GEOPHYSICAL OBSERVATORY REPORTS

OF THE GEODETIC AND GEOPHYSICAL RESEARCH INSTITUTE OF THE HUNGARIAN ACADEMY OF SCIENCES

YEAR
1984

OBSERVATORY OF NAGYCENK

SOPRON
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OBSERVATORY OF NAGYCENK

REPORT ON

I. EARTH CURRENTS
II. GEOMAGNETISM
III. ATMOSPHERIC ELECTRICITY
IV. IONOSPHERE

EDITED BY THE DIRECTOR
SOPRON
1985

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GEODETIC AND GEOPHYSICAL RESEARCH INSTITUTE OF THE

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PREFACE

The present Report of the Nagycenk Observatory is the 28. in the series. The first four were published in the periodical Acta Technica, the other in form of separate booklets.

The reports have contained from the beginning data of the earth current recordings, with emphasis on the characterization of different period variations. This concerns also the geomagnetic recording which has been running since 1961. Since 1976, the recording of Pc1-type pulsations has also been operating with some interruptions.

The observation network was supplemented in 1962 by records of the atmospheric potential gradient and of the point discharge. Ionospheric absorption measurements have been operated since 1967.

Exchange copies of these Reports can be obtained from the Geodetic and Geophysical Research Institute of the Hungarian Academy of Sciences (H—9401 Sopron, Pf. 5, Hungary).

J. Somogyi
Director

I. EARTH CURRENTS

The coordinates of the Observatory are:

$\varphi = 47^{0}38'$ $\lambda = 16^{0}43'$

$\Phi = 47.2^{0}$ $\Lambda = 98.3^{0}$

All times are given in CET (i.e. GMT+1h), nearly (—7 min) corresponding to LT.

The tables published in this part are the following:

I. The activity indices T of the general activity for each three hour interval of the local day, as vell as the character figures of single frequency bands for whole days K_1—K_5.

The T-scale is linear; its steps correspond to 18 mV/km. The monthly mean T-valures are separately given for the North-South and East-West components. The scales for K_1—K_5 are as follows:

Frequency band	limits between K-values								
	0—1	1—2	2—3	3—4	4—5	5—6	6—7	7—8	8—9
1. Period 0— 2 min	2	4	7	13	18	23	29	41	54
2. Period 2— 6 min.	9	13	18	23	29	34	41	56	90
3. Period 6—12 min	16	22	25	32	38	45	56	83	120
4. Period 12—24 min.	34	43	54	70	85	101	124	151	202
5. Period 24—60 mni.	29	43	67	88	110	131	191	234	339

All values in the table are given in units of 10^{-5} V/km.

Values in brakets mean extrapolated ones from incomplete material, where the lacking hours have been substituted by the average of recorded hours.

II. Monthly and yearly means, and means for disturbed and quiet days of the amplitudes of the former frequency bands and of the earth current field intensity. D and Q days are the same as in section Geomagnetism. The rows 1—5 contain the average amplitudes of the five bands in 10^{-5} V/km. Row 6 contains the hourly means of the earth current scalar intensity corrected for long period variation (equally in 10^{-5} V/km).

III. Results of harmonical analyses from monthly means of the earth current scalar intensity.

IV. Time of special events (common table from magnetic and earth current records).

The catalogue of Pc 1 events contains occurence times, amplitudes and quality. Typical cases for the A, B and C events can be seen in the 1976 Observatory Report.

V. Average amplitudes in 12 pulsation bands. Here numerical data are presented on the average amplitudes of pulsations for (nearly complete) months. Averages are derived from manually processed earth current records (6 mm min) for three-hour intervals of the day. Such averages (expressed in μV km) are published for each month and for the years. As the bands where amplitudes are determined have different bandwidth, amplitudes are comparable in different bands only after a correction for bandwaith. Data for the same band are, however, directly comparable. Basic data are estimated amplitudes in halfhour intervals.

VI. Micropulsation indices for the year 1981. The indices have been determined from occurrence frequency of different period micropulsations, striving at a possibly uniform distribution of days in each of the five possible indices (1—5) in a basic interval.

The determination of these indices can be shortly explained as follows: The days are arranged according to the occurrence frequency of each band. Index 1 is attributed to the days with the lowest fifth of occurrence frequencies (0 to 20 per cent) index 2 to days with occurrence frequencies in the second lowest fifth (20 to 40 per cent) etc., index 5 to days with highest occurrence frequencies (80 to 100 per cent). It must be reminded that mainly in the lowest and highest period bands the uniform distribution could not be achieved due to insufficient occurrence of these bands on the records.

The bands are the following:

P1	0	to	5 sec
P2	5	to	10 sec
P3	10	to	15 sec
P4	15	to	20 sec
P5	20	to	25 sec
P6	25	to	30 sec
P7	30	to	40 sec
P8	40	to	60 sec
P9	60	to	90 sec
P10	90	to	120 sec
P11	2	to	5 min
P12	5	to	10 min

For a detailed description of the method of determination of these indices, see:

L. HOLLÓ, M. TÁTRALLYAY and J. VERŐ: Experimental results with the characterization of geomagnetic micropulsations (Acta Geod., Geoph. Mont. Hung. 7/1972/15), and A. ADAM, J. VERŐ, J. CZ. MILETITS, L. HOLLÓ and. Á. WALLNER: The geophysical observatory near Nagycenk. I. Electromagnetic measurement and processing of data (Acta Geod., Geoph. Mont. Hung. 16/1981/333).

Daily Pc 1 indices are determined on the basis of the duration of the events. The scale of the indices is the following:

0 no record
1 no Pc activity
2 Pc 1 activity during 1— 40 minutes
3 Pc 1 activity during 41—100 minutes
4 Pc 1 activity during 101—160 minutes
5 Pc 1 activity during more than 160 minutes

Mrs. J. CZUCZOR, L. HOLLÓ and J. VERŐ took part in the processing and compilation of the data.

Records were taken in the Observatory with three instruments of the types GMG T9/1956 and GMG T14/1962, with small modifications in order to meet the demands of the use in the observatory. A general description of the processing and compilation is found in the report of the Observatory from 1966 in German by A. ÁDÁM, J. VERŐ, A. WALLNER: Tellurische und erdmagnetische Messungen im Observatorium bei Nagycenk. Observatoriumsberichte des Geophysikalischen Forschungslaboratoriums der Ungarischen Akademie der Wissenschaften vom Jahre 1966, Sopron, 1967.

I. Activity indices T and K_1—K_5

January

Day	T	Sum	K_1	K_2	K_3	K_4	K_5
1.	56225384	35	5	2	4	2	7
2.	33227510	23	6	3	5	3	3
3.	51222623	23	5	3	4	2	4
4.	14763264	33	5	4	5	4	6
5.	58445333	35	6	4	5	3	5
6.	22222612	19	6	3	5	2	3
7.	01111101	6	5	2	4	0	2
8.	10000000	1	5	1	4	0	0
9.	00010102	4	6	3	4	0	0
10.	12111274	79	4	2	4	2	2
11.	31112124	15	4	2	4	2	2
12.	21021101	8	3	1	4	0	2
13.	01021413	12	4	2	4	2	2
14.	11111121	9	4	2	4	1	1
15.	21111111	9	4	2	4	0	1
16.	10111221	9	4	1	4	0	2
17.	33000010	7	4	1	4	1	1
18.	00011122	7	4	1	4	1	1
19.	42223314	21	6	2	5	3	4
20.	22231101	12	5	2	4	2	2
21.	21221023	13	4	1	4	2	2
22.	34112222	17	5	3	5	2	2
23.	22112223	15	5	2	4	1	0
24.	21110000	5	4	2	4	1	0
25.	00111132	9	4	2	4	1	1
26.	33211232	17	3	2	4	1	2
27.	22111223	14	5	2	4	0	3
28.	22343635	28	4	3	5	2	6
29.	63243123	24	6	3	5	2	5
30.	42855878	47	8	5	7	6	6
31.	22455994	40	7	5	6	4	6

Monthly averages: T (N) 2.069
T (E) 1.468
K_1 4.84
K_2 2.35
K_3 4.42
K_4 1.68
K_5 2.68

February

Day	T	Sum	K_1	K_2	K_3	K_4	K_5
1.	53632142	26	7	5	6	4	3
2.	11111299	25	6	4	5	3	6
3.	53111374	25	4	2	6	3	5
4.	93239979	51	3	4	7	6	8
5.	43122111	15	4	1	4	1	3
6.	11111133	12	5	1	4	2	2
7.	12111112	10	5	0	4	1	2
8.	21132111	12	3	0	4	1	2
9.	21122113	13	6	3	5	2	2
10.	21122299	28	6	1	5	3	6
11.	65232121	22	4	2	4	1	4
12.	11101314	12	3	0	4	2	2
13.	75343393	37	5	2	5	3	6
14.	89323724	38	5	3	5	4	6
15.	73211002	16	5	2	5	1	4
16.	31120021	10	4	2	4	1	2
17.	11111101	7	4	1	4	2	2
18.	33223241	20	6	3	5	4	4
19.	01212121	10	5	2	4	1	1
20.	11121338	20	6	3	4	1	4
21.	63224313	24	6	4	4	3	3
22.	31112131	13	4	2	4	1	2
23.	22243121	17	5	1	4	1	2
24.	21222121	13	5	3	4	0	2
25.	31121003	11	5	2	4	0	1
26.	10144464	20	5	2	4	1	3
27.	59432247	36	6	5	6	4	5
28.	31313211	15	4	2	4	2	2
29.	01125431	17	3	2	4	2	3

Monthly averages:

T (N)	2.453
T (E)	1.728
K_1	4.79
K_2	2.21
K_3	4.55
K_4	2.07
K_5	3.34

March

Day	T	Sum	K_1	K_2	K_3	K_4	K_5
1.	00146439	27	4	2	5	3	7
2.	54756476	44	5	4	7	4	7
3.	59444376	42	5	4	6	4	6
4.	12111310	10	4	1	4	1	2
5.	00011010	3	3	0	4	1	1
6.	12454399	37	4	1	5	3	6
7.	64232437	31	5	3	5	3	6
8.	23243799	39	6	2	5	3	8
9.	42223212	18	7	3	5	2	1
10.	22222134	18	5	2	4	2	3
11.	60111124	16	4	1	4	1	4
12.	13111122	12	3	0	4	2	3
13.	33129411	24	3	2	5	3	3
14.	11222110	10	5	1	4	1	2
15.	10123105	13	4	2	4	1	3
16.	11314421	17	5	2	4	2	2
17.	13353613	25	5	4	5	2	4
18.	12232442	20	6	4	4	2	3
19.	23333101	16	6	2	4	2	3
20.	21123100	10	6	2	4	0	1
21.	01111232	11	4	2	4	1	2
22.	44320155	24	5	2	6	1	4
23.	52343311	22	5	6	5	1	2
24.	11324412	18	5	2	4	4	2
25.	34355673	36	6	3	5	3	5
26.	41332347	27	7	3	4	2	3
27.	63574277	41	7	4	5	4	4
28.	34347799	46	8	5	6	6	6
29.	57877574	50	7	5	7	5	6
30.	43543345	31	6	3	5	2	3
31.	12333447	27	5	2	4	2	3

Monthly averages:

T (N)	2.995
T (E)	2.242
K_1	5.16
K_2	2.55
K_3	4.74
K_4	2.35
K_5	3.71

April

Day	T	Sum	K_1	K_2	K_3	K_4	K_5
1.	84443462	35	6	3	5	2	6
2.	55556675	44	7	5	5	2	7
3.	73835599	49	6	4	5	5	7
4.	54478699	52	7	6	7	8	9
5.	72323899	43	6	5	6	6	8
6.	62113111	16	4	1	4	3	3
7.	33256144	28	6	4	6	2	5
8.	84465538	43	5	4	6	3	6
9.	94333373	35	6	5	6	4	5
10.	21221013	12	7	2	4	2	2
11.	41222234	20	7	3	5	3	3
12.	12122215	16	5	1	4	2	2
13.	42324222	21	7	3	5	2	3
14.	22111474	22	7	3	4	3	2
15.	83332110	21	9	6	5	3	2
16.	00132112	10	6	2	4	1	2
17.	10011742	16	4	2	5	3	1
18.	11224222	16	3	2	4	3	1
19.	11254324	22	5	3	5	3	2
20.	23553222	24	7	4	5	2	1
21.	52323212	20	7	3	4	1	2
22.	41222110	13	7	3	4	1	1
23.	11113124	14	4	2	4	2	2
24.	21221111	11	6	2	4	0	1
25.	11435749	34	5	3	5	3	5
26.	85785999	60	7	5	7	5	8
27.	76423225	31	8	4	5	3	6
28.	22434523	25	8	4	5	3	5
29.	12233522	20	6	3	5	2	5
30.	12111005	11	2	1	4	2	2

Monthly averages: T (N) 3.088
T (E) 2.583
K_1 6.00
K_2 3.27
K_3 4.90
K_4 2.80
K_5 3.80

May

Day	T	Sum	K_1	K_2	K_3	K_4	K_5
1.	43223611	22	3	2	5	2	2
2.	24443401	22	4	2	4	3	2
3.	11154333	21	6	4	5	2	2
4.	31223223	18	7	4	5	2	3
5.	31224759	33	8	5	5	3	6
6.	72312110	17	4	1	4	2	3
7.	00012000	3	3	1	4	1	1
8.	01111110	6	6	2	4	1	2
9.	12314423	20	5	3	4	2	3
10.	75422732	32	6	4	4	1	5
11.	43322422	22	5	4	5	3	2
12.	21132247	22	7	4	4	2	2
13.	54310100	14	5	2	5	1	2
14.	00014222	11	3	2	3	0	2
15.	33221110	13	3	2	4	1	2
16.	03121102	10	2	1	4	1	2
17.	44389994	50	5	4	6	2	4
18.	27231328	28	5	3	4	1	3
19.	65533132	28	6	3	5	3	5
20.	23333466	30	7	4	5	3	6
21.	66445287	42	7	4	5	3	6
22.	64638677	47	7	4	5	3	5
23.	56445464	38	7	4	5	2	6
24.	22386563	35	7	4	6	3	6
25.	31222233	18	6	4	4	3	3
26.	75522220	25	4	2	5	2	4
27.	01122210	9	3	1	4	1	2
28.	01002113	8	4	2	4	1	2
29.	22112121	12	4	1	4	1	2
30.	31242423	21	5	2	5	2	3
31.	13112107	16	5	2	4	2	3

Monthly averages: T (N) 2.540
T (E) 2.218
K_1 5.13
K_2 2.81
K_3 4.52
K_4 1.90
K_5 3.26

June

Day	T	Sum	K_1	K_2	K_3	K_4	K_5
1.	21013321	13	4	2	4	1	2
2.	22122312	15	7	4	4	2	2
3.	21238563	30	6	4	5	3	4
4.	35663452	34	7	5	6	4	5
5.	53734221	27	7	4	5	3	2
6.	35333222	23	7	4	5	2	2
7.	22122211	13	7	3	4	1	1
8.	02011574	20	4	2	5	1	2
9.	43544444	32	6	3	5	4	4
10.	33522324	24	7	4	5	3	4
11.	32	(20)	—	—	—	—	—
12.	12100	(6)	—	—	—	—	—
13.	01211021	8	5	2	4	1	1
14.	12010010	5	3	1	3	1	1
15.	14444656	34	7	4	6	3	6
16.	98865423	45	7	5	6	4	8
17.	22453212	21	6	4	5	2	1
18.	24349772	38	7	5	6	4	5
19.	42444654	33	7	4	5	3	4
20.	56332120	22	6	3	5	3	3
21.	11100102	6	4	2	3	0	0
22.	11101201	7	3	0	4	1	1
23.	11111316	15	4	2	5	2	2
24.	45311221	19	6	3	5	3	4
25.	22122122	14	5	2	5	2	2
26.	11122124	14	5	1	4	2	2
27.	23111001	9	2	0	4	2	1
28.	12113346	21	5	3	5	3	3
29.	52132144	22	6	3	5	2	3
30.	33212331	18	7	3	5	2	4

Monthly averages: T (N) 2.268
T (E) 2.065
K_1 5.61
K_2 2.93
K_3 4.75
K_4 2.29
K_5 2.82

July

Day	T	Sum	K_1	K_2	K_3	K_4	K_5
1.	32222336	23	6	3	5	2	3
2.	52232353	25	7	5	5	3	4
3.	53434232	26	7	4	6	3	3
4.	11221244	17	6	3	5	3	2
5.	54342111	21	6	3	6	3	3
6.	22322222	17	6	2	4	2	2
7.	23221132	16	4	1	4	1	2
8.	13121211	12	5	2	4	1	3
9.	22112421	15	5	1	5	2	2
10.	13224421	19	6	3	4	2	2
11.	11001323	11	6	2	4	1	2
12.	95413112	26	5	2	5	2	3
13.	14979663	45	6	4	6	4	7
14.	66567753	45	8	5	6	3	6
15.	45554355	36	7	5	5	3	3
16.	43343444	29	7	4	6	3	3
17.	55667854	46	7	4	5	4	5
18.	24435364	31	7	3	5	3	4
19.	43332222	21	7	3	4	2	2
20.	22322213	17	7	3	4	1	2
21.	21121212	12	7	3	4	2	1
22.	22211211	12	5	2	4	2	2
23.	21112111	10	5	2	5	1	2
24.	33331111	16	5	3	4	1	2
25.	22211333	17	4	2	4	1	3
26.	21110011	7	4	2	4	1	1
27.	41112233	17	5	3	4	2	2
28.	26533442	29	7	3	4	3	3
29.	11223461	20	6	3	4	3	4
30.	32121310	13	5	3	5	1	2
31.	21111838	25	4	4	5	2	3

Monthly averages:

T (N)	2.460
T (E)	2.298
K_1	5.87
K_2	2.97
K_3	4.68
K_4	2.16
K_5	2.84

August

Day	T	Sum	K_1	K_2	K_3	K_4	K_5
1.	58898669	59	6	4	6	4	7
2.	34435521	27	7	4	5	3	2
3.	12232222	16	4	3	5	2	2
4.	32223222	18	6	4	5	3	3
5.	32111121	12	5	2	5	2	2
6.	11111101	7	4	3	4	1	1
7.	11111011	7	6	2	4	1	1
8.	33333113	20	7	4	6	3	3
9.	23323227	24	6	2	5	3	4
10.	22221123	15	5	2	5	2	2
11.	11322113	14	5	3	4	2	2
12.	42333132	21	7	7	5	3	3
13.	22112111	11	6	3	4	2	2
14.	11136545	26	7	4	5	3	4
15.	54544412	29	7	5	6	3	5
16.	34334121	21	7	4	5	2	3
17.	22332122	17	7	3	5	2	2
18.	11121121	10	6	2	4	1	2
19.	11123588	29	5	3	4	2	3
20.	22211140	13	3	2	4	2	2
21.	11013121	10	5	4	5	1	0
22.	10111100	5	5	3	4	0	1
23.	10102324	13	3	2	5	1	2
24.	23444344	28	7	4	6	4	6
25.	41242152	21	7	4	5	2	3
26.	32111211	12	5	2	4	1	3
27.	22115578	31	5	3	5	4	6
28.	93453646	40	7	6	6	5	7
29.	45544332	30	7	4	5	3	3
30.	42233222	20	6	2	5	4	3
31.	24222212	17	6	3	5	2	2

Monthly averages: T (N) 2.379
T (E) 2.149
K_1 5.94
K_2 2.68
K_3 4.64
K_4 2.16
K_5 3.45

September

Day	T	Sum	K_1	K_2	K_3	K_4	K_5
1.	21111132	12	5	3	4	0	2
2.	22221242	15	5	3	5	1	2
3.	12322112	14	7	4	5	1	2
4.	21558962	38	5	4	7	6	4
5.	76847795	53	6	3	6	5	8
6.	31233133	19	6	4	5	3	4
7.	21122111	11	5	2	5	1	3
8.	42121125	18	6	2	5	3	3
9.	42121125	18	7	2	5	1	3
10.	45543355	34	8	5	6	5	4
11.	32423231	20	7	4	6	4	4
12.	23233423	22	7	4	5	2	3
13.	33232211	17	7	4	5	3	2
14.	22244332	22	7	4	5	3	4
15.	32232214	19	6	2	5	2	2
16.	22123330	16	5	2	5	1	2
17.	21121002	9	6	3	4	1	2
18.	01111011	6	6	2	4	0	0
19.	12257398	37	5	4	7	4	7
20.	34342592	32	7	3	5	3	5
21.	01131342	15	7	2	4	2	2
22.	11145046	23	5	2	5	2	3
23.	68889979	64	8	7	7	6	9
24.	96686963	53	8	7	6	6	8
25.	33646494	39	7	5	6	4	6
26.	64455762	39	6	5	6	6	6
27.	43224638	32	6	3	5	3	6
28.	32232286	28	6	4	5	3	6
29.	22322126	20	6	4	6	2	3
30.	42211003	13	4	2	4	0	3

Monthly averages:

T (N)	3.037
T (E)	2.475
K_1	6.20
K_2	3.39
K_3	5.27
K_4	2.77
K_5	3.93

October

Day	T	Sum	K_1	K_2	K_3	K_4	K_5
1.	21121311	12	4	1	4	1	1
2.	31121212	13	5	2	5	2	3
3.	54222123	21	4	2	5	1	5
4.	10121212	10	5	2	5	2	2
5.	21112112	11	4	1	4	2	1
6.	15543337	31	7	4	6	4	5
7.	95539453	43	7	4	5	6	7
8.	66453345	36	8	4	5	4	4
9.	32443384	31	7	4	5	2	3
10.	44356962	39	7	4	7	3	4
11.	33455768	41	7	7	6	3	7
12.	65564883	45	7	4	6	3	5
13.	52247211	24	7	3	5	3	3
14.	52422145	25	7	4	5	3	3
15.	22112245	19	8	5	4	2	2
16.	33333143	23	6	3	4	2	4
17.	11110001	5	7	3	4	0	1
18.	12255559	34	4	2	5	4	4
19.	97599998	65	8	6	6	8	7
20.	75588996	57	8	6	7	7	8
21.	45366999	51	7	5	6	6	6
22.	65245679	41	7	4	6	4	6
23.	32253764	32	7	4	6	5	6
24.	53454775	40	8	5	6	3	7
25.	42321239	26	7	4	6	3	5
26.	82221312	21	5	3	4	5	2
27.	22222231	16	7	3	5	2	2
28.	01232032	13	7	3	5	1	1
29.	21222212	14	7	2	4	2	2
30.	12121102	10	7	4	4	1	1
31.	20111125	13	5	3	4	2	1

Monthly averages:

T (N)	3.367
T (E)	2.750
K_1	6.48
K_2	3.58
K_3	5.13
K_4	3.10
K_5	3.81

November

Day	T	Sum	K_1	K_2	K_3	K_4	K_5
1.	21697322	32	5	3	5	5	4
2.	21233373	24	5	3	5	3	3
3.	21335547	30	8	5	6	2	5
4.	44563344	33	9	6	6	6	6
5.	23334421	22	7	8	6	4	5
6.	22334442	24	8	4	5	3	2
7.	12233687	32	7	4	5	2	6
8.	55244432	29	8	5	5	3	4
9.	12222463	22	8	4	5	2	4
10.	32315328	27	7	3	5	2	4
11.	22344528	30	8	4	6	3	3
12.	12321100	10	5	3	5	2	1
13.	11143235	20	6	3	4	2	2
14.	11134122	15	4	2	5	3	2
15.	58357599	51	5	4	5	3	7
16.	99799897	67	5	6	6	4	9
17.	53544934	37	5	4	6	4	6
18.	43444233	27	5	4	5	2	3
19.	35342564	32	6	4	5	3	4
20.	42345244	28	6	3	5	3	4
21.	24475564	37	7	5	6	3	4
22.	22333362	24	7	4	5	3	5
23.	24423210	18	7	3	4	2	2
24.	12332133	18	5	2	5	1	1
25.	32211344	20	6	2	4	1	2
26.	31221130	13	5	1	4	2	2
27.	10111330	10	5	3	4	1	1
28.	11111111	8	7	3	4	1	1
29.	00232132	13	6	3	4	2	2
30.	29957337	45	6	5	6	6	6

Monthly averages:

T (N)	3.121
T (E)	2.675
K_1	6.26
K_2	3.77
K_3	5.03
K_4	2.77
K_5	3.67

December

Day	T	Sum	K_1	K_2	K_3	K_4	K_5
1.	22334213	20	7	3	5	3	2
2.	44633666	38	6	3	5	3	6
3.	42233367	30	7	5	5	2	6
4.	23244796	37	7	3	5	3	6
5.	73353695	41	7	4	5	2	2
6.	32245635	30	7	4	5	2	4
7.	42333552	27	6	3	4	3	5
8.	32233211	20	7	3	4	1	2
9.	21011112	9	6	1	4	0	1
10.	12222251	17	5	2	5	2	2
11.	11112349	22	5	2	5	1	4
12.	96322411	28	6	2	5	2	3
13.	39444554	38	6	3	5	3	6
14.	10011313	10	3	0	4	1	1
15.	21112129	19	3	1	4	1	4
16.	54465999	51	7	4	5	5	8
17.	33466596	42	6	4	5	3	6
18.	23344432	25	7	3	5	3	3
19.	21112122	12	7	3	4	1	1
20.	21211221	12	6	3	4	0	0
21.	01111294	19	6	3	4	2	1
22.	31121324	17	6	2	5	3	2
23.	22362443	26	5	3	5	2	2
24.	11110211	8	4	1	4	1	0
25.	21211001	8	4	0	4	1	0
26.	13423346	26	4	2	4	3	3
27.	21124624	22	6	2	4	2	6
28.	42544858	40	7	3	5	3	6
29.	54346555	37	7	4	5	3	4
30.	32443284	30	7	3	5	2	5
31.	64346764	40	7	4	5	4	6

Monthly averages:

T (N)	3.040
T (E)	2.452
K_1	5.94
K_2	2.68
K_3	4.64
K_4	2.16
K_5	3.45

II. Average amplitudes for different periods

Hour Parameter	0	1	2	3	4	5	6	7	8	9	10	11
											January	North
1.	6	7	7	6	9	12	14	17	23	16	15	16
2.	9	9	8	9	9	13	12	14	26	16	18	15
3.	33	37	35	35	37	38	37	39	39	39	41	37
4.	40	39	40	35	40	45	54	59	53	57	61	51
5.	88	83	86	89	74	49	40	38	52	23	56	63
6.	−27	−26	−29	−49	−25	−19	−6	−7	+40	+12	−12	−35
											January	East
1.	10	9	11	9	12	13	15	20	27	22	26	32
2.	12	11	8	10	10	13	11	13	21	18	20	20
3.	36	35	36	38	36	33	37	34	38	38	38	40
4.	30	35	39	37	36	36	40	35	42	44	45	42
5.	74	44	42	46	42	33	35	49	28	28	38	38
6.	−2	+13	+2	+1	0	−11	−11	−10	+8	+27	+24	+17
											February	North
1.	9	7	10	9	9	12	11	19	22	19	17	14
2.	12	13	10	10	8	10	12	20	31	17	12	17
3.	34	37	37	37	35	35	36	37	48	39	37	58
4.	33	47	45	46	52	43	50	51	45	58	55	57
5.	140	194	105	90	50	60	50	37	42	32	46	71
6.	+1	−7	−16	−27	−10	−38	−3	−10	+25	+1	−29	−60
											February	East
1.	12	12	11	10	11	15	17	22	28	24	25	26
2.	13	16	10	10	9	9	12	18	20	19	19	17
3.	36	35	35	37	34	36	36	37	37	38	37	33
4.	44	46	31	44	40	40	37	35	28	33	35	42
5.	79	108	76	63	43	32	42	39	42	37	32	38
6.	+6	−7	+20	+17	−10	+2	−9	−6	+15	+35	+47	+44

and hourly means of earth current elements

12	13	14	15	16	17	18	19	20	21	22	23	Averages
Component												
18	19	17	15	13	12	9	9	10	7	6	8	12.1
21	19	19	16	13	17	13	12	15	11	10	12	14.0
37	45	35	38	38	38	35	42	37	35	35	37	37.5
51	55	46	52	39	46	33	42	38	45	60	44	46.9
47	50	46	41	85	100	110	80	82	117	100	106	71.0
−52	−10	−2	+33	+15	+23	+30	+28	+63	+29	+22	+4	
Component												
37	31	33	34	25	19	16	13	13	15	9	14	19.4
23	23	22	20	17	16	12	12	16	13	15	16	15.5
34	39	35	33	34	36	35	35	37	35	38	33	36.0
42	45	34	31	29	35	39	37	36	40	35	46	37.9
37	35	41	61	68	100	56	59	73	56	74	75	51.3
−3	+6	−9	−11	+3	−1	−1	+4	−26	−23	+7	−6	
Component												
14	17	14	13	14	14	13	13	9	10	8	8	12.7
18	13	13	15	12	17	12	12	10	10	8	14	13.6
45	39	38	37	44	35	38	38	38	38	35	37	38.0
57	58	40	52	49	37	39	45	46	43	40	73	48.4
53	52	80	66	106	84	77	112	135	153	176	114	88.5
−51	−62	−19	+12	+43	+6	+39	+40	+68	+49	+47	+2	
Component												
28	29	30	30	24	21	18	14	14	12	10	12	19.0
23	22	23	19	17	15	12	11	7	10	12	14	14.9
35	37	35	33	32	35	37	38	39	37	37	39	36.0
37	41	45	33	41	37	33	39	57	37	33	53	39.2
43	25	69	62	79	61	79	79	89	129	118	100	65.2
+6	−3	−8	−17	−1	−32	−32	−33	+1	−16	−4	−14	

Hour Parameter	0	1	2	3	4	5	6	7	8	9	10	11
											March	North
1.	6	7	10	13	14	16	23	24	21	19	16	16
2.	9	12	12	12	13	14	19	21	23	20	14	15
3.	34	37	35	37	37	37	37	45	50	42	37	36
4.	57	44	47	52	52	53	39	58	65	56	53	51
5.	110	95	95	87	55	48	67	49	47	71	79	84
6.	−7	−12	−32	−5	−12	−11	+29	+33	+43	+8	−87	−132
											March	East
1.	11	9	9	13	15	20	25	31	31	29	31	29
2.	9	10	9	10	10	15	18	19	28	25	24	25
3.	35	36	36	36	36	37	35	37	41	43	39	40
4.	37	55	39	48	39	40	31	39	49	31	47	49
5.	100	48	59	59	41	38	50	42	39	49	31	44
6.	+30	+34	+13	+6	+9	+4	+9	+32	+41	+53	+8	−8
											April	North
1.	8	10	14	13	17	19	23	27	22	22	23	20
2.	11	14	15	14	17	22	26	29	20	19	23	21
3.	38	37	40	46	38	41	43	41	42	41	43	51
4.	60	72	64	43	52	65	64	52	50	59	50	56
5.	140	131	117	96	61	59	63	64	50	50	67	69
6.	−4	+11	+1	+3	+4	+22	+34	+55	+35	−53	−128	−153
											April	East
1.	11	14	13	14	19	25	36	41	37	38	46	40
2.	14	12	15	15	15	20	26	32	29	26	29	28
3.	36	34	38	35	33	36	37	39	34	35	33	37
4.	56	57	44	41	49	44	40	30	40	38	49	64
5.	154	94	85	52	49	46	50	59	43	61	67	55
6.	+12	+34	+7	+10	−6	+8	−29	+31	+61	+25	+14	−28

12	13	14	15	16	17	18	19	20	21	22	23	Averages
Component												
14	17	17	15	13	13	10	9	9	12	12	12	14.1
22	19	13	14	13	8	11	10	8	13	10	11	14.0
39	42	37	38	37	36	35	39	35	37	37	38	38.1
56	57	53	52	43	44	35	49	59	39	65	87	52.8
80	70	91	95	94	82	105	167	114	174	154	182	95.6
—103	—60	—13	+72	+76	+28	+41	+33	+17	+70	—4	+30	
Component												
35	34	30	31	22	19	17	10	10	12	13	15	20.9
22	21	21	22	19	14	10	13	9	15	13	15	16.5
40	39	44	39	34	36	37	38	38	37	38	37	37.8
51	57	53	42	42	33	38	62	55	39	47	70	45.5
42	51	69	63	69	85	88	108	123	140	125	114	69.9
—23	—20	—16	+10	+7	—33	—37	—49	—33	—31	—3	—2	
Component												
17	19	16	15	17	13	14	7	11	12	17	11	16.1
23	24	14	12	13	13	19	10	16	13	17	13	17.4
46	43	41	37	47	38	43	37	38	38	47	38	41.4
82	54	64	55	65	49	49	57	84	75	49	50	59.2
89	83	65	96	92	141	230	170	166	153	149	174	109.8
—148	—43	+19	+63	+79	+45	+57	+30	—5	+16	+17	+42	
Component												
40	42	34	33	31	23	18	10	14	18	18	13	26.2
29	28	23	24	22	18	18	12	14	15	15	10	20.4
39	39	35	43	37	30	37	30	46	39	37	34	36.4
58	56	49	70	71	44	71	50	54	65	53	53	51.9
60	70	151	74	104	151	127	140	65	122	145	145	90.4
—47	—10	—2	+10	—9	—44	—44	—18	—10	—22	—13	+13	

Hour Parameter	0	1	2	3	4	5	6	7	8	9	10	11
											Moy	North
1.	10	9	8	13	15	20	17	17	18	20	19	17
2.	13	15	13	12	20	23	24	23	19	21	17	19
3.	36	34	34	34	37	38	36	39	38	37	39	38
4.	44	45	35	50	49	49	64	57	46	51	46	55
5.	136	84	91	52	58	95	43	45	56	52	57	56
6.	+38	+19	—6	+9	+37	+39	+51	+19	—25	—68	—130	—167
											May	East
1.	12	9	9	13	16	23	26	31	31	30	28	31
2.	11	9	9	11	13	21	24	24	26	27	22	26
3.	31	33	29	31	27	30	30	31	35	34	37	36
4.	33	37	36	38	38	28	32	39	45	35	47	47
5.	147	62	45	49	41	59	33	41	41	70	50	62
6.	—11	+23	+5	—13	—7	+25	+34	+60	+57	+15	—11	—46
											June	North
1.	9	12	12	17	15	20	21	20	19	14	17	13
2.	14	16	15	21	19	20	21	20	21	17	23	17
3.	25	37	40	39	40	40	49	39	43	39	40	38
4.	50	47	39	46	69	65	57	53	55	59	65	43
5.	76	102	99	36	47	93	48	52	42	41	37	65
6.	+28	+1	+32	—13	+38	+64	+70	+41	—1	—45	—118	—157
											June	East
1.	14	16	14	22	17	27	34	38	35	39	39	36
2.	20	15	15	16	14	14	19	21	28	27	25	24
3.	30	34	35	35	31	33	36	32	29	32	35	30
4.	53	44	45	40	39	40	41	42	46	49	54	40
5.	71	53	55	51	35	58	42	48	58	41	50	59
6.	—7	+6	—2	—6	—5	+3	+53	+57	+50	+41	+25	—8

12	13	14	15	16	17	18	19	20	21	22	23	Averages
Component												
16	13	10	11	7	6	5	9	10	8	8	9	12.3
18	16	17	11	11	8	8	14	13	10	10	14	15.4
37	38	39	39	38	39	38	35	37	36	36	34	36.9
51	57	66	50	53	43	46	30	35	37	53	41	48.0
94	69	57	76	71	76	65	101	124	103	51	136	77.0
—139	—65	+18	+52	+80	+68	+41	+44	+16	+14	+23	+32	
Component												
36	34	30	23	23	19	13	10	13	11	11	12	20.6
28	26	23	19	19	17	15	11	15	11	14	12	18.0
35	33	34	35	32	29	31	32	29	31	27	33	31.9
42	45	51	45	43	45	38	34	45	39	41	36	40.0
77	63	57	54	96	77	66	124	82	89	94	89	69.5
—33	—7	+17	+7	—15	—22	—38	—39	—21	—5	+5	—18	
Component												
11	11	12	10	8	7	5	12	8	9	9	8	12.5
14	11	14	10	9	13	9	16	15	19	16	12	15.9
41	38	37	41	37	37	38	35	36	35	39	37	38.3
69	61	45	57	42	44	43	32	43	45	57	51	51.5
63	69	86	68	91	63	69	72	75	86	73	79	68.0
—126	—88	—34	+22	+56	+73	+56	+21	+11	+26	+18	+27	
Component												
40	30	32	30	21	18	17	14	13	18	12	11	24.5
25	31	24	21	15	19	15	18	14	17	17	16	19.6
34	31	30	35	35	30	33	32	33	32	37	33	32.8
49	49	50	47	41	50	47	36	42	45	49	42	45.0
79	65	75	87	100	94	79	93	76	79	87	65	66.7
—64	—19	—7	—34	—19	0	—29	—26	—8	—10	—1	+10	

Hour Parameter	0	1	2	3	4	5	6	7	8	9	10	11
											July	North
1.	5	11	13	18	19	21	21	23	23	20	17	17
2.	13	15	15	15	19	23	24	26	25	18	12	14
3.	34	38	38	38	37	38	43	42	39	40	39	39
4.	56	48	46	47	51	51	52	59	57	57	44	48
5.	68	105	109	78	62	64	55	51	74	52	71	60
6.	+27	+16	−2	+1	+40	+67	+42	+45	+9	−35	−98	−143
											July	East
1.	13	16	17	21	19	25	33	38	45	45	39	41
2.	11	16	16	16	20	16	23	28	28	27	25	24
3.	36	36	35	32	28	31	31	28	35	37	33	33
4.	52	33	40	33	37	37	36	34	39	41	40	45
5.	46	84	46	56	50	43	41	48	54	54	58	75
6.	+11	+10	+24	−4	−15	−19	+46	+62	+62	+33	+17	+3
											August	North
1.	10	12	11	14	19	24	27	21	20	16	16	16
2.	19	11	14	13	21	19	26	23	20	17	16	13
3.	40	39	42	37	41	41	40	44	42	42	39	39
4.	48	46	61	46	45	51	63	66	64	53	53	41
5.	141	93	64	24	56	69	64	62	39	43	45	65
6.	0	+9	+28	+26	+33	+57	+69	+28	−11	−71	−126	−159
											August	East
1.	13	10	11	10	25	28	38	39	37	35	38	37
2.	17	10	15	15	21	21	30	31	33	30	28	30
3.	35	35	34	32	29	31	33	31	35	39	37	35
4.	39	49	49	43	37	44	52	49	43	46	48	51
5.	85	50	52	57	54	62	53	35	45	37	45	53
6.	+3	+2	0	−4	−8	+14	+51	+59	+54	+38	+12	−44

12	13	14	15	16	17	18	19	20	21	22	23	Averages
Component												
13	12	13	8	7	6	8	9	13	9	9	6	13.4
16	13	10	6	6	6	6	13	17	14	12	9	14.5
37	41	39	38	36	38	36	34	35	37	38	37	38.0
52	60	54	53	56	46	40	44	42	44	56	44	50.3
61	46	60	53	48	52	78	85	82	81	55	59	67.0
—138	—96	—45	+49	+26	+32	+29	+31	+57	+28	+23	+35	
Component												
38	34	37	30	24	20	18	13	13	13	11	10	25.5
26	23	25	24	17	13	15	11	12	15	10	14	19.0
30	33	33	32	31	30	31	34	34	35	33	35	32.5
41	49	45	44	44	46	38	46	45	38	46	49	41.6
68	48	84	79	89	85	111	101	80	93	74	55	67.6
—16	—11	—14	—35	—58	—33	—30	—46	—32	—5	—2	+12	
Component												
16	14	11	9	8	7	8	10	12	9	10	7	13.6
14	10	12	6	9	6	8	10	13	13	14	8	14.0
39	39	40	37	39	37	35	35	38	38	37	37	39.0
56	61	63	51	41	37	40	41	47	44	54	49	50.9
62	77	95	61	66	88	99	76	83	118	120	115	76.0
—133	—71	—10	+32	+55	+68	+22	+23	+47	+23	+41	+20	
Component												
44	40	28	25	25	22	15	11	17	12	10	11	24.2
31	29	23	18	23	20	13	13	19	17	15	7	21.2
38	38	37	33	28	27	28	34	35	34	35	37	33.8
59	44	49	52	41	48	52	45	46	52	52	53	47.6
59	59	50	69	85	54	88	63	85	49	49	66	59.0
—35	—38	—16	—8	—18	—7	—20	—30	—13	+6	—2	+3	

Hour Parameter	0	1	2	3	4	5	6	7	8	9	10	11
											September	North
1.	11	13	15	10	17	22	29	31	29	27	24	24
2.	15	14	14	16	17	19	28	30	30	23	22	21
3.	34	38	37	40	38	42	43	41	49	44	51	44
4.	43	43	62	55	52	50	64	62	59	63	71	83
5.	94	130	99	104	77	103	80	110	63	73	86	88
6.	—12	+33	+18	+27	+26	—5	—12	+14	+18	—28	—106	—124
											September	East
1.	17	16	30	16	20	25	34	43	43	46	42	41
2.	14	16	12	13	14	17	26	25	38	34	33	31
3.	38	37	40	37	38	37	37	37	37	37	45	52
4.	47	35	55	43	53	38	43	34	43	68	67	55
5.	72	78	53	61	40	85	86	82	47	38	61	71
6.	+4	—7	+14	+9	—1	+10	+65	+65	+61	+48	—17	—8
											October	North
1.	8	15	13	13	14	17	23	29	24	26	25	27
2.	11	15	17	16	15	17	26	31	28	21	27	21
3.	35	42	40	39	39	42	43	47	44	42	45	41
4.	76	66	67	65	67	82	60	42	61	59	66	74
5.	107	106	141	61	85	49	48	62	31	64	75	71
6.	—28	—26	—28	—20	—32	—13	—3	+65	+48	+17	—60	—132
											October	East
1.	11	15	19	21	24	27	32	40	41	42	44	30
2.	10	16	16	15	18	21	23	27	30	31	31	47
3.	36	33	34	30	37	33	31	42	33	30	37	39
4.	64	54	76	54	57	48	46	46	41	46	49	43
5.	57	75	44	60	42	37	48	42	53	53	62	67
6.	+17	+4	+7	+5	—6	—13	—21	—10	+26	+57	+49	+5

12	13	14	15	16	17	18	19	20	21	22	23	Averages
Component												
21	22	19	15	14	12	13	14	10	8	15	11	17.8
25	21	15	17	15	9	14	15	14	9	20	15	18.3
46	43	41	50	37	37	40	37	37	40	42	36	41.1
81	68	80	55	52	53	37	81	54	65	52	65	60.4
104	103	57	92	108	119	158	139	187	125	179	131	108.7
−104	−13	+18	+41	+55	+23	+15	+35	+47	+24	−1	+9	
Component												
39	43	37	32	30	26	18	14	17	14	21	16	28.3
29	30	29	26	25	17	15	14	13	16	20	16	21.8
47	44	40	50	41	39	37	40	43	40	37	40	40.0
70	52	42	49	69	54	56	41	43	49	56	41	50.1
52	64	83	76	92	98	109	128	107	115	93	87	78.3
−29	−32	−38	−4	−16	−20	−44	−37	−25	−2	−5	+10	
Component												
22	19	20	17	19	17	15	10	9	11	14	12	17.5
28	20	16	20	19	19	19	12	13	13	17	18	19.1
62	64	41	39	40	43	38	38	35	39	39	40	42.4
60	71	60	49	71	51	66	56	96	67	44	70	64.4
78	49	107	100	48	143	109	172	132	177	251	134	100.0
−105	−43	+13	+24	+37	+33	+42	+88	+38	+42	+8	+37	
Component												
49	46	44	38	36	31	25	17	16	15	21	13	29.0
32	30	28	25	26	23	19	16	13	16	17	18	22.8
34	35	30	30	29	35	30	35	28	35	34	37	33.6
44	45	39	31	40	66	63	46	47	67	62	52	51.1
86	72	105	147	142	142	69	177	164	103	151	130	88.7
+2	−12	+1	−21	+9	−12	−19	−38	−20	+1	−9	−1	

Hour Parameter	0	1	2	3	4	5	6	7	8	9	10	11
											November	North
1.	7	10	11	14	15	16	23	28	32	26	27	25
2.	11	9	13	13	16	23	22	28	31	24	25	29
3.	37	36	38	37	38	41	43	40	43	46	38	46
4.	47	49	68	56	66	61	70	55	77	85	59	76
5.	83	70	62	107	73	85	60	94	57	49	70	46
6.	−6	−56	−24	−34	−21	−48	+6	+11	+46	+14	−31	−53
											November	East
1.	11	10	13	18	26	25	31	35	38	41	45	48
2.	11	10	10	18	16	20	20	29	26	31	32	34
3.	37	32	35	38	38	37	37	32	43	37	37	40
4.	41	43	45	49	48	48	59	61	56	59	42	47
5.	79	62	80	60	48	55	52	65	63	41	50	62
6.	+18	+18	+8	+8	−8	+10	−7	+12	+38	+31	+34	+13
											December	North
1.	9	12	11	13	13	15	17	24	29	26	21	24
2.	7	8	6	11	13	11	15	18	21	23	26	21
3.	35	35	35	35	36	35	37	35	39	38	45	39
4.	51	46	55	64	44	46	59	44	45	52	46	53
5.	114	101	57	71	92	57	56	59	42	48	51	62
6.	−48	−42	−17	−18	−7	0	−13	−8	0	−13	−4	−18
											December	East
1.	13	13	11	12	16	21	23	28	34	33	34	39
2.	7	12	12	13	11	15	16	18	23	21	20	24
3.	32	33	34	36	34	38	37	36	38	39	38	40
4.	41	48	52	44	36	48	43	47	41	55	55	44
5.	91	43	41	44	56	30	41	42	48	24	19	49
6.	+9	+20	+13	+13	−12	−8	−11	−4	+14	+21	+9	−8

12	13	14	15	16	17	18	19	20	21	22	23	Averages
Component												
23	23	23	19	17	19	21	17	16	12	15	11	18.8
29	25	22	22	15	22	24	22	17	13	16	11	20.1
44	46	43	40	40	38	38	35	44	38	37	37	40.1
68	61	66	40	58	49	41	59	50	41	41	46	57.9
62	53	71	115	68	100	178	184	137	131	109	184	93.7
−54	−4	−34	+15	+8	+29	+54	+41	+48	+36	−2	−6	
Component												
43	50	58	46	33	28	26	19	18	19	17	13	29.6
33	32	34	29	23	20	24	21	20	15	18	17	22.6
39	36	37	36	28	37	38	32	31	31	34	32	35.6
56	58	38	47	47	38	48	43	50	45	46	50	48.5
73	64	77	77	57	110	128	180	115	122	109	88	79.9
+1	−13	+1	−29	−18	+2	−24	−52	−6	−17	−34	+13	
Component												
27	24	20	23	23	18	15	15	15	14	8	11	17.8
27	23	38	19	23	19	16	13	14	13	10	10	16.9
45	39	38	35	42	33	38	34	35	37	33	37	37.1
64	60	39	44	61	46	37	46	39	52	42	45	49.2
61	67	82	109	74	129	131	156	155	149	164	158	93.5
−37	+21	+46	+9	+21	+30	−5	+26	+18	+59	+14	−12	
Component												
48	49	43	44	35	27	20	19	20	18	11	17	26.2
28	24	21	23	26	16	19	15	17	18	12	17	17.8
36	33	30	34	36	33	37	35	36	33	35	35	35.3
50	35	27	34	39	40	36	35	46	52	33	57	43.3
43	59	63	73	68	124	74	203	120	123	145	74	70.7
−1	+11	+6	−4	+10	−26	−10	−35	−5	−17	+12	+1	

Hour Parameter	0	1	2	3	4	5	6	7	8	9	10	11
										Year	1984	North
1.	8	10	11	13	15	17	21	24	24	21	20	19
2.	12	13	13	13	15	18	21	23	24	20	19	19
3.	35	37	37	38	38	39	41	41	43	41	41	41
4.	51	49	53	50	53	55	58	56	57	59	56	57
5.	108	107	99	75	66	69	56	60	50	50	62	66
6.	—3	—6	—6	—8	+6	+10	+22	+24	+19	—22	—77	—111
										Year	1984	East
1.	13.	12	13	15	18	23	28	34	36	35	37	37
2.	12	13	12	14	15	17	21	24	28	26	27	26
3.	35	34	35	35	33	34	35	35	36	37	37	38
4.	45	45	46	43	42	41	42	41	43	45	48	48
5.	88	66	56	55	45	48	48	49	47	45	47	56
6.	+7	+12	+9	+3	—6	+5	+19	+29	+41	+35	+17	—6

12	13	14	15	16	17	18	19	20	21	22	23	Averages
Component												
18	17	16	14	13	12	11	11	11	10	11	10	14.9
21	18	17	14	13	14	13	13	13	13	13	12	16.0
43	43	39	39	39	37	38	37	37	37	38	37	39.0
62	60	56	51	53	45	42	48	53	51	47	55	53.2
71	66	75	81	79	98	117	126	123	131	132	131	87.4
—99	—44	+2	+35	+46	+38	+35	+37	+35	+34	+17	+18	
Component												
40	39	36	33	27	23	18	14	15	15	14	13	24.5
28	27	25	23	21	17	15	14	14	15	15	14	19.3
37	36	35	36	33	33	34	35	37	35	35	35	35.2
50	48	44	44	46	45	47	43	47	47	48	50	45.3
60	56	77	77	87	98	89	122	98	101	105	91	71.3
—20	—12	—7	—11	—10	—19	—27	—33	—16	—12	—4	+5	

Hour Parameter	0	1	2	3	4	5	6	7	8	9	10	11
										Quite	days	North
1.	3	9	7	8	7	13	15	19	19	15	15	11
2.	8	10	11	8	8	13	14	18	17	10	8	9
3.	33	34	36	33	36	37	37	36	37	36	36	37
4.	34	37	32	32	37	41	42	37	45	42	40	36
5.	40	37	41	41	37	29	35	22	37	30	48	41
6.	+17	+4	+14	+14	+29	+34	+35	+9	−2	−17	−61	−93
										Quite	days	East
1.	7	8	10	10	11	17	19	26	33	28	27	30
2.	7	10	6	8	8	9	14	42	24	21	17	17
3.	33	32	33	33	33	35	34	31	34	30	35	33
4.	33	26	28	28	28	30	29	32	32	35	30	30
5.	32	30	29	32	32	29	22	29	32	24	28	37
6.	+4	+4	+5	−18	−15	−16	+1	+11	+15	+27	+11	−22
										Disturbed	days	North
1.	11	15	16	20	21	25	29	32	35	29	28	29
2.	13	17	19	19	25	26	31	35	39	31	31	31
3.	39	40	41	44	42	45	43	53	54	49	49	54
4.	84	68	86	79	72	75	72	71	73	83	75	95
5.	194	269	193	157	144	148	108	130	75	94	97	97
6.	+8	+8	−5	−24	+6	−25	+33	+30	+42	+9	−72	−102
										Disturbed	days	East
1.	15	14	21	22	22	29	36	47	43	45	48	47
2.	17	20	20	21	22	25	33	30	45	37	34	36
3.	40	38	40	42	42	43	41	40	45	47	46	45
4.	65	58	91	72	71	54	61	56	54	74	73	65
5.	158	148	78	97	68	100	90	92	83	74	85	89
6.	+12	+21	+28	+12	+18	+46	+44	+38	+29	+58	+18	+5

12	13	14	15	16	17	18	19	20	21	22	23	Averages
Component												
10	15	12	8	8	9	3	8	5	5	7	4	9,7
13	13	9	10	8	7	6	8	10	10	10	6	10.0
36	36	33	36	34	33	33	32	33	36	35	35	34.9
34	35	30	34	30	30	27	37	30	36	28	33	34.9
28	32	24	21	25	24	42	33	37	33	48	48	34.7
—76	—41	+2	+26	+37	+24	+18	+22	+19	—7	0	—7	
Component												
31	32	31	29	21	18	12	8	10	10	8	8	18.6
19	19	12	18	14	12	7	10	10	10	9	7	13.9
31	30	31	25	29	31	31	33	31	33	33	34	31.9
32	32	33	28	28	33	26	28	29	32	37	33	30.4
23	28	23	33	26	23	31	33	34	35	37	36	29.7
—26	—18	—19	—5	+1	+7	—4	—4	—8	+21	+27	+24	
Component												
25	25	22	21	21	18	19	14	17	12	14	12	21.2
40	29	29	29	25	22	22	17	20	15	18	19	25.0
59	47	45	44	51	41	43	39	42	42	45	42	45.5
112	89	81	68	68	56	48	101	130	70	74	130	81.7
142	126	186	209	191	237	196	378	305	233	301	228	185.0
—116	—67	—32	+19	+72	+3	+35	+70	+28	+31	+1	—15	
Component												
52	49	40	40	37	30	24	22	22	19	18	17	31.7
40	39	32	29	29	27	24	25	19	20	17	21	27.5
51	48	40	44	39	40	38	40	48	43	38	44	42.7
73	75	69	76	70	50	69	62	53	79	51	88	67.0
134	108	195	154	174	263	179	391	279	185	237	151	150.4
—16	—32	+12	—35	—28	—59	—52	—56	—12	—2	—22	—26	

III.

