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## Magnetic Observations at Valentia Observatory 1980

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METEOROLOGICAL SERVICE



MAGNETIC OBSERVATIONS  
AT VALENTIA OBSERVATORY  
1980

U.D.C.  
550.38 (050)

DUBLIN  
1983

Price: £3.95

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NOTE To simplify reproduction, the letter  $y$  has been used throughout the text to signify  $\gamma$ .

# Magnetic Observations at Valentia Observatory, 1980.

## 1. Introduction

Absolute magnetic observations have been made at Valentia Observatory since 1888. An account of these observations during the period 1888-1953 has been published by the Meteorological Service [1]. In December, 1952, a set of La Cour Variometers was installed at the Observatory and was recording on an experimental basis during the year 1953. Other new instruments brought into use at the same time were:

(a) The Copenhagen Quartz Horizontal Magnetometer (QHM)

(b) The Copenhagen Magnetometric Zero Balance (BMZ)

During 1953, special comparative readings with the old and new instruments were made and an account of this comparison is given in [1].

The data for the years 1954-1979 have been published in annual volumes. The present volume contains the data for 1980.

## 2. Site of the Observations

The geographic and geomagnetic co-ordinates of Valentia Observatory are as follows:

Geographic co-ordinates	$\phi = 51^{\circ} 56' N$	$\lambda = 10^{\circ} 15' W$
Geomagnetic co-ordinates	$\delta = 56.6^{\circ} N$	$\lambda = 73.4^{\circ} E$

The height of the station above M.S.L. is 14 metres.

A full description of the site and of the variometer hut is given in [6]. The observing hut for absolute observations has been in use since October, 1956. A plan showing the layout of the instrument pillars in this hut, together with some particulars concerning its construction, is given in [7].

## 3. Variometers and Recorders

Up to December, 1955, the instruments, installed in the variometer hut, consisted of a standard La Cour 15 mm/hr recorder with a set of La Cour H, D and Z variometers. In December, 1955, a second set of La Cour H, D and Z variometers with a La Cour 180 mm/hr (quick-run) recorder was installed, and has been recording continuously since 1st January, 1956.

A description of the instruments and of the recorders will be found in [2], [3] and [4].

The variometers-recorder lines are approximately along the Magnetic Meridian, the recorders being south of the variometers.

At Valentia, the time marking system in the La Cour recorder has been modified to give lines at ten minute intervals. In addition, a number of alarm devices have been installed to reduce to a minimum the possibility of accidental loss of trace.

A full description of the time marking system and alarm devices is given in [5] and [6].

## 4. Base Line Instruments

Since routine recordings began in 1954 a number of changes have been made in the instruments used for base line determination. An account of these changes and comparisons between the instruments is given in appendix to [9].

The base line instruments used during 1980 were:

Declination.....Ruska Observatory Magnetometer No. 5917 with Magnet No. 65S  
Horizontal Force...Proton Vector Magnetometer  
Vertical Force.....Proton Vector Magnetometer

#### 4.1 Declination

Ruska Observatory Magnetometer No. 5917 has been in use as the standard base line instrument for Declination since 1st January, 1959. Prior to this date, the instrument in use was the Dover Magnetometer No. 139 with Collimator Magnet No. 139A. Particulars of a comparison between the old and new instruments will be found in [8].

#### 4.2 Horizontal Force and Vertical Force

The proton Vector Magnetometer was introduced as a routine base line instrument for H and Z as from 1st January, 1970. An account of the comparison of results obtained with this absolute instrument and those obtained with the relative instruments used in previous years is given in the appendix to [9].

#### 5. Base Line Determination

A summary of the base line values, deduced from the observations made with the instruments specified in paragraph 4, is given in Table 1. The values adopted for the tabulation of the records are given in Table 2.

#### 6. Scale Values of the Variometers

The scale values for all three variometers were determined by means of the Helmholtz coil, supplied with the variometers. The scale value for the D variometer was also checked by geometric considerations.

The scale values for 1980 were:

D.....1 mm = 0! 90

H.....1 mm = 3.65y

Z.....1 mm = 5.60y

#### 7. Diurnal Variation of the Magnetic Elements

Diurnal variation data for all days and international quiet and disturbed days for the seasons and the year are given in Tables 8 to 16. The months taken as comprising the different seasons are as is usual in magnetic work:

Winter.....January, February, November and December

Equinox.....March, April, September and October

Summer.....May, June, July and August.

#### 8. K - Indices

The K - Indices, given in Table 17, have been scaled, using the procedure recommended by the committee on Characterisation of Magnetic Disturbances of the I.A.G.A. The lower limit for K = 9 is 500y.

The actual scaled value for K is given without reduction for a presumed solar flare effect.

## 9. Magnetic Disturbance Data

Tables 18 and 19 give the times of onset, as recorded on the Valentia normal speed magnetograms, of the following phenomena:

- (a) Sudden commencements of magnetic storms or periods of storminess (s.s.c.)
- (b) Presumed solar flare effects (s.f.e.)

Giant pulsations (p.g.) as recorded on the quick-run magnetometer are listed in Table 20.

Definitions and descriptions of the phenomena listed in Tables 18 to 20 will be found in [10].

## 10. Notes on the Tables

### Tables 4 to 6 (incl.)

The hourly values are the mean values for each hourly interval centred at the half hours.

The mean for each day is the arithmetic mean of the 24 hourly values.

The figures for "Sum" are the last four figures of the monthly totals for each hour (all days).

### Tables 4 to 7 (incl.)

The international quiet and disturbed days are indicated by letters "Q" and "D" respectively. These days have been selected by the International Association of Geomagnetism and Aeronomy.

### Tables 7 to 16 (incl.)

The maxima and minima are indicated by the letters "M" and "m" respectively.

### Table 7

The temperature given for each day is the temperature observed in the variometer hut at 0900 GMT.

### Table 21

The data given in this table have been adjusted, where necessary, to eliminate discontinuities resulting from occasional changes in base line instruments or other causes. Particulars of this homogeneization will be found in appendix to [9].

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TABLE 1 BASE LINE VALUES AS COMPUTED FROM THE ABSOLUTE OBSERVATIONS

DECLINATION  $10^{\circ} + \dots \dots \dots$  (Tenths of minutes)

DATE	OBS.	DATE	OBS.	DATE	OBS.	DATE	OBS.	DATE	OBS.	DATE	OBS.
2/1	398	29/2	397	28/4	401	25/6	399	29/8	136	3/11	133
4/1	392	3/3	399	30/4	402	*27/6	140	1/9	136	5/11	137
7/1	398	5/3	398	2/5	401	2/7	139	3/9	141	7/11	137
9/1	392	7/3	397	5/5	400	4/7	138	5/9	136	10/11	133
11/1	396	10/3	396	7/5	401	7/7	139	8/9	137	12/11	136
14/1	395	12/3	398	9/5	401	9/7	138	10/9	134	22/11	136
16/1	392	14/3	397	12/5	401	11/7	136	12/9	137	24/11	135
18/1	398	17/3	397	14/5	403	14/7	141	15/9	136	26/11	133
21/1	397	19/3	400	16/5	396	16/7	139	17/9	136	28/11	135
23/1	397	21/3	400	19/5	400	18/7	140	19/9	135	1/12	140
25/1	395	24/3	396	21/5	399	21/7	137	22/9	135	3/12	132
30/1	395	26/3	398	23/5	400	23/7	136	24/9	135	5/12	138
1/2	394	28/3	398	26/5	400	25/7	142	29/9	134	8/12	142
4/2	396	31/3	397	28/5	403	28/7	137	1/10	134	10/12	142
6/2	394	2/4	400	30/5	398	30/7	138	3/10	136	12/12	140
8/2	396	4/4	396	2/6	400	1/8	137	6/10	138	15/12	138
11/2	398	7/4	397	4/6	399	4/8	138	8/10	135	17/12	140
13/2	394	9/4	398	6/6	400	6/8	139	13/10	138	19/12	143
15/2	396	11/4	401	9/6	399	8/8	138	15/10	137	22/12	141
18/2	395	14/4	401	11/6	394	11/8	138	17/10	136	26/12	137
20/2	393	16/4	400	13/6	400	13/8	140	20/10	139	29/12	139
21/2	393	18/4	400	16/6	400	15/8	135	22/10	137	31/12	139
22/2	394	21/4	402	18/6	399	18/8	137	24/10	131		
25/2	394	23/4	402	20/6	399	22/8	138	29/10	134		
27/2	394	25/4	404	23/6	400	25/8	134	31/10	142		

\* Base Line Adjusted 26/6

HORIZONTAL COMPONENT (Gamma Units)

DATE	OBS.	DATE	OBS.	DATE	OBS.	DATE	OBS.	DATE	OBS.	DATE	OBS.
2/1	19013	5/3	19005	5/5	19006	4/7	19169	1/9	19174	31/10	19165
4/1	008	7/3	006	7/5	006	7/7	169	3/9	174	3/11	165
7/1	005	10/3	004	9/5	004	9/7	172	5/9	173	5/11	166
9/1	004	12/3	008	12/5	006	11/7	170	8/9	171	7/11	167
11/1	004	14/3	005	14/5	006	14/7	169	10/9	172	10/11	164
14/1	005	17/3	005	16/5	006	16/7	172	12/9	168	12/11	167
16/1	003	19/3	004	19/5	006	18/7	174	15/9	171	14/11	167
18/1	005	21/3	004	21/5	006	21/7	171	17/9	172	20/11	166
21/1	006	24/3	005	23/5	005	23/7	171	19/9	172	21/11	168
23/1	006	26/3	003	26/5	003	25/7	173	22/9	170	24/11	165
25/1	004	28/3	004	28/5	004	28/7	175	24/9	172	26/11	163
28/1	005	31/3	004	30/5	003	30/7	177	26/9	171	28/11	167
30/1	006	2/4	007	2/6	003	1/8	174	29/9	172	1/12	166
1/2	006	4/4	004	4/6	007	4/8	176	1/10	173	3/12	166
4/2	007	7/4	005	6/6	003	6/8	173	3/10	167	5/12	168
6/2	006	9/4	002	9/6	004	8/8	172	6/10	168	8/12	166
8/2	006	11/4	006	11/6	002	11/8	174	8/10	169	10/12	170
11/2	006	14/4	005	13/6	004	13/8	176	10/10	165	12/12	168
13/2	007	16/4	005	16/6	002	15/8	175	13/10	166	15/12	165
15/2	006	18/4	007	19/6	002	18/8	174	15/10	167	17/12	169
18/2	007	21/4	006	20/6	003	20/8	172	17/10	169	19/12	167
21/2	007	23/4	002	23/6	004	22/8	173	20/10	167	22/12	167
25/2	005	25/4	005	25/6	003	25/8	169	22/10	165	26/12	167
27/2	006	28/4	006	*27/6	19167	27/8	168	24/10	167	29/12	168
29/2	006	30/4	007	30/6	169	29/8	171	29/10	166	31/12	167
3/3	007	2/5	005	2/7	171						

\* Base Line Adjusted 26/6

TABLE 1 (Contd.)      BASE LINE VALUES AS COMPUTED FROM THE ABSOLUTE OBSERVATIONS

VERTICAL COMPONENT      (Gamma Units)

DATE	OBS.	DATE	OBS.	DATE	OBS.	DATE	OBS.	DATE	OBS.	DATE	OBS.
2/1	44399	5/3	44408	5/5	44410	4/7	44417	1/9	44293	31/10	44305
4/1	406	7/3	406	7/5	407	7/7	416	3/9	293	3/11	304
7/1	404	10/3	405	9/5	410	9/7	*44285	5/9	294	5/11	302
9/1	407	12/3	410	12/5	411	11/7	284	8/9	294	7/11	299
11/1	404	14/3	402	14/5	409	14/7	285	10/9	295	10/11	300
14/1	405	17/3	404	16/5	412	16/7	285	12/9	295	12/11	298
16/1	398	19/3	402	19/5	413	18/7	286	15/9	295	14/11	306
18/1	399	21/3	401	21/5	412	21/7	283	17/9	293	20/11	310
21/1	400	24/3	401	23/5	411	23/7	284	19/9	295	21/11	308
23/1	401	26/3	404	26/5	412	25/7	285	22/9	296	24/11	309
25/1	399	28/3	406	28/5	412	28/7	287	24/9	293	26/11	303
28/1	404	31/3	408	30/5	411	30/7	288	26/9	295	28/11	302
30/1	405	2/4	407	2/6	413	1/8	284	29/9	292	1/12	300
1/2	404	4/4	405	4/6	415	4/8	288	1/10	295	3/12	302
4/2	406	7/4	408	6/6	414	6/8	287	3/10	289	5/12	304
6/2	404	9/4	407	9/6	414	8/8	286	6/10	290	8/12	297
8/2	406	11/4	407	11/6	413	11/8	288	8/10	287	10/12	307
11/2	406	14/4	404	13/6	414	13/8	288	10/10	*304	12/12	309
13/2	406	16/4	409	16/6	415	15/8	287	13/10	303	15/12	306
15/2	407	18/4	409	19/6	415	18/8	287	15/10	302	17/12	307
18/2	408	21/4	409	20/6	414	20/8	288	17/10	299	19/12	304
21/2	405	23/4	409	23/6	414	22/8	286	20/10	306	22/12	308
25/2	404	25/4	408	25/6	415	25/8	287	22/10	309	26/12	302
27/2	407	28/4	408	27/6	416	27/8	288	24/10	305	29/12	309
29/2	405	30/4	408	30/6	416	29/8	294	29/10	307	31/12	308
3/3	406	2/5	409	2/7	415						

\* Base Line Adjusted 8/7, 9/10

TABLE 2 ADOPTED BASE LINE VALUES  
DECLINATION  $10^{\circ} + \dots\dots\dots$  (Tenths of Minutes)

DATE	ADOP.	DATE	ADOP.	DATE	ADOP.	DATE	ADOP.
1/1 -28/2	395	15/5-26/6	400	10/9 - 1/10	135	2/12- 3/12	137
29/2 - 1/3	396	27/6-13/8	139	2/10- 8/10	136	4/12- 6/12	138
2/3 - 6/4	397	14/8-15/8	138	9/10-21/10	137	7/12- 8/12	139
7/4 -10/4	398	16/8-30/8	137	22/10	136	9/12-15/12	140
11/4-13/4	399	31/8- 4/9	138	23/10- 3/11	134	16/12-22/12	141
14/4-19/4	400	5/9- 8/9	137	4/11-29/11	135	23/12-28/12	139
20/4-14/5	401	9/9	136	30/11- 1/12	136	29/12-31/12	140

HORIZONTAL COMPONENT (Gamma Units)

DATE	ADOP.	DATE	ADOP.	DATE	ADOP.	DATE	ADOP.
1/1	19012	7/4 -10/5	19005	28/7- 2/8	19176	4/9 - 7/9	19172
2/1	011	11/5-22/5	006	3/8- 6/8	175	8/9 - 1/10	171
3/1	010	23/5	005	7/8-10/8	174	2/10- 5/10	169
4/1	009	24/5-25/5	004	11/8-16/8	175	6/10- 8/10	168
5/1	008	26/5-26/6	003	17/8	174	9/10	167
6/1	007	27/6- 8/7	169	18/8-20/8	173	10/10-12/10	166
7/1	006	9/7-15/7	170	21/8-22/8	172	13/10-26/10	167
8/1-29/1	005	16/7-19/7	171	23/8	171	27/10- 4/12	166
30/1- 9/3	006	20/7-21/7	172	24/8-28/8	170	5/12-11/12	167
10/3-18/3	005	22/7-23/7	173	29/8-31/8	171	12/12-31/12	168
19/3- 6/4	004	24/7-27/7	174	1/9- 3/9	173		

VERTICAL COMPONENT (Gamma Units)

DATE	ADOP.	DATE	ADOP.	DATE	ADOP.	DATE	ADOP.
1/1	44398	27/3-29/3	44405	24/9-30/9	44294	13/11	44302
2/1	400	30/3- 6/4	406	1/10-2/10	293	14/11-15/11	304
3/1	402	7/4-14/4	407	3/10-4/10	290	16/11-17/11	306
4/1	404	15/4- 1/5	408	5/10-9/10	289	18/11-24/11	308
5/1	405	2/5- 4/5	409	10/10-12/10	303	25/11	306
6/1-14/1	406	5/5-14/5	410	13/10-14/10	302	26/11-29/11	303
15/1	404	15/5-31/5	411	15/10-17/10	300	30/11- 6/12	302
16/1	402	1/6- 2/6	412	18/10	302	7/12	303
17/1-25/1	400	3/6-12/6	413	19/10	304	8/12	304
26/1	402	13/6-26/6	414	20/10	306	9/12	306
27/1	403	27/6- 3/7	415	21/10-27/10	307	10/12-14/12	307
28/1	404	4/7- 8/7	416	28/10-30/10	306	15/12-22/12	306
29/1-10/2	405	9/7-25/7	285	31/10- 2/11	305	23/12	305
11/2 -11/3	406	26/7- 2/8	286	3/11	303	24/12-25/12	304
12/3	405	3/8-22/8	287	4/11- 6/11	302	26/12	305
13/3-17/3	404	23/8-28/8	288	7/11- 8/11	301	27/12	306
18/3-25/3	403	29/8- 7/9	294	9/11-12/11	300	28/12-31/12	307
26/3	404	8/9-23/9	295				

NOTE The adopted values as shown above are for periods which are multiples of 24 hours commencing at 0900 GMT.

The adopted base line values for the 24 hour period ending at 0900 GMT on 1st January are Declination  $10^{\circ} 39.5$ , Horizontal Component 19013y and Vertical Component 44397y: for the 24 hour period commencing at 0900 GMT on 31st December, they are Declination  $10^{\circ} 14.0$ , Horizontal Component 19168y and Vertical Component 44307y.

TABLE 3

## MONTHLY AND ANNUAL MEAN VALUES OF THE MAGNETIC ELEMENTS

## ALL DAYS

1980	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Declination $10^{\circ} +$	553	543	537	524	518	508	497	493	484	474	463	459	504
Horizontal Force (Gamma Units) 18000 +	966	968	980	980	985	984	988	987	985	977	978	981	980
Vertical Force (Gamma Units) 44000 +	458	456	445	446	443	446	447	445	446	453	455	456	450

## FIVE INTERNATIONAL QUIET DAYS

1980	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Declination $10^{\circ} +$	553	546	541	527	517	505	502	491	485	474	466	460	506
Horizontal Force (Gamma Units) 18000 +	972	974	981	977	982	983	989	986	988	980	983	986	982
Vertical Force (Gamma Units) 44000 +	456	452	446	446	441	444	444	445	444	451	453	452	448

## FIVE INTERNATIONAL DISTURBED DAYS

1980	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Declination $10^{\circ} +$	552	542	526	523	518	507	497	497	485	475	455	458	503
Horizontal Force (Gamma Units) 18000 +	949	955	969	969	975	973	988	987	976	965	973	961	970
Vertical Force (Gamma Units) 44000 +	465	460	446	450	448	452	450	447	450	461	457	470	455

TABLE 4 DECLINATION MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1 D	546	555	555	555	565	554	546	552	574	562	556	573	595
2	464	506	522	521	537	543	543	543	539	530	537	557	584
3	538	539	524	487	485	525	538	539	538	534	534	553	565
4	535	550	547	551	540	557	561	550	543	535	531	545	566
5	543	544	555	555	551	545	543	543	543	535	535	549	584
6	543	547	540	515	530	543	545	542	542	532	538	553	573
7	553	552	547	546	546	544	542	539	535	534	535	555	573
8	524	533	549	546	549	546	541	543	542	533	539	549	567
9 Q	553	554	555	559	561	555	547	542	536	527	541	547	558
10 Q	565	565	563	563	558	552	543	537	528	518	528	539	549
11	567	573	574	576	568	560	537	535	533	520	541	552	565
12 Q	549	552	552	550	548	547	544	538	529	517	525	542	559
13 D	552	553	554	551	551	548	547	544	568	546	539	552	567
14	523	536	532	548	544	547	551	543	533	526	533	532	549
15	552	555	558	559	562	562	556	551	543	530	537	557	565
16	549	512	539	534	546	557	563	556	541	527	539	547	563
17	554	554	555	557	556	555	558	595	554	535	545	568	571
18 Q	544	544	544	545	547	545	545	538	533	521	526	537	552
19 Q	545	544	553	556	556	552	547	540	531	515	525	540	561
20	539	536	509	535	546	545	547	543	532	517	525	545	555
21	516	525	541	546	555	554	549	545	540	527	528	547	563
22	547	550	553	555	555	554	547	544	537	524	527	540	555
23	531	524	537	540	537	536	545	543	535	526	536	544	561
24	540	544	549	550	549	546	545	543	536	533	534	543	557
25	543	545	547	546	547	545	544	542	536	529	535	555	565
26	533	537	537	535	542	540	540	540	536	525	531	551	572
27 D	525	523	513	507	537	543	537	533	537	552	553	565	571
28 D	505	507	477	475	481	489	532	535	524	523	535	563	583
29 D	405	349	411	493	523	532	532	532	526	522	534	545	561
30	525	545	541	547	546	542	538	532	527	535	547	546	562
31	543	540	532	535	541	542	538	535	525	511	517	533	551
MEAN	534	535	538	540	544	545	545	543	538	529	535	549	565
MEAN Q	551	552	553	555	554	550	545	539	531	520	529	541	556
MEAN D	507	497	502	516	531	533	539	539	546	541	543	560	575
SUM	6551	6593	6665	6738	6859	6905	6891	6837	6676	6401	6586	7024	7522

10<sup>0</sup>+.....(Tenths of Minutes)

JANUARY, 1980.

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
614	622	625	594	605	625	584	555	487	489	485	566	1 D
593	597	594	592	575	569	558	554	544	543	540	549	2
585	589	592	586	593	590	555	579	567	525	532	550	3
589	605	563	564	590	544	543	565	547	526	543	554	4
594	598	592	577	583	579	564	544	530	539	515	556	5
587	595	585	574	572	575	563	556	550	553	553	554	6
583	587	582	577	566	565	563	547	552	548	517	554	7
583	587	585	583	577	575	568	562	555	553	553	556	8
573	582	575	572	567	568	569	567	565	564	564	558	9 Q
572	583	575	572	574	567	563	563	556	555	563	556	10 Q
587	598	593	593	605	591	573	569	557	545	549	565	11
583	579	565	564	564	593	561	556	554	552	552	552	12 Q
583	567	586	585	561	598	574	545	535	526	505	556	13 D
572	573	572	572	567	569	570	562	557	553	545	550	14
584	585	584	574	570	574	564	555	552	553	553	560	15
574	576	570	558	555	555	555	554	548	549	550	551	16
596	596	585	575	570	556	555	547	540	541	541	561	17
568	586	581	568	562	562	555	538	526	532	538	547	18 Q
575	589	582	571	566	555	565	556	548	546	546	553	19 Q
575	589	585	575	565	564	554	554	546	544	534	548	20
585	590	584	571	563	562	556	554	547	546	545	552	21
573	588	590	583	573	577	564	559	554	543	538	555	22
575	593	579	572	565	563	560	555	545	543	543	550	23
578	592	584	585	577	572	570	553	547	544	537	555	24
586	605	599	590	589	592	583	563	553	545	524	559	25
579	583	567	559	560	557	556	552	548	534	516	547	26
609	632	639	635	601	634	575	513	537	435	495	554	27 D
613	615	641	659	665	648	608	567	549	538	485	555	28 D
591	612	618	594	579	557	589	567	518	502	504	529	29 D
586	605	597	576	566	558	558	548	543	538	548	552	30
564	585	578	564	555	558	557	556	565	545	531	546	31
584	593	589	581	577	575	566	555	546	537	534	553	
574	584	576	569	567	563	563	556	550	550	553	553	
602	610	622	613	602	612	586	549	525	498	495	552	
8109	8383	8247	8014	7880	7822	7532	7215	6922	6649	6544		

Table 4      DECLINATION      MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	529	525	528	535	544	535	529	527	523	512	515	531	556
2	516	528	535	526	522	508	519	525	524	511	513	519	547
3 Q	535	535	536	539	535	529	528	525	519	507	509	530	553
4	540	541	545	544	539	532	526	527	525	522	524	535	549
5 Q	541	542	541	541	542	538	533	527	520	506	516	544	574
6 D	543	545	545	554	545	545	545	539	590	560	535	535	544
7	535	536	536	534	534	524	525	514	516	505	506	526	563
8 D	509	505	536	554	516	518	517	539	536	534	538	561	576
9	543	544	544	542	536	531	536	546	543	536	535	555	576
10 Q	535	543	544	540	535	535	530	525	515	504	506	528	551
11	545	545	545	547	544	535	530	526	522	513	510	526	555
12 Q	545	545	544	540	537	535	531	525	521	510	510	536	567
13 Q	545	545	545	543	543	540	533	525	517	505	513	527	550
14 D	544	543	543	539	531	543	549	540	533	550	572	596	585
15 D	543	546	535	521	515	513	507	509	505	497	509	526	553
16 D	500	484	413	395	425	466	535	578	572	535	543	555	568
17	537	546	547	548	537	528	523	521	515	509	517	535	555
18	489	485	506	527	535	533	529	535	539	535	545	556	567
19	474	505	510	485	483	522	525	530	524	518	535	553	565
20	498	509	524	533	540	541	536	538	529	519	523	535	559
21	519	506	511	522	524	526	525	525	525	515	522	536	554
22	537	538	538	537	536	535	534	531	527	517	520	533	550
23	538	538	538	536	536	535	533	532	525	513	520	528	563
24	483	501	506	519	525	541	524	523	516	511	516	538	565
25	536	535	533	535	535	535	534	530	525	520	525	544	560
26	505	507	495	497	515	517	518	524	522	516	523	545	575
27	532	525	529	520	504	506	515	512	515	515	539	561	593
28	506	513	515	515	504	516	515	507	522	545	556	570	576
29	503	500	514	524	524	514	512	511	505	516	536	568	606
30													
31													
MEAN	524	526	527	527	526	527	527	528	527	519	525	542	564
MEAN Q	540	542	542	541	538	535	531	525	518	506	511	533	559
MEAN D	528	525	514	513	506	517	531	541	547	535	539	555	565
SUM	5205	5260	5281	5292	5241	5276	5296	5316	5270	5056	5231	5732	6355

10<sup>0</sup>+.....(Tenths of Minutes)

FEBRUARY, 1980.

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
574	581	574	559	562	562	575	543	555	525	504	542	1
580	585	576	565	563	559	558	555	551	542	539	540	2
573	586	577	570	568	561	558	555	551	545	541	544	3 Q
564	573	569	565	564	564	563	555	548	545	543	546	4
585	595	587	577	569	562	557	554	545	544	543	549	5 Q
575	598	603	583	592	600	565	535	541	540	537	558	6 D
566	585	585	575	555	545	560	544	515	535	514	539	7
593	611	594	564	571	563	553	545	538	521	515	546	8 D
597	611	604	582	554	529	544	537	524	517	524	550	9
568	576	575	567	557	555	556	554	547	545	545	543	10 Q
566	575	576	571	564	563	560	555	550	545	545	546	11
567	573	573	573	565	559	556	555	543	545	546	546	12 Q
565	575	570	565	564	562	558	555	552	549	546	546	13 Q
595	599	618	618	593	555	555	539	540	542	543	561	14 D
564	583	580	568	568	566	575	517	484	451	385	526	15 D
589	582	571	547	537	522	485	475	517	535	537	519	16 D
575	572	565	555	555	552	543	543	536	535	535	541	17
575	572	561	562	552	562	572	528	515	513	504	537	18
574	575	573	556	553	548	546	543	536	535	533	533	19
572	578	583	570	565	563	554	547	542	536	525	542	20
564	567	565	563	563	559	555	553	548	542	539	539	21
572	582	578	567	558	553	552	550	545	539	538	544	22
570	584	602	596	595	601	601	553	535	525	516	551	23
582	588	592	575	565	559	555	549	544	541	538	540	24
570	590	593	592	595	626	616	625	595	567	516	560	25
568	605	589	587	564	559	545	536	543	535	535	539	26
613	606	578	556	543	550	555	549	544	552	523	543	27
578	575	564	556	555	555	551	545	505	514	520	533	28
590	581	566	565	548	547	556	549	543	537	535	540	29
												30
												31
577	585	581	571	564	561	558	546	539	534	526	543	
572	581	576	570	565	560	557	555	548	546	544	546	
583	595	593	576	572	561	547	522	524	518	503	542	
6724	6963	6841	6549	6357	6261	6179	5843	5632	5497	5264		

Table 4 DECLINATION MEAN HOURLY VALUES,

DATE	HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
		to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	Q	535	536	535	518	513	514	511	506	500	504	516	541	567
2	Q	536	535	531	526	524	522	518	517	507	506	517	544	585
3		532	531	535	532	528	526	522	517	509	503	510	537	567
4		542	542	539	537	532	529	524	517	505	501	524	554	580
5		535	536	519	514	537	533	517	512	509	506	525	559	577
6		517	517	529	533	530	528	524	513	505	499	503	547	579
7		528	539	524	525	519	519	517	515	505	494	507	526	553
8		537	534	537	527	512	509	517	517	507	496	515	549	574
9		529	526	526	525	520	517	518	529	534	517	526	544	574
10		530	532	530	528	528	527	525	517	511	511	525	554	589
11		525	520	529	527	519	519	517	515	509	510	517	543	574
12	Q	535	536	532	529	527	523	521	515	499	482	490	518	548
13		543	538	537	535	537	537	532	519	490	484	497	533	568
14		522	536	536	527	530	519	521	515	504	499	508	530	552
15	Q	546	544	539	537	532	527	519	509	498	500	526	561	589
16		540	541	534	528	521	515	512	503	486	476	507	547	567
17		539	538	538	536	532	527	519	508	488	486	510	547	577
18	Q	528	534	536	537	529	528	521	503	477	467	489	533	575
19		535	537	537	537	534	527	518	499	498	487	507	546	569
20		536	529	529	528	528	528	522	514	497	487	493	517	553
21	D	520	517	508	496	517	547	538	546	554	514	515	539	573
22	D	497	503	503	500	513	501	493	470	461	463	491	525	580
23		511	525	525	536	521	517	511	498	481	477	495	525	554
24		537	535	534	529	526	525	519	504	486	486	515	530	565
25		533	528	527	524	519	517	513	499	485	480	502	541	570
26	D	475	467	485	377	408	484	469	468	487	487	513	568	513
27		506	517	521	522	527	518	506	487	479	492	517	539	568
28		507	519	519	525	507	497	496	480	457	465	495	537	578
29		537	518	521	524	524	527	504	471	459	460	487	530	570
30	D	510	508	467	465	454	473	507	507	488	477	502	538	588
31	D	534	526	511	504	477	489	523	525	516	516	526	564	574
MEAN		527	527	525	519	517	518	515	507	496	491	509	541	569
MEAN Q		536	537	535	529	525	523	518	510	496	492	508	539	573
MEAN D		507	504	495	468	474	499	506	503	501	491	509	547	566
SUM		6337	6344	6273	6088	6025	6069	5974	5715	5391	5232	5770	6766	7650

10<sup>0</sup> +.....(Tenths of Minutes)

MARCH, 1980.

