Hour 0-1	G.M.T. 1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean	Sum 16,000+
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	
2	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
3	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
4	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
5	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
6	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
7	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
8	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
9	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
10 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
11 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
12	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
13	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
14	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
15	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
16 q	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
17	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
18	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
19	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	2171
20	771	771	771	769	768	767	768	768	763	756	739	741	743	740	746	748	748	755	766	768	768	769	769	769	760	2241
21	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
22 q	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
23	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
24	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
25	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
26 d	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
27 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
28 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
29 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
30	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
31	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
Mean	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
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.																												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	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	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	35.0	35.2	35.1	34.8	35.8	33.0	32.5	31.1	29.8	30.3	33.0	35.2	36.9	37.1	36.8	36.3	35.1	34.9	35.4	35.4	35.6	36.1	36.5	34.8	34.7	131.7			
19	34.4	34.6	34.1	33.1	32.9	32.6	32.3	31.8	31.0	31.6	34.6	37.6	40.0	39.7	39.5	37.6	35.6	35.3	35.4	35.2	35.7	35.8	35.5	35.2	35.0	141.1			
20	34.6	34.4	34.5	33.5	32.0	31.4	31.1	31.3	31.9	34.0	37.3	41.3	42.1	40.8	39.6	37.3	36.1	35.0	35.3	35.2	34.8	35.0	34.8	34.5	35.3	147.8			
21	34.7	34.4	34.4	33.6	33.0	32.0	31.0	29.1	28.8	30.7	34.4	39.9	42.2	44.1	41.3	40.4	37.6	35.7	35.8	35.0	34.0	34.6	33.5	33.9	35.2	144.1			
22 q	34.6	34.6	34.4	33.7	33.0	31.8	30.1	27.6	26.8	28.8	32.2	36.6	40.7	41.4	40.9	38.3	36.6	35.8	35.3	35.1	34.8	34.7	33.6	33.8	34.4	125.2			
23	34.1	34.0	32.8	33.7	32.2	32.8	33.3	28.5	28.5	30.0	31.8	37.0	40.0	41.3	41.7	39.8	37.0	36.2	36.5	36.0	35.3	35.2	32.5	34.2	34.8	134.4			
24	33.2	33.4	31.4	32.6	31.9	32.4	31.3	28.2	27.2	29.0	32.7	39.2	43.9	45.4	44.1	41.3	39.0	36.5	34.6	34.3	34.5	34.1	34.6	34.9	35.0	139.7			
25	34.7	34.7	33.8	36.0	32.2	25.8	25.9	25.4	23.5	25.5	30.2	36.0	42.3	46.2	48.7	47.7	41.8	42.2	36.1	31.5	29.3	33.0	33.9	33.7	34.6	130.1			
26 d	32.8	32.1	31.8	32.1	31.9	31.6	30.4	27.5	26.0	28.3	36.1	41.8	51.0	56.4	49.5	49.0	45.0	44.1	38.4	30.2	35.9	29.9	8.0	13.3	34.7	133.1			
27 d	13.4	1.4	11.6	11.1	16.5	17.7	39.8	56.6	23.8	27.0	36.6	45.3	48.7	56.6	54.7	48.0	52.6	53.9	43.1	18.8	33.6	18.9	17.1	21.0	32.0	66.9			
28 d	29.3	30.9	29.8	30.0	30.5	30.8	27.5	23.7	22.4	29.2	33.1	37.9	41.5	47.5	52.6	51.0	44.0	44.9	37.0	34.1	30.6	18.8	25.1	12.4	33.1	94.6			
29 d	10.0	13.0	16.7	15.0	24.2	22.3	34.5	29.7	27.0	27.7	31.6	39.1	43.0	43.2	41.0	38.7	32.8	33.6	33.2	28.9	26.0	31.5	33.6	34.2	29.6	10.5			
30	33.5	31.7	34.2	35.0	32.0	30.7	31.1	28.0	26.6	28.3	31.4	36.2	38.4	37.4	37.9	34.2	33.7	31.3	31.0	32.6	33.3	34.6	32.5	31.2	32.8	86.8			
31	32.5	32.9	32.5	28.0	30.2	28.9	29.7	29.2	27.8	29.7	34.2	40.3	42.1	43.6	40.4	38.7	36.6	33.4	29.1	29.1	30.3	30.1	28.6	29.7	32.8	87.6			
Mean	30.7	30.4	31.1	31.0	31.5	30.7	31.5	30.9	28.9	29.9	33.1	37.5	40.7	42.5	42.3	40.6	38.5	37.4	35.5	33.7	33.6	32.4	31.1	30.7	34.0				
Sum 800.0+	150.5	142.7	164.7	159.9	175.1	151.4	177.5	158.9	96.1	127.8	227.2	364.1	463.2	515.9	512.2	458.2	393.8	358.8	299.8	245.8	241.3	204.3	164.9	152.9		Grand Total 25307.0			

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

69

23	ESKDALEUIR (Z)												45,000γ (0.45 C.G.S. unit) +												MARCH 1959																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Hour G.M.T.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												

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

24 ESKDALEUIR												MARCH 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			Range										
	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	γ h. m.	γ										
1 d	15 53	797	646	15 18	151	14 08	47.5	15.1	00 19	32.4	15 46	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	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, 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	55	12 59	43.8	30.1	07 17	13.7	20 35	328	305	11 24	23	1, 2, 2, 2, 2, 2, 1, 1	13	0	82.6	
21	02 03	774	717	09 49	57	13 29	45.9	27.9	08 42	18.0	17 07	341	296	11 28	45	1, 1, 1, 2, 2, 3, 1, 1	12	0	82.6	
22 q	22 32	791	724	10 12	67	13 53	44.0	26.4	08 09	17.6	07 40	328	300	11 50	28	1, 1, 1, 2, 3, 2, 1, 2	13	0	82.5	
23	03 19	805	712	12 02	93	14 38	42.7	26.9	08 10	15.8	17 00	336	302	11 39	34	2, 3, 2, 1, 2, 3, 3, 2	18	1	82.6	
24	23 12	779	675	11 29	104	13 38	46.2	27.0	08 57	19.2	18 30	344	296	12 36	48	2, 1, 1, 3, 3, 3, 2, 2	17	0	-	
25	15 05	836	685	10 51	151	15 03	53.5	22.5	08 28	31.0	18 22	390	275	04 22	115	2, 4, 2, 2, 5, 5, 4, 3	27	1	82.5	
26 d	13 41	871	486	23 53	385	14 23	64.5	-1.1	22 04	65.6	19 02	443	147	23 27	296	2, 1, 3, 5, 7, 5, 5, 6	34	2	82.5	
27 d	16 28	1556	403	07 32	1153	16 32	101.0	-12.1	02 07	113.1	17 37	634	102	04 42	532	6, 5, 6, 5, 7, 7, 7, 5	48	2	82.4	
28 d	18 18	913	196	22 34	717	15 02	58.3	0.1	23 36	58.2	18 25	532	11	22 48	521	3, 4, 3, 4, 5, 6, 7, 8	40	2	82.5	
29 d	16 17	937	555	02 42	382	12 40	47.5	-4.3	00 24	51.8	16 10	458	198	01 10	260	6, 5, 5, 5, 5, 6, 4, 2	38	2	82.5	
30	21 04	763	635	09 14	128	12 38	40.6	25.8	09 12	14.8	17 53	372	313	03 52	59	2, 3, 3, 4, 3, 2, 2, 3	22	1	82.6	
31	19 14	821	675	12 07	146	13 20	44.9	20.7	18 58	24.2	18 38	358	296	22 43	62	2, 2, 2, 2, 3, 3, 4, 5	23	1	82.5	
Mean	-	-	825	-	163	-	46.7	21.5	-	25.2	-	375	282	-	93	-	-	0.65	-	82.6

**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.																								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	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24		17,000+
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
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	712	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.																										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	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	700.0+	
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	43.2	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	36.1	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	32.8	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	32.1	30.8	29.9	28.5	27.3	26.1	27.1	29.8	33.9	37.3	39.7	40.0	39.3	37.8	35.6	34.8	34.6	35.3	34.9	34.5	33.6	33.1	94.4	
19 q	32.8	32.5	31.8	31.4	31.4	31.1	29.8	28.2	27.3	29.2	30.2	31.8	35.7	37.9	38.9	38.7	37.7	36.9	34.6	34.8	35.2	35.6	32.7	31.7	33.2	97.9	
20 q	33.6	33.8	32.8	32.2	30.4	28.8	27.4	26.2	25.8	26.6	29.4	31.8	37.2	39.3	39.2	38.4	37.1	35.5	34.4	34.8	34.9	34.7	34.4	34.0	33.0	92.7	
21	33.9	32.5	30.8	31.2	31.7	30.9	28.7	25.7	27.8	28.9	33.5	35.3	37.5	40.4	41.3	39.0	36.9	34.5	33.2	33.9	34.3	34.1	34.0	34.1	33.5	104.1	
22 q	33.9	33.0	33.0	32.3	31.4	29.8	28.1	26.3	25.6	26.5	28.8	32.5	37.0	39.8	40.5	38.8	36.9	34.6	34.1	33.9	34.1	34.3	34.4	34.1	33.1	93.7	
23 d	34.1	34.1	33.8	33.4	32.6	30.8	28.4	26.5	25.7	27.1	30.6	38.1	44.2	48.9	47.6	48.6	46.2	47.2	47.8	51.9	39.9	25.3	28.7	29.2	36.7	180.8	
24 d	29.8	29.1	27.1	27.8	28.2	28.6	25.2	24.2	25.8	28.2	32.2	38.8	45.4	47.6	49.7	45.6	38.0	32.8	32.3	32.6	33.6	26.9	29.8	30.5	32.9	89.8	
25	30.8	32.3	33.9	32.0	32.3	34.0	29.4	27.8	24.2	26.1	30.0	35.8	41.8	43.1	44.8	42.4	41.7	37.0	32.7	33.6	30.0	30.1	29.3	30.9	33.6	106.0	
26	32.1	32.7	27.8	23.6	27.6	28.6	26.7	27.2	25.3	28.7	30.9	36.2	38.1	39.6	38.7	38.3	37.7	34.9	33.6	33.5	31.8	30.0	25.7	30.3	31.7	59.6	
27	32.0	28.4	29.4	27.3	26.9	23.9	26.6	28.6	28.0	28.2	31.8	36.9	42.7	45.0	44.7	42.5	39.6	35.8	34.0	34.9	35.0	32.3	28.0	29.5	33.0	92.0	
28	27.2	28.0	27.1	25.6	26.4	26.2	25.4	26.0	24.7	27.7	32.0	35.2	37.9	40.8	40.0	38.8	37.8	36.2	35.3	35.5	31.3	30.9	27.2	25.3	31.2	48.5	
29 d	28.3	28.1	28.7	28.0	27.1	27.2	26.9	27.1	28.8	30.8	33.2	35.9	39.1	43.8	45.7	43.6	42.2	40.3	31.4	30.8	31.0	33.3	31.6	30.5	33.1	93.4	
30	29.9	29.8	28.2	27.9	26.6	25.6	25.4	25.9	25.6	25.7	29.4	33.0	37.8	45.1	45.4	44.3	39.2	38.0	29.0	30.4	32.4	32.8	32.4	31.5	32.1	71.3	
Mean	31.1	30.8	30.7	29.4	29.5	29.8	28.8	27.5	26.8	28.3	31.3	35.7	39.7	41.8	41.8	40.4	38.1	36.0	34.3	34.3	33.5	32.5	31.4	31.2	33.1		
Sum 800.0+	132.4	124.8	122.0	81.8	86.5	93.7	65.1	25.0	5.2	48.4	139.5	270.9	391.7	455.1	454.0	410.9	344.4	279.2	228.7	227.7	205.8	175.5	141.5	135.2		Grand Total 23845.0	

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

71

23	ESKDALEUIR (Z)												45,000γ (0.45 C.G.S. unit) +												APRIL 1959		
	Hour G.M.T.																									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	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	7000+	
	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	331	336	308	326	333	320	305	309	324	330	331	333	336	341	343	344	344	343	343	343	343	343	343	343	343	333	995
2	343	342	343	342	343	342	345	348	349	346	341	325	324	327	334	344	351	361	367	367	363	360	359	356	347	1322	
3	348	336	332	333	336	339	344	347	345	341	331	328	331	337	342	349	357	359	353	347	346	344	343	344	342	1212	
4	335	334	335	334	336	339	344	348	345	339	332	327	327	332	338	342	343	344	343	346	346	349	350	350	340	1158	
5 q	349	342	334	336	336	337	339	343	340	332	325	317	318	321	327	335	341	339	340	343	339	337	337	338	335	1045	
6	338	333	330	332	332	333	337	341	338	330	317	311	312	318	324	335	344	353	355	353	353	353	349	343	336	1064	
7	340	339	339	339	338	339	341	342	340	331	323	316	311	311	321	335	340	348	351	353	349	340	338	340	336	1064	
8	332	326	318	316	319	317	317	323	331	326	319	313	320	334	338	350	367	385	387	373	370	365	369	331	339	1146	
9 d	274	277	285	316	332	319	314	329	340	349	342	338	342	349	355	359	361	359	362	374	353	351	353	352	337	1085	
10 d	351	353	326	309	333	333	336	330	325	309	315	321	339	387	454	495	562	499	466	408	390	381	371	361	377	2054	
11	357	338	327	336	329	323	332	339	339	337	336	339	338	338	340	343	348	350	348	350	362	373	361	324	342	1207	
12	341	344	345	344	341	334	334	339	340	338	338	335	332	332	335	340	347	350	351	350	347	344	347	346	341	1194	
13	339	333	332	339	341	343	345	347	343	331	324	320	319	320	327	334	340	347	350	349	347	344	342	338	337	1094	
14	338	336	329	321	331	333	335	334	336	335	330	320	315	320	333	335	338	339	342	340	341	349	347	333	334	1010	
15	309	293	319	331	336	339	341	343	344	341	337	333	326	326	331	338	340	343	346	353	347	343	341	338	335	1038	
16	335	328	327	333	335	336	336	334	330	327	324	326	320	321	329	335	339	344	343	342	343	342	338	337	333	1004	
17	337	338	337	337	337	337	338	334	333	330	326	321	320	331	339	345	344	344	341	344	343	339	335	332	336	1062	
18 q	326	323	326	332	336	339	339	335	331	330	327	321	320	320	327	332	336	340	341	341	340	339	338	338	332	977	
19 q	338	337	336	335	334	334	335	334	331	327	324	320	318	320	326	327	330	332	338	338	336	335	337	336	332	958	
20 q	332	332	332	333	335	336	335	331	327	326	326	324	320	322	327	330	333	335	338	337	336	335	335	335	331	952	
21	333	328	325	322	321	326	335	339	338	336	332	335	330	330	335	343	347	349	347	343	339	338	338	337	335	1046	
22 q	337	337	338	338	338	337	336	336	335	334	327	316	307	306	314	321	328	331	331	332	332	332	332	333	329	908	
23 d	333	333	332	332	331	331	331	330	326	315	315	332	301	308	316	327	353	399	446	457	477	443	386	377	355	1521	
24 d	379	381	371	366	358	347	344	347	350	347	339	336	354	364	381	399	399	386	365	350	347	357	337	336	360	1640	
25	338	338	329	332	330	311	321	327	332	338	339	335	335	343	349	355	371	395	391	373	364	348	323	332	344	1249	
26	342	341	312	300	315	331	338	343	339	332	323	315	320	325	334	342	347	365	372	370	362	359	332	316	336	1075	
27	300	311	321	320	311	312	313	310	317	319	317	312	310	324	341	361	372	382	378	368	357	356	341	327	333	980	
28	327	326	324	322	324	321	326	327	326	319	316	319	319	326	340	352	362	367	372	367	361	349	332	297	334	1021	
29 d	307	304	315	312	321	321	318	319	317	314	312	315	316	326	348	371	401	439	447	412	389	372	355	318	345	1269	
30	338	332	333	329	323	324	330	332	330	328	330	331	328	337	370	402	423	427	420	388	379	370	359	343	354	1506	
Mean	334	332	329	330	332	331	333	335	335	331	327	325	324	330	341	351	360	365	366	360	357	353	346	338	340		
Sum 9000+	1027	951	860	897	965	933	984	1040	1041	937	818	734	708	896	1218	1520	1808	1954	1974	1811	1701	1580	1368	1131		Grand Total 244,856	

