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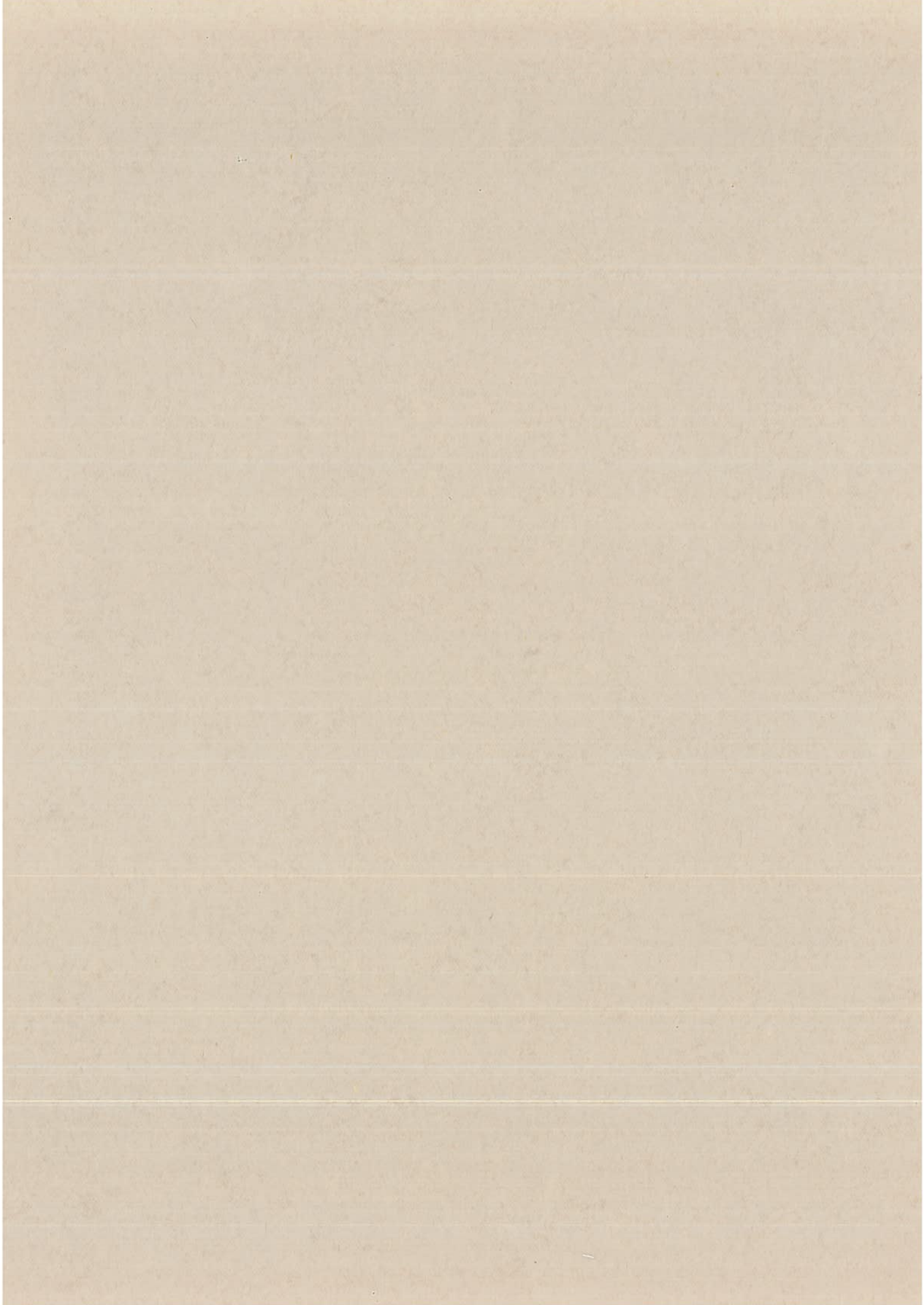
THE AURORAL OBSERVATORY AT TROMSØ

($\varphi = 69^{\circ} 39'.8$ N, $\lambda = 18^{\circ} 56'.9$ E. Gr.)

OBSERVATIONS 1952

1954

A.S JOHN GRIEGS BOKTRYKKERI, BERGEN



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**REPORT OF SPECTROGRAPHIC WORK
ON AURORA AND TWILIGHT CARRIED OUT AT THE AURORAL
OBSERVATORY, TROMSØ AND AT THE PHYSICAL
INSTITUTE OSLO, DURING 1952.**

At the Auroral Observatory we have in 1952 been using the two new large glass spectrographs. One, denoted by «V» has a fairly large dispersion and a lightpower of the camera lens $F : 1.2$. This instrument is especially intended for accurate wavelength determinations and identifications of the auroral lines and bands.

A second new and equally large spectrograph «F» has a smaller dispersion, but the extremely great lightpower $F : 0.65$, and it is to be used for the study of variability effects.

For the continued study of the increase of the intensity of the hydrogen lines towards lower latitudes, we have taken spectrograms with two small and practically identical spectrographs, one (a) used at Tromsø and one (a) used at Oslo.

At Oslo we have also been using a spectrograph (C) with an Astro Cameralens of lightpower $F : 0.9$.

During 1952 the following auroral spectrograms were taken:

At Tromsø:

With spectrograph «V»:	4	spectrograms
— — «F»:	41	—
— — (a):	11	—

At Oslo:

With spectrograph (a):	3	spectrograms
— — (C):	3	—

For the study of the distribution of sodium in twilight we have taken series of spectrograms from zenith and shortly afterwards from a direction near to the horizon. By determining the time when the intensity of the yellow sodium line is reduced to a smaller order of magnitude, we calculate from the two series the screening height (H_s) and the position of the sodium layer (H_u)*. Two such series we call a set of twilight spectrograms. During 1952 we took at Tromsø with spectrograph «F» 17 sets of twilight spectrograms.

Some results regarding the increase of intensity of the hydrogen lines towards lower latitudes were given in a note to Nature (Vol. 170 p. 536, 1952). A more complete account of the results derived from the spectrograms above mentioned, will be given later.

L. Vegard.

OZONE OBSERVATIONS

The table of ozone values of Tromsø covers 9 months and that of Longyear, Svalbard only 7 months.

Sky-observations are possible at Tromsø the whole year and at Longyear say 10 months, but the evaluation of values in the polar night period is too doubtful to be trusted in.

The observational spot at Svalbard is Longyear — *latitude 78° 14' .5 N. and longitude 15° 33' E.* — a coal mine city belonging to Store Norske Spitsbergen Kulkompani, by whose courtesy the observations have been made possible.

The observations were taken with a Dobson Spectrophometer, kindly put to our disposal by Dr. Dobson. The observer was engineer H. Welde.

The observations in Longyear were started in September 1950 by Søren H. H. Larsen, who will present the results from the first two years observations in a separate paper soon to be published.

*) cfr. L. Vegard, Nature, March 11, 1940.

L. Vegard and E. Tønsberg, Geof. Publ. XIII No. 1, 1940.

TROMSOE.

TABLE OF OZONE VALUES 1952.

Unit 0.001 cm.

M : diurnal mean. N : number of observations. R : diurnal range.

Day	Feb.		Mar.		Apr.		May		Jun.		Jul.		Aug.		Sep.		Oct.	
	M.	N.	M.	N.	M.	N.	M.	N.	M.	N.	M.	N.	M.	N.	M.	N.	M.	N.
1	271	2 10	393	2 5	363	7 5	291	2 13	288	1	255	2 1	216	3 2	230	1	248	2 5
2	295	1	395	1	351	5 5	297	3 18	278	2 23	239	2 18	217	2 4	—	—	211	1
3	315	1	400	4 0	366	2 8	291	4 11	266	3 7	265	1	234	1	—	—	205	5 7
4	328	2 5	377	2 6	390	2 12	290	1	263	3 5	259	2 2	238	2 4	236	1	185	3 16
5	338	1	383	2 1	296	4 7	283	2 5	261	4 11	254	2 4	219	2 4	258	1	196	1
6	265	2 10	346	3 14	274	2 6	284	3 8	253	3 8	221	2 3	224	2 13	250	1	184	4 8
7	310	1	342	4 20	268	2 8	281	2 1	251	2 4	221	3 16	232	3 7	253	1	192	3 15
8	280	1	362	3 13	280	2 8	268	3 6	249	2 4	212	1	241	2 8	209	2 3	197	3 17
9	310	1	355	2 10	311	3 18	283	2 13	269	2 16	212	2 3	227	3 1	195	3 7	200	1
10	272	1	362	3 16	298	2 1	276	2 6	256	2 5	225	2 4	211	2 30	247	2 7	217	1
11	293	1	362	4 21	303	2 6	285	1	257	2 5	231	2 4	224	3 4	195	2 3	199	1
12	292	1	394	6 12	296	3 10	315	3 1	251	3 9	206	3 7	223	2 13	200	2 5	—	—
13	310	1	388	4 29	326	2 4	314	2 12	252	3 20	235	1	237	3 4	230	2 8	162	1
14	305	1	379	2 3	353	3 6	321	2 10	274	2 7	223	3 11	237	2 2	258	1	163	3 27
15	300	1	353	6 14	373	1	328	3 18	281	1	228	2 4	244	1	234	2 0	186	2 16
16	325	1	363	4 11	382	3 11	291	2 14	265	3 15	235	3 22	239	2 16	224	2 5	175	2 2
17	343	2 15	365	5 21	343	2 20	329	1	260	2 7	235	3 2	234	1	246	2 7	172	1
18	298	2 5	330	2 20	336	2 14	324	1	268	3 8	236	1	241	2 2	256	3 16	177	2 6
19	309	2 12	322	2 0	327	2 15	281	3 9	250	3 4	246	1	227	2 7	260	2 20	—	—
20	296	2 4	314	5 9	313	4 4	266	2 8	253	2 14	251	1	231	3 3	250	3 6	177	1
21	320	2 20	326	7 9	311	11 16	279	2 12	252	2 1	253	2 12	233	3 9	263	1	190	1
22	336	4 16	352	5 15	304	6 9	268	1	254	1	247	2 4	228	2 7	231	3 8	222	1
23	372	3 16	358	3 5	309	2 2	274	2 4	254	2 17	244	2 6	208	3 11	220	2 7	210	1
24	415	1	340	2 10	305	2 2	300	2 11	252	2 11	236	2 4	214	1	217	2 8	182	1
25	364	4 8	338	3 5	292	2 6	310	1	282	2 4	225	2 4	224	2 4	210	6 7	220	2 16
26	372	2 12	353	9 21	266	2 0	299	2 1	260	2 0	211	4 4	240	2 6	201	2 4	232	1
27	400	2 16	338	9 8	278	1	279	2 0	249	4 9	217	1	231	2 2	191	3 10	229	2 12
28	410	2 20	375	1	264	2 4	274	3 2	266	1	219	4 4	229	1	189	1	220	2 0
29	425	3 10	353	2 4	256	2 2	274	2 1	253	1	218	3 10	234	2 4	215	2 8	185	2 14
30	353	1	353	1	279	9 21	278	2 6	264	2 4	213	3 4	234	2 3	227	2 4	172	2 1
31	383	3 8	383	3 8	283	3 8	283	3 8	261	2 4	211	3 2	223	1	—	—	183	2 1
Mean	327.		360.		314.		291.		261.		232.		229.		228.		196.	

LONGYEAR, SVALBARD.

TABLE OF OZONE VALUES 1952.

Unit 0.001 cm.

M : diurnal mean. N : number of observations. R : diurnal range.

Day	Mar.			Apr.			May			Jun.			Jul.			Aug.			Sep.		
	M.	N.	R.	M.	N.	R.	M.	N.	R.	M.	N.	R.	M.	N.	R.	M.	N.	R.	M.	N.	R.
1	386	2	24	341	2	6	315	2	10	268	2	15	251	2	5	212	2	0	212	2	0
2	376	2	34	329	2	1	301	2	13	270	2	1	255	2	9	209	2	11	207	2	7
3	382	1		321	2	5	280	2	6	266	2	6	254	2	2	212	1		217	1	
4	402	2	14	337	1		288	2	2	267	1		256	2	3	203	2	8	225	1	
5	393	2	22	—			293	5	8	266	2	12	249	2	4	209	2	1	220	2	6
6	357	2	7	326	2	10	303	1		255	2	10	242	2	9	209	2	2	231	2	19
7	397	1		321	1		282	2	7	268	2	1	236	2	11	213	2	7	—		
8	390	1		302	2	5	290	1		284	2	10	259	2	0	213	2	5	187	1	
9	396	1		299	2	4	—			251	2	26	237	2	3	221	2	5	188	2	9
10	397	2	3	331	2	13	—			251	2	5	237	2	2	210	2	4	197	2	1
11	369	2	13	319	2	2	—			240	2	4	239	2	8	219	2	6	—		
12	388	2	5	314	2	8	295	1		243	2	2	229	2	2	229	2	10	202	2	4
13	371	2	0	—			326	2	12	241	2	11	221	2	0	213	2	1	238	2	12
14	374	2	4	317	2	2	324	2	8	236	2	7	216	2	6	—			—		
15	350	2	7	316	2	9	272	2	4	237	2	2	211	2	1	230	1		230	1	
16	362	2	5	315	2	11	307	2	5	249	2	5	224	2	2	227	1		214	2	6
17	379	2	17	309	2	6	315	2	8	249	2	7	228	2	3	230	2	4	215	2	2
18	350	2	31	375	2	3	—			236	2	4	229	2	5	233	2	5	211	1	
19	337	2	15	329	2	5	282	1		249	1		224	2	6	217	2	1	—		
20	332	2	29	309	2	4	268	2	2	240	1		232	2		212	2	5	—		
21	309	2	12	318	2	3	310	2	7	227	2	0	233	1		204	2	4	202	1	
22	324	2	8	321	2	29	271	2	5	228	1		250	2	21	205	2	3	—		
23	331	1		326	2	8	280	2	0	244	2	0	233	2	1	203	1		—		
24	336	2	6	—			282	2	3	248	2	11	235	2	9	—			—		
25	323	2	5	298	2	7	275	2	11	246	2	11	208	2	6	205	2	0	196	1	
26	335	2	7	297	2	2	299	2	8	253	2	0	196	2	2	213	2	0	—		
27	324	1		268	2	1	296	2	2	259	2	8	205	2	3	—			—		
28	362	2	5	288	5	10	—			263	2	6	216	2	2	224	1		—		
29	395	2	1	304	2	2	271	5	16	238	2	25	212	2	7	—			—		
30	383	2	19	310	2	5	271	2	12	234	2	4	210	2	1	—			—		
31	373	2	15	—			281	2	1	—			211	2	6	203	1		—		
Mean	364.			316.			291.			250.			230.			215.			208.		

EARTH MAGNETISM 1952, TROMSØ

GENERAL REMARKS

The instrumental equipment used for the magnetic measurements and registrations is the same as that previously used, a description of which is given in No. 1 and No. 33 of the present series of publications.

The observations were made by J. Frøshaug. The reading of the hourly values was performed by S. Berger and the calculation work by Solfrid Sackariassen and Anne Østvik.

SCALE-VALUES

The following scale-values were determined:

D-curves: 1.50 or 4.88 γ per mm.

H-curves: 5.38 γ per mm.

V-curves: 7.25 γ per mm.

BASE-LINE VALUES

The determination of the base-line values resulted in the table given below.

The quiet mean Inclination value for 1952 was calculated to 77° 34'.4.

The temperature coefficient for the H-variometer is 7.3 γ and for the V-variometer — 1.3 γ per degree Celsius.

OBSERVED AND ADOPTED BASE-LINE VALUES 1952.

