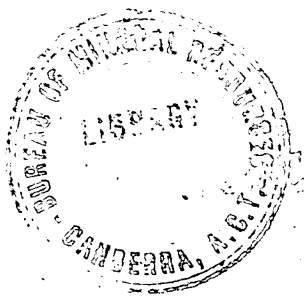


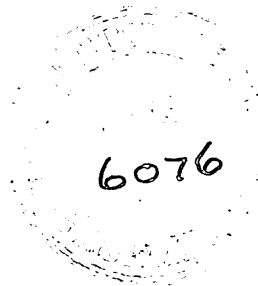
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DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS



REPORT NO. 34



MAGNETIC RESULTS
FROM
HEARD ISLAND, 1954

By

K. B. LODWICK

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1957

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Department Of National Development

Minister—SENATOR THE HON. W. H. SPOONER, M.M.

Secretary—H. G. RAGGETT, C.B.E.

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

Director: P. B. NYE, O.B.E.

Deputy Director: J. M. RAYNER.

THIS REPORT WAS PREPARED IN THE GEOPHYSICAL SECTION

Chief Geophysicist: R. F. THYER.

P R E F A C E

The geomagnetic work at Heard Island, which is described in this report, was planned and carried out by the Bureau of Mineral Resources, Geology and Geophysics of the Department of National Development, and was made possible by the Australian National Antarctic Research Expedition (A.N.A.R.E.), which established a scientific research station at the island in 1947-48. The instruments used in making the geomagnetic observations were supplied by the Bureau of Mineral Resources, but the observatory buildings and living accommodation were provided by the A.N.A.R.E., which is responsible for the general administration of the research station.

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A B S T R A C T

The magnetic data obtained on Heard Island from 1st January, 1954 to 31st October, 1954 are published in this report. These data include : hourly values of the components (D, H and Z) of the earth's magnetic field; the mean values for each month and the mean for the ten months obtained from the hourly values; values of the base-line of each component, derived from readings using semi-absolute instruments; relevant data such as scale values; and a summary of magnetic activity during the first ten months of 1954. A short discussion of the data obtained is set out under appropriate headings.

Similar results obtained at Heard Island in 1952 and 1953 have been published in previous reports and the results published in this report are the last of the series, as the Heard Island Magnetic Observatory was closed in October, 1954.

INTRODUCTION

Heard Island is situated about 2,400 nautical miles south-west of Perth, Western Australia, at latitude 53°S and longitude 73°E. A magnetic observatory was established by the Bureau of Mineral Resources, Geology and Geophysics, working in conjunction with the Australian National Antarctic Research Expedition, in 1951.

Detailed descriptions of the observatory, its site, the buildings in which it is housed and the operational routine carried on there are contained in reports by Chamberlain (1952), Doyle (1953), Ingall (1953 and 1955), Brooks (1955 and 1956) and Lodwick (1957).

The absolute and semi-absolute instruments and the variation instruments and subsidiary equipment are fully described in reports by La Cour (1930, 1936 and 1942), La Cour and Laursen (1930), Ingall (1955) and McGregor (1956). The instruments used were:-

(a) Absolute instruments.

- (i) Declination - Elliott Magnetometer No.18.
- (ii) Horizontal Intensity - Quartz Horizontal Magnetometers (Q.H.M.)
Nos.172, 173 and 174.
- (iii) Vertical Intensity - Magnetometric Zero Balance (B.M.Z.) No.62.

(b) Variation instruments.

- (i) La Cour D variometer No.80.
- (ii) La Cour H variometer No.75.
- (iii) La Cour Z variometer No.95.

Quartz Horizontal Magnetometers Nos. 173 and 174 were used for observations of horizontal intensity at Heard Island in 1954 while No.172 was intercompared at Toolangi. The results of the intercomparison of No.172 at Toolangi Observatory were used in the control of the H base-line at Heard Island.

The Australian National Antarctic Research Expedition has been obliged to cease operations at Heard Island in favour of developing a new base at Mawson on the Antarctic continent. Regular observations in geomagnetism ceased at the island on 31st October, 1954.

VARIOMETER SCALE VALUES AND BASE-LINE VALUES

Scale values for the D variometer.

The scale value of the D variometer is calculated from the distance of the recording drum of the variometer from the variometer itself and the deflection of the light spot caused by the introduction of torsion in the magnet suspension. The scale value was checked three times during the year and a constant value of 0.91 minutes per millimetre

was obtained; this was adopted as the scale value from January to October.

Scale values for the H variometer.

Scale values for the H variometer were found by using the Helmholtz coil method. The values obtained throughout the ten months were reasonably constant. The sub-standard milliammeter used in January for measuring the current through the Helmholtz coil had a temperature coefficient, and it was replaced in February by another milliammeter for which the temperature coefficient was negligible. During February, there were slight fluctuations in the current through the Helmholtz coil, but after soldering all joints in the circuit, a steady reading was obtained. A slight increase in scale value from 10.01 gammas per millimetre to 10.12 gammas per millimetre, adopted from the 1st March, could be attributed to either the change in milliammeter or the soldering of the joints in the circuit. The values obtained after February were reasonably constant, except for some scattered results in May, and the mean of all the values from February onwards was adopted as the scale value until the station was closed at the end of October.

Scale values for the Z variometer.

A Helmholtz coil was used to determine Z scale values throughout 1954; the results obtained showed little scatter about the mean for the period even though the circuit was rewired and a different milliammeter was used from February onwards. The mean for the period January to October (3.11 gammas per millimetre) was adopted as the scale value throughout the period.

Base-line values for the D variometer.

A La Cour variometer was used to record changes in declination and Elliott Magnetometer No.18 was used for calibration. The base line from January to October showed a slight apparent change in the easterly direction until August and then, after remaining approximately constant during August and September, showed a gradual change to the west in October. This variation is unexplained, though it appears to be a seasonal one.

In adopting values for the D base line, increases of 0.3 minute easterly were made at the end of each month until July, a constant value was adopted in August and September and an increase of 0.3 minute more westerly than the constant value in August and September was adopted for October. The mean, weighted with respect to time, of all the adopted base-line values was made to agree with the mean of the base-line values calculated from the Elliott Magnetometer readings. As an increase in base-line of 0.3 minute could not be detected from one record to the next on the disturbed Heard Island magnetograms, the continuity of the hourly scalings will have no sudden break.

Base-line values for the H variometer.

Quartz Horizontal Magnetometers Nos.173 and 174 were used to determine the base-line values of the La Cour H variometer. Q.H.M. No.174 gave consistent results throughout 1954, but Q.H.M. No.173 gave unreliable readings from August onwards. No explanation can be found for the behaviour of Q.H.M. No.173, although some of the erratic readings were caused by a brass shim tilting the instrument out of its level position. The La Cour H variometer needed no adjustment during 1954. Base-line values obtained for the instrument showed an apparent decrease of about 8 gammas from 1st January to mid-February, when there was an increase to the value obtained at the beginning of January. On the Heard Island records even a sudden change of 8 gammas would be difficult to detect because the scale value was approximately ten gammas per millimetre and the magnetograms were so disturbed that a change of 0.8 of a millimetre between the base line spot and the recording spot would not be apparent. No definite explanation for this change can therefore be offered.

The adopted base-line for the H variometer has two values for the year, chosen so that the mean of all the base-line determinations made with the Q.H.M. is equal to the mean (weighted with respect to time) of the two adopted values of the H base-line. The difference in the values of the two adopted base-lines, the first value adopted from 1st January to 14th February, the second value from 15th February to 31st October, is only 6 gammas, and this is considered to be undetectable on the disturbed Heard Island magnetograms.

The base-line value for the H variometer was examined for temperature effects, but none were apparent.

Base-line values for the Z variometer.

Magnetometric Zero Balance (B.M.Z.) No.62 was used to calibrate the La Cour Z variometer. From January to July, the Z base-line value showed an apparent increase of about 60 gammas, then a decrease, then was more or less constant from August to October. No temperature effect on either the B.M.Z. or the Z variometer could be isolated. The apparent change between January and July could be attributed to a decrease in the moment of either the field or the twin magnet of the B.M.Z., but this could not apply to the decrease of the base-line value in July. Any change in the moment of the variometer magnet would have been evident in the scale values, but these remained constant.

B.M.Z. No.62 was not compared with an absolute instrument during the three years it was at Heard Island. The constants used during this time were those determined at Rude Skov.

After its return, the instrument was compared with long range B.M.Z. No.121 at Byron Bay, New South Wales, in October, 1955.

The result of this comparison is as follows:-

$$Z_{IMS} = Z_{62} - 12 \text{ gammas.}$$

However, when the tabulated data for this report were compiled, this correction was not known and no I.M.S. correction was applied. A PROVISIONAL CORRECTION OF -12 GAMMAS SHOULD THEREFORE BE APPLIED TO ALL VALUES OF VERTICAL INTENSITY IN THIS REPORT, but it should be kept in mind that this value is based on only one comparison and that it may have to be changed when further comparisons are made.

The Z variometer base line was adopted so that from 1st January to 26th July a decrease of 4 gammas was made and then adopted so that it remained constant from 27th July to 31st October. The mean (weighted with respect to time) of all the adopted base-lines was made to agree with the mean of all the base-line determinations with B.M.Z. No.62 over the ten-month period.

K-INDICES

K-Indices were scaled each month at the observatory and the results transmitted to Melbourne by radio. Sq curves used in scaling the K-Indices were calculated from the five quietest days on Heard Island each month; these five quiet days did not always coincide with the five international quiet days. K-Indices from Heard Island were published each month in the "Geophysical Observatory Report" issued by the Bureau of Mineral Resources, Geology and Geophysics.

GENERAL REMARKS ON THE PUBLISHED RESULTS

During the period in which the Heard Island Magnetic Observatory was operating in 1954, the power supply and the time-marking device for the magnetograph gave much trouble. Lead-acid accumulators used for the light sources of the magnetograph failed because of age and the cold conditions on the island. In June, the coldest month of the year, this trouble became very acute and a lot of record was lost. Many blank spaces in the results for the months after June are due to failures in the power supply.

The La Cour pendulum clock used for marking the time on the magnetograms failed during May, and as no replacement was available the magnetograms after May have no time marks. Fortunately, the escapement controlling the drum speed of the magnetograph recorder gave the drum a reasonably constant speed, and the position of the time marks calculated from the time the magnetogram was put on and taken off should not be in error by more than ± 3 minutes. The failure of the La Cour pendulum clock was probably due to corrosion of the escapement in the moist atmospheric conditions on the island.

COMPARISON OF ABSOLUTE AND SEMI-ABSOLUTE INSTRUMENTS

Quartz Horizontal Magnetometers can give reliable results for base-lines, but the control has to be strict. On Heard Island, three Q.H.M. were used; two were used on the island each time absolute observations were taken and the third was intercompared at Toolangi Observatory. When the relief ship arrived at Heard Island, the instrument which had been intercompared at Toolangi Observatory was exchanged for one on the island. This procedure was repeated each successive year, and even though Q.H.M. No.173 became unreliable in 1954 good control of the Heard Island base-line was maintained.

The control of the B.M.Z. has to be very strict to maintain a constant base-line value. The base-line value given by B.M.Z. No.62 during the three years was not as accurate as desired. As B.M.Z. No.62 is a fixed-range instrument, it was difficult to intercompare, but with the introduction of the Universal B.M.Z. the control should be very much easier.

BASIC HOURLY VALUES AND ASSOCIATED MEANS

Many values are missing in the tables of hourly values because of frequent failure of the lead-acid accumulators. In calculating the mean for a month, only the days which had three or less hourly values missing were taken into account. In any future use of the results published in this report this method of calculating the monthly means will have to be taken into account. Days with any doubtful hourly values should have been omitted from the calculations, but this would have seriously depleted the number of days that could be used in a month; this is particularly so for June.

It is unfortunate that only one complete set of annual results is available for Heard Island, namely that for 1953. In Table 41 the mean for ten months is given and each month is given equal weight in the mean even though days are missing in some months.

MAGNETIC ACTIVITY

The magnetic activity on Heard Island for the first ten months of 1954 was not as great as in preceeding years. Several magnetic storms were observed although a sunspot minimum occurred about this time. None of the storms was very intense.

The table of sudden commencements contains many Polar Sudden Commencements (P.S.C.) throughout the ten months. Examination of the magnetograms from Heard Island and comparison of the magnetic activity with the list of magnetic phenomena published by the International Union of Geodesy and Geophysics, shows several features, particularly with respect to P.S.C.

- (i) P.S.C. were observed with the characteristic sudden beginning followed by a .
bay of up to an hour's duration. The first movement was of the order of
50 gammas for H, 10 minutes for D and 40 gammas for Z.

- (ii) Some disturbances began with a series of microvibrations and a gradual change in the value of each element of the magnetic field; the sudden movement followed and the magnetic bay formed. The time of this sudden movement often agrees with the time given at other observatories for a P.S.C., but the microvibrations began up to fifteen minutes earlier than the sudden movement.
- (iii) In P.S.C. beginning in ways described in either (i) or (ii), the bay which formed was sometimes of short duration. The value of the element returned to its original value fairly rapidly and was then followed by either another P.S.C. or a sudden impulse in the same, or sometimes the opposite, direction. The time of the second impulse is often quoted from other observatories as the time for a P.S.C. The bays formed in some P.S.C. were often not smoothly defined, but were interrupted in their formation by sudden impulses which may be associated with aurorae.
- (iv) In some instances only a microvibration appeared on the magnetogram at Heard Island at a time when a P.S.C. was observed at other observatories.
- (v) During some magnetic storms not reported elsewhere, other observatories give times for a P.S.C. which coincides with a sudden impulse during the magnetic storm at Heard Island.

Polar Sudden Commencements of the types described in (i), (ii) and (iii) above have been included in Table 43 of this report. The time given is the time of the first sudden impulse. Where the times of magnetic disturbances are enclosed by brackets in Table 43, they are subject to possible errors up to ± 3 minutes. This error is due to the failure of the La Cour pendulum clock after May.

MAGNETIC WORK AFTER CLOSURE OF THE OBSERVATORY

After continuous recording ceased on 31st October, 1954, absolute observations were taken until the middle of January, 1955. The results are given in Table 45 of this report. Observations for H were made with Q.H.M. No.174 because Q.H.M. No.173 gave erratic results. Declination was observed with Elliott Magnetometer No.18 and vertical intensity was measured with B.M.Z. No.62.

CONCLUSIONS

The results for the ten months are not as complete as desirable because of the trouble with the La Cour pendulum clock and the lead-acid accumulators. Absolute observations were made only when a trustworthy accumulator was in the light source circuit of the magnetograph.

This accounts for the uneven spacing of absolute observations after May. If it had not been for the introduction of a device which marked the magnetogram at the instant absolute observations were taken, base-line determinations after June would have been very inaccurate. In view of the costly failure of the La Cour pendulum clock and the lead-acid accumulators it is suggested that:-

1. Lead-acid accumulators should be replaced at least every two years; the risk involved in using them after that period at an isolated observatory is too great.
2. Mechanisms such as the La Cour pendulum clock and the escapement device of the La Cour recorder need a complete overhaul after two years.

Scientific work at Heard Island ceased on the 31st October, 1954, and it is not known if the station will be re-occupied. All the magnetic equipment has been transferred to Mawson, Antarctica, and magnetic results from there have been published in the "Geophysical Observatory Report" since August, 1955.

The site of the magnetic observatory at West Bay, Heard Island, is clearly marked by wooden piers; the exact location is given by Ingall (1955).

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TABLE 1

Observed and adopted base-line values for D variometer
 (Observed values determined with Elliott Magnetometer No.18)
 (West declination)

Date	Observed	Adopted	Adopted value used to	Remarks
1954				
January 7	-50 33.2	-50 31.6		
" 14	31.1	31.6		
" 20	31.4	31.6		
" 22	33.1	31.6		
" 28	31.9	31.6	00h Feb. 1	
February 4	30.9	31.3		
" 11	31.2	31.3		
" 18	31.3	31.3		
" 25	31.7	31.3	00h Mar. 1	
March 5	30.9	31.0		
" 12	31.5	31.0		
" 19	31.3	31.0		
" 27	30.1	31.0	00h Apr. 1	
April 16	30.8	30.7		
" 16	31.2	30.7		
" 23	30.4	30.7		
" 30	30.8	30.7	00h May 1	
May 8	31.9	30.4		
" 19	31.1	30.4		
" 28	31.0	30.4		
" 31	32.0	30.4	00h June 1	
June 26	30.2	30.1		
" 26	30.1	30.1		
" 26	30.4	30.1		
" 28	29.9	30.1	00h July 1	
July 15	29.3	29.8		
" 19	29.4	29.8		
" 27	30.0	29.8		
" 31	29.9	29.8	00h Aug. 1	
August 26	28.8	29.5		
" 26	29.3	29.5		
" 28	29.5	29.5		
" 31	28.8	29.5		
September 8	28.9	29.5		
" 27	29.5	29.5		
" 27	30.0	29.5		
" 30	28.7	29.5	00h Oct. 1	
October 13	30.2	29.8		
" 23	29.6	29.8		
" 27	29.9	29.8		
" 29	29.8	29.8	00h Nov. 1	

NOTE: Failure of the lead-acid accumulators prevented regular taking of absolute observations during June. Trouble with the accumulators was also experienced from August onwards.

TABLE 2

Abrupt changes in the adopted D base-line values
 (West declination reckoned as negative; changes below taken algebraically)

Date	Change from preceding value	Cause of change
1954		
January 1	+0.2	Unknown
February 1	+0.3	"
March 1	+0.3	"
April 1	+0.3	"
May 1	+0.3	"
June 1	+0.3	"
July 1	+0.3	"
August 1	+0.3	"
October 1	-0.3	"

TABLE 3

Observed and adopted base-line values for H variometer

(Observed values determined with QHMs Nos. 173 & 174)

Date	Instrument QHM No.	Observed	Adopted	Adopted value used to	Remarks
1954		Y	Y		
January	7	174	-18458	-18453	
"	7	173	18457	18453	
"	7	174	18458	18453	
"	7	173	18457	18453	
"	7	174	18456	18453	
"	7	173	18455	18453	
"	7	174	18455	18453	
"	14	173	18456	18453	
"	14	174	18457	18453	
"	22	174	18454	18453	
"	28	173	18449	18453	
"	28	174	18451	18453	
February	4	173	18450	18453	
"	4	174	18451	18453	
"	11	173	18449	18453	
"	11	174	18448	18453	00h Feb. 15 Reason for change unknown.
"	18	173	18461	18459	
"	18	174	18463	18459	
"	25	173	18458	18459	
"	25	174	18458	18459	
March	5	173	18463	18459	
"	5	174	18464	18459	
"	12	173	18461	18459	
"	12	174	18462	18459	
"	19	173	18459	18459	
"	19	174	18459	18459	
"	26	173	18456	18459	
"	26	174	18459	18459	
April	1	173	18460	18459	
"	1	174	18460	18459	
"	9	173	18456	18459	
"	9	174	18457	18459	
"	16	173	18457	18459	
"	16	174	18457	18459	Two unreliable readings omitted.
"	23	173	18459	18459	
"	23	174	18459	18459	
May	8	173	18458	18459	
"	8	174	18457	18459	
"	19	173	18457	18459	
"	19	174	18456	18459	
"	21	173	18460	18459	
"	21	174	18461	18459	
"	28	173	18459	18459	
"	31	174	18458	18459	
June	29	173	18456	18459	
"	30	173	18454	18459	
"	30	174	18459	18459	
"	30	174	18457	18459	
July	13	173	18456	18459	
"	15	174	18459	18459	
"	19	173	18456	18459	
"	19	174	18458	18459	
"	27	173	18457	18459	
"	27	174	18457	18459	
"	31	174	18456	18459	
August	26	173	18459	18459	False readings by QHM No. 173 during July and August, due to shim throwing instrument off level.
"	26	174	18460	18459	
"	28	173	18456	18459	
"	28	174	18459	18459	
"	31	173	18458	18459	
"	31	174	18460	18459	
September	8	174	18461	18459	Unlikely reading not included.
"	27	174	18458	18459	" " " "
"	27	174	18461	18459	QHM No. 173 became unreliable during September and October.
"	30	174	18460	18459	Base-lines had to be obtained from QHM No. 174 only.
October	13	174	18459	18459	
"	23	174	18460	18459	
"	27	174	18464	18459	
"	29	174	18461	18459	00h Nov. 1

NOTE: Failure of the lead-acid accumulators prevented regular taking of absolute observations during June. Trouble with the accumulators was also experienced from August onwards.

TABLE 4

Abrupt changes in the adopted H base-line values

(Horizontal intensity is reckoned as positive; changes below taken algebraically)

Date	Change from preceding value	Cause of change
1954	Y	
January 1	+3	Unknown
February 14	+6	Unknown

TABLE 5

Observed and adopted base-line values for Z variometer

(Observed values determined with BMZ No.62)

Date	Observed	Adopted	Adopted value used to	Remarks
1954	Y	Y		
January 7	-47129	-47141		
" 8	47130	47141		
" 9	47136	47141		
" 14	47138	47141		
" 22	47136	47141	00h Jan. 24	
" 28	47143	47145		
February 4	47145	47145		
" 11	47147	47145	00h Feb. 16	
" 18	47153	47149		
" 25	47158	47149		
March 5	47164	47149	00h Mar. 11	
" 12	47161	47153		
" 19	47158	47153		
" 26	47159	47153		
April 1	47161	47153	00h Apr. 3	
" 9	47161	47157		
" 16	47166	47157		
" 23	47167	47157	00h Apr. 26	
May 8	47159	47161		
" 19	47166	47161	00h May 19	
" 21	47171	47165		
" 28	47166	47165	00h June 11	
June 25	47163	47169	00h July 4	
July 13	47176	47173		
" 19	47170	47173	00h July 27	
" 27	47193	47177		
" 31	47190	47177		
August 12	47184	47177		
" 25	47179	47177		
" 28	47172	47177		
" 31	47174	47177		
September 8	47175	47177		
" 16	47176	47177		
" 26	47170	47177		
" 30	47170	47177		
October 13	47166	47177		
" 23	47167	47177		
" 27	47185	47177		
" 29	47177	47177	00h Nov. 1	

NOTE: Failure of the lead-acid accumulators prevented regular taking of absolute observations during June. Trouble with the accumulators was also experienced from August onwards.