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

24 ESKDALEUIR												APRIL 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								
	h. m.	γ	γ	h. m.	γ	h. m.	γ	h. m.	γ	γ	h. m.	γ				°A.		
1	07 13	758	683	11 53	75	14 08	38.7	21.5	03 18	17.2	16 32	346	303 02 30	43	3,3,3,1,1,1,1,0	13	0	82.5
2	19 58	777	697	10 35	80	14 06	43.2	24.7	09 10	18.5	19 03	369	320 11 59	49	0,1,2,2,2,2,2,3	14	0	82.6
3	22 02	771	684	11 27	87	13 03	44.4	23.5	03 17	20.9	17 21	361	327 11 15	34	3,3,2,3,2,3,1,3	20	0	82.5
4	18 49	774	689	10 50	85	13 18	41.3	22.7	08 16	18.6	22 12	351	326 12 20	25	3,2,2,1,1,2,1,1	13	0	82.4
5 q	01 16	767	696	11 37	71	13 21	43.1	24.8	08 32	18.3	00 01	350	316 11 37	34	2,1,2,2,2,2,2,1	14	0	82.3
6	18 10	786	709	10 17	77	13 22	42.7	24.2	08 21	18.5	18 30	356	308 11 52	48	2,0,2,1,2,2,3,2	14	0	82.4
7	20 08	803	694	12 18	109	14 02	42.3	20.4	19 58	21.9	19 55	360	309 12 34	51	2,1,2,3,2,2,4,3	19	0	82.3
8	17 28	799	662	13 23	137	12 57	46.5	20.2	22 58	26.3	18 01	393	310 03 02	83	3,3,3,3,3,3,2,4	24	1	82.4
9 d	18 31	857	582	00 28	275	21 09	43.6	13.2	00 49	30.4	19 29	382	242 00 33	140	5,5,3,3,2,3,5,4	30	1	82.5
10 d	16 29	1082	403	08 14	679	14 39	61.1	9.9	09 33	51.2	16 31	581	289 03 07	292	4,4,7,6,6,7,5,3	42	2	82.4
11	22 55	848	642	10 47	206	13 33	44.2	8.0	22 52	36.2	21 11	378	313 23 22	65	3,2,2,3,3,3,3,5	24	1	82.4
12	05 55	770	675	11 56	95	13 13	40.6	23.4	09 04	17.2	18 28	352	331 13 14	21	3,3,2,3,2,2,1,2	18	0	82.5
13	20 51	790	674	12 57	116	14 08	42.4	25.8	08 58	16.6	18 22	351	317 12 30	34	3,2,2,2,3,3,3,1	19	0	82.5
14	19 02	793	701	11 20	92	02 37	44.1	28.1	08 53	16.0	21 31	350	313 12 38	37	3,2,2,2,2,3,2,3	19	1	82.5
15	18 52	788	696	12 24	92	13 55	38.9	21.1	01 34	17.8	19 20	354	282 01 23	72	3,2,2,2,1,2,3,2	17	0	82.3
16	19 19	783	699	11 35	84	13 07	40.5	27.7	08 20	12.8	17 47	347	318 12 38	29	2,2,1,3,2,2,2,1	15	0	82.5
17	19 13	787	695	11 38	92	13 35	40.6	25.9	07 40	14.7	16 59	347	316 12 13	31	1,1,2,3,3,2,2,2	16	0	82.5
18 q	18 55	784	711	10 40	73	14 14	40.8	25.8	08 37	15.0	18 02	343	320 13 28	23	3,0,1,2,2,2,2,0	12	0	82.7
19 q	22 27	782	722	12 00	60	14 27	39.4	26.8	08 37	12.6	19 02	339	317 12 40	22	0,1,1,2,2,2,1,2	11	0	82.6
20 q	23 58	785	723	13 12	62	13 51	40.5	25.2	09 07	15.3	18 31	338	319 12 48	19	0,1,2,2,3,2,1,1	12	0	82.8
21	01 32	787	703	11 59	84	14 37	42.7	24.1	07 36	18.6	17 50	350	319 04 50	31	3,2,2,2,2,2,3,1	16	0	82.4
22 q	21 06	775	692	11 23	83	13 53	40.8	25.5	08 07	15.3	02 20	338	304 13 10	34	0,1,0,2,2,2,1,0	8	0	82.6
23 d	21 26	987	473	20 31	514	19 53	73.1	4.9	21 32	68.2	20 36	524	299 12 27	225	0,0,0,4,5,5,7,7	28	2	82.6
24 d	07 09	792	680	09 50	112	14 43	51.5	17.0	07 52	34.5	15 38	404	333 23 27	71	3,3,5,4,4,4,2,4	29	1	82.4
25	17 36	825	664	10 31	161	14 21	47.0	22.2	08 18	24.8	17 33	400	309 05 42	91	3,3,3,2,3,3,4,3,3	24	1	82.6
26	17 58	806	684	10 59	122	13 37	40.4	19.8	22 41	20.6	18 40	373	298 03 18	75	3,3,2,3,2,3,3,4	23	1	82.6
27	17 24	794	689	11 05	105	13 51	45.7	23.1	05 33	22.6	17 10	385	296 00 47	89	2,2,3,2,3,3,2,3	20	0	82.6
28	18 41	794	689	11 17	105	13 48	41.5	20.8	22 54	20.7	18 12	373	284 23 17	89	1,1,2,2,3,3,3,4	19	0	82.9
29 d	17 48	889	686	14 53	203	14 17	48.0	23.3	05 29	24.7	17 53	455	300 00 40	155	3,3,2,2,4,5,4,2	25	1	83.0
30	18 45	859	676	11 49	183	14 27	48.4	24.4	07 09	24.0	17 54	437	321 05 06	116	2,2,2,3,4,5,5,2	25	1	82.7
Mean	- -	813	669 - -	144	- -	44.6	21.6 - -	23.0	- -	380	309 - -	71	-	-	-	0.43	-	82.5

**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.	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 17,000+
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	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	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	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	758	1201
5	767	759	768	767	767	768	766	756	747	729	738	742	743	752	770	768	762	779	792	778	794	805	767	768	765	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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.																									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	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	700.0+	
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	23.7	26.9	30.1	32.6	36.7	37.7	39.9	36.0	36.3	36.0	33.7	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	33.9	32.6	28.9	29.3	33.1	37.0	37.2	35.9	35.2	34.8	34.0	32.7	32.7	32.5	32.4	29.8	27.7	32.1	69.4	
17	29.2	29.1	28.7	28.4	27.4	25.8	26.3	25.3	25.9	30.5	33.6	37.7	38.3	37.8	37.4	36.3	32.2	31.0	32.8	34.5	35.4	34.8	34.8	35.4	32.0	68.6	
18	35.2	35.4	36.5	33.6	36.0	28.9	27.4	25.5	27.3	28.3	30.9	33.9	36.8	37.8	35.9	34.0	33.5	28.9	28.3	32.1	32.4	36.2	29.2	30.6	32.3	74.6	
19	31.7	32.0	34.3	26.6	26.0	24.7	22.0	20.2	21.5	25.5	31.5	36.2	38.8	38.9	38.8	37.6	33.7	32.6	31.8	32.7	33.1	32.5	29.0	30.1	30.9	41.8	
20	34.2	35.3	32.9	30.3	27.6	25.4	23.5	23.1	25.3	28.1	31.9	35.4	38.2	38.3	38.0	37.4	37.2	36.0	34.7	33.0	26.0	30.2	32.7	30.7	31.9	65.4	
21	29.7	30.0	29.4	26.7	25.1	28.6	26.1	25.6	26.1	29.7	35.0	39.3	42.9	42.4	41.1	39.4	38.8	36.9	35.0	33.2	31.6	28.5	32.6	32.9	32.8	86.6	
22	33.1	33.7	29.7	26.9	27.1	25.0	23.5	26.0	27.3	33.3	37.0	39.5	42.0	43.4	41.7	38.0	36.2	36.4	35.2	34.0	35.7	35.8	33.6	31.7	33.6	105.8	
23	29.0	27.5	30.6	32.8	25.2	22.0	22.7	23.5	25.9	28.9	31.7	35.6	39.1	40.7	40.6	39.0	37.5	35.3	33.9	34.8	33.7	33.7	33.4	34.4	32.1	71.5	
24 d	33.0	29.2	26.4	27.1	24.2	20.3	15.6	24.3	26.5	29.0	32.5	38.2	42.9	47.0	44.8	46.8	41.1	37.2	36.5	36.3	37.8	20.2	20.0	18.4	31.5	55.3	
25	25.1	19.1	25.3	27.3	27.8	27.2	31.5	33.9	34.3	33.1	32.7	35.8	38.0	38.9	40.3	39.8	37.6	35.5	34.4	33.6	32.4	32.5	32.1	31.7	32.5	79.9	
26	33.6	31.5	30.0	29.4	28.9	27.3	24.9	24.2	23.7	25.0	27.7	30.7	29.9	37.2	38.9	38.9	37.6	36.5	34.4	34.8	33.1	32.4	33.5	32.1	31.5	56.2	
27 q	31.1	31.9	29.2	30.2	28.5	26.9	26.0	25.6	26.8	28.3	31.8	35.7	39.2	40.2	40.0	39.7	38.6	37.0	36.2	36.1	34.4	33.9	33.8	33.3	31.5	94.4	
28 q	32.5	31.6	30.7	29.9	28.7	27.4	27.0	27.3	27.7	29.1	30.8	34.8	37.8	39.1	38.0	36.7	35.5	34.8	34.8	35.4	35.3	35.3	34.2	33.8	32.8	88.2	
29 q	31.6	31.2	30.7	30.2	29.3	27.9	26.6	25.6	25.6	28.1	32.2	36.2	38.9	39.2	38.8	38.8	37.6	35.8	35.4	34.8	35.0	35.1	34.7	33.4	33.0	92.7	
30	32.2	31.7	31.3	31.0	29.9	27.8	26.8	26.0	26.7	29.5	34.9	39.0	41.1	41.7	39.5	38.0	36.5	35.7	35.1	35.3	35.2	34.7	34.3	34.2	33.7	108.1	
31	34.3	32.3	32.5	33.4	34.7	28.9	27.6	25.1	25.4	28.4	32.1	35.5	40.0	43.5	42.9	40.2	39.0	37.9	34.6	32.9	35.3	34.7	35.5	32.3	34.1	119.0	
Mean	31.9	30.8	30.6	29.9	28.9	27.3	25.8	26.0	26.8	28.6	32.0	35.8	38.9	40.3	39.3	38.4	37.0	34.6	33.8	33.9	33.6	33.1	32.8	32.2	32.6		
Sum 700.0+	289.7	255.9	249.0	226.8	197.3	147.7	99.1	106.2	131.8	186.1	291.6	409.8	506.9	549.9	518.8	489.8	447.9	372.8	347.0	352.1	340.3	326.8	317.0	298.3		Grand Total 24258.6	

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

73

23	ESDALEUIR (Z)												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	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	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	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	337	335	340	331	327	335	343	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	338	338	333	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	323	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 ESKDALEUIR												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			Range									
	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				°A.				
1	20 02	775	687	12 41	88	14 18	41.0	27.2	08 36	13.8	17 40	363	319	05 44	44	1,3,1,2,3,2,2,2	16	0	82.8
2	20 08	787	705	12 48	82	13 26	39.6	23.4	05 55	16.2	08 43	351	324	12 18	27	2,2,3,3,2,1,2,2	17	0	82.7
3	23 00	849	713	12 20	136	12 58	41.3	25.4	07 23	15.9	21 27	346	308	23 19	38	1,1,0,1,2,2,2,4	13	0	82.7
4	21 53	826	722	09 19	104	14 12	42.4	25.6	08 32	16.8	19 23	367	307	10 55	60	3,1,2,2,3,3,3,4	21	1	83.2
5	00 03	774	597	00 52	177	14 25	44.5	5.7	01 55	38.8	17 53	353	215	03 51	138	6,4,3,4,4,3,2,1	27	1	83.0
6 q	18 44	782	699	11 57	83	13 29	39.8	24.5	07 46	15.3	01 00	344	306	11 13	38	0,1,0,2,2,3,1,1	10	0	83.3
7	23 47	823	703	12 01	120	13 29	42.9	23.5	08 03	19.4	17 53	348	301	11 52	47	1,1,1,2,2,2,2,3	14	0	83.0
8 d	00 00	809	656	09 53	153	14 32	45.7	21.8	07 22	23.9	13 37	349	277	05 58	72	3,4,4,3,4,4,3,3	28	1	82.9
9	17 23	828	664	11 37	164	14 23	45.7	21.4	07 40	24.3	18 22	365	311	11 55	54	3,2,2,3,4,4,2,3	23	1	83.0
10	17 40	848	694	10 09	154	13 53	43.9	22.9	07 05	21.0	18 17	370	315	12 03	55	3,2,3,3,3,4,4,2	24	1	83.0
11	18 20	846	688	11 29	158	23 46	47.0	20.3	08 02	26.7	18 47	372	296	24 00	76	3,2,3,3,4,4,3,5	27	1	83.1
12 d	16 49	1276	641	09 07	635	16 44	74.5	16.9	06 37	57.6	16 57	631	262	03 58	369	6,5,5,4,6,8,5,5	44	1	83.1
13	20 58	802	670	13 46	132	14 42	39.0	23.8	07 01	15.2	20 38	364	343	00 00	21	2,2,3,2,3,4,3,4	23	0	83.6
14 q	18 03	766	680	12 10	86	15 32	36.6	24.3	08 51	12.3	16 00	360	320	11 32	40	2,2,1,2,3,2,2,1	15	0	83.3
15 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	2,2,2,4,5,6,5,4	30	1	83.1
16 d	22 33	809	602	06 39	207	04 40	45.7	17.8	01 06	27.9	20 37	352	187	05 09	165	5,5,5,3,2,3,2,4	29	1	83.3
17	16 12	822	682	12 18	140	12 03	41.4	22.8	08 38	18.6	17 42	378	327	10 50	51	2,2,2,2,3,4,3,3	21	1	83.4
18	18 28	840	688	10 38	152	21 53	42.2	21.7	22 33	20.5	18 06	388	292	05 07	96	3,3,3,2,3,4,4,4	26	1	83.3
19	19 27	811	662	10 29	149	14 30	40.0	19.5	07 30	20.5	19 40	363	313	10 59	50	3,3,2,3,3,3,3,3	23	1	83.4
20	18 38	812	714	09 15	98	14 27	39.4	21.9	07 21	17.5	20 23	380	302	11 53	78	3,2,2,3,2,3,3,2	20	1	82.9
21	17 33	824	705	09 45	119	12 52	43.8	23.6	21 33	20.2	19 27	375	309	10 42	66	2,3,2,3,2,3,3,3	22	1	-
22	17 22	814	703	08 11	111	13 21	44.1	22.5	06 20	21.6	18 03	367	310	10 40	57	3,2,3,3,2,4,3,3	23	1	83.4
23	18 30	802	693	09 42	109	14 00	42.0	21.0	05 43	21.0	18 42	371	309	12 26	62	3,3,2,3,2,3,3,2	21	0	83.2
24 d	21 42	845	621	23 27	224	13 12	48.8	6.4	21 49	42.4	16 34	385	148	23 23	237	3,3,4,4,4,4,4,6	32	1	83.2
25	17 29	806	621	00 32	185	14 29	40.9	14.6	01 00	26.3	17 31	382	146	00 32	236	5,3,3,3,3,4,3,3	27	1	83.2
26	19 44	799	692	10 40	107	14 32	39.4	23.3	08 32	16.1	18 23	361	314	00 46	47	3,1,1,2,2,3,3,2	17	0	83.2
27 q	20 28	777	714	09 32	63	13 33	41.1	24.3	06 59	16.8	20 10	340	310	11 55	30	2,2,1,1,2,2,1,1	12	0	83.1
28 q	21 37	789	728	12 44	61	13 28	39.3	26.7	06 29	12.6	05 13	340	296	11 47	44	1,1,1,2,2,2,2,1	12	0	83.1
29 q	18 35	798	726	12 32	72	12 55	39.4	25.1	08 08	14.3	19 19	338	307	11 43	31	1,0,1,1,1,1,2,2	9	0	83.1
30	20 03	803	701	14 18	102	13 04	42.0	25.7	07 21	16.3	05 50	339	292	12 27	47	1,0,0,2,4,3,2,2	14	0	83.4
31	13 37	831	718	11 38	113	13 37	44.9	22.6	07 43	22.3	18 38	384	308	11 27	76	2,3,2,2,5,3,4,4	25	1	83.0
Mean	- -	829	683 - -	146	- -	43.3	21.3 - -	22.0	- -	372	289 - -	83	-	-	-	-	0.58	-	83.1