<i>D</i>			<i>H</i>			<i>V</i>		
Date	Observ.	Adopt.	Date	Observ.	Adopt.	Date	Observ.	Adopt.
V 9	1°50'.8W	1°49'.7W	V 10	11236	11235	V 8	50453	50448
15	49.0	.7	13	35	35	VI 12	55	48
VI 6	47.9	.7	VI 17	39	35	13	53	48
27	52.2	.7	24	38	35	26	48	48
VII 22	50.4	.7	26	35	35	VII 15	42	48
25	50.0	.7	VII 24	37	35	18	48	48
IX 16	49.7	.7	26	38	35	IX 1	47	48
18	49.2	.7	IX 4	39	38	6	45	48
19	49.5	.7	24	36	38	25	49	48
X 3	49.1	.7	30	37	38	X 2	45	48
9	49.8	.7	X 6	35	35	7	49	48
15	49.6	.7	14	35	35	15	45	48
24	49.1	.7	22	35	35	21	49	48
29	49.1	.7	XI 12	28	35	28	42	48
XI 11	50.6	.7	19	34	35	XI 12	59	48
21	49.2	.7	XII 2	29	30	18	46	48
27	49.5	.7	22	29	30	25	60	48
XII 20	48.7	.7	29	31	30	XII 26	48	48

EXPLANATION OF THE TABLES

For each of the components D , H and V two series of tables are given. One series gives, in the usual way, the hourly mean values centered at half hours Gr. M. T. In these tables the column headed M gives the ordinary diurnal means. R designates the range i. e. the difference between the maximum value measured on the magnetogram. The horizontal line marked M gives the monthly means of the hourly values, and the line marked QM gives the monthly means of the quiet hourly values.

The second series of tables gives the hourly values of the Storminess («average perturbing force» or «activity»). As to the definition of the storminess and the method for separating it, we refer to No. 2 and 4 in the present series of publications. In the storminess tables the column headed M gives the diurnal means. The columns headed OS , NS and AS give the diurnal sum of the positive, negative and absolute storminess respectively. The column headed CM gives the magnetic character numbers. We consider the diurnal sum of the absolute storminess as the best expression for the magnetic activity during a day, and we will use that quantity for defining the character numbers. Only the strongest perturbed component, the Horizontal Intensity, is used in characterisation. Character number 0 comprises diurnal sum of absolute storminess (AS) up to 400γ , character number 1 from 400γ to 1200γ and character number 2 greater than 1200γ . The horizontal line marked M contains the monthly means of the hourly values, and the two lines marked MPS and MNS give the monthly means of the positive and negative storminess respectively.

In D the storminess is reckoned positive towards magnetic west, in H positive towards magnetic north, and in V positive downwards.

In addition to the main tables, resuming tables, figures and vector diagrams are given at the end of the year-book.

EARTH MAGNETISM 1952, BEAR ISLAND

($\varphi = 74.5^\circ$ N., $\lambda = 19.2^\circ$ E.).

Some measurements with QMH 123 and EMZ 57 were taken by J. Frøshaug during an inspection period 1.—10. of July 1952. According to these measurements we can give approximate annual values for 1952.

$$D = 1^\circ 41' \text{ E.} \quad H = 9201\gamma. \quad V = 51\ 900\gamma.$$

For comparison we print K-indices of Bear Island and Tromsø side by side.

K-INDICES FOR THREE-HOUR INTERVAL 1952.

Tromsø.

Range 2000γ for K = 9. Scale values: D = 4.88γ H = 5.38γ V = 7.25γ.

Date	Jan. 4		Feb. 17		Mar. 29		Apr. 20		May 15		Jun. 4	
1	6443	3354	4235	5566	6412	4333	5655	5642	7655	5566	3333	2133
2	3211	1234	5422	3353	2101	0112	7764	5667	7655	5576	3312	2352
3	3010	1045	3211	0132	0122	4567	7665	5677	6543	4677	3411	2365
4	4211	4456	2000	0121	6755	5677	5654	5576	7534	4467	6312	1233
5	6444	3654	0110	0000	7765	6777	6654	5557	7444	5356	4413	3434
6	6444	3654	1233	4786	7764	4466	7554	4467	7443	4346	4111	1023
7	3342	5665	5555	4566	5544	6668	7444	4466	6554	5656	3011	2243
8	4433	2330	6554	4475	7654	5576	7543	4366	7633	4354	5534	3455
9	0111	1464	4533	4666	7545	4777	6434	3547	3101	0124	5434	6455
10	3634	3656	5433	3577	7554	5676	7564	3256	5101	2000	5332	4356
11	6543	4556	6644	3467	6444	5576	4323	4233	0112	5353	4332	4345
12	6653	4567	7543	5567	5533	5566	4311	1044	5321	2353	4221	3221
13	6545	6586	6443	6667	4221	4256	5621	2243	1012	5254	1111	1124
14	6654	5787	5323	3664	4222	2205	4013	3434	6321	1100	4225	5467
15	4544	6554	3322	1105	5321	3456	3333	5553	1102	2331	4534	4354
16	4222	2354	5544	6476	3334	3455	4343	4454	1101	1222	4434	4533
17	4320	1143	4444	5535	4444	5535	5642	1143	2001	1223	4434	3443
18	3100	0222	0001	2367	4433	3433	0001	2367	6533	3555	6523	3325
19	0000	0353	6434	3476	3221	3354	6432	5466	6534	3553	2113	3232
20	1101	1354	5433	2233	2121	1012	3211	1246	5423	4335	2111	2222
21	3200	0243	3210	2243	4234	5567	5323	6655	3324	3333	3101	2225
22	3201	2244	0010	1253	5534	3376	5653	3334	2112	2100	4233	5444
23	3113	5555	3210	0014	7554	3573	4433	3341	1101	3354	5535	5455
24	4222	4445	7835	5675	4644	5567	0011	3436	4223	4235	7725	5455
25	4102	4353	5323	5032	3355	5466	3103	2321	6433	3210	4223	6444
26	1001	2212	5333	3656	6402	4364	0011	1343	0014	4447	5434	5433
27	2333	5656	4554	2477	3423	4435	3100	0133	7545	5575	4443	3445
28	5543	4435	5654	4574	3101	2112	5633	5655	5334	4566	4114	3232
29	4113	4576	2344	4437	1102	2146	5544	5777	7534	4465	2112	1266
30	4442	3245			6412	5567	7555	5576	5534	4356	5766	4223
31	2121	5424	2		17744	4676			7443	4355		
Date	Jul. 1		Aug. 2		Sep. 8		Oct. 8		Nov. 2		Dec. 2	
1	1101	1125	3411	2154	6645	4546	5422	3355	5522	4576	2022	4566
2	3222	2111	4202	2335	5443	5457	3213	3364	6332	3363	6533	6567
3	2211	4444	4544	6653	5543	3345	5422	4686	3323	3325	4554	4456
4	2323	4423	5333	3365	4323	4342	7554	4477	5100	0100	6544	5556
5	4554	6676	6323	2434	3114	5655	5565	5675	1101	2233	6444	3263
6	4453	2214	7634	3335	4333	3354	6544	4644	2323	4444	2321	1433
7	4212	2431	7322	2235	3533	3466	0222	4355	5322	2366	4200	1353
8	1122	4534	4233	4143	6554	5577	5322	3444	4333	2366	3000	2223
9	4434	5554	1213	3354	7645	3566	5213	3245	5321	1343	1000	0032
10	4434	4445	5523	5523	6543	3243	4221	1465	0000	0111	2310	3564
11	6422	3321	4412	4236	4122	4456	4423	3467	0000	0334	3331	3343
12	5312	3023	6323	4554	5643	4344	6543	3155	3000	0023	3002	4533
13	1112	4453	4242	3233	2312	2115	5001	2325	2100	0000	5544	5222
14	4534	3535	3211	2120	5523	4455	3331	1323	0201	1045	1201	1013
15	6422	3226	3111	1154	4222	3345	2000	0340	3102	2352	5314	2210
16	4332	3232	3311	1010	4312	3235	0102	3113	0021	5413	1101	3455
17	0221	3333	1235	—	2312	2203	6522	2443	3011	1264	3332	1115
18	3313	3424	—3	3646	2000	0141	4433	2464	2211	1024	3310	1253
19	2102	2224	5522	3444	0000	2103	4223	3222	2100	1034	4100	0012
20	4214	5536	4445	4345	3000	2245	2211	3334	3200	0224	0000	0112
21	5644	5655	3202	1120	6422	2123	1003	6663	5345	3335	0000	2131
22	6423	2254	0022	1114	331—	—	2201	0000	6443	4442	1100	4542
23	4322	3335	6311	2333	—0	3202	0001	1224	3322	2212	3000	0033
24	5203	3334	1012	2131	1112	3445	1000	0002	3002	2311	1313	5455
25	3113	3455	0001	2133	5000	0246	0002	3566	4201	2233	6534	4344
26	5623	3233	2112	1143	7642	2222	7534	5566	0023	2476	4121	2415
27	4001	3245	4423	3333	2443	3433	5332	2234	4445	5566	4221	2256
28	3220	0112	3201	0221	4424	4466	5322	2443	6444	4564	4103	3446
29	0000	1022	3212	4466	6553	5377	2122	5555	4223	4454	7434	3666
30	2000	1122	5641	3445	7534	3355	6632	4677	4122	2354	5534	4565
31	2234	4354	2313	3153			6644	5666			4233	4466

K-INDICES FOR THREE-HOUR INTERVAL 1952.

Bear Island

Range 2000 γ for K—9. Scale values: D = 5.9 γ H = 5.9 γ V = 19.3 γ .

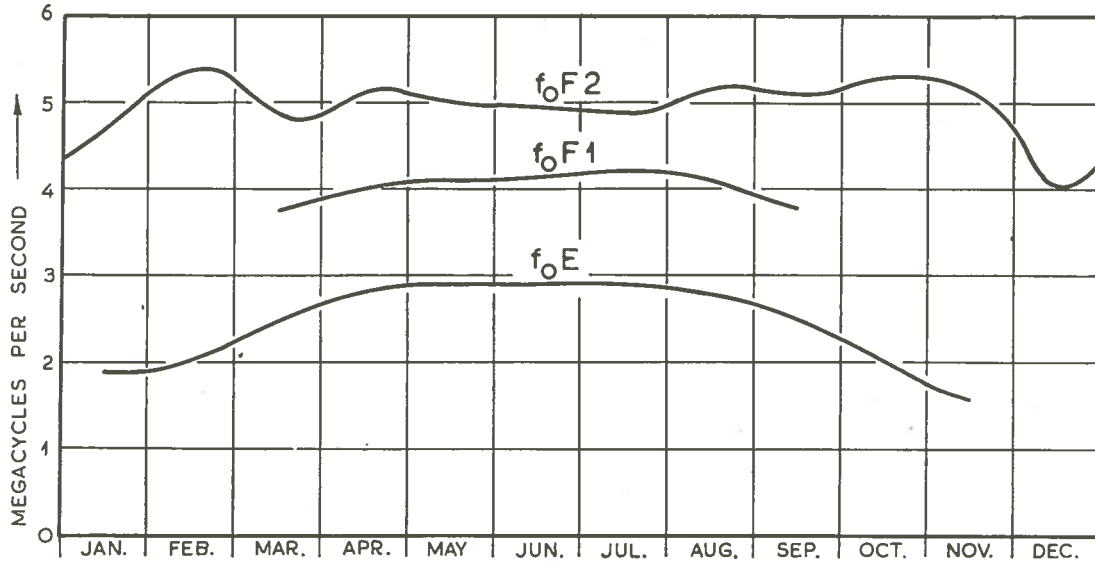
Date	Jan.		Feb.		Mar.		Apr.		May		Jun.	
1	5445	3456	3335	5555	6533	3533	6454	4452	6654	5565	3454	2224
2	3332	2253	2333	3445	1212	2003	6755	4455	555—	—	3442	3244
3	4332	2224	4222	2245	1231	4446	6665	4646	—4	4356	3442	1343
4	4433	3336	2221	2132	7775	5776	5556	5566	7654	4565	5412	2153
5	3445	5446	1232	2200	4565	5766	565—	—56	5554	4355	3523	3343
6	4554	4765	1343	4567	6775	4466	6445	4466	6455	4325	3323	2222
7	3342	4655	5555	4656	5554	—	6554	4456	566—	—	2212	3144
8	2533	3352	5445	4577	—	4766	6564	3467	—4	4333	3435	5445
9	1232	2354	3554	4675	6655	—	6534	4366	3221	0133	4454	6635
10	4455	4666	5444	3475	—	4665	5554	3355	4311	3100	3343	4446
11	5545	4663	6755	—	4445	4575	3333	3343	1113	4333	3343	4344
12	5555	3666	—	—666	3544	4664	3334	2124	3433	3344	3433	4422
13	6454	5666	6454	—7	3434	5435	2433	3254	2322	5425	2222	2234
14	5655	4556	5333	3455	4333	3322	2213	3424	6532	2211	3334	6465
15	—	5564	3233	2213	5332	3445	2443	5452	2210	4432	5654	4334
16	5443	3346	5564	4546	3334	4435	2443	4345	2211	2344	3454	4433
17	4433	2254	4322	3224	3554	5563	3343	3224	2201	2322	244—	—
18	3221	1123	4443	3255	4343	3332	2111	3256	2354	4553	—	—
19	2110	2254	6644	4356	2222	2355	5552	5466	3443	3333	—	—
20	2221	3355	—	—	3232	1102	6342	2335	4433	4434	—	—
21	4423	1234	—	—	3345	4435	5443	6555	3443	4432	—	—
22	3333	2345	—	2255	6663	3455	3454	3222	3323	3321	—	—
23	3223	—	3322	1103	6654	4463	3444	3352	1232	3353	—	—
24	—	—555	7645	5665	3665	5555	2111	1436	3331	4434	—	—
25	4222	4545	4333	5344	3345	5445	5222	3231	7533	4233	—	—
26	1101	2211	4444	3463	3522	4446	1101	2344	1035	5457	—	—
27	1234	5543	5—	3536	2343	4545	2102	1202	—4	5666	—	—
28	4454	3566	3454	4652	2211	3200	3553	4444	5545	4644	—	—
29	3223	3456	2343	4655	1112	2234	4454	4556	6454	4554	—	—
30	3443	3255	—	—	5323	4447	6654	4665	3554	3366	—	—
31	3322	3452	—	—	7654	4656	—	—	6453	3355	—	—
Date	Jul.		Aug.		Sep.		Oct.		Nov.		Dec.	
1	3211	2225	3433	3253	6554	5535	4433	— 53	5434	4445	3333	3565
2	3332	2212	4424	3344	5454	5335	3423	3354	5443	5454	5533	6565
3	2222	2654	3554	5443	4533	4544	4433	4566	4443	4424	4555	4345
4	2324	4434	4443	3454	4434	3351	6453	5465	3211	2232	7554	5665
5	4555	6655	5433	3534	3335	4544	5555	4763	2222	3344	5554	4264
6	4453	3—	6554	3233	4444	3445	5554	4654	3454	4453	2432	2344
7	—7	3431	5423	4433	3443	3563	2233	4555	5433	3465	4322	2363
8	2334	5423	4344	4254	4544	4665	4433	3343	3454	3364	4222	3224
9	4544	4444	2334	2464	4445	3555	4314	3255	5433	2555	2112	1133
10	3—	3546	6444	5354	5544	4353	3432	2375	8111	1233	2422	3452
11	5444	4432	5434	3334	3333	4435	3433	3565	2211	1335	2453	3552
12	5534	3224	4334	4344	5654	4333	6544	3355	3121	2223	3223	4423
13	2222	4532	3343	3434	3323	2223	4222	2444	3211	1211	5453	4212
14	5535	4435	3322	2331	4543	5445	3443	3333	1322	2244	1213	2223
15	5433	4336	3301	2254	4333	3354	2222	1552	2222	2253	4334	2321
16	3433	4343	3422	2222	4423	3445	2323	3233	0233	4312	1223	3336
17	2443	4434	2234	—	3333	3323	5533	2543	3222	2354	3343	2215
18	3424	4425	—	4546	3211	1142	3443	3453	3322	2243	3422	2262
19	3212	3343	3323	3444	1111	3214	2233	3213	3322	1243	3220	1134
20	3325	4545	3354	33—	2212	2333	3333	4323	4411	2224	1111	1222
21	4555	4566	—	2332	6433	2233	2003	5543	5434	3454	0001	2353
22	6444	3355	2132	2215	3322	3343	2222	1011	6543	3542	2322	4553
23	3433	4335	5422	2222	32—	3212	1112	2323	1112	2321	3211	1134
24	4323	4434	2222	3210	2233	4354	2101	1112	4214	3522	2434	6555
25	3223	4554	1211	2334	4112	1235	2002	3555	4322	3345	5544	4444
26	554—	3333	2313	2233	6553	2223	6544	4555	2134	3575	4333	2523
27	3212	3446	4433	1432	3553	3432	5543	2244	4445	5565	4432	—
28	4322	2122	3331	1232	2443	4465	4433	2552	5444	5665	—	—
29	1111	2253	4423	3555	6554	5456	3323	4544	3234	4663	—	3457
30	3213	2233	4552	3555	5534	4544	4533	3556	4243	3465	5454	4545
31	3335	4453	3343	3544	—	—	4545	5755	—	—	5454	4565

DAYLY SUM OF K-INDICES 1952.

