

**Publikasjoner fra  
DET NORSKE INSTITUTT FOR KOSMISK FYSIKK  
Nr. 34**

**THE AURORAL OBSERVATORY AT TROMSØ**

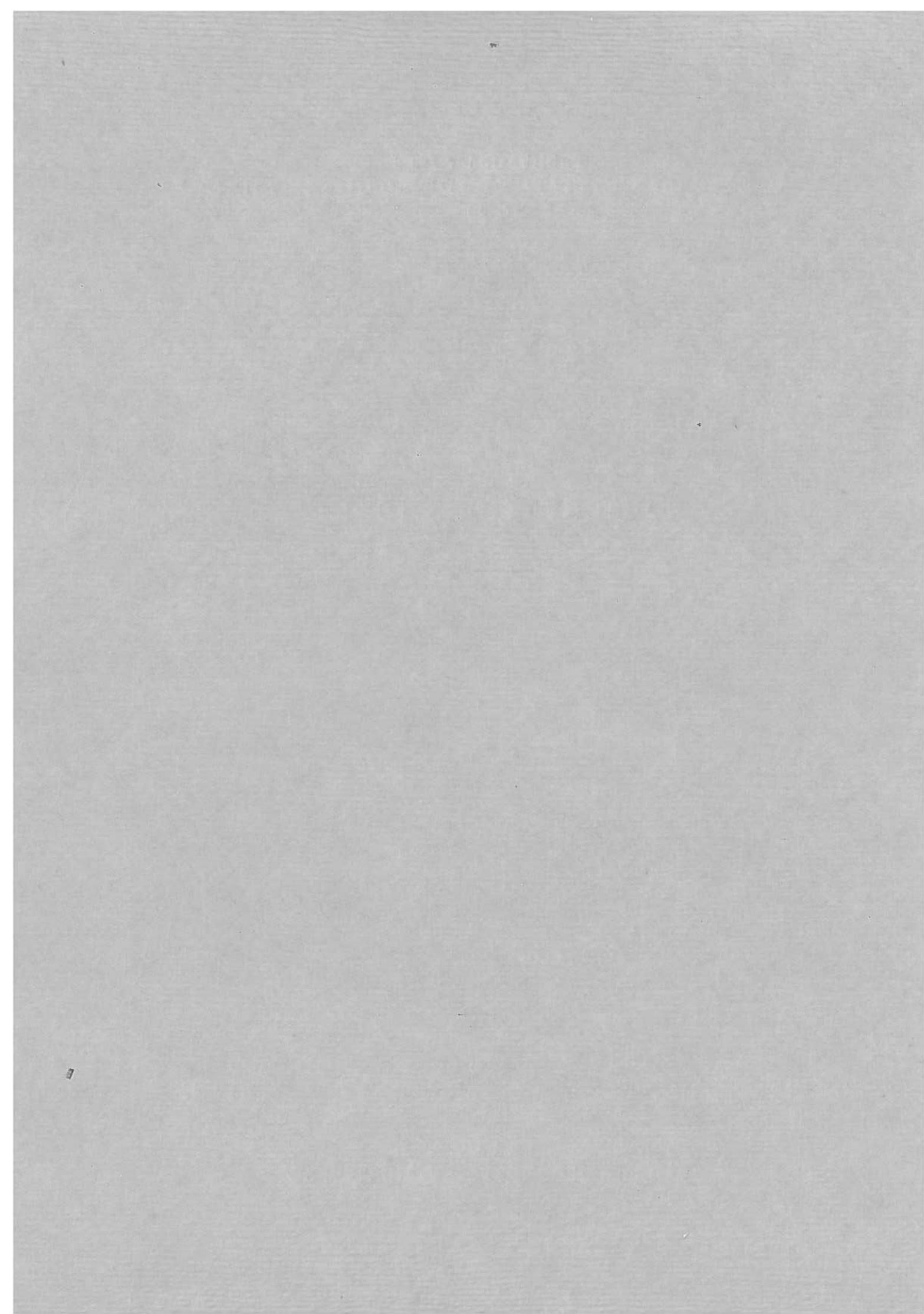
**( $\varphi = 69^\circ 39' .8$  N,  $\lambda = 18^\circ 56' .9$  E. Gr.)**