**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) +												JUNE 1959		
	Hour	G.M.T.																								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	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24		17,000+	
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ		
1	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
2	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
3	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
4 d	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
5	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
6	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
7	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
8	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
9	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
10	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
11	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
12 q	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
13 q	768	767	767	768	769	761	752	740	721	707	702	710	728	738	748	764	778	783	783	782	781	779	774	774	756		1144
14	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
15	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
16 q	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
17 q	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
18	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
19	779	776	775	768	770	749	748	742	735	717	713	718	741	753	780	787	792	805	796	784	790	781	781	779	765		1359
20	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
21	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
22	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
23	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
24	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
25 q	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
26	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
27 d	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
28 d	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
29 d	757	757	766	765	758	756	730	707	697	687	686	643	702	747	759	712	778	815	803	799	795	794	757	733	748		949
30 d	717	749	738	744	751	744	722	714	680	645	666	659	686	769	833	795	775	795	772	770	765	745	745	746	739		725
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		
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.																										
	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 700·0+	
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	31·1	33·2	96·3	
3	28·5	29·2	25·8	20·5	22·8	25·8	25·5	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	67·9	
4 d	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	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	35·4	34·6	34·5	29·0	33·0	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 q	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 q	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 q	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 q	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	25·9	24·4	23·8	22·2	25·1	30·2	34·0	38·6	41·6	41·5	40·9	40·5	39·2	37·3	34·8	34·0	34·0	31·9	32·8	33·0	32·6	83·4	
19	32·8	31·6	31·1	30·2	28·4	31·9	27·2	26·0	28·7	30·8	34·6	38·9	42·6	43·8	43·9	40·7	38·2	36·9	36·1	35·4	34·2	32·8	32·9	32·9	34·3	122·6	
20	33·0	34·9	31·1	28·1	26·5	24·2	23·1	23·8	23·5	26·1	29·8	34·6	39·4	42·3	43·4	41·4	38·4	37·1	36·5	34·4	34·6	34·8	33·7	29·5	32·7	83·8	
21	31·0	31·1	29·7	29·0	27·3	25·6	24·1	25·1	23·9	26·7	30·3	34·8	38·5	40·8	41·4	40·4	38·4	38·1	35·5	33·6	31·4	31·3	32·4	31·6	32·2	72·0	
22	31·7	30·1	31·3	31·7	29·3	27·6	22·8	20·9	24·0	26·3	31·7	36·0	41·6	44·5	44·5	42·9	40·3	39·0	38·7	37·4	36·1	35·3	33·0	33·1	33·7	109·8	
23	33·7	31·8	31·0	28·9	27·4	23·8	24·2	23·9	24·0	26·6	30·3	35·5	40·2	42·3	42·9	43·6	41·9	36·5	36·4	35·4	34·6	30·8	28·9	29·2	32·7	83·8	
24	30·0	27·1	22·1	20·8	26·0	27·7	25·4	25·1	25·5	27·1	30·2	34·8	38·9	41·5	41·9	40·5	37·5	34·0	30·0	32·5	32·1	31·6	32·0	28·9	31·0	43·2	
25 q	28·0	29·2	31·0	31·2	30·7	28·4	26·4	24·8	25·6	27·4	31·8	36·4	41·0	42·9	42·6	40·6	38·7	37·5	36·8	36·2	35·3	34·3	32·8	26·8	33·2	96·4	
26	25·4	27·3	27·7	30·2	32·1	28·1	28·0	24·9	25·0	28·1	32·5	36·2	40·5	43·5	43·2	41·7	36·1	35·1	34·3	35·1	34·8	34·6	34·3	33·4	33·0	92·1	
27 d	32·6	31·7	30·7	29·9	28·1	25·7	24·5	23·4	24·4	26·6	30·3	36·2	42·3	43·9	46·6	40·1	43·7	40·6	34·2	35·6	36·9	31·9	34·2	30·7	33·5	104·8	
28 d	29·9	19·2	16·6	23·7	23·5	20·2	22·0	23·8	25·1	30·9	31·1	32·9	36·4	37·1	37·2	38·9	39·8	39·0	35·6	38·2	34·8	34·0	35·4	35·8	30·9	41·1	
29 d	34·4	29·9	31·6	34·2	30·5	27·2	21·1	16·2	16·7	23·4	29·8	37·7	38·9	41·4	38·5	37·4	34·9	36·6	36·7	36·2	35·4	26·9	33·3	31·0	31·7	59·7	
30 d	30·6	30·2	24·6	23·9	25·2	24·2	23·0	24·5	21·6	30·4	33·7	37·9	38·8	41·1	41·5	36·3	35·3	33·6	33·3	32·9	32·9	31·8	29·7	29·9	31·1	46·9	
Mean	31·3	30·6	29·4	29·2	28·7	26·7	25·3	24·8	25·2	27·8	31·3	35·2	38·8	40·4	40·6	39·3	37·9	36·6	35·3	34·9	34·6	32·9	32·8	31·7	32·6		
Sum 700·0+	240·6	217·9	183·3	177·2	161·4	100·7	58·3	43·6	57·0	133·2	237·4	356·5	465·3	511·7	519·1	478·9	437·7	397·1	357·5	345·5	336·8	287·6	284·7	250·8		Grand Total 23439·8	

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

75

23 ESKDALEMUIR (Z)													45,000γ (0.45 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 7000+	
	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	919	
2	321	316	320	324	326	326	327	327	331	330	323	319	320	329	332	332	332	337	343	343	342	343	341	335	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	946	
4 d	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	883	
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	987	
	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		
6	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	
7	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	
8	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	
9	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	
10	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	
11	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	
12 q	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	
13 q	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	
14	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	
15	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	
16 q	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	
17 q	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	
18	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	
19	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	
20	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	
21	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	
22	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	
23	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	
24	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	
25 q	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	
26	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	
27 d	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	
28 d	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	
29 d	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	
30 d	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		
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		Grand Total 240,828	

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

24 ESKDALEMUIR												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 + °A.	
	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. γ	γ h. m.	γ	h. m. γ	γ h. m.	γ							
1	18 02	807	724 00 06	83	14 22	40.1	23.2 06 22	16.9	18 32	345	315 01 18	30	3, 2, 2, 2, 2, 2, 3, 2	18	0	82.3
2	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, 2, 3, 3, 4, 3, 4, 3	24	1	83.3
3	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, 3, 3, 3, 4, 4, 2, 2	24	1	83.1
4 d	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, 3, 4, 3, 3, 3, 3, 4	26	1	83.3
5	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, 3, 2, 3, 4, 3, 3, 2	24	1	83.0
6	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, 2, 2, 3, 3, 4, 3, 3	22	1	83.1
7	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, 3, 2, 2, 3, 3, 3, 2	21	1	83.1
8	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, 1, 2, 2, 3, 4, 3, 3	19	1	83.1
9	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, 3, 3, 3, 3, 3, 3, 2	23	1	83.0
10	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, 3, 2, 2, 3, 2, 2, 2	19	1	83.2
11	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, 1, 2, 4, 6, 4, 2, 2	22	1	83.2
12 q	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, 1, 2, 1, 2, 4, 3, 2	16	0	83.2
13 q	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, 1, 1, 2, 2, 2, 2, 1	12	0	83.2
14	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, 2, 1, 3, 4, 3, 2, 3	19	0	83.3
15	20 02	798	713 07 54	85	14 07	41.2	21.6 06 08	19.6	18 32	347	298 11 46	49	2, 2, 3, 3, 3, 1, 2, 1	17	0	83.4
16 q	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, 1, 2, 2, 3, 2, 3, 2	17	0	83.3
17 q	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, 0, 1, 1, 2, 2, 3, 3	12	0	83.3
18	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, 2, 2, 1, 4, 3, 2, 1	17	0	83.3
19	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, 3, 2, 2, 3, 2, 3, 2	18	0	83.4
20	18 31	817	715 10 31	102	14 02	44.4	21.7 06 44	22.7	17 13	337	311 12 45	26	2, 1, 1, 2, 3, 2, 3, 3	17	0	83.4
21	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, 1, 2, 1, 3, 3, 3, 2	17	0	83.5
22	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, 1, 2, 3, 3, 3, 3, 3	19	0	83.4
23	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, 1, 2, 2, 2, 4, 4, 4	22	1	83.4
24	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, 4, 1, 3, 1, 3, 4, 2	22	1	83.4
25 q	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, 1, 2, 2, 2, 2, 2, 3	16	0	83.4
26	18 14	815	678 10 07	137	14 07	44.8	23.2 07 53	21.6	17 10	373	313 01 30	60	3, 3, 4, 2, 3, 3, 3, 1	22	1	83.4
27 d	17 22	909	672 13 53	237	14 27	50.1	21.7 06 58	28.4	18 11	445	294 12 12	151	1, 0, 2, 2, 6, 6, 3, 5	25	1	83.4
28 d	17 24	860	673 08 28	187	17 27	41.3	14.5 01 43	26.8	16 33	442	258 03 30	184	4, 4, 3, 2, 5, 4, 3, 2	27	1	83.3
29 d	16 17	837	598 10 19	239	13 23	43.3	6.8 21 10	36.5	16 42	440	298 05 10	142	3, 3, 5, 5, 4, 4, 4, 5	33	1	83.5
30 d	14 33	848	610 09 20	238	14 52	43.2	18.6 08 03	24.6	15 19	477	278 00 59	199	4, 2, 3, 4, 5, 4, 3, 3	28	1	83.5
Mean	- -	828	695 - -	133	- -	42.3	21.3 - -	21.0	- -	368	298 - -	71	-	-	0.57	83.3

**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.		2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	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 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	γ	
	2	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
	3	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
	4	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
	5	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
6	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	
	7	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
	8	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
	9	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
	10	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
11 q	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	
	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	
	763	720	759	762	765	772	765	748	733	731	717	705	699	722	740	749	767	777	780	772	770	767	767	761	750	2011	
	748	747	745	738	749	748	741	742	726	730	727	728	717	724	747	765	772	768	770	773	783	774	774	754	750	1990	
	758	754	760	758	740	740	758	734	706	707	708	699	707	758	761	752	765	805	784	767	769	767	762	761	749	1980	
12 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	
	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	
	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	
	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	
	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	
13 q	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	
	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	
	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	
	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	
	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	
14 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	
	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	
	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	
	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	
	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	
15 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	
	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.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

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

77

23 ESKDALEUIR (Z)		45,000γ (0.45 C.G.S. unit) +																								JULY 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	γ	
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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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		ESKDALEUIR										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 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	γ				°A.					
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	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	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	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	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	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	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	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	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	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	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	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	3450	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	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	14 26	817	657	09 47	160	16 22	41.1	20.0	23 55	21.1	18 08	395	316	24 00	79	3,3,3,3,3,4,3,4	26	1	83.7	
21	17 09	814	672	10 55	142	14 07	42.4	20.6	07 24	21.8	20 30	378	316	00 02	62	3,3,2,3,4,3,3,3	24	1	83.7	
22	22 08	832	684	10 49	148	13 45	44.0	22.4	07 18	21.6	16 28	377	323	23 07	54	2,2,2,2,3,3,2,4	20	1	83.7	
23	19 25	799	672	13 03	127	14 33	41.5	19.8	08 00	21.7	21 13	373	289	01 17	84	3,3,3,3,3,2,2,2	21	0	83.7	
24	18 09	866	709	12 10	157	17 06	40.9	19.5	09 34	21.4	18 52	390	316	22 20	74	3,1,3,4,4,4,3,4	28	1	83.7	
25 d	18 38	903	649	09 17	254	14 05	43.9	18.2	07 21	25.7	19 05	411	301	02 12	110	4,4,4,4,4,5,5,4	34	1	83.8	
26	17 30	922	657	09 58	265	13 50	41.5	19.1	07 24	22.4	18 03	399	280	23 50	119	3,3,3,4,4,5,4,5	29	1	83.8	
27	20 44	839	658	09 36	181	02 21	43.1	20.8	08 20	22.3	18 28	385	267	02 40	118	4,3,3,3,3,3,4,3	26	1	83.9	
28	18 04	793	690	11 05.	103	13 57	40.8	20.0	05 56	20.8	18 49	369	313	01 53	56	3,2,2,2,4,3,2,3	21	1	83.9	
29 q	18 23	790	708	10 43	82	13 28	41.5	22.1	07 58	19.4	17 27	359	312	04 22	47	2,3,2,2,3,2,3,2	19	0	83.9	
30 q	20 44	786	708	11 16	78	14 04	37.7	23.1	08 31	14.6	06 44	356	319	12 35	37	1,1,1,2,2,2,3,1	13	0	83.8	
31	18 50	801	705	10 40	96	13 19	44.2	26.0	08 04	18.2	18 15	387	326	12 42	61	2,3,2,3,3,3,3,3	22	0	83.9	
Mean	- -	937	617	- -	320	- -	48.5	18.7	- -	29.9	- -	403	260	- -	144	-	-	0.94	-	83.7

**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.																									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	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	16,000+
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
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.																									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	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	600.0+
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	23.7	26.3	29.2	30.7	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	30.3	127.8
17 d	17.7	-2.4	8.4	21.8	31.1	40.6	32.5	32.9	27.8	26.1	30.7	34.8	36.5	33.9	33.8	35.2	35.5	26.0	32.2	33.8	26.9	34.7	27.2	29.5	28.6	87.2
18	29.8	29.4	29.3	30.1	28.2	27.9	23.5	26.3	28.9	27.7	31.3	35.4	39.0	44.2	42.7	41.3	37.3	35.5	26.2	30.6	31.6	30.6	33.4	32.7	32.2	172.9
19	29.6	29.3	31.3	23.6	31.1	21.4	24.4	25.9	23.8	26.8	29.4	32.9	37.8	40.9	39.8	39.5	36.6	35.7	33.8	27.8	29.8	31.9	31.9	30.9	31.1	145.9
20 d	30.8	28.5	26.3	26.2	24.4	22.8	20.4	23.0	23.3	25.3	28.4	35.8	40.0	42.8	42.4	40.7	38.1	36.4	34.4	35.0	33.4	31.9	30.5	31.8	31.4	152.6
21 d	28.3	23.6	29.0	29.4	27.2	22.6	22.6	23.3	23.8	25.7	29.9	34.6	38.2	41.6	40.4	37.9	36.2	33.3	29.1	30.5	29.6	29.7	28.5	29.8	30.2	124.8
22	34.2	31.5	31.4	30.6	28.3	26.8	30.4	31.4	26.3	26.0	29.1	33.4	38.3	41.7	40.3	38.8	38.1	35.2	33.8	32.6	27.4	27.3	24.6	29.2	31.9	166.7
23 d	32.6	32.8	31.2	27.1	27.2	27.6	22.9	22.5	22.3	24.3	28.1	29.4	39.1	42.7	41.8	40.5	39.1	31.2	29.3	30.3	30.6	31.6	27.7	32.6	31.0	144.5
24	32.3	28.8	32.6	30.1	26.3	28.9	24.7	23.6	23.0	25.4	28.0	34.1	37.7	38.1	38.2	33.9	32.2	32.3	32.7	33.2	32.2	28.8	29.3	30.0	30.7	136.4
25	29.0	32.4	29.5	28.8	28.1	27.9	25.2	22.7	22.6	25.8	30.4	34.8	39.3	40.0	41.1	36.4	32.6	31.8	32.5	31.9	32.4	32.5	29.9	28.7	31.1	146.3
26	31.9	29.9	29.2	27.5	26.6	25.6	24.8	23.1	26.6	28.9	32.6	36.2	38.5	40.0	38.9	35.9	32.9	31.9	31.6	31.7	29.9	31.2	31.3	32.5	31.2	149.2
27 q	35.3	33.1	29.4	27.7	27.1	25.0	24.4	23.0	23.5	26.7	31.0	35.5	38.0	39.0	37.3	34.8	32.6	31.4	31.7	32.5	32.6	32.0	31.9	31.2	31.1	146.7
28 q	30.9	30.4	29.5	29.3	27.7	25.9	24.7	24.0	23.7	26.7	31.2	35.6	39.3	40.0	37.7	34.1	31.9	31.4	32.6	33.2	32.8	32.5	32.1	31.3	31.2	148.5
29	29.6	29.0	27.0	28.6	28.9	28.4	27.8	26.7	26.3	28.6	32.1	32.1	34.6	36.1	30.6	28.3	29.9	27.1	28.9	28.2	29.8	34.1	35.4	38.4	30.3	126.5
30	36.8	31.3	31.8	32.4	32.1	31.9	28.6	25.0	25.8	25.4	28.4	32.3	35.3	36.2	35.1	32.5	28.4	27.2	29.4	31.1	32.6	33.0	32.5	31.6	31.1	146.7
31	31.5	30.9	31.8	31.0	27.6	25.3	23.5	22.6	23.1	26.9	31.5	34.6	37.2	38.1	37.8	35.7	31.7	30.2	29.6	29.7	26.6	29.5	28.1	28.1	30.1	122.6
Mean	30.0	28.6	29.4	28.9	27.7	26.2	25.0	25.5	25.7	27.2	30.6	34.6	38.3	39.9	39.3	37.6	34.5	32.8	31.9	31.9	31.4	31.7	30.7	30.6	31.3	
Sum 700.0+	229.5	187.3	210.1	194.3	160.0	112.1	75.1	90.0	95.9	143.3	249.3	372.5	488.2	536.6	517.0	464.5	369.2	315.9	289.1	287.9	273.1	284.4	252.1	249.9		Grand Total 23247.3