Results of harmonical analysis of the daily variations

North Component

	A_1	φ_1	A_2	φ_2	A_3	φ_3	A_4	φ_4	A_5	φ_5	A_6	φ_6
January	23	181	26	230	11	126	13	298	5	105	3	17
Ferbuary	33	143	28	233	11	103	15	287	3	13	5	98
March	33	136	44	272	39	121	21	295	3	161	7	96
April	42	121	56	296	47	126	15	328	10	186	5	223
May	56	119	60	303	40	132	4	320	10	112	2	29
June	52	103	61	290	35	124	3	119	1	217	8	349
July	54	99	53	280	31	132	8	287	12	77	6	95
August	55	107	60	296	32	144	9	297	4	304	5	324
September	38	123	38	305	21	128	28	318	7	170	9	72
October	31	144	47	255	30	118	24	326	14	162	4	195
November	25	185	29	242	12	124	18	332	12	167	1	259
December	21	198	13	258	14	207	15	276	2	222	9	316
Year	34	127	39	279	26	129	13	309	4	147	2	36
Q	25	102	36	300	16	124	7	310	8	94	3	32
D	28	130	41	272	29	109	24	323	10	88	2	140
						East Component						
January	7	313	6	112	11	23	3	194	4	162	3	297
February	19	333	15	119	9	353	9	246	6	10	1	166
March	26	3	6	90	22	90	8	281	4	61	5	72
April	24	12	4	190	19	109	14	324	8	77	2	160
May	22	8	6	248	27	135	12	335	2	231	5	315
June	25	4	19	217	18	104	5	313	1	22	8	287
July	36	4	15	173	14	118	9	22	5	260	8	283
August	24	12	19	230	20	114	7	315	2	315	5	313
September	33	7	15	225	20	118	5	309	8	293	4	153
October	14	331	14	126	14	46	12	247	3	136	7	13
November	20	349	10	121	12	53	1	245	1	105	7	35
December	7	358	11	83	7	84	7	296	2	208	3	354
Year	21	359	7	171	13	96	6	302	0	9	2	333
Q	7	92	13	185	13	95	6	248	3	240	5	308
D	41	3	5	163	5	139	10	304	11	36	8	345

Special phenomena
(magnetic and earth current data)
SSC-s

Month	Day	CET (GMT+1h)	Amplitude in E(mV/km)	H(gamma)		Ex	Ey	Hx	Hy	End of storm
02.	12.	16.00	5.5	16		+	+	+	—	02.14.07.00
	20.	17.00	11	22		+	+	+	—	02.21.03.00
04.	17.	15.30	14.4	38		+	+	+	—	04.18.00.00
05.	12.	21.45	8	32		+	+	+	—	05.13.08.00
	17.	14.00	8	52		—	—	—	+	05.18.04.00
		17.30	14.5	45		—	—	+	—	in storm
	24.	09.30	14.5	35		—	—	+	+	05.24.20.00
06.	15.	00.45	2	10	(?)	+	+	+	—	06.16.20.00
07.	31	15.45	12.5	35		—	—	—	+	08.02.00.00
08.	02.	12.30	7	22		+	+	+	—	08.02.17.00
	19.	14.00	6.5	22		+	+	+	—	08.20.00.00
09.	04.	08.45	6.5	32		+	+	+	—	09.04.21.00
	09.	23.00	10	28	(pi, b?)	—	—	—	+	09.10.13.00
	19.	10.15	3.5	14	(?)	+	+	+	—	09.20.01.00
	23.	06.45	13.5	35		+	+	—	+	09.25.01.00
10.	06.	03.15	6.5	15		+	—	—	—	10.07.04.00
	18.	11.45	12	22	(si?)	—	—	—	+	10.23.02.00
		21.00	18	65	(b?)	+	+	+	—	in storm
11.	30.	02.45	4	18	(?)	+	+	+	—	11.30.16.00
12.	13.	02.00	5.5	16		+	+	+	—	12.13.23.00
	21.	18.15	6.5	22		+	+	+	—	12.22.02.00
	23.	10.30	6.5	18		—	—	—	+	12.24.00.00

		Bays							Pi-s		
Month	Day	CET (GMT+1h)	Amplitude in E(mV/km)	H(gamma)	Ex	Ey	Hx	Hy	E(mV/km)	Ex	Ey
01.	01.	00.15	9	55	—	+	+	+	tr		
		18.00	12	80	—	+	—	+			
	02.	14.30	12.5	65	—	+	+	+	tr		
	03.	00.45	8	35	+	+	+	—	tr		
	04.	03.00	7	38	+	+	+	—			
	05.	22.15	5.5	25	+	+	+	—	tr		
	06.	15.30	8	55	—	+	+	+			
		17.00	11	42	—	+	+	+	tr		
	07.	23.30	3	15	+	+	+	—	2	+	+
	09.	22.15							2	+	+
	10.	18.45	12	100	—	—	—	+	tr		
	11.	20.45	6.5	40	—	+	+	+	tr		
	13.	15.30	7	42	+	+	—	+	tr		
		23.15	4.5	30	—	+	+	+	2	+	+
	14.	20.00	4.5	22	—	+	+	+	2	+	+
	15.	22.15							2	+	+
	17.	02.15	6.5	50	—	+	+	—	2	+	+
	18.	18.30	2.5	10	+	+	+	—			
	19.	00.30	8	42	+	+	+	—	2	+	+
		22.45	8	45	+	+	+	—	2.5	+	+
	21.	20.30	7	30	—	+	+	+	2.5	+	+
	26.	00.15	5.5	22	+	+	+	—	2	+	+
		21.15	4.5	25	—	+	+	+	tr		
	27.	17.45	4.5	30	—	+	+	+	tr		
		22.00	5.5	32	+	+	+	+	2	+	+
	28.	15.45	11	65	—	—	—	—	tr		
	29.	02.00	12	72	—	+	+	+	tr		
		19.15	3.5	20	—	—	—	+			
	30.	06.30	12	35	+	+	+	+	(ssc?)		
		17.00	16	85	—	+	+	+	tr		
		20.45	16	75	+	+	+	+	tr		
02.	02.	19.30	20	140	+	+	+	+	tr		
		22.00	27	110	+	+	+	—	tr		
	03.	16.00						pg	4.5 (12 min)		
		20.00	10	70	—	+	+	+			

		Bays							Pi-s		
Month	Day	CET (GMT+1h)	Amplitude in E(mV/km)	H(gamma)	Ex	Ey	Hx	Hy	E(mV/km)	Ex	Ey
	04.	01.00	25	150	+	+	+	−	tr		
02.	04.	16.15	>18	115	+	+	−	+	tr		
	07.	23.45	5.5	22	+	+	+	−	2	+	+
	09.	22.30							2	+	+
		23.15	6.5	25	+	+	+	−	3.5	+	+
	10.	20.00	20	72	+	+	+	−	tr		
		22.30	27	130	+	+	+	−	tr		
	13.	01.00	13.5	95	−	+	+	+	tr		
		18.30	16	100	−	+	+	+	tr		
	14.	01.00	10	80	+	+	+	−	tr		
		04.00	17	50	+	+	+	−	tr		
		16.15	11	70	−	−	+	−			
	15.	00.00	14.5	108	−	+	+	+	tr		
		22.45	3	14	−	+	+	+	tr		
		23.30	3.5	18	+	+	+	−	2.5	+	+
	16.	01.00	6.5	28	+	+	+	−	tr		
	18.	19.45	8	55	−	+	+	+	2.5	+	+
	20.	21.00	6	90	−	+	+	+	tr		
		23.30	6.5	45	+	+	+	−	tr		
	21.	02.00	11	35	+	+	+	−	tr		
	23.	11.30	9	25	+	+	+	−			
	25.	22.30	3.5	30	−	−	−	+	tr		
	27.	03.30	21.5	92	+	+	+	−	tr		
		05.00						pg	7 (6 min)		
		21.00	12.5	50	+	+	+	−	tr		
		22.00	12.5	72	−	−	+	−			
03.	01.	21.00	>16	135	−	+	+	+	tr		
03.	02.	19.15	20	72	+	+	+	+			
	03.	03.30	17	82	+	+	+	−	tr		
		20.45	14.5	72	+	+	+	−	tr		
		23.30	8	38	+	+	+	−	2.5	+	+
	06.	21.45	16	95	+	+	+	+	tr		
	07.	00.45	10	65	+	+	+	−	tr		
	08.	15.45	16	60	−	+	−	+	tr		
		20.30	21.5	65	+	+	+	+	tr		

		Bays							Pi-s		
Month	Day	CET (GMT+1h)	Amplitude in E(mV/km)	H(gamma)	Ex	Ey	Hx	Hy	E(mV/km)	Ex	Ey
		23.15	15.5	75	+	+	+	+	tr		
	10.	21.00	6.5	35	+	+	+	—	tr		
		23.45	12.5	55	+	+	+	—	tr		
	11.	22.00	6.5	45	+	+	+	—	tr		
	12.	03.30	4.5	32	+	0	+	—	2.5	+	+
	13.	02.45	5.5	35	0	+	+	+	tr		
		14.15	18	55	+	+	+	—			
	15.	01.00							2	+	+
		23.15	7	60	—	+	+	+	2.5	+	+
	17.	17.00	9	65	—	+	+	+	tr		
		21.45	5.5	40	—	+	+	+	tr		
	18.	18.00	10	55	—	+	+	+	tr		
	22.	02.00	6.5	32	+	—	—	+			
		19.00	7	32	—	+	+	+	2.5	+	+
	25.	03.00	7	35	+	+	+	—	tr		
	26.	21.30	11	55	—	+	+	+	tr		
	27.	19.00	12.5	85	—	+	+	+	tr		
		22.00	14.5	72	+	+	+	—	tr		
	28.	19.15	25	85	+	+	+	—	tr		
		23.30	27	65	+	+	+	—			
	29.	19.45	12	42	+	+	+	—	tr		
	31.	22.15	12	48	+	+	+	—	tr		
04.	01.	18.45	10	55	—	+	+	+	tr		
04.	03.	20.30	18	50	+	+	+	—	tr		
		21.15	14.5	45	+	+	+	—	tr		
	04.	18.00	25	170	+	+	+	+	tr		
	05.	16.30	16	80	—	+	+	+	tr		
		18.00	>27	145	+	+	+	+	tr		
		21.30	20	80	+	+	+	—	tr		
		23.45	13.5	50	—	—	—	—			
	08.	02.15	13.5	70	+	0	+	—	tr		
		17.30	10	35	+	+	+	—			
		22.15	15.5	70	—	+	+	+			
	10.	22.30	5.5	30	—	+	+	+	2	+	+
	11.	01.45	6.5	45	+	+	+	—	2.5	+	+

		Bays							Pi-s		
Month	Day	CET (GMT+1h)	Amplitude in E(mV/km)	H(gamma)	Ex	Ey	Hx	Hy	E(mV/km)	Ex	Ey
	11.	20.45	7	42	—	+	+	+	tr		
	14.	18.00	12	52	+	+	—	+	tr		
	15.	00.30	13.5	75	+	+	+	—	tr		
	21.	01.00	6.5	18	+	+	+	—	2.5	+	+
	23.	13.45	4.5	14	—	—	—	+			
		22.45	6.5	35	+	+	+	—	3.5	+	+
	25.	22.30	22.5	85	—	+	+	+	tr		
	26.	18.30	36	190	+	+	+	—	tr		
		21.45	18	100	—	+	—	—	tr		
	27.	01.00	14.5	48	—	+	+	+	tr		
	28.	16.45	12	45	—	—	—	+	tr		
	29.	17.00	12	60	+	+	+	+	tr		
	30.	22.45	10	55	+	+	+	—	tr		
05.	02.	16.00	5.5	18	+	+	+	—			
		16.30	6.5	18	—	—	—	+			
	04.	22.45	8	28	+	+	+	+	2.5	+	+
	05.	16.30	10	72	—	+	+	+	tr		
0.5		19.15	9	22	+	+	+	—	3.5	+	+
		21.15	20	100	+	+	+	+	tr		
	06.	00.00	16	68	+	+	+	—	2.5		
	09.	12.30	7	35	+	+	+	—	tr		
	10.	00.15	14.5	65	—	+	+	+	tr		
	11.	01.15	9	28	+	+	+	—			
		20.30							2.5	+	+
	18.	23.15	13.5	52	+	+	+	—	tr		
	20.	19.00	12.5	55	—	+	+	+	tr		
	21.	10.45	11.5	22	—	—	—	+			
		19.45	16	90	+	+	+	+	tr		
		23.45	14.5	50	+	+	+	+	rt		
	22.	17.45	>15	90	—	+	+	+	tr		
		22.30	12.5	60	—	+	+	+	tr		
	23.	19.15	12.5	75	+	+	+	+	tr		
	26.	00.00	12.5	60	+	+	+	—	2.5	+	+

		Bays							Pi-s		
Month	Day	CET (GMT+1h)	Amplitude in E(mV/km)	H(gamma)	Ex	Ey	Hx	Hy	E(mV/km)	Ex	Ey
	28.	23.30	6.5	25	+	+	+	−	2.5	+	+
	31.	12.30	4.5	12	−	−	−	+			
		22.30	12	50	+	+	+	+	3.5	+	+
06.	01.	17.00	5.5	20	−	−	−	+			
	02.	01.15							2.5	+	+
		17.15	4.5	25	−	−	−	0	tr		
	03.	13.45	15.5	72	+	+	+	−	tr		
		16.00	12.5	55	−	−	−	+	tr		
		23.30							3.5	+	+
	08.	17.30							7	+	+
	16.	23.00	7	35	+	+	+	+	tr		
	23.	21.45	9	40	−	+	+	+	3.5	+	+
	26.	20.30							2.5	+	+
		21.00	5.5	30	−	+	+	+	2.5	+	+
	28.	22.30	9	50	+	+	+	+	tr		
	29.	18.00	6.5	25	+	+	+	−	tr		
		22.00	7	28	−	+	+	+	tr		
	30.	19.30	6.5	30	+	+	+	−	2.5	+	+
07.	01.	21.00	9	65	−	+	+	+	2.5	+	+
	03.	01.15	8	35	+	+	+	−	2.5	+	+
		22.45							3.5	+	+
	04.	20.15									
	07.	19.00	4.5	25	+	+	+	−			
		19.30							2	+	+
	08.	23.15	3.5	22	−	+	+	+	2	+	+
	09.	17.45	9	28	+	+	+	−	(ssc?)		
	11.	01.30							2	+	+
		21.45	7	18	+	+	+	−	tr		
	12.	00.00	13.5	52	+	+	+	−			
		02.15	11.5	28	+	+	+	−			
		13.45	5.5	14	+	+	+	−			
	14.	16.45	12.5	62	−	+	−	+	tr		
	17.	19.00	10	40	+	+	+	−	tr		
	18.	18.00	13.5	50	+	+	+	−	tr		
	19.	21.00	35	18	−	+	+	+	tr		

		Bays							Pi-s		
Month	Day	CET (GMT+1h)	Amplitude in E(mV/km)	H(gamma)	Ex	Ey	Hx	Hy	E(mV/km)	Ex	Ey
	20.	23.30	6.5	32	+	+	+	+	2.5	+	+
	24.	00.30	3.5	28	+	+	+	+	2.5	+	+
07.	25.	02.30							2.5	+	+
		20.00							3.5	+	+
		21.15	4.5	25	+	+	+	−	2.5		
	26.	02.15							2.5	+	+
		20.15							2.5	+	+
	27.	01.00	11.5	45	+	+	+	−	2	+	+
	28.	21.00							2.5	+	+
	29.	18.00	13.5	55	+	+	+	+	tr		
	31.	22.15	12.5	90	−	+	+	+	3.5	+	+
08.	01.	20.30	11.5	45	+	+	+	−	tr		
		22.15	16	85	−	+	+	+			
	05.	20.00	3.5	22	−	+	+	+	2.5	+	+
	08.	22.30	6.5	35	−	+	+	+	3.5	+	+
	09.	22.00	12.5	55	+	+	+	+	3.5	+	+
	10.	21.15	7	22	+	+	+	−	2.5	+	+
	11.	21.45							4.5	+	+
	12.	19.30	7	22	−	+	+	+	4.5	+	+
		20.30	5.5	22	+	+	+	+	4.5	+	+
	17.	23.00	3.5	30	+	+	+	0	2.5	+	+
	18.	20.15							2.5	+	+
	19.	20.45	12.5	65	−	+	+	+	2.5	+	+
	20.	18.45	4.5	22	−	+	+	+	4.5	+	+
	23.	21.45	4.5	22	−	+	+	+	3.5	+	+
	25.	01.45	5.5	32	+	+	+	−	2.5	+	−
		10.00	5.5	40	−	−	−	−			
		19.30	6.5	45	−	−	−	+	tr		
	26.	00.00	4.5	30	+	+	+	−	tr		
	28.	00.00	16	110	+	+	+	−	tr		
		16.15	11	45	+	+	+	−	tr		
09.	01.	22.30	3.5	22	+	+	+	−	tr		
	02.	20.30	3.5	18	−	+	+	+	2.5	+	+
	03.	22.00	3.5		−	+	+	+	2	+	+
	04.	02.15		15					2.5	+	+

		Bays							Pi-s		
Month	Day	CET (GMT+1h)	Amplitude in E(mV/km)	H(gamma)	Ex	Ey	Hx	Hy	E(mV/km)	Ex	Ey
	05.	01.30	7.5	45	+	+	+	—	tr		
		05.00	14.5	95	+	+	+	—	tr		
		20.00	14.5	80	—	+	+	+	tr		
09.	06.	18.00	5.5	38	—	+	—	+	tr		
		23.30	6.5	30	+	+	+	—	2.5	+	+
	08.	22.30	5.5	25	—	+	+	+	2	+	+
	09.	00.00	6.5	35	+	+	+	—	tr		
	12.	17.15	10	45	—	—	—	+	tr		
	15.	22.45	4.5	28	+	+	+	—	tr		
	16.	16.15							4.5	+	+
		19.30	5.5	28	—	+	+	+	3.5	+	+
	17.	00.30							3.5	+	+
	18.	00.30							2.5	+	+
		21.15							2.5	+	+
	19.	19.15	18	125	—	+	+	+	tr		
		22.15	10	45	+	+	+	—	tr		
		23.15	12	60	+	+	+	—	tr		
	20.	16.00	6.5	50	—	+	—	+	tr		
		20.00	13.5	60	—	+	+	+	tr		
		22.15	4.5	22	+	+	+	—	3.5	+	+
	21.	22.30	3.5	28	—	+	+	+	2.5	+	+
	22.	20.45	11	90	—	+	+	+	3.5	+	+
	23.	02.30	10	50	+	+	+	—	tr		
		21.30	32.5	210	—	+	+	+	tr		
	24.	16.15	15.5	70	+	+	+	+	tr		
	25.	18.15	10	130	+	+	+	+	tr		
	26.	20.15	12.5	65	+	+	+	+	tr		
	27.	15.00	11	65	—	—	—	+	tr		
		21.45	9	65	+	+	+	—	tr		
	28.	20.15	14.5	68	+	+	+	+	tr		
	29.	23.00	8	32	—	+	+	—	3.5	+	+
	30.	02.15	4.5	35	+	+	+	—	tr		
		23.30	5.5	30	+	+	+	0	2.5	+	+
10.	01.	16.30	3.5	32	—	—	—	+	tr		
	02.	01.45							2	+	+

		Bays							Pi-s		
Month	Day	CET (GMT+1h)	Amplitude in E(mV/km)	H(gamma)	Ex	Ey	Hx	Hy	E(mV/km)	Ex	Ey
		02.30	5.5	28	+	+	+	−	tr		
	03.	00.45	11	45	+	+	+	+	2.5	+	+
		22.30	3.5	30	+	+	+	−	tr		
10.	04.	22.30	3.5	18	+	+	+	+	2.5	+	+
	06.	22.15	>13.5	100	−	+	+	+	tr		
10.	07.	00.45	13.5	55	+	+	+	−	tr		
		19.30	8	40	−	−	+	−	tr		
	09.	18.45	12.5	85	−	+	+	+	tr		
	10.	15.00	>16	100	−	+	+	+	tr		
	11.	16.45	11	80	−	+	+	+	tr		
		22.15	14.5	80	+	+	+	−	tr		
	12.	16.45	18	85	−	+	+	+	tr		
		19.15	16	100	−	+	+	+	tr		
	14.	22.30	11	55	+	+	+	−	tr		
	15.	20.30	10	70	−	+	+	+	tr		
	16.	18.00	8	42	+	+	+	+	tr		
		23.15	6.5	40	−	+	+	+	2.5	+	+
	18.	21.30	>18	130	−	+	+	+	tr		
	19.	01.00	>18	65	−	−	−	+			
		15.00	21.5	170	−	−	−	+	tr		
	20.	19.30	>15	185	+	+	+	−	tr		
	21.	16.30	16	120	−	+	+	+	tr		
		19..15	16	95	+	+	+	+	tr		
		21.30	>15	140	−	+	+	+	tr		
	22.	21.15	26	85	+	+	+	+	tr		
	25.	15.45	17	95	+	+	−	+	tr		
		18.45	12.5	85	+	+	+	+	tr		
		21.15	11	55	−	+	+	+	tr		
		22.30	14.5	42	+	+	+	−	tr		
	26.	16.15						(pg)	3.5 (8 min)		
	28.	19.30							2.5	+	+
	30.	22.00							2.5	+	+
	31.	01.30	6.5	12	−	+	+	−	3.5	+	+

		Bays							Pi-s		
Month	Day	CET (GMT+1h)	Amplitude in E(mV/km)	H(gamma)	Ex	Ey	Hx	Hy	E(mV/km)	Ex	Ey
11.	02.	19.00	12.5	72	+	+	+	+	tr		
11.	03.	21.15	>10	85	—	+	+	+	tr		
	04.	20.15	8	28	—	—	—	+	tr		
	07.	18.00	17	80	+	+	+	+	tr		
		23.15	14.5	55	—	+	+	—	tr		
	09.	19.15	10	72	—	+	+	+	2	+	+
	10.	14.00	10	72	—	—	—	+			
	10.	22.15	14.5	95	—	+	+	+	tr		
	11.	22.30	14.5	95	+	+	+	+	2.5	+	+
	13.	22.15							3.5	+	+
	15.	03.30	11	60	+	+	+	—			
		20.00	21.5	85	+	+	+	+	tr		
	16.	18.00	>25	105	+	+	+	+	tr		
		18.45	>27	155	+	+	+	+	tr		
	17.	16.45	20	140	—	+	+	+	tr		
	18.	18.00						(pg)	2.5 (5.5 min)		
		20.30	9	50	+	—	+	+	tr		
	20.	21.00	4.5	42	+	+	+	+	2.5	+	+
	22.	18.15	13.5	45	—	+	+	+	tr		
	24.	20.45	5.5	35	—	+	+	+	tr		
	25.	20.30							3.5	+	+
		21.00	8	38	—	+	+	+	2.5	+	+
	27.	17.30	7	45	+	+	—	+	tr		
	29.	21.00							3.5	+	+
	30.	22.00	13.5	85	—	+	+	+	tr		
12.	02.	02.30	9	55	+	+	+	—	tr		
		14.30						(pg)	4.5 (5 min)		
		19.15	8	45	+	+	+	—	tr		
		20.30	12.5	70	—	+	+	+	tr		
	03.	00.00	8	38	+	+	+	—	tr		
		18.00	11	50	+	+	+	+	tr		
		20.30	12	55	—	+	+	+	tr		

		Bays							Pi-s		
Month	Day	CET (GMT+1h)	Amplitude in E(mV/km)	H(gamma)	Ex	Ey	Hx	Hy	E(mV/km)	Ex	Ey
12.	04.	19.30	12	72	—	+	+	+	tr		
		20.30	12.5	72	—	+	+	+	tr		
	08.	01.30	4.5	20	+	0	0	—			
	09.	00.45	5.5	28	+	+	+	—	tr		
		23.30	3.5	20	+	+	+	0	2	+	+
	10.	18.00	5.5	35	—	+	+	+	3.5	—	+
	11.	01.00							2	+	+
		21.45	18	120	+	+	+	+	tr		
	12.	01.00	13.5	65	+	+	+	—	tr		
		21.30							2	+	+
	13.	17.30	11.5	50	—	+	+	+	2	+	+
		21.00	8	45	+	+	+	—	tr		
	14.	22.00	6.5	28	+	+	+	+	tr		
	15	21.15	>10	125	—	+	+	+	tr		
	16.	17.00	15.5	95	+	+	+	+	tr		
		19.30	>22	140	+	+	+	+	tr		
		23.00	14.5	80	+	+	+	—	tr		
	17.	19.00	22	100	+	+	+	+	tr		
		22.30	12.5	80	+	+	+	—	tr		
	20.	01.30							2.5	+	+
	21.	20.15	17	45	—	—	—	+			
	22.	22.30	8	28	—	—	—	+	tr		
	26.	18.30	8	35	+	+	+	—	tr		
		21.15	9	80	—	+	+	+	tr		
	28.	00.00	8	45	+	+	+	—	tr		
		16.45	11	90	—	—	—	+			
		20.15	12	45	+	+	+	+	tr		
		20.45	14.5	60	+	+	+	+	tr		
	30.	19.30	17	60	—	+	+	+	tr		
		23.45	12.5	72	+	+	+	+	tr		
	31.	14.30	12.5	85	—	—	—	+			

Further pi-traces

Month	Day	CET
01.	02.	01.30
	03.	00.00
		21.15
	04.	02.15
	06.	21.15
	07.	22.30
		22.45
	11.	23.30
	13.	13.45
	15.	22.30
		22.45
		23.15
	17.	20.45
	19.	20.30
		21.15
	20.	20.30
	21.	01.30
	22.	00.45
		01.30
		03.00
		23.45
	23.	12.00
		15.45
		17.00
	24.	01.00
		01.45
		02.15
	25.	23.45
	26.	20.15
	27.	23.45
	29.	21.15
01.	29.	22.00
02.	01.	23.45
	02.	00.30
		01.15
	06.	21.30
	07.	19.45
	09.	02.45
	14.	20.45
	15.	20.45
	19.	03.15
		03.30
	20.	01.45
		02.30
	21.	22.30
	23.	23.00
		23.30
	25.	00.15
	26.	19.30
	27.	17.15
		17.45
		20.15
03.	01.	23.15
	09.	17.45
	11.	21.45
		22.45
	18.	22.30
	20.	01.00
	22.	00.15
	25.	20.00
	29.	23.15
	31.	20.45
04.	06.	22.00
	12.	17.00
		22.15
	13.	22.45
	14.	19.15
	15.	19.45
	16.	22.45
	17.	00.15
	20.	18.00
		23.30
	21.	20.45
	22.	00.45
	23.	20.15
		20.30
		20.45
	24.	22.30
	27.	22.15
		22.45
05.	02.	23.00
	03.	20.15
		20.45
		23.30
	05.	00.45
		01.30
		01.45
		20.30
		20.45
	07.	19.30
	09.	20.45
		21.00
	11.	20.45

Further pi-traces

Month	Day	CET
05.	11.	21.00
		22.00
	14.	20.45
	16.	09.15
		22.45
	19.	20.30
	20.	01.30
	21.	00.30
	23.	22.45
	24.	20.00
	25.	17.30
		22.30
	28.	21.30
		22.15
	30.	20.15
06.	02.	22.45
		23.15
		23.45
	04.	15.45
		22.30
	10.	22.15
		22.30
	12.	21.15
	13.	19.15
	14.	02.30
		03.00
		19.45
	15.	05.45
	18.	02.45
	21.	01.15
		21.15

Month	Day	CET
06.	24.	23.45
	25.	20.45
	27.	03.00
	28.	00.15
		21.00
	29.	20.45
		21.30
07.	04.	03.30
	06.	21.45
	07.	20.30
	08.	03.00
	21.	00.15
		22.45
	22.	04.30
		22.00
		22.30
		23.30
	23.	00.45
	26.	01.45
		21.15
	27.	18.30
		20.00
	30.	02.15
08.	04.	23.45
	05.	05.30
	07.	22.15
	08.	00.45
		01.30
	09.	20.30
		21.15
	11.	20.45

Month	Day	CET
08.	14.	22.45
	17.	00.45
		19.45
	20.	17.15
	21.	20.15
		22.30
	22.	00.00
		00.30
		01.30
		20.45
	25.	05.00
		18.45
		22.45
	27.	00.30
		01.30
		01.45
		23.15
	28.	23.00
	30.	00.30
	31.	02.30
		21.45
09.	01.	01.00
		10.00
		19.15
	02.	03.30
	03.	03.15
	06.	22.45
	07.	01.15
		04.00
	08.	18.45
	11.	22.30

Further pi-traces

Month	Day	CET
09.	11.	23.30
	12.	23.45
	13.	22.45
	14.	22.30
		23.45
	15.	00.15
	16.	01.30
	17.	22.45
		23.30
	18.	20.45
	19.	02.15
	24.	22.15
	25.	01.15
		23.45
	29.	00.30
		05.15
		20.30
		22.30
		22.45
10.	01.	16.15
	02.	01.30
		23.45
	03.	00.30
		20.00
		20.45
	05.	02.15
	07.	23.45
	12.	23.45
	15.	16.15
		18.30
	17.	21.30

Month	Day	CET
10.	17.	21.45
	19.	19.30
	21.	18.15
	23.	20.00
	24.	22.00
	26.	22.45
		23.00
		23.15
		23.30
		23.45
	27.	22.15
	28.	22.15
		23.15
	29.	21.45
	30.	01.15
		01.30
		02.45
	31.	00.15
		00.45
11.	03.	01.30
	07.	22.15
	13.	19.15
		19.45
	14.	20.30
		21.15
		22.15
	18.	23.15
		23.30
	19.	00.30
	21.	22.00
	25.	01.00