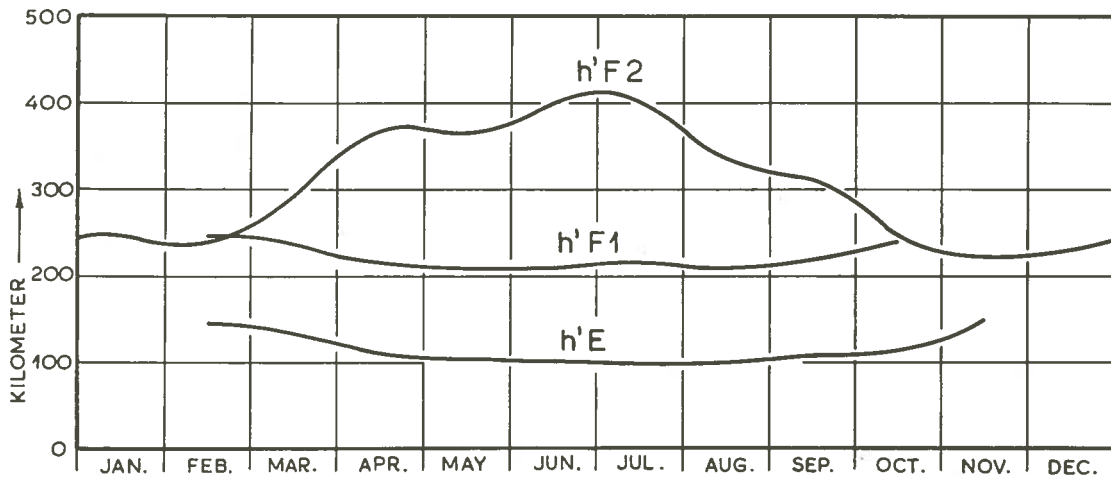
Tr. means Tromsø. B.I. means Bear Island.

Date	Jan.		Feb.		Mar.		Apr.		May		Jun.		Jul.		Aug.		Sep.		Oct.		Nov.		Dec.	
	Tr.	Bl.	Tr.	Bl.	Tr.	Bl.	Tr.	Bl.	Tr.	Bl.	Tr.	Bl.	Tr.	Bl.	Tr.	Bl.	Tr.	Bl.	Tr.	Bl.	Tr.	Bl.	Tr.	Bl.
1	32	36	34	26	31	38	34	45	41	21	26	36	12	18	21	26	40	38	29	—	36	33	27	31
2	17	23	27	27	8	11	48	41	46	—	21	26	14	18	21	28	32	34	25	27	29	34	41	38
3	14	22	13	23	27	25	49	43	42	—	25	24	22	25	37	33	32	32	37	35	24	29	37	35
4	27	29	6	15	48	51	43	43	40	42	21	23	23	26	31	31	25	27	43	38	7	16	40	43
5	35	35	2	12	52	44	43	—	38	36	26	26	43	41	27	30	30	31	44	40	13	22	32	35
6	36	40	34	33	44	41	42	39	35	34	13	19	25	—	34	31	28	32	37	38	26	32	19	24
7	34	32	41	41	44	—	39	39	42	—	16	19	19	—	26	28	33	33	23	29	29	33	18	25
8	22	26	40	41	45	—	38	41	35	—	34	33	22	26	24	30	44	44	27	27	30	32	12	21
9	18	22	37	39	46	—	36	37	12	15	36	37	34	33	22	28	42	35	25	27	22	23	6	14
10	36	40	37	36	45	—	38	35	9	13	31	13	32	—	34	35	30	33	24	29	3	14	24	26
11	38	38	40	—	41	38	24	25	20	19	28	25	23	30	26	29	28	28	33	32	10	18	23	29
12	42	41	42	—	38	36	18	22	24	27	17	25	19	28	32	29	33	33	32	35	8	16	20	23
13	45	42	42	—	26	31	25	26	20	25	12	19	21	22	23	27	17	20	18	24	3	12	29	26
14	48	41	32	31	19	23	22	21	14	22	35	34	32	34	12	19	33	34	19	26	13	20	9	16
15	37	—	17	19	29	29	30	29	13	18	32	34	27	31	17	20	25	28	9	21	18	20	18	22
16	24	32	41	39	30	29	31	29	10	19	30	30	22	27	10	19	23	29	11	21	16	18	20	23
17	18	27	21	22	34	36	26	24	11	14	29	—	17	28	—	—	15	23	28	30	18	23	19	23
18	10	15	27	30	27	25	19	21	35	31	29	—	23	28	—	—	8	15	30	29	13	21	18	23
19	11	17	37	38	23	23	36	38	34	26	17	—	15	21	29	26	6	14	20	19	11	20	8	16
20	16	23	25	—	10	14	20	28	29	29	13	—	30	31	33	—	16	18	19	24	13	20	4	11
21	14	23	17	—	36	31	35	37	24	27	16	—	40	40	11	—	22	26	25	22	31	32	7	14
22	18	26	12	—	36	38	32	25	9	20	29	—	28	34	11	18	—	23	5	11	31	32	17	26
23	28	—	11	15	39	38	25	28	18	22	37	—	25	28	22	21	—	—	10	15	17	19	9	16
24	27	—	46	44	41	40	18	19	25	25	42	—	23	27	11	14	21	26	3	9	12	23	27	34
25	22	28	23	29	37	33	15	20	22	30	29	—	25	28	10	17	17	19	22	22	17	26	33	34
26	9	9	34	32	29	30	13	16	24	30	31	—	19	25	15	19	27	28	41	38	24	30	20	25
27	33	27	38	—	29	30	11	10	43	—	31	—	17	18	11	18	24	26	24	29	39	38	24	—
28	33	37	40	33	11	11	38	32	36	37	20	—	11	18	11	18	34	32	25	28	37	39	25	—
29	31	28	31	32	16	16	44	37	38	37	21	—	5	16	28	31	41	40	27	28	28	31	39	—
30	28	29	—	—	36	32	45	42	35	35	35	—	8	19	32	34	35	34	41	34	23	31	37	36
31	21	24	—	—	45	43	34	34	34	34	—	—	27	26	21	29	—	—	43	40	—	—	32	38

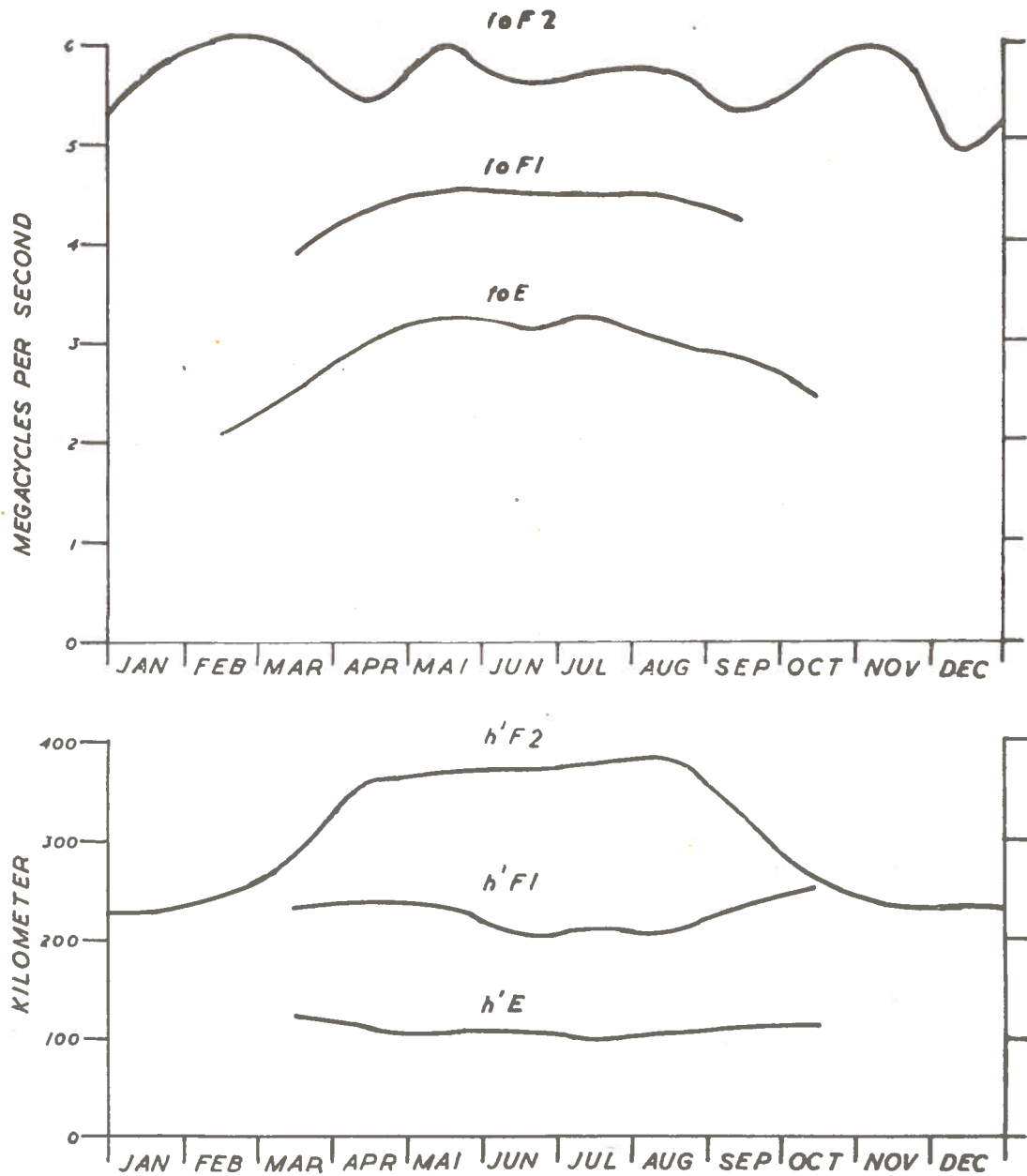
RADIO ECHO OBSERVATIONS



Monthly Median Noon-Values (12^h Meet) 1952 for the Critical Frequencies and the Virtual Heights for the E-Layer, F1-Layer and F2-Layer.



RADIO ECHO OBSERVATIONS



Monthly Median Noon-Values (12 h Meet) 1951 for the Critical Frequencies and the Virtual Heights for the E-Layer, F1-Layer and F2-Layer.

Tromsø. Declination. D = 0° W + Tabular Quantities expressed in Tenths of Minutes. Gr. M. T.

Table for January 1952 showing hourly mean values for declination. Columns include Day (1-31), hours (1-24), and magnetic (M) and true (R) values.

Table for February 1952 showing hourly mean values for declination. Columns include Day (1-29), hours (1-24), and magnetic (M) and true (R) values.

Table for March 1952 showing hourly mean values for declination. Columns include Day (1-31), hours (1-24), and magnetic (M) and true (R) values.

Tromsø.

Declination. Storminess. (+ W) Unit Gamma.

Gr. M. T.

JANUARY 1952

HOURLY MEAN VALUES

Table for January 1952 showing hourly mean values for Declination, Storminess, and Unit Gamma. Columns include Day (1-31), M, PS, NS, AS, and summary rows for M, KPS, and MNS.

FEBRUARY 1952

Table for February 1952 showing hourly mean values for Declination, Storminess, and Unit Gamma. Columns include Day (1-29), M, PS, NS, AS, and summary rows for M, KPS, and MNS.

MARCH 1952

Table for March 1952 showing hourly mean values for Declination, Storminess, and Unit Gamma. Columns include Day (1-31), M, PS, NS, AS, and summary rows for M, KPS, and MNS.

Tromsø, APRIL 1952

Declination. D = 0° W + Tabular Quantities expressed in Tenths of Minutes.

Gr. M. T.

HOURLY MEAN VALUES

Table for April 1952 showing hourly mean values for declination. Columns include Day (1-30), hours (1-24), and monthly totals (M, QM).

MAY 1952

Table for May 1952 showing hourly mean values for declination. Columns include Day (1-31), hours (1-24), and monthly totals (M, QM).

JUNE 1952

Table for June 1952 showing hourly mean values for declination. Columns include Day (1-30), hours (1-24), and monthly totals (M, QM).

Tromsø.

Declination. Storminess. (+ W) Unit Gamma.

Gr. M. T.

APRIL 1952

HOURLY MEAN VALUES

Table for April 1952 showing magnetic data for days 1-30. Columns include DAY, 1-23, M, PS, NS, AS. Values range from -175 to 225.

MAY 1952

Table for May 1952 showing magnetic data for days 1-31. Columns include DAY, 1-23, M, PS, NS, AS. Values range from -105 to 105.

JUNE 1952

Table for June 1952 showing magnetic data for days 1-30. Columns include DAY, 1-23, M, PS, NS, AS. Values range from -127 to 118.

Tromsø. Declination. D = 0° W + Tabular Quantities expressed in Tenths of Minutes. Gr. M. T. JULY 1952 HOURLY MEAN VALUES

Table with columns DAY, 1-23, M, R for July 1952. Contains hourly magnetic declination data for Tromsø.

AUGUST 1952

Table with columns DAY, 1-23, M, R for August 1952. Contains hourly magnetic declination data for Tromsø.

SEPTEMBER 1952

Table with columns DAY, 1-23, M, R for September 1952. Contains hourly magnetic declination data for Tromsø.

Tromsø.

Declination. Storminess. (+ W) Unit Gamma.

Gr. M. T.

JULY 1952

HOURLY MEAN VALUES

Table for July 1952 showing magnetic observations. Columns include DAY (1-31), 24 columns of hourly values, M, PS, NS, AS, and summary rows for MPS and MNS.

AUGUST 1952

Table for August 1952 showing magnetic observations. Columns include DAY (1-31), 24 columns of hourly values, M, PS, NS, AS, and summary rows for MPS and MNS.

SEPTEMBER 1952

Table for September 1952 showing magnetic observations. Columns include DAY (1-30), 24 columns of hourly values, M, PS, NS, AS, and summary rows for MPS and MNS.