TABLE 6

Abrupt changes in the adopted Z base-line values

(Vertical intensity is reckoned as negative; changes below taken algebraically)

Date	Change from preceding value	Cause of change
1954	Y	
January 1	-1	Unknown but see text
" 24	-1	" " " "
February 16	-1	" " " "
March 11	-1	" " " "
April 3	-1	" " " "
" 26	-1	" " " "
May 19	-1	" " " "
June 11	-1	" " " "
July 4	-1	" " " "
" 27	-1	" " " "

TABLE 7

Observed and adopted D scale-values

Date	Observed	Adopted	Method used for determination
1954	'/mm	'/mm	
April 9	0.912	0.91	Torsion head deflections
August 28	0.912	0.91	" " "
October 28	0.912	0.91	" " "

TABLE 8

Observed and adopted H scale-values
(Observed values determined with Helmholtz coil)

Date	Observed	Adopted	Adopted value used to	Remarks
1954	γ/mm	γ/mm		
January	4	9.95	10.01	
"	11	10.03	10.01	
"	20	10.02	10.01	
"	28	10.07	10.01	
"	28	10.04	10.01	00h Mar.1
March	22	10.20	10.12	Erratic values obtained during February and March not included.
"	25	10.15	10.12	Scale-value circuit rewired during March.
"	27	10.14	10.12	
"	30	10.21	10.12	
April	9	10.20	10.12	
"	16	10.16	10.12	
"	23	10.28	10.12	Erratic values not included.
May	18	10.16	10.12	
"	28	10.14	10.12	
"	31	10.18	10.12	
June	25	10.06	10.12	Circuit adjusted and joints soldered.
"	26	10.11	10.12	
"	28	10.10	10.12	
"	29	10.21	10.12	
July	13	10.03	10.12	
"	19	10.08	10.12	
"	27	10.07	10.12	
"	31	10.08	10.12	
August	12	10.00	10.12	
"	25	10.12	10.12	
"	28	10.11	10.12	
"	31	10.13	10.12	
September	16	10.11	10.12	
"	26	10.05	10.12	
"	27	10.13	10.12	
"	30	10.17	10.12	
October	13	10.16	10.12	
"	21	10.04	10.12	Erratic values not included.
"	28	10.03	10.12	00h Nov.1

TABLE 9

Abrupt changes in the adopted H scale-values

Date	Change from preceding value	Cause of change
1954	γ/mm	
March 1	+0.11	Rewiring of scale-value circuit

TABLE 10

Observed and adopted Z scale values
(Observed values determined with Helmholtz coil)

Date	Observed	Adopted	Adopted value used to	Remarks
1954	Y/mm	Y/mm		
January 4	3.12	3.11		
" 11	3.12	3.11		
" 20	3.14	3.11		
" 28	3.07	3.11		
" 28	3.12	3.11		
February 4	3.18	3.11		
" 11	3.07	3.11		
" 18	3.09	3.11		
March 22	3.08	3.11		Scale-value circuit rewired during March.
" 25	3.06	3.11		
" 27	3.08	3.11		
" 30	3.09	3.11		
April 9	3.10	3.11		
" 16	3.10	3.11		
" 23	3.18	3.11		
May 8	3.11	3.11		
" 18	3.12	3.11		
" 28	3.11	3.11		
" 31	3.13	3.11		
June 25	3.11	3.11		
" 26	3.09	3.11		
" 28	3.13	3.11		
" 29	3.07	3.11		
July 13	3.07	3.11		
" 19	3.09	3.11		
" 27	3.09	3.11		
" 31	3.16	3.11		
August 12	3.11	3.11		
" 25	3.15	3.11		
" 28	3.13	3.11		
" 31	3.13	3.11		
September 16	3.11	3.11		
" 26	3.08	3.11		
" 27	3.06	3.11		
" 30	3.13	3.11		
October 13	3.12	3.11		
" 21	3.09	3.11		
" 27	3.08	3.11		
" 28	3.12	3.11	00h Nov.1	No abrupt changes in adopted value

TABLE 11

HOURLY VALUES OF DECLINATION

JANUARY 1954

49°30' West plus tabular quantities expressed in tenths of minutes of arc

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range		
																											h m	h m			
1 *		443	442	477	487	483	463	427	407	414	411	417	414	407	411	407	405	412	414	405	414	423	405	414	433	426	03 25	489	21 40	376	113
2 *		459	535	483	477	460	433	424	396	396	391	386	378	387	386	247	404	447	438	442	507	436	435	445	431	426	01 34	580	14 40	003	577
3		443	478	498	503	504	493	475	455	425	407	394	398	414	433	449	451	448	440	434	433	433	437	438	443	447	02 50	523	10 36	371	152
4 *		458	467	469	(470)	501	474	462	435	425	429	432	430	434	433	433	432	433	432	431	429	430	433	435	440	442	05 42	482	08 09	424	058
5		446	470	472	488	480	462	444	436	424	405	397	397	404	407	415	429	448	430	431	445	580	609	489	492	454	21 09	762	10 09	393	369
6		484	491	497	488	503	454	451	424	404	403	378	378	393	393	401	415	427	422	424	443	438	432	442	450	435	04 07	514	13 16	369	145
7		462	476	476	486	488	486	458	443	434	416	406	405	405	413	404	398	415	424	429	432	480	465	444	459	442	03 52	507	15 48	384	123
8		462	445	484	490	489	497	486	450	396	376	379	378	392	414	421	427	426	424	423	434	438	428	439	426	434	05 12	516	09 21	360	156
9		435	478	497	511	506	488	467	443	424	419	404	397	411	432	435	438	437	433	433	441	440	431	434	422	444	03 45	522	00 02	386	136
10 *		442	459	474	489	488	481	451	439	422	404	395	388	380	403	397	404	413	414	418	424	434	445	443	446	431	03 34	500	12 30	369	131
11		460	475	482	486	495	488	443	437	433	416	417	406	406	431	433	434	433	459	482	461	457	445	441	429	448	18 02	535	12 45	393	142
12		441	443	466	479	476	452	437	425	422	404	393	398	397	405	405	419	454	443	459	482	461	460	469	478	440	19 12	493	12 55	378	115
13		497	534	506	496	487	496	462	429	445	453	444	438	425	414	424	435	433	433	437	461	467	471	472	456	459	01 53	570	13 25	404	166
14 *		463	478	490	497	486	469	466	453	437	425	416	415	414	414	422	414	415	424	479	443	453	451	459	487	449	18 36	521	22 32	411	110
15		496	490	496	484	477	471	464	453	432	447	443	438	435	427	423	432	429	432	445	444	476	484	471	470	457	23 09	534	23 17	404	130
16		461	481	488	491	479	468	457	440	434	423	406	418	431	441	435	435	434	437	494	453	459	451	462	476	452	18 34	559	10 42	398	161
17		491	503	505	503	500	500	480	463	453	450	442	440	440	438	435	449	451	490	478	477	490	475	461	460	470	17 24	532	14 30	429	103
18		471	487	487	490	475	473	447	414	417	427	415	415	397	404	440	423	428	416	443	451	445	475	533	611	454	22 58	795	13 02	362	433
19		582	625	535	520	524	501	478	475	467	426	400	403	408	438	439	449	445	479	590	598	869	862	785	820	547	21 17	1083	18 03	362	721
20		490	575	494	503	506	493	468	428	429	404	391	398	390	409	424	455	452	449	518	481	470	452	466	417	457	17 55	590	12 51	366	224
21		454	517	477	501	518	486	477	468	452	440	437	420	409	434	443	475	469	518	483	476	493	485	473	432	468	17 06	580	12 38	390	190
22		438	476	504	472	466	488	486	454	432	423	407	405	414	421	445	447	482	457	460	445	462	452	445	451	451	16 54	549	13 36	395	154
23		469	486	504	476	479	491	488	484	462	445	435	424	426	442	455	445	486	473	472	479	461	452	438	441	463	02 47	538	11 27	372	166
24 *		461	468	486																											
25					491	490	486	483	471	463	455	443	430	425	434	443	443	453	441	460	452	454	452	451	455		16 48	(515)	17 36	(415)	(100)
26 *		460	464	487	489	487	460	455	451	443	436	432	423	423	432	435	445	465	451	456	460	461	464	460	471	455	04 12	504	11 36	414	090
27 *		476	476	480	480	488	489	470	466	453	445	434	423	418	435	434	449	455	464	458	476	461	452	451	459	458	19 12	516	12 21	407	109
28 *		467	482	475	482	489	485	479	469	444	425	423	416	424	427	435	442	433	441	450	455	460	457	455	453	453	04 59	498	11 26	413	085
29 *		458	469	474	486	502	490	473	469	460	445	435	435	436	435	434	441	462	460	460	462	461	453	451	459	459	04 33	507	13 05	428	079
30 *		468	479	487	496	506	507	487	479	458	446	441	435	438	443	442	466	449	444	445	457	471	481	452	464	464	05 00	526	16 35	420	106
31		482	502	518	529	523	497	478	475	466	443	427	422	425	435	443	452	507	461	453	458	475	536	478	479	474	21 14	599	11 09	415	184
Mean		468	489	489	491	491	481	463	447	435	424	415	412	413	422	423	435	444	445	456	459	475	475	467	471	454 ^d	DESIGNATIONS			184	
Mean *		460	468	479	486	489	480	463	452	440	430	425	420	419	426	427	433	437	438	445	447	450	449	447	457	449 ^a	* Ten least disturbed days			98	
Mean †		457	468	476	483	487	478	464	453	439	428	423	418	419	426	427	433	441	440	443	446	449	450	449	454	448	† Five international quiet days				
Mean ‡		491	548	499	495	497	481	467	450	441	421	410	405	404	422	402	448	460	471	501	508	546	537	521	508	472	‡ Five international disturbed days				
		a Means of 9 values						b Means of 8 values						c Means of 4 values						d Mean of 29 complete days only						() Approximate					

TABLE 12

HOURLY VALUES OF DECLINATION

FEBRUARY 1954

49°30' West plus tabular quantities expressed in tenths of minutes of arc

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range	
																											h m	h m		
1	473	504	522	542	520	504	495	434	424	451	422	436	438	416	348	441	423	431	525	501	491	465	442	488	464	18 00	611	14 48	248	363
2	468	522	539	545	495	493	477	457	443	431	424	424	420	414	359	448	455	466	460	458	458	462	453	502	461	03 08	592	14 21	395	197
3	504	513	506	513	504	494	504	485	460	431	423	494	354	421	440	462	466	461	466	494	512	477	440	421	468	20 06	577	12 16	314	263
4	473	498	539	514	513	511	511	496	470	456	442	441	445	452	442	458	474	465	455	466	469	456	456	444	473	02 40	568	18 40	423	145
5	456	487	501	504	495	494	490	485	463	435	430	432	432	440	444	463	467	476	497	504	513	449	452	452	469	20 22	534	21 32	398	136
6	469	490	503	514	513	507	494	484	465	439	430	426	432	446	449	450	453	454	454	450	458	458				03 52	(521)	11 06	(421)	(100)
7				504	504	495	491	483	467	443	432	432	433	438	442	445	441	438	446	500	506	483	451	469	472	20 42	(534)	18 05	(430)	(104)
8	505	493	505	502	503	495	493	483	466	446	432	423	427	441	450	454	455	457	466	511	504	479	468	457	472	19 45	606	11 54	405	201
9	477	495	504	504	496	487	478	485	483	461	443	437	441	440	450	492	461	465	496	486	467	461	455	456	472	15 38	541	11 23	424	117
10	464	472	483	487	491	488	485	465	457	442	433	417	421	452	452	463	471	482	496	504	483	471	457	457	466	18 40	534	11 21	408	126
11	485	530	504	516	503	501	492	477	457	446	438	431	421	431	439	440	442	455	444	494	604	549	533	493	480	20 21	693	18 05	329	364
12	470	483	504	514	524	524	510	483	457	440	437	445	454	466	475	466	461	458	458	466	483	497	494	519	479	04 22	533	10 40	431	102
13	517	494	506	518	511	501																								
14				501	499	494	487	470	450	441	432	440	450	448	443	432	454	479	469	511	565	523	530	449	474	20 03	(676)	15 21	(399)	(277)
15	470	496	503	511	522	459	409	431	439	442	420	346	401	461	363	402	497	494	497	554	561	558	611	531	474	19 30	678	15 03	217	461
16	504	550	506	495	504	494	472	473	476	474	468	463	461	440	467	461	483	492	495	445	531	520	532	610	492	22 46	1074	19 57	392	682
17	500	550	549										497	499		467	477	470	463	505	567	552	476	513	466	18 50	674	19 22	307	367
18	506	505	511	497	494	477	477	470	467	449	419	420	446	444	425	401	454	449	504	457	502	474	472	469	466	15 38	542	20 35	374	168
19	474	483	493	502	507	515	515	438	419	432	442	442	432	458	466	510	483	473	474	451	403	490	507	480	470	16 26	522	13 00	394	128
20	466	476	477	486	486	493	493	486	468	456	446	437	432	436	456	465	498	493	469	473	452	464	457	459	529	22 55	1640	16 42	181	1459
21	476	479	479	465	464	476	475	459	458	449	441	433	413	395	385	322	328	449	948	566	554	711	065	005	518	00 20	1146	12 45	371	775
22	903	645	566	531	477	446	456	477	487	463	455	433	403	415	487	474	486	477	477	529	518	667	699	457	480	22 06	791	17 36	321	470
23	486	531	550	474	460	449	464	473	465	448	434	442	433	418	431	424	526	439	460	497	510	615	557	526	485	17 33	567	13 27	417	150
24	527	498	491	486	484	488	498	510	504	487	469	436	438	463	473	464	473	504	494	508	504	505	476	466	485	16 16	567	18 45	359	208
25	483	485	494	495	492	479	488	494	490	471	462	458	455	462	482	462	504	486	461	527	513	526	484	490						
26	485	490	494	483	484	485	493	449	420	419	366	329	342	345	359	353	422	465												
27				498	485	488	482	489	480	443	432	411	437	444	431	539	459	496												
28	577	500	495	494	499	493	487	494	473	451	440	438	446	458	464	484	494	483	473	487	463	470	435	441	477	00 02	704	11 53	391	313
29																														
30																														
31																														
Mean	507	507	508	504	497	489	484	474	463	451	439	435	429	439	438	450	467	469	501	494	500	513	521	506	479 ^a	DESIGNATIONS			320	
Mean *	Insufficient data																									* Ten least disturbed days				
Mean /	Insufficient data																									/ Five international quiet days				
Mean ≠	Insufficient data																									≠ Five international disturbed days				
	a Means of 9 values b Means of 8 values c Means of 4 values d Mean of 21 complete days only																									() Approximate				

HOURLY VALUES OF DECLINATION

MARCH 1954

49°30' West plus tabular quantities expressed in tenths of minutes of arc

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range	
1	*	482	491	496	503	501	501	491	485	470	466	462	460	455	460	464	465	463	465	470	466	473	479	619	628	488	h	m	h	m
2	*	569	540	527	510	501	476	467	461	454	447	446	458	459	461	460	459	463	474	438	454	491	489	462	504	478	22	59	21	37
3	*	495	501	501																							00	11	18	44
4	*				505	491	471	466	449	447	432	421	429	434	466	458	468	466	465	463	464	473	564	556	574	472	00	15	22	44
5		584	561	555	511	501	501	469	448	437	436	429	402	418	406	446	460	464	472	463	470	481	477	436	499	481	00	16	578	11
6	*	543	512	520	511	487	464	473	463	454	449	448	441	460	464	462	465	455	466	491	466	461	539	537	513	484	22	55	657	20
7		492	487	518	492	482	499	491	475	453	435	441	449	449	429	472	505	483	529	477	491	420	494	596	553	487	23	00	709	09
8		528	515	528	520	488	485	480	469	457	444	443	450	453	454	464	465	462	460	460	481	511	514	602	554	484	23	00	709	09
9		487	484	511	523	524	500	474	462	440	420	423	438	446	447	487	476	470	537	583	633	555	484	475	470	490	18	59	683	09
10	*	474	497	520	525	517	509	502	489	466	450	446	442	437	453	489	493	473	492	517	452	553	501	492	528	488	20	27	591	19
11		511	510	501	511	490	473	470	472	447	439	424	420	398	402	463	467	481	469	518	448	515	432	491	528	470	18	35	582	13
12		528	490	499	493	499	499	491	472	457	446	452	435	433	469	469	485	510	488	501	533	576	548	545	489	492	21	09	603	11
13		473	485	501	491	483	494	498	493	484	473	462	464	447	462	441	407	487	491	526	418	627	519	533	434	482	20	36	722	15
14		448	499	496	521	517	493	523	452	446	455	448	447	463	471	470	528	491	423	566	635	536	603	608	558	504	19	21	803	16
15		677	501	502	510	481	481	477	476	459	450	448	438	438	463	465	482	487	502	426	546	566	630	509	472	495	00	09	838	19
16		484	506	520	510	508	498	501	493	466	464	456	461	437	494	489	476	490	447	516	536	575	599	501	481	496	21	54	652	17
17		466	474	499	510	509	489	492	490	478	472	467	470	468	470	467	457	511	488	531	515	510	563	856	601	511	22	47	1375	15
18		646	658	536	(501)	496	504	506	502	488	481	473	459	455	461	495	482	501	478	536	665	558	510	501	490	516	01	41	822	17
19	*	467	485	501	501	508	511	505	499	490	474	466	466	455	451	514	481	486	491	465	522	522	510	501	489	488	19	53	572	22
20		491	531	506	502	489	494	480	478	467	472	454	435	474	467	470	473	529	594	534	547	517	494	532	536	499	17	55	674	11
21		463	509	529	(519)	512	494	491	486	483	473	470	469	475	475	488	480	472	502	493	489	493	529	547	510	494	21	21	588	00
22		510	499	510	517	521	511	499	486	467	460	464	470	472	481	480	507	507	491	475	466	373	708	602	546	501	21	32	914	20
23		677	627	658																										
24					565	558	530	523	502	490	472	448	466	474	483	484	491	499	510	499	562	504	496	510	493	499	01	34	615	20
25		514	563	544	519	520	491	501	498	492	470	468	469	476	494	491	501	503	490	503	493	492	513	492	486	491	16	13	672	20
26		483	509	512	508	511	519	499	472	457	457	462	452	478	478	473	483	534	508	510	478	510	478	509	508	491	02	15	539	11
27	*	493	493	498	484	477	496	496	492	482	468	470	469	465	473	482	483	489	492	502	494	482	487	483	485	485	02	15	539	11
28	*	491	481	492	507	510	511	505	487	473	479	470	470	470	476	482	481	488	494	488	480	465	462	490	493	485	05	51	519	20
29	*	472	482	500	504	508	509	509	501	45	484	473	469	466	465	473	473	481	486	496	498	499	471	476	487	486	18	36	522	21
30		526	505	488	508	509	495	491	483	466	460	464	455	446	425	425	502	489	483	487	532	601								
31	*				513	510	520	519	513	500	486	469	462	475	473	472	472	501	485	513	525	563	527	510	499					
Mean		511	532	513	508	502	496	492	480	466	459	455	451	454	461	474	477	487	489	499	507	510	521	534	514	491 ^d	DESIGNATIONS			299
Mean *		Insufficient data																								* Ten least disturbed days				
Mean /		484	487	496	500	499	504	500	491	479	474	469	467	464	468	475	476	480	484	489	484	480	475	517	523	486 ^c	/ Five international quiet days			
Mean ≠		Insufficient data																								≠ Five international disturbed days				
		a Means of 9 values				b Means of 8 values				c Means of 4 values																				
																										() Approximate				

TABLE 14

HOURLY VALUES OF DECLINATION

APRIL 1954

49°30' West plus tabular quantities expressed in tenths of minutes of arc

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range				
1	491	495	498		498	509	494	474	453	463	469	469	470	472	477	477	473	494	532	511	494	478	498	459	507	485	17	01	(612)	22	10	(412)	200
2	491	501	509		506	496	501	491	483	473	463	450	451	426	432	395	454	468	476	475	480	488	635	838	550	497	22	26	981	14	36	349	632
3	500	504	514		528	505	504	479	465	461	451	446	455	454	477	496	490	488	482	500	545	525	547	524	529	494	21	18	639	22	41	423	216
4	509	500	517		505	486	505	460	470	467	461	465	477	475	481	486	488	491	511	495	488	511	517	493	487	489	20	45	569	21	00	386	183
5	482	496	508		517	498	474	474	465	457	440	452	450	463	471	485	488	488	485	480	479	479	478	477	482	478	03	47	523	09	22	432	091
6	462	485	511		522	519	516	504	488	474	465	472	477	475	478	490	485	485	483	479	474	464	478	481	469	485	03	32	537	00	13	446	091
7	468	479	498		505	517	519	507	486	478	482	480	477	476	477	477	486	499	482	490	482	502	489	485	483	488	18	39	572	18	52	377	195
8	481	491	499		508	523	528	518	500	481	463	449	458	461	476	481	481	478	472	472	466	481	587	627	556	497	22	09	665	20	50	363	302
9	497	495	486		502	504	492	472	456	449	439	458	463	465	458	456	454	455	544	504	498	506	494	446	483	478	17	46	650	22	36	403	247
10	494	493	508		505	502	492	490	478	473	462	454	458	471	477	477	475	478	502	522	507	498	511	479	520	488	18	10	550	10	55	440	110
11	497	478	491		506	507	502	494	489	482	473	457	465	470	466	471	484	480	495	(041			046	022	017)								
12					907	532	423	423	425	436	444	454	413	383	496	514	507	508	519	508	516	538	741	563	603								
13	621	504	524		513	508	510	514	508	500	494	491	482	482	485	587	506	498	525	518	498	518	432	499	523	510	00	12	761	21	18	382	379
14	509	504	513		501	472	495	502	489	485	490	468	470	487	493	508	495	497	495	489	483	491	490	491	482	492	13	46	546	04	34	454	092
15	507	493	487		513	516	526	500	489	487	479	477	458	467	496	498	512	508	496	580	771	691	668	493	492	525	19	25	896	11	46	426	470
16	505	493	498		508	517	519	511	505	490	482	473	471	474	477	486	488	491	492	495	527	542	539	532	525	502	20	10	583	11	30	464	119
17	515	518	514		508	506	498	477	479	485	478	483	477	485	485	483	486	490	533	553	529	495	484	489	463	496	18	10	628	24	00	418	210
18	467	488	495		507	519	499	490	482	476	475	461	486	477	486	489	498	521	498	498	522	576	522	512	499	498	20	12	647	00	05	413	234
19	507	504	503		512	519	505	498	477	472	461	477	477	473	479	466	486	485	513	490	503	487	481	486	499	490	18	33	549	18	51	415	134
20	479	479	494		480	472	464	472	472	463	473	469	472	467	508	498	490	505	537	659	619	559	504	486	505	501	18	05	931	12	36	438	493
21	476	482	488		511	519	517	498	477	461	477	466	453	489	494	496	503	527	523	514	522	499	488	491	481	494	17	07	591	12	10	430	161
22	486	490	477		483	503	508	501	492	491	487	479	478	483	488	486	487	489	489	489	488	486	487	483	483	488	06	49	528	03	19	459	069
23	450	443	460		481	500	495	497	499	483	462	443	461	472	479	498	509	532	526	591	602	532	434	499	499	494	20	08	693	21	17	385	308
24	524	510	505		496	496	509	506	507	490	474	469	480	482	487	490	492	506	503	528	447	512	516	513	486	497	18	47	558	19	35	362	196
25	492	497	495		504	510	510	508	508	497	478	485	482	482	484	483	487	500	497	498	515	486	498	479	469	494	19	54	536	20	25	449	087
26	475	502	487		468	463	479	505	500	498	482	483	486	481	485	561	509	512	499	506	567	558	538	607	696	514	24	00	935	04	21	456	479
27	696	567	568		460	478	513	523	497	463	470	470	470	472	478	494	499	515	505	529	494	503	501	495	487	506	00	01	957	03	15	425	532
28	478	477	479		496	498	507	494	490	490	487	485	482	487	488	488	489	492	499	494	484	488	486	484	499	489	18	13	546	18	00	458	088
29	470	500	497		498	492	489	488	488	491	491	484	477	471	479	482	490	481	486	498	520	491	504	498	492	490	20	01	546	00	17	437	109
30	490	488	488		477	466	454	461	469	467	468	458	453	485	482	481	489	491	493	514	533	525	516	505	505	486	19	12	558	11	24	429	129
31																																	
Mean	501	497	502		500	500	501	493	485	477	472	468	470	473	481	490	489	495	504	513	519	513	511	512	505	495 ^d	DESIGNATIONS			234			
Mean *	485	493	497		504	507	503	494	485	482	476	476	474	477	480	484	486	491	498	499	499	491	494	487	487	490	*	Ten least disturbed days			126		
Mean /	480	490	493		500	505	504	494	485	484	481	481	478	478	481	481	485	493	499	499	499	489	495	481	490	489	/	Five international quiet days					
Mean ≠	Insufficient data																								≠	Five international disturbed days							
	a Means of 9 values						b Means of 8 values						c Means of 4 values						d Mean of 28 complete days only						()	Approximate							