**OBSERVATIONS 1951**

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**1953**

**A.S JOHN GRIEGS BOKTRYKKERI, BERGEN**



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## PREFACE

Up to the present the Norwegian Institute of Cosmical Physics has published two magnetic yearbooks, one for the station Dombås and one for the Auroral Observatory at Tromsø. The activity of the Auroral Observatory, however, also includes other branches of cosmical physics particularly the following three:

1. Auroral studies including analysis of its spectrum and the physics of the ionosphere.
2. Studies of the electric state of the ionosphere by means of electric waves (Radio-ecko observations).
3. Investigation on the distribution of ozone in the atmosphere.

The results of investigations made within these three branches have been published in various journals or other publication series.

The executive committee of the Norwegian Institute of Cosmical Physics has decided, that from the year 1951 annual reports on the work within these three branches should be included in the yearbook. At the start it is intended to give a summary of previous work and publications.



## AURORAL WORK

The auroral investigations at the Tromsø Observatory has mainly been directed on the auroral spectroscopy and its relation to the physics of the ionosphere and to the solar processes. Further observations have been made for the determination of the position and structure of aurorae and the distribution of light intensity along the auroral streamers.

The instrumental equipment for these investigations have e.g. consisted in photographic cameras of high light power for the determination of position and structure of aurorae and of a number of spectrographs constructed and built to meet the requirements of auroral spectrography.

From the start in 1928—30 up to 1950 we had the following 6 spectrographs at our disposal:

1. A spectrograph (A) with a Rutherford prisme and large dispersion particularly used for accurate wavelength determinations, and for measuring the ionospheric temperature by means of band spectra.
2. A spectrograph (B) with two  $60^\circ$  prisms which had a smaller dispersion but greater light power than spectrograph (A). By means of this spectrograph a considerable number of bands and lines were detected and identified.
3. A small spectrograph (*a*) with one Rutherford prism with a kamera lens of fairly high light power particularly designed for the study of variations of the intensity-distribution within the auroral spectrum.
4. A fairly large quartz spectrograph with two prisms for the ultraviolet region.
5. A grating spectrograph for the infrared region.
6. An interferometer for wavelength pressession measurements.
7. *In 1950* a very large two-prism spectrograph (V), combining a considerable dispersion with a high light power (camera lens F: 1.2), was put up at the Auroral Observatory. It was made by «Société General d'Optique in accordance with Vegards design and specifications.
8. In 1951 an equally large spectrograph (F), obtained from the same firm, was mounted at the Observatory. This spectrograph had the extremely hight ligh power F: 0.65, but a smaller dispersion than the «V» spectrograph. With this spectrograph, which is particularly intended for the study of variability effects, strongly exposed auroral spectrograms of moderately strong aurorae may be obtained with exposures of a few minutes.

The results of the auroral investigations have been published in journals and proceedings in various countries. The most complete accounts will as a rule be found in the series «Geofysiske Publikasjoner» (G. P.) Oslo. We therefore consider it of value to give a complete list of papers on aurorae published in the G. P. series. In these papers references to most of the other published papers on auroral problems will be found.

For the sake of completeness also some auroral papers dealing with results obtained at Oslo and other places will be included in the list.

