

# Kodaikanal Observatory

Bulletin No. CXL

PART I

## Summary of prominence observations for the First half of 1953

The results of observations of prominences made at Kodaikanal Observatory during the first half of 1953 supplemented by data computed from photographs supplied by Mount Wilson and Meudon Observatories for those days on which Kodaikanal had imperfect or no observations, are given in this bulletin.

*Calcium prominences at the limb.*—During the half year under review, photographs of Calcium prominences at the limb were obtained at Kodaikanal on 151 days which were counted as 147½ effective days after giving due weightage to the photographs according to their quality. Spectroheliograms for 24 days were obtained from Mount Wilson Observatory and for 13 days from the Meudon Observatory. In all complete observations were available for 177 days which were counted as 173½ effective days.

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

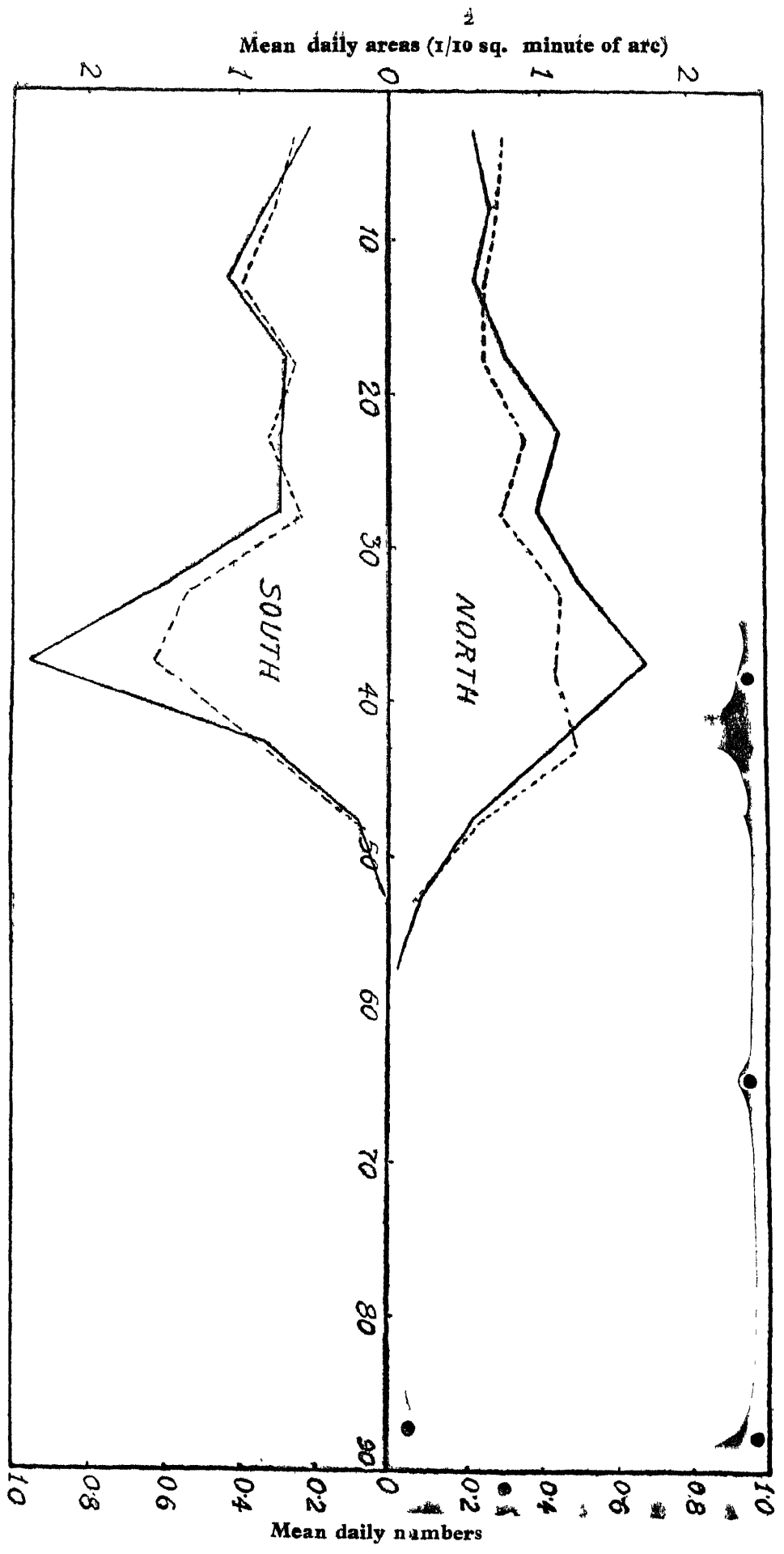
Combined data		
	Mean daily areas (square minutes)	Mean daily numbers
North . . . . .	0.90	3.57
South . . . . .	0.93	3.37
TOTAL . . . . .	1.83	6.94

These figures when compared with the corresponding values of the previous half year show a decrease of activity, the decrease in area being 15.7% and the decrease in number 21.1%.

The values based on Kodaikanal Observations alone are given below for comparison with similar data —

Kodaikanal data only		
	Mean daily areas (sq. minutes)	Mean daily numbers
North . . . . .	0.90	3.63
South . . . . .	0.92	3.43
TOTAL . . . . .	1.82	7.06

The distribution of areas and numbers in five degree ranges of latitude as obtained from the combined data is represented in diagram I.



**DIAGRAM I**  
 Mean Areas and Mean Numbers  
 of  
 Calcium Prominences  
 January to June 1953  
 Mean Areas—Full line.  
 Mean Numbers—Broken line.

The curves for area show pronounced peaks of activity in the latitude zone  $35^{\circ}$  to  $40^{\circ}$  in both the hemispheres with secondary maxima in the zone  $20^{\circ}$  to  $25^{\circ}$  in the northern hemisphere and  $10^{\circ}$  to  $15^{\circ}$  in the southern hemisphere.

The monthly, quarterly and half-yearly areas, numbers, heights and extent of prominences are shown in the following table :—

TABLE I

Months 1953	Number of days (effective)	Area (Square minutes)	Numbers	Daily means		Mean height "	Mean extent "
				Area (sq. min.)	Numbers		
January . . . . .	27½	38.40	189	1.36	6.87	34.38	3.08
February . . . . .	27	40.70	153	1.50	5.70	40.81	3.16
March . . . . .	30½	55.65	243	1.82	7.97	32.41	2.88
April . . . . .	30	57.50	210	1.92	7.00	39.39	2.18
May . . . . .	31	64.70	221	2.09	7.13	43.47	2.30
June . . . . .	27½	61.00	191	2.25	6.94	45.28	2.53
1st quarter	85	134.75	585	1.58	6.88	35.26	3.01
2nd quarter .	88½	183.20	622	2.07	7.03	42.65	2.36
1st half-year .	173½	317.95	1207	1.73	6.96	39.06	2.68

The distribution of prominences about the sun's axis of rotation is given below :—

1953 January—June	East	West	Percentage East
Areas (sq. minutes)	142.25	157.70	44.74
Numbers	552	655	45.56

*Observations with the Prominence Spectroscope.*—Only one metallic prominence was observed during the half year. The details are given below :—

TABLE II

Date 1953	Time I.S.T. h. m	Base °	Latitude		Limb	Height in H-alpha	Lines in which observed	Remarks
			North	South				
April 10	08 30	1	—	10	W	10"	D <sub>1</sub> D <sub>2</sub> b <sub>1</sub> b <sub>2</sub> b <sub>3</sub> b <sub>4</sub>	Prominence displaced to red by. 1 Å

An eruptive prominence was observed in the NE limb between 0430 and 0545 U. T. on 26-2-53. The prominence reached a maximum height of 260" after which it disintegrated. Maximum doppler shifts of about  $6\text{Å}$  to red were observed in some parts of the prominence. During the eruptive phase of this prominence three radio-noise bursts were recorded by the 100 Mc/s. Radio Telescope of this observatory (Nature, Vol. 132, p. 446).

Particulars of displacements observed in the chromosphere and prominences with the spectroscope are given in the following table :—

Date	Time I.S.T		Latitude		Limb	Displacements		Remarks
	h.	m.	North	South		Red. A°	Violet. A°	
February 26 .	11	00	35	..	E	6	3.0	Eruptive prominence.
April 10 .	08	30	..	10	W	1	0.5	Metallic.
April 22 .	09	51	10	..	E	3	..	Near a spotgroup.
May 8 .	08	45	7	..	W	0.5	..	Near a spotgroup.

Bright reversals of H-alpha line and dark reversals of D<sub>3</sub> line were observed on two occasions in the vicinity of spotgroups.

Heights of prominences in K, H $\alpha$ , D<sub>3</sub> and H $\beta$  lines.—The mean heights of 12 prominences observed in the different lines are given below :—

K	. . . . .	47".9
H $\alpha$	. . . . .	42".8
D <sub>3</sub>	. . . . .	41".1
H $\beta$	. . . . .	38".1

Observation 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	8	3	7	4	11	..	..	11
Displacements in dark markings	8	1	4	5	9	..	..	9

#### Solar Flares

Details of solar flares observed during the period are given in the following table :—

Date 1953	Time (I.S.T.)			Mean latitude	Mean longitude from central meridian	Intensity	Maximum width of H $\alpha$ line observed	Remarks
	Beg. h. m.	Max. h. m.	End h. m.					
April 2 . .	07 39	—	08 00	1°S	35°E	1	1.24°	
April 27 . .	10 45	—	11 05	11°N	20°E	1	1.484°	

*Sudden disappearances of prominences and dark markings.*—Details of K-prominences and H-alpha absorption markings whose sudden disappearances were observed are given below :—

Nature of phenomenon	Date and time of phenomenon when last seen			Coordinates of phenomenon		Remarks
	Month	Date	I S T h. m	Mean latitude	Mean longitude	
Prominence	February	2	14 02	15°S	90°E	Disappeared next day.
Prominence	February	26	11 57	33 35°N	90°E	Eruptive prominence Disappeared by 1441 hrs
Prominence	April	8	10 50	35°N	90°E	Disappeared next day.
Prominence	May	22	07 38	45°N	90°E	Disappeared by 0838 same day.

*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 161 days. Spectroheliograms were also received for 18 days from Mount Wilson Observatory and 13 days from Meudon Observatory. On the whole records were available for 180 days which were counted as 173½ 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 .—

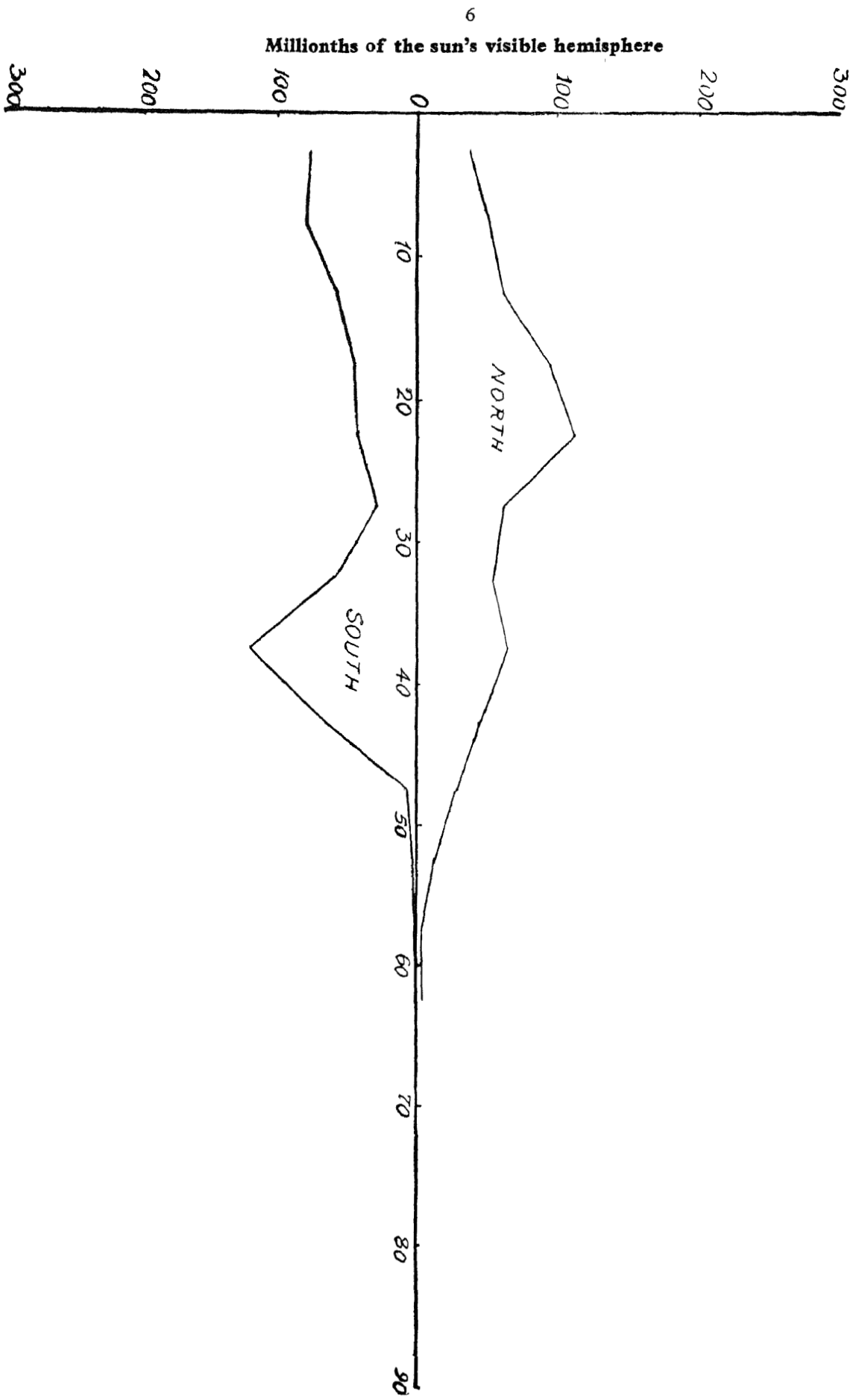
Combined data		
	Mean daily area (millionths of the sun's visible hemisphere)	Mean daily number
North . . . . .	629.2	6 05
South . . . . .	573.5	5 61
TOTAL .	1202.7	11 66

On comparing with the previous half year's values, these figures show a decrease in activity both in areas and numbers as in the case of prominences. The areas show a decrease of 29.6% and the numbers a decrease of 40.3%.

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

Kodaikanal data only		
	Mean daily areas (millionths of the sun's visible hemisphere)	Mean daily numbers
North . . . . .	623.2	5.96
South . . . . .	584.6	5.73
TOTAL .	1207.8	11.69

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



**DIAGRAM II**  
 Mean Areas of H-alpha  
 I emissions.  
 January to June 1953

The zones of maximum activity of the markings are situated in latitudes  $20^{\circ}$ - $25^{\circ}$ N and  $35^{\circ}$ - $40^{\circ}$ S.

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

January to June 1953	East	West	Percentage east
Total area (millionths of the sun's visible hemisphere)	104,821.5	103,663.7	50.24
Total number . . . . .	1034	987	51.1

Unlike the previous half year both the areas and the numbers show an eastern excess.

Thanks are due to the co-operating observatories for the photographs supplied by them.

KODAIKANAL,  
MAY, 1954.

A. K. DAS,  
*Director,*  
*Kodaikanal Observatory*

## PART II

## MAGNETIC OBSERVATIONS FOR THE FIRST HALF OF 1953

Brief descriptions of the absolute instruments, the variometers and the system of observations are available in Bulletins No. CXXXII and No. CXXXVI of this observatory. The data given in this bulletin are derived mainly from the records of the La Cour instruments. When La Cour records were not available, the Watson magnetograms were used.

The adopted values of the scale coefficients of the Horizontal Force, Vertical Force and Declination magnetographs for the first half of 1953 are 80.0  $\gamma$ /cm., 110.0  $\gamma$ /cm. and 15'/cm. respectively.

*Trends in Magnetic variations.*

The mean value of and the range in Horizontal Force for the first six months of 1953 were 39441  $\gamma$  and 101  $\gamma$  respectively, this showing an increase over the corresponding values, namely 39412  $\gamma$  and 97  $\gamma$  for the six months of the 2nd half of 1952. For the vertical force, the mean value decreased from that for the previous six months from 2433  $\gamma$  to 2414  $\gamma$ , but the mean range increased from 36  $\gamma$  to 38  $\gamma$ . There was only a slight increase in the mean westerly declination, from 2° 34' 3" for the 2nd half of 1952 to 2° 34' 6" for the first half of 1953. The mean range in D, however, decreased from 3' 5" to 3' 1".

The recurrence tendency of moderate magnetic storms continued to be very pronounced as during the preceding 6 months.

KODAIKANAL,  
May, 1954.