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
578	582	572	560	553	552	549	547	546	544	538	538	1 Q
597	595	584	577	566	557	556	552	549	547	541	545	2 Q
586	586	584	568	563	556	549	543	535	535	539	541	3
585	584	575	559	547	550	548	547	540	521	521	542	4
576	570	565	559	553	546	545	541	535	535	530	539	5
595	599	589	586	569	564	555	548	544	538	535	544	6
570	588	587	577	564	557	545	537	529	523	532	537	7
594	594	590	569	556	551	547	544	532	539	537	541	8
582	577	577	557	555	557	555	547	547	533	535	542	9
593	593	575	560	556	555	548	546	546	539	537	544	10
595	592	589	571	562	557	551	546	542	536	531	542	11
572	577	572	559	551	545	548	548	545	544	544	536	12 Q
591	582	577	564	555	554	548	538	543	533	508	539	13
569	568	566	550	539	535	539	538	541	541	544	535	14
605	602	585	567	547	542	543	543	543	541	540	545	15 Q
590	596	578	563	546	542	545	543	540	532	531	537	16
607	617	597	577	560	551	547	541	538	537	535	544	17
597	606	596	577	557	547	548	546	540	537	529	539	18 Q
597	608	617	590	572	560	555	554	548	543	538	546	19
579	594	587	568	556	546	537	537	537	537	527	536	20
603	617	608	605	589	586	537	496	491	500	480	542	21 D
603	616	617	576	548	537	543	544	534	503	498	526	22 D
568	578	575	557	554	545	539	545	543	541	539	532	23
592	600	577	558	546	539	544	544	542	538	544	538	24
595	605	598	580	567	560	562	558	559	536	477	539	25
527	586	586	558	537	528	502	511	518	507	486	502	26 D
596	602	587	565	547	539	538	536	535	528	527	533	27
609	619	607	578	557	545	546	546	545	545	528	534	28
593	605	589	563	548	537	537	537	526	516	519	529	29
607	609	590	566	538	526	532	534	535	536	536	525	30 D
576	585	573	556	544	544	544	537	534	534	534	535	31 D
588	595	586	568	555	549	545	541	538	533	527	537	
590	592	582	568	555	549	549	547	545	543	538	541	
583	603	595	572	551	544	532	524	522	516	507	526	
8227	8432	8169	7620	7202	7010	6882	6774	6682	6519	6340		

Table 4 DECLINATION MEAN HOURLY VALUES,

DATE	HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
		to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	Q	524	513	508	526	523	517	508	484	460	456	480	516	551
2	Q	537	533	519	517	524	524	515	495	473	467	488	543	583
3		531	527	527	529	538	529	517	491	463	458	476	522	578
4		529	527	526	524	523	525	518	496	498	486	506	557	583
5		533	535	535	532	531	523	507	477	453	454	477	521	562
6	D	527	528	527	537	520	513	508	487	464	446	455	499	573
7		522	527	525	522	524	537	517	487	497	478	510	539	571
8		510	511	508	504	504	506	491	478	450	446	468	528	568
9		519	508	488	481	491	471	477	478	475	477	529	571	589
10	D	523	522	503	482	425	491	500	528	528	478	512	535	544
11	D	496	486	496	508	517	523	527	538	480	476	489	523	556
12	D	489	456	470	463	456	472	492	482	462	457	477	518	561
13		391	449	442	500	494	509	509	472	459	457	480	525	564
14		532	531	534	530	517	509	507	479	447	432	455	500	557
15	D	504	508	440	476	482	500	488	509	477	475	505	547	592
16		540	522	512	508	509	502	512	497	467	465	486	522	561
17		522	502	492	522	460	487	491	480	470	460	471	501	550
18	Q	517	519	517	520	511	499	482	467	452	458	487	520	562
19	Q	520	520	518	515	511	503	482	470	462	466	480	511	551
20		528	520	509	502	510	503	501	483	469	461	474	504	549
21	Q	498	506	503	500	501	499	490	472	448	427	436	462	499
22		533	517	511	511	505	511	506	486	471	467	499	531	563
23		473	494	511	500	492	487	474	470	471	477	491	519	552
24		488	497	518	497	482	484	485	482	471	472	498	524	553
25		511	503	503	490	480	488	484	481	478	477	497	532	555
26		521	521	522	534	522	506	479	461	453	456	481	510	533
27		528	521	521	514	508	492	477	461	451	459	481	511	541
28		505	518	517	512	506	491	472	461	448	438	455	491	532
29		531	521	522	517	517	506	501	485	462	450	459	494	541
30		528	526	533	531	506	487	461	441	427	419	451	496	563
31														
MEAN		514	512	509	510	503	503	496	483	466	460	482	519	558
MEAN Q		519	518	513	516	514	508	495	478	459	455	474	510	549
MEAN D		508	500	487	493	480	500	503	509	482	466	488	524	565
SUM		5410	5368	5257	5304	5089	5094	4878	4478	3986	3795	4453	5572	6737

10<sup>0</sup> + ..... (Tenths of Minutes)

APRIL, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
589	593	576	551	529	525	524	528	534	532	533	524	1 Q
605	605	588	568	557	548	547	543	543	540	535	537	2 Q
601	602	587	569	550	537	536	541	539	537	533	534	3
618	617	602	567	540	518	494	513	527	531	534	536	4
599	617	611	586	554	529	534	537	536	534	528	534	5
624	666	649	610	556	548	527	540	532	527	527	537	6 D
616	618	594	575	558	538	488	510	516	521	511	533	7
568	578	573	569	554	547	543	535	538	535	528	523	8
594	585	582	544	534	524	527	531	534	535	536	524	9
577	588	587	568	553	546	538	538	537	533	531	528	10 D
582	598	602	581	566	526	461	460	461	467	470	516	11 D
584	599	603	570	539	527	527	536	536	489	455	509	12 D
607	594	579	549	529	491	507	509	511	529	533	508	13
602	619	601	573	551	537	527	529	522	468	494	523	14
615	610	609	583	560	532	485	520	520	479	532	523	15 D
600	611	600	580	546	528	532	540	539	530	529	531	16
580	590	581	562	546	530	534	531	525	529	517	518	17
610	632	620	590	550	540	534	533	522	527	518	529	18 Q
587	603	600	586	564	546	540	539	545	524	529	528	19 Q
581	601	594	585	574	554	533	522	522	518	508	525	20
551	588	588	580	569	558	551	541	526	524	523	514	21 Q
602	595	588	581	567	556	554	549	538	524	511	532	22
581	590	585	577	570	559	550	545	541	540	512	523	23
583	598	595	581	568	551	538	539	541	535	531	525	24
559	580	564	561	548	532	532	532	534	532	530	520	25
571	574	567	554	544	532	532	532	534	527	531	521	26
567	584	575	558	546	536	534	541	541	531	501	520	27
568	577	571	565	553	539	531	535	536	536	533	516	28
577	591	581	571	551	532	531	531	530	531	534	524	29
593	598	589	571	553	531	520	513	526	527	529	517	30
												31
590	600	591	572	553	537	527	530	530	523	521	524	
588	604	594	575	556	543	539	537	534	529	528	527	
596	612	610	582	555	536	508	519	517	499	503	523	
7691	8001	7741	7165	6589	6097	5811	5893	5886	5692	5616		

Table 4      DECLINATION      MEAN HOURLY VALUES,

DATE	HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
		to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1		531	531	513	513	523	524	502	479	461	453	479	519	551
2	Q	526	527	524	523	522	524	505	478	459	450	475	512	543
3	Q	530	529	528	522	516	506	485	462	441	442	461	495	544
4		532	531	531	531	539	532	507	485	472	473	490	532	573
5		529	529	527	525	521	503	474	457	438	441	459	485	532
6		483	503	516	471	475	470	441	440	428	446	469	519	549
7		513	511	511	511	511	503	480	465	448	449	463	500	549
8		521	502	481	502	521	523	498	472	455	455	481	519	555
9	D	518	519	541	515	490	485	461	458	463	464	489	535	572
10		499	494	516	511	495	472	453	442	445	451	477	519	553
11	D	525	520	513	511	501	495	465	455	479	491	516	550	602
12	D	470	512	475	487	462	449	439	438	451	471	507	542	568
13		524	524	523	530	499	481	461	446	449	467	489	522	560
14	D	525	478	493	471	454	454	445	445	452	471	492	519	545
15		523	522	520	511	499	491	491	466	451	463	495	536	570
16	Q	520	520	520	508	495	483	465	449	431	443	472	520	559
17	Q	524	522	521	516	508	490	464	447	440	447	472	517	550
18		523	523	520	514	506	490	465	445	440	443	453	481	519
19		517	515	510	507	501	481	459	432	430	439	464	510	542
20		510	496	492	490	480	475	463	460	473	492	511	532	550
21		520	512	502	496	490	480	463	451	450	460	481	518	541
22		520	518	512	508	498	480	465	460	468	472	485	529	566
23		527	523	514	493	483	473	454	459	464	480	505	532	579
24		509	519	520	516	508	489	470	456	464	472	508	545	588
25	D	520	514	502	496	480	470	467	442	487	498	485	530	579
26		482	491	490	489	479	460	440	432	451	480	528	536	576
27	Q	514	512	510	501	491	482	463	448	436	432	459	498	540
28		528	520	515	510	499	486	455	434	432	459	488	530	566
29		529	529	520	510	495	470	448	436	430	439	459	496	533
30		520	512	509	508	490	470	454	440	428	439	466	502	541
31		500	497	511	508	513	513	468	440	438	440	470	520	558
MEAN		517	515	512	507	498	487	467	452	450	459	482	520	557
MEAN Q		523	522	521	514	506	497	476	457	441	443	468	508	547
MEAN D		512	509	505	496	477	471	455	448	466	479	498	535	573
SUM		6012	5955	5880	5704	5444	5104	4470	4019	3954	4222	4948	6120	7253

10<sup>0</sup> + ..... (Tenths of Minutes)

MAY, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
579	589	579	564	539	513	513	526	531	531	531	524	1
578	591	580	566	550	535	526	527	527	528	531	525	2 Q
586	600	591	566	545	529	524	528	528	528	531	522	3 Q
623	633	619	591	563	541	531	532	531	530	530	540	4
571	594	584	575	569	559	551	544	511	509	500	520	5
586	599	596	581	560	538	523	507	499	502	511	509	6
585	610	617	607	582	550	546	536	538	531	536	527	7
579	590	577	559	541	529	522	522	527	528	531	520	8
591	608	582	568	549	533	529	536	528	509	512	523	9 D
578	578	561	544	532	526	526	534	540	537	535	513	10
624	610	590	575	564	528	550	591	596	590	558	542	11 D
583	591	571	548	524	508	504	510	504	511	526	506	12 D
585	592	582	566	543	527	520	517	477	478	501	515	13
561	566	554	541	531	491	492	506	511	511	527	501	14 D
577	574	562	550	531	520	511	510	513	518	519	518	15
588	590	576	553	536	522	519	521	520	523	524	515	16 Q
585	590	578	557	537	523	526	530	516	515	517	516	17 Q
552	583	585	577	560	540	527	523	520	520	520	514	18
579	596	580	580	576	558	549	544	540	537	531	520	19
563	570	560	546	542	538	537	538	533	531	528	517	20
562	570	563	560	561	551	538	534	528	525	523	516	21
594	600	582	561	537	527	527	530	531	530	530	522	22
602	601	581	558	540	518	518	525	529	520	521	521	23
608	607	610	592	594	557	530	525	528	523	515	531	24
591	601	587	572	550	535	521	517	513	516	492	519	25 D
583	575	562	554	550	539	536	530	512	513	525	514	26
568	572	557	540	522	515	518	521	523	524	525	507	27 Q
596	590	569	540	519	510	512	522	529	531	530	515	28
559	561	562	555	545	530	528	528	527	521	524	510	29
579	596	593	574	560	535	517	516	517	520	526	513	30
581	589	565	549	540	532	526	520	536	526	463	513	31
583	591	579	564	548	531	526	527	525	523	522	518	
581	589	576	556	538	525	523	525	523	524	526	517	
590	595	577	561	544	519	519	532	530	527	523	518	
8076	8316	7955	7469	6992	6457	6297	6350	6263	6216	6173		

Table 4 DECLINATION MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	478	498	503	481	452	471	461	439	439	483	511	529	568
2	520	513	502	484	484	480	457	440	436	450	484	513	542
3	526	526	507	496	492	488	470	458	444	438	450	478	520
4	502	502	492	491	486	478	470	458	449	448	466	492	527
5 Q	510	510	511	505	500	490	470	450	444	455	472	493	520
6	519	520	524	521	512	490	470	451	454	470	500	541	569
7 D	479	471	477	472	455	449	427	451	445	454	478	500	530
8	441	499	420	440	473	450	436	445	447	451	480	530	566
9	520	511	501	490	480	460	442	431	427	446	471	510	538
10 D	488	465	479	479	468	475	510	470	470	470	495	535	566
11 D	510	490	488	455	451	450	431	438	468	532	540	552	572
12 D	456	506	467	457	471	444	425	427	440	482	520	546	559
13 D	512	519	511	470	473	482	458	452	451	472	499	545	580
14	512	508	498	498	487	468	444	431	438	451	478	520	558
15	520	512	507	507	501	485	455	442	438	430	441	469	513
16	505	501	499	490	482	472	461	451	439	438	469	520	563
17 Q	522	521	518	515	509	498	470	459	452	449	460	480	511
18 Q	513	512	507	497	487	470	450	446	447	460	480	507	546
19	520	511	508	501	500	491	461	447	450	451	466	496	532
20	511	506	503	500	494	484	469	452	446	460	478	497	527
21	510	510	506	497	487	473	456	449	454	460	470	493	520
22	530	510	497	485	483	478	468	461	472	468	476	500	520
23	517	497	500	490	488	482	462	442	430	440	470	512	551
24	510	504	503	496	470	471	440	418	409	411	450	499	550
25	485	480	496	504	511	508	473	442	455	462	480	509	542
26	453	470	449	463	462	455	430	429	410	428	450	499	542
27 Q	511	505	497	483	470	459	449	450	459	469	491	507	529
28 Q	490	495	490	488	483	470	457	441	439	445	460	499	541
29	499	499	493	491	487	474	454	446	440	437	455	493	531
30	459	462	472	470	469	451	426	410	422	447	481	529	577
31													
MEAN	501	501	494	487	482	473	455	444	444	455	477	510	544
MEAN Q	509	509	505	498	490	477	459	449	448	456	473	497	529
MEAN D	489	490	484	467	464	460	450	448	455	482	506	536	561
SUM	5028	5033	4825	4616	4467	4196	3652	3326	3314	3657	4321	5293	6310

10<sup>0</sup> + ..... (Tenths of Minutes)

JUNE, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
599	611	600	583	556	537	529	506	500	503	520	515	1
573	594	593	576	556	532	520	513	518	523	517	513	2
554	571	578	578	567	551	532	520	520	514	500	512	3
560	579	587	576	563	540	524	518	512	511	510	510	4
541	554	554	540	521	510	510	511	515	515	516	505	5 Q
579	590	590	571	573	557	549	549	539	533	481	527	6
570	581	564	565	549	537	511	504	505	562	569	504	7 D
580	582	569	550	530	520	509	520	526	530	528	501	8
545	562	555	541	530	522	523	515	520	501	510	502	9
569	580	564	542	528	513	519	532	519	491	510	510	10 D
571	580	570	546	529	521	501	520	512	513	518	511	11 D
559	570	570	554	540	530	507	482	492	489	480	499	12 D
568	570	561	536	532	513	507	512	522	491	511	510	13 D
588	592	582	570	549	522	507	497	480	509	520	509	14
542	560	554	550	540	529	520	510	509	514	502	502	15
590	592	588	560	561	555	537	528	523	520	527	515	16
532	548	548	540	522	510	512	515	516	513	515	506	17 Q
568	581	580	568	552	539	530	522	518	520	527	514	18 Q
556	581	582	584	571	559	540	538	538	530	527	518	19
540	549	551	541	524	521	520	522	517	517	516	506	20
538	545	557	549	549	530	529	526	527	520	526	508	21
540	557	564	561	553	538	532	519	521	518	523	511	22
569	567	563	554	537	518	510	505	519	520	517	507	23
581	609	607	580	563	553	531	512	518	513	505	508	24
559	570	570	560	541	529	529	516	517	520	513	511	25
578	595	586	571	559	559	519	496	513	516	519	498	26
555	569	559	540	525	515	506	501	499	499	496	502	27 Q
559	578	569	545	514	498	498	500	504	508	509	499	28 Q
559	582	578	557	538	508	502	499	501	510	512	502	29
597	592	585	561	535	519	504	499	500	507	497	499	30
												31
564	576	573	558	544	530	519	514	514	514	514	508	
551	566	562	547	527	514	511	510	510	511	513	505	
567	576	566	549	536	523	509	510	510	509	518	507	
6919	7291	7178	6749	6307	5885	5567	5407	5420	5430	5421		

Table 4 DECLINATION MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1 Q	478	487	493	496	489	467	441	419	423	434	457	487	530
2 Q	506	500	498	496	487	469	452	443	445	458	482	511	550
3 Q	499	493	491	484	467	448	436	429	421	440	473	508	532
4	501	498	497	493	486	475	459	446	448	457	479	513	538
5 D	486	458	451	501	475	451	444	457	460	459	481	503	531
6	499	483	479	478	479	465	453	457	465	471	489	506	525
7	471	444	449	467	455	447	441	427	431	461	479	508	543
8	499	511	470	456	452	453	449	439	429	439	472	506	534
9	483	484	475	482	463	446	419	417	421	435	456	477	499
10 Q	490	490	487	485	478	462	447	449	451	458	472	500	539
11	500	510	497	483	466	447	432	427	429	447	491	531	565
12	512	499	499	496	478	456	430	418	419	422	451	491	539
13	516	510	517	519	516	502	448	408	403	412	451	501	539
14	509	529	525	500	481	457	435	433	441	468	498	528	563
15	499	499	508	486	470	456	444	433	428	428	463	504	549
16	509	507	506	490	484	471	458	442	429	430	460	502	547
17	503	510	499	489	478	459	428	418	417	429	440	479	509
18 D	501	499	476	466	479	459	445	439	433	438	459	483	528
19	433	479	487	430	446	445	431	414	402	408	436	459	499
20	489	497	497	493	481	468	451	436	431	429	450	468	513
21	502	499	479	467	470	459	449	434	430	449	479	512	547
22	482	466	459	458	455	446	428	419	411	428	457	491	519
23 Q	494	487	486	483	479	468	450	447	446	456	482	518	547
24	500	499	487	474	458	437	427	428	430	441	463	492	527
25 D	499	489	479	471	469	449	426	429	432	441	461	509	546
26 D	469	461	495	470	446	426	419	419	431	453	474	503	537
27 D	505	509	496	465	453	415	397	401	415	425	470	521	560
28	489	477	488	515	505	466	458	449	452	449	469	496	518
29	499	497	495	497	499	486	457	439	436	432	457	494	527
30	498	494	484	477	470	457	449	442	449	454	467	489	514
31	475	493	499	502	501	469	446	439	446	467	482	509	529
MEAN	493	492	489	483	475	457	440	432	432	443	468	501	534
MEAN Q	493	491	491	489	480	463	445	437	437	449	473	505	540
MEAN D	492	483	479	475	464	440	426	429	434	443	469	504	540
SUM	5295	5258	5148	4969	4715	4181	3649	3397	3404	3718	4500	5519	6543

10<sup>0</sup>+.....(Tenths of Minutes)

JULY, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
567	581	570	555	529	517	508	504	509	509	500	498	1 Q
584	587	574	555	539	529	519	512	512	509	503	509	2 Q
555	572	569	552	537	526	518	513	510	507	502	499	3 Q
568	570	548	537	533	529	518	513	509	498	489	504	4
571	590	593	587	568	520	519	527	526	523	511	508	5 D
543	561	559	559	552	549	539	524	509	511	499	506	6
553	551	551	557	543	533	517	509	485	499	499	493	7
541	556	557	554	542	509	501	506	507	471	479	493	8
522	548	553	549	533	522	507	501	497	494	492	486	9
566	582	578	558	541	525	516	508	508	509	506	504	10 Q
583	580	579	560	540	519	502	500	498	510	521	505	11
557	562	559	543	520	508	497	494	499	502	501	494	12
573	587	594	571	542	513	489	490	497	502	506	504	13
580	581	571	554	531	522	504	490	498	502	499	508	14
587	599	592	574	547	519	506	504	505	504	508	505	15
570	576	556	543	528	508	499	501	509	503	500	502	16
538	551	549	538	522	509	506	509	509	503	504	492	17
549	563	569	549	540	522	509	558	504	518	539	501	18 D
529	551	558	547	531	517	511	509	513	510	492	481	19
531	548	560	551	534	515	500	497	504	502	501	494	20
580	589	577	563	537	516	505	496	499	488	488	501	21
547	561	564	549	535	507	496	491	493	499	495	486	22
568	568	547	519	506	499	496	499	503	508	499	498	23 Q
545	561	556	530	512	507	503	501	506	497	499	491	24
570	604	609	599	607	545	531	459	473	481	419	500	25 D
569	569	540	528	519	507	509	489	489	499	489	488	26 D
579	569	551	526	499	487	489	501	501	481	496	488	27 D
530	539	523	518	506	491	488	499	503	507	503	493	28
552	558	555	538	514	499	491	498	506	499	498	497	29
549	565	562	543	520	491	481	491	496	488	459	491	30
546	544	532	519	505	491	486	491	490	493	491	494	31
558	568	563	549	533	515	505	503	502	501	496	497	
568	578	568	548	530	519	511	507	508	508	502	502	
568	579	572	558	547	516	511	509	499	500	491	497	
7302	7623	7465	7025	6512	5951	5660	5594	5567	5526	5387		

Table 4 DECLINATION MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1 Q	493	491	492	496	484	462	452	455	465	473	488	507	519
2	499	499	501	501	492	475	451	440	441	450	465	483	508
3	466	454	442	449	427	437	469	489	491	478	500	517	548
4	486	478	473	470	460	449	425	428	429	430	448	477	499
5 Q	488	489	481	480	477	466	453	447	440	454	479	502	529
6 D	501	499	452	409	438	439	434	431	433	430	470	510	541
7	460	470	469	464	471	469	453	462	469	492	517	548	576
8 Q	476	476	473	475	477	461	452	439	433	449	471	502	538
9	490	498	498	492	485	465	435	421	427	448	475	509	544
10	480	495	499	492	519	514	459	426	428	459	511	551	576
11	498	498	493	493	480	467	459	446	439	446	467	504	539
12	458	457	477	477	469	461	448	439	441	439	456	487	518
13	493	493	485	481	473	465	448	438	429	437	459	492	530
14	499	492	493	490	489	473	449	427	413	428	458	500	531
15	492	494	498	496	480	461	436	428	438	457	492	533	569
16 D	488	487	485	470	468	451	440	432	431	454	476	518	563
17	497	491	487	485	478	465	447	437	419	429	470	519	557
18 D	488	477	476	476	483	479	447	437	438	476	487	506	539
19 D	469	470	491	435	440	428	416	416	412	427	446	487	521
20	486	477	471	470	467	453	440	434	433	450	483	526	555
21	437	397	428	444	420	420	411	428	432	451	483	517	548
22	491	478	469	449	446	439	430	428	433	449	486	525	547
23	480	480	479	468	465	457	447	444	446	457	493	517	544
24 Q	484	473	481	460	466	458	436	420	423	439	477	516	545
25	492	487	482	477	475	462	449	437	427	437	474	507	540
26	429	423	387	460	437	436	428	412	418	446	477	509	545
27 D	492	497	470	464	458	448	464	465	486	487	519	553	578
28 Q	490	484	482	479	467	460	442	433	432	453	484	517	537
29	487	485	483	479	476	467	455	446	437	436	460	508	547
30	487	483	479	474	461	437	437	435	427	438	463	498	535
31	468	444	441	446	454	455	435	421	418	436	469	511	540
MEAN	482	478	475	471	467	457	443	437	436	450	478	511	542
MEAN Q	486	483	482	478	474	461	447	439	439	454	480	509	534
MEAN D	488	486	475	451	457	449	440	436	440	455	480	515	548
SUM	4944	4816	4717	4601	4482	4179	3747	3541	3528	3935	4803	5856	6806

10<sup>0</sup> + ..... (Tenths of Minutes)

AUGUST, 1980.

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
539	544	536	521	509	499	490	488	482	493	497	495	1 Q
543	561	557	549	529	512	502	477	471	481	474	494	2
568	578	573	550	531	519	503	507	507	507	497	500	3
538	526	519	519	510	498	494	497	500	498	491	481	4
539	538	525	508	495	493	497	504	501	501	499	491	5 Q
579	590	577	552	535	520	485	500	511	484	465	491	6 D
571	562	551	532	509	476	483	489	450	475	493	496	7
560	558	541	519	496	478	479	490	481	487	491	488	8 Q
569	579	555	529	506	489	486	480	484	490	477	493	9
588	581	559	527	504	489	489	495	500	505	504	506	10
576	578	560	534	517	499	496	490	479	495	504	498	11
541	556	552	539	527	509	502	499	498	496	490	489	12
567	581	579	561	541	519	503	507	507	499	499	499	13
553	558	538	520	502	485	484	499	506	508	504	492	14
588	574	541	520	495	483	490	500	502	505	498	499	15
616	636	608	604	556	504	484	495	507	508	500	508	16 D
579	569	549	535	519	510	488	505	496	490	489	496	17
571	570	554	535	527	517	506	506	499	498	475	499	18 D
571	611	571	534	521	519	518	503	473	501	494	486	19 D
558	553	543	550	535	510	470	487	487	483	479	492	20
567	562	534	510	496	488	492	501	503	501	496	478	21
567	569	557	539	525	517	495	499	475	472	489	491	22
548	547	531	513	495	488	490	500	498	497	496	491	23
565	565	543	525	505	492	492	497	497	495	494	490	24 Q
558	547	531	513	506	499	505	505	505	504	459	491	25
557	559	537	518	507	504	507	499	500	494	496	479	26
590	580	557	530	494	473	480	494	497	497	494	503	27 D
549	553	543	522	504	490	489	489	488	487	487	490	28 Q
562	565	548	523	502	493	497	497	477	496	487	492	29
557	565	557	541	517	506	498	497	495	487	486	490	30
566	572	553	529	510	502	498	498	497	494	485	485	31
565	567	551	532	514	499	493	497	493	494	490	493	
550	552	538	519	502	490	489	494	490	493	494	491	
585	597	573	551	527	507	495	500	497	498	486	497	
7500	7587	7079	6501	5925	5480	5292	5394	5273	5328	5190		

Table 4 DECLINATION MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	467	477	481	473	453	436	437	441	436	450	477	509	541
2 Q	488	483	478	468	458	454	446	436	435	448	480	524	558
3	488	485	480	477	471	466	455	448	439	446	471	505	528
4 D	434	445	462	418	419	419	411	414	419	443	484	518	549
5	466	448	439	429	433	438	434	437	448	465	503	532	561
6	469	465	468	473	464	447	435	442	453	477	503	523	547
7	455	468	472	471	474	461	451	450	448	457	479	507	531
8	468	455	475	472	465	457	442	429	435	457	481	511	543
9 D	481	482	490	486	474	465	458	450	447	453	467	506	539
10 Q	457	469	477	474	477	471	463	449	436	451	467	519	558
11	478	477	480	469	463	467	453	435	427	435	477	531	569
12 D	470	468	454	446	433	443	460	474	493	484	495	533	564
13 D	417	429	413	437	454	445	439	445	451	465	499	544	583
14	475	469	465	430	424	452	454	445	436	444	466	495	535
15	445	445	465	466	470	455	455	445	433	431	455	490	525
16	475	476	475	472	465	451	435	423	411	429	456	486	515
17 D	470	469	486	462	461	455	446	435	435	456	491	525	537
18	474	473	468	466	461	455	452	443	439	446	459	475	495
19	477	472	468	465	463	457	453	447	445	443	450	486	525
20	445	456	465	431	425	435	436	433	429	434	456	485	510
21 Q	475	475	474	473	466	465	465	459	445	435	444	465	490
22	476	475	467	469	465	465	456	449	437	430	444	474	516
23	476	474	475	474	475	469	465	450	435	427	455	490	521
24 Q	475	477	474	472	468	465	463	453	439	443	452	475	507
25	455	458	463	481	471	455	444	435	434	441	467	497	525
26 Q	483	477	477	475	475	473	467	437	423	425	455	503	542
27	483	480	479	475	473	473	455	433	413	418	445	486	527
28	471	475	474	473	473	467	458	449	430	418	424	455	497
29	467	465	464	463	457	458	452	436	427	422	436	467	508
30	462	457	449	446	453	455	449	444	429	429	448	471	501
31													
MEAN	467	467	469	463	459	456	450	442	437	443	466	500	532
MEAN Q	476	476	476	472	469	466	461	447	436	440	460	497	531
MEAN D	454	459	461	450	448	445	443	444	449	460	487	525	554
SUM	4022	4024	4057	3886	3783	3674	3489	3266	3108	3302	3986	4987	5947

10<sup>0</sup> +.....(Tenths of Minutes)

SEPTEMBER, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
558	558	539	527	516	511	515	510	506	499	492	492	1
565	548	525	507	494	491	499	502	499	491	491	490	2 Q
558	568	543	543	538	489	489	474	478	484	461	491	3
558	548	529	518	507	497	497	470	488	489	477	476	4 D
565	562	547	535	509	503	503	485	484	487	477	487	5
560	555	557	537	516	509	501	495	487	485	452	493	6
539	528	507	486	481	487	496	485	460	467	467	480	7
546	547	534	508	494	488	495	496	493	484	484	486	8
557	557	537	505	473	474	481	486	474	453	454	485	9 D
569	557	530	502	478	478	483	488	481	478	476	487	10 Q
582	575	549	518	495	481	476	479	484	475	473	490	11
579	576	580	549	531	497	495	491	454	435	435	493	12 D
595	586	552	527	509	495	484	485	485	476	475	487	13 D
565	565	548	525	505	500	496	494	485	444	409	480	14
552	555	540	516	502	485	475	479	475	485	473	480	15
545	545	526	508	499	496	495	483	485	484	473	480	16
525	543	528	515	498	489	486	488	485	443	472	483	17 D
507	513	514	508	503	500	488	496	496	491	482	479	18
534	525	519	514	505	496	497	495	479	443	451	480	19
526	540	536	525	515	511	500	495	495	490	484	477	20
509	523	525	517	507	498	493	490	486	485	482	481	21 Q
553	565	545	525	511	488	482	476	472	475	471	483	22
531	533	526	515	498	492	485	473	468	469	465	481	23
527	536	527	512	494	494	486	484	477	465	464	480	24 Q
545	543	535	517	497	477	468	475	477	477	479	480	25
558	566	545	523	499	475	465	475	477	480	483	486	26 Q
549	554	549	526	509	483	482	477	473	465	463	482	27
544	565	546	534	516	513	505	504	489	465	473	484	28
540	549	562	545	525	515	454	443	466	465	465	477	29
513	526	532	526	511	502	494	487	482	478	475	476	30
												31
548	550	538	520	505	494	489	485	481	474	469	484	
546	546	530	512	494	487	485	488	484	480	479	485	
563	562	545	523	504	490	489	484	477	459	463	485	
6454	6511	6132	5613	5135	4814	4665	4560	4440	4207	4078		

Table 4      DECLINATION      MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1 Q	470	469	469	467	465	464	461	454	442	429	435	455	477
2	471	470	469	468	469	468	466	459	449	445	449	471	500
3	476	475	471	470	466	466	464	456	444	415	426	469	512
4 D	447	457	445	452	443	439	456	482	476	466	465	498	553
5	408	461	449	436	464	474	464	456	453	443	465	485	517
6	457	469	486	479	472	451	443	459	455	459	465	476	506
7	458	466	445	428	450	456	458	463	453	447	464	496	526
8	454	463	465	469	469	465	458	446	427	422	433	456	488
9	457	447	457	454	468	463	456	463	456	446	448	477	502
10	470	464	478	478	462	452	449	449	443	447	452	457	507
11 D	386	377	381	429	420	495	507	547	495	487	497	497	526
12	460	465	460	464	466	470	470	441	427	418	436	476	515
13	468	468	468	468	467	466	459	440	416	405	419	460	497
14	475	469	476	475	473	472	465	447	419	412	432	486	509
15	444	410	436	434	437	419	422	430	426	445	453	482	516
16	481	477	475	475	471	468	465	457	445	437	455	492	525
17	474	469	468	467	466	461	457	454	447	435	444	477	515
18	437	404	447	437	440	457	447	419	413	426	446	455	493
19	454	463	467	465	464	469	473	471	464	444	447	484	505
20 Q	459	457	463	463	473	469	462	454	437	423	437	464	499
21	468	457	459	466	457	466	469	455	446	437	447	469	503
22	471	470	467	459	429	433	454	470	457	443	448	484	509
23 D	443	442	459	457	457	454	503	515	486	474	518	535	532
24	441	450	452	456	462	456	450	440	432	429	453	476	495
25 D	446	447	450	469	464	457	454	454	461	453	463	482	503
26	433	427	425	444	448	442	437	424	432	440	464	473	497
27 Q	456	459	458	462	463	458	455	449	435	426	439	471	504
28 Q	464	463	462	464	467	467	462	455	439	421	425	462	497
29 Q	464	464	464	464	464	463	459	454	436	424	434	464	498
30	455	436	432	425	433	433	431	448	435	409	415	444	475
31 D	450	435	402	428	464	470	474	494	493	451	434	455	516
MEAN	455	453	455	457	459	459	460	458	446	437	449	475	507
MEAN Q	463	462	463	464	466	464	460	453	438	425	434	463	495
MEAN D	434	432	427	447	450	463	479	498	482	466	475	493	526
SUM	4097	4050	4105	4172	4223	4243	4250	4205	3839	3558	3908	4728	5717

10<sup>0</sup> ..... (Tenths of Minutes)

OCTOBER, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
505	512	525	525	512	500	491	486	485	478	476	477	1 Q
516	521	521	514	500	497	495	487	485	482	478	481	2
525	531	527	516	497	496	492	476	476	425	435	475	3
556	580	596	537	488	475	476	446	459	451	427	481	4 D
541	545	528	505	496	457	453	446	446	417	416	469	5
533	546	530	514	485	470	478	475	476	471	456	480	6
554	551	536	520	508	496	469	457	469	453	444	478	7
524	548	556	534	506	497	494	468	473	462	467	477	8
524	537	527	507	485	467	447	468	467	462	467	473	9
535	558	572	558	527	555	546	510	457	449	442	488	10
506	518	516	591	487	478	479	476	467	464	457	475	11 D
536	534	529	510	498	494	487	477	473	469	469	477	12
531	536	534	517	499	492	488	480	477	472	471	475	13
534	547	535	516	501	498	484	467	477	461	464	479	14
528	529	523	596	484	477	472	464	453	454	458	463	15
537	537	524	596	497	492	488	485	481	476	475	484	16
527	532	517	506	497	497	489	487	481	474	463	479	17
596	512	514	503	481	501	490	431	465	460	448	460	18
527	539	533	516	508	481	478	461	422	426	451	476	19
523	528	521	501	493	485	479	481	475	471	469	475	20 Q
518	525	513	504	487	481	485	481	467	462	469	475	21
546	554	536	517	499	498	482	462	445	387	424	473	22
533	546	502	506	502	462	482	467	458	452	434	481	23 D
537	528	515	503	489	490	482	446	427	456	451	467	24
524	543	523	529	483	483	484	418	375	353	355	463	25 D
514	518	505	485	481	483	481	470	464	459	457	463	26
524	525	511	494	485	477	475	465	468	466	463	470	27 Q
523	526	515	502	493	484	483	478	471	469	466	473	28 Q
514	516	504	495	489	485	487	486	481	474	466	473	29 Q
495	503	508	506	495	494	487	484	483	474	462	461	30
556	567	530	552	526	500	437	452	423	379	417	471	31 D
528	535	526	513	496	489	482	470	462	452	452	471	
518	521	515	504	494	486	483	479	477	472	468	474	
537	551	527	527	497	480	472	458	436	420	418	475	
6362	6592	6296	5918	5378	5145	4941	4567	4336	4014	4027		

Table 4 DECLINATION MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	450	456	471	471	480	464	471	457	451	450	446	485	509
2	454	464	463	465	483	464	457	448	431	416	425	456	474
3 Q	464	465	464	464	464	465	463	451	438	424	439	458	494
4	472	472	471	470	467	444	444	442	441	431	471	485	494
5 Q	454	460	471	465	458	455	453	451	432	415	424	455	487
6	467	469	468	466	460	454	453	445	436	424	436	457	505
7 Q	446	454	444	444	454	450	444	440	435	425	440	470	495
8 Q	438	451	455	457	454	453	448	451	441	417	425	457	485
9	463	463	460	452	455	451	445	446	441	430	441	465	503
10	451	441	446	430	438	446	445	447	443	427	437	486	498
11 D	446	427	442	414	432	449	445	444	436	441	429	468	485
12	406	433	453	445	455	460	451	450	444	425	443	454	489
13 Q	425	445	445	456	460	458	455	452	441	425	425	454	484
14	446	451	453	451	454	455	451	448	441	424	425	445	486
15 D	453	436	415	415	406	427	445	445	469	487	477	480	493
16	454	451	445	428	425	452	442	458	451	450	462	494	510
17	458	452	449	454	455	454	448	453	445	437	445	465	496
18	443	462	471	469	465	453	456	456	447	444	460	477	512
19	445	455	459	464	457	451	446	450	450	443	459	486	505
20	444	450	459	455	455	459	437	438	440	455	474	489	508
21	455	461	456	452	452	466	435	445	446	435	445	452	469
22	436	450	454	454	444	446	444	445	444	437	447	467	488
23	433	446	446	456	469	454	447	443	437	430	443	465	491
24	426	436	452	434	442	420	434	437	437	429	444	468	489
25	457	467	451	452	447	447	451	455	454	443	455	473	495
26 D	433	452	459	459	452	442	445	434	437	443	457	471	501
27	406	369	375	445	446	444	452	483	448	443	465	483	502
28 D	416	391	398	432	432	472	494	509	475	448	443	466	495
29	448	449	451	474	454	455	449	452	464	448	462	472	485
30 D	435	446	435	425	431	441	445	446	446	441	449	456	462
31													
MEAN	444	447	449	451	452	452	450	451	445	436	446	469	493
MEAN Q	445	455	456	457	458	456	453	449	437	421	431	459	489
MEAN D	437	430	430	429	431	446	455	456	453	452	451	468	487
SUM	3324	3424	3481	3518	3546	3551	3495	3521	3341	3087	3393	4059	4769

10<sup>0</sup> ..... (Tenths of Minutes) NOVEMBER, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
523	522	525	475	480	483	475	466	462	462	462	475	1
507	516	513	492	446	478	469	464	461	463	463	456	2
508	505	514	504	494	483	473	472	469	464	466	471	3 Q
507	523	513	494	483	475	478	473	464	459	454	472	4
509	517	505	495	486	477	475	469	466	465	463	467	5 Q
532	537	532	507	500	486	480	473	456	447	435	472	6
508	515	505	493	483	475	471	470	464	462	435	463	7 Q
507	515	504	493	491	483	475	465	459	460	461	464	8 Q
511	522	517	521	512	503	493	489	472	464	455	474	9
554	517	495	487	480	475	469	462	455	452	428	463	10
497	505	510	499	492	455	442	459	438	445	383	453	11 D
512	505	496	494	483	474	466	462	441	424	425	458	12
503	509	505	499	495	489	476	465	454	449	442	463	13 Q
485	519	534	508	505	506	485	465	455	454	455	467	14
508	517	486	488	470	483	472	445	425	425	432	458	15 D
517	525	513	492	491	472	464	465	462	454	458	468	16
504	507	494	485	475	471	447	452	456	435	450	462	17
517	510	500	485	458	467	455	445	417	416	427	463	18
516	515	484	501	487	475	440	415	432	434	441	463	19
518	509	514	515	486	476	424	464	457	455	454	468	20
478	485	483	482	481	474	467	464	456	444	425	459	21
495	496	493	486	481	474	466	463	462	439	431	460	22
498	495	502	507	506	513	487	475	456	453	427	466	23
503	505	496	486	487	482	477	453	451	454	453	458	24
507	515	499	496	499	495	424	414	424	447	454	463	25
492	498	492	491	476	464	469	463	455	451	432	461	26 D
517	525	513	496	502	475	428	391	407	422	425	453	27
499	495	497	483	467	471	463	456	432	392	418	456	28 D
494	492	486	475	463	467	475	462	393	402	422	458	29
479	497	500	506	507	397	442	433	414	397	354	446	30 D
												31
507	510	504	495	486	477	461	457	447	443	438	463	
507	512	507	497	490	481	471	468	462	460	453	466	
495	502	497	493	482	454	458	451	433	422	406	455	
5205	5313	5120	4838	4566	4298	3927	3714	3421	3290	3110		

Table 1 DECLINATION MEAN TOURIA VALUES.