L. Vegard.



Auroral Papers published in  
GEOFYSISKE PUBLIKASJONER (G. P.)  
Oslo

No.	Authors	Title	Vol.	No.	Year
1.	VEGARD and O. KROGNES:	The Position in Space of the Aurora Palaris .....	I	1	1919
2.	CARL STØRMER:	Résultats des mesures photogrammetriques des aurores boréales observées dans la Norvège meridionale de 1911—1922 ..	IV	7	1926
3.	A. RØSTAD:	Über die Einwirkung der magnetischen Perturbationen auf die geographischen Verbreitung des Nordlichts .....	V	5	1928
4.	LEIV HARANG og EINAR TØNSBERG:	Investigations on the aurora borealis at Nordlysobservatoriet, Tromsø 1929—30 .....	IX	5	1932
5.	L. VEGARD:	Results of investigations of the auroral spectrum during the years 1921—26 .....	IX	11	1932
6.	L. VEGARD:	Investigations of the Auroral Spectrum based on Observations from the Auroral Observatory, Tromsø .....	X	4	1933
7.	LEIV HARANG:	Filteraufnahmen von Polarlicht .....	X	8	1934
8.	A. RØSTAD:	Beziehung der Nordlichterscheinungen zu den Weltweiten magnetischen Störungen .....	X	10	1935
9.	L. VEGARD and L. HARANG:	The Wavelength of the Green Auroral Line Determined by an Interferometer Method .....	XI	1	1934
10.	L. VEGARD and E. TØNSBERG:	Continued Investigations on the Temperature of the Upper Atmosphere Determined by Means of Bands Appearing in the Auroral Spectrum .....	XI	2	1935
			XII	3	1938
11.	C. STØRMER:	Measuring of Aurorae with Very Long Base Lines .....	XI	3	1935
12.	C. STØRMER:	Remarkable Auroral Forms from Southern Norway I. Feeble Homogeneous Arcs of great Altitude .....	XI	5	1935
		II. Some Arcs and Bands with Ray Structure .....	XI	12	1936
13.	L. VEGARD and L. HARANG:	Recent Results regarding the Spectral Analysis of the auroral Luminescence .....	XI	15	1937
14.	L. VEGARD and E. TØNSBERG:	Variations of the Intensitydistribution within the Auroral Spectrum .....	XI	16	1937
15.	L. HARANG:	Height Measurements of Selected Auroral Forms .....	XII	1	1937
16.	L. VEGARD:	Vorgänge und Zustände in der Nordlichtregion .....	XII	5	1938
17.	C. STØRMER:	Some Results regarding Height and Spectra of Aurora in Southern Norway .....	XII	7	1938
18.	L. VEGARD:	Weak Bands and Atomic Lines in the Auroral Spectrum ..	XII	8	1938
19.	B. RYPDAL and L. VEGARD:	The Excitation Functions of Nitrogen Bands and their Bearing on Auroral Problems .....	XII	12	1940
20.	L. VEGARD:	Continued Investigations on the Auroral Luminescence and the Upper Atmosphere .....	XII	14	1940
21.	L. VEGARD and E. TØNSBERG:	Investigations on the Auroral and Twilight Luminescence including Temperature Measurements in the Ionosphere .....	XIII	1	1940
22.	L. VEGARD and E. TØNSBERG:	New Important Results Relating to the Auroral Spectrum and the state of the Upper Atmosphere .....	XIII	5	1951

No.	Authors	Title	Vol.	No.	Year
23.	C. STØRMER:	Remarkable Aurora-Forms from Southern Norway III—IX .. XIII	7	1942	
24.	C. STØRMER:	Results of Photogrammetric Measurements of the Aurora Borealis during the Norwegian—French Polar Expedition to North-East Greenland 1938—39 .. XIII	13	1944	
25.	L. VEGARD:	Coronal Phenomena and their Relation to Solar and Terrestrial Processes .. XVI	1	1944	
26.	L. VEGARD and E. TØNSBERG:	Results of Auroral Spectrograms obtained at Tromsø Observatory during the Winters 1941/42 and 1942/43 .. XVI	2	1944	
27.	L. HARANG:	The Luminosity Curve of the Aurorae .. XVI	6	1945	
28.	L. VEGARD and G. KVIFTE:	Spectral Investigations on Aurorae and Twilight .. XVI	7	1945	
29.	L. VEGARD and HANS RAASTAD:	The Intensity Distribution within the Nitrogen Spectrum from Canal Rays and Negative Glow, with Reference to the Auroral Luminescence .. XVII	7	1950	
30.	L. VEGARD and G. KVIFTE:	An Auroral Spectrogram and the Results Derived from it .. XVIII	3	1951	
31.	L. VEGARD, E. TONS- BERG and G. KVIFTE:	Continued Investigations of the Spectra of Aurora and Twilight and the Ionospheric Temperature .. XVIII	4	1951	
32.	L. VEGARD:	Doppler Displacement of Auroral Hydrogen Lines and its Bearing on the Theory of Aurora and Magnetic Disturbances XVIII	5	1952	
33.	L. VEGARD and E. TONSBERG:	Results from Auroral Spectrograms obtained at Tromsø during the Winter 1950/51 .. XVIII	8	1952	