Month	Day	CET
11.	26.	01.30
		18.30
		19.30
	28.	22.15
		23.30
	29.	20.30
12.	01.	23.15
	06.	23.30
	09.	20.45
	11.	00.15
	12.	20.30
		22.30
		23.00
	13.	20.30
	19.	18.15
		20.30
		21.15
	24.	23.30
	25.	01.30
		02.15
	29.	22.45
	30.	20.45

SI-s

Month	Day	CET (GMT+1h)	Amplitude in E(mV/km)	H(gamma)	Ex	Ey	Hx	Hy	
01.	04.	10.30	13	30	+	+	+	—	
	05.	06.15	6	17	+	+	+	—	
	20.	08.30	5.5	10	—	+	+	+	
	31.	09.30	5.5	10	—	—	—	+	
02.	02.	07.00	2.5	8	+	—	—	—	
	04.	13.30	11	25	—	—	—	+	
	09.	04.30	3.5	7	—	—	—	+	
	14.	14.30	7	18	—	—	—	+	
	18.	12.15	7	18	+	+	+	—	(b ?)
	20.	11.30	4.5	12	—	—	—	+	
	23.	10.45	5.5	8	—	+	+	+	
	27.	01.00	6.5	18	+	+	+	—	
	29.	04.30	2.5	6	+	+	+	—	(ssc ?)
03.	03.	14.00	6.5	18	+	+	+	—	
	06.	09.15	12	22	+	+	+	—	
	15.	11.15	4.5	13	+	+	+	—	
		12.30	8	18	+	+	+	—	
	20.	10.15	5.5	8	+	+	+	+	
	26.	16.15	6.5	17	+	+	+	—	
04.	01.	08.45	6.5	12	—	—	—	+	
	03.	06.45	9	25	—	—	—	+	
	04.	05.45	10	18	—	—	—	+	
		17.45	8	14	—	—	—	+	
	07.	01.30	6.5	14	+	+	+	—	
		03.30	7	22	—	—	—	+	
	09.	09.00	5.5	14	—	—	—	+	
		11.15	8	17	+	+	+	—	
	15.	05.15	6.5	12	—	—	—	+	
	17.	17.15	9	22	—	—	—	+	
05.	01.	03.30	5.5	12	+	+	+	—	
	02.	10.00	7	22	+	+	+	—	
05.	03.	09.45	5.5	22	—	—	—	+	
	11.	04.15	3.5	12	+	+	+	—	
		15.30	7	22	+	+	+	—	
	18.	00.00	4.5	12	+	+	+	—	

SI-s

Month	Day	CET (GMT+1h)	Amplitude in E(mV/km)	H(gamma)	Ex	Ey	Hx	Hy	
		03.45	9	18	+	+	+	−	
		04.30	10	22	−	−	−	+	
	19.	10.15	8	18	−	−	−	+	
06.	06.	21.00	4.5	12	+	+	−	+	
	08.	03.30	3.5	?	+	+	?	?	
	25.	18.30	4.5	14	+	+	+	−	
	29.	02.00	8	25	−	−	−	+	(b ?)
07.	12.	03.45	5.5	12	−	−	−	+	
	21.	17.30	4.5	10	−	−	−	+	
	25.	15.15	5.5	15	−	−	−	+	
	27.	22.15	5.5	12	−	+	+	+	
	28.	19.30	8	10	+	+	+	−	
	29.	02.00	3.5	10	+	+	+	−	
	30.	00.15	5.5	14		+	+	−	
		16.15	3.5	18	+	+	+	−	
08.	01.	09.15	23.5	30	+	+	+	−	
	25.	07.15	6.5	12	−	−	−	+	
	28.	06.30	5.5	14	−	−	−	+	
	29.	08.15	10	18	−	−	−	+	
		11.30	7	18	+	+	+	−	
	31.	00.00	5.5	12	+	+	+	−	
09.	01.	12.00	3.5	12	+	+	+	−	
	08.	03.15	3.5	10	−	−	−	+	
	12.	22.00	3.5	7	+	+	+	−	
	14.	17.00	9	18	−	−	−	+	
10.	10.	13.30	6.5	32	−	−	−	+	
	11.	00.30	5.5	14	+	+	+	−	
11.	11.	09.00	9	18	−	−	−	+	
	15.	00.45	8	22	−	−	−	+	
		06.45	6.5	14	−	−	−	+	
	23.	03.15	6.5	18	−	−	−	+	

SI-s

Month	Day	CET (GMT+1h)	Amplitude in E(mV km)	H(gamma)	Ex	Ey	Hx	Hy
12.	01.	07.30	5.5	12	—	—	—	+
	12.	05.30	6.5	22	—	—	—	—
		07.45	4.5	12	—	—	—	+
	18.	06.00	6.5	8	+	—	—	—
	21.	19.30	8	18	—	—	—	+
	23.	17.45	5.5	10	—	—	—	+
	29.	03.30	6.5	12	+	+	+	—
	31.	04.45	7	15	+	+	+	—

Needles

Month	Day	CET (GMT+1h)	Amplitude in E(mV km)	Ex	Ey
01.	02.	05.30	4.5	—	—
	18.	14.30	2.5	+	+
		18.30	2	+	+
02.	03.	12.30	4.5	—	+
	14.	18.45	2	+	+
	20.	16.00	8	—	—
		18.30	8	—	—
	26.	18.45	5.5	—	+
	28.	08.00	5.5	—	—
		14.00	2.5	+	+
	29.	08.45	2.5	+	+
03.	02.	05.45	4.5	—	—
		07.00	6.5	+	+
	03.	11.30	2.5	+	+
	15.	12.30	2.5	—	—
04.	16.	10.30	5.5	+	+
	18.	11.30	2.5	+	+ (ssc ?)
	22.	13.15	2	—	—
	27.	02.30	3.5	—	+
05.	06.	05.30	2	—	—
	11.	11.00	2.5	—	—
	17.	11.30	2.5	—	—
	18.	07.45	3.5	+	+
06.	04.	10.30	8	+	+
	15.	08.15	4.5	—	—
		10.45	4.5	—	—
	23.	17.30	8	+	+
07.	03.	14.45	6.5	—	—
	16.	17.30	5.5	—	—
08	24.	00.15	2	—	—
	27.	15.45	3.5	—	—
	29.	18.30	3.5	+	+
09.	16.	12.15	5	+	+
10.	06.	15.00	3.5	—	—
	20.	07.45	7	+	—

Month	Day	CET (GMT+1h)	Amplitude in E(mV/km)	Ex	Ey
11.	04.	12.45	2.5	+	+
	20.	11.15	5.5	+	+
	22.	23.15	3.5	0	—
12.	23.	11.15	6.5	+	—
		11.30	7	+	+

1984

Pc 1-events

Month	Day	Duration hour min	hour min	Quality
1.	7	431—	448	C
		500—	621	C
		652—	800	C
	8	1717—	1738	C
		1808—	1846	C
	9	1706—	1737	C
	10	320—	326	C
		353—	410	C
		520—	607	B
	19	027—	050	C
2.	16	142—	250	C
	17	558—	620	C
		658—	804	C
	18	2009—	2052	C
	19	2356—	20 033	C
	20	258—	328	C
		358—	428	C
3.	11	455—	641	B
4.	9	2110—	2209	C
	11	519—	812	C
	27	2157—	2211	C
	29	058—	141	C
		221—	235	C
5.	6	355—	413	C
		436—	527	C
6.	3	411—	434	C
		449—	523	C
		410—	437	C
	8	028—	200	C
7.	8	1629—	1719	C
	21	455—	521	C
8.	2	2218—	2237	C

Month	Day	Duration hour min hour min	Quality
8.	4	133— 207	C
		235— 431	C
		528— 649	C
		2208— 2227	C
	5	033— 107	C
		146— 418	B
	27	2008— 2034	C
9.	2	2032— 2040	C
	3	128— 145	C
	7	138— 507	C
	14	320— 410	B
	22	244— 333	B
	25	2210— 2348	B
	26	2232—27 003	C
	27	055— 128	C
		1645— 1731	B
		2201— 2227	C
	29	054— 138	C
		2113— 2306	B
	30	158— 230	C
		403— 422	C
10.	1	521— 644	A
	2	357— 406	C
	5	606— 618	C
		640— 647	C
	8	2213— 2242	C
	15	332— 352	C
	16	400— 441	A
		628— 752	A
	18	702— 727	C
	20	1624— 1709	C
	22	1737— 1809	C

Month	Day	Duration hour min hour min	Quality
10.	23	2116— 2237	C
	25	1905— 2040	C
		2149— 2321	B
	26	810— 850	C
		1557— 1624	C
	27	410— 444	B
	29	015— 040	C
		314— 718	B
11.	1	117— 127	C
		201— 228	C
		347— 421	C
	3	446— 515	C
	6	2240— 2258	C
	16	1903— 1920	C
	17	1740— 1749	C
		1817— 2155	B
		2210— 2245	C
		2308—18 014	C
	18	111— 155	C
		1739— 1834	C
	19	043— 247	C
	20	007— 043	C
		113— 211	C
		343— 434	C
		440— 531	C
	21	506— 531	B
	22	405— 446	C
	24	440— 540	C
	25	524— 540	B
		1528— 1554	C
		1646— 1652	C
	29	1626— 1631	C

Month	Day	Duration hour min	hour min	Quality
11.	30	249—	408	C
12.	9	509—	609	C
		708—	736	C
		811—	831	C
	14	2217—	2318	C
	15	2135—	2214	C
	16	550—	620	C
	20	347—	452	C
		513—	521	C
	27	430—	500	C
	28	1656—	1739	C

V.

Average amplitudes in 12 pulsation bands
(monthly averages for 3 hour intervals in μV/km)

January

CET	Periods 1—5	5—10	10—15	15—20	20—25	25—30	30—40	40—60	60—90	90—120	120—300	300—600 sec
0— 3	2	10	25	33	22	22	59	105	96	44	47	60
3— 6	0	10	25	73	50	86	82	58	15	7	55	145
6— 9	0	12	43	70	106	153	102	50	44	10	120	221
9—12	0	3	37	324	145	143	59	31	22	36	135	176
12—15	0	9	34	319	307	135	122	54	39	9	50	109
15—18	0	10	44	179	133	204	65	75	34	54	116	38
18—21	0	15	29	75	41	73	88	103	58	64	40	80
21—24	0	25	26	31	13	37	73	122	183	131	82	99
Average	0	12	33	138	102	107	81	75	61	44	81	116

February

0— 3	8	37	29	30	16	27	104	146	119	62	71	23
3— 6	7	18	31	119	36	94	54	49	22	16	135	87
6— 9	4	17	47	105	66	92	56	74	38	19	110	147
9—12	0	11	29	310	149	146	29	39	44	4	123	189
12—15	0	1	25	394	168	147	96	44	40	16	90	137
15—18	1	5	37	254	115	129	105	88	38	34	61	154
18—21	1	13	36	72	21	48	89	93	106	87	74	112
21—24	3	45	29	21	9	67	88	181	164	59	81	102
Average	3	18	35	163	73	94	78	89	71	37	93	119

March

CET	Periods											
	1—5	5—10	10—15	15—20	20—25	25—30	30—40	40—60	60—90	90—120	120—300	300—600 sec
0— 3	9	28	36	38	4	42	73	114	59	32	145	89
3— 6	1	18	47	135	34	38	63	42	23	27	211	220
6— 9	0	11	43	333	170	153	70	22	30	10	205	105
9—12	0	3	26	442	169	234	112	28	13	33	184	198
12—15	0	4	18	427	305	225	108	13	34	99	118	92
15—18	0	9	31	241	177	143	79	58	63	9	138	48
18—21	0	22	34	51	59	44	90	108	49	60	114	126
21—24	11	44	23	27	3	21	152	235	117	117	60	174
Average	3	17	32	212	115	113	93	78	49	48	147	132

April

0— 3	8	38	33	24	8	19	116	135	88	83	143	110
3— 6	3	31	76	79	28	59	13	48	30	24	263	289
6— 9	0	7	43	379	176	123	70	42	45	28	247	141
9—12	0	9	24	389	265	171	98	68	36	28	128	178
12—15	0	6	19	546	153	167	60	22	55	49	150	201
15—18	0	17	31	143	125	98	153	114	88	66	262	167
18—21	2	26	34	28	33	33	66	138	70	96	127	207
21—24	10	35	27	20	5	39	111	183	98	58	131	139
Average	3	14	36	201	99	89	86	94	64	54	183	179

May

CET	Periods											
	1—5	5—10	10—15	15—20	20—25	25—30	30—40	40—60	60—90	90—120	120—300	300—600 sec
0— 3	7	43	21	31	10	37	39	155	90	37	117	147
3— 6	0	27	50	147	28	35	45	35	35	11	156	106
6— 9	0	6	39	371	140	104	65	9	22	50	148	41
9—12	0	3	20	356	190	193	77	38	23	42	178	180
12—15	0	7	15	433	216	84	54	98	23	40	245	87
15—18	0	13	20	158	87	69	87	95	55	61	106	272
18—21	2	42	24	32	30	34	103	114	95	73	118	59
21—24	2	57	24	15	6	9	126	123	105	80	102	211
Average	1	25	27	193	88	71	75	83	56	49	146	138

June

0— 3	2	37	22	23	7	34	66	130	128	62	118	202
3— 6	1	16	92	121	25	70	45	57	50	12	96	211
6— 9	0	3	83	377	168	118	62	54	3	5	236	78
9—12	0	1	23	398	244	188	76	50	11	10	210	99
12—15	0	3	12	338	234	93	86	50	30	51	146	165
15—18	1	11	19	68	93	98	115	114	55	12	253	153
18—21	1	30	29	26	16	39	56	151	151	83	128	105
21—24	7	45	28	24	9	22	37	163	194	58	120	174
Average	2	18	39	172	100	83	68	96	78	37	163	148

July

CET	Periods											
	1—5	5—10	10—15	15—20	20—25	25—30	30—40	40—60	60—90	90—120	120—300	300—600 sec
0— 3	1	29	41	43	15	23	45	210	140	22	69	209
3— 6	1	13	71	212	43	55	66	100	57	13	100	76
6— 9	0	3	31	522	215	133	31	26	13	0	139	62
9—12	0	0	10	564	299	148	73	40	41	16	101	68
12—15	0	0	14	422	243	224	59	82	9	8	116	115
15—18	0	5	19	91	102	152	155	88	56	32	131	204
18—21	7	26	29	47	27	45	63	204	102	121	72	171
21—24	6	27	24	31	13	21	78	87	223	37	106	234
Average	2	13	30	242	118	100	71	105	80	31	104	142

August

0— 3	0	11	32	70	27	20	47	202	118	9	105	150
3— 6	2	4	47	202	49	81	98	79	22	3	75	93
6— 9	0	0	34	532	243	126	59	72	0	0	99	4
9—12	0	0	35	503	323	160	95	83	28	0	57	100
12—15	0	1	32	394	285	319	81	92	35	3	123	65
15—18	0	9	12	139	75	135	146	149	93	27	135	123
18—21	0	17	24	27	32	39	131	262	107	62	72	86
21—24	2	15	16	55	20	10	141	240	119	90	16	97
Average	1	7	29	240	132	111	100	147	65	24	85	90

September

CET	Periods											
	1—5	5—10	10—15	15—20	20—25	25—30	30—40	40—60	60—90	90—120	120—300	300—600 sec
0— 3	0	4	31	56	31	43	120	99	102	27	63	116
3— 6	0	9	54	168	65	88	32	23	36	11	48	168
6— 9	0	5	27	404	313	291	34	13	23	15	88	182
9—12	0	15	14	478	360	359	114	23	36	7	117	188
12—15	0	10	12	378	242	168	135	58	97	15	163	228
15—18	0	7	9	119	127	216	153	51	73	50	150	84
18—21	0	14	16	29	16	61	147	159	150	54	30	148
21—24	0	18	15	26	25	82	146	353	197	39	29	123
Average	0	10	22	207	147	164	110	98	89	27	86	155

October

0— 3	0	23	28	45	16	44	46	56	53	40	66	21
3— 6	0	19	58	76	22	31	23	10	18	4	114	154
6— 9	0	5	29	213	129	97	46	21	0	6	86	41
9—12	0	1	19	315	198	77	33	38	39	6	70	44
12—15	0	2	12	257	281	206	52	26	10	5	13	65
15—18	0	1	7	188	137	135	44	43	52	23	20	9
18—21	0	6	19	50	35	94	127	67	23	5	35	5
21—24	0	16	20	49	10	114	89	55	112	42	29	14
Average	0	9	24	149	104	100	58	40	38	16	54	44

November

CET	Periods											
	1—5	5—10	10—15	15—20	20—25	25—30	30—40	40—60	60—90	90—120	120—300	300—600 sec
0— 3	0	7	19	75	25	59	115	148	101	33	104	98
3— 6	0	3	63	196	105	150	58	38	34	4	155	245
6— 9	0	4	73	452	184	261	59	50	11	13	265	373
9—12	0	2	63	846	219	199	100	36	54	15	207	238
12—15	0	2	42	992	493	205	106	51	137	0	228	55
15—18	0	0	10	366	234	356	181	126	53	0	156	0
18—21	0	12	14	113	73	253	173	193	91	66	163	71
21—24	0	12	19	43	51	84	172	257	161	31	103	56
Average	0	5	38	385	173	196	121	112	80	20	173	142

December

0— 3	0	2	13	56	59	38	73	105	90	123	58	240
3— 6	0	0	8	69	169	154	133	28	6	6	224	353
6— 9	0	1	8	154	285	187	203	149	25	0	182	466
9—12	0	0	2	137	249	231	315	230	166	23	185	402
12—15	0	0	56	148	363	531	553	231	49	31	81	24
15—18	0	0	36	42	224	323	373	210	55	11	160	170
18—21	0	1	11	56	119	125	168	66	78	119	102	198
21—24	0	2	14	35	48	47	70	123	221	72	178	161
Average	0	1	19	87	190	205	236	143	86	48	146	252

Yearly average

CET	Periods											
	1—5	5—10	10—15	15—20	20—25	25—30	30—40	40—60	60—90	90—120	120—300	300—600 sec
0— 3	3	22	43	44	20	51	71	125	207	48	92	122
3— 6	1	14	52	133	55	78	59	47	29	12	136	179
6— 9	0	6	42	326	183	153	71	49	21	13	260	155
9—12	0	4	25	422	234	187	98	59	43	18	142	172
12—15	0	4	24	421	274	209	126	68	47	27	128	112
15—18	0	7	23	166	136	172	138	101	60	32	132	119
18—21	1	19	25	51	42	74	108	138	90	74	90	114
21—24	3	28	22	31	18	46	107	177	158	68	86	132
Average	1	13	32	199	120	121	97	96	82	37	121	138

VI.

Micropulsation indices for the year 1984

Activity indices for the micropulsations
(P1 to P12)
1984. January—December

	January	February	March	April
1.	111111111111	115534534145	155413534531	554432442154
2.	135535345114	153415334224	555521313355	135512324345
3.	155532335411	355214443455	355414434235	155125542234
4.	155422224144	555421345155	255333531233	255412423355
5.	115335524235	155514234131	115422121222	255113325554
6.	113425534323	155532332232	255311245555	145511322421
7.	122115532412	155511332251	355531331434	255511234144
8.	111115532211	135543214221	445544331125	455211455455
9.	115422354511	145521134232	155423524123	354532334245
10.	155232232542	355511234222	355533141342	155531132142
11.	145511544431	455422224253	255422342241	145532232323
12.	145521214131	255422121241	255314345412	245521145221
13.	155421145322	355511254545	255412323343	155511233222
14.	135425335131	155521212254	115534112223	155521273243
15.	145532123521	235521332545	155423225422	145434233343
16.	155433133541	135523323322	155511233544	155522124334
17.	135442244411	155521222122	125521224154	145214335423
18.	155313243512	155543423225	141532345221	155411123455
19.	225522345333	155532334311	115541421124	355311224555
20.	124235242322	153521445323	115424531221	135542132255
21.	135431244342	245512325441	255312524541	255332444521
22.	235452134221	125511342321	454432235541	133235255521
23.	115534332112	155512122241	155511222445	255221445532
24.	135455222121	145514224443	135531224524	145511135511
25.	155523232332	113324543511	145435414235	155311253355
26.	155521433242	153333241321	244523243114	255421442354
27.	145324434411	153345231124	355333422252	455324542123
28.	155422333344	135523343133	255521333244	245531343313
29.	155432113245	155411232233	155541124254	112424531221
30.	155531132245		155422243145	355421413321
31.	135521213345		253444442112	

	May	June	July	August
1.	155212442442	145511424441	255531351124	145424434324
2.	135411434453	155521515441	155551214325	125554222132
3.	255531241523	455511124154	255531224343	115521321132
4.	155531232321	155511134155	155522235422	131523353222
5.	253531443311	155444321155	155534331144	531423552112
6.	155511344132	133543224425	124455243122	153325353211
7.	155521232441	131544224421	235431245133	125435425111
8.	155511214121	555322223444	255522235342	155542234422
9.	152541324544	155521145345	345522333223	155521234223
10.	155521213154	151334543145	155531324342	135542434212
11.	155522232534	122544331324	353423325422	155511444312
12.	254531122354	125541544222	155511434244	145551343322
13.	155531113433	125214534221	155211344355	112522253111
14.	155412145444	155323234511	155534223124	155531134154
15.	355221435533	355411314455	155511312125	121531231133
16.	255313334352	155332324155	154531422123	114455253121
17.	155411112255	145412453242	144543334142	125542144321
18.	255422134255	155511334444	115532232124	125443234131
19.	155333435144	154412432333	135135533141	123521353243
20.	155335224433	155135224244	112533532324	135421345325
21.	255423224243	121113533511	213444334322	114324535511
22.	155523323255	125211245541	133423245144	115534324321
23.	254444514245	155312555221	155532134114	455421344444
24.	134521422242	354315424142	135521145322	145522123254
25.	131514551421	155533324132	435512344513	144454154211
26.	155511334324	245542145112	151521141511	124422454222
27.	135422244543	145512322142	245522214214	155521344244
28.	155211255531	153411345342	135543224124	125511321145
29.	155314345211	155531154224	145522344323	115533423144
30.	253312545543	155553442122	135521355521	135522234222
31.	234541124311		455522223435	121344244212

	September	October	November	December
1.	115322545141	135433234211	155411344525	113224552154
2.	125424322141	145531325311	145511243354	123434544355
3.	145521435212	155522124431	123532321221	115354551222
4.	155321134255	125542335321	114533221113	113454531124
5.	155212525454	155413224331	124534321143	113454521145
6.	134435432312	155442125145	122532334121	114255533324
7.	125531415423	155434322144	133542434122	115354543114
8.	132523325122	145523312221	115511114153	111334544111
9.	145552224213	125521211121	141524334124	115544431121
10.	145532324335	145532211134	115534221235	113545221142
11.	123522543415	155543212122	121534224221	125552323521
12.	114355422212	155543111144	112544221221	124321554525
13.	111555223122	124544212132	111534524121	114445443324
14.	123533335123	115513233111	155413335431	125335524131
15.	132454343423	115525221111	155411144253	121354444244
16.	155414444321	115522342122	155422425154	111335553243
17.	113335245512	113115354111	115533133144	112333553355
18.	121235324521	125313434542	115534333134	111225554343
19.	155421544453	155522133344	115534312222	112345543314
20.	125532224222	124444421332	115533423223	115235554111
21.	124532344431	125522221153	115433434145	125334533135
22.	134512145412	155542413223	124532244114	123444522224
23.	135325212255	115435224322	113535331124	113332454125
24.	145534313135	125533311132	111543323124	113334444111
25.	113533225114	142424512211	153225554323	115445412114
26.	125414434341	155422134221	145515343123	113345431245
27.	134514541115	113425432111	115532434221	112553334134
28.	132334345111	122434413211	144534235221	145541312245
29.	153325523111	115522234311	115512213523	111544444224
30.	155314334311	112433245311	125214315552	115543234344
31.		133431213422		114434544225

Pc 1 indices 1984

	January	February	March	April	May	June	July	August	September	October	November	December
1.	1	1	1	1	1	1	1	1	1	3	3	1
2.	1	1	1	1	1	1	1	2	2	2	1	1
3.	1	1	1	1	1	3	1	1	2	1	2	1
4.	1	1	1	1	1	1	1	5	1	1	1	1
5.	1	1	1	1	1	1	1	1	1	2	1	1
6.	1	1	1	1	3	1	1	1	1	1	3	1
7.	5	1	1	1	1	2	1	1	5	1	1	1
8.	3	1	1	1	1	3	3	1	1	2	1	1
9.	2	1	1	3	1	1	1	1	1	1	1	4
10.	3	1	1	1	1	1	1	1	1	1	0	1
11.	1	1	3	5	1	1	1	1	1	1	1	1
12.	1	1	1	1	1	1	1	1	1	1	1	1
13.	1	1	1	1	1	1	1	1	1	1	1	1
14.	1	1	1	1	1	1	1	1	3	1	1	3
15.	1	1	1	1	1	1	1	1	1	2	1	2
16.	1	3	1	1	1	1	1	1	1	3	2	2
17.	1	3	1	1	1	1	1	1	1	1	5	1
18.	1	3	1	1	1	1	1	1	1	2	4	1
19.	2	2	1	0	1	1	1	1	1	1	4	1
20.	1	4	1	1	1	1	1	1	1	3	4	3
21.	1	1	1	1	1	1	2	1	1	1	2	1
22.	1	1	1	1	1	1	1	1	3	2	3	1
23.	1	1	1	1	1	1	1	1	1	3	1	1
24.	1	1	1	1	1	1	1	1	1	1	3	1
25.	1	1	1	1	1	1	1	1	3	5	3	1
26.	1	1	1	1	1	0	1	1	3	3	1	1
27.	1	1	1	2	1	1	1	2	5	2	1	2
28.	1	1	1	1	1	1	0	1	1	1	1	3
29.	1	1	1	3	0	1	0	1	3	5	2	1
30.	1		1	1	1	1	1	1	3	1	3	1
31.	1		1		1		1	1		1		1

0 = no registration

II. GEOMAGNETISM

Processing of the geomagnetic records of the Observatory near Nagycenk is similar to that of the earth currents. (For details see Á. Wallner: Über die erdmagnetischen Arbeiten im Observatorium bei Nagycenk und über deren Auswertung" Acta Techn. Hung. T. 47. 431-444; and „Observatoriumsberichte des Geophysikalischen Forschungslaboratoriums der Ungarischen Akademie der Wissenschaften vom; Jahren 1966" Sopron, 1967). The following four kinds of tables are published:

1. The activity indices M of the gen eral activity for each three-hour interval. The M-scale is linear, corresponding to 7 nT.

Values in brackets main extrapolated ones (in the case of incomplete observations).

II. The list of disturbed (D) and quite (Q) days selected by the following rule: A day is taken as disturbed on the basis of all magnetic and earth current activity indices, if the greatest of the simultaneous character figures decreases only in one of the three hour intervals to 3, in the other intervals they are greater. A day is taken as quiet, if the greatest of all activity indices has not reached 3. Five activity indices (two ot the earth currents and three of the magnetism) are always taken into account.

III. Differences of hourly means from monthly averages in nT for all three magnetic elements. The monthly averages are given as absolute values (therefore as minutes of arc in D).

IV. Results of harmonical analysis from the monthly, yearly, Q and D day means of the daily variations.

Time are given throughout in this part in CET. Recording of magnetic variations in the observatory is made with two sets of LaCour-variometers.

The data of the tables were collected by Á. WALLNER.

I.

