

Kodaikanal Observatory

Bulletin No. CXLI

PART I

SUMMARY OF PROMINENCE OBSERVATIONS FOR THE SECOND HALF OF 1953

This bulletin embodies the results of observations of prominences made at Kodaikanal Observatory during the 2nd half of 1953, supplemented by data from other foreign observatories for those days on which Kodaikanal had imperfect or no photographs. We take this opportunity to thank the observatories at Mt. Wilson and Meudon who have been kind enough to send their spectroheliograms for the missing days.

K-prominences at the limb —During the half-year under review, photographs of calcium prominences at the limb were obtained at Kodaikanal on 100 days and the plates for all the days were utilised for the computations. Spectroheliograms for 71 days were obtained from Mt. Wilson Observatory and for 42 days from the Meudon Observatory. In all, the records were complete for 179 days during the half year and these were counted as $178\frac{1}{2}$ effective days after giving due weightage for the quality of the photographs.

The mean daily areas (in square minutes of arc) and the mean daily numbers derived from all the above records are given below:—

Combined data		
	Mean daily areas (square minutes)	Mean daily numbers
North	0.93	3.17
South	0.86	3.18
TOTAL	1.79	6.35

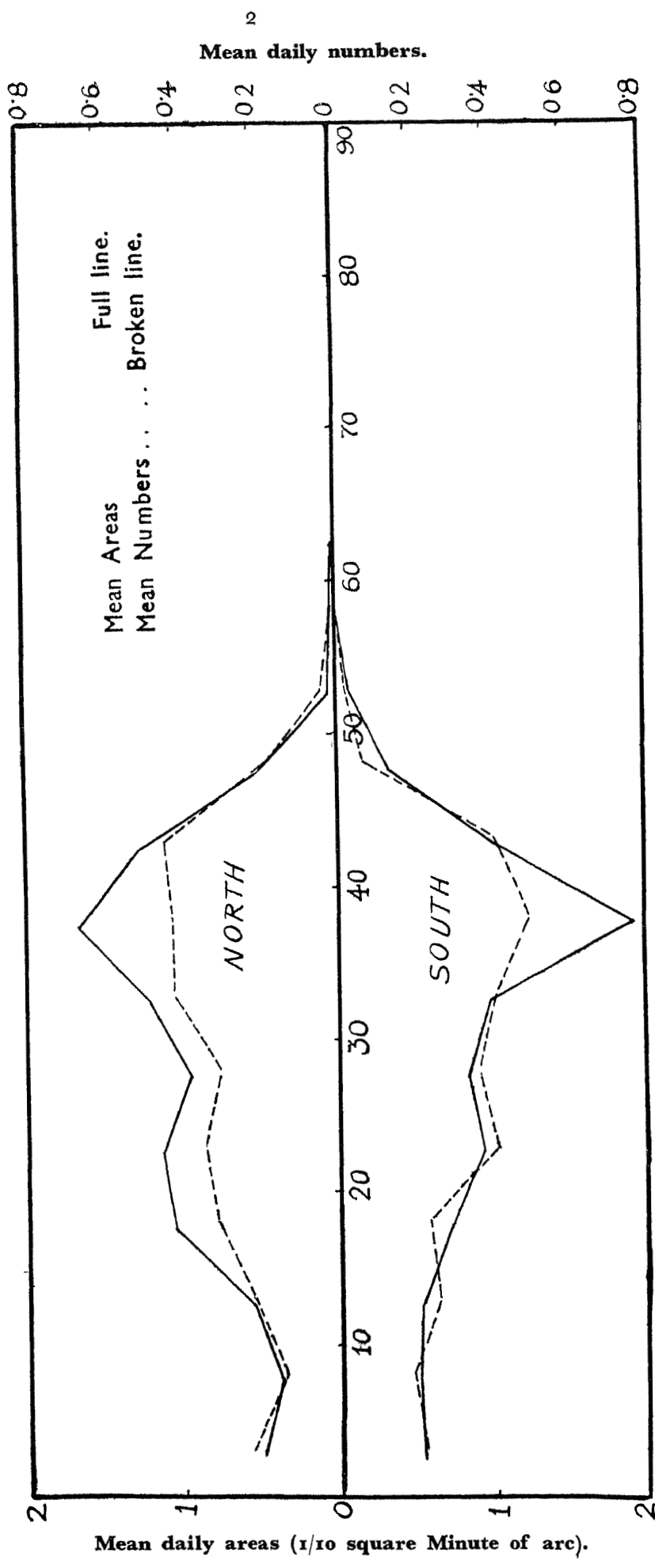
The above figures show that compared to the previous half year there has been a decrease in both areas and numbers, the decrease being 2.2% in areas and 8.5% in numbers.

For comparison with the data published in bulletins prior to 1923, *i.e.*, before the co-operation of other observatories came into force, the values based on Kodaikanal observations alone are given below:—

Kodaikanal data only		
	Mean daily areas (square minutes)	Mean daily numbers
North	0.99	3.47
South	0.99	3.53
TOTAL	1.98	7.00

The distribution of areas and numbers in 5° ranges of latitude is represented in diagram I.

DIAGRAM I
 Mean Areas and Mean Numbers
 of Calcium Prominences.
 July to December 1953.



The curves for area show pronounced peaks of activity in the latitude zone 35° - 40° with secondary maxima in the zone 20° - 25° in both the hemispheres.

The monthly, quarterly and half-yearly areas, numbers, heights and extents of prominences as obtained from photographs of all the three observatories are shown in the following table.—

TABLE I

Months 1953	Number of days (effective)	Area (square minutes)	Numbers	Daily means		Mean height "	Mean Extent °
				Areas (sq minutes)	Numbers		
July	31	61.40	205	1.98	6.61	48.37	2.35
August	31	50.95	164	1.64	5.29	43.08	2.45
September	30	73.65	233	2.45	7.77	48.80	3.09
October	30½	56.15	216	1.82	7.47	42.59	3.01
November	27½	36.85	147	1.34	5.35	36.19	3.05
December	28	40.35*	167	1.44	5.96	40.93	2.57
3rd quarter	92	186.00	602	2.02	6.54	47.09	2.66
4th quarter	86½	133.35	530	1.55	6.13	40.29	2.89
2nd half year	178½	319.35	1132	1.79	6.35	43.91	2.77

The following table gives the distribution of prominences about the sun's axis of rotation.

	1953 July—December	East	West	Percentage east
Total areas (square minutes)		149.90	169.45	46.94
Total numbers		542	590	47.88

Observations with the Prominence Spectroscope

No metallic or eruptive prominence was observed during the half year. Particulars of displacements observed in the chromosphere and prominences with the spectroscope are given in the following table:—

TABLE II

Date 1953	Time of observa- tion (I.S.T.)	Latitude		Limb	Displacements	
		North °	South °		Red A°	Violet A°
	H. M.					
August 19	09 00	35	..	W	0.6	0.6
August 26	08 25	37	..	E	0.8	0.8
August 26	08 30		33	W	0.9	0.8
September 3	08 00	35	..	E	1.5	..
September 8	08 00	30	..	E	0.5	0.5
September 8	08 00		30	W	0.5	0.5
November 3	08 00	20	..	W	1	..

No bright reversal of H-alpha line or dark reversal of D₃ line on the disc was observed.

Mean heights in H-alpha, D₃ and H_β of 8 prominences observed with the spectroscope and mean height in K line of the same prominences as measured from calcium spectrohelograms are given below —

	Mean height
	"
K	46.4
H-alpha	37.8
D ₃	29.7
H _β	27.8

Observations with the Hale Spectrohelioscope

Details of Doppler displacements in H-alpha line observed in prominences and dark markings are given below —

	North	South	East	West	Total	Displacements		
						To red	To violet	Both ways
Displacements in prominences	13	4	9	8	17	2	1	14
Displacements in dark markings	4	1	4	1	5	5

Solar Flares

Details of solar flares observed during the period are given below —

Date 1953	Time (I.S.T.)			Mean latitude	Mean longitude from Central meridian	Intensity	Maximum width of H-alpha line observed	Remarks
	Beginning	Maximum	End					
August 17	H. M 09 02	H. M. ..	H. M. ..	7°N	2°E	1	1.4 A°	Maximum and end could not be obser- ved due to the in- terruption by passing clouds

No sudden disappearance of K-prominences or H-alpha absorption markings was observed during the period.

Prominences projected on the disc as absorption markings

During the period under review, photographs of the sun's disc in H-alpha line were obtained at Kodaikanal on 118 days. Spectroheliograms were also received for 66 days from Mt. Wilson Observatory and for 35 days from Meudon Observatory. On the whole records were available for 182 days which were counted as $181\frac{1}{4}$ effective days after weightage according to the quality of the photographs.

The mean daily areas in millionths of the sun's visible hemisphere (uncorrected for foreshortening) and the mean daily numbers of the H-alpha dark markings as derived from the combined photographs are given below:—

Combined data		
	Mean daily areas (millionths of the sun's visible hemisphere)	Mean daily number
North	707.94	7.41
South	373.63	4.21
TOTAL	1081.57	11.62

On comparing with the previous half year's values, these figures show a decrease in activity in areas as in the case of prominences. The areas show a decrease of 10.1%; the numbers do not, however, show any appreciable change.

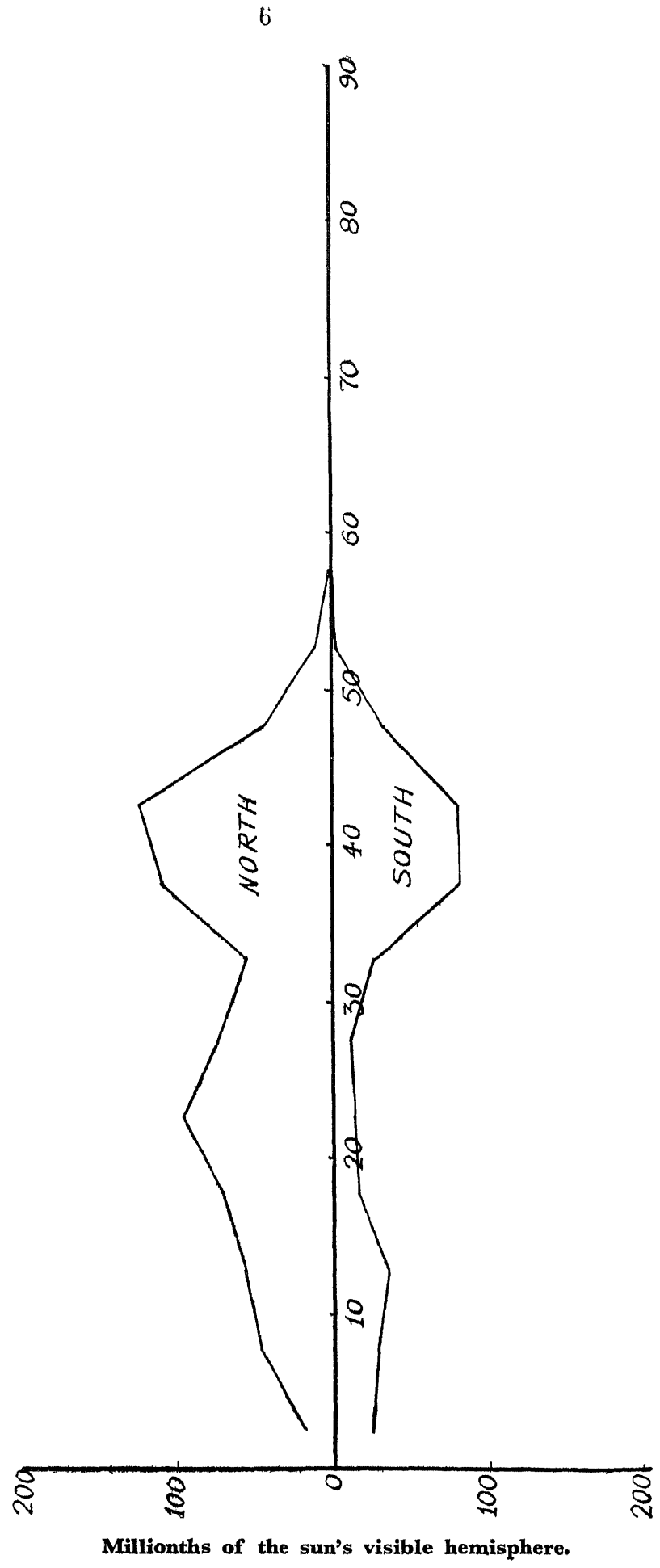
The figures based solely on Kodaikanal photographs are also given for comparison with similar data.

Kodaikanal data only		
	Mean daily areas (millionths of sun's visible hemisphere)	Mean daily numbers
North	686.28	7.49
South	351.65	4.13
TOTAL	1037.93	11.62

The distribution of the areas of the markings in 5° ranges of latitude as obtained from the combined data is shown in diagram II.

DIAGRAM II

Mean Areas of H-alpha Absorption Markings.
July to December 1953.



There are two zones of maximum activity of the markings in the northern hemisphere in the latitude intervals 20°-25°N and 40°-45°N. The activity in the southern hemisphere is comparatively less, the maximum being in the latitude zone 35°-45°S

The distribution of total areas and numbers of the dark markings east and west of the sun's axis is given below.—

	Combined data		
	East	West	Percentage east
Total area (millionths of sun's visible hemisphere)	96,748 ✓	99,439.6	49.3
Total number	1,011	1,095	48.0

PART II

MAGNETIC OBSERVATIONS FOR THE SECOND HALF OF 1953

Brief descriptions of the absolute instruments, the variometers and the system of observations are available in Bulletins Nos. CXXXII and CXXXVI of this observatory. The data given in this bulletin are derived mainly from the records of the La Cour instruments, but in case of failure of La Cour records the Watson magnetograms have been used.

The adopted values of the scale co-efficients of the horizontal force and vertical force magnetographs for the second half of 1953 are 80 OY/cm. and 110 OY/cm. The scale co-efficient of the declination magnetograph is 15' 0/cm. upto 29-11-1953 and 16' 0/cm. after that date, the changes being due to certain adjustments made to the instrument.

Trends in Magnetic variations

The mean value of and the range in horizontal force for the second half of 1953 were 39,461 γ and 91 γ respectively, showing an increase in the mean value and a decrease in the range over the corresponding values, *viz.* 39,441 γ and 101 γ for the first half of 1953. For the vertical force, the mean value as well as the range remained almost unchanged, the mean values for the first and the second halves being 2,414 γ and 2,415 γ respectively and the mean ranges 38 γ and 37 γ respectively. The mean westerly declination also changed only slightly, from 2°34' 6 for the first half of 1953 to 2°34' 5 for the second half. The mean range in D, however, rose from 3' 1 to 3' 6.

The recurrence tendency of moderate magnetic storms continued to be very pronounced as during the preceding six months.

KODAIKANAL .
November, 1954

A. K. DAS,
Director, Kodaikanal Observatory.

TABLE 1

Hourly Values of Declination, 1953

(Average for sixty minutes centred at the full hours of Greenwich Mean Time)

July

2° plus tabular quantities

Date	Hours G. M. T														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1†	33 8	33 5	33 2	32 9	34 1	35 0	35 9	37 1	37 5	36 5	36 0	35 6	34 4	34 8	35 6
2†	34 1	34 0	33 6	33 5	34 1	34 4	35 1	35 4	35 1	35 1	34 8	34 7	35 0	35 0	34 7
3	33 8	33 5	32 9	33 0	33 3	34 7	36 0	36 3	36 2	36 0	35 4	34 7	34 5	34 5	34 5
4	33 2	32 9	32 7	32 7	33 2	32 9	33 0	33 8	35 0	35 7	36 2	35 7	35 4	35 1	35 0
5	33 6	33 5	33 2	33 0	33 2	34 1	35 0	34 2	34 5	35 3	34 7	34 1	33 8	33 9	34 1
6	33 3	32 9	32 7	32 9	33 2	33 6	35 0	36 2	36 0	35 6	35 1	34 8	34 7	34 4	34 5
7	34 1	33 5	33 2	33 2	33 5	34 0	34 8	35 9	35 3	35 0	34 8	34 7	35 0	35 0	35 0
8	33 3	33 0	32 9	33 5	35 0	35 7	36 0	36 0	35 6	35 0	35 0	35 0	34 7	34 8	35 0
9	33 2	32 9	32 9	33 2	33 5	34 2	34 8	35 1	34 8	34 7	34 2	34 1	34 1	34 4	34 7
10	32 5	31 9	31 9	32 7	34 2	35 1	36 0	36 8	36 3	35 7	35 0	34 4	33 9	34 1	34 2 4/
11†	33 5	32 9	32 6	32 7	33 6	34 4	35 0	35 1	35 1	35 1	35 0	34 8	34 7	34 5	34 4
12	33 5	33 4	33 2	33 2	33 9	34 5	35 0	35 6	35 6	35 4	35 1	35 0	34 8	35 0	35 4 1/7/
13	34 2	33 5	33 0	33 2	33 3	34 1	35 4	35 7	36 0	35 9	35 1	34 5	34 4	34 4	34 2 1/7/
14	33 3	33 2	33 2	33 2	33 3	33 5	33 9	35 1	35 4	35 3	34 8	34 2	34 1	34 4	34 7 8/7/
15	33 8	33 4	32 6	32 6	33 0	33 8	34 2	34 8	34 4	34 1	34 7	34 8	34 5	34 1	34 8
16†	33 3	33 0	32 9	33 0	33 9	34 7	35 6	36 3	36 3	35 6	34 8	34 8	34 5	34 5	34 5
17†	34 0	33 5	33 3	33 3	33 6	34 7	35 3	36 0	36 5	36 0	35 6	34 8	34 7	34 5	34 8
18†	33 8	33 5	33 3	33 2	33 5	33 9	34 2	35 0	35 1	35 3	35 3	35 1	34 8	34 8	34 7 8/7/
19	34 0	33 4	33 3	33 5	33 8	34 8	35 6	36 3	36 3	36 0	35 3	34 7	34 1	34 1	34 8
20	33 5	33 0	32 6	33 0	33 5	34 5	35 0	35 1	35 1	35 1	35 7	35 3	35 0	34 7	34 4
21†	33 6	33 2	32 5	33 2	33 8	34 7	35 0	34 7	34 5	35 0	35 0	35 0	35 0	34 8	34 7
22	33 5	33 2	32 6	33 0	33 5	34 4	35 0	34 8	35 3	34 7	33 9	33 5	33 3	33 6	34 4
23†	33 0	32 6	32 0	31 7	32 3	33 8	34 7	35 4	35 7	36 3	36 0	35 3	35 3	35 0	34 7
24	31 3	31 0	31 1	32 1	32 6	33 3	34 4	34 7	34 5	34 4	34 2	33 8	33 6	34 1	34 7
25	32 0	32 4	32 3	32 7	33 5	34 4	35 4	35 7	35 3	34 7	34 1	33 8	33 8	34 1	34 5
26	32 9	33 5	32 1	33 2	34 5	35 1	35 6	35 3	35 0	35 0	34 1	33 6	33 5	33 6	34 2
27†	32 9	32 8	32 7	33 2	34 1	35 0	35 4	34 8	34 5	34 4	33 3	33 8	33 9	34 2	34 8
28	33 0	32 9	32 4	33 5	34 1	35 1	35 6	36 0	35 4	34 5	33 8	33 6	33 5	33 9	34 2
29†	33 6	33 0	32 4	32 7	33 0	33 6	33 6	34 4	34 8	34 7	33 8	33 5	33 5	33 5	34 2
30	33 3	32 9	32 9	33 2	33 3	33 8	34 2	34 7	34 7	33 3	33 0	32 9	32 6	33 2	33 8
31	33 3	33 0	32 6	33 0	33 3	34 1	34 1	34 5	35 1	35 3	34 4	33 6	33 5	33 5	33 5
Mean	33 4	33 1	32 8	33 0	33 6	34 3	35 0	35 4	35 4	35 2	34 8	34 5	34 3	34 3	34 6
Mean†	33 6	33 2	32 9	33 1	33 7	34 5	35 0	35 4	35 5	35 4	35 1	34 9	34 7	34 6	34 6
Mean‡	33 5	33 2	32 8	32 8	33 5	34 4	34 9	35 4	35 5	35 4	34 8	34 6	34 4	34 5	34 8