Tromsø. Declination. D = 0° W + Tabular Quantities expressed in Tenths of Minutes.

Gr. M. T

OCTOBER 1952

HOURLY MEAN VALUES

Table for October 1952 showing hourly mean values for days 1 to 31. Columns include Day, hours 1-24, M, and R. Values range from approximately 274 to 440.

NOVEMBER 1952

Table for November 1952 showing hourly mean values for days 1 to 30. Columns include Day, hours 1-24, M, and R. Values range from approximately 356 to 440.

DECEMBER 1952

Table for December 1952 showing hourly mean values for days 1 to 31. Columns include Day, hours 1-24, M, and R. Values range from approximately 330 to 440.

Tromsø.

Declination. Storminess. (+ W) Unit Gamma.

Gr. M. T.

OCTOBER 1952

HOURLY MEAN VALUES

Table for October 1952 showing magnetic observations (DAY 1-31) with columns for declination, storminess, and unit gamma, plus summary rows for M, PS, NS, AS, MFS, and MNS.

NOVEMBER 1952

Table for November 1952 showing magnetic observations (DAY 1-30) with columns for declination, storminess, and unit gamma, plus summary rows for M, PS, NS, AS, MFS, and MNS.

DECEMBER 1952

Table for December 1952 showing magnetic observations (DAY 1-31) with columns for declination, storminess, and unit gamma, plus summary rows for M, PS, NS, AS, MFS, and MNS.

Tromsø. Horizontal Intensity. H = 11100 + Tabular Quantities expressed in Gamma. Gr. M. T.

Table for January 1952 showing hourly mean values for magnetic intensity. Columns include Day, hours 1-24, M, and R. Values range from approximately -140 to 310 Gamma.

Table for February 1952 showing hourly mean values for magnetic intensity. Columns include Day, hours 1-24, M, and R. Values range from approximately -320 to 250 Gamma.

Table for March 1952 showing hourly mean values for magnetic intensity. Columns include Day, hours 1-24, M, and R. Values range from approximately -320 to 490 Gamma.

Tromsø.

Horizontal Intensity. Storminess (+ N). Unit Gamma.

Gr. M. T.

JANUARY 1952.

HOURLY MEAN VALUES

Table with columns: DAY, 1-25, M, PS, S, AS, CH. Rows for January 1-31 and summary rows M, MPS, MNS.

FEBRUARY.

Table with columns: DAY, 1-25, M, PS, NS, AS, CH. Rows for February 1-29 and summary rows M, MPS, MNS.

MARCH.

Table with columns: DAY, 1-23, M, PS, NS, AS, CH. Rows for March 1-31 and summary rows M, MPS, MNS.

Tromsø. Horizontal Intensity. H = 11100 + Tabular Quantities expressed in Gamma. Gr. M. T.

Table for APRIL 1952 showing hourly mean values for days 1-30. Columns include Day, 24 hourly values, M, and R. Summary row M: -108 -117 -81 -50 -30 36 49 55 63 79 106 116 136 158 158 172 160 103 55 -7 -86 -91 -121 -147. Summary row QM: 73 75 77 77 76 73 68 61 51 46 46 50 58 67 75 81 86 89 89 86 79 71 68 69 71.

Table for MAY 1952 showing hourly mean values for days 1-31. Columns include Day, 24 hourly values, M, and R. Summary row M: -180 -196 -104 -3 13 43 51 52 61 84 105 123 153 148 153 163 153 130 74 17 -23 -77 -98 -80. Summary row QM: 75 77 78 78 75 70 63 55 47 43 47 55 65 72 77 80 83 86 84 82 80 78 76 75 71.

Table for JUNE 1952 showing hourly mean values for days 1-30. Columns include Day, 24 hourly values, M, and R. Summary row M: -50 -50 -38 -15 36 61 47 49 57 62 89 120 143 173 176 167 151 139 116 64 16 -22 -63 -54. Summary row QM: 82 80 78 76 73 70 65 60 53 50 52 56 62 68 74 81 87 92 94 93 91 89 87 85 75.

Tromsø.

Horizontal Intensity, Storminess (+ N). Unit Gamma.

Gr. M. T.

APRIL 1952.

HOURLY MEAN VALUES

Table for April 1952 showing magnetic observations. Columns include DAY (1-30), 24 hourly values (1-24), M, PS, NS, AS, and CH. Rows contain numerical data for each day and hourly interval.

MAY.

Table for May 1952 showing magnetic observations. Columns include DAY (1-31), 24 hourly values (1-24), M, PS, NS, AS, and CH. Rows contain numerical data for each day and hourly interval.

JUNE.

Table for June 1952 showing magnetic observations. Columns include DAY (1-30), 24 hourly values (1-24), M, PS, NS, AS, and CH. Rows contain numerical data for each day and hourly interval.

Tromsø.
JULY 1952

Horizontal Intensity. H = 11100 + Tabular Quantities expressed in Gamma.
HOURLY MEAN VALUES

Gr. M. T.

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	M	R		
1	73	56	67	65	65	65	57	52	43	42	45	53	53	53	65	72	83	88	93	92	87	90	-70	-40	56	587	
2	90	87	72	82	77	72	70	62	50	35	38	53	62	80	83	88	92	87	80	81	87	82	74	82	74	102	
3	73	67	83	90	78	65	68	62	58	57	50	63	80	190	275	365	290	270	200	80	20	22	-60	0	106	522	
4	78	63	68	60	45	50	68	60	38	40	60	100	140	175	240	265	190	130	92	115	125	50	-5	-27	93	404	
5	-60	-80	40	40	-10	-160	-40	60	115	105	140	220	410	530	410	205	70	-30	10	-70	-380	-240	-85	-85	46	1345	
6	20	52	72	18	-25	80	50	-50	60	80	57	70	60	70	100	110	88	100	100	93	85	47	30	-70	54	344	
7	-80	-32	50	52	65	55	50	53	53	67	55	58	72	70	78	120	170	195	182	113	83	62	53	57	71	393	
8	58	57	43	45	60	57	50	50	47	42	53	78	120	250	330	325	230	118	93	112	80	55	28	-40	98	565	
9	-98	-60	-78	-12	15	62	0	-15	25	42	135	120	110	110	305	360	230	120	97	120	-20	35	-30	-60	63	538	
10	-65	10	25	20	20	28	77	70	70	70	67	145	222	135	245	307	225	205	195	133	40	10	-55	-250	81	629	
11	-390	-265	-120	50	-75	20	67	63	58	60	60	62	70	120	150	150	145	140	112	93	85	72	68	55	35	721	
12	15	-150	-190	-25	12	58	70	68	68	60	48	62	115	88	68	87	88	92	90	113	108	45	-15	60	43	398	
13	85	85	83	78	75	72	60	57	53	48	50	53	82	150	235	317	210	167	130	50	77	40	-10	18	94	457	
14	20	-70	-150	-50	40	75	75	53	20	43	45	175	225	248	203	250	290	130	130	102	25	-5	-100	-280	62	861	
15	-200	-50	50	-20	0	50	45	53	40	28	45	60	63	95	140	70	100	98	127	130	92	57	-120	-340	26	629	
16	-90	18	22	60	72	53	33	68	60	68	80	100	97	125	175	140	133	133	165	88	97	25	50	70	77	441	
17	68	63	67	45	18	30	38	53	68	58	57	52	52	98	168	227	230	200	130	123	95	45	0	12	83	323	
18	5	48	58	20	-42	33	55	57	47	60	92	142	143	167	197	208	162	87	65	63	57	40	2	-48	72	323	
19	40	72	75	87	83	70	60	55	49	55	77	53	90	87	63	77	92	138	120	95	90	75	30	-60	70	285	
20	-148	50	20	60	58	98	87	75	67	65	180	135	270	210	345	370	225	193	132	130	110	-100	-350	-10	82	990	
21	365	-120	-150	-240	-210	90	32	40	55	60	150	250	300	280	330	170	155	110	0	-35	-320	-115	-400	40	1302		
22	-320	-115	20	-5	90	62	62	45	55	60	95	117	80	80	65	80	100	110	95	128	20	-150	-195	-110	-105	12	737
23	0	52	60	83	40	62	43	58	52	57	50	65	67	82	122	160	128	157	112	105	98	-200	-65	-70	54	613	
24	-150	-90	5	82	90	88	77	63	62	60	77	70	100	118	107	115	162	150	122	108	40	-10	-90	-110	52	441	
25	22	78	83	77	70	58	55	58	57	70	52	75	103	140	180	170	162	115	138	87	-20	-105	-75	-170	61	452	
26	-360	-200	-420	-220	58	63	60	73	55	65	85	103	132	152	137	100	120	125	108	98	75	40	33	-2	20	807	
27	7	-63	40	78	80	72	68	63	60	58	70	67	100	72	108	110	123	145	120	128	55	-50	-230	-90	50	533	
28	20	8	40	90	70	77	67	63	60	55	52	57	63	73	83	88	83	88	88	88	88	88	88	88	77	63	156
29	77	72	70	68	70	63	63	62	55	48	52	57	73	83	80	80	89	90	95	93	88	62	60	72	102	72	102
30	52	38	70	72	70	68	55	62	57	53	48	63	67	65	75	80	87	89	127	115	78	70	50	50	70	113	133
31	68	75	37	65	77	80	77	53	45	60	75	170	165	115	220	225	262	210	140	65	-120	-60	75	18	92	527	
M	-23	-8	-7	30	37	55	55	53	55	58	72	92	121	139	172	183	156	132	117	89	40	-6	-31	-64	64	530	
QM	79	78	77	75	72	69	65	60	54	51	53	57	62	67	74	80	85	89	91	90	88	85	83	81	73		

AUGUST 1952

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	M	R	
1	-7	-7	25	-37	-17	43	53	60	38	65	75	70	65	75	70	95	93	110	133	88	-47	-18	-7	-97	38	317
2	-133	-103	-82	83	75	73	78	70	65	63	63	88	103	130	155	160	208	218	143	93	125	73	-37	-145	65	516
3	-27	53	85	43	-155	-145	-70	-47	10	113	63	55	153	435	455	225	110	108	73	-82	-117	-77	-15	69	834	
4	3	-117	-117	28	75	58	13	35	50	70	65	83	98	108	103	208	193	153	133	-113	-195	-145	-80	-70	27	570
5	-415	-265	-47	38	73	80	75	78	78	108	115	113	73	80	98	173	255	210	128	103	65	48	15	-7	53	866
6	-57	-585	-325	-235	-155	90	78	55	88	63	88	95	128	185	175	145	120	148	143	83	73	78	50	-45	20	968
7	-435	-345	-85	33	95	78	73	63	73	78	73	75	113	123	155	155	168	183	168	115	95	58	-33	-110	40	936
8	-60	10	60	87	68	48	67	85	65	45	60	98	175	200	90	80	77	85	92	105	60	0	2	48	69	441
9	72	67	58	55	73	77	77	65	52	50	55	90	115	105	82	62	88	150	70	-40	25	-40	-85	-140	49	468
10	-190	-350	-350	-130	18	68	62	63	78	52	90	112	300	390	275	367	300	220	50	-45	30	-30	-130	-220	43	974
11	-150	-90	-195	-20	80	77	72	73	58	52	65	62	62	130	108	83	87	110	140	140	108	30	-210	-120	31	570
12	-140	-270	-50	80	90	65	70	63	55	45	63	78	160	190	265	280	230	120	140	60	-90	-60	-50	-60	56	759
13	25	80	72	73	73	65	68	50	53	67	70	97	80	103	120	122	152	137	128	102	57	30	-20	-45	73	264
14	-13	50	68	73	65	57	72	68	53	50	67	70	88	97	107	100	97	112	127	115	92	75	70	67	76	194
15	52	-20	18	75	78	73	63	55	45	45	50	62	82	87	97	102	102	93	92	97	10	0	75	68	63	355
16	-20	40	28	23	40	70	73	58	52	50	50	58	60	80	98	102	105	102	107	87	77	73	73	70	66	172
17	68	68	70	83	77	85	85	77	65	70	110	240	152	90	130											
18																										
19	-90	-50	-210	-65	-2	85	93	77	63	78	77	75	70	67	105	205	245	145	112	80	7	20	-55	-110	43	629
20	-70	-75	-20	40	-10	-100	-20	40	70	90	110	280	190	145	95	98	108	130	130	140	60	15	-220	-140	45	662
21	-15	-20	20	67	82	73	68	60	53	58	63	65	67	82	92	98	102	110	113	128	95	85	83	83	71	231
22	78	78	78	72	72	73	70	60	48	50	32	45	57	77	82	87	87	87	87	87	87	87	87	87	55	253
23	-230	-220	-160	70	105	90	75	58	45	38	35	40	62	70	82	97	120	143	98	90	95	55	40	80	41	554
24	83	88	87	85	85	82	75	63	58	38	38	53	57	68	85	97	98	98	120	123	90	77	77	82	79	129
25	82	80	78	78	78	77	70	60	52	47	48	50	70	82	97	97	108	120	128	92	75	37	-20	0	70	204
26	27	52	70	60	68	72	58	47																		

Tromsø.

Horizontal Intensity. Storminess (+ N). Unit Gamma.

Gr. M. T.

JULY 1952.

HOURLY MEAN VALUES

Table with columns: DAY, 1-23, M, PS, NS, AS, CH. Rows for days 1-31 and summary rows M, MPS, MNS.

AUGUST.

Table with columns: DAY, 1-23, M, PS, NS, AS, CH. Rows for days 1-31 and summary rows M, MPS, MNS.

SEPTEMBER.

Table with columns: DAY, 1-23, M, PS, NS, AS, CH. Rows for days 1-30 and summary rows M, MPS, MNS.

Tromsø. Horizontal Intensity. H = 11100 + Tabular Quantities expressed in Gamma.

Gr. M. T.

OCTOBER 1952

HOURLY MEAN VALUES

Table for October 1952 showing hourly mean values for horizontal intensity. Columns include Day (1-31), hours (1-24), and summary statistics (M, QM, L, R).

NOVEMBER 1952

Table for November 1952 showing hourly mean values for horizontal intensity. Columns include Day (1-30), hours (1-24), and summary statistics (M, QM, L, R).

DECEMBER 1952

Table for December 1952 showing hourly mean values for horizontal intensity. Columns include Day (1-31), hours (1-24), and summary statistics (M, QM, L, R).

Tromsø.

Horizontal Intensity. Storminess (+ N). Unit Gamma.

Gr. M. T.

OCTOBER 1952.

HOURLY MEAN VALUES

Table for October 1952 showing hourly mean values for horizontal intensity, storminess, and other magnetic parameters. Columns include Day, 24 hours, M, PS, NS, AS, CH.

NOVEMBER.

Table for November 1952 showing hourly mean values for horizontal intensity, storminess, and other magnetic parameters. Columns include Day, 24 hours, M, PS, NS, AS, CH.

DECEMBER.

Table for December 1952 showing hourly mean values for horizontal intensity, storminess, and other magnetic parameters. Columns include Day, 24 hours, M, PS, NS, AS, CH.

Tromsø. Vertical Intensity. V = 50600 + Tabular Quantities expressed in Gamma. Gr. M. T.

Table for January 1952 showing hourly mean values for vertical intensity. Columns include Day (1-31), hours (1-24), and monthly totals (M, R).

FEBRUARY 1952

Table for February 1952 showing hourly mean values for vertical intensity. Columns include Day (1-29), hours (1-24), and monthly totals (M, R).

MARCH 1952

Table for March 1952 showing hourly mean values for vertical intensity. Columns include Day (1-31), hours (1-24), and monthly totals (M, R).