Three-hour magnetic activity indices (M)

	January		February		March	
	M	Sum	M	Sum	M	Sum
1.	67145497	43	83223062	26	00028489	31
2.	72429920	35	20112299	26	96436499	50
3.	53322846	33	94011298	34	79274599	52
4.	15563498	41	98439999	60	23121210	12
5.	69229444	40	72212101	16	00121111	7
6.	22242703	22	01101165	15	12444499	37
7.	01111102	7	22121012	11	98224648	43
8.	10110000	3	21021011	8	43333999	43
9.	01010002	4	21211114	13	73111114	19
10.	02110297	22	31122299	29	22211256	21
11.	71112135	21	96222132	27	80011036	19
12.	32011102	10	11111219	17	13111133	14
13.	00011634	15	97333493	41	35227701	27
14.	20102012	8	99417926	47	01122110	8
15.	11110111	7	95211102	21	00122109	15
16.	00111221	8	32011031	11	31423831	25
17.	45000001	10	11211110	8	14346825	33
18.	00001033	7	63233271	27	11143653	24
19.	62423416	28	01122231	12	33237101	20
20.	23122000	10	20121459	24	20112100	7
21.	21333014	17	83113413	24	10012232	11
22.	43111122	15	31112141	14	55311255	27
23.	21011111	8	32333231	20	83345311	28
24.	21111000	6	21123222	15	11123212	13
25.	00111344	14	40131004	13	37656894	48
26.	63511363	28	10133497	28	40131259	25
27.	13111134	15	39322389	39	72243299	38
28.	33256936	37	20212211	11	34458999	51
29.	95243123	29	00123870	21	96866587	55
30.	42453989	44			73543276	37
31.	22236995	38			22334537	29
	$M_H = 2.15$		$M_H = 2.38$		$M_H = 3.08$	
	$M_D = 1.91$		$M_D = 2.39$		$M_D = 2.80$	
	$M_Z = 0.19$		$M_Z = 0.24$		$M_Z = 0.39$	

	April		May		June	
	M	Sum	M	Sum	M	Sum
1.	96483673	46	55323711	27	21112321	13
2.	53557977	48	33544411	25	31132532	20
3.	94457599	52	10153246	22	21229982	35
4.	74566699	52	41212134	18	25373562	33
5.	93415899	48	20137959	36	84436120	28
6.	73123113	21	92311220	20	44322122	20
7.	23297176	37	00013100	5	22032200	11
8.	96654949	52	01121110	7	0000	[0]
9.	94323283	34	12206633	23	544554	[36]
10.	21111024	12	86623962	42	22211634	21
11.	71123355	27	31312322	17	22212100	10
12.	12222634	22	31131297	27	0012	[6]
13.	41314143	21	54111000	12	102021	[8]
14.	21111678	27	00129332	20	01021000	4
15.	91222110	18	32111220	12	12254874	33
16.	00112102	7	02242102	13	99565525	46
17.	00121642	16	23599994	50	30153312	18
18.	11223222	15	13212448	25	12249982	37
19.	11233324	19	86533143	33	42335966	38
20.	23442121	19	32634975	39	46223220	21
21.	32212222	16	87597296	53	00101012	5
22.	40111100	8	54835997	50	21000310	7
23.	00113137	16	87354496	46	10111227	15
24.	10212112	10	31367772	36	47512231	25
25.	11335969	37	51222484	28	32132232	18
26.	98796999	66	95422220	26	12102123	12
27.	79334224	34	00123210	9	45312101	17
28.	41433922	28	10012224	12	23114779	34
29.	11233954	28	22313122	16	52121244	21
30.	11113009	16	42232424	23	32113541	20
31.			22101109	16		
	$M_H = 3.30$		$M_H = 2.91$		$M_H = 2.39$	
	$M_D = 2.69$		$M_D = 2.13$		$M_D = 1.71$	
	$M_Z = 0.48$		$M_Z = 0.41$		$M_Z = 0.27$	

	July		August		September	
	M	Sum	M	Sum	M	Sum
1.	22132559	29	69899969	65	42110123	14
2.	52121254	22	35645632	34	13111311	12
3.	82224443	29	12322222	16	12212113	13
4.	11222243	17	42223341	21	12679971	42
5.	52341211	19	21112221	12	89949997	64
6.	22223223	18	01112101	7	32132243	20
7.	21111152	14	00000000	0	22111111	10
8.	12221322	15	33255216	27	01214224	16
9.	22222631	20	22232529	27	41121124	16
10.	12238441	25	22141214	17	43263498	39
11.	20011443	15	10222114	13	43613232	24
12.	77223112	25	53242034	23	12143543	23
13.	15989992	52	33112121	14	43121111	14
14.	88665964	52	10138858	34	21132252	18
15.	45343399	40	45224722	28	31141304	17
16.	53268499	46	35447232	30	41011330	13
17.	65886978	57	32222125	19	20111000	5
18.	23237476	34	41131221	15	00001000	1
19.	33432222	21	11132799	33	01299399	42
20.	22212315	18	32320230	15	44242793	35
21.	51321112	16	10121100	6	00021314	11
22.	25211311	16	00010000	1	11136189	30
23.	31112122	13	00002444	14	79799999	68
24.	44162211	21	23396456	38	97964997	60
25.	12101233	13	42482151	27	43539898	49
26.	22121001	9	31411311	15	55487993	50
27.	81013344	24	22127998	40	53234939	38
28.	25323441	24	91593956	47	43122397	31
29.	11112790	22	43446434	32	22112226	18
30.	21112610	14	51224432	23	63211005	18
31.	11112829	25	34111323	18		
	$M_H = 2.81$		$M_H = 2.58$		$M_H = 3.04$	
	$M_D = 1.98$		$M_D = 1.92$		$M_D = 2.63$	
	$M_Z = 0.35$		$M_Z = 0.25$		$M_Z = 0.35$	

	October		November		December	
	M	Sum	M	Sum	M	Sum
1.	40112401	13	21995323	34	22323013	16
2.	33121332	18	21122494	25	59522798	47
3.	75332124	27	21229859	38	82232773	34
4.	10011412	10	43341355	28	22553999	44
5.	21122212	13	43224321	21	95142334	31
6.	15412259	29	01333432	19	32354736	33
7.	99629875	55	23221999	37	42333481	28
8.	85472268	42	95142422	29	21111000	6
9.	42251299	35	11111293	19	30000113	8
10.	42349971	39	22119449	32	10122241	13
11.	43343989	43	32223619	28	11014459	25
12.	93353993	44	12211000	7	95221211	23
13.	41168212	25	01031368	22	29435767	43
14.	42221037	21	12129252	24	10011325	13
15.	22011189	24	39399799	58	32022129	21
16.	64146147	33	99999998	71	73455999	51
17.	50001001	7	82346935	40	52459697	47
18.	02437599	39	83323165	31	22223653	25
19.	99599999	68	27311296	31	21113031	12
20.	97459999	61	52435255	31	10000231	7
21.	54555999	51	23335497	36	01001295	18
22.	96267999	57	12221182	19	51111233	17
23.	72245897	44	42113100	12	11231654	23
24.	53677996	52	12121134	15	10000101	3
25.	42332439	30	31101337	19	10200001	4
26.	92121112	19	31101130	10	13224479	32
27.	11113351	16	00111540	12	20019914	26
28.	01212044	14	12011100	6	92934959	50
29.	31211211	12	00641111	14	54353598	42
30.	22121102	11	29934239	41	33322296	30
31.	20101024	10			82229984	44
	$M_H = 3.53$		$M_H = 3.03$		$M_H = 2.91$	
	$M_D = 3.06$		$M_D = 2.58$		$M_D = 2.61$	
	$M_Z = 0.40$		$M_Z = 0.22$		$M_Z = 0.21$	

II.

Disturbed and quiet days for 1984

Disturbed days		Quiet days
January	5	7, 8, 9, 14, 15, 16, 24
February	4	7, 17
March	2, 3, 25, 28, 29	5, 14
April	2, 3, 4, 8, 26	24
May	17, 22, 23	8
June	9	13, 14, 21
July	14, 15, 17	26
August	1, 29	6, 7, 22
September	5, 10, 23, 24, 25, 26	7, 17, 18
October	7, 11, 12, 19, 20, 21, 24	5, 30
November	15, 16	28
December	13, 16, 17, 29, 31	24, 25

III.

Hourly averages of magnetic elements
(H, D, Z)

	0	1	2	3	4	5	6	7	8	9	10	11
							January					
H	— 0.8	— 0.3	+ 0.4	+ 2.8	+ 4.0	+ 6.8	+ 9.2	+11.7	+12.0	+ 8.4	+ 3.7	— 1.9
D	+ 9.8	+ 6.7	+ 3.2	— 2.4	— 4.0	— 4.9	— 4.8	— 2.8	+ 3.1	+ 5.1	+ 0.5	— 5.2
Z	+ 1.5	+ 0.2	— 0.7	— 1.5	— 1.7	— 1.4	— 1.4	— 2.0	— 2.9	— 5.1	— 4.8	— 4.3
							February					
H	+ 1.0	+ 4.1	+ 1.3	+ 0.2	+ 3.2	+ 4.9	+ 8.7	+12.9	+13.7	+ 9.6	+ 3.9	— 2.0
D	+17.3	+13.7	+11.5	+ 4.0	+ 3.0	— 0.6	— 0.2	+ 2.4	+ 7.7	+ 8.4	+ 0.6	— 9.6
Z	+ 2.1	+ 0.3	— 0.8	— 1.1	— 1.4	— 0.9	— 1.5	— 1.8	— 3.1	— 5.8	— 7.3	— 7.9
							March					
H	+ 8.4	+ 4.2	+ 3.7	+ 4.2	+ 5.8	+ 5.4	+ 5.5	+ 5.2	+ 1.3	— 7.2	— 7.5	— 4.8
D	+10.9	+ 9.9	+ 4.7	+ 6.4	+ 5.5	+ 5.7	+ 6.6	+13.0	+17.4	+15.1	+ 0.6	—16.5
Z	— 0.3	— 0.6	— 0.4	— 1.1	— 1.2	— 0.4	+ 1.5	+ 3.2	+ 1.2	— 3.8	— 9.1	—12.6
							April					
H	+ 5.6	+ 3.0	+ 5.4	+ 2.7	+ 4.8	+ 2.6	+ 0.9	— 1.7	—11.0	—15.4	—12.2	— 5.0
D	+11.7	+13.3	+10.2	+ 7.8	+ 9.7	+ 9.9	+13.6	+19.2	+22.4	+14.3	— 1.9	—19.3
Z	+ 2.6	+ 1.1	— 0.2	— 0.5	— 0.2	+ 1.1	+ 2.8	+ 3.1	+ 1.8	— 2.3	—10.0	—18.0
							May					
H	+ 7.2	+ 3.7	+ 2.1	+ 4.4	+ 5.8	+ 2.7	— 2.9	—11.4	—15.2	—14.4	— 8.9	+ 0.2
D	+12.5	+12.8	+ 9.7	+11.0	+14.3	+18.1	+22.7	+25.5	+19.8	+10.3	— 4.6	—20.0
Z	+ 2.5	+ 1.9	+ 1.7	+ 1.9	+ 2.7	+ 3.2	+ 2.3	— 1.1	— 1.3	— 6.1	—11.6	—16.3

12	13	14	15	16	17	18	19	20	21	22	23	Monthly Averages
— 2.1	— 3.7	— 4.9	— 5.4	— 5.8	— 6.3	— 7.2	— 9.0	— 5.7	— 2.1	— 1.9	— 1.9	21 078 nT
—11.5	—14.0	—11.5	— 5.9	— 4.3	— 2.7	— 0.2	+ 1.9	+ 8.0	+12.6	+11.1	+12.2	1°05.6'
— 4.7	— 2.4	+ 0.8	+ 2.5	+ 3.4	+ 3.3	+ 3.7	+ 4.6	+ 4.4	+ 3.6	+ 2.8	+ 2.1	42 593 nT
— 5.2	— 6.2	— 8.0	— 5.9	—11.3	— 7.4	— 4.8	— 1.7	— 4.3	— 2.7	— 2.8	— 1.2	21 068 nT
—15.1	—21.7	—24.0	—18.3	—12.6	—10.6	— 7.4	+ 1.0	+ 6.6	+11.4	+16.0	+16.4	1°07.0'
— 7.5	— 6.2	— 2.4	+ 2.0	+ 4.7	+ 5.2	+ 5.7	+ 5.9	+ 6.5	+ 6.1	+ 5.1	+ 4.1	42 599 nT
— 4.1	— 3.3	— 4.0	— 8.9	—11.8	— 8.3	— 4.8	+ 0.6	+ 0.9	+ 4.9	+ 6.8	+ 7.8	21 074 nT
—28.8	—32.7	—30.9	—19.2	— 9.9	— 5.6	— 2.3	+ 5.7	+ 5.0	+12.1	+12.6	+14.7	1°06.1'
—12.2	— 7.2	— 2.1	+ 2.5	+ 5.8	+ 6.1	+ 6.8	+ 7.2	+ 6.5	+ 5.0	+ 3.4	+ 1.8	42 598 nT
+ 4.6	+ 5.2	+ 0.7	— 5.7	— 6.0	— 2.7	+ 2.5	+ 3.7	+ 1.3	+ 3.7	+ 6.4	+ 6.6	21 076 nT
—34.3	—38.9	—33.2	—22.9	—13.9	— 6.6	+ 4.1	+ 5.0	+ 3.3	+ 5.2	+ 8.8	+12.6	1°06.8'
—20.0	—16.2	— 9.1	— 1.2	+ 5.5	+ 9.0	+11.1	+10.0	+ 9.3	+ 8.4	+ 6.8	+ 5.1	42 588 nT
+ 5.5	+ 3.4	— 2.4	— 5.1	— 4.1	— 2.3	+ 0.2	+ 5.5	+ 8.9	+ 7.0	+ 5.7	+ 4.4	21 082 nT
—32.6	—36.2	—32.4	—24.9	—14.9	— 7.3	— 1.8	+ 1.2	+ 2.2	+ 3.3	+ 4.7	+ 6.6	1°07.2'
—17.2	—14.3	— 7.8	— 0.9	+ 5.2	+ 8.5	+10.1	+ 9.7	+ 8.3	+ 6.9	+ 6.4	+ 5.2	42 596 nT

	0	1	2	3	4	5	6	7	8	9	10	11
						June						
H	+ 6.7	+ 6.8	+ 7.0	+ 6.6	+ 8.1	+ 6.6	+ 2.1	— 4.1	—11.0	—16.0	—15.1	—10.5
D	+ 6.2	+ 7.6	+ 9.6	+ 8.3	+11.5	+18.0	+23.1	+26.2	+24.6	+15.5	+ 1.8	—13.2
Z	+ 2.3	+ 1.3	+ 0.4	+ 0.8	+ 1.4	+ 1.7	+ 1.4	+ 0.4	— 1.2	— 4.8	— 9.5	—13.4
						July						
H	+ 9.1	+ 8.9	+ 6.9	+ 8.3	+10.9	+ 9.5	+ 3.4	— 3.7	—14.0	—17.1	—17.0	—14.8
D	+ 5.2	+ 6.0	+ 5.9	+ 7.0	+12.9	+18.7	+22.2	+24.4	+23.4	+17.4	+ 6.2	— 9.0
Z	+ 3.3	+ 2.1	+ 1.8	+ 1.6	+ 2.0	+ 2.0	+ 0.7	— 0.5	— 1.4	— 5.1	— 9.3	—13.1
						August						
H	+10.3	+ 8.8	+ 8.0	+ 8.6	+ 7.2	+ 4.7	— 1.0	— 8.7	—15.9	—18.0	—17.3	— 8.7
D	+ 8.0	+ 7.1	+ 8.3	+ 8.3	+11.4	+17.0	+21.4	+24.1	+20.8	+10.6	— 3.9	—18.5
Z	+ 1.1	+ 0.2	— 0.1	— 0.3	+ 0.5	+ 1.5	+ 1.2	+ 1.9	+ 1.0	— 2.6	— 6.6	— 9.8
						September						
H	+10.6	+10.2	+ 9.6	+ 8.0	+ 8.7	+ 7.7	+ 2.1	— 6.9	—12.7	—18.3	—12.8	—10.6
D	+ 6.4	+ 8.0	+ 8.9	+10.1	+10.8	+ 8.2	+12.0	+14.4	+12.5	+ 6.3	— 7.7	—19.9
Z	+ 0.3	— 0.9	— 1.2	— 1.7	— 1.5	— 1.3	— 0.6	+ 0.3	— 0.1	— 2.7	— 7.2	— 8.8
						October						
H	+ 9.3	+ 7.0	+ 6.8	+ 5.6	+ 5.2	+ 5.7	+ 7.2	+ 2.8	— 1.8	— 6.8	—11.6	— 9.1
D	+10.4	+ 6.6	+ 1.4	+ 1.4	— 2.3	— 3.0	— 1.8	+ 3.9	+10.0	+11.2	+ 1.4	—13.2
Z	— 1.6	— 2.1	— 3.1	— 3.3	— 2.9	— 2.1	— 0.2	+ 1.9	+ 1.8	— 1.9	— 6.2	— 8.1

12	13	14	15	16	17	18	19	20	21	22	23	Monthly Averages
— 5.6	— 4.5	— 3.8	— 4.7	— 1.6	— 1.6	+ 0.9	+ 4.7	+ 6.1	+ 8.3	+ 8.3	+ 6.3	21 082 nT
—23.2	—29.1	—31.2	—25.3	—17.3	—10.8	— 3.9	— 1.3	— 2.3	— 0.7	+ 2.0	+ 3.9	1°08.7
—13.4	—11.7	— 6.4	— 0.1	+ 4.9	+ 7.2	+ 8.5	+ 8.0	+ 7.0	+ 5.8	+ 5.1	+ 4.3	42 595 nT
—11.9	—10.7	—12.1	—10.0	— 4.2	+ 0.2	+ 4.0	+ 8.2	+12.1	+11.4	+11.3	+11.3	21 083 nT
—19.5	—27.2	—29.0	—26.2	—18.1	—11.8	— 7.7	— 5.2	— 0.9	+ 0.8	+ 1.0	+ 3.5	1°08.7'
—14.0	—11.5	— 6.5	— 0.9	+ 4.9	+ 7.4	+ 8.3	+ 7.4	+ 6.4	+ 5.9	+ 4.7	+ 3.8	42 599 nT
— 2.8	— 0.4	— 0.7	— 2.6	— 2.6	— 3.2	— 0.1	+ 4.2	+ 6.8	+ 6.7	+ 8.4	+ 8.3	21 080 nT
—28.5	—30.9	—28.7	—22.0	—14.0	— 5.4	— 1.8	— 2.4	+ 0.3	+ 3.7	+ 7.7	+ 7.4	1°08.3'
— 9.9	— 7.9	— 4.7	— 0.6	+ 3.9	+ 4.0	+ 5.8	+ 5.1	+ 5.2	+ 4.6	+ 3.9	+ 2.6	42 603 nT
— 6.4	— 5.1	— 3.4	— 4.5	— 8.2	— 5.2	— 1.8	+ 4.2	+ 6.8	+ 7.6	+ 9.2	+11.2	21 070 nT
—29.8	—27.5	—21.7	—15.9	— 4.0	— 0.2	— 0.1	+ 2.3	+ 7.7	+ 7.8	+ 5.0	+ 6.4	1°08.7'
— 6.9	— 3.9	— 1.1	+ 2.7	+ 7.6	+ 6.7	+ 5.9	+ 5.1	+ 3.9	+ 2.9	+ 1.9	+ 0.6	42 610 nT
— 7.1	— 7.0	— 6.2	— 7.9	— 7.0	— 8.0	— 4.1	+ 0.2	+ 4.4	+ 5.4	+ 8.0	+ 9.0	21 068 nT
—21.8	—23.5	—18.6	— 9.3	— 7.9	— 0.8	— 1.0	+ 7.2	+10.4	+13.0	+10.9	+15.5	1°10.0'
— 6.4	— 3.2	+ 0.1	+ 3.9	+ 5.1	+ 6.3	+ 6.4	+ 5.8	+ 4.6	+ 3.2	+ 1.8	+ 0.1	42 611 nT

	0	1	2	3	4	5	6	7	8	9	10	11
							November					
H	+ 2.6	+ 0.6	+ 3.8	+ 5.1	+ 8.8	+ 9.6	+10.4	+10.8	+ 5.6	+ 2.1	— 4.0	— 7.2
D	+11.6	+ 5.2	+ 2.2	— 2.1	— 4.0	— 6.8	— 5.6	— 3.3	+ 2.3	+ 2.2	— 4.0	—11.1
Z	— 0.3	— 0.8	— 1.6	— 2.0	— 2.7	— 2.4	— 2.4	— 1.9	— 2.2	— 4.7	— 6.8	— 6.5
							December					
H	+ 3.0	+ 1.2	— 0.3	— 0.2	+ 2.0	+ 3.4	+ 5.5	+ 7.3	+ 6.4	+ 4.4	+ 1.9	+ 1.3
D	+ 8.1	+ 2.7	— 0.2	— 2.5	— 4.1	— 3.2	— 4.9	— 5.4	— 4.4	— 6.2	— 8.0	—10.1
Z	— 0.1	— 1.2	— 1.7	— 2.0	— 2.0	— 1.7	— 1.3	— 1.7	— 2.8	— 3.1	— 2.5	— 3.2
							1984 Yearly means					
H	+ 6.1	+ 4.9	+ 4.6	+ 4.7	+ 5.9	+ 5.8	+ 4.3	+ 1.2	— 3.6	— 7.4	— 8.1	— 6.1
D	+ 9.8	+ 8.3	+ 6.3	+ 4.8	+ 5.4	+ 6.4	+ 8.7	+11.8	+13.3	+ 9.2	— 1.6	—13.8
Z	+ 1.1	+ 0.1	— 0.5	— 0.8	— 0.5	— 0.1	+ 0.2	+ 0.2	— 0.7	— 4.0	— 7.6	—10.2
							1984 Quiet days					
H	— 2.8	— 3.3	— 3.2	— 1.6	— 0.6	+ 0.9	+ 0.7	— 0.1	— 2.0	— 4.4	— 5.8	— 2.1
D	+ 9.4	+ 7.5	+ 6.8	+ 6.2	+ 8.1	+10.7	+12.8	+14.5	+13.7	+ 8.9	— 0.5	—10.2
Z	+ 3.2	+ 3.0	+ 2.5	+ 2.5	+ 2.6	+ 2.8	+ 2.5	+ 2.4	+ 1.2	— 1.7	— 4.6	— 7.3
							1984 Disturbed days					
H	+16.0	+14.8	+14.4	+17.2	+17.0	+10.9	+ 5.0	+ 0.1	—10.2	—16.1	—18.3	—15.0
D	+14.6	+13.7	+ 9.0	+ 5.7	+ 0.6	— 1.3	— 2.8	— 0.8	+ 5.6	+ 4.5	— 5.2	—17.6
Z	— 3.0	— 4.4	— 5.8	— 7.2	— 7.8	— 6.7	— 5.0	— 3.4	— 2.9	— 4.6	— 7.7	— 9.7

12	13	14	15	16	17	18	19	20	21	22	23	Monthly Averages
— 7.0	— 8.2	— 8.9	— 6.6	— 6.4	— 6.8	— 8.3	— 1.5	— 1.0	— 0.5	+ 3.4	+ 3.6	21 070 nT
—16.6	—14.4	—10.9	— 6.2	— 5.9	— 3.0	+ 3.7	+10.7	+11.8	+15.0	+15.5	+13.7	1°10.2'
— 4.7	— 0.4	+ 2.0	+ 3.6	+ 4.1	+ 4.8	+ 5.7	+ 5.7	+ 5.2	+ 4.5	+ 3.0	+ 0.8	42 610 nT
+ 2.2	— 1.6	— 5.1	— 6.3	— 8.6	— 7.1	— 5.1	— 3.0	— 1.7	+ 0.6	+ 0.2	— 0.4	21 068 nT
—11.6	— 9.8	— 5.9	+ 0.9	— 0.7	+ 4.8	+ 3.4	+ 6.5	+ 8.5	+13.3	+16.9	+11.9	1°10.2'
— 2.8	— 0.4	+ 1.9	+ 2.7	+ 3.5	+ 3.9	+ 3.9	+ 3.5	+ 3.2	+ 2.0	+ 1.2	+ 0.7	42 615 nT
— 3.3	— 3.5	— 4.9	— 6.1	— 6.4	— 4.9	— 2.4	+ 1.4	+ 2.9	+ 4.2	+ 5.3	+ 5.4	21 075 nT
—22.8	—28.5	—23.2	—16.3	—10.3	— 5.0	— 1.2	+ 2.7	+ 5.1	+ 8.1	+ 9.4	+10.4	1°08.1'
—10.0	— 7.1	— 2.9	+ 1.4	+ 4.9	+ 6.0	+ 6.8	+ 6.5	+ 5.9	+ 4.9	+ 3.8	+ 2.6	42 601 nT
+ 1.7	+ 2.9	+ 1.8	+ 1.4	— 0.1	— 0.5	+ 0.6	+ 2.0	+ 4.3	+ 3.9	+ 3.0	+ 3.3	21 083 nT
—17.1	—19.4	—16.9	—12.0	— 8.0	— 5.6	— 5.0	— 3.5	— 2.0	— 1.3	+ 0.6	+ 2.3	1°07.2'
— 8.1	— 6.8	— 4.6	— 2.0	+ 0.3	+ 1.0	+ 1.3	+ 1.7	+ 2.0	+ 2.0	+ 2.1	+ 2.0	42 599 nT
—12.9	—11.0	—16.0	—15.2	—10.0	— 9.0	— 2.3	+ 6.7	+ 6.5	+ 5.7	+ 9.2	+12.5	21 059 nT
—26.1	—27.0	—24.5	—13.4	— 6.6	+ 2.1	+ 5.6	+12.6	+13.7	+13.3	+13.1	+11.2	1°09.5'
— 8.6	— 4.2	+ 1.5	+ 7.7	+12.3	+13.4	+14.4	+11.9	+ 8.8	+ 6.5	+ 3.7	+ 0.8	42 607 nT

IV.