## REPORT FOR 1951

During the year 1951 we have taken spectrograms with the new large spectrograph («V») in order to obtain and measure lines and bands in the spectral region covered by the spectrograph, which means from  $\lambda = 3880$  to infra red. Three spectrograms showing a great number of lines and bands were obtained on red sensitive plates (Kodak 103a E) and two succesfull spectrograms were taken on infra red sensitive plates (Kodak I—N) showing a great number of bands and lines in the infra red.

On the spectrograms from the V-spectrograph the rotational components of the R-branch of the bands 4278 and 3914 appeared separated and gave therefore good conditions for accurate determination of the ionospheric temperature. These spectrograms gave also good facilities for the study of the hydrogen lines and their Doppler displacement, detected in 1939—41 on Oslo and Tromsø spectrograms.

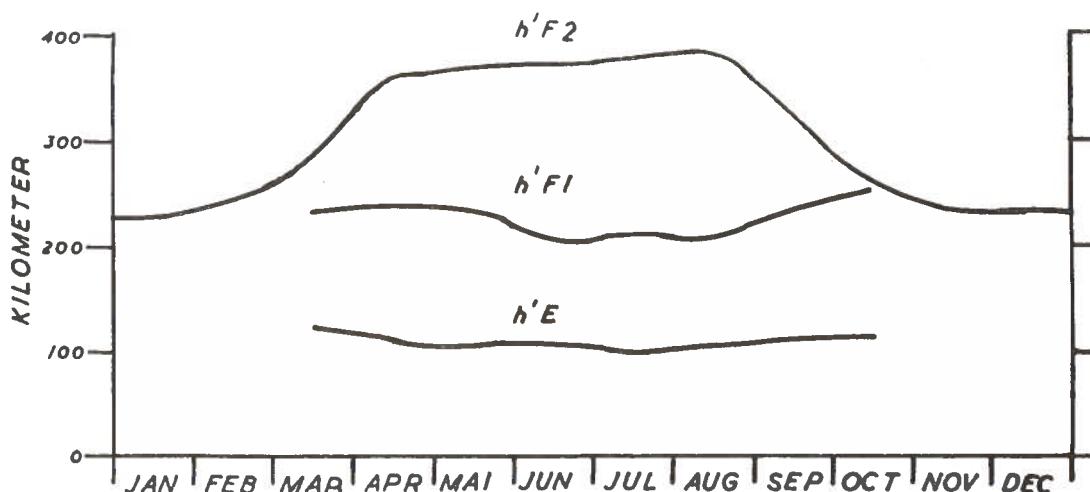
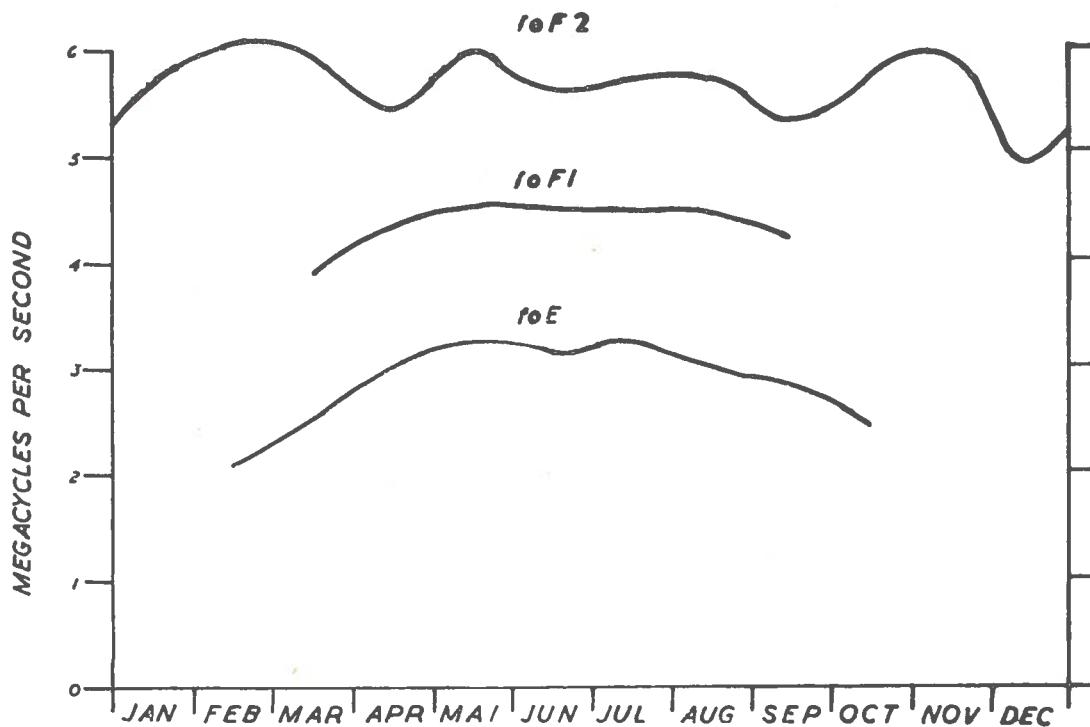
The results of the spectrograms taken with spectrograph (V) during the winter 1950/51 are given in paper (33) of the list.