† Loss of record (day omitted for mean)

† Five international quiet days

‡ Five international disturbed days

TABLE I

Hourly Values of Declination, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

July

2° plus tabular quantities

Hours G M T									Mean	Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23		Time	Mag	Time	Mag		
									H	M	H	M			
35.6	35.4	35.1	35.1	34.8	34.7	34.4	34.2	33.8	35.0	08 00	37.8	03 10	32.8	5.0	1†
35.1	35.0	34.8	34.7	34.5	33.8	33.9	33.6	33.6	34.5	06 50	35.9	03 00	33.0	2.9	2‡
34.5	34.5	34.4	34.4	34.2	33.9	33.8	33.6	33.6	34.4	06 54	36.6	02 30	32.6	4.0	3
35.0	35.0	34.7	34.5	34.4	34.2	34.1	33.9	33.9	34.3	10 04	36.5	01 00	32.4	4.1	4
34.2	34.4	34.4	34.4	34.1	33.8	33.6	33.3	33.5	34.0	05 54	35.4	02 02	32.6	2.8	5
34.7	34.7	34.5	34.5	34.5	34.5	34.4	34.4	34.1	34.4	07 26	36.5	02 26	32.3	4.2	6
35.0	35.0	34.8	34.7	34.4	34.1	33.9	33.8	33.5	34.4	07 00	36.2	02 30	32.7	3.5	7
35.0	34.8	34.5	33.9	33.6	33.5	33.2	33.3	33.2	34.4	06 42	36.5	01 22	32.7	3.8	8
34.7	34.7	34.7	34.5	33.9	34.1	33.9	33.6	32.7	34.1	07 10	35.4	01 34	32.6	2.8	9
34.4	34.4	34.2	34.2	34.1	33.9	33.8	33.8	33.8	34.2	07 10	37.1	01 30	31.5	5.6	10
34.5	34.8	34.7	34.5	34.2	33.9	33.8	33.6	33.5	34.2	08 10	35.3	01 04	32.3	3.0	11†
35.1	35.1	35.0	34.8	34.7	34.5	34.7	34.5	31.5	34.6	07 30	35.7	02 50	32.9	2.8	12
34.7	34.5	34.2	34.1	33.9	33.8	33.5	33.6	33.6	34.3	09 10	36.5	02 42	32.9	3.6	13
35.0	35.1	34.8	34.7	34.1	33.9	34.1	33.9	33.9	34.2	08 00	35.9	01 38	33.0	2.9	14
34.8	34.5	34.4	34.2	33.9	33.9	33.8	33.6	33.5	34.0	07 58	35.0	02 30	32.0	3.0	15
34.7	34.8	34.8	34.7	34.5	34.5	34.4	34.4	34.2	34.5	07 04	36.6	01 42	32.6	4.0	16†
35.0	35.0	34.7	34.4	34.1	33.9	33.6	33.6	33.6	34.5	07 00	36.8	03 10	32.3	4.5	17†
34.8	35.1	35.1	35.0	34.8	34.5	34.4	34.4	34.1	34.5	09 10	35.6	03 00	33.0	2.6	18†
35.0	35.0	34.8	34.7	34.7	34.4	34.1	33.8	33.8	34.6	06 54	36.5	01 10	33.2	2.3	19
34.5	34.8	34.7	34.5	34.4	34.2	33.9	34.1	33.9	34.4	10 30	36.0	01 50	32.3	3.7	20
34.7	34.7	34.5	34.4	34.2	35.0	33.9	33.9	34.1	34.3	06 06	35.1	01 42	32.6	2.5	21†
34.5	34.7	34.5	34.2	34.1	33.8	33.6	33.5	33.2	33.9	07 42	35.6	02 10	32.4	3.2	22
34.6	34.1	33.6	33.2	32.7	32.4	32.3	31.5	31.5	33.7	08 30	37.1	03 00	31.4	5.7	23‡
34.7	34.5	34.4	33.8	33.8	33.6	33.5	33.3	32.3	33.5	06 46	35.0	00 46	30.6	4.4	24
34.7	34.7	34.5	34.2	34.1	33.9	33.8	33.8	33.2	34.0	07 26	35.0	00 46	31.7	3.3	25
34.1	34.5	34.7	34.7	34.4	34.4	33.5	32.9	32.9	34.1	05 40	35.9	01 38	31.8	4.1	26
34.8	34.4	34.2	34.4	34.1	33.9	33.6	33.3	33.0	34.0	06 14	35.7	01 06	32.6	3.1	27‡
34.7	35.0	34.5	34.1	34.1	33.6	33.8	33.6	33.6	34.1	07 26	36.5	01 24	32.6	3.9	28
34.2	34.5	34.4	34.4	34.2	34.1	33.8	33.8	33.8	33.8	08 22	35.1	01 50	32.3	2.8	29‡
34.1	34.4	34.1	33.9	33.6	33.5	33.5	33.5	33.5	33.6	07 42	35.3	01 18	32.4	2.9	30
34.1	34.4	34.5	34.7	34.4	34.1	33.9	33.6	33.8	33.9	08 10	35.6	01 50	32.3	3.3	31
34.7	34.7	34.5	34.4	34.2	34.0	33.8	33.7	33.5	34.2					3.6	Mean
34.7	34.9	34.8	34.6	34.4	34.4	34.0	34.0	33.9							Mean†
34.9	34.7	34.4	34.4	34.1	33.8	33.5	33.3	33.1							Mean‡

* Loss of record (day omitted for mean)

† Five international quiet days.

‡ Five international disturbed days.

TABLE 2

Hourly Values of Declination, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

August

2° plus tabular quantities

Date	Hours G. M. T														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
2	33.6	33.4	33.0	33.5	34.1	35.0	35.1	35.0	34.8	34.4	34.1	33.5	33.6	34.0	34.2
3	33.6	33.2	33.2	33.6	33.9	35.1	35.3	35.4	35.3	35.0	35.0	34.8	34.6	34.9	35.1
4	33.8	33.2	32.6	33.4	34.5	35.0	35.0	35.1	35.9	35.6	34.8	34.5	34.5	34.5	34.6
5	34.2	33.6	33.5	33.6	34.1	35.1	36.3	36.5	36.5	36.0	35.7	35.4	35.1	35.2	35.2
6	33.8	33.5	33.5	33.5	34.5	35.6	36.0	36.3	36.0	35.6	34.7	34.8	34.9	35.1	35.1
7	33.8	33.5	33.5	33.6	34.1	35.4	35.9	36.3	36.3	36.0	35.1	35.0	35.1	35.1	35.1
8	33.5	33.0	32.6	33.2	33.5	34.7	35.3	35.1	35.4	35.1	35.0	34.8	34.9	35.1	35.1
9	33.8	33.2	32.9	33.2	34.5	35.4	36.2	36.5	36.5	36.0	35.1	34.7	34.5	33.9	34.0
10	33.6	32.7	32.1	32.6	33.6	34.4	35.3	35.7	36.2	35.6	35.0	34.8	34.3	34.9	35.1
11	32.9	31.7	31.5	31.9	33.5	34.5	35.3	35.4	35.0	34.1	33.5	33.2	33.4	33.6	34.5
12†	33.2	32.7	32.0	32.3	33.8	35.1	36.2	36.0	36.0	35.9	35.0	34.2	33.7	33.6	34.2
13	33.3	32.6	32.0	32.1	32.7	33.8	34.8	35.6	36.5	36.0	34.5	34.1	33.6	34.3	34.5
14	33.3	32.1	32.0	32.3	33.0	34.1	35.0	35.6	36.5	36.0	35.1	35.0	34.9	35.1	35.2
15	33.2	32.4	32.0	32.4	34.1	35.4	36.6	36.2	35.4	36.3	34.1	33.5	33.6	34.5	35.1
16	33.5	32.6	32.1	32.3	33.2	33.9	35.6	37.1	36.6	35.7	35.0	35.0	35.1	35.1	35.1
17†	33.2	32.3	32.0	32.6	33.8	35.0	35.9	36.0	35.6	35.1	34.5	33.8	34.0	34.2	34.0
18†	33.5	33.4	32.9	33.0	33.5	34.5	35.9	36.6	36.5	36.2	35.9	35.0	34.5	34.5	34.6
19†	33.5	33.2	32.7	33.5	35.0	35.7	36.0	36.5	36.2	35.7	35.0	34.7	34.5	34.6	34.9
20†	33.5	33.2	33.0	33.2	33.6	35.1	36.0	36.3	36.6	36.2	35.6	34.7	34.6	34.9	34.9
21†	33.2	32.6	31.8	32.6	33.8	35.3	36.3	36.3	36.2	35.7	35.0	34.2	34.0	34.5	34.9
22†	33.5	33.0	32.7	33.8	35.4	36.9	37.5	37.5	36.9	36.0	35.3	34.8	34.8	34.9	34.9
23†	33.6	32.7	32.0	32.4	33.4	35.3	36.9	37.1	35.5	34.8	34.1	33.3	33.4	34.3	34.5
24†	33.5	33.0	32.1	32.4	33.5	35.3	36.3	37.2	35.5	34.8	33.8	32.6	33.1	33.3	33.4
25†	33.3	32.6	31.7	32.1	32.9	34.1	34.7	34.8	35.4	35.6	35.3	34.6	33.7	33.3	33.4
26	33.9	32.1	31.1	31.5	32.3	34.4	34.8	35.4	35.6	34.7	33.5	33.3	33.0	33.3	33.6
27†	33.5	33.5	32.7	32.0	32.4	33.6	35.1	35.6	35.3	35.6	35.0	34.4	33.9	33.6	34.2
28	33.5	32.9	32.1	32.6	33.2	34.1	35.0	35.9	36.0	35.0	34.2	32.9	33.1	33.4	33.7
29	33.3	32.7	31.9	32.6	32.1	34.5	35.1	36.2	36.2	35.4	34.1	33.0	33.1	33.4	34.0
30†	33.2	32.6	32.0	32.7	33.3	34.1	35.6	36.0	35.9	34.8	34.4	33.5	33.4	33.6	33.4
31	33.9	33.6	33.2	32.6	32.7	33.8	34.4	35.3	35.9	35.6	34.8	33.8	33.6	33.6	33.4
Mean	33.5	32.9	32.4	32.8	33.6	34.8	35.7	36.1	36.0	35.5	34.7	34.2	34.1	34.3	34.4
Mean†	33.5	33.0	32.5	33.0	33.9	35.4	36.5	36.8	36.3	35.8	35.2	34.4	34.3	34.6	34.8
Mean‡	33.5	32.9	32.2	32.4	33.0	34.2	35.0	35.7	35.9	35.4	34.5	33.6	33.4	33.6	33.7

* Loss of record (day omitted for mean).

† Five international quiet days

‡ Five international disturbed days

TABLE 2

Hourly Values of Declination, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

August

2° plus tabular quantities

Hours G M T.									Mean	Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23		Time	Mag.	Time	Mag.		
'	'	'	'	'	'	'	'	'	'	H. M.	'	H. M.	'	'	
34 5	34 6	34 5	34 3	33 7	33 6	33 6	33 7	33 9	34 1	05 42	35 7	10 56	33 3	1 4	1
35 1	35 1	35 1	34 9	34 8	34 8	34 6	34 5	34 2	34 6	06 54	35 8	01 26	33 0	2 8	2
35 1	35 1	35 1	35 1	35 1	35 1	35 1	35 1	34 8	34 7	08 18	36 4	01 58	32 4	4 0	3
35 2	35 1	35 1	35 1	35 1	35 1	34 6	34 6	34 3	35 0	07 26	36 7	01 38	33 4	3 3	4
35 1	35 1	35 1	34 8	34 6	34 3	34 2	33 7	34 2	34 8	06 54	36 6	02 10	33 4	3 2	5
35 1	35 1	35 1	34 9	34 9	34 8	34 6	33 7	33 9	34 8	07 26	36 7	02 12	33 4	3 3	6
35 1	35 1	35 1	34 9	34 9	34 8	34 8	34 6	34 5	34 6	08 10	35 8	02 22	32 4	3 4	7
34 3	34 3	34 2	34 3	34 2	34 2	34 0	33 6	34 0	34 5	08 06	36 7	02 06	32 7	4 0	8
35 1	35 1	35 1	34 9	34 6	34 3	33 9	33 1	33 1	34 4	08 14	36 6	01 52	31 9	4 7	9
34 6	34 5	34 6	34 5	34 0	33 7	33 6	33 4	33 6	33 8	06 46	35 8	01 58	31 3	3 5	10
34 0	34 3	34 3	34 0	34 2	34 2	34 2	33 9	33 6	34 2	06 06	36 7	01 58	31 8	4 9	11
33 7	34 9	34 2	33 7	33 6	33 6	33 6	33 6	34 0	34 0	08 12	36 7	02 05	31 9	4 8	12†
35 5	35 2	35 1	34 6	34 2	33 9	34 3	33 6	33 7	34 4	07 52	37 0	02 22	31 8	5 2	13
35 1	35 1	34 6	34 5	34 3	34 0	33 7	33 6	33 7	34 3	06 50	37 0	01 26	31 9	5 1	14
35 1	34 9	34 6	34 2	33 9	33 7	33 6	33 6	33 6	34 4	07 18	37 8	02 22	31 9	5 9	15
34 3	34 2	34 3	34 3	34 0	33 9	33 7	33 7	33 7	34 1	06 30	36 6	02 12	31 9	4 7	16
34 8	34 9	34 8	34 6	34 5	34 5	34 3	34 2	34 0	34 6	06 18	37 2	01 50	32 2	5 0	17†
35 1	34 8	34 6	34 5	34 2	33 9	33 9	33 9	33 9	34 6	07 00	36 9	01 42	32 5	4 4	18
34 9	34 9	34 9	34 9	34 6	34 5	34 0	33 7	33 6	34 6	06 38	37 0	01 22	32 7	4 3	19†
34 9	34 8	34 6	34 3	34 0	33 9	34 0	33 9	33 9	34 4	06 10	36 6	02 00	31 8	4 8	20†
34 9	34 9	34 8	34 6	34 5	34 3	34 2	34 0	33 9	34 9	06 30	37 9	01 42	32 5	4 4	21†
34 5	34 5	34 5	34 3	34 0	34 0	34 2	34 2	33 9	34 3	06 38	37 5	02 02	31 8	5 7	22†
33 4	33 4	33 7	33 9	33 9	34 0	34 0	34 3	34 0	33 9	07 18	37 6	02 08	32 1	4 5	23†
34 2	34 2	34 2	33 7	34 0	34 3	34 5	34 6	34 3	34 0	08 18	36 3	03 00	31 6	4 7	24†
33 6	33 6	33 6	33 6	33 7	33 6	33 7	33 6	33 7	33 6	07 54	36 4	02 20	30 9	5 5	25
34 6	34 8	34 8	34 6	34 2	33 9	33 7	33 7	33 9	34 1	06 50	36 0	02 38	31 9	4 1	26
34 2	34 0	34 2	34 2	33 7	34 0	33 7	33 7	33 9	33 9	07 30	36 3	02 00	32 1	4 2	27†
33 7	33 9	34 2	34 2	34 0	34 0	34 0	33 7	33 7	33 9	06 50	36 6	02 00	31 8	4 8	28
33 7	33 9	34 0	34 0	34 0	34 3	34 2	34 0	34 3	34 0	06 26	36 4	01 50	31 8	4 6	29
33 4	33 6	33 7	33 9	33 9	33 9	33 6	33 6	33 6	33 9	07 54	36 6	03 00	32 1	4 5	30†
33 0	33 3	33 4	33 4	33 7	34 0	34 2	34 0	33 9	33 9	06 42	37 5	01 20	32 2	4 3	31
34 5	34 7	34 5	34 4	34 2	34 2	34 1	33 9	33 9	34 3					4 3	Mean
34 8	34 8	34 7	34 5	34 3	34 2	34 1	34 0	33 9							Mean†
33 8	34 0	34 0	33 9	33 8	34 0	33 9	33 9	34 0							Mean‡

* Loss of record (day omitted for mean).

† Five international quiet days.

‡ Five international disturbed days.