Tromsø.

Vertical Intensity. Storminess (+ Down). Unit Gamma.

Gr. M. T.

JANUARY 1952

HOURLY MEAN VALUES

Table for January 1952 showing hourly mean values for vertical intensity, storminess, and other parameters (M, PS, NS, AS) across 31 days.

FEBRUARY 1952

Table for February 1952 showing hourly mean values for vertical intensity, storminess, and other parameters (M, PS, NS, AS) across 29 days.

MARCH 1952

Table for March 1952 showing hourly mean values for vertical intensity, storminess, and other parameters (M, PS, NS, AS) across 31 days.

Tromsø.
APRIL 1952

Vertical Intensity. $V = 50600 +$ Tabular Quantities expressed in Gamma.
HOURLY MEAN VALUES

Gr. M. T.

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	M	R	
1	109	245	355	210	35	78	102	132	170	180	130	105	85	30	27	-38	-85	15	-28	75	90	123	132	108	97	609
2	195	370	175	170	60	-100	18	85	117	150	127	122	93	75	45	120	13	-20	45	130	485	105	280	510	142	814
3	25	175	320	312	60	-65	-45	38	98	60	92	25	73	120	58	-15	-165	-60	12	250	210	230	265	525	168	1051
4	212	360	325	95	70	75	95	135	135	110	95	108	12	112	105	20	-5	185	330	375	250	260	525	155	790	
5	385	360	150	-40	-105	35	90	72	90	80	82	112	162	117	87	117	93	-35	-57	110	102	140	490	532	132	1082
6	603	375	30	120	75	115	108	120	140	170	150	110	118	128	112	143	98	122	90	-60	10	125	350	525	161	1088
7	100	75	65	70	110	122	120	120	78	100	112	115	140	132	125	149	117	77	105	82	230	150	90	305	120	609
8	225	-35	30	77	100	-5	20	65	92	110	145	115	128	117	117	135	140	85	115	95	90	65	185	185	100	856
9	210	125	115	27	62	100	115	118	127	130	115	95	147	150	132	118	65	20	0	97	132	60	280	65	109	856
10	325	480	380	170	2	45	70	100	128	120	120	132	145	148	150	147	140	132	118	62	98	35	60	82	141	858
11	72	99	105	100	102	120	118	128	132	127	110	117	135	132	150	146	135	118	115	95	67	100	100	90	114	152
12	115	142	175	47	40	65	92	110	120	113	120	113	119	127	130	130	122	117	113	112	135	68	92	100	109	138
13	112	200	280	290	100	112	68	90	93	97	125	135	147	178	143	132	125	125	120	115	78	110	115	150	135	515
14	115	100	110	113	110	108	107	107	102	130	122	127	138	142	115	65	145	120	125	132	112	75	88	113	190	196
15	98	88	92	108	113	85	100	105	118	115	112	128	143	82	28	108	30	45	78	52	140	138	113	130	98	210
16	103	100	98	45	58	75	108	100	102	102	115	102	128	152	115	117	120	92	83	85	8	27	68	92	254	924
17	97	100	118	285	190	-5	93	115	122	130	130	135	125	123	127	130	122	130	118	118	85	100	107	105	121	437
18	110	112	110	110	106	110	112	113	112	108	107	105	100	117	138	125	108	63	35	80	259	335	225	265	134	508
19	428	250	15	70	80	92	88	108	118	113	110	118	117	85	-20	35	123	85	65	95	90	68	125	-115	95	725
20	10	30	60	82	83	50	102	118	117	120	120	120	120	120	113	122	148	120	115	85	115	163	255	10	105	493
21	110	45	-65	-30	25	55	83	100	92	85	98	92	63	-150	-200	-170	-150	135	180	195	305	425	380	295	83	870
22	165	78	150	95	98	92	155	145	138	143	152	118	112	128	108	112	88	85	118	117	125	112	119	290	290	890
23	152	130	135	105	90	98	100	112	108	110	145	140	130	122	132	162	128	115	50	68	83	100	98	102	113	239
24	108	112	115	113	113	110	108	108	102	105	105	102	103	110	110	85	10	40	115	112	130	240	65	75	104	464
25	67	98	112	110	110	108	105	103	102	107	103	128	146	135	128	128	130	145	128	117	110	108	110	107	114	145
26	100	100	105	108	105	102	105	105	110	107	105	112	117	118	115	117	125	93	77	93	95	127	142	137	109	152
27	127	88	95	110	112	107	108	105	107	107	102	110	112	117	113	112	120	122	113	108	100	92	150	148	111	94
28	170	200	85	255	90	-25	18	70	92	105	95	135	75	82	-48	-102	-90	-35	80	43	85	135	185	340	85	732
29	340	265	72	115	200	-30	0	118	95	100	97	110	97	133	105	5	68	135	110	400	300	145	395	40	144	1051
30	330	275	60	30	100	85	110	97	122	108	60	95	115	125	138	105	87	45	140	150	165	270	500	500	159	943
M	177	171	133	116	87	65	85	104	113	113	113	112	114	109	94	90	69	77	88	118	152	142	191	195	118	578
QM	66	108	110	111	109	107	106	106	106	108	111	113	116	119	122	123	123	122	120	116	112	108	105	105	112	

MAY 1952

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	M	R	
1	350	280	250	85	-20	55	110	130	175	125	122	55	55	118	58	132	68	-10	80	100	290	300	115	480	143	628
2	340	260	550	315	-20	55	100	117	130	100	73	108	20	205	75	62	7	112	225	60	145	265	490	350	171	1051
3	375	395	420	95	120	120	70	90	75	112	110	132	127	127	112	60	25	18	150	130	280	425	470	450	185	798
4	300	-75	-65	-8	25	32	102	123	132	130	132	135	130	125	130	95	75	118	15	20	165	330	400	290	119	1051
5	46	430	150	-15	78	88	108	120	185	125	127	118	48	123	145	112	132	92	65	78	180	240	385	95	149	670
6	-5	225	30	45	28	63	83	85	70	68	117	123	148	132	140	116	115	118	122	108	105	135	270	235	112	667
7	220	155	60	30	10	-5	75	140	122	80	82	112	-35	-200	-200	-150	60	218	168	265	218	350	92	73	1160	
8	68	225	395	55	25	93	93	112	115	95	92	110	140	145	130	107	118	105	88	68	165	155	110	128	123	616
9	110	98	95	105	102	98	100	103	105	108	107	110	117	118	118	118	122	123	112	102	103	98	102	115	108	116
10	78	6	77	93	102	105	103	102	98	100	98	95	102	127	130	113	110	108	107	110	107	105	107	110	100	225
11	112	112	117	117	112	112	110	102	93	85	98	100	107	115	152	165	90	52	97	108	163	165	135	120	114	250
12	143	220	68	70	75	92	98	98	98	97	100	97	97	110	128	130	140	118	112	110	145	50	85	110	108	326
13	112	110	113	112	110	103	98	98	98	108	112	112	113	145	175	132	110	105	107	108	167	130	100	165	118	203
14	315	130	-115	3	68	93	100	107	107	110	108	110	110	107	117	120	118	118	118	117	108	103	105	107	104	529
15	108	102	98	103	110	105	102	100	100	98	98	95	120	132	173	168	115	125	123	132	125	117	113	106	115	131
16	108	105	107	107	110	113	112	112	110	108	109	115	125	127	137	135	133	135	110	98	96	93	55	45	109	123
17	65	95	97	100	101	100	100	103	101	98	103	102	105	112	125	140	140	122	110	128	143	195	112	152	152	
18	320	315	270	17	32	58	93	93	115	118	168	178	125	97	125	95	-32	-40	32	90	200	245	202	188	129	580
19	280	108	89	92	220	40	67	82	117	162	122	132	123	139	165	100	40	28	113	99	155	83	68	132	116	471
20	155	12	68	35	80	97	98	113	125	120	108	119	150	168	145	148	118	125	115	113	127	135	110	98	112	334
21	95	130	98	98	98	97	93	100	105	130	153	112	150	182	127	145	128	110	87	100	102	100	98	128	114	131
22	112	112	100	102	110	105	107	102	100	118	125	118	112	120	118	120	108	105	102	100	100	101	165	109	44	44
23	110	111	110	108	110	107	107	105	102	93	97	98	102	102	132	143	97	87	-10	67	97	102	160	102</		

Tromsø.

Vertical Intensity. Storminess (± Down). Unit Gamma.

Gr. M. T.

APRIL 1952

HOURLY MEAN VALUES

Table for April 1952 showing magnetic observations. Columns: DAY (1-23), 1-23, M, PS, NS, AS. Rows: 1-29, M, MPS, MNS.

MAY 1952

Table for May 1952 showing magnetic observations. Columns: DAY (1-31), 1-31, M, PS, NS, AS. Rows: 1-31, M, MPS, MNS.

JUNE 1952

Table for June 1952 showing magnetic observations. Columns: DAY (1-30), 1-30, M, PS, NS, AS. Rows: 1-30, M, MPS, MNS.

Tromsø

Vertical Intensity. $V = 50600 +$ Tabular Quantities expressed in Gamma.

Gr. M. T.

JULY 1952 HOURS MEAN VALUES

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	M	R	
1	123	123	123	125	125	122	118	113	117	120	115	117	120	125	118	117	113	122	117	120	113	170	235	82	125	442
2	92	115	108	105	117	113	112	122	125	125	133	120	117	128	123	130	115	117	120	123	127	123	127	122	119	142
3	122	118	125	123	120	118	123	121	120	122	130	127	123	125	178	90	83	65	140	70	153	140	172	130	124	247
4	112	115	110	115	118	115	113	120	123	132	148	160	185	212	187	183	167	167	137	122	125	148	125	113	129	123
5	120	125	62	82	95	110	65	110	192	195	175	225	15	-202	-100	-5	-75	90	140	170	535	295	212	235	120	1150
6	205	132	115	77	93	75	97	165	72	110	147	175	172	125	128	152	140	130	130	116	118	135	195	220	135	290
7	102	118	100	117	113	120	115	117	125	128	122	127	118	123	118	112	130	90	17	130	135	122	127	123	119	123
8	117	120	112	103	95	109	113	117	117	118	118	138	152	173	137	132	165	172	142	130	125	138	168	245	135	293
9	140	188	123	55	128	75	115	108	115	175	182	150	177	137	138	87	132	130	120	115	150	62	92	108	124	275
10	145	113	125	118	95	93	118	117	132	130	152	168	178	163	145	127	73	22	58	90	157	170	263	95	123	363
11	115	185	12	37	62	65	93	108	115	120	125	125	152	128	178	160	140	105	105	130	132	123	122	120	114	377
12	117	102	5	-18	-10	45	85	113	118	122	133	127	137	146	135	115	107	110	116	115	117	125	110	102	95	181
13	108	112	113	105	112	117	117	112	113	118	128	123	108	112	150	148	150	120	75	125	135	147	132	132	122	232
14	142	185	132	25	17	87	112	122	118	112	127	122	148	137	173	115	115	150	132	128	138	152	140	150	124	370
15	72	5	50	62	58	75	83	113	127	146	150	127	108	105	152	155	122	107	100	110	118	120	115	213	109	334
16	112	95	95	88	107	118	112	123	125	133	143	145	143	162	155	172	147	142	112	108	112	110	118	118	125	145
17	118	115	110	117	93	85	80	72	107	123	122	118	118	112	145	158	132	108	90	110	112	118	108	88	111	123
18	92	90	103	110	58	55	77	93	98	100	135	135	163	150	158	190	142	142	137	120	115	118	60	43	113	152
19	82	96	98	113	120	125	122	120	120	113	112	122	115	160	147	132	119	120	98	110	117	113	162	218	124	189
20	168	138	65	80	78	73	93	97	93	80	70	148	127	135	5	0	-30	18	33	80	60	275	405	325	111	597
21	80	335	240	305	10	20	85	113	102	120	162	165	70	75	60	-40	120	110	55	85	145	285	268	325	94	943
22	55	8	10	78	92	105	115	117	150	135	140	137	130	137	133	142	135	123	113	73	20	80	120	185	105	297
23	63	70	102	105	108	108	100	93	110	110	113	110	122	102	130	135	138	118	117	120	108	29	32	123	103	219
24	185	80	23	62	97	110	120	120	113	115	107	117	110	137	135	135	127	98	105	107	113	156	135	115	114	223
25	50	88	110	115	117	120	117	113	112	110	120	127	148	162	160	130	50	35	45	70	175	140	160	275	110	353
26	230	25	20	10	25	85	110	118	110	115	138	115	125	135	130	122	123	118	113	117	102	97	102	110	104	428
27	115	115	75	102	117	120	117	117	115	110	110	118	139	135	142	113	120	103	85	85	105	125	145	-5	113	421
28	62	80	53	82	93	110	110	110	110	105	103	107	103	103	105	107	115	117	115	110	107	115	110	117	132	116
29	115	115	112	113	117	115	118	117	117	113	110	105	110	120	117	117	122	112	113	110	95	100	92	112	44	421
30	90	70	80	93	102	110	110	113	115	118	118	118	127	118	117	112	112	117	117	113	108	85	97	102	107	55
31	68	96	92	78	82	92	97	110	125	142	185	215	178	163	160	120	99	112	165	225	102	95	115	128	247	189
M	114	112	91	94	99	97	105	114	117	123	129	135	131	125	128	119	114	110	106	113	136	139	147	147	119	307
QM	113	112	112	113	115	116	117	118	119	121	123	125	127	127	127	125	123	121	119	117	116	114	113	112	119	307

AUGUST 1952

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	M	R	
1	130	98	85	88	87	72	93	108	115	120	132	143	158	155	122	127	118	112	113	75	65	122	148	150	116	283
2	192	208	70	65	90	85	102	110	112	135	138	150	173	175	163	170	135	82	75	115	135	143	255	165	156	399
3	127	95	96	96	112	-5	-18	40	88	95	130	132	122	95	-25	-40	75	112	120	148	150	187	195	192	97	464
4	232	205	147	68	85	98	97	100	108	117	112	118	118	116	137	122	98	-12	13	145	210	400	127	551	561	
5	295	50	112	30	70	100	103	108	115	135	150	138	122	112	110	122	120	73	105	127	117	112	102	112	114	616
6	255	360	50	15	27	68	107	132	155	148	138	155	148	147	195	177	128	135	75	53	122	128	127	215	132	754
7	340	-80	-100	0	65	102	96	113	128	125	135	130	158	140	155	183	169	139	129	123	130	120	155	245	120	689
8	125	72	73	95	107	102	108	125	135	135	128	185	162	150	123	128	117	122	122	78	60	70	20	114	283	
9	110	113	108	95	97	100	103	115	117	115	112	110	120	138	147	132	120	120	-3	12	85	135	177	183	111	355
10	285	260	-70	-145	-62	15	63	92	105	130	128	162	148	50	118	70	37	48	32	127	120	165	245	265	99	674
11	115	100	155	-20	32	72	97	112	110	120	132	152	147	112	140	138	116	122	120	70	100	155	220	115	114	457
12	320	365	33	75	95	113	102	115	128	140	155	162	148	172	140	115	120	153	123	175	225	100	98	118	146	522
13	118	113	115	120	117	122	118	113	113	110	120	127	137	140	132	140	150	115	132	105	112	113	37	92	119	94
14	88	89	108	100	103	107	102	112	112	110	108	122	132	139	145	152	143	152	125	120	125	122	118	115	118	94
15	103	95	78	85	100	105	105	107	103	107	102	100	103	110	115	135	139	125	113	107	35	170	110	100	210	
16	115	75	82	57	35	45	82	100	103	110	103	110	107	118	120	120	118	115	115	112	112	112	110	110	99	109
17	108	105	93	95	92	78	93	77	89	85	83	142	140	85	95											
18										117	115	105	145	162	122	113	95	-5	25	100	155	160	-40	-17	106	353
19	73	28	170	15	8	72	112	108	120	122	107	100	110	120	122	188	78	116	125	120	125	98	122	122	111	283
20	115	127	102	85	83	65	65	78	108	120	126	100	125	150	132	125	128	118	100	78	180	178	115	108	111	283
21	115	130	99	87	97	97	100	110	110	102	95	97	110	110	112	116	135	133	120	102	95	107	110	107	107	164
22	105	108	110	113	112	108	107	98	102	98	103	93	100	113	120	112	11									

Tromsø.