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1 D	317	404	421	463	468	472	472	465	450	451	451	458	466
2	416	417	451	456	455	453	447	445	441	438	446	448	459
3 D	452	462	443	398	414	424	437	428	437	455	466	466	487
4	417	415	411	418	417	416	442	440	447	438	442	457	469
5 Q	451	449	419	458	449	450	447	445	443	439	449	474	487
6 Q	457	455	456	448	449	453	448	448	447	446	463	454	493
7	463	457	454	455	451	448	443	449	448	448	459	471	489
8	445	446	451	455	458	449	469	459	456	447	448	463	479
9	447	447	450	449	446	451	442	447	443	433	439	450	480
10	410	426	422	391	402	431	445	443	442	431	433	452	472
11	453	459	451	449	440	448	449	449	449	440	443	465	486
12	345	320	410	427	427	438	452	448	438	430	437	452	468
13	453	457	469	463	463	461	457	451	452	448	450	462	480
14	454	458	460	460	460	461	459	453	448	432	437	454	479
15	437	448	458	460	461	458	460	460	452	442	441	458	467
16	438	448	452	460	458	460	457	455	448	432	431	461	595
17 Q	443	443	451	451	450	445	446	445	443	431	441	458	459
18	459	458	464	463	457	443	471	477	477	452	456	471	479
19 D	411	421	415	446	449	451	491	478	475	449	446	469	592
20 D	398	423	439	478	490	505	473	461	443	429	441	447	455
21 Q	439	441	452	431	457	460	451	459	451	431	431	451	475
22	402	401	407	431	431	442	443	442	438	422	422	459	461
23	451	456	461	453	471	461	458	451	442	425	426	435	446
24 Q	449	451	458	458	458	454	459	443	434	419	425	445	465
25	453	459	464	458	468	461	459	459	449	433	434	449	464
26	448	450	459	468	456	468	458	449	444	431	437	449	454
27	449	450	451	457	457	458	461	469	457	439	449	459	490
28 Q	419	454	457	456	459	459	453	449	441	435	435	447	451
29	449	451	456	459	457	456	459	451	438	429	432	443	469
30	407	412	449	455	469	452	447	453	458	450	458	459	471
31	441	439	408	402	420	449	432	438	430	417	423	442	450
MEAN	435	440	447	448	451	454	454	452	447	437	442	456	473
MEAN Q	450	452	454	454	453	452	449	445	442	431	443	462	474
MEAN D	408	430	440	443	458	464	465	458	453	443	448	456	477
SUM	3484	3637	3853	3896	3979	4087	4972	4998	3871	3542	3697	4141	4671

10<sup>0</sup> ..... (Teenths of Minutes) DECEMBER, 1950

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
476	479	481	475	467	464	457	455	450	447	447	454	1 D
477	488	483	484	486	477	476	469	452	429	446	458	2
490	487	486	483	477	427	467	462	439	397	418	450	3 D
475	483	478	473	468	460	458	458	453	447	450	452	4
487	486	485	480	478	468	462	461	453	455	456	461	5 Q
496	493	487	486	476	470	469	466	461	461	461	456	6 Q
491	495	490	486	480	481	480	468	472	461	452	466	7
484	487	487	479	477	477	484	466	457	447	429	462	8
490	500	501	501	500	492	480	472	452	432	408	451	9
488	491	488	482	480	479	478	431	458	453	454	450	10
500	505	515	503	517	480	490	470	448	398	393	463	11
485	491	488	480	478	476	473	462	458	454	452	446	12
491	492	489	477	468	466	469	461	457	449	450	464	13
480	492	507	508	522	498	470	458	448	418	410	464	14
488	500	500	491	498	482	478	462	450	440	429	464	15
514	513	512	469	512	488	453	450	448	445	446	465	16
476	485	486	473	481	482	477	467	460	457	456	459	17 Q
494	502	487	491	451	480	471	462	451	451	450	467	18
559	510	680	569	575	527	510	367	371	351	373	480	19 D
472	481	479	481	462	473	462	457	438	425	428	455	20 D
492	501	501	477	477	478	411	384	421	437	424	451	21 D
477	488	485	470	465	450	449	443	449	446	446	445	22
460	476	485	479	470	459	457	452	459	448	448	455	23
474	484	481	474	470	469	464	459	455	454	450	455	24 Q
479	488	483	479	472	468	468	466	459	379	430	458	25
467	480	483	476	471	468	454	457	451	448	447	458	26
493	495	489	475	469	469	459	452	447	443	448	462	27
471	478	477	472	469	468	455	457	452	449	449	457	28 Q
500	512	509	491	487	483	474	461	447	438	414	461	29
498	495	487	479	472	468	462	457	449	448	445	458	30
478	490	488	477	497	505	499	450	448	440	432	448	31
487	495	496	485	483	479	469	455	448	436	437	459	
481	485	483	477	475	471	467	462	456	455	454	460	
498	512	525	497	492	494	461	425	424	411	418	458	
5102	5350	5378	5020	4972	4842	4545	4095	3874	3517	3541		

Table 5 HORIZONTAL COMPONENT MEAN HOURLY VALUES.

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1 D	963	967	968	971	978	983	983	985	982	975	951	936	934
2	925	922	931	945	944	946	948	948	952	944	934	928	917
3	968	969	961	967	962	962	963	965	967	965	960	948	940
4	961	950	964	965	963	968	981	974	970	966	955	948	949
5	973	975	975	970	970	969	969	970	970	968	957	951	948
6	968	973	970	980	973	968	970	970	964	956	951	947	952
7	975	975	974	975	976	977	977	974	971	966	961	958	958
8	964	969	969	972	976	985	985	980	973	965	952	947	955
9 Q	980	980	980	981	982	985	983	980	975	965	957	954	955
10 Q	982	981	981	982	981	980	979	975	971	966	962	960	961
11	981	978	976	978	977	975	977	979	980	967	950	955	955
12 Q	971	972	972	973	975	975	976	976	971	959	951	951	950
13 D	978	978	979	979	980	988	993	989	988	979	969	950	925
14	935	945	951	953	960	959	958	962	955	947	947	944	941
15	974	974	973	975	977	980	983	985	981	966	955	954	949
16	975	961	962	985	977	977	979	976	974	969	960	953	954
17	977	978	979	979	979	984	987	998	990	976	959	951	960
18 Q	976	974	974	974	976	979	980	980	975	967	960	952	948
19 Q	982	980	978	977	978	980	983	982	978	968	955	954	961
20	980	979	979	975	977	980	980	982	983	960	975	970	965
21	980	975	976	978	980	985	986	985	986	981	971	965	962
22	985	984	984	984	985	986	990	989	985	979	975	972	968
23	979	979	976	978	981	982	980	980	977	970	965	963	963
24	980	978	980	982	983	983	983	983	982	976	970	966	968
25	980	981	982	984	985	985	987	985	985	981	973	973	971
26	980	979	977	975	981	987	990	988	986	983	977	970	970
27 D	977	978	978	985	980	979	980	983	979	967	960	951	960
28 D	941	943	942	942	950	953	949	951	950	951	948	942	927
29 D	925	920	913	935	931	937	939	940	940	937	936	936	937
30	950	951	962	964	963	966	955	964	964	955	941	935	941
31	968	971	971	970	971	971	973	975	973	960	953	950	947
MEAN	969	969	969	972	973	975	976	976	973	966	958	953	951
MEAN Q	978	977	977	977	978	980	980	979	974	965	957	954	955
MEAN D	957	957	956	962	964	968	969	970	968	962	953	943	937
SUM	0033	0029	0037	0133	0154	0214	0257	0251	0177	9955	9690	9535	9491

18000.....(Gamma Units)

JANUARY, 1960

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
936	945	944	935	947	937	915	883	873	903	911	945	1 D
928	944	951	955	957	960	963	967	937	972	967	947	2
951	960	960	967	973	967	961	968	948	947	953	961	3
958	960	943	959	954	963	952	959	965	972	978	963	4
948	950	957	960	963	969	975	975	977	978	975	966	5
965	933	957	962	972	969	972	973	973	976	976	967	6
961	966	967	971	975	980	980	978	981	976	972	972	7
964	935	964	967	970	975	977	978	980	981	981	971	8
960	960	935	968	970	974	977	980	980	981	981	973	9 Q
967	967	970	970	972	973	979	981	982	983	984	975	10 Q
953	960	961	957	964	959	965	957	951	960	970	966	11
955	960	933	965	969	972	976	978	977	978	978	968	12 Q
933	945	950	929	929	928	920	924	924	920	929	954	13 D
941	944	947	945	953	960	964	967	968	967	971	954	14
949	958	965	968	969	960	970	972	980	981	980	970	15
952	954	962	965	970	973	974	974	975	976	976	969	16
967	954	960	971	969	970	975	971	974	976	977	973	17
954	960	931	967	959	972	973	973	979	982	977	970	18 Q
965	975	978	980	975	975	975	975	979	984	984	975	19 Q
965	966	966	972	979	980	979	979	981	980	977	975	20
961	931	964	968	974	976	978	982	984	985	987	976	21
962	965	970	977	984	983	974	972	971	977	980	978	22
966	968	974	976	980	980	981	983	982	982	981	976	23
971	970	969	974	972	965	970	982	983	982	980	976	24
969	970	976	965	986	980	979	985	989	987	984	981	25
965	973	977	980	981	982	980	977	976	975	975	980	26
968	955	944	937	943	932	935	905	919	937	935	957	27 D
923	940	957	950	958	967	949	965	955	965	950	949	28 D
943	938	943	935	946	958	957	941	933	957	945	938	29 D
940	943	944	956	963	966	968	966	968	956	967	957	30
952	956	961	967	971	974	976	976	972	971	972	967	31
955	958	960	963	966	967	967	966	966	970	969	966	
960	964	967	970	971	973	976	977	979	982	981	972	
941	945	948	937	945	944	935	924	921	936	934	949	
9592	9695	9770	9839	9957	9979	9979	9946	9947	0057	0053		

Table 5 HORIZONTAL COMPONENT MEAN HOURLY VALUES.

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	971	970	970	969	968	970	972	978	983	980	974	964	956
2	971	973	972	972	981	986	977	985	979	964	957	946	947
3 Q	975	973	974	976	978	979	981	982	984	975	961	958	958
4	981	980	981	982	983	985	996	997	993	986	969	962	959
5 Q	983	983	982	983	984	985	986	987	986	976	967	965	961
6 D	985	982	984	993	996	1001	1002	995	981	991	979	961	946
7	947	951	946	948	948	953	956	957	947	936	926	923	926
8 D	976	966	956	965	981	982	980	975	963	942	933	922	929
9	965	957	971	971	973	981	977	974	973	965	950	936	936
10 Q	971	970	971	972	971	973	975	975	971	962	956	952	951
11	978	978	979	981	984	981	983	982	980	972	962	952	952
12 Q	980	979	979	979	981	982	985	983	983	974	969	967	962
13 Q	982	983	982	983	984	986	987	986	982	973	963	958	958
14 D	987	987	986	997	997	993	1001	1001	1000	982	962	950	959
15 D	970	970	976	973	968	966	967	968	969	966	956	952	961
16 D	934	926	932	932	938	932	930	923	924	920	926	923	904
17	956	955	955	958	961	965	968	966	964	957	952	951	953
18	975	961	962	966	968	972	976	980	973	960	951	947	941
19	966	960	968	976	983	966	973	973	969	966	963	958	961
20	972	964	968	971	974	977	981	985	985	984	972	969	969
21	971	971	976	976	978	980	981	981	980	978	977	971	966
22	988	991	992	993	991	992	993	992	992	986	984	981	975
23	996	993	990	990	990	989	989	990	991	986	979	975	973
24	968	964	967	971	971	978	980	981	982	978	972	966	963
25	985	986	984	986	985	987	989	989	988	978	975	969	956
26	950	956	964	935	970	971	970	969	971	967	953	961	960
27	980	978	981	978	977	982	983	985	981	953	945	932	939
28	971	974	979	975	977	974	977	981	977	966	961	957	966
29	978	972	970	971	975	973	974	976	971	965	964	969	976
30													
31													
MEAN	973	971	972	974	976	977	979	979	977	969	961	956	954
MEAN Q	978	978	978	979	980	981	983	983	981	972	963	960	956
MEAN D	970	966	967	972	976	975	976	972	967	960	951	944	940
SUM	8212	8163	8197	8252	8315	8342	8389	8396	8322	8088	7868	7707	7673

18000.....(Gamma Units)

FEBRUARY, 1980.

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
931	964	970	974	975	978	970	969	963	975	978	971	1
946	952	959	968	973	974	978	979	978	977	976	970	2
961	966	967	970	972	973	978	981	981	981	980	971	3 Q
958	962	967	971	972	976	979	982	983	984	983	978	4
960	963	963	962	967	973	976	980	981	985	983	976	5 Q
954	942	923	905	915	944	901	939	946	951	950	961	6 D
927	937	947	950	954	945	944	946	951	952	963	945	7
926	923	929	937	943	949	954	960	966	963	966	954	8 D
944	950	949	951	952	946	953	960	955	970	971	960	9
951	954	955	962	968	972	975	977	978	978	979	967	10 Q
954	959	964	967	969	972	977	978	981	981	980	973	11
955	956	959	963	969	974	977	980	981	982	982	974	12 Q
964	967	971	976	979	983	986	986	986	986	987	978	13 Q
964	959	952	933	931	944	947	948	963	966	970	970	14 D
966	972	971	971	981	985	997	946	944	924	951	964	15 D
906	908	908	918	924	920	920	922	945	954	958	926	16 D
961	960	958	956	961	963	964	966	966	970	971	961	17
936	934	944	949	955	952	946	945	952	958	972	957	18
934	963	966	966	966	967	971	973	975	976	973	968	19
969	966	966	963	970	975	976	977	977	976	973	973	20
969	971	977	980	982	983	986	989	985	981	986	978	21
974	972	971	971	979	983	987	990	990	992	994	986	22
975	976	982	982	978	976	946	959	956	962	970	979	23
966	965	952	971	977	981	985	985	985	985	975	975	24
966	979	978	986	993	987	978	969	971	959	976	980	25
953	965	966	973	972	975	970	970	976	981	978	967	26
932	945	962	966	969	970	969	975	970	972	970	966	27
966	966	966	966	965	970	976	980	978	980	981	972	28
972	975	976	976	968	973	978	976	979	982	980	974	29
												30
												31
955	958	960	961	965	968	967	968	970	972	975	968	
958	961	963	967	971	975	978	981	982	982	982	974	
943	941	937	933	939	948	944	943	947	952	959	955	
7700	7771	7830	7883	7982	8033	8044	8079	8125	8190	8266		

Table 5 HORIZONTAL COMPONENT MEAN HOURLY VALUES,

DATE	HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
		to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	Q	980	981	980	980	981	978	978	977	971	960	952	954	960
2	Q	986	984	982	981	981	982	982	980	976	967	963	963	972
3		986	984	984	985	987	988	990	988	982	972	962	953	952
4		991	991	991	991	991	992	994	996	994	981	971	969	968
5		986	991	988	982	985	988	986	991	986	976	972	972	973
6		985	987	985	987	990	990	987	991	984	981	971	964	968
7		985	996	997	987	986	986	989	989	986	978	968	960	958
8		991	991	990	994	993	991	988	996	992	975	962	950	955
9		990	989	985	983	986	992	992	994	994	988	982	981	984
10		991	991	991	990	991	992	991	993	987	983	975	972	975
11		996	989	986	985	987	987	987	989	983	979	966	970	965
12	Q	987	987	987	987	987	988	989	987	980	968	965	965	962
13		997	997	997	997	998	1000	1001	996	984	970	961	962	970
14		978	983	985	987	988	987	985	984	980	977	971	965	964
15	Q	990	990	990	990	991	991	990	988	980	969	961	959	959
16		1001	999	995	997	997	998	999	996	987	977	969	965	969
17		996	997	995	995	995	998	996	996	990	978	966	960	965
18	Q	999	995	995	995	996	995	999	997	990	975	961	955	956
19		996	997	995	997	999	998	1010	1020	1010	1004	996	979	966
20		997	995	995	996	996	998	999	1001	996	989	978	965	959
21	D	1004	1005	1003	1004	997	1002	1004	994	994	977	961	953	951
22	D	972	974	973	975	982	987	979	975	971	969	968	949	931
23		976	975	979	987	981	979	982	985	983	974	961	951	950
24		985	986	988	989	988	993	994	991	983	973	963	952	954
25		990	992	990	991	990	990	989	985	977	968	957	950	944
26	D	971	966	979	969	954	969	974	963	964	941	932	933	936
27		974	964	964	965	966	966	964	959	954	949	943	938	944
28		978	980	983	985	979	982	979	979	978	969	956	946	940
29		996	996	986	986	990	994	989	979	969	954	942	937	941
30	D	993	990	984	983	994	988	984	986	969	948	930	921	924
31	D	995	994	993	995	999	996	998	997	977	967	954	946	931
MEAN		988	988	988	988	988	989	989	988	982	972	963	957	956
MEAN Q		988	987	987	987	987	987	988	986	979	968	960	959	962
MEAN D		987	986	986	985	985	988	988	983	975	960	949	940	935
SUM		0642	0636	0615	0615	0625	0665	0668	0642	0451	0136	9839	9659	9646

18000+.....(Gamma Units)

MARCH, 1980.

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
962	966	971	972	974	978	982	983	983	984	983	974	1 Q
977	978	980	982	984	986	992	993	994	991	989	981	2 Q
958	959	972	976	972	981	991	991	988	986	989	978	3
973	981	985	987	987	987	991	995	990	978	981	986	4
977	976	973	976	979	983	987	988	987	986	986	982	5
969	966	969	978	974	982	986	990	991	988	988	981	6
960	961	968	978	979	985	984	986	982	986	990	980	7
962	969	974	974	976	981	984	986	989	989	991	981	8
981	981	981	971	976	982	986	991	991	987	990	986	9
970	977	981	982	981	983	987	990	990	990	990	985	10
969	970	975	978	979	982	987	990	988	985	985	982	11
966	972	978	982	986	990	990	994	995	997	997	983	12 Q
979	982	986	983	985	992	994	992	996	993	985	987	13
970	968	970	971	980	980	985	989	990	990	990	980	14
965	969	975	980	983	987	992	993	993	994	998	982	15 Q
971	973	977	985	986	994	1000	1000	1000	994	994	988	16
970	975	973	980	985	990	994	994	994	995	996	986	17
965	972	980	987	990	993	995	997	1000	997	996	987	18 Q
969	970	988	983	991	990	994	999	999	1000	999	994	19
959	964	973	983	990	994	996	999	1001	999	1001	988	20
957	959	958	963	969	952	947	952	956	963	986	975	21 D
927	938	949	960	962	973	977	981	982	993	985	968	22 D
949	951	956	959	969	975	980	984	984	985	985	973	23
955	959	959	973	983	988	991	993	992	987	988	979	24
952	963	978	988	995	1002	1004	1006	1003	979	968	981	25
933	940	946	949	959	964	959	966	977	976	989	959	26 D
953	969	974	974	974	976	979	980	979	984	984	966	27
949	957	969	978	986	989	991	998	997	999	996	977	28
950	961	964	972	982	984	990	989	982	977	983	975	29
927	944	964	974	978	979	980	983	984	984	985	970	30 D
945	947	950	961	975	983	982	984	988	978	973	975	31 D
960	965	971	975	980	983	986	989	989	988	988	980	
967	971	977	981	983	987	990	992	993	993	993	981	
938	946	953	961	969	970	969	973	977	979	984	969	
9769	9917	0096	0239	0369	0485	0577	0656	0665	0614	0640		

Table 5 HORIZONTAL COMPONENT MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1 Q	974	972	974	976	977	979	980	978	970	956	942	932	936
2 Q	979	980	979	980	979	979	980	978	970	959	948	943	946
3	994	994	993	993	998	1000	999	997	989	971	955	946	952
4	992	994	994	994	995	997	995	992	976	968	964	946	956
5	987	987	991	990	986	984	987	984	975	959	949	941	943
6 D	994	994	994	999	999	993	993	990	981	969	953	955	968
7	996	980	978	977	974	976	980	972	969	962	949	938	943
8	980	989	995	990	985	987	989	984	978	965	954	953	946
9	990	988	992	985	985	1013	1016	1006	995	966	925	915	915
10 D	987	989	980	977	979	965	972	972	957	942	922	917	926
11 D	977	969	971	975	977	980	980	995	988	968	951	945	938
12 D	950	975	944	954	959	953	962	964	958	944	921	913	896
13	960	950	952	954	960	963	970	960	951	945	932	924	919
14	976	975	977	982	980	983	983	980	970	955	942	936	936
15 D	973	995	978	977	978	973	971	970	971	960	943	935	940
16	985	977	972	973	975	977	977	973	972	964	950	940	941
17	1012	991	983	990	976	976	977	975	969	965	953	943	947
18 Q	984	982	985	985	986	985	982	975	962	943	928	921	927
19 Q	993	990	991	992	995	995	992	990	983	976	964	953	951
20	995	1005	1000	990	985	990	990	990	985	974	961	950	948
21 Q	990	989	990	985	987	992	997	999	992	982	967	951	945
22	1016	1015	1010	1006	1003	1003	1008	1005	1000	992	984	976	969
23	1010	1014	1000	1001	997	995	992	989	982	978	972	963	957
24	992	985	994	1003	992	987	991	994	990	978	965	955	953
25	1010	1000	1001	1000	993	990	993	995	990	984	969	950	950
26	995	995	995	998	1001	999	985	980	978	975	971	969	970
27	995	994	994	992	990	994	991	989	981	971	964	962	962
28	993	991	990	990	991	992	993	991	986	972	960	952	948
29	1000	1000	1000	997	1000	1000	1003	1000	997	990	979	974	977
30	1002	1002	1008	1011	1000	1000	1000	998	989	975	964	955	962
31													
MEAN	989	989	987	987	986	987	988	986	978	967	953	945	946
MEAN Q	984	983	984	984	985	986	986	984	975	963	950	940	941
MEAN D	976	984	973	976	978	973	976	978	971	957	938	933	934
SUM	9681	9661	9605	9616	9582	9600	9628	9565	9354	9008	8601	8353	8367

18000+.....(Gamma Units)

APRIL, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
942	947	954	964	973	977	980	980	979	979	978	967	1 Q
952	957	963	968	976	981	987	989	996	997	996	973	2 Q
964	978	988	990	996	979	989	996	996	994	993	985	3
967	974	976	989	983	988	985	969	988	988	988	982	4
954	969	986	994	981	990	993	994	994	995	994	979	5
967	991	994	999	970	961	975	989	986	980	988	983	6 D
955	954	964	977	991	995	979	984	988	994	994	974	7
944	960	967	984	984	987	994	990	993	990	995	978	8
920	933	942	951	963	976	982	984	985	980	984	970	9
935	940	951	961	973	985	980	981	980	983	991	964	10 D
941	963	972	969	1001	1004	976	955	940	965	963	969	11 D
910	926	954	959	993	983	978	981	982	997	970	955	12 D
928	941	960	962	980	980	976	978	981	979	976	958	13
942	955	974	990	993	995	990	983	991	1002	995	974	14
948	967	983	991	1000	995	990	982	980	970	977	973	15 D
953	955	966	978	998	993	984	985	990	987	1006	974	16
960	974	985	985	995	991	995	990	990	990	988	979	17
943	960	976	990	997	996	995	998	997	997	997	975	18 Q
955	967	980	988	1001	1015	1010	1006	1001	998	995	987	19 Q
955	968	980	994	1006	1008	1004	996	992	991	994	985	20
950	965	979	990	993	993	995	1002	1004	1006	1009	986	21 Q
967	982	997	1001	1005	1002	1007	1007	1005	1005	1005	999	22
960	970	980	993	995	994	996	1001	1002	999	998	989	23
961	968	976	986	993	991	995	1001	1000	1000	1004	989	24
959	976	976	989	990	992	994	994	995	997	996	987	25
978	974	980	992	1001	1000	1001	1000	1002	998	995	986	26
971	986	986	996	1005	1005	1006	1005	1009	1004	1001	990	27
955	964	980	997	1000	1005	1004	1002	1001	1002	1001	986	28
987	997	998	1005	1008	1009	1010	1008	1007	1007	1006	998	29
958	966	986	995	1010	1008	1007	1003	1007	1003	1000	992	30
												31
953	964	975	984	992	993	992	992	992	993	993	980	
948	959	970	980	988	992	993	995	995	995	995	977	
940	957	971	976	987	986	980	978	974	979	978	969	
8581	8927	9253	9527	9754	9778	9757	9753	9761	9777	9777		

Table 5 HORIZONTAL COMPONENT MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	1000	1003	1005	996	1000	1005	1005	999	992	986	975	960	960
2 Q	1000	1000	999	1000	1001	1003	1003	995	981	971	955	950	955
3 Q	1004	1000	999	996	998	1000	995	990	981	974	965	957	956
4	1000	997	998	999	1003	1004	1001	999	992	981	967	955	950
5	1001	1001	1001	1002	1005	1010	1010	1007	1000	990	975	968	971
6	993	992	1005	998	990	990	986	981	980	975	965	955	944
7	997	997	997	997	998	1000	1000	997	992	982	975	968	974
8	999	993	991	990	996	1000	989	977	968	960	952	948	955
9 D	1009	1000	1005	1010	1005	996	990	987	976	965	950	952	967
10	996	990	990	990	991	987	981	979	976	972	966	964	967
11 D	1017	1019	1008	1002	1002	1002	992	975	972	942	948	948	952
12 D	959	976	981	961	956	957	951	950	942	935	928	936	942
13	980	982	980	980	980	981	975	966	960	954	950	943	941
14 D	976	973	967	993	971	966	963	955	949	948	946	946	941
15	980	978	976	976	975	976	976	966	951	941	942	946	951
16 Q	986	986	986	982	981	980	977	972	961	951	948	945	943
17 Q	992	992	993	992	992	992	991	985	972	958	953	945	945
18	998	996	996	996	996	996	991	981	978	970	956	950	951
19	1001	1001	1003	1003	1001	999	995	981	971	972	973	972	975
20	1001	991	987	988	992	996	996	986	975	970	968	976	982
21	1002	1001	1000	1000	1002	1006	1000	993	986	979	978	981	986
22	1011	1011	1008	1011	1015	1017	1015	1011	1002	988	977	973	973
23	1016	1006	999	997	997	998	996	991	983	980	979	971	977
24	998	994	993	993	995	996	996	986	977	967	967	971	967
25 D	989	1004	995	996	1000	1000	994	969	946	945	918	911	932
26	967	956	954	949	954	954	945	939	938	934	936	943	949
27 Q	977	978	978	975	978	979	975	968	953	932	929	933	941
28	994	990	993	995	995	995	990	982	973	965	963	967	965
29	998	999	998	998	1000	1000	998	993	984	979	975	966	959
30	1008	1005	993	988	988	996	998	995	984	966	958	950	952
31	1013	1004	1002	1009	1000	999	1003	987	968	953	954	965	971
MEAN	996	994	993	992	992	993	990	982	973	964	958	955	958
MEAN Q	992	991	991	989	990	991	988	982	970	957	950	946	948
MEAN D	990	994	991	992	987	984	978	967	957	947	937	939	947
SUM	0862	0815	0780	0762	0757	0780	0677	0442	0161	9885	9687	9615	9694

18000+.....(Gamma Units)

MAY, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
958	980	986	1010	1020	1003	1004	1007	1005	1003	1003	994	1
965	975	986	999	1003	1008	1007	1004	1004	1005	1004	991	2 Q
961	976	985	994	1000	1000	1000	1001	1004	1001	1002	989	3 Q
960	966	977	997	1008	1005	1001	1002	1003	1003	1003	990	4
982	994	993	1005	1021	1025	1020	1020	1015	1003	1000	1001	5
950	961	970	986	1000	1010	999	1003	1010	1001	997	985	6
978	994	1010	1008	1027	1027	1004	998	1000	995	997	996	7
964	975	987	995	1000	1002	1000	997	998	1000	1003	985	8
979	994	991	1003	1005	1008	1015	1013	999	1008	990	993	9 D
973	978	984	988	991	997	1000	1004	1015	1014	1022	988	10
941	954	970	996	1006	981	989	1007	1017	991	963	983	11 D
956	958	968	971	982	998	991	993	994	997	982	965	12 D
943	951	964	980	995	993	1014	1006	1001	986	960	974	13
945	955	957	977	1002	1031	1012	996	991	991	984	972	14 D
954	965	974	984	993	998	998	995	1001	996	989	974	15
949	962	976	985	993	995	993	993	992	993	993	976	16 Q
958	974	990	1001	1004	1003	1009	1005	1008	1004	1000	986	17 Q
951	957	971	993	996	996	1001	1002	1001	1000	1001	984	18
985	991	981	1001	1015	1010	996	1000	1002	1006	1006	993	19
982	986	996	996	1002	1010	1006	1011	1008	1006	1005	992	20
993	1006	1011	1018	1021	1019	1013	1014	1014	1013	1015	1002	21
983	995	997	1001	998	1009	1015	1017	1016	1016	1016	1003	22
972	985	991	994	1013	996	997	1001	1005	1004	998	994	23
975	965	999	1006	1020	1013	1008	1010	999	987	984	990	24
917	937	936	939	949	960	959	964	965	969	972	961	25 D
958	959	965	971	979	979	987	990	992	981	978	961	26
946	952	965	976	988	990	992	988	989	991	993	969	27 Q
961	968	988	995	1002	1007	1007	1008	1005	1003	999	988	28
958	963	978	993	1003	1014	1012	1020	1019	1016	1013	993	29
952	957	976	985	1002	1004	1008	1006	1007	1008	1012	987	30
972	975	998	979	978	993	1000	998	1011	1013	989	989	31
962	971	981	991	1001	1003	1002	1003	1003	1000	996	985	
956	968	980	991	998	999	1000	998	999	999	998	982	
948	960	964	977	989	996	993	995	993	991	978	975	
9821	0108	0420	0726	1016	1084	1057	1073	1090	1004	0873		

Table 5 HORIZONTAL COMPONENT MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	984	978	982	982	978	978	980	962	948	933	930	944	948
2	993	970	968	973	975	972	961	951	948	950	955	962	961
3	996	993	990	988	988	987	982	970	963	956	955	948	934
4	998	998	994	995	993	994	995	993	988	981	972	964	964
5 Q	997	993	994	993	995	1000	1001	992	973	955	948	945	947
6	995	995	998	998	999	1001	998	989	981	966	960	963	968
7 D	1009	998	1010	1005	991	994	985	984	990	978	968	954	967
8	972	993	977	972	969	969	957	928	934	933	929	917	928
9	991	990	992	983	984	984	982	973	960	931	926	941	954
10 D	988	967	977	981	979	976	965	960	939	929	926	933	951
11 D	979	989	979	973	973	973	977	957	903	888	902	910	942
12 D	958	968	968	961	964	956	943	918	901	898	911	918	932
13 D	958	956	969	975	968	960	939	927	913	916	902	918	940
14	970	967	968	969	968	965	958	956	954	948	941	940	942
15	990	987	987	983	981	983	988	987	980	972	958	949	950
16	991	987	983	985	988	990	989	987	978	967	960	954	955
17 Q	989	987	986	987	989	990	993	990	983	969	965	967	968
18 Q	995	993	992	991	993	996	998	1001	996	983	965	951	952
19	1005	1005	1007	1010	1008	1006	1008	1009	1013	998	980	962	955
20	1000	999	998	1000	1003	1004	1004	1002	993	986	980	977	969
21	1006	1008	1004	1004	1003	1003	997	990	982	975	974	973	978
22	1006	1003	997	994	996	995	994	993	994	989	980	972	967
23	988	985	990	993	997	1000	1001	993	983	975	968	960	963
24	996	996	1001	1027	1032	1035	1032	1017	1004	987	978	973	964
25	1002	1005	993	999	1004	1008	1009	1002	989	978	971	962	955
26	1008	1002	989	992	997	998	991	982	969	959	949	956	973
27 Q	974	979	979	979	981	979	969	957	950	950	951	954	954
28 Q	985	983	984	981	983	984	983	976	966	957	945	945	954
29	990	986	988	991	995	996	989	981	978	969	961	955	960
30	998	978	976	982	989	991	987	977	967	958	950	945	946
31													
MEAN	990	988	987	988	989	989	985	977	967	958	952	950	955
MEAN Q	988	987	987	986	988	990	989	983	974	963	955	952	955
MEAN D	978	976	981	979	975	972	962	949	929	922	922	927	946
SUM	9711	9638	9620	9646	9663	9667	9555	9304	9020	8734	8560	8512	8641

18000+.....(Gamma Units)

JUNE, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
946	948	948	966	983	997	999	1003	997	980	985	970	1
951	948	955	967	982	995	1000	999	998	999	995	972	2
941	940	954	978	985	1012	1013	1003	1000	1005	1000	978	3
962	967	973	982	993	1006	1012	1014	1013	1008	1001	990	4
952	963	975	986	994	999	1000	999	995	993	993	983	5 Q
978	992	1001	998	1012	1003	1011	1023	1018	1033	1060	998	6
974	963	960	1008	1009	1023	1031	1018	1006	1005	988	992	7 D
958	962	965	974	978	1003	1016	1006	996	993	990	967	8
961	973	971	979	993	994	1017	1023	1018	1018	997	981	9
968	985	981	1008	1029	1045	1006	1005	1004	1001	976	978	10 D
972	968	974	977	999	1009	1013	1018	988	995	974	968	11 D
938	949	968	968	1003	1035	1033	1022	991	973	990	961	12 D
945	960	976	1018	1029	1043	1013	995	983	963	967	964	13 D
944	951	968	995	988	995	1005	1008	999	995	995	970	14
955	965	968	980	997	1011	1011	1005	1001	999	995	983	15
973	980	1014	1026	1010	999	1002	997	996	996	989	987	16
968	980	994	1001	1002	1002	1005	1003	1003	1000	998	988	17 Q
959	976	991	1002	1009	1008	1009	1010	1009	1008	1008	991	18 Q
956	973	991	1024	1030	1031	1009	1004	1006	1008	1006	1000	19
978	981	990	1013	1011	1009	1014	1011	1011	1010	1009	998	20
975	979	1005	997	1002	1001	1006	1006	1003	1000	1005	995	21
968	974	996	1001	1017	1026	1026	1016	1011	1003	997	996	22
971	975	981	996	1003	1016	1018	1013	1007	998	996	990	23
970	977	998	1005	998	1003	1013	1030	1023	1013	1003	1003	24
962	980	997	1004	1008	1015	1019	1018	1018	1018	1014	997	25
979	1009	1014	1030	1029	1039	1030	1006	996	984	981	994	26
955	959	963	973	983	991	994	994	991	991	990	973	27 Q
964	975	978	989	991	991	993	995	995	993	993	978	28 Q
969	978	993	999	1002	1004	1005	1006	1008	1011	1014	989	29
961	976	984	981	989	999	999	1005	1003	1002	999	981	30
												31
962	970	981	994	1002	1010	1011	1009	1003	1000	997	984	
960	971	980	990	996	998	1000	1000	999	997	996	983	
959	965	972	996	1014	1031	1019	1011	994	987	979	973	
8853	9106	9426	9825	0058	0304	0322	0255	0087	9995	9908		

Table 5 HORIZONTAL COMPONENT MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1 Q	992	988	989	990	992	991.	985	976	966	960	955	958	966
2 Q	998	997	997	998	999	998	992	984	977	968	962	960	966
3 Q	997	993	994	999	996	994	988	984	977	965	959	953	962
4	999	999	997	998	998	999	995	991	985	975	966	964	972
5 D	1001	998	993	1007	1020	1015	1014	1003	1003	985	971	974	981
6	994	994	991	993	995	994	990	985	977	975	979	982	989
7	1001	997	991	996	1002	995	985	973	961	956	965	974	976
8	997	1010	1004	991	991	984	979	976	971	969	969	975	980
9	991	993	993	989	998	998	990	982	970	953	945	953	967
10 Q	995	995	996	997	997	998	991	982	973	965	962	967	979
11	1005	1008	1006	1006	1003	995	988	977	965	957	955	962	971
12	1009	1005	1000	1000	1000	999	997	989	977	966	960	958	964
13	1013	1005	1007	1002	1003	999	997	986	974	957	949	958	972
14	998	1003	1003	1002	1000	999	993	981	963	953	954	961	968
15	1002	997	1000	1000	995	994	990	980	965	953	942	950	958
16	1014	1014	1008	1007	1009	1011	1007	995	988	972	958	956	955
17	1004	1007	1010	1006	1001	1005	1001	986	969	961	965	960	960
18 D	1015	1018	1002	996	1002	1007	1005	996	984	976	970	971	967
19	951	958	960	949	961	963	966	960	946	940	933	928	931
20	980	973	972	973	975	978	978	972	966	957	947	943	947
21	990	984	984	983	976	977	973	967	957	951	948	952	962
22	978	976	976	977	975	976	975	972	966	957	949	944	943
23 Q	989	986	985	988	988	985	978	970	963	963	967	969	973
24	994	994	993	994	997	992	984	978	971	966	959	955	956
25 D	996	996	995	994	996	989	983	977	970	969	969	973	968
26 D	959	958	971	966	956	958	959	956	954	945	934	941	949
27 D	983	984	982	981	986	994	980	967	957	957	948	946	943
28	1009	993	995	984	999	996	992	984	967	960	961	964	966
29	991	987	992	993	995	995	991	982	976	970	965	965	967
30	996	1000	994	991	987	990	987	981	973	969	970	968	970
31	993	991	992	999	991	989	985	976	968	972	973	966	961
MEAN	995	994	993	992	993	992	988	980	970	963	958	960	964
MEAN Q	994	992	992	994	994	993	987	979	971	964	961	961	969
MEAN D	991	991	989	989	992	993	988	980	974	966	958	961	962
SUM	0834	0801	0772	0749	0783	0757	0618	0368	0079	9842	9709	9750	9889