TABLE 3

Hourly Values of Declination, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

September

2° plus tabular quantities

Date	Hours G M T														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	33.6	33.3	32.7	32.8	33.9	35.1	35.5	36.6	36.9	36.1	35.6	34.9	34.2	33.7	33.9
2	33.6	32.7	32.1	32.8	33.7	34.2	34.9	35.1	35.1	34.8	34.0	32.7	32.2	33.1	33.1
3†	33.6	32.7	32.2	33.4	34.5	35.4	36.1	36.6	36.0	35.2	34.0	33.0	32.4	32.7	33.4
4†	32.5	32.2	32.1	32.2	33.7	34.6	35.6	36.1	36.0	34.8	33.6	33.4	32.4	32.2	32.2
5	31.6	30.3	31.6	32.1	34.0	35.4	36.9	37.6	37.6	36.6	35.4	34.9	34.6	34.9	35.1
6	33.3	32.5	32.7	34.2	35.5	36.3	36.1	35.5	34.6	33.6	33.1	32.8	33.1	33.7	34.2
7	33.3	32.5	32.1	32.7	34.0	35.1	35.2	35.4	35.2	34.2	32.2	32.1	32.7	33.6	34.0
8	33.4	32.7	31.9	32.7	35.2	37.2	38.3	38.4	37.2	35.5	34.0	33.4	33.7	33.9	34.3
9†	34.5	33.3	32.5	32.8	34.0	35.8	37.3	37.6	37.2	36.1	35.1	34.8	34.9	34.9	35.1
10	33.9	33.0	31.9	32.1	33.3	34.3	35.8	36.9	36.1	35.2	34.5	33.9	34.0	33.9	34.2
11	34.2	33.4	32.5	32.1	32.8	34.5	35.8	36.9	36.7	36.4	35.7	34.9	34.6	34.8	34.8
12	34.2	33.4	32.4	32.1	33.6	34.9	36.1	36.7	36.3	35.5	34.6	34.5	34.8	34.8	34.8
13	33.7	33.4	32.8	32.7	33.4	34.8	36.1	37.2	36.4	35.4	34.2	33.6	33.7	34.6	34.9
14†	33.6	32.8	32.2	32.8	34.2	37.6	38.1	37.5	35.7	35.1	34.2	34.0	34.8	34.9	34.9
15	33.9	33.1	32.4	32.7	33.6	34.5	36.1	37.6	37.8	36.7	36.0	35.2	34.9	35.1	35.1
16	33.8	33.0	32.6	32.9	34.2	34.5	36.0	36.6	36.3	35.7	35.1	35.1	34.9	34.8	34.6
17	33.6	32.2	32.7	33.4	34.9	35.2	35.7	36.3	36.6	35.5	35.1	34.2	34.0	33.7	33.9
18	33.7	32.8	31.9	33.6	34.6	35.7	36.3	36.6	35.8	35.2	34.2	33.6	33.7	33.9	34.2
19†	34.2	33.1	32.7	33.3	33.3	33.6	34.2	33.7	34.6	34.6	32.4	32.5	32.4	32.7	32.2
20†	33.3	32.7	32.1	32.7	34.2	34.9	35.7	36.1	35.8	35.2	34.5	33.6	33.3	33.1	33.1
21	33.3	33.0	32.8	33.4	34.0	34.5	34.6	34.5	34.2	33.3	33.0	33.3	33.6	33.7	33.7
22	33.7	33.1	32.7	33.7	34.3	34.5	34.6	34.8	34.2	33.3	33.4	33.9	34.0	34.0	34.2
23†	34.0	33.3	33.0	33.9	35.7	35.7	35.1	35.2	35.2	34.6	33.0	32.4	32.5	33.4	33.1
24	34.0	33.3	32.8	33.6	34.6	35.4	36.0	35.7	34.9	34.6	33.3	32.1	32.2	32.8	33.6
25	33.6	33.0	32.2	33.3	35.4	36.1	36.7	36.7	36.0	34.6	33.7	33.6	33.7	34.0	34.3
26	34.6	34.0	33.1	33.1	33.7	34.9	35.4	36.4	36.3	35.7	34.9	34.5	34.3	33.0	34.2
27	34.6	34.2	33.1	33.0	33.6	34.7	34.3	34.9	35.1	34.9	34.2	33.7	33.6	33.6	34.0
28†	34.9	34.2	33.3	32.7	33.6	34.8	36.1	36.6	35.6	34.8	33.9	33.6	33.6	33.6	33.6
29†	34.5	34.0	33.6	33.7	34.2	34.9	35.7	36.4	36.4	36.3	35.7	35.1	35.1	35.1	35.1
30†	35.1	34.8	33.9	33.7	33.9	34.2	35.7	36.4	36.3	35.2	34.6	33.7	34.2	34.5	34.6
Mean	33.8	33.1	32.6	33.0	34.1	35.1	35.9	36.3	35.9	35.2	34.2	33.8	33.7	33.9	34.1
Mean†	34.5	33.8	33.1	33.1	34.0	35.5	36.6	36.9	36.2	35.5	34.7	34.2	34.5	34.6	34.7
Mean‡	33.5	32.8	32.4	33.1	34.3	34.8	35.3	35.5	35.5	34.9	33.5	33.0	32.6	32.8	32.8

* Loss of record (day omitted for mean)

† Five international quiet days

‡ Five international disturbed days

TABLE 3

Hourly Values of Declination, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

September

2° plus tabular quantities

Hours G M T.									Mean	Maximum		Minimum		Range	Date			
15	16	17	18	19	20	21	22	23		Time	Mag	Time	Mag					
									H	M	H	M.						
33.7	33.7	34.2	34.5	34.2	34.3	34.3	34.2	34.0	34.4	07	52	37	3	02	00	32.4	4.9	1
33.6	33.6	33.6	33.6	33.6	34.0	34.2	33.7	34.0	33.7	06	46	35	7	01	48	31.9	3.8	2
33.6	33.6	33.6	33.3	33.4	33.4	33.6	33.1	33.5	33.8	07	22	37	2	12	26	31.9	5.3	3†
33.1	33.4	33.6	33.6	33.9	33.7	33.6	33.1	32.2	33.5	06	31	36	7	02	38	31.6	5.1	4‡
35.1	34.9	34.8	34.6	34.2	34.3	34.5	34.2	33.6	34.5	07	32	38	1	00	52	29.4	8.7	5
34.3	34.0	33.6	33.6	33.6	33.6	33.6	33.6	33.6	33.9	06	51	36	6	01	50	32.1	3.5	6
34.3	34.6	34.5	34.3	34.2	34.2	34.2	33.9	33.9	33.8	07	54	35	7	10	38	31.8	3.9	7
34.5	34.6	34.6	34.8	34.8	34.8	34.6	34.5	34.8	34.7	06	38	38	7	02	00	31.8	6.9	8
35.1	35.1	34.9	34.9	34.8	34.6	34.5	34.3	34.2	34.9	06	30	38	1	01	38	32.2	5.9	9‡
34.5	34.6	34.6	34.6	34.6	34.5	34.6	34.8	34.8	34.4	06	50	37	3	01	50	31.6	5.7	10
34.8	34.8	34.8	34.8	34.9	34.8	34.6	34.6	34.3	34.7	07	42	37	9	02	30	31.6	6.3	11
34.8	34.8	34.8	34.8	34.5	34.3	34.0	34.2	34.0	34.5	06	46	37	6	02	32	31.8	5.8	12
34.9	34.9	34.9	34.9	34.9	34.8	34.6	34.5	34.2	34.6	06	54	37	5	02	04	32.2	5.3	13
35.1	35.1	34.9	34.8	34.6	34.5	34.5	34.3	34.2	34.8	07	14	38	3	02	12	32.1	6.2	14†
34.9	35.1	34.9	34.9	34.8	34.6	34.4	34.4	34.2	34.9	07	06	38	1	02	12	32.1	6.0	15
34.9	34.9	34.8	34.8	34.6	34.2	34.0	33.9	33.9	34.6	07	15	36	8	02	10	32.0	4.8	16
33.7	34.3	34.6	34.6	31.9	34.9	34.8	34.6	34.2	34.5	07	46	36	7	01	12	32.2	4.5	17
34.3	34.3	34.3	34.2	34.0	33.7	33.9	33.7	34.0	34.3	07	06	36	7	02	12	31.6	5.1	18
33.1	32.8	33.3	33.4	33.6	33.1	33.6	33.6	33.6	33.3	08	54	35	4	10	10	31.5	3.9	19‡
33.4	33.6	33.9	33.7	33.6	33.1	33.4	33.6	33.6	33.8	07	18	36	6	01	06	31.9	4.7	20‡
33.9	34.0	34.0	34.0	34.2	34.5	34.0	34.0	33.9	33.8	06	00	34	9	02	18	32.7	2.2	21
34.2	34.0	33.7	33.6	33.4	33.3	33.6	33.6	33.9	33.8	06	00	35	2	01	50	32.2	3.0	22
33.6	33.7	33.9	33.9	33.9	33.9	33.6	33.6	34.2	33.9	04	30	36	0	01	38	32.5	3.5	23‡
33.9	34.4	34.3	34.3	34.2	34.5	34.3	34.0	33.6	34.0	06	14	36	4	11	10	31.9	4.5	24
34.8	34.9	35.1	34.9	31.9	34.9	34.9	34.9	35.1	34.6	06	54	37	3	01	50	32.1	5.2	25
34.0	34.0	34.0	31.0	34.2	34.5	34.9	34.9	34.9	34.5	07	34	36	6	02	14	32.7	3.9	26
34.3	34.2	34.5	34.5	34.9	35.1	34.9	34.9	35.4	34.3	08	20	35	4	02	22	32.5	2.9	27
33.6	33.7	33.6	33.7	34.0	34.2	34.0	34.2	34.6	34.2	07	22	36	7	03	16	32.2	4.5	28†
35.1	35.1	35.1	35.1	34.9	34.9	34.9	35.1	35.1	35.0	08	06	36	9	02	26	33.4	3.5	29†
34.8	34.5	34.0	33.7	33.6	33.6	34.2	34.6	34.9	34.5	06	50	36	7	19	06	33.4	3.3	30†
34.3	34.3	34.3	34.3	34.3	34.2	34.2	34.2	34.1	34.3							4.8		Mean
34.7	34.7	34.5	34.4	34.4	34.4	34.4	34.5	34.6										Mean†
33.4	33.4	33.7	33.6	33.7	33.4	33.6	33.4	33.4										Mean‡

* Loss of record (day omitted for mean)

† Five international quiet days.

‡ Five international disturbed days.

TABLE 4

Hourly Values of Declination, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

October

2° plus tabular quantities

Date	Hours G.M.T														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	34.9	34.0	33.7	34.3	34.9	35.5	36.5	36.8	36.8	36.4	35.8	35.2	35.0	34.9	34.1
2	35.0	34.9	34.0	34.1	34.7	35.8	36.5	36.7	36.4	36.1	35.3	34.9	34.9	35.0	35.2
3	35.3	35.2	35.0	34.6	34.9	35.2	36.2	37.0	37.1	36.5	35.8	35.3	35.2	35.2	35.2
4	35.5	35.3	35.2	35.2	35.6	36.8	37.7	38.5	38.2	36.8	35.8	35.3	35.3	35.2	35.2
5†	35.0	34.3	34.0	33.5	34.4	35.6	36.5	37.0	36.5	36.4	35.8	35.2	35.2	35.2	35.2
6†	35.2	34.9	34.7	34.3	34.7	35.5	36.5	36.7	36.4	35.6	35.2	35.2	35.3	35.3	35.3
7	35.6	35.8	35.2	34.9	35.0	35.2	35.3	35.2	34.7	34.0	34.0	34.0	34.0	34.3	35.0
8	34.4	34.1	35.0	35.2	36.2	37.0	37.6	37.6	37.4	36.7	35.8	35.2	35.2	35.2	35.2
9	35.0	34.9	34.9	34.9	34.4	35.0	35.5	36.2	35.2	35.0	34.9	34.9	35.0	35.2	35.2
10	35.2	34.9	34.3	34.1	34.9	35.2	35.2	35.3	35.3	35.2	34.9	34.7	35.0	35.2	35.2
11	35.2	35.0	35.2	34.9	35.0	35.2	35.2	35.6	35.6	35.0	34.7	34.8	34.7	34.1	34.3
12†	34.7	34.6	34.8	34.8	35.2	35.5	36.2	36.4	36.5	36.1	35.3	34.7	34.4	34.6	34.6
13†	34.3	34.0	33.8	34.6	35.2	35.8	36.2	35.6	35.3	35.2	35.2	35.2	35.2	35.2	35.0
14†	34.9	34.7	34.6	34.6	35.0	35.2	35.3	35.2	35.0	34.7	34.8	34.7	34.1	34.3	34.3
15‡	34.7	34.6	34.8	35.2	35.5	36.5	37.1	37.8	37.5	35.9	35.2	35.2	35.0	35.0	34.7
16‡	34.7	34.0	34.0	34.6	34.4	35.3	35.3	35.2	35.0	34.3	33.7	33.7	33.7	33.7	33.7
17	34.3	33.5	32.8	33.1	33.5	34.7	35.0	34.7	34.8	33.7	33.7	34.3	34.1	33.8	33.7
18‡	34.0	33.7	33.5	33.7	34.3	34.0	34.0	34.3	33.8	33.2	32.8	32.5	32.3	32.3	32.3
19‡	34.7	34.1	34.1	33.8	43.7	34.3	34.6	33.7	32.8	32.8	32.5	32.3	32.5	32.8	32.9
20‡	34.7	34.6	34.6	34.4	34.3	34.6	34.9	34.6	34.0	33.7	33.7	33.4	33.2	32.9	33.2
21	34.7	34.3	33.8	33.7	33.8	34.1	35.0	34.9	34.3	32.9	32.6	32.2	33.2	33.5	33.5
22	35.2	35.2	35.0	34.9	35.0	35.0	35.2	34.8	34.0	33.7	34.0	33.7	33.8	34.1	34.2
23	35.0	34.9	34.7	35.0	34.6	34.9	35.3	34.9	34.0	33.7	33.5	33.7	33.7	34.0	34.3
24	35.2	35.2	35.0	35.0	34.6	34.4	34.7	34.9	34.9	34.3	33.8	34.0	34.3	34.7	33.8
25	35.0	35.3	35.3	35.3	35.0	34.9	34.9	34.6	34.1	34.0	34.1	34.1	34.0	34.0	34.0
26	34.9	35.2	34.7	34.6	34.9	35.2	35.8	36.1	35.6	34.7	34.4	34.3	34.0	34.0	34.4
27	35.0	35.2	34.9	34.6	35.0	35.2	35.5	34.6	34.1	34.2	34.3	34.3	33.8	34.0	34.3
28	34.9	35.0	34.6	34.3	33.4	33.8	34.6	34.9	34.9	34.9	34.9	34.9	34.7	34.6	34.6
29	35.2	35.5	35.2	34.9	35.0	35.5	35.2	34.9	34.9	34.9	34.7	34.6	34.6	34.4	34.4
30	34.3	34.4	34.1	34.1	34.1	34.3	34.3	33.5	33.7	33.7	34.0	34.1	34.0	34.0	34.1
31	34.4	34.7	34.6	34.6	34.7	35.5	35.3	34.9	34.2	34.4	34.3	34.1	34.6	34.7	34.9
Mean	34.9	34.7	34.5	34.5	34.7	35.2	35.6	35.6	35.3	34.8	34.5	34.3	34.3	34.4	34.4
Mean†	34.8	34.5	34.4	34.4	34.9	35.5	36.1	36.2	35.9	35.6	35.3	35.0	34.8	34.9	34.9
Mean‡	34.6	34.2	34.2	34.3	34.4	34.9	35.2	35.1	34.6	34.0	33.6	33.4	33.3	33.3	33.4

* Loss of record (day omitted for mean).

† Five international quiet days.

‡ Five international disturbed days

TABLE 4

Hourly Values of Declination, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

October

2° plus tabular quantities

Hours G. M. T.									Mean	Maximum		Minimum		Range	Date			
15	16	17	18	19	20	21	22	23		Time	Mag	Time	Mag					
										H	M	H.	M					
34.2	34.6	34.8	34.8	34.8	34.9	34.7	34.7	35.0	35.1	07	22	37	1	02	02	33.5	3.6	1
35.2	35.2	35.0	35.0	35.0	35.0	35.0	35.0	35.2	35.2	06	54	36	7	02	10	33.8	2.9	2
35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.5	07	58	37	6	02	50	34.3	3.3	3
35.2	35.2	35.3	35.2	35.2	35.2	35.0	35.0	35.2	35.8	07	14	38	8	01	34	35.0	3.8	4
35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.3	07	38	37	6	01	50	33.2	4.4	5†
35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.5	35.5	06	54	36	8	02	20	33.8	3.0	6†
35.2	35.0	34.9	34.9	34.9	34.9	34.9	34.9	34.9	34.4	01	12	35	9	10	34	33.2	2.7	7
35.2	35.3	35.5	35.5	35.3	35.3	35.6	35.5	35.2	35.7	06	34	38	0	01	38	33.8	4.2	8
35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.1	06	34	36	8	04	14	33.8	3.0	9
35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.3	35.0	35.1	07	10	35	6	01	24	34.0	1.6	10
34.4	34.4	34.1	34.3	34.1	34.0	34.0	34.0	34.4	34.7	07	50	35	9	13	10	33.5	2.4	11
34.6	34.7	34.7	34.3	33.8	33.7	33.7	33.7	33.7	33.8	06	46	36	7	20	40	33.2	3.5	12†
35.0	34.9	34.9	34.7	34.7	34.6	34.4	34.4	34.4	34.9	06	48	36	7	01	06	33.7	3.0	13†
34.4	34.4	34.1	34.3	34.1	34.0	34.0	34.0	34.4	34.5	05	46	35	9	20	30	34.0	1.9	14†
33.2	33.1	32.6	33.4	33.5	33.7	33.8	33.7	34.1	34.8	06	26	37	4	17	26	32.2	5.2	15†
33.5	33.7	33.7	33.7	34.0	34.3	34.1	34.0	34.4	34.2	05	12	35	9	17	34	32.8	3.1	16†
33.2	33.8	33.5	33.7	33.5	33.7	33.5	34.0	34.3	33.9	05	26	35	3	02	26	32.2	3.1	17
32.3	32.6	32.8	33.4	33.7	34.1	33.8	33.8	34.7	33.5	06	28	35	3	14	14	32.0	3.3	18†
33.2	33.1	33.2	33.7	33.7	33.8	33.8	34.0	34.4	33.5	05	34	35	3	09	34	32.0	3.3	19†
33.2	33.5	33.5	33.7	33.7	34.0	34.3	34.4	34.7	34.0	05	34	35	3	12	14	32.2	3.1	20†
33.7	33.7	33.8	33.8	34.0	34.3	34.3	34.9	34.9	33.9	06	26	35	3	11	02	32.0	3.3	21
34.2	34.6	34.6	34.7	34.4	34.6	34.6	34.9	34.9	34.6	05	46	35	6	10	56	33.1	2.2	22
34.3	34.4	34.6	34.6	34.7	34.7	34.7	34.9	35.0	34.5	06	00	35	6	09	04	33.2	2.4	23
34.1	34.4	34.6	34.6	34.6	34.6	34.7	34.9	35.0	34.6	01	12	35	3	14	06	33.5	1.8	24
34.1	34.3	34.4	34.6	34.3	34.1	34.1	34.1	34.6	34.5	01	16	35	6	14	10	33.7	1.9	25
34.7	34.7	34.7	34.6	34.7	34.7	34.9	35.0	35.0	34.8	06	20	36	4	10	26	33.7	2.7	26
34.3	34.1	34.0	34.1	34.1	34.1	34.3	34.6	34.7	34.5	06	20	35	8	12	20	33.5	1.3	27
34.4	34.4	34.4	34.3	34.3	34.3	34.6	34.9	35.0	34.6	09	20	35	2	04	00	33.2	1.0	28
34.4	34.3	34.3	34.1	34.0	33.8	33.8	34.0	34.2	34.6	05	14	35	9	15	30	33.2	1.7	29
34.0	34.0	33.8	34.0	34.0	34.1	34.3	34.3	34.3	34.1	05	34	34	6	06	20	33.2	1.4	30
34.9	34.9	34.7	34.4	34.3	34.1	34.3	34.4	34.7	34.6	06	10	35	6	11	30	34.0	1.6	31
34.4	34.4	34.4	34.5	34.4	34.5	34.6	34.6	34.7	34.7								2.8	Mean
34.9	34.9	34.8	34.7	34.6	34.5	34.5	34.6	34.7										Mean†
33.3	33.2	33.2	33.6	33.7	34.0	34.0	34.0	34.5										Mean‡

* Loss of record (day omitted for mean).