HOURLY VALUES OF DECLINATION

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range							
1 * $\neq$	501	474	472		486	498	493	496	495	482	470	473	476	479	479	482	482	483	482	478	479	479	477	478	(478)	482	05 ^h 00 ^m	511	01 ^h 34 ^m	466	045					
2	474	487	487		492	496	490	486	474	467	467	481	483	484	484	485	485	485	485	485	493	486	477	474	476	479	18 ^h 10 ^m	529	22 ^h 43 ^m	445	084					
3	466	478	487		487	494	494	482	483	458	455	464	464	467	469	470	477	483	492	518	502	485	467	458	463	479	22 ^h 27 ^m	832	08 ^h 59 ^m	441	391					
4	484	486	491		501	512	520	503	493	474	470	466	461	475	485	490	495	497	496	497	496	488	483	481	483	489	05 ^h 36 ^m	533	11 ^h 18 ^m	443	090					
5	480	464	451		478	495	501	502	502	483	474	473	476	485	487	491	502	495	494	485	485	484	484	483	480	485	07 ^h 34 ^m	512	02 ^h 25 ^m	443	069					
6 * $\neq$	480	480	484		490	510	516	507	496	483	472	470	469	474	475	483	485	485	480	479	477	476	475	474	473	483	06 ^h 10 ^m	516	11 ^h 00 ^m	464	052					
7	467	462	458		455	483	502	505	491	478	470	468	456	469	474	460	474	506	503	504	545	533	582	565	648	498	23 ^h 23 ^m	736	20 ^h 10 ^m	449	287					
8	620	557	524		513	503	510	501	506	479	467	469	479	482	488	505	497	510	516	505	540	567	549	505	490	512	00 ^h 25 ^m	686	10 ^h 50 ^m	463	230					
9	484	476	476		474	482	486	491	483	476	478	477	480	485	485	489	493	493	488	495	526	540	528	522	488	491	19 ^h 50 ^m	563	23 ^h 50 ^m	463	100					
10	455	471	464		454	453	464	488	487	475	485	478	472	483	485	487	495	494	505	563	560	519	495	512	476	488	19 ^h 00 ^m	618	01 ^h 55 ^m	402	216					
11	475	494	492		499	498	495	494	486	477	470	474	479	481	488	487	493	496	510	499	502	492	476	484	479	488	17 ^h 20 ^m	538	00 ^h 00 ^m	451	087					
12	452	466	474		491	503	494	494	486	476	477	475	477	469	475	493	488	490	496	529	504	523	512	503	492	489	17 ^h 15 ^m	547	00 ^h 53 ^m	430	117					
13	467	469	442		459	488	483	465	468	472	477	478	483	483	485	486	488	491	494	494	502	485	505	495	485	481	21 ^h 40 ^m	517	02 ^h 43 ^m	442	075					
14	477	459	471		489	499	495	490	488	480	476	467	464	474	478	467	488	487	494	499	496	487	492	493	490	483	22 ^h 50 ^m	524	01 ^h 25 ^m	454	070					
15	500	478	482		479	487	486	479	490	484	474	477	476	478	483	484	487	486	492	495	486	495	486	478	478	484	18 ^h 20 ^m	526	19 ^h 05 ^m	445	081					
16 * $\neq$	479	478	478		483	487	493	495	495	492	481	478	479	484	485	486	493	487	490	503	495	482	479	474	469	485	18 ^h 20 ^m	517	24 ^h 00 ^m	467	050					
17 * $\neq$	474	474	483		458	440	458	476	483	476	471	464	456	478	482	497	504	501	506	549	586	513	531	515	519	491	19 ^h 00 ^m	670	04 ^h 20 ^m	419	251					
18	552	511	495		497	501	495	476	475	470	487	484	485	485	487	519	522	504	505	505	505	478	464	412	485	492	15 ^h 00 ^m	567	22 ^h 30 ^m	358	209					
19	491	517	495		494	503	495	484	477	475	472	478	484	484	485	487	492	493	495	521	508	489	496	480	461	488	14 ^h 00 ^m	525	06 ^h 30 ^m	461	064					
20	482	485	476		479	474	466	469	469	485	483	485	485	488	490	495	495	495	495	505	496	490	510	513	495	488	14 ^h 00 ^m	554	21 ^h 25 ^m	449	105					
21	540	515	503		495	501	507	504	499	484	481	484	485	485	486	489	493	495	495	495	495	499	463	487	495	495	00 ^h 35 ^m	554	21 ^h 25 ^m	449	105					
22 *	488	476	477		487	495	495	487	478	473	461	466	478	479	481	488	496	499	501	576	540	504	491	488	474	491	18 ^h 30 ^m	640	08 ^h 45 ^m	452	188					
23	484	479	485		493	489	493	495	493	481	474	476	475	476	484	488	494	494	495	499	469	487	490	485	495	486	19 ^h 50 ^m	505	21 ^h 10 ^m	452	053					
24	495	485	482		485	495	492	478	485	478	478	474	476	475	477	483	487	490	503	510	501	493	476	476	492	486	18 ^h 00 ^m	521	21 ^h 10 ^m	467	054					
25 * $\neq$	496	513	503		486	488	474	471	467	476	478	478	485	486	488	488	493	495	495	496	495	494	491	490	490	488	01 ^h 15 ^m	522	07 ^h 35 ^m	464	058					
26 *	487	487	486		485	485	493	495	495	485	491	482	485	485	481	485	482	492	499	505	532	509	532	504	499	494	19 ^h 25 ^m	557	20 ^h 45 ^m	477	080					
27	505	498	489		456	453	474	485	483	487	487	490	490	490	485	484	485	485	484	485	485	485	485	485	485	485	485	19 ^h 25 ^m	557	20 ^h 45 ^m	477	080				
28	487	487	486		485	485	493	495	495	485	491	482	485	485	481	485	482	492	499	505	532	509	532	504	499	494	19 ^h 25 ^m	557	20 ^h 45 ^m	477	080					
29	505	498	489		456	453	474	485	483	487	487	490	490	490	485	484	485	485	484	485	485	485	485	485	485	485	485	19 ^h 25 ^m	557	20 ^h 45 ^m	477	080				
30 * $\neq$	484	484	479		485	485	490	490	485	484	475	477	476	483	486	487	492	495	502	511	539	532	512	502	497	493	19 ^h 30 ^m	556	12 ^h 00 ^m	478	078					
31	484	484	479		485	485	490	490	485	484	475	477	476	483	486	487	492	495	502	511	539	532	512	502	497	493	19 ^h 30 ^m	556	12 ^h 00 ^m	478	078					
Mean	490	484	481		484	490	492	489	487	478	474	474	475	479	482	487	482	494	498	510	512	503	500	497	492	489 ^d	DESIGNATIONS			122						
Mean *	489	482	474		484	491	490	488	488	483	477	476	477	481	483	487	491	490	492	494	489	487	485	483	483	485 ^a	* Ten least disturbed days			58						
Mean $\neq$	486	478	480		488	496	499	498	495	484	477	474	475	478	481	485	488	487	487	489	480	481	480	478	479	484 ^c	* Five international quiet days									
Mean $\neq$	504	495	490		478	470	482	487	490	472	470	469	470	480	483	493	497	502	506	546	549	530	528	544	496	497 ^c	* Five international disturbed days									
	a Means of 9 values				b Means of 8 values				c Means of 4 values				d Mean of 26 complete days only																							

TABLE 16

HOURLY VALUES OF DECLINATION

JUNE 1954

49°30' West plus tabular quantities expressed in tenths of minutes of arc

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range		
1 *	488	485	465		474	492	492	493	497	496	461	488	488	486	492	496	497	508	513	492	491	490	488	478	476	490	16 54	544	02 45	451	093
2 *	491	492	492		492	467	476	495	497	482	463	466	473	478	482	499	498	502	517	508	503	497	488	482	485	488	17 32	527	10 00	455	072
3	492	492	495		482	490	494	492	492	480	474	476	484	484	487	492	499	501	499	500	498	483	492	496	492	490	07 23	510	10 00	466	044
4	499	477	478		479	483	482	482	482	476	462	480	487	492	494	500	503	510	513	519	501	529	519	513	509	494	20 10	537	09 40	451	086
5 *	502	496	496		499	497	495	494	493	487	487	485	488	489	490	494	500	501	513	510	530	506	492	492	494	497	19 08	551	22 52	481	070
6 *	501	492	499		498	(508	503	497	493	490	483	483	489	490	492	494	507	504	503	504	502	502	474	483	485	495	19 10	583	22 40	510	073
7	483	488	492		502	500	502	501	499	493	490	484	483	482	480	482	510	503	503	502	501	503	502	491	497	495	15 15	522	00 00	469	053
8 *	499	501	493		491	492	493	500	501	501	493	490	485	490	492	497	500	501	502	501	500	498	493	492	492	496	08 00	505	13 35	483	022
9	491	488	475		482	491	501	510	513	503	492	487	491	490	483	492	500	505	507	509	507	503	496	465	499	495	07 10	526	22 48	447	079
10	515	518	501		483	498	497	471	439	466	471	475	490	500	502	502	507	528	528	503	526	518	511	503	502	498	16 58	614	07 10	419	195
11 *	503	508	499		505	509	511																								
12								(510)	503	492	490	485	481	484	492	494	503	499	501	510	562										
13								(514)	503	493	492	493	498	502	501	499	501	501	573	554	551	514	503	510	507						
14								501	501	492	487	477																			
15	502	503	507		507	508	502	(503)	501	492	492	501	502	506	508	509	510	509	508	506	507	503	492	513	523	503	00 00	525	04 30	491	034
16 *	520	514	510		498	493	501	502	501	495	494	497	500	498	500	503	508	509	510	509	508	508	503	499	502	503					
17 *	503	501	492		491	492	492	496	500	496	493	492	492	491	493	501	503	505	506	503											
18								(503)	505	499	499	493	492	492	493	500	504	508	508	511	529	484	524	528	510						
19	503	502	503		506	509	502	498	498	495	491	482	490	493	500	503	506	510	510	510	508	510	523	519	(509)	503	22 00	535	10 55	479	056
20								(493)	497	493																					
21								(501)	492		482	471	479	484	495	501	509	511	510	508	503	503	497	525	484						
22	482	536	525		499	498	(490	503	501	497	(491)																				
23								(503)	496	490																					
24 *								(503)	506	501	492	487	482	482	473	489	503	510	517	512	510	509	505	502	501						
25								501	503	497	499	499	499	494	493	498	502	510	517	512	519	512	510	501	492	501	19 05	537	23 30	474	063
26	500	495	492		493	495	500	498	503	496	500	498	498	494	503	503	507	512	517	513	513	512	508	493	517	504	23 40	542	22 50	473	069
27	482	493	501		510	517	510	487	560	464	493	501	(493)																		
28	521	539	518		517	503	516	503	499	492	497	501	501	493	493	509	512	519	517	519	521	516	519	516	510						
29 *								(493)	492	492	501	500	500	502	502	510	514	519	519	520	517	516	514	501	449	506	00 20	528	23 35	428	100
30	520	514	519		518	514	510																								
31																															
Mean	499	496	494		494	496	497	495	494	490	486	486	490	491	493	490	504	508	511	507	508	506	501	494	493	497 ^d	DESIGNATIONS			74	
Mean *	Insufficient data																										* Ten least disturbed days				
Mean /	Insufficient data																										/ Five international quiet days				
Mean ≠	Insufficient data																										≠ Five international disturbed days				
	a Means of 9 values b Means of 8 values c Means of 4 values d Mean of 15 complete days only																										() Approximate				

TABLE 17

HOURLY VALUES OF DECLINATION

JULY 1954

49°30' West plus tabular quantities expressed in tenths of minutes of arc

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range			
1	531	556	531		528	522	516	434	462	484	478	496	498	498	505	515	515	519	516	518	517	519	517	517	517	510	h	m	h	m		
2	517	518	519		520	516	517	509	516	519	516	514	515	514	514	523	518	514	518	518	526	518	517	522	517	517	22	33	07	11		
3	514	511	509		508	513	517	520	522	510	500	501	503	504	508	514	515	517	517	514	515	509	506	500	502	510	17	54	20	44		
4	505	504	504		510	516	510	509	510	515	510	503	500	500	507	513	514	515	515	514	513	509	508	507	507	510	05	20	11	13		
5	506	508	509		507	506	506	510	505	506	506	502	500	500	501	501	510	516	527	543						509	04	34	12	50		
6								(497)	496	451	451	470	474	500	499	509	525	531	525	534	516	542	536	535	545							
7	518	511	515		530	536	532	526	519	505	490	481	468	500	503	513	523	532	531	529	527	527	(526)			00	00	(546)	11	31		
8								(524)	522	516	507	498	496	504	516	518	519	519	520	544	545	532	516	516	507					(450)	(096)	
9	507	515	510		515	519	520	521	515	506	500	502	507	510	515	517	520	521	522	522	518	522	510	519	515	514	22	40	526	21	43	
10	512	509	516		521	513	513	515	506	505	500	509	509	507	510	518	518	517	518	518	518	517	516	517	522	514	14	53	526	05	09	
11	505	498	519		527	525	516	507	503	505	507	507	507	510	510	513	516	516	517	516	516	514	514	514	516	512	04	09	529	01	23	
12								507	502	496	500	505	505	506	509	506	507	507	520	529	521	516	516	534	493					489	040	
13	529	527	527		529	526	522	517	518	516	507	508	508	509	508	512	511	522	518	525	525	522	525	518	531	519	00	46	547	13	35	
14	517	531	541		525	505	498	476	508	509	490	489	492	506	512	513	522	541	535	531	536	534	524	536	524	516	16	23	562	06	55	
15	517	513	518		525	526	525	520	513	496	505	489	487	508	506	492	526	527	533	531	528	525	526	525	526	516	15	24	544	11	31	
16	524	525	523		523	523	524	524	520	518	507	507	501	508	520	516	525	526													466	078
17								490	489		503	515	520	519	524	526	531	531	529	531	540	523	518	520	524	513	17	45	550	00	07	
18	485	484	524		498	470	509	512	511	514	514	511	514	517	519	523	525	525	531	530	526	524	530	520	499	518	20	12	625	01	05	
19	518	498	509		527	524	524	509	509	509	501	498	502	508	509	514	516	517	520	525	539	568	548	517	525	518	04	34	544	06	46	
20	525	522	517		520	527	519	505	505	505	509	503	505	510	513	520	526	531	534	536	527	523	518	517	519	518	22	55	567	22	17	
21	518	521	521		527	526	531	523	523	514	507	505	500	501	508	517	504	525	518	533	527	526	541	528	541	520	02	35	567	22	17	
22	527	516	517		522	527	527	521	518	513	502	496	497	500	507	511	518	525	526	525	525	525	521	516	516	517	04	36	537	11	35	
23	516	516	517		515	510	507	508	516	520	507	499	502	510	510	510	519	526	527	529	540	536	529	520	527	517	20	47	544	10	39	
24	527	471	515		521	523	515	499	496	508	500	489	496	490	500	513	525	529	531	554	541	536	521	523	518	514	18	48	606	01	30	
25	518	516	524		521	528	506	510	505	497	524	496	479	464	489	498	517	528	534	536	544	533	525	527	509	514	04	26	560	12	30	
26	514	510	525		525	518	519	524	527	525	515	506	499	489	516	523	516	526	528	540	541	528	525	520	522	520	19	46	549	12	15	
27	520	518	510		508	513	519	522	530	528	525	518	514	511	518	518	535	527	541	523	516	541	525	517	489	520	17	21	572	23	35	
28	531	516	522		532	507	486	499	512	525	498	491	470	499	505	495	505	628	553	546	546	522	515	500	506	517	16	54	780	11	46	
29	512	517	489		493	513	522	520	509	507	507	504	516	506	532	509	518	526	530	522	496	535	527	525	523	515	13	35	551	19	25	
30	523	471	511		532	532	530	530	523	520	518	516	509	517	528	524	534	523	532	530	528	525	520	525	505	521	13	45	556	01	30	
31	500	504	525		545	535	528	525	519	505	504	516	501	509	519	523	531	536	534	541	546	523	551	543	507	524	21	23	567	20	50	
Mean	516	511	518	521	518	516	511	512	511	506	502	501	504	511	514	519	528	527	528	527	526	523	520	516	516 ^d	DESIGNATIONS			89			
Mean *	515	512	515	519	518	518	515	514	511	505	505	506	507	510	515	516	518	519	520	520	517	516	514	516	514 ^b	* Ten least disturbed days			36			
Mean /	511	511	512	515	515	515	515	514	511	505	506	507	507	511	517	517	517	518	517	518	515	511	513	513	513	/ Five international quiet days						
Mean ≠	523	527	506	523	515	505	492	503	509	503	498	491	496	506	508	519	548	536	530	532	529	522	519	509	515	≠ Five international disturbed days						
a Means of 9 values				b Means of 8 values				c Means of 4 values				d Mean of 24 complete days only				() Approximate																

TABLE 18

HOURLY VALUES OF DECLINATION

AUGUST 1954

49°30' West plus tabular quantities expressed in tenths of minutes of arc

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range			
1	517	519	530	533	531	524	526	522	515	515	512	497	483	496	502	524	534	532	541	550	540	531	516	522	521	h	m	h	m	146		
2	521	520	522	507	486	496	520	506	511	519	517	513	514	515	520	538	538	532	559	549	548	536	529	517	522	19	22	604	12	29	458	146
3	526	520	522	522	525	520	520	511	511	502	497	512	507	513	518	524	528	532	532	533	534	540	532	532	521	20	48	618	04	46	476	142
4	522	517	522	523	521	516	523	519	505	508	511	506	502	507	522	527	542	541	549	559	548	531	524	524	524	19	13	636	19	54	488	148
5	523	529	525	520	531	533	528	523	519	520	515	507	506	512	519	528	529	537	619	586	551	542	569	586	536	18	42	645	11	29	504	141
6	560	559	541	531	504	524	519	512	504	498	505	504	475	486	519	524	538	533	545	551	493	590	561	568	527	21	46	621	20	30	440	181
7	532	524	538	540	540	538	540	525	516	497	483	483	509	484	527	532	540	563	504	495	558	545	533	537	524	14	40	594	18	33	388	206
8	529	517	523	533	538	542	543	529	520	510	497	503	498	494	508	530	524	531	530	530	529	526	524	521	522	15	54	555	12	20	476	079
9	522	525	528	530	540	540	(542)	539	520	522	520	519	507	506	551	531	538	538	542	504	529	513	544	518	528	14	45	569	19	23	475	094
10	506	523	528	533	531	531	528	527	524	531	517	511	517	524	529	531	531	530	531	533	534	521	538	540	527	23	59	549	00	02	486	063
11	549	551	522	511	515	533	538	548	538	528	519	506	513	514	520	525	530	539	540	540	527	524	521	522	528	01	18	556	01	38	502	054
12	499	477	495	520	531	532	532	529	536	527	522	506	522	521	525	528	529	530	539	538	531	528	536	532	524	05	40	550	01	05	467	083
13	522	519	521	524	532	529	538	523	524	531	520	511	512	513	522	522	523	531	532	529	522	517	526	529	524	17	02	547	11	39	497	050
14	499	435	520	529	529	527	539	535	531	524	514	518	517	527	532	536	533	532	572	548	542	523	530	499	527	18	30	613	01	08	444	169
15	504	506	514	520	522	521	522	525	525	524	518	515	524	528	529	531	547	541	565	559	544	549	549	508	529	19	05	641	23	10	476	165
16	540	527	524	527	523	523	528	530	519	514	481	499	475	478	497	509	531	539	562	549	548	540	506	498	519	18	49	567	11	00	445	122
17	509	514	522	530	530	538	539	535	527	512	522	508	515	524	527	540	559	572	558	559	545	536	520	517	532	17	50	599	00	10	496	103
18	532	535	529	539	550	544	536	527	532	525	511	500	504	513	517	532	542	548	548	531	528	542	551	542	532	20	43	566	11	00	478	088
19	554	529	531	539	533	522	523	531	533	529	516	519	523	522	529	531	545	539	559	540	533	526	533	497	531	18	15	608	23	40	477	131
20	510	505	529	542	547	545	538	541	540	524	521	510	511	511	513	515	554	532	540	532	531	532	529	524	528	16	30	630	01	19	494	136
21	524	522	525	532	543	527	533	502	523	522	495	522	518	524	531	540	548	548	547	548	547	538	528	527	530	04	45	577	09	15	445	132
22	535	493	529	522	548	522	513	519	538	529	506	506	510	524	524	528	531	541	548	547	549	538	542	559	529	22	50	586	01	15	426	160
23	548	513	520	540	542	538	539	541	538	523	516	517	510	515	540	524	535	548	565	598	522	569	553	523	537	19	45	636	20	15	451	185
24	545	521	524	538	545	540	535	513	500	527	520	522	516	476	561	532	541	549	559	599	600	559	550	531	538	19	30	695	13	40	446	249
25	515	517	540	544	542	540	532	538	540	545	541	538	532	533	533	538	539	545	548	548	539	538	507	522	536	17	55	563	22	35	493	070
26	525	528	530	539	558	531	497	525	533	538	523	528	525	541	538	533	559	540	551	553	520	578	553	549	537	16	50	630	20	50	497	133
27	559	549	542	567	564	559	551	541	534	525	527	514	530	532	537	540	538	568	559	588	586	563	549	529	548	19	07	639	11	30	463	176
28	527	468	474	495	532	559	549	551	549	531	511	487	516	516	524	529	538	540	540	535	536	535	543	557	527	23	50	621	01	15	446	175
29	504	533	560	559	538	515	548	548	540	546	547	529	516	533	537	539	541	543	597	591	564	554	524	523	543	18	30	683	00	10	483	200
30	529	519	531	540	541	540	548	547	545	522	513	501	526	517	517	537	550	557	547	542	538	531	527	513	532	14	30	613	11	05	486	127
31	513	511	538	542	546	541	545	533	531	530	526	520	520	523	529	526	529	557	592	559	556	511	517	535	535	18	25	657	21	35	456	201
Mean	526	519	526	531	534	532	536	529	526	523	514	511	511	514	526	530	538	542	552	549	541	539	534	529	530	DESIGNATIONS			135			
Mean *	519	516	521	525	529	530	531	528	524	520	514	509	511	514	520	526	534	534	548	544	534	531	535	532	525	* Ten least disturbed days			100			
Mean /	524	520	525	524	529	528	530	521	516	514	508	508	505	508	518	526	529	534	552	547	535	531	535	538	524	/ Five international quiet days						
Mean \	534	527	537	538	539	526	522	523	523	528	520	518	508	512	536	531	542	541	560	568	545	564	546	546	534	\ Five international disturbed days						
	a Means of 9 values						b Means of 8 values					c Means of 4 values															() Approximate					