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

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23 ESKDALEUIR (Z)		45,000γ (0.45 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 7000+
		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	353	342	330	327	332	346	351	366	370	377	381	365	362	359	353	353	354	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	370	357	348	342	354	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	346	342	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 ESKDALEUIR													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 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	γ h. m.	γ	h. m. γ	γ h. m.	γ	h. m. γ	γ					
1	16 02 833	689 11 58	144	16 02 42.3	25.6 06 36	16.7	18 12 394	321 03 55	73	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	17 56 378	271 00 31	107	4,3,4,3,3,4,5,4	30	1	83.8			
23 d	17 52 848	664 12 36	184	13 19 46.7	20.0 07 00	26.7	18 15 414	293 24 00	121	3,3,3,3,4,5,4,3	28	1	83.8			
24	18 12 787	656 09 30	131	13 13 38.9	19.1 07 03	19.8	15 50 376	290 00 05	86	3,3,4,3,3,3,2,2	23	1	83.8			
25	15 36 808	682 11 08	126	14 40 42.0	21.1 07 38	20.9	16 27 386	325 01 31	61	2,3,2,3,4,4,1,3	22	1	83.8			
26	18 12 781	695 10 37	86	13 47 40.6	22.3 07 07	18.3	05 54 351	313 12 57	38	2,1,2,2,2,2,2,2	15	0	83.8			
27 q	01 05 774	699 09 48	75	13 13 39.5	22.1 07 53	17.4	07 50 352	313 12 32	39	2,1,2,2,2,1,0,0	10	0	83.8			
28 q	24 00 793	702 11 33	91	13 18 40.2	23.0 08 34	17.2	07 19 349	312 11 11	37	0,1,1,2,1,2,1,2	10	0	83.9			
29	20 26 816	705 11 25	111	24 00 40.9	24.4 02 38	16.5	15 21 362	320 10 55	42	3,2,1,3,3,4,3,3	22	1	83.9			
30	19 17 782	672 09 14	110	00 04 41.0	24.2 09 16	16.8	16 25 380	340 00 00	40	3,2,2,2,2,3,2,1	17	0	84.0			
31	19 15 795	692 11 46	103	13 45 38.4	21.9 07 41	16.5	20 00 368	340 24 00	28	1,2,2,2,2,3,3,3	18	0	84.0			
Mean	- - 832	666 - -	167	- - 42.8	19.1 - -	23.7	- - 395	298 - -	97	-	-	0.77	83.8			

**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) +																SEPTEMBER 1959																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	Hour G.M.T.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

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

22 ESKDALEMUIR (D)													10° +										SEPTEMBER 1959										Mean	Sum 600.0+																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	Hour G.M.T.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

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

81

23	ESKDALEUIR (Z)												45,000γ (0.45 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 7000+				
	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					
2	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				
3	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				
4	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				
5	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				
6	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				
7	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				
8	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				
9	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				
10	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				
11	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				
12	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				
13	304	316	320	320	335	340	342	340	340	336	332	333	332	336	345	362	374	366	359	361	357	354	351	349	342	1204				
14	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				
15	323	332	324	331	331	331	336	335	327	331	336	340	344	349	353	356	357	362	358	356	351	355	347	348	342	1214				
16	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				
17	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				
18	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				
19	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				
20	286	298	308	318	290	298	324	339	343	342	334	323	325	333	339	341	344	347	349	348	348	348	347	330	920					
21	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				
22	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				
23	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				
24	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				
25	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				
26	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				
27	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				
28	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				
29	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				
30	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				
Mean	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				
Sum 9000+	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	Grand Total 252,020				

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

24		ESKDALEUIR										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 + °A.	
		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.	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 31	41.1	14 52	420	154	02 14	266	6, 5, 5, 5, 5, 4, 5, 3	38	2	84.3	
23		17 23	801	673	21 08	128	21 04	39.1	16.0	21 29	23.1	16 39	419	305	23 49	114	2, 2, 3, 3, 2, 4, 5, 5	26	1	84.3	
24		20 45	770	670	14 29	100	13 31	40.1	18.4	00 00	21.7	16 17	401	309	00 00	92	3, 3, 3, 3, 4, 2, 3, 3	24	1	84.5	
25	d	16 23	859	661	01 01	198	13 08	40.2	13.4	00 49	26.8	16 34	503	263	01 47	240	4, 3, 3, 3, 3, 5, 3, 4	28	1	84.5	
26		23 01	806	673	12 23	133	12 47	37.4	17.8	19 38	19.6	17 15	385	306	02 12	79	3, 2, 2, 3, 4, 3, 4, 4	25	1	84.3	
27		19 57	794	680	10 36	114	13 18	38.2	19.7	00 41	18.5	16 53	419	328	01 07	91	3, 3, 3, 3, 3, 3, 4, 3	25	1	84.1	
28		21 54	769	706	14 50	63	12 42	35.7	20.3	02 22	15.4	18 40	388	310	02 02	78	4, 3, 2, 3, 4, 3, 3, 3	25	1	84.1	
29	q	22 48	782	701	09 43	81	12 07	37.8	21.6	00 39	16.2	14 55	367	333	10 58	34	3, 1, 2, 3, 3, 2, 1, 3	18	0	84.7	
30		18 59	782	702	11 37	80	13 06	40.8	19.9	18 53	20.9	16 49	387	344	09 27	43	2, 2, 2, 3, 3, 3, 3, 3	21	0	84.7	
Mean		- -	809	651	- -	158	- -	41.7	15.7	- -	26.0	- -	403	271	- -	132	-	-	0.93	84.5	

**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				
	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		17,000+				
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ					
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	765	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	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.																									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	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	600·0+			
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	35·2	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	35·8	33·2	29·9	24·6	23·5	26·2	31·5	157·1			
18	26·0	22·3	21·8	24·2	25·9	27·2	26·8	26·2	25·2	28·8	29·0	33·1	39·0	39·9	38·2	38·8	29·9	29·9	32·3	28·6	19·7	21·0	24·8	27·9	28·6	86·5			
19	29·9	31·4	29·6	29·5	29·0	30·9	29·1	28·1	27·5	26·8	27·9	31·3	34·2	35·9	35·5	34·3	28·4	31·4	26·9	29·3	31·2	30·6	30·2	27·8	30·3	126·7			
20	28·3	27·6	28·0	28·9	28·6	28·3	29·2	29·6	30·8	29·3	30·3	32·6	34·4	35·9	35·0	33·7	32·3	31·3	31·1	30·9	30·4	30·3	30·2	30·1	30·7	137·1			
21	29·9	29·9	29·9	30·0	29·8	29·5	28·8	27·2	25·5	25·1	27·2	30·8	34·7	36·3	36·4	35·4	33·1	31·8	31·5	31·7	30·9	28·3	25·8	27·6	30·3	127·1			
22	28·5	27·8	28·4	29·0	30·4	29·3	30·2	31·6	31·4	30·0	31·4	34·0	35·2	34·6	33·9	32·4	27·5	29·0	29·6	26·7	26·3	22·9	21·7	22·9	29·4	104·7			
23	26·2	29·9	24·3	25·8	26·8	27·1	26·9	26·8	27·3	28·2	30·7	33·1	35·1	34·8	34·0	31·7	30·7	30·4	31·0	31·3	31·0	30·9	30·8	30·3	29·8	115·1			
24	30·0	30·0	30·1	30·4	29·9	29·6	29·0	27·3	26·6	26·9	29·8	33·1	36·1	38·0	36·4	34·1	33·1	32·5	31·7	32·1	31·2	29·5	28·6	28·4	31·0	144·4			
25	29·6	29·9	24·4	27·4	22·7	26·7	28·2	29·7	28·3	29·5	30·5	34·3	36·8	38·0	36·4	36·7	33·8	31·3	31·0	31·1	30·1	25·7	20·2	15·2	29·5	107·5			
26	23·2	24·8	28·5	29·1	30·2	31·3	32·5	32·6	29·2	30·8	33·5	32·8	36·9	37·2	39·6	40·1	40·0	35·5	32·6	31·4	29·3	22·5	21·2	24·8	31·2	149·6			
27	27·3	28·0	27·2	29·5	27·9	30·2	30·6	32·0	29·7	30·6	30·9	33·0	35·3	36·4	34·7	33·9	33·0	30·5	31·3	31·1	30·6	29·7	28·9	29·1	30·9	141·4			
28 q	29·6	29·3	29·0	29·1	29·1	28·6	29·6	28·6	27·3	28·0	29·5	32·7	34·5	35·0	34·9	34·3	32·8	32·2	31·7	31·4	31·1	30·4	30·2	29·9	30·8	138·8			
29	29·8	29·5	29·5	29·6	29·0	29·3	30·2	29·5	27·9	27·7	29·5	32·8	35·6	35·3	35·3	34·4	34·2	33·1	32·4	32·0	31·6	31·0	30·8	30·9	31·3	150·9			
30	29·3	31·9	15·6	28·4	28·3	28·0	28·6	28·1	26·9	26·5	28·1	32·2	35·5	34·8	33·8	33·1	31·4	32·8	34·1	32·8	25·6	19·3	15·2	15·5	28·2	75·8			
31 d	22·7	29·4	30·6	30·8	30·6	30·6	29·6	27·7	29·4	29·4	32·5	36·6	39·2	38·6	39·3	40·2	43·4	33·6	30·1	23·8	26·2	6·5	15·0	23·8	30·0	119·6			
Mean	27·5	28·0	26·8	27·4	28·1	28·6	28·9	28·7	27·9	28·3	30·4	33·6	36·1	36·3	36·6	35·4	33·6	32·7	31·3	30·4	28·3	26·4	26·3	26·7	30·2				
Sum 800·0+	54·1	69·1	30·0	48·3	71·4	86·7	96·4	90·2	64·8	76·5	141·8	242·1	319·0	326·6	334·6	296·5	241·3	213·4	173·9	141·6	77·5	17·6	14·6	27·5		Grand Total 22455·5			

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

83

23 ESKDALEUIR (Z)		45,000γ (0.45 C.G.S. unit) +																				OCTOBER 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+
		γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
1 d		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		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	349	347	345	340	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																			

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

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

**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) +												NOVEMBER 1959											
	Hour G.M.T.																									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	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	17,000+										
1 d	739	745	735	750	748	775	762	727	702	685	709	702	707	697	706	705	716	717	721	705	720	720	716	710	722	319										
2 d	700	726	690	758	740	728	745	713	683	712	719	715	695	722	727	743	718	739	725	726	716	724	737	685	720	286										
3 d	706	722	709	725	749	741	726	738	721	711	700	713	714	708	718	736	729	731	724	725	742	746	730	735	725	399										
4	735	738	739	742	744	744	748	741	722	713	697	699	702	720	746	743	723	719	731	753	717	718	700	713	727	447										
5	720	762	715	716	731	738	744	713	725	728	697	698	703	716	735	735	742	753	748	760	762	758	762	757	734	618										
6	760	778	744	743	754	759	745	757	752	736	710	721	717	733	738	733	739	740	755	760	743	778	749	755	746	899										
7	757	757	758	758	755	760	760	763	753	738	727	719	716	725	734	737	736	752	748	748	754	750	762	763	747	930										
8	765	764	765	765	780	769	762	762	757	743	721	721	720	725	716	738	743	752	737	735	755	767	764	763	750	989										
9	758	759	761	768	771	775	774	773	769	762	750	741	741	752	761	761	765	750	752	762	787	755	760	758	761	1265										
10	760	746	747	750	759	765	767	763	767	766	748	735	732	743	750	756	762	769	770	770	777	772	780	760	759	1214										
11 q	759	759	757	754	762	763	764	761	756	745	733	727	733	739	746	734	757	764	765	766	766	766	761	754	754	1091										
12 q	758	758	767	761	761	762	766	732	768	755	742	737	741	747	753	758	769	772	779	764	771	772	769	769	760	1231										
13	752	757	761	760	766	768	779	777	772	761	745	749	752	760	774	767	776	779	775	782	783	784	772	763	767	1414										
14	759	778	765	752	752	759	764	759	748	749	746	725	704	725	729	725	723	743	750	762	764	764	742	765	748	952										
15 q	764	753	749	750	754	757	758	755	749	739	727	723	728	735	743	747	751	756	761	762	762	762	769	766	751	1020										
16	761	763	766	767	770	772	772	770	761	745	737	731	730	742	742	739	747	735	726	726	730	731	751	754	749	968										
17	755	757	760	750	785	777	767	759	752	740	729	710	707	734	736	739	744	751	756	758	761	762	757	752	750	998										
18	755	756	758	762	764	763	772	774	766	752	749	736	734	734	727	741	756	761	740	751	751	756	760	757	753	1075										
19	756	758	759	761	766	763	768	758	741	730	730	729	720	727	725	735	742	754	760	761	761	760	766	758	749	988										
20 q	758	772	757	757	766	767	766	761	751	741	737	733	736	745	752	756	759	762	764	765	762	764	767	766	757	1164										
21	766	766	766	771	779	771	772	772	762	750	747	735	737	740	744	724	703	721	726	726	722	718	730	721	745	869										
22	732	744	751	758	777	776	773	765	746	741	735	727	726	742	745	752	754	757	754	747	756	762	760	752	751	1032										
23	713	732	716	726	715	722	721	722	730	709	677	685	690	703	706	716	726	720	732	742	777	745	754	756	722	335										
24 q	754	754	756	751	751	754	758	757	751	743	737	735	743	741	734	738	749	754	757	754	753	756	759	762	750	1001										
25	758	755	761	759	764	769	771	773	764	755	747	734	732	734	724	727	730	739	740	742	741	736	741	757	748	953										
26	752	754	761	762	765	774	777	764	765	748	722	721	726	744	747	753	757	763	765	771	766	754	749	735	754	1095										
27	754	744	747	746	746	759	759	756	751	746	742	741	749	757	762	766	764	772	773	760	768	758	755	764	756	1139										
28 d	756	759	795	773	679	670	719	715	728	706	664	669	716	716	714	717	724	727	727	712	725	715	706	718	719	250										
29	718	722	731	736	740	743	744	741	737	729	697	690	711	715	731	730	727	731	729	740	743	737	740	738	729	500										
30 d	744	747																																		

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

22 ESKDALEUIR (D)													10° +												NOVEMBER 1959																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT  
Mean values for periods of sixty minutes ending at exact hours, G.M.T.