† Five international quiet days

Five international disturbed days

TABLE 5

Hourly Values of Declination, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

November

2° plus tabular quantities

Date	Hours G M T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'
1	34 6	34 7	34 7	34 9	35 0	35 2	35 2	34 7	34 9	35 0	34 9	34 7	34 9	34 9	35 0
2†	35 5	35 6	35 8	35 3	35 2	35 2	35 3	35 2	34 7	34 6	34 6	34 4	34 9	34 6	34 6
3	34 9	35 2	35 2	35 2	35 2	35 2	35 0	35 2	34 9	34 6	34 7	35 0	35 2	35 2	35 0
4	34 6	35 0	35 2	34 9	35 0	35 2	35 2	35 2	35 0	34 6	34 4	34 7	35 0	35 2	35 2
5	35 0	35 0	35 2	35 2	35 2	35 6	35 5	35 0	34 3	33 7	33 5	33 5	33 7	33 7	33 7
6	35 2	35 5	35 6	35 5	35 6	35 9	36 1	35 6	35 3	35 2	35 2	35 2	35 2	35 2	35 2
7	35 3	35 8	35 9	35 6	35 6	36 8	37 0	36 7	36 4	35 5	35 3	35 2	35 2	35 2	35 2
8	35 5	35 8	35 2	34 7	34 9	35 8	35 9	35 3	34 9	34 7	34 9	35 2	35 3	35 3	35 2
9†	36 1	36 5	36 1	35 8	35 8	35 3	35 2	35 0	35 2	34 9	35 0	35 0	35 0	35 2	35 0
10‡	35 2	35 2	35 3	35 2	35 2	35 5	35 8	35 3	35 2	35 3	35 3	35 2	35 2	35 2	35 2
11	35 2	35 2	35 2	35 0	35 3	35 9	36 2	36 1	35 6	35 0	34 7	34 4	34 3	34 7	35 0
12	35 5	35 8	35 5	35 3	35 2	35 8	36 5	36 5	35 9	35 3	34 9	34 3	33 8	34 7	34 4
13†	36 5	36 7	36 7	36 2	35 9	36 7	36 2	35 5	35 2	34 6	34 4	34 0	33 2	32 5	34 0
14‡	35 2	35 6	35 8	35 3	34 7	35 0	35 2	35 2	35 0	34 9	34 0	33 8	32 6	32 6	33 8
15‡	35 5	35 8	35 6	35 0	34 7	35 2	35 5	35 2	34 0	34 0	34 1	33 8	33 4	33 4	34 0
16‡	36 0	36 5	36 5	35 9	35 5	35 2	34 7	34 7	33 7	34 0	34 3	34 4	34 9	34 7	35 0
17	35 3	35 8	35 6	35 2	35 0	35 2	35 0	35 0	35 0	34 7	34 4	33 8	33 7	33 8	34 1
18	35 2	35 8	35 9	35 5	35 0	35 2	35 2	35 5	35 3	35 2	34 7	33 7	34 3	34 4	35 0
19‡	35 2	35 3	35 3	35 2	35 2	35 0	34 4	33 7	33 7	33 7	33 7	33 8	33 8	33 5	34 0
20	35 3	35 6	36 2	35 5	35 3	35 5	35 6	35 5	34 4	35 0	35 0	35 0	35 0	35 2	35 2
21	36 1	36 2	36 2	35 8	35 3	35 5	35 2	34 4	33 8	32 9	32 6	33 4	34 1	34 3	35 0
22	35 2	35 3	35 6	35 5	35 6	35 8	35 8	35 3	35 2	35 2	35 0	34 7	34 9	35 2	35 2
23	35 9	35 6	35 8	35 5	35 3	35 2	35 3	34 7	33 8	32 8	32 2	33 7	33 8	34 7	34 9
24	36 1	36 4	36 7	36 7	36 5	35 9	35 3	34 3	33 7	34 3	34 7	34 7	35 2	35 2	35 2
25	35 6	36 1	36 5	36 5	36 7	36 5	35 9	35 8	35 2	35 2	35 2	35 2	35 0	35 0	35 2
26	35 8	35 8	36 5	36 1	35 8	35 6	35 3	35 3	35 2	35 2	35 3	35 3	35 2	35 2	35 2
27	35 6	35 9	36 5	35 8	35 5	35 9	36 4	36 2	35 9	35 2	34 4	34 0	34 0	34 6	35 2
28†	35 2	35 6	35 9	36 1	36 7	36 7	36 4	36 1	35 3	35 2	35 2	35 2	35 2	35 5	35 6
29	36 2	36 5	36 2	35 6	35 3	36 1	36 5	36 2	35 8	35 9	36 2	35 9	35 6	35 3	35 3
30†	35 3	36 1	36 4	36 2	36 1	36 1	35 9	35 9	35 6	35 0	34 6	34 6	34 8	34 8	34 3
Mean	35 5	35 7	35 8	35 5	35 4	35 7	35 6	35 3	34 9	34 7	34 6	34 5	34 5	34 6	34 8
Mean†	35 5	35 8	35 9	35 7	35 8	35 8	35 7	35 5	35 2	35 0	34 9	34 9	35 0	35 1	34 9
Mean‡	35 7	36 0	36 0	35 5	35 2	35 4	35 2	34 9	34 3	34 2	34 1	34 0	33 6	33 3	34 2

* Loss of record (day omitted for mean)

† Five international quiet days.

‡ Five international disturbed days

TABLE 5

Hourly Values of Declination, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

November

2° plus tabular quantities

Hours G M T									Mean	Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23		Time	Mag	Time	Mag		
									H M		H M				
35 0	35 2	35 2	35 2	35 2	35 3	35 3	35 3	35 3	35 0	22 30	35 5	11 10	34 1	1 4	1
34 7	35 0	34 9	34 7	31 7	34 7	34 9	35 0	35 0	35 0	01 50	36 1	08 50	33 7	2 4	2†
35 0	35 0	35 2	35 2	35 2	35 2	35 2	35 2	35 2	34 7	07 10	35 3	09 22	34 0	1 3	3
35 2	35 2	35 2	35 2	35 2	35 2	35 0	35 3	35 2	35 2	06 38	35 5	09 02	33 8	1 7	4
33 8	34 0	34 3	34 6	34 9	35 0	35 2	35 2	35 2	34 6	05 11	36 2	09 10	33 4	2 8	5
35 2	35 2	35 2	35 2	35 2	35 3	35 5	35 8	35 5	35 4	05 50	36 5	13 34	34 7	1 8	6
35 3	35 3	35 3	35 2	35 2	35 2	35 3	35 5	35 5	35 6	05 38	37 7	19 22	34 7	3 0	7
35 2	35 2	35 2	35 2	35 3	35 3	35 5	35 8	35 5	35 3	05 50	36 5	09 34	34 1	1 4	8
35 2	35 2	35 0	35 0	35 0	35 0	35 2	35 2	35 0	35 3	01 34	36 7	09 10	34 6	2 1	9†
35 2	35 2	35 0	35 0	35 0	35 2	35 2	35 2	35 0	35 2	06 06	36 1	17 34	34 9	1 2	10†
35 0	35 3	35 3	35 5	35 5	35 3	35 2	35 2	35 2	35 2	05 50	36 2	11 30	34 0	2 2	11
35 2	35 2	35 3	35 5	35 2	35 3	36 2	36 7	36 5	35 4	21 34	37 0	11 34	33 7	3 3	12
34 6	35 0	35 2	35 0	35 2	35 6	35 5	35 8	35 3	35 2	05 10	37 4	12 50	31 3	6 1	13‡
34 0	34 4	34 4	34 3	34 4	34 7	35 0	35 2	35 2	34 6	01 58	36 7	12 26	32 2	4 5	14‡
34 3	34 9	35 0	35 2	35 8	35 3	35 6	36 1	35 9	34 9	18 46	36 7	12 58	33 1	3 6	15‡
35 2	35 0	35 0	34 9	35 2	35 2	35 3	35 6	35 3	35 1	01 06	37 0	08 14	33 2	3 8	16‡
34 7	34 7	35 0	35 0	35 2	35 2	35 3	36 2	35 3	34 9	01 10	35 9	11 34	33 4	2 5	17
35 2	35 2	35 0	35 2	35 2	35 2	35 3	35 3	35 2	35 1	01 22	36 5	10 50	33 2	3 3	18
34 6	34 7	35 0	35 0	35 2	35 5	35 6	35 6	35 3	34 7	20 46	36 4	13 10	32 6	3 8	19‡
35 2	35 2	35 3	35 5	35 6	35 8	36 1	36 1	36 2	35 4	01 42	36 7	08 26	33 2	3 5	20
35 2	35 2	35 2	35 2	35 2	35 0	35 0	35 2	35 2	34 9	01 54	36 5	09 50	32 3	4 2	21
35 2	35 3	35 3	35 3	35 3	35 3	35 6	35 6	35 8	35 4	23 30	36 1	10 02	34 4	1 7	22
34 9	35 2	35 2	35 0	35 2	35 2	35 2	35 3	35 6	34 8	23 34	36 5	10 02	31 7	4 8	23
35 2	35 3	35 2	35 2	35 5	35 6	35 9	35 9	35 6	35 4	02 34	37 1	08 14	33 4	3 7	24
35 2	35 3	35 2	35 2	35 2	35 3	35 9	35 9	35 6	35 6	02 34	36 8	08 50	34 7	1 1	25
35 3	35 6	35 5	35 3	35 2	35 6	36 1	36 3	35 9	35 6	02 14	37 0	06 06	35 0	2 0	26
35 2	35 2	35 2	35 2	35 2	35 3	35 8	36 1	35 5	35 4	02 10	36 7	11 26	33 7	3 0	27
35 6	35 8	36 1	36 2	36 4	36 4	36 4	36 5	36 2	35 9	05 26	37 0	11 30	34 9	2 1	28†
35 2	35 3	35 2	35 2	35 2	35 3	35 5	35 6	35 5	35 7	01 26	36 7	16 10	35 0	1 7	29
34 5	34 5	34 5	34 5	34 5	34 8	35 1	35 0	35 3	35 2	02 10	36 5	14 20	34 3	2 3	30†
35 0	35 1	35 1	35 1	35 2	35 3	35 5	35 6	35 4	35 2					2 7	Mean
35 0	35 1	35 1	35 1	35 1	35 2	35 4	35 4	35 3							Mean†
34 5	34 8	34 9	34 9	35 2	35 3	35 4	35 7	35 4							Mean‡

* Loss of record (day omitted for mean).

† Five international quiet days.

‡ Five international disturbed days.

TABLE 6

Hourly Values of Declination, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

December

2° plus tabular quantities

Date	Hours G M T														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1†	35 5	36 1	36 4	36 7	36 6	36 4	36 2	35 8	35 3	34 3	34 3	34 6	34 8	34 8	34 8
2†	35 8	36 1	36 4	36 4	36 1	36 1	35 9	35 4	35 1	35 0	34 8	34 3	34 0	34 3	34 5
3	35 1	35 4	35 9	36 1	36 1	36 1	35 9	35 9	35 6	35 0	34 6	34 6	34 8	34 8	34 3
4‡	35 6	35 9	36 1	35 9	36 2	36 2	35 8	35 3	34 5	34 3	34 0	33 7	33 5	33 5	33 5
5	34 5	34 5	34 8	35 6	36 1	36 1	35 9	35 3	34 6	34 0	33 4	33 4	33 5	33 8	33 7
6	34 6	34 8	35 0	35 4	36 1	36 1	36 1	35 9	35 8	35 6	35 1	34 8	34 8	33 5	33 8
7	35 3	35 9	35 0	35 0	34 8	34 8	34 3	33 8	33 8	33 5	33 2	33 2	33 4	33 5	33 5
8	33 7	34 3	35 6	35 9	36 4	36 4	36 7	36 6	36 1	35 6	35 1	34 8	35 0	35 1	35 1
9	35 9	36 1	36 6	35 8	36 7	36 4	35 1	35 3	34 6	34 8	34 6	34 6	34 8	34 8	35 0
10	35 3	35 3	35 1	35 1	34 8	34 6	34 8	35 0	34 6	34 8	33 5	33 5	34 0	34 2	34 3
11†	35 8	36 4	36 6	36 4	35 6	35 0	34 3	34 6	34 2	34 0	33 5	32 7	32 9	31 6	32 6
12†	33 2	33 2	33 8	34 6	35 0	34 3	33 5	33 7	33 8	34 0	34 0	33 4	33 0	32 9	33 2
13†	34 5	34 6	34 6	34 5	34 8	34 8	34 5	34 3	34 2	33 7	33 5	33 4	33 0	33 0	33 2
14†	34 0	34 3	34 5	34 8	35 1	34 5	34 5	34 2	34 2	33 8	33 6	33 4	33 3	33 2	33 1
15	34 1	34 3	34 5	34 5	34 8	34 6	34 3	34 2	34 2	34 3	34 3	34 2	33 8	33 7	34 0
16	34 2	34 3	34 6	34 3	33 4	33 5	33 8	34 0	34 0	34 2	34 3	34 2	34 3	34 0	34 0
17	36 1	36 2	36 4	36 2	36 4	36 6	36 6	36 2	35 9	35 8	35 0	34 8	35 0	34 8	34 6
18	36 4	36 4	36 4	36 4	36 2	36 7	36 4	36 2	36 1	36 2	36 1	35 9	35 6	35 1	35 0
19	36 6	36 4	36 2	34 3	34 2	34 3	34 6	34 6	34 5	34 6	35 0	35 0	34 8	34 6	34 6
20	35 0	35 3	35 0	34 8	34 2	33 7	33 5	33 4	33 5	33 8	34 5	34 8	34 6	34 3	34 0
21	34 8	35 0	35 4	35 0	35 0	35 0	35 0	34 6	34 2	33 8	34 3	34 5	34 6	34 6	34 6
22	35 8	35 9	35 9	36 2	36 2	36 1	35 3	35 0	34 5	33 8	33 8	34 5	34 6	34 3	34 0
23†	34 8	34 8	34 8	35 0	35 4	35 6	35 0	34 3	33 4	33 2	33 5	33 7	34 2	34 3	34 3
24	34 5	34 6	35 0	35 3	35 6	35 9	35 4	34 5	33 7	33 2	33 0	32 9	33 2	33 2	33 2
25	32 7	32 5	32 7	34 3	34 8	36 1	36 2	35 6	34 5	34 5	34 3	34 2	34 0	33 7	33 4
26	34 8	34 6	33 8	34 0	35 0	35 9	35 4	34 3	33 4	33 2	33 2	33 2	33 5	33 5	33 5
27‡	34 2	34 5	34 8	35 0	35 4	36 4	36 7	36 1	35 1	33 7	33 0	32 7	32 9	33 2	33 4
28	33 7	33 8	34 5	34 6	35 9	38 3	38 3	35 9	35 0	34 2	33 5	33 5	33 7	33 7	33 7
29	31 3	34 5	34 8	35 0	34 8	36 4	36 6	35 9	35 0	34 5	34 5	34 5	34 6	34 2	34 3
30†	35 1	35 5	35 8	35 9	36 4	36 6	36 4	35 8	34 8	33 8	33 5	33 4	35 7	35 3	35 5
31†	34 8	35 0	35 8	36 1	36 1	36 2	36 9	36 9	35 9	35 0	33 8	33 8	35 8	35 8	35 6
Mean	34 9	35 0	35 3	35 3	35 5	35 7	35 5	35 1	34 6	34 3	34 1	34 0	34 2	34 0	34 1
Mean†	35 2	35 5	35 8	36 0	36 1	36 2	36 1	35 6	34 9	34 3	34 4	34 0	34 9	34 9	34 9
Mean‡	34 8	34 9	35 2	35 6	35 4	35 3	35 0	34 8	34 4	33 9	33 6	33 2	33 1	32 8	33 2

* Loss of record (day omitted for mean).

† Five international quiet days.

‡ Five international disturbed days

TABLE 6

Hourly Values of Declination, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

December

2° plus tabular quantities

Hours G. M. T.									Mean	Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23		Time	Mag	Time	Mag		
									H. M.		H. M.				
34.8	34.8	34.8	34.8	34.8	35.0	35.1	35.3	35.4	35.3	02 40	36.7	09 34	34.2	2.5	1†
34.8	34.8	34.8	34.6	34.5	34.6	34.6	34.8	35.1	35.1	01 42	36.6	10 10	33.8	2.8	2†
34.5	34.5	34.5	34.5	34.5	34.8	35.0	35.1	35.3	35.1	05 26	36.4	14 10	34.0	2.4	3
33.7	33.8	33.7	33.8	33.8	34.0	34.3	34.5	34.5	34.6	04 30	36.6	12 34	33.0	3.6	4‡
33.8	33.7	34.2	34.3	34.3	34.3	34.5	34.5	34.5	34.5	04 58	36.4	10 36	33.2	3.2	5
34.3	34.5	34.5	34.6	34.8	34.8	34.8	35.0	35.1	35.0	07 30	36.2	12 26	33.0	3.2	6
33.5	33.5	33.7	33.7	33.8	33.8	33.7	33.5	33.7	34.0	02 26	36.2	10 12	32.6	3.6	7
35.0	35.0	35.0	35.1	34.8	35.0	35.1	35.3	35.6	35.3	06 22	37.0	11 10	34.6	2.4	8
34.8	34.6	34.5	34.3	34.2	34.6	34.6	34.8	35.0	35.1	02 30	36.9	19 10	33.7	3.2	9
34.5	34.6	34.6	34.6	34.8	31.8	35.0	35.3	35.4	34.7	01 56	35.8	10 30	33.2	2.6	10
32.7	32.9	33.0	33.0	33.2	33.4	34.2	34.6	32.9	34.0	03 04	37.4	13 00	31.1	6.3	11†
33.0	33.0	32.2	33.5	33.4	33.5	33.8	34.0	34.3	33.6	04 20	35.6	12 38	32.6	3.0	12‡
33.2	33.4	33.7	33.8	34.0	34.0	33.8	33.8	31.0	33.9	05 50	35.0	14 00	32.7	2.3	13‡
33.2	33.4	33.6	33.7	33.8	33.9	33.9	33.9	34.0	33.9	03 00	35.4	14 20	33.0	2.4	14
34.2	34.0	34.0	34.0	33.8	33.8	33.8	33.8	34.0	34.1	03 30	35.0	14 00	33.4	1.6	15
34.0	34.0	34.0	34.0	34.2	34.6	35.1	35.3	36.1	35.1	02 00	35.0	05 50	33.2	1.8	16
34.6	34.8	34.8	34.8	34.8	34.8	34.8	35.0	36.2	35.5	05 38	37.4	14 54	34.2	3.2	17
34.8	35.0	35.0	35.0	35.4	35.8	36.2	36.4	36.4	35.9	05 22	36.9	16 50	34.3	2.6	18
34.8	34.8	34.8	34.6	34.6	34.6	34.8	34.8	34.8	34.9	01 04	36.7	08 06	33.5	3.2	19
33.8	34.2	34.0	34.2	34.2	34.6	34.8	35.0	34.8	34.3	00 58	35.9	08 14	33.4	2.5	20
34.6	34.8	34.6	34.6	34.6	34.6	34.8	34.8	35.1	34.7	01 54	35.6	08 50	33.5	2.1	21
33.8	33.8	33.8	33.8	33.8	34.0	34.0	34.0	34.6	34.6	02 58	36.6	09 34	33.5	3.1	22
34.5	34.5	34.5	34.3	34.3	34.3	34.5	34.6	34.5	34.4	04 38	36.1	08 50	33.0	3.1	23‡
33.2	33.4	33.2	33.2	33.4	33.4	33.4	33.5	33.7	33.8	04 34	36.6	10 42	32.7	3.9	24
33.4	33.2	33.4	33.4	33.5	33.5	33.5	34.0	34.8	34.0	05 26	36.7	14 38	33.0	3.7	25
33.7	33.7	33.5	33.5	33.7	34.0	34.2	34.2	34.2	34.0	05 54	36.4	10 46	32.9	3.5	26
33.4	33.5	33.5	33.7	33.5	33.4	33.4	33.4	33.8	34.1	05 54	37.5	10 50	32.2	5.3	27‡
33.8	34.0	34.2	34.2	34.0	34.2	34.2	34.2	34.3	34.6	05 42	39.3	13 34	33.0	6.3	28
34.5	34.6	34.5	34.6	34.5	34.5	34.6	34.8	35.0	34.8	05 46	37.2	13 04	33.5	3.7	29
35.5	35.5	35.5	35.3	35.5	35.5	35.6	35.6	35.6	35.4	05 46	36.9	10 38	33.2	3.7	30†
35.6	35.6	35.5	35.3	35.3	35.3	35.3	35.3	35.5	35.5	06 38	37.5	10 38	33.4	4.1	31†
34.1	34.2	34.2	34.2	34.3	34.4	34.5	34.6	34.8	34.6					3.3	Mean
35.0	35.0	35.0	34.9	34.9	34.9	35.0	35.1	35.2							Mean‡
33.2	33.3	33.4	33.6	33.6	33.7	33.9	34.1	33.9							Mean‡

* Loss of record (day omitted for mean).