A. K. DAS,  
Director,  
Kodaikanal Observatory.



## TABLES

TABLE I

Hourly values of Declination (Westerly), 1953

[Averages for sixty minutes centered at the full hours of Greenwich mean time]

2° plus tabular quantities

January

Date	Hours G. M. T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	34 7	34 5	34 8	34 8	34 7	34 8	34 4	33 6	33 2	33 0	32 9	32 7	32 9	33 2	33 3
2	34 7	35 1	35 9	36 2	36 2	36 5	35 7	34 4	33 3	33 0	32 6	32 7	33 5	33 5	33 8
3	34 5	35 0	35 3	35 1	35 3	35 4	35 4	35 0	34 2	33 5	33 2	33 2	33 6	33 9	33 9
4†	34 4	34 4	33 9	33 8	35 4	37 3	36 3	35 9	34 8	33 8	34 8	34 8	34 7	34 8	35 0
5††	34 8	35 0	35 1	35 6	36 9	38 0	38 3	37 7	34 2	31 7	29 9	29 3	29 6	31 1	31 7
6	34 7	34 8	35 4	35 0	35 4	36 3	36 3	35 3	33 6	32 9	32 7	33 2	33 5	33 5	33 3
7	34 1	34 1	33 6	33 8	35 9	36 9	36 0	34 7	33 3	32 7	32 7	32 9	33 0	33 0	33 3
8	35 6	35 7	35 7	33 9	35 9	39 2	37 2	34 4	33 3	32 7	32 6	32 6	33 2	33 8	33 8
9	35 3	35 4	35 3	35 0	35 3	35 6	36 0	34 7	33 5	33 3	33 3	33 2	33 3	3 9	34 1
10†	35 6	35 7	35 4	34 8	35 0	36 2	36 5	36 5	35 3	34 2	33 9	33 9	33 9	33 8	33 8
11	35 3	35 9	35 7	35 3	34 1	34 7	35 7	35 4	35 3	34 8	34 2	33 5	33 9	34 1	34 1
12	35 1	35 1	35 3	34 8	34 4	35 3	35 4	35 3	34 7	33 5	33 3	33 9	34 1	33 9	33 9
13	35 3	35 6	36 0	35 4	34 1	34 7	35 4	35 6	35 0	34 4	33 3	33 3	33 5	33 8	33 6
14	34 8	34 9	35 6	35 6	34 4	34 7	35 6	35 9	35 4	34 8	34 4	33 8	33 8	33 8	33 8
15†	35 4	35 6	35 9	35 7	35 3	35 3	35 3	36 2	35 9	34 8	34 2	34 5	34 5	34 5	34 5
16†	35 1	35 3	35 4	35 3	34 8	34 2	34 5	34 5	34 4	33 8	33 5	32 9	33 2	34 1	34 1
17†	35 0	35 3	35 7	35 6	35 0	35 3	35 1	35 0	34 8	34 2	33 9	33 8	33 9	33 8	33 8
18	34 8	35 0	35 1	34 7	34 1	34 1	34 5	34 1	34 5	34 5	33 6	33 0	33 2	33 5	33 3
19††	34 8	35 3	36 3	36 5	36 6	36 0	34 7	33 3	32 6	32 3	31 8	32 1	32 3	32 0	31 7
20	34 7	34 2	34 1	33 9	34 8	35 7	36 0	35 7	34 2	32 7	31 4	31 8	32 6	32 7	33 0
21	34 7	34 4	33 9	33 5	34 4	35 6	36 0	35 7	34 8	34 4	34 1	34 1	33 9	34 5	34 2
22	35 6	35 4	34 8	33 8	32 6	33 0	33 8	34 2	34 4	34 7	34 4	33 5	33 3	33 5	33 9
23	34 4	34 7	34 5	34 7	35 4	35 6	36 2	36 5	35 9	35 4	34 8	34 4	34 1	34 1	34 1
24	34 8	35 1	35 0	34 2	33 9	34 2	35 3	35 3	34 8	34 8	34 1	33 5	33 6	33 8	33 8
25	35 1	35 4	35 6	35 3	35 4	35 6	36 3	36 2	35 0	34 2	34 1	32 6	33 3	33 9	33 8
26††	34 8	35 0	35 0	34 8	34 1	35 3	35 6	35 3	34 8	34 2	33 3	33 5	33 9	33 6	33 6
27††	35 0	35 0	35 0	35 1	35 4	35 6	35 7	35 1	34 5	34 5	34 7	34 8	34 1	33 5	33 3
28††	35 0	35 4	35 3	34 8	34 8	34 5	35 3	35 6	35 1	34 7	34 4	34 4	34 4	34 5	34 4
29	34 7	34 5	34 8	34 5	34 5	34 1	34 7	33 5	33 0	32 9	32 7	33 6	34 4	34 4	33 9
30	35 1	35 3	35 6	35 1	34 4	34 7	34 5	34 2	34 1	33 8	33 3	33 8	34 1	34 2	34 1
31	35 1	35 1	35 1	35 0	35 6	36 6	36 6	35 7	35 0	34 4	34 1	33 8	34 5	34 5	34 4
Mean	34 9	35 1	35 2	34 9	35 0	35 4	35 6	35 3	34 4	33 8	33 4	33 3	33 5	33 7	33 7
Mean†	35 1	35 3	35 3	35 0	35 1	35 7	35 5	35 6	35 0	34 1	34 1	34 0	34 0	34 2	34 2
Mean††	34 9	35 1	35 3	35 4	35 6	35 9	35 9	35 4	34 2	33 5	32 8	32 8	32 9	32 9	32 9

\* Loss of record, day omitted for means.

† Five International quiet days

†† Five International disturbed days

TABLE I

Hourly values of Declination (Westerly), 1953

[Averages for sixty minutes centered at the full hours of Greenwich mean time]

2° plus tabular quantities

January

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 8	34 1	33 9	33 9	34 1	34 1	34 2	34 4	34 7	33 9	05 20	35 3	10 35	32 7	2 6	1
34 1	33 9	34 1	34 5	34 1	33 9	34 1	34 1	34 4	34 3	04 20	36 8	10 20	32 6	4 2	2
34 2	34 1	34 1	34 1	34 1	34 1	34 1	34 2	34 4	34 3	05 10	36 0	10 00	33 2	2 8	3
35 0	34 7	34 7	34 5	34 4	34 5	34 8	35 0	34 8	34 9	05 50	36 5	09 30	33 8	2 7	4†
32 9	33 2	33 6	33 0	33 5	34 1	34 2	34 4	34 7	33 9	05 45	39 2	11 20	29 0	10 2	5††
33 3	33 6	33 8	33 9	33 8	33 8	33 6	33 8	34 1	34 1	05 40	36 5	10 00	32 7	3 8	6
33 3	33 2	33 3	33 9	34 2	34 4	34 7	34 7	35 0	34 0	04 55	37 2	09 05	32 7	4 5	7
33 8	33 8	33 8	33 9	33 9	34 1	34 1	34 2	34 7	34 4	05 00	39 4	09 20	32 3	7 1	8
34 2	34 4	31 5	34 7	34 7	34 7	35 0	35 3	35 3	34 6	06 10	36 5	10 35	33 2	3 3	9
33 8	34 1	34 2	34 5	34 5	34 7	34 8	35 0	35 3	34 8	06 50	36 8	14 30	33 8	3 0	10†
34 2	34 5	34 7	34 7	34 7	34 8	35 0	35 0	35 0	34 8	06 10	36 0	11 10	33 5	2 5	11
33 8	33 8	33 9	33 9	34 1	34 1	34 4	34 7	35 0	34 4	06 40	35 7	09 40	33 3	2 4	12
33 6	33 7	33 8	33 9	34 0	34 0	34 0	34 4	34 6	34 4	06 45	36 0	10 45	33 2	2 8	13
33 8	33 9	34 1	34 1	34 1	34 2	34 2	34 7	35 1	34 6	06 45	36 3	11 10	33 8	2 5	14
34 5	34 5	34 7	34 7	34 8	34 8	34 8	35 0	35 0	35 0	07 10	36 3	09 55	34 2	2 1	15†
34 1	34 1	34 1	34 2	34 2	34 2	34 5	34 7	34 8	34 3	02 15	35 6	11 15	32 9	2 7	16†
33 8	33 8	33 8	33 9	33 9	34 1	34 4	34 5	34 8	34 5	03 20	36 0	11 30	33 8	2 2	17†
33 6	33 6	33 8	33 8	33 9	34 1	34 1	34 5	34 7	34 1	02 00	35 3	11 20	32 7	3 6	18
31 4	32 3	32 7	33 2	33 5	33 6	33 6	33 8	34 1	33 6	03 20	36 8	15 10	31 4	5 4	19††
33 2	33 5	33 5	33 5	33 6	33 9	33 9	34 1	34 2	33 8	06 45	36 3	11 10	31 5	4 8	20
34 4	34 2	34 5	34 5	34 7	34 8	35 3	35 4	35 4	34 6	06 30	36 0	03 20	33 5	2 5	21
34 1	34 1	33 9	34 1	33 9	33 9	33 9	34 2	34 2	34 1	00 00	35 6	03 40	32 6	3 0	22
34 2	34 2	34 1	34 2	34 1	34 4	34 5	34 7	34 7	34 7	06 50	36 5	12 05	33 8	2 7	23
33 8	33 6	33 6	33 8	33 9	34 1	31 4	34 5	34 8	34 3	06 40	35 3	11 20	33 3	2 0	24
33 8	33 6	33 8	33 8	33 8	33 9	34 5	34 7	34 5	34 5	06 10	36 5	11 20	32 0	4 5	25 3)
33 6	33 8	33 9	34 4	34 1	34 2	34 4	34 7	34 5	34 4	05 20	36 2	10 20	33 0	3 2	26††
33 8	34 1	33 9	34 1	33 8	33 8	34 1	34 4	34 7	34 5	06 25	35 7	13 00	33 0	2 7	27††
34 5	34 5	34 4	34 4	34 5	35 0	34 5	34 2	34 7	34 7	06 30	35 6	22 30	33 5	2 1	28††
34 4	34 4	34 2	34 2	34 7	34 8	35 0	35 0	35 0	34 3	04 30	35 4	10 10	32 6	2 8	29
33 9	34 1	34 4	34 5	34 7	34 8	35 0	35 0	35 0	34 5	03 45	35 6	09 45	33 3	2 3	30
34 4	34 4	34 4	34 2	34 4	34 5	34 5	34 7	34 8	34 8	05 10	35 3	11 00	33 8	1 5	31
33 9	33 9	34 0	34 1	34 2	34 3	34 4	34 6	34 7	34 4					3 1	Mean 3
34 2	34 2	34 3	34 3	34 3	34 5	34 7	34 8	34 9							Mean†
33 2	33 6	33 7	33 8	33 9	34 1	34 2	34 3	34 5							Mean††

\* Loss of record, day omitted for means.

† Five International quiet days.

†† Five International disturbed days.

TABLE 2

Hourly values of Declination, (westerly) 1953.

[ Averages of sixty minutes centred at the full hours of Greenwich mean time ]

February

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†	34.7	34.9	35.0	35.0	35.2	35.2	35.3	34.7	33.4	32.9	33.2	33.8	34.0	34.0	34.0
2	35.0	35.5	35.8	35.9	35.8	36.2	35.9	35.3	34.3	33.4	32.9	33.1	33.7	34.3	34.3
3	34.4	34.7	35.0	35.5	35.5	35.0	34.9	34.9	34.4	34.1	33.4	33.2	33.7	34.0	34.1
4	35.2	35.6	35.8	35.8	35.0	35.3	36.2	35.8	34.9	34.1	33.8	33.8	34.1	34.6	34.6
5†	35.5	35.5	35.3	35.3	34.7	34.6	34.9	35.2	34.7	34.3	34.0	33.8	34.4	34.7	34.6
6†	35.0	35.0	35.2	35.3	35.3	35.3	35.5	35.5	34.9	34.4	34.1	34.0	34.1	34.1	34.0
7†	35.3	35.3	35.2	35.0	35.2	35.3	36.4	36.1	35.9	35.0	34.7	34.6	34.6	34.6	34.4
8	35.5	35.5	35.8	35.9	35.8	35.6	35.9	35.8	35.5	35.5	35.3	34.9	34.6	34.4	34.4
9	35.2	35.3	35.3	35.5	36.1	36.1	36.2	35.9	35.6	35.0	34.6	34.6	34.7	34.7	34.4
10	35.2	35.3	35.8	35.6	34.9	35.2	35.6	35.5	34.9	34.9	34.9	34.7	34.6	34.3	34.1
11	34.9	34.7	35.3	35.6	35.5	35.6	35.9	36.2	35.5	34.7	34.4	34.0	34.0	34.0	34.0
12	35.2	35.3	35.5	35.6	34.9	35.0	35.3	34.7	34.4	34.3	34.0	33.5	33.8	34.0	34.0
13†	35.6	35.6	35.8	35.8	35.2	35.6	36.2	35.6	34.7	34.3	34.4	34.4	34.6	34.9	34.9
14	35.0	34.6	34.4	34.9	35.6	36.5	36.8	36.2	34.9	34.1	33.2	33.4	34.1	34.6	34.6
15	35.3	35.0	35.0	35.3	36.4	36.7	36.4	35.9	35.2	34.7	34.3	34.7	34.9	34.9	34.4
16	35.9	35.9	36.1	35.9	34.7	34.7	34.9	35.0	34.7	34.1	33.2	33.4	34.0	34.1	34.0
17	34.9	35.2	35.8	35.8	36.1	36.1	35.9	35.2	34.3	34.3	34.1	34.0	33.8	34.1	34.3
18	35.2	35.2	35.0	35.2	35.0	35.2	35.6	35.6	35.0	34.3	33.7	34.0	34.6	34.7	34.7
19	35.2	35.2	35.3	35.8	35.2	35.5	35.2	35.2	34.9	34.4	33.8	33.2	33.2	33.2	33.2
20	34.6	34.4	34.3	34.3	35.2	35.6	35.9	36.1	36.1	35.8	34.7	34.3	34.1	34.1	34.1
21	35.2	34.9	34.7	35.2	35.9	36.5	36.5	36.4	35.9	35.3	35.0	34.6	34.1	34.1	34.1
22††	34.7	34.3	34.1	34.1	35.2	35.9	36.5	37.0	37.0	36.7	35.9	35.6	35.5	35.2	35.2
23††	33.5	33.7	33.4	34.3	35.0	35.3	34.9	34.4	33.5	34.1	34.3	34.1	33.8	33.8	33.7
24††	34.7	34.9	34.7	34.4	35.3	34.9	35.2	34.7	33.7	33.8	33.8	33.8	33.8	33.8	33.7
25††	33.8	33.8	34.0	34.3	35.0	35.2	35.3	35.3	34.6	34.3	34.0	34.0	33.8	33.7	33.7
26†*	33.8	33.8	33.7	33.8	35.2	35.2	35.3	35.3	35.2	34.9	34.7	34.6	34.0	33.8	34.0
27	35.0	35.0	35.2	35.2	35.2	35.2	35.8	36.5	36.4	35.2	34.9	34.3	34.0	34.9	34.7
28	35.2	35.2	35.2	34.6	33.8	34.1	34.1	34.4	34.3	33.8	34.1	33.8	33.8	33.8	33.8
Mean	35.0	35.0	35.1	35.2	35.3	35.5	35.7	35.3	35.0	34.5	34.2	34.1	34.2	34.3	34.2
Mean†	35.2	35.3	35.3	35.3	35.1	35.2	35.7	35.4	34.7	34.2	34.1	34.1	34.3	34.5	34.4
Mean††	34.1	34.1	34.0	34.2	35.1	35.3	35.4	35.3	34.8	34.8	34.5	34.4	34.2	34.1	34.1

\* Loss of record ; day omitted for means.

† Five international quiet days.

†† Five international disturbed days.

TABLE 2

Hourly values of Declination, (westerly) 1953

(Averages for sixty minutes centred at the full hours of Greenwich mean time.)

2° plus tabular quantities

February

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 1	34 1	34 3	34 3	34 4	34 1	34 1	34 4	34 6	34 3	06 30	35 6	08 40	32 9	2 7	1†
34 3	34 1	34 1	34 1	34 0	34 0	34 0	34 1	34 1	34 5	05 10	36 5	10 00	32 9	3 6	2
34 1	34 3	34 3	34 3	34 4	34 3	34 6	34 9	35 0	34 5	06 45	35 7	10 15	33 1	2 6	3
34 7	34 7	34 9	34 9	34 9	34 9	35 2	35 3	35 5	35 0	06 00	36 2	10 30	33 8	2 4	4
34 4	34 6	34 6	34 4	34 4	34 4	34 6	34 7	35 0	34 7	06 25	35 6	10 30	33 8	1 8	5†
34 0	34 0	34 1	34 4	34 4	34 6	34 6	34 7	35 2	34 7	06 55	35 8	10 15	34 0	1 8	6†
34 4	34 4	34 6	34 6	34 6	34 9	35 0	35 2	35 3	35 0	06 20	37 0	10 55	34 3	2 7	7†
34 4	34 3	34 4	34 3	34 4	34 4	34 6	34 9	35 0	35 0	06 20	36 2	16 00	34 3	1 9	8
34 4	34 7	34 7	34 9	35 0	35 2	35 3	35 3	35 2	35 2	06 05	36 2	09 55	34 3	1 9	9
34 1	34 4	34 3	34 3	34 1	34 0	34 4	35 2	34 7	34 8	06 10	35 9	21 00	34 0	1 9	10
34 1	34 1	34 4	34 4	34 6	34 6	34 7	34 9	35 0	34 8	06 40	37 0	11 00	34 0	3 0	11
34 1	34 3	34 3	34 4	34 4	34 6	34 6	34 9	35 5	34 6	06 30	35 9	10 15	33 5	2 4	12
34 9	34 9	34 9	34 7	34 7	34 9	34 9	35 0	34 9	35 1	06 10	36 7	09 00	34 3	3 4	13†
34 6	34 4	34 6	34 7	34 7	35 0	34 9	35 0	35 0	34 8	06 20	37 1	09 45	33 2	3 9	14
34 4	34 7	34 9	34 9	34 9	34 9	35 0	35 2	35 5	35 2	05 00	36 7	10 00	34 4	2 3	15
34 0	34 3	34 3	34 1	34 3	34 6	34 6	34 6	34 6	34 6	02 50	36 2	10 15	33 1	3 1	16
34 4	34 4	34 7	34 7	34 6	34 7	34 9	35 0	35 2	34 9	04 50	36 7	12 00	33 8	2 9	17
34 7	35 0	35 2	35 2	35 2	35 2	35 2	35 2	35 2	35 0	06 30	36 1	09 45	33 7	2 4	18
33 7	34 0	34 0	34 0	34 1	34 3	34 3	34 4	34 6	34 4	04 45	35 8	11 50	33 1	2 7	19
34 3	34 4	34 4	34 7	34 9	34 9	35 2	35 2	35 2	34 9	07 10	36 2	11 15	34 0	2 2	20
34 3	34 3	34 4	34 4	34 4	34 4	34 6	34 6	34 7	34 9	07 05	36 7	12 10	34 0	2 7	21
35 5	34 9	34 7	34 6	34 4	34 0	34 1	34 6	34 0	35 2	08 10	37 4	23 30	33 7	3 7	22††
33 8	34 0	34 7	34 3	34 0	34 3	34 1	34 1	34 7	34 2	06 30	35 5	08 50	33 4	2 1	23††
34 0	33 8	34 1	33 8	34 3	34 4	34 7	34 7	34 0	34 3	06 10	35 6	07 50	33 5	2 1	24††
33 8	33 8	34 6	34 7	34 7	34 6	34 0	34 3	34 0	34 3	05 20	35 6	13 50	33 4	2 2	25††
34 3	34 0	34 1	35 0	34 4	34 6	35 2	35 2	35 2	34 6	06 30	35 8	16 20	33 7	2 1	26††
35 0	35 2	35 2	35 2	35 3	35 2	35 2	35 3	35 3	35 2	06 35	36 7	11 30	33 8	2 9	27
34 0	34 0	34 3	34 7	34 6	34 9	35 0	34 3	34 1	34 3	02 15	35 3	04 15	33 7	1 6	28 2/
34 3	34 4	34 5	34 5	34 5	34 6	34 7	34 8	34 9	34 7					2 5	Mean
34 4	34 4	34 5	34 5	34 5	34 6	34 6	34 8	35 0							Mean†
34 3	34 1	34 4	34 5	34 4	34 4	34 4	34 6	34 6							Mean††

\* Loss of record ; day omitted for means.