18000+.....(Gamma Units)

JULY, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
969	978	992	999	995	1001	1001	999	1006	1007	1004	986	1 Q
974	983	994	1001	1012	1016	1016	1008	1004	1003	1001	992	2 Q
964	965	976	990	1001	1002	1002	1004	1003	1003	1001	986	3 Q
981	985	974	1009	1014	1017	1019	1015	1011	1010	1004	995	4
984	981	994	1013	1021	1009	997	1004	1003	1001	995	999	5 D
979	974	979	991	1007	1019	1024	1019	1011	1011	1004	994	6
982	987	984	994	989	1004	1009	1009	1005	999	994	989	7
982	987	1000	1015	1036	1032	1023	1011	1004	1006	1002	996	8
971	978	985	996	1000	997	1002	1000	997	997	995	985	9
980	988	1001	1005	1006	1012	1015	1015	1010	1010	1005	994	10 Q
983	988	997	1003	1013	1019	1020	1010	1008	1015	1012	994	11
970	984	995	1007	994	1000	1006	1007	1010	1010	1013	993	12
980	984	1016	1002	990	996	1005	1003	1000	1000	999	992	13
970	974	982	985	1002	1025	1025	1005	1006	1009	1002	990	14
971	976	980	995	1005	1010	1010	1015	1015	1010	1012	989	15
966	978	986	992	1004	1012	1016	1015	1016	1011	1006	996	16
965	976	986	996	1006	1016	1030	1030	1017	1015	1016	995	17
966	980	985	1011	1023	1026	1061	1081	1016	986	979	1001	18 D
934	941	941	953	967	978	982	989	991	987	984	958	19
961	968	998	987	983	992	1005	995	992	989	987	976	20
997	997	988	998	1004	1012	1008	1008	1003	988	982	983	21
945	957	972	979	994	1003	1009	1008	1008	999	990	976	22
978	982	983	993	992	1003	1013	1008	1003	1002	995	986	23 Q
958	977	996	1009	1012	1026	1033	1014	1002	1005	1000	990	24
979	1014	1024	1036	1091	1027	1052	1038	989	960	956	998	25 D
954	946	964	989	999	1004	1000	999	993	990	986	968	26 D
948	947	952	964	980	988	1007	1014	1012	1009	1014	977	27 D
969	975	974	993	988	1012	1006	1001	998	998	996	987	28
971	974	988	1001	1016	1012	1002	1006	1002	1002	1000	989	29
981	981	982	988	1003	1013	1001	1003	1007	1001	999	989	30
960	970	971	980	995	1003	1008	1006	1004	1000	996	985	31
970	977	985	996	1005	1009	1013	1011	1005	1001	998	988	
973	979	989	998	1001	1007	1009	1007	1005	1005	1001	989	
966	974	984	1003	1023	1011	1023	1027	1003	989	986	988	
0072	0275	0539	0874	1142	1286	1407	1339	1146	1033	0929		

Table 5 HORIZONTAL COMPONENT MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1 Q	996	996	997	996	996	995	989	986	984	977	975	976	979
2	1000	1000	1000	999	997	997	992	984	977	972	966	965	968
3	999	1002	996	998	1010	995	987	981	969	960	964	957	956
4	995	992	992	995	993	990	987	985	979	974	969	968	964
5 Q	989	991	993	993	992	990	990	985	978	971	967	971	974
6 D	1020	1030	1031	999	986	993	995	984	970	951	945	952	965
7	995	991	1000	997	990	988	982	972	970	967	973	972	970
8 Q	989	987	991	988	987	987	983	975	969	961	960	964	971
9	995	994	996	998	997	997	995	989	986	980	973	979	987
10	1002	1000	1003	1008	1019	1014	1009	988	974	956	945	954	964
11	1004	1006	1000	995	996	991	986	983	974	966	955	949	959
12	1024	992	990	996	1001	1003	994	981	970	961	961	961	962
13	1004	1008	1003	1002	1001	999	992	982	972	963	954	962	967
14	1005	1001	1000	1000	1001	1002	999	987	971	966	965	965	965
15	1007	1010	1009	1010	1001	998	993	984	975	965	958	962	971
16 D	1005	1005	1007	1003	1000	1000	997	991	983	973	967	965	969
17	990	987	984	984	984	982	976	970	957	944	939	947	949
18 D	1004	994	994	996	989	991	988	974	959	952	963	966	957
19 D	991	990	998	987	985	990	985	973	962	952	958	963	965
20	998	998	992	992	991	986	981	972	960	953	955	964	968
21	1000	988	973	977	988	978	972	966	968	960	956	952	958
22	994	993	995	999	995	998	990	987	978	968	962	964	968
23	985	982	986	986	989	990	984	977	970	961	955	951	962
24 Q	999	992	994	991	991	992	990	981	970	964	958	954	955
25	999	999	999	999	996	995	990	979	966	958	959	965	970
26	992	998	985	994	990	983	975	969	959	950	959	976	993
27 D	1006	1022	1013	994	991	1005	997	996	970	952	935	919	932
28 Q	990	986	989	984	979	979	974	966	960	956	958	961	967
29	990	990	989	987	989	990	986	980	971	961	953	953	954
30	996	993	993	993	993	989	982	976	965	953	953	960	966
31	1001	1003	999	991	983	982	979	965	946	943	949	956	963
MEAN	999	997	996	995	994	993	988	980	970	961	958	960	965
MEAN Q	993	990	993	990	989	989	985	979	972	966	964	965	969
MEAN D	1005	1008	1009	996	990	996	992	984	969	956	954	953	958
SUM	0964	0920	0891	0831	0800	0769	0619	0368	0062	9790	9709	9773	9918

18000+.....(Gamma Units)

AUGUST, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
982	986	990	994	997	1006	1009	1008	1005	1004	1002	993	1 Q
975	977	979	996	1006	1021	1027	1026	1013	1001	1000	993	2
947	946	965	983	989	996	996	1000	1000	1000	998	983	3
969	960	975	995	994	994	1000	996	995	990	991	985	4
975	982	986	993	1000	1004	1006	1009	1006	1004	1003	990	5 Q
995	995	1020	1005	1013	1017	1020	1016	1020	1010	1004	997	6 D
971	969	974	978	987	1011	1011	1010	1011	1008	999	987	7
979	977	981	989	989	994	999	1002	1010	1007	1003	985	8 Q
989	988	984	984	994	998	1014	1018	1009	1013	1004	994	9
970	979	987	981	987	989	999	1003	1005	1004	1004	989	10
968	972	974	984	998	1009	1016	1011	1018	1016	1015	989	11
975	982	981	987	998	998	1002	1003	1005	1006	1003	989	12
967	980	997	1009	1001	998	1007	1011	1013	1012	1006	992	13
975	980	978	997	1003	997	1003	1010	1010	1010	1006	992	14
976	981	979	990	997	1002	1007	1010	1010	1005	1002	992	15
985	993	1015	985	973	970	987	992	990	999	995	990	16 D
959	969	982	989	984	1000	1006	992	996	988	994	977	17
964	970	974	972	981	992	998	997	999	998	997	982	18 D
983	1012	965	978	995	1009	1027	1015	1013	1000	1000	987	19 D
973	982	981	995	992	998	1010	997	993	987	985	983	20
968	967	970	982	987	991	994	997	996	996	996	978	21
982	984	981	989	1005	1006	1002	1014	1017	998	992	990	22
972	981	988	994	997	1001	1005	1006	1005	1003	1001	985	23
964	971	979	987	995	1000	1008	1010	1005	1004	999	986	24 Q
981	986	999	1004	1010	1015	1018	1020	1019	1019	1005	994	25
992	995	985	992	1002	1008	1014	1010	1007	995	1004	989	26
947	976	970	956	965	977	987	992	993	995	995	979	27 D
970	970	973	976	987	990	990	991	991	991	991	978	28 Q
959	967	976	981	988	1000	1004	1011	997	996	996	982	29
966	972	977	986	991	991	993	993	995	991	993	982	30
966	974	981	986	992	997	1002	1004	1006	1003	1006	982	31
972	978	982	988	993	999	1005	1006	1005	1002	1000	987	
974	977	982	988	994	999	1002	1004	1003	1002	1000	986	
975	989	989	979	985	993	1004	1002	1003	1000	998	987	
0144	0323	0446	0617	0797	0979	1161	1174	1152	1053	0989		

Table 5 HORIZONTAL COMPONENT MEAN HOURLY VALUES,

DATE	HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
		to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1		1004	1000	1004	1005	1001	992	982	980	977	963	955	953	960
2	Q	1012	1009	1003	1001	999	998	995	988	984	982	975	965	960
3		999	999	998	996	995	995	992	986	985	981	976	974	974
4	D	967	962	988	981	972	972	973	969	968	957	951	951	958
5		992	991	992	993	992	994	987	981	970	967	967	967	972
6		985	984	985	986	984	981	974	959	954	953	954	953	958
7		989	992	989	990	989	986	982	974	967	962	954	960	969
8		987	997	988	984	986	984	979	972	967	957	955	961	962
9	D	997	997	1001	1000	998	996	991	989	986	970	961	957	966
10	Q	987	989	986	983	984	988	986	979	970	958	945	947	956
11		996	996	996	996	996	997	993	989	975	959	948	951	962
12	D	993	991	991	992	996	998	986	971	952	955	941	939	944
13	D	961	966	972	984	980	986	990	990	983	953	937	934	937
14		983	986	986	989	983	980	981	975	966	957	946	945	950
15		975	975	980	984	986	990	984	981	976	964	957	955	958
16		991	990	987	991	991	995	995	985	976	967	958	958	962
17	D	1000	995	999	994	991	990	982	979	961	945	945	950	951
18		989	990	989	988	985	983	981	981	972	974	972	966	966
19		995	994	991	991	991	990	986	984	981	975	970	965	967
20		991	994	1003	1005	998	995	987	982	979	976	974	970	967
21	Q	996	996	997	996	996	992	993	996	996	988	978	974	974
22		1001	1000	1001	1002	1004	1003	1005	1007	1003	993	980	971	969
23		1002	997	997	995	996	996	996	996	989	972	967	963	963
24	Q	996	997	997	997	1000	1003	1002	1001	996	983	972	966	968
25		1000	997	995	993	1002	1001	996	989	976	968	966	963	965
26	Q	1001	998	997	998	996	1003	996	988	981	972	962	954	954
27		1003	1001	1000	1001	999	1000	1001	997	988	972	961	956	961
28		1006	1006	1001	1002	1003	1002	1002	1002	1001	994	982	971	972
29		1000	997	997	997	1001	1003	1006	1011	1007	992	981	969	970
30		996	995	998	996	996	996	996	992	986	976	966	959	957
31														
MEAN		993	993	994	994	993	993	990	986	979	970	962	959	962
MEAN Q		998	998	996	995	995	997	994	990	985	977	966	961	962
MEAN D		984	982	990	990	987	988	984	980	970	956	947	946	951
SUM		9794	9781	9808	9810	9790	9789	9699	9573	9372	9085	8856	8767	8852

18000+.....(Gamma Units)

SEPTEMBER, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
975	986	997	1008	1011	1010	1013	1015	1014	1012	1012	993	1
966	975	985	992	997	1000	1004	1005	1002	999	999	991	2 Q
986	989	992	1002	1008	1005	992	993	995	978	983	991	3
958	968	978	986	987	994	999	997	992	988	987	975	4 D
979	982	981	988	992	995	986	978	978	976	984	983	5
972	985	993	989	987	987	992	993	996	999	992	979	6
978	985	992	994	1000	993	987	988	999	1004	992	984	7
972	991	986	977	976	987	996	1001	997	1001	998	982	8
969	977	972	990	1005	991	989	996	994	985	984	986	9 D
967	973	973	977	983	987	995	996	997	996	1000	979	10 Q
968	969	970	976	982	991	997	997	997	994	994	983	11
941	950	968	975	966	972	983	981	973	972	965	971	12 D
940	947	950	962	970	980	989	986	986	983	985	969	13 D
963	972	978	985	987	991	996	1000	1001	1002	982	979	14
971	975	976	976	981	980	981	991	991	992	992	978	15
970	981	986	994	999	1005	1011	1005	996	999	1001	987	16
956	977	970	972	983	994	997	996	1001	1011	991	980	17 D
972	973	978	984	991	994	994	994	995	998	1000	984	18
970	980	980	985	991	994	995	998	995	1006	996	986	19
968	977	984	985	990	996	1000	1002	1000	1000	997	988	20
974	979	983	987	993	998	1003	1003	1002	1003	1001	992	21 Q
967	962	963	970	980	983	988	989	1000	1001	1003	989	22
965	971	977	984	992	997	1001	1001	995	994	996	988	23
971	975	983	989	991	993	999	1001	1003	1001	1002	991	24 Q
973	978	983	984	990	991	995	1001	1001	1001	1003	988	25
963	976	982	985	991	992	998	1001	1003	1004	1004	987	26 Q
969	976	985	988	993	998	1007	1006	1005	1006	1005	991	27
982	986	985	997	1003	1006	1006	1007	1001	996	1001	996	28
972	983	1000	1002	1006	1005	1006	1009	998	998	1000	996	29
961	970	978	986	994	1001	1008	1004	1004	1003	1003	988	30
												31
968	976	980	986	991	994	997	998	997	997	995	985	
968	976	981	986	991	994	1000	1001	1001	1001	1001	988	
953	964	968	977	982	986	991	991	989	988	982	976	
9038	9268	9408	9569	9719	9810	9907	9934	9911	9902	9852		

Table 5 HORIZONTAL COMPONENT MEAN HOURLY VALUES,

DATE	HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
		to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	Q	1001	1001	999	999	1000	1001	1000	1001	999	990	982	976	972
2		1009	1008	1008	1009	1008	1005	1006	1001	996	988	977	970	979
3		1004	1003	1002	1001	1001	1001	1000	1000	998	989	983	978	974
4	D	983	994	997	997	1012	997	999	1003	996	981	965	955	953
5		969	980	975	979	985	978	988	984	970	957	950	943	946
6		974	979	984	987	990	992	990	989	971	963	955	940	940
7		971	972	990	986	983	988	990	993	983	975	967	958	958
8		992	989	989	996	996	1001	1004	1001	991	976	964	955	954
9		989	1007	988	988	990	992	993	991	996	983	970	959	961
10		991	988	993	995	1001	999	994	992	989	979	970	961	966
11	D	959	967	985	988	1004	991	955	991	964	950	939	907	906
12		966	967	967	968	970	977	973	967	953	935	921	915	922
13		981	979	978	979	981	981	980	972	959	945	937	936	937
14		989	989	989	991	990	990	991	986	973	961	950	939	946
15		1002	994	987	986	993	999	989	983	981	968	954	947	943
16		990	986	987	987	988	990	992	989	980	967	963	958	960
17		992	991	991	990	990	991	990	995	991	976	962	958	957
18		1000	997	994	992	999	1007	1012	1004	990	985	976	957	952
19		977	977	979	982	986	986	994	1002	995	977	962	957	949
20	Q	979	978	977	977	980	985	986	985	979	967	955	943	941
21		993	997	991	990	993	998	1003	1000	995	975	965	957	958
22		994	992	993	1002	1005	1005	1004	1009	999	982	969	957	953
23	D	959	969	969	967	977	987	998	952	942	914	918	927	924
24		967	965	963	965	964	967	967	965	963	957	952	942	941
25	D	988	971	972	976	978	982	984	971	964	956	952	948	960
26		962	977	968	963	966	974	991	984	974	958	947	941	940
27	Q	981	980	980	981	982	983	981	979	972	958	943	938	941
28	Q	988	988	988	988	989	989	989	986	978	963	947	940	941
29	Q	992	991	991	991	992	994	993	991	986	969	953	947	951
30		988	984	986	994	996	1005	1008	1002	987	968	952	939	938
31	D	991	1000	991	989	990	995	1003	1002	1015	996	980	966	961
MEAN		985	986	986	987	990	991	992	989	982	968	957	949	949
MEAN Q		988	988	987	987	989	990	990	988	983	969	956	949	949
MEAN D		976	980	983	983	992	990	988	984	976	959	951	941	941
SUM		0521	0560	0551	0583	0679	0731	0747	0670	0429	0008	9680	9414	9424

18000+.....(Gamma Units)

OCTOBER, 1980.

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
977	976	984	994	998	1001	1006	1008	1010	1010	1009	996	1 Q
980	981	988	991	997	999	1004	1004	1005	1006	1006	997	2
974	980	988	996	994	1004	1004	994	995	990	981	993	3
954	963	961	951	936	942	945	952	964	970	968	972	4 D
950	943	955	960	963	959	958	962	973	971	971	965	5
943	954	966	972	974	984	980	979	984	981	975	973	6
959	974	980	983	986	992	991	992	994	994	991	981	7
958	966	973	985	986	994	999	988	981	982	990	984	8
965	972	977	978	979	981	978	986	990	994	991	983	9
966	976	987	988	989	987	987	980	968	987	962	983	10
906	921	938	945	956	960	966	967	965	966	967	957	11 D
937	952	962	965	970	975	978	978	982	984	981	961	12
951	957	970	979	980	984	989	990	992	993	992	972	13
957	968	979	987	981	982	990	1005	1001	992	997	980	14
945	953	955	962	971	973	977	982	986	984	987	975	15
967	970	974	976	981	986	990	992	995	993	992	981	16
967	976	980	981	987	993	997	999	1002	1003	997	986	17
962	967	975	981	980	977	943	952	972	977	975	980	18
949	964	969	966	967	960	965	965	972	965	974	972	19
947	957	964	967	972	979	981	982	980	983	987	972	20 Q
962	964	967	974	977	983	982	975	984	987	992	982	21
969	966	965	976	982	983	947	947	973	994	970	981	22
939	934	929	924	933	939	956	966	970	969	968	951	23 D
947	948	958	964	969	977	980	972	980	979	985	964	24
963	965	956	959	975	980	973	970	988	997	950	970	25 D
947	959	967	972	977	978	982	983	982	982	982	969	26
952	964	971	976	980	984	986	990	990	990	989	974	27 Q
949	962	972	979	985	989	994	995	995	992	993	978	28 Q
961	971	978	984	991	994	992	995	994	992	991	983	29 Q
943	958	977	988	996	998	1002	1006	1011	1001	990	984	30
946	950	956	949	942	936	938	964	962	965	966	973	31 D
955	962	968	973	976	979	979	981	985	986	983	977	
957	966	974	980	985	989	992	994	994	993	994	980	
942	947	948	946	948	951	956	964	970	973	964	965	
9592	9811	0021	0152	0254	0353	0360	0420	0540	0573	0469		

Table 5 HORIZONTAL COMPONENT MEAN HOURLY VALUES,

DATE	HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
		to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1		966	966	967	974	979	989	983	974	971	956	936	926	922
2		981	980	980	984	988	986	983	986	979	966	956	951	946
3	Q	986	986	986	987	989	989	988	989	984	972	963	956	956
4		989	989	991	996	998	1010	1011	1012	1001	977	935	932	933
5	Q	986	987	988	988	988	991	991	989	986	975	965	957	956
6		991	989	990	991	991	988	987	988	982	974	969	962	963
7	Q	986	991	986	986	988	991	989	990	988	985	979	976	976
8	Q	991	986	984	989	991	991	992	992	989	979	968	964	964
9		999	997	998	996	995	994	996	993	990	981	974	975	978
10		993	991	989	990	984	986	989	986	983	967	959	960	961
11	D	991	988	989	986	984	989	993	991	977	976	976	970	961
12		971	965	977	979	979	973	977	978	976	961	961	950	948
13	Q	982	981	986	988	988	989	990	991	990	982	970	960	956
14		987	986	986	986	985	988	989	991	991	986	974	965	962
15	D	993	992	976	975	971	982	985	987	965	963	961	948	945
16		977	974	982	986	981	986	990	984	969	955	950	946	938
17		986	978	978	980	982	982	987	982	976	967	959	955	948
18		987	987	991	991	992	995	992	988	975	969	958	942	952
19		978	981	983	995	988	989	988	986	979	965	952	952	951
20		990	988	978	982	985	991	992	990	972	966	969	964	964
21		991	988	987	987	989	987	998	999	995	987	980	976	976
22		986	986	981	985	985	983	991	990	990	987	978	977	972
23		987	987	992	986	988	992	993	997	993	984	976	972	971
24		982	981	982	983	981	983	981	983	987	979	972	963	961
25		996	986	986	994	996	994	1001	1013	1004	996	987	981	986
26	D	976	975	981	981	988	996	993	998	1002	996	990	971	946
27		978	975	983	972	979	988	991	1002	986	968	960	952	949
28	D	984	982	976	979	983	983	985	989	989	965	947	943	940
29		982	981	979	980	980	986	995	985	977	985	980	968	958
30	D	979	989	1001	968	971	976	981	981	984	978	981	976	965
31														
MEAN		985	984	984	985	986	988	990	990	984	975	966	960	957
MEAN Q		986	986	986	988	989	990	990	990	987	979	969	963	962
MEAN D		985	985	985	978	979	985	987	989	983	976	971	962	951
SUM		9551	9512	9533	9544	9566	9647	9701	9704	9530	9247	8985	8790	8704

18000+.....(Gamma Units)

NOVEMBER, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
926	942	946	950	964	972	972	977	978	980	982	962	1
951	961	966	961	977	972	970	978	986	986	987	973	2
952	958	961	966	971	976	985	987	988	988	987	977	3 Q
945	946	952	963	971	964	969	978	984	984	981	975	4
959	969	978	983	988	991	990	994	991	989	990	982	5 Q
968	972	969	981	988	990	995	993	992	994	989	983	6
979	979	981	986	989	994	994	996	996	996	992	987	7 Q
967	978	986	991	996	989	993	999	1000	1000	999	987	8 Q
976	981	988	991	995	1000	1002	999	999	998	996	991	9
967	964	979	975	981	988	991	994	996	997	991	982	10
962	968	974	977	990	963	945	965	971	972	981	977	11 D
958	966	972	976	980	985	988	991	995	994	993	975	12
962	970	978	985	989	985	986	983	981	986	991	981	13 Q
963	976	972	970	979	980	988	990	989	990	991	982	14
947	945	949	952	964	959	965	965	964	978	980	967	15 D
945	951	945	952	961	969	980	981	980	981	990	969	16
952	963	969	973	976	976	974	986	988	981	999	975	17
954	957	966	967	966	968	970	971	974	976	978	974	18
954	955	956	960	966	966	967	966	976	981	987	972	19
966	960	965	960	966	980	989	985	990	991	990	978	20
975	977	976	977	985	986	988	987	985	990	1000	986	21
974	978	981	988	992	997	997	1000	996	996	995	987	22
974	980	988	991	988	983	981	988	994	991	991	986	23
970	976	981	984	988	991	991	986	992	992	998	982	24
984	973	977	989	996	996	973	982	972	980	983	989	25
966	976	976	978	979	979	988	991	991	989	986	983	26 D
951	950	953	956	956	960	959	969	966	965	980	969	27
940	947	957	957	966	976	982	979	976	978	975	970	28 D
953	961	966	974	977	984	980	980	964	965	975	976	29
967	970	968	974	968	946	940	943	955	940	950	969	30 D
												31
960	965	969	973	978	979	980	983	984	984	987	978	
964	971	977	982	987	987	990	992	991	992	992	983	
956	961	965	968	973	965	964	969	971	971	974	973	
8807	8949	9075	9187	9352	9365	9392	9483	9509	9528	9607		

Table 5 HORIZONTAL COMPONENT MEAN HOURLY VALUES,

DATE	HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
		to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	D	958	960	966	993	980	984	985	988	986	981	979	976	962
2		985	985	985	988	988	990	991	991	991	987	980	970	966
3	D	981	982	986	992	986	987	987	987	981	975	972	966	965
4		973	975	976	982	983	979	984	978	978	977	972	970	965
5	Q	985	985	982	981	981	983	987	986	982	978	977	976	978
6	Q	991	989	989	990	991	992	992	991	987	979	977	977	980
7		998	997	994	992	993	994	994	995	992	987	979	976	979
8		997	994	991	990	996	1005	1003	993	988	986	981	979	982
9		987	987	987	988	989	991	988	987	987	984	977	972	972
10		980	981	981	994	988	982	982	985	987	982	976	972	970
11		990	990	989	988	987	987	989	990	989	984	984	985	988
12		955	962	953	967	977	974	975	980	982	988	981	973	968
13		990	990	991	991	993	993	993	993	990	983	972	962	968
14		992	992	993	994	997	998	998	1000	997	986	977	970	968
15		984	987	988	991	994	1006	1003	1003	998	987	981	973	965
16		990	992	993	994	999	1000	1001	994	991	978	958	942	948
17	Q	975	977	977	978	979	980	982	981	978	970	967	965	968
18		995	996	997	995	998	998	993	997	983	971	968	969	970
19	D	995	986	977	978	983	1015	1018	1009	1010	1005	994	981	998
20	D	893	913	932	933	932	938	943	941	942	938	936	930	923
21	D	964	972	974	955	958	969	990	987	988	972	958	954	954
22		972	968	964	970	973	975	984	985	985	982	975	963	958
23		985	984	983	985	988	992	995	997	996	989	983	976	968
24	Q	991	988	990	990	993	995	997	998	995	990	981	981	983
25		995	993	996	998	1002	1008	1015	1017	1012	1004	996	989	988
26		988	988	988	991	995	1000	1005	1007	1004	999	990	985	983
27		996	996	996	999	999	1005	1003	1004	1005	990	980	963	960
28	Q	988	988	993	994	992	991	994	997	995	988	980	979	977
29		990	990	990	998	997	998	1000	1003	1002	992	981	978	981
30		977	978	985	984	992	993	997	994	987	973	971	963	955
31		987	992	983	982	978	977	984	984	979	972	970	968	968
MEAN		982	982	983	985	986	990	992	992	989	982	976	970	970
MEAN Q		986	985	986	987	987	986	990	991	987	981	976	976	977
MEAN D		958	963	967	970	968	979	985	982	981	974	968	961	960
SUM		0427	0457	0469	0545	0581	0679	0752	0742	0667	0457	0253	0083	0058

18000+.....(Gamma Units)

DECEMBER, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
963	966	967	971	976	978	981	986	988	987	987	977	1 D
969	977	980	986	991	992	992	991	990	984	985	985	2
961	966	973	981	967	966	983	980	974	986	972	977	3 D
964	967	971	976	982	985	985	986	986	987	986	978	4
981	981	981	985	987	987	988	989	989	992	992	984	5 Q
987	990	993	997	997	997	998	999	999	998	998	991	6 Q
987	988	989	993	998	1003	1005	1005	1006	998	999	993	7
987	988	990	994	996	997	993	988	992	992	985	991	8
978	983	987	978	981	988	991	995	987	982	976	984	9
974	979	981	986	990	991	990	995	991	992	992	984	10
982	989	993	987	979	993	1002	991	990	979	971	987	11
971	978	980	986	988	992	998	1002	997	997	990	980	12
970	974	980	984	989	992	993	992	988	990	993	986	13
973	980	983	980	970	966	970	974	983	988	990	984	14
978	978	979	977	973	980	978	987	990	991	991	986	15
957	958	963	952	964	960	969	971	974	977	976	975	16
978	980	978	978	977	974	985	992	992	992	994	979	17 Q
975	975	975	972	953	961	958	958	966	974	980	978	18
982	928	954	924	870	872	853	814	825	842	868	945	19 D
932	943	958	955	950	950	948	955	955	953	960	940	20 D
957	962	957	962	960	960	968	964	966	961	967	966	21 D
959	963	968	970	976	978	981	988	989	988	986	975	22
969	972	975	981	983	983	991	994	996	997	993	986	23
983	985	988	990	994	995	998	998	998	999	998	992	24 Q
988	990	989	993	995	995	998	996	993	984	983	997	25
988	989	986	988	990	993	995	998	997	996	998	993	26
966	967	970	976	976	980	987	989	983	985	988	986	27
979	976	979	982	983	984	986	990	993	993	991	987	28 Q
981	987	980	983	988	984	979	982	988	984	967	988	29
960	965	969	974	978	980	981	981	981	987	988	979	30
971	977	982	978	978	981	971	953	951	966	974	975	31
973	974	977	978	977	979	980	980	981	981	981	981	
982	982	984	986	988	987	991	994	994	995	995	986	
959	953	962	959	945	945	947	940	942	946	951	961	
0150	0201	0298	0319	0279	0337	0395	0383	0397	0421	0418		

Table 6 VERTICAL COMPONENT MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1 D	454	458	460	459	455	456	454	447	440	447	453	451	450
2	483	468	470	466	461	460	461	461	461	461	456	451	454
3	464	465	468	474	460	449	449	449	448	451	451	443	438
4	465	461	460	460	461	455	449	451	450	452	447	439	433
5	456	457	454	459	462	462	460	459	454	455	453	445	442
6	454	455	461	462	454	457	457	457	456	453	445	439	439
7	457	459	463	462	463	463	462	462	460	459	453	443	442
8	458	454	450	456	455	455	453	452	453	456	449	453	446
9 Q	454	454	454	454	456	456	456	458	459	457	453	448	447
10 Q	456	456	456	456	458	459	464	465	465	459	452	447	439
11	456	455	456	456	458	463	466	464	463	460	454	449	445
12 Q	463	461	459	458	457	458	459	462	466	466	464	454	442
13 D	456	456	455	455	454	453	452	453	449	453	454	451	448
14	461	454	451	446	448	454	457	462	466	466	466	460	451
15	466	465	465	463	461	460	459	462	466	467	462	454	454
16	468	478	465	453	451	452	453	455	462	461	454	452	452
17	462	464	464	463	462	461	459	445	460	456	455	450	450
18 Q	460	461	463	462	462	460	460	459	459	458	453	452	448
19 Q	451	454	453	456	458	459	458	457	457	454	450	446	439
20	456	459	460	453	452	456	456	455	455	451	447	443	440
21	459	456	452	451	453	456	455	454	450	448	440	438	435
22	448	447	448	449	450	451	452	452	452	450	445	438	437
23	457	454	450	450	450	451	450	450	450	448	440	437	432
24	449	448	448	448	448	450	451	452	452	452	450	445	438
25	450	450	449	449	449	450	451	451	451	450	442	434	431
26	458	455	455	454	450	451	451	452	453	456	451	448	445
27 D	452	451	448	442	440	445	449	450	452	452	452	446	439
28 D	465	465	465	455	446	442	443	450	455	454	451	440	436
29 D	495	477	456	444	455	457	461	464	464	458	455	449	449
30	473	465	467	463	464	458	457	458	455	450	449	450	446
31	465	465	465	464	462	460	458	456	458	460	455	452	449
MEAN	460	459	458	456	455	455	456	456	456	455	452	447	443
MEAN Q	457	457	457	457	458	458	459	460	461	459	454	449	443
MEAN D	464	461	457	451	450	451	452	453	452	453	453	447	444
SUM	4271	4227	4190	4142	4115	4119	4122	4124	4141	4120	4001	3847	3736

44000+.....(Gamma Units)

JANUARY, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
458	466	474	488	484	484	508	515	528	508	496	471	1 D
461	466	469	471	472	469	467	465	466	464	466	465	2
435	444	451	460	459	462	471	461	478	485	470	458	3
431	442	470	469	467	479	470	464	470	465	457	457	4
445	455	465	472	469	468	472	472	464	461	461	459	5
444	449	458	467	466	465	467	465	464	459	461	456	6
443	447	455	458	463	462	464	466	459	459	467	458	7
446	446	450	456	456	458	459	460	459	456	456	454	8
446	453	459	457	458	457	459	460	459	459	456	455	9 Q
438	449	456	457	457	460	462	459	463	459	456	456	10 Q
436	446	456	459	459	467	471	473	478	474	466	460	11
445	453	458	457	457	456	458	459	458	458	457	458	12 Q
455	469	466	476	486	486	492	490	491	491	485	466	13 D
454	464	468	470	470	466	465	466	467	468	469	461	14
452	457	463	464	464	467	466	466	465	464	464	462	15
455	462	467	468	468	464	462	462	462	462	462	460	16
449	466	470	469	470	470	466	465	465	461	461	461	17
445	450	463	468	466	460	460	461	460	453	452	458	18 Q
440	441	454	460	460	460	459	460	460	454	453	454	19 Q
433	440	453	460	462	460	461	459	456	456	459	453	20
436	442	450	458	459	458	458	456	452	450	448	451	21
433	438	445	451	455	457	463	462	463	461	457	450	22
432	438	445	449	452	451	452	452	453	451	450	448	23
436	442	452	458	460	463	462	462	459	457	457	452	24
431	438	444	450	452	455	460	462	462	461	465	449	25
445	451	459	459	454	453	454	455	455	463	459	454	26
427	440	460	475	485	491	511	541	493	496	463	463	27 D
438	447	456	464	472	484	505	484	479	472	484	461	28 D
443	455	465	478	477	475	473	485	495	481	479	466	29 D
446	454	466	471	466	465	464	466	465	465	464	460	30
452	456	467	466	464	459	460	460	460	467	468	460	31
443	451	459	464	465	466	468	469	468	466	463	458	
443	449	458	460	460	459	460	460	460	457	455	456	
444	455	464	476	481	484	498	503	497	490	481	465	
3730	3966	4234	4385	4409	4431	4521	4533	4508	4440	4368		

Table 6 VERTICAL COMPONENT MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	468	468	467	465	463	463	463	456	454	453	449	445	445
2	462	460	460	463	461	455	453	447	449	451	448	445	438
3 Q	458	459	459	459	460	460	457	455	455	455	452	444	442
4	453	453	453	455	455	456	454	449	449	448	447	443	442
5 Q	452	452	452	454	455	454	453	454	455	454	444	434	431
6 D	451	449	452	450	452	451	451	450	443	450	446	445	446
7	470	465	465	467	467	472	466	465	463	465	461	453	445
8 D	455	449	446	444	444	441	442	443	450	449	448	447	450
9	454	455	455	455	456	458	456	455	458	455	449	443	446
10 Q	454	455	455	455	457	458	459	461	463	460	452	442	438
11	455	455	455	453	453	455	455	455	456	460	455	448	442
12 Q	456	456	455	455	454	454	455	454	454	454	446	436	433
13 Q	455	455	454	452	452	451	451	451	452	454	446	439	436
14 D	455	454	454	450	448	445	442	442	442	437	436	438	450
15 D	461	461	457	456	456	456	456	454	454	451	449	448	444
16 D	448	465	450	432	407	402	403	408	438	456	457	459	462
17	464	464	466	466	468	466	465	460	459	456	449	445	446
18	466	457	455	454	457	459	459	454	453	453	443	441	448
19	459	452	454	454	444	448	456	455	457	457	449	446	443
20	466	459	456	456	457	464	464	461	462	458	453	444	438
21	462	463	458	456	457	458	458	456	456	452	446	440	436
22	453	452	452	452	453	454	455	455	455	452	446	434	429
23	450	451	452	452	452	454	455	453	453	451	448	443	436
24	471	461	456	452	453	448	452	452	455	454	448	438	432
25	456	455	453	451	451	451	452	453	454	456	453	440	437
26	485	476	470	465	456	456	456	456	456	457	454	444	439
27	460	459	456	456	458	453	447	450	453	454	444	444	444
28	469	464	458	456	456	450	449	448	445	440	436	436	441
29	456	456	455	455	455	456	453	451	450	445	436	426	431
30													
31													
MEAN	459	458	456	455	454	453	453	452	453	453	448	442	441
MEAN Q	455	455	455	455	456	455	455	455	456	455	448	439	436
MEAN D	454	456	452	446	441	439	439	439	445	449	447	447	450
SUM	3324	3280	3230	3190	3157	3148	3137	3103	3143	3137	2990	2830	2790