† Five international quiet days.

‡ Five international disturbed days.

TABLE 7

Hourly Values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

July

39,000 γ plus tabular quantities

Date	Hours G M T														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1†	422	420	420	426	446	458	470	476	474	444	431	414	390	394	406
2†	424	422	448	422	438	466	446	454	452	451	438	422	410	408	414
3	426	420	419	427	442	467	487	472	463	441	426	415	410	414	421
4	426	428	435	441	445	438	442	444	450	452	446	425	418	422	428
5	430	432	430	445	463	482	475	467	461	445	428	418	412	411	414
6	427	417	422	425	432	452	470	470	468	454	437	422	419	422	421
7	442	443	442	445	452	453	446	441	431	442	442	430	422	414	417
8	426	427	427	445	462	477	479	466	437	422	420	419	428	436	434
9	430	432	441	456	473	484	491	490	488	473	458	448	444	439	410
10	430	435	451	465	486	499	485	475	461	452	438	424	421	424	426
11†	440	445	455	465	478	494	501	501	490	478	458	438	436	443	413
12	443	448	461	482	494	508	511	507	500	489	477	463	445	453	453
13	445	449	455	474	502	528	529	506	469	446	415	404	410	412	412
14	434	436	439	454	458	472	478	480	488	478	468	454	448	451	456
15	454	450	445	438	453	450	460	496	502	476	456	436	428	420	426
16†	430	436	444	452	476	488	494	500	492	473	448	432	428	428	428
17†	436	440	450	470	488	508	518	508	487	470	478	440	438	434	438
18†	448	450	454	462	470	479	492	504	500	486	468	452	444	438	450
19	448	456	466	468	478	498	512	514	508	496	472	452	444	444	416
20	440	442	444	448	460	480	488	496	504	504	496	464	412	432	428
21†	440	444	446	456	468	488	490	484	468	456	444	436	428	424	422
22	434	434	440	456	476	488	502	504	498	476	452	428	423	424	432
23†	437	438	438	434	442	449	458	466	483	458	407	395	401	390	364
24	408	410	417	432	450	466	481	477	458	449	435	417	417	436	435
25	430	438	451	476	485	492	480	470	451	430	426	432	436	438	442
26	422	438	450	454	449	455	462	450	438	402	396	386	394	404	401
27†	432	445	458	464	474	498	462	448	419	398	387	377	369	405	406
28	428	426	424	437	450	466	454	452	422	406	404	398	408	420	424
29†	434	428	442	447	450	461	457	453	443	422	394	395	396	412	413
30	418	430	440	456	465	480	474	471	474	454	437	418	402	418	418
31	442	432	429	426	439	464	481	475	472	463	423	416	402	402	406
Mean	433	435	441	450	463	477	480	478	469	454	439	425	420	423	425
Mean†	439	443	450	461	476	491	499	499	487	473	459	440	434	433	436
Mean‡	430	431	441	439	450	466	459	459	454	435	411	401	393	402	401

*-- Loss of record (day omitted for mean)

† Five international quiet days.

‡ Five international disturbed days.

TABLE 7

Hourly Values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

July

39,000 γ plus tabular quantities

Hours G. M. T									Mean	Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23		Time	Mag.	Time	Mag.		
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H. M.	γ	H. M.	γ	γ	
408	410	412	412	412	414	419	426	426	426	08 10	492	12 20	374	118	1†
414	410	420	418	418	418	419	422	426	428	05 06	473	12 31	404	69	2‡
421	422	418	419	420	422	426	427	428	431	06 04	506	11 44	408	98	3
428	429	426	426	432	435	435	438	433	434	08 08	460	11 38	402	58	4
416	421	420	422	422	428	429	430	439	435	04 33	487	12 42	406	81	5
421	420	423	422	422	430	430	430	433	433	06 45	478	00 10	415	63	6
414	419	421	430	432	432	437	434	424	434	05 31	466	14 56	409	57	7
433	424	423	420	418	412	422	420	421	433	04 56	486	20 11	410	76	8
441	449	452	449	443	450	441	437	432	453	06 50	497	22 14	426	71	9
427	425	426	428	430	435	440	410	441	444	05 02	512	11 31	418	94	10
444	444	443	444	446	447	446	442	442	457	06 31	506	11 38	430	76	11
451	449	450	450	446	442	456	449	443	465	04 30	513	23 01	433	80	12
413	422	430	430	434	435	432	439	433	447	04 54	536	10 50	399	137	13
464	462	460	464	459	462	458	456	456	460	08 29	496	00 12	424	72	14
424	424	424	422	432	422	428	428	428	443	07 40	508	13 06	412	96	15
428	429	432	430	432	432	432	436	436	447	07 29	502	11 54	426	76	16†
442	440	438	440	440	442	444	444	448	457	06 04	525	12 01	432	93	17
453	452	454	454	453	452	452	452	448	461	07 18	507	12 52	436	71	18†
448	450	451	452	452	450	448	444	445	464	06 29	518	12 10	442	76	19
428	428	432	432	436	436	436	438	438	453	08 32	506	13 12	426	80	20
422	424	426	430	432	432	434	438	437	445	05 14	498	13 50	420	78	21†
436	438	438	441	444	446	445	446	440	452	07 34	506	12 01	420	86	22
390	355	361	370	368	376	374	398	421	411	08 18	507	15 56	344	163	23‡
434	428	428	429	429	433	436	433	434	436	06 02	488	00 42	406	82	24
443	429	427	425	432	425	423	428	432	443	05 10	496	18 54	418	78	25
406	418	420	428	427	455	434	447	444	428	05 09	484	11 12	381	103	26
414	417	414	413	430	430	429	428	427	427	05 22	517	11 30	360	157	27‡
422	425	421	418	423	425	428	438	441	427	05 18	482	11 38	396	86	28
413	416	419	419	419	418	425	428	425	426	05 06	468	10 30	376	92	29‡
418	426	426	420	422	421	427	429	432	437	05 38	492	11 50	389	103	30
418	421	423	425	426	435	428	428	428	433	06 32	492	13 24	391	101	31
427	427	428	428	430	432	433	435	435	441					89	Mean
438	438	439	440	441	441	442	443	442							Mean†
408	402	405	406	409	411	413	420	425							Mean‡

* Loss of record (day omitted for mean).

† Five international quiet days.

‡ Five international disturbed days.

TABLE 8

Hourly Values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

August

39,000 γ plus tabular quantities

Date	Hours G M T														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	428	434	442	465	470	480	482	477	466	450	436	428	428	428	432
2	428	433	444	448	452	466	466	467	469	462	446	426	425	430	436
3	432	436	444	464	480	488	486	478	469	456	443	436	434	438	434
4	440	444	440	459	476	495	496	484	475	471	464	460	452	452	452
5	436	440	446	463	488	498	501	496	486	468	465	450	446	448	448
6	456	464	472	488	504	508	504	498	488	478	468	466	458	454	453
7	446	454	461	479	488	483	476	470	462	450	438	438	440	438	438
8	436	448	456	478	495	500	488	476	474	468	464	453	450	445	444
9	446	445	448	454	480	496	500	496	492	481	474	478	478	460	446
10	448	452	465	481	497	504	501	490	456	420	412	400	404	416	420
11	434	438	440	460	465	485	488	480	473	450	430	402	390	396	398
12†	432	440	446	444	438	410	413	418	422	416	385	378	376	394	392
13	422	418	425	422	439	462	478	494	506	488	473	464	458	460	463
14	430	425	440	466	474	499	497	485	473	458	434	426	438	450	446
15	449	459	466	495	524	540	544	546	510	480	462	451	448	451	452
16	443	450	460	481	497	513	508	502	482	473	450	438	440	442	444
17†	446	450	458	466	478	486	490	482	465	460	462	465	457	444	441
18	447	456	468	476	485	492	490	478	454	445	450	456	459	460	460
19†	456	457	466	482	504	515	521	517	505	493	481	473	460	458	452
20†	458	460	464	480	496	508	508	506	493	473	462	454	460	462	461
21†	469	470	480	494	505	513	516	504	490	482	477	474	473	465	461
22†	464	465	470	503	529	542	537	522	498	470	460	454	457	461	458
23‡	461	470	478	512	534	544	553	554	530	509	478	420	458	398	400
24‡	454	444	447	474	450	444	441	422	430	427	431	426	419	421	418
25	442	434	438	457	478	488	480	451	442	425	397	412	416	409	426
26	443	432	451	467	459	479	488	491	480	479	473	450	437	428	427
27‡	444	432	434	448	462	473	467	465	460	442	430	414	414	399	404
28	436	437	426	430	446	445	444	456	467	453	443	429	427	426	430
29	435	440	453	470	498	504	499	474	446	430	410	408	418	422	430
30‡	445	434	437	454	464	478	466	448	439	426	419	420	422	426	422
31	430	428	434	442	468	485	493	484	462	426	414	427	429	418	397
Mean	443	445	452	468	481	491	491	484	473	458	446	438	438	435	435
Mean†	459	460	468	485	502	513	514	506	490	476	468	464	461	458	451
Mean‡	447	444	448	466	470	470	468	461	456	444	429	412	418	408	407

* Loss of record (day omitted for mean)

† Five international quiet days.

‡ Five international disturbed days.

TABLE 8

Hourly Values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

August

39.000 γ plus tabular quantities

Hours G. M. T									Mean	Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23		Time	Mag	Time	Mag		
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H M	γ	H. M	γ	γ	
434	432	436	448	438	430	438	438	436	445	05 44	491	11 18	422	69	1
432	432	430	430	431	440	436	432	432	441	05 10	479	10 48	420	59	2
428	428	430	435	444	442	444	445	444	448	05 35	492	15 54	426	66	3
438	430	430	431	438	454	450	444	442	454	05 10	498	17 28	424	74	4
444	445	444	444	446	452	455	446	451	459	06 10	503	00 34	433	70	5
451	447	458	454	453	456	453	450	446	468	04 28	510	23 18	443	67	6
438	438	437	437	440	442	440	440	436	450	04 22	506	09 50	430	76	7
445	447	445	445	448	450	448	453	452	459	05 18	504	00 42	433	71	8
450	452	452	458	454	456	454	446	450	464	06 22	509	14 10	440	69	9
424	420	434	432	433	437	430	428	434	443	05 18	513	11 22	396	117	10
397	398	398	406	426	429	424	421	426	431	06 08	492	11 54	387	105	11
380	398	390	404	414	433	437	436	433	414	02 35	447	14 53	369	78	12†
457	458	454	447	446	442	450	438	436	454	07 56	528	01 24	414	114	13
442	448	445	448	456	452	450	450	448	453	05 02	508	11 02	418	90	14
452	451	451	446	440	442	450	443	444	471	06 51	552	19 54	430	122	15
437	436	436	440	442	441	445	444	445	458	05 00	518	10 44	431	87	16
444	445	446	448	449	448	450	450	448	457	06 22	492	13 42	435	57	17†
460	459	453	453	452	453	454	456	456	461	04 50	494	09 00	440	54	18
452	458	456	465	466	466	464	461	457	474	06 31	525	14 46	450	75	19†
461	461	462	464	466	466	467	467	470	472	06 11	510	10 28	452	58	20†
461	462	462	468	467	467	466	466	464	477	06 01	518	15 50	458	60	21†
451	451	451	452	453	456	461	465	461	475	05 33	546	14 40	450	96	22†
410	389	380	394	413	418	434	440	461	460	05 38	572	12 04	370	202	23‡
419	422	454	429	442	446	438	437	430	436	03 35	492	06 46	411	81	24‡
446	426	438	443	438	444	448	449	443	440	04 42	501	09 50	387	114	25
428	434	446	444	435	434	450	457	451	453	06 44	500	14 01	422	78	26
424	404	446	436	426	438	434	434	436	436	05 06	496	13 26	394	102	27†
434	441	429	433	433	432	443	446	441	439	08 22	476	11 40	419	57	28
429	425	426	449	438	442	462	457	457	447	04 12	524	10 24	388	136	29
422	430	428	430	427	436	430	430	431	436	04 46	497	14 50	406	91	30‡
397	412	412	420	427	436	439	436	441	436	05 52	501	14 16	387	114	31
434	435	437	440	441	445	447	445	445	452					87	Mean
454	455	455	459	460	461	462	462	460							Mean†
411	409	420	419	424	434	435	435	438							Mean‡

* Loss of record (day omitted for mean)

† Five international quiet days

‡ Five international disturbed days

TABLE 9

Hourly Values of Horizontal Force, 1952

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

September

39,000 γ plus tabular quantities

Date	Hours G M T														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	439	437	443	466	491	505	488	494	482	464	458	443	428	432	425
2	442	438	440	458	470	486	474	451	444	432	430	428	437	438	430
3†	441	446	458	488	504	514	508	500	490	465	446	428	418	420	425
4†	416	410	401	376	430	458	464	453	424	402	396	385	374	365	357
5	414	415	430	432	438	442	490	520	509	478	453	437	436	439	442
6	452	453	467	485	505	518	521	492	443	426	413	420	430	426	430
7	453	452	460	495	513	518	500	468	461	438	412	414	428	445	443
8	447	451	453	473	482	498	506	507	495	462	443	443	444	448	448
9†	451	454	464	491	510	528	513	490	481	471	467	467	468	467	466
10	458	461	480	500	515	524	530	525	510	484	474	469	466	466	474
11	470	460	462	472	498	530	530	531	499	474	466	450	451	450	453
12	463	462	467	482	516	542	549	529	513	483	459	454	449	458	458
13	450	452	462	488	518	555	568	544	516	478	460	450	453	456	457
14†	456	452	464	503	547	568	570	544	517	492	472	463	466	468	466
15	462	462	476	528	572	562	560	546	500	481	478	480	479	477	462
16	448	468	474	498	536	554	560	540	521	502	493	478	483	484	491
17	434	436	441	466	502	515	520	517	514	496	476	464	452	444	442
18	452	446	466	490	518	528	527	520	513	500	490	474	470	470	466
19†	475	451	448	456	456	480	500	442	414	405	366	376	380	386	372
20†	418	418	426	454	473	482	470	446	427	424	424	426	420	402	396
21	438	439	446	452	460	473	474	451	432	436	431	432	429	426	425
22	440	436	439	471	478	477	458	438	418	416	428	436	444	440	437
23†	442	445	462	499	529	557	526	472	452	434	408	413	422	424	414
24	436	443	454	481	496	517	509	458	422	420	407	398	412	409	416
25	439	442	453	482	508	520	516	494	467	441	444	441	445	446	446
26	448	448	464	491	522	536	531	494	468	460	450	454	459	456	453
27	460	457	455	482	498	524	511	478	469	460	443	424	420	424	438
28†	449	449	451	462	504	533	546	530	495	470	458	452	458	462	460
29†	456	453	460	478	506	536	554	551	529	502	475	468	476	478	470
30†	466	465	470	492	527	560	572	562	546	522	498	482	484	485	483
Mean	447	447	455	476	501	518	518	500	479	461	447	442	443	443	442
Mean†	456	455	462	485	519	545	551	535	514	491	474	466	470	472	469
Mean‡	438	434	439	455	478	498	494	463	441	426	408	406	403	399	393

* Loss of record (day omitted for mean)

† Five international quiet days

‡ Five international disturbed days.

TABLE 9

Hourly Values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

September

39,000 γ plus tabular quantities

Hours G. M. T.									Mean	Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23		Time	Mag.	Time	Mag.		
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H. M.	γ	H. M.	γ	γ	
418	420	422	432	438	436	436	437	442	449	05 26	513	16 10	416	97	1
442	429	419	419	419	429	437	434	438	440	05 18	493	18 34	414	79	2
423	424	430	449	436	444	438	426	444	453	04 52	523	13 50	406	117	3†
364	384	389	394	439	425	430	428	421	408	06 38	477	14 02	352	125	4‡
439	440	437	438	439	445	454	452	449	449	07 44	523	00 24	408	115	5
436	437	437	437	437	438	454	451	449	452	06 14	534	10 02	412	122	6
444	442	444	443	442	442	442	446	446	454	04 38	526	10 18	403	123	7
447	443	442	446	452	450	452	453	452	460	06 42	516	09 52	436	80	8
462	459	458	458	458	458	456	456	459	471	04 50	534	00 21	449	85	9†
470	462	458	456	452	458	460	464	470	479	06 10	540	18 42	450	90	10
449	454	458	457	458	465	461	458	460	471	05 34	540	14 32	440	100	11
458	458	458	458	457	454	458	460	456	475	05 54	557	11 40	444	113	12
457	454	456	456	456	457	460	462	457	476	06 10	572	10 50	447	125	13
461	461	464	466	464	462	464	464	465	484	05 44	578	01 14	449	129	14†
466	462	460	461	464	467	467	469	467	488	04 47	580	17 10	456	124	15
477	461	459	458	453	444	453	442	435	484	05 40	562	22 37	433	129	16
435	436	440	442	453	463	454	453	453	465	06 14	526	15 02	432	94	17
466	466	476	474	451	442	443	444	440	476	05 40	536	23 01	430	106	18
370	354	407	376	388	407	416	432	422	416	05 46	537	15 41	338	199	19‡
398	390	402	400	421	429	442	433	436	427	05 21	492	13 38	379	113	20‡
434	430	440	437	432	435	436	432	437	440	05 52	479	13 14	419	60	21
436	436	436	438	445	439	454	450	450	443	05 18	484	08 24	410	74	22
418	436	428	430	448	432	434	434	436	450	04 36	568	10 11	400	168	23†
411	422	424	437	436	443	446	442	440	441	05 06	526	11 14	391	135	24
450	444	449	441	445	446	436	440	446	458	05 04	522	08 46	434	88	25
454	451	452	456	456	457	460	465	461	469	05 14	548	00 04	444	104	26
440	430	430	434	442	452	448	450	450	455	05 18	535	12 12	417	118	27
454	454	447	450	455	455	455	454	454	469	05 42	550	17 54	446	104	28†
464	470	471	470	468	467	468	468	467	484	05 51	562	00 22	450	112	29†
473	468	457	447	438	454	464	467	472	490	06 12	575	18 46	436	139	30†
441	439	442	442	445	447	449	449	449	459					112	Mean
463	462	459	458	457	459	461	462	463							Mean†
395	398	411	410	426	427	432	431	432							Mean‡

* Loss of record (day omitted for mean).