On December 3. 1951 a series of auroral spectrograms were taken in rapid succession with the new spectrograph (F). They showed very remarkable variations with regard to intensitydistribution, and very pronounced variability effects of the H<sub>β</sub>-line were observed. A priliminary description of these spectrograms and the variability effects were given in a note to Nature (Vol. 170 p. 536).

*L. Vegard.*

## RADIO ECHO OBSERVATIONS

Radio echo observations were started at The Auroral Observatory during The Second Polar Year 1932—33 by a British Expedition from The National Physical Laboratory under the supervision of sir Edward Appleton and simultaneously by a German Expedition from the Heinrich Herz Institute, Berlin. The main aim for these two expe-



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.

ditions was to investigate the influence of earthmagnetic storms and aurorae on the conditions of the ionosphere. Tromsø, which is lying close to the auroral zone, and during stronger storms even below the zone, is especially suited for such studies. On account of the close relationships between disturbances within the appearance of aurorae and earthmagnetic storms The Norwegian Institute of Cosmical Physics decided that a recording station for radio echosounding should be maintained at the Auroral Observatory.

A recording instrumental equipment was put up in the spring 1935, and since then records have been made more or less regularly. During the war-time 1940—45 some periods are lacking. Up to 1950 a semi-automatic equipment was used and regular records of h'f-curves were limited to be taken at local noon. From 1950 a fullautomatic echo-recorder has been in use and hourly records of h'f-curves are now taken. Short notes giving the summary of the mean monthly values of the critical frequencies have been published in the Journal of Terrestrial Magnetism and Atmospheric Electricity. In future a detailed account of the hourly values recorded will be given in a form presented in the following report.

*L. Harang.*

# EARTH MAGNETISM 1951, 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 Aashild Berger and Solfrid Sackariassen.

## SCALE VALUES.

The following scale values were determined:

D-curves: 1.50 or 4.88 y per mm.

H-curves: ..... 5.38 y per mm.

V-curves: ..... 7.25 y per mm.