TABLE 19

HOURLY VALUES OF DECLINATION

SEPTEMBER 1954

49°30' West plus tabular quantities expressed in tenths of minutes of arc

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range	
1	540	545	531	532	538	536	524	538	524	513	517	520	495	480	497	454	559	556	559	579	538	662	762	686	549	22 43	887	15 55	341	546
2	622	577	574	579	548	527	533	541	538	517	497	538	531	532	522	519	579	564	561	561	543	560	534	549	548	00 09	763	10 32	467	296
3	548	548	553	550	547	552	546	543	538	522	496	468	524	507	505	593	467	530	588	597	621	615	588	523	545	23 48	712	16 26	393	319
4	557	539	551	554	552	525	511	530	538	534	515	506	522	496	519	474	556	536	546	548	551	552	525	565	533	16 45	703	15 50	423	280
5	534	513	567	569	548	534	551	540	538	523	513	533	493	533	541	540	539	549	568	567	550	548	543	538	541	18 06	600	12 27	479	121
6	520	527	548	559	557	550	547	540	548	547	531	527	528	521	504	458	412	411	484	604	704	718	538	564	539	21 30	958	17 58	300	658
7	560	590	584	593	542	540	544	547	541	554	543	534	538	540	540	538	559	550	556	564	551	549	568	548	553	17 05	630	20 51	468	162
8	537	549	554	541	548	547	548	550	549	551	549	538	531	532	538	539	554	556	575	568	550	554	541	547	548	17 51	629	00 22	515	114
9	545	547	548	543	525	502	529	513	520	540	539	539	538	524	546	548	548	569	579	581	573	530	533	547	542	19 54	611	07 32	487	124
10	547	551	559	559	554	546	545	548	542	541	543	538	538	529	520	533	528	545	557	560	556	570	560	531	546	21 06	575	14 40	511	064
11	529	540	566	568	568	562	553	558	559	554	520	475	484	505	487	531	529	562	534	584	588	575	575	550	544	17 29	708	12 12	437	271
12	543	545	544	538	538	548	552	540	534	516	508	510	514	523	526	529	539	541	550	545	557	563	544	522	536	21 19	579	19 44	497	082
13	528	537	538	540	540	549	551	542	538	538	528	529	531	536	533	532	532	533	532	533	538	532				05 52	(560)	02 52	(510)	(050)
14							540	540	549																					
15							540	540	549																					
16							499	511		530	501	526	505	497	524	559	541	597	636	568	561	531	563	562						
17	567	560	539	542	518	517	535	547	534	536	524	525	526	531	536	538	539	540	542	557	605	624	577	561	547	21 22	646	05 28	495	151
18	577	531	564	577	568	569	560	543	528	519	470	522	529	535	539	548	564	608	604	590	622	579	576	544	557	17 56	642	10 10	429	213
19	540	546	559	559	566	557	555	548	544	538	531	525	522	524	550	540	556	602	560	577	584	624	569	544	555	21 22	646	18 47	510	136
20	539	552	560	547	513	522	529	539	538	513	502	469	445	465	404	332	357	478	612	600	890	916	768	776	557	21 53	1089	15 45	181	908
21	578	561	584	588	581	572	557	569	549	542	495	495	513	504	495	533	528	523	566	559	616	587	575	524	550	15 36	702	18 04	349	353
22	543	535	540	556	567	565	562	552	549	541	514	516	525	563	558	538	559	590	569	544	559	549	537	529	548	13 34	631	13 12	493	138
23	532	542	553	554	553	555	558	544	533	529	516	508	522	529	542	551	549	556	565	551	557	552	538	538	543	20 07	571	11 35	497	074
24	548	556	550	557	559	559	555	544	540	515	500	517	515	523	529	530	584	550	549	541	534	573	576	544	544	21 54	689	10 02	492	197
25	548	560	578	569	549	536	531	536	542	538	523	515	527	531	551	622	582	594	576	577	549	578	548	538	554	15 39	670	20 02	445	225
26	543	548	568	581	578	579	557	533	528	522	523	521	529	528	563	559	544	551	508	548	547	549	529	527	544	04 33	596	18 11	477	119
27	538	559	567	565	551	548	551	551	551	541	526	528	533	526	525	520	505	521	540	606	632	613	570	585	552	20 39	673	18 02	396	277
28	557	610	566	549	569	566	562	548	536	517	504	506	514	504	560	542	549	554	549	549	540	538	547	528	545	01 52	665	10 54	495	170
29	528	572	561	569	577	559	546	534	516	496	478	486	477	507	532	531	558	534	586	796	004	921	777	577	593	20 04	1161	17 36	422	739
30	551	561	579	578	562	540	523	518	520	522	496	507	529	536	532	540	566	577	578	538	587	568	593	534	547	23 13	745	23 36	395	350
31																														
Mean	548	552	559	560	552	547	545	542	538	530	515	515	518	521	525	526	535	547	559	575	602	604	579	557	548 ^a	DESIGNATIONS			264	
Mean *	543	547	550	553	552	552	552	545	539	533	524	523	525	532	540	539	548	556	551	552	559	569	550	538	545	* Ten least disturbed days			112	
Mean †	536	544	550	546	549	551	553	545	540	534	526	522	524	529	538	538	546	558	556	555	557	565	544	537	543	† Five international quiet days				
Mean ‡	546	558	559	559	552	547	539	545	532	516	498	492	482	489	482	462	500	523	581	634	762	772	721	641	562 ^c	‡ Five international disturbed days				
a Means of 9 values b Means of 8 values c Means of 4 values d Mean of 27 complete days only () Approximate																														

TABLE 20

HOURLY VALUES OF DECLINATION

OCTOBER 1954

49°30' West plus tabular quantities expressed in tenths of minutes of arc

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range				
1	579	574	627		635	614	546	520	549	526	518	488	511	524	534	537	527	419	556	607	610	578	594	562	555	554	h	m	696	h	m	211	485
2	559	570	582		562	563	562	566	574	561	543	535	532	535	543	543	545	549	550	552	552	534	569	573	755	563	23	53	938	20	45	495	443
3	606	696	572		545	543	541	557	528	516	528	519	525	536	532	542	511	498	557	580	554	608	686	834	026	589	23	36	1321	15	24	392	929
4	761	747	616		596	595	586		555	549	535	535	535	534	537	540	534	589	555	551	498	545	597	534	516								
5		543	563	573		582	577	553	533	533	534	494	499	500	508	522	547	543	571	612	588	552	560	541	548	529	16	49	744	14	50	297	447
6		557	572	580		580	587	574	562	560	540	538	510	513	531	592	544	559	595	573	577	571					16	40	(664)	11	31	(458)	(206)
7									560	551	545	537	512	493	516	501	528	561	562	594	575	580	554	543	540								
8																																	
9	544	570	580	580	559	551	(534)	523	534	545	551	545	544	545	544	544	544	543	545	545	548	546	546	542	546	548	03	16	589	07	22	519	070
10	544	552	563	554	550	554	551	532	531	539	532	532	531	533	535	541	542	542	544	562	571	554	547	546	557	546	18	43	607	08	34	525	082
11	554	567	582	578	562	559	549	536	537	541	528	516	524	535	543	545	551	554	553	551	549	543	543	545	545	548	03	10	605	11	50	507	098
12	551	553	556	557	555	561	561	554	545	541	537	534	534	537	536	538	541	541	540	541	541	541	541	541	543	545	05	58	562	11	46	531	031
13	549	554	562	566	570	572	572	569	553	541	528	516	517	527	535	535	541	544	544	554	556	545	539	541	515	546	18	59	576	23	28	500	076
14	531	560	571	572	564	577	576	563	543	523	522	510	500	508	522	547	543	571	603	596	551	584	553	545	551	551	18	43	629	20	28	489	140
15	558	570	571	568	565	563	554	535	523	506	504	488	500	526	533	539	542	542	543	543	537	537	541	536	541	538	01	52	582	11	58	470	112
16	534	544	558	562	562	570	576	558	541	527	516	507	518	523	513	514	546	563	592	575	560	577	551	541	541	547	17	55	634	15	09	482	152
17	554	562	568	581	571	563	570	562	541	523	516	520	523	523	530	531	551	551	559	563	578	610	673	594	553	22	42	726	10	35	508	218	
18	603	614	591	593	579	601	541	510	520	501	431	386	495	361	471	477	571	572	593	575	563	560	545	544	539	537	17	47	619	15	17	403	216
19	539	559	586	571	559	556	551	557	553	532	507	487	501	484	468	482	514	554	578	575	563	550	542	532	537	17	47	619	15	17	403	216	
20	545	581	576	569	560	577	573	543	510	490	452	445	444	508	544	562	572	580	590	579	582	572	560	536	544	18	50	622	12	22	352	270	
21	551	562	569	575	578	580	578	560	540	532	524	523	530	534	536	538	541	551	551	551	543	546	547	549	555	550	05	34	585	19	33	511	074
22	560	567	577	582	582	576	562	552	511	496	498	519	515	516	534	541	532	(505)															
23					574	557	551	547	516	495	464	433	425	482	507	482	597	595	799	038	958	945	211	716		563	00	40	1440	13	15	204	1236
24	742	881	619		605	555	541	533	510	494	486	401	368	326	346	395	385	468	603	570	688	775	682	572	576	551	02	33	883	12	10	358	525
25	616	738	698		580	558	567	505	508	499	492	460	479	424	530	554	582	554	558	548	562	548	551	544	560	554	18	54	659	17	31	473	186
26	569	603	594		593	589	593	570	543	529	532	541	532	523	526	541	520	519	495	559	571	579	555	552	561	554	15	43	611	10	00	412	199
27	581	(582	592)		590	590	578	567	553	506	499	479	516	516	504	492	540	541	545	551	570	557	560	550	551	546	15	43	611	10	00	412	199
28	572	572	588		584	581	578	562	549	533	536	538	538	541	551	543	558	561	544	544	534	544	542	549	548	554	15	58	604	08	58	521	083
29	554	563	571		572	580	580	577	562	540	542	514	532	543	540	541	539	537	536	534	534	534	528	560	564	549	04	50	587	10	35	496	091
30	595	646	647		634	560	562	562	544	535	542	543	543	526	515	522	547	544	538	544	553	599	650	580	562	566	03	15	674	13	23	501	173
31	582	594	588		581	581	588	547	539	531	508	523	520	513	506	518	516	507	527	615	618	660	673	616	570	563	20	36	883	17	11	461	422
Mean	586	597	587	580	569	567	555	544	531	522	508	504	503	510	518	527	530	551	567	570	571	576	570	579	551 ^d	DESIGNATIONS		287					
Mean *	551	562	571	571	566	568	561	548	538	535	528	523	527	534	537	542	544	547	553	551	545	546	546	546	548	* Ten least disturbed days		86					
Mean /	549	560	566	565	560	560	554	543	537	534	530	523	526	534	538	540	542	543	549	551	545	544	541	540	545	/ Five international quiet days							
Mean ≠	732	691	602	594	573	557	538	524	514	508	460	448	470	443	486	475	489	572	588	606	632	630	628	675	560 ^c	≠ Five international disturbed days							
a Means of 9 values b Means of 8 values c Means of 4 values d Mean of 25 complete days only																											() Approximate						

TABLE 21

HOURLY VALUES OF HORIZONTAL INTENSITY

JANUARY 1954

18000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range			
1 *	492	483	505	519	508	482	462	452	452	459	465	481	495	496	493	492	492	493	501	503	512	503	505	503	490	h m	03 04	523	h m	09 07	440	083
2 *	505	475	508	526	531	511	482	465	473	468	479	498	513	543	613	523	484	502	473	466	477	475	474	485	498	14 30	724	01 18	430	294		
3 *	485	504	513	516	521	504	487	473	470	472	484	484	487	498	495	494	494	493	492	491	491	492	492	482	492	04 05	524	09 20	462	062		
4 *	493	502	503	(505)	505	502	500	494	483	477	477	484	484	488	491	490	492	492	493	493	497	502	503	503	494	04 35	509	10 05	474	035		
5 *	504	512	512	517	513	510	496	483	474	473	476	483	483	484	488	493	502	503	503	498	444	451	436	494	489	03 45	522	21 12	331	191		
6 *	513	505	523	515	493	483	473	464	464	465	483	484	484	486	493	501	504	493	494	493	492	491	493	493	491	02 59	525	08 45	457	068		
7 *	495	506	508	511	515	513	494	483	470	472	476	484	487	489	495	493	503	505	512	515	518	496	492	488	497	20 03	535	08 41	463	072		
8 *	489	465	498	504	465	485	473	463	443	443	473	481	484	483	490	479	483	492	494	510	510	501	494	483	483	20 01	518	09 02	434	084		
9 *	503	522	527	523	514	511	494	484	483	475	483	478	474	484	493	487	492	494	498	504	504	503	504	495	497	02 41	532	12 56	466	066		
10 *	504	509	513	514	513	503	494	488	473	469	474	475	482	488	495	494	495	502	503	506	515	508	503	501	497	20 07	532	09 36	464	068		
11 *	503	507	522	534	532	518	507	491	484	474	463	469	476	473	487	493	495	503	513	498	499	502	494	498	497	03 43	542	10 22	453	089		
12 *	494	494	512	527	530	513	504	492	485	481	474	469	493	484	498	524	505	502	492	493	490	493	493	494	497	15 53	568	11 30	463	105		
13 *	486	482	484	501	515	518	502	497	501	495	481	474	486	492	493	492	495	496	495	501	501	507	493	492	495	04 51	526	01 49	464	062		
14 *	503	506	511	510	502	492	481	473	472	474	483	484	492	491	493	499	501	505	528	516	508	508	493	493	497	18 28	543	08 24	465	078		
15 *	498	495	515	525	532	521	498	486	487	491	493	489	483	486	495	492	494	496	499	500	504	499	483	443	496	04 34	534	23 27	394	140		
16 *	492	492	504	514	505	492	481	473	472	472	482	474	481	484	495	497	504	506	534	505	493	494	497	503	494	18 35	555	07 35	464	091		
17 *	511	517	523	514	506	503	493	486	483	482	483	485	482	486	494	498	503	523	513	494	508	511	504	505	500	17 41	542	09 13	476	066		
18 *	505	508	497	499	503	496	483	473	475	479	482	485	508	495	493	501	493	503	514	510	511	489	328	442	486	22 02	531	22 35	200	331		
19 *	417	350	454	505	510	498	483	472	459	453	476	483	502	506	498	495	514	543	293	439	191	248	255	178	426	17 07	616	20 45	-101	717		
20 *	373	355	431	503	504	495	482	473	457	455	463	476	504	494	495	522	533	536	504	481	473	491	490	458	477	16 12	584	01 17	258	326		
21 *	412	416	480	511	498	492	481	475	464	463	464	482	488	491	494	495	502	523	529	488	494	463	433	413	477	18 00	546	01 03	314	232		
22 *	478	493	473	478	479	493	466	451	463	461	483	490	501	494	491	493	513	513	504	518	509	496	492	491	488	17 01	544	07 14	443	101		
23 *	501	492	461	495	505	504	484	455	455	463	477	493	498	495	511	503	514	510	496	505	500	493	488	484	491	19 27	542	02 47	431	111		
24 *	470	484	501	523	522	517	508	493	486	478	476	482	491	492	494	496	514	515	494	500	503	501	502	503	491	17 08	(555)	09 59	(473)	(082)		
25 *	513	515	511	495	479	472	466	466	472	480	482	487	492	496	495	498	501	503	505	503	503	505	503	503	492	04 36	523	09 52	460	063		
26 *	510	506	517	523	523	515	503	496	491	482	486	493	496	492	491	493	493	495	504	522	503	503	503	503	502	19 18	552	09 31	476	076		
27 *	505	513	503	514	513	506	488	473	471	468	467	474	484	491	493	494	502	503	504	503	503	503	505	505	495	03 55	514	09 45	465	049		
28 *	506	506	512	513	514	505	492	482	471	469	479	480	493	496	498	501	511	505	497	499	501	503	505	506	498	16 44	520	09 58	465	055		
29 *	504	513	513	518	514	508	495	481	476	472	473	481	488	493	498	513	512	503	508	511	507	514	500	494	500	21 15	541	09 58	468	073		
30 *	504	513	513	518	514	508	495	481	476	472	473	481	488	493	498	513	512	503	508	511	507	514	500	494	494	16 16	582	21 08	423	159		
31 *	504	513	526	525	512	495	483	468	461	455	463	473	482	493	495	522	543	504	510	502	476	478	483	501	494							
Mean	490	487	502	513	510	503	488	477	472	470	476	481	489	492	498	499	502	505	496	499	487	487	477	477	491 ^d	DESIGNATIONS			134			
Mean *	502	502	508	514	512	503	490	480	474	471	474	480	488	491	493	496	499	499	504	506	506	505	502	501	496 ^a	* Ten least disturbed days			64			
Mean /	501	502	505	512	512	505	494	483	474	470	473	477	485	489	493	494	499	499	499	500	504	504	504	504	495	/ Five international quiet days						
Mean \	442	418	467	508	510	500	482	468	462	460	472	486	501	506	522	508	509	523	459	476	427	434	428	404	475	\ Five international disturbed days						
a Means of 9 values		b Means of 8 values						c Means of 4 values						d Mean of 29 complete days only						() Approximate												

TABLE 22

HOURLY VALUES OF HORIZONTAL INTENSITY

FEBRUARY 1954

18000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range				
1	498	504	506		479	466	474	448	454	444	461	493	480	485	510	571	561	575	462	484	497	474	461	450	388	484	h m	689	h m	302	387		
2	375	453	431		416	477	497	476	462	458	466	473	492	506	504	533	506	493	496	494	493	492	494	457	381	472	14	46	579	00 00	331	248	
3	362	433	476		493	508	504	493	470	430	436	444	496	534	498	495	483	489	493	496	504	518	489	449	436	476	12	47	573	00 07	304	269	
4	475	484	472		461	493	488	471	456	453	444	458	471	483	489	487	495	506	493	493	486	485	488	488	480	479	16	36	524	09 32	438	086	
5	475	484	492		513	512	503	496	475	463	458	461	470	480	486	484	492	503	508	508	487	485	463	478	491	486	18	17	526	21 45	446	080	
6	494	508	519		518	511	498	491	475	463	460	466	478	489	494	491	491	493	493	496	498	501	501			03	50	(524)	08 55	(457)	(067)		
7					532	526	505	489	474	467	471	475	483	490	493	491	492	494	498	493	505	485	509	502	490	491	03	43	(536)	08 11	(465)	(071)	
8	488	498	513		517	522	515	501	481	471	464	466	474	484	483	483	488	495	499	504	438	490	505	501	500	503	04	14	525	19 34	373	152	
9	506	522	523		538	538	531	515	498	479	473	473	480	485	492	491	494	503	521	506	497	500	500	500	500	490	503	04	21	544	09 41	464	080
10	503	503	502		497	495	496	489	476	484	473	469	476	474	481	493	493	495	505	511	483	482	500	493	482	490	19	39	535	19 45	455	080	
11	473	430	444		505	517	506	500	485	482	482	483	490	497	494	495	500	503	513	544	498	463	457	463	485	488	18	05	623	21 14	385	238	
12	483	495	506		493	483	471	463	455	465	473	476	477	483	481	484	489	500	493	491	495	505	495	482	476	484	20	24	514	07 20	453	061	
13	481	495	506		503	500	483																										
14					493	495	486	474	474	471	483	482	465	481	474	473	492	497	486	483	496	506	442	466	453	493	20	03	(560)	23 17	(425)	(135)	
15	486	497	507		516	499	440	464	487	480	479	489	527	528	481	609	708	509	473	488	509	440	404	398	428	450	15	27	857	22 39	370	487	
16	456	249	379		459	469	469	481	477	475	471	476	481	479	490	491	565	549	510	492	419	426	460	237	337	450	16	05	655	22 50	-028	683	
17	437	453																															
18					501	504	492	487	472	463	464	476	470	472	472	492	504	529	554	472	369	482	479	489	492	478	17	30	(599)	19 25	(230)	(369)	
19	499	499	499		508	497	486	450	427	448	470	463	465	475	465	480	495	495	489	494	503	441	465	479	468	478	19	35	537	20 48	405	132	
20	471	478	497		500	499	490	486	476	476	470	469	470	478	481	482	489	498	496	489	492	495	493	486	486	485	03	55	506	00 18	426	080	
21	488	491	490		484	498	495	488	478	477	468	462	461	470	479	499	649	660	409	236	379	477	184	189	091	438	16	37	759	23 12	-136	895	
22	234	360	406		391	449	422	448	450	461	470	467	476	487	509	532	497	508	482	502	472	439	333	316	350	436	00	05	748	23 00	160	588	
23	440	449	355		436	446	458	480	481	463	453	458	452	476	489	498	582	564	529	479	463	498	614	473	465	479	17	36	739	21 30	280	459	
24	462	488	487		498	506	501	496	480	469	464	469	474	477	490	499	478	479	515	504	479	400	442	417	488	478	17	50	561	20 30	339	222	
25	490	496	490		489	488	496	497	483	471	468	453	464	475	486	484	494	499	499	477	488	473	440	478	481	482	18	02	519	18 49	399	120	
26	466	489	489		471	490	505	489	457	456	460	539	550	476	485	486	491	554	481														
27					491	479	482	489	472	459	488	492	509	508	489	501	596	522	489	492	472	460	395	264	255	480	16	12	559	00 00	315	244	
28	365	461	489		500	506	503	498	479	470	468	469	479	490	499	480	489	521	486	485	490	497	477	467	462	480	16	12	559	00 00	315	244	
29																																	
30																																	
31																																	
Mean	451	464	473		485	493	487	482	472	466	466	469	478	487	489	504	522	517	494	484	479	474	458	435	434	478 ^d	DESIGNATIONS			260			
Mean *	Insufficient data																										* Ten least disturbed days						
Mean /	"																										/ Five international quiet days						
Mean †	"																										† Five international disturbed days						
	a Means of 9 values b Means of 8 values c Means of 4 values d Mean of 20 complete days only																										() Approximate						

TABLE 23

HOURLY VALUES OF HORIZONTAL INTENSITY

MARCH 1954

18000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range							
1	*	/	469	479	491	497	490	481	479	477	478	477	479	479	484	484	487	483	487	487	486	489	495	470	356	434	476	^h 21	^m 05	496	^h 22	^m 36	247	249		
2			468	470	499	489	477	467	469	467	468	468	459	470	475	486	486	487	489	495	528	471	489	491	477	452	479	18	20	580	19	27	436	144		
3	*	/	489	491	475																															
4	*					504	489	484	477	474	461	456	460	468	471	502	483	487	484	482	487	491	490	457	498	445										
5			416	441	449	477	486	471	451	449	448	460	470	489	513	499	502	489	483	488	487	490	492	489	459	427	472	13	59	541	00	25	395	146		
6	*		458	460	486	481	486	485	477	467	466	468	474	480	480	484	488	489	490	489	492	490	477	461	463	448	477	20	07	499	22	58	410	089		
7			480	493	444	473	487	489	469	463	464	475	470	479	489	484	479	521	492	511	488	489	454	456	369	415	472	15	20	560	22	51	325	235		
8			467	488	491	480	479	481	469	458	457	462	468	476	480	485	487	491	491	490	491	493	502	477	351	312	468	20	06	516	22	47	169	347		
9			478	502	504	507	499	477	454	450	449	452	459	462	478	480	475	486	500	534	444	427	484	479	480	478	477	17	25	601	18	29	378	223		
10	*		482	492	494	498	502	491	473	459	441	451	465	479	482	479	488	494	483	484	484	458	460	478	469	441	476	14	58	520	23	25	421	099		
11			473	469	479	466	487	484	467	451	447	445	470	496	495	524	491	490	480	483	495	520	455	429	398	439	472	19	10	558	21	40	375	183		
12			437	487	499	500	502	485	465	463	452	459	469	484	481	472	483	484	490	488	499	511	442	458	439	478	476	19	00	572	21	52	396	176		
13			482	489	488	502	503	502	494	480	471	467	470	479	481	479	479	560	503	496	522	419	376	493	487	398	480	15	52	781	19	40	255	526		
14			368	403	461	472	477	466	430	435	451	465	478	478	480	490	504	592	592	570	441	398	476	368	416	409	463	16	46	707	18	18	107	600		
15			284	450	489	472	451	489	457	427	450	459	473	499	489	493	491	502	499	518	500	467	481	393	400	468	462	19	24	550	00	06	204	346		
16			471	466	475	486	469	478	477	463	464	448	454	468	484	489	499	488	494	510	490	481	390	405	416	428	466	17	08	596	21	58	299	297		
17			444	468	499	499	489	479	480	474	466	466	471	480	487	489	492	520	547	505	499	444	406	447	213	275	460	16	13	575	22	54	-236	811		
18			376	241	358	449	449	459	459	466	463	471	482	481	481	490	505	491	520	503	483	474	483	489	488	480	460	16	48	611	01	46	172	439		
19	*		452	477	488	509	508	497	489	477	474	474	479	479	487	481	510	488	491	510	473	434	478	462	472	467	481	17	45	572	19	14	395	177		
20			452	429	444	479	497	487	479	471	458	462	479	479	490	496	491	493	508	532	510	530	490	483	408	336	474	17	51	606	23	52	297	309		
21			387	462	493	490	489	479	477	472	471	472	475	480	489	489	490	493	490	494	498	508	489	466	415	460	476	19	12	541	00	00	317	224		
22			459	418	463	500	491	486	483	482	477	479	480	487	491	489	489	484	491	509	520	429	414	267	447	464	466	20	05	612	21	02	164	448		
23			258	315	431																															
24						480	484	486	476	459	461	458	457	469	480	488	491	494	499	513	464	469	487	489	464	313										
25			371	401	389	464	465	470	477	466	461	471	476	489	490	490	488	502	500	489	499	530	488	489	490	490	473	19	06	553	00	02	305	248		
26			491	482	491	494	497	479	471	459	457	459	468	482	485	497	496	491	532	497	500	472	393	484	490	490	482	16	17	596	20	14	317	279		
27	*	/	487	464	497	477	480	477	466	461	467	470	474	489	491	491	494	494	490	491	500	508	503	493	490	488	485	19	25	528	02	17	390	138		
28	*	/	477	477	489	508	500	490	474	469	469	472	479	481	480	487	492	492	489	491	492	503	500	489	491	488	487	19	10	520	08	56	463	057		
29	*	/	477	494	510	510	505	497	490	479	479	477	480	486	489	485	486	486	486	489	500	499	481	476	469	476	488	19	03	522	22	17	457	065		
30			479	454	464	502	499	489	482	477	472	472	479	489	485	474	518	496	487	486	486	482	476													
31	*					506	498	487	470	457	470	479	484	484	487	487	486	487	489	504	505	479	490	469	477	488										
Mean			444	455	475	487	487	482	471	463	462	465	472	481	486	488	491	500	501	502	493	477	464	456	434	438	474 ^d	DESIGNATIONS					274			
Mean *			Insufficient data																														* Ten least disturbed days			
Mean /			478	479	497	498	494	486	477	472	473	474	478	484	486	487	490	489	488	490	494	500	495	482	452	472	484 ^c /	Five international quiet days								
Mean ≠			Insufficient data																														≠ Five international disturbed days			
			a Means of 9 values						b Means of 8 values						c Means of 4 values						d Mean of 25 complete days only						() Approximate									