85

23 ESKDALEMUIR (Z)		45,000γ (0.45 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 8000+
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
1 d	316	322	321	329	325	299	306	306	321	331	339	345	367	387	421	411	405	409	412	393	391	379	360	339	336	357	564
2 d	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	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	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	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	347	318	310	323	337	343	343	344	349	354	357	355	358	355	361	375	380	379	377	367	366	356	345	350	352	449	
7	352	354	355	355	354	348	348	351	352	359	360	359	355	353	356	363	368	373	368	372	366	359	356	355	354	358	597
8	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	356	355	355	353	351	349	349	349	350	354	352	350	348	345	344	348	350	354	360	366	375	365	358	361	360	355	508
10	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	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	359	357	351	348	348	348	348	347	351	355	353	351	349	349	350	351	352	352	353	364	368	363	362	360	354	489	
13	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	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	354	351	354	355	355	355	355	356	359	358	358	355	353	354	356	359	360	360	359	357	358	357	354	352	356	544	
16	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	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	355	351	348	344	339	343	343	345	344	345	345	343	345	345	354	365	362	360	362	385	366	365	361	358	355	485	
19	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	354	342	342	347	350	351	353	355	359	357	352	349	350	348	352	353	355										

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

24		ESKDALEMUIR										NOVEMBER 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								
		h. m. γ	γ h. m.	γ	h. m. °	° h. m.	°	h. m. γ	γ h. m.	γ							°A.	
1 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	
2 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	
3 d	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	
4	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	
5	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	
6	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	
7	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	
8	04 20	785	705 14 18	80	13 28	37.3	26.4	04 53	10.9	19 27	387	328 04 18	59	0,3,2,3,3,2,3,1	17	1	84.2	
9	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	
10	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	
11 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	
12 q	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	
13	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	-	
14	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	
15 q	22 19	777	721 11 12	56	14 13	35.4	26.0	09 18	9.4	16 45	360	349 00 50	11	3,1,1,1,1,0,0,2	9	0	83.8	
16	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	
17	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	
18	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	
19	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	
20 q	01 45	781	732 11 41	49	13 55	34.3	24.5	02 23	9.8	08 49	360	337 01 58	23	3,1,1,1,1,0,0,1,2	9	0	83.7	
21	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	
22	04 00	791	708 12 04	83	03 52	39.8	22.2	20 23	17.6	20 15	397	331 04 13	66	3,3,3,3,3,2,3,2	22	1	83.8	
23	20 13	818	655 10 40	163	14 00	44.5	4.9	20 06	39.6	14 34	427	291 03 57	136	4,4,4,4,3,3,5,3	30	1	83.8	
24 q	23 48	772	725 14 30	47	12 24	35.5	26.4	22 03	9.1	18 18	370	343 02 58	27	2,2,1,1,3,2,2,2	15	0	83.8	
25	23 07	796	715 14 12	81	13 42	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) +												DECEMBER 1959	
	Hour G.M.T.																									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	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	17,000+
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
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	770	771	765	754	742	744	746	748	749	744	756	756	763	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	750	752	752	750	750	751	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		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	ESKDALEMUIR (D)												10° +												DECEMBER				1959																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	Hour G.M.T.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

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

87

23	ESKDALEUIR (Z)												45,000γ (0.45 C.G.S. unit) +												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	Sum 8000+										
	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	350	357	355	328	331	342	343	356	363	365	367	371	383	393	392	397	397	390	377	369	368	368	364	360	366	786										
2	355	356	351	348	342	329	335	345	354	359	361	374	382	395	405	426	406	390	390	394	382	365	354	345	368	843										
3 d	337	329	316	308	308	306	308	327	341	354	366	378	408	437	427	448	422	402	395	394	418	421	390	358	371	898										
4	348	346	354	341	348	356	359	362	366	367	366	363	361	357	360	368	373	373	373	373	376	381	371	365	363	707										
5 d	364	365	364	365	365	364	363	386	385	361	348	354	362	389	415	519	550	531	582	546	553	426	385	387	418	2029										
6	380	371	371	368	368	371	374	375	373	372	371	371	371	374	376	378	378	379	388	389	383	378	374	374	375	1007										
7 q	374	365	364	367	370	373	373	373	373	366	364	366	367	367	371	373	371	372	370	368	368	368	367	368	369	858										
8	367	367	365	364	366	361	363	363	362	368	367	367	368	368	368	368	370	377	375	374	384	389	392	388	371	901										
9	382	380	376	372	369	368	368	362	362	361	358	361	359	359	359	362	362	363	362	362	362	362	363	363	365	757										
10 q	362	362	363	363	362	361	359	358	356	359	361	363	366	367	365	363	362	363	364	367	371	371	368	366	363	722										
11 q	364	363	362	362	362	362	356	356	355	350	363	362	361	356	358	360	360	360	360	363	363	364	364	364	360	650										
12	363	360	360	349	348	349	351	353	354	353	352	347	349	353	358	359	359	364	366	367	377	389	387	374	360	641										
13	373	357	336	339	352	358	360	360	361	360	359	358	360	360	361	363	362	364	366	366	370	391	384	370	362	690										
14 d	362	347	313	329	326	328	335	345	355	360	371	375	381	397	405	404	417	413	397	386	383	383	378	368	369	858										
15	364	356	358	351	346	337	332	326	335	346	358	366	379	381	386	393	391	395	404	383	377	372	367	349	365	752										
16	348	351	348	350	353	354	353	353	354	355	360	363	363	366	370	382	396	390	385	385	389	378	362	359	365	767										
17	357	358	357	358	359	358	356	354	355	361	365	364	366	365	367	368	367	367	370	371	372	372	367	361	363	715										
18	353	354	358	359	359	358	358	355	349	349	354	358	363	360	365	370	370	370	366	367	369	371	364	360	361	659										
19	348	348	349	344	345	345	346	346	344	346	353	359	366	390	396	398	392	393	397	384	377	374	371	371	366	782										
20	367	352	349	356	355	359	359	359	358	356	354	355	356	357	359	363	36																			

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

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

24 ESKDALEUIR												DECEMBER 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 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	γ	h. m.	γ							
1	18 47	771	669	10 24	102	13 54	40.2	16.6	00 07	23.6	16 06	401	322	04 07	79	4,3,3,3,3,3,3,2	24	1	83.9
2	21 40	778	666	11 11	112	12 53	39.1	15.2	23 48	23.9	15 39	438	325	05 20	113	3,3,3,4,3,4,4,4	28	1	83.4
3 d	15 55	801	677	11 13	124	05 37	44.4	8.9	21 36	35.5	15 48	482	297	05 53	185	4,4,3,3,4,5,4,5	32	1	83.5
4	23 37	776	724	02 36	52	12 21	34.4	21.1	21 17	13.3	21 13	383	339	03 30	44	3,3,2,2,1,1,3,3	18	0	83.5
5 d	19 14	1262	493	18 51	769	18 02	62.5	12.8	21 06	75.3	18 38	666	345	10 43	321	0,0,3,3,5,6,9,6	32	2	83.1
6	23 46	757	684	18 06	73	13 08	36.3	20.9	19 04	15.4	19 12	394	367	04 11	27	2,3,3,3,3,2,3,2	21	1	83.1
7 q	22 20	769	725	02 34	44	15 39	33.5	19.5	02 09	14.0	00 52	375	361	01 58	14	3,2,1,1,1,2,0,2	12	0	83.9
8	18 49	769	732	21 33	37	16 55	33.7	23.8	22 36	9.9	22 37	393	360	05 43	33	1,1,1,2,2,3,2,2	14	0	82.8
9	21 05	782	742	01 38	40	13 08	37.1	26.7	24 00	10.4	00 00	384	356	10 31	28	1,1,2,2,3,2,2,2	15	0	82.9
10 q	00 07	803	751	02 45	52	16 47	32.7	24.9	21 23	7.8	21 07	373	356	09 00	17	3,1,1,1,1,2,2,2	13	0	82.8
11 q	22 55	785	757	12 00	28	11 45	34.4	24.3	23 19	10.1	23 30	365	350	09 20	15	1,2,2,2,2,2,1,2	14	0	82.7
12	03 27	797	709	22 01	88	13 49	35.7	10.7	21 55	25.0	22 01	394	344	11 27	50	2,3,1,2,2,2,3,3	18	1	82.7
13	22 21	792	699	22 02	93	17 17	36.7	6.8	22 36	29.9	21 48	399	332	02 48	67	3,3,2,1,1,3,3,5	21	1	82.7
14 d	18 04	791	684	18 42	107	12 20	39.2	6.6	17 59	32.6	17 52	452	297	02 05	155	4,3,4,3,4,5,5,3	31	1	82.7
15	23 00	803	693	18 00	110	07 03	40.6	11.6	22 55	29.0	18 25	410	325	07 30	85	3,3,3,3,3,4,4,4	27	1	82.8
16	07 25	773	712	16 33	61	13 55	36.3	19.1	16 37	17.2	16 37	404	346	00 26	58	3,1,2,2,3,4,2,3	20	1	82.7
17	22 47	775	731	00 13	44	14 08	32.6	21.0	00 00	11.6	21 08	375	353	07 35	22	3,1,2,2,2,1,1,3	15	0	82.7
18	00 22	787	726	13 06	61	14 21	35.4	24.5	01 12	10.9	21 53	372	348	08 37	24	3,2,2,2,2,2,1,2	16	0	82.4
19	06 55	788	697	12 55	91	14 40	40.9	25.0	03 42	15.9	15 22	400	342	08 21	58	2,2,2,2,3,2,3,2	18	0	82.5
20	01 40	773	737	18 32	36	18 43	33.2	24.8	23 04	8.4	18 47	377	344	01 53	33	3,1,2,2,1,1,2,2,1	14	0	82.5
21 q	19 49	781	753	12 24	28	14 08	33.2	24.4	23 33	8.8	00 00	365	351	13 20	14	1,1,1,1,1,1,1,2	9	0	82.5
22 q	18 55	787	743	22 37	44	17 22	34.7	20.2	21 58	14.5	22 09	370	348	13 00	22	2,0,1,1,1,3,3,3	14	0	82.8
23	17 05	819	683	23 20	136	16 44	43.7	4.1	23 28	39.6	17 17	496	349	06 28	147	2,2,3,3,3,5,4,5	27	1	82.5
24	07 03	776	698	10 23	78	14 10	37.8	14.7											

**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  $N$ ,  $W$ ,  $I$  and  $F$

## 25 ESKDALEMUIR

	Horizontal ( <i>H</i> ) force			Declination ( <i>D</i> ) (west)			Vertical ( <i>Z</i> ) force			North component ( <i>X</i> ) all days	West component ( <i>-Y</i> ) all days	Inclination ( <i>I</i> ) (north) all days	Total force ( <i>F</i> ) all days	
	<i>a</i>	<i>q</i>	<i>d</i>	<i>a</i>	<i>q</i>	<i>d</i>	<i>a</i>	<i>q</i>	<i>d</i>					
	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		
	$H$	$D$	$Z$	$H$	$D$	$Z$	$H$	$D$	$Z$	$H$	$D$	$Z$
	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	%	%	%	%	%	%
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
$\gamma$				%	%	%	%	%	%
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	..	..	..	..	..	..

## ALL DAYS

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

28 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																								
	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$
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	+7.9	+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																								
	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$
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																								
	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$
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	+18.7	+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.		

## 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 ESKDALEUIR

	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

91

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

30 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.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
Feb.	+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
Mar.	+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
Apr.	+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
May	+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
June	+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
July	+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
Aug.	+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
Sept.	+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
Oct.	+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
Nov.	+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
Dec.	+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
	-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																								
Jan.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
Feb.	-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
Mar.	-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
Apr.	-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
May	-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
June	-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
July	-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
Aug.	-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
Sept.	+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
Oct.	-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
Nov.	-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
Dec.	-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
	-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																								
Jan.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
Feb.	+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
Mar.	+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
Apr.	+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
May	+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
June	+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
July	+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
Aug.	+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
Sept.	+0.7	-3.0	-1.0	+1.7	+4.0	+5.0	+5.5	+5.2	+1.4	-3.5	-11.8	-16.6	-18.7	-14.2	-5.4	+3.1	+7.0	+5.4	+4.9	+5.0	+6.8	+7.1	+6.4	+5.0
Oct.	+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
Nov.	+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
Dec.	+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
	+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	-4.12	-1.61	+1.46	+4.28	+5.55	+5.34	+4.49	+3.27	+2.31	+1.95	+1.69	+1.99	+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.

## 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	+14.4	+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 ESKDALEUIR

	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 ESKDALEUIR

	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 ESKDALEUIR

		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.

	North component								West component								Vertical component							
	a <sub>1</sub>	b <sub>1</sub>	a <sub>2</sub>	b <sub>2</sub>	a <sub>3</sub>	b <sub>3</sub>	a <sub>4</sub>	b <sub>4</sub>	a <sub>1</sub>	b <sub>1</sub>	a <sub>2</sub>	b <sub>2</sub>	a <sub>3</sub>	b <sub>3</sub>	a <sub>4</sub>	b <sub>4</sub>	a <sub>1</sub>	b <sub>1</sub>	a <sub>2</sub>	b <sub>2</sub>	a <sub>3</sub>	b <sub>3</sub>	a <sub>4</sub>	b <sub>4</sub>
	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																								

### 37 ESKDALEMUIR

	North component								West component								Vertical component							
	c <sub>1</sub>	α <sub>1</sub>	c <sub>2</sub>	α <sub>2</sub>	c <sub>3</sub>	α <sub>3</sub>	c <sub>4</sub>	α <sub>4</sub>	c <sub>1</sub>	α <sub>1</sub>	c <sub>2</sub>	α <sub>2</sub>	c <sub>3</sub>	α <sub>3</sub>	c <sub>4</sub>	α <sub>4</sub>	c <sub>1</sub>	α <sub>1</sub>	c <sub>2</sub>	α <sub>2</sub>	c <sub>3</sub>	α <sub>3</sub>	c <sub>4</sub>	α <sub>4</sub>
	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°
	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																		

"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 ( $\gamma$ )			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 ( $\gamma$ )		
			Date	Hour	H	D	Z	H	D	Z	H	D	Z
		h. m.						$\gamma$	$\gamma$	$\gamma$			
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 ( $\gamma$ )			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 <sup>-1</sup> )																				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	
	0-1	1-2	volts per metre																							
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*	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*	Z*	143 (12)	
19	Z*	Z*	Z*	Z*	Z*	-50*	-25*	Z*	Z*	Z*	Z*	Z*	Z*	Z*	Z*	Z*	Z*	Z*	Z*	Z*	Z*	Z*	Z*	Z*	57 (3)	
20	Z*	70*	85	60	60	75	75*	-*	-*	-*	-*	-	-	-*	-	-	-	-	Z*	Z*	Z*	45	60	65	Z*	70 (4)
21	-*	-*	-	-	-	-	-	-	85																	

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

39	ESKDALEMUIR												Factor 10.10 (metre <sup>-1</sup> )												FEBRUARY 1959							
	Hour G.M.T.												volts per metre																			
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean							
1	45	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															

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

101

39 ESKDALEMUIR		Factor 10.46 (metre <sup>-1</sup> )																							MARCH 1959																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	Hour G.M.T.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

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

39 ESKDALEMUIR		Factor 10.77 (metre <sup>-1</sup> )																						APRIL 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	25*	50*	85*	20*	-150*	10*	55*	95	70	70	60	75	60	75	70	55	40	40	20	25	20	20	20	20	20	49	(17)
2	20	20	20	20	15	10*	25*	40*	25*	15	10*	0*	35*	-*	-	-	-	-	-	-	-	-	-	-	-	18	(6)
3	-	-	-	-	-	-	-	-*	60	60	45*	25*	60*	80	70	90	75	75	45	35	40	35	40	40	40	57	(13)
4	40	30	30	35	30	30	35	50	60	85	95	115	95	95	75	50	80	35*	20*	-265*	60	95	80	65	63	(21)	
5	55	60	60	60	40	55	70	75	75	60	45	55	40	40	40*	40	40*	35*	10	10*	-10*	-60*	20*	40*	53	(16)	
6	35*	Z-*	Z-*	20*	20*	55	Z1*	Z1*	Z1*	85	Z1	Z1*	Z1*	Z1*	Z1*	95	Z1*	105*	115	115	95	90	85	75	90	(9)	
7	70	60	60	60	65	60	65	70	70	60	60	50	60	60*	60*	60*	60*	-75*	-420*	Z-*	Z-*	Z-*	60*	60*	40*	62	(13)
8	60*	Z-*	Z1*	25*	-95*	25	0*	55*	45*	Z-*	-55*	Z1*	30*	75	70*	55*	45*	65	75	Z-*	55*	50*	15	10	44	(6)	
9	25	20	15	20	-	-	-	55	55	75	65	55	55	Z-	Z1	Z-	55	40	40	-	-	-	-	-	44	(13)	
10	-	-	-	-	-	-	-	-	30	40	40	40	-50*	190*	40*	20*	30*	40	35	35	30*	345*	320*	30*	37	(7)	
11	20	20	20	25	10	-	-	55	50	60	50	50	30	40*	40*	40	40	25*	-135*	Z-*	Z-*	Z-*	10*	-25*	36	(13)	
12	Z-*	-240*	55*	10*	55*	55*	55*	45*	55*	Z1*	85*	85	80	20	95*	90	95	75	70	40	20	25	20*	-225*	60	(10)	
13	-335*	40*	80*	70*	75	65	80	60	65	15*	-380*	-190*	-355*	-40*	25*	35*	Z-*	-380*	40*	-35*	40*	40*	20*	10*	69	(5)	
14	25*	-55*	5*	0*	Z-*	90	85*	95	65	55	50	75	95	60	45	Z-*	55	Z1*	25*	Z1*	Z-*	20*	-55*	40*	69	(10)	
15	55	55	55	55	40	60	55	30*	20*	40*	80*	75	65	115*	360	45	0	35	215*	40*	40	20	15	25*	64	(16)	
16	25	25	20	30*	20*	35*	55*	80	70	55	45	45	55	40	45	40	40	20	-	-	-	-*	-*	-*	43	(14)	
17	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-380*	-285*	-50*	35	30*	25*	35	40	37	(3)	
18	25	30	20	0	15	20	20	20	-	-	-	-	-*	-	-	-	55	60	55	20	20	-	-	-	28	(13)	
19	-	-	-	-	-	-	-	-	40	40	50	40	55	55	55	60	50	45	30	-	-	-	-	-	47	(11)	
20	-	-	-	-	-	-	-	-*	25	20	25	55	40	15*	-90*	35*	40*	40	25	30	-	-	-	-	33	(8)	
21	-	-	-	-	-	-	-	-	40	40	45	50	50	25	45	55	35	35	25	20	20	20	20	20	34	(16)	
22	-	-	-	-	-	-*	-*	-*	75*	65*	70*	40*	20*	50	40	60	45	40	50	20	0	-65	145	15	36	(11)	
23	60	15	10	25	20	40	40	20	50	45	40	35	40	35	55	60	45	35	40	35	15	15	10	-10	31	(24)	
24	-10	5	5	5	10	10	10	15	5	25	55	55	55	65	55	85	75	40*	-465*	-255*	-340*	-265*	-240*	-115*	31	(17)	
25	15*	15	20	20	20	15	35	120	40	70	65	55*	-290*	-390*	Z-												