## OBSERVED AND ADOPTED BASE-LINE VALUES. 1951

D			H			V		
Date	Observ.	Adopt.	Date	Observ.	Adopt.	Date	Observ.	Adopt.
I 9	1°49'.8W	1°49',7W	I 4	11229	11230	I 12	50458	50450
	49.2	.7	17	30	30	23	46	50
II 16	50.2	.7	25	30	30	27	55	50
	49.2	.7	II 9	30	30	II 17	49	50
III 5	48.6	.7	20	30	30	23	57	50
	50.8	.7	III 15	34	33	III 8	44	50
IV 11	49.5	.7	28	33	33	21	55	50
	49.1	.7	IV 12	32	33	IV 7	46	50
V 8	49.9	.7	24	33	33	14	53	50
	49.5	.7	V 9	38	35	25	47	50
VI 12	49.7	.7	21	31	35	V 2	47	50
	50.8	.7	24	29	35	9	48	50
VII 30	49.2	.7	VI 4	34	35	19	49	50
VIII 10	49.2	.7	14	35	35	VI 6	50	43
	48.7	.7	28	38	35	22	39	43
X 12	48.4	.7	VII 29	35	35	VII 25	38	43
	50.1	.7	VIII 5	42	40	VIII 13	43	43
XI 15	49.3	.7	25	41	40	28	43	43
	52.3	.7	X 10	40	40	IX 1	43	43
XII 11	51.0	.7	24	39	40	X 12	43	43
	49.1	.7	XI 1	39	35	23	40	43
XII 19	49.2	.7	13	36	35	XI 6	57	52
	49.4	.7	26	36	35	17	43	52
			XII 14	34	35	22	54	52
			19	40	35	XII 18	52	52

## BASE-LINE VALUES.

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

Control measurements in Rude Skov, Denmark, in May 1952 stated that we made a mistake in the yearbook of 1950 when trusting in the observations of BMZ 39 instead of those of BMZ 57. The difference  $+ 18 \gamma$  should be added to every value of the Vertical Intensity for the year 1950.

The quiet mean Inclination value for 1951 was calculated to  $77^\circ 34.'6$ .

The temperature coefficient for the H-variometer is  $7.3 \gamma$  and for the V-variometer  $\pm 1.3 \gamma$  per degree Celsius.

## EXPLANATION OF 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 and minimum 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 quite hourly values.

The second series of tables gives the hourly values of the Storminess («averages 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 *PS*, *NS* and *AS* give the diurnal sum of the positive, negative and absolute storminess respectively. The column headed *CH* 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  $400 \gamma$ , character number 1 from  $400 \gamma$  to  $1200 \gamma$  and character number 2 greater than  $1200 \gamma$ . 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.

J. Frøshaug.

## EARTH MAGNETISM BEAR ISLAND

A magnetic station has been established on Bear Island as a supplement to the meteorological station there.

$$\varphi = 74^{\circ} 5' \text{ N. } \lambda = 19^{\circ} 0' \text{ E.}$$

A variometer-house was built in 1948, and varimeters of the La — Cour pattern set up. Another small house for magnetic measurements could be taken in use in 1950.

Magnetic measurements have had to be limited to short inspection periods in summertime.

The crew of the meteorological station is responsible for the magnetic registrations the quality of which has differed rather much from year to year. On a polar station with a crew not trained in magnetic work one can hardly avoid irregularities.

The few and scanty measurements are far from being sufficient to fix base-line values on the records, but variations in the elements can be studied and character figures determined.

Measurements with QHM 123 and BMZ 39 have given the results below, to be regarded as approximate yearly values for 1951.

$$D = 1^{\circ} 30' 3 \text{ E. } H = 9211 \text{ y } V = 51 878 \text{ y}$$

To the measured values have been added rather small corrections based on a method worked out by J. Frøshaug, taking into account the mean difference between the elements recorded on Bear Island and Tromsø.

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

J. Frøshaug. E. Tonsberg.

## K — INDICES FOR THREE-HOUR INTERVAL 1951

## Bear Island.

Range 2000  $\gamma$  for K = 9. Scala values: D = 5.9  $\gamma$  H = 6.35  $\gamma$  V = 20.5  $\gamma$ .