TABLE 24

HOURLY VALUES OF HORIZONTAL INTENSITY

APRIL 1954

18000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range			
1	497	499	502	504	491	478	467	460	463	470	474	480	487	489	491	489	488	491	497	494	496	488	459	485	485	21	43	h m	22 28	(447)	(075)	
2	480	491	497	491	486	477	464	459	461	467	464	474	476	472	506	511	502	492	488	486	419	360	319	442	466	14	51	h m	22 05	234	302	
3	489	499	503	498	484	469	448	444	443	465	469	489	488	489	487	480	487	482	472	442	459	439	274	398	462	13	43	h m	22 40	145	369	
4	476	497	490	469	470	454	451	460	461	462	475	479	486	488	488	487	486	487	487	490	494	431	467	464	475	20	05	h m	21 12	352	189	
5	471	487	499	502	489	480	477	461	447	457	468	473	479	482	482	488	489	489	488	489	489	491	489	482	481	03	48	h m	08 22	441	066	
6	460	487	498	503	493	484	471	467	466	469	471	482	488	487	489	491	488	490	490	488	491	490	489	468	483	03	00	h m	00 21	449	060	
7	469	484	490	495	494	482	469	459	463	471	479	482	486	486	485	484	487	496	517	479	492	488	487	487	484	18	44	h m	08 04	455	029	
8	490	492	496	498	490	481	471	468	472	479	484	487	483	488	496	498	497	498	499	526	464	398	397	427	478	19	43	h m	21 22	320	238	
9	458	436	473	498	489	479	470	470	471	472	486	493	498	490	481	498	528	528	504	489	496	491	472	481	485	17	51	h m	00 43	414	168	
10	491	494	499	493	494	489	481	477	474	484	485	480	482	493	495	487	488	523	490	492	489	477	479	479	488	17	03	h m	21 53	459	106	
11	453	472	489	496	491	486	481	479										497	486	216	254	287	087	097								
12	(-27	054	115)	135	375	434	440	430	457	457	472	488	523	470	475	485	477	479	487	479	433	281	380	406	384	12	30	h m	02 00	(-432)	(1026)	
13	377	449	455	478	491	484	478	471	472	471	478	485	487	486	512	488	480	516	490	487	467	449	465	478	475	14	13	h m	00 13	336	204	
14	481	465	437	440	419	459	468	469	467	463	477	483	480	497	498	490	487	489	494	489	488	489	490	479	475	13	57	h m	04 23	398	125	
15	427	402	465	484	489	469	451	449	459	470	471	488	480	471	486	488	486	483	460	401	320	346	484	484	455	19	03	h m	20 53	195	315	
16	482	484	492	495	490	480	468	456	461	470	478	486	489	487	488	489	489	488	486	504	479	460	477	481	482	19	44	h m	07 52	446	077	
17	482	491	494	493	489	479	468	468	476	478	481	489	489	489	489	488	489	488	500	487	491	489	480	471	485	18	30	h m	23 48	461	161	
18	470	469	484	497	492	482	465	471	472	479	481	479	486	496	484	489	500	508	489	524	481	431	466	486	483	19	33	h m	21 27	390	175	
19	492	496	492	492	493	487	485	482	482	480	482	490	490	491	492	493	500	513	502	462	488	489	490	489	490	18	39	h m	19 09	431	115	
20	488	493	489	457	465	459	455	462	468	471	479	487	486	487	492	491	493	516	512	396	467	489	456	478	476	17	53	h m	19 50	317	336	
21	468	481	489	493	487	474	439	441	461	471	477	489	469	488	488	490	500	528	497	488	486	486	483	472	481	17	11	h m	07 08	431	123	
22	476	476	450	471	498	483	479	477	470	471	482	486	484	489	494	492	491	490	489	490	491	491	491	488	483	04	26	h m	02 59	437	067	
23	457	456	464	480	507	500	484	464	461	467	476	473	483	489	491	487	490	499	518	456	452	409	433	454	473	18	50	h m	19 45	345	187	
24	489	489	470	457	492	489	480	481	478	472	467	484	491	494	497	497	485	489	511	461	487	487	463	374	478	18	56	h m	23 47	301	230	
25	453	479	492	498	492	488	476	468	475	478	480	490	491	498	498	492	491	492	498	499	471	498	486	477	486	19	41	h m	00 00	423	089	
26	477	461	439	439	475	481	476	475	469	472	478	486	489	486	496	489	490	491	490	509	479	438	369	308	465	19	40	h m	24 00	170	372	
27	297	367	378	479	488	490	449	429	438	465	479	485	488	488	487	489	511	491	498	497	480	467	471	472	462	19	20	h m	00 00	170	392	
28	454	480	491	499	492	487	480	477	476	481	486	487	489	491	497	492	493	499	505	498	496	495	482	479	488	18	20	h m	00 33	444	077	
29	442	485	499	499	492	487	482	477	478	478	480	489	490	489	489	494	492	491	492	493	497	499	492	492	487	20	08	h m	00 40	421	090	
30	493	492	492	488	479	476	471	457	449	469	471	471	476	486	479	484	486	487	489	498	496	492	476	474	480	19	14	h m	08 26	434	081	
31																																
Mean	447	460	467	474	482	478	468	463	465	471	477	484	487	487	491	490	492	497	494	483	474	456	454	461	475 ^d	DESIGNATIONS			202			
Mean *	469	485	491	496	492	483	474	467	468	472	478	484	487	489	490	490	490	492	496	492	489	489	483	481	484	484	* Ten least disturbed days			79		
Mean /	463	485	495	499	492	484	475	468	471	476	480	486	489	491	492	490	490	494	502	493	490	494	481	484	486	/ Five international quiet days						
Mean ≠	336	351	383	389	459	466	458	451	461	466	474	484	493	479	486	488	486	494	494	433	418	381	438	456	447 ^c	≠ Five international disturbed days						
	a Means of 9 values									b Means of 8 values									c Means of 4 values									d Mean of 29 complete days only				
																										() Approximate						

TABLE 25

HOURLY VALUES OF HORIZONTAL INTENSITY

MAY 1954

18000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range				
1	*	479	467	480		491	499	496	485	479	476	479	485	489	490	490	490	491	491	489	489	490	489	490	491	(491)	487	h m 05 01	502	h m 01 03	459	043	
2		474	488	498		500	498	497	481	477	477	478	485	492	498	497	491	492	490	491	490	492	492	487	488	494	489	03 27	506	00 46	469	037	
3		496	505	507		509	510	497	477	471	474	478	486	488	491	491	489	487	489	488	503	483	485	427	379	469	482	18 30	539	22 18	223	316	
4	/	481	488	492		498	497	492	476	465	469	472	480	483	488	492	490	490	489	489	489	489	490	489	490	489	486	02 58	509	07 11	461	048	
5		476	460	476		489	492	494	486	478	482	482	486	489	493	493	491	493	493	496	493	491	491	490	491	492	487	04 00	497	01 01	448	049	
6	*	495	497	499		500	503	497	483	479	477	479	487	493	499	498	498	499	499	499	499	498	497	496	496	495	494	17 00	502	08 30	474	028	
7	/	493	481	488		491	500	499	492	484	478	479	488	492	495	497	492	483	513	495	496	496	470	512	480	421	488	21 05	550	23 45	388	162	
8	*	427	448	479		492	488	487	474	478	477	472	476	482	494	489	489	489	489	492	508	492	485	472	449	493	497	480	17 15	510	21 03	408	102
9	/	498	497	489		491	496	498	481	482	488	489	489	491	497	498	499	500	497	496	500	505	505	469	456	459	490	20 15	515	22 55	431	084	
10	*	466	418	440		479	474	476	472	491	482	472	487	484	491	490	490	491	495	495	508	519	494	491	473	437	480	19 10	551	01 50	345	206	
11	/	460	497	498		503	504	503	490	483	482	480	475	480	488	498	495	492	490	515	498	495	490	491	492	488	491	17 15	529	00 00	443	086	
12		473	481	483		497	498	489	488	487	485	482	487	492	490	480	488	490	492	492	504	493	478	469	477	489	487	18 40	515	00 40	459	056	
13		454	459	459		487	503	494	476	479	480	480	481	488	492	493	490	489	488	489	489	490	498	491	489	488	484	07 47	505	00 42	434	071	
14		488	487	498		508	502	492	486	479	475	477	486	493	496	497	489	482	482	489	490	494	486	473	465	438	486	03 50	510	23 05	410	100	
15	*	453	474	477		489	485	478	481	479	477	479	486	491	493	491	489	487	488	489	508	489	491	491	491	497	486	18 40	529	00 20	442	087	
16	/	499	498	497		500	506	505	494	484	480	487	489	494	497	497	497	497	496	491	489	491	489	490	490	493	494	04 50	515	06 55	477	038	
17	*	495	491	502		512	485	464	495	487	484	487	481	472	479	486	489	494	492	490	502	505	471	482	467	447	486	19 10	582	23 35	437	145	
18	/	467	490	489		492	489	485	489	489	482	480	492	502	499	499	491	493	492	492	491	491	499	473	444	448	486	20 25	520	22 35	419	101	
19		471	499	503		502	499	499	497	489	482	487	492	495	496	490	491	492	494	495													
20																																	
21	*	478	489	492		495	493	496	489	489	489	489	492	497	499	499	499	499	497	497	491	489	497	498	471	459	489	20 30	508	23 00	437	071	
22		484	498	507		507	507	504	478	477	473	480	492	498	502	502	502	502	503	499	497	500	502	479	496	497	495	20 20	512	21 25	462	050	
23		499	496	500		504	502	498	481	478	467	465	478	492	499	503	499	499	498	497	514	503	499	496	494	492	494	18 30	539	09 15	461	078	
24	*	497	458	499		499	496	499	498	489	489	490	496	498	500	500	500	500	500	497	494	494	492	488	480	486	495	17 00	505	07 40	484	021	
25	/	497	497	498		500	500	494	487	487	486	489	491	499	504	503	498	499	490	488	489	491	495	492	489	484	494	13 30	502	24 00	477	025	
26	*	470	480	498		497	494	489	497	491	485	487	491	498	499	500	499	499	498	495	493	496	495	495	494	495	493	14 00	502	00 25	462	040	
27	/	498	498	498		499	505	508	496	488	481	484	487	492	498	496	496	496									494	05 15	509	20 25	478	031	
28		491	486	490		484	491	498	489	488	491																						
29	*																																
30	/																																
31		492	498	498		499	503	507	508	502	498	496	498	503	502	499	491	487	497	492	507	510	488	489	489	491	498	19 00	546	20 50	480	066	
Mean		480	484	490		497	497	494	486	483	480	481	487	491	495	495	494	493	494	494	496	495	490	484	479	478	489 ^d	DESIGNATIONS			82		
Mean *		483	484	491		496	496	494	493	484	482	485	489	494	497	497	496	496	495	493	494	492	493	492	488	488	491 ^a	* Ten least disturbed days			45		
Mean /		492	490	494		498	501	499	490	483	480	484	489	494	496	496	496	497	496	490	493	493	492	491	489	491	492 ^c	/ Five international quiet days					
Mean ≠		471	466	482		498	489	481	480	482	479	477	482	482	489	489	489	490	492	495	501	498	480	462	453	462	482 ^c	≠ Five international disturbed days					
		a Means of 9 values				b Means of 8 values				c Means of 4 values				d Mean of 26 complete days only																			

TABLE 26

HOURLY VALUES OF HORIZONTAL INTENSITY

JUNE 1954

18000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range			
1 *	490	495	482		489	506	508	501	492	488	487	489	493	499	499	497	497	496	498	496	494	495	490	493	496	495	h m	h m				
2 *	499	501	501		492	479	499	505	501	499	497	489	498	501	499	501	498	490	490	490	496	494	489	485	489	495	06 00	510	04 40	474	036	
3	497	498	498		490	497	498	493	494	492	495	491	499	508	507	503	499	498	497	496	497	491	491	497	497	497	13 10	515	20 50	484	031	
4	494	481	489		494	501	498	484	478	468	466	479	490	495	496	494	496	491	490	487	501	489	486	488	489	488	19 33	520	09 00	452	068	
5 * /	492	491	493		496	499	499	496	492	490	489	491	498	501	503	501	501	498	491	499	498	491	489	486	489	495	18 40	515	22 45	479	036	
6 *	492	492	497		500	505	499	496	489	487	487	490	497	499	499	498	496	498	499	497	497	497	497	493	488	495			23 50	479		
7	490	489	498		498	499	499	497	490	490	491	498	503	506	501	492	494	501	499	499	498	497	498	503	498	497	22 10	510	15 00	479	031	
8 * /	499	499	495		492	497	499	497	489	489	491	497	501	503	503	501	501	499	498	498	498	498	497	497	497	497	13 00	503	08 40	486	017	
9	497	492	486		489	497	499	497	491	489	489	490	496	503	505	505	499	499	498	498	498	498	493	478	488	495	12 40	508	22 50	469	039	
10	497	481	489		501	507	497	448	468	486	479	488	487	491	497	497	496	499	499	512	487	487	480	473	474	488	18 24	545	06 20	439	106	
11 * /	479	481	489		492	491	491																									
12								(489)	488	488	489	494	498	498	497	497	490	487	488	489	539											
13								(487)	486	485	482	489	496	499	501	503	501	494	510	499	489	492	489	492	495							
14								490	488	488	489	490	492																			
15	496	497	498		499	505	499	489	490		494	498	501	505	505	503	505	501	499	499	499	498	499	494	496							
16 * /	499	499	497		498	505	503	501	499	496	491	493	503	507	505	503	503	499	499	499	499	498	498	496	498	500	13 00	509	02 50	489	020	
17 *	498	492	498		501	510	509	503	499	498	499	501	507	507	505	505	505	503	503	501												
18								(499)	498	497	498	499	503	505	503	499	501	501	501	499	498	510	499	493	494							
19	496	497	498		499	501	497	493	491	492	494	496	498	505	508	509	505	501	503	503	510	499	499	492	492	499	19 05	520	23 00	489	031	
20								(497)	497	497																						
21								497	497		499	505	505	505	503	499	497	497	498	497	498	498	505	494	459							
22	460	498	474		479	488	(488	491)	490	490	492	492																				
23								(490)	491	492																						
24 * /								(497)	492	489	492	497	499	495	477	489	491	498	496	497	494	492	492	496	497	498	498					
25								496	494	491	491	491	497	508	510	505	501	498	498	495	496	497	497	497	491	498	13 20	510	07 50	484	026	
26	499	499	501		503	506	503	497	489	484	484	489	494	494	499	505	501	498	496	497	497	499	499	501	499	496	14 30	507	08 40	481	026	
27	493	497	499		499	499	499	497	489	484	484	489	494	494	499	505	501	498	496	497	497	499	499	501	499							
28	498	479	461		466	501	497	462	456	469	479	486	499	497	497	494	494	491	491	492	492	494	494	489	487							
29 *								489	489	487	487	489	494	497	497	499	497	491	491	491	492	492	494	494	489	487	493	13 40	505	24 00	438	067
30	496	497	498		499	503	501	497	493	489	488	486	491	497	499	499	497	491	491	491	492	492	492	489	486	459						
31																																
Mean	495	494	495		496	500	500	493	490	489	488	490	496	501	502	501	499	497	496	497	497	495	493	491	490	495 ^a	DESIGNATIONS			41		
Mean *	Insufficient data																														* Ten least disturbed days	
Mean /	Insufficient data																														/ Five international quiet days	
Mean ≠	Insufficient data																														≠ Five international disturbed days	
																															() Approximate	
	a Means of 9 values						b Means of 8 values					c Means of 4 values					d Mean of 15 complete days only															

TABLE 27

HOURLY VALUES OF HORIZONTAL INTENSITY

JULY 1954

18000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range		
1	464	475	479		491	491	475	466	477	489	480	484	491	497	492	495	497	496	496	496	491	491	492	492	492	487	h m	h m			
2	492	492	491		491	493	497	495	489	486	485	489	494	498	495	496	496	492	490	490	498	498	490	494	494	493	15 23	499	00 00	437	
3	494	494	497		499	505	500	503	490	487	487	491	499	500	499	499	498	497	497	496	499	497	498	498	498	496	20 37	509	08 52	481	
4	498	494	497		498	499	502	490	495	489	488	491	497	496	496	498	498	497	497	497	496	494	493	493	495	496	19 25	510	08 46	485	
5	497	496	497		498	499	499	499	490	488	489	495	499	500	499	491	494	498	499	502						496	14 43	499	09 25	488	
6								(490)	473	459	468	478	486	499	502	496	489	490	491	490	489	506	489	488	488						
7	469	463	481		493	496	494	489	487	482	479	468	469	490	498	499	497	496	497	497	497	492	(492)	489	495	488	488	17 00	499	00 35	449
8								(492)	489	489	489	490	487	490	499	499	498	495	498	500	509	492	491	494	489	494	21 30	504	02 39	479	
9	492	497	484		488	497	495	488	483	489	491	491	492	498	499	499	498	498	497	494	494	496	499	497	498	494	11 55	503	08 46	477	
10	500	499	498		497	491	495	496	489	481	482	491	498	497	498	499	500	498	499	499	498	497	495	497	499	496	05 18	506	09 10	488	
11	491	492	502		503	508	502	496	494	489	489	492	497	499	499	499	499	499	499	499	499	499	499	500	499	498					
12	(497)							508	502	498	498	499	502	503	503	500	495	497	500	503	499	495	492	489	423	495	00 46	503	00 00	439	
13	487	499	499		500	499	494	491	491	489	487	489	497	497	494	498	499	499	498	497	497	497	495	495	494	495	00 46	503	00 00	439	
14	497	499	497		480	488	488	496	494	491	489	480	489	491	507	508	496	496	497	499	496	496	493	489	485	493	14 05	515	10 52	467	
15	492	494	497		500	499	497	480	468	470	481	482	470	494	509	498	499	499	496	492	489	489	489	490	491	490	13 05	589	11 35	452	
16	491	492	494		499	500	498	492	487	480	479	488	493																		
17								474	478		479	488	493	497	496	495	492	492	490	489	493	491	491	492	485	486	02 04	516	00 21	328	
18	376	463	499		472	481	497	497	491	489	489	491	497	498	499	498	498	496	496	489	492	491	490	487	478	497	20 22	530	01 00	470	
19	480	479	489		491	499	504	499	492	490	490	492	496	497	503	500	503	500	503	506	508	518	492	497	497	497	04 53	507	09 31	470	
20	487	489	492		496	500	497	486	481	477	478	491	499	502	500	499	499	497	497	497	498	498	495	492	492	493	11 55	509	15 55	483	
21	497	498	499		503	499	500	491	489	489	492	494	497	499	499	494	492	490	499	497	498	499	502	506	489	496	05 11	505	08 15	478	
22	497	499	499		499	502	502	494	481	481	486	489	490	496	499	498	497	497	495	498	497	497	497	498	498	495	05 11	505	08 15	478	
23	499	499	502		502	508	510	507	492	490	489	492	482	491	496	499	497	498	497	496	494	498	499	499	498	497	04 41	511	11 36	478	
24	490	468	502		505	508	492	484	483	487	481	487	497	495	498	497	497	497	497	497	499	497	497	497	498	494	19 05	510	01 20	451	
25	499	499	493		498	502	502	491	467	461	474	478	460	476	487	490	489	492	492	492	494	492	491	491	489	487	06 01	518	11 36	452	
26	495	488	499		500	500	505	498	490	487	480	487	486	469	492	498	497	496	495	491	496	492	497	494	497	493	05 59	509	12 25	458	
27	498	494	466		467	502	512	506	493	490	487	487	493	488	489	489	505	500	520	490	481	491	478	457	450	489	17 42	541	23 38	438	
28	488	502	502		504	478	491	507	499	491	486	466	466	481	507	499	499	547	517	489	489	491	473	449	462	491	16 37	599	22 56	438	
29	484	466	468		488	502	492	486	480	47	479	487	487	498	499	499	499	500	513	497	497	497	497	496	496	491	04 47	529	02 17	453	
30	489	474	490		500	508	508	503	496	492	488	492	497	497	499	502	500	498	499	497	495	497	497	494	484	496	14 05	511	01 33	468	
31	482	489	492		499	500	503	502	481	461	469	481	490	494	489	502	499	499	500	498	499	499	496	473	471	490	20 41	515	08 46	454	
Mean	485	488	493		495	498	498	494	488	485	485	487	490	494	498	498	498	499	499	496	495	496	493	491	490	493 ^a	DESIGNATIONS		59		
Mean *	494	496	496		497	499	498	494	489	486	487	490	496	498	497	498	498	497	497	496	497	497	496	497	497	495 ^b	* Ten least disturbed days		28		
Mean †	495	495	493		495	497	498	494	489	486	487	491	496	498	497	498	498	496	496	495	497	496	495	496	497	495	† Five international quiet days				
Mean ‡	489	494	487		488	492	494	493	486	484	483	479	480	487	496	496	497	506	504	493	490	492	485	476	476	489	‡ Five international disturbed days				
a Means of 9 values						b Means of 8 values								c Means of 4 values				d Mean of 25 complete days only													