† Five international quiet days.

‡ Five international disturbed days

TABLE 10

Hourly Values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

October

39,000 γ plus tabular quantities

Date	Hours G. M. T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	472	469	478	503	492	497	506	494	465	468	463	454	450	436	441
2	458	458	464	494	516	532	532	520	505	488	478	469	468	466	464
3	467	467	478	498	520	526	530	514	494	472	460	456	456	450	462
4	464	466	476	500	527	544	544	529	503	482	467	464	474	472	465
5†	470	466	474	500	533	553	550	526	498	478	472	476	484	483	480
6†	473	474	478	499	522	550	553	548	520	502	482	482	483	480	476
7	487	491	503	536	557	582	595	564	504	470	460	458	453	449	453
8	461	454	457	476	506	525	530	518	505	499	488	473	472	466	459
9	477	478	489	512	541	568	570	548	496	476	470	474	474	468	466
10	471	463	469	499	530	552	561	554	538	518	493	481	475	474	466
11	467	467	476	498	526	554	560	554	534	510	492	477	468	452	439
12†	469	470	480	504	533	548	547	537	521	504	485	475	474	474	472
13†	466	468	482	506	526	542	545	528	508	493	484	476	473	470	467
14†	466	467	470	495	526	541	550	541	526	513	502	495	486	483	480
15‡	485	496	506	524	538	565	573	564	546	534	510	502	502	509	462
16‡	420	409	411	441	455	475	469	463	446	431	425	426	426	428	418
17	447	430	438	459	486	501	480	455	441	423	432	451	444	428	415
18‡	444	441	447	450	448	457	461	454	438	423	397	381	389	389	370
19‡	427	426	442	453	447	449	462	435	419	399	373	390	383	401	397
20‡	437	443	447	463	471	479	477	469	466	455	445	438	423	420	419
21	440	445	463	479	490	489	474	457	443	401	386	391	421	427	431
22	451	458	473	495	503	523	507	475	459	445	437	437	439	445	439
23	443	443	448	475	495	495	479	448	430	429	430	430	428	425	432
24	451	451	469	492	521	536	541	531	510	471	454	451	453	439	427
25	459	461	465	493	511	520	522	505	495	483	470	463	459	423	448
26	466	466	468	495	527	543	548	534	502	485	474	470	467	465	463
27	460	456	460	467	485	512	510	487	463	455	461	453	436	432	431
28	446	452	463	478	492	498	498	495	493	489	479	467	462	463	465
29	465	467	471	485	513	535	543	546	538	525	511	491	469	475	451
30	464	463	471	479	497	515	511	494	475	468	468	474	467	458	459
31	458	454	464	481	507	527	524	514	503	496	489	479	473	467	467
Mean .	459	459	467	488	508	524	524	510	490	474	462	458	456	453	448
Mean† .	469	469	477	501	528	547	549	536	515	498	485	481	480	478	475
Mean‡ .	443	443	451	466	472	485	488	477	463	448	430	427	425	429	413

* Loss of record (day omitted for mean).

† Five international quiet days.

‡ Five international disturbed days.

TABLE 10

Hourly Values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

October

39,000 γ plus tabular quantities

Hours G. M. T.									Mean	Maximum		Minimum		Range	Date		
15	16	17	18	19	20	21	22	23		Time	Mag.	Time	Mag.				
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H	M	γ	H	M	γ	γ	
441	434	434	435	434	453	458	454	455	462	06	36	510	12	52	430	80	1
462	466	456	456	453	460	462	465	466	477	04	54	538	18	40	448	90	2
460	454	455	457	459	460	466	461	462	474	05	40	537	12	40	446	91	3
470	471	474	466	463	467	476	471	472	484	05	14	550	19	18	461	89	4
478	476	476	476	477	481	482	483	478	490	05	06	556	00	54	462	94	5†
477	477	476	474	480	481	482	482	484	493	05	58	558	00	52	468	90	6†
455	454	453	456	455	456	460	458	460	486	06	18	599	12	38	446	153	7
454	462	466	466	463	466	462	482	474	479	05	22	533	20	54	449	84	8
466	466	466	468	468	468	468	466	472	488	06	36	586	16	34	462	121	9
459	446	450	455	470	472	465	466	467	487	06	42	564	15	58	442	122	10
454	449	451	466	462	464	466	466	466	484	05	32	563	13	44	438	125	11
472	470	469	466	459	458	458	461	465	486	05	06	550	20	34	455	95	12†
465	463	460	461	462	462	464	470	466	484	05	42	550	18	14	458	92	13†
480	476	470	473	472	473	478	482	484	493	06	13	553	00	17	463	90	14†
364	318	314	372	378	391	420	421	421	467	05	50	577	17	12	301	276	15‡
410	425	413	431	427	447	439	436	441	434	04	32	492	17	28	404	88	16‡
413	441	415	426	421	436	429	431	441	441	05	10	508	14	52	408	100	17
363	371	378	386	396	429	430	424	424	416	05	08	469	14	06	353	116	18‡
407	406	416	442	430	434	434	433	436	423	05	34	471	10	20	365	106	19‡
419	423	430	432	438	453	455	455	439	446	04	58	495	15	28	405	90	20‡
439	437	439	439	439	443	444	447	450	442	05	10	495	10	39	379	116	21
439	454	443	462	454	451	445	445	446	459	05	18	534	10	36	432	102	22
439	438	441	453	453	451	448	451	451	448	04	48	503	13	32	423	80	23
431	441	449	451	454	455	458	459	462	469	05	38	543	13	50	423	120	24
451	452	455	462	463	463	461	463	464	473	05	49	526	13	54	447	79	25
462	462	461	462	463	466	465	468	467	481	05	14	555	18	14	459	96	26
441	436	429	426	435	440	440	450	451	455	05	22	526	18	18	420	106	27
461	458	465	461	461	466	464	469	467	471	04	06	500	00	12	444	56	28
473	474	475	465	463	451	463	474	466	487	06	40	552	19	32	444	108	29
459	459	459	462	463	467	468	467	462	472	05	20	522	13	40	455	67	30
466	463	462	464	465	467	468	470	472	479	06	32	533	01	36	452	81	31
446	446	445	451	451	456	457	459	459	469						103		Mean
474	472	470	470	470	471	473	476	475									Mean†
393	389	392	413	414	431	436	434	432									Mean‡

* Loss of record (day omitted for mean).

† Five international quiet days.

‡ Five international disturbed days.

TABLE 11

Hourly Values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

November

39,000 γ plus tabular quantities

Date	Hours G. M. T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	465	471	472	484	497	506	506	499	499	499	491	479	477	475	475
2†	468	473	487	505	523	531	522	510	506	502	491	484	479	473	470
3	479	483	498	529	543	555	554	553	540	524	509	495	483	477	471
4	475	471	487	524	544	551	550	534	516	499	495	487	485	481	479
5	469	474	467	491	501	508	501	471	439	426	418	415	404	405	391
6	458	475	473	481	493	503	510	507	502	499	493	491	490	478	473
7	473	479	491	510	532	528	525	511	487	472	465	470	475	478	477
8	479	487	500	525	551	561	559	543	515	483	468	467	472	473	464
9†	487	484	495	529	555	558	553	542	523	503	487	485	489	490	488
10‡	483	484	490	505	522	539	548	548	536	519	495	485	483	485	485
11	491	495	507	529	549	567	569	562	547	531	515	501	497	495	495
12	467	471	474	483	509	535	551	555	542	511	487	463	447	456	432
13‡	471	475	476	475	491	492	493	467	481	480	475	459	444	399	421
14‡	467	474	481	487	477	493	493	491	488	487	478	463	427	431	443
15‡	431	459	474	487	507	495	503	487	455	440	440	439	415	399	422
16‡	453	460	472	477	499	495	494	503	480	466	455	453	462	462	458
17	462	472	478	493	506	524	528	531	522	505	490	479	466	457	458
18	474	476	486	495	487	493	494	490	486	478	467	449	458	458	462
19‡	474	479	497	507	507	514	500	478	471	474	472	474	462	450	438
20	467	472	487	497	506	498	489	480	470	458	462	465	465	462	461
21	460	462	473	492	510	528	507	488	457	438	432	441	450	459	462
22	464	475	479	493	511	522	519	511	506	493	477	474	472	475	478
23	469	470	478	490	509	525	543	545	534	504	466	446	451	454	454
24	462	473	494	515	506	506	475	463	470	476	475	466	470	470	470
25	464	475	487	511	527	522	522	522	519	518	510	492	473	461	465
26	477	482	486	495	498	502	502	500	506	510	508	496	485	480	476
27	472	474	474	477	487	495	503	502	504	510	504	489	482	483	482
28†	479	482	489	493	507	510	509	511	510	510	504	490	490	484	485
29	479	484	488	497	505	496	491	483	489	493	491	490	486	486	486
30†	491	495	507	513	515	514	512	509	508	506	500	494	490	486	482
Mean	470	476	485	500	512	519	518	510	500	490	489	473	468	464	463
Mean†	482	484	494	509	524	530	529	524	517	508	497	490	486	484	482
Mean‡	459	469	480	487	496	498	497	485	475	469	464	458	442	428	436

* Loss of record (day omitted for mean).

† Five international quiet days

‡ Five international disturbed days.

TABLE 11

Hourly Values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

November

39,000 γ plus tabular quantities

Hours G. M. T.									Mean	Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23		Time	Mag.	Time	Mag.		
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H. M.	γ	H. M.	γ	γ	
467	466	463	470	474	463	464	464	468	479	05 06	511	17 58	456	55	1
469	473	474	475	477	479	490	479	480	488	04 48	537	13 50	466	71	2†
465	462	469	479	481	478	475	477	477	498	04 35	557	15 14	457	100	3
479	478	477	478	477	478	479	477	477	495	05 06	555	01 20	469	86	4
395	401	410	423	437	445	453	456	459	444	05 07	512	13 42	389	123	5
471	465	467	472	471	474	474	477	477	482	06 31	517	00 26	455	62	6
477	478	478	471	469	471	479	479	478	486	04 30	541	10 06	464	77	7
466	465	470	471	479	482	487	487	481	493	04 51	562	16 06	461	101	8
483	479	481	481	479	480	479	481	481	500	05 26	560	15 40	478	82	9†
484	483	481	481	482	486	489	489	489	499	05 50	550	17 36	479	71	10†
498	490	485	482	479	481	470	475	472	508	05 58	570	20 50	467	103	11
450	451	459	463	453	447	461	479	471	480	06 50	559	13 51	425	134	12
439	456	467	458	451	474	480	475	474	466	05 18	519	13 08	390	129	13‡
450	451	463	471	459	459	459	459	457	467	04 43	509	12 22	405	104	14‡
439	445	431	441	479	455	453	454	454	454	04 18	511	13 06	396	115	15‡
458	462	458	458	455	458	456	456	462	467	04 14	510	17 32	443	67	16‡
465	462	454	462	457	458	466	479	477	481	06 29	540	16 29	446	94	17
474	474	470	473	472	468	470	470	473	475	06 10	501	10 54	443	58	18
430	438	439	448	454	465	479	470	472	471	05 02	517	14 32	424	93	19†
460	446	449	462	473	470	465	471	464	471	03 30	517	16 31	443	74	20
465	470	468	467	476	478	473	466	465	470	04 54	533	10 34	426	107	21
473	476	478	478	478	477	473	472	472	484	05 22	524	00 10	462	62	22
459	465	473	480	478	454	462	457	456	480	06 50	555	10 54	442	113	23
467	462	454	454	461	464	464	462	466	473	03 31	518	05 54	444	74	24
474	478	478	472	475	481	482	484	484	491	03 56	532	12 32	454	78	25
473	470	474	474	474	475	475	474	473	486	09 30	514	15 46	462	52	26
478	480	484	478	474	476	477	478	481	485	08 50	514	19 22	470	44	27
484	484	485	484	486	487	484	482	478	493	05 29	513	22 50	476	37	28†
484	485	485	487	488	490	490	492	490	489	03 52	506	00 06	478	28	29
486	489	490	488	487	487	482	480	487	496	04 20	520	13 41	474	46	30†
465	466	467	469	471	471	473	473	473	482					81	Mean
481	482	482	482	482	484	485	482	483							Mean†
443	450	452	455	460	462	465	463	464							Mean‡

* Loss of record (day omitted for mean).

† Five international quiet days.

‡ Five international disturbed days.

TABLE 12

Hourly Values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

December

39,000 γ plus tabular quantities

Date	Hours G. M. T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1†	446	446	451	462	469	486	478	465	458	457	457	460	456	448	445
2†	448	456	468	488	498	498	489	475	458	458	458	459	459	457	456
3‡	446	446	455	462	468	470	468	471	466	459	448	446	440	434	428
4‡	445	457	465	460	476	486	490	486	482	474	470	458	458	455	454
5	454	456	457	449	452	464	473	478	476	470	464	458	454	448	442
6	456	455	460	470	478	487	494	497	496	496	490	476	461	445	422
7	449	449	454	459	470	471	456	454	462	470	464	454	453	450	447
8	456	450	463	471	478	490	498	498	490	482	471	464	457	456	454
9	454	451	450	452	453	462	474	481	482	474	465	456	450	448	448
10	455	456	455	462	477	481	490	488	482	474	458	446	444	438	437
11‡	454	453	471	486	497	502	497	506	501	478	456	432	423	390	386
12‡	428	449	446	457	469	462	448	449	456	465	462	446	426	420	420
13‡	457	437	442	448	455	467	470	465	468	470	464	457	441	429	426
14	447	451	464	474	472	477	481	480	478	475	460	450	445	437	438
15	448	448	451	464	474	486	487	478	465	470	468	452	447	447	448
16	448	451	451	456	462	475	471	478	472	465	458	456	444	444	444
17	463	462	464	472	485	500	502	486	474	469	462	461	457	455	452
18	461	462	466	469	474	493	490	486	477	467	460	454	453	449	442
19	456	456	458	470	484	492	494	496	498	497	495	490	477	466	464
20	455	460	469	480	491	493	490	474	461	458	461	462	458	452	445
21	456	462	466	470	482	487	479	465	458	450	446	450	454	454	452
22	466	467	475	508	537	544	530	518	508	502	486	474	465	464	454
23†	454	454	454	476	497	502	496	485	466	464	459	459	458	456	453
24	458	456	462	482	517	538	535	506	462	444	440	453	461	456	453
25	455	454	459	484	507	534	530	511	490	470	462	462	461	458	452
26	465	462	462	484	514	531	526	509	479	450	442	456	469	470	470
27‡	450	453	461	496	540	574	578	550	510	471	462	463	463	460	461
28	458	456	454	471	495	542	550	506	470	443	446	457	461	448	446
29	459	462	466	484	518	545	542	513	482	462	459	462	467	462	461
30†	458	460	465	482	515	521	530	523	491	452	438	442	450	454	458
31†	456	460	470	484	487	491	499	503	494	476	450	446	454	457	458
Mean	454	455	460	472	487	499	498	490	478	468	461	457	454	449	446
Mean†	452	455	462	478	493	500	498	490	473	461	452	453	455	455	454
Mean‡	454	450	454	464	481	498	494	481	464	454	451	451	451	451	429

* Loss of record (day omitted for mean).

† Five international quiet days.

‡ Five international disturbed days.

TABLE 12

Hourly Values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

December

39,000 γ plus tabular quantities

Hours G. M. T.									Mean	Maximum		Minimum		Range	Date		
15	16	17	18	19	20	21	22	23		Time	Mag.	Time	Mag.				
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H	M.	γ	H	M.	γ	γ	
445	446	448	449	449	449	448	448	448	455	05	34	488	14	58	444	44	1†
456	451	446	444	445	446	447	446	446	461	04	02	506	17	36	442	64	2†
426	434	435	432	435	440	446	442	446	448	04	31	474	14	32	423	51	3
454	449	448	442	446	446	448	448	446	460	06	22	494	17	58	434	60	4‡
442	440	452	449	448	450	450	456	458	456	07	22	479	16	26	438	41	5
426	430	437	439	442	443	443	448	448	460	07	42	498	14	16	418	80	6
448	448	448	446	444	441	442	442	444	453	05	22	476	20	10	438	38	7
442	437	438	439	433	441	438	437	442	459	06	18	505	15	50	430	75	8
450	450	444	446	438	459	462	461	460	457	07	50	485	19	26	437	48	9
437	442	446	454	457	458	462	463	459	459	06	02	493	13	58	436	57	10
399	409	412	414	415	412	425	420	418	444	07	31	524	13	22	372	152	11‡
422	422	426	442	433	430	426	431	432	440	04	18	482	14	32	412	70	12‡
434	440	443	438	445	445	443	440	446	449	05	46	475	13	30	422	53	13‡
438	438	439	438	438	444	448	448	448	455	06	10	482	18	58	432	50	14
448	448	446	448	450	452	454	450	449	458	05	38	489	17	38	445	44	15
442	442	442	442	444	448	451	456	464	454	06	14	482	12	26	441	41	16
453	458	459	462	458	456	454	464	462	466	05	06	513	13	46	450	63	17
438	438	440	449	448	448	451	454	456	459	05	46	496	17	10	437	59	18
458	462	464	450	450	451	451	456	454	470	08	06	501	18	02	447	54	19
450	451	446	450	456	462	462	462	456	463	04	39	497	17	03	440	57	20
450	450	449	446	447	448	448	441	458	457	05	10	490	18	10	443	47	21
441	444	445	442	454	456	456	449	451	477	05	10	546	15	18	438	108	22
455	458	462	456	454	453	458	458	460	464	04	58	509	13	28	450	59	23†
453	456	455	457	461	461	458	458	456	468	05	46	546	09	46	438	108	24
457	459	459	457	455	457	458	458	464	471	05	26	543	13	50	450	93	25
466	459	457	458	458	468	462	458	451	472	05	31	533	09	38	440	93	26
460	458	460	460	458	456	456	468	462	480	05	42	584	00	12	449	135	27‡
454	453	460	457	458	459	458	457	454	467	05	34	560	09	22	440	120	28
466	467	469	475	466	464	463	462	462	477	05	31	546	11	02	454	92	29
461	460	459	457	458	458	457	458	457	469	06	02	534	09	58	437	97	30†
457	457	460	458	460	458	457	458	456	468	07	09	505	10	48	444	61	31†
446	447	448	448	448	450	451	451	452	461						71	Mean	
455	454	455	453	453	453	453	453	454	453							Mean†	
434	436	438	439	439	438	440	441	441								Mean‡	

* Loss of record (day omitted for mean).