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

39 ESKDALEMUIR			Factor 10.69 (metre <sup>-1</sup> )																				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	volts per metre											Mean	
	0-1	1-2											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	25*	15*	10*	15*	30*	40*	-100*	Z*	Z*	Z*	Z*	50*	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	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	-	-	-	-	54 (9)
18	-	-	-	-	-	-*	-*	-*	-	-	-	-	-	-	-	-	-	-	-*	-	-*	-*	-*	-	0 (0)
19	-	-	-	-	-	-	-	-	-	-*	-*	-*	-*	-*	-*	-	-	-*	-*	-	-	-	-	-	0 (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	20	-25	33 (24)
25	-50	-20	-25																						

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

39 ESKDALEMUIR		Factor 10.88 (metre <sup>-1</sup> )																						JUNE 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	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	65	55	60	10	40	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	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		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	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	20	10	36	(24)	
21	10	10	10	10	10	20	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	(7)	
22	-	-	-	-	-	-	-	-	75	40	80	60	25	20*	65	40	35	50	40	30	20*	15	10	10	41	(14)	

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

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39 ESKDALEMUIR			Factor 9.52 (metre <sup>-1</sup> )																				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													Mean	
	0-1	1-2											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	-	-	-*	-*	-*	-*	-*	-*	-*	-*	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	60	45	-5*	5*	-5*	15*	-	-	-	-	-	75	30	30	15	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	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	75	75	75	75	70	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	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	15*	75	(20)	
18	2*	2*	90*	75*	45*	30	15	15*	0*	-40*	2*	2*	45*	45	60	60	85	85	30	25	15	25	25	25	40	(13)
19	-	-	-	-	-	-	-	-	-	45	55	75	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	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	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*	2*	-15*	-105*	-95*	55*	85	26	(8)
27	35	-	-	-*	-	-*	-*	-*	2*	-75*	180*	105*	90	2*	2*	60	2*	2*	2*	2*	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 (19)	37 (18)	36 (20)	34 (18)	41 (19)	51 (19)	57 (20)	62 (18)	64 (19)	65 (19)	65 (19)	64 (20)	55 (19)	58 (21)	66 (21)	67 (22)	69 (20)	65 (20)	55 (21)	48 (21)	41 (19)	38 (18)	39 (19)	43 (22)	53 (471)	
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 <sup>-1</sup> )																				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													Mean	
	0-1	1-2											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	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	15	10*	20*	45	15	70	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 (0)	
14	5*	-5*	15*	5*	35*	60*	185	150	125	180*	115*	60*	60*	30*	50*	35*	35	5*	-30*	2*	20*	15*	70*	50*	124 (4)	
15	45	45	45	65	70	75	75	80	90*	105	105	95	95	85	90	95*	50*	2*	125*	80	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)		
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	15	20	15	20	25	24 (24)	
21	15	20	20	25	5	20	10	-10	0	-30	5	40	80	90	75	60	150	135	2-	20	25	10	10	5	34 (23)	
22	20	20	15	30	30	30	45	45	30	-10	25	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*	2-*	-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	20	25	60	90	70	95	105	80	75	60	60	65	25	5	50	10*	45*	70	60	60	53 (22)	
28	35*	5*	15	35	55	60	50	70	75	75	80	85	75	75	60	60	75	65	45	45	45	35	40	35	57 (22)	
29	35	20	20	30	20	20	30	80	80	75	70	75	65	75	45	45	40	25	30	15	45	45	35	20	43 (24)	
30	15	10	15	15	15	15	45	30	60	80	75	65	75	65	75	75	65	50	45	35	30	15	15	15	42 (24)	
31	15	20	20	15	20	15	20	40	45	35	45	70	65	75	75	65	70	40	35	35	25	15	20	20	37 (24)	
Mean	33 (25)	27 (24)	28 (26)	33 (26)	35 (27)	36 (25)	51 (24)	57 (24)	59 (24)	56 (24)	66 (26)	69 (24)	70 (25)	70 (24)	65 (25)	65 (23)	63 (25)	56 (23)	46 (25)	39 (27)	44 (23)	47 (24)	44 (28)	36 (26)	50 (597)	
Mean for 0a days																								[54 (4)]		

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

39 ESKDALEMUIR		Factor 9.40 (metre <sup>-1</sup> )													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											Mean				
	0-1	1-2											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	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	10	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	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	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	15	20	-*	-*	-*	-	-	-	-	-	-	-	-	-	-	-	-	21 (9)		
18	-	-	-	-	-	-	-	-	-	35	-	45	60	40	40	35	30	30	15	15	15	20	20	15	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*	70*	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	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	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 (24)	26 (22)	27 (23)	29 (24)	28 (24)	29 (21)	40 (21)	63 (21)	57 (24)	60 (25)	70 (23)	65 (24)	71 (24)	67 (26)	64 (27)	62 (27)	54 (26)	44 (25)	32 (25)	35 (25)	35 (25)	33 (25)	29 (24)	31 (25)	45 (580)		
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 <sup>-1</sup> )												OCTOBER 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	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	25*	25*	-25*	95*	100*	25*	25*	25*	125*	125*	115*	65*	-25*	30*	0*	15*	-35*	-150*	-405*	25*	25*	25*	33 (2)											
18	Z-*	Z-*	Z+*	Z+*	Z+*	Z+*	105*	150	135	105	85	80	80	90	110	100	Z-*	0*	60*	15*	30*	Z+*	Z-*	Z-*	104 (9)											
19	125*	Z+*	Z-*	115*	Z-*	Z+*	100*	45*	120*	135*	75*	60*	45*	25*	Z-*	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*	Z-*	Z-*	Z-*	-675*	15*	170*	305*	340*	315*	160*	85*	205	175	130	115	115	95	75	Z+	115*	130 (7)											
22	Z-*	45*	85	105*	165*	Z+*	60*	Z-*	Z+*	145	Z+*	50*	150	130*	100	115	115	100	95	100	75	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*	Z-*	55*	60*	Z+*	75*	110*	Z+*	Z-*	85	110	125	144 (7)											
25	135	155	135	130	Z-*	-20*	Z-*	Z-*	105*	105	120	Z+*	Z+*	Z-*	Z-*	Z-*	Z-*	Z-*	150	180*	165*	110*	80	75	121 (9)											
26	70	30*	10*	45*	65*	30*	30*	45*	180*	125	75*	105*	60*	25*	-115*	Z-*	Z-*	Z-*	Z-*	Z-*	Z-*	Z-*	Z-*	Z-*	97 (2)											
27	Z-*	Z-*	75*	Z-*	45*	60*	Z-*	-190*	70*	-120*	-45*	-15*	135	160	175	160	190	210	235	235	230	235	180	130	190 (12)											
28	100	95	80	70	70	25	35*	75	110	120	125	125	130	115	80	135	20*	15	20	20	25	40	30	60	76 (22)											
29	85	50	60	70	45	30	20	20	45	45	60	65	85	90	75	90	40	75	65	65	30	60*	15*	-10*	58 (21)											
30	25*	-*	-*	-*	-*	-*	-*	-	-	-	-	-	-	-	105	105	75	85	70	45	25	30	35	35	61 (10)											
31	45	50	40	20	30	30	35	60	75	95	170	105	25	60*	-60*	25*	175*	45*	25*	50*	255*	160	120	85	72 (16)											
Mean	51 (24)	44 (23)	46 (23)	50 (22)	45 (20)	49 (18)	53 (20)	61 (19)	69 (18)	73 (25)	85 (22)	83 (20)	89 (21)	91 (20)	92 (22)	93 (23)	64 (22)	57 (23)	58 (25)	67 (24)	70 (24)	68 (25)	56 (26)	45 (24)	65 (532)											
																						Mean for 0a days			[74 (2)]											

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

105

39	ESKDALEUIR												Factor 9.85 (metre <sup>-1</sup> )												NOVEMBER 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		
	volts per metre																									
1	105	95	75	50	45	45	50*	55*	70	70*	65*	90*	75	80	85	80	65	55	65	45	80*	105*	75*	125*	69	(15)
2	140*	185*	355	320	230	170	145	130*	90*	10*	120*	45*	-150*	120*	180*	110	110	70	30	35	30	20	15	15	118	(14)
3	10	10	10	10	15	45	40	35	75	90	75	120	170	140	110*	130	130	125	100	55	110	110	75	85	77	(23)
4	80	25	15	25	15	15	45	15	35	30*	-45*	0*	65*	85	115	140	110	85	110	50	170	220	115	95	78	(20)
5	80	75	45	30	40	30	35	30	55	80	75	80	70	65	85	90	105	-	-	-	-	-	-	-	63	(17)
6	-	-*	-*	-*	-*	-*	-*	-*	-*	155*	135*	100*	-40*	-290*	110*	155*	90*	10*	55*	65*	80*	25*	90*	40*	-	(0)
7	115*	140*	65*	130*	175*	160	175	155	175	160	175	110	85	55	50	45	40*	35	25	30	15	20	25	30	85	(18)
8	35	55	55	15	-5*	5*	-15*	75*	160	190	145*	130*	110	105	90	35*	75*	125	80	-110*	2*	21*	2*	2*	93	(11)
9	2*	2*	2*	85	85	75	80	90	90*	125	85	90	115	125	115	55	2*	21*	21*	90*	65	90	130	120	96	(16)
10	60	20	35	20	15	30	25	15	30	90	250	240	190*	95*	130*	21*	45*	45	35	25*	30*	25*	45	75	64	(16)
11	110	145	155*	140*	135*	180*	2*	195*	2*	155*	110	110*	175	140	125	105	75	20	105	30	40	30	15	15	83	(15)
12	30	15	20	30	20	30	15	30	55	75	80	110	135	155	45	45	20	15	15	50*	10*	21*	21*	130*	49	(19)
13	130	120	150	145	180*	40*	21*	21*	21*	21*	21*	21*	21*	21*	21*	21*	21*	21*	21*	21*	21*	21*	21*	21*	136	(4)
14	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-	(0)
15	-*	-	-	-	-	-	-*	-*	-*	-*	-*	-	-*	-*	-*	-*	-*	-	-	-	-	-	-	-	-	(0)
16	-	-	-	-	-	-	-	-*	-	-	-	60	21*	2*	21*	2*	80	2*	21*	21*	21*	85	100	90	83	(5)
17	35	-110	45	50	50	50	75	155	130	140	155	180	185	155	140	160	150	160	125	115	95	95	140	55	105	(24)
18	20*	130*	55*	21*	80*	70*	-45*	-180*	-200*	-110*	2*	2*	2*	-155*	-140*	2*	2*	2*	-45*	0*	110	150	175	175	153	(4)
19	21*	2*	105*	105*	45*	2*	2*	160*	210*	285	290	270	260	210	2*	2*	2*	2*	2*	2*	21*	21*	120*	90	234	(6)
20	80	80	90	90	110	130	130*	-190*	-45*	120*	-125*		30*	25*	2*	21*	70*	-370*	-85*	10*	230*	155*	180*	275*	97	(6)
21	195*	110*	75*	105*	90*	-190*	270*	330	255*	125*	90*	110*	210*	230*	215*	125*	165*	21*	21*	140	240	260	-*	-*	243	(4)
22	-*	-	-	-	-	-	-	-*	-*	-*	-*	-*	-*	160*	80*	45*	90*	135*	115*	60*	2*	2*	-490*	-460*	-	(0)
23	-60*	60*	125*	160*	230*	225*	200*	185*	145*	225*	150*	315*	215*	185*	165*	215*	180*	90*	155*	170*	185*	160*	130*	70*	-	(0)
24	75*	80*	75*	35*	-95*	35*	-110*	-255*	170*	2*	2*	195*	300*	190	2*	21*	190	180	210	230*	145	195*	180*	180	183	(6)
25	260	235	195	170	130	120	135	180	2*	2*	2*	2*	2*	270*	385	290	285	305	225*	140*	-40*	2*	2*	2*	224	(12)
26	2*	2*	2*	15*	30*	40	50	75	190*	175	170	125	135	2*	260	2*	260	185	210	-	-*	-*	-*	-*	153	(11)
27	-*	-	-	-	-	-	-	-120*	-155*	-230*	30*		-140*	2*	21*	2*	21*	155	180	21*	21*	2*	2*	2*	167	(2)
28	-95*	2*	140	2*	70*	90*	145*	40*	140*	185	180	185*	140*	-60*	155*	85	-90*	25*	85*	-45*	-30*	-170*	-155*	-140*	147	(4)
29	-255*	2*	2*	2*	2*	-215*	2*	2*	2*	70*	2*	2*	80*	2*	2*	145*	150	200	165	190	145	140	125	120	154	(8)
30	155	150	21*	180*	21*	21*	21*	21*	235	225	235	215	190	175	125	120	140	155	195	115	155	225	100*	-220*	176	(16)
Mean	90 (13)	70 (13)	95 (13)	80 (13)	69 (11)	72 (13)	75 (11)	101 (11)	102 (10)	152 (12)	157 (12)	145 (11)	142 (12)	129 (13)	135 (12)	112 (13)	134 (14)	120 (16)	110 (15)	81 (10)	110 (12)	120 (12)	87 (11)	88 (13)	108 (296)	
Mean for 0a days																							[No 0a days]			