TABLE 28

HOURLY VALUES OF HORIZONTAL INTENSITY

AUGUST 1954

18000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range			
1	490	494	494	496	499	507	506	497	484	469	477	491	483	494	499	495	495	497	497	515	494	489	489	491	493	19	23	540	09	32	457	083
2	496	497	489	458	458	483	490	486	481	483	482	499	498	498	491	492	491	497	508	500	497	492	491	492	490	18	45	530	04	00	443	087
3	495	495	497	502	509	509	510	502	496	492	484	489	497	496	498	497	497	495	497	497	484	500	497	498	497	06	42	510	20	30	463	047
4	499	499	499	502	507	505	497	478	476	485	491	492	492	482	489	488	493	497	499	518	496	494	493	494	494	19	31	555	07	59	463	092
5	497	494	489	488	497	499	490	494	489	488	489	491	491	490	494	499	499	497	520	509	507	497	503	469	495	12	22	539	24	00	457	082
6	469	476	478	497	504	511	506	488	461	471	487	498	488	489	498	499	496	498	502	509	555	455	481	481	492	20	19	791	21	10	418	373
7	475	492	496	500	496	494	492	488	486	474	457	477	511	502	522	507	494	505	506	510	494	498	492	491	494	14	42	575	10	30	440	135
8	488	486	497	503	508	505	495	478	478	481	477	481	494	500	502	502	502	504	502	500	499	499	499	502	495	15	55	516	10	38	470	046
9	502	500	497	509	512	502	497	489	484	484	487	495	497	491	487	493	492	495	505	508	500	490	489	452	494	19	20	522	23	25	427	095
10	471	503	510	509	509	499	489	478	480	481	489	490	490	491	491	497	495	494	494	496	499	499	498	499	494	05	06	510	00	06	450	060
11	497	488	478	491	506	508	497	487	483	477	479	489	499	499	498	498	492	491	497	495	498	499	497	497	493	05	10	512	09	52	470	042
12	483	468	482	507	508	502	497	489	479	472	481	490	496	498	495	496	494	492	497	494	498	490	493	500	492	03	54	510	01	05	463	047
13	496	497	499	504	508	498	492	488	480	479	481	491	498	499	497	497	491	499	497	499	498	497	497	489	495	04	40	510	09	30	471	039
14	458	469	496	508	511	508	499	486	480	482	481	492	495	494	497	491	495	493	512	499	492	484	479	451	490	18	28	530	23	05	440	090
15	477	492	497	503	511	514	512	492	482	479	480	490	495	498	498	492	498	492	510	535	492	485	454	479	494	19	02	623	22	20	437	186
16	497	499	507	516	520	516	506	488	481	478	479	480	493	492	513	502	499	491	493	499	491	497	490	495	497	14	40	529	11	05	464	065
17	492	492	498	499	502	504	487	478	458	449	469	488	492	496	495	491	498	508	508	498	493	489	489	488	490	17	51	521	09	11	441	080
18	490	491	503	503	504	503	481	476	478	478	486	488	497	480	492	499	492	494	497	497	499	488	480	487	491	04	00	505	09	15	464	041
19	471	467	497	499	499	502	496	489	482	483	481	488	491	495	497	491	497	494	519	499	497	498	492	468	491	18	20	542	23	55	449	093
20	471	488	498	510	507	496	488	491	487	481	482	486	492	492	490	491	520	492	497	496	497	497	498	498	494	16	30	550	00	00	451	099
21	499	500	503	500	497	499	470	469	468	478	467	484	492	492	489	494	492	498	497	498	497	494	492	490	490	03	15	508	10	50	441	067
22	464	343	379	474	476	429	460	471	479	482	480	483	488	487	494	491	494	495	499	499	499	517	488	486	473	20	55	540	01	50	275	265
23	484	464	474	498	502	499	497	491	484	481	481	484	486	487	490	489	489	492	498	529	509	499	492	491	491	19	53	599	01	15	459	140
24	489	477	484	502	509	503	478	454	461	471	478	482	489	489	493	488	489	488	491	477	486	484	486	444	483	20	26	520	24	00	365	155
25	410	481	499	502	508	498	489	483	479	479	479	485	489	491	490	489	488	490	494	492	490	491	482	488	486	04	50	508	00	12	336	172
26	492	496	500	504	500	458	464	487	481	480	479	483	489	484	484	480	499	495	494	492	500	479	487	487	487	16	48	532	05	32	436	096
27	444	362	472	502	514	507	494	489	484	477	472	481	489	490	489	492	496	511	510	490	489	490	451	483	19	10	541	01	15	320	221	
28	431	457	469	470	487	491	502	495	489	482	479	471	481	491	492	496	494	492	492	496	492	492	491	451	483	06	45	508	23	55	366	142
29	377	454	489	471	480	481	466	464	467	466	472	484	495	486	498	498	494	493	520	505	494	488	460	474	478	18	30	555	00	25	353	202
30	478	459	480	499	504	500	488	477	468	471	478	477	492	499	493	491	490	496	499	491	497	491	487	475	487	18	55	518	01	55	456	062
31	474	476	492	505	508	499	488	478	470	480	480	487	491	487	488	487	491	512	510	492	490	469	472	499	489	18	30	540	22	00	441	099
Mean	476	476	488	498	502	498	491	484	479	478	479	487	493	492	495	494	495	496	502	502	498	491	488	482	490	DESIGNATIONS			113			
Mean *	487	491	495	502	507	504	497	488	483	482	483	489	494	494	495	496	498	495	501	504	497	496	493	492	494	* Ten least disturbed days			74			
Mean /	495	494	496	500	506	503	497	488	484	485	484	489	494	497	496	497	496	498	503	505	497	497	498	490	495	/ Five international quiet days						
Mean ≠	458	449	466	490	494	476	475	473	470	474	479	486	490	487	492	491	494	494	501	496	507	486	480	474	483	≠ Five international disturbed days						
	a Means of 9 values						b Means of 8 values						c Means of 4 values									() Approximate										

TABLE 29

HOURLY VALUES OF HORIZONTAL INTENSITY

SEPTEMBER 1954

18000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range				
1	496	489	488		493	502	489	480	480	477	464	474	488	502	498	497	540	561	499	522	491	539	383	278	233	473	h	m	h	m	623		
2	279	466	484		461	480	487	480	481	479	480	479	482	489	491	489	487	517	522	494	490	488	460	447	426	472	20	58	675	23	57	052	623
3	479	498	502		505	508	499	486	471	470	469	472	498	497	492	491	512	550	512	509	575	487	457	434	345	488	19	35	693	23	39	252	441
4	407	487	492		499	482	468	464	474	487	482	488	482	481	487	488	510	576	487	485	487	489	488	479	467	485	16	20	732	00	00	319	413
5	458	426	472		475	470	476	464	471	480	481	478	491	484	487	488	491	480	482	498	492	489	489	489	485	479	18	46	540	01	28	415	125
6	464	468	487		497	499	494	472	477	479	480	481	481	489	492	491	521	609	621	593	080	275	429	454	413	469	17	51	722	19	31	-344	1066
7	489	475	489		476	480	491	484	469	472	484	494	488	483	490	489	491	499	544	503	485	465	442	471	471	484	17	56	570	20	57	388	182
8	446	459	478		489	502	503	499	489	482	480	480	483	487	488	488	488	489	491	510	488	491	489	489	490	487	18	14	538	00	41	430	108
9	491	491	491		469	455	469	470	456	459	472	479	480	482	490	477	484	481	499	519	500	477	457	457	479	478	18	45	522	21	59	431	091
10	475	480	487		491	487	478	467	464	464	460	468	481	489	494	488	488	492	497	499	494	497	494	490	470	483	17	55	508	10	16	452	056
11	470	489	499		502	491	496	490	471	477	477	479	478	481	489	487	486	497	527	492	497	482	464	470	490	487	17	40	568	21	35	441	127
12	490	491	496		502	508	508	499	489	487	477	469	472	480	491	492	489	490	489	492	497	502	497	492	477	491	18	44	510	10	22	463	047
13	489	492	504		517	521	519	498	481	475	470	477	479	487	490	491	491	490	491	496	497	497	502			491	19	44	510	09	50	(468)	(054)
14								(508)	488	(469)																							
15								478	477																								
16								449	450		469	482	487	498	492	519	490	490	520	530	499	479	471	470	448	481	20	02	552	01	51	347	205
17								489	484	480	477	481	487	490	491	492	490	491	492	498	510	519	489	488	471	482	17	55	570	22	33	348	222
18								495	487	465	462	481	480	481	491	490	487	489	517	525	490	479	481	415	478	496	18	18	566	09	33	469	097
19								484	484	476	471	478	480	489	487	491	491	491	511	539	509	508	497	499	502	496	15	15	867	19	54	-151	1018
20								476	483	479	477	482	469	513	491	500	568	512	510	457	541	485	487	468	437	484	17	21	675	18	03	257	418
21								493	479	470	474	482	479	491	502	496	481	489	502	497	487	488	494	488	489	488	13	51	526	00	14	419	107
22								492	486	456	458	469	471	491	486	486	487	490	490	497	494	489	488	488	487	487	03	33	510	08	44	439	071
23								483	477	470	468	464	475	487	494	495	491	500	494	497	498	499	458	429	481	485	16	48	521	22	00	360	161
24								469	470	470	479	483	482	480	489	525	530	502	493	494	487	440	486	489	486	489	14	50	563	20	20	421	142
25								479	469	463	471	479	481	487	488	494	497	492	504	495	490	498	498	498	491	489	17	50	525	08	22	452	073
26								492	481	472	477	477	481	490	498	489	489	520	540	533	491	468	497	499	454	494	18	09	755	23	47	419	256
27								493	471	448	459	473	479	487	489	499	497	496	495	495	498	500	489	489	480	480	14	40	513	00	33	376	137
28								487	469	467	461	463	475	506	490	494	491	565	497	489	346	178	257	327	487	452	16	29	622	20	33	-042	664
29								438	444	447	450	494	482	480	494	489	490	497	519	527	520	499	503	477	336	481	18	49	607	23	44	304	303
30																																	
31																																	
Mean	462	477	485		492	494	490	481	475	471	472	478	481	491	493	497	506	516	510	508	467	457	460	452	450	482 ^d	DESIGNATIONS			281			
Mean *	466	475	487		500	503	498	488	480	472	471	474	479	488	491	491	489	492	497	503	496	499	489	485	484	487 ^a *	Ten least disturbed days			98			
Mean /	476	485	494		502	506	503	496	486	475	472	474	476	487	488	489	489	490	495	510	497	498	493	492	489	490 ^c /	Five international quiet days						
Mean ≠	487	489	468		472	489	484	482	479	474	468	474	478	515	502	526	567	567	511	507	394	341	350	334	381	468 ^c ≠	Five international disturbed days						
	a Means of 9 values							b Means of 8 values							c Means of 4 values							d Mean of 26 complete days only							() Approximate				

TABLE 30

HOURLY VALUES OF HORIZONTAL INTENSITY

OCTOBER 1954

18000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range			
1	≠	420	449	429	428	412	446	464	440	447	435	490	489	473	490	491	510	565	488	508	491	467	420	464	484	467	16 ^h 33 ^m	773	00 00	358	415	
2		479	450	454	479	474	476	481	474	471	462	467	474	480	488	489	489	489	490	490	499	491	430	394	343	467	19 26	513	23 54	095	418	
3		405	308	409	477	477	451	459	448	448	463	479	482	489	497	495	541	570	539	510	519	444	250	336	027	438	15 13	644	23 39	-212	856	
4	≠	266	219	368	491	486	491	488	465	469	466			488	487	487	489	507	492	491	473	425	462	487	474	496	15 55	745	17 19	396	349	
5		500	508	508	499	481	471	465	467	455	458	449	469	522	532	580	608	615	460	480	482	479	468	470	484	496	16 47	(569)	09 30	(458)	(111)	
6		487	487	490	492	484	481	481	481	474	463	479	478	472	487	520	492	520	497	502	491	491										
7							467	(464)																								
8							479	478	474	478	482	487	490	491	490	491	491	491	494	497	497	500	499	489	489	489	489	18 50	532	08 58	467	065
9	≠	490	499	502	481	489	491	482	471	469	471	477	479	488	494	494	494	496	495	503	499	498	498	494	490	489	18 50	532	08 58	467	065	
10	≠	486	497	509	511	510	500	482	477	460	459	477	480	477	488	491	491	491	491	497	499	499	498	499	502	490	03 43	514	08 45	457	057	
11	≠	505	510	514	512	505	494	484	476	468	467	471	479	489	495	498	499	499	499	499	500	500	503	504	507	495	03 00	517	09 26	467	050	
12	≠	509	510	511	511	509	500	490	479	465	460	467	478	488	494	498	499	498	499	508	510	510	507	508	487	496	03 07	513	09 35	459	054	
13	≠	492	510	520	527	519	505	493	477	468	466	468	477	482	480	477	489	493	498	492	486	462	487	497	497	490	03 31	529	20 19	416	113	
14	≠	500	510	519	517	510	498	483	471	470	462	467	487	483	487	497	497	498	498	508	500	502	506	506	502	494	02 08	520	10 02	456	064	
15		489	503	512	519	513	507	493	476	463	467	478	487	491	496	499	523	490	529	507	496	489	502	499	491	497	07 49	600	08 40	456	144	
16		489	491	500	504	488	488	481	467	458	461	470	477	488	491	491	494	492	496	503	510	497	471	421	387	480	21 07	520	23 26	347	173	
17		445	433	464	475	498	482	456	435	452	491	509	523	496	616	616	579	568	536	477	474	478	479	461	449	496	13 51	834	01 00	386	448	
18	≠	471	504	488	483	491	494	489	478	473	489	487	507	502	487	500	561	513	497	489	491	490	492	482	464	493	15 15	653	18 31	449	204	
19		452	450	482	492	497	498	479	449	438	457	479	496	533	487	469	479	486	497	489	482	480	472	442	468	477	12 20	581	08 10	419	162	
20	*	479	493	510	509	498	489	479	471	469	469	463	469	479	479	485	487	488	490	495	479	489	498	496	497	486	02 42	513	19 40	451	062	
21		499	503	506	507	499	482	474	464	464	462	462	467	486	485	488	489	499	(540)													
22	≠						506	502	491	482	479	486	491	503	520	497	506	579	512	476	145	147	238	136	067	016	15 49	(682)	18 20	(247)	(929)	
23		194	314	441	398	308	342	379	425	424	481	558	577	609	734	638	641	489	391	455	378	283	412	460	471	450	13 33	862	00 40	002	860	
24	≠	418	351	278	406	460	449	500	479	477	515	522	512	561	492	522	502	481	488	502	482	489	486	484	472	472	12 37	590	02 34	065	525	
25		471	493	503	499	499	482	476	469	446	454	464	478	489	492	488	514	537	543	540	498											
26								489	481	472	462	479	467	457	470	478	485	509	550	491	487	490	489	494	489	489	482	16 19	514	08 58	459	055
27		473	476	489	477	480	487	481	469	470	462	464	471	479	489	484	489	500	488	487	489	489	489	492	496	482	16 19	514	08 58	459	055	
28	*	500	505	506	504	497	489	480	476	470	464	481	469	476	489	489	492	496	498	499	503	503	500	509	498	491	22 25	528	09 15	459	069	
29	*	486	478	489	461	447	468	478	472	460	459	469	472	482	487	499	490	487	490	497	502	453	459	489	486	478	14 44	518	21 08	388	130	
30		489	500	500	499	492	472	(459)	470	476	475	460	480	491	499	515	535	541	530	475	459	398	408	452	498	482	17 07	611	20 46	143	468	
31																																
Mean		462	466	479	485	480	477	474	466	461	468	480	488	498	509	510	518	511	495	494	488	472	465	471	455	482 ^d	DESIGNATIONS			283		
Mean *		493	501	509	505	513	495	484	474	468	464	471	477	482	488	490	493	495	495	498	496	495	498	501	497	490 ^a *	Ten least disturbed days			65		
Mean /		501	507	512	505	528	496	485	474	468	465	470	481	487	492	497	497	498	498	502	502	502	504	503	496	494 ^c /	Five international quiet days					
Mean #		366	376	436	444	424	430	442	437	443	468	509	518	517	584	560	568	548	488	488	466	418	390	430	358	463 ^c #	Five international disturbed days					
		a Means of 9 values						b Means of 8 values						c Means of 4 values						d Mean of 22 complete days only						() Approximate						

TABLE 31

HOURLY VALUES OF VERTICAL INTENSITY

JANUARY 1954

47000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range			
1	*	232	222	218		217	217	226	225	229	235	241	250	254	251	249	245	243	243	242	240	244	238	210	207	210	233	h	m	h	m	
2	*	204	173	188		203	207	220	228	236	241	250	253	260	282	294	307	339	307	288	271	209	197	207	200	213	241	11	21	256	21	45
3		225	231	236		235	237	244	245	250	252	253	256	263	262	263	269	264	261	254	251	249	247	245	244	238	249	14	49	356	01	38
4	*	241	245	249	(250)	250	250	253	250	246	244	246	246	248	252	253	253	253	253	253	253	250	247	247	244	243	249	17	33	275	00	00
5		241	242	246		248	247	245	244	245	247	250	249	249	251	253	256	260	266	262	267	244	216	111	086	138	232	18	25	271	21	57
6		190	216	224		228	230	229	232	237	239	244	246	250	255	253	257	278	276	269	263	261	256	250	244	244	245	15	51	290	00	00
7		244	244	246		244	241	244	244	250	252	251	252	251	250	250	250	256	286	297	301	285	253	241	236	232	254	18	12	312	23	45
8		230	216	213		226	231	231	229	226	230	238	250	241	247	248	248	248	249	248	250	260	253	248	244	219	238	19	40	266	24	00
9		204	224	232		241	239	240	236	234	235	241	244	244	247	256	260	260	260	256	256	254	244	235	238	238	242	16	03	263	00	13
10	*	236	243	247		248	247	248	251	256	256	255	250	253	253	260	258	259	260	263	266	263	250	241	244	249	252	19	54	270	21	08
11		248	246	243		244	243	241	243	247	245	247	247	245	247	252	247	243	241	255	250	244	235	203	197	209	240	18	02	274	22	02
12		219	225	235		239	242	241	241	245	247	247	248	248	246	253	253	294	309	284	280	278	269	256	255	253	254	16	05	353	00	00
13		244	228	206		205	222	229	232	240	250	255	259	264	259	257	256	253	250	249	250	250	243	230	203	206	239	11	18	266	22	56
14	*	222	235	240		241	241	241	245	244	250	252	250	252	253	250	248	245	244	249	267	255	250	238	213	204	243	18	30	281	22	53
15		219	227	233		238	237	237	234	233	242	245	250	254	253	252	248	250	247	247	253	250	237	215	194	127	234	11	39	253	23	32
16		163	193	213		222	226	228	236	244	241	242	241	249	253	255	253	251	250	253	270	241	232	235	237	240	236	18	32	294	00	00
17		241	244	244		243	241	241	242	242	243	243	243	247	250	250	250	256	255	262	251	241	229	216	218	223	242	17	23	276	21	43
18		229	231	234		231	229	232	235	238	241	239	237	241	244	264	282	282	270	256	254	246	237	214	051	030	227	14	20	293	22	37
19	*	100	055	148		192	222	231	233	235	244	254	264	275	279	278	268	263	279	298	213	170	167	076	075	075	204	17	03	320	21	45
20	*	075	079	167		216	231	246	252	257	252	257	256	256	259	266	266	293	291	297	247	208	176	182	199	199	226	17	52	327	01	20
21	*	197	157	183		208	224	229	237	241	246	249	250	250	257	265	263	270	268	272	250	236	203	177	143	131	225	17	08	303	23	42
22		171	205	216		210	213	227	235	241	247	254	255	255	252	257	271	269	282	271	260	245	228	232	232	232	240	16	53	303	00	00
23	*	240	247	235		220	231	242	246	253	259	263	264	269	269	265	262	259	264	255	252	238	232	232	234	234	249	16	15	278	03	20
24	*	237	232	238																												
25					242	242	246	247	248	252	256	254	250	251	251	251	252	263	244	245	246	243	242	241	241	247		16	49	(290)	17	37
26	*	242	238	232		233	233	235	243	245	244	245	248	249	249	250	251	252	257	257	262	260	254	248	245	245	247	18	49	263	04	39
27	*	247	247	248		250	251	251	251	249	251	254	247	248	255	263	267	273	281	275	266	245	232	238	244	249	253	16	39	285	20	00
28	*	250	249	247		244	239	236	235	236	239	244	248	249	250	251	253	252	251	251	251	250	248	247	247	247	246	18	06	254	05	19
29	*	247	245	245		250	253	251	248	249	253	254	254	251	251	249	245	245	252	248	248	245	242	240	239	242	248	09	59	257	21	57
30	*	243	242	242		244	243	242	242	243	247	249	251	251	255	258	257	262	254	260	265	259	251	211	202	214	245	19	06	270	21	45
31	*	226	237	242		248	245	241	244	247	247	248	249	256	258	259	260	270	254	267	266	260	230	211	201	223	245	16	12	325	22	03
Mean		216	217	226		232	235	238	240	243	245	249	250	252	255	258	259	264	264	263	258	246	234	218	207	207	241	DESIGNATIONS			114	
Mean *		240	241	241		242	242	243	243	244	247	249	249	251	252	254	253	254	255	255	258	253	246	236	232	234	246	a Ten least disturbed days			45	
Mean †		243	245	245		245	244	245	245	246	247	249	249	250	251	253	252	252	255	254	256	254	248	245	244	245	248	† Five international quiet days				
Mean ‡		163	142	184		208	223	234	239	244	248	255	257	262	269	274	293	285	282	282	247	212	195	174	170	170	229	‡ Five international disturbed days				
		a Means of 9 values				b Means of 8 values				c Means of 4 values				d Mean of 29 complete days only														() Approximate				

NOTE. A PROVISIONAL CORRECTION OF -12 GAMMAS SHOULD BE APPLIED TO ALL VALUES OF VERTICAL INTENSITY IN THIS REPORT (See p.4).

TABLE 32

HOURLY VALUES OF VERTICAL INTENSITY

FEBRUARY 1954

47000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range						
1	235	233	235	235	216	221	238	245	268	273	268	276	276	290	331	367	330	284	263	266	247	171	164	164	254	15	14	408	23	56	124	284			
2	127	157	159	174	213	238	247	254	258	259	260	274	285	273	328	307	294	292	282	265	253	239	238	156	243	14	39	390	00	16	112	278			
3	129	120	152	211	232	242	245	248	260	261	270	270	301	307	292	290	278	270	267	258	233	220	200	173	239	13	00	326	01	41	111	215			
4	208	224	230	221	227	238	254	262	257	261	259	260	260	261	263	266	272	268	259	241	242	241	239	231	248	16	32	292	00	00	190	102			
5	233	242	246	249	253	257	262	266	262	259	258	258	260	263	268	268	268	268	268	258	234	197	197	223	251	16	50	278	21	51	175	103			
6	234	237	241	245	251	257	261	262	262	258	255	255	256	257	255	254	254	255	256	255	256	250				06	46	(264)	03	39	(242)	(022)			
7				245	245	246	245	242	241	241	239	239	239	241	240	241	242	246	259	266	228	218	221	201		19	25	(277)	24	00	(189)	(088)			
8	183	198	217	235	241	244	248	255	255	256	257	255	257	260	259	255	253	254	258	218	177	212	219	226	237	13	29	264	20	05	157	107			
9	230	238	243	242	245	245	245	249	254	251	249	249	251	252	257	276	268	291	273	257	247	245	243	246	252	18	09	305	04	23	240	065			
10	250	251	248	244	242	241	242	245	249	255	256	256	260	268	264	266	271	280	279	228	185	219	228	200	247	18	37	289	20	14	175	114			
11	180	152	138	200	220	235	240	241	244	248	250	249	248	251	251	249	249	267	265	269	214	133	152	190	222	19	07	287	02	05	102	185			
12	213	231	241	247	247	251	245	249	253	254	254	255	254	257	257	252	250	248	248	247	242	219	220	178	242	14	24	259	23	37	174	085			
13	194	220	237	244	247	248	249	249	250	247	242	245	243	249	264	263	268	271	268	269	211	160	173	172		16	27	(347)	21	42	(152)	(195)			
14				249	249	250	247	246	233	223	230	231	240	239	268	357	270	304	349	326	289	270	239	179	241	15	44	409	21	46	070	339			
15	207	232	241	247	246	233	242	251	256	259	259	257	259	262	289	317	321	287	230	156	118	146	163	085	217	16	07	366	19	50	058	308			
16	195	149	109	168	198	223	242	251	256				259	262	289	298	343		231	208	178	151	136	157											
17	094	119	145													347	315	264	275	155	209	218	236	244	250	15	39	304	19	17	094	210			
18	176	200	214	238	249	252	261	265	262	258	257	267	280	268	280	313	302	317	264	252	202	190	193	202	254	15	35	304	21	23	180	124			
19	251	255	260	261	261	258	262	257	262	262	268	267	272	286	283	292	272	267	264	252	202	236	226	227	249	16	25	278	22	45	225	053			
20	200	218	238	249	253	258	258	256	251	252	253	252	251	256	261	264	271	267	262	260	248	236	226	227	249	16	25	278	22	45	225	053			
21	233	240	245	244	245	249	256	257	255	255	255	(256)	247	253	264	289	249	267	318	199	221	262	109	087	240	19	15	(456)	24	00	-011	467			
22	037	127	158	171	203	220	235	249	250	260	274	280	279	309	311	287	283	269	264	238	168	089	057	022	210	14	07	352	00	12	-058	410			
23	124	139	155	181	205	221	236	250	258	263	266	271	270	275	291	321	335	272	238	252	247	159	135	170	231	16	14	393	00	00	087	306			
24	178	204	234	247	252	255	261	264	264	265	262	276	288	308	290	277	273	274	257	250	193	180	171	203	247	13	57	342	21	00	161	181			
25	227	239	247	252	247	247	254	262	263	264	265	263	266	271	272	264	292	298	250	242	236	186	185	203	250	16	15	313	21	44	175	138			
26	211	235	248	249	247	249	249	257	261	270	278	347	312	280	277	283	310	260																	
27				243	246	255	263	267	477	299	305	298	303	289	286	338	279	286	277	260	237	164	130	055											
28	090	148	193	226	242	249	256	261	276	268	268	269	276	277	279	287	279	267	263	264	246	238	218	205	244	16	05	305	00	35	076	229			
29																																			
30																																			
31																																			
Mean	186	200	210	226	235	242	248	253	257	258	259	264	271	272	281	288	283	276	264	239	216	197	185	179	241 ^d	DESIGNATIONS			199						
Mean *	Insufficient data																																* Ten least disturbed days		
Mean /	Insufficient data																																/ Five international quiet days		
Mean ≠	Insufficient data																																≠ Five international disturbed days		
	a Means of 9 values b Means of 8 values c Means of 4 values d Mean of 21 complete days only																																() Approximate		

NOTE. A PROVISIONAL CORRECTION OF -12 GAMMAS SHOULD BE APPLIED TO ALL VALUES OF VERTICAL INTENSITY IN THIS REPORT (See p.4).