44000+.....(Gamma Units) FEBRUARY, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
446	455	465	466	464	462	464	468	465	471	465	460	1
440	451	461	463	461	459	456	456	456	457	457	455	2
440	447	457	458	458	458	455	455	454	454	454	454	3 Q
442	444	452	454	454	454	453	455	454	452	452	451	4
433	440	446	455	461	460	456	456	455	454	452	451	5 Q
448	469	499	532	524	496	551	512	485	475	472	471	6 D
447	447	455	465	471	475	474	477	480	465	467	464	7
455	459	473	487	479	481	477	474	469	471	461	458	8 D
449	453	455	471	482	485	473	472	472	465	458	460	9
440	444	453	459	461	457	457	458	460	459	456	455	10 Q
445	446	451	455	455	456	455	456	460	460	457	454	11
439	441	445	448	454	454	453	455	456	456	456	451	12 Q
437	444	446	447	449	449	450	451	454	454	454	449	13 Q
451	454	464	481	486	487	479	480	469	464	462	457	14 D
444	438	446	453	454	451	451	485	504	479	452	457	15 D
467	478	490	496	493	490	494	486	466	460	461	457	16 D
449	458	463	468	466	466	464	463	460	458	460	460	17
453	463	465	469	471	474	478	488	477	468	461	461	18
446	454	464	470	468	467	466	464	461	459	459	456	19
442	445	456	468	467	466	467	466	465	464	463	459	20
435	440	450	456	457	458	458	458	458	460	456	454	21
429	439	450	459	461	461	459	457	456	456	453	451	22
443	442	447	460	466	473	485	494	492	484	475	459	23
433	443	450	456	457	457	457	457	458	458	457	452	24
440	437	442	447	452	455	474	486	501	506	495	458	25
452	447	456	459	461	461	466	467	461	464	460	459	26
455	458	466	474	471	466	466	467	466	465	470	458	27
441	449	456	457	459	456	456	457	466	456	454	452	28
449	453	456	458	464	461	456	456	457	456	457	452	29
												30
												31
444	450	458	465	466	465	467	468	467	464	461	456	
438	443	449	453	457	456	454	455	456	455	454	452	
453	460	474	490	487	481	490	487	479	470	462	460	
2890	3038	3279	3491	3526	3495	3550	3576	3537	3450	3356		

Table 6 VERTICAL COMPONENT MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12	
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13	
1	Q	456	456	457	459	457	455	455	454	453	450	444	435	435
2	Q	454	455	456	457	456	456	455	454	455	451	441	428	419
3		454	456	456	456	456	456	454	454	454	450	444	434	426
4		447	449	450	454	454	454	451	449	447	438	426	407	412
5		447	448	452	451	446	448	452	448	445	436	428	417	419
6		451	449	448	448	449	451	452	451	451	444	432	424	415
7		453	446	445	446	448	449	449	450	454	448	436	426	416
8		446	446	446	447	449	449	446	446	448	446	433	423	419
9		446	446	446	446	448	449	449	446	446	445	436	428	424
10		449	448	448	448	448	448	448	450	454	449	444	432	425
11		450	448	446	447	448	449	448	449	452	448	448	433	431
12	Q	448	447	446	446	447	447	447	451	456	451	441	429	424
13		446	446	444	443	443	443	443	446	453	449	443	431	422
14		453	451	451	451	447	447	446	447	448	444	441	432	429
15	Q	450	452	452	452	452	451	448	452	452	443	431	416	415
16		444	444	448	449	449	446	444	445	447	442	427	415	415
17		443	445	448	448	447	447	445	445	444	432	421	414	414
18	Q	444	445	447	448	449	450	449	451	449	439	424	413	409
19		444	444	447	448	448	451	449	447	444	428	413	399	403
20		445	446	448	450	451	453	453	453	453	444	436	426	415
21	D	442	443	443	443	436	433	434	438	438	446	441	427	422
22	D	441	445	446	447	444	443	445	453	454	446	430	421	412
23		446	444	445	443	446	450	454	457	455	451	442	428	421
24		451	449	449	448	448	448	449	453	452	441	429	425	418
25		449	448	448	446	446	446	449	453	452	442	427	414	412
26	D	463	460	442	436	425	414	424	433	429	428	420	407	413
27		433	443	449	450	449	452	454	454	449	441	434	425	417
28		454	452	450	447	450	450	447	453	447	432	422	415	408
29		449	453	453	451	449	445	447	453	445	435	425	414	413
30	D	446	445	445	441	435	429	432	438	445	446	434	419	419
31	D	450	454	455	447	444	436	434	439	446	443	434	424	436
MEAN		448	448	449	448	447	447	447	449	449	443	433	422	419
MEAN Q		450	451	452	452	452	452	451	452	453	447	436	424	420
MEAN D		448	449	446	443	437	431	434	440	442	442	432	420	420
SUM		3894	3903	3906	3893	3864	3845	3852	3912	3917	3728	3427	3081	2978

44000+.....(Gamma Units)

MARCH, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
436	444	448	454	454	451	451	450	451	452	454	450	1 Q
427	441	445	451	454	455	451	450	450	451	453	449	2 Q
430	439	446	459	461	456	454	454	454	452	448	450	3
425	431	442	452	456	453	451	451	453	457	451	444	4
430	438	448	454	458	456	454	453	452	451	449	445	5
426	436	446	456	457	458	456	454	453	452	454	446	6
424	427	436	449	453	456	456	455	456	453	446	445	7
426	436	448	456	458	456	456	455	454	450	446	445	8
434	440	446	456	456	454	454	454	454	456	450	446	9
435	438	446	451	453	453	451	452	453	452	453	447	10
436	443	447	453	453	452	452	451	452	453	451	448	11
426	434	440	445	444	445	444	444	447	446	446	443	12 Q
423	433	442	450	451	447	449	453	448	453	458	444	13
431	442	450	455	457	454	452	452	450	451	451	447	14
424	437	450	457	454	448	445	444	445	446	447	444	15 Q
424	434	444	451	451	444	440	440	442	445	445	441	16
420	431	444	453	453	451	449	445	445	444	444	441	17
417	428	441	454	456	452	448	445	444	444	444	441	18 Q
405	419	429	447	453	453	452	446	446	445	445	438	19
417	424	439	451	453	454	453	449	446	444	443	444	20
424	439	454	467	482	495	511	505	480	465	452	453	21 D
424	433	451	476	482	471	463	461	462	459	450	448	22 D
425	432	444	452	453	454	454	452	452	452	451	446	23
422	433	445	448	450	450	449	448	450	452	452	444	24
414	424	434	443	443	442	442	444	449	467	473	442	25
431	444	450	460	464	464	473	464	458	456	440	442	26 D
424	435	451	458	457	455	454	454	455	456	456	446	27
415	427	435	447	453	449	445	444	445	447	453	441	28
417	427	445	454	453	452	450	449	455	457	452	443	29
430	438	452	461	465	458	454	453	450	452	452	443	30 D
442	447	458	461	458	453	448	449	448	451	454	446	31 D
425	435	445	454	456	455	454	452	452	452	450	445	
426	437	445	452	452	450	448	447	447	448	449	446	
430	440	453	465	470	468	470	466	460	457	450	446	
3184	3474	3796	4081	4145	4091	4061	4020	3999	4011	3963		

Table 6 VERTICAL COMPONENT MEAN HOURLY VALUES,

DATE	HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
		to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	Q	456	459	457	454	455	455	456	462	459	451	436	423	418
2	Q	451	454	455	454	451	452	454	459	459	446	429	413	413
3		448	449	450	449	448	446	448	456	459	446	432	413	403
4		446	446	448	448	449	449	452	457	451	447	434	421	418
5		446	446	446	448	450	454	460	466	464	447	435	420	416
6	D	445	446	446	444	446	449	455	460	463	452	437	406	393
7		438	440	446	451	453	449	456	460	452	446	434	424	411
8		444	439	441	441	446	448	454	457	459	449	433	416	417
9		448	452	447	445	437	433	423	430	428	424	413	415	419
10	D	454	451	449	437	439	420	428	427	435	437	426	427	428
11	D	461	457	453	449	447	448	449	447	452	446	437	428	421
12	D	459	450	447	450	445	436	438	449	457	450	437	428	429
13		446	421	430	427	440	440	439	454	456	449	437	429	424
14		457	458	458	457	457	455	456	465	467	455	440	425	415
15	D	435	433	438	431	438	444	450	447	453	446	428	413	407
16		446	456	460	461	458	458	451	458	463	450	440	432	426
17		438	444	447	436	450	448	456	460	460	452	440	431	420
18	Q	453	454	456	454	458	458	460	460	456	441	430	426	413
19	Q	447	449	451	451	454	456	458	456	450	440	431	418	405
20		449	447	445	445	449	450	450	452	450	446	433	420	409
21	Q	454	448	449	449	448	451	451	453	455	448	432	416	405
22		439	441	442	441	444	445	447	450	451	441	430	419	409
23		455	437	438	445	447	448	448	445	443	439	430	414	402
24		456	451	442	441	444	441	442	445	444	434	427	422	418
25		450	446	444	443	446	440	444	446	446	435	421	418	418
26		450	449	448	444	442	443	448	448	446	437	428	418	408
27		448	450	449	448	450	449	450	448	444	434	422	412	408
28		447	446	448	449	449	451	452	449	445	438	429	415	406
29		446	450	448	448	448	450	446	445	442	435	424	407	402
30		447	447	446	446	451	454	455	453	451	439	423	405	396
31														
MEAN		449	447	447	446	448	447	449	452	452	443	431	419	413
MEAN Q		452	453	454	452	453	454	456	458	456	445	432	419	411
MEAN D		451	447	447	442	443	439	444	446	452	446	433	420	416
SUM		3459	3416	3424	3366	3439	3420	3476	3564	3560	3300	2928	2574	2377

44000+.....(Gamma Units)

APRIL, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
426	442	456	466	471	466	459	455	451	452	451	452	1 Q
423	438	449	456	458	454	450	449	446	445	446	446	2 Q
414	427	438	448	459	460	454	448	445	445	445	443	3
422	437	459	476	475	472	473	457	451	447	446	449	4
416	425	439	459	473	467	456	451	450	447	446	447	5
401	411	452	490	506	486	476	461	456	456	450	449	6 D
414	434	447	455	462	467	485	465	463	446	447	448	7
427	431	438	446	457	457	455	456	454	452	451	445	8
430	437	454	474	467	460	455	453	453	453	453	442	9
427	435	445	451	455	455	455	455	456	456	455	442	10 D
422	429	444	458	487	523	532	499	496	468	455	459	11 D
432	439	451	469	486	480	465	457	455	459	453	451	12 D
427	447	457	466	471	484	472	464	457	454	455	448	13
415	431	452	467	471	470	471	467	463	460	431	453	14
419	437	456	480	497	499	499	468	467	474	450	450	15 D
427	440	456	467	483	480	468	458	456	458	450	454	16
424	436	452	460	469	467	459	458	458	454	455	449	17
410	426	440	456	462	462	456	454	456	449	450	448	18 Q
408	425	437	451	459	464	461	458	454	457	451	445	19 Q
411	427	438	443	453	462	470	466	461	458	456	445	20
404	411	428	437	445	451	454	455	454	451	446	442	21 Q
413	425	437	448	451	452	453	455	458	456	457	442	22
405	417	427	438	446	450	450	450	451	452	458	439	23
418	426	435	446	451	456	456	452	450	450	449	442	24
424	428	433	438	448	449	449	448	447	448	448	440	25
403	419	432	440	445	448	448	447	447	449	448	439	26
410	425	437	438	440	447	448	444	442	447	452	439	27
409	425	434	442	448	451	448	444	442	444	445	440	28
410	429	445	451	454	455	450	446	444	444	444	440	29
412	426	437	442	450	456	456	452	446	445	444	441	30
												31
417	430	444	455	463	465	463	456	454	453	450	446	
414	428	442	453	459	459	456	454	452	451	449	446	
420	430	450	470	486	489	485	468	466	463	453	450	
2503	2885	3305	3658	3899	3950	3883	3692	3629	3576	3487		

Table 6 VERTICAL COMPONENT MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	444	446	447	447	446	448	453	453	447	435	424	417	410
2 Q	444	446	448	448	448	450	455	456	452	439	428	412	400
3 Q	441	446	447	449	449	456	455	454	449	438	422	405	399
4	440	442	444	446	445	449	453	450	447	438	426	410	399
5	443	443	445	447	449	457	459	457	450	440	427	410	402
6	450	442	440	442	442	452	460	458	452	439	424	411	407
7	447	447	446	447	449	453	458	457	450	438	423	405	390
8	450	450	443	437	435	438	450	453	449	435	421	407	400
9 D	449	442	437	440	439	438	444	442	442	439	425	410	402
10	452	449	445	447	450	454	453	445	434	422	411	400	398
11 D	446	445	446	446	446	447	453	448	433	430	422	419	400
12 D	432	401	420	420	423	441	455	452	449	441	431	418	412
13	452	453	453	450	453	454	454	453	450	442	424	411	407
14 D	437	439	431	430	438	452	457	457	454	450	434	421	421
15	449	451	456	458	459	459	456	459	457	441	421	402	402
16 Q	446	450	451	454	456	461	465	461	451	432	419	400	391
17 Q	442	448	450	452	455	461	463	460	451	435	414	399	392
18	441	444	448	451	453	459	464	460	454	439	423	413	410
19	444	444	442	447	451	453	459	453	441	421	401	392	389
20	449	451	449	450	451	452	451	449	441	431	421	412	409
21	449	450	450	450	450	451	452	450	441	432	419	403	399
22	443	441	442	443	444	449	449	440	430	420	405	391	391
23	440	441	444	446	446	451	453	447	440	431	411	400	394
24	443	440	441	442	446	448	449	447	439	425	412	403	405
25 D	458	450	454	456	456	459	459	459	445	439	432	423	432
26	468	463	463	465	466	471	471	461	451	438	423	412	416
27 Q	460	460	457	459	457	457	457	456	451	437	422	403	397
28	451	453	454	453	454	458	459	449	434	418	400	398	405
29	450	452	453	458	459	463	462	458	450	439	426	417	420
30	449	453	455	455	453	454	459	459	460	448	435	426	417
31	448	448	445	447	444	444	447	449	445	435	419	411	414
MEAN	447	446	447	448	449	453	456	453	446	435	421	408	404
MEAN Q	447	450	451	452	453	457	459	457	451	436	421	404	396
MEAN D	444	435	438	438	440	447	454	452	445	440	429	418	413
SUM	3857	3830	3846	3882	3912	4039	4134	4052	3839	3487	3045	2661	2530

44000+.....(Gamma Units)

MAY, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
417	427	437	446	462	466	455	447	444	443	443	442	1
402	421	433	442	450	457	453	448	447	442	441	440	2 Q
401	419	432	444	451	452	451	447	442	441	440	439	3 Q
400	418	432	444	453	459	454	449	447	445	444	439	4
403	418	429	433	441	450	453	452	458	452	453	440	5
413	430	438	448	458	469	469	470	459	450	449	445	6
390	402	420	433	451	471	472	466	459	455	449	441	7
400	411	430	442	451	451	452	450	450	448	448	438	8
412	430	448	456	467	470	465	460	461	460	451	443	9 D
405	423	437	446	448	445	442	440	440	443	443	436	10
419	433	448	459	473	499	513	472	452	431	450	447	11 D
420	437	456	463	470	473	470	460	457	450	449	442	12 D
413	427	439	450	458	458	460	462	467	456	445	445	13
431	441	451	460	470	488	479	465	456	450	445	448	14 D
421	433	445	451	457	460	458	452	447	446	446	445	15
397	413	434	451	459	458	451	447	444	443	442	441	16 Q
400	421	440	453	462	462	456	450	451	445	443	442	17 Q
408	419	431	443	455	460	458	452	450	446	445	443	18
397	421	443	451	460	471	470	460	453	450	448	440	19
414	423	439	445	451	453	453	451	451	450	449	441	20
404	419	430	438	443	449	451	451	448	446	444	438	21
399	414	431	444	454	457	451	444	441	441	440	434	22
403	423	444	456	467	469	458	450	447	449	445	440	23
421	435	449	463	475	498	499	486	472	466	465	449	24
459	490	500	498	491	481	471	470	469	469	470	462	25 D
428	440	451	454	458	461	460	459	463	458	455	452	26
411	431	446	452	455	455	451	449	449	450	451	445	27 Q
418	431	441	455	459	461	456	448	443	446	449	441	28
431	439	445	452	458	461	456	452	450	449	447	448	29
420	431	439	447	455	459	459	452	447	444	443	447	30
435	455	480	482	475	471	462	457	447	447	451	448	31
413	428	443	452	459	464	462	455	452	449	448	443	
402	421	437	448	455	457	452	448	447	444	443	441	
428	446	461	467	474	482	480	465	459	452	453	448	
2792	3275	3718	4001	4237	4394	4308	4118	4011	3911	3683		

Table 6 VERTICAL COMPONENT MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	436	441	450	455	461	447	439	436	431	420	419	423	435
2	435	443	455	458	458	464	471	464	452	432	417	410	408
3	442	442	448	450	453	455	462	463	462	445	435	423	413
4	443	443	445	447	450	451	453	451	452	435	421	405	403
5 Q	444	443	443	448	452	452	458	462	456	447	434	417	414
6	443	442	442	444	449	455	455	453	450	437	423	408	407
7 D	440	443	440	442	445	443	447	442	436	429	414	404	412
8	436	399	423	408	413	438	442	440	433	422	403	398	413
9	452	452	449	451	453	457	458	456	451	434	428	423	421
10 D	429	442	448	451	453	451	445	441	443	441	437	430	428
11 D	453	444	441	452	451	443	437	430	418	406	415	419	426
12 D	444	422	437	441	434	451	453	448	435	424	423	421	424
13 D	443	456	453	448	449	441	447	444	444	435	430	424	429
14	462	464	466	464	470	474	474	465	455	442	434	424	423
15	451	454	456	457	462	464	463	458	455	448	436	421	413
16	451	453	454	456	456	461	463	462	456	441	424	401	399
17 Q	452	454	455	455	459	464	465	460	455	444	434	423	416
18 Q	449	451	452	454	456	459	457	451	450	441	429	412	404
19	447	448	447	447	449	452	456	453	445	440	431	414	407
20	451	450	450	450	453	455	460	459	457	446	437	423	420
21	450	447	447	450	454	458	458	454	447	441	432	421	416
22	446	447	447	448	448	449	448	448	443	441	439	431	423
23	452	454	450	451	450	451	453	454	452	444	434	424	413
24	453	452	448	444	446	444	446	444	442	430	414	399	401
25	456	444	441	445	445	447	454	454	442	430	411	404	405
26	457	443	444	443	444	447	454	452	448	(431)	415	403	395
27 Q	456	455	454	454	454	454	454	449	439	426	421	412	412
28 Q	450	450	450	450	452	454	453	451	448	437	424	403	398
29	448	450	450	452	453	454	456	451	443	436	425	410	408
30	453	445	447	453	454	457	462	456	445	426	405	395	399
31													
MEAN	447	446	448	449	451	453	455	452	446	435	425	414	413
MEAN Q	450	451	451	452	455	457	457	455	450	439	428	413	409
MEAN D	442	441	444	447	446	446	446	441	435	427	424	420	424
SUM	3424	3373	3432	3468	3526	3592	3643	3553	3385	3051	2744	2425	2385

44000+.....(Gamma Units)

JUNE, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
447	464	479	488	500	500	492	486	465	456	444	455	1
415	425	439	452	463	472	468	462	454	448	450	446	2
421	426	433	443	453	460	464	463	453	451	447	446	3
405	412	423	438	450	460	464	460	454	449	447	440	4
416	426	437	447	454	460	460	455	443	448	444	444	5 Q
412	422	433	443	444	452	452	450	450	446	443	440	6
418	433	442	445	454	459	474	463	462	454	443	441	7 D
423	437	447	453	458	461	464	456	453	453	453	434	8
423	432	443	445	448	451	450	458	455	451	433	445	9
436	444	461	477	477	493	478	469	464	458	449	452	10 D
462	484	510	531	524	508	501	473	460	433	412	456	11 D
443	456	475	482	492	494	500	496	478	462	433	453	12 D
444	454	473	495	505	514	502	484	472	470	459	459	13 D
426	437	448	463	474	479	476	469	467	453	450	457	14
415	430	438	444	453	461	465	463	455	451	454	449	15
413	428	449	474	476	482	482	473	462	457	452	451	16
422	433	442	448	453	458	458	454	454	452	449	448	17 Q
409	422	435	444	453	456	456	456	454	451	447	444	18 Q
412	421	427	437	454	465	470	464	454	454	451	444	19
430	437	443	448	456	457	458	456	455	454	451	448	20
415	423	434	447	457	462	457	454	451	451	447	445	21
426	434	444	451	457	456	456	461	455	454	451	446	22
414	427	436	444	448	454	457	461	454	453	454	445	23
412	423	440	446	454	457	461	459	454	458	457	441	24
413	424	438	448	450	454	453	453	445	445	451	440	25
404	429	449	467	477	485	496	491	464	459	456	448	26
416	433	445	455	459	455	455	454	451	450	450	444	27 Q
410	424	436	450	461	456	452	446	444	444	444	441	28 Q
422	435	447	460	465	465	458	451	444	443	441	444	29
414	435	446	460	465	465	463	456	453	446	448	444	30
												31
421	434	446	458	464	468	468	463	456	452	447	446	
415	428	439	449	456	457	456	453	449	449	447	444	
441	454	472	486	490	494	491	477	467	455	439	452	
2638	3010	3392	3725	3934	4051	4042	3896	3679	3554	3410		

Table 6 VERTICAL COMPONENT MEAN HOURLY VALUES,

DATE	HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
		to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	Q	449	445	446	446	452	459	463	463	456	436	420	406	407
2	Q	444	445	447	448	453	457	457	454	445	432	425	412	407
3	Q	445	446	445	447	454	457	457	454	447	434	422	416	415
4		444	442	443	445	448	452	456	454	448	436	418	405	400
5	D	444	444	443	427	434	439	442	442	442	440	428	418	412
6		455	453	450	448	448	454	454	448	443	436	431	424	421
7		455	453	444	436	439	443	444	447	436	426	416	408	408
8		448	434	436	438	439	443	445	446	444	431	425	414	413
9		449	449	449	441	444	445	448	448	443	434	423	419	415
10	Q	451	452	450	449	450	453	453	448	444	436	431	419	415
11		451	444	446	447	450	451	450	449	444	432	415	406	405
12		439	446	447	451	455	461	459	456	452	444	435	420	411
13		440	444	445	446	447	454	466	469	461	450	432	415	411
14		445	437	440	447	455	461	461	453	446	431	424	415	414
15		446	446	445	450	455	458	459	455	445	430	416	403	394
16		444	444	445	451	455	457	461	458	454	440	423	402	400
17		445	444	445	450	455	463	464	458	449	439	422	405	402
18	D	444	440	445	446	445	454	455	455	455	441	428	418	416
19		475	465	455	450	460	466	474	482	482	470	457	443	433
20		458	455	455	457	461	468	475	475	473	466	458	442	435
21		455	455	455	450	448	449	453	458	459	455	446	434	430
22		463	464	463	458	456	460	462	463	464	455	435	420	412
23	Q	455	455	454	454	454	457	457	457	454	444	428	420	415
24		451	450	451	452	454	455	452	444	435	429	421	409	405
25	D	454	455	455	453	455	459	459	453	445	433	417	401	397
26	D	425	445	437	445	465	467	465	458	452	444	432	420	426
27	D	452	448	454	457	459	466	466	459	448	430	421	413	416
28		436	442	447	437	446	458	456	460	457	446	432	427	429
29		452	456	456	455	456	458	459	456	446	431	424	412	410
30		444	441	445	448	455	456	456	456	454	439	426	417	414
31		443	442	446	446	452	461	460	458	453	438	428	418	416
MEAN		448	448	448	448	452	456	458	456	451	440	428	416	413
MEAN	Q	449	449	448	449	453	457	457	455	449	436	425	415	412
MEAN	D	444	446	447	446	452	457	457	453	448	438	425	414	413
SUM		3901	3881	3884	3875	3999	4141	4188	4136	3976	3628	3259	2901	2804

44000+.....(Gamma Units)

JULY, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
416	432	443	451	458	459	455	451	445	444	444	444	1 Q
415	433	448	458	462	465	465	459	452	447	446	445	2 Q
412	418	432	442	449	452	454	452	448	447	444	441	3 Q
409	426	438	445	450	454	456	455	454	453	447	441	4
416	426	443	459	486	506	483	467	456	455	454	446	5 D
426	433	437	436	441	447	453	455	457	454	454	444	6
408	421	436	444	447	455	456	457	459	452	449	439	7
423	430	446	457	465	482	476	468	463	462	449	445	8
414	416	431	441	451	455	457	455	453	451	452	441	9
419	425	435	447	455	457	455	452	447	445	448	443	10 Q
411	426	435	446	457	464	465	461	454	444	441	441	11
414	425	439	451	464	465	461	453	446	445	444	445	12
423	433	451	469	479	477	470	455	446	444	443	449	13
419	432	445	455	461	465	468	464	453	445	448	445	14
399	415	431	445	458	465	464	452	445	444	444	440	15
403	415	435	454	461	465	464	454	446	446	445	443	16
404	420	436	450	458	462	460	455	455	449	445	443	17
425	433	445	455	465	476	486	484	531	502	439	453	18 D
437	447	457	465	470	473	471	468	464	463	465	462	19
440	446	461	467	472	475	472	466	460	460	459	461	20
430	450	469	476	486	490	483	475	465	465	463	458	21
414	421	434	445	455	464	467	463	459	456	457	450	22
419	432	448	456	461	460	455	455	450	450	452	448	23 Q
405	410	428	445	455	456	456	457	455	455	453	441	24
408	417	435	445	468	505	505	506	477	465	445	451	25 D
434	449	466	474	473	473	466	466	458	456	459	452	26 D
432	447	456	464	465	462	456	454	451	451	444	449	27 D
437	446	464	475	472	476	467	456	449	448	450	451	28
412	426	444	459	474	477	472	456	448	448	446	447	29
416	428	443	456	466	475	468	457	450	452	452	446	30
422	436	449	463	469	469	465	458	453	448	447	448	31
418	429	444	455	463	469	466	461	456	453	449	447	
416	428	441	451	457	459	457	454	448	447	447	444	
423	434	449	459	471	484	479	475	475	466	448	450	
2962	3314	3760	4095	4353	4526	4451	4286	4149	4046	3928		

Table 6 VERTICAL COMPONENT MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1 Q	445	446	448	448	454	458	456	455	450	443	434	425	423
2	445	445	446	446	451	457	461	458	455	438	426	420	415
3	447	435	435	435	434	429	425	430	436	436	427	422	425
4	456	454	453	452	454	459	460	458	458	447	438	428	427
5 Q	453	451	451	448	449	456	457	457	456	447	437	430	426
6 D	446	436	435	437	438	447	451	451	447	441	427	422	417
7	447	444	444	441	437	447	448	448	443	436	426	421	429
8 Q	452	451	449	447	449	455	456	455	450	437	424	410	406
9	446	447	447	448	449	456	456	450	443	432	423	416	408
10	442	442	445	447	437	438	448	456	442	432	418	404	391
11	446	447	448	451	454	455	455	455	450	437	426	415	409
12	440	439	442	447	449	455	457	458	454	447	431	417	408
13	446	446	448	449	452	457	461	462	458	437	419	407	407
14	442	445	447	450	454	459	465	464	457	445	435	419	415
15	445	439	438	443	449	455	456	447	438	429	417	407	404
16 D	445	441	440	447	448	455	457	456	448	435	424	409	399
17	452	452	455	456	458	464	467	469	468	456	442	426	417
18 D	449	454	451	449	447	445	445	440	435	421	418	413	410
19 D	457	452	436	446	443	451	456	457	457	446	429	409	398
20	451	450	450	449	450	454	456	455	447	432	419	409	412
21	455	451	440	440	446	445	449	442	432	427	420	417	414
22	452	454	452	453	448	449	450	447	444	433	427	422	428
23	457	457	456	457	455	456	454	451	447	438	420	408	406
24 Q	455	454	449	453	452	453	458	458	455	440	428	415	411
25	448	451	451	452	453	455	458	458	452	443	430	417	416
26	459	458	453	430	439	445	450	449	445	438	429	419	414
27 D	446	438	437	439	448	448	440	438	434	430	421	421	426
28 Q	450	454	454	456	459	461	462	456	445	435	421	413	413
29	445	446	448	451	453	455	457	456	452	448	436	419	409
30	447	448	450	453	454	457	458	461	457	444	426	415	409
31	451	445	440	439	444	452	460	461	459	446	434	421	414
MEAN	449	447	446	447	449	453	454	453	449	439	427	417	413
MEAN Q	451	451	450	450	453	457	458	456	451	440	429	419	416
MEAN D	449	444	440	444	445	449	450	448	444	435	424	415	410
SUM	3917	3872	3838	3859	3907	4028	4089	4058	3914	3596	3232	2916	2806

44000+.....(Gamma Units)

AUGUST, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
418	426	438	455	458	464	461	457	455	446	445	446	1 Q
416	426	438	449	458	462	463	469	462	456	453	446	2
437	440	448	457	462	460	462	457	457	455	455	442	3
427	438	447	457	463	463	462	457	456	456	456	451	4
430	440	454	458	457	456	454	451	450	450	451	449	5 Q
417	424	431	438	446	457	470	460	447	453	452	441	6 D
435	444	457	467	468	474	463	458	462	443	445	447	7
416	434	447	456	460	459	455	447	448	442	445	444	8 Q
409	418	442	452	457	454	448	450	447	444	447	441	9
397	421	448	460	466	463	456	447	442	442	445	439	10
415	427	443	452	456	458	456	453	447	439	440	443	11
418	434	447	454	458	458	456	450	448	447	448	444	12
409	417	437	454	464	465	457	449	447	447	444	443	13
420	435	449	459	465	466	458	447	441	439	439	446	14
410	432	450	460	466	459	451	445	443	443	445	440	15
399	430	479	509	527	516	495	468	458	452	450	454	16 D
423	439	456	465	470	474	479	467	464	461	455	456	17
419	434	454	467	467	467	462	457	455	454	457	446	18 D
400	418	450	457	457	456	457	465	462	452	451	444	19 D
419	426	430	438	451	466	477	467	463	463	459	446	20
410	420	439	450	454	454	450	447	450	450	450	440	21
434	440	449	455	460	467	475	465	459	455	453	449	22
417	437	447	454	457	453	447	445	446	448	449	444	23
414	424	439	448	452	451	447	445	446	448	448	443	24 Q
421	438	447	453	449	447	440	439	439	444	458	444	25
418	429	445	451	450	449	443	444	444	449	447	442	26
441	459	480	486	488	484	471	458	451	449	449	449	27 D
417	428	442	456	458	458	451	448	444	444	444	445	28 Q
413	427	446	456	462	458	452	452	456	444	449	445	29
411	424	443	463	475	474	465	462	457	454	452	448	30
414	424	443	454	458	456	456	454	452	449	449	445	31
418	431	447	458	463	463	459	454	452	449	449	445	
419	430	444	455	457	458	454	450	449	446	447	445	
415	433	459	471	477	476	471	462	455	452	452	447	
2944	3353	3865	4190	4339	4348	4239	4080	3998	3918	3930		

Table 6 VERTICAL COMPONENT MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	449	444	442	443	449	454	454	454	452	443	427	415	413
2 Q	444	445	443	445	446	450	454	457	448	434	422	414	415
3	447	446	446	446	446	451	454	454	450	437	425	417	413
4 D	464	458	443	445	447	452	453	449	444	441	430	423	419
5	459	454	453	447	443	437	437	435	437	432	419	412	415
6	466	465	460	457	455	459	455	453	446	434	421	410	410
7	453	447	450	451	449	452	454	454	449	439	431	426	427
8	446	447	444	451	454	458	459	456	449	444	435	423	419
9 D	451	452	450	451	454	455	454	452	445	435	428	415	412
10 Q	445	446	448	455	454	455	456	458	459	440	422	409	413
11	446	447	450	451	451	448	455	457	455	445	431	415	412
12 D	451	450	452	453	452	446	445	445	443	444	434	425	431
13 D	467	458	456	438	432	434	441	441	441	435	431	425	422
14	458	455	454	455	453	447	455	463	464	449	440	429	424
15	451	455	452	455	455	459	456	460	458	450	435	421	416
16	450	449	451	454	455	456	461	461	455	444	436	426	415
17 D	451	450	442	445	445	451	455	455	450	439	432	424	424
18	447	450	451	452	452	455	454	455	454	441	433	426	418
19	450	451	450	450	449	449	448	447	443	435	427	417	413
20	451	446	441	444	442	442	445	446	445	438	426	423	423
21 Q	453	450	449	446	445	445	445	446	453	451	442	429	422
22	450	451	450	447	443	443	444	446	447	447	444	435	424
23	447	449	449	449	448	448	447	452	453	445	435	424	425
24 Q	447	449	452	453	450	449	447	449	449	442	434	427	419
25	447	447	447	444	444	449	451	454	446	436	424	418	418
26 Q	444	447	450	452	449	448	453	456	452	441	429	416	413
27	443	444	446	448	447	448	453	455	452	438	424	405	401
28	439	442	444	445	446	448	450	450	445	434	422	413	405
29	445	445	447	447	448	450	451	452	450	443	431	419	406
30	446	449	449	445	445	447	453	455	454	444	436	426	422
31													
MEAN	450	450	449	449	448	450	451	452	450	441	430	420	417
MEAN Q	447	447	448	450	449	449	451	453	452	442	430	419	416
MEAN D	457	454	449	446	446	448	450	448	445	439	431	422	422
SUM	3507	3488	3461	3464	3448	3485	3539	3567	3488	3220	2906	2607	2509

44000+.....(Gamma Units)

SEPTEMBER, 1980.

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
417	426	437	444	446	445	445	445	447	447	446	441	1
421	432	443	447	454	450	447	447	451	453	450	442	2 Q
408	422	444	458	477	502	494	482	468	464	465	451	3
424	438	451	458	460	462	459	463	454	457	463	448	4 D
427	439	458	474	491	490	484	482	473	469	469	452	5
420	435	452	462	457	452	452	452	452	452	462	447	6
434	446	460	466	467	464	465	465	464	440	446	450	7
433	442	457	463	462	455	449	447	451	450	449	448	8
423	438	462	482	485	473	458	454	456	458	454	450	9 D
426	447	463	472	472	460	453	449	451	448	446	448	10 Q
422	435	452	465	469	464	458	454	452	452	452	447	11
440	446	472	498	505	500	485	479	489	466	467	459	12 D
427	444	460	467	471	470	470	465	460	461	460	449	13 D
426	440	454	461	464	460	456	456	455	466	462	452	14
420	435	452	465	474	473	469	462	459	454	452	452	15
415	425	438	444	449	450	452	460	455	455	455	446	16
426	427	439	452	457	457	457	455	455	455	443	445	17 D
417	425	432	441	447	450	455	450	452	452	451	444	18
420	425	435	441	446	454	454	455	460	459	449	443	19
425	429	435	443	444	444	444	447	448	450	452	441	20
424	427	435	439	443	444	445	445	446	447	448	442	21 Q
426	439	449	457	465	462	455	453	451	449	444	447	22
435	439	447	455	455	449	449	452	454	450	451	446	23
421	432	444	454	456	453	451	445	445	447	447	444	24 Q
424	436	446	461	463	462	457	448	446	444	444	444	25
419	430	444	455	461	462	457	447	444	443	442	444	26 Q
410	419	431	446	453	458	452	451	449	446	444	440	27
407	422	432	443	451	451	454	452	455	457	447	440	28
407	417	427	443	453	456	474	455	451	450	446	442	29
422	424	431	442	452	450	450	452	450	449	447	443	30
												31
422	433	446	457	462	461	458	456	455	453	452	446	
422	434	446	453	457	454	451	447	447	448	447	444	
428	439	457	471	476	472	466	463	463	459	457	450	
2666	2981	3382	3698	3849	3822	3750	3669	3643	3590	3553		

Table 6 VERTICAL COMPONENT MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1 Q	446	444	444	444	445	446	447	450	449	441	434	427	423
2	443	442	442	440	440	442	443	445	449	445	437	423	411
3	443	443	443	443	442	441	442	444	446	438	431	422	414
4 D	450	447	449	441	435	434	431	434	446	459	456	440	431
5	451	420	430	439	422	425	439	450	462	468	459	459	459
6	454	453	449	447	446	452	448	442	450	445	439	438	433
7	459	451	449	448	447	447	445	448	450	444	434	420	419
8	452	453	454	449	447	447	444	448	451	449	441	431	427
9	460	455	451	458	450	451	451	450	452	456	449	440	433
10	450	452	445	441	446	446	447	450	450	450	437	423	411
11 D	482	466	447	433	431	405	423	413	433	432	433	441	446
12	460	460	461	463	463	459	460	469	472	464	453	438	433
13	455	456	456	458	460	460	463	464	468	456	443	432	430
14	450	452	450	452	453	453	458	462	465	450	436	421	422
15	458	459	450	453	450	448	447	448	448	445	441	432	428
16	439	445	449	451	452	453	456	459	460	450	444	430	423
17	452	452	452	452	452	452	452	453	457	457	448	433	425
18	458	450	435	435	433	435	439	446	447	445	435	433	422
19	458	453	451	450	451	450	448	449	458	465	460	445	444
20 Q	457	456	454	454	450	451	453	458	463	461	452	443	439
21	457	454	451	450	450	449	446	450	457	457	456	449	441
22	456	456	455	449	447	437	430	433	443	450	444	432	431
23 D	461	464	459	458	454	444	417	426	440	440	440	443	463
24	470	468	470	467	466	467	465	464	464	460	451	444	444
25 D	450	457	461	460	463	464	460	458	455	453	443	443	446
26	443	445	453	459	461	464	456	457	456	451	446	445	452
27 Q	457	457	458	458	458	461	461	462	468	463	450	445	437
28 Q	454	454	455	455	455	457	457	459	464	457	447	436	431
29 Q	452	452	451	451	452	455	456	456	461	463	454	436	429
30	458	464	461	457	451	448	446	445	456	464	455	445	440
31 D	459	455	454	443	438	445	446	441	443	455	452	442	433
MEAN	455	453	451	450	449	448	448	449	454	453	445	436	433
MEAN Q	453	453	454	452	452	454	455	457	461	457	447	437	432
MEAN D	460	458	454	447	444	438	435	434	443	448	445	442	444
SUM	4094	4035	3989	3958	3910	3888	3876	3933	4083	4033	3800	3531	3420

44000+.....(Gamma Units)

OCTOBER 1980.