† Five international quiet days.

†† Five international disturbed days.

TABLE 3

Hourly Values of Declination (Westerly), 1953

(Averages for sixty minutes centred at the full hours of Greenwich mean time)

March

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	34.5	34.2	34.0	33.9	33.9	34.3	34.8	35.1	35.4	34.8	33.6	33.7	34.0	34.2	
2††	34.0	33.7	33.6	33.4	34.3	34.9	35.1	35.4	34.8	33.6	32.8	32.5	31.5	32.1	31.3
3	35.8	35.8	35.8	36.6	36.1	36.6	36.3	36.3	36.1	35.5	34.3	33.9	33.6	33.9	34.2
4	34.0	34.0	33.6	33.9	34.8	35.5	36.1	36.0	35.5	34.9	34.6	34.2	34.2	34.3	34.3
5	34.5	34.5	34.5	34.6	35.1	35.5	36.1	36.6	36.6	35.8	35.1	34.0	34.0	34.3	34.3
6	34.2	34.4	34.6	34.3	34.3	34.6	35.4	35.8	35.5	35.4	34.3	34.0	34.0	34.0	33.9
7	33.6	33.6	33.6	33.4	34.6	35.1	35.5	36.1	36.0	35.8	34.9	34.3	34.5	34.6	34.5
8	34.0	33.9	33.9	33.6	33.3	33.6	34.5	35.8	36.0	36.0	35.7	34.5	34.3	34.5	34.8
9††	34.3	34.2	34.0	33.6	33.9	34.5	34.8	34.9	35.4	34.5	34.8	33.9	33.3	33.9	34.0
10	34.0	34.0	34.0	34.0	34.3	34.8	35.7	36.0	35.5	35.5	34.9	34.6	34.6	34.5	34.5
11†	34.0	33.9	33.1	33.1	33.3	34.3	35.1	35.1	35.4	35.4	35.4	35.1	34.6	34.3	34.0
12†	34.1	34.1	34.1	34.3	34.5	35.1	35.8	36.6	36.9	36.1	34.9	34.3	34.5	35.1	35.0
13†	34.7	34.9	35.0	34.3	34.5	35.4	36.6	37.0	36.9	36.6	36.0	35.7	35.1	34.6	34.8
14	35.1	34.6	34.3	34.0	33.6	34.0	34.6	35.4	35.5	35.1	34.5	34.3	34.5	34.6	34.9
15	35.8	35.7	35.1	34.6	34.0	34.9	35.8	35.7	35.5	35.7	35.5	35.1	34.8	34.9	35.0
16	35.5	35.6	35.6	35.7	35.5	35.4	35.7	36.6	36.6	36.1	35.5	35.1	35.1	35.1	34.8
17†	35.5	35.5	35.4	35.1	35.4	35.5	36.1	36.1	36.0	35.8	35.5	35.5	35.4	35.4	35.4
18†	35.1	34.8	34.6	34.3	34.8	35.1	35.5	35.7	36.0	35.5	34.8	34.6	34.6	34.6	34.6
19	35.4	35.4	35.1	34.6	33.9	34.3	34.6	35.1	35.5	35.4	34.6	34.3	34.0	33.9	34.2
20	34.3	34.0	33.6	34.0	34.3	35.1	35.4	36.1	36.1	35.8	35.1	34.5	34.5	34.5	34.3
21	34.5	34.5	33.9	34.2	34.3	34.8	35.2	35.7	35.5	35.1	35.1	34.6	34.5	34.8	35.1
22	34.6	34.3	34.3	34.5	34.8	35.1	34.8	35.5	36.0	35.5	35.1	34.6	34.8	35.1	35.1
23††	34.8	34.6	34.5	34.0	34.3	34.8	35.1	35.1	35.5	35.4	34.8	34.0	34.0	34.0	34.2
24††	34.5	34.2	33.6	34.0	34.3	34.5	35.4	35.5	35.5	35.1	33.9	34.0	34.0	34.2	34.3
25††	34.2	33.9	34.0	34.0	33.6	34.2	34.6	35.4	34.5	34.3	34.0	34.5	34.3	34.3	34.5
26	34.5	34.3	34.2	34.0	33.3	33.3	33.9	34.3	34.5	34.0	33.6	33.6	33.9	34.0	34.0
27	34.5	34.3	34.5	34.5	34.3	34.5	35.4	35.5	35.8	35.1	34.8	34.6	34.5	34.8	34.6
28	34.3	34.0	33.1	32.8	33.1	33.3	34.0	34.6	34.8	35.1	34.5	34.6	34.5	34.2	34.2
29	34.0	33.6	34.0	34.3	34.2	33.9	34.0	34.3	34.5	34.5	34.2	33.9	34.2	34.6	34.8
30	34.5	34.5	34.5	34.6	34.8	35.1	35.8	36.1	35.8	35.1	34.8	34.6	34.6	34.5	34.3
31	34.5	34.3	33.9	33.6	33.9	33.6	33.6	34.2	35.1	34.6	34.3	34.2	34.6	34.8	34.8
Mean	34.6	34.4	34.3	34.2	34.3	34.7	35.2	35.6	35.3	35.3	34.7	34.4	34.3	34.4	34.4
Mean†	34.7	34.6	34.4	34.2	34.5	35.1	35.8	36.1	36.2	35.9	35.3	35.1	34.8	34.8	34.8
Mean††	34.4	34.1	33.9	33.8	34.1	34.6	35.0	35.3	35.1	35.6	34.1	33.8	33.4	33.7	33.7

\* Loss of record, day omitted for means.

† Five international quiet days

†† Five international disturbed days.

TABLE 3  
Hourly Values of Declination (Westerly), 1953  
(Averages for sixty minutes centred at the full hours of Greenwich mean time)

2° plus tabular quantities

March

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.				
34.3	34.3	34.3	34.3	34.2	34.3	34.3	34.3	34.3	34.3	07 15	35.5	11 30	33.6	1.9	1
31.6	32.4	33.1	33.0	34.0	34.6	34.6	34.8	34.8	33.6	07 00	35.5	13 45	31.0	4.5	2††
34.3	34.3	34.3	34.3	34.2	34.2	34.3	34.2	34.0	35.0	05 15	37.5	11 00	33.6	3.9	3
34.4	34.7	34.5	34.5	34.4	34.5	34.5	34.6	34.5	34.6	06 00	35.1	02 30	33.6	2.1	4
34.3	34.3	34.0	34.0	34.0	34.0	33.9	34.0	34.1	34.7	07 10	36.9	11 30	33.9	3.0	5
33.9	34.0	34.0	34.0	34.2	34.3	34.5	34.2	34.0	34.4	06 45	36.1	11 00	34.0	2.1	6
34.3	34.3	34.3	34.3	34.5	34.2	34.0	34.0	34.0	34.5	07 00	36.1	02 35	33.3	2.8	7
34.6	34.5	34.3	34.2	34.3	34.5	34.5	34.2	33.0	34.4	08 30	36.1	22 15	32.7	3.4	8
33.9	34.0	34.0	34.0	34.0	34.0	34.2	33.6	33.3	34.1	07 30	35.5	11 40	33.0	2.5	9†
34.5	34.2	34.0	34.0	34.5	34.6	34.6	34.6	34.3	34.6	06 45	36.1	17 30	33.9	2.2	10
34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.7	09 00	35.4	02 30	33.1	2.3	11†
34.9	34.9	34.7	34.7	34.5	34.5	34.6	34.6	34.6	34.9	08 00	36.9	01 30	34.1	2.8	12†
34.8	35.1	35.1	35.1	35.1	35.1	35.1	35.1	35.1	35.3	07 00	37.0	03 00	34.3	2.7	13†
35.4	35.5	35.5	35.5	35.5	35.5	36.0	36.0	36.1	35.0	07 30	35.4	03 30	33.6	1.8	14
35.0	35.0	35.1	35.1	35.2	35.2	35.2	35.3	35.4	35.2	06 30	35.9	03 40	34.0	1.9	15
34.8	34.6	34.6	34.6	34.6	34.6	34.8	35.1	35.4	35.3	07 20	36.9	13 30	34.5	2.4	16
35.1	35.1	35.1	35.1	35.1	35.1	34.8	34.8	34.8	35.4	06 15	36.3	20 30	34.6	1.7	17†
34.6	34.6	34.6	34.6	34.6	34.6	34.6	34.8	34.5	34.8	08 00	36.0	11 20	34.2	1.8	18†
34.3	33.9	34.0	34.2	34.3	34.5	34.6	34.8	34.5	34.6	08 00	35.5	13 30	33.6	1.9	19
34.3	34.5	34.5	34.3	34.5	34.2	34.0	34.0	34.5	34.6	07 30	36.3	22 20	33.6	2.7	20
35.1	34.6	34.6	34.2	34.0	34.6	34.9	34.9	34.8	34.7	07 35	35.8	19 30	33.7	2.1	21
35.1	34.8	34.6	34.5	34.6	34.5	34.5	34.6	34.8	34.8	08 00	36.0	11 15	34.0	2.0	22
34.5	34.3	33.6	33.9	33.9	33.9	34.0	34.2	34.3	34.4	08 00	35.5	11 10	33.7	1.8	23††*
34.3	34.0	34.0	33.6	34.2	33.9	33.6	34.0	34.3	34.3	06 20	35.7	10 20	33.3	2.4	24††
34.6	34.2	34.0	33.6	33.6	34.3	34.5	34.6	34.6	34.3	06 50	35.4	18 15	33.3	2.1	25††
34.0	34.2	34.0	34.2	34.3	34.5	34.8	34.8	34.3	34.1	07 10	34.8	10 15	33.1	1.7	26
34.6	34.6	34.6	34.6	34.6	34.6	34.8	34.8	34.6	34.7	07 45	35.8	12 10	34.0	1.8	27
34.3	34.0	33.9	34.0	33.9	34.0	34.8	34.2	34.0	34.1	08 45	35.4	03 00	32.8	2.6	28
34.8	34.6	34.5	34.3	34.2	34.0	34.3	34.2	34.3	34.3	15 30	34.9	10 30	33.6	1.3	29
34.3	34.2	34.2	34.2	34.0	34.0	34.0	34.0	34.3	34.6	06 30	36.1	22 05	33.9	2.2	30
34.6	34.5	34.3	34.3	34.0	33.9	33.6	33.6	33.6	34.2	08 10	35.1	05 40	33.3	1.8	31
34.4	34.4	34.3	34.3	34.4	34.4	34.5	34.5	34.4	34.6					2.3	Mean
34.7	34.8	34.7	34.7	34.7	34.7	34.6	34.7	34.6							Mean†
33.8	33.8	33.7	33.6	33.9	34.1	34.2	34.2	34.3							Mean††

\* Loss of record ; day omitted for means.

† Five international quiet days

†† Five international disturbed days.

TABLE 4

Hourly values of Declination, (westerly), 1953

[Averages for sixty minutes centred at the full hours Greenwich mean time]

April

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	33.7	33.6	33.6	34.2	35.5	36.1	36.3	36.1	35.7	34.5	34.5	34.8	35.1	34.8
2	34.2	34.0	33.6	34.0	34.6	34.8	35.4	36.0	37.0	35.8	34.6	34.3	34.3	34.5	34.5
3	34.0	33.9	33.3	34.0	34.2	34.3	34.6	34.6	34.6	34.5	34.3	34.0	34.2	34.3	34.5
4††	33.9	33.9	34.3	34.5	33.6	34.2	34.6	35.4	35.4	35.1	34.8	34.3	34.0	33.6	34.2
5†	33.9	34.0	33.9	33.7	34.0	34.3	35.5	36.0	35.7	36.1	34.0	33.1	33.1	33.6	34.0
6†	33.9	33.6	33.3	33.6	34.2	35.1	35.7	36.6	36.3	35.8	34.8	34.3	34.3	34.5	34.6
7†	33.9	33.3	33.0	32.8	33.6	34.3	35.1	35.5	35.5	34.8	34.0	33.6	33.6	33.6	33.6
8	33.6	33.3	33.0	33.0	33.3	34.2	35.5	36.6	36.1	35.5	34.5	34.0	34.2	34.5	34.3
9	33.9	33.1	32.8	32.5	33.0	34.2	35.8	36.9	36.6	35.8	35.1	34.6	34.8	35.1	35.1
10	34.2	33.4	33.3	34.0	35.4	36.0	36.6	37.0	36.6	35.8	34.6	33.9	34.0	34.6	34.8
11	34.0	33.6	33.0	33.0	32.8	33.9	34.5	34.6	34.5	34.0	33.6	33.0	34.0	34.8	34.9
12	34.3	34.2	33.7	33.6	34.3	35.1	36.0	36.1	36.0	35.7	35.1	34.0	34.2	34.5	34.8
13	34.5	34.2	34.2	34.0	34.5	35.1	36.0	36.3	35.8	34.8	34.6	34.6	34.6	34.5	34.2
14†	34.0	34.0	33.9	34.0	34.5	34.6	35.4	35.7	36.0	36.0	35.4	34.8	34.8	35.1	35.4
15	34.5	34.3	34.2	33.9	33.9	34.3	35.1	35.4	35.1	34.8	34.2	34.2	34.2	34.3	34.3
16††	34.0	34.0	34.2	34.8	35.1	34.6	34.8	34.6	34.5	34.2	33.6	33.6	34.0	34.0	34.3
17	33.9	33.6	33.3	33.6	34.0	34.8	35.5	35.8	35.5	34.6	34.2	34.0	34.0	33.9	34.0
18	34.0	33.6	33.3	34.0	34.3	35.1	35.4	35.7	35.4	34.6	34.2	34.2	34.2	34.3	34.3
19	33.6	33.3	33.6	33.9	34.0	34.3	35.1	35.4	35.1	34.6	34.2	34.0	34.0	34.3	34.5
20††	33.6	33.1	32.7	32.8	33.1	34.3	35.5	35.4	35.1	34.2	34.3	34.0	34.3	34.5	34.5
21††	33.3	33.1	33.0	33.1	33.9	35.1	35.8	36.0	35.5	35.4	35.1	34.5	34.5	34.6	34.6
22	33.6	33.3	32.8	33.1	34.0	34.3	35.4	36.0	36.3	35.8	34.6	34.2	34.2	34.0	34.0
23††	33.1	33.0	32.8	32.8	33.9	34.0	35.8	36.6	36.3	36.0	35.5	34.6	34.0	34.0	34.0
24	34.2	33.4	32.2	32.4	33.1	33.9	34.8	35.4	34.8	34.5	34.2	34.0	34.3	34.3	34.5
25	34.5	33.6	32.8	33.6	34.3	35.8	36.3	37.0	36.3	35.8	35.1	34.5	34.2	34.5	35.2
26	33.6	32.8	32.5	32.8	34.0	35.4	36.1	36.3	36.3	35.7	35.5	35.4	35.1	35.1	35.1
27	34.0	33.1	32.7	33.0	33.6	34.0	34.8	34.9	34.8	34.3	33.9	33.6	33.9	34.3	34.5
28†	34.2	33.6	33.3	33.3	34.0	35.1	35.8	35.8	36.0	35.8	35.1	35.1	35.1	34.6	35.1
29	34.6	34.5	34.2	34.2	34.5	35.1	36.0	36.0	36.1	35.8	35.4	35.1	34.8	35.1	35.4
30	34.3	34.0	33.9	33.6	34.2	35.4	36.1	36.9	36.6	36.3	35.8	35.7	35.5	35.5	35.5
Mean	34.0	33.6	33.3	33.5	34.0	34.7	35.5	35.9	35.7	35.3	34.6	34.3	34.3	34.5	34.6
Mean†	34.0	33.7	33.5	33.5	34.1	34.7	35.5	35.9	35.9	35.7	34.7	34.2	34.2	34.3	34.5
Mean††	33.6	33.4	33.4	33.6	33.9	34.6	35.3	35.6	35.4	35.0	34.7	34.2	34.2	34.1	34.3

\* Loss of record, day omitted for means.

† Five international quiet days.

†† Five international disturbed days.