† Five international quiet days.

‡ Five international disturbed days.

TABLE 13

Hourly Values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

July

2,000 γ plus tabular quantities

Date	Hours G. M. T.															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
1†	427	429	426	431	436	428	425	428	427	413	417	418	421	433	435	
2†	436	436	429	423	429	425	412	421	418	414	422	426	431	436	437	
3	438	440	441	439	438	431	432	432	434	435	439	440	443	444	439	
4	448	448	445	441	433	429	428	433	427	425	426	423	427	436	436	
5	436	438	436	434	432	425	418	413	413	413	419	425	428	429	432	
6	432	434	440	440	447	447	440	437	440	434	434	437	437	436	435	
7	437	439	436	429	418	416	421	417	415	419	421	421	422	425	427	
8	432	433	428	425	433	429	427	424	425	434	436	434	436	435	434	
9	439	444	440	438	434	424	419	422	419	422	425	428	433	431	431	
10	435	437	431	418	412	407	400	397	406	412	419	431	435	435	436	
11†	437	438	434	428	424	417	414	412	415	416	414	418	428	433	434	
12	436	435	429	428	424	419	421	417	418	419	417	418	423	431	432	
13	436	439	438	431	427	414	401	391	394	405	410	429	435	432	428	
14	433	436	436	438	436	437	438	437	435	435	436	439	436	436	435	
15	432	437	441	447	440	436	435	429	423	419	425	431	434	428	432	
16†	436	436	436	429	423	416	410	404	401	407	412	421	427	428	427	
17†	431	433	434	429	425	417	409	403	405	409	417	419	432	435	435	
18†	433	436	436	434	433	424	417	414	414	412	415	418	425	434	436	
19	435	437	434	424	421	416	414	412	414	422	426	432	436	434	432	
20	434	434	433	434	435	431	428	427	425	412	406	410	421	425	426	
21†	426	426	424	422	427	425	425	426	423	412	414	422	423	425	426	
22	428	428	429	424	428	422	415	412	409	410	412	421	428	429	429	
23†	435	436	434	425	423	429	421	407	403	396	389	397	423	417	415	
24	436	432	432	434	435	428	414	411	421	434	444	445	440	436	436	
25	435	435	431	425	424	423	425	434	439	445	447	436	433	432	436	
26	431	436	432	422	423	416	416	421	418	423	429	432	433	427	423	
27†	427	436	434	425	412	410	402	405	404	412	414	415	423	435	428	
28	434	435	432	428	423	415	414	418	418	428	439	438	438	438	436	
29†	433	432	434	429	427	428	424	424	423	427	429	439	436	436	431	
30	433	435	429	418	415	413	413	410	411	414	419	425	428	429	424	
31	435	434	432	425	432	432	435	434	427	421	419	433	426	423	421	
Mean	. .	434	436	434	430	428	424	420	418	418	419	422	426	430	432	431
Mean†	. . .	433	434	433	428	426	420	415	412	412	411	414	420	427	431	432
Mean‡	. . .	432	434	431	427	425	424	417	417	415	412	414	419	427	431	429

* Loss of record (day omitted for mean.)

† Five international quiet days

‡ Five international disturbed days.

TABLE 13

Hourly Values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

July

2,000 γ plus tabular quantities

Hours G, M T									Mean	Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23		Time	Mag.	Time	Mag.		
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H M	γ	H M	γ	γ	
436	435	435	434	435	436	436	436	436	430	03 50	439	09 15	400	39	11†
436	436	441	438	439	440	438	438	439	431	17 00	443	06 05	399	44	2‡
439	443	447	448	447	447	447	447	448	441	18 25	451	05 27	423	28	3
436	436	436	437	437	437	437	436	436	435	01 30	454	11 25	417	37	4
431	433	434	434	436	435	436	433	433	429	02 05	440	07 05	410	30	5
436	435	436	436	436	436	436	436	437	437	04 35	453	09 53	423	30	6
427	433	433	434	433	434	432	429	426	427	00 25	443	08 03	411	32	7
434	433	433	434	432	431	436	435	436	432	03 07	440	06 25	417	23	8
433	436	437	436	435	439	436	434	435	432	00 15	447	08 35	416	31	9
436	436	437	437	437	437	436	437	436	427	18 15	440	06 30	394	46	10
434	435	435	436	436	435	433	432	433	428	01 03	441	06 52	409	32	11†
431	433	435	434	434	434	439	433	432	428	20 15	446	10 25	410	36	12
432	435	436	436	436	434	433	434	432	426	21 35	441	07 10	388	53	13
436	436	436	438	435	435	434	433	432	436	17 45	449	18 25	428	21	14
433	434	435	435	436	433	434	434	435	433	03 30	450	08 30	414	36	15
427	427	428	429	429	431	429	431	429	424	01 30	440	07 55	396	44	16†
436	436	436	436	436	436	436	434	433	427	17 05	440	06 40	400	40	17†
435	434	436	435	434	434	433	432	432	429	03 18	439	09 00	410	29	18†
434	435	435	436	436	436	433	429	431	429	12 15	440	07 40	405	35	19
426	427	429	432	431	432	429	427	426	427	03 20	441	10 08	403	38	20
427	428	431	432	432	431	429	431	431	426	22 25	436	09 15	406	30	21†
432	432	432	433	435	436	433	434	433	426	22 20	440	07 48	405	35	22
434	422	431	435	435	437	435	445	449	424	22 25	453	10 00	387	66	23‡
436	436	436	437	437	437	436	435	435	433	10 15	448	06 35	409	39	24
435	433	432	431	433	437	434	435	434	433	09 40	451	05 20	421	30	25
425	433	434	435	434	444	433	435	428	428	19 55	448	08 48	414	34	26
428	428	431	429	439	436	434	434	435	424	18 50	447	08 30	394	53	27‡
434	435	435	433	439	436	434	437	437	431	22 03	441	05 45	411	30	28
429	432	432	431	431	429	432	433	432	431	12 55	443	05 50	413	30	29‡
428	434	429	428	428	428	432	433	433	425	16 25	437	07 25	402	35	30
424	424	423	423	424	422	421	421	424	426	11 00	441	13 30	417	24	31
432	433	434	434	435	435	434	434	434	429					36	Mean
432	432	433	434	433	433	432	432	432							Mean†
433	431	434	433	436	436	435	437	438							Mean‡

* Loss of record (day omitted for mean).

† Five international quiet days.

‡ Five international disturbed days.

TABLE 15

Hourly Values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

September

2,000 γ plus tabular quantities

Date	Hours G M T															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
	γ	γ_{Mt}	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	
1	427	428	423	422	415	407	401	407	406	407	417	415	416	419	418	
2	428	429	425	422	420	416	408	407	418	425	431	431	427	421	420	
3†	428	429	422	409	406	397	387	390	401	405	410	419	419	418	420	
4‡	424	419	402	398	398	390	386	385	387	397	419	420	418	417	417	
5	429	433	430	410	408	403	408	409	411	416	420	429	428	421	421	
6	423	424	419	409	402	398	401	405	398	422	432	431	422	410	417	
7	427	429	424	418	409	405	388	394	407	413	417	420	420	420	419	
8	418	420	413	407	399	394	393	390	395	400	410	418	413	415	417	
9†	424	429	423	415	407	398	397	406	419	421	422	423	420	419	420	
10	422	427	423	418	419	410	405	403	402	409	411	412	412	418	419	
11	422	428	437	433	421	409	397	395	395	407	410	410	412	417	429	
12	421	427	427	417	409	405	406	409	409	408	411	412	413	419	420	
13	427	430	429	415	408	397	379	376	385	397	410	418	417	416	417	
14†	423	425	421	409	399	396	390	391	400	408	417	420	420	420	420	
15	424	428	420	411	401	390	391	402	408	418	419	418	412	411	409	
16	421	420	417	408	*	*	402	411	421	429	428	424	416	412	412	
17	418	422	408	394	398	399	393	386	394	400	405	411	413	412	416	
18	423	428	421	407	401	398	399	407	410	411	416	418	417	418	419	
19‡	433	424	408	387	389	391	385	381	400	412	408	421	417	420	412	
20‡	422	423	419	411	410	400	401	400	406	420	421	417	412	410	412	
21	423	423	419	409	418	419	418	412	416	427	419	416	412	417	417	
22	423	422	413	410	407	408	402	401	411	428	427	421	418	418	418	
23‡	421	428	419	407	409	401	402	397	422	430	419	415	412	412	410	
24	420	417	407	401	396	387	374	375	398	418	415	407	411	409	416	
25	418	418	408	396	387	386	395	398	403	410	416	417	412	411	412	
26	419	420	412	399	391	379	378	383	394	407	411	419	419	418	419	
27	420	424	424	421	409	400	395	398	403	408	409	409	408	409	417	
28†	418	422	428	427	416	399	389	388	395	409	417	420	419	417	413	
29†	419	421	421	418	413	399	386	379	383	386	400	408	411	413	413	
30†	419	420	419	419	417	407	396	390	396	399	402	408	412	413	415	
Mean	423	425	419	411	406	400	395	395	402	411	415	417	416	416	417	
Mean†	421	423	422	418	410	400	392	391	399	404	412	416	416	416	416	
Mean‡	426	425	414	402	402	396	392	391	403	413	415	418	416	415	414	

* Loss of record (day omitted for mean)

† Five international quiet days.

‡ Five international disturbed days

TABLE 15

Hourly Values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

September

2,000 γ plus tabular quantities

Hours G. M. T.									Mean	Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23		Time	Mag	Time	Mag		
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H M.	γ	H M	γ	γ	
418	419	421	424	423	422	423	422	427	418	18 35	437	08 20	398	39	1
424	418	417	418	420	423	423	423	427	422	09 55	439	06 47	400	39	2
420	424	424	437	423	428	421	420	431	416	23 12	450	06 20	385	65	3†
422	432	431	430	445	433	432	431	429	415	18 50	455	07 02	379	76	4‡
421	424	423	424	424	427	428	423	422	421	20 10	438	05 15	398	40	5
420	421	422	423	423	424	430	427	424	418	10 30	440	07 45	385	55	6
421	418	420	419	419	418	417	419	416	416	17 08	435	05 55	381	54	7
419	419	420	422	424	423	423	422	422	412	18 30	433	05 52	386	47	8
421	421	422	423	423	422	420	420	421	418	10 40	432	05 40	389	43	9†
419	416	416	417	415	418	419	422	423	416	23 00	432	05 52	393	39	10
417	420	421	420	420	423	420	420	421	417	02 25	439	07 20	389	50	11
421	421	423	421	421	421	427	425	423	418	21 05	430	05 50	395	35	12
418	419	419	420	421	421	422	423	422	413	21 25	433	06 50	374	59	13
420	421	422	423	423	421	421	422	422	415	01 30	429	06 50	385	44	14†
417	423	418	414	417	416	416	420	420	413	01 05	431	05 25	381	50	15
415	413	409	412	408	408	409	410	413	*	*	*	*	*	*	16
412	416	419	421	425	425	421	420	422	410	19 25	431	06 55	384	47	17
421	420	423	422	413	416	418	420	419	415	24 00	442	05 55	390	52	18
413	411	433	418	429	431	430	433	424	413	16 55	446	06 20	369	77	19‡
413	415	422	422	431	432	433	424	422	417	19 15	437	07 00	394	43	20‡
420	421	424	420	422	423	421	420	422	419	17 15	439	11 53	407	32	21
419	421	421	423	424	424	429	423	420	418	21 15	433	06 10	398	35	22
412	421	418	418	422	418	417	417	417	415	09 02	437	06 47	386	51	23‡
415	421	421	424	421	422	421	420	417	410	20 08	432	06 25	371	61	24
413	412	417	411	416	413	416	417	418	409	19 08	421	05 12	378	43	25
421	421	423	424	422	421	421	421	420	411	21 25	429	06 50	374	55	26
417	412	415	418	421	421	419	418	417	419	19 38	431	06 18	386	45	27
412	412	411	416	418	418	417	416	415	413	02 50	431	06 20	383	48	28†
413	418	419	419	419	418	418	418	418	410	02 05	424	06 50	375	49	29†
412	411	413	411	412	416	418	422	421	411	03 15	424	07 20	388	36	30†
418	419	421	421	422	422	422	422	421	415					49	Mean
416	417	417	418	419	419	419	420	419							Mean†
416	421	426	425	430	428	427	425	425							Mean‡

* Loss of record (day omitted for mean).

† Five international quiet days

‡ Five international disturbed days

TABLE 15

Hourly Values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

September

2,000 γ plus tabular quantities

Date	Hours G M T														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	γ	γ †	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	427	428	423	422	415	407	401	407	406	407	417	415	416	419	418
2	423	429	425	422	420	416	408	407	418	425	431	431	427	421	420
3†	423	429	422	409	406	397	387	390	401	405	410	419	419	418	420
4‡	424	419	402	398	398	390	386	385	387	397	419	420	418	417	417
5	429	433	430	410	408	403	408	409	411	416	420	429	428	421	421
6	423	424	419	409	402	398	401	405	398	422	432	431	422	410	417
7	427	429	424	418	409	405	388	394	407	413	417	420	420	420	419
8	418	420	413	407	399	394	393	390	395	400	410	418	413	415	417
9†	424	429	423	415	407	398	397	406	419	421	422	423	420	419	420
10	422	427	423	418	419	410	405	403	402	409	411	412	412	418	419
11	422	428	437	433	421	409	397	395	395	407	410	410	412	417	429
12	421	427	427	417	409	405	406	109	409	408	411	412	413	419	420
13	427	430	429	415	408	397	376	385	397	410	418	417	416	417	417
14†	423	425	421	409	399	396	390	391	400	408	417	420	420	420	420
15	424	428	420	411	401	390	391	402	408	418	419	418	412	411	409
16	421	420	417	408	*	*	402	411	421	429	428	424	416	412	412
17	418	422	408	394	398	399	393	386	394	400	405	411	413	412	416
18	423	428	421	407	401	398	399	407	410	411	416	418	417	418	419
19‡	433	424	408	387	389	391	385	381	400	412	408	421	417	420	412
20‡	422	423	419	411	410	400	401	400	406	420	421	417	412	410	412
21	423	423	419	409	418	419	418	412	416	427	419	416	412	417	417
22	423	422	413	410	407	408	402	401	411	428	427	421	418	418	418
23‡	421	428	419	407	409	401	402	397	422	430	419	415	412	412	410
24	420	417	407	401	396	387	374	375	398	418	415	407	411	409	416
25	418	418	408	396	387	386	395	398	403	410	416	417	412	411	412
26	419	420	412	399	391	379	378	383	394	407	411	419	419	418	419
27	420	424	424	421	409	400	395	398	403	408	409	409	408	409	417
28†	418	422	428	427	416	399	389	388	395	409	417	420	419	417	413
29†	419	421	421	418	413	399	386	379	383	386	400	408	411	413	413
30†	419	420	419	419	417	407	396	390	396	399	402	408	412	413	415
Mean	423	425	419	411	406	400	395	395	402	411	415	417	416	416	417
Mean†	421	423	422	418	410	400	392	391	399	404	412	416	416	416	416
Mean‡	426	425	414	402	402	396	392	391	403	413	415	418	416	415	414

* Loss of record (day omitted for mean)

† Five international quiet days.

‡ Five international disturbed days.

TABLE 15

Hourly Values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

September

2,000 γ plus tabular quantities

Hours G. M. T.									Mean	Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23		Time	Mag	Time	Mag		
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H M	γ	H. M	γ	γ	
418	419	421	424	423	422	423	422	427	418	18 35	437	08 20	398	39	1
424	418	417	418	420	423	423	423	427	422	09 55	439	06 47	400	39	2
420	424	424	437	423	428	421	420	431	416	23 12	450	06 20	385	65	3†
422	432	431	430	445	433	432	431	429	415	18 50	455	07 02	379	76	4†
421	424	423	424	424	427	428	423	422	421	20 10	438	05 15	398	40	5
420	421	422	423	423	424	430	427	424	418	10 30	440	07 45	385	55	6
421	418	420	419	419	418	417	419	416	416	17 08	435	05 55	381	54	7
419	419	420	422	424	423	423	422	422	412	18 30	433	05 52	386	47	8
421	421	422	423	423	422	420	420	421	418	10 40	432	05 40	389	43	9†
419	416	416	417	415	418	419	422	423	416	23 00	432	05 52	393	39	10
417	420	421	420	420	423	420	420	421	417	02 25	439	07 20	389	50	11
421	421	423	424	421	421	427	425	423	418	21 05	430	05 50	395	35	12
418	419	419	420	421	421	422	423	427	413	21 25	433	06 50	374	59	13
420	421	422	423	423	421	421	422	422	415	01 30	429	06 50	385	44	14
417	423	418	414	417	416	416	420	420	413	01 05	431	05 25	381	50	15
415	413	409	412	408	408	409	410	413	*	*	*	*	*	*	16
412	416	419	421	425	425	421	420	422	410	19 25	431	06 55	384	47	17
421	420	423	422	413	416	418	420	419	415	24 00	442	05 55	390	52	18
413	411	433	418	429	431	430	433	424	413	16 55	446	06 20	369	77	19†
413	415	422	422	431	432	433	424	422	417	19 15	437	07 00	394	43	20†
420	421	424	420	422	423	421	420	422	419	17 15	439	11 53	407	32	21
419	421	421	423	424	424	429	423	420	418	21 15	433	06 10	398	35	22
412	421	418	418	422	418	418	417	417	415	09 02	437	06 47	386	51	23†
415	421	421	424	421	422	421	420	417	410	20 08	432	06 25	371	61	24
413	412	417	411	416	413	416	417	418	409	19 08	421	05 12	378	43	25
421	421	423	424	422	421	421	421	420	411	21 25	429	06 50	374	55	26
417	412	415	418	421	421	419	418	417	413	19 38	431	06 18	386	45	27
412	412	411	416	418	418	417	416	415	413	02 50	431	06 20	383	48	28†
413	418	419	419	419	418	418	418	418	410	02 05	424	06 50	375	49	29†
412	411	413	411	412	416	418	422	421	411	03 15	424	07 20	388	36	30†
418	419	421	421	422	422	422	422	421	415					49	Mean
416	417	417	418	419	419	419	420	419							Mean†
416	421	426	425	430	428	427	425	425							Mean‡

* Loss of record (day omitted for mean).