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
419	421	424	432	440	444	446	446	444	445	443	439	1 Q
414	422	428	434	443	442	443	443	444	444	443	438	2
414	421	430	440	446	443	449	451	454	464	455	440	3
443	460	489	519	522	501	490	488	471	466	460	461	4 D
464	472	474	480	479	488	479	476	469	468	455	458	5
433	439	449	458	462	461	458	457	453	457	463	449	6
421	431	444	454	457	457	459	457	449	456	456	446	7
421	423	436	451	458	457	453	464	460	463	458	447	8
435	441	456	469	469	469	471	456	456	450	449	453	9
413	421	432	454	463	456	470	491	519	464	472	450	10
463	462	468	472	470	465	463	463	463	461	461	450	11 D
434	443	453	472	468	465	464	465	462	458	456	458	12
424	434	446	459	462	460	457	455	451	452	450	452	13
425	432	447	461	467	465	463	460	455	461	454	451	14
438	448	459	470	471	469	468	467	460	452	443	452	15
427	435	447	456	457	457	456	456	456	455	455	449	16
427	434	447	456	456	454	454	455	455	456	458	450	17
428	433	444	454	464	465	491	499	470	465	462	450	18
443	446	459	469	467	480	475	481	478	470	460	459	19
438	446	456	462	461	461	459	459	462	462	459	455	20 Q
441	450	457	457	459	457	454	459	461	461	456	453	21
425	439	449	455	455	454	486	495	486	472	451	451	22
475	495	518	503	505	507	484	481	479	475	473	467	23 D
448	462	472	474	471	467	467	475	468	457	463	464	24
451	460	483	486	497	486	477	487	487	460	456	464	25 D
447	456	463	471	467	463	463	463	458	457	457	456	26
439	447	456	463	465	462	459	458	455	455	454	456	27 Q
436	445	452	456	457	457	456	455	455	455	454	452	28 Q
434	444	451	454	456	457	456	456	456	457	457	452	29 Q
440	445	447	450	452	452	454	454	454	459	465	453	30
436	451	488	477	497	501	514	485	483	484	452	461	31 D
435	444	456	463	467	465	466	466	464	460	456	453	
433	441	448	453	456	456	455	455	454	455	453	451	
454	466	489	491	498	492	486	481	477	469	460	461	
3496	3758	4124	4368	4463	4422	4438	4457	4373	4261	4150		

Table 6 VERTICAL COMPONENT MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1	451	452	448	448	442	444	443	453	457	460	455	444	445
2	456	454	454	453	445	448	454	456	465	463	450	440	435
3 Q	455	455	455	455	453	453	453	455	457	455	450	445	438
4	459	457	455	452	451	452	449	450	453	458	448	452	452
5 Q	464	461	455	455	456	456	455	454	460	461	454	450	442
6	458	457	459	458	457	457	455	455	458	456	447	440	431
7 Q	462	458	460	460	457	456	456	453	451	444	435	428	430
8 Q	455	454	456	456	455	454	453	450	450	448	439	429	428
9	450	451	452	453	452	452	451	449	449	445	440	431	424
10	458	461	458	460	459	456	453	451	452	451	444	426	432
11 D	450	457	450	454	448	448	451	453	456	452	448	431	438
12	457	449	446	450	451	460	461	460	460	464	451	446	444
13 Q	455	453	454	451	452	454	455	455	455	456	449	442	438
14	452	452	452	452	452	453	454	452	452	453	443	438	431
15 D	450	452	449	448	448	443	444	445	445	445	448	450	452
16	452	454	451	443	441	435	441	443	451	455	454	447	455
17	449	456	455	454	454	454	456	456	463	465	460	451	449
18	450	448	444	446	448	452	450	452	456	458	452	451	446
19	456	456	452	446	449	453	453	452	453	454	449	445	416
20	449	450	452	455	451	448	449	446	445	440	438	437	438
21	458	458	458	457	453	448	450	446	447	453	449	449	445
22	456	455	456	457	458	455	452	448	446	447	443	441	440
23	453	454	452	449	448	451	452	450	449	448	442	436	438
24	458	456	454	458	457	458	451	450	448	448	441	438	440
25	451	455	462	457	456	456	455	448	449	446	436	432	434
26 D	468	463	458	462	463	461	456	456	451	439	430	434	437
27	463	463	444	441	449	452	449	441	450	446	436	433	437
28 D	440	433	433	435	440	440	440	443	456	462	458	451	448
29	455	455	451	448	455	458	458	455	455	460	451	450	449
30 D	460	447	429	447	455	454	459	460	460	454	445	441	441
31													
MEAN	455	454	452	452	452	452	452	451	453	453	446	441	440
MEAN Q	458	456	456	455	455	453	454	453	455	453	445	439	435
MEAN D	454	450	444	449	451	449	450	451	454	450	456	441	443
SUM	3650	3626	3554	3560	3555	3561	3558	3537	3599	3586	3385	3228	3203

44000+.....(Gamma Units)

NOVEMBER, 1960

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
453	455	466	486	472	464	463	463	461	461	456	456	1
433	440	453	466	471	459	465	464	461	458	456	454	2
443	453	456	463	465	465	462	461	461	460	459	455	3 Q
453	454	465	467	469	470	470	468	465	465	466	458	4
443	447	453	457	459	457	456	457	457	459	460	455	5 Q
440	445	453	462	462	462	460	461	462	462	464	455	6
433	442	453	458	458	453	451	451	452	453	461	451	7 Q
427	435	448	453	454	457	454	454	452	450	450	448	8 Q
437	443	451	456	458	456	456	456	457	458	458	449	9
427	460	463	460	462	458	456	454	453	454	457	453	10
446	450	457	462	461	487	489	474	475	464	470	457	11 D
454	461	467	466	468	464	460	460	461	463	457	458	12
442	449	455	456	458	461	462	463	466	462	458	454	13 Q
435	435	450	460	455	460	465	464	461	455	452	451	14
448	463	476	474	474	472	473	476	481	467	458	458	15 D
457	465	476	480	476	474	467	466	465	464	455	457	16
453	454	457	460	464	463	471	460	458	464	449	457	17
457	462	468	473	476	471	475	476	478	468	457	459	18
448	458	475	467	468	471	476	476	466	460	454	458	19
446	456	462	464	472	469	469	453	459	458	459	453	20
448	452	457	457	456	456	454	455	458	464	457	454	21
446	449	456	457	455	452	451	449	451	459	453	451	22
446	450	452	458	459	461	470	466	463	460	463	453	23
445	451	458	466	460	461	460	469	458	456	452	454	24
443	453	458	457	456	463	489	473	470	458	458	454	25
442	445	451	459	467	467	461	460	460	457	460	454	26 D
443	452	460	473	477	481	492	486	468	462	450	456	27
455	461	462	468	473	465	465	471	476	474	463	455	28 D
452	455	460	469	470	465	465	472	491	475	464	460	29
439	439	445	454	465	509	486	492	490	483	481	460	30 D
												31
444	451	459	464	465	466	466	465	465	462	459	455	
438	445	453	457	459	459	457	457	458	457	458	453	
446	452	458	463	468	480	475	475	476	469	466	457	
3334	3534	3763	3908	3940	3973	3993	3950	3936	3853	3757		

Table 6 VERTICAL COMPONENT MEAN HOURLY VALUES,

DATE \ HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13
1 D	452	445	444	421	431	443	449	452	455	454	452	452	452
2	460	457	453	451	451	452	452	452	451	452	452	451	446
3 D	457	455	459	459	459	445	443	445	443	445	438	442	441
4	459	461	461	463	453	451	452	452	451	453	455	453	452
5 Q	457	458	455	452	453	452	452	452	452	451	444	441	444
6 Q	452	452	452	452	451	448	447	448	447	448	442	442	443
7	451	453	454	453	452	452	452	447	447	450	445	448	448
8	463	465	463	462	460	460	453	453	453	453	447	443	442
9	455	457	458	458	457	454	454	453	451	452	449	444	436
10	467	461	461	464	449	447	447	448	446	450	447	438	434
11	452	452	454	455	456	455	453	451	449	449	445	439	436
12	484	467	449	451	447	449	449	450	450	451	447	443	442
13	449	449	450	450	453	454	455	455	454	453	447	445	445
14	450	447	447	447	449	450	451	451	455	457	447	441	437
15	449	447	445	447	445	444	447	449	453	454	450	445	446
16	452	448	444	446	446	449	449	455	458	461	455	451	446
17 Q	460	456	455	454	454	454	454	455	455	454	446	446	446
18	454	454	449	448	448	450	442	442	446	459	457	450	446
19 D	466	455	452	454	454	444	432	439	441	443	444	439	434
20 D	470	466	456	447	450	454	466	468	476	476	474	477	480
21 D	470	461	456	463	460	463	460	457	460	466	466	466	465
22	467	466	466	459	458	458	456	455	456	459	454	451	450
23	456	456	457	457	456	456	455	454	455	454	449	447	452
24 Q	453	454	454	455	455	455	455	454	454	451	444	438	435
25	447	449	448	449	449	452	449	446	447	448	441	440	439
26	451	453	453	454	454	453	454	454	454	453	448	445	444
27	450	449	449	449	452	452	450	450	451	435	449	448	445
28 Q	455	453	453	452	453	455	456	456	456	457	454	448	440
29	452	451	449	448	448	450	450	453	454	455	450	446	437
30	459	447	439	444	443	447	448	448	447	451	446	445	438
31	456	453	454	452	446	447	455	455	457	459	455	450	447
MEAN	457	455	453	452	451	451	451	452	452	454	450	447	445
MEAN Q	455	455	454	453	453	453	453	453	453	452	446	443	442
MEAN D	463	456	453	449	449	450	450	452	455	457	455	455	454
SUM	4175	4097	4039	4016	3982	3995	3987	3999	4024	4073	3939	3854	3788

44000+.....(Gamma Units)

DECEMBER, 1980

13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	HOUR MEAN	DATE
454	458	458	462	461	461	462	462	461	460	459	453	1 D
442	443	448	449	448	450	451	455	462	464	461	452	2
450	456	459	461	472	479	458	462	471	472	462	455	3 D
452	457	461	462	460	457	457	455	458	460	457	456	4
449	450	452	453	452	452	452	452	452	452	452	451	5 Q
449	452	453	453	453	452	451	451	451	451	451	450	6 Q
452	452	455	457	458	456	453	455	453	461	462	453	7
448	453	458	462	460	458	456	462	459	460	465	457	8
443	449	457	463	464	463	462	461	467	467	473	456	9
437	446	452	456	456	456	456	457	456	454	452	452	10
440	447	449	458	460	467	455	469	471	480	467	455	11
439	445	451	453	455	454	451	451	452	451	449	451	12
446	449	455	457	457	454	454	455	457	457	450	452	13
444	444	447	455	457	476	477	475	468	466	456	454	14
440	444	446	456	456	464	466	466	465	465	460	452	15
455	456	466	482	464	476	478	470	466	464	462	458	16
448	447	453	457	455	456	456	458	458	457	456	454	17 Q
447	455	463	462	481	466	474	479	480	475	472	458	18
445	473	583	637	676	637	641	611	530	498	479	500	19 D
480	481	478	478	478	474	477	476	478	479	476	471	20 D
466	471	480	484	481	479	493	484	472	470	473	469	21 D
452	460	466	471	466	466	466	461	456	456	456	460	22
452	453	455	463	462	463	459	455	455	453	453	455	23
436	443	449	455	454	453	452	453	451	448	447	450	24 Q
434	443	449	454	454	454	454	454	458	477	453	450	25
442	444	452	455	457	457	457	456	455	454	453	452	26
446	449	456	462	463	462	463	464	463	462	456	454	27
435	447	451	455	457	456	457	457	457	456	455	453	28 Q
436	442	448	454	456	457	464	465	465	463	467	453	29
436	446	452	455	456	457	458	459	462	459	458	450	30
446	448	452	460	457	460	471	489	487	479	466	458	31
446	452	460	466	467	467	467	467	464	464	460	456	
443	448	452	455	454	454	454	454	454	453	452	452	
459	468	492	504	514	506	506	499	482	476	470	470	
3841	4003	4254	4441	4486	4472	4481	4479	4396	4370	4258		

Table 7

## EXTREME VALUES OF THE MAGNETIC ELEMENTS

JANUARY, 1980

Date	DECLINATION				HORIZONTAL COMPONENT					VERTICAL COMPONENT				TEMP °C		
	Maximum		Minimum		Range	Maximum		Minimum		Range	Maximum		Minimum		Range	
	G.M.T.	10° +	G.M.T.			G.M.T.	18000y+	G.M.T.			G.M.T.	44000y+	G.M.T.			
	h m	'	'	h m	'	h m	y	y	h m	y	h m	y	h m	y		
1D	19 21	65.1	45.8	22 22	19.3	07 35	988	860m	20 57	128M	19 53	542	439	08 31	103	14.1
2	15 02	60.7	44.7	00 26	16.0	22 32	974	910	12 43	64	00 27	494	447	12 09	47	16.1
3	17 46	60.6	46.1	03 48	14.5	17 28	980	932	12 10	48	18 14	489	425m	13 04	64	20.1
4	14 20	62.3	51.2	10 24	11.1	06 17	986	929	15 34	57	20 53	483	436	12 20	47	19.2
5	13 57	60.5	50.2	23 16	10.3	21 05	983	938	14 08	45	22 15	491	429	13 02	62	19.2
6	14 20	59.9	50.9	03 46	9.0	03 33	985	945	11 11	40	19 20	470	436	12 30	34	20.0
7	14 20	59.2	49.6	23 32	9.6	21 40	984	956	12 00	28	23 32	475	439	11 50	36	19.5
8	15 06	59.2	51.3	00 00	7.9	05 48	988	941	11 14	47	00 00	465	444	12 43	21	21.1
9Q	14 35	58.3	52.4	09 23	5.9m	05 42	986	951	11 23	35	20 50	461	445	13 42	16m	20.2
10Q	14 46	58.7	51.5	09 10	7.2	23 10	985	959	11 48	26	09 00	466	435	13 10	31	17.8
11	17 38	61.5	51.5	09 20	10.0	08 00	987	942	21 06	45	21 33	482	433	13 57	49	19.6
12Q	13 45	58.8	51.2	09 38	7.6	23 04	980	947	10 45	33	09 25	470	438	12 59	32	19.8
13D	19 09	62.6	46.5	23 01	16.1	06 29	995	900	19 14	95	19 22	517	445	08 19	72	20.3
14	16 49	57.9	51.2	00 39	6.7	23 42	978	928	00 04	50	16 32	472	444	03 38	28	20.4
15	14 13	59.0	52.8	09 56	6.2	07 19	986	945	12 47	41	09 20	470	448	13 17	22	16.1
16	13 57	58.5	48.4	01 49	10.1	03 12	989	946	02 19	43	01 49	484	447	02 46	37	15.4
17	07 27	62.8	52.8	09 18	10.0	07 41	1009M	945	14 56	64	15 20	474	435	07 27	39	13.6
18Q	14 19	59.1	51.7	09 35	7.4	22 05	985	946	12 59	39	16 42	470	443	13 40	27	15.6
19Q	14 50	59.2	51.3	09 25	7.9	00 04	989	950	11 03	39	18 12	463	435	12 45	28	16.3
20	14 04	59.1	49.8	02 20	9.3	02 06	989	962	12 30	27	24 00	468	430	13 45	38	15.6
21	14 33	59.5	50.2	00 02	9.3	23 01	994	952	14 00	42	00 00	470	430	12 58	40	17.1
22	14 47	59.3	51.8	09 45	7.5	17 57	991	960	13 54	31	19 42	470	431	13 30	39	17.0
23	14 15	59.9	50.7	01 07	9.2	05 23	985	959	12 10	26	01 02	462	430	12 53	32	18.0
24	14 03	59.9	52.9	10 24	7.0	07 55	986	963	18 50	23m	19 50	468	430	13 43	38	16.1
25	14 12	61.3	50.8	23 24	10.5	22 15	992	965	11 10	27	23 22	470	428	12 17	42	18.4
26	13 50	58.7	50.3	23 22	8.4	06 22	991	962	13 19	29	22 43	469	443	12 20	26	16.0
27D	16 39	65.8	40.4	22 26	25.4	03 30	989	887	20 26	102	20 37	583M	425m	13 24	158M	18.2
28D	18 57	74.7M	45.5	23 50	29.2	18 30	977	915	19 06	62	19 10	534	433	13 28	101	20.0
29D	13 49	63.3	31.5m	01 03	31.8M	18 22	970	899	01 35	71	00 42	515	434	13 49	81	20.7
30	14 50	61.4	51.1	00 10	10.3	21 17	972	933	11 39	39	00 00	477	444	13 00	33	19.9
31	14 45	58.9	50.5	09 52	8.4	20 31	979	944	12 50	35	22 55	478	446	12 06	32	19.0
Mean		60.8	49.2		11.6		986	938		48		484	437		47	

Table 7

## EXTREME VALUES OF THE MAGNETIC ELEMENTS

FEBRUARY, 1980.

Date	DECLINATION					HORIZONTAL COMPONENT				VERTICAL COMPONENT				TEMP °C		
	Maximum		Minimum		Range	Maximum		Minimum		Maximum		Minimum			Range	
	G.M.T.	10 <sup>0</sup> +	G.M.T.			G.M.T.	18000y+	G.M.T.		G.M.T.	44000y+	G.M.T.				
h m	'	'	h m	'	h m	y	y	h m	y	h m	y	y	h m	y		
1	13 58	59.5	48.2	23 14	11.3	22 53	989	955	12 10	34	20 01	495	441	10 59	54	18.6
2	14 58	59.0	50.4	05 32	8.6	05 01	993	942	11 45	51	16 05	465	434	12 57	31	19.6
3Q	14 25	59.0	50.4	10 14	8.6	08 18	986	956	11 58	30	04 58	463	439	13 50	24	20.2
4	14 43	57.6	51.5	09 21	6.1m	07 16	1001	956	11 55	45	05 45	457	438	12 55	19m	20.7
5Q	14 19	59.8	50.5	09 27	9.3	07 35	988	958	13 45	30	17 40	463	429	11 50	34	20.8
6D	18 54	64.5M	45.3	19 51	19.2	03 25	1009	866m	19 43	143	19 47	596M	433	08 14	163	18.8
7	12 39	59.4	49.6	07 50	9.8	24 00	978	917	12 55	61	21 07	492	434	12 37	58	19.0
8D	13 13	61.8	47.6	00 53	14.2	05 08	987	918	11 52	69	16 38	497	432	03 57	65	20.6
9	14 11	61.7	48.6	18 47	13.1	05 46	986	929	12 00	57	18 46	502	411	11 32	61	20.2
10Q	14 17	57.9	49.3	09 58	8.6	20 56	981	949	12 36	32	09 10	465	435	12 30	30	19.2
11	15 13	58.4	50.5	09 56	7.9	04 17	987	948	11 25	39	08 58	461	437	12 47	24	20.2
12Q	16 10	57.5	50.3	10 14	7.2	06 45	986	952	13 31	34	21 35	460	429	12 15	31	21.0
13Q	14 53	58.0	50.3	09 34	7.7	23 03	991	955	12 12	36	00 12	457	432	12 50	25	20.1
14D	16 12	63.5	51.9	08 08	11.6	06 38	1008	927	16 49	81	18 12	496	432	10 30	64	21.0
15D	15 40	59.1	28.3m	23 18	30.8M	19 53	1018M	871	21 43	147M	23 17	536	356m	22 56	180M	19.0
16D	07 38	62.7	36.3	04 08	26.4	23 53	961	896	13 02	65	16 07	497	390	05 03	107	20.0
17	13 50	58.4	50.7	09 28	7.7	23 05	973	949	12 06	24m	05 10	470	444	11 18	26	20.8
18	19 01	58.4	46.3	01 00	12.1	00 16	984	931	14 16	53	20 19	496	436	10 53	60	20.4
19	15 11	57.7	46.6	00 47	11.1	04 13	997	956	01 28	41	16 38	473	436	04 03	37	18.0
20	15 31	58.7	48.5	00 41	10.2	08 41	987	960	01 47	27	16 50	471	436	12 23	35	17.1
21	14 13	57.1	50.3	01 32	6.8	20 51	991	964	12 46	27	00 53	466	432	13 10	34	19.0
22	15 13	58.9	51.4	09 27	7.5	03 37	995	969	15 57	26	16 50	464	427	11 46	37	18.1
23	19 04	63.7	49.9	24 00	13.8	00 19	997	932	19 29	65	19 47	500	430	12 33	70	17.7
24	15 40	60.2	47.6	00 12	12.6	20 46	987	956	14 55	31	00 11	476	427	12 45	49	19.9
25	20 19	64.4	47.8	23 50	16.6	17 49	1009	943	22 20	66	22 24	517	434	11 25	83	18.2
26	14 36	62.5	48.5	03 15	14.0	22 36	985	940	00 59	45	00 03	493	432	12 26	61	19.1
27	13 20	62.5	49.6	04 22	12.9	08 06	994	926	13 31	68	16 56	479	436	10 56	43	20.2
28	12 10	58.5	47.5	21 33	11.0	21 56	986	952	11 17	34	21 31	481	435	10 50	46	20.6
29	12 20	61.5	48.6	00 50	12.9	22 31	986	961	09 59	25	17 30	466	420	12 16	46	20.7
30																
31																
Mean		60.1	48.0		12.1		990	939		51		485	430		55	

Table 7

## EXTREME VALUES OF THE MAGNETIC ELEMENTS

MARCH, 1980.

Date	DECLINATION				HORIZONTAL COMPONENT					VERTICAL COMPONENT				TEMP °C		
	Maximum		Minimum		Range	Maximum		Minimum		Range	Maximum		Minimum		Range	
	G.M.T.	10° +	G.M.T.			G.M.T.	18000y+	G.M.T.			G.M.T.	44000y+	G.M.T.			
h m	'	'	h m	'	h m	y	y	h m	y	h m	y	y	h m	y		
1 Q	14 10	58.7	49.5	08 46	9.2	24 00	986	949	10 32	37	03 10	464	431	12 02	33	21.0
2 Q	13 53	60.5	49.8	09 04	10.7	21 10	996	960	10 57	36	05 10	459	416	12 27	43	20.0
3	14 03	59.5	49.8	09 14	9.7	19 55	996	949	11 57	47	17 01	466	423	12 38	43	20.2
4	12 46	59.3	49.0	09 25	10.3	07 50	998	963	12 02	35	22 42	461	404	11 45	57	20.0
5	12 43	58.3	49.7	09 10	8.6	01 55	996	967	10 47	29	17 20	459	415	11 26	44	19.5
6	14 00	60.8	48.7	09 28	12.1	21 03	996	960	15 02	36	16 53	464	408	12 03	56	20.7
7	14 26	59.4	48.0	09 10	11.4	02 06	1006	956	12 40	50	20 07	458	415	12 23	43	19.3
8	15 02	60.2	48.9	09 17	11.3	07 30	999	946	11 40	53	17 27	460	418	12 40	42	19.3
9	13 30	58.9	51.2	05 28	7.7m	08 20	998	963	16 42	35	16 52	462	422	12 22	40	19.5
10	14 19	59.9	50.6	09 00	9.3	07 33	995	968	10 49	27m	08 24	455	421	12 20	34	19.7
11	13 26	60.0	49.8	09 16	10.2	00 35	1002	960	10 56	42	22 50	456	425	11 55	31m	20.6
12 Q	15 05	57.8	48.1	09 42	9.7	23 27	999	960	12 32	39	08 44	457	423	12 50	34	20.7
13	13 28	59.7	48.1	09 36	11.6	07 17	1009	958	11 10	51	20 37	461	416	12 55	45	18.0
14	13 37	57.6	49.5	09 05	8.1	21 00	992	960	12 20	32	16 40	460	427	12 52	33	16.7
15 Q	13 55	60.9	48.7	09 05	12.2	23 55	1010	956	12 11	54	16 40	460	413	12 00	47	17.3
16	13 56	59.8	46.9	09 30	12.9	00 00	1009	964	11 16	45	17 10	454	414	11 35	40	19.0
17	14 32	62.7	47.7	08 58	15.0	01 42	1000	955	11 05	45	17 00	455	412	12 00	43	18.0
18 Q	14 12	60.8	46.5	09 11	14.3	21 40	1002	953	12 06	49	17 00	457	407	12 25	50	16.9
19	15 17	62.3	47.5	09 47	14.8	07 22	1026M	959	14 04	67	17 50	455	394m	11 25	61	17.1
20	14 59	59.7	47.7	09 05	12.0	23 48	1009	956	12 40	53	17 47	458	413	13 00	45	14.5
21 D	14 22	62.6	43.9	20 52	18.7	05 49	1014	937	20 42	77	20 50	523M	420	12 42	103M	15.1
22 D	12 52	63.4	44.5	08 22	18.9	22 16	1007	921	14 08	86	17 26	483	402	12 51	81	14.5
23	14 42	58.5	46.9	09 09	11.6	03 33	992	946	13 58	46	08 21	462	419	12 21	43	16.1
24	14 33	60.6	47.5	08 58	13.1	06 02	996	949	11 10	47	07 45	457	414	12 50	43	16.7
25	15 06	61.3	46.8	23 17	14.5	20 33	1013	941	12 26	72	23 11	483	405	11 54	78	17.6
26 D	13 17	64.6M	32.9m	03 31	31.7M	02 58	1004	921	10 48	83	19 36	475	403	11 40	72	18.2
27	14 50	60.7	47.2	08 38	13.5	22 20	989	935	11 06	54	16 59	464	416	12 53	48	18.1
28	14 24	62.1	44.9	08 44	17.2	22 35	1003	938	12 25	65	23 11	456	407	12 23	49	19.9
29	14 47	61.1	45.5	09 10	15.6	01 30	1001	935	11 20	66	22 50	459	410	11 50	49	19.2
30 D	14 00	61.5	44.5	04 40	17.0	23 59	1014	916m	12 00	98M	17 46	466	416	11 20	50	19.0
31 D	15 01	59.4	47.0	05 12	12.4	03 46	1012	924	13 21	88	16 49	464	419	11 46	45	20.0
Mean		60.4	47.3		13.1		1002	949		53		464	414		49	

Table 7

## EXTREME VALUES OF THE MAGNETIC ELEMENTS

APRIL, 1980.

Date	DECLINATION					HORIZONTAL COMPONENT				VERTICAL COMPONENT				TEMP °C		
	Maximum		Minimum		Range	Maximum		Minimum		Maximum		Minimum			Range	
	G.M.T.	10° +	G.M.T.			G.M.T.	18000y+	G.M.T.		G.M.T.	44000y+	G.M.T.				
h m	'	'	h m	'	h m y	y	h m	y	h m y	y	h m	y				
1Q	14 20	59.7	44.8	09 10	14.9	20 13	983	930	11 36	53	17 15	473	416	12 20	57	20.1
2Q	14 05	61.1	46.0	09 05	15.1	21 20	1001	941	11 24	60	08 00	463	408	12 00	55	19.3
3	14 02	61.1	44.0	09 18	17.1	05 02	1004	944	11 38	60	17 52	466	399	12 14	67	20.0
4	13 49	62.7	47.7	07 54	15.0	05 22	999	940	11 45	59	16 30	480	416	12 23	64	19.1
5	14 25	62.2	44.5	09 12	17.7	16 35	1005	939	12 00	66	17 55	476	414	13 40	62	19.0
6D	14 33	69.5M	43.7	09 43	25.8M	14 46	1020	935	11 00	85	17 15	514	386m	12 40	128M	18.7
7	14 22	62.8	42.8	22 01	20.0	00 13	1019	933	12 13	86	19 50	499	406	13 03	93	19.6
8	14 40	58.8	42.9	09 12	15.9	23 40	1007	932	12 46	75	08 11	467	409	12 10	58	19.6
9	13 17	60.1	45.1	05 57	15.0	05 53	1029	906	11 52	123	16 17	477	404	10 50	73	20.0
10D	15 05	59.7	39.7	04 15	20.0	23 05	997	906	11 04	91	02 32	458	413	10 45	45	20.5
11D	15 04	61.2	37.8	19 56	23.4	18 17	1014	925	20 43	89	19 53	546M	418	13 13	128M	19.8
12D	15 36	61.0	37.9	23 37	23.1	22 32	1013	882m	12 32	131M	17 05	490	415	01 54	75	20.5
13	13 23	61.7	36.0m	00 29	25.7	21 03	987	915	12 39	72	18 28	487	416	01 29	71	20.7
14	14 39	62.4	42.9	09 10	19.5	22 48	1019	935	12 42	84	22 21	475	410	12 41	65	18.0
15D	15 12	63.2	42.0	02 34	21.2	01 43	1006	932	11 11	74	19 13	518	406	12 14	112	18.8
16	14 12	62.0	45.6	09 12	16.4	23 45	1025	935	12 00	90	17 40	488	423	12 57	65	20.8
17	14 47	59.3	45.1	04 39	14.2	00 00	1024	941	11 29	83	17 52	471	418	12 49	53	20.7
18Q	14 23	63.3	44.6	08 48	18.7	23 20	1000	920	11 11	80	17 32	465	406	12 43	59	20.3
19Q	14 58	60.8	45.6	08 58	15.2	18 39	1016	949	12 00	67	18 40	466	399	13 03	67	20.6
20	14 45	60.3	45.8	09 04	14.5	01 51	1011	946	12 27	65	19 52	476	406	12 45	70	20.1
21Q	14 59	59.4	42.3	09 49	17.1	23 03	1013	943	12 48	70	07 59	458	401	13 18	57	20.6
22	13 30	60.9	46.5	09 00	14.4	00 43	1033M	960	13 50	73	21 41	459	407	12 45	52	20.2
23	14 47	59.6	46.5	00 30	13.1	01 10	1020	955	12 31	65	23 47	464	397	12 54	67	21.0
24	14 37	59.9	46.8	08 44	13.1	24 00	1014	951	12 40	63	00 00	459	416	13 20	43	18.9
25	14 24	58.7	46.9	04 51	11.8m	00 03	1016	943	13 10	73	00 33	453	415	11 30	38m	20.3
26	13 51	58.5	45.1	08 34	13.4	05 16	1006	966	11 51	40m	06 40	453	401	13 32	52	20.7
27	14 35	59.1	45.0	08 37	14.1	23 07	1013	959	11 21	54	23 06	457	407	12 07	50	20.5
28	13 50	58.0	43.2	09 11	14.8	19 04	1008	942	12 39	66	06 20	454	402	12 57	52	20.1
29	14 50	59.7	44.5	09 52	15.2	19 43	1012	972	11 20	40m	17 54	456	399	12 07	57	20.0
30	13 58	61.1	41.1	09 03	20.0	03 34	1015	949	11 40	66	06 02	458	389	12 20	69	20.0
31																
Jan		60.9	43.7		17.2		1011	938		73		474	407		67	

Table 7

## EXTREME VALUES OF THE MAGNETIC ELEMENTS

MAY, 1980.

Date	DECLINATION					HORIZONTAL COMPONENT					VERTICAL COMPONENT					TEMP °C						
	Maximum			Minimum		Range	Maximum			Minimum		Range	Maximum				Minimum		Range			
	G.M.T.			10° + G.M.T.			G.M.T.			1800y+ G.M.T.			G.M.T.				44000y+ G.M.T.					
h	m	'	'	h	m	'	h	m	y	y	h	m	y	h	m	y	h	m	y			
1	14	57	59.3	44.5	09	03	14.8	17	00	1027	953	12	18	74	18	15	469	405	12	55	64	20.0
2 Q	14	15	59.4	44.2	09	02	15.2	18	30	1010	947	11	30	63	07	43	458	399	13	13	59	20.3
3 Q	14	30	60.4	43.4	08	59	17.0	21	36	1006	954	11	25	52	06	10	458	397	12	23	61	20.0
4	14	03	64.0m	45.8	09	02	18.2	18	13	1011	945	12	16	66	18	40	462	392	12	54	70	20.5
5	14	27	60.1	42.3	08	23	17.8	18	21	1030	966	11	18	64	07	00	461	400	13	05	61	20.8
6	15	10	60.4	41.9	08	08	18.5	21	44	1020	936	12	26	84	20	27	473	402	12	55	71	20.1
7	15	20	62.0	43.8	08	08	18.2	18	13	1038	965	11	50	73	18	40	478	387m	13	20	91	19.0
8	14	14	59.1	44.4	09	03	14.7	24	00	1010	947	11	28	63	07	40	457	397	12	53	60	19.7
9D	14	31	61.2	44.4	07	18	16.8	20	03	1038	937	10	52	101	22	44	474	399	12	08	75	20.7
10	14	02	58.7	43.8	07	47	14.9	23	51	1026	960	11	19	66	00	52	457	397	12	26	60	21.0
11 D	13	12	63.7	38.3m	19	18	25.4M	18	36	1046M	933	10	00	113	19	16	560M	396	12	28	164M	20.7
12 D	13	57	59.4	41.2	06	57	18.2	22	13	1006	920	10	17	86	18	58	480	393	01	45	87	21.1
13	14	32	59.5	43.4	08	06	16.1	19	40	1021	938	12	09	83	21	10	479	405	12	20	74	21.5
14 D	14	34	57.1	42.9	06	28	14.2	18	36	1043	936	12	30	107	18	20	496	416	11	58	80	20.5
15	13	30	58.0	44.8	08	45	13.2	21	40	1004	938	09	28	66	05	30	461	400	12	06	61	21.0
16 Q	14	04	60.0	42.7	08	41	17.3	18	10	997	942	11	53	55	06	10	468	389	12	32	79	21.0
17 Q	14	02	59.3	43.8	07	40	15.5	19	40	1011	943	12	10	68	06	15	468	390	12	40	78	21.0
18	14	56	59.0	43.7	08	20	15.3	16	56	1006	946	11	39	60	06	49	466	406	13	20	60	21.2
19	15	02	60.2	42.4	08	15	17.8	17	39	1017	966	12	24	51	18	37	474	378m	12	50	87	21.2
20	14	35	57.2	45.5	07	35	11.7m	18	44	1014	966	10	29	48m	18	52	458	406	12	44	52m	21.0
21	14	33	57.4	44.7	08	02	12.7	17	25	1026	976	10	19	50	06	28	458	395	12	42	63	21.1
22	14	08	60.6	44.9	07	41	15.7	24	00	1021	966	12	09	55	18	20	458	387m	12	09	71	21.1
23	13	55	60.9	44.9	06	45	16.0	17	42	1022	961	12	45	61	18	10	472	390	12	22	82	21.2
24	15	21	61.8	45.0	07	32	16.8	17	50	1031	961	14	44	70	19	47	507	400	12	06	107	21.1
25D	14	49	61.0	42.2	07	32	18.8	01	10	1011	879m	10	58	132M	15	10	503	415	11	04	88	21.1
26	13	08	58.9	41.9	07	26	17.0	21	49	997	932	09	12	65	05	53	473	411	11	40	62	21.1
27 Q	14	10	57.6	42.1	09	33	15.5	23	51	995	927	10	38	68	00	33	462	392	12	20	70	22.1
28	13	52	60.2	42.8	08	13	17.4	20	36	1010	958	13	45	52	18	32	463	392	11	23	71	21.8
29	15	12	56.6	42.3	08	19	14.3	20	14	1031	953	12	55	78	06	12	467	413	11	46	54	21.0
30	15	26	60.2	40.8	07	06	19.4	19	54	1021	945	11	50	76	06	54	474	414	12	43	60	21.2
31	14	14	59.3	43.0	09	26	16.3	21	44	1037	950	09	40	87	15	45	487	409	11	54	78	22.0
Mean			59.8	43.3			16.5		1019	947				72			474	399			74	

Table 7

## EXTREME VALUES OF THE MAGNETIC ELEMENTS

JUNE, 1980.