TABLE 4

Hourly values of Declination, (westerly), 1953

[Averages for sixty minutes centred at the full hours Greenwich mean time]

2° plus tabular quantities

April

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.				
34.6	34.5	34.3	34.3	34.5	34.5	34.5	34.5	34.5	34.7	06 10	36.3	02 30	33.6	2.7	1
34.5	34.5	34.3	34.2	34.0	34.0	34.0	34.0	34.0	34.6	08 00	37.0	02 00	33.6	3.4	2
34.3	34.2	34.2	34.0	34.0	33.6	33.6	33.6	33.6	34.1	06 30	34.6	02 00	33.3	2.3	3
34.2	33.9	33.6	33.6	33.6	33.6	33.6	33.9	34.0	34.2	06 45	35.5	19 00	33.6	1.9	4†
34.0	33.9	33.9	33.9	33.9	34.0	34.0	34.0	34.0	34.2	06 45	36.3	11 45	33.0	3.3	5†
34.5	34.3	34.0	34.0	33.7	34.0	34.0	34.0	34.0	34.5	07 00	36.6	01 15	33.1	3.5	6†
33.6	33.9	33.9	33.9	33.9	34.0	34.0	34.0	33.6	34.0	07 30	36.0	07 45	32.5	3.5	7†
34.3	34.3	34.2	34.0	34.0	34.0	34.0	34.2	34.2	34.3	06 45	36.6	02 45	32.5	4.1	8
35.1	35.1	34.8	34.5	34.6	34.6	34.5	34.5	34.3	34.6	07 00	36.9	02 55	32.1	4.8	9
34.5	34.6	34.6	34.5	34.5	34.6	34.5	34.3	34.2	34.8	07 00	37.0	01 40	33.0	4.0	10
34.8	34.6	34.2	34.3	34.3	34.2	34.3	34.5	34.5	34.1	06 30	34.8	10 40	32.4	2.4	11
34.8	34.6	34.5	34.3	34.2	34.0	34.3	34.3	34.5	34.6	06 25	36.1	11 45	33.6	2.5	12
34.3	34.3	34.5	34.2	34.3	34.2	34.2	34.2	34.0	34.6	07 00	36.3	14 15	33.9	2.4	13
35.4	35.1	35.1	34.8	34.6	34.6	34.6	34.6	34.6	34.9	08 30	36.0	01 45	33.9	2.1	14†
34.5	34.5	34.3	34.2	34.0	34.0	34.0	34.0	34.0	34.3	07 00	35.4	03 30	33.6	1.8	15
34.0	34.3	34.6	34.2	34.2	34.0	33.9	33.6	33.9	34.2	03 30	35.1	11 10	33.0	2.1	16†
34.0	34.0	34.2	34.2	34.0	34.0	34.0	33.9	33.9	34.2	07 00	35.8	02 15	33.1	2.7	17
34.3	34.2	34.0	34.0	34.0	34.0	34.2	34.0	34.0	34.3	07 30	36.0	02 00	33.3	2.7	18
34.5	34.3	34.3	34.3	34.3	34.3	34.3	34.2	34.0	34.3	07 40	35.8	01 45	33.3	1.5	19
34.6	34.6	34.6	34.6	34.3	34.2	34.0	34.0	33.9	34.2	06 30	35.5	01 30	32.4	3.1	20††
34.6	34.6	34.3	34.0	33.9	34.0	34.0	34.0	34.0	34.4	06 50	36.1	01 25	33.0	3.1	21††
34.0	33.9	33.6	33.6	33.7	33.9	33.4	33.3	33.6	34.1	08 00	36.3	02 00	32.8	3.5	22
34.2	34.3	34.3	34.2	34.5	34.3	34.2	34.2	34.2	34.4	07 15	36.9	01 45	32.5	4.4	23††
34.6	34.6	34.5	34.3	34.5	34.3	34.3	34.5	34.3	34.2	06 50	35.4	02 00	32.2	3.2	24
35.4	35.1	34.6	34.3	34.0	34.0	33.9	34.0	33.9	34.7	07 00	37.0	02 10	32.7	4.3	25
35.4	35.4	34.6	34.5	34.5	34.5	34.3	34.2	34.0	34.7	07 10	36.4	01 50	32.1	4.3	26
34.6	34.5	34.3	34.3	34.2	34.0	34.0	34.0	34.0	34.1	07 00	35.1	02 00	32.5	2.6	27
35.5	35.4	35.1	35.1	34.8	34.8	34.8	34.6	34.6	34.9	07 30	36.1	02 30	33.3	2.8	28†
35.4	35.1	34.8	34.8	34.8	34.8	34.6	34.6	34.5	35.0	06 30	36.3	02 40	34.0	2.3	29
35.4	34.8	34.5	34.0	34.0	33.6	33.6	33.6	33.6	34.9	07 00	36.9	19 45	33.6	3.3	30
34.6	34.5	34.4	34.2	34.2	34.1	34.1	34.1	34.1	34.4					3.0	Mean
34.6	34.5	34.4	34.5	34.2	34.3	34.3	34.2	34.2							Meant
34.3	34.3	34.3	34.1	34.1	34.0	33.9	33.9	34.0							Meant†

\*Loss of record; day omitted for means.

† Five international quiet days.

†† Five international disturbed days.

TABLE 5

Hourly Values of Declination, (Westerly), 1953

[Averages for sixty minutes centred at the full hours of Greenwich mean time]

May

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	33.9	33.6	33.3	33.3	34.0	34.6	35.4	35.7	35.4	35.4	35.7	35.4	34.9	34.8	34.8
2†	34.3	34.0	33.7	33.7	34.6	35.5	36.6	37.2	37.0	36.9	36.1	35.5	34.8	34.6	34.8
3	34.5	34.2	33.4	33.4	34.0	34.5	35.4	36.6	36.6	36.1	35.8	35.5	34.8	34.5	34.6
4	34.2	34.0	33.7	33.4	34.0	34.9	35.5	36.6	36.1	35.5	35.4	35.2	35.1	35.1	35.1
5	34.5	34.0	34.0	34.3	34.3	35.7	37.0	37.6	37.2	36.1	35.5	35.1	34.9	34.6	34.6
6††	35.1	32.5	32.8	33.7	34.8	35.5	35.8	36.1	35.5	35.1	34.5	33.4	33.7	34.3	34.5
7	34.9	34.5	34.3	34.6	34.6	35.5	35.4	34.9	34.5	34.2	34.2	34.0	34.2	34.6	35.1
8 †	34.3	34.3	33.9	34.3	34.9	35.4	35.4	35.1	34.9	34.6	34.0	34.2	34.5	35.1	34.9
9	34.9	34.6	33.9	34.3	34.6	35.7	36.3	36.3	36.1	35.5	34.6	34.3	34.3	34.6	34.8
10	34.6	34.2	33.9	34.2	34.0	34.6	35.1	35.7	35.4	34.2	33.9	34.0	34.3	34.6	34.8
11	33.9	33.7	33.6	34.3	35.5	36.3	37.2	37.5	37.8	36.6	36.1	36.0	35.2	35.1	35.1
12†	34.3	33.7	33.1	33.3	33.9	34.9	36.0	36.6	36.1	34.9	34.0	33.7	34.0	34.2	34.3
13†	34.5	33.9	33.7	34.2	34.6	35.7	36.4	36.7	36.7	36.1	35.4	34.8	35.1	35.1	35.2
14†	34.6	34.2	33.4	33.6	34.6	35.7	35.7	36.1	36.3	36.1	35.7	35.1	34.9	34.8	35.1
15††	34.3	34.0	33.6	33.7	35.5	36.9	37.6	38.1	38.1	37.5	36.9	36.0	35.2	34.8	34.8
16††	33.6	32.4	33.0	31.6	33.3	34.3	34.6	35.4	35.5	34.8	34.6	34.0	33.9	33.6	33.4
17	31.2	30.4	30.4	30.9	33.1	34.9	36.0	36.4	36.0	35.4	35.2	34.9	34.6	34.5	34.3
18	33.1	32.8	32.7	32.7	34.2	35.4	36.3	37.5	37.5	37.0	36.3	35.4	34.9	34.5	34.5
19††	33.4	32.7	32.4	32.5	33.6	34.8	35.4	36.6	36.1	35.7	35.4	34.9	34.9	34.9	34.8
20	33.3	33.3	32.7	33.3	34.2	35.5	36.1	36.6	36.9	35.7	35.2	35.1	35.1	35.1	34.9
21	33.9	33.1	32.8	33.1	34.3	35.7	36.0	36.0	35.8	35.4	34.8	34.9	34.6	34.5	34.5
22	33.3	33.0	33.0	33.6	33.9	35.1	35.7	35.8	36.1	35.5	34.8	34.6	34.8	34.8	35.1
23	33.9	33.9	33.1	33.0	34.5	35.7	36.3	37.0	37.0	35.8	36.7	34.6	34.6	35.1	35.4
24	34.0	33.3	32.7	33.0	34.0	35.1	35.8	36.0	36.1	36.1	35.7	35.4	35.7	36.0	35.8
25	34.0	33.3	32.7	32.8	34.8	35.8	36.9	36.9	36.0	35.4	35.1	34.5	34.6	35.4	35.5
26	34.0	33.6	34.2	34.2	34.9	35.8	35.5	36.1	37.0	36.1	35.4	35.2	35.4	35.5	35.5
27	34.5	33.6	33.1	33.0	34.3	35.4	35.5	35.4	35.5	35.4	34.9	34.5	34.6	34.8	34.8
28	33.9	33.1	32.8	33.3	34.0	35.7	37.2	37.8	37.5	36.6	36.0	35.4	34.6	34.5	34.6
29	33.7	33.6	33.0	33.3	34.5	35.7	36.3	37.2	37.0	36.3	35.7	35.1	34.5	34.5	34.6
30	34.0	33.6	33.3	33.3	34.3	35.1	36.0	36.9	37.0	37.0	36.1	35.4	35.1	34.9	35.1
31	33.6	32.8	32.5	33.1	34.0	35.8	37.3	37.8	37.8	37.6	36.6	35.5	35.4	34.8	34.8
Mean	34.0	33.5	33.2	33.4	34.3	35.4	36.1	36.5	36.4	35.8	35.4	34.9	34.7	34.8	34.8
Mean†	34.4	34.0	33.5	33.6	34.3	35.3	36.0	36.6	36.5	36.0	35.4	34.9	34.7	34.6	34.8
Mean††	34.1	33.2	33.1	33.2	34.4	35.4	35.8	36.3	36.0	35.6	35.1	34.5	34.4	34.5	34.5

† Five international quiet days.

|| Five international disturbed days.

\* Loss of record; day omitted for means.

TABLE 5

Hourly Values of Declination, (Westerly), 1953  
 [Averages for sixty minutes centred at the full hours of Greenwich mean time]

May 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		
34 8	34 6	34 6	34 6	34 5	34 5	34 5	34 3	34 3	34 6	07 30	36 0	02 30	33 3	2 7	1
34 9	34 9	34 9	34 6	34 5	34 3	34 3	34 5	34 6	35 0	06 55	37 3	02 00	33 7	3 6	2†
34 6	34 8	34 8	34 5	34 5	34 5	34 5	34 5	34 6	34 8	07 00	36 9	02 15	33 4	3 5	3†
35 1	35 1	34 9	34 8	34 6	34 5	34 5	34 5	34 3	34 8	07 00	36 6	03 00	33 4	3 2	4
34 9	34 9	34 6	34 2	34 2	34 0	34 0	33 9	33 7	34 9	06 45	37 6	23 30	33 3	4 3	5
34 8	34 5	34 3	34 3	34 2	34 2	34 5	34 6	35 1	34 5	07 15	36 6	01 45	32 5	4 1	6††
35 1	34 9	34 8	34 6	34 5	34 5	34 3	34 5	34 3	34 6	05 10	36 0	11 50	33 6	2 4	7
34 9	34 8	34 5	34 6	34 5	34 3	34 5	34 6	34 8	34 6	05 20	35 7	02 00	33 6	2 1	8††
34 9	34 8	34 8	34 5	34 6	34 3	34 3	34 3	34 5	34 8	06 00	36 6	01 50	33 4	3 2	9
34 8	34 8	34 6	34 6	34 5	34 6	34 3	34 6	34 3	34 5	07 00	36 0	02 00	33 4	2 6	10
35 1	35 1	34 9	34 8	34 6	34 5	34 6	34 8	34 6	35 3	07 30	37 8	01 30	33 6	4 2	11
34 5	34 3	34 5	34 6	34 6	34 6	34 8	34 8	34 5	34 5	07 30	37 0	02 15	33 6	4 0	12†
35 1	35 1	34 8	34 6	34 5	34 5	34 5	34 5	34 6	35 0	06 40	36 9	01 50	33 3	3 6	13†
35 1	35 1	35 1	34 8	34 8	34 5	34 3	34 2	34 2	34 9	07 00	36 3	02 15	33 1	3 2	14†
34 2	34 0	34 2	33 7	33 7	33 1	33 0	33 8	33 7	35 0	07 00	38 1	22 00	32 5	5 6	15††
33 6	33 6	33 4	33 6	34 3	33 6	33 4	32 5	32 2	33 7	07 35	36 0	02 15	31 0	5 0	16††
34 0	33 9	33 9	33 7	33 7	33 6	33 4	33 3	33 3	33 8	07 00	36 4	01 05	29 5	6 9	17
34 9	31 9	34 6	34 3	34 3	34 2	33 9	33 4	33 3	34 7	07 20	37 6	01 50	32 5	5 1	18
34 6	34 8	34 6	34 3	34 2	34 0	33 9	33 7	33 7	34 4	07 35	37 0	01 45	32 4	4 6	19††
34 9	34 8	34 6	34 5	34 3	34 0	33 7	33 7	33 9	34 6	07 30	36 9	02 00	32 8	4 1	20
34 5	34 3	34 0	33 9	33 6	33 3	33 6	33 6	33 4	34 3	07 25	36 1	02 30	32 8	3 3	21
35 1	34 8	34 6	34 2	34 0	33 4	33 7	33 9	34 0	34 5	08 00	36 1	01 45	32 8	3 3	22
35 1	34 6	34 6	34 5	34 3	34 3	34 3	34 3	34 5	34 9	07 30	37 0	01 45	32 8	4 2	23
35 7	35 5	34 8	34 5	34 3	34 5	34 5	34 5	34 3	34 9	08 15	36 1	02 00	32 5	3 6	24
35 5	35 2	34 8	34 6	34 5	34 5	34 3	34 2	34 0	34 8	06 15	36 9	02 00	32 5	4 4	25
35 5	35 5	35 1	35 1	34 8	34 6	34 3	34 3	34 5	35 1	07 15	37 5	01 15	33 3	4 2	26
34 5	34 5	34 6	34 3	34 2	34 2	34 0	34 0	34 2	34 5	05 15	35 5	02 40	32 5	3 0	27
34 5	34 3	34 0	34 0	34 0	34 0	34 0	34 0	33 9	34 7	06 30	37 8	02 15	32 5	5 3	28
34 8	34 6	34 6	34 6	34 6	34 6	34 5	34 5	34 3	34 8	07 00	37 2	02 15	32 5	4 7	29
35 1	34 9	34 6	34 5	34 5	34 3	34 2	34 0	34 0	34 9	08 30	37 0	02 15	32 8	4 2	30
34 9	34 6	34 3	34 2	34 0	33 9	34 2	34 0	34 0	34 9	07 15	37 8	02 00	32 4	5 4	31
34 8	34 7	34 6	34 4	34 3	34 2	34 2	34 1	34 1	34 7					4 0	Mean
34 8	34 8	34 6	34 4	34 5	34 5	34 5	34 5	34 5							Mean†
34 4	34 3	34 2	34 1	34 2	33 8	33 9	33 8	33 9							Mean††

† Five international quiet days

†† Five international disturbed days.

\* Loss of record, day omitted for means.

TABLE 6

Hourly values of Declination, (Westerly), 1953

[Averages for sixty minutes, centred at the full hours of Greenwich mean time]

JUNE

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 0	33 3	32 7	33 0	33 3	34 3	35 8	36 6	36 9	36 3	35 7	35 4	35 1	35 1	36 7
2††	34 0	33 9	33 6	33 3	33 6	34 5	35 4	36 3	36 0	34 8	34 3	34.2	34 6	34 8	34 8
3††	33 6	32 8	32 8	33 4	33 3	34 0	34 8	34 8	35 1	34 9	34 2	34 6	34 6	34 5	34.6
4††	33 4	33 1	32 8	33 1	34 2	34 9	35 4	36 4	36 1	35 1	34 3	34 6	34 8	34 8	34 9
5	33 9	33 7	33 6	33 6	33 9	35 2	36 0	36 1	36 3	35 8	35 1	34 6	34 8	35 4	35 4
6	33 6	33 3	32.8	33 3	34 3	35 5	36 0	36 1	36 1	35 5	34 9	34 0	34 6	35 1	35 1
7	34 0	33 6	33 1	33 3	34 2	35 1	36 0	36 9	36 6	35 7	35 2	35 1	35 1	34 9	35 1
8	34 0	33 4	33 1	33 3	34 2	34 9	35 5	36 3	36 9	36 3	36 0	35 2	35 1	34 8	35.1
9	33 9	33.4	33 3	33 6	34 6	35 8	36.9	37 3	37 3	37 0	36 9	36 1	36.0	35 5	35 4
10	34 2	34 0	33 1	33 3	34 0	34 6	35 5	35 8	35 5	35 1	35 1	35.1	35 2	35 5	35 7
11	33 9	33 3	32 7	33 0	34 0	35 1	36 0	36 9	36 7	36 1	35 8	35 5	35 4	35 1	35 1
12	34 3	33 9	33 6	33.4	34 6	35 5	36 0	36 3	36 6	35 7	35 4	35 1	35 5	35 7	35 7
13	34 2	33 3	32 4	32 8	33 6	34 5	35 7	35 7	36 0	35 5	35 8	35 8	35 8	35 5	35 5
14	34 2	33 4	32 8	32 8	33 6	34 2	35 1	35 5	35 1	34 5	34 5	34 8	35 4	35 5	35 5
15	34 2	33 6	33 0	33 0	34 2	35 5	36 6	37 0	37 2	36 4	35 8	35 4	35 1	35 1	35.1
16†	34 0	33 6	33 1	33 1	34 2	35 7	36 6	37 3	37 3	36 6	35 8	35 1	34 9	34 8	35 1
17	34 0	33 4	33 1	33 1	34 3	35 8	36 7	37 5	37 2	37 0	36 4	36 0	36 0	35 7	35 7
18	34.3	33.6	33 6	33 7	34 5	35 4	36 6	36 9	36 3	36 4	36 4	35 8	35 8	35 5	35 1
19†	34 2	34 0	34 0	34 3	35 5	36 1	37 0	36 1	35 7	34 8	34 8	34 8	35 1	35 4	35 8
20	35 1	34 5	34 5	35 1	34 9	36 0	37 0	37 5	37.2	37 0	36 7	36 1	35 5	35 5	35 5
21	34.5	33.6	32 4	34 3	34 5	35 7	36 6	37 5	37 2	36 4	35 5	35.5	36 0	36 1	36.3
22	34 8	34 3	34 0	34 0	34 8	35 8	36 3	36 3	36 6	36 1	35.7	34.6	34 6	34.9	35 5
23†	34 5	33.6	33 0	33 6	34 8	35 8	36 1	36 6	36 9	36.1	35 7	35 5	35 5	35 7	35 8
24	34 5	34 2	34 0	34 0	35 1	36 0	36 4	36 6	36 3	36.0	35 5	35 5	36 0	36.3	36 1
25	34 0	32 8	33 0	33 6	35 1	36 0	36 6	37 5	37 6	36 6	35 8	35 4	34 9	35.1	35 4
26†	34 6	34 3	34 0	34 0	34 9	36 0	37 0	37 0	36 6	36 3	35 8	35 1	35 4	35 8	36.1
27†	34 3	33 9	33 6	33 3	33 4	34 2	35 5	36 1	36 6	35.8	35 1	34 6	34 8	35 5	35 8
28	34 5	33 9	33 7	34.0	34 9	36 1	37 2	37 5	37 2	36 9	36 1	35 1	34 8	35 5	36.0
29††	34 6	34 0	33 6	33 6	34 2	35 8	37 3	37 6	37 8	37.8	36 1	34 8	35.5	35.7	35 4
30†	34 0	34 8	32 8	33.4	34 0	34 5	34 5	35 1	35 4	35 8	35 5	35 7	35 5	35 4	35 2
Mean	34 2	33 7	33 3	33 5	34.3	35 3	36 1	36 6	36 5	36 0	35 5	35 2	35 2	35 3	35.5
†Mean	34 3	33 9	33 5	33 7	34 6	35 6	36 4	36 6	36 6	35 9	35 4	35 0	35 1	35 4	35 7
††Mean	33 9	33 7	33 1	33 4	33 9	34 7	35 5	36 0	36 1	35 7	34 9	34 8	35 0	35 0	35.0

†Five international quiet days.