Date	Jan.		Feb.		Mar.		Apr.		May		Jun.	
1	2201	3435	7634	2226	5544	4321	3211	1224	5555	3557	3333	442-
2	4553	3365	2210	1104	1113	3433	3442	3546	5345	5456	—4	5444
3	5642	2355	2100	1044	4243	2340	6664	4656	4433	4464	5333	3244
4	4320	0435	1003	3433	0332	2235	5554	5745	5434	4544	4323	3434
5	2211	2224	1333	4366	1132	3332	4—5	5466	2323	2223	3331	3324
6	3211	—	6543	3313	2445	4333	4664	4564	6552	4353	3455	5442
7	—	4300	2433	1354	3434	5434	5454	4544	3423	3244	3542	5424
8	2222	2134	2343	3645	3344	5566	5553	3465	3110	2243	5452	4433
9	3123	2122	5563	4565	5554	4466	3344	3454	2224	3446	3533	3411
10	3211	2555	6553	4456	6664	4464	5533	3353	3465	4454	2104	4243
11	5343	2245	6543	3556	6554	4562	4432	3304	3344	5345	4524	4454
12	3444	3354	6655	5356	3564	4464	6333	4346	3433	2452	3445	4344
13	3543	3164	44—	4465	4454	4465	6433	5544	3322	1233	2245	5335
14	3453	3545	3432	3355	5432	4465	3344	4343	3532	5435	3213	2157
15	3444	3366	2212	2345	5432	3100	3324	3442	5433	3445	6565	5554
16	6334	3566	2112	1143	0424	4366	2221	3224	6534	3344	5335	4434
17	4443	1154	2000	2333	3234	4635	5334	4221	5554	5443	3332	2445
18	2231	312—	5233	3353	4434	3335	1234	6355	4433	2223	7565	4443
19	—	4236	1223	3345	5433	2343	5334	4235	4432	4343	5533	4454
20	5321	3201	3312	2101	3112	4344	4444	3555	3433	3333	3312	2015
21	0001	3546	2442	3354	1012	2323	6654	44—	2322	3333	3343	4333
22	5554	5667	5454	4555	3443	4656	—5	6644	3402	4333	3323	4434
23	5553	3565	5565	5567	5554	4566	2632	3404	3425	4356	5432	2224
24	3433	2364	4555	4433	4434	3456	2444	6444	6344	4434	2213	4243
25	2223	3266	3456	3343	4534	3425	6554	3433	3233	4323	2455	6454
26	2221	3545	4665	4665	5534	3465	5242	2222	4424	4655	4453	4433
27	4443	3445	6463	5423	5433	2434	1122	4424	6534	2224	3443	4432
28	4443	3565	4563	3365	2201	3212	4322	3332	3322	3221	3333	3333
29	2424	3335			2654	4334	2413	4422	2334	3424	3422	4354
30	4333	1345			5323	3112	1120	1001	3324	4324	4444	3253
31	4634	3446			2221	3332			3333	1144		
Date	Jul.		Aug.		Sept.		Oct.		Nov.		Dec.	
1	5415	5545	5424	3446	4222	3214	3222	2224	1020	1024	3333	3445
2	6466	—	5633	—	3221	1123	5553	3224	4543	4544	3443	4434
3	—5	5345	—	4233	4322	3124	3213	3254	3533	4356	4333	—35
4	4553	3454	3523	4334	4321	3233	2201	1153	5433	4525	3433	4666
5	4443	3333	5432	3435	3314	3233	2010	1242	4333	2256	4433	3444
6	3333	4344	2222	4424	5343	2255	3200	0002	4343	4553	2211	2054
7	4322	2355	3434	2345	3312	2253	2333	4643	6633	3544	2323	3354
8	5321	—	4422	3043	2431	3344	5654	5536	5322	—	6444	5464
9	—3	3343	4224	3432	432—	5333	5—3	5347	—	3433	5544	5664
10	4331	2134	5423	3124	—	5544	3554	3655	3211	1000	3444	4664
11	2333	4443	3333	4334	—	—445	5454	4540	0000	2335	—	4565
12	4422	4333	4344	5445	3544	5454	2534	3312	6343	5523	4343	3345
13	5342	2133	3454	4445	4442	4555	2534	4234	2443	4565	3312	2225
14	3223	3334	2243	3324	4543	3552	5432	3565	6554	5655	3220	0036
15	3432	3345	4433	3543	5444	5454	3532	2356	5553	5443	5433	3463
16	3524	4343	3355	2212	5544	6657	5453	—	4443	4553	4433	3425
17	3442	3543	3221	3432	6454	6545	—	5565	2233	3265	343—	5455
18	3444	6445	23—	1111	6643	3653	4544	5655	3222	1055	6544	—
19	3333	2333	2224	5332	3233	4543	5544	4555	3422	2436	—	6566
20	3533	3322	6553	3346	4555	7554	5333	4346	3311	3465	4534	1234
21	2333	1232	4554	4554	6554	—	3544	3354	3321	1054	4212	2205
22	3544	3434	6554	4343	—	5655	3433	5553	6422	2255	4534	4655
23	5533	1234	3234	—	5654	—	4433	3545	4433	—	5434	3430
24	3332	3231	—	3344	—	5454	3222	0033	—	-633	2110	1044
25	2333	—	4444	4553	4455	—	3100	0000	4434	4445	3301	0204
26	—	3433	3454	4355	—	—	1234	3226	4432	4463	1001	1231
27	5543	3334	4444	4545	—	4334	4533	3323	4322	1024	0432	3027
28	5544	5543	4333	3453	5322	3203	2334	7664	3452	5364	5555	4455
29	4433	3334	4334	4524	3332	4554	3344	3212	3544	4666	5212	3222
30	4334	4444	4203	3334	3443	3331	2233	2001	5344	4534	0031	3125
31	5554	4546	2333	5325			1200	0001	4455	4566		