Date	DECLINATION			HORIZONTAL COMPONENT					VERTICAL COMPONENT				TEMP °C										
	Maximum		Range	Maximum		Range	Minimum		Range	Maximum		Range		TEMP °C									
	G.M.T.	10 <sup>0</sup> +		G.M.T.	G.M.T.		1800y+	G.M.T.		G.M.T.	G.M.T.				4400y+	G.M.T.							
h	m	'	'	h	m	y	y	h	m	y	y	h	m	y									
1	14	45	61.6M	42.3	08	04	19.3	21	01	1017	925	09	45	92	17	45	504	411	09	00	93	21.7	
2	15	00	60.1	43.2	08	42	16.9	00	24	1006	946	14	23	60	18	45	474	406	12	25	68	22.2	
3	15	41	58.0	42.5	09	00	15.5	19	10	1021	925	12	44	96	20	02	465	411	12	12	54	22.2	
4	15	06	59.2	43.8	08	57	15.4	20	36	1018	958	13	42	60	19	20	465	401	12	06	64	22.5	
5 Q	15	09	56.0	43.6	08	18	12.4	06	10	1003	943	11	03	60	07	43	463	413	12	20	50	22.5	
6	14	38	60.6	45.0	07	10	15.6	23	39	1080M	953	16	05	127	23	13	463	403	12	00	60	22.3	
7 D	14	01	58.5	41.0	06	20	17.5	18	26	1043	944	11	26	99	19	56	503	403	11	10	100	23.3	
8	14	14	59.5	39.1m	02	35	20.4	19	45	1023	909	11	16	114	19	36	468	389	04	00	79	22.4	
9	14	30	57.0	41.8	08	40	15.2	21	56	1029	916	10	20	113	21	03	468	410	23	34	58	22.3	
10 D	14	31	58.8	44.8	09	05	14.0	18	33	1066	918	10	15	148	16	58	504	423	12	05	81	22.0	
11 D	20	56	59.7	40.7	08	09	19.0	20	52	1059	868m	09	38	191M	17	37	541M	361m	23	05	180M	22.0	
12 D	14	48	57.9	41.0	07	11	16.9	18	59	1053	892	09	23	161	20	00	506	409	01	46	97	22.1	
13 D	12	44	59.0	42.8	06	51	16.2	18	37	1044	898	10	55	146	18	40	521	421	11	23	100	22.1	
14	14	18	60.2	42.6	06	56	17.6	20	49	1013	936	10	50	77	18	23	482	419	11	57	63	22.1	
15	14	43	56.4	42.8	09	42	13.6	18	55	1017	948	12	47	69	19	47	467	411	12	29	56	22.2	
16	13	39	59.9	42.8	09	10	17.1	16	55	1034	948	12	12	86	19	11	484	394	11	50	90	22.1	
17 Q	14	55	55.1	44.5	09	26	10.6m	19	26	1008	963	10	35	45m	06	05	470	414	12	12	56	22.4	
18 Q	14	44	58.8	44.1	06	52	14.7	20	03	1013	946	11	45	67	05	32	462	403	12	37	59	22.5	
19	16	47	58.9	44.0	07	46	14.9	18	42	1041	953	12	26	88	19	13	473	406	12	40	67	22.4	
20	13	04	55.3	44.0	08	40	11.3	16	53	1026	965	12	22	61	06	28	462	417	12	04	45	22.0	
21	15	20	56.0	44.5	07	02	11.5	15	57	1013	968	11	28	45m	18	20	466	412	12	33	54	22.1	
22	15	25	56.8	45.4	07	13	11.4	18	03	1031	963	13	07	68	20	40	463	421	12	20	42m	22.1	
23	13	53	57.0	42.3	08	13	14.7	19	53	1021	958	11	40	63	20	30	464	410	13	03	54	22.4	
24	15	05	61.3	39.2	08	57	22.1M	05	46	1038	953	13	08	85	20	00	467	394	11	56	73	23.3	
25	15	10	57.2	43.8	07	36	13.4	20	41	1033	948	12	48	85	00	10	464	403	11	23	61	23.2	
26	14	25	60.8	40.3	08	16	20.5	18	15	1058	945	10	40	113	19	33	500	393	12	23	107	22.5	
27 Q	14	35	57.2	44.6	07	35	12.6	19	58	996	948	08	28	48	00	30	460	407	11	56	53	22.8	
28 Q	15	03	58.1	43.5	08	07	14.6	20	56	999	943	11	14	56	17	30	462	395	12	19	67	22.9	
29	14	43	58.4	43.1	09	27	15.3	23	27	1019	950	11	53	69	18	10	467	405	12	13	62	22.7	
30	13	44	59.9	40.5	07	22	19.4	20	16	1010	938	12	29	72	17	10	467	393	12	00	74	22.7	
31																							
Mean			58.4				15.7			1028	939			89			478		405			72	

EXTREME VALUES OF THE MAGNETIC ELEMENTS

Table 7

Date	DECLINATION					HORIZONTAL COMPONENT					VERTICAL COMPONENT					TEMP °C						
	Maximum			Minimum		Range	Maximum			Minimum		Range	Maximum				Minimum		Range			
	G.M.T.			10° + G.M.T.			G.M.T.			1800y+ G.M.T.			G.M.T.				4400y+ G.M.T.					
	h	m	'	'	h		m	h	m	y	y		h	m	y		h	m		y	y	h
1Q	14	32	58.5	41.0	07	32	17.5	21	58	1011	954	11	05	57	07	25	466	405	11	45	61	22.5
2Q	13	55	59.0	43.7	07	35	15.3	19	55	1019	958	11	06	61	19	50	466	406	12	44	60	22.0
3Q	14	46	57.7	41.6	08	43	16.1	17	56	1006	949	11	17	57	05	31	460	411	13	43	49	22.4
4	14	12	57.7	43.0	07	46	14.7	19	33	1024	960	11	11	64	07	41	461	397	12	05	64	22.4
5D	15	39	59.9	43.9	01	58	16.0	17	49	1037	966	10	57	71	18	36	513	406	12	48	107	22.8
6	14	10	56.9	44.9	06	50	12.0	19	10	1031	964	14	37	67	21	22	463	415	11	44	48	22.9
7	16	44	56.3	41.1	07	53	15.2	19	20	1015	946	09	00	69	21	20	467	404	12	07	63	22.9
8	16	17	56.2	42.7	09	00	13.5	18	00	1049	963	10	18	86	18	43	493	412	12	03	81	22.6
9	15	19	55.7	40.7	06	24	15.0	19	05	1010	943	10	24	67	19	16	458	411	14	05	47	22.8
10Q	14	40	58.3	44.3	06	45	14.0	20	23	1018	960	10	20	58	18	36	458	413	12	13	45	22.7
11	14	51	59.8	42.3	07	50	17.5	19	23	1024	953	10	33	71	19	07	467	404	11	54	63	23.6
12	14	58	56.5	41.5	07	13	15.0	00	05	1016	954	11	27	62	18	30	466	410	12	40	56	23.4
13	15	01	59.8	39.1	07	53	20.7	16	01	1023	946	10	16	77	17	36	482	407	12	13	75	23.0
14	14	09	58.4	42.6	08	27	15.8	19	02	1035	950	10	09	85	19	28	471	411	12	45	60	22.0
15	14	42	60.2	41.9	09	10	18.3	22	13	1018	938	10	45	80	19	00	466	393	12	31	73	22.0
16	13	45	57.9	41.9	09	05	16.0	21	25	1021	948	12	15	73	19	03	468	396	11	34	72	22.1
17	15	00	55.5	40.3	08	11	15.2	19	42	1045	956	12	10	89	06	18	465	400	12	38	65	22.0
18D	23	47	61.7	41.8	24	00	19.9	19	56	1116M	907	23	58	209M	21	35	560M	375	23	46	185	22.1
19	15	17	56.3	30.3	00	06	26.0	21	40	993	909	00	00	84	00	05	552	430	03	04	122	23.1
20	15	14	56.8	42.2	09	07	14.6	19	26	1010	939	11	28	71	07	23	478	434	12	23	44m	22.0
21	13	42	60.0	42.7	07	37	17.3	17	58	1022	946	10	19	76	17	54	495	425	13	31	70	21.7
22	15	26	57.0	40.8	08	43	16.2	19	37	1013	941	13	02	72	19	10	469	408	12	40	61	22.0
23Q	14	10	57.2	44.4	08	46	12.8	19	43	1014	962	09	00	52m	17	00	463	414	12	55	49	22.2
24	14	56	56.9	41.9	06	57	15.0	19	29	1037	950	13	15	87	20	07	461	404	12	30	57	22.4
25D	23	59	66.6M	28.5m	23	13	38.1M	17	18	1110	919	23	11	191	20	20	535	263m	23	57	272M	22.5
26D	00	00	65.7	33.5	00	20	32.2	00	30	1024	902m	00	06	122	00	20	482	275	00	00	207	22.6
27D	13	30	58.3	37.3	07	04	21.0	23	42	1026	939	11	43	87	06	38	471	411	11	32	60	22.2
28	03	56	55.1	44.2	09	28	10.9m	00	30	1019	956	09	28	63	18	30	477	425	12	10	52	22.3
29	14	31	56.1	42.8	09	16	13.3	18	07	1020	961	11	54	59	18	12	481	406	13	11	75	23.0
30	15	09	56.9	43.1	07	10	13.8	18	30	1021	964	11	47	57	18	38	478	413	12	52	65	22.6
31	13	47	54.9	43.6	07	50	11.3	19	27	1016	956	13	20	60	18	10	472	414	12	50	58	23.2
Mean			58.2	41.1			17.1			1027	947			80			479	400			80	

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89  
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Table 7

## EXTREME VALUES OF THE MAGNETIC ELEMENTS

AUGUST, 1980.

Date	DECLINATION			HORIZONTAL COMPONENT				VERTICAL COMPONENT				TEMP °C										
	Maximum		Minimum	Range	Maximum		Minimum	Range	Maximum		Minimum		Range									
	G.M.T.		10°+		G.M.T.		1800y+		G.M.T.	G.M.T.				4400y+	G.M.T.							
	h	m	'	'	h	m	y	y	h	m	y		y	h	m	y						
1 Q	13	39	54.8	45.0	06	33	9.8m	19	06	1011	971	10	56	40	18	22	465	416	13	10	49	22.2
2	14	40	56.5	43.7	08	02	12.8	20	16	1036	960	10	59	76	20	50	479	413	13	03	66	22.7
3	15	07	58.3	41.6	01	53	16.7	18	31	1013	938	14	02	75	19	09	467	417	06	59	50	22.5
4	13	44	54.9	41.6	06	43	13.3	19	20	1001	953	14	06	48	05	59	466	425	11	49	41	22.2
5 Q	13	03	54.1	43.9	08	08	10.2	20	16	1011	965	10	47	46	17	00	461	425	12	40	36m	22.2
6 D	13	52	60.8	38.9	03	14	21.9	02	06	1038	942	10	30	96	19	22	475	412	13	55	63	22.2
7	12	42	57.9	40.9	21	37	17.0	21	46	1023	962	08	56	61	18	30	483	418	11	25	65	23.0
8 Q	14	04	56.7	42.9	08	31	13.8	21	30	1018	958	10	18	60	17	34	462	403	12	38	59	23.4
9	14	33	58.8	41.9	07	29	16.9	19	59	1031	969	15	09	62	17	40	459	406	12	43	53	22.1
10	14	00	59.5	40.7	07	55	18.8	04	53	1024	941	10	28	83	17	30	467	384m	12	38	83	23.0
11	10	55	58.4	43.3	07	57	15.1	19	32	1024	947	11	34	77	18	10	461	407	12	56	54	22.8
12	14	51	56.3	42.1	00	56	14.2	00	18	1048M	959	09	50	89	07	40	463	407	12	30	56	22.5
13	15	09	58.8	42.7	08	37	16.1	16	47	1015	951	10	40	64	18	42	467	405	11	50	62	22.9
14	14	00	56.5	40.9	08	12	15.6	20	25	1012	960	12	55	52	17	52	467	412	12	26	55	22.3
15	13	49	59.1	42.6	06	52	16.5	01	34	1015	955	10	57	60	17	40	467	400	12	47	67	22.3
16 D	14	04	66.1M	42.6	08	04	23.5M	15	34	1041	945	17	44	96	17	47	533M	387	13	03	146M	22.3
17	13	22	58.3	40.9	09	06	17.4	19	28	1012	934	10	35	78	19	28	487	415	12	33	72	21.4
18 D	13	50	57.6	42.1	07	52	15.5	00	30	1011	923	09	04	88	17	00	470	408	12	15	62	22.5
19 D	15	01	63.4	40.1	08	04	23.3	19	39	1040	944	15	30	96	21	04	485	393	12	50	92	22.1
20	14	14	56.3	42.8	08	12	13.5	19	16	1020	950	09	30	70	19	10	487	406	11	47	81	23.0
21	14	00	57.6	38.2	01	34	19.4	00	40	1004	950	11	10	54	00	07	457	408	14	00	49	22.7
22	14	29	57.6	41.5	06	58	16.1	21	25	1027	957	11	41	70	19	30	479	421	11	19	58	22.1
23	13	26	55.5	43.5	08	04	12.0	20	10	1008	946	11	02	62	01	00	459	402	12	00	57	22.0
24 Q	14	00	57.2	41.7	08	55	15.5	20	10	1011	951	12	00	60	07	30	460	409	12	29	51	22.1
25	13	23	56.2	42.6	08	51	13.6	20	24	1022	955	10	07	67	23	53	468	414	11	51	54	22.0
26	14	07	56.7	35.9m	02	12	20.8	19	30	1019	947	09	23	72	01	50	468	412	12	50	56	22.1
27 D	13	28	60.5	44.4	05	43	16.1	01	50	1038	908m	11	50	130M	17	40	490	418	11	30	72	22.3
28 Q	14	18	55.7	42.2	08	26	13.5	00	05	993	954	09	14	39m	06	05	464	411	11	58	53	23.0
29	14	13	57.0	43.2	08	54	13.8	20	24	1016	951	11	14	65	21	20	465	406	12	45	59	22.7
30	14	47	56.7	42.3	08	29	14.4	00	02	1001	951	10	20	50	17	25	480	405	12	49	75	22.5
31	13	55	57.8	41.2	07	54	16.6	21	55	1013	941	09	02	72	07	30	465	407	12	53	58	22.3
Mean			57.8	41.9			15.9			1019	950			70			472	409			63	

Table 7

## EXTREME VALUES OF THE MAGNETIC ELEMENTS

SEPTEMBER, 1980.

Date	DECLINATION					HORIZONTAL COMPONENT					VERTICAL COMPONENT					TEMP °C							
	Maximum			Minimum		Range	Maximum			Minimum		Range	Maximum				Minimum		Range				
	G.M.T.			D <sup>o</sup> + G.M.T.			G.M.T.			1800y+ G.M.T.			G.M.T.				4400y+ G.M.T.						
h	m	'	'	h	m	'	h	m	y	y	h	m	y	h	m	y	h	m	y				
1	13	39	56.6	42.7	06	08	13.9	21	00	1018	949	11	06	69	00	08	455	412	11	57	43	23.2	
2 Q	13	21	56.8	42.8	08	01	14.0	00	26	1014	956	12	31	58	08	00	461	413	11	21	48	22.1	
3	13	43	57.8	42.9	08	34	14.9	21	19	1015	969	11	19	46	18	40	514	404	13	42	110M	22.3	
4 D	13	00	56.4	40.7	06	29	15.7	19	39	1003	947	11	01	56	20	10	468	417	12	50	51	23.2	
5	12	58	56.8	42.5	06	57	14.3	18	10	1000	964	09	40	36	17	52	501	409	11	07	92	22.9	
6	13	06	57.4	42.8	06	50	14.6	22	38	1004	949	09	30	55	01	09	470	407	12	10	63	23.1	
7	13	01	54.5	40.1	21	55	14.4	21	59	1023M	952	10	14	71	21	52	475	423	11	11	52	23.0	
8	12	57	55.3	42.6	07	53	12.7	01	24	1011	950	10	54	61	16	56	466	418	12	08	48	22.9	
9 D	12	57	57.3	43.7	09	14	13.6	17	19	1013	948	11	35	65	16	40	497	409	12	39	88	22.7	
10 Q	13	10	57.5	43.0	08	58	14.5	23	19	1004	943	10	42	61	16	57	476	407	11	22	69	22.8	
11	14	02	58.6	42.4	09	11	16.2	02	53	1003	944	10	54	59	16	45	473	407	12	17	66	22.8	
12 D	15	01	59.3	34.4m	21	53	24.9M	05	49	1001	931	14	00	70	21	53	524M	423	11	37	101	22.8	
13 D	12	56	60.5M	40.3	02	12	20.2	03	46	996	928m	12	40	68	17	05	474	419	12	55	55	22.7	
14	14	10	57.3	39.5	23	02	17.8	22	22	1007	942	11	39	65	22	45	479	421	12	30	58	23.0	
15	14	00	56.3	42.5	08	56	13.8	22	54	1001	951	11	11	50	17	30	475	412	12	06	63	23.0	
16	13	34	55.2	40.3	08	30	14.9	20	12	1020	956	11	00	64	20	53	470	414	12	52	56	23.0	
17 D	14	16	55.3	41.5	22	28	13.8	22	29	1017	939	10	51	78M	22	25	464	419	11	30	45	22.7	
18	15	12	51.6	43.1	08	13	8.5m	23	08	1004	965	11	14	39	19	21	458	415	13	10	43	22.8	
19	13	20	54.1	43.4	22	04	10.7	22	41	1009	963	11	40	46	22	01	473	411	12	00	62	22.8	
20	14	25	54.5	41.5	03	55	13.0	02	41	1010	965	13	12	45	23	20	454	419	12	00	35	22.6	
21 Q	15	40	52.9	43.2	09	19	9.7	19	35	1005	971	12	03	34m	00	20	455	419	13	00	36	22.8	
22	14	17	58.7	42.5	09	42	16.2	07	28	1009	953	14	55	56	17	56	467	421	13	01	46	23.2	
23	15	08	53.5	42.3	09	50	11.2	00	07	1005	958	11	13	47	17	13	457	423	12	03	34m	22.7	
24 Q	14	20	54.0	43.3	09	10	10.7	23	23	1006	967	11	30	41	17	42	460	417	12	52	43	22.6	
25	13	36	55.1	42.7	07	22	12.4	08	33	1008	961	11	07	47	19	06	464	416	11	56	48	22.8	
26 Q	14	17	57.5	41.4	09	05	16.1	23	08	1007	948	11	33	59	18	58	464	412	12	40	52	22.8	
27	14	23	56.2	40.7	09	04	15.5	19	50	1012	952	11	54	60	18	48	464	396m	12	00	68	22.5	
28	14	34	57.2	41.5	09	56	15.7	01	30	1011	967	11	57	44	22	12	463	402	12	53	61	22.2	
29	15	41	56.6	39.3	19	49	17.3	19	53	1017	965	11	44	52	19	46	494	403	12	59	91	22.0	
30	15	20	53.5	42.1	08	58	11.4	18	56	1012	954	11	57	58	08	06	459	421	12	13	38	21.1	
31																							
Mean			56.1	41.7			14.4			1009	954			55			472	414			59		

Table 7

## EXTREME VALUES OF THE MAGNETIC ELEMENTS

OCTOBER, 1980

Date	DECLINATION			HORIZONTAL COMPONENT					VERTICAL COMPONENT			TEMP °C				
	Maximum		Minimum	Range	Maximum		Minimum		Range	Maximum			Minimum	Range		
	G.M.T.	10° +	G.M.T.		G.M.T.	1800y+	G.M.T.	G.M.T.		4400y+	G.M.T.					
h m	'	'	h m	'	h m	y	y	h m	y	h m	y	h m	y			
1 Q	16 00	53.0	42.5	09 15	10.5	22 37	1013	969	14 21	44	08 00	452	417	13 21	35	22.8
2	15 10	52.6	43.6	09 23	9.0m	00 00	1011	968	11 30	43	08 41	453	407	12 33	46	21.3
3	14 31	53.6	41.2	22 06	12.4	19 46	1005	969	13 10	36m	22 03	476	412	12 50	64	23.4
4 D	15 08	59.5	41.2	20 49	18.3	04 31	1024	929	17 26	95	17 16	533	427	12 04	106	22.2
5	13 40	55.6	38.5	00 41	17.1	06 13	997	934	14 15	63	18 19	492	410	01 56	82	22.5
6	14 39	55.4	42.6	06 10	12.8	07 23	997	933	11 41	64	17 56	468	431	11 03	37	22.3
7	14 05	56.4	41.7	02 50	14.7	21 18	1000	948	11 54	52	00 04	468	413	12 50	55	21.0
8	14 59	57.0	40.9	08 48	16.1	05 50	1009	948	13 05	61	20 38	469	415	13 28	54	20.8
9	14 23	54.3	42.7	01 36	11.6	01 06	1021	948	11 22	73	19 26	479	428	12 22	51	20.1
10	16 03	58.4	38.1	21 56	20.3	22 03	1038M	950	23 44	88	21 57	590M	405	12 21	185M	21.1
11 D	07 40	56.4	32.7	02 04	23.7	04 50	1020	891	11 46	129	00 02	493	400	05 09	93	20.3
12	13 16	56.6	41.4	09 33	15.2	22 17	989	912	11 03	77	07 47	473	424	13 17	49	19.0
13	13 57	55.1	39.7	09 55	15.4	22 05	996	931	12 20	65	08 03	471	422	13 50	49	21.2
14	14 16	55.5	40.2	09 30	15.3	20 44	1014	932	11 30	82	19 57	470	420	12 03	50	19.0
15	14 07	53.9	39.9	01 32	14.0	00 32	1008	939	13 17	69	16 43	473	425	11 54	48	20.7
16	14 03	54.3	43.4	09 50	10.9	21 17	998	957	11 30	41	08 27	462	422	00 04	40	19.5
17	14 29	54.0	42.8	09 10	11.2	22 00	1007	954	12 40	53	23 58	464	423	12 13	41	19.2
18	15 14	52.0	39.3	20 05	12.7	06 07	1018	911	19 54	107	20 02	542	420	12 16	122	19.1
19	14 46	54.8	39.9	21 33	14.9	07 33	1006	945	12 55	61	18 43	495	438	13 33	57	19.9
20 Q	14 08	53.3	41.7	09 08	11.6	24 00	990	939	12 37	51	08 50	465	436	13 33	29m	23.0
21	15 00	53.5	43.5	10 34	10.0	06 44	1005	953	12 05	52	20 42	466	437	12 29	29m	24.1
22	13 56	57.5	30.8m	22 36	26.7M	22 47	1037	922	20 03	115	20 10	517	399	22 55	118	24.2
23 D	11 53	56.3	42.7	09 27	13.6	06 27	1015	885m	09 27	130M	15 17	530	397m	06 22	133	22.3
24	13 15	56.7	40.9	20 58	15.8	23 53	1011	932	12 00	79	20 53	486	430	13 15	56	22.1
25 D	14 51	55.7	33.1	22 12	22.6	22 28	1015	938	23 50	77	17 11	518	434	11 27	84	21.3
26	14 08	52.4	38.5	00 00	13.9	06 19	1003	937	11 55	66	16 19	473	434	00 34	39	23.2
27 Q	14 16	53.2	42.3	09 12	10.9	20 19	991	937	11 02	54	08 32	472	435	13 10	37	24.2
28 Q	14 19	53.0	41.5	09 56	11.5	21 10	999	936	12 04	63	08 25	466	429	12 40	37	23.9
29 Q	13 50	52.3	42.2	09 45	10.1	05 42	996	945	11 43	51	09 03	466	426	12 25	40	22.7
30	15 25	52.4	40.2	09 50	12.2	21 24	1016	936	12 03	80	09 40	466	436	17 45	30	21.9
31 D	14 42	59.8M	33.4	22 46	26.4	07 59	1023	901	19 04	122	19 13	545	425	12 35	120	21.9
Mean		54.9	40.1		14.9		1009	936		72		487	422		65	

Table 7

## EXTREME VALUES OF THE MAGNETIC ELEMENTS

NOVEMBER, 1980.

Date	DECLINATION					HORIZONTAL COMPONENT					VERTICAL COMPONENT					TEMP °C
	Maximum		Minimum		Range	Maximum		Minimum		Range	Maximum		Minimum		Range	
	G.M.T.	10° +	G.M.T.			G.M.T.	1800y+	G.M.T.			G.M.T.	4400y+	G.M.T.			
h m	'	'	h m	'	h m	y	y	h m	y	h m	y	y	h m	y		
1	14 49	53.7	43.8	08 14	9.9	05 44	997	915m	11 53	82	16 30	496	435	11 39	61	24.0
2	14 41	52.8	41.2	09 20	11.6	04 59	992	942	11 49	50	17 11	488	426	13 16	62	22.3
3 Q	15 19	51.7	42.2	09 19	9.5	07 20	992	950	14 00	42	18 27	467	434	12 30	33	20.9
4	14 38	52.7	42.5	09 22	10.2	07 13	1017	926	10 52	91M	18 48	473	443	10 30	30	17.3
5 Q	14 03	53.2	40.9	09 55	12.3	18 24	996	952	12 05	44	00 12	469	439	12 43	30	18.1
6	14 12	54.5	41.6	09 30	12.9	20 08	999	959	11 32	40	21 30	469	427	12 32	42	17.7
7 Q	14 50	52.5	41.9	09 06	10.6	20 03	999	972	12 24	27m	23 26	468	426	11 47	42	17.6
8 Q	14 31	52.5	41.3	09 32	11.2	23 10	1002	960	13 37	42	18 52	463	421	13 36	42	18.2
9	13 00	53.1	42.7	09 40	10.4	21 22	1003	966	11 24	37	17 12	466	417	12 02	49	18.3
10	13 48	58.9M	40.8	03 14	18.1	22 49	1002	947	14 02	55	03 13	470	413m	13 27	57	17.8
11 D	18 10	52.8	36.6	23 26	16.2	17 39	1005	939	19 48	66	18 54	513	420	11 23	93	15.6
12	13 15	52.2	39.6	00 00	12.6	21 15	1000	945	12 30	55	22 30	469	440	01 48	29m	16.7
13 Q	14 05	51.3	41.2	00 04	10.1	23 10	995	955	12 29	40	18 58	471	436	12 50	35	19.3
14	15 48	53.5	41.5	09 51	12.0	08 19	993	951	12 42	42	19 07	471	421	12 34	50	21.2
15 D	14 31	53.0	39.3	04 47	13.7	01 07	997	940	11 58	57	21 34	489	435	09 03	54	23.4
16	14 00	53.1	42.1	03 00	11.0	23 50	1008	936	12 43	72	16 58	486	433	05 38	53	24.1
17	14 23	51.6	41.5	22 19	10.1	23 05	1005	944	12 37	61	19 35	485	444	12 04	41	23.5
18	12 30	54.4	39.2	23 02	15.2	05 57	997	935	11 06	62	17 10	488	434	12 31	54	21.0
19	13 16	52.9	39.1	20 08	13.8	03 06	1003	943	14 51	60	20 08	488	438	02 57	50	23.1
20	16 06	54.9	40.7	19 34	14.2	19 55	1006	946	17 04	60	17 19	484	433	11 23	51	23.7
21	14 23	48.7	39.4	22 52	9.3	23 12	1015	971	11 56	44	22 53	482	438	07 02	44	22.7
22	14 22	50.7	41.6	22 51	9.1m	23 00	1002	970	13 03	32	22 50	466	437	12 03	29m	23.1
23	18 37	52.7	39.8	23 38	12.9	23 43	1003	969	12 33	34	19 16	482	434	11 53	48	23.0
24	13 55	51.9	41.3	05 47	10.6	23 22	1011	958	12 27	53	20 33	475	436	11 08	39	23.0
25	13 50	52.5	37.9	19 52	14.6	07 38	1022m	963	19 30	59	19 36	505	426	11 27	79	20.0
26 D	14 01	51.8	40.7	00 32	11.1	08 10	1011	936	12 24	75	00 32	477	423	12 06	54	17.8
27	17 08	54.5	32.5	02 05	22.0	07 30	1014	944	17 15	70	19 58	513	430	02 48	83	20.0
28 D	13 28	51.4	34.2	01 47	17.2	07 33	996	927	13 00	69	21 35	491	420	01 17	71	18.6
29	13 30	50.3	37.1	21 52	13.2	06 45	1001	947	13 40	54	21 32	501	441	03 09	60	14.7
30 D	16 57	52.0	26.5m	23 43	25.5M	02 13	1015	928	22 39	87	18 21	531M	415	02 16	116M	14.8
31																
Mean		52.7	39.7		13.0		1003	948		55		483	431		53	

Table 7

## EXTREME VALUES OF THE MAGNETIC ELEMENTS

DECEMBER, 1980.

Date	DECLINATION			HORIZONTAL COMPONENT			VERTICAL COMPONENT			TEMP °C			
	Maximum		Range	Maximum		Range	Maximum		Range				
	G.M.T.	10 <sup>0</sup> +		G.M.T.	18000y+		G.M.T.	44000y+			G.M.T.		
h m '	' h m	'	h m y	y h m	y	h m y	y h m	y					
1D	03 13	52.3	30.4 00 29	21.9	03 16	1011	947 00 12	64	20 20	463	400m 03 12	63	16.1
2	14 44	50.6	40.8 22 15	9.8	19 11	997	963 13 07	34	22 15	474	441 13 34	33	20.0
3D	13 57	51.4	38.3 03 30	13.1	03 22	997	947 18 06	50	18 08	499	432 10 20	67	18.0
4	13 07	48.8	40.2 03 41	8.6	03 49	997	959 13 16	38	03 40	471	447 05 19	24	17.3
5Q	14 02	49.0	43.7 09 10	5.3m	22 40	993	974 11 33	19m	02 10	460	440 11 20	20	19.8
6Q	13 00	50.4	43.3 09 04	7.1	20 36	1001	974 10 45	27	03 06	457	438 10 40	19m	19.0
7	14 36	49.9	43.7 06 37	6.2	21 57	1009	970 11 23	39	22 46	469	443 10 39	26	16.4
8	15 10	49.7	41.0 23 38	8.7	05 43	1009	972 23 28	37	23 39	474	438 11 56	36	14.7
9	15 25	50.9	39.9 23 09	11.0	20 22	999	968 12 35	31	23 10	478	433 12 43	45	19.0
10	15 10	49.4	37.8 03 51	11.6	03 25	1004	965 12 46	39	03 19	474	427 12 22	47	21.2
11	17 14	53.0	37.4 22 19	15.6	19 15	1016	964 24 00	52	22 18	497	429 12 43	68	21.3
12	14 25	49.7	26.2m 01 09	23.5	19 47	1004	942 00 25	62	00 48	499	437 13 23	62	21.6
13	14 17	50.0	44.0 09 28	6.0	07 28	996	958 11 20	38	21 45	458	438 12 13	20	21.6
14	17 52	53.7	39.3 23 08	14.4	07 30	1002	961 18 10	41	18 36	480	431 11 57	49	22.0
15	17 32	51.0	42.2 23 32	8.8	05 32	1011	962 12 18	49	20 23	469	436 05 12	33	19.2
16	17 54	52.9	42.1 10 34	10.8	06 15	1006	937 16 16	69	16 39	500	438 02 42	62	19.4
17Q	15 11	49.1	42.7 09 11	6.4	23 25	996	963 12 10	33	16 30	462	443 10 42	19m	21.7
18	14 47	51.2	42.0 17 46	9.2	07 06	1007	938 17 30	69	17 40	496	437 07 20	59	18.4
19D	16 59	71.1M	29.2 22 41	41.9M	05 53	1027M	794m 20 11	233M	17 04	768M	406 12 52	362M	19.3
20D	05 27	52.2	37.3 00 27	14.9	20 30	982	880 00 03	102	14 58	486	442 03 59	44	20.1
21D	15 36	50.9	35.2 20 41	15.7	08 20	998	938 20 31	60	19 27	506	446 02 23	60	19.2
22	15 14	49.1	38.4 02 07	10.7	20 46	993	955 12 16	38	00 00	476	446 11 15	30	21.6
23	15 59	48.9	42.0 10 23	6.9	07 55	998	967 11 52	31	18 25	465	445 11 10	20	21.8
24Q	14 26	48.8	41.8 09 41	7.0	22 30	1000	978 11 10	22	16 40	457	434 12 35	23	21.8
25	14 40	49.3	34.9 22 41	14.4	06 26	1018	980 23 12	38	22 32	487	431 13 09	56	19.2
26	14 52	48.9	42.7 09 24	6.2	07 56	1008	979 12 36	29	20 17	458	437 12 15	21	17.9
27	13 35	50.4	43.3 09 14	7.1	07 41	1014	953 11 46	61	20 20	466	441 12 12	25	18.9
28Q	14 05	48.8	43.0 09 07	5.8	07 01	999	973 14 35	26	06 18	458	432 13 25	26	20.5
29	15 10	52.4	40.2 23 33	12.2	07 36	1006	962 23 33	44	23 33	476	429 12 59	47	20.7
30	13 23	50.5	39.0 00 55	11.5	07 39	1003	951 12 40	52	21 31	466	429 13 21	37	21.0
31	19 04	52.0	39.3 02 17	12.7	01 33	1003	945 21 03	58	21 10	501	439 04 58	62	20.9
Mean		51.2	39.4	11.8		1003	952	51		485	435	50	

Table 8

## DIURNAL VARIATION - ALL DAYS - DECLINATION (Tenths of Minutes)

1980

Hr. MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13	to 14	to 15	to 16	to 17	to 18	to 19	to 20	to 21	to 22	to 23	to 24
Jan.	-19	-18	-15	-13	-9	-8	-8	-10	-15	-24m	-18	-4	12	31	40M	36	28	24	22	13	2	-7	-16	-19
Feb.	-19	-17	-16	-16	-17	-16	-16	-15	-16	-24m	-18	-1	18	34	42M	38	28	21	18	15	3	-4	-9	-17
Mar.	-10	-10	-12	-18	-20	-19	-22	-30	-41	-46m	-28	4	32	51	58M	49	31	18	12	8	4	1	-4	-10
Apr.	-10	-12	-15	-14	-21	-21	-28	-41	-58	-64m	-42	-5	34	66	76M	67	48	29	13	3	6	6	-1	-3
May	-1	-3	-6	-11	-20	-31	-51	-66	-68m-59	-36	2	39	65	73M	61	46	30	13	8	9	7	5	4	
June	-7	-7	-14	-21	-26	-35	-53	-64m	-64m-53	-31	2	36	56	68M	65	50	36	22	11	6	6	6	6	
July	-4	-5	-8	-14	-22	-40	-57	-65m	-65m-54	-29	4	37	61	71M	66	52	36	18	8	6	5	4	-1	
Aug.	-11	-15	-18	-22	-26	-36	-50	-56	-57m-43	-15	18	49	72	74M	58	39	21	6	0	4	0	1	-3	
Sept.	-17	-17	-15	-21	-25	-28	-34	-42	-47m-41	-18	16	48	64	66M	54	36	21	10	5	1	-3	-10	-15	
Oct.	-19	-21	-19	-17	-15	-15	-14	-16	-28	-37m	-25	1	33	54	61M	52	39	22	15	8	-4	-12	-22	-22
Nov.	-19	-16	-14	-12	-11	-11	-13	-12	-18	-27m	-17	6	30	44	47M	41	32	23	14	1	-6	-16	-20	-25
Dec.	-24m-19	-12	-11	-8	-5	-5	-7	-12	-22	-17	-3	14	28	36	37M	26	24	20	10	-4	-11	-23	-22	
Year	-13	-13	-13	-16	-18	-22	-29	-35	-40	-41m	-24	4	32	52	60M	52	38	26	15	8	3	-2	-7	-10
Winter	-20	-17	-14	-13	-11	-10	-10	-11	-15	-24m	-17	0	19	34	42M	38	28	23	19	10	-1	-9	-17	-21
Equinox	-14	-15	-16	-18	-20	-21	-25	-32	-43	-47m	-29	4	36	58	65M	55	39	22	12	6	2	-2	-10	-13
Summer	-6	-8	-12	-17	-23	-35	-53	-63m	-63m-53	-28	6	40	63	72M	62	47	30	14	7	6	4	4	1	