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

39 ESKDALEUIR												Factor 10.21 (metre <sup>-1</sup> )												DECEMBER 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			
volts per metre																											
1	-355	15	35	-30*	15*	25*	Z**	Z**	Z**	-	-	-	-	-	-	-	-	-	65	0	50	110	175	275	41	(9)	
2	235	185	110	130	145	160	120	145*	Z**	Z**	Z**	Z**	Z**	210*	210*	210	150	185	Z**	Z**	145	160	155	70	154	(14)	
3	Z**	Z**	Z**	50*	65	110	Z**	Z**	290	210	210	180	135	130	95	40	30	65	25	45	35	30	35	30	98	(18)	
4	30	30	25	20	20	30	50	70	80	110	100	80	85	155	95	50*	65	80*	70*	70*	70	40	40	35	61	(20)	
5	30	25	15	30	25	50	65	55	90	65	95	135	145	135	145*	245*	60*	Z**	Z**	Z**	Z**	425*	Z**	69	(14)		
6	Z**	Z**	190*	210*	-35*	95*	145*	145	255	280	210	160	175	225	120	190	355	190	185	150	Z**	Z**	Z**	Z**	203	(13)	
7	Z**	Z**	-190*	0*	30*	150*	110*	185	165	115	65	50	15	50	95	30*	0*	5*	-55*	-50*	-60*	10	25	-95	62	(11)	
8	-130	-130	-65	-15	-10	5*	60*	115*	75*	65	65	80	125	170	120	120	120	105	150	160	165	145	105	90	72	(20)	
9	85	90	80	15	30	0	30*	Z**	Z**	Z**	-15*	65*	85*	130*	75*	95	65	90*	65*	30	30	45	40	30	49	(13)	
10	40	25	15	-15*	-30*	-15*	0*	-100*	-30*	35	55	70	70	80*	80*	30*	50*	50	50	50	50	70	50	55	49	(14)	
11	55	50	50*	30*	65*	50*	40*	85	55*	80*	30*	10*	15*	15*	20*	10*	10*	25*	-10*	-15	-	-	-	-	44	(4)	
12	-	-	-*	-*	-*	-*	-*	0*	-15*	30*	105*		80*	50*	65*	30*	15	15	15	25	100	95	175	110	69	(8)	
13	-280*	-15*	370*	40*	190*	50*	50*	30*	15*	80*	90*	60*	85*	-210*	Z**	Z**	Z**	Z**	Z**	Z**	Z**	15*	65*	65	65	(1)	
14	130	110	95	95	85	120	130	120	145	145	155	145	165	160	160	165	200	210	210	145	225	210	130	130*	150	(23)	
15	130*	90	90	35	95	130	150	135	80*	155	230	190	215*	200*	175	175	150	70*	Z**	185	305	Z**	Z**	30	145	(16)	
16	65	90	145*	90*	-275*	Z**	35	50	15*	30*	50*	35	70	70	110	95	65	55	40	65	65	-275*	Z**	130*	65	(14)	
17	-360*	Z**	Z**	Z**	70*	80	95	105	135	130*	105*	100*	Z**	15*	70*	90*	95*	100*	95*	90	90	65	50	15*	89	(8)	
18	Z**	-40*	25*	10*	-40*	-15*	20*	65	65	80	70	65	65	65	105	120	130	120	145	135	120	65	35	15	86	(17)	
19	15	20	20	15	50	50	160*	0*	Z**	Z**	25*	95*	60*	15*	10*	10*	10	90*	95*	Z**	50*	65	105	120	47	(10)	
20	100	80	70	70	30	-130*	-20*	25*	30*	0*	Z**	130*	Z**	Z**	135*	90	40	30*	335*	290*	140*	190	160	25	85	(10)	
21	135*	105	120	105	70	80	70	70	-	-	-	-	-	-	-*	-*	-	-	-*	-*	-	-	-	-	89	(7)	
22	-	-*	-*	-*	-*	-	-	-*	135*	160	175	210	145*	Z**	Z**	Z**	Z**	50*	Z**	105*	170*	Z**	Z**	Z**	182	(3)	
23	Z**	Z**	130*	150*	Z**	150*	Z**	Z**	185*	275*	Z**	Z**	Z**	Z**	Z**	Z**	Z**	Z**	95*	120*	Z**	130	160	110	133	(3)	
24	115	105	130	130	160	215*	170	Z**	Z**	Z**	Z**	Z**	Z**	Z**	Z**	Z**	190	15*	Z**	21*	Z**	Z**	Z**	Z**	143	(7)	
25	Z**	40*	105*	Z**	Z**	100	120	135	115	200	145*	200*	225	190	Z**	Z**	Z**	Z**	Z**	30*	Z**	30*	Z**	-30*	155	(7)	
26	Z**	Z**	Z**	30*	65*	Z**	Z**	Z**	50*	50*	80*	Z**	Z**	30*	95	120	135*	145*	150	165	145*	Z**	Z**	95*	133	(4)	
27	-40*	Z**	Z**	-305*	Z**	Z**	Z**	30*	100*	175*	130*	105*	-120*	110	105*	90	95	Z**	Z**	50*	-50*	-135*	15	15	65	(5)	
28	25	25	25	30	30	65	40	25	25	50	105	90	80	30*	50*	80	105	80	110	110	150	120	115	80	71	(22)	
29	65	-	-	-	-	-	-	-	15	65	120	105*	Z**	Z**	Z**	-75*	175*	245*	95*	-120*	-275*	Z**	80*	80*	66	(4)	
30	65*	70*	Z**	75*	95*	90*	Z**	Z**	70*	230*	95*	85*	105*	80	145	160	165	135*	-145*	95*	200*	210*	200*	130*	137	(4)	
31	70*	75*	50*	30	50	40	50*	40*	55*	160*	210*	240*	230*	220*	120*	110	105*	110*	65*	Z**	Z**	Z**	Z**	-160*	57	(4)	
Mean	34 (15)	57 (16)	55 (14)	53 (13)	60 (14)	78 (13)	95 (11)	96 (13)	125 (11)	124 (14)	127 (13)	115 (13)	113 (12)	128 (12)	120 (11)	124 (15)	110 (16)	115 (11)	104 (11)	89 (15)	114 (14)	97 (16)	92 (17)	62 (17)	94	(327)	
																							Mean for 0a days			[109	(2)]
Annual Mean	46 (240)	45 (234)	44 (239)	44 (236)	42 (231)	47 (226)	52 (212)	65 (216)	65 (220)	71 (228)	75 (230)	79 (221)	81 (220)	83 (225)	88 (230)	84 (239)	79 (243)	71 (239)	63 (239)	58 (238)	63 (231)	57 (237)	53 (252)	47 (250)	62	(5576)	
																							Annual mean for 0a days			[68]	

## 40 ESKDALEMUIR

	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	...	1a	1.6	1a	1.5	2c	6.1	1b	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	0a	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			2b	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	0.2	0a	...	1a	1.8	1a	0.1	(1b)	(2.2)
2	1b	2.2	1a	0.1	1a	0.8	1a	0.2	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

41 KEW OBSERVATORY

Factor 4.45 (metre<sup>-1</sup>)

JANUARY 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	320	260	225	260	275	335	300	370	395	385	385	380	360	385	285*	405	335	330	310	150	110	135	125	Z±*	297 (22)
2	Z±*	-45*	135	170	170	185	250	Z±*	Z±*	150	335	430	410	430	485	555	690	605	620	485	185	160	135	40	331 (20)
3	50	100	180	200	210	150	25	170	395*	480	460	520	370	370	405	405	410*	Z±*	Z±*	Z±	Z±	370	430	410	295 (18)
4	385	385	-125	170	150	185*	235	225	370	220	310	385	260	285	295	275	220	225	335	435	335	455	505	430	294 (23)
5	395	420	335	435	445	395	495	655	755	825	960	1050	805	740*	720*	640*	Z±*	Z±*	Z±*	Z±*	Z±*	220*	100*	385*	613 (13)
6	445	320	135	-20	50	435	510	670	805*	590*	720*	720*	590*	670*	720*	545*	135*	15*	220*	245*	0*	65*	335*	250	311 (9)
7	-185*	-285	-70	-100	-35	35	75*	135*	185*	135	300	300	395	445	480	455	355*	170*	-70*	35*	160	120	150	35	157 (16)
8	15	0	25	100	135	170*	100	275	385	410	410	410	420	485	480	455	520	335	285	420	505	200	225	135	293 (23)
9	35	150	100*	Z±*	Z±	100	40	170	220	220	185	285	355	335*	335*	335	300	285	235	120	120	170	100	75	184 (19)
10	90	50	125	150	185	120	170	90	270	0	220	360	420	370	420	385	245	235	220	270	320	275	270	185	227 (24)
11	120	175	220	200	185	210	200	270	185	250	250	310	300	270	285	355*	Z±*	50	10	-20	-195*	-20*	-20	40	175 (20)
12	85	120	145	145	135	135	150	220	220	225	245*		Z±*	Z±*	-100	135	100	10	120	-90	65	65	125	-25	101 (21)
13	125	200	220	220	185	225	250	385	470	670	875	805	900	905	905	855	540	580	740	170	590	485	460	875	526 (24)
14	1040	1040	Z±	Z±	Z±	Z±	Z±	Z±*	Z±*	Z±*	930*	435*	655*	645*	655*	485*	285*	405*	805*	805*	790	750	505	385	752 (6)
15	-225	-470	125	540	395	405	395	580	740	1025	1010	1110	1075*	1110	990	570	-70	0	35	35	75	150	135	170	384 (23)
16	15	170	170	50	175	25	175	220	355	590	605	485	355	270	455	555	435	370	405	0	40	-70	-140	335	252 (24)
17	840	620	640	655	430	435	335	85	220	270	355	285	275	250*	110*	-35*	35*	-215*	-55*	10*	100*	85*	170	60	378 (15)
18	-90*	Z±*	Z±*	10*	65*	90*	75*	50*	85*	100*	175*	200*	235	355	320	275*	320*	245*	195	150	300	250	235	145	243 (9)
19	160	150	145	145	110	125	85	90	25*	10*	-35	150*	85*	135*	40*	150*	200*	120*	60*	110*	35*	Z±*	15*	-55*	108 (9)
20	10*	Z±*	-125*	-265*	50*	65	75	110	Z±*	Z±*	Z±*	135*	Z±*	Z±*	Z±*	Z±*	Z±*	405	Z±*	Z±*	Z±*	Z±*	15	125	133 (6)
21	170	170	150	150	150	150	185	250	370	405	435	395	Z±*	150	100*	Z±*	Z±*	-20*	35*	100*	40*	100*	100*	100	231 (14)
22	120	135	85*	65*	100*	Z±*	Z±*	175*	235	210*	200*		175*	250	320	270*	50*	-45*	Z±*	Z±*	-80	-10	10	85	118 (9)
23	40	150	235	260	270	335*	510	510	840	925	715	505	485	395	360*	Z±*	300	310	320	250	355	380	405	470	411 (21)
24	435	335	250	260	260	260	300	385	655	840	875*	715	580	495	555	410	370	435	505	505	470	405	235	410	438 (23)
25	360	125	150	170	175	220	175	245	335	430	480*	505	555	455	495	665	505	595	495	740	755	690	840	775	455 (23)
26	990	1110	965	510	430	595	620	605	850	755	875	670	395*	355	335	330	370	690	925	900	715	640	455	335	653 (23)
27	345	460	455	455	530	620	570	620	965	1075	1185	1140*	655	890	1025	1075	1090	990	1025	875	855	940	875	905	803 (23)
28	765	690	555	605	580	620	640	590	620	645*	445*	385*	840*	755	930	890	875	830	865	875	960	1160	455	805	753 (20)
29	605	Z±	Z±	Z±	Z±	Z±	Z±	Z±	Z±	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±	Z±	Z±	605 (1)
30	Z±	Z±	Z±	Z±	Z±	Z±	Z±*	Z±*	Z±*	Z±*	1110*	925*	905	555	410	435	250	320	-545	-585	-535	-500	-390	-465	-12 (12)
31	-425	-90	275	310	330	285	320	405	540	570	620	620	590	620	590	545	570	740	830	690	670	590	540	460	466 (24)
Mean	281 (26)	250 (26)	237 (24)	252 (24)	247 (24)	267 (23)	284 (25)	339 (24)	488 (20)	482 (23)	509 (21)	526 (20)	481 (20)	482 (22)	504 (20)	512 (19)	425 (18)	417 (20)	397 (20)	319 (20)	353 (22)	340 (23)	263 (26)	280 (27)	363 (537)
Mean for selected quiet days																									363 (9)

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

41 KEW OBSERVATORY

Factor 4.33 (metre<sup>-1</sup>)

FEBRUARY 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	505	425	355	320	320	340	390	415	475	660	860	640	415	305	405	390	355	490	490	590	675	565	560	530	478 (24)													
2	415	35	220	390	455	440	490	810	970	965	880	810	675	660	695*	710	725	585	575	585	695	525	515	550	595 (23)													
3	625	450	320	255	305	315	415	590	770	785	810	695*	745	710	775	660	940	1065	870	750	735	700	560	490	637 (23)													
4	305	320	370	285	280	305	425	415	735	695	640	600	625	700	625	675	640	670	845	885	880	795	725	575	584 (24)													
5	590	560	450	345	270	195	285	515	610	830	805	915	845	370	355	380	210	35	120	210	320	390	260	525	433 (24)													
6	440	185	150	15	100	160	245	315	415	590	365	305	220	210	285	415	415	355	450	515	575	475	285	255	323 (24)													
7	230	235	220	230	220	230	260	270	380	280	395	590	450	455	345	455	390	370	370	340	285	170	315	328 (24)														
8	355	355	185	195	285	260	285	320	255	315	270	285	355	455	590	585	550	560	550	405	455	395	345	245	369 (24)													
9	370	345	210	340	285	220	220	370	465	515	490	380	405	230	285	305	315	235	340	320	590	675	505	540	373 (24)													
10	675	515	365	340	150	110	255	280	660	775	795	810	805	330	440	590	710	610*	685*	695	590	390	370	305	498 (22)													
11	220	170	100	70	100	135	150	205	320	465	625	670	675	505	330	395	405	285	210	220	255	185	210	185	295 (24)													
12	255	145	100	110	120	95	40	95	220	120	-20	245	Z±*	Z±*	365	355	480	565	590	710	720	585	355	150	291 (22)													
13	120	170	150	195	185	170	170	195	210*	230*	340	340	245	255	270	285	330	295	340	270	320	185	185	185	236 (22)													
14	230	135	170	195	150	235	260	340*	365*	340*	170	260	270	185	230	320	355	305	305	370	370	345	295	345	262 (21)													
15	285	270	210	125	150	205	230	175	100	70	15	160	270	270	235	235	220	270	255	175	340	315	370	355	221 (24)													
16	220	235	145	15	100	145	185	220	330	270	340	280	280	285	340	405	390	345	390	235	255	305	355	395	269 (24)													
17	320*	565*	695*	990*	845*	745*	795*	810*	895*	710*	635*	490*	220*	405	365	395	455	675	Z±	Z±	625	1140	970	1080	679 (9)													
18	1015*	945*	725*	675*	855*	585*	675*	770*	970*	920*	915*	880	845	670	550	590	575	480	475	340	-195	-25	-150	160	400 (13)													
19	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	920*	880	845	720	685	455	340	540	710	1065	1055	1190	745	769 (12)													
20	395	75	15	25	100	205	170	255	100	205	110	70*	95	75*	195	185	135	185	185	205	285	285	235	210	175 (22)													
21	195	145	160	135	160	170*	185	230	315	235	210	205*	35*	-60*	10*	-60*	-115*	-115*	-105	-70	-25	35	-10	-20	111 (16)													
22	-95	10	0	-20	35*	10*	15*	95*	95*	60*	40	60	85	0	170	210	170	230	260	425*	285	230	220	185	120 (17)													
23	405	415	405	185	75*	35*	210*	365*	550*	525*	540	330	150	185	260	285	220	205	210	185	285	315	395	405	299 (18)													
24	340	285	285	235	235	170*	185*	205*	465*	285*	270	395	285	285	245	220	315	355	355	340	370	365	340	320	307 (19)													
25	260	210	220	220	185	135	220	235	280*	340	305	260	285	270	260	295	320	380	340	365	390	380	340	340	285 (23)													
26	320	320	285	235	255	195	255	305	345*	305	320	235	235	230	210	210	260	245	245	255	295	260	320	365	268 (23)													
27	355	285	305	320	370*	525*	475*	365*	440*	440	340	285	285	285	260	285	340	390	245	305	120	-55	-55	70	253 (19)													
28	120	170	135	160	195	230*	255	305	395	405	405	340	280	270	285	280	305	370	295	340	345	340	295	280	286 (23)													
Mean	325 (25)	259 (25)	221 (25)	197 (25)	209 (22)	216 (19)	257 (21)	326 (20)	442 (17)	463 (20)	413 (25)	438 (23)	428 (25)	375 (25)	361 (26)	400 (27)	407 (27)	396 (26)	375 (26)	395 (26)	427 (28)	409 (28)	363 (28)	360 (28)	354 (587)													
																					Mean for selected quiet days					[312 (10)]												

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

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41 KEW OBSERVATORY												Factor 4.36 (metre <sup>-1</sup> )												MARCH 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			
volts per metre																											
1	330	365	345	460	290	190*	100	290	320	315	265	380	155	190	180	190	175	180	240	130	115	215	155	165	241	(23)	
2	280	265	180	200	265	280	280	265	390	460	280	130	105	165	150	155	150	65*	Z±*	Z±*	-15*	-25	Z±*	Z±*	221	(18)	
3	Z±*	Z±*	10*	-325*	40*	-50*	Z±*	-190*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	130	255	330	35*	Z±*	Z±*	Z±*	Z±*	Z±*	238	(3)	
4	-155*	10*	60*	10*	60	90	130	130	180	240	270	190*	Z±*	215	225*	165*	240	130	115	175	Z±*	Z±*	Z±*	Z±*	165	(12)	
5	-75*	-170	125	125	125	150	Z±*	Z±*	Z±*	Z±*	Z±*	290*	Z±*	290	445	390	825	330	Z±*	345	330	280	Z±*	Z±*	276	(13)	
6	225	190	175	150	130	130	165	205*	245	240	225	215	245	230	240	230*	200*	35*	-50*	130*	125*	-220*	155*	130*	200	(14)	
7	175*	175*	15*	100*	90*	100*	130	180	200*	190	Z±*	Z±*	-15*	205	215*	50*	230*	240*	115	10*	290*	320*	355*	215*	164	(5)	
8	-135*	-95	-70	-160	-60	0*	115*	65*	215*	245*	50	65*	200*	225	100	140	165	190	165	150	125	150*	115*	105*	71	(13)	
9	0	-105	-120*	-85*	-300	-315	-145	-85	-60	265	345*	175*	245	380	575	555	585	660	365	25	-25	-205	-170	-10	112	(20)	
10	60	60	115	190	240	270	340*	380	545	865	710*	695*	395	180	155	190	280	305	345	365	270	230	60	245	274	(21)	
11	330	270	180	165	200	215	130	115	60*	-240*	-480*	-35*	35	155*	225	265	270	255*	290*	320	205	290	330	405	232	(17)	
12	355	295	265	265	330	415	430	570*	650	510	365	245	215	215	200	215	255	315	370	395	215	255	200	150	310	(23)	
13	60	25	90	85	140	205	320	330*	435	455	510	470	280	215	205	215	165	180	190	130	270	280	340	380	245	(23)	
14	315	280	270	230	155	115	65	35	-35	140	215	215	230	265	230	230	290	365*	390	395	380	295	290	280	229	(23)	
15	265	205	190	180	140	-10*	Z±*	-15*	130*	165	40*	-120*	-135	125	175	175	165	155	105	85	90	25	125	65	128	(18)	
16	35	130	130	100	25	105	230	270*	330	265	255	280	295	295	330	280	290	415	495*	485	610*	480	510	470	273	(21)	
17	290	280	295	205	240	320	390	510	530	545	535	510	560	510	575	625	600	575	545	530	530	445	420	380	456	(24)	
18	265	245	215	205	205	205	295	420	600	610	535	485	585	520	420*	415	505	530*	595	505	610	415	130	-110	384	(22)	
19	-85	35	270	225	200	340	315	395*	-25*	320	520	575	495	390	315	485	240	65	-15	395	485	395	320	-10	285	(22)	
20	-70	-135	-155	-325	-325	-15*	-205	-265	-250	-70	-50	115	280	65	85	15	130	225	10	-75	175	265	415	115	-1	(23)	
21	290	255	115	35	35	35	40	130	215*	305	280	265	85	125	150	165	130	115	105	35	175	140	280	380	160	(23)	
22	315	265	25*	100*	15*	10*	35*	65*	-275*	175*	125	205	180	-35*	15*	25*	60*	165	230	445	535	445</					