Results of harmonical analysis of the daily variations

	A_1	φ_1	A_2	φ_2	A_3	φ_3	A_4	φ_4	A_5	φ_5	A_6	φ_6
						Horizontal Intensity						
January	7.7	358	2.4	219	1.9	127	0.7	293	0.7	246	0.6	19
February	7.7	8	3.9	210	2.0	82	1.8	6	0.7	116	0.1	270
March	7.4	64	1.3	158	3.0	204	1.8	54	0.8	191	0.7	175
April	5.6	108	2.9	34	4.3	235	3.4	75	1.6	228	0.5	226
May	6.6	122	3.1	56	5.6	262	2.2	107	0.5	25	1.2	82
June	9.5	101	2.9	342	3.4	230	1.1	87	0.6	313	0.3	69
July	13.9	99	3.2	294	3.4	243	1.8	117	0.4	358	0.5	62
August	10.1	108	4.5	21	4.1	236	1.5	75	0.2	23	0.5	114
September	11.3	95	3.0	21	3.9	233	1.3	82	1.0	63	0.5	222
October	9.1	75	0.4	224	2.7	190	1.3	41	0.2	320	0.4	146
November	8.1	37	3.0	247	2.1	168	0.2	274	0.2	203	0.8	140
December	4.9	7	2.7	173	0.8	197	1.1	48	0.2	282	0.5	70
Year	6.6	76	0.4	330	2.3	222	1.2	69	0.1	271	0.3	117
Q	2.1	167	0.6	248	2.8	210	0.4	45	0.6	232	0.4	135
D	16.8	79	2.6	336	2.9	258	2.0	73	0.5	164	1.5	127
						Declination						
January	7.7	99	5.9	171	3.0	69	2.0	253	0.7	49	0.5	29
February	14.5	70	8.0	171	3.8	56	1.7	257	0.2	58	1.0	66
March	15.9	63	11.6	213	6.3	67	3.0	249	0.9	138	0.7	87
April	19.1	57	12.8	226	7.9	62	1.2	277	1.3	139	0.5	207
May	20.9	49	12.5	238	5.7	74	0.4	23	0.7	55	0.3	62
June	19.2	34	11.9	229	4.8	66	0.8	39	0.3	221	0.2	315
July	18.8	29	11.4	222	3.5	65	0.4	178	0.3	54	0.9	25
August	18.3	46	11.8	235	5.3	88	0.4	230	0.8	231	0.6	316
September	14.6	64	9.7	246	4.6	74	2.5	280	0.3	286	0.7	54
October	10.6	85	8.9	199	5.2	69	3.1	266	1.5	111	0.6	107
November	10.6	110	6.5	185	2.5	79	2.1	289	1.5	122	0.3	206
December	9.9	126	2.9	192	2.4	134	1.5	224	0.2	201	0.5	273
Year	13.5	61	8.8	217	4.4	72	1.3	263	0.4	121	0.2	48
Q	12.2	39	5.7	237	4.2	78	0.4	303	0.8	62	0.6	61
D	15.2	92	7.8	215	5.8	43	2.1	282	1.0	91	0.8	41

	A_1	φ_1	A_2	φ_2	A_3	φ_3	A_4	φ_4	A_5	φ_5	A_6	φ_6
						Vertical Intensity						
January	4.0	149	1.4	285	0.8	143	0.2	336	0.4	39	0.3	187
February	5.9	137	2.6	268	1.2	125	0.4	233	0.2	346	0.3	135
March	5.2	132	5.1	269	2.4	115	1.3	320	0.2	231	0.2	189
April	8.6	117	7.7	257	3.5	90	1.0	272	0.3	140	0.3	317
May	8.9	116	6.5	271	2.0	91	0.8	234	0.4	138	0.2	331
June	7.2	119	5.3	269	1.9	94	0.5	235	0.2	145	0.1	108
July	7.3	117	5.1	273	1.9	83	0.6	235	0.2	146	0.2	31
August	4.7	117	4.1	261	1.6	105	0.5	276	0.2	210	0.2	69
September	4.2	151	3.5	280	1.9	103	0.5	307	0.4	241	0.5	65
October	3.8	164	3.7	265	1.9	114	0.9	334	0.4	210	0.2	93
November	4.8	160	2.0	283	1.0	151	0.9	339	0.3	198	0.1	339
December	3.2	171	1.2	289	0.5	137	0.1	336	0.3	77	0.2	259
Year	5.3	132	4.0	269	1.7	106	0.5	292	0.1	166	0.1	84
Q	4.1	83	2.4	272	1.3	96	0.3	304	0.1	59	0.2	63
D	9.3	174	4.9	266	2.3	90	0.6	292	0.2	212	0.2	268

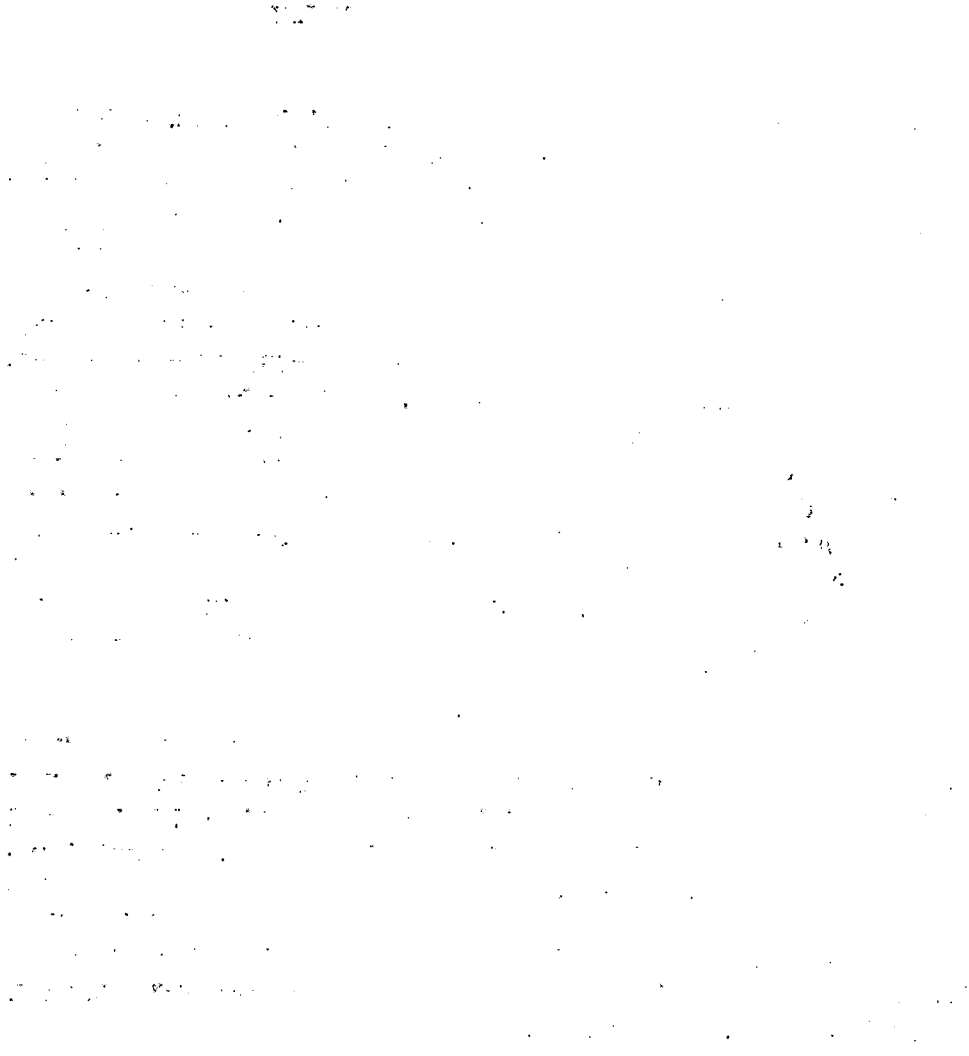
III. ATMOSPHERIC ELECTRICITY

Atmospheric electricity data have been published since 1962. Table I contains the hourly average values of the potential gradient expressed in V/m. Hourly averages have been taken only from hours having a recording period of 30 minutes or more. If values were available only for part of an hour the average is entered in square brackets [ ]. These data have been used in the determination of the monthly and daily means. Values uncertain for some reason are entered in round brackets ( ) and have not been used in calculating of monthly and daily means. Daily means of each day with 24 hours of recording are entered. However, loss of a maximum of one hour's data out of twelve (for example, on accout of instrument maintenance or calibration) has not precluded entering this mean value. In hours marked by S the value of the potential gradient exceeded permanently or several times the measuring limits of the equipment making the determination of an hourly average impossible. The directions of the deviations are marked by signs.

Table II gives the hourly means of the quantities of positive and negative charges transported by point-discharge for each month. The values are expressed in 10^{-6} Asec/hour.

All data are presented in universal time (GMT).

Tables were compiled by F. MÄRCZ. Both the equipments and the methods of measurement of potential gradient and point-discharge have been described in the paper by P. BENCZE and F. MÄRCZ: „Atmosphärisch-elektrische und ionosphärische Messungen im Observatorium bei Nagycenk". Observatoriumsberichte des Geophysikalischen Forschungslaboratoriums der Ungarischen Akademie der Wissenschaften vom Jahre 1966, Sopron, 1967. Further informations are given by P. BENCZE and F. MÄRCZ: „The Geophysical Observatory near Nagycenk. II. Atmospheric electric and ionospheric measurements" Acta Geod. Geoph. Mont Hung. 16/1981/353-357.



I.

Hourly means of the potential gradient

January

Hour GMT / Day	0	1	2	3	4	5	6	7	8	9	10	11	12
1.	50	60	50	10	30	70	90	90	140	130	[140]	170	150
2.	120	130	120	80	80	100	140	[130]	—	100	100	140	120
3.	10	50	30	10	20	120	130	140	120	[140]	160	120	120
4.	±S	+S	—10	0	—60	—50	40	30	80	80	[70]	70	80
5.	50	50	60	50	90	80	110	70	110	60	[70]	80	110
6.	70	80	100	120	110	70	60	70	100	110	[80]	90	70
7.	120	100	50	40	60	70	80	110	120	[100]	100	100	100
8.	70	70	70	70	60	50	90	80	60	80	[60]	30	20
9.	40	40	40	40	40	50	60	—	—	80	80	90	80
10.	30	40	30	±S	±S	±S	—10	30	70	50	[40]	70	70
11.	90	100	100	100	100	100	120	130	160	130	[90]	100	80
12.	80	10	20	30	10	0	—20	—	—	—	—	—	—
13.	60	50	50	50	80	80	70	110	110	110	[90]	90	100
14.	30	20	—S	—100	—10	—20	10	30	+S	40	[40]	0	—30
15.	140	100	±S	30	40	40	60	70	90	90	[70]	80	100
16.	60	70	70	70	70	60	100	—	—	100	100	70	70
17.	70	60	60	—50	—30	—30	—40	20	30	30	[10]	40	50
18.	100	60	30	30	30	30	50	100	90	90	[90]	80	70
19.	70	60	60	80	60	60	70	80	90	80	[70]	70	20
20.	—50	—30	—20	—20	30	0	—10	—10	—10	30	50	[30]	70
21.	60	70	50	40	30	30	40	60	70	[70]	70	80	90
22.	120	70	60	70	70	30	30	30	20	[10]	—40	—50	—30
23.	+S	—80	—50	—20	0	70	90	[30]	—	30	+S	90	70
24.	—80	—50	—100	—S	—20	40	—50	120	200	40	±S	±S	—80
25.	50	50	30	40	40	40	50	50	60	[60]	60	60	60
26.	50	30	30	40	40	50	60	60	80	[90]	110	120	120
27.	70	40	50	0	0	30	30	30	70	[80]	90	90	90
28.	70	90	80	80	90	80	60	70	50	[80]	130	140	130
29.	60	70	80	±S	±S	±S	—130	90	[150]	+S	+S	190	110
30.	80	—70	70	+S	80	120	80	—	—	30	50	30	10
31.	10	—10	—50	—30	30	20	10	—20	—20	—30	[—10]	—30	20
Means	59	44	40	32	40	48	47	66	85	72	73	77	68
Number of days	29	30	29	27	29	29	31	27	24	29	27	29	30

13	14	15	16	17	18	19	20	21	22	23	Daily means
170	160	120	130	90	100	130	120	80	80	110	103
130	140	130	120	140	150	140	90	60	50	50	111
140	100	90	90	90	110	120	50	50	20	±S	88
90	90	70	80	110	100	90	80	110	70	50	—
100	±S	±S	60	—S	110	120	130	110	90	70	—
70	70	70	90	110	110	110	70	60	90	70	85
100	90	100	90	100	130	150	160	50	50	70	94
20	20	20	20	40	50	50	40	50	50	40	50
70	80	80	90	80	70	70	80	50	60	60	—
80	40	70	80	70	80	80	100	100	90	90	—
90	90	90	100	80	100	70	90	80	70	80	98
—	—	—20	—40	—20	—40	40	40	70	140	70	—
80	60	50	70	30	100	60	+S	±S	—20	—10	—
—20	60	50	70	100	140	120	110	100	100	120	—
120	80	—S	±S	±S	±S	30	30	40	40	70	—
70	90	100	110	80	70	100	90	80	100	80	—
110	110	100	110	140	100	+S	±S	±S	±S	±S	—
90	100	110	80	80	+S	+S	+S	+S	100	80	—
—20	—40	—20	—20	30	20	10	30	30	—50	—50	33
170	120	90	100	90	40	50	40	70	70	50	40
80	60	110	100	100	60	70	160	150	+S	150	78
—50	—60	—80	—60	—90	—80	—110	—50	—90	—100	±S	—17
80	90	20	0	—80	—120	—110	—70	—80	—90	—80	—
+S	+S	+S	+S	50	90	160	120	130	80	50	—
60	±S	20	50	50	60	70	60	50	50	50	51
120	100	120	120	140	170	150	120	90	30	30	86
100	100	90	80	30	50	—20	40	60	30	60	54
120	110	130	110	110	60	50	70	60	50	40	86
120	160	150	+S	80	130	80	60	+S	160	—40	—
—20	—20	30	30	0	—20	—10	10	20	10	—50	—
—20	—50	20	30	110	150	190	120	130	80	60	30
78	72	68	68	67	72	71	71	63	52	49	
29	27	28	28	29	29	29	28	27	29	28	

February

Hour GMT / Day	0	1	2	3	4	5	6	7	8	9	10	11	12
1.	80	120	70	90	70	70	60	140	+S	[+S]	±S	±S	90
2.	110	130	90	70	30	—20	—50	—20	—40	—30	[—30]	0	20
3.	20	0	10	40	40	50	40	0	40	50	[80]	110	100
4.	—50	—40	—20	—50	0	50	60	[90]	[100]	110	120	100	80
5.	60	70	80	70	90	90	90	—50	—50	60	[70]	120	140
6.	70	60	70	50	50	—S	—S	—	—	80	90	60	70
7.	20	30	30	40	20	20	30	30	50	50	[50]	70	50
8.	50	60	50	60	60	60	60	100	110	[90]	100	90	90
9.	60	+S	—10	—S	±S	±S	30	50	70	[70]	80	90	100
10.	70	80	80	80	80	70	80	+S	—20	80	[90]	110	100
11.	70	60	50	60	60	70	80	80	80	80	[70]	80	80
12.	80	60	60	50	50	40	60	70	80	90	[90]	100	100
13.	90	100	100	70	70	—10	30	—	—	90	110	90	100
14.	70	50	40	50	30	30	20	40	60	70	[70]	70	70
15.	20	10	—10	20	20	10	20	30	20	30	[30]	80	80
16.	20	20	20	30	20	30	30	70	70	60	[70]	90	110
17.	30	20	40	40	30	30	30	40	60	70	[80]	80	90
18.	50	30	30	20	20	30	50	50	60	90	[110]	100	90
19.	80	70	60	50	40	50	110	110	60	20	20	70	[100]
20.	—30	—30	—30	—10	0	0	—30	0	—	30	30	20	—20
21.	40	30	30	30	40	30	20	10	30	[10]	—30	—10	30
22.	—70	—80	—70	—100	—80	—80	—100	—130	[—110]	—90	—100	—100	—100
23.	—50	—60	—50	—70	—20	—30	0	+S	+S	±S	±S	100	30
24.	100	70	70	50	30	60	100	130	[+S]	160	110	80	100
25.	+S	+S	—50	30	60	50	0	40	80	[10]	—S	—S	40
26.	—20	±S	—S	50	90	100	110	150	+S	120	[100]	100	100
27.	30	30	60	30	60	60	30	—	—	60	60	110	110
28.	—10	60	50	—40	—100	—30	50	110	20	—80	[—10]	50	60
29.	0	20	30	50	50	50	30	—10	—60	—50	[—30]	30	0
Means	35	37	31	31	33	33	37	47	34	49	55	70	69
Number of days	28	26	28	28	28	27	28	24	21	27	26	27	29

13	14	15	16	17	18	19	20	21	22	23	Daily means
+S	40	70	150	130	110	+S	+S	170	70	100	—
40	10	—10	0	60	50	70	70	70	60	30	30
30	70	60	70	40	40	0	—10	—50	—50	—40	31
80	90	100	110	140	120	130	120	100	100	80	72
130	150	130	100	100	70	80	150	180	80	110	88
60	60	20	10	20	30	40	—30	30	40	20	—
100	±S	±S	—S	50	70	80	90	80	70	40	—
80	80	80	90	0	50	80	0	—40	—20	0	58
90	90	80	80	100	110	110	100	80	90	80	—
90	80	80	90	100	100	90	100	90	60	80	81
80	70	70	80	80	90	100	100	100	90	90	78
110	120	150	170	140	120	130	130	110	100	90	96
100	110	120	90	100	110	120	120	100	30	100	—
70	70	70	80	80	50	20	20	20	20	0	49
80	90	100	100	100	70	70	40	50	40	30	47
120	100	100	80	80	70	70	30	30	40	20	58
100	120	110	70	70	100	110	60	60	50	20	63
90	100	80	70	90	120	120	70	50	40	70	68
90	70	100	80	70	10	30	30	30	20	20	58
30	30	30	50	60	50	30	30	0	—10	—10	10
30	20	30	10	20	0	—10	—50	—40	—20	—60	8
—100	—90	—100	—80	—20	—60	—50	—50	—40	—50	—60	—80
130	80	70	+S	±S	+S	+S	+S	±S	—S	200	—
100	100	110	110	60	80	+S	70	—40	—40	10	74
70	70	110	80	200	80	100	130	70	80	—10	—
100	100	80	70	50	30	10	±S	±S	±S	10	—
90	110	140	100	50	50	80	70	—20	0	—10	—
70	60	60	50	50	60	50	10	20	30	40	26
50	60	80	70	70	60	60	70	60	50	30	32
75	74	76	73	71	66	66	57	47	36	34	
28	28	28	27	28	28	26	26	27	27	29	

March

Hour GMT / Day	0	1	2	3	4	5	6	7	8	9	10	11	12
1.	30	10	20	10	40	—30	—30	—20	20	[40]	—	—	70
2.	0	20	70	+S	±S	±S	±S	—60	—160	+S	[90]	40	60
3.	40	50	70	60	20	10	70	70	+S	+S	[50]	90	60
4.	20	10	30	0	10	±S	—10	10	40	10	[10]	50	50
5.	10	20	10	10	20	20	—10	—	—	90	110	110	120
6.	30	20	30	—10	20	30	40	40	80	[100]	50	70	100
7.	50	60	50	40	30	40	50	60	100	[110]	90	110	130
8.	50	50	90	70	70	80	70	90	100	[120]	120	110	110
9.	60	60	50	70	80	90	100	120	140	[150]	160	170	160
10.	40	40	50	70	90	110	90	90	100	100	[110]	120	130
11.	60	70	70	60	50	40	30	70	80	70	[80]	80	90
12.	130	40	70	80	160	150	160	140	—	80	100	100	80
13.	50	50	40	50	50	50	70	70	80	70	[70]	80	100
14.	—20	—10	—30	—10	40	50	70	70	70	100	[110]	100	110
15.	30	30	30	30	30	30	30	40	50	[50]	50	30	30
16.	30	30	40	50	50	50	60	—	—	—	[50]	50	50
17.	40	30	50	40	50	60	70	80	70	70	60	30	[30]
18.	30	40	30	—20	—10	—10	—30	20	[60]	80	70	60	50
19.	40	50	50	60	70	100	120	[110]	—	130	130	130	140
20.	50	50	50	50	40	50	50	50	60	—	—	—	—
21.	60	60	60	50	40	20	—20	0	30	50	[60]	60	—
22.	80	70	60	60	50	50	70	90	100	—	—	—	100
23.	60	60	60	60	50	70	90	80	110	120	—	—	[110]
24.	40	60	70	80	90	80	100	100	[110]	120	130	100	70
25.	30	30	30	30	0	—20	—10	30	60	30	[30]	10	20
26.	20	—10	40	40	80	90	—	—	70	70	(70)	50	60
27.	40	30	30	40	40	50	80	[100]	80	60	60	70	60
28.	40	50	50	60	80	100	110	—	—	—	—	60	50
29.	40	40	30	30	40	30	40	40	[50]	50	50	50	50
30.	—20	10	0	—50	—130	—10	—80	—60	—	—	30	60	60
31.	20	20	20	40	40	40	50	60	[80]	70	50	50	50
Means	38	37	43	38	43	49	49	55	66	81	77	76	79
Number of days	31	31	31	30	30	29	29	27	24	24	25	27	29

13	14	15	16	17	18	19	20	21	22	23	Daily means
60	40	20	0	—20	40	80	60	50	20	—10	—
70	70	60	40	60	70	130	150	70	60	50	—
50	110	110	—10	10	20	20	20	0	—30	20	—
30	20	30	40	40	70	70	60	40	20	20	29
140	140	130	130	130	110	120	120	110	60	80	—
120	120	110	110	90	100	90	70	80	60	50	67
140	130	110	60	50	—10	0	20	40	40	40	64
120	130	120	130	140	140	140	120	80	60	50	98
130	150	130	120	110	90	90	70	50	40	40	101
140	140	130	140	110	110	110	110	110	80	70	100
99	90	80	70	80	60	80	120	120	60	90	75
90	80	90	80	70	70	60	50	50	60	60	89
100	100	100	90	80	20	—50	—20	—30	—30	—30	48
100	90	80	80	90	80	70	70	40	30	30	59
30	30	40	50	60	70	40	40	40	40	30	39
50	60	50	40	50	40	50	50	40	40	30	—
40	40	30	30	30	30	50	40	40	30	30	45
90	80	100	120	160	170	110	100	120	100	100	68
130	130	110	110	100	80	60	60	50	40	40	89
100	110	90	70	70	80	70	80	80	70	60	—
—	60	50	50	60	70	80	80	70	80	90	—
90	100	110	120	110	110	120	90	80	80	60	—
120	130	130	100	100	100	80	80	70	30	10	—
60	60	70	60	60	70	60	50	50	40	40	74
20	30	40	10	60	70	60	40	40	—20	10	26
50	50	40	40	20	—30	±S	50	50	40	40	—
20	±S	20	20	30	40	50	50	50	30	30	47
50	40	40	50	50	50	60	50	40	40	40	56
60	50	50	60	70	60	50	40	30	30	10	44
60	70	80	120	70	70	50	0	40	80	50	—
40	40	50	50	50	60	60	70	50	40	30	47
80	83	77	70	71	68	69	64	56	43	41	
30	30	31	31	31	31	30	31	31	31	31	

April

Hour GMT / Day	0	1	2	3	4	5	6	7	8	9	10	11	12
1.	20	30	40	20	10	10	20	[40]	50	50	50	50	50
2.	50	40	50	50	50	40	40	—	[20]	30	(20)	10	60
3.	30	—30	—40	—20	—20	—10	—20	—20	60	[80]	90	80	60
4.	±S	30	30	20	20	40	70	70	[90]	80	80	80	80
5.	60	80	50	20	20	30	70	70	80	[80]	70	70	60
6.	20	0	0	0	0	20	50	60	[90]	—	—	—	100
7.	—50	—30	—10	—20	0	0	0	—10	—10	[30]	50	50	50
8.	±S	±S	10	10	20	10	10	10	20	[40]	70	90	90
9.	—10	—10	0	—10	—20	—10	—	—	—20	—10	—10	—20	—20
10.	—20	—50	10	10	10	0	20	30	40	50	—	—	—
11.	40	30	30	10	20	30	50	50	50	[60]	50	40	40
12.	0	0	20	30	30	50	50	60	[50]	60	—	—	—
13.	0	—30	—30	0	—10	—20	—30	—30	—20	0	0	10	[30]
14.	20	30	30	20	30	40	60	80	100	[120]	120	130	130
15.	40	40	20	30	30	20	50	80	100	[90]	80	60	60
16.	30	10	20	30	20	40	—	—	80	80	80	60	50
17.	—	—	—	—	—	—	—	50	60	[50]	40	50	50
18.	10	—10	—10	20	±S	30	50	60	80	[60]	50	50	50
19.	50	50	50	50	50	50	70	90	90	70	[60]	[60]	50
20.	70	50	50	50	70	80	100	—	—	—	—	110	120
21.	30	40	40	50	50	40	40	50	60	50	—S	+S	30
22.	20	0	—10	—30	50	30	60	90	[100]	[120]	110	100	80
23.	±S	40	±S	+S	0	0	30	40	50	40	50	—	40
24.	10	10	20	30	40	60	[60]	[60]	60	60	80	70	60
25.	20	20	20	30	30	30	70	90	90	[90]	100	80	80
26.	40	40	40	40	40	70	50	50	[60]	80	80	80	60
27.	80	80	90	100	120	140	130	[80]	100	90	70	70	50
28.	40	50	70	60	80	70	60	[±S]	±S	30	120	+S	—S
29.	—10	—20	—30	—30	—20	—	—	80	[100]	100	90	90	90
30.	30	40	40	30	30	40	50	50	50	40	40	[40]	—
Means	24	19	21	21	27	33	47	51	60	61	68	63	62
Number of days	26	28	28	28	28	28	26	25	28	28	24	24	26

13	14	15	16	17	18	19	20	21	22	23	Daily means
50	50	50	50	50	50	50	50	50	50	50	42
30	—10	0	—10	—10	0	0	—10	—10	—10	60	—
40	30	—20	—30	±S	±S	±S	±S	±S	±S	±S	—
90	90	80	80	60	50	90	90	90	80	70	68
60	50	50	50	40	50	40	20	20	20	20	49
120	110	100	90	80	60	60	20	—70	—90	—70	—
60	70	40	30	—10	—30	+S	—S	—S	—S	±S	—
90	80	60	50	30	20	10	10	0	10	0	—
—10	0	—10	—10	—20	—40	—30	—100	—50	—50	0	—
120	120	110	70	50	50	30	30	40	40	40	—
50	60	50	50	30	10	10	20	10	0	0	33
50	50	40	30	20	20	10	—10	—20	—50	—30	—
50	50	60	40	30	30	30	30	30	20	10	10
140	130	120	70	60	80	60	50	50	30	30	72
70	70	50	60	50	50	50	40	30	10	20	50
50	50	50	50	50	50	50	40	30	10	—	—
40	30	20	0	—10	—10	—10	0	—10	0	0	—
50	50	40	50	60	70	60	50	50	40	40	44
60	50	70	80	80	70	90	110	80	80	80	68
130	130	120	110	70	80	60	50	40	40	30	—
[60]	50	50	50	60	50	40	40	20	20	10	—
80	60	60	60	40	30	20	20	30	±S	±S	—
+S	+S	±S	+S	0	40	50	40	40	30	30	—
60	70	80	70	80	100	120	130	80	50	40	63
70	80	80	70	80	90	90	90	70	60	50	66
50	40	30	0	±S	—10	—30	±S	+S	60	80	—
60	60	20	20	70	90	90	+S	—S	10	30	—
±S	—S	±S	—S	70	70	30	±S	±S	0	10	—
100	100	100	90	60	60	50	40	40	30	30	—
—	—	—	—10	0	—10	30	—50	—40	—40	—10	—
67	64	56	45	42	40	41	32	24	17	24	
27	27	27	28	28	29	28	25	25	27	26	