HOURLY VALUES OF VERTICAL INTENSITY

G.M.T. used

NOTE. A PROVISIONAL CORRECTION OF -12 GAMMAS SHOULD BE APPLIED TO ALL VALUES OF VERTICAL INTENSITY IN THIS REPORT (See p.4).

TABLE 34

HOURLY VALUES OF VERTICAL INTENSITY

APRIL 1954

47000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range			
1	*	240	(248	251)	265	265	264	264	265	267	266	266	267	268	269	271	272	287	292	277	269	262	238	193	219	260	17 03	327	22 22	182	145	
2		237	248	255	257	256	260	262	266	264	265	267	266	271	284	326	346	316	297	282	275	255	184	165	127	260	15 07	379	23 12	102	277	
3		201	247	261	263	266	274	278	280	285	291	290	289	283	297	311	297	286	283	283	269	225	200	145	129	260	14 13	332	22 29	112	220	
4		192	228	241	234	231	252	268	272	271	273	280	277	275	275	275	276	281	288	281	280	244	174	201	211	253	17 05	293	00 00	156	137	
5	*	218	232	249	255	260	260	266	272	284	281	277	278	278	278	279	277	275	273	272	271	268	266	265	262	266	08 36	287	00 00	213	074	
6		247	251	260	265	269	271	275	275	273	273	275	272	270	273	274	272	272	272	272	270	263	262	262	258	268	08 47	277	00 41	241	036	
7	*	249	256	262	269	275	279	281	281	281	282	279	277	275	274	275	278	287	293	291	234	248	253	253	259	270	18 38	314	19 07	225	089	
8	*	264	269	269	267	269	269	274	276	276	274	272	273	274	272	271	272	274	275	281	276	211	156	160	187	257	18 45	288	20 52	139	149	
9		216	231	238	252	261	264	268	269	272	273	273	272	274	275	286	307	331	329	278	271	272	267	251	250	270	17 45	357	00 00	201	156	
10		257	259	260	262	264	265	267	267	269	268	268	270	269	263	264	265	281	302	280	270	267	259	241	243	266	17 10	319	23 50	245	074	
11	≠	244	244	257	263	265	268	271	(276)																							
12	≠				197	229	241	264	279	285	293	295	350	318	297	284	281	281	294	292	266	264	274	278	265	14 09	343	00 34	131	212		
13		148	206	238	257	270	277	285	290	288	287	285	285	286	291	325	285	296	286	312	285	256	202	202	224	265	14 07	305	00 00	239	066	
14		250	260	254	252	259	269	280	284	284	287	281	281	283	291	292	285	281	279	276	274	271	269	269	265	274	13 47	305	21 00	00	239	066
15	≠	247	210	231	250	260	269	275	278	278	274	269	269	278	290	301	301	295	285	275	254	135	113	187	234	252	14 12	316	21 00	021	295	
16	*	247	255	262	269	272	275	279	283	278	275	273	274	273	275	278	278	278	279	284	286	254	232	224	235	267	19 44	296	22 16	220	076	
17	*	249	260	269	275	274	275	278	280	279	276	275	275	275	275	277	279	285	302	297	278	266	263	259	234	273	18 10	326	24 00	217	109	
18		211	235	256	268	275	273	279	280	281	280	280	285	282	281	288	290	296	285	286	266	228	181	176	228	262	16 46	302	22 01	153	149	
19		254	263	271	278	284	283	284	285	285	286	287	281	281	280	281	291	314	338	293	244	250	263	268	267	280	17 30	344	19 50	237	107	
20	≠	267	267	270	269	268	275	286	292	294	290	287	284	287	309	298	291	299	329	256	199	203	241	244	249	273	17 58	400	19 58	155	245	
21		261	260	266	275	278	283	294	295	294	290	286	283	301	298	289	289	302	286	279	269	268	270	270	269	281	12 24	315	00 00	255	060	
22	*	265	264	257	254	266	278	285	285	283	282	278	276	275	272	269	269	269	270	270	270	269	269	268	266	271	06 45	291	03 20	248	043	
23	≠	251	236	239	251	257	263	267	271	273	273	282	294	289	288	290	293	303	300	297	257	182	146	176	188	257	17 06	312	21 20	128	184	
24		223	245	246	248	261	274	282	284	281	288	288	283	281	280	278	279	286	285	287	232	220	243	239	177	262	10 00	293	23 42	160	133	
25	*	194	231	254	263	271	272	280	285	287	285	284	280	279	277	277	278	281	282	285	279	280	277	253	248	270	08 20	289	00 00	182	107	
26	≠	246	226	220	219	233	252	269	275	280	282	283	281	279	284	307	294	291	285	283	280	206	207	139	086	250	14 33	321	24 00	072	249	
27		100	136	164	229	256	271	281	287	288	284	294	302	300	299	298	296	295	289	288	257	242	242	238	251	258	11 50	309	00 08	054	255	
28	*	254	260	270	275	276	279	279	283	283	284	287	288	288	286	285	287	288	287	283	279	278	278	267	245	278	18 20	298	24 00	230	068	
29	*	219	224	252	266	272	276	280	280	281	281	282	281	282	284	284	285	283	286	289	289	272	258	264	270	272	19 05	294	00 46	204	090	
30	*	275	279	279	279	278	277	279	285	288	285	288	298	302	298	298	296	295	293	297	291	276	265	263	266	284	18 27	305	21 33	259	046	
31																																
Mean		232	242	252	260	265	271	277	279	280	280	280	280	281	283	287	287	290	291	283	267	245	231	226	227	266 ^d	DESIGNATIONS			138		
Mean *		238	248	259	266	270	273	277	279	280	279	278	277	276	276	277	278	280	284	282	272	266	260	251	250	270	*	Ten least disturbed days			84	
Mean /		231	244	258	268	272	274	277	279	280	280	280	279	278	278	278	280	285	288	285	270	268	261	246	248	270	/	Five international quiet days				
Mean ≠		Insufficient data																														
		a Means of 9 values						b Means of 8 values						c Means of 4 values						d Mean of 28 complete days only						() Approximate						

NOTE. A PROVISIONAL CORRECTION OF -12 GAMMAS SHOULD BE APPLIED TO ALL VALUES OF VERTICAL INTENSITY IN THIS REPORT (See p.4).

TABLE 35

HOURLY VALUES OF VERTICAL INTENSITY

MAY 1954

47000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum		Minimum		Range	
																											h	m	h	m		
1 * /	267	265	266		275	277	279	280	284	282	280	281	281	282	283	283	285	284	285	282	280	279(279)	280	06	30	315	01	48	261	054		
2									274	272	273	275	275	276	277	279	282	283	285	285	287	283	281	280	273	281	18	10	302	00	53	261
3	265	265	269		276	283	282	285	287	285	283	280	279	279	280	283	288	292	295	298	291	282	271	266	268	281	18	40	329	22	51	113
4	271	274	278		281	284	287	286	287	281	278	277	278	276	276	280	288	294	294	314	282	268	216	181	164	271	18	57	291	00	00	205
5	222	247	259		273	281	285	288	292	287	285	283	282	282	281	283	283	284	287	290	288	289	282	279	280	279	07	35	294	01	46	266
6 *	277	269	269		273	280	285	288	292	291	291	288	286	284	282	282	284	282	282	282	283	282	282	281	282	282	06	15	293	00	35	279
7 * /	282	283	283		286	289	293	293	292	288	286	285	283	281	280	281	281	280	279	282	282	282	282	280	280	284	16	05	367	24	00	151
8	278	276	274		275	282	285	286	286	286	285	286	284	286	286	286	333	350	313	298	301	237	241	235	177	280	17	00	316	00	35	151
9	158	190	211		248	261	277	291	292	294	298	298	297	297	303	306	304	305	301	295	298	280	251	264	280	275	19	50	301	23	15	205
10	284	284	285		285	288	287	289	290	288	289	289	291	289	288	288	288	289	291	293	296	275	253	229	219	281	18	40	306	01	55	181
11	233	206	193		223	244	252	269	277	283	288	288	291	298	296	294	293	290	294	300	274	263	261	250	224	266	13	07	292	00	00	217
12	224	248	265		275	276	276	275	277	277	279	283	283	283	286	286	284	285	283	278	272	269	269	273	273	274	18	00	302	22	17	238
13	268	259	261		267	273	276	276	277	277	282	282	282	283	289	292	291	289	293	298	290	272	254	242	258	276	16	55	290	02	23	247
14	263	254	252		264	271	273	276	277	277	280	282	284	284	284	285	287	288	288	285	283	275	266	264	267	275	16	45	297	23	35	199
15	270	270	272		276	279	279	283	283	282	281	276	274	275	276	280	291	295	293	289	283	273	262	246	211	275	18	15	288	00	35	217
16 *	220	237	254		264	269	270	272	274	274	274	273	273	274	275	278	281	282	285	280	275	270	270	270	273	269	18	15	285	22	45	270
17 * /	274	275	276		277	279	278	278	278	276	276	276	274	274	275	275	278	279	280	283	281	276	274	270	272	276	18	50	326	23	50	200
18	274	272	272		263	261	269	277	279	277	277	279	285	295	310	301	294	291	293	301	275	240	245	238	214	274	15	00	309	00	10	199
19	209	237	261		274	284	291	292	291	287	290	286	286	286	286	297	294	292	294	295	293	271	251	224	202	274	19	05	301	23	30	234
20	199	215	233		251	267	271	278	279	282	283	283	283	283	284	286	286	287	287	288	286	287	287			287	07	05	299	00	25	235
21								269	268	272	277	283	284	261	283	288	412	411	298	288	262	271	274	267	256	284	18	30	336	22	40	271
22 *	257	265	271		275	279	284	287	290	297	296	296	294	292	291	291	291	292	293	298	296	291	283	268	242	287	09	40	292	00	00	271
23	244	260	271		283	292	293	297	299	298	297	296	295	293	292	291	292	292	293	294	293	291	281	280	282	291	18	30	336	22	40	271
24	283	285	286		289	292	290	290	289	294	294	293	293	295	293	295	296	296	296	317	292	289	289	277	274	284	09	40	292	00	00	271
25 *	278	279	280		282	285	288	289	291	289	291	292	290	289	288	287	287	286	288	288	277	273	274	274	278	284	17	05	302	24	00	264
26 *	280	282	282		284	286	286	286	288	289	290	290	289	287	286	287	287	290	288	299	292	284	279	274	269	286	18	35	290	00	50	254
27 *	259	258	261		265	272	277	280	282	286	287	288	289	289	289	289	289	288	288	288	288	288	286	286	287	282	19	25	307	22	20	265
28	287	287	287		285	284	283	283	283	283	286	287	287	287	288	289	292	295	297	298	301	281	273	268	272	286	18	50	302	21	50	274
29	273	258	246		248	252	256	261	265	273	284	283	283	281	283	284	285	287	288	289	292	291	292	292	290	289	18	50	302	21	50	274
30 *								284	283	283	281	283	284	285	287	288	289	292	291	292	292	290	289	287	288	289	18	50	302	21	50	274
31	288	290	291		292	292	292	291	288	287	285	286	284	286	287	290	299	298	301	301	297	287	278	277	280	289	18	50	302	21	50	274
Mean	258	262	267		273	279	281	284	286	285	286	285	285	286	287	288	291	292	292	293	287	276	267	261	254	279 ^d	DESIGNATIONS				77	
Mean *	266	268	261		276	280	282	284	286	286	286	285	284	284	283	284	285	285	286	287	284	281	279	276	274	280 ^a	* Ten least disturbed days				38	
Mean /	275	275	276		280	282	284	285	286	284	284	284	282	282	282	282	283	282	283	284	281	278	278	276	277	281 ^c	/ Five international quiet days					
Mean ≠	234	236	238		254	262	271	281	284	284	285	285	288	292	296	295	295	295	296	302	282	263	243	233	220	271 ^c	≠ Five international disturbed days					
	a Means of 9 values				b Means of 8 values				c Means of 4 values				d Mean of 26 complete days only													() Approximate						

NOTE. A PROVISIONAL CORRECTION OF -12 GAMMAS SHOULD BE APPLIED TO ALL VALUES OF VERTICAL INTENSITY IN THIS REPORT (See p.4).

TABLE 36

HOURLY VALUES OF VERTICAL INTENSITY

JUNE 1954

47000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range			
1 *	284	288	288		293	296	296	291	291	291	292	290	288	286	288	290	292	297	296	293	292	291	290	286	286	291	h	m	h	m	280	024
2 *	289	290	292		293	293	293	296	295	290	290	290	289	287	290	293	293	296	301	298	295	292	289	286	284	292	16 50	304	00 00	283	021	
3	286	287	290		291	292	294	295	293	293	290	290	287	284	284	284	285	287	287	290	290	286	279	280	281	288	17 35	304	24 00	285	025	
4	282	280	281		282	284	284	287	291	293	296	299	296	292	289	287	287	290	293	298	287	277	272	274	278	287	06 35	299	21 35	274	029	
5 * /	280	282	285		287	290	290	293	292	292	292	290	286	284	283	283	283	285	292	293	293	286	280	278	279	287	18 38	300	21 00	271	016	
6 *	278	280						(293)	293	293	293	292	290	288	287	287	290	290	290	287	288	289	280	277	278	287	07 00	295	00 00	279		
7	278	280	282		284	283	286	289	286	287	288	287	286	284	284	287	294	288	287	286	286	286	283	278	280	285	15 15	302	22 40	276	026	
8 * /	280	281	281		282	283	283	285	287	288	287	287	286	286	285	285	284	284	284	285	285	285	284	284	285	284	08 40	288	00 00	279	009	
9	284	283	280		281	283	284	283	283	284	284	284	285	283	283	284	286	284	283	283	283	282	280	270	268	282	07 05	286	22 50	265	021	
10	271	265	263		269	277	277	280	274	279	285	286	288	289	287	286	289	295	297	287	284	279	278	271	267	280	16 57	321	01 47	255	066	
11 * /	275	284	287		292	291	291																									
12								(286)	284	283	284	284	283	284	286	287	290	291	297	306	297											
13								(295)	291	289	290	290	291	291	291	290	292	295	319	308	297	285	286	288	288							
14	291	292	293		293	291	291	287	290	287	285																					
15 *								(290)	290	287	287	287	286	287	287	287	287	287	287	287	287	287	282	283	284	284						
16 * /	281	281	284		284	284	286	285	284	283	283	283	282	281	281	282	284	284	286	287	287	286	284	284	284	284	284	05 30	287	12 40	281	006
17 *	283	283	282		284	283	283	284	285	284	283	282	282	281	281	282	283	284	284	285	285	285	284	284	284	285						
18								285	286	285	284	284	282	281	282	284	285	287	287	290	299	280	264	269	273							
19	278	282	286		289	290	291	293	295	293	291	289	288	286	286	287	288	289	290	291												
20								293	294	296																						
21											296	295	294	294	294	294	296	296	296	296	296	296	296	296	296							
22	229	240	248		258	271	(283)	290	292	297																						
23								(300)	300	300																						
24 * /								(295)	297	297	297	296	296	297	303	305	306	304	304	302	300	300	298	297	297							
25								291	290	290	290	290	291	290	290	290	291	291	293	295	300	296	294	293	287	292						
26	297	296	295		294	293	293	288	289	287	289	289	291	294	297	297	298	299	301	300	300	300	297	292	283	292	19 05	306	24 00	284	022	
27	282	285	289		292	292	290	295	292	292	296	302	(305)	297	298	300	303	306	308	311	310	307	305	304	300	292	17 40	303	24 00	278	025	
28	273	276	269		280	293	297	295	292	292	296	302	(305)	298	298	297	297	298	300	303	306	308	311	310	307	305	304	306	24 00	220	086	
29 *	299	300	303		304	304	301	301	300	300	300	299	299	297	297	300	302	305	305	306	305	304	303	290	243	299	04 00	306	24 00	220	086	
30																																
31																																
Mean	284	284	286		287	289	289	290	289	289	290	290	289	287	288	288	290	291	293	292	291	288	286	282	277	288 ^d	DESIGNATIONS				29	
Mean *	Insufficient data																								* Ten least disturbed days							
Mean /	Insufficient data																								/ Five international quiet days							
Mean ≠	Insufficient data																								≠ Five international disturbed days							
	a Means of 9 values						b Means of 8 values						c Means of 4 values						d Mean of 13 complete days only						() Approximate							

NOTE. A PROVISIONAL CORRECTION OF -12 GAMMAS SHOULD BE APPLIED TO ALL VALUES OF VERTICAL INTENSITY IN THIS REPORT (See p.4).

TABLE 37

HOURLY VALUES OF VERTICAL INTENSITY

JULY 1954

47000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range		
1	237	259	273	290	297	299	294	297	302	305	306	304	303	306	314	310	312	312	307	306	303	301	299	298	297	14 32	315	00 03	224	091	
2	298	299	300	301	301	302	301	302	300	299	297	295	293	296	296	296	298	304	309	311	307	300	296	296	300	19 07	315	12 35	292	023	
3	295	295	296	296	297	297	301	297	294	294	293	292	291	292	293	294	296	296	297	297	296	293	291	291	295	05 16	302	12 49	291	011	
4	295	295	297	297	297	297	297	301	301	301	301	300	298	298	298	299	300	301	302	302	302	302	301	300	299	19 51	302	00 05	294	008	
5	299	298	298	297	299	301	302	306	306	304	304	303	301	301	303	304	307	(312)													
6							(295)	297	299	301	308	312	314	309	309	310	310	309	314	319	335	315	314	317							
7	308	295	294	303	305	304	304	306	306	307	309	316	320	316	313	310	310	308	307	306	306	(305)									
8							(302)	303	302	301	301	303	304	304	304	304	304	306	317	315	310	301	297	294							
9	294	297	298	300	298	298	298	298	298	(297)	297	297	297	297	295	294	293	294	295	295	295	293	291	292	296	03 39	301	22 16	291	010	
10	292	294	294	294	292	291	291	291	291	288	289	291	292	294	296	295	295	295	295	294	294	294	293	291	293	14 30	298	23 59	288	010	
11	285	281	284	286	284	282	282	285	287	288	291	291	289	289	289	290	291	291	291	291	292	292				12 36	(293)	01 25	(279)	(014)	
12													283	283	284	285	287	293	311	320	315	304	297	295	293	255					
13	242	276	286	291	291	291	291	288	288	287	288	288	289	291	292	294	298	301	305	303	300	298	295	294	290	18 23	306	00 00	217	089	
14	283	279	284	285	275	281																									
15							295	294	292	291	295	304	309	306	307	315	306	303	299	297	294	293	292	291							
16	290	291	291	292	293	295	296	293	292	290	290	290	294	295	294	296	300	303	303	313	313	270									
17		283	(288)				294	297		297	294	293	292	291	292	294	295	296	298	298	294	292	291	283							
18	223	234	(260)	264	269	277	281	285	288	290	288	288	287	288	288	290	293	297	299	300	298	295	287	277	281	19 04	301	00 35	200	101	
19	265	263	273	286	289	291	293	297	300	300	297	295	295	292	293	294	297	300	306	319	322	301	291	292	294	20 18	341	01 40	261	080	
20	288	278	285	290	291	294	295	300	300	300	298	296	294	294	296	296	298	301	304	301	300	297	296	295	295	18 20	305	01 45	275	030	
21	295	292	291	291	292	293	294	296	296	297	297	295	294	295	298	297	306	304	309	307	307	308	295	286	297	21 32	312	23 59	280	032	
22	282	287	291	294	294	295	296	298	298	298	298	298	298	298	299	300	301	301	301	301	301	300	300	299	297	17 46	303	00 06	278	025	
23	297	296	294	292	291	291	291	294	295	293	293	297	295	295	295	297	297	297	298	303	301	297	295	294	295	19 41	304	04 06	289	015	
24	291	267	265	275	277	279	280	282	285	287	291	291	291	293	297	296	296	296	302	300	295	290	291	290	288	18 54	318	02 16	260	058	
25	291	290	289	283	282	276	277	280	283	286	293	301	310	317	310	307	304	302	299	296	291	290	290	284	293	13 18	320	05 42	274	046	
26	271	272	282	283	283	284	286	288	290	287	285	288	297	296	298	294	293	292	295	293	289	287	282	282	287	14 18	304	01 16	266	038	
27	288	288	280	274	278	280	283	286	286	287	286	285	288	292	295	298	294	293	289	283	281	273	254	265	284	17 22	303	23 40	225	078	
28	240	260	274	279	274	267	271	274	277	277	283	298	321	309	304	323	369	316	307	295	283	265	242	236	285	16 51	413	23 11	230	183	
29	254	257	258	275	283	282	282	284	283	281	280	285	286	293	291	294	295	295	295	290	285	281	280	280	282	18 30	301	00 00	245	056	
30	277	261	265	271	275	277	281	283	281	280	279	277	279	284	282	288	288	290	287	285	282	280	279	273	279	17 20	292	01 30	258	034	
31	295	297	273	278	280	284	286	288	289	287	285	285	287	295	293	293	293	291	292	295	282	275	273	267	286	13 14	298	00 37	261	037	
Mean	277	279	282	286	287	288	289	291	292	291	292	293	295	296	296	298	301	299	300	299	296	291	287	285	291 ^d	DESIGNATIONS			49		
Mean *	Insufficient data																												* Ten least disturbed days		
Mean /	295	296	297	298	297	298	298	298	297	296	295	295	294	295	296	296	296	298	300	300	299	296	294	294	297	/ Five international quiet days					
Mean ≠	264	274	279	282	283	280	281	284	287	289	292	297	306	306	306	310	320	306	300	295	290	282	271	271	290 ^c	≠ Five international disturbed days					
	a Means of 9 values						b Means of 8 values						c Means of 4 values						d Mean of 21 complete days only						() Approximate						

NOTE. A PROVISIONAL CORRECTION OF -12 GAMMAS SHOULD BE APPLIED TO ALL VALUES OF VERTICAL INTENSITY IN THIS REPORT (See p.4).