†† Five international disturbed days.

\*Loss of record ; day omitted for means.

TABLE 6

Hourly values of Declination, (Westerly), 1953

[Averages for sixty minutes centred at the full hours of Greenwich mean time]

JUNE

2° plus tabular quantities

Hours G. M. T									Mean <sup>s</sup>	Maximum		Minimum		Range	Date
15	16	17	18	19	20	21	22	23		Time	Mag.	Time	Mag.		
									H	M	H	M			
35 1	34 9	34 8	34 6	34 6	34 6	34 3	34 2	34 2	34 8	07 30	36 9	02 10	32 5	4 4	1
35 1	34 9	34 9	34 8	34 6	34 6	34 2	34 0	34 0	34 6	07 40	37 0	10 55	33 1	3 9	2††
34 8	34 8	34 5	34 5	34 5	34 0	33 9	33 9	33 9	34 2	07 45	35 4	01 10	32 5	2 9	3†
34 8	34 8	34 6	34 5	34 2	34 2	34 2	34 0	34 0	34 5	07 00	36 6	02 15	32 7	3 9	4††
35 4	35 1	34 9	34 6	34 3	34 2	34 0	33 7	33 6	34 7	07 50	36 3	03 00	32 8	3 5	5
35 1	34 9	34 8	34 8	34 8	34 6	34 5	34 5	34 5	34 7	07 00	36 1	01 30	32 7	3 4	6
34 9	34 9	34 8	34 5	34 5	34 3	34 3	34 3	34 2	34 8	07 30	37 0	02 30	32 8	4 2	7
34 9	34 8	34 5	34 5	34 3	34 2	34 2	34 0	33 9	34 7	07 50	36 9	02 15	33 0	3 9	8
35 4	35 2	34 9	34 6	34 6	34 6	34 5	34 3	34 3	35 2	07 00	37 3	02 30	33 3	4 0	9
35 5	35 2	35 1	34 6	34 5	34 5	34 0	33 9	33 9	34 7	06 45	35 8	02 30	33 1	2 7	10
35 1	35 1	34 9	34 8	34 5	34 3	34 2	34 2	34 3	34 8	06 50	37 0	02 15	32 7	4 3	11
35 5	35 5	34 9	34 8	34 5	34 0	34 0	34 5	34 2	35 0	07 50	36 9	02 50	33 3	3 6	12
35 5	35 4	35 1	34 8	34 5	34 3	34 2	34 2	34 2	34 8	08 00	36 0	02 10	32 1	3 9	13
35 5	35 5	35 4	35 1	34 8	34 6	34 5	34 5	34 3	34 6	14 30	35 5	02 30	32 5	3 0	14
35 1	35 1	34 8	34 6	34 6	34 5	34 3	34 2	34 2	34 9	08 00	37 2	02 15	32 5	4 7	15
35 1	34 9	34 8	34 6	34 3	34 3	34 2	34 2	34 0	34 9	07 50	37 3	03 00	33 1	4 2	16†
35 7	35 4	35 1	35 1	34 9	34 9	34 6	34 5	34 3	35 3	07 00	37 5	02 30	32 8	4 7	17
35 2	34 9	34 6	34 6	34 5	34 3	34 3	34 2	34 3	35 1	06 15	37 0	01 30	33 1	3 9	18
35 8	35 8	35 7	35 5	35 5	35 1	35 2	35 2	35 4	35 3	05 55	37 0	02 10	33 4	3 6	19†
35 5	35 7	35 7	35 1	34 8	34 3	34 6	34 3	34 6	35 5	06 50	37 5	01 40	34 0	2 5	20
36 3	36 3	35 8	35 8	35 7	35 7	35 5	34 9	35 1	35 6	07 05	37 5	02 15	31 8	5 7	21
35 7	35 7	35 5	35 2	35 1	35 1	35 1	34 9	34 9	35 2	07 50	36 6	02 00	33 6	3 0	22
35 7	35 5	35 1	35 1	34 9	34 8	34 6	34 6	34 6	35 2	07 50	36 9	01 45	33 0	3 9	23†
35 8	35 5	35 5	35 1	34 6	34 6	34 6	34 3	34 3	35 3	06 30	36 6	02 30	33 9	2 7	24
35 4	35 5	35 4	35 1	34 9	34 8	34 8	34 8	34 8	35 3	08 10	37 6	01 10	32 5	5 1	25
36 1	36 0	35 7	35 5	35 5	35 4	35 1	34 8	34 6	35 5	06 30	37 2	02 15	33 6	3 6	26†
36 0	35 8	35 7	35 5	35 4	35 1	34 8	34 6	34 6	35 0	08 10	36 6	03 00	32 8	3 8	27†
36 1	36 1	36 0	35 7	35 5	35 5	35 1	34 8	34 8	34 8	07 00	37 5	01 20	33 3	3 2	28
35 5	35 8	35 1	35 2	35 1	34 6	34 6	34 5	34 0	35 3	07 30	38 1	02 15	33 4	4 7	29††
35 5	35 5	35 5	35 4	34 9	34 8	34 6	34 5	34 5	34 9	07 30	36 0	01 40	32 5	3 5	30††
35 4	35 4	35 1	35 0	34 8	34 6	34 5	34 4	34 4	35 0					3 8	Mean
35 7	35 6	35 4	35 2	35 1	34 9	34 8	34 7	34 6							Mean†
35 1	35 2	34 9	34 9	34 7	34 4	34 3	34 2	34 1							Mean††

† Five international quiet days.

†† Five international disturbed days.

\*Loss of record, day omitted for means.

TABLE 7

## Hourly values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich mean time)

January

39,000  $\gamma$  plus tabular quantities

Date	Hours G M T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	389	390	393	394	403	413	418	392	371	367	377	377	365	373	376
2	385	385	394	403	419	433	421	397	365	355	363	382	379	379	377
3	383	385	398	421	429	433	419	403	389	389	397	403	401	386	379
4†	379	378	379	404	443	473	464	431	401	380	381	389	393	393	389
5††	401	399	403	425	445	465	480	460	384	385	213	192	199	234	275
6	344	352	368	394	413	425	419	403	372	343	333	330	341	342	354
7	354	353	363	390	418	453	443	411	378	361	353	361	364	361	355
8	375	374	376	443	477	478	478	444	409	387	384	385	385	393	372
9	373	385	389	413	445	480	485	457	421	406	372	379	383	386	381
10	393	393	395	403	427	455	463	467	466	446	424	406	402	401	397
11	392	397	412	428	457	468	474	479	458	418	387	379	379	381	387
12	389	391	401	421	429	439	442	432	410	408	383	400	410	408	395
13	401	405	416	433	449	474	480	472	457	433	417	402	396	394	390
14	402	403	405	407	409	424	428	433	426	423	422	417	411	402	401
15†	401	405	419	436	459	465	456	451	441	425	417	418	415	408	402
16†	401	408	413	453	475	490	488	471	453	440	431	432	433	425	425
17	412	411	417	435	467	492	497	488	470	451	432	419	417	419	418
18	419	421	425	436	449	465	454	451	443	435	411	392	377	356	353
19††	407	421	433	435	447	451	437	441	407	395	354	365	385	369	354
20	383	389	389	404	434	455	467	461	426	387	363	375	387	391	392
21	404	404	408	433	462	487	483	469	450	418	397	397	399	405	401
22	413	410	413	424	459	484	490	476	458	443	423	412	406	406	411
23	412	418	426	439	471	470	474	466	454	434	424	417	418	412	410
24	416	425	434	444	457	481	494	492	489	470	436	410	402	402	399
25	402	405	413	428	436	459	462	458	445	427	406	362	335	363	377
26††	388	388	400	413	424	454	444	436	427	408	393	386	380	379	363
27†††	383	380	378	399	414	427	419	396	386	380	377	382	370	361	353
28†††	382	390	402	400	412	420	425	414	395	394	388	393	392	388	387
29	396	388	408	410	428	427	410	380	364	363	366	387	391	388	365
30	397	396	406	422	444	460	458	429	404	394	398	406	410	403	410
31	388	390	403	420	437	449	450	428	408	380	364	359	372	387	395
Mean	392	395	403	420	440	456	456	442	420	405	387	384	384	383	382
Mean †	397	399	405	426	454	475	474	462	446	428	417	413	412	409	406
Mean ††	392	396	403	414	428	443	441	429	400	392	345	344	345	346	346

\* Loss of record, day omitted for means.

† 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)

January

39,000  $\gamma$  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		
$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$							
377	377	369	377	384	381	376	384	381	383	06 06	425	08 46	361	64	1
385	377	372	394	381	373	377	384	384	386	05 18	437	09 04	360	77	2
385	383	384	389	393	387	385	381	379	387	04 50	441	14 10	375	66	3
384	385	385	377	383	384	389	395	396	398	05 06	476	18 02	377	99	4†
294	303	297	273	282	299	315	332	352	338	05 50	500	11 10	187	313	5††
341	339	334	330	329	333	336	346	352	357	05 08	430	18 30	328	102	6
352	345	349	359	366	367	368	369	373	374	05 10	461	16 16	341	120	7
370	393	393	391	392	389	386	385	378	402	05 36	489	01 22	373	116	8
379	383	385	389	389	389	399	373	371	401	05 32	495	00 06	372	123	9
397	397	403	405	406	399	395	401	403	414	07 26	472	00 46	391	81	10†
389	391	389	387	389	393	395	391	389	409	06 46	481	10 50	377	104	11
397	403	403	397	400	397	395	397	399	406	06 36	443	09 50	379	64	12
392	398	400	400	401	400	401	402	402	417	05 31	483	21 24	388	95	13
397	397	402	401	399	397	393	394	396	408	06 10	435	21 20	385	50	14
402	402	403	400	403	403	402	401	403	418	04 46	467	17 50	397	70	15†
417	409	413	412	412	411	411	411	410	431	05 14	493	00 08	401	92	16†
414	412	412	415	418	415	414	414	425	433	05 30	500	01 16	408	92	17†
367	367	375	376	378	392	393	394	401	405	05 02	469	13 50	347	122	18
347	359	369	376	375	379	380	377	377	393	05 24	461	07 40	338	123	19††
394	395	396	397	400	407	407	401	398	404	05 56	476	10 04	357	119	20
403	395	398	398	401	401	403	409	411	418	05 14	491	17 40	391	100	21
411	410	409	410	409	411	409	418	413	426	05 30	492	12 12	403	89	22
409	408	407	407	408	416	416	416	415	427	04 54	484	16 34	405	79	23
385	368	374	370	358	372	390	394	397	419	06 14	502	19 10	356	146	24
362	362	362	368	376	382	391	389	386	398	06 10	467	11 46	324	143	25
372	379	403	395	386	388	385	390	386	399	05 20	481	13 48	348	133	26††
358	36	355	383	388	369	371	374	379	381	05 10	433	13 34	342	91	27††
395	394	378	380	394	404	391	384	394	396	04 54	442	17 08	374	68	28††
370	394	378	386	394	399	394	395	393	390	04 36	442	14 20	357	85	29
394	378	402	404	394	396	398	395	393	408	05 20	167	16 08	373	94	30
395	395	394	395	398	403	403	404	404	401	04 56	454	10 54	356	98	31
382	383	384	385	387	388	389	390	392	401					104	Mean
403	401	403	402	404	402	402	404	407							Mean†
353	361	360	361	365	368	368	371	378							Mean††

\* Loss of record, day omitted for means.

† 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)

39,000γ plus tabular quantities

February.

Date	Hours G. M. T.															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
†1	405	407	420	439	460	474	469	452	428	409	406	405	411	412	411	411
2	405	405	415	434	469	491	486	467	437	407	404	413	420	411	409	409
3	411	407	411	426	454	478	498	490	446	443	422	403	409	413	413	413
4	416	419	423	443	474	499	507	497	481	458	443	429	416	417	406	406
†5	405	403	403	417	439	466	482	477	458	434	419	414	417	420	423	423
†6	429	429	433	443	466	464	492	491	480	463	454	450	443	434	429	429
†7	438	443	450	461	478	491	501	494	491	477	473	471	467	459	454	454
8	447	451	461	479	499	509	525	525	517	506	493	484	475	475	468	468
9	453	462	478	489	507	516	517	506	498	485	477	466	448	420	419	419
10	429	429	433	445	461	468	474	469	459	455	459	459	450	443	431	431
11	430	434	445	453	450	459	460	450	421	406	405	413	419	421	423	423
12	429	430	439	465	491	507	507	494	476	452	436	431	434	435	427	427
†13	429	431	443	465	490	506	503	483	452	430	428	432	446	447	445	445
14	439	436	443	471	494	519	532	518	477	445	443	450	455	447	443	443
15	445	446	453	471	491	517	529	506	489	471	459	465	466	459	445	445
16	459	451	442	444	473	506	526	521	492	455	422	413	417	416	406	406
17	438	439	443	458	478	491	522	536	516	488	466	450	452	444	444	444
18	439	435	442	471	484	502	512	510	494	480	466	459	454	450	446	446
19	444	446	458	477	501	512	509	493	483	473	465	457	446	436	437	437
20	441	441	444	449	469	489	503	505	497	483	466	456	453	452	450	450
21	451	451	446	451	469	472	472	472	465	457	453	453	453	445	445	445
††22	450	442	441	452	472	488	488	485	474	468	461	468	456	451	451	451
††23	396	409	412	429	452	458	444	418	410	382	396	420	419	412	388	388
††24	423	425	431	422	437	426	426	426	400	418	427	428	420	401	403	403
††25	420	412	409	408	444	451	445	438	412	403	397	404	406	405	411	411
††26	420	425	428	426	444	461	468	453	413	396	388	385	366	388	390	390
27	401	406	409	424	453	460	471	459	425	379	383	391	408	415	415	415
28	419	419	425	439	437	449	441	425	419	419	425	436	442	425	419	419
Mean	429	430	435	448	469	483	490	481	461	444	437	436	435	431	427	427
Mean †	421	423	430	445	461	480	489	479	462	443	436	434	437	434	432	432
Mean ††	422	423	444	427	450	457	454	444	422	413	414	421	415	412	409	409

† Five international quiet days.

†† Five international disturbed days.

\* Loss of record, day omitted for means.



TABLE 8

Hourly values of Horizontal Force, 1953  
(Averages for sixty minutes centred at the full hours of Greenwich mean time)

February.

39,000γ 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	
405	406	405	406	411	405	403	407	405	419	05 30	477	20 50	397	80	1†
407	403	404	405	406	413	412	412	411	423	05 38	494	16 04	402	92	2
411	406	407	410	416	413	413	413	417	426	06 22	500	11 10	399	101	3
402	402	402	405	404	405	406	407	405	432	05 38	509	14 50	397	112	4
423	427	429	428	431	431	431	430	429	431	06 22	485	01 38	400	85	5†
427	427	425	428	427	428	428	431	434	444	06 06	494	16 56	421	73	6†
450	446	445	445	446	447	446	445	445	461	05 52	509	00 12	435	74	7†
461	458	461	459	460	456	453	453	452	476	06 32	532	00 20	445	87	8
419	419	423	424	429	427	424	439	431	457	05 58	533	15 52	412	121	9
431	425	413	416	404	398	408	424	426	438	05 58	477	20 20	396	81	10
426	425	428	429	429	429	434	431	429	431	06 40	473	09 46	402	71	11
430	429	429	434	434	431	430	429	429	447	05 01	511	14 24	426	85	12
443	437	437	438	437	439	435	443	439	449	05 30	510	10 00	427	83	13†
442	439	436	437	441	446	443	445	446	458	05 31	541	16 50	428	113	14
445	447	447	447	455	459	459	459	451	466	05 52	537	17 50	443	94	15
404	413	428	405	410	420	426	430	435	442	06 50	533	15 38	402	131	16
446	444	441	441	438	441	440	436	436	459	06 06	548	22 30	435	113	17
445	445	444	446	451	451	450	446	445	461	06 36	514	00 22	432	82	18
437	438	437	438	440	440	437	439	442	458	04 50	521	13 14	433	88	19
446	445	442	453	440	440	444	445	450	458	06 26	509	16 50	437	72	20
442	432	430	433	433	436	435	433	444	449	05 34	481	16 18	427	54	21
449	426	422	418	384	381	402	412	400	444	05 18	496	19 50	378	118	22††
387	380	403	432	418	412	412	415	416	413	05 20	460	08 56	372	88	23††
404	421	418	421	420	430	436	432	420	421	04 34	448	07 58	383	65	24††
416	416	420	432	428	421	418	420	421	419	04 58	460	09 34	385	75	25††
408	392	392	402	401	404	406	404	401	411	06 27	476	12 25	359	117	26††
415	417	397	409	418	418	420	427	424	418	06 31	476	09 02	359	117	27
413	410	426	426	422	437	432	425	425	427	04 50	453	15 31	406	47	28
426	424	425	427	426	427	428	430	429	441					90	Mean
430	429	428	429	430	430	429	431	430							Mean †
413	407	411	421	410	410	415	417	412							Mean ††

† Five international quiet days.

†† Five international disturbed days.

\* Loss of record, day omitted for means.

TABLE 9

Hourly values of Horizontal Force, 1953  
(Averages for sixty minutes centred at the full hours of Greenwich mean time.)

March

39,000γ plus tabular quantities.