May

Hour GMT / Day	0	1	2	3	4	5	6	7	8	9	10	11	12
1.	—30	—50	—60	30	—10	—20	—50	—10	10	30	30	[50]	50
2.	50	40	20	0	40	60	[70]	90	80	70	70	60	50
3.	50	50	50	50	50	60	70	50	50	[50]	50	—	—
4.	50	50	50	50	40	50	60	80	90	80	60	60	60
5.	20	10	30	40	40	50	50	[50]	50	40	40	40	40
6.	40	30	40	30	30	20	40	40	40	[50]	50	70	60
7.	40	40	30	40	40	60	60	—	80	80	±S	±S	±S
8.	0	60	50	30	40	60	40	40	80	[60]	60	10	—S
9.	40	30	30	30	20	40	10	0	30	[40]	50	60	60
10.	20	30	20	20	30	20	30	—50	30	[60]	50	10	—S
11.	10	20	30	30	40	40	50	0	10	[30]	30	10	—10
12.	30	0	—20	—20	—70	—60	0	10	20	30	[60]	30	40
13.	20	20	20	10	20	0	—10	10	30	[40]	40	40	40
14.	30	20	40	50	70	90	80	—	70	70	70	50	50
15.	20	—10	—10	20	40	40	40	50	[60]	60	50	50	50
16.	50	50	50	50	50	50	50	30	20	[40]	20	0	40
17.	30	40	50	40	50	50	60	70	70	[50]	40	40	40
18.	40	40	40	40	40	50	60	50	[50]	50	50	50	40
19.	30	30	30	40	40	50	[50]	[60]	50	50	30	30	40
20.	50	40	40	50	50	50	[50]	[50]	50	50	40	40	40
21.	30	30	+S	±S	±S	40	—	[40]	40	+S	(—20)	—10	—10
22.	40	40	40	30	40	50	50	[50]	30	40	40	—S	(±S)
23.	30	30	40	30	30	40	50	50	[50]	[30]	40	40	30
24.	10	10	10	10	0	60	50	80	[60]	50	40	40	40
25.	±S	20	20	30	30	40	50	30	[40]	40	40	40	±S
26.	30	30	20	20	30	20	40	70	[50]	50	±S	±S	—S
27.	30	30	30	30	30	40	40	30	[20]	20	20	20	30
28.	30	20	—20	—S	—S	—S	—	—	40	60	90	80	40
29.	20	30	20	20	30	20	10	10	[—10]	50	70	80	70
30.	10	10	10	10	20	30	+S	140	80	90	[80]	120	±S
31.	40	40	30	30	40	60	60	50	60	70	([60])	(60)	40
Means	29	27	24	29	31	39	41	42	46	51	49	43	40
Number of days	30	31	30	29	29	30	28	28	31	30	27	26	23

13	14	15	16	17	18	19	20	21	22	23	Daily means
40	60	70	70	80	90	70	40	30	10	40	24
50	40	40	40	40	40	30	30	30	30	40	46
50	50	40	50	50	50	50	50	50	50	50	51
50	40	50	50	40	40	30	40	30	20	20	50
40	40	50	40	40	50	50	40	40	40	40	40
70	±S	±S	±S	±S	20	30	30	30	20	30	—
±S	±S	±S	±S	±S	±S	0	30	0	0	—10	—
±S	—S	—20	—20	—100	—100	30	10	0	0	10	—
50	40	40	30	40	60	70	70	60	40	30	40
±S	—40	—60	—40	—10	—20	—30	—10	—10	0	0	—
20	0	0	—10	20	20	10	0	—20	—30	—10	12
30	40	50	50	40	30	40	20	10	0	—10	15
40	50	50	30	40	40	40	30	20	10	40	28
60	50	60	50	50	50	40	50	60	80	140	60
50	50	50	50	40	50	50	50	40	40	50	41
40	50	40	50	+S	—S	10	40	50	30	10	—
—	—	—	—	—	40	50	50	50	50	40	—
40	50	50	50	40	40	40	30	30	40	40	44
40	50	40	40	40	40	40	50	50	40	40	42
30	(30)	(40)	40	40	40	30	30	—10	40	30	—
—10	—60	0	—120	—70	20	40	40	30	30	30	—
0	±S	30	40	50	40	50	60	50	40	40	—
40	50	60	70	80	60	+S	±S	—S	30	30	—
40	50	±S	—	—	—	—	±S	0	±S	±S	—
+S	±S	±S	40	40	30	30	30	30	30	40	—
—S	—S	±S	40	50	50	40	40	40	40	30	—
40	40	40	50	50	50	50	50	+S	30	20	34
50	60	60	60	50	60	70	60	10	30	30	—
60	60	50	±S	±S	±S	10	—50	—40	20	30	—
±S	+S	50	50	50	50	50	70	50	40	40	—
30	30	30	30	20	20	20	20	20	10	20	—
40	36	36	32	32	36	36	34	25	27	31	
24	22	24	26	25	27	29	29	29	30	30	

June

Hour GMT / Day	0	1	2	3	4	5	6	7	8	9	10	11	12
1.	10	20	20	20	40	40	30	40	40	[40]	40	30	40
2.	40	40	40	40	40	40	50	[40]	50	50	40	40	40
3.	30	40	40	40	40	50	40	[30]	30	20	10	20	20
4.	40	30	30	30	40	40	—	—	30	30	20	±S	±S
5.	30	30	30	30	30	30	30	60	[40]	30	20	20	—
6.	40	30	30	—10	—10	50	40	60	50	50	[50]	30	+S
7.	40	30	30	30	30	30	40	30	40	±S	—40	[20]	[70]
8.	20	20	30	30	30	30	70	40	40	20	—S	[110]	60
9.	20	10	—10	0	30	80	110	60	30	[+S]	+S	+S	—30
10.	20	20	30	30	30	60	80	[70]	70	70	70	50	50
11.	20	20	10	30	20	30	30	40	—	80	80	70	60
12.	60	50	40	60	70	80	110	130	[130]	100	80	70	60
13.	20	20	10	20	30	30	30	40	[40]	40	40	40	30
14.	40	30	20	20	20	30	40	40	[30]	[20]	20	30	30
15.	10	—40	—10	10	10	—20	10	120	+S	[90]	80	80	±S
16.	50	50	60	40	50	50	40	50	[70]	[60]	50	40	40
17.	40	10	0	30	30	50	60	70	80	80	[60]	60	60
18.	30	20	30	30	40	60	[40]	—	70	70	60	60	70
19.	0	20	20	20	30	40	50	70	70	80	[70]	50	50
20.	0	10	10	0	20	30	40	40	60	[80]	80	60	60
21.	30	30	30	30	30	40	40	40	40	40	40	+S	[±S]
22.	—10	—10	10	20	30	90	60	60	40	[40]	40	30	40
23.	20	20	10	10	10	20	40	50	50	40	40	50	60
24	20	20	20	10	20	30	—60	—20	0	20	[30]	30	10
25.	10	10	20	40	40	50	[40]	—	30	40	50	50	40
26.	20	10	10	10	10	—	—	110	60	40	30	(60)	[30]
27.	20	10	10	20	20	30	30	40	[50]	50	50	30	30
28.	30	30	30	30	30	40	40	40	40	30	[30]	40	±S
29.	30	30	20	—20	0	20	10	(—10)	—	—	—	—	30
30.	20	20	30	20	30	30	70	50	[30]	30	30	20	20
Means	25	21	22	22	28	41	43	54	49	50	43	45	40
Number of days	30	30	30	30	30	29	28	26	27	27	27	25	24

13	14	15	16	17	18	19	20	21	22	23	Daily means
40	40	40	50	40	50	50	40	40	40	40	37
40	30	40	40	40	40	40	30	30	30	30	39
20	30	40	40	40	50	40	40	40	40	40	35
±S	30	30	40	30	0	20	0	10	30	30	—
—	30	40	50	30	40	40	30	30	40	30	—
0	100	40	30	30	40	30	40	40	30	30	36
60	50	50	40	40	40	40	30	30	30	20	34
—	—	—	—	30	±S	—S	+S	20	20	20	—
+S	100	100	50	50	30	30	30	20	20	20	—
60	60	60	60	60	50	40	30	30	30	30	48
40	20	50	50	70	30	40	20	20	20	50	39
50	50	50	40	50	60	60	50	40	30	20	64
30	40	40	40	40	40	40	40	40	40	40	34
30	20	30	30	20	±S	0	10	30	50	50	28
50	30	50	40	50	40	60	60	70	60	60	41
30	40	30	30	40	50	30	30	30	30	20	42
50	60	60	60	70	60	50	40	40	40	40	50
60	60	50	40	40	30	40	30	20	20	20	43
40	40	40	40	(50)	40	30	20	20	20	10	38
60	50	40	40	40	40	60	50	50	40	40	42
±S	±S	±S	±S	20	20	20	20	—S	±S	±S	—
30	40	50	60	50	40	40	40	40	40	30	38
±S	+S	±S	40	40	40	30	40	40	30	30	—
0	—10	0	20	30	30	20	20	20	20	20	13
50	40	40	40	30	30	+S	(30)	—	(20)	20	—
30	40	40	40	50	40	30	30	30	30	30	—
30	30	30	40	40	40	30	30	30	40	30	32
(±S)	—	—	—	—	—	—	—	—	—	—10	—
—20	40	—100	±S	—	—	(10)	20	20	20	30	—
30	30	+S	30	30	30	30	30	30	30	30	—
35	42	38	42	41	38	36	31	31	32	29	
23	26	25	25	27	26	26	27	27	27	29	

July

Hour GMT / Day	0	1	2	3	4	5	6	7	8	9	10	11	12
1.	30	20	30	30	30	60	60	[70]	70	60	30	30	30
2.	—10	—10	0	10	20	30	—	—	60	80	40	—	—
3.	30	30	30	40	40	60	160	120	80	[40]	20	—10	40
4.	50	60	50	40	50	40	30	20	10	40	±S	±S	40
5.	30	30	20	20	30	30	40	40	60	60	50	[40]	40
6.	40	30	30	20	30	+S	—	—	40	90	20	20	20
7.	30	50	40	30	50	70	70	80	[70]	90	80	±S	—10
8.	30	40	30	40	40	40	70	[90]	90	80	50	50	40
9.	30	30	30	30	40	40	—	—	50	40	40	40	50
10.	20	30	30	40	40	50	50	50	[40]	50	50	50	50
11.	50	50	40	40	50	50	50	50	50	40	40	[40]	30
12.	40	30	30	30	30	[30]	50	50	50	50	50	50	50
13.	40	50	40	50	50	60	70	[60]	[70]	60	70	70	60
14.	50	30	30	30	40	40	[40]	40	40	30	20	30	50
15.	10	—S	30	20	20	40	40	[40]	[30]	30	30	20	10
16.	—	—	—	—	—	—	—	—	—	0	50	+S	50
17.	40	40	30	40	40	—	—	50	60	50	50	40	30
18.	20	30	40	20	40	50	[50]	50	50	50	50	50	50
19.	20	0	60	50	40	30	[10]	40	50	50	40	40	50
20.	50	20	30	20	30	[40]	[50]	60	70	70	30	70	60
21.	20	30	30	30	40	[40]	[50]	60	70	60	60	50	50
22.	30	30	40	30	40	50	50	[70]	80	80	80	80	70
23.	50	50	40	40	50	50	—	—	200	130	60	30	±S
24.	50	50	50	50	40	[60]	[80]	90	100	100	100	80	70
25.	20	30	30	30	40	[40]	[80]	60	50	70	70	70	50
26.	30	30	50	30	40	40	—	—	—	—	[100]	100	40
27.	60	60	50	40	60	60	50	40	[40]	10	—10	20	40
28.	50	40	50	40	30	30	40	[30]	—10	40	30	20	10
29.	10	20	30	40	40	40	[30]	[20]	20	30	30	30	30
30.	10	10	0	10	10	40	—	[70]	30	40	40	40	40
31.	40	40	50	40	40	40	40	50	[40]	40	10	10	30
Means	32	33	35	33	38	45	55	56	57	55	46	43	40
Number of days	30	29	20	30	30	28	23	25	29	30	30	27	29

13	14	15	16	17	18	19	20	21	22	23	Daily means
30	30	30	30	30	30	30	20	10	10	10	34
—	—S	±S	—	—	40	50	30	40	30	20	—
20	40	40	50	40	60	70	50	60	50	50	50
30	40	30	±S	—10	20	30	40	40	30	20	—
30	40	30	40	40	50	60	50	50	40	40	40
20	40	30	30	50	50	40	40	30	20	20	—
60	70	40	60	50	40	30	40	40	30	40	50
30	40	40	30	40	40	40	40	40	30	30	45
40	50	50	50	40	50	40	30	20	20	20	—
50	50	50	40	50	50	50	50	40	40	40	44
30	30	40	40	50	50	50	50	40	40	40	43
50	50	50	50	50	50	30	20	20	30	—S	41
50	40	20	30	40	50	50	+S	50	60	50	52
50	40	50	50	50	40	50	40	40	30	30	39
0	±S	—S	0	—	—	—	—	—	—	—	—
30	40	40	40	40	40	50	50	50	40	30	—
30	30	40	40	50	60	70	70	60	40	40	—
50	50	50	60	60	80	80	60	50	40	30	48
50	50	40	50	40	30	30	30	40	40	±S	38
50	50	50	50	60	50	50	40	30	30	40	46
50	50	50	50	40	40	50	40	40	30	30	44
60	50	+S	±S	—	—	30	20	30	50	30	—
±S	10	30	40	30	40	40	30	50	40	40	—
70	50	60	60	50	40	40	30	30	20	30	58
60	50	40	30	40	40	40	40	50	40	30	46
30	30	20	30	30	40	50	60	70	70	60	—
10	30	20	30	30	30	30	30	30	50	50	36
0	10	—10	10	30	40	40	40	10	10	10	25
40	30	20	30	50	50	60	50	40	30	20	33
50	50	50	50	50	40	40	40	40	30	30	35
40	30	20	40	40	40	40	40	40	40	40	37
38	40	36	40	41	44	45	40	39	35	33	
29	29	28	28	28	29	30	29	30	30	28	

August

Hour GMT / Day	0	1	2	3	4	5	6	7	8	9	10	11	12
1.	60	60	40	50	60	60	50	50	[50]	40	30	20	20
2.	40	30	40	40	40	80	70	70	[110]	—	—	60	70
3.	40	40	40	40	30	50	60	[80]	[90]	100	110	100	90
4.	30	30	20	30	30	40	40	30	[40]	70	50	50	40
5.	30	30	30	40	40	50	40	[30]	30	30	40	40	40
6.	20	20	30	20	20	10	—	—	±S	±S	±S	60	50
7.	50	—	—	—	—	—	—	—	+S	[60]	80	100	90
8.	—	—	—	—	—	30	80	150	+S	[160]	100	60	40
9.	30	30	30	50	80	110	110	100	60	50	50	[50]	20
10.	60	40	—	—	—	—	+S	100	[100]	60	50	±S	—S
11.	50	40	30	30	30	50	50	60	[70]	60	50	50	50
12.	20	20	20	±S	—	—	100	[+S]	90	80	50	50	40
13.	20	20	20	20	30	40	50	—	—	100	90	70	60
14.	30	40	40	30	30	40	60	60	90	[90]	90	90	80
15.	30	30	30	20	20	20	40	40	50	[60]	60	60	70
16.	10	10	10	10	20	40	40	40	40	+S	±S	±S	±S
17.	30	40	40	40	40	50	130	170	[130]	100	90	70	60
18.	10	20	30	30	40	40	100	130	[80]	80	80	70	80
19.	40	40	40	30	30	70	90	[120]	100	100	80	60	40
20.	50	40	40	50	40	50	80	70	90	100	—	—	60
21.	30	40	30	20	40	50	[60]	[60]	60	60	60	40	30
22.	30	20	10	10	20	20	30	40	40	20	10	10	20
23.	20	20	30	20	30	40	50	40	40	[30]	40	20	0
24.	40	40	40	40	30	40	40	30	0	[—70]	[—50]	—20	0
25.	40	30	10	60	40	40	50	50	[40]	50	50	40	30
26.	10	0	±S	±S	0	10	—20	[50]	90	30	40	30	30
27.	60	60	60	60	60	100	[160]	—	130	120	100	80	80
28.	30	30	30	30	30	60	90	80	50	70	50	[40]	50
29.	30	30	30	30	30	30	40	40	50	[50]	40	30	40
30.	20	20	20	30	30	30	50	50	50	40	[50]	60	60
31.	20	10	20	30	20	30	60	70	60	[40]	40	50	30
Means	33	30	30	33	34	46	64	70	68	64	57	51	47
Number of days	30	29	27	26	27	28	28	26	27	28	27	28	29

13	14	15	16	17	18	19	20	21	22	23	Daily means
10	±S	±S	±S	—	—	(80)	70	50	50	50	—
70	60	60	80	80	60	60	70	50	40	30	—
80	80	80	70	60	50	40	40	40	40	40	62
40	40	50	50	50	40	40	30	40	40	30	40
30	30	40	40	40	50	40	30	20	20	20	35
50	60	70	50	50	40	30	30	30	20	±S	—
70	50	50	40	40	50	40	50	50	—S	±S	—
50	50	50	40	30	50	50	30	30	20	40	—
—S	±S	—	—	—	—	30	30	±S	±S	40	—
—S	40	—S	50	40	40	40	50	50	50	40	—
±S	±S	—	30	50	50	60	50	30	30	20	—
40	30	20	—90	30	40	30	30	30	20	20	—
70	80	70	80	100	90	60	80	80	60	40	—
80	90	70	70	60	60	70	70	50	30	30	60
70	80	80	60	30	30	30	40	30	20	10	42
—	—	80	110	110	60	50	30	20	30	30	—
50	—S	±S	80	60	40	40	50	30	20	10	—
70	60	70	50	50	50	60	60	30	30	30	56
30	40	50	50	50	30	70	80	70	70	60	60
60	60	60	50	50	40	40	60	60	50	40	—
40	40	30	30	30	50	50	60	50	40	30	43
20	30	[40]	50	40	40	40	40	40	30	20	28
—10	10	30	40	50	50	60	50	50	40	40	33
0	—10	20	40	40	50	60	60	60	70	60	25
40	40	50	70	40	50	40	20	30	30	20	40
20	40	20	+S	—S	30	30	+S	—	—	—	—
70	60	70	60	50	50	40	40	40	30	30	70
50	40	30	30	30	30	30	30	30	30	30	42
40	40	30	40	30	30	30	30	30	30	30	35
50	50	30	30	30	30	40	30	30	30	20	37
40	40	60	60	50	50	40	40	40	30	30	40
46	47	50	49	49	46	45	46	41	36	32	
27	26	26	28	28	29	30	30	29	28	28	

September

Hour GMT / Day	0	1	2	3	4	5	6	7	8	9	10	11	12
1.	30	30	30	30	30	40	40	50	70	50	50	40	30
2.	30	30	30	30	30	30	50	40	60	[70]	70	50	50
3.	30	40	40	40	50	60	50	—	50	40	50	40	30
4.	60	60	50	60	50	50	60	60	80	60	50	50	[40]
5.	20	20	30	40	40	40	40	10	[—30]	[20]	30	60	60
6.	20	30	30	30	30	40	70	80	[100]	120	90	80	40
7.	60	70	70	80	60	90	160	140	110	[100]	130	110	100
8.	—	(30)	20	20	30	40	80	[170]	[160]	90	80	60	50
9.	(10)	10	20	10	10	30	50	50	50	50	60	50	50
10.	50	40	40	40	40	50	—	—	40	40	20	20	30
11.	±S	0	0	40	40	60	80	+S	+S	100	90	[60]	60
12.	30	60	30	20	40	70	30	40	20	[—10]	90	+S	±S
13.	70	70	80	70	60	90	190	200	160	[90]	70	120	140
14.	40	60	60	80	90	130	180	130	80	[90]	80	70	70
15.	110	190	240	160	70	30	110	90	80	70	[40]	30	40
16.	—20	120	100	60	60	100	190	130	—S	+S	—10	10	90
17.	70	80	80	90	60	90	—	—	—	120	70	20	40
18.	40	40	40	40	30	40	70	90	80	[40]	10	20	30
19.	40	40	60	50	50	60	100	80	80	70	[40]	[30]	30
20.	30	40	20	30	30	40	50	60	60	[70]	70	70	80
21.	30	30	40	50	40	0	±S	±S	—S	±S	[100]	90	20
22.	120	+S	50	80	70	80	50	30	—10	60	[30]	50	80
23.	70	80	30	60	40	50	50	70	70	70	[60]	50	50
24.	±S	±S	—S	—S	—S	40	—	—	+S	10	—70	0	30
25.	60	60	70	60	70	90	90	50	170	160	130	120	±S
26.	40	50	50	50	60	80	100	90	90	70	[60]	[40]	40
27.	60	60	—30	30	60	70	60	70	80	60	40	[70]	40
28.	50	40	40	40	40	50	60	[60]	60	70	90	70	70
29.	80	90	120	120	130	110	60	40	60	50	130	[110]	[90]
30.	150	130	130	80	60	80	40	30	30	30	20	[30]	20
Means	53	58	54	55	51	61	81	78	73	66	59	56	54
Number of days	26	27	29	29	29	30	26	24	24	28	30	29	28

13	14	15	16	17	18	19	20	21	22	23	Daily means
50	60	70	70	70	60	80	70	50	50	40	50
50	60	70	70	60	50	50	40	30	40	30	47
20	30	40	50	50	60	60	60	70	70	60	47
40	30	30	40	40	40	40	30	30	40	30	47
20	—60	—10	30	40	50	40	40	40	30	20	26
±S	—	—	+S	+S	—	—	—	—	(20)	10	—
100	90	90	80	60	60	40	±S	—	—	—	—
40	40	40	50	—S	—	—	—	—	—	—	—
60	50	60	60	60	70	70	70	60	50	50	48
±S	±S	+S	±S	±S	+S	60	60	60	40	70	—
70	60	80	+S	—S	30	0	—60	30	30	20	—
70	—20	40	60	60	40	30	40	30	60	80	41
170	190	140	110	100	100	110	40	40	30	40	103
70	80	80	60	90	80	90	100	110	110	100	89
20	+S	30	40	70	90	120	90	30	60	±S	—
20	—60	80	40	70	—S	80	90	30	10	70	—
70	80	60	50	60	60	40	50	30	50	50	—
30	40	40	30	30	30	30	20	40	40	50	40
40	40	0	10	30	50	70	60	50	50	40	49
70	60	80	90	80	90	50	60	60	50	30	57
50	120	100	90	80	110	140	40	30	60	100	—
30	30	50	60	60	70	70	60	60	50	40	55
30	40	40	30	30	—S	±S	—S	±S	±S	±S	—
90	90	70	80	90	100	100	100	100	80	80	—
±S	—S	±S	±S	—S	—10	30	50	30	40	40	—
50	60	70	70	60	80	90	60	70	80	70	66
50	60	60	70	70	70	70	100	70	50	50	58
80	70	50	40	50	70	90	90	100	120	150	68
80	60	30	20	30	40	50	90	130	+S	+S	—
60	60	40	30	20	10	10	10	10	0	0	45
57	52	57	55	58	60	63	56	53	52	53	
27	26	27	26	25	25	27	26	26	25	25	

October

Hour GMT / Day	0	1	2	3	4	5	6	7	8	9	10	11	12
1.	10	10	30	40	70	30	30	30	—	50	40	10	10
2.	30	30	30	50	50	50	50	60	70	50	60	50	40
3.	30	40	40	40	50	50	70	80	70	70	[70]	50	50
4.	—S	0	—40	±S	—S	—20	10	30	70	60	[50]	40	50
5.	10	20	0	—10	30	30	40	70	70	50	[+S]	±S	30
6.	10	20	30	20	20	40	50	50	70	80	90	[70]	60
7.	—10	10	50	40	50	50	50	50	50	40	50	[60]	50
8.	50	50	50	50	50	50	40	50	—	+S	70	70	50
9.	30	30	30	30	40	40	60	70	70	70	40	40	[60]
10.	40	50	60	50	50	50	80	100	80	60	[70]	80	70
11.	40	80	80	70	30	60	50	—40	—10	10	30	[30]	50
12.	70	60	60	50	40	40	70	60	60	60	60	70	50
13.	40	40	40	30	30	20	40	70	40	30	30	40	[60]
14.	30	20	30	30	40	30	40	90	80	70	50	50	[50]
15.	20	10	30	30	30	40	70	—	—10	20	40	40	40
16.	40	40	20	0	—10	10	10	20	30	30	[40]	40	60
17.	50	50	60	50	40	40	60	40	30	40	[50]	50	60
18.	—30	—30	—20	—20	—30	10	40	50	40	20	30	30	[20]
19.	40	30	30	30	40	80	70	110	130	90	40	90	[90]
20.	—10	—10	—10	—20	—10	—10	10	40	70	70	60	[60]	40
21.	40	20	30	20	10	0	0	0	10	30	40	40	40
22.	30	20	10	0	20	20	20	—	—	30	40	50	70
23.	80	60	50	40	40	30	40	50	40	60	50	[70]	80
24.	10	10	20	30	10	30	30	20	40	50	[30]	20	20
25.	30	30	20	10	20	0	0	20	—10	—10	20	10	[30]
26.	30	20	0	0	0	20	—	30	40	60	[40]	70	70
27.	—10	0	0	0	0	—10	—20	10	[80]	130	130	170	110
28.	30	20	30	10	10	—10	—10	—20	—20	—10	—10	[—10]	—10
29.	30	10	10	30	20	10	—10	0	—	80	100	140	140
30.	20	80	60	30	20	20	—	—	—	—	—	—	—
31.	—	—	—	—	—	—	—	—	—	—	—	—	—
Means	27	27	28	25	26	27	35	42	48	50	50	55	53
Number of days	29	30	30	29	29	30	28	27	25	28	28	28	29

13	14	15	16	17	18	19	20	21	22	23	Daily means
40	40	40	—10	0	30	30	30	30	50	40	30
30	60	±S	±S	±S	—30	20	10	40	0	20	—
60	60	50	50	70	70	50	—S	—S	±S	—S	—
50	60	70	80	90	90	80	50	—20	—50	—30	—
50	20	10	20	30	50	30	40	50	40	10	—
70	70	70	50	10	20	20	30	20	30	20	43
50	50	50	70	60	60	50	50	40	50	40	46
30	40	60	80	90	80	90	80	40	30	30	—
50	50	60	40	40	50	70	50	50	40	30	48
60	60	60	70	60	40	70	80	80	90	80	66
50	60	50	40	70	70	70	40	30	60	80	46
70	80	80	90	80	70	60	30	20	40	50	59
80	80	100	60	60	40	40	40	50	40	40	48
60	60	60	70	100	80	60	40	40	30	20	51
40	40	40	40	30	20	40	90	70	60	50	38
60	70	80	80	80	70	80	80	60	50	70	43
60	50	40	20	—20	—30	—50	—50	—50	—30	—40	22
30	20	20	40	60	60	50	50	30	30	30	22
[50]	50	50	50	50	40	—	—	—	0	10	—
30	20	40	60	50	50	50	30	20	30	60	30
[30]	40	40	30	30	40	50	60	40	40	30	30
80	70	40	40	40	30	40	30	20	20	40	—
80	70	40	50	40	70	80	80	60	50	30	56
40	40	40	40	60	60	50	50	40	30	30	33
70	80	70	80	70	70	70	70	30	40	30	35
90	70	50	30	30	30	20	30	10	0	—10	32
110	110	120	120	90	90	80	70	60	60	60	65
—10	—20	—10	0	0	10	—20	—20	0	0	20	—2
130	120	100	50	40	30	30	20	20	20	20	50
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
57	56	54	51	50	50	46	43	33	30	31	
29	29	28	28	28	28	27	27	27	28	28	