Vertical Intensity. Storminess (+ Down). Unit Gamma.

Gr. M. T.

JULY 1952

HOURLY MEAN VALUES

Table with columns DAY (1-25), M, PS, NS, AS and rows for each day of July 1952, showing magnetic intensity and storminess data.

AUGUST 1952

Table with columns DAY (1-25), M, PS, NS, AS and rows for each day of August 1952, showing magnetic intensity and storminess data.

SEPTEMBER 1952

Table with columns DAY (1-25), M, PS, NS, AS and rows for each day of September 1952, showing magnetic intensity and storminess data.

Tromsø. Vertical Intensity, V = 50600 + Tabular Quantities expressed in Gamma. Gr. M. I.

Table for October 1952 showing hourly mean values for vertical intensity. Columns include Day (1-23), M, and R. Values range from approximately 100 to 300.

NOVEMBER 1952

Table for November 1952 showing hourly mean values for vertical intensity. Columns include Day (1-23), M, and R. Values range from approximately 100 to 300.

DECEMBER 1952

Table for December 1952 showing hourly mean values for vertical intensity. Columns include Day (1-23), M, and R. Values range from approximately 100 to 300.

Tromsø.

Vertical Intensity. Storminess (+ Down). Unit Gamma.

Gr. M. T.

Table for October 1952 showing hourly mean values for vertical intensity and storminess. Columns include Day (1-31), 24 hours (1-24), M, PS, NS, AS.

Table for November 1952 showing hourly mean values for vertical intensity and storminess. Columns include Day (1-30), 24 hours (1-24), M, PS, NS, AS.

Table for December 1952 showing hourly mean values for vertical intensity and storminess. Columns include Day (1-31), 24 hours (1-24), M, PS, NS, AS.

Resuming Tables.

Diurnal Variation.
QUIET VALUES.

Tromsø.

Declination. Unit Gamma. + West.

1952	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
JANUARY	-4	-3	-3	-5	-6	-6	-5	-3	-1	1	4	7	8	8	6	5	3	2	0	-1	-2	-3	-4	-5
FEBRUARY	-5	-6	-7	-8	-8	-7	-6	-4	-2	0	3	6	8	8	7	5	5	4	2	0	-2	-3	-4	
MARCH	-7	-8	-9	-10	-10	-10	-9	-7	-4	1	7	11	13	12	10	7	6	6	3	0	-3	-5		
APRIL	-10	-13	-16	-19	-20	-20	-17	-12	-6	2	12	19	22	22	19	16	13	10	7	4	0	-3	-6	-8
MAY	-10	-15	-19	-22	-23	-22	-18	-12	-2	8	16	20	21	19	15	12	10	9	9	8	5	2	-2	-6
JUNE	-17	-23	-26	-27	-27	-25	-22	-17	-10	-1	9	16	20	21	20	18	17	18	18	16	12	7	0	-8
JULY	-15	-20	-23	-25	-25	-23	-20	-15	-9	-2	6	13	18	21	21	20	20	20	19	15	8	1	-5	-10
AUGUST	-13	-17	-20	-22	-23	-22	-19	-15	-7	3	13	21	25	25	21	16	13	12	11	9	5	1	-4	-8
SEPTEMBER	-5	-7	-8	-9	-9	-8	-5	-1	4	10	17	21	22	21	17	13	11	10	8	6	3	1	-1	-3
OCTOBER	-9	-9	-9	-9	-8	-7	-5	-3	0	4	8	11	12	11	9	8	8	7	5	2	-2	-5	-7	-8
NOVEMBER	-7	-7	-7	-6	-5	-4	-2	0	2	5	8	9	9	8	6	5	4	3	2	0	-2	-4	-5	-6
DECEMBER	-8	-8	-7	-6	-5	-3	-1	1	2	3	4	5	5	5	5	4	3	1	0	-1	-3	-5	-7	
MEAN	-9	-11	-13	-14	-14	-13	-10	-7	-3	3	9	13	15	15	13	11	10	9	8	6	2	-1	-4	-6

Horizontal Intensity. Unit Gamma.

JANUARY	-4	-4	-3	-1	2	4	4	2	0	-2	-2	-1	0	1	2	3	4	4	3	2	0	-1	-3	-4
FEBRUARY	-2	-1	-2	-2	-1	1	1	0	-2	-3	-4	-4	-3	-1	1	3	5	5	4	2	1	0	1	-2
MARCH	4	1	0	1	2	1	-2	-7	-13	-17	-20	-19	-13	-7	-2	2	5	8	10	12	13	13	10	7
APRIL	2	4	6	6	5	2	-3	-10	-20	-25	-25	-21	-13	-4	4	10	15	18	18	15	8	0	3	2
MAY	4	6	7	7	4	-1	-8	-16	-24	-28	-24	-16	-6	1	6	10	13	14	13	11	9	7	5	4
JUNE	7	5	3	1	-2	-5	-10	-15	-22	-25	-23	-19	-15	-7	-1	6	12	17	19	18	16	14	12	10
JULY	6	5	4	2	-1	-4	-8	-13	-19	-22	-20	-10	-11	-6	1	7	12	16	18	17	15	12	10	8
AUGUST	-1	0	1	1	0	-3	-8	-15	-23	-26	-24	-18	-9	1	11	18	21	21	19	15	10	5	1	-1
SEPTEMBER	2	1	1	2	3	2	-3	-9	-14	-18	-18	-15	-10	-5	0	4	8	12	14	13	11	8	5	3
OCTOBER	-1	-2	-2	-1	1	2	1	-3	-8	-12	-12	-10	-7	-4	0	3	6	8	9	9	7	5	2	0
NOVEMBER	-5	-4	-2	1	2	2	0	-3	-6	-8	-8	-6	-3	0	3	5	7	8	8	6	3	0	-3	-5
DECEMBER	-4	-4	-3	-1	0	1	0	-1	-2	-2	-1	0	0	-1	-1	0	1	2	3	4	4	2	-1	-3
MEAN	1	1	1	1	1	0	-3	-8	-13	-16	-15	-12	-7	-3	2	6	9	11	12	10	8	5	3	1

Vertical Intensity. Unit Gamma.

JANUARY	-9	-8	-7	-6	-6	-7	-7	-5	-4	-4	-3	-2	-1	1	4	7	11	15	17	13	7	3	1	0
FEBRUARY	-10	-9	-7	-6	-6	-6	-5	-4	-1	3	6	9	11	11	10	8	6	3	2	1	-1	-3	-4	-6
MARCH	-9	-7	-6	-5	-4	-3	0	1	1	0	2	5	8	6	4	2	2	4	6	7	5	0	-3	-5
APRIL	-6	-4	-2	-1	-3	-5	-6	-6	-4	-1	1	4	7	10	11	11	10	8	4	0	-4	-7	-7	
MAY	0	-1	0	0	-1	-3	-6	-6	-5	-3	1	4	9	10	9	8	6	3	0	-5	-7	-6	-1	
JUNE	-9	-10	-12	-12	-9	-7	-6	-4	-3	-2	0	2	6	11	15	16	15	13	10	4	-2	-5	-7	-8
JULY	-6	-7	-7	-6	-4	-3	-2	-1	0	2	4	6	8	8	8	6	4	2	0	-2	-3	-5	-6	-8
AUGUST	-3	-6	-8	-9	-9	-8	-7	-6	-5	-4	-2	0	3	7	11	14	14	12	8	5	3	1	0	-3
SEPTEMBER	-1	-6	-10	-10	-8	-6	-4	-2	0	2	3	5	7	9	11	12	11	9	4	-1	-4	-6	-5	-4
OCTOBER	-4	-4	-5	-5	-4	-3	-3	-3	-2	-1	0	1	1	2	3	3	5	7	9	8	5	3	0	-2
NOVEMBER	-7	-5	-5	-6	-7	-7	-7	-5	-3	-1	0	2	3	4	6	7	8	9	9	7	3	-1	-4	-4
DECEMBER	2	0	-4	-7	-8	-8	-8	-8	-8	-7	-6	-4	-3	-1	1	3	6	8	10	9	8	7	5	2
MEAN	-5	-6	-6	-6	-6	-6	-5	-4	-3	-2	0	2	4	6	8	8	8	8	7	5	1	-1	-3	-4

Monthly Means.

DECLINATION.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
DIRECT VALUES. $D = 0^\circ W + \dots$	48.6	47.0	44.3	44.9	44.8	45.8	45.5	44.3	40.8	40.6	41.2	40.6	43.9
QUIET VALUES. $D = 0^\circ W + \dots$	50.1	50.1	49.2	48.0	48.0	47.3	46.1	45.1	43.3	43.3	42.4	41.8	46.2
RANGE (UNIT MINUTES)	104	131	168	161	148	93	82	82	126	124	71	87	115
QUIET RANGE (UNITY)	14	16	23	42	44	48	46	48	31	21	16	13	30
STORMINESS. MEAN (UNITY)	-8	-10	-15	-9	-10	-8	0	-3	-11	-9	-4	-3	-7
DIURNAL SUM PS (UNITY)	153	142	208	231	212	179	190	136	130	129	79	155	160
NS	284	381	563	453	463	308	199	214	453	353	184	200	336
AS	417	523	771	684	675	485	389	350	583	482	263	336	497
HORIZONTAL INTENSITY.													
DIRECT VALUES. $H = 11100 + \dots$	57	35	20	25	32	57	64	55	34	35	58	58	44
QUIET VALUES. $H = 11100 + \dots$	74	75	76	71	71	75	73	75	72	71	78	74	74
RANGE (UNITY)	648	801	960	891	808	633	530	504	739	656	484	579	688
QUIET RANGE (UNITY)	8	9	33	45	42	44	40	47	33	21	16	8	29
STORMINESS. MEAN (UNITY)	-16	-40	-55	-45	-39	-17	-10	-19	-37	-34	-20	-17	-29
DIURNAL SUM PS (UNITY)	510	493	724	689	711	667	587	436	546	403	282	397	537
NS	898	1453	2042	1766	1641	1078	817	901	1402	1218	754	803	1231
AS	1408	1946	2766	2455	2352	1745	1404	1336	1948	1621	1036	1200	1768
VERTICAL INTENSITY.													
DIRECT VALUES. $V = 50600 + \dots$	85	95	109	118	119	118	118	114	128	121	109	103	111
QUIET VALUES. $V = 50600 + \dots$	96	95	101	112	108	115	119	113	119	120	114	115	111
RANGE (UNITY)	406	547	651	578	531	400	307	356	556	441	314	346	453
QUIET RANGE (UNITY)	26	21	17	18	16	28	15	23	22	14	16	18	20
STORMINESS. MEAN (UNITY)	-10	-1	9	7	11	4	0	0	9	0	-5	-12	1
DIURNAL SUM PS (UNITY)	255	460	713	676	678	429	303	335	581	463	224	184	442
NS	503	476	499	506	405	344	303	314	373	473	334	444	415
AS	759	936	1212	1182	1083	772	606	649	954	936	558	628	856

Resuming Tables.

Storminess.

Tromsø.

Declination. Unit Gamma. + West.

1952.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
JAN MPS	6	1	0	1	1	4	6	6	5	3	7	7	7	8	7	13	17	11	15	12	10	5	1	0
FEB MPS	0	1	0	0	0	2	7	6	6	5	5	6	7	9	11	8	6	7	15	14	15	5	6	0
MAR MPS	0	2	0	0	1	4	4	5	6	4	3	7	11	12	20	21	22	23	15	24	13	3	4	4
APR MPS	1	0	0	2	2	4	4	4	6	5	3	5	11	20	16	23	24	27	24	22	16	7	2	2
MAY MPS	1	0	0	0	1	1	2	1	1	1	3	5	8	17	19	19	27	24	32	24	17	4	2	0
JUN MPS	0	0	0	0	0	3	3	2	2	4	6	3	9	17	17	16	21	21	16	19	12	6	1	1
JUL MPS	4	3	2	4	6	3	4	2	2	4	4	4	6	7	15	16	20	16	15	17	17	10	5	1
AUG MPS	0	1	2	2	1	3	6	4	3	4	4	4	4	9	18	14	11	12	12	12	3	0	0	
SEP MPS	1	0	1	0	2	2	2	3	1	1	1	3	6	7	14	16	15	15	16	12	10	4	0	0
OCT MPS	0	1	0	0	2	2	3	3	3	1	4	7	9	9	12	15	19	11	13	6	1	3	3	1
NOV MPS	4	1	0	0	1	3	4	3	2	2	4	4	5	7	3	3	7	6	7	3	2	3	1	3
DEC MPS	1	5	0	1	1	5	8	5	5	2	5	7	8	6	8	8	8	7	6	7	6	6	10	8
MEAN	2	1	0	1	2	3	5	4	4	3	4	5	8	10	13	15	17	15	16	14	19	6	3	2
JAN MNS	25	33	26	20	15	10	2	1	1	1	1	1	0	3	10	3	6	17	5	6	7	20	27	23
FEB MNS	34	48	53	35	23	7	1	5	4	5	2	3	3	1	3	9	11	7	9	5	17	23	26	46
MAR MNS	76	77	82	46	36	15	5	5	4	5	6	3	2	2	1	2	3	3	8	10	27	37	43	61
APR MNS	47	73	74	59	39	10	6	6	4	5	7	4	2	1	1	3	4	4	4	5	14	14	29	38
MAY MNS	59	96	67	40	26	10	8	8	12	14	7	2	0	0	1	0	1	0	1	1	11	19	32	47
JUN MNS	38	39	41	31	21	13	11	12	15	7	4	3	1	2	1	1	0	0	1	0	4	12	25	23
JUL MNS	30	26	26	19	14	10	3	6	1	2	1	2	1	2	1	3	1	1	0	0	1	8	12	27
AUG MNS	31	41	35	19	16	5	2	1	0	1	2	3	2	2	1	1	1	0	1	2	2	12	15	24
SEP MNS	72	71	55	42	26	11	5	6	6	5	8	5	6	2	3	2	3	4	3	3	5	39	38	50
OCT MNS	43	48	48	25	13	4	3	2	2	2	1	1	1	2	1	3	8	10	12	20	24	18	28	35
NOV MNS	17	16	12	8	2	1	0	0	1	5	1	1	3	2	4	5	9	6	9	14	14	24	21	
DEC MNS	21	20	21	15	8	1	0	1	2	2	1	1	1	2	6	2	9	10	10	12	9	11	8	27
MEAN	41	49	45	30	20	8	4	4	4	4	3	2	2	2	3	3	5	5	5	6	11	19	26	35
JAN MPS + MNS	-19	-32	-26	-19	-14	-6	4	5	3	2	6	6	6	6	-4	10	12	-6	9	6	2	-15	-26	-23
FEB MPS + MNS	-34	-48	-53	-34	-23	6	6	1	2	1	3	3	4	8	8	-2	-4	0	6	9	1	-18	20	46
MAR MPS + MNS	-76	-75	-82	-46	-35	-11	-1	-1	2	1	-3	3	9	10	19	19	19	7	13	-14	-33	-40	-58	
APR MPS + MNS	-46	-72	-74	-58	-37	-7	-2	2	-1	-4	1	9	20	15	20	20	23	20	16	2	-7	-27	-36	
MAY MPS + MNS	-58	-96	-67	-40	-25	-9	-6	-7	-10	-14	-4	4	8	17	18	19	26	23	31	23	7	-15	-30	-47
JUN MPS + MNS	-38	-39	-41	-31	-20	-11	-8	-9	-13	-3	2	0	8	15	16	15	21	20	15	18	8	-6	-21	-22
JUL MPS + MNS	-26	-23	-24	-14	-7	7	0	-4	1	2	2	2	4	5	14	14	19	15	15	17	16	3	-7	-26
AUG MPS + MNS	-31	-40	-33	-17	-15	-2	4	3	3	3	2	2	2	2	9	17	14	11	12	11	11	-9	-16	-25
SEP MPS + MNS	-71	-71	-54	-41	-24	-9	-2	-3	-5	-3	-7	-2	0	5	10	14	13	11	13	9	5	-35	-37	-50
OCT MPS + MNS	-43	-47	-49	-24	-11	-2	1	0	0	0	3	5	7	6	11	12	11	2	1	-13	-22	-14	-25	-34
NOV MPS + MNS	-14	-14	-11	-8	-2	2	3	3	1	-3	3	4	2	5	0	-2	-2	0	-2	-6	-12	-11	-23	-18
DEC MPS + MNS	-20	-15	-21	-14	-7	4	6	5	4	0	4	6	7	4	2	6	-1	-3	-3	-5	-2	-5	1	-20
MEAN	-90	-48	-44	-29	-18	3	1	-0	-1	-1	1	2	6	9	10	12	12	10	10	8	0	-14	-19	-26

Horizontal Intensity. Unit Gamma.