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

41	KEW OBSERVATORY												Factor 4.38 (metre <sup>-1</sup> )												APRIL 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	235	200	225	165	205	205	205	310	275	275	180	200	235	175	175	215	270	330	345	380	370	190	225	225	242	(24)	
2	130	95	200	120	155	175	415	335	330*	250	295	485	400	260	155	165	145	175	180	270	270	260	275	250	237	(23)	
3	285	275	225	365	240	225	305	310	335*	-	495	520	560	500	465	520	685	640	520	225	35	175	45	-10	346	(22)	
4	-135	-205	60	130	240	190	190	225	400	415	560	485	365	295	190	250	270	200	110	105	330	400	485	235	241	(24)	
5	-55	-230	-195	-25	95	130	165	85	140	180	215	190	190	190	165	140	130	140	155	240	235	295	370	120	128	(24)	
6	25	50	80	155	165	140	85	50	70	15	0*	-60*	35*	-195*	Z±*	105*	200*	Z±*	-	-*	-	-	-	-	83	(10)	
7	-	-	-	-	-	-	-*	-*	-	260	270	225*	205*	240	240	250	260	270	225	235	285	310	250	45	242	(13)	
8	70*	60	Z±*	Z±*	Z±*	165	190	205	260	250	240	260*	Z±*	Z±*	330*	335	Z±*	Z±*	Z±*	260	225	80	225	155	140	199	(14)
9	190	140	145	140	165	215	275	285	270	270	260	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	Z±*	520	140	155	226	(14)	
10	140	140	140	140	215	205	235	345	380	240*	205	250*	225	225*	285	Z±*	Z±*	450	330	320	270	270	260	120	246	(19)	
11	140	130	165	175	180	190*	200	275	295	215	190*	175*	140*	35*	80*	140*	155*	-125*	-180*	190*	155	155	165	240	192	(13)	
12	190	155	140	140	140	140*	180	180	175*	200	225	190	140	175	50*	-230*	-150*	-330*	165*	205*	200	250	215	180	181	(16)	
13	165	145	130	140	120	145*	180	200	240	200	110	110	140	145	145	145	120	180	190	215	175	205	225	200	166	(23)	
14	205	205	205	175	105	140	205	310	205	190*	180	205	175	145	130	120	215	Z±*	Z±*	310	-35*	-55*	Z±*	Z±*	190	(17)	
15	Z±*	85*	120	120	95	110	110	95	175*	155*	180	Z±*	Z±*	Z±*	Z±*	205*	190	225	275	275	400	400	345	310	217	(15)	
16	335	275	335	355	140	140*	-375*	-60*	Z±*	Z±*	320*	205*	80*	225*	155*	155*	225*	190*	370*	285*	345*	335*	335*	285	287	(6)	
17	250	240	250	190	130	140*	140*	140*	105*	80*	70*	140	130	155	190	205	155	175	140	45	0	-10	50	136	(18)		
18	-20	-35	-10	-10	-20	Z±*	Z±*	0*	-160*	-105*	70*	110*	140*	130	175	110	175	215	215	270	310	285	285	200	142	(16)	
19	175	190	155	145	155	175	200	190	190	205	155	155	155	145	190	155	155	175	175	180	310	295	240	205	186	(24)	
20	275	60	80	50	70	205*	225*	590	615	380	275	370	305	270	130	335	295	260	335	365	485	530	250	130	302	(22)	
21	95	35	45	60	45	70	145	205	235	225	165	140	120*	140	145	165	145	175	180	165	190	145	50	50	131	(23)	
22	60	85	85	85	85	130	180	270	295	225	175																

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

41 KEW OBSERVATORY

Factor 4.22 (metre<sup>-1</sup>)

MAY 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	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	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 (30)	141 (31)	128 (29)	132 (29)	148 (30)	179 (28)	264 (30)	337 (28)	350 (28)	326 (28)	274 (26)	240 (25)	215 (27)	209 (28)	212 (28)	223 (28)	227 (29)	226 (29)	204 (28)	189 (28)	210 (25)	195 (28)	176 (28)	166 (29)	211 (677)
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<sup>-1</sup>)

JUNE 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		
	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±*	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	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)

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

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41 KEW OBSERVATORY			Factor 4.22 (metre <sup>-1</sup> )																				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	135	95	70	95	110	155	190	190	180*	130*	180*	190*	75	95	120	110	105	135	160	170	170	160	160	155	133	(20)
2	135	135	130	120	120	120	130	155	160	170	160	160	180	195	205	220	180	160	180	190	215	215	220	190	169	(24)
3	160	155	145	135	135	145	180	205	195	170	170	170	135	145	145	155	160	155	170	180	170	190	205	215	166	(24)
4	180	155	155	195	170	195	255	240	180	170	170	180	180	180	160	160	155	135	145	160	195	170	205	145	176	(24)
5	160	160	145	145	170	170	135	70	155	195	120	95	110	110	85	110	95	105	95	75	0	-10	15	135	110	(24)
6	170	160	135	155	155	215	310	360	370	255	240	250	220	220	220	230	195	190	160	130	70	75	70	70	193	(24)
7	35	45	35	45	45	45	70	75	105	135	135	120	155	170	160	145	130	135	145	85	120	135	195	120	108	(24)
8	105	105	85	70	70	105	220	220	300	240	220	195	145	135	130	120	105	95	85	50	95	95	75	70	131	(24)
9	-15	15	50	85	70	105	85	145	160	130	95	205	Z±	Z±	110	205	205	120	45	-10	0	0	25	25	84	(22)
10	0	45	15	105	130	145	130	265	335	340	410	375	410	410	410	310	205	340	425	275	145*	Z±	Z±	Z±	254	(20)
11	Z±	Z±	Z±	Z±	45*	250*	220	-35	10*	35	35	110	105	85	120	170	135	135	170	220	240	205	190	105	132	(17)
12	85	85	105*	110*	50*	130	190	205	220	190	170	170	170	130	85*	Z±	190	205	205	195	135*	135*	215	170	172	(17)
13	155	170	160	170	180	230	265	325	275	215	205	190	190	230	190	190	190	155	170	190	195	180	195	160	199	(24)
14	155	190	170	155	170	240	370	325	310	170	170	180	160	160	195	190	155	170	130	120	35	35	25	0	166	(24)
15	25	50	35	35	50	75	120	160	180	170	135	105	105	120	120	110	105	95	95	85	110	120	110	85	100	(24)
16	50	85	95	120	120	120	195	230	255	190	190	170	135	155	170	180	170	190	205	205	205	190*	105*	75*	164	(21)
17	95	85	85	85	85	95	120	155	145	135	145	135	120	120	130	130	130	120	120	120	85	45	70	95	110	(24)
18	95	120	105	70	85	105	105	60	145	160	190	170	135	120	75	70	135	135	110	135	170	190	190	220	129	(24)
19	110	135	135	105	130	160	190	220	230	220	170	170	160	135	170	160	120	120	95	105	105	50	195	110	146	(24)
20	110	75	70	95	95	155	240	370	435	325	255	195	205	195	195	160	145	155	135	135	135	110	135	190	180	(24)
21	155	85	35	95	85	95	275	360	470	395	255	250	220	215	220	195	205	275	290	205	195	-10	-10	75	193	(24)

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

41	KEW OBSERVATORY												Factor 3.99 (metre <sup>-1</sup> )												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	
	volts per metre																									
1	115	65	55	80	95	130	160	225	185	175	160	155	155	95	90	120*	Z±*	Z±*	130*	175	155	145	145	80	132 (20)	
2	65	80	90	115	120	130	115	115	175	160	135	145	135	115	115	70	65	80	90	105	135	90	115	130	112 (24)	
3	95	130*	0*	10*	80	105	185	170	260	225	170	160	130	90	80	80	120	160	95	130	95	95	115	130	130 (21)	
4	105	115	95	95	130	130	235	340	355	320	290	225	175	130	135	160	145	135	130	130	95	145	235	200	177 (24)	
5	160	95	80	95	90	30	115	250	200	145	145	145	130	130	115	130	135	135	120	145	135	130	105	90	127 (24)	
6	90	90	95	95	95	130	210	315	300	265	225	195	175	170	160	160	145	130	105	105	135	170	210	175	164 (24)	
7	90	80	80	115	120	160	155	240	210	185	155	160	145	130	145	145	170	235	130	80	80	105	130	160	142 (24)	
8	130	90	105	95	130	145	195	300	305	340	300	290	280	185	130	120	145	105	115	115	195	170	170	170	180 (24)	
9	175	135	155	130	115	80	130	130	90	90	160	185	175	145	170	185	160	Z±*	Z±*	135	15	65	210	160	136 (22)	
10	160	130	145	130	130	160	210	265*	Z±*	Z±*	Z±*	225*	225	215	160	160	160	160	95	160	185	185	175*	160	163 (18)	
11	160	145	155	155	145	130	160	210*	135*	115	95*	130	145	145	145	145	135	145	Z±*	Z±*	Z±*	90	90	137 (17)		
12	90	90	95	90	95	120	145	160	145	155	195	210	215	175	145	160	170*	175*	195*	175*	160*	145*	135*	143 (16)		
13	130*	120*	115*	105*	90*	90*	105*	115*	120	105*	115	130	130	160	195	195	215	210	200*	120*	145*	130*	115*	115*	163 (9)	
14	50*	30*	15*	15*	40	120	175	290	240	215	215*	210	155	160	185	155	160	160	155	170	195	200	215	265	182 (19)	
15	210	195	170	175	160	195	275	330	290	235	160	135	130	130	145	120	115	130	135	175	200	130	135	105	174 (24)	
16	130	130	105	105	80	105	175	265	260	195	135	130	115	105	70	90	95	80	70	115	65	145	115	90	124 (24)	
17	80	65	55	50	30	40	65	135	90	130	95	105	95	105	105	95	95	90	90	95	80	70	65	40	82 (24)	
18	65	80	80	80	80	175	160	330	355	260	250	240	240	225	225	210	210	160	210	195	225	155	105	145	186 (24)	
19	135	0	15	-10	-130	30	195	300	340	355	280	200	135	145	145	145	175	175	170	95	130	210	155	170	148 (24)	
20	160	145	185	170	160	170	225	355	370	305	195	160	145	155	130	130	120	145	215	175	130	130	115	130	180 (24)	
21	155	130	130	195	200	135	160	280	425	200	160	160	175	40	Z±*	Z±*	80	155	115	160	170	135	130	130	165 (22)	
22	130	130	115	90	65	90	115	120	130	120	135	145														

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

41 KEW OBSERVATORY		Factor 4.42 (metre <sup>-1</sup> )																				SEPTEMBER 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	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	24	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	370	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*	240*	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 <sup>-1</sup> )																				OCTOBER 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	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	130	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	255	299	(21)
21	350	235	255	195	235	210	225*	295*	210*	245*	115*	70*	295*	195*	290*	150	0	-35*	-65*	85*	-35*	15	55	105	164	(11)
22	130	155	210	150	175	225	340	475	525*	410	305	280	245	235	265	270	385	535	675	525	395	375	410	360	327	(23)
23	410	315	265	395	405	475	385	475	525*	570	420	295	210	185	225	270	280	325	385	430	445	420	385	325	361	(23)
24	245	200	130	115	105	125	150	225	245	245	245	245	225	235	265	195	195	185	255	195	105*	80*	125*	125*	201	(20)
25	70*	15	60	105	140	175	210	265	280	280	255	265	255	235	235	255	270	350	435	505	595	700	575	545	305	(23)
26	395	295	210	175	140	175	225	290	350	305	280	290	210	Z+*	15	Z+*	295	420	350	315	245	195	150	60	245	(22)
27	35	45	-90*	-325*	-625*	-435*	Z-*	Z+*	70*	175	340	315	315	175	Z+*	155	200	375	290	325	365	385	375	315	262	(16)
28	265	225	195	175	210	225	290	435	490	360	350*	Z+*	130*	165*	295*	335	385	375	455	455	465	44*	385	280	339	(19)
29	335	245	210	210	245	245	290	395	525*	525	535	51*	420	365	360	335	245	385	435	210	235	325	210	175	324	(23)
30	295	265	175	195	195*	70*	70	115	295*	175*	Z-*	-400*	195*	315	455	480	675	840	335	155	315	280	165	270	318	(17)
31	420	280	405	475	525	335	290	365	445*	360	505	175	35	225	295	245	325	245	290	350	360*	210	115	185	303	(22)
Mean	250 (27)	202 (29)	202 (28)	191 (29)	207 (29)	204 (29)	220 (29)	275 (29)	331 (12)	355 (27)	320 (26)	268 (26)	232 (26)	223 (26)	231 (26)	255 (27)	278 (28)	344 (28)	331 (29)	341 (27)	341 (26)	287 (28)	255 (25)	245 (28)	264 (649)	
																									Mean for selected quiet days	[274 (10)]

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

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41 KEW OBSERVATORY		Factor 4.35 (metre <sup>-1</sup> )																				NOVEMBER 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	
	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	105	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±	855	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±	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±*	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±*	425	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	375	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	-	290	-	-	-	-	662 (18)
Mean	276 (25)	235 (24)	251 (24)	219 (24)	255 (23)	253 (22)	315 (23)	321 (20)	345 (9)	437 (23)	461 (23)	440 (24)	437 (25)	393 (23)	367 (26)	409 (26)	432 (24)	379 (24)	434 (22)	382 (21)	338 (19)	311 (27)	309 (27)	285 (26)	345 (554)
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 <sup>-1</sup> )												DECEMBER 1959																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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## 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
		hr.		hr.		hr.		hr.		hr.		hr.
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			2	6.4	1	0.2	1	0.2	1	1.2
30	2	6.4			1	0.1	0	0.0	1	0.2	0	0.0
31	1	1.6			0	0.0			1	0.2		
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
		hr.		hr.		hr.		hr.		hr.		hr.
1	0	0.0	1	1.3	0	0.0	0	0.0	1	0.6	-	-
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			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  $1 \text{ v.cm.}^{-1}$ .  $i$  = Air-earth current, unit  $10^{-18} \text{ amp. cm.}^{-2}$   
 $\lambda^+$  = Conductivity due to positive ions, unit  $10^{-18} \text{ ohm.}^{-1} \text{ cm.}^{-1}$

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	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE		
	$F$	$i$	$\lambda^+$	$F$	$i$	$\lambda^+$	$F$	$i$	$\lambda^+$	$F$	$i$	$\lambda^+$	$F$	$i$	$\lambda^+$	$F$	$i$	$\lambda^+$
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		
	$F$	$i$	$\lambda^+$	$F$	$i$	$\lambda^+$	$F$	$i$	$\lambda^+$	$F$	$i$	$\lambda^+$	$F$	$i$	$\lambda^+$	$F$	$i$	$\lambda^+$
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

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 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13	to 14	to 15	to 16	to 17	to 18	to 19	to 20	to 21	to 22	to 23	to 24			
milligrams per cubic metre																											
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	0.08	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	0.07	0.07	0.09	0.09	0.08	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	0.06	0.07	0.07	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	0.06	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	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	0.08	0.07	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	0.08	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	0.15	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	0.08	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	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	0.06	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	