November

Hour GMT / Day	0	1	2	3	4	5	6	7	8	9	10	11	12
1.	—	—	—	—	—	—	—	—	—	—	—	—	—
2.	—	—	—	—	—	—	—	—	—	—	—	—	—
3.	—	—	—	—	—	—	—	—	—	—	—	—	—
4.	—	—	—	—	—	—	—	—	—	—	—	—	—
5.	—	—	—	—	—	—	—	—	—	—	—	—	—
6.	—	—	—	—	—	—	—	—	—	—60	—40	—20	—10
7.	0	—50	—20	0	30	40	30	—20	—50	—30	[—30]	—20	—30
8.	140	110	60	110	150	220	170	60	40	—10	[30]	30	60
9.	10	0	—10	—10	0	0	0	0	0	0	[30]	30	30
10.	10	10	—10	—10	10	—10	0	—10	—40	—20	[30]	60	70
11.	20	10	0	0	0	0	20	30	30	40	100	[90]	80
12.	10	0	—10	0	0	10	0	—	—	20	20	30	60
13.	40	30	30	30	50	30	40	50	40	30	[40]	50	70
14	—30	—30	—50	—50	—20	—30	—40	—50	—50	—40	[—50]	—50	—30
15.	—10	—10	0	0	0	—10	20	20	10	20	30	[30]	10
16.	0	0	10	10	10	20	10	30	20	30	[—10]	—20	—10
17	—20	—50	—60	—10	—20	±S	—40	30	—50	20	0	10	30
18.	—S	—S	—S	—30	—S	—130	—100	—30	20	20	60	[60]	60
19.	30	20	—10	0	10	—10	0	20	—	30	40	30	30
20.	50	—S	—S	—S	—S	—S	—S	—S	—60	80	[30]	60	30
21.	60	70	80	70	40	50	30	60	90	100	[80]	70	70
22.	70	40	30	30	30	30	30	50	50	70	[70]	70	80
23.	—S	±S	—S	—20	10	30	40	50	30	+S	[60]	+S	70
24.	30	50	70	70	—	—	—	70	90	—S	[—S]	50	60
25.	40	40	30	30	30	40	70	100	70	60	[90]	100	100
26.	50	60	60	40	50	60	50	50	—	[70]	70	100	100
27.	—10	—10	—10	—10	—10	—10	0	0	20	60	[60]	70	100
28.	60	40	20	30	20	10	10	30	60	70	[80]	90	80
29.	—	—	—	—	—	—	—	—	—	—	—	—	—
30.	—	—	—	—	—	—	—	—	—	—	—	—	—
Means	28	17	11	13	21	18	17	27	17	27	36	42	48
Number of days	20	19	19	21	19	19	20	20	19	21	22	22	23

13	14	15	16	17	18	19	20	21	22	23	Daily means
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
0	10	40	30	—40	—60	—50	—50	—10	—20	30	—
10	10	10	20	10	—10	10	20	20	40	110	4
60	30	20	60	100	80	80	100	100	30	20	77
30	30	20	10	10	0	0	0	0	20	30	10
70	40	20	10	—20	—20	—20	10	20	30	30	11
70	60	40	30	40	40	30	30	20	10	0	33
80	70	60	70	100	80	60	60	50	30	30	—
60	60	50	20	—10	—20	—10	—20	—30	—30	—20	24
—30	—50	—30	—20	—50	—40	—40	10	10	—40	—50	—35
—20	10	20	—20	70	30	0	—10	—10	10	0	8
—20	—10	—30	—40	—50	—40	—50	—60	—50	—30	—30	—13
30	30	—S	—S	±S	±S	±S	±S	±S	—S	—S	—
40	30	60	70	70	90	70	40	30	30	30	—
30	20	30	30	60	0	—10	30	40	30	70	23
30	100	80	40	—80	20	60	80	100	60	80	—
70	60	100	110	100	70	±S	90	120	60	40	74
100	90	60	30	30	—S	—S	+S	+S	±S	—30	—
70	80	80	100	100	90	70	60	90	60	40	—
70	70	80	100	90	100	100	70	50	40	40	—
90	90	90	100	110	110	100	70	80	80	60	74
100	70	40	50	20	0	0	—10	—10	—10	—10	44
70	70	70	70	70	80	80	70	70	60	60	43
70	40	60	20	10	—10	0	0	0	0	—10	33
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
47	44	44	40	34	28	24	28	33	22	24	
23	23	22	22	22	21	20	21	21	21	22	

December

Hour GMT / Day	0	1	2	3	4	5	6	7	8	9	10	11	12
1.	—	—	—	—	—	—	—	—	—	—	—	—	—
2.	—	—	—	—	—	—	—	—	—	—	—	—	—
3.	—	—	—	—	—	—	—	—	—	—20	[40]	50	30
4.	20	10	0	0	—10	20	30	0	—10	—30	—10	0	[—40]
5.	—20	—20	—10	—10	—10	—10	—20	0	—10	0	20	[—10]	20
6.	100	100	80	60	60	60	—10	—10	—10	20	30	[20]	[30]
7.	30	60	30	50	70	60	70	10	0	20	[40]	40	40
8.	10	—10	0	0	0	—10	—20	—30	—10	—10	[—10]	30	20
9.	—10	—20	10	—20	20	30	20	10	20	30	10	20	20
10.	20	30	40	40	40	50	50	—	—	70	80	70	70
11.	30	40	50	50	60	70	60	60	50	50	[50]	50	60
12.	30	40	60	80	80	70	70	80	90	100	[100]	110	120
13.	40	50	40	50	40	30	30	40	70	[80]	[110]	90	90
14.	70	60	70	60	70	80	70	60	50	60	50	[60]	[20]
15.	—10	—10	—10	0	0	—10	—10	—10	—30	—10	20	[—10]	20
16.	—60	—20	—40	—50	10	—10	—40	—50	—40	—80	[—70]	—60	—30
17.	—20	0	—30	20	120	30	30	—	—	100	100	±S	10
18.	—10	—50	—60	—20	—30	—20	—20	—30	—50	—110	[—90]	—70	—90
19.	—150	—10	—10	—70	80	70	90	90	50	50	40	30	30
20.	50	60	70	90	80	70	60	50	60	[110]	70	80	70
21.	10	—20	—50	—50	—50	—40	—80	—20	—70	—50	[—60]	—60	0
22.	50	50	50	50	—S	50	50	60	70	70	[60]	70	60
23.	10	30	50	40	40	30	30	50	50	50	40	[60]	70
24.	130	130	60	120	100	80	50	50	40	50	80	—	110
25.	50	50	60	80	80	70	110	110	120	[120]	110	110	130
26.	+S	+S	+S	+S	80	[40]	—40	+S	+S	+S	160	+S	+S
27.	—30	—40	0	60	0	—50	—60	—50	—50	—50	[—50]	—30	—40
28.	50	60	60	70	100	80	110	90	80	[80]	70	80	100
29.	70	60	60	50	50	50	50	40	30	50	90	[70]	70
30.	—10	0	20	0	10	20	30	0	60	[60]	70	40	20
31.	—50	—30	—30	—20	—20	—20	—20	—40	—40	—20	—	[30]	30
Means	15	22	21	27	40	32	25	22	21	28	41	33	37
Number of days	27	27	27	27	27	28	28	25	25	28	28	26	28

13	14	15	16	17	18	19	20	21	22	23	Daily means
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
20	0	30	30	20	30	70	60	10	20	20	—
—10	—10	—10	20	20	40	20	—10	—10	0	0	1
30	30	60	70	60	90	60	70	90	40	110	26
40	40	20	20	30	50	60	20	30	20	20	37
60	60	60	70	100	70	70	50	40	20	10	47
30	20	40	—10	—10	—10	20	—10	0	—20	10	1
0	[—20]	—50	20	20	—20	—20	30	20	—10	20	5
70	80	70	80	100	110	60	40	—S	±S	10	—
60	50	40	40	50	50	50	50	40	10	—10	46
110	130	120	120	160	120	120	100	70	70	50	92
90	100	70	80	110	100	130	160	120	110	100	80
0	10	40	60	30	20	10	30	20	0	—10	41
40	40	20	50	50	60	60	70	40	10	—40	14
—20	—50	—50	—50	—40	—20	—50	—20	—20	—10	—60	—39
—10	—40	—50	30	60	10	20	10	40	—70	—50	—
—130	—90	—70	—90	—90	—80	—120	—120	—90	—120	—160	—75
+S	[—S]	—30	50	50	60	50	60	50	50	50	—
90	80	110	50	20	20	—10	30	30	10	10	57
—70	—50	—10	60	60	40	80	70	50	60	70	—8
50	50	50	50	60	80	80	80	60	50	40	58
70	70	100	80	70	80	100	140	110	70	60	63
120	90	80	90	80	100	90	70	70	60	70	84
120	110	110	80	70	80	100	50	70	110	60	90
150	170	+S	+S	150	+S	+S	160	110	30	—50	—
—40	10	20	50	110	110	150	120	70	160	70	18
110	80	100	100	110	90	70	60	80	80	100	84
60	60	60	50	40	20	20	20	10	0	—50	43
—10	—20	—30	—20	—30	—20	—30	—140	—100	—160	—110	—15
—20	40	30	40	20	40	40	40	70	50	40	7
36	37	33	44	51	47	46	44	39	23	13	
28	28	28	28	29	28	28	29	28	28	29	

II. Hourly means of the quantities of positive and negative

Hour GMT / Month		0	1	2	3	4	5	6	7	8	9	10	11
January	+	7	0	0	0	2	3	0	0	0	0	0	0
	—	11	0	0	0	2	1	0	0	0	0	0	0
February	+	0	4	1	0	1	0	0	0	0	0	2	0
	—	0	2	1	1	0	0	0	0	0	0	0	2
March	+	0	0	0	0	0	0	6	0	0	0	0	0
	—	0	0	0	0	0	0	11	0	0	0	0	0
April	+	2	3	1	0	1	2	2	0	0	0	0	0
	—	2	2	1	0	0	20	1	1	0	0	0	0
May	+	0	0	3	4	4	0	0	0	0	0	1	0
	—	27	0	0	9	8	0	0	0	0	0	0	12
June	+	0	0	1	0	0	0	0	0	0	0	0	4
	—	0	0	3	0	0	0	0	0	0	0	12	4
July	+	0	0	0	0	0	1	5	22	19	0	4	12
	—	0	0	0	0	0	0	5	14	9	0	4	46
August	+	30	16	1	47	14	1	0	0	3	37	0	10
	—	2	28	0	38	18	0	0	0	10	1	3	22
September	+	2	12	0	0	0	0	0	1	0	0	0	0
	—	4	11	0	0	0	0	1	4	0	0	0	0
October	+	0	0	0	0	0	0	0	0	0	0	0	0
	—	0	0	0	3	0	0	0	0	0	0	0	0
November	+	0	0	0	0	0	0	0	0	0	1	0	0
	—	0	1	0	0	0	0	0	0	0	0	0	0
December	+	0	0	0	0	0	0	0	0	0	0	0	0
	—	0	0	0	0	0	0	0	0	0	0	0	0

charges transported by point-discharge for each month

12	13	14	15	16	17	18	19	20	21	22	23	Means
0	0	1	0	0	1	0	0	9	5	5	0	1.4
0	0	3	3	0	3	0	0	14	7	3	1	2.0
0	0	0	9	0	0	0	0	1	3	0	0	0.9
0	0	16	50	0	0	0	0	1	0	0	0	3.0
0	0	10	0	0	0	0	0	0	0	0	0	0.7
0	0	1	0	0	0	0	0	0	0	0	0	0.5
0	2	0	5	3	4	17	11	20	24	3	19	5.0
0	0	0	57	43	7	14	10	23	7	12	19	9.1
17	9	17	49	3	41	20	12	33	0	8	26	10.3
32	5	42	23	23	27	25	0	15	0	6	10	11.0
11	76	19	33	3	4	3	0	1	0	1	0	6.5
19	13	72	25	18	0	6	1	0	2	25	0	8.3
19	18	6	19	45	0	0	0	0	0	0	0	7.1
41	15	19	16	13	1	0	0	0	0	0	0	7.6
1	27	28	111	70	24	0	0	1	2	1	11	18.1
4	79	28	26	18	32	0	0	16	1	7	22	14.8
7	29	5	15	27	7	11	6	6	51	7	8	8.1
3	27	8	7	5	8	9	14	95	44	25	14	11.6
0	0	0	0	21	15	0	0	0	0	0	0	1.5
0	0	0	0	13	6	0	0	0	0	0	0	0.9
0	0	0	0	0	0	0	0	0	1	0	0	0.1
0	0	0	0	0	0	1	1	0	1	1	1	0.3
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0

IV. IONOSPHERE

The following tables give the values of mean ionospheric absorption at oblique incidence (A3) for certain zenith distances of the Sun (χ) expressed in decibels (dB). Values for ground sunset (SS) and ground sunrise (SR) are given for periods of 20 minutes centered on the times of $\chi = 90°$. Night values have been determined by taking the periods ranging from $\chi = 100°$ to 23 00 GMT.

The sky wave of the transmitter Československo (f = 272 kHz) has been recorded since January 1967. The geographical coordinates of the reflection point are 48.4°N, 17.1°E. Because of reconstruction works on the transmitter Československo, the absorption measurement at 272 kHz and the publication of data were suspended from April 1975 till September 1978.

The tables were compiled by F. MÄRCZ. The equipment and the method have been described in the papers by P. BENCZE and F. MÄRCZ: „Atmosphärisch-elektrische und ionosphärische Messungen im Observatorium bei Nagycenk". Observatoriumsberichte des Geophysikalischen Forschungslaboratoriums der Ungarischen Akademie der Wissenschaften vom Jahre 1966, Sopron, 1967, as well as by P. BENCZE, J. HORVÁTH and F. MÄRCZ: „A new equipment for the measurement of ionospheric absorption" Geophysical Observatory Report of the Geodetic and Geophysical Research Institute of the Hungarian Academy of Sciences, Year 1975. Observatory of Nagycenk, Sopron, 1976. Further informations are given by P. BENCZE and F. MÄRCZ: „The Geophysical Observatory near Nagycenk II. Atmospheric electric and ionospheric measurements". Acta Geod. Geoph. Mont. Hung. 16/1981/353-357.

Mean Ionospheric Absorption L' (dB) at Oblique Incidence (A3)
f = 272 kHz
January

Date of the night	SS	Night	SR
1/2	26.4	18.1	19.9
2/3	24.4	16.9	19.9
3/4	18.3	20.2	22.2
4/5	20.2	19.2	20.2
5/6	21.0	21.0	26.4
6/7	28.2	23.8	30.3
7/8	27.2	20.6	47.2
8/9	X	X	X
9/10	X	X	X
10/11	33.2	29.2	25.7
11/12	26.4	16.9	19.5
12/13	30.3	18.1	23.2
13/14	41.2	19.9	29.2
14/15	33.7	19.5	29.2
15/16	33.2	20.2	23.2
16/17	26.4	18.9	25.0
17/18	31.7	21.0	20.6
18/19	47.2	23.8	25.7
19/20	35.2	19.9	24.4
20/21	35.2	21.4	21.0
21/22	16.5	X	X
22/23	21.4	19.9	21.8
23/24	35.2	22.2	28.2
24/25	41.2	22.2	X
25/26	35.2	21.4	24.4
26/27	37.7	21.0	28.2
27/28	41.2	23.2	30.3
28/29	33.2	15.9	25.0
29/30	31.7	26.4	33.2
30/31	25.7	28.2	25.7
31/1	28.2	26.4	27.2
Medain values	31.7	20.8	25.0

February

Date of the night	SS	Night	SR
1/2	33.2	X	X
2/3	31.7	22.7	33.2
3/4	35.2	22.7	35.2
4/5	41.2	25.7	30.3
5/6	37.7	21.0	27.2
6/7	37.7	22.2	37.7
7/8	29.2	21.0	31.7
8/9	30.3	18.1	25.7
9/10	37.7	18.6	24.4
10/11	25.0	17.6	28.2
11/12	35.2	16.7	23.2
12/13	33.2	17.8	25.7
13/14	35.2	19.9	33.2
14/15	24.4	21.4	30.3
15/16	24.4	16.3	26.4
16/17	31.7	17.8	25.0
17/18	31.7	16.9	26.4
18/19	18.6	19.2	22.7
19/20	29.2	17.8	27.2
20/21	24.4	18.6	25.7
21/22	27.2	16.3	26.4
22/23	24.4	23.8	30.3
23/24	25.0	21.0	30.3
24/25	27.2	21.0	25.7
25/26	31.7	31.7	30.3
26/27	41.2	19.2	30.3
27/28	37.7	20.6	30.3
28/29	25.0	18.9	X
29/1	25.0	16.1	17.6
Median values	31.7	19.2	27.2

March

Date of the night	SS	Night	SR
1/2	20.6	18.6	18.9
2/3	21.0	18.9	19.5
3/4	21.0	18.1	16.7
4/5	23.2	19.2	X
5/6	26.4	18.3	26.4
6/7	29.2	20.6	30.3
7/8	25.7	20.2	26.4
8/9	19.5	18.6	27.2
9/10	22.7	19.5	25.7
10/11	29.2	18.9	21.0
11/12	24.4	23.2	28.2
12/13	21.8	23.2	28.2
13/14	25.7	19.2	25.0
14/15	19.2	16.5	X
15/16	22.7	X	23.2
16/17	24.4	19.9	21.4
17/18	27.2	16.3	23.8
18/19	23.8	16.3	23.2
19/20	18.3	16.1	21.0
20/21	33.2	19.5	18.9
21/22	33.2	16.7	25.0
22/23	23.2	18.6	22.2
23/24	18.9	16.7	22.2
24/25	24.4	23.2	21.0
25/26	25.0	15.9	21.8
26/27	22.7	15.9	21.0
27/28	17.8	16.7	31.7
28/29	17.3	21.8	24.4
29/30	26.4	15.7	21.4
30/31	19.9	15.2	21.0
31/1	22.2	16.5	21.8
Median values	23.2	18.6	22.2

April

Date of the night	SS	Night	SR
1/2	17.3	19.2	19.5
2/3	18.3	20.2	16.5
3/4	21.4	21.0	21.8
4/5	16.1	X	X
5/6	30.3	22.7	27.2
6/7	26.4	18.7	24.4
7/8	31.7	18.1	18.3
8/9	29.2	17.6	18.9
9/10	18.6	15.7	21.0
10/11	20.2	18.3	19.9
11/12	21.0	15.1	20.6
12/13	17.8	15.7	18.3
13/14	18.3	16.9	17.1
14/15	21.4	14.4	17.8
15/16	15.5	16.3	18.9
16/17	19.2	15.9	X
17/18	24.4	17.1	21.0
18/19	19.5	18.1	18.9
19/20	22.7	18.1	20.6
20/21	25.0	19.9	17.6
21/22	22.2	15.4	19.9
22/23	16.1	18.1	25.7
23/24	24.4	19.5	22.2
24/25	25.0	24.4	X
25/26	31.7	25.7	25.7
26/27	X	X	X
27/28	21.4	18.6	21.0
28/29	27.2	18.1	18.9
29/30	25.0	19.9	17.8
30/1	21.4	17.6	21.8
Median values	21.4	18.1	19.9

May

Date of the night	SS	Night	SR
1/2	35.2	21.8	21.4
2/3	23.2	17.6	23.2
3/4	21.4	23.2	22.2
4/5	23.2	16.7	25.0
5/6	26.4	23.2	33.2
6/7	31.7	21.4	22.2
7/8	21.8	22.7	26.4
8/9	26.4	23.2	26.4
9/10	26.4	19.5	28.2
10/11	28.2	26.4	19.5
11/12	26.4	20.2	21.4
12/13	22.7	24.4	28.2
13/14	29.2	26.4	24.4
14/15	21.4	23.2	18.3
15/16	35.2	20.2	21.4
16/17	25.0	20.2	19.9
17/18	X	22.2	27.2
18/19	29.2	16.3	22.7
19/20	22.7	19.2	24.4
20/21	29.2	19.2	21.0
21/22	27.2	22.2	21.4
22/23	29.2	21.0	23.2
23/24	35.2	19.5	20.6
24/25	X	21.8	20.6
25/26	24.4	18.1	22.2
26/27	21.0	18.6	21.4
27/28	26.4	21.4	25.0
28/29	29.2	24.4	23.2
29/30	29.2	29.6	23.8
30/31	23.8	22.7	30.3
31/1	25.0	19.2	23.8
Median values	26.4	21.4	23.2

June

Date of the night	SS	Night	SR
1/2	24.4	20.6	24.4
2/3	28.2	22.7	28.2
3/4	28.2	28.2	23.2
4/5	25.7	18.1	25.7
5/6	27.2	16.1	21.0
6/7	31.7	22.7	25.0
7/8	25.7	X	X
8/9	X	X	X
9/10	22.7	22.2	25.7
10/11	26.4	19.5	21.4
11/12	27.2	18.1	21.4
12/13	21.8	21.0	19.5
13/14	25.0	16.3	17.8
14/15	18.1	20.6	24.4
15/16	X	X	X
16/17	20.6	22.7	28.2
17/18	27.2	21.8	23.8
18/19	37.7	22.2	22.7
19/20	X	X	X
20/21	28.2	19.5	19.5
21/22	33.2	21.4	22.2
22/23	26.4	21.8	21.4
23/24	23.2	21.0	26.4
24/25	24.4	21.4	22.7
25/26	21.8	20.6	21.4
26/27	47.2	30.3	31.7
27/28	—	—	—
28/29	—	—	—
29/30	—	—	—
30/1	—	—	—
Median values	26.4	21.2	23.0

July

Date of the night	SS	Night	SR
1/2	—	—	—
2/3	—	—	—
3/4	—	—	—
4/5	—	—	—
5/6	—	—	—
6/7	—	—	—
7/8	23.2	21.4	25.7
8/9	22.7	19.9	24.4
9/10	26.4	25.0	28.2
10/11	24.4	23.8	23.2
11/12	23.2	20.6	28.2
12/13	29.2	23.8	25.7
13/14	27.2	22.2	21.8
14/15	21.8	18.9	23.8
15/16	X	X	X
16/17	22.2	20.6	19.2
17/18	23.8	20.6	23.2
18/19	19.2	20.6	22.7
19/20	24.4	19.5	22.2
20/21	21.4	15.9	18.9
21/22	23.2	16.3	29.2
22/23	X	X	X
23/24	26.4	17.8	17.8
24/25	20.6	14.8	41.2
25/26	20.2	18.6	18.9
26/27	21.4	18.1	25.7
27/28	20.6	17.3	21.4
28/29	23.8	19.5	18.9
29/30	22.7	17.1	22.2
30/31	21.8	18.3	22.2
31/1	30.3	17.3	29.2
Median values	23.2	19.5	23.2

August

Date of the night	SS	Night	SR
1/2	22.2	21.8	23.8
2/3	18.9	X	X
3/4	X	X	X
4/5	21.8	19.5	25.0
5/6	24.4	22.2	24.4
6/7	19.9	19.5	28.2
7/8	25.7	20.6	24.4
8/9	23.2	21.0	20.2
9/10	24.4	20.2	26.4
10/11	25.0	20.6	26.4
11/12	25.7	23.8	27.2
12/13	21.4	23.2	24.4
13/14	24.4	20.2	22.2
14/15	X	X	X
15/16	25.7	22.7	28.2
16/17	19.9	18.3	22.2
17/18	21.0	16.1	24.4
18/19	21.8	16.7	21.8
19/20	19.2	19.2	26.4
20/21	20.6	18.9	22.8
21/22	20.6	17.1	17.1
22/23	26.4	14.9	26.0
23/24	25.0	12.8	17.8
24/25	22.7	19.9	19.9
25/26	18.3	19.9	19.2
26/27	22.7	19.9	22.7
27/28	24.4	21.8	23.8
28/29	23.2	22.7	22.7
29/30	23.2	20.6	23.8
30/31	21.0	20.2	23.2
31/1	22.7	21.0	29.2
Median values	22.7	20.2	23.8

September

Date of the night	SS	Night	SR
1/2	23.8	20.6	24.4
2/3	24.4	15.7	23.8
3/4	21.8	18.6	21.0
4/5	19.5	19.9	24.4
5/6	19.5	22.2	28.2
6/7	27.2	17.6	27.2
7/8	27.2	16.5	25.0
8/9	23.2	16.7	24.4
9/10	24.4	13.5	30.3
10/11	17.1	22.7	28.2
11/12	25.0	19.9	33.2
12/13	20.2	18.6	28.2
13/14	20.2	15.9	23.8
14/15	25.7	16.3	26.4
15/16	19.9	18.6	27.2
16/17	23.8	16.1	28.2
17/18	22.7	16.7	28.2
18/19	21.4	16.1	24.4
19/20	23.2	14.9	18.2
20/21	23.2	19.2	22.7
21/22	25.0	17.3	25.7
22/23	21.8	15.9	20.6
23/24	25.0	19.9	24.4
24/25	16.5	18.9	18.9
25/26	X	X	X
26/27	22.2	16.7	18.3
27/28	31.7	17.1	22.2
28/29	25.7	17.1	16.7
29/30	14.6	17.6	20.2
30/1	20.6	18.3	16.1
Median values	23.2	17.6	24.4

October

Date of the night	SS	Night	SR
1/2	16.3	15.5	19.5
2/3	(27.7)?	15.5	18.6
3/4	22.2	15.9	17.3
4/5	21.0	14.0	16.5
5/6	18.3	15.4	17.1
6/7	15.1	X	X
7/8	18.1	19.5	18.6
8/9	29.2	19.5	17.6
9/10	25.7	15.5	28.2
10/11	25.7	19.9	29.2
11/12	21.4	20.2	25.0
12/13	21.4	18.1	18.1
13/14	20.2	16.7	22.2
14/15	24.4	14.6	18.9
15/16	19.9	17.6	22.7
16/17	25.0	16.5	21.0
17/18	25.0	12.6	X
18/19	X	X	X
19/20	27.2	18.6	22.7
20/21	23.2	21.0	26.4
21/22	26.4	22.2	24.4
22/23	X	X	X
23/24	20.6	19.5	26.4
24/25	30.3	17.6	26.4
25/26	33.2	22.2	33.2
26/27	18.9	18.6	25.7
27/28	31.7	22.2	26.4
28/29	20.2	16.3	25.7
29/30	21.0	16.3	25.0
30/31	23.2	16.5	X
31/1	24.4	17.8	27.2
Median values	23.2	17.6	23.5

November

Date of the night	SS	Night	SR
1/2	25.0	18.3	21.0
2/3	24.4	17.3	24.4
3/4	27.2	16.1	28.2
4/5	21.8	17.8	21.0
5/6	21.8	19.5	27.2
6/7	16.7	22.7	30.3
7/8	17.6	22.7	30.3
8/9	20.6	18.3	30.3
9/10	24.4	18.6	24.4
10/11	24.4	18.6	33.2
11/12	35.2	20.2	27.2
12/13	19.5	18.3	22.7
13/14	18.1	19.2	26.4
14/15	20.6	18.1	25.0
15/16	25.0	25.0	37.7
16/17	25.0	19.9	26.4
17/18	13.2	22.7	28.2
18/19	20.2	20.2	22.2
19/20	30.3	24.4	33.2
20/21	31.7	21.4	31.7
21/22	29.2	21.0	25.7
22/23	30.3	18.3	28.2
23/24	41.2	18.1	X
24/25	29.2	21.0	31.7
25/26	21.4	19.5	29.2
26/27	37.7	22.2	37.7
27/28	35.2	17.3	X
28/29	37.7	19.2	30.3
29/30	37.7	19.5	19.9
30/1	21.8	17.6	18.9
Median values	24.7	19.4	27.7

December

Date of the night	SS	Night	SR
1/2	19.9	X	X
2/3	20.6	22.2	27.2
3/4	28.2	19.2	28.2
4/5	41.2	17.8	27.2
5/6	24.4	16.5	21.0
6/7	27.2	18.1	22.7
7/8	18.6	17.6	24.4
8/9	19.2	17.3	23.8
9/10	35.2	19.5	23.8
10/11	26.4	19.9	31.7
11/12	33.2	19.9	30.3
12/13	33.2	19.9	24.4
13/14	37.7	18.1	X
14/15	24.4	18.3	25.0
15/16	27.2	16.1	22.2
16/17	35.2	18.3	21.8
17/18	25.0	21.4	25.0
18/19	33.2	21.0	X
19/20	20.2	25.0	28.2
20/21	28.2	19.5	26.4
21/22	31.7	20.6	30.3
22/23	37.7	21.0	25.7
23/24	22.7	22.7	30.3
24/25	41.2	20.6	33.2
25/26	47.2	20.2	33.2
26/27	41.2	19.9	23.8
27/28	41.2	20.6	27.2
28/29	28.2	24.4	30.3
29/30	35.2	23.2	25.0
30/31	31.7	21.0	22.7
31/7	23.2	18.1	20.6
Median values	28.2	19.9	25.4