1952	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
JAN MPS	8	1	3	3	3	6	6	9	12	11	15	27	27	51	71	57	56	42	47	21	13	7	1	1
FEB MPS	2	0	0	1	4	5	13	8	8	8	22	42	46	67	65	68	52	37	18	17	4	2	2	0
MAR MPS	1	1	0	3	5	7	8	13	11	29	54	73	81	84	110	99	79	35	19	4	1	1	6	0
APR MPS	10	0	1	1	3	5	7	8	17	34	60	66	79	92	85	92	76	33	12	5	1	0	0	0
MAY MPS	0	0	0	0	2	4	5	8	16	41	58	70	89	74	77	84	76	54	24	13	6	1	2	5
JUN MPS	0	0	1	2	2	3	5	4	10	13	38	65	85	102	98	88	65	48	29	7	0	2	0	0
JUL MPS	10	0	0	1	2	3	2	2	4	9	21	35	60	72	98	103	86	46	33	14	4	0	1	0
AUG MPS	0	0	0	1	3	2	5	6	7	11	16	27	40	51	46	59	57	43	30	14	3	8	0	1
SEP MPS	0	0	1	0	4	2	13	13	17	26	33	46	55	73	80	81	56	37	16	6	3	3	0	2
OCT MPS	0	3	1	1	2	3	6	5	12	12	17	27	40	42	54	62	55	33	8	3	1	3	7	5
NOV MPS	2	3	3	1	3	3	3	2	5	6	13	20	24	37	41	41	28	28	13	6	3	1	0	1
DEC MPS	0	3	1	2	2	7	6	6	6	10	15	18	27	44	48	60	56	44	22	11	3	5	1	0
MEAN	3	1	1	1	3	4	7	7	10	18	30	43	54	66	73	75	60	39	23	10	4	3	2	1
JAN MNS	99	84	56	56	42	17	7	4	3	3	2	0	0	0	7	6	3	13	13	42	94	110	125	114
FEB MNS	148	156	112	79	38	20	14	13	8	5	1	0	3	0	0	0	1	23	49	139	124	104	169	168
MAR MNS	217	188	159	112	93	42	25	9	8	2	0	0	1	1	0	3	14	30	82	129	165	213	249	296
APR MNS	191	193	160	125	108	45	26	15	2	1	0	0	1	1	2	0	0	20	46	97	166	161	190	217
MAY MNS	257	274	182	79	64	31	16	12	3	0	1	1	1	2	1	1	6	7	29	78	104	156	176	160
JUN MNS	128	130	115	88	39	24	13	10	4	1	1	1	2	0	0	0	1	2	9	35	75	112	151	139

JUL	MNS	113	90	70	47	38	18	12	9	4	2	1	0	0	0	1	0	0	4	3	13	50	92	100	148
AUG	MNS	131	139	105	58	45	22	11	6	3	2	2	2	1	0	1	2	1	1	2	18	51	75	114	117
SEP	MNS	199	155	133	95	67	49	18	7	3	2	2	0	0	0	0	0	0	2	17	53	126	169	151	213
OCT	MNS	138	129	113	48	29	20	13	3	1	1	4	2	0	1	1	1	2	12	45	93	144	112	148	159
NOV	MNS	104	62	30	14	4	2	3	2	1	2	1	0	0	0	0	0	1	1	32	85	89	99	117	104
DEC	MNS	110	81	36	30	15	13	5	2	0	1	0	0	1	0	0	0	3	4	13	83	75	86	110	132
MEAN		152	136	106	69	49	25	14	9	3	2	1	1	1	0	11	11	3	10	3	72	105	131	150	165
JAN	MPS + MNS	-91	-83	-53	-53	-39	-12	-1	4	9	8	13	27	37	51	64	52	52	30	34	-21	-81	-103	-123	-113
FEB	MPS + MNS	-145	-156	-112	-78	-34	-14	-1	-5	0	3	21	42	43	67	65	69	51	14	-30	-121	-120	-182	-167	-167
MAR	MPS + MNS	-216	-186	-159	-109	-88	-35	-17	4	2	27	54	72	90	83	110	96	65	5	-63	-125	-164	-218	-242	-296
APR	MPS + MNS	-181	-192	-158	-123	-105	-40	-20	-7	15	33	60	66	78	91	94	92	76	13	-35	-92	-166	-161	-189	-217
MAY	MPS + MNS	-257	-274	-182	-79	-61	-27	-11	-3	13	40	57	69	88	73	76	83	70	40	-5	-64	-98	-166	-173	-155
JUN	MPS + MNS	-128	-130	-114	-87	-37	-21	-8	-5	6	12	37	64	83	102	98	99	64	46	20	-27	-74	-110	-151	-139
JUL	MPS + MNS	-103	-89	-70	-46	-36	-15	-11	-7	0	6	20	35	59	72	97	102	67	42	29	0	-46	-92	-99	-148
AUG	MPS + MNS	-131	-136	-105	-57	-42	-20	-7	1	5	9	15	26	39	50	45	57	56	42	29	-4	-48	-63	-114	-116
SEP	MPS + MNS	-189	-155	-132	-95	-63	-47	-5	5	14	24	31	45	55	73	80	81	56	35	-1	-47	-123	-166	-151	-211
OCT	MPS + MNS	-138	-125	-113	-47	-28	-17	-7	2	12	10	13	25	39	42	54	61	53	22	-36	-90	-143	-109	-141	-154
NOV	MPS + MNS	-109	-56	-28	-13	-1	2	0	0	4	4	12	20	24	37	41	40	27	22	-19	-79	-86	-98	-117	-103
DEC	MPS + MNS	-110	-78	-34	-29	-13	-6	0	3	7	9	15	18	26	44	48	59	53	40	9	-72	-72	-81	-109	-131
MEAN		-149	-139	-105	-65	-45	-25	-73	-1	7	15	29	43	54	64	72	73	58	30	-49	-62	-102	-129	-149	-163

Vertical Intensity. Unit Gamma.

1952		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
JAN	MPS	23	16	8	10	1	1	2	2	3	6	9	10	12	12	10	9	3	3	7	21	17	34	24	
FEB	MPS	65	46	14	2	1	1	3	3	5	9	7	8	13	12	11	8	9	6	30	28	45	64	61	
MAR	MPS	83	77	33	15	5	4	1	3	7	12	14	13	13	17	17	18	11	6	7	30	39	77	104	107
APR	MPS	91	78	45	32	7	1	3	9	12	10	9	5	10	9	7	6	3	4	9	29	53	47	96	110
MAY	MPS	92	68	56	9	4	1	1	7	14	12	10	8	8	12	16	11	6	6	13	14	47	65	94	107
JUN	MPS	56	31	13	9	9	14	12	13	5	8	10	15	11	14	9	6	3	1	2	7	18	42	63	59
JUL	MPS	15	15	5	6	1	1	0	2	4	7	10	13	14	14	16	14	9	7	4	5	27	32	40	43
AUG	MPS	42	41	17	11	27	0	0	3	6	8	10	14	16	11	8	9	3	4	1	4	19	21	37	51
SEP	MPS	72	34	26	7	1	1	0	6	8	11	10	13	10	16	12	9	5	5	5	14	57	62	90	126
OCT	MPS	47	19	14	4	1	4	6	3	7	12	12	13	16	25	18	14	10	4	9	30	37	32	70	56
NOV	MPS	10	1	2	1	1	1	2	4	8	6	9	10	13	12	13	12	10	8	5	8	4	23	21	36
DEC	MPS	16	2	3	3	1	1	2	3	6	8	10	13	14	13	15	10	6	3	0	5	8	8	18	12
MEAN		42	36	20	9	5	3	3	5	7	9	10	11	13	14	13	11	7	5	5	15	50	39	61	66
JAN	MNS	9	14	20	21	22	24	14	7	2	1	0	0	3	6	23	24	50	69	62	46	26	20	20	19
FEB	MNS	13	14	30	30	23	24	22	7	5	5	5	14	15	16	11	22	31	39	31	42	33	24	8	14
MAR	MNS	12	14	16	31	37	43	28	15	10	4	3	10	10	9	28	42	37	54	40	22	7	10	13	4
APR	MNS	9	14	23	25	30	44	23	9	3	5	5	7	11	17	35	39	57	47	33	24	13	12	5	17
MAY	MNS	8	27	42	38	39	21	9	4	4	3	4	9	15	17	23	36	29	18	19	11	9	2	1	
JUN	MNS	10	11	22	29	32	20	8	3	3	11	11	5	7	21	25	18	20	19	16	20	8	7	6	8
JUL	MNS	13	18	26	26	27	19	11	5	5	4	4	3	9	15	14	17	17	16	17	9	6	7	6	9
AUG	MNS	4	16	28	39	27	21	14	11	3	2	2	3	2	5	9	14	13	16	19	21	14	12	17	9
SEP	MNS	14	23	16	40	42	29	20	8	4	4	3	5	6	8	12	25	28	25	17	15	13	10	9	12
OCT	MNS	19	26	30	43	31	20	7	3	0	1	4	1	6	17	18	37	45	42	37	29	25	15	7	9
NOV	MNS	16	38	29	19	16	10	6	2	0	0	0	1	2	5	6	6	16	21	37	27	32	15	13	19
DEC	MNS	17	35	29	19	22	19	13	5	2	3	5	5	7	9	13	20	23	33	36	40	40	23	14	11
MEAN		12	21	26	30	29	25	15	7	3	4	4	4	8	12	18	24	31	34	30	26	19	14	10	11
JAN	MPS + MNS	13	2	-13	-11	-21	-22	-11	-5	1	4	9	10	9	6	-12	-14	-41	-66	-60	-38	-5	-3	14	5
FEB	MPS + MNS	52	31	-16	-28	-22	-23	-18	-4	-1	3	2	-6	-2	-4	-1	-11	-23	-30	-26	-12	-5	23	56	47
MAR	MPS + MNS	71	63	18	-16	-32	-40	-27	-13	-4	7	11	2	4	8	-11	-24	-25	-48	-33	7	32	68	91	103
APR	MPS + MNS	72	63	23	7	-24	-42	-20	-1	9	5	4	-2	-1	-8	-27	-32	-54	-43	-23	5	-39	35	92	93
MAY	MPS + MNS	84	41	14	-29	-35	-21	-8	3	10	9	7	0	6	5	2	12	30	24	5	5	36	57	91	106
JUN	MPS + MNS	46	20	-9	-20	-23	-6	4	10	2	-3	-1	10	3	-8	-17	-13	-17	-18	-13	10	36	56	52	4
JUL	MPS + MNS	2	-4	-21	-20	-27	-19	-11	-3	-1	3	6	11	5	-1	2	-4	-7	-9	-13	-5	21	25	34	34
AUG	MPS + MNS	38	25	-11	-28	-22	-21	-13	-8	3	6	8	11	14	6	-1	-5	-10	-11	-18	-17	4	9	20	43
SEP	MPS + MNS	58	11	10	-33	-41	-29	-20	-2	4	8	7	8	4	8	0	-16	-23	-19	-12	2	44	52	81	114
OCT	MPS + MNS	28	-7	-15	-39	-30	-16	-2	0	7	11	7	11	10	8	0	-23	-34	-39	-22	2	12	17	63	47
NOV	MPS + MNS	-6	-37	-27	-16	-15	-9	-4	2	7	6	9	9	11	7	8	6	-5	-13	-32	-19	-28	8	8	18
DEC	MPS + MNS	-1	-32	-25	-16	-21	-13	-11	-3																

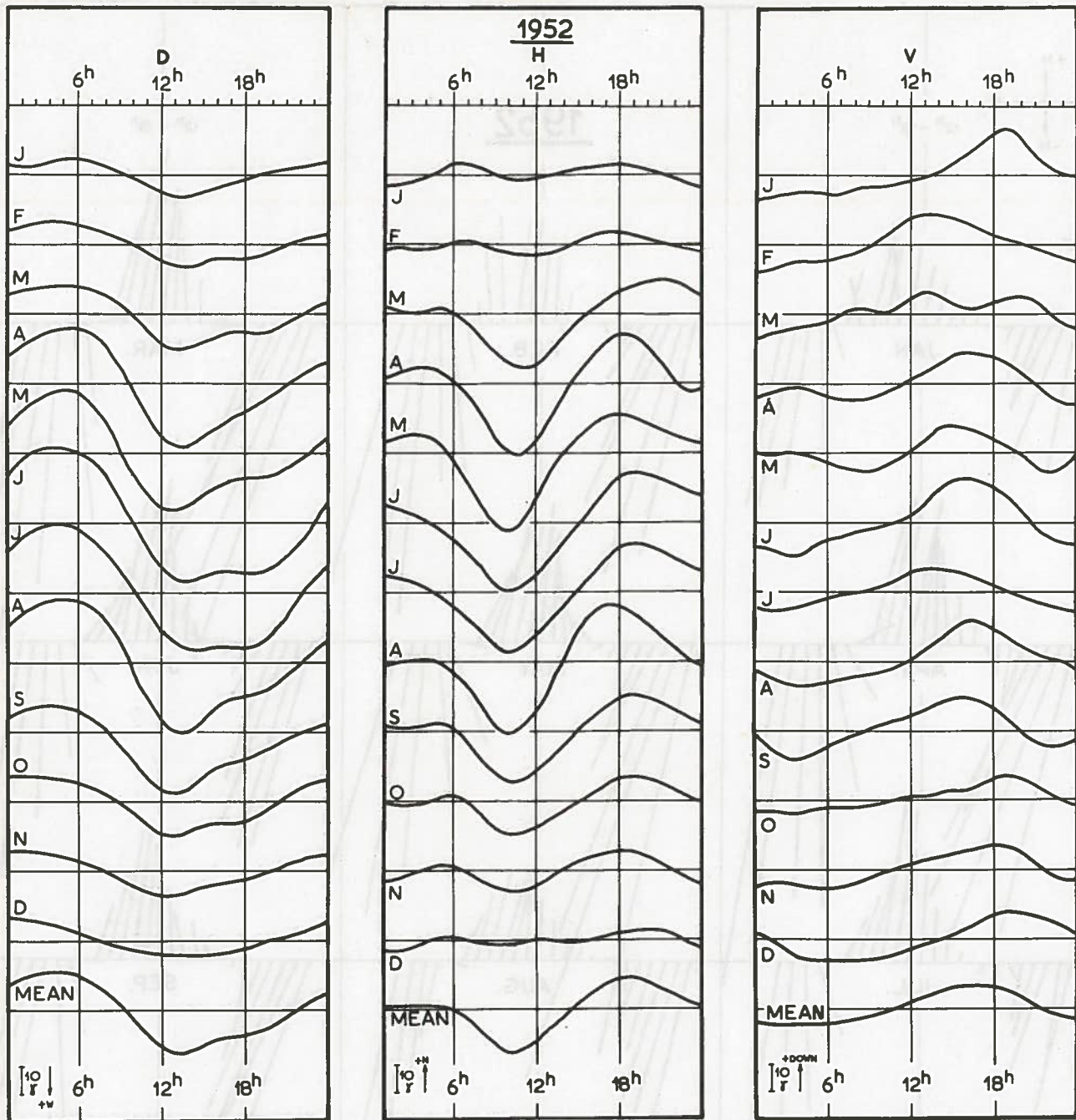


Fig. 1. The Quiet Diurnal Variation, smoothed Values.