Date	Hours G. M. T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	426	423	430	449	475	495	499	483	469	435	413	409	411	419	423
2††	429	427	429	437	448	452	458	446	415	370	324	306	288	290	302
3	442	432	429	454	446	486	458	436	424	426	412	406	408	412	414
4	404	404	414	442	478	502	510	504	486	462	446	436	430	420	418
5	419	430	455	480	490	502	510	512	478	452	438	434	434	430	422
6	425	432	445	470	473	490	512	514	492	474	454	438	438	434	426
7	398	410	388	390	422	452	470	474	454	446	428	412	410	410	408
8	422	422	428	438	468	478	494	486	470	460	436	430	430	434	422
9††	402	390	374	408	446	474	476	458	440	415	406	390	384	382	384
10	414	410	400	414	432	444	444	444	438	426	426	416	402	396	398
11†	402	404	408	430	462	476	486	482	466	452	446	436	430	428	422
12†	437	439	442	446	470	494	502	502	494	476	462	438	430	438	435
13†	438	440	456	470	498	530	546	526	494	466	454	446	446	446	442
14	460	446	444	470	502	530	542	530	508	486	468	462	454	446	438
15	444	446	458	482	518	550	548	498	474	460	434	436	440	443	446
16	437	443	451	478	502	522	526	522	502	472	446	436	434	434	434
17†	428	430	438	458	492	530	544	512	476	454	434	432	434	440	438
18†	436	438	442	466	492	512	528	532	526	502	478	456	440	436	436
19	452	452	453	450	464	472	504	530	520	492	464	436	406	408	410
20	416	412	406	420	444	464	468	470	458	440	428	418	420	420	422
21	420	420	416	428	452	466	458	464	452	440	442	422	418	420	416
22	416	416	424	462	484	488	464	466	460	440	416	400	402	408	408
23††	424	426	438	444	452	476	476	464	464	452	422	408	408	404	416
24††	416	418	422	428	444	438	462	444	436	440	402	408	404	404	392
25††	404	408	412	424	434	452	442	426	382	384	398	412	396	392	386
26	408	412	420	440	456	472	488	478	464	452	446	434	426	420	420
27	418	425	434	466	485	507	519	489	453	433	425	423	429	431	431
28	441	439	453	473	497	517	521	491	475	451	441	441	431	415	415
29	441	441	451	465	471	475	475	477	477	473	465	465	461	453	453
30	467	473	483	509	535	533	533	513	481	449	449	449	449	439	433
31	457	461	473	489	503	523	525	519	499	477	461	459	459	451	451
Mean	427	428	433	451	472	490	496	487	469	450	434	426	421	419	418
Mean †	428	430	437	454	483	508	521	511	491	470	455	442	436	438	435
Mean ††	415	414	415	428	445	458	463	448	427	412	390	385	376	374	376

† Five international quiet days.

†† Five international disturbed days.

\* Loss of record: day omitted for means.

TABLE 9

## Hourly values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich mean time.)

March

39,000γ 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	
423	421	423	421	423	423	431	433	431	437	06 02	509	11 10	407	102	1
302	318	346	360	372	366	378	386	406	377	06 50	466	12 58	282	184	2† †
414	410	406	412	406	410	422	413	410	425	05 18	514	11 26	402	112	3
414	414	416	418	418	420	422	418	411	438	05 46	518	02 04	402	116	4
428	426	412	414	420	420	421	419	420	444	06 02	514	17 22	410	104	5
430	432	430	428	426	428	438	436	418	449	06 46	530	23 42	406	124	6
406	404	406	406	426	412	412	416	418	420	06 30	482	02 50	386	96	7
408	386	372	386	398	410	420	394	410	429	06 06	496	16 50	370	126	8
384	396	406	390	398	410	418	406	410	410	05 22	486	01 18	368	118	9† †
400	398	399	390	402	406	404	410	410	413	04 50	462	17 56	386	76	10
413	420	427	429	435	445	439	442	440	438	05 56	490	00 20	400	90	11†
430	428	426	419	421	422	424	429	430	447	06 18	506	17 09	416	90	12†
442	438	438	438	442	444	442	454	460	462	05 46	548	16 46	434	114	13†
440	438	436	438	438	434	438	448	448	464	06 06	546	20 18	426	120	14
442	440	437	433	433	431	437	437	439	459	05 38	554	19 34	428	126	15
434	434	434	434	434	432	438	438	434	456	05 26	530	12 42	426	104	16
432	432	430	430	434	432	432	432	432	451	05 34	548	18 50	426	122	17†
436	438	440	440	444	450	453	452	452	463	06 58	536	15 02	432	104	18†
416	408	398	408	414	424	428	422	418	444	06 02	540	16 48	396	144	19
424	424	424	418	422	418	421	414	416	429	06 54	472	02 10	404	68	20
416	414	414	396	396	420	416	412	412	426	04 50	480	19 06	388	92	21
414	412	406	402	408	412	424	426	420	428	04 58	504	11 22	392	112	22
432	448	404	420	432	424	416	416	416	433	05 50	488	17 20	386	102	23† †
400	403	408	404	448	428	404	428	418	421	06 22	488	13 10	376	112	24† †
406	408	398	406	410	410	411	414	412	409	04 50	456	08 54	376	80	25† †
418	424	418	410	418	428	442	436	426	436	05 58	504	17 50	404	100	26
433	441	439	439	437	445	453	447	445	448	05 50	525	00 54	417	108	27
431	425	425	433	427	441	441	441	439	450	05 46	529	12 54	409	120	28
449	449	443	441	437	449	451	459	461	458	06 16	485	19 30	433	52	29
433	429	435	445	455	461	461	459	459	468	04 14	545	16 02	425	120	30
445	445	449	447	445	445	445	441	443	467	06 06	533	22 24	437	96	31
419	419	418	418	423	426	428	428	428	439					108	Mean
431	431	432	431	435	439	438	442	443							Mean †
385	395	392	396	412	408	405	410	412							Mean † †

† Five international quiet days.

† † Five international disturbed days.

\*Loss of record; day omitted for means.

TABLE 10

## Hourly values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich mean time.)

April

39,000  $\gamma$  plus tabular quantities

Date	Hours G. M. T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$
1	441	445	455	493	513	553	543	507	481	449	421	431	441	445	453
2	447	448	452	477	499	525	527	535	507	481	451	441	445	451	449
3	445	443	443	463	495	515	527	507	491	467	453	449	457	453	451
4††	435	425	421	437	457	497	525	517	505	477	453	437	423	414	417
5†	433	437	451	489	523	549	554	541	521	491	467	453	451	457	453
6†	443	447	452	478	517	541	547	539	505	473	453	445	449	441	441
7†	447	443	451	481	515	543	557	547	517	491	471	461	457	459	453
8	449	451	461	493	535	549	551	545	509	463	443	438	443	447	447
9	457	457	461	485	513	539	545	537	513	493	481	475	477	467	465
10	473	469	489	513	569	567	565	523	495	471	455	447	452	454	455
11	454	457	477	514	533	549	533	493	441	417	413	429	439	451	445
12	455	459	467	495	521	535	532	513	483	460	445	433	449	445	448
13	457	459	477	499	518	529	529	515	485	443	437	445	451	439	435
14†	457	457	469	483	495	509	509	509	493	469	469	463	459	461	461
15	453	453	463	485	493	509	511	509	493	471	469	463	459	461	459
16††	453	449	461	491	493	561	569	539	501	469	441	451	459	462	465
17	471	461	469	477	494	515	517	509	483	469	459	449	437	421	423
18	453	458	453	477	495	497	499	483	457	435	429	437	445	443	437
19	449	449	453	473	477	503	497	483	477	459	445	445	427	419	417
20††	435	429	449	463	477	505	477	457	445	429	435	425	421	419	417
21††	433	433	445	463	479	485	491	469	441	429	427	431	433	429	427
22	443	445	453	473	497	509	505	499	481	453	433	425	429	431	437
23††	435	441	453	471	481	489	489	471	457	443	443	427	433	427	427
24	443	449	461	495	517	527	521	507	483	461	449	447	461	453	453
25	475	475	485	510	529	559	557	545	521	493	473	461	457	459	461
26	455	465	477	501	537	549	543	509	495	477	465	465	463	453	449
27	450	450	458	485	509	532	528	518	508	482	458	444	452	454	450
28†	452	452	458	471	492	522	542	524	516	482	466	452	439	450	450
29	450	452	462	487	532	546	558	534	518	494	476	456	454	454	446
30	456	456	470	491	522	534	542	530	504	488	462	442	442	446	444
Mean .	450	451	460	484	508	528	530	514	491	466	451	446	447	446	445
Mean † .	446	447	456	480	508	533	542	532	510	481	465	455	451	454	452
Mean †† .	438	435	446	465	477	507	510	494	473	452	440	435	433	431	431

† Five international quiet days.

†† Five international disturbed days.

\* Loss of record; day omitted for means.

TABLE 10

Hourly values of Horizontal Force, 1953

(Averages for sixty minutes, centred at the full hours of Greenwich mean time.)

April

39,000  $\gamma$  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		
$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	H M	$\gamma$	H. M	$\gamma$	$\gamma$	
449	445	441	451	449	449	451	451	443	463	04 58	564	09 50	417	147	1
449	445	445	443	437	451	455	449	445	465	07 10	545	19 02	429	116	2
443	443	445	445	451	450	441	445	443	461	05 36	529	14 54	439	90	3
429	419	421	423	437	431	421	425	433	445	06 34	537	13 24	413	124	4†
451	445	445	443	441	447	448	449	447	470	05 14	557	01 18	432	125	5†
437	439	437	435	433	437	439	443	449	463	06 26	553	18 42	429	124	6†
451	449	451	451	453	453	453	451	447	473	05 58	558	01 18	439	119	7†
453	457	453	449	449	451	453	465	461	471	06 31	565	11 32	437	128	8
463	461	465	469	469	477	475	471	469	483	06 02	549	01 22	456	93	9
444	444	443	441	441	443	441	453	457	475	04 20	597	18 02	437	160	10
441	439	435	451	447	453	453	457	457	462	05 10	573	09 22	409	164	11
449	449	453	451	453	453	459	458	457	468	05 14	549	11 16	429	120	12
433	436	453	447	453	461	457	453	457	465	05 18	537	09 34	429	108	13
457	459	459	457	457	457	457	457	457	470	06 24	525	18 14	453	72	14†
457	459	458	457	454	457	459	457	458	469	05 58	581	10 02	437	144	15
468	465	465	467	469	469	473	475	473	479	04 10	597	15 22	381	216	16††
431	437	445	449	445	447	447	449	453	461	05 26	525	13 08	417	108	17
441	445	443	447	443	449	445	443	445	454	05 54	507	10 04	427	80	18
409	407	413	425	431	433	435	445	445	447	05 14	521	16 12	395	126	19
414	417	421	433	433	439	435	459	449	441	04 42	517	15 10	413	104	20††
437	441	429	453	445	437	437	441	447	445	05 46	501	10 06	425	76	21††
435	423	425	425	437	443	439	439	437	451	04 50	517	16 38	421	96	22
437	433	429	431	447	443	437	435	435	449	04 44	501	11 46	423	78	23††
453	455	453	467	469	467	471	473	475	471	04 54	529	10 38	441	88	24
465	461	469	473	465	457	453	455	455	484	04 42	565	21 02	445	120	25
447	453	441	441	445	449	449	449	457	472	06 04	561	16 54	437	124	26
450	448	446	458	458	450	448	448	468	05 38	542	10 50	442	100	27	
448	450	454	454	454	454	452	452	452	468	06 02	550	12 06	438	112	28†
448	450	450	452	454	454	454	454	455	475	06 04	570	14 10	442	128	29
430	426	436	430	434	440	438	438	442	464	06 31	550	15 40	422	128	30
444	443	444	447	448	450	449	451	452	465					117	Mean
449	448	449	448	448	450	450	450	450							Mean†
437	435	433	441	446	444	441	447	447	..						Mean ††

† Five international quiet days.

†† Five international disturbed days.

\* Loss of record; day omitted for means.

TABLE II

## Hourly values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich mean time)

May

39,000γ plus tabular quantities

Date	Hours G. M. T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	443	444	456	469	507	520	521	520	508	490	466	449	448	452	450
2†	454	449	450	458	485	506	524	528	512	489	469	453	447	448	450
3†	451	450	458	476	511	540	557	554	541	516	496	476	458	454	457
4	455	453	456	475	507	533	547	545	524	500	482	469	464	466	465
5	460	458	459	476	503	529	550	547	521	464	449	436	436	435	437
6††	443	445	475	484	501	519	539	545	511	491	441	381	375	379	399
7	437	441	443	447	477	495	475	463	437	419	415	411	399	421	425
8††	451	453	447	469	471	478	486	461	459	456	439	438	449	449	440
9	448	444	454	472	507	519	496	487	468	438	421	424	426	435	445
10	449	445	447	456	477	509	515	511	480	439	423	425	437	440	435
11	453	459	467	475	504	521	541	543	517	480	472	470	456	451	448
12†	455	455	464	476	491	503	513	508	485	453	433	441	451	455	453
13†	461	465	482	501	521	533	533	523	501	477	451	455	457	460	457
14†	463	461	460	473	499	525	533	529	511	482	457	448	453	453	458
15††	468	468	469	483	504	535	545	541	536	511	486	473	465	436	392
16††	425	411	409	413	421	419	397	394	401	400	377	347	334	345	360
17	426	391	376	355	423	447	467	452	434	420	410	410	413	413	411
18	413	417	427	449	477	481	477	479	470	453	422	418	406	403	407
19††	426	433	438	465	470	485	485	484	464	454	424	406	415	417	421
20	436	430	434	449	466	486	500	497	474	438	432	430	429	429	429
21	430	434	442	459	473	486	478	481	470	456	451	445	441	433	433
22	438	442	448	460	468	484	493	487	485	474	461	446	438	430	434
23	435	442	450	466	478	495	506	505	490	452	430	428	428	429	430
24	446	446	451	466	478	482	488	487	483	472	464	462	465	464	460
25	445	447	462	489	518	530	529	505	468	438	430	438	450	454	452
26	461	468	475	493	505	517	525	525	521	495	468	445	445	449	447
27	467	475	485	485	505	509	491	461	418	387	365	361	377	387	387
28	429	435	443	455	473	501	501	490	473	458	436	427	428	422	418
29	429	436	449	472	484	492	493	487	474	457	429	428	434	427	421
30	435	443	457	481	497	506	501	485	465	445	436	435	437	441	440
31	440	439	440	449	483	505	523	527	511	485	451	428	432	435	437
Mean .	444	444	451	464	487	503	507	502	484	461	441	432	432	433	432
Mean.† . .	457	456	443	477	501	521	532	526	510	483	461	455	453	454	455
Mean.†† . .	443	442	448	463	473	487	490	485	474	462	433	409	408	405	402

\* Loss of record; day omitted for means.

† Five international quiet days.

†† Five international disturbed days.

TABLE II

## Hourly values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich mean time)

May

39,000γ 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	
447	446	450	452	450	452	456	457	458	467	05 19	524	15 18	438	86	1
449	448	449	449	446	449	449	452	452	465	06 52	532	11 20	445	87	2†
457	458	454	454	455	452	460	459	455	479	06 01	559	19 50	446	113	3†
460	459	459	459	459	460	463	462	461	478	06 33	553	01 15	452	101	4
442	445	445	443	453	460	459	459	452	467	06 10	561	11 17	429	132	5
411	409	411	419	435	429	436	449	437	449	07 20	557	11 20	365	192	6††
429	433	435	437	441	444	445	449	449	440	05 12	516	11 57	394	122	7
434	433	434	441	451	445	448	452	451	451	05 02	501	10 31	427	74	8††
449	437	443	451	448	444	444	437	441	453	05 16	530	10 20	414	116	9
441	442	445	454	451	447	447	451	451	455	05 55	517	10 58	419	98	10
448	451	452	451	451	456	459	460	459	473	06 45	549	14 45	447	102	11
453	449	457	460	461	460	459	464	463	465	06 23	515	10 02	431	84	12†
457	459	457	456	457	457	458	463	463	475	05 10	536	10 35	448	88	13†
460	459	461	464	462	465	462	460	462	473	06 12	537	10 40	444	93	14†
376	381	401	397	395	389	403	419	433	454	06 32	565	15 10	365	200	15††
334	334	337	354	405	392	393	438	430	390	22 15	454	11 48	321	133	16††
411	404	411	411	413	411	411	412	412	414	05 58	483	02 52	353	130	17
411	417	418	423	429	429	427	423	426	433	06 38	490	13 02	398	92	18
430	429	429	430	430	434	446	442	445	442	06 18	496	10 56	403	93	19††
427	427	426	430	437	433	426	429	428	443	06 38	508	16 18	425	83	20
432	438	440	438	437	437	444	441	439	448	07 24	487	00 02	428	59	21
436	437	437	430	430	454	438	437	436	451	06 02	494	13 26	427	67	22
434	435	435	437	441	448	454	454	453	452	06 06	508	10 10	426	82	23
451	452	445	442	444	446	446	448	446	460	06 46	491	18 50	436	55	24
452	454	462	461	462	462	462	461	460	466	05 02	532	10 10	428	104	25
449	447	448	450	460	461	472	471	473	474	07 24	533	13 26	443	90	26
386	409	408	413	417	421	425	422	426	429	04 54	524	10 20	355	169	27
413	410	407	422	432	434	433	430	431	442	06 18	512	16 54	405	107	28
421	425	428	433	436	438	440	443	435	446	05 32	502	14 18	419	83	29
435	434	433	437	441	443	441	444	443	452	04 54	513	10 36	430	83	30
434	433	431	431	429	433	445	443	443	454	06 22	531	11 20	425	106	31
431	435	434	436	441	441	444	446	446	453					104	Mean.
455	455	456	457	456	457	458	460	459							Mean.†
397	397	402	408	423	418	425	440	439							Mean.††

\* Loss of record ; day omitted for means.

† 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)

June

39,000  $\gamma$  plus tabular quantities

Date	Hours G. M. T														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$
1	442	442	446	462	471	487	490	488	478	467	458	450	446	444	448
2††	455	468	488	488	492	514	518	526	478	422	366	350	378	386	370
3††	414	430	446	450	450	470	446	434	436	426	426	426	428	422	410
4††	432	434	430	446	466	470	468	464	450	442	424	420	422	424	428
5	436	442	454	466	478	474	482	460	452	442	438	444	442	442	442
6	442	442	448	464	478	470	468	466	452	442	434	428	434	434	432
7	442	444	446	464	490	514	518	508	488	464	452	444	442	442	438
8	446	444	444	454	470	494	506	508	494	477	462	450	450	444	446
9	452	452	464	478	503	521	523	515	502	485	465	445	437	437	441
10	451	455	459	461	479	485	487	481	467	447	433	429	437	449	449
11	449	443	439	445	477	497	513	513	501	481	457	439	437	441	439
12	451	453	461	481	517	539	551	547	529	501	469	461	467	467	463
13	435	435	436	449	438	448	460	470	474	458	440	428	420	420	424
14	430	424	426	436	452	474	478	472	468	452	440	430	428	428	428
15	428	428	434	442	456	464	472	480	470	464	450	432	428	430	434
16†	434	436	444	452	470	476	486	492	492	480	466	448	440	436	438
17	450	448	452	464	484	484	487	490	487	480	462	442	436	434	428
18	438	442	454	452	470	474	478	472	472	460	454	449	444	438	436
19†	448	454	462	476	500	510	506	490	473	458	439	433	440	447	451
20	444	448	450	468	488	500	508	506	492	478	468	460	452	444	432
21	424	426	426	434	456	472	466	446	434	412	406	414	420	422	424
22	428	436	444	456	484	486	490	478	468	450	430	416	404	410	415
23†	430	438	448	464	488	496	500	490	472	452	436	428	428	428	428
24	436	442	450	460	476	478	472	462	458	448	444	448	444	440	440
25	430	438	448	456	476	494	496	480	468	440	426	422	424	428	432
26†	436	440	450	466	486	496	498	478	452	436	438	442	444	464	444
27†	432	440	454	474	488	504	498	488	484	464	446	431	430	430	432
28	438	442	442	456	474	486	492	492	484	470	450	436	434	438	442
29††	462	466	470	480	506	532	552	558	558	512	416	398	404	414	394
30††	420	420	420	408	422	440	444	450	463	423	416	416	422	414	414
Mean	439	442	448	458	476	488	493	487	476	458	440	432	432	433	431
Mean †	436	442	452	466	486	496	498	488	475	458	445	436	436	441	439
Mean ††	437	444	451	454	467	481	490	489	477	447	410	402	411	412	403

† Five international quiet days.