Table 9

## DIURNAL VARIATION - ALL DAYS - HORIZONTAL COMPONENT (Gamma Units)

1980

Hr. MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13	to 14	to 15	to 16	to 17	to 18	to 19	to 20	to 21	to 22	to 23	to 24
Jan.	3	3	3	6	7	9	10M	10M	7	0	-8	-13	-15m	-11	-8	-6	-3	0	1	1	0	0	4	3
Feb.	5	3	4	6	8	9	11M	11M	9	1	-7	-13	-14m	-13	-10	-8	-7	-3	0	-1	0	2	4	7
Mar.	8	8	8	8	8	9M	9M	8	2	-8	-17	-23	-24m	-20	-15	-9	-5	0	3	6	9M	9M	8	8
Apr.	9	9	7	7	6	7	8	6	-2	-13	-27	-35m	-34	-27	-16	-5	4	12	13M	12	12	12	13M	13M
May	11	9	8	7	7	8	5	-3	-12	-21	-27	-30m	-27	-23	-14	-4	6	16	18M	17	17	18M	15	11
June	6	4	3	4	5	5	1	-7	-17	-26	-32	-34m	-29	-22	-14	-3	10	18	26	27M	25	19	16	13
July	7	6	5	4	5	4	0	-8	-18	-25	-30m	-28	-24	-18	-11	-3	8	17	21	25M	23	17	13	10
Aug.	12	10	9	8	7	6	1	-7	-17	-26	-29m	-27	-22	-15	-9	-5	1	6	12	18	19M	18	15	13
Sept.	8	8	9	9	8	8	5	1	-6	-15	-23	-26m	-23	-17	-9	-5	1	6	9	12	13M	12	12	10
Oct.	8	9	9	10	13	14	15M	12	5	-9	-20	-28m	-28m	-22	-15	-9	-4	-1	2	2	4	8	9	6
Nov.	7	6	6	7	8	10	12M	12M	6	-3	-12	-18	-21m	-18	-13	-9	-5	0	1	2	5	6	6	9
Dec.	1	1	2	4	5	9	11M	11M	8	1	-5	-11m	-11m	-8	-7	-4	-3	-4	-2	-1	-1	0	0	0
Year	7	6	6	7	7	8	7	4	-3	-12	-20	-24m	-23	-18	-12	-6	0	5	9	10M	10M	10M	9	8
Winter	4	4	4	6	7	9	11M	11M	8	0	-8	-13	-15m	-12	-9	-6	-4	-1	0	1	1	2	4	5
Equinox	9	9	8	9	9	10	10	7	0	-11	-21	-28m	-27	-21	-13	-6	-1	4	7	9	9	11M	11M	10
Summer	9	7	6	6	6	6	2	-6	-16	-25	-29m	-29m	-25	-19	-12	-4	6	14	19	22M	21	18	15	12

Table 10

## DIURNAL VARIATION - ALL DAYS - VERTICAL COMPONENT (Gamma Units)

1980

Hr. MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13	to 14	to 15	to 16	to 17	to 18	to 19	to 20	to 21	to 22	to 23	to 24
Jan.	2	1	0	-2	-3	-3	-2	-2	-2	-3	-6	-11	-15m	-15m	-7	1	6	7	8	10	11M	10	8	5
Feb.	3	2	0	-1	-2	-3	-3	-4	-3	-3	-8	-14	-15m	-12	-6	2	9	10	9	11	12M	11	8	5
Mar.	3	3	4	3	2	2	2	4	4	-2	-12	-23	-26m	-20	-10	0	9	11M	10	9	7	7	7	5
Apr.	3	1	1	0	2	1	3	6	6	-3	-15	-27	-33m	-29	-16	-2	9	17	19M	17	10	8	7	4
May	4	3	4	5	6	10	13	10	3	-8	-22	-35	-39m	-30	-15	0	9	16	21M	19	12	9	6	5
June	1	0	2	3	5	7	9	6	0	-11	-21	-32	-33m	-25	-12	0	12	18	22M	22M	17	10	6	1
July	1	1	1	1	5	9	11	9	4	-7	-19	-31	-34m	-29	-18	-3	8	16	22M	19	14	9	6	2
Aug.	4	2	1	2	4	8	9	8	4	-6	-18	-28	-32m	-27	-14	2	13	18M	18M	14	9	7	4	4
Sept.	4	4	3	3	2	4	5	6	4	-5	-16	-26	-29m	-24	-13	0	11	16M	15	12	10	9	7	6
Oct.	2	0	-2	-3	-4	-5	-5	-4	1	0	-8	-17	-20m	-18	-9	3	10	14M	12	13	13	11	7	3
Nov.	0	-1	-3	-3	-3	-3	-3	-4	-2	-2	-9	-14	-15m	-11	-4	4	9	10	11M	11M	10	10	7	4
Dec.	1	-1	-3	-4	-5	-5	-5	-4	-4	-2	-6	-9	-11m	-10	-4	4	10	11M	11M	11M	11M	8	8	4
Year	2	1	0	0	0	2	2	2	1	-5	-14	-23	-26m	-21	-11	0	9	13	14M	14M	11	9	6	4
Winter	2	0	-1	-2	-3	-3	-3	-3	-2	-2	-7	-12	-14m	-11	-5	3	9	10	10	11M	11M	10	8	5
Equinox	3	3	2	1	1	1	2	4	4	-2	-12	-22	-27m	-22	-12	1	10	15M	14	13	11	9	7	5
Summer	3	2	2	3	5	9	11	9	3	-8	-20	-31	-34m	-28	-14	0	10	17	21M	19	13	9	6	3

Table 11

DIURNAL VARIATION - QUIET DAYS - DECLINATION (Tenths of Minutes)

1980

Hr. MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13	to 14	to 15	to 16	to 17	to 18	to 19	to 20	to 21	to 22	to 23	to 24	to Q
Jan.	-2	-1	0	2	1	-3	-8	-14	-22	-33m	-24	-12	3	21	31M	23	16	14	10	10	3	-3	-3	0	1
Feb.	-6	-4	-4	-5	-8	-11	-15	-21	-28	-40m	-35	-13	13	26	35M	30	24	19	14	11	9	2	0	-2	-3
Mar.	-5	-4	-6	-12	-16	-18	-23	-31	-45	-49m	-33	-2	32	49	51M	41	27	14	8	8	6	4	2	-3	-4
Apr.	-8	-9	-14	-11	-13	-19	-32	-49	-68	-72m	-53	-17	22	61	77M	67	48	29	16	12	10	7	2	1	3
May	6	5	4	-3	-11	-20	-41	-60	-76m	-74	-49	-9	30	64	72M	59	39	21	8	6	8	6	7	9	10
June	4	4	0	-7	-15	-28	-46	-56	-57m	-49	-32	-8	24	46	61M	57	42	22	9	6	5	5	6	8	3
July	-9	-11	-11	-13	-22	-39	-57	-65m	-65m	-53	-29	3	38	66	76M	66	46	28	17	9	5	6	6	0	-1
Aug.	-5	-8	-9	-13	-17	-30	-44	-52m	-52m	-37	-11	18	43	59	61M	47	28	11	-1	-2	3	-1	2	3	3
Sept.	-9	-9	-9	-13	-16	-19	-24	-38	-49m	-45	-25	12	46	61M	61M	45	27	9	2	0	3	-1	-5	-6	-9
Oct.	-11	-12	-11	-10	-8	-10	-14	-21	-36	-49m	-40	-11	21	44	47M	41	30	20	12	9	5	3	-2	-6	-10
Nov.	-21	-11	-10	-9	-8	-10	-13	-17	-29	-45m	-35	-7	23	41	46M	41	31	24	15	8	2	-4	-6	-13	-9
Dec.	-10	-8	-6	-6	-7	-8	-11	-14	-18	-26m	-17	2	14	21	25M	23	17	15	11	7	2	-4	-5	-6	-4
Year	-6	-5	-6	-8	-11	-17	-27	-36	-45	-47m	-31	-3	26	47	54M	46	32	19	11	8	6	2	1	-1	-1
Winter	-9	-6	-5	-4	-5	-7	-12	-16	-24	-36m	-28	-7	13	27	35M	30	22	18	13	9	4	-2	-3	-5	-3
Equinox	-8	-8	-9	-11	-12	-16	-22	-34	-49	-53m	-37	-3	31	54	60M	49	34	19	10	8	7	4	0	-3	-4
Summer	-1	-3	-4	-9	-16	-29	-47	-58	-63m	-54	-31	1	33	59	67M	57	38	20	8	5	5	4	5	4	4

Table 12

## DIURNAL VARIATION - QUIET DAYS - HORIZONTAL COMPONENT (Gamma Units)

1980

Hr. MONTH	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	24 to 01
Jan.	6	5	5	5	6	8	8	7	2	-7	-15	-18m	-17	-12	-8	-5	-2	-1	1	4	5	7	10M	9	9
Feb.	4	4	4	5	6	7	9M	9M	7	-2	-11	-14	-16m	-16m	-13	-11	-7	-3	1	4	7	8	8	8	9
Mar.	7	6	6	6	6	6	7	5	-2	-13	-21	-22m	-19	-14	-10	-4	0	2	6	9	11	12M	12M	12M	12
Apr.	7	6	7	7	8	9	9	7	-2	-14	-27	-37m	-36	-29	-18	-7	3	11	15	16	18M	18M	18M	18M	18
May	10	9	9	7	8	9	6	0	-12	-25	-32	-36m	-34	-26	-14	-2	9	16	17	18M	16	17	17	16	16
June	5	4	4	3	5	7	6	0	-9	-20	-28	-31m	-28	-23	-12	-3	7	13	15	17M	17M	16	14	13	11
July	5	3	3	5	5	4	-2	-10	-18	-25	-28m	-28n	-20	-16	-10	0	9	12	18	20M	18	16	16	12	10
Aug.	7	4	7	4	3	3	-1	-7	-14	-20	-22m	-21	-17	-12	-9	-4	2	8	13	16	18M	17	16	14	15
Sept.	10	10	8	7	7	9	6	2	-3	-11	-22	-27m	-26	-20	-12	-7	-2	3	6	12	13M	13M	13M	13M	12
Oct.	8	8	7	7	9	10	10	8	3	-11	-24	-31m	-31m	-23	-14	-6	0	5	9	12	14M	14M	13	14M	14
Nov.	3	3	3	5	6	7	7	7	4	-4	-14	-20	-21m	-19	-12	-6	-1	4	4	7	9M	8	9M	9M	8
Dec.	0	-1	0	1	1	0	4	5	1	-5	-10m	-10m	-9	-4	-4	-2	0	2	1	5	8	8	9M	9M	8
Year	6	5	5	5	6	6	6	2	-4	-13	-21	-25m	-23	-18	-12	-5	1	6	9	12	13M	13M	13M	12	11
Winter	3	3	3	4	5	6	7	7	4	-5	-13	-16m	-16m	-13	-9	-6	-3	0	2	5	7	8	9M	8	8
Equinox	8	7	6	6	7	8	8	5	-1	-13	-24	-30m	-28	-22	-14	-6	0	5	9	12	14M	14M	14M	14M	14
Summer	7	5	6	5	5	6	2	-4	-13	-22	-28	-29m	-25	-19	-11	-2	7	12	16	18M	17	17	16	14	13

Table 13

## DIURNAL VARIATION - QUIET DAYS - VERTICAL COMPONENT (Gamma Units)

1980

Hr. MONTH	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	24 to 01
Jan.	1	1	1	1	2	2	3	4	5M	3	-2	-7	-13m	-13m	-7	2	4	4	3	4	4	4	1	-1	-1
Feb.	3	3	3	3	4	3	3	3	4	3	-4	-13	-16m	-14	-9	-3	1	5M	4	2	3	4	3	2	2
Mar.	4	5	6	6	6	6	5	6	7M	1	-10	-22	-26m	-20	-9	-1	6	6	4	2	1	1	2	3	2
Apr.	6	7	8	6	7	8	10	12	10	-1	-14	-27	-35m	-32	-18	-4	7	13M	13M	10	8	6	5	3	1
May	6	9	10	11	12	16	18M	16	10	-5	-20	-37	-45m	-39	-20	-4	7	14	16	11	7	6	3	2	2
June	6	7	7	8	11	13M	13M	11	6	-5	-16	-31	-35m	-29	-16	-5	5	12	13M	12	9	5	5	3	3
July	5	5	4	5	9	13	13	11	5	-8	-19	-29	-32m	-28	-16	-3	7	13	15M	13	10	4	3	3	3
Aug.	6	6	5	5	8	12	13M	11	6	-5	-16	-26	-29m	-26	-15	-1	10	12	13M	9	5	4	1	2	1
Sept.	3	3	4	6	5	5	7	9	8	-2	-14	-25	-28m	-22	-10	2	9	13M	10	7	3	3	4	3	3
Oct.	2	2	3	1	1	3	4	6	10M	6	-4	-14	-19m	-18	-10	-3	2	5	5	4	4	3	4	2	2
Nov.	5	3	3	2	2	2	1	0	2	0	-8	-14	-18m	-15	-8	0	4	6M	6M	4	4	5	4	5	2
Dec.	3M	3M	2	1	1	1	1	1	1	0	-6	-9	-10m	-9	-4	0	3M	2	2	2	2	2	1	0	-1
Year	4	4	4	5	5	7	7	7	6	-1	-11	-21	-26m	-22	-12	-2	5	9M	8	6	5	4	3	2	1
Winter	3	3	2	2	2	2	2	2	3	2	-5	-10	-14m	-13	-7	0	3	4M	3	3	4M	4M	2	2	1
Equinox	4	4	5	5	5	5	6	8	9M	1	-11	-22	-27m	-23	-12	-2	6	9M	8	5	4	3	3	2	2
Summer	5	6	6	7	9	13	14M	12	6	-6	-18	-31	-36m	-31	-17	-4	7	12	14M	11	7	4	2	2	2

Table 14

## DIURNAL VARIATION - DISTURBED DAYS - DECLINATION (Tenths of Minutes)

1980

Hr. MONTH	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	24 to 01
Jan.	-45	-55	-50	-36	-21	-19	-13	-13	-6	-11	-9	8	23	50	58	70M	61	50	60	34	-3	-27	-54	-57m	-68
Feb.	-14	-17	-28	-29	-36	-25	-11	-1	5	-7	-3	13	23	41	53M	51	34	30	19	5	-20	-18	-24	-39m	-10
Mar.	-19	-22	-31	-58m	-52	-27	-20	-23	-25	-35	-17	21	40	57	77M	69	46	25	18	6	-2	-4	-10	-19	-12
Apr.	-15	-23	-36	-30	-43	-23	-20	-14	-41	-57m	-35	1	42	73	89M	87	59	32	13	-15	-4	-6	-24	-20	-35
May	-6	-9	-13	-22	-41	-47	-63	-70m	-52	-39	-20	17	55	72	77M	59	43	26	1	1	14	12	9	5	-18
June	-18	-17	-23	-40	-43	-47	-57	-59m	-52	-25	-1	29	54	60	69M	59	42	29	16	2	3	3	2	11	-21
July	-5	-14	-18	-22	-33	-57	-71m	-68	-63	-54	-28	7	43	71	82M	75	61	50	19	14	12	2	3	-6	-18
Aug.	-9	-11	-22	-46	-40	-48	-57	-61m	-57	-42	-17	18	51	88	100M	76	54	30	10	-2	3	0	1	-11	-17
Sept.	-31	-26	-24	-35	-37	-40	-42m	-41	-36	-25	2	40	69	78M	77	60	38	19	5	4	-1	-8	-26	-22	-27
Oct.	-41	-43	-48	-28	-25	-12	4	23	7	-9	0	18	51	62	76M	52	52	22	5	-3	-17	-39	-55	-57m	-37
Nov.	-18	-25	-25	-26	-24	-9	0	1	-2	-3	-4	13	32	40	47M	42	38	27	-1	3	-4	-22	-33	-40m	-43
Dec.	-50m	-28	-18	-15	0	6	7	0	-5	-15	-10	-2	19	40	54	67M	39	34	36	3	-33	-34	-47	-40	-33
Year	-23	-24	-28	-32	-33m	-29	-29	-27	-27	-27	-12	15	42	61	71M	64	47	31	17	4	-4	-12	-21	-26	-28
Winter	-32	-31	-30	-27	-20	-12	-5	-3	-2	-9	-7	8	24	43	53	57M	43	35	28	11	-15	-26	-40	-46m	-39
Equinox	-26	-28	-34	-37	-39m	-25	-19	-13	-23	-31	-12	20	51	68	80M	67	49	25	11	-2	-6	-14	-28	-29	-27
Summer	-10	-13	-19	-33	-39	-50	-62	-65m	-56	-40	-17	17	51	73	82M	67	50	33	11	4	8	4	4	-1	-19

Table 15

## DIURNAL VARIATION - DISTURBED DAYS - HORIZONTAL COMPONENT (Gamma Units)

1980

Hr. MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13	to 14	to 15	to 16	to 17	to 18	to 19	to 20	to 21	to 22	to 23	to 24	to 01
Jan.	8	8	7	13	15	19	20	21M	19	13	4	-6	-12	-8	-4	-1	-12	-4	-5	-14	-25	-28m	-13	-15	-14
Feb.	15	11	12	17	21M	20	21M	17	12	5	-4	-11	-15	-12	-14	-18	-22m	-16	-7	-11	-12	-8	-3	4	-1
Mar.	18	17	17	16	16	19M	19M	14	6	-9	-20	-29	-34m	-31	-23	-16	-8	0	1	0	4	8	10	15	9
Apr.	7	15	4	7	9	4	7	9	2	-12	-31	-36m	-35	-29	-12	2	7	18M	17	11	9	5	10	9	5
May	15	19	16	17	12	9	3	-8	-18	-28	-38m	-36	-28	-27	-15	-11	2	14	21M	18	20	18	16	3	1
June	5	3	8	6	2	-1	-11	-24	-44	-51m	-51m	-46	-27	-14	-8	-1	23	41	58M	46	38	21	14	6	-6
July	3	3	1	1	4	5	0	-8	-14	-22	-30m	-27	-26	-22	-14	-4	15	35	23	35	39M	15	1	-2	-9
Aug.	18	21	22M	9	3	9	5	-3	-18	-31	-33	-34m	-29	-12	2	2	-8	-2	6	17	15	16	13	11	6
Sept.	8	6	14	14	11	12	8	4	-6	-20	-29	-30m	-25	-23	-12	-8	1	6	10	15M	15M	13	12	6	6
Oct.	11	15	18	18	27M	25	23	19	11	-6	-14	-24m	-24m	-23	-18	-17	-19	-17	-14	-9	-1	5	8	-1	1
Nov.	12	12	12	5	6	12	14	16M	10	3	-2	-11	-22m	-17	-12	-8	-5	0	-8	-9	-4	-2	-2	1	0
Dec.	-3	2	6	9	7	18	24M	21	20	13	7	0	-1	-2	-8	1	-2	-16	-16	-14	-21m	-19	-15	-10	-4
Year	10	11	10	11	11	13M	11	7	-2	-12	-20	-24m	-23	-18	-12	-7	-2	5	7	7	6	4	4	2	0
Winter	8	8	9	11	12	17	19M	18	15	8	1	-8	-13	-10	-10	-7	-11	-10	-9	-13	-16m	-15	-9	-5	-5
Equinox	11	13	13	14	16M	15	14	11	3	-12	-24	-30m	-30m	-27	-17	-10	-5	2	3	4	6	8	10	7	5
Summer	10	11	11	8	5	5	-1	-11	-24	-33	-38m	-36	-28	-19	-9	-4	8	22	27	29M	28	17	11	4	-2

Table 16

## DIURNAL VARIATION - DISTURBED DAYS - VERTICAL COMPONENT (Gamma Units)

1980

Hr. MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	to 1	to 2	to 3	to 4	to 5	to 6	to 7	to 8	to 9	to 10	to 11	to 12	to 13	to 14	to 15	to 16	to 17	to 18	to 19	to 20	to 21	to 22	to 23	to 24	to 01
Jan.	-1	-4	-8	-14	-15	-14	-13	-12	-13	-12	-12	-18	-21m	-21m	-10	-1	11	16	19	33	38M	32	25	16	10
Feb.	-6	-4	-8	-14	-19	-21m	-21m	-21m	-15	-11	-13	-13	-10	-7	0	14	30M	27	21	30M	27	19	10	2	-1
Mar.	2	3	0	-3	-9	-15	-12	-6	-4	-4	-14	-26m	-26m	-16	-6	7	19	24M	22	24M	20	14	11	4	-1
Apr.	1	-3	-3	-8	-7	-11	-6	-4	2	-4	-17	-30	-34m	-30	-20	0	20	36	39M	35	18	16	13	3	0
May	-4	-13	-10	-10	-8	-1	6	4	-3	-8	-19	-30	-35m	-20	-2	13	19	26	34M	32	17	11	4	5	3
June	-10	-11	-8	-5	-6	-6	-6	-11	-17	-25	-28	-32m	-28	-11	2	20	34	38	42M	39	25	15	3	-13	-4
July	-6	-4	-3	-4	2	7	7	3	-2	-12	-25	-36	-37m	-27	-16	-1	9	21	34M	29	25	25	16	-2	-1
Aug.	2	-3	-7	-3	-2	2	3	1	-3	-12	-23	-32	-37m	-32	-14	12	24	30M	29	24	15	8	5	5	4
Sept.	7	4	-1	-4	-4	-2	0	-2	-5	-11	-19	-28m	-28m	-22	-11	7	21	26M	22	16	13	13	9	7	5
Oct.	-1	-3	-7	-14	-17	-23	-26	-27m	-18	-13	-16	-19	-17	-7	5	28	30	37M	31	25	20	16	8	-1	-6
Nov.	-3	-7	-13	-8	-6	-8	-7	-6	-3	-7	-1	-16m	-14	-11	-5	1	6	11	23M	18	18	19	12	9	-1
Dec.	-7	-14	-17	-21m	-31m	-20	-20	-18	-15	-13	-15	-15	-16	-11	-2	22	34	44M	36	36	29	12	6	0	-5
Year	-2	-5	-8	-9	-10	-10	-8	-8	-8	-11	-18	-25	-26m	-18	-7	10	21	28	29M	28	22	16	10	3	0
Winter	-4	-7	-12	-14	-15	-16m	-15	-14	-11	-11	-13	-15	-15	-12	-4	9	20	24	25	29M	28	21	13	7	1
Equinox	2	0	-3	-7	-9	-13	-11	-10	-6	-8	-17	-26	-27m	-19	-8	10	22	31M	28	25	18	14	10	3	-1
Summer	-4	-7	-7	-5	-3	1	3	0	-6	-14	-24	-32	-34m	-22	-7	11	22	29	35M	31	21	15	7	-1	1

Table 17 Three-Hour Range Indices, K.

Date	January			February			March			April		
	K		K Sum	K		K Sum	K		K Sum	K		K Sum
1	2223	3355	25	1122	3243	18	1111	1110	7	2123	2210	13
2	4222	3212	18	2222	3201	14	1001	1111	6	1122	2212	13
3	2413	3233	21	0012	3011	8	0002	1221	8	1233	3221	17
4	2323	3332	21	0013	2010	7	1012	1112	9	0123	3320	14
5	2112	2233	16	0112	2110	8	2321	1110	11	1133	3310	15
6	2321	2210	13	0344	4451	25	1113	3221	14	0233	5442	23
7	0011	1113	8	1122	3233	17	3113	2212	15	3133	3344	24
8	2223	1110	12	3433	3323	24	1123	2111	12	3233	3312	20
9	1111	1110	7	1223	3332	19	2121	2311	13	3435	2311	22
10	0110	3010	6	1111	2110	8	1012	2110	8	3533	3322	24
11	1223	3233	19	0102	2110	7	2012	2111	10	3243	3454	28
12	0112	2110	8	0002	2111	7	0011	1110	5	4324	4435	29
13	0131	2122	12	0002	2111	7	1121	2123	13	4233	3322	22
14	0014	3443	19	0224	3332	19	1112	1210	9	1133	3333	20
15	3222	2121	15	1212	3256	22	0012	0102	6	4333	3334	26
16	4222	2100	13	5442	3233	26	1122	2212	13	3133	2323	20
17	1143	3311	17	1111	2111	9	1123	3201	13	3422	3212	19
18	1112	2111	10	3112	2233	17	1032	1201	10	0123	3312	15
19	2012	3211	12	3320	1111	12	0033	3211	13	0012	2312	11
20	3111	3113	14	2122	2212	14	1113	1212	12	2223	2332	19
21	2102	3111	11	2112	1111	10	1433	3254	25	1133	3221	16
22	0011	2231	10	1102	2111	9	2333	4323	23	3122	2213	16
23	2011	3110	9	1112	3343	18	1223	2210	13	2112	2213	14
24	1002	3221	11	2212	2210	12	0123	2301	12	2212	2222	15
25	0002	3233	13	1012	3334	17	1012	3224	15	3213	3200	14
26	1212	2123	14	3212	4221	17	4533	3324	27	0221	2211	11
27	2312	4455	26	1223	3333	20	2022	3212	14	0121	2203	11
28	3322	3454	26	2121	1123	13	2233	3312	19	1123	2311	14
29	5421	4443	27	2103	2222	14	2133	3212	17	1122	3211	13
30	3113	3211	15				3333	3213	21	1333	3321	19
31	1112	3113	13				3333	3313	22			

Table 17 (Contd.)

Three-Hour Range Indices, K.

Date	May			June			July			August		
	K		K Sum	K		K Sum	K		K Sum	K		K Sum
1	2233	3320	18	3333	3434	26	1221	2211	12	1111	1111	8
2	1233	2210	14	3122	3321	17	0012	2221	10	0112	2333	15
3	0033	2211	12	2032	3332	18	1112	2310	11	4332	3331	22
4	0133	3320	15	1122	2322	15	0022	2412	13	1122	3310	13
5	0133	2323	17	1132	1200	10	3413	3331	21	1011	1211	8
6	3323	3333	23	1112	3434	19	2112	4322	17	4422	4333	25
7	1132	3341	18	3333	3543	27	3233	2322	20	2222	2224	18
8	3332	2212	18	4433	3231	23	4221	1433	20	2111	2112	11
9	3223	3243	22	2123	2334	20	2321	1220	13	1111	3332	15
10	3222	2132	17	3332	3444	26	0221	1211	10	2333	2220	17
11	3133	3455	27	3253	4445	30	2222	3222	17	2113	2323	17
12	4432	2323	23	4243	2434	26	2222	2312	16	4221	2211	15
13	1222	1334	18	3433	2443	26	2242	3321	19	1022	2321	13
14	4321	1442	21	3222	2433	21	3232	2332	20	1031	2320	12
15	1131	1212	12	1123	1321	14	1222	2312	15	2213	2211	14
16	1032	2200	10	0112	3321	13	2123	3212	16	1112	4532	19
17	0122	3211	12	0121	2100	7	2132	1232	16	1133	2233	18
18	0023	2320	12	0123	2211	12	3221	2456	25	2343	2222	20
19	0121	3331	14	1224	2432	20	5332	1322	21	4222	4533	25
20	2211	2110	10	0122	2321	13	1122	3331	16	2122	2232	16
21	1111	2121	10	1111	2321	12	3221	4323	20	3221	2210	13
22	1123	2221	14	3123	2322	18	2022	1323	15	1222	2333	18
23	2112	3321	15	2232	2322	18	1111	1221	10	2112	2110	10
24	2112	3433	19	3333	3233	23	1212	3232	16	2122	2221	14
25	3245	4212	23	2232	3132	18	1102	4556	24	0021	1213	10
26	2122	1222	14	3222	3343	22	6323	4422	26	4323	3223	22
27	1231	1311	13	2021	2211	11	3333	2333	23	3334	4331	24
28	1122	2210	11	1112	2310	11	3431	3321	20	1111	1200	7
29	1222	1331	15	1212	3212	14	1221	2331	15	0011	0223	9
30	2233	3332	21	3222	3321	18	2111	1323	14	1221	2211	12
31	2332	2324	21				2212	1321	14	3232	2122	17

Table 17 (Contd.)

Three-Hour Range Indices, K.

Date	September			October			November			December		
	K		K Sum	K		K Sum	K		K Sum	K		K Sum
1	3222	3311	17	0012	2211	9	3333	3311	20	5421	2121	18
2	2113	2111	12	1113	2200	10	1223	3421	18	1112	3213	14
3	0012	2333	14	1012	2223	13	0023	3121	12	3322	3443	24
4	4222	2222	18	3333	3433	25	1234	2221	17	1322	2102	13
5	3122	1232	16	4433	3223	24	1122	3211	13	1101	1001	5
6	1131	3313	16	3333	2322	21	0112	3212	12	0112	1110	7
7	2211	2224	16	3323	3222	20	2212	2202	13	1012	1212	10
8	3111	3322	16	1222	4332	19	2112	3221	14	1221	1123	13
9	1213	3423	19	3233	2232	20	1103	2321	13	1222	3224	18
10	2123	1221	14	2213	3335	22	2323	4113	19	2322	2220	15
11	1123	2312	15	4444	3221	24	2333	3344	25	1103	3344	19
12	2242	3325	23	1233	3221	17	3222	3123	18	5322	2132	20
13	2323	2321	18	1032	3211	13	3112	2222	15	1113	2111	11
14	2312	2214	17	1121	2232	14	1113	3331	16	0012	2333	14
15	2122	2232	16	3233	2223	20	3333	3333	24	2312	3222	17
16	0122	2131	12	1011	1011	6	3233	2333	22	2124	3441	21
17	2233	3213	19	0023	2112	11	2122	2133	16	0111	1230	9
18	0111	1111	7	3333	2251	22	3133	3323	21	1133	3333	20
19	1002	2213	11	1133	2233	18	3323	2242	21	3433	6774	37
20	2211	1111	10	0113	2101	9	2232	2342	20	4321	3332	21
21	0112	1100	6	2222	2222	16	1332	2213	17	3333	3243	24
22	1123	4321	17	1323	3245	23	2112	2213	14	2213	2121	14
23	1112	2211	11	3354	4343	29	2212	1233	16	0112	1220	9
24	0013	1111	8	2113	3233	18	2222	2123	16	0012	1000	4
25	1222	2220	13	3232	3345	25	2232	3343	22	1212	3104	14
26	0123	3211	13	4233	2110	16	3323	4222	21	1112	2100	8
27	0122	2222	13	0113	2110	9	4232	3443	25	1133	1121	13
28	2013	2212	13	0023	2201	10	4443	3223	25	1211	2110	9
29	0123	2241	15	0013	2211	10	3232	3223	20	1212	4223	17
30	2113	1220	12	2223	2323	19	3322	3445	26	3233	3101	16
31				3334	4444	29				3321	3343	22

Table 18

SUDDEN COMMENCEMENTS OF MAGNETIC STORMS  
OR PERIODS OF STORMINESS (S.S.C.'s)

Date	Time (GMT)	Date	Time (GMT)	Date	Time (GMT)	Date	Time (GMT)	Date	Time (GMT)
Jan 11	0758	Mar 19	0618	May 31	2138	Aug 6	1331	Oct 30	1521
13	0510	30	2354	June 6	1118	11	1656	Nov 9	1123
17	0512	31	1749	6	2237	16	1241	14	1152
25	1109	Apr 2	2112	10	1628	19	1024	24	2259
28	1542	6	1059	24	0249	26	0132	26	0421
29	0950	7	1209	July 4	0738	Sep 20	0141	Dec 11	1009
Feb 6	0321	9	0508	17	0936	23	1858	19	0456
7	1218	22	0037	18	1929	Oct 14	1953	25	0551
14	0310	May 7	1153	25	1111	18	0114	30	0738
15	1234	13	1644	Aug 2	1541	22	1013		
25	1430	29	1832	6	0010	23	0922		

Table 19

PRESUMED SOLAR FLARE EFFECTS (S.F.E.'s)

Date	Time (GMT)		
	Begin	Max	End
Feb 19	0827	0832	0840

Table 20

GIANT PULSATIONS (P.g's)

Date	Time (GMT)		
	Begin	Max	End
NIL			

TABLE 21

ANNUAL MEAN VALUES OF THE MAGNETIC ELEMENTS

Year	D	H	I	X	Y	Z	T
	o ' y	y	o ' y	y	y	y	y
1899	-21 35.0	17739	68 33.0	16495	-6525	45149	48508
1900	-21 30.0	17765	68 29.6	16529	-6511	45084	48458
1901	-21 27.7	17801	68 26.3	16567	-6513	45048	48438
1902	-21 24.2	17833	68 23.9	16603	-6508	45037	48439
1903	-21 18.7	17833	68 22.6	16614	-6481	44987	48393
1904	-21 15.2	17840	68 20.9	16627	-6467	44941	48352
1905	-21 10.4	17848	68 19.2	16643	-6447	44895	48313
1906	-21 06.3	17867	68 16.9	16669	-6433	44856	48283
1907	-21 01.4	17870	68 17.0	16680	-6411	44867	48295
1908	-20 55.7	17870	68 16.3	16691	-6383	44840	48270
1909	-20 50.3	17877	68 15.1	16708	-6359	44813	48247
1910	-20 44.6	17892	68 13.0	16732	-6337	44771	48214
1911	-20 38.1	17889	68 12.1	16741	-6304	44729	48174
1912	-20 29.3	17898	68 10.3	16766	-6265	44684	48135
1913	-20 19.6	17892	68 09.2	16778	-6215	44628	48081
1914	-20 12.3	17895	68 07.8	16794	-6181	44583	48040
1915	-20 03.8	17869	68 07.9	16785	-6130	44522	47974
1916	-19 53.1	17869	68 06.6	16804	-6078	44473	47929
1917	-19 43.0	17855	68 06.9	16808	-6024	44449	47901
1918	-19 36.2	17843	68 06.5	16809	-5986	44405	47855
1919	-19 27.2	17840	68 06.1	16822	-5941	44382	47833
1920	-19 17.9	17837	68 05.3	16835	-5895	44345	47798
1921	-19 06.5	17844	68 03.4	16861	-5841	44292	47751
1922	-18 57.0	17844	68 02.9	16877	-5795	44273	47734
1923	-18 46.5	17846	68 01.3	16896	-5744	44219	47684
1924	-18 34.9	17847	68 00.3	16917	-5687	44184	47652
1925	-18 22.4	17841	67 59.6	16932	-5624	44143	47612
1926	-18 10.8	17825	67 59.6	16935	-5561	44104	47570
1927	-17 59.5	17826	67 58.5	16954	-5506	44066	47535
1928	-17 48.0	17813	67 58.5	16960	-5445	44033	47500
1929	-17 37.3	17807	67 58.6	16971	-5391	44022	47487
1930	-17 27.6	17798	67 58.7	16978	-5340	44004	47467
1931	-17 16.8	17798	67 57.4	16995	-5287	43956	47422
1932	-17 05.4	17791	67 57.1	17005	-5228	43928	47394
1933	-16 54.5	17792	57 56.4	17023	-5175	43904	47372
1934	-16 43.7	17791	67 55.8	17038	-5121	43880	47349
1935	-16 32.7	17782	67 55.6	17046	-5064	43850	47319
1936	-16 21.6	17777	67 55.7	17057	-5007	43842	47309
1937	-16 11.7	17777	67 55.9	17072	-4958	43849	47315



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