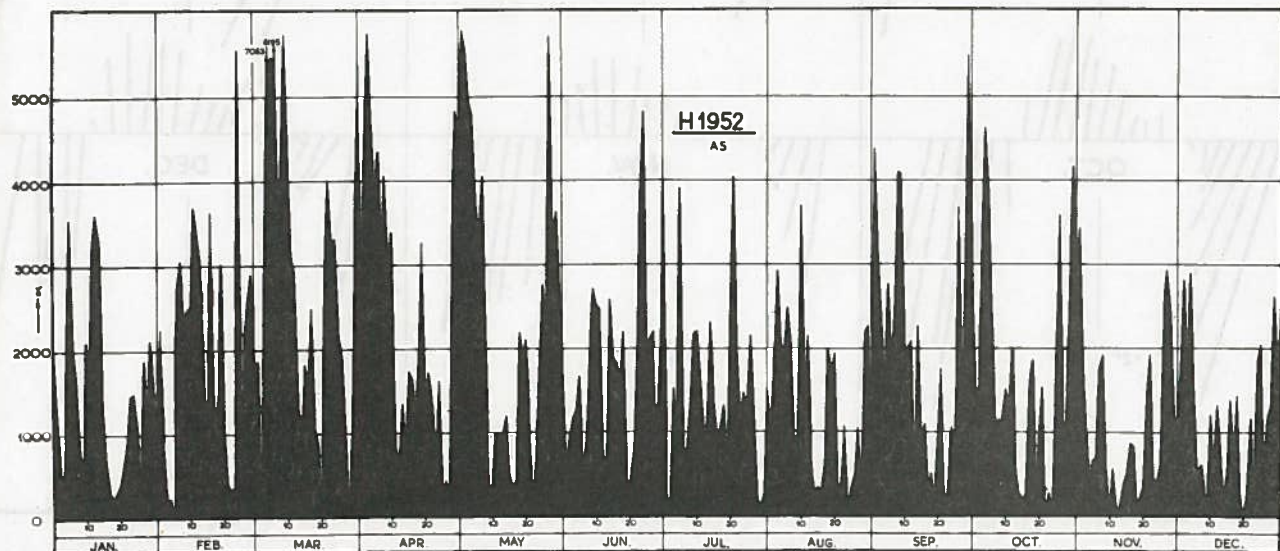


Fig. 2. The Diurnal Sum of the Absolute Storminess of H.

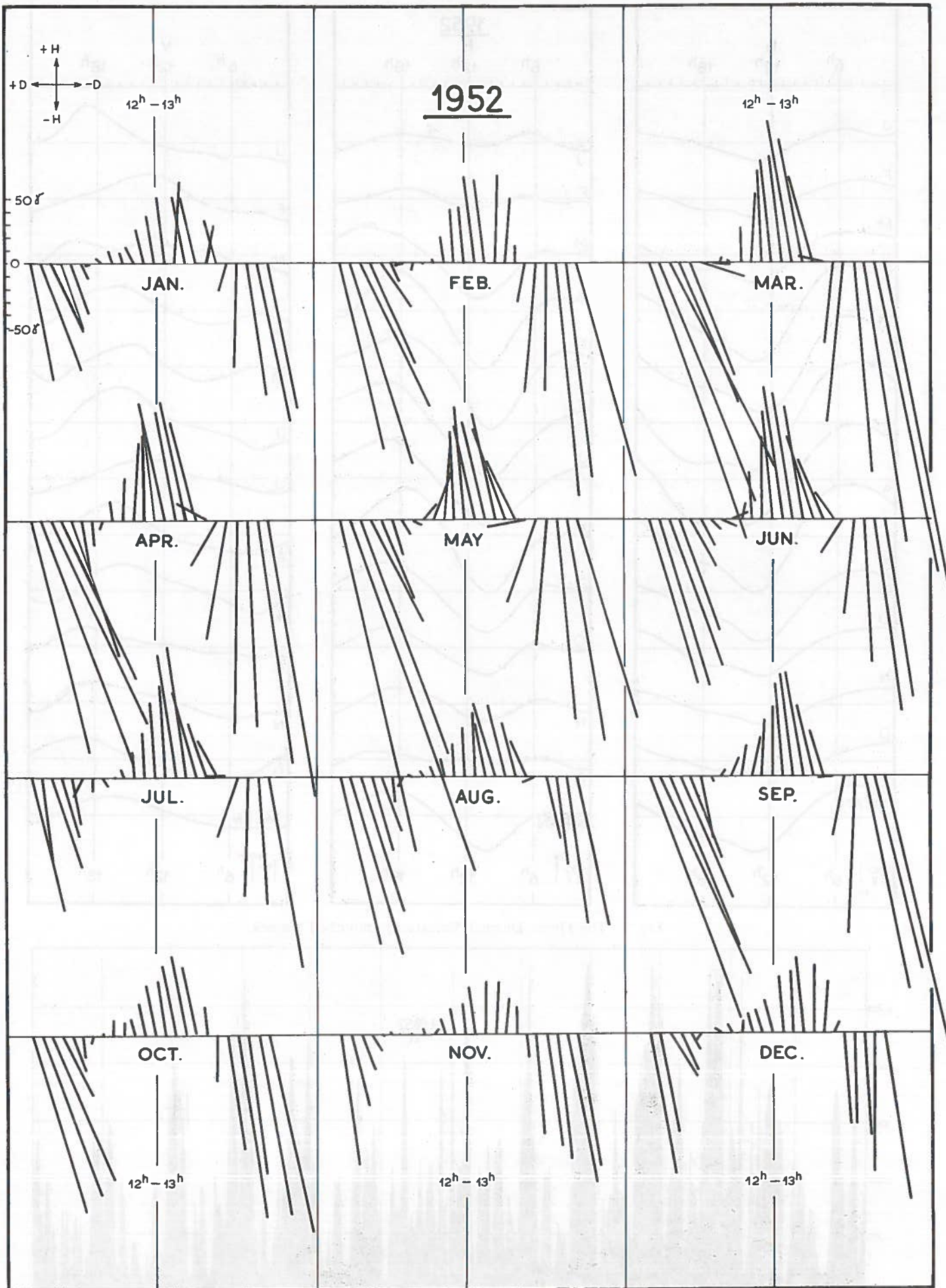


Fig. 3. Diagrams of the Monthly Mean Values (M) of the Storminess in the Horizontal Plane.

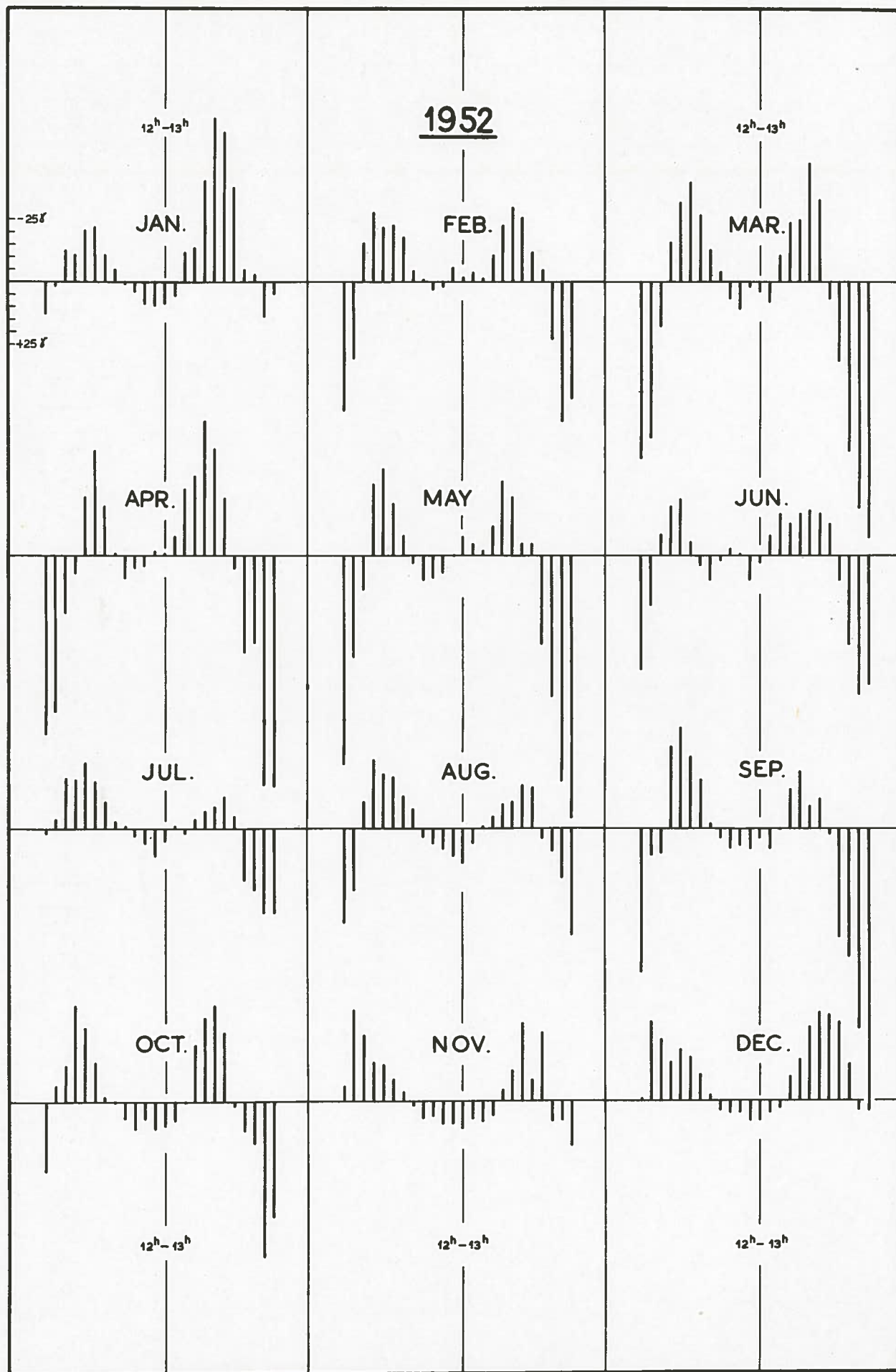


Fig. 4. Diagrams of the Monthly Mean Values (*M*) of the Storminess of the Vertical Intensity.

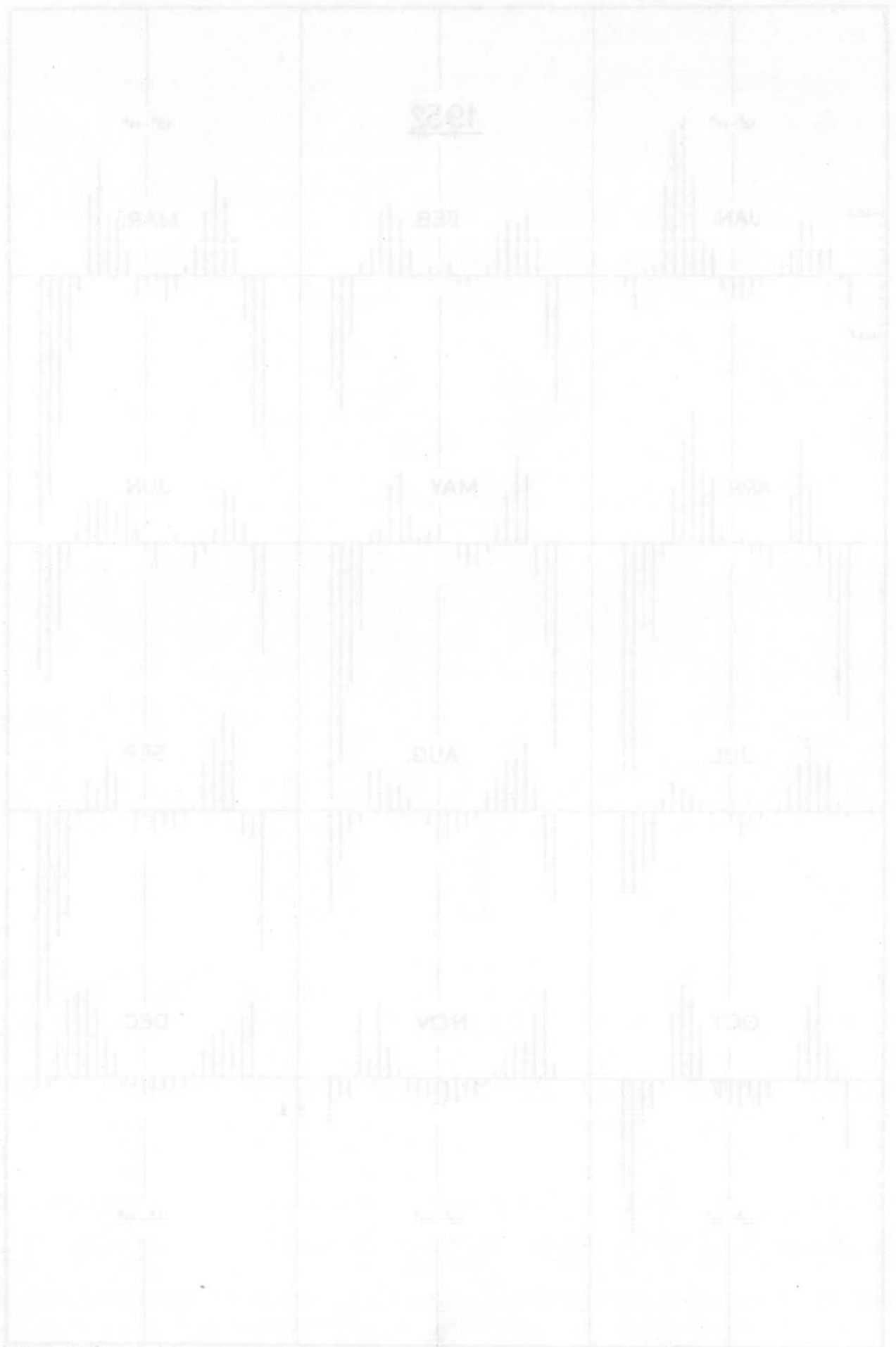


Fig. 1. Diagram of the monthly mean (left) and the maximum of the 10-day average