†† Five international disturbed days.

\* Loss of record ; day omitted for means.



TABLE 12

Hourly values of Horizontal Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich mean time.)

June

39,000  $\gamma$  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				
$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	H	M	$\gamma$	H	M	$\gamma$		
450	450	443	443	443	444	443	446	446	455	05	24	495	18	21	439	56	1
378	398	402	404	404	430	410	410	420	431	06	38	548	10	26	346	202	2††
426	430	428	428	444	428	428	430	434	434	06	34	478	13	58	402	76	3††
432	432	43	1'8	432	432	431	431	432	438	05	10	478	10	58	418	60	4††
442	442	441	441	438	454	438	460	442	450	05	54	498	09	56	430	68	5
436	432	438	438	440	442	438	442	442	445	03	54	490	11	02	426	64	6
438	438	438	438	442	444	442	446	448	457	05	32	526	13	54	434	92	7
444	444	446	448	448	450	450	450	450	459	06	50	513	14	46	439	74	8
443	443	443	447	449	449	451	452	451	465	05	54	529	12	26	433	96	9
449	447	445	449	453	451	451	449	451	455	05	46	493	10	54	425	68	10
441	441	441	451	449	449	445	455	451	458	06	22	517	11	34	433	84	11
453	451	455	443	443	441	449	449	437	474	06	34	561	23	20	433	128	12
428	428	426	424	432	430	428	428	428	437	08	06	480	11	50	416	64	13
424	424	422	430	430	428	428	428	428	438	05	33	484	15	38	416	68	14
436	436	436	436	438	438	436	434	432	443	07	06	484	12	40	426	58	15
438	436	436	438	436	438	440	444	448	452	06	16	496	17	30	428	68	16†
424	422	428	428	428	432	430	434	438	450	05	54	500	15	50	416	84	17
438	436	436	438	440	444	444	448	444	450	06	18	484	17	04	432	52	18
451	452	452	450	448	446	448	446	444	459	04	34	516	11	42	428	88	19†
430	430	436	432	444	428	438	432	430	456	06	50	516	20	20	416	100	20
424	424	420	424	428	430	426	424	428	430	04	46	492	09	46	396	96	21
420	423	428	424	430	432	428	432	432	439	05	42	500	12	10	400	100	22
428	430	428	430	432	428	430	448	438	447	06	10	504	18	50	426	78	23†
436	436	438	438	438	442	440	436	436	447	03	46	484	18	45	428	56	24
436	438	440	440	442	440	444	442	438	447	05	50	500	11	02	418	82	25
444	438	436	434	436	436	434	434	434	450	05	18	500	21	30	432	68	26†
438	436	436	438	438	438	434	434	436	451	05	10	508	13	02	428	80	27†
444	446	448	446	452	452	450	450	454	455	06	34	496	11	46	428	68	28
388	402	416	426	412	414	406	420	416	451	07	40	584	14	46	372	212	29††
412	415	408	410	416	418	422	426	422	420	06	30	476	03	06	392	84	30††
433	433	434	435	437	438	436	439	438	448							86	Mean
440	438	438	438	438	437	437	441	440									Mean†
407	415	417	419	422	424	419	423	425									Mean ††

| Five international quiet days.

†† Five international disturbed days.

\* Loss of record, day omitted for means.

TABLE 13

## Hourly values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich mean time)

JANUARY

2,000  $\gamma$  plus tabular quantities

Date	Hours G.M.T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$
1	420	416	417	416	421	418	420	426	433	434	432	422	416	425	426
2	424	423	422	423	421	422	423	427	431	437	435	427	416	420	420
3	421	418	415	409	411	412	421	433	442	438	428	425	423	421	421
4†	425	425	424	420	399	381	383	395	399	416	416	410	410	411	411
5††	420	422	421	413	406	392	395	399	393	400	396	389	398	415	425
6	420	416	413	411	408	401	400	405	413	422	418	414	413	416	420
7	424	426	423	411	388	381	389	399	410	422	426	423	420	420	421
8	423	422	422	424	403	394	403	414	424	427	428	422	421	424	424
9	416	421	421	417	402	384	371	383	400	403	405	412	416	416	415
10†	412	412	414	415	424	415	410	406	410	414	415	414	416	416	418
11	414	415	418	420	420	400	398	399	395	401	410	416	414	416	421
12	416	418	420	423	423	420	414	405	409	418	427	422	416	416	414
13	420	417	414	415	411	399	398	404	410	411	409	401	410	411	413
14	419	417	417	416	425	420	415	416	413	414	414	414	416	416	417
15†	416	416	415	413	417	416	412	406	405	406	405	404	412	414	415
16†	414	413	415	421	422	412	410	410	412	414	420	422	420	420	422
17†	422	421	420	422	427	423	421	412	406	409	412	414	417	423	424
18	423	424	424	428	425	421	418	420	414	413	409	406	404	404	412
19††	425	424	424	423	415	417	430	431	422	414	417	425	421	415	415
20	425	428	422	417	418	416	416	415	416	422	433	431	423	423	423
21	426	427	426	422	411	402	399	398	399	399	406	413	412	415	414
22	416	415	415	413	409	392	390	390	398	400	409	413	411	415	417
23	416	424	422	415	411	403	400	398	400	403	409	410	414	415	416
24	417	421	421	421	412	405	402	401	400	393	398	401	406	414	415
25	422	420	417	414	416	412	409	412	414	422	415	400	393	412	418
26††	416	415	412	421	421	403	402	410	410	411	408	404	405	411	409
27††	409	406	400	400	398	395	398	401	405	410	409	406	403	404	410
28††	413	412	412	412	413	410	405	411	414	416	412	404	403	410	411
29	413	411	413	410	403	398	401	406	414	414	409	408	404	402	403
30	411	405	402	404	403	403	405	403	404	414	412	409	405	406	409
31	404	405	404	401	387	382	389	392	394	400	405	408	409	414	414
Mean	418	418	417	416	412	405	405	407	410	414	414	412	412	415	417
Mean †	418	417	418	418	418	409	407	406	406	412	414	413	415	417	418
Mean ††	417	416	414	414	411	403	406	410	411	412	408	404	407	412	414

\* Five international quiet days.

† Five international disturbed days.

†† Loss of record ; day omitted for means.

TABLE 13

Hourly values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich mean time)

JANUARY

2,000  $\gamma$  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.		
$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	H. M.	$\gamma$	H. M.	$\gamma$	$\gamma$	
427	426	425	428	431	430	425	426	424	424	08 15	436	11 40	410	26	1
424	416	417	426	417	416	421	422	422	423	09 05	446	12 05	413	33	2
425	423	424	425	427	424	423	422	422	423	08 20	444	03 35	405	39	3
410	413	414	412	417	416	416	418	418	411	09 15	428	05 40	377	51	4†
425	423	415	410	412	418	422	427	432	411	22 55	437	10 30	383	54	5††
416	415	415	416	420	422	423	425	424	415	08 55	427	05 35	393	34	6
421	418	422	425	427	425	424	424	424	416	09 55	433	04 45	376	57	7
424	424	424	423	423	423	420	420	417	420	09 15	435	04 45	389	46	8
414	416	417	417	416	414	414	413	413	409	03 05	424	05 55	365	59	9
417	416	421	420	421	418	417	421	422	416	03 55	427	06 52	403	24	10†
420	417	417	421	421	422	421	417	417	414	03 50	427	07 45	387	40	11
418	422	422	416	422	420	420	421	421	418	10 07	435	06 55	403	32	12
416	420	421	423	423	418	415	418	419	413	18 20	428	05 35	391	37	13
420	421	422	422	422	421	415	416	416	418	03 45	428	09 40	408	20	14
416	416	417	416	417	416	415	415	415	413	03 15	421	10 45	402	19	15†
421	420	423	424	425	424	423	423	422	419	03 25	428	07 30	406	22	16
423	424	425	427	427	424	424	424	427	421	03 15	435	08 15	401	34	17†
417	417	422	423	423	425	423	423	423	418	03 55	432	13 25	401	31	18
420	423	426	427	423	426	423	423	423	423	07 35	446	14 30	404	42	19††
423	424	424	423	425	428	425	424	424	423	10 20	434	06 15	412	22	20
416	412	413	413	413	414	414	415	416	412	03 10	431	08 35	394	37	21
416	416	416	418	417	417	415	421	418	411	03 10	423	05 52	387	36	22
417	416	416	417	417	420	418	417	417	413	03 00	424	07 10	394	30	23
412	411	416	415	412	421	423	423	423	412	20 45	425	09 10	390	35	24
412	413	415	420	420	417	418	415	414	414	08 50	427	11 45	382	45	25
415	415	423	415	411	414	412	413	410	412	03 30	426	14 00	398	28	26††
414	420	412	423	422	411	413	414	414	408	18 20	436	12 00	391	45	27††
415	414	409	412	418	420	412	411	414	412	19 55	427	11 40	398	29	28††
409	416	409	414	415	413	412	411	410	409	18 52	425	14 20	394	31	29
408	403	416	412	404	411	408	405	405	407	16 50	431	16 10	400	31	30
415	416	414	415	417	417	416	413	413	406	19 40	422	04 40	379	43	31
418	418	418	419	420	420	418	419	418	415					36	Mean
417	418	420	420	421	420	419	420	421							Mean†
418	419	417	417	417	418	416	418	419							Mean ††

\* Five international quiet days.

† Five international disturbed days.

†† Loss of record; day omitted for means.

TABLE 14

## Hourly values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich mean time)

February

2,000  $\gamma$  plus tabular quantities

Date	Hours G M T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$
†1	413	413	412	409	404	399	394	400	410	412	411	410	410	412	413
2	416	415	410	403	399	390	388	395	409	411	416	415	410	410	414
3	418	418	416	413	409	399	389	394	399	405	410	411	410	412	413
4	415	418	414	408	409	402	402	401	405	411	412	409	403	408	408
†5	412	413	412	411	413	410	408	409	411	411	412	409	406	409	411
†6	414	415	412	411	402	394	393	394	399	400	405	404	408	411	412
†7	415	413	412	411	411	406	412	416	414	410	403	402	405	406	408
8	408	406	404	402	399	400	395	394	392	390	400	406	408	410	412
9	413	414	412	405	392	383	380	387	392	401	401	400	394	398	404
10	405	404	404	403	405	406	408	405	405	406	404	403	402	405	403
11	411	410	408	406	402	399	396	395	400	403	404	405	403	408	409
12	406	406	404	402	400	394	392	392	390	394	402	404	403	405	405
†13	401	402	401	396	393	390	376	382	394	405	409	411	408	410	411
14	406	404	404	408	406	396	394	395	400	406	412	410	401	403	404
15	406	406	403	400	398	394	396	392	394	398	401	403	400	403	402
16	409	410	403	405	410	403	399	389	387	390	398	404	406	405	405
17	405	401	394	392	399	401	402	402	398	396	400	409	408	406	405
18	408	409	406	402	399	398	400	403	403	403	402	402	403	405	405
19	406	406	405	400	405	398	392	393	399	401	405	406	402	402	405
20	402	403	400	398	400	398	392	393	394	396	402	403	404	405	404
21	404	402	398	391	402	398	389	396	400	404	412	415	417	414	412
††22	417	413	412	409	400	395	391	392	392	395	399	404	409	406	408
††23	409	410	408	401	402	398	392	402	405	402	412	413	408	409	403
††24	413	411	409	402	402	388	391	393	390	394	396	400	405	403	411
††25	412	411	405	405	398	387	383	387	389	398	403	405	409	410	412
††26	413	412	408	403	402	399	392	389	388	394	398	394	389	401	402
27	401	403	401	402	398	398	395	388	389	401	416	410	409	406	406
28	400	400	399	395	394	402	405	403	409	409	408	410	410	409	409
Mean	409	409	406	403	402	397	395	396	398	402	405	406	405	407	408
Mean †	411	411	410	408	405	400	397	400	406	408	408	407	407	410	411
Mean ††	413	411	408	404	401	393	390	393	393	397	402	403	404	406	407

\* Five International quiet days

† Five International disturbed days

†† Loss of record, day omitted for means

TABLE 14

## Hourly values of Vertical Force, 1953

(Averages for sixty minutes centred at the full hours of Greenwich mean time)

February

2,000  $\gamma$  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		
$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	H M.	$\gamma$	H M.	$\gamma$	$\gamma$	
413	414	414	415	416	413	412	416	413	410	21 32	420	05 45	388	32	1†
414	414	416	418	420	421	421	418	417	411	20 55	423	05 53	380	43	2
413	412	413	415	417	415	414	415	417	410	19 02	422	06 13	383	39	3
409	410	409	411	411	410	412	411	411	409	01 07	422	11 40	394	28	4
410	411	410	412	413	415	414	412	414	411	10 15	418	05 45	404	14	5†
413	414	415	414	414	414	412	414	415	408	20 30	417	06 50	389	28	6†
406	406	405	406	409	408	408	406	406	409	07 25	422	10 30	398	24	7†
411	412	414	414	414	413	412	413	414	406	23 25	417	09 08	386	31	8
409	409	412	413	415	412	411	416	409	403	21 30	423	05 50	374	49	9
408	405	402	405	403	403	411	411	411	405	21 05	422	11 41	395	27	10
409	409	409	409	411	409	410	408	408	406	14 25	414	07 01	387	27	11
405	405	404	405	404	402	401	400	401	401	14 45	410	08 26	384	26	12
411	410	410	411	411	410	409	412	408	403	22 08	415	05 40	365	50	13†
406	404	410	409	411	411	408	409	406	405	09 33	416	05 30	384	32	14
405	409	408	409	413	412	409	409	403	403	18 15	416	06 43	382	34	15
408	409	414	401	406	409	408	408	406	404	03 35	417	08 10	382	35	16
406	406	405	406	408	409	408	406	408	403	10 47	413	08 30	388	25	17
406	406	406	409	410	409	408	406	406	405	19 15	412	04 45	391	21	18
406	405	406	406	409	406	405	405	404	403	11 23	415	05 27	386	29	19
405	405	403	408	403	405	405	405	405	402	17 45	414	05 50	386	28	20
411	405	405	405	406	409	411	410	415	405	23 42	417	06 08	380	37	21
408	402	405	404	394	399	411	411	404	403	21 30	422	18 50	383	39	22††
406	405	414	422	410	409	410	410	411	407	17 40	435	06 00	384	51	23††
413	422	416	417	415	417	416	413	409	406	16 12	431	05 47	380	51	24††
413	413	413	420	413	410	409	408	409	405	18 03	423	05 30	376	47	25††
409	401	402	405	405	414	410	404	402	401	20 10	421	12 28	380	41	26††
406	404	402	403	409	406	406	409	403	403	10 03	420	07 40	378	42	27
409	410	417	415	412	417	411	410	411	407	19 35	428	04 10	386	42	28
409	408	409	410	410	410	410	410	409	405					35	Mean
411	411	411	412	413	412	411	412	411							Mean†
410	409	410	414	407	410	411	409	407							Mean††

† Five International quiet days.

†† Five International disturbed days.

\* Loss of record; day omitted for means.

TABLE 15

## Hourly values of Vertical Force, 1953

[Averages for sixty minutes centred at the full hours of Greenwich mean time]

March

2,000γ plus tabular quantities

Date	Hours G. M. T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	412	412	411	410	393	382	377	372	377	379	392	399	402	404	408
2††	402	405	401	399	*	*	394	395	379	373	382	387	389	393	403
3	415	403	391	394	399	412	414	416	419	414	405	401	404	409	408
4	401	404	403	400	399	392	393	391	393	395	399	398	402	403	*
5	407	407	408	408	411	401	398	399	398	401	400	401	402	403	404
6	*	*	*	*	*	409	399	389	381	387	390	397	400	401	403
7	404	412	414	417	411	399	387	377	376	381	382	390	393	398	399
8	403	403	402	404	401	389	386	387	386	388	394	402	404	403	402
9††	397	395	392	390	392	387	382	389	395	398	401	401	404	403	411
10	411	407	404	405	395	391	386	390	392	393	395	397	399	405	409
11†	407	408	409	408	401	392	386	385	386	390	398	402	409	412	415
12†	407	407	406	405	404	404	398	397	395	398	403	407	405	405	401
13†	405	407	408	410	408	393	377	378	385	389	397	402	405	402	401
14	408	401	407	408	399	387	377	375	378	380	391	395	393	394	399
15	403	403	404	407	402	387	378	383	392	390	393	397	393	398	402
16	403	405	403	401	399	394	385	378	377	379	387	393	397	402	403
17†	399	400	402	401	393	383	377	379	386	388	393	395	397	398	400
18†	404	403	402	401	410	405	398	391	388	387	390	392	395	401	403
19	408	407	410	405	410	404	400	393	388	383	386	385	388	399	402
20	399	400	404	412	415	412	410	405	399	398	399	397	401	404	405
21	401	401	395	401	403	398	397	397	394	397	398	392	399	402	402
22	405	408	404	410	405	394	387	386	389	393	400	404	405	407	407
23††	410	410	407	401	409	409	400	402	405	400	397	401	407	412	416
24††	410	413	412	412	407	408	409	399	403	398	391	403	405	400	411
25††	397	399	402	402	410	408	401	397	391	401	403	407	399	410	411
26	407	409	407	407	410	411	408	397	399	402	403	400	408	410	413
27	407	411	409	410	405	404	399	392	397	409	410	405	408	411	412
28	409	412	411	407	401	397	388	378	387	389	398	400	404	407	410
29	411	410	413	420	423	420	416	414	415	412	411	412	412	409	409
30	414	411	408	402	398	390	392	393	399	409	410	410	408	407	408
31	411	411	410	408	407	401	398	394	397	403	407	411	409	405	410
Mean	406	406	405	406	404	399	393	391	392	394	398	400	402	404	407
Mean†	404	405	405	405	403	395	387	386	388	390	396	400	402	404	404
Mean††	403	404	403	401	405	403	398	397	399	399	398	403	404	406	412

\* Loss of record ; day omitted for means.