TABLE 38

HOURLY VALUES OF VERTICAL INTENSITY

AUGUST 1954

47000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range		
1	273	276	280	283	285	285	285	286	286	289	290	292	291	301	308	306	307	308	304	304	301	294	288	283	283	292	13 01	325	00 00	270	055
2	283	285	285	281	271	275	280	289	290	290	291	290	289	289	290	296	300	303	314	312	306	298	295	290	291	18 45	332	04 40	268	064	
3	285	282	284	286	286	287	289	291	292	290	291	290	289	289	290	292	294	296	298	296	282	282	283	289	18 41	298	20 37	271	027		
4	280	283	284	283	284	285	287	290	289	289	289	289	289	289	294	297	304	312	311	314	308	295	293	290	290	293	19 14	335	03 25	279	056
5	291	289	287	287	286	286	286	289	291	293	293	291	290	292	292	292	295	305	335	317	308	298	281	247	293	18 20	339	24 00	243	096	
6	237	244	252	250	253	264	271	276	281	283	288	289	293	305	311	308	308	314	326	324	331	238	250	258	281	20 24	382	22 00	228	154	
7	252	271	289	293	292	290	289	289	287	291	295	294	310	305	336	314	314	319	320	277	270	276	281	280	293	14 37	369	00 37	243	126	
8	283	282	287	286	286	287	289	293	292	291	293	293	290	294	299	308	304	300	296	295	294	292	292	291	292	15 50	314	01 05	281	033	
9	290	290	290	287	285	284	291	291	290	291	290	289	290	294	313	299	300	298	296	280	280	278	270	246	288	14 24	320	23 46	234	086	
10	245	272	283	285	284	282	283	289	290	290	289	291	292	293	294	294	295	295	295	296	295	289	279	269	286	16 12	298	00 31	239	059	
11	267	271	270	270	274	280	283	288	288	292	292	293	292	293	295	297	300	302	301	298	292	290	291	292	288	22 24	304	00 10	266	038	
12	289	281	281	286	288	289	291	293	290	292	291	291	293	294	296	298	298	299	299	297	293	292	290	287	291	17 59	304	01 36	279	025	
13	289	292	293	294	295	297	295	293	291	291	289	287	287	288	291	293	304	305	300	296	292	292	292	289	293	16 54	314	11 45	286	028	
14	270	251	269	280	285	289	292	295	295	293	292	292	293	294	295	298	298	298	302	293	289	278	268	257	286	18 29	318	24 00	239	079	
15	245	269	280	287	289	288	289	295	296	295	292	292	292	292	293	298	305	309	319	298	289	277	252	256	287	18 55	340	00 05	236	104	
16	279	283	292	294	293	295	295	300	299	299	293	305	295	310	323	326	323	323	322	312	305	291	277	270	300	15 52	342	23 19	265	077	
17	279	289	292	295	296	298	301	307	310	307	302	301	300	301	303	308	314	321	313	308	303	298	287	285	301	17 31	327	00 10	273	054	
18	287	290	293	295	298	295	297	300	304	305	302	301	300	311	311	310	314	314	313	307	291	283	271	269	298	13 30	322	23 05	264	058	
19	269	267	283	292	295	296	298	298	304	304	302	299	299	298	299	304	309	311	312	304	300	298	295	280	296	18 10	330	01 40	263	067	
20	272	277	283	288	289	291	295	298	299	299	300	299	298	298	301	314	336	319	310	305	304	302	300	298	299	16 25	365	00 09	269	096	
21	296	293	293	292	290	290	292	288	292	297	308	313	307	304	305	305	307	310	307	306	303	301	298	295	300	10 50	322	07 30	282	040	
22	287	230	193	227	232	270	273	284	290	292	298	298	299	305	305	307	310	311	312	307	301	277	270	264	281	17 15	282	01 52	183	099	
23	273	272	275	282	284	286	288	292	295	295	296	298	296	298	305	301	309	318	332	329	295	287	283	286	295	19 30	339	01 50	269	070	
24	285	277	279	280	282	281	286	286	284	289	292	293	295	311	360	318	308	305	305	289	258	277	280	273	291	14 25	384	19 55	233	151	
25	232	266	292	299	298	301	299	298	303	305	303	304	303	303	304	305	307	310	310	310	308	303	295	296	298	17 55	314	00 27	221	093	
26	301	305	305	307	305	303	297	301	305	305	307	308	311	316	314	319	335	317	316	313	292	272	280	288	305	16 40	361	21 35	269	092	
27	273	206	233	277	289	292	293	298	301	301	303	302	303	303	304	307	308	315	312	315	300	291	280	273	291	19 05	335	01 45	195	140	
28	254	252	256	264	267	274	289	299	304	303	301	304	307	305	306	306	308	308	308	305	303	301	296	277	292	18 00	308	01 05	246	062	
29	212	243	280	292	292	292	301	305	313	324	323	311	309	316	314	314	315	317	333	311	295	292	273	272	298	18 30	370	00 40	268	102	
30	280	282	292	305	307	308	314	317	323	321	320	321	328	319	319	339	343	341	330	319	306	304	299	292	314	15 50	364	00 00	275	089	
31	287	290	298	300	302	306	309	315	317	314	313	311	310	311	314	320	334	364	351	325	318	297	273	280	311	17 25	380	22 40	269	111	
Mean	272	273	279	285	286	289	291	295	297	297	298	298	298	301	306	306	310	312	313	305	297	288	282	278	294	DESIGNATIONS			78		
Mean *	275	280	283	285	286	287	289	292	292	292	292	292	291	293	295	299	304	304	307	301	294	291	285	280	291	* Ten least disturbed days			56		
Mean /	286	286	287	287	287	288	289	291	291	291	291	290	289	291	294	298	302	303	309	302	294	291	287	280	292	/ Five international quiet days					
Mean #	264	260	262	271	273	282	286	290	295	299	302	300	301	311	321	313	315	313	318	309	295	271	271	271	291	# Five international disturbed days					
	a Means of 9 values						b Means of 8 values						c Means of 4 values						() Approximate												

NOTE. A PROVISIONAL CORRECTION OF -12 GAMMAS SHOULD BE APPLIED TO ALL VALUES OF VERTICAL INTENSITY IN THIS REPORT (See p.4).

TABLE 39

HOURLY VALUES OF VERTICAL INTENSITY

SEPTEMBER 1954

47000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range	
1	286	292	297	270	303	309	(307)	313	314	314	313	315	318	319	361	388	387	384	378	342	327	236	175	138	308	h	m			
2	155	206	252	264	278	283	(298)	307					304	304	317	354	340	336	320	310	276	233	240		16	25	429	23	00	
3	260	285	295	299	299	301	(305)	311	312	314	313	348	346	323	333	373	375	373	365	338	287	275	253	225	313	11	56	401	23	45
4	239	265	290	295	297	302	309	313	317	317	313	316	327	327	333	335	400	339	328	323	318	313	300	283	312	16	34	451	00	20
5	274	242	267	283	289	295	305	318	352	319	329	336	327	330	329	320	322	326	329	321	315	313	310	305	311	11	10	345	02	01
6	297	294	305	308	307	308	(314)	317	317	315	313	314	311	310	310	351	367	388	401	154	222	224	273	273	304	18	15	453	19	48
7	288	299	315	304	302	311	313	316	323	321	316	316	317	316	320	316	326	311	312	313	295	253	274	285	307	17	00	336	21	02
8	283	282	294	300	304	307	309	310	308	310	308	307	309	310	312	315	321	331	326	315	308	306	304	306	308	17	50	354	00	05
9	308	309	308	304	292	286	294	(300)	303	305	305	307	307	308	329	346	336	339	345	334	315	290	276	285	310	15	35	353	21	57
10	295	300	305	300	296	299	305	311	313	314	314	311	309	309	317	332	327	340	347	341	323	317	305	286	313	18	45	351	24	00
11	279	295	303	305	301	298	301	305	308	310	308	312	343	334	337	348	361	360	342	352	329	283	266	280	315	17	26	410	22	10
12	297	308	313	314	315	315	315	315	313	313	317	318	319	320	320	321	323	323	323	317	305	299	300	299	313	18	55	326	00	00
13	299	305	308	312	314	315	315	318	319	318	315	316	316	314	314	317	321	322	319	317	(313)									
14							(289)	294																						
15							309	311																						
16							278	306		312	317	321	323	338	304	339	343	361	302	314	305	270	258	255	291	20	00	339	01	45
17	227	230	239	261	267	279	272	301	303	309	308	308	308	309	310	311	313	315	318	325	304	277	284	280	300	17	45	366	22	43
18	255	251	266	284	289	295	299	303	305	308	317	339	324	317	317	320	327	351	335	311	296	286	259	250	313	17	43	350	00	00
19	279	300	309	308	310	311	315	317	320	321	319	318	317	320	327	324	332	344	321	323	307	290	286	299	313	19	55	439	23	00
20	307	310	309	290	282	294	303	310	315	322	329	336	380	382	398	295	245	375	361	357	329	258	211	224	313	15	30	448	18	00
21	270	305	307	305	314	327	333	332	304	354	351	348	348	346	343	391	354	319	270	311	291	302	298	282	321	12	30	379	00	15
22	279	304	317	319	319	321	325	325	325	323	321	332	330	354	334	336	348	340	325	305	302	305	309	311	321	12	30	379	00	15
23	311	316	320	319	314	318	323	323	329	327	327	333	335	332	333	332	330	334	334	326	319	313	312	316	324	11	55	341	21	43
24	318	322	323	324	323	326	326	326	325	323	324	323	322	323	326	329	359	335	329	323	310	252	185	233	313	16	37	379	22	35
25	273	291	305	305	305	307	308	314	322	324	324	330	340	333	370	364	351	345	332	284	231	273	286	299	313	14	45	413	20	16
26	300	308	320	321	317	317	313	313	315	313	312	317	319	322	329	326	323	324	308	309	308	305	299	294	314	14	30	337	23	22
27	299	307	313	314	316	320	320	320	321	317	317	316	316	316	321	327	365	381	320	291	298	283	297	283	316	18	00	412	24	00
28	246	248	267	295	304	311	319	329	330	333	333	333	331	338	364	339	335	331	325	318	311	295	273	278	312	14	30	384	00	50
29	285	301	300	295	299	304	312	317	314	314	320	320	345	349	376	363	350	287	299	308	234	175	130	190	295	16	23	417	22	35
30	261	293	307	309	307	310	313	314	314	319	334	328	327	325	323	325	333	333	323	283	282	286	277	178	304	17	00	345	23	30
31																														
Mean	281	290	300	304	303	307	311	315	317	318	319	323	327	327	335	337	340	341	332	313	299	280	270	267	311 ^d	DESIGNATIONS			150	
Mean *	288	297	304	307	307	310	314	316	317	317	317	318	319	322	323	325	331	332	326	320	310	296	287	292	312 ^a	* Ten least disturbed days			88	
Mean †	292	302	309	310	311	313	316	316	318	318	318	319	320	320	323	323	326	333	326	320	310	302	300	305	314 ^c	† Five international quiet days				
Mean ‡	287	302	303	290	300	308	314	318	312	326	328	330	348	349	370	359	334	341	327	330	295	243	204	208	309 ^c	‡ Five international disturbed days				
	a Means of 9 values						b Means of 8 values						c Means of 4 values						d Mean of 25 complete days only						() Approximate					

NOTE. A PROVISIONAL CORRECTION OF -12 GAMMAS SHOULD BE APPLIED TO ALL VALUES OF VERTICAL INTENSITY IN THIS REPORT (See p.4).

TABLE 40

HOURLY VALUES OF VERTICAL INTENSITY

OCTOBER 1954

47000 plus tabular quantities expressed in gammas

G.M.T. used

Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean	Maximum	Minimum	Range		
1	211	227	216	239	249	279	298	326	342	351	360	354	344	337	333	347	335	273	320	318	298	283	291	304	301	h	m	h	m	208	
2	311	312	310	311	308	317	324	324	323	319	317	315	316	317	318	318	319	320	322	319	307	266	223	189	305	06	53	00	00	168	
3	170	201	192	230	253	269	289	299	310	311	308	308	310	315	345	354	373	377	361	324	305	194	133	130	277	17	07	420	23	07	037
4	143	152	189	252	276	290	303	318	315	316	321	322	322	322	322	322	322	322	330	303	230	251	266	277	328	15	10	454	17	18	232
5	297	314	313	312	316	317	319	320	320	324	341	345	344	395	411	434	392	296	312	307	286	275	286	301	328	16	40	(393)	00	00	(306)
6	310	315	318	320	321	321	322	322	321	324	316	322	335	344	352	342	360	341	338	334	323										(087)
7							328																								
8							310	314	317	320	320	320	319	320	320	320	320	320	319	318	316	310	308	310	315	18	42	339	22	30	310
9	312	315	316	315	311	314	314	312	313	314	314	315	314	316	317	318	319	324	331	320	313	311	310	311	318	17	45	328	07	40	309
10	313	316	316	314	314	312	314	311	315	317	314	318	324	324	325	326	326	326	324	321	317	316	316	317	321	06	00	327	23	00	314
11	320	322	324	326	326	326	327	326	326	324	321	317	317	318	319	320	321	321	321	320	318	316	315	315	318	06	00	328	24	00	295
12	316	318	319	321	324	325	326	323	323	319	315	313	313	314	316	318	321	323	325	322	314	308	307	301	318	06	00	354	20	20	295
13	299	305	310	311	314	318	320	320	315	315	318	316	320	328	341	340	339	351	325	303	242	260	281	294	312	18	05	354	20	20	224
14	304	310	311	312	313	314	316	314	313	313	311	314	320	318	317	317	316	316	318	319	317	314	310	307	314	12	50	322	00	00	300
15	304	304	305	305	306	310	312	315	318	314	311	309	311	314	320	375	367	371	336	327	322	317	313	314	321	17	50	402	01	00	302
16	316	318	312	310	311	313	314	314	313	314	318	321	322	321	319	320	330	329	330	329	321	291	231	236	311	18	20	340	22	50	220
17	262	262	249	249	264	278	285	299	308	329	322	360	376	341	420	405	326	314	326	320	318	321	319	290	314	14	25	454	17	25	241
18	302	314	323	320	320	322	326	327	334	337	337	357	356	347	370	404	391	341	297	320	320	321	306	292	333	15	20	409	18	30	270
19	293	296	301	316	316	320	320	323	327	336	348	375	386	376	359	351	354	356	346	332	353	314	302	295	333	12	30	416	23	15	291
20	307	311	315	319	321	320	319	320	323	323	327	330	333	330	330	330	334	337	337	319	329	308	315	319	323	18	25	340	20	10	295
21	321	323	321	320	317	321	318	312	308	314	315	319	320	326	325	323	326	366	277	233	236	258	161	016	290	16	00	(427)	23	55	(-091)
22				293	311		319	317	311	319	353	359	387	386	375	398	381	348	277	233	236	258	161	016	321	13	45	476	00	45	-053
23	009	026	111	187	196	233	291	329	332	330	340	342	379	426	429	395	286	240	323	368	409	363	309	312	321	12	45	429	02	40	179
24	310	262	208	216	263	293	317	329	332	351	352	370	392	370	383	363	371	341	322	314	313	314	311	307	321	12	45	429	02	40	179
25	301	311	318	320	320	320	319	316	321	324	328	326	324	327	330	340	384	379	348	323					319	15	55	339	22	10	308
26							320	318	313	325	347	345	326	326	336	395	365	338	326	323	311	303	304	307	320	11	20	329	24	00	279
27	309	307	311	312	317	319	319	321	322	326	326	326	325	326	326	329	326	321	322	319	317	310	307	310	319	15	55	339	22	10	308
28	314	317	320	319	319	319	323	321	320	323	318	328	323	322	324	325	326	326	322	319	317	310	307	310	320	11	20	329	24	00	279
29	272	264	256	250	255	277	301	314	315	314	316	320	321	332	369	362	342	335	342	338	320	294	279	289	307	14	45	384	03	45	243
30	291	296	304	311	315	313	318	319	316	319	324	319	323	342	374	395	404	404	351	326	320	245	224	284	322	17	10	427	21	50	189
31																															
Mean	279	278	284	291	297	305	313	318	321	324	325	331	335	338	348	352	342	329	328	323	317	298	286	287	315 ^d	DESIGNATIONS			161		
Mean *	310	313	316	317	318	319	320	319	319	319	318	320	321	322	324	325	325	327	325	319	310	307	308	307	318 ^a	* Ten least disturbed days			41		
Mean /	313	316	317	318	318	320	321	314	319	318	315	315	316	316	317	318	319	321	324	320	316	312	310	308	317 ^c	/ Five international quiet days					
Mean ≠	163	179	192	226	240	265	291	313	323	330	332	341	352	355	382	375	330	301	332	332	332	290	263	259	295 ^c	≠ Five international disturbed days					
a Means of 9 values b Means of 8 values c Means of 4 values d Mean of 22 complete days only () Approximate																															

NOTE. A PROVISIONAL CORRECTION OF -12 GAMMAS SHOULD BE APPLIED TO ALL VALUES OF VERTICAL INTENSITY IN THIS REPORT (See p.4).

TABLE 41

Summary of monthly mean values

Month	D		H	Z	D		H	Z
1954	°	'	Y	Y	°	'	Y	Y
	All days				Ten least disturbed days			
January	-50	15.4	18491	-47241	-50	14.9	18496	-47246
February	-50	17.9	18478	-47241	x	x	x	x
March	-50	19.1	18474	-47248	x	x	x	x
April	-50	19.5	18475	-47266	-50	19.0	18484	-47270
May	-50	18.9	18489	-47279	-50	18.6	18491	-47280
June	-50	19.7	18495	-47288	x	x	x	x
July	-50	21.6	18493	-47291	-50	21.4	18495	x
August	-50	23.0	18490	-47294	-50	22.6	18494	-47291
September	-50	24.8	18482	-47311	-50	24.5	18487	-47312
October	-50	25.1	18482	-47315	-50	24.8	18490	-47318
	Five international quiet days				Five international disturbed days			
January	-50	14.8	18495	-47248	-50	17.2	18488	-47229
February	x	x	x	x	x	x	x	x
March	-50	18.6	18484	-47255	x	x	x	x
April	-50	18.9	18486	-47270	x	18447	x	x
May	-50	18.7	18492	-47281	-50	19.0	18482	-47271
June	x	x	x	x	x	x	x	x
July	-50	21.3	18495	-47297	-50	21.5	18489	-47290
August	-50	22.4	18495	-47292	-50	23.4	18483	-47291
September	-50	24.3	18490	-47314	-50	26.2	18468	-47309
October	-50	24.5	18494	-47317	-50	26.0	18463	-47297

x Insufficient data

TABLE 42

Average of monthly mean values
(from January to October)

Year	D		H	Z
1954	°	'	Y	Y
All days	-50	20.5	18485	-47277
Ten least disturbed days	-50	20.8 ^b	18491 ^b	-47286 ^a
Five international quiet days	-50	20.4 ^c	18491 ^c	-47284 ^c
Five international disturbed days	-50	22.2 ^a	18474 ^b	-47281 ^a
a Mean of 6 out of 10 months only.				
b Mean of 7 out of 10 months only.				
c Mean of 8 out of 10 months only.				

TABLE 43

Sudden Commencements
(January to October)

Date	Time (G.M.T.)	Type	Date	Time (G.M.T.)	Type
1954	h m		1954	h m	
Jan. 2	01 11	Polar Sudden Commencement	April 18	19 16	Polar Sudden Commencement
" 2	14 14	Polar Sudden Commencement	" 20	17 35	Polar Sudden Commencement
" 5	20 36	Polar Sudden Commencement	" 26	19 28	Polar Sudden Commencement
" 11	17 55	Polar Sudden Commencement	" 27	19 15	Polar Sudden Commencement
" 11	21 09	Polar Sudden Commencement			
" 15	23 09	Polar Sudden Commencement *	May 4	21 16	Polar Sudden Commencement
" 16	18 15	Polar Sudden Commencement	" 8	15 48	Polar Sudden Commencement
" 17	17 15	Polar Sudden Commencement *	" 8	20 03	Polar Sudden Commencement
" 18	04 42	Storm Sudden Commencement	" 9	13 39	Polar Sudden Commencement *
	(small impulse)		" 18	18 42	Polar Sudden Commencement
" 25	16 35	Polar Sudden Commencement	" 24	18 15	Polar Sudden Commencement
" 31	16 05	Polar Sudden Commencement	" 25	19 52	Polar Sudden Commencement
Feb. 1	21 25	Polar Sudden Commencement	June 10	16 45	Polar Sudden Commencement
" 2	13 21	Polar Sudden Commencement	" 12	19 04	Polar Sudden Commencement
" 2	22 36	Polar Sudden Commencement	" 13	(17 30)	Polar Sudden Commencement
" 3	19 55	Polar Sudden Commencement	" 18	(20 24)	Polar Sudden Commencement
" 4	16 20	Polar Sudden Commencement	" 29	(22 45)	Polar Sudden Commencement *
" 8	19 34	Polar Sudden Commencement	July 12	(23 10)	Polar Sudden Commencement
" 11	18 01	Polar Sudden Commencement	" 17	(23 48)	Polar Sudden Commencement
" 11	20 00	Polar Sudden Commencement	" 19	(19 42)	Polar Sudden Commencement
" 14	19 51	Polar Sudden Commencement	" 24	(18 42)	Polar Sudden Commencement
" 18	17 27	Polar Sudden Commencement	" 28	(16 07)	Polar Sudden Commencement
" 21	10 34	Storm Sudden Commencement	Aug. 3	(20 03)	Polar Sudden Commencement
" 28	20 25	Polar Sudden Commencement	" 6	(19 40)	Polar Sudden Commencement
March 1	21 25	Polar Sudden Commencement	" 21	(00 56)	Polar Sudden Commencement
" 2	17 56	Polar Sudden Commencement	" 26	(16 38)	Polar Sudden Commencement
" 4	20 50	Polar Sudden Commencement	" 26	(19 55)	Polar Sudden Commencement
" 5	22 27	Polar Sudden Commencement	" 27	(11 29)	Sudden Impulse
" 6	11 06	Solar Flare Effect	" 28	(23 31)	Polar Sudden Commencement
" 7	15 10	Polar Sudden Commencement	" 29	(18 19)	Polar Sudden Commencement
" 7	20 07	Polar Sudden Commencement	" 31	(21 24)	Polar Sudden Commencement
" 8	(19 45)	Polar Sudden Commencement	Sept. 4	(15 45)	Polar Sudden Commencement
" 9	17 15	Polar Sudden Commencement	" 11	(17 22)	Polar Sudden Commencement
" 10	18 38	Polar Sudden Commencement	" 12	(19 35)	Polar Sudden Commencement
" 11	21 07	Polar Sudden Commencement	" 17	(19 39)	Polar Sudden Commencement
" 22	18 09	Storm Sudden Commencement	" 26	(17 38)	Polar Sudden Commencement
" 26	15 59	Polar Sudden Commencement	Oct. 2	(21 05)	Polar Sudden Commencement
" 26	19 16	Polar Sudden Commencement	" 5	(19 33)	Polar Sudden Commencement
" 27	18 23	Polar Sudden Commencement	" 10	(18 37)	Polar Sudden Commencement
" 27	19 24	Polar Sudden Commencement	" 21	(19 25)	Polar Sudden Commencement
April 2	20 24	Polar Sudden Commencement	" 23	(07 18)	Storm Sudden Commencement
" 3	21 50	Polar Sudden Commencement			
" 4	20 50	Polar Sudden Commencement			
" 6	23 24	Polar Sudden Commencement			
" 7	18 40	Polar Sudden Commencement			
" 15	18 25	Polar Sudden Commencement			

* Polar Sudden Commencement is doubtful.
() Times in brackets accurate to ± 3 mins.

TABLE 44

Principal magnetic storms

Greenwich Date	Storm time				Sudden commencement Amplitudes				Degree of activity ϕ	Maximal activity on K-scale 0-9			Ranges			
	G.M.T. of beginning		G.M.T. of ending		Type	D	H	Z		Gr. Day	Gr. 3-hour period	K-index	D	H	Z	
1954	h	m	d	h		'	Y	Y					'	Y	Y	
January	18	04	42	24	20	SSC	+1	+5	-9	C	19	7	7	72	716	341
February	15	04	14	16	03		...	...	...	C	15	5	6	47	649	340
February	16	13	30	17	24		...	...	...	C	16	7,8	7	77	747	296
February	21	10	34	24	01	SSC	...	-3	...	B	21	7	8	146	900	482
March	13	11	30	17	03		...	...	...	C	14	7	7	66	666	313
March	17	14	24	18	21		...	...	...	B	17	8	8	95	844	340
March	22	18	07	25	04	SSC	...	+13	-9	C	(23)	(7)	(6)	(76)	(445)	(260)
April	11	(16	10)	14	16		...	...	...	B	12	1	7	(118)	886	-
September	1	(07	40)	02	11		...	...	...	C	1	8	7	54	626	349
September	6	(10	00)	08	06		...	...	...	C	6	7	8	66	1064	382
September	20	(02	23)	22	21		...	...	...	B	20	7	8	98	1072	368
September	29	(08	05)	01	23		...	...	...	C	29	7	7	109	749	333
October	23	(07	18)	25	15	SSC	-2	-2	-4	B	23	7	7	142	1040	559

ϕ Severe storm classified A. Moderately severe storm classified B. Moderate storm classified C.

() Times in brackets accurate to ± 3 minutes. Values in brackets are the greatest measured.

TABLE 45

Absolute values of components of the Earth's magnetic field
(Measured after cessation of continuous recording)

Date	Horizontal Intensity		Declination (West)		Vertical Intensity	
	Time h m	Value Y	Time h m	Value ° ' "	Time h m	Value Y
1954						
November 4	08 24	18485	09 03	50 22.5	09 04	-47330
" 19	07 18	18485	07 53	50 21.5	06 12	-47311
" 26	10 46	18481	11 23	50 20.1	09 35	-47316
December 4	10 14	18495	10 49	50 20.7	08 54	-47307
" 11	11 33	18484	12 10	50 23.7	10 20	-47319
" 18	11 29	18489	12 03	50 22.3	09 47	-47338
" 29	12 04	18486	12 31	50 23.3	11 09	-47331
1955						
January 6	11 47	18492	12 27	50 25.3	10 33	-47342
" 13	11 56	18481	12 24	50 25.1	11 07	-47352