† Five international quiet days

‡ Five international disturbed days

TABLE 16

Hourly Values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

October

2,000 γ plus tabular quantities

Date	Hours G. M. T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	425	424	425	416	416	420	419	418	420	421	420	415	413	412	418
2	421	422	412	418	411	401	400	401	404	408	412	413	415	416	418
3	422	423	423	420	413	405	402	402	401	403	408	409	408	411	414
4	413	413	410	410	401	400	400	400	402	406	413	415	416	416	418
5†	418	419	413	413	404	402	403	404	410	415	416	418	420	420	419
6	422	423	418	410	405	394	389	389	399	408	411	411	411	412	412
7	422	423	423	419	413	402	393	388	394	404	411	413	411	413	416
8	422	422	423	415	412	405	403	403	403	409	411	413	415	414	414
9	420	422	423	415	411	404	398	391	400	410	413	415	415	415	419
10	420	418	421	413	414	402	401	400	398	399	405	412	415	415	414
11	422	422	419	418	415	412	409	410	404	408	411	413	413	411	412
12†	420	420	416	414	405	401	399	399	399	401	406	413	415	415	416
13†	423	422	416	415	408	400	400	408	405	406	410	409	409	411	412
14†	416	420	419	421	425	418	414	419	413	412	411	415	417	416	418
15‡	419	422	420	418	414	410	404	402	403	410	405	410	415	416	401
16‡	413	412	411	410	410	403	401	403	406	409	415	420	420	420	416
17	423	416	412	408	404	400	399	404	405	403	409	414	413	412	410
18‡	416	415	410	399	405	408	406	408	405	400	396	403	414	415	408
19‡	422	421	419	411	400	398	398	393	397	396	398	414	415	423	419
20‡	418	419	413	418	420	414	415	421	413	409	408	411	413	415	419
21	414	416	414	411	411	411	411	420	413	404	406	410	420	420	422
22	420	419	416	412	405	405	399	401	406	409	408	410	412	415	414
23	412	414	414	414	421	416	415	425	431	424	420	413	413	414	420
24	415	415	411	409	403	397	389	383	380	380	392	403	409	410	408
25	416	415	421	423	427	418	413	412	406	401	404	410	414	416	419
26	419	421	426	425	421	416	415	413	408	405	408	410	413	413	414
27	412	413	421	423	421	416	410	406	408	405	405	405	405	406	410
28	416	420	423	423	421	413	413	415	409	402	400	404	411	414	415
29	419	418	416	421	415	408	408	398	387	387	391	399	404	410	411
30	411	410	412	414	409	405	405	403	402	396	401	404	405	406	410
31	414	416	415	410	409	405	401	402	402	400	403	409	409	409	411
Mean	418	419	418	415	412	407	404	405	404	405	407	411	413	414	414
Mean†	420	421	416	415	409	403	401	404	405	408	411	413	414	415	415
Mean‡	418	418	415	411	410	407	405	405	405	405	405	412	415	418	413

* Loss of record (day omitted for mean)

† Five international quiet days.

‡ Five international disturbed days.

TABLE 16

Hourly Values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

October

2,000 γ plus tabular quantities

Hours G. M. T.									Mean	Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23		Time	Mag	Time	Mag		
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H M	γ	H. M	γ	γ	
419	418	420	422	428	426	423	421	420	420	19 15	435	12 48	403	32	1
418	419	415	418	419	421	420	420	421	415	01 17	426	05 40	393	33	2
416	413	412	413	413	413	413	411	410	412	03 10	425	08 05	397	28	3
419	418	419	414	414	416	420	415	415	412	20 35	426	04 35	396	30	4
419	421	421	422	423	424	423	424	423	416	18 55	426	05 00	397	29	5†
415	418	418	419	421	421	421	421	419	412	18 50	427	06 35	381	46	6‡
421	421	422	424	424	424	423	422	423	415	03 10	426	07 25	384	42	7
415	422	422	423	422	421	420	425	420	116	21 55	430	06 30	398	32	8
420	421	422	423	423	422	421	420	421	415	17 15	428	07 00	380	48	9
415	412	416	420	424	423	418	419	420	413	18 50	435	08 25	389	46	10
421	416	421	425	423	423	423	422	421	416	17 50	430	07 27	401	29	11
419	418	419	419	421	422	422	424	423	414	21 50	425	08 25	393	32	12†
413	414	415	416	418	416	416	418	418	412	22 07	426	05 10	394	32	13†
420	419	418	419	421	421	421	420	422	418	03 40	428	08 10	398	30	14†
370	374	386	416	413	415	427	422	415	409	21 12	441	15 30	357	84	15‡
415	422	415	424	422	426	421	418	421	415	19 55	438	06 05	392	46	16‡
421	423	413	419	418	421	414	415	415	412	15 30	443	05 40	390	53	17
426	410	420	422	423	432	426	421	420	413	20 15	443	10 20	389	54	18‡
423	421	423	431	421	420	420	418	416	413	18 03	434	06 57	387	47	19‡
420	421	425	421	424	426	422	420	414	417	19 35	432	09 45	400	32	20‡
422	421	421	423	424	423	421	420	418	417	14 20	427	09 06	391	36	21
416	421	415	423	419	416	413	413	412	412	17 40	427	06 42	389	38	22
421	421	422	425	422	421	419	418	416	419	07 40	433	12 05	404	29	23
412	418	420	421	421	422	421	420	419	407	19 55	425	08 25	374	51	24
421	421	423	423	423	422	420	419	419	417	03 20	432	09 20	390	42	25
415	416	418	418	419	418	416	415	413	416	02 11	428	08 40	398	30	26
414	412	412	411	416	416	416	420	418	413	03 08	424	08 20	397	27	27
415	415	418	416	419	419	418	418	416	415	03 05	425	10 15	396	29	28
414	415	419	414	413	410	416	418	413	409	02 07	423	08 35	377	46	29
412	414	414	415	414	418	416	414	413	409	20 10	423	09 05	392	31	30
413	413	415	416	418	418	418	416	416	411	20 10	421	09 00	396	25	31
416	416	417	420	420	421	420	419	418	414					38	Mean
417	418	418	419	421	421	421	421	421							Mean†
411	410	414	423	421	424	423	420	417							Mean‡

^ Loss of record (day omitted for mean).

† Five international quiet days.

‡ Five international disturbed days.

TABLE 17

Hourly Values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

November

2,000 γ plus tabular quantities

Date	Hours G. M. T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	419	419	418	418	421	413	415	416	412	411	409	411	415	415	416
2†	415	417	423	425	431	424	419	421	424	414	411	417	417	417	418
3	419	421	421	419	402	400	401	400	394	396	399	403	404	406	407
4	413	414	414	413	415	413	409	409	405	401	401	404	408	411	413
5	414	415	413	411	405	399	402	409	412	413	412	411	411	416	415
6	418	415	414	413	412	414	418	415	408	407	405	405	405	402	404
7	405	404	405	408	403	396	401	402	404	409	412	411	407	407	408
8	415	415	417	415	411	396	399	400	403	405	409	412	408	405	403
9†	407	404	406	404	408	407	409	412	411	414	415	416	415	414	414
10†	418	418	416	417	408	403	404	405	400	396	397	403	406	408	409
11	418	419	421	419	419	418	418	417	413	412	411	411	413	414	416
12	414	419	417	416	406	401	407	402	400	400	406	405	405	412	404
13‡	416	417	422	430	433	431	421	422	422	419	413	412	409	399	415
14‡	415	415	414	415	418	419	419	416	415	414	415	415	411	418	424
15‡	418	419	423	421	408	406	408	412	407	414	422	419	408	409	418
16‡	415	415	413	409	412	409	411	406	411	413	414	414	417	417	415
17	416	416	414	417	415	412	405	400	400	404	405	407	406	404	412
18	408	407	408	409	421	428	430	428	425	425	419	412	418	418	419
19†	418	418	418	414	408	413	412	414	414	415	406	408	408	408	403
20	409	407	406	413	415	408	414	423	419	416	413	407	409	409	408
21	405	404	404	407	405	403	406	408	415	422	418	415	414	418	417
22	417	416	415	413	408	406	409	406	403	404	406	409	411	411	411
23	412	411	408	404	408	408	417	413	402	399	396	403	411	413	414
24	413	416	421	426	419	422	431	439	427	418	411	412	413	414	415
25	419	418	421	423	425	424	427	426	421	408	406	405	407	408	413
26	413	413	412	409	409	413	418	421	418	415	413	409	412	414	414
27	416	417	416	424	431	430	426	419	418	419	422	415	415	417	415
28†	418	415	414	417	416	414	414	416	417	418	418	414	408	411	412
29	408	408	406	406	403	401	407	409	408	404	401	404	407	411	411
30†	408	407	405	407	402	400	*	†	*	*	413	411	408	409	408
Mean	414	414	414	415	414	411	413	413	411	411	410	410	410	411	413
Mean†	415	413	415	416	416	412	412	413	413	411	410	413	411	413	413
Mean‡	416	417	418	418	416	416	414	414	414	415	414	414	411	410	415

* Loss of record (day omitted for mean)

† Five international quiet days.

‡ Five international disturbed days

TABLE 17

Hourly Values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

November

2,000 γ plus tabular quantities

Hours G. M. T									Mean	Maximum		Minimum		Range	Date		
15	16	17	18	19	20	21	22	23		Time	Mag	Time	Mag				
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H	M	γ	H	M	γ		
415	416	417	422	423	417	417	418	417	416	18	25	426	11	00	397	29	1
417	421	422	422	422	422	421	419	419	420	06	33	435	09	47	401	34	2†
408	412	417	422	118	115	415	413	413	409	03	10	424	08	05	392	32	3
413	413	415	417	416	416	416	415	415	412	03	45	421	09	57	397	24	4
416	419	422	426	426	425	423	421	119	415	19	10	429	05	10	393	36	5
404	404	408	408	407	406	405	405	404	409	06	25	421	13	20	399	22	6
408	412	412	409	413	413	415	415	415	408	20	30	418	01	52	391	27	7
407	407	411	411	411	412	412	409	406	408	03	15	419	05	00	387	32	8
414	415	415	416	418	418	418	416	417	417	13	15	421	01	15	396	25	9‡
409	409	411	412	412	416	416	415	418	409	21	20	422	08	25	389	33	10†
418	416	415	415	414	414	412	415	415	416	03	00	421	09	35	402	22	11
413	413	417	416	409	412	417	421	116	410	21	45	426	13	15	391	35	12
421	424	424	416	413	423	422	415	414	419	03	00	436	12	45	390	46	13‡
426	425	426	426	119	422	417	422	419	419	17	25	428	12	25	395	33	14‡
419	423	417	422	428	415	414	415	415	416	18	31	438	07	46	397	41	15‡
417	418	414	416	413	415	415	415	417	414	16	00	426	07	10	399	27	16‡
412	409	412	412	411	409	414	414	111	110	03	15	421	07	20	391	30	17
423	421	419	421	418	417	418	418	417	419	05	32	434	10	50	405	29	18
412	414	415	415	417	421	422	413	411	413	20	10	426	14	30	395	31	19‡
406	411	409	415	416	411	409	412	406	411	07	20	426	15	37	401	25	20
417	417	416	415	419	421	414	413	416	413	09	00	427	05	25	394	33	21
408	412	413	413	411	411	408	409	411	410	03	00	421	08	00	397	24	22
418	419	422	422	414	404	412	408	412	410	17	00	431	10	25	380	51	23
414	413	413	414	418	418	419	418	421	419	06	52	443	10	25	404	39	24
416	418	419	417	418	419	419	419	417	417	06	10	431	12	30	394	37	25
414	414	417	418	417	419	418	417	417	415	07	07	424	11	20	401	23	26
414	417	422	418	417	418	417	416	418	419	03	48	435	11	15	405	30	27
413	411	411	409	412	412	409	408	408	413	03	35	421	11	42	402	19	28†
409	411	411	411	412	409	409	409	409	408	07	10	413	09	50	393	20	29
408	408	407	407	407	405	403	402	402	*	*	*	*	*	*	*	*	30‡
414	415	416	416	416	416	415	415	414	413							31	Mean
413	414	415	415	416	417	415	415	415									Mean†
419	421	419	419	418	419	418	416	415									Mean‡

* Loss of record (day omitted for mean).

† Five international quiet days

‡ Five international disturbed days

TABLE 18

Hourly Values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

December	2,000 γ plus tabular quantities														
	Hours G. M. T.														
Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1†	405	403	406	408	411	402	408	410	412	414	412	408	404	404	404
2†	403	403	403	400	407	408	406	408	412	415	412	411	410	409	410
3	411	408	406	409	407	406	409	406	405	409	410	406	403	403	403
4†	405	409	406	405	410	409	409	414	412	408	403	403	411	410	409
5	409	407	405	410	408	410	412	412	407	403	404	402	399	399	398
6	402	399	398	400	403	404	403	400	394	390	394	395	390	389	385
7	393	392	395	405	430	436	438	437	434	426	418	409	410	411	410
8	407	410	404	404	398	394	396	396	393	392	393	395	396	397	396
9	400	395	392	394	405	407	406	403	397	395	397	400	403	403	403
10	405	404	405	405	396	398	396	395	392	389	386	388	392	396	398
11†	396	398	400	403	412	410	409	406	402	399	395	394	396	389	397
12†	403	403	400	402	404	403	403	400	399	394	399	398	398	403	403
13†	408	408	407	409	411	111	414	414	407	402	402	402	403	402	407
14	408	406	405	403	400	399	402	396	392	389	393	398	402	403	405
15	409	407	403	402	400	399	397	394	396	396	399	404	402	403	401
16	402	403	404	405	409	407	406	406	404	400	396	396	399	403	402
17	397	395	395	393	392	388	392	393	394	392	393	390	390	393	393
18	393	392	390	387	392	385	384	388	390	389	390	392	396	395	395
19	395	395	396	399	402	400	395	392	389	386	385	389	397	398	400
20	397	397	398	405	406	407	407	410	411	404	402	400	402	402	402
21	400	400	402	404	403	399	400	407	410	406	402	403	403	403	402
22	400	399	397	393	389	384	383	386	393	394	384	384	392	396	395
23†	395	395	393	388	385	380	380	384	392	393	393	395	398	400	400
24	403	400	398	399	392	388	385	386	399	407	410	406	398	398	397
25	403	406	405	398	389	372	367	375	381	386	393	395	394	396	396
26	403	405	405	400	392	389	387	387	393	399	407	409	404	403	402
27†	398	400	403	406	404	393	383	381	383	396	403	402	399	400	402
28	404	405	404	398	383	370	375	382	395	402	405	400	395	390	392
29	394	395	397	399	396	381	383	385	395	404	406	404	402	398	397
30†	394	395	395	390	393	386	388	390	399	412	417	410	400	398	399
31†	396	396	396	400	397	393	387	386	388	396	406	407	402	397	399
Mean	401	401	400	401	401	397	397	398	399	400	400	400	400	400	400
Mean†	399	398	399	397	399	394	394	396	401	406	408	406	403	402	402
Mean‡	402	404	403	405	408	405	404	403	401	400	400	400	401	401	401

* Loss of record (day omitted for mean).

† Five international quiet days.

‡ Five international disturbed days.

TABLE 18

Hourly Values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich Mean Time)

December

2,000 γ plus tabular quantities

Hours G. M. T.									Mean	Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23		Time	Mag.	Time	Mag.		
γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	H M	γ	H M	γ	γ	
403	406	405	404	405	403	402	402	403	406	04 40	418	12 15	397	21	1
410	408	409	408	410	411	409	409	410	408	08 46	424	11 55	398	26	2
405	406	406	405	405	405	407	406	404	406	05 43	414	13 30	400	14	3
409	410	408	407	410	408	407	406	405	408	06 52	417	10 30	393	24	4
400	402	404	405	404	403	402	402	403	405	05 35	415	09 17	395	20	5
393	395	399	400	397	398	397	396	395	397	04 30	408	13 55	382	26	6
410	410	410	409	409	407	408	407	407	413	06 30	440	11 15	389	51	7
396	395	397	398	397	398	397	396	398	398	23 51	412	09 55	386	26	8
406	405	405	406	404	416	408	407	407	403	20 05	424	09 25	387	37	9
399	402	400	403	403	402	400	400	399	398	17 15	409	10 15	381	28	10
407	407	409	407	407	405	406	400	399	402	04 35	415	13 08	384	31	11
407	406	408	411	404	402	404	406	405	403	18 00	418	08 40	383	35	12
410	411	411	407	414	410	408	407	408	408	06 30	416	09 30	390	26	13
406	405	406	404	407	409	408	408	407	403	19 30	412	09 10	380	32	14
406	405	404	403	401	405	403	402	400	402	19 25	412	07 20	385	27	15
400	402	400	398	398	400	400	399	399	402	03 30	412	10 15	388	24	16
395	397	396	396	394	393	392	397	395	394	22 15	404	04 35	384	20	17
395	396	396	399	396	394	393	395	395	392	17 48	405	05 35	374	31	18
400	402	403	398	399	400	399	398	396	396	03 00	405	09 10	381	24	19
404	404	402	406	408	406	404	403	402	401	07 35	417	11 20	390	27	20
402	400	402	400	402	402	399	398	398	402	08 00	414	14 25	396	18	21
394	397	397	398	404	402	399	396	397	394	19 10	415	10 55	378	37	22
402	404	406	406	407	406	406	403	402	396	18 15	412	05 53	370	42	23
397	396	396	396	397	396	399	399	400	398	10 00	414	05 53	377	37	24
397	398	402	399	398	399	398	399	403	394	22 15	409	06 10	361	48	25
402	400	400	402	402	403	402	400	399	400	10 35	414	07 07	380	34	26
402	400	402	403	402	400	402	406	405	399	03 15	412	06 35	376	36	27
395	396	396	395	397	396	395	395	396	394	09 36	410	05 30	363	47	28
399	397	399	402	396	396	395	397	396	392	03 10	408	05 10	372	36	29
402	403	398	397	397	397	396	397	396	398	09 54	419	04 42	385	34	30
397	398	402	400	400	400	396	397	396	397	10 10	409	06 23	382	27	31
402	402	403	402	402	402	401	401	401	400					31	Mean
403	404	404	403	404	403	402	402	401							Mean
407	407	408	407	407	405	405	405	404							Mean

* Loss of record (day omitted for mean)

† Five international quiet days.

‡ Five international disturbed days.

TABLE 19
PRINCIPAL MAGNETIC STORMS

July—December, 1953

Greenwich date 1953	Storm time		Sudden commencement			Degree of activity (4)	Maximal activity Greenwich day	Ranges			Remarks	
	G M T of beginning H M	G M T of ending D H ⁽¹⁾	Type (2)	Amplitude (3)				D	H γ	Z γ		
				D	H γ							Z γ
July 23	08 06	24 24	s c	+1	+30	+10	m	23	3	160	64	
July 26	02 40	30 01					m	27	2	156	52	
August 23	03 50	25 18					m	23	3	200	62	
September 18	15 26	21 21					m	19	3	200	73	
September 23	04 10	24 20					m	23	3	156	62	
October 15	08 42	22 15	s c		+16	+10	m	15	4	240	79	Crochet observed between 0540 and 0610 hrs. on the 14th
November 12	12 10	21 13					m	13	6	140	41	

The following symbols and conventions have been used according to recognised practice —

(1) Approximate time of ending of storm construed as the time of cessation of reasonably marked disturbance movements in the traces

(2) s c = sudden commencement, () = Gradual commencement

(3) Signs of amplitude of 'D' and 'Z' taken algebraically (D—reckoned negative being westerly); (Z—reckoned positive being vertically downwards).

(4) Storm described by three degrees of activity: (m)—for moderate (when range is less than 250 γ), (ms)—for moderately severe (when range is between 251 γ and 400 γ), (s)—for severe (when range is above 400 γ)