† 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]

March

2,000γ 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	407	405	404	407	405	409	410	404	399	21 35	416	06 23	366	50	1††	
402	414	411	405	422	411	411	412	413	*	*	*	*	*	*	2	
408	408	404	408	405	410	411	403	402	407	08 35	424	11 28	388	36	4	
*	*	*	*	*	405	404	408	405	*	*	*	*	*	*	*	
405	405	404	410	412	412	*	*	*	*	*	*	*	*	*	*	
405	404	407	405	408	411	412	410	407	*	*	*	*	*	*	*	6
400	401	401	404	408	403	402	403	404	399	18 33	421	07 53	365	56	7	
401	394	400	407	412	421	410	401	401	400	20 15	425	08 08	381	44	8	
411	415	412	409	413	421	416	409	412	402	20 25	434	05 48	378	56	9††	
410	409	410	408	413	412	409	411	408	403	22 28	417	06 30	380	37	10	
412	412	412	413	412	411	410	409	407	404	15 40	418	06 55	380	38	11†	
402	404	404	405	405	406	406	405	405	403	22 20	412	07 42	388	24	12†	
403	403	402	405	407	405	405	410	409	401	03 08	415	06 23	373	42	13†	
403	404	402	404	404	402	405	404	408	397	22 40	412	06 45	368	44	14	
405	407	407	406	406	405	406	405	405	399	21 10	412	06 05	372	40	15	
404	405	407	407	405	404	407	401	399	398	21 15	410	08 20	368	42	16	
402	402	404	405	404	405	405	404	403	397	19 08	410	06 50	372	38	17†	
405	407	408	409	412	415	411	408	408	402	03 40	419	09 04	381	38	18†	
405	402	401	407	409	410	407	401	399	400	04 00	413	08 48	379	34	19	
405	407	407	404	408	403	404	400	401	404	03 40	419	10 55	390	29	20	
403	403	404	398	<del>403</del>	410	401	403	403	400	19 30	421	11 25	386	35	21	
411	411	410	410	412	412	416	411	409	404	03 07	421	07 10	381	40	22	
421	423	405	415	417	411	409	409	409	409	15 51	434	10 10	391	43	23††	
411	410	413	412	423	409	398	410	401	407	18 46	438	09 40	379	59	24††	
419	417	411	414	412	412	410	410	408	406	15 23	423	07 38	386	37	25††	
414	417	415	412	415	419	421	414	410	409	21 10	425	11 25	388	37	26	
413	414	414	414	415	416	419	412	411	409	20 33	414	06 45	388	36	27	
419	415	414	419	412	416	414	411	410	405	19 52	413	06 45	370	53	28	
410	411	410	410	411	414	412	415	412	413	04 21	426	12 47	401	25	29	
409	411	415	419	420	419	414	410	410	408	18 15	430	05 08	382	48	30	
410	412	414	414	413	414	412	411	411	408	19 51	417	07 50	386	31	31	
408	409	408	409	410	411	409	407	406	403					40	Mean	
405	406	406	407	408	408	407	407	406							Mean†	
415	416	410	413	416	413	408	409	407							Mean††	

\* Loss of record ; day omitted for means.

† Five international quiet days.

†† Five international disturbed days.

TABLE 16

## Hourly values of Vertical Force, 1953

(Averages of sixty minutes centred at the full hours of Greenwich mean time)  
2,000  $\gamma$  plus tabular quantities

April

Date	Hours G. M. T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$
1	413	414	415	413	414	409	399	395	400	405	410	409	408	411	416
2	413	416	414	406	406	394	384	380	381	388	392	400	408	409	409
3	409	408	409	409	416	409	399	395	395	400	406	409	409	406	406
4††	406	398	402	400	424	418	409	404	404	406	409	411	410	405	411
5†	416	420	415	416	414	410	400	399	402	405	410	416	416	415	415
6†	420	422	417	415	411	401	389	387	390	402	411	415	415	412	412
7†	416	416	413	410	406	396	384	377	381	390	399	405	409	411	411
8	418	421	423	421	412	398	387	380	387	399	409	411	409	411	413
9	417	422	424	420	406	394	384	386	390	400	410	409	409	408	410
10	420	421	416	411	402	390	383	389	400	406	411	411	411	412	413
11	416	422	425	422	410	394	382	387	400	409	415	414	411	416	415
12	417	420	421	413	404	396	392	395	400	408	416	411	413	412	416
13	413	413	411	410	406	398	394	396	399	401	413	415	412	411	414
14†	421	423	424	422	422	422	417	417	413	411	412	413	410	412	414
15	417	420	421	420	420	417	413	412	414	415	420	425	422	420	421
16††	421	423	427	426	417	417	416	410	414	425	431	430	421	418	411
17	418	422	421	417	422	421	411	405	409	418	422	417	411	410	415
18	423	424	424	424	415	412	408	401	403	411	416	422	422	421	421
19	423	423	416	413	408	410	405	404	409	408	415	420	414	410	411
20††	420	421	421	411	406	395	380	394	396	406	414	414	413	412	413
21††	416	420	417	413	406	399	393	392	393	405	418	420	418	415	416
22	422	423	422	415	410	405	399	398	398	405	415	421	422	420	421
23††	423	425	422	408	401	399	399	402	403	410	412	415	418	413	421
24	426	428	422	405	398	392	388	384	390	400	405	410	417	415	417
25	430	426	416	402	391	389	379	374	384	396	404	413	415	412	415
26	418	420	412	402	392	388	381	392	402	405	406	409	408	408	410
27	421	423	422	418	413	405	398	398	401	402	410	412	413	413	413
28†	422	426	428	421	417	412	402	390	389	390	396	401	406	412	413
29	418	421	420	416	409	399	392	380	384	393	398	403	408	409	410
30	420	421	423	414	408	398	396	396	399	403	408	415	417	416	416
Mean	418	420	419	414	410	403	395	394	398	404	410	413	413	413	414
Mean†	419	421	419	417	414	408	398	394	395	400	406	410	411	412	413
Mean††	417	417	418	412	411	406	399	400	402	410	417	418	416	413	414

\* Loss of record; day omitted for means.

† Five international quiet days.

†† Five international disturbed days.



TABLE 16

Hourly values of Vertical Force, 1953  
(Averages of sixty minutes centred at the full hours of Greenwich mean time)  
2,000γ plus tabular quantities

April

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	
416	415	413	421	415	416	416	413	415	411	03 15	424	07 10	383	41	1
411	410	414	412	412	416	414	410	410	405	19 27	421	07 40	374	47	2
408	409	412	413	421	416	412	413	410	408	03 15	423	07 50	388	35	3
417	412	417	417	423	417	412	414	415	411	19 10	435	07 50	393	42	4††
416	413	413	416	416	417	417	418	417	413	11 05	422	06 40	391	31	5†
413	415	416	416	417	416	417	417	417	411	03 20	425	06 53	377	48	6†
412	413	415	417	417	416	416	415	417	407	17 40	421	07 03	369	52	7†
417	418	418	417	418	418	418	421	416	411	22 02	426	06 55	376	50	8
412	415	418	421	420	421	420	418	418	411	03 10	428	06 22	381	47	9
412	414	416	415	417	418	415	421	417	410	22 10	424	06 25	369	55	10
414	417	417	422	418	422	421	420	418	413	19 55	428	06 05	371	57	11
416	417	420	416	417	417	416	413	412	412	20 55	424	06 00	386	38	12
416	420	427	424	424	424	420	420	421	413	17 20	431	05 45	387	44	13
414	416	418	417	418	418	420	417	417	417	03 50	428	12 15	405	23	14†
421	421	423	424	426	423	424	423	422	420	10 55	430	06 27	403	27	15
408	417	432	423	424	422	430	426	420	421	16 40	436	14 50	402	34	16††
422	423	423	425	424	424	425	424	425	419	16 35	430	07 35	395	35	17
424	424	425	425	423	426	422	422	422	419	19 35	431	07 55	396	35	18
409	410	421	423	424	423	423	425	426	416	22 20	430	08 52	401	29	19
414	420	422	425	423	427	422	432	423	413	21 58	435	06 10	376	59	20††
421	423	417	433	421	418	418	421	423	414	18 00	439	08 00	382	57	21††
421	417	421	424	430	428	424	426	423	417	19 50	433	08 05	393	40	22
418	420	421	421	422	428	425	422	423	415	19 00	433	05 20	384	49	23††
418	421	422	431	430	427	430	431	431	414	22 30	434	07 15	380	54	24
418	418	422	423	422	417	417	418	417	409	17 40	433	07 10	370	63	25
412	421	417	421	423	422	422	421	425	410	22 52	428	05 50	371	57	26
414	417	420	425	423	422	421	420	418	414	17 55	430	06 15	387	43	27
414	417	421	420	420	418	418	418	418	412	03 25	433	08 45	383	50	28†
414	416	418	418	420	418	418	418	418	409	23 08	424	06 47	376	48	29
415	417	424	423	426	428	423	422	423	415	19 55	432	07 35	388	44	30
415	417	419	421	421	421	420	420	419	413					45	Mean
414	415	417	417	418	417	418	417	417							Mean†
416	418	422	424	423	422	421	423	421							Mean††

\*Loss of record, day omitted for means.

†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)

May

2,000  $\gamma$  plus tabular quantities

Date	Hours G M T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	426	430	431	426	417	415	410	408	395	396	401	413	421	416	418
2	426	428	428	436	428	424	416	411	408	411	418	424	422	418	416
3†	423	427	431	434	428	422	411	401	402	402	409	418	420	422	421
4	424	426	427	430	450	414	409	402	404	403	404	410	416	418	418
5	418	422	421	415	415	411	410	408	405	409	420	421	423	416	417
6††	421	426	436	430	421	422	414	418	404	402	389	384	393	406	413
7	416	422	425	424	431	426	418	425	435	438	437	424	421	424	425
8††	424	426	420	427	413	405	400	403	413	414	413	412	415	416	412
9	420	421	424	426	424	410	404	409	411	417	426	428	426	427	425
10	426	426	433	432	435	431	425	422	418	420	424	426	427	424	425
11	425	427	428	427	418	411	405	402	402	411	422	422	418	421	422
12†	424	427	431	428	421	408	395	394	400	411	422	427	426	422	421
13†	428	430	428	427	422	409	404	405	406	409	417	421	418	421	420
14†	426	430	428	424	416	405	406	408	406	411	414	421	422	418	422
15††	423	424	428	433	424	421	410	401	402	406	411	420	421	410	401
16††	431	424	421	424	420	404	402	413	412	413	411	411	415	424	426
17	434	423	416	427	421	411	409	406	412	417	420	424	426	428	431
18	431	432	426	422	412	401	393	394	400	400	402	413	422	424	425
19††	433	438	439	435	427	421	418	410	409	411	404	412	425	425	426
20	427	433	435	431	417	415	413	410	401	413	421	420	418	421	422
21	432	432	431	420	413	404	404	405	404	405	412	415	423	425	425
22	424	427	434	430	426	427	424	422	422	424	424	422	418	420	424
23	430	431	432	433	423	418	415	411	409	405	412	420	424	425	425
24	433	434	431	422	422	421	421	418	421	422	422	423	422	422	424
25	428	432	430	427	420	412	408	411	424	435	438	441	433	425	424
26	431	427	422	418	415	410	403	403	408	405	411	418	423	424	423
27	425	435	427	422	415	413	402	393	389	394	404	422	426	425	423
28	435	434	431	430	422	413	410	410	414	424	435	435	431	425	424
29	433	432	430	433	422	420	413	411	412	412	417	427	427	425	424
30	433	435	436	433	424	416	414	413	416	420	423	428	431	428	428
31	431	435	436	438	431	416	411	406	405	411	417	432	434	433	426
Mean	427	429	429	428	422	415	410	408	409	412	416	420	422	422	422
† Mean	425	428	429	430	423	414	406	404	404	409	416	422	422	420	420
†† Mean	426	428	429	430	421	415	409	409	408	409	406	408	414	416	416

\* Loss of rec. rd., day omitted for means  
 † 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)

May

2,000  $\gamma$  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.		
$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	$\gamma$	H. M.	$\gamma$	H. M.	$\gamma$	$\gamma$	
415	418	422	423	424	424	427	428	427	418	03 06	433	09 00	391	42	1
418	418	421	422	422	424	421	420	422	421	03 02	439	08 04	402	37	2†
422	423	421	424	424	426	426	425	424	420	02 55	437	08 45	399	38	3†
420	422	423	424	421	422	424	420	418	418	03 10	433	09 45	400	33	4
420	423	423	424	426	424	424	423	422	418	19 15	444	07 40	400	44	5
418	416	421	421	424	418	422	424	414	415	03 10	433	10 53	380	53	6††
426	430	426	426	430	428	425	424	423	426	08 30	444	11 53	412	32	7
414	417	418	425	423	421	421	422	422	417	18 30	435	06 45	396	39	8††
427	424	426	430	425	426	426	424	427	422	11 05	435	05 45	398	37	9
426	424	428	430	427	426	426	425	424	426	03 50	438	07 55	415	23	10
424	425	426	425	425	427	428	426	425	421	03 20	433	07 45	399	34	11
422	423	426	424	426	426	427	426	427	420	11 04	434	06 55	391	43	12†
422	423	425	425	427	425	426	426	424	420	03 05	433	08 00	399	34	13†
421	423	424	424	423	424	423	423	424	419	02 55	433	07 53	401	32	14†
408	417	431	427	424	426	428	437	436	420	22 20	452	14 25	394	58	15††
415	416	424	430	448	433	435	455	436	423	22 15	458	05 45	393	65	16††
431	427	433	434	431	431	432	432	430	424	03 40	437	06 43	401	36	17
425	426	427	430	432	428	431	430	427	419	17 45	434	06 00	387	47	18
427	430	431	431	434	433	436	433	432	426	03 10	442	10 08	402	40	19††
423	425	426	428	431	427	425	430	427	422	02 30	438	08 12	396	42	20
426	430	427	428	431	432	431	427	425	421	20 38	435	08 05	402	33	21
425	426	426	425	427	436	426	426	425	425	19 53	444	13 12	415	29	22
427	432	433	433	434	435	435	433	432	425	03 00	438	08 57	402	36	23
423	424	424	424	426	426	427	428	426	424	01 15	437	07 20	414	23	24
427	432	433	433	430	430	427	428	430	427	10 35	446	06 50	402	44	25
424	425	426	427	433	431	434	431	430	421	20 45	437	07 05	400	37	26
426	435	432	433	434	433	433	432	433	421	15 50	439	07 53	386	53	27
425	426	426	433	435	433	432	428	433	427	10 40	438	06 45	406	32	28
426	430	431	431	431	432	430	428	427	425	11 30	437	07 00	409	28	29
427	427	431	432	432	431	431	432	433	427	03 00	439	07 00	411	28	30
425	426	428	428	427	431	432	430	432	426	03 05	442	08 25	402	40	31
423	425	426	428	429	428	428	428	427	422					38	Mean
421	417	423	424	424	425	425	424	424							Mean †
416	419	425	427	431	426	428	434	428							Mean ††

\* Loss of record ; day omitted for means.

† 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)

June

2,000  $\gamma$  plus tabular quantities

Date	Hours G. M. T.														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	434	435	435	437	432	421	410	404	407	414	421	424	424	426	426
2††	434	435	436	431	434	422	425	413	402	404	408	423	432	424	414
3††	433	436	435	434	421	422	420	403	411	417	419	422	422	421	421
4††	433	432	437	442	435	420	413	412	412	415	421	423	430	427	427
5	434	433	431	431	427	421	415	414	417	420	421	431	429	426	430
6	432	434	433	423	411	405	408	411	415	416	417	422	425	425	432
7	433	432	427	434	427	415	407	405	408	416	421	425	424	425	424
8	432	433	433	429	427	423	413	411	412	419	423	430	429	426	429
9	434	434	435	434	429	422	419	410	403	407	413	419	424	429	430
10	434	438	444	448	446	434	427	421	417	420	425	432	433	434	433
11	435	437	438	440	429	420	412	405	408	407	408	414	423	425	427
12	433	434	434	430	426	424	423	415	412	413	416	426	433	435	433
13	427	434	436	438	437	434	426	422	416	414	415	416	423	426	430
14	434	437	441	441	438	432	422	419	422	423	423	425	430	426	425
15	432	434	435	436	432	426	423	423	422	424	427	432	432	431	434
16†	436	436	437	438	437	435	432	425	421	422	424	426	431	433	434
17	438	437	438	436	427	432	432	430	429	424	423	425	431	432	430
18	434	434	431	422	424	427	429	431	429	427	427	426	427	432	433
19†	434	434	435	434	432	423	421	425	426	426	429	430	429	425	423
20	427	426	424	422	426	421	422	425	432	435	435	434	432	426	423
21	431	435	436	426	421	411	404	408	421	425	432	425	422	423	423
22	424	424	422	425	421	416	419	420	419	421	431	435	434	433	432
23†	434	434	427	415	422	415	410	407	407	412	423	430	432	427	429
24	431	434	433	423	417	413	413	416	422	425	426	424	424	423	425
25	434	436	433	426	424	423	419	420	421	425	430	434	434	431	429
26†	435	437	438	441	423	421	410	414	424	427	433	433	427	425	426
27†	434	435	436	441	433	422	413	410	411	416	421	429	427	427	426
28	435	436	441	441	437	431	424	425	429	432	435	435	431	424	423
29††	425	432	436	440	437	427	415	405	403	389	379	414	430	429	416
30††	434	444	445	437	435	434	430	421	415	405	416	422	429	424	424
Mean	433	434	435	433	429	423	419	416	416	418	421	426	428	427	427
Mean †	435	435	435	434	429	423	417	416	418	421	426	430	429	427	428
Mean ††	432	436	438	437	432	425	421	411	409	406	409	421	429	425	420

\* Loss of record ; day omitted for means.

† Five international quiet days.

†† Five international disturbed days.