## K-INDICES FOR THREE-HOUR INTERVAL 1951

Tromsø.

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

Date	Jan. 1	Feb. 7	Mar. 12	Apr. 10	May 6	Jun. 1
1	4211	3334	6534	3266	5543	4312
2	4443	4465	3210	2024	1012	3225
3	4531	2234	3010	0033	4132	2230
4	1200	0334	1013	4532	0231	2216
5	2201	2366	1212	5356	1021	2231
6	3100	0032	6632	2213	1333	4453
7	0100	0013	3321	1244	4523	5466
8	3012	3300	4212	2666	4334	5776
9	1110	1012	5543	5566	5544	3556
10	3100	1554	5553	3356	7654	4466
11	6332	1346	6532	2557	7444	5574
12	5443	3344	6643	4556	5444	5464
13	5543	2154	5544	4465	5434	5776
14	5332	4465	4322	2255	5544	5675
15	5432	3256	1111	1134	6422	3100
16	4223	3467	1110	0043	1223	3365
17	5331	1133	1000	1364	4144	3435
18	2111	2225	5212	4453	4323	3354
19	5321	2155	2212	2236	5322	1223
20	5311	2213	5211	1001	2003	4321
21	0002	4666	2322	2343	0001	2235
22	6554	5566	6444	6677	5424	3756
23	6343	4466	6555	5677	6444	4576
24	2322	3234	5554	4565	5424	3575
25	3111	2144	5433	2357	5624	3346
26	2010	1564	2332	4564	6523	4375
27	4433	2345	7453	5434	6523	2324
28	4532	3465	5664	3355	3201	1202
29	3323	2336			1334	5546
30	5321	1345			5213	2113
31	6665	3566			2011	2433

Date	Jul. 2	Aug. 8	Sep. 19	Oct. 16	Nov. 4	Dec. 6
1	5302	5766	5313	3457	4221	2113
2	7564	4534	5633	3335	4100	1103
3	5543	5446	4213	3024	3012	4115
4	5543	3356	5522	4446	4311	3223
5	6333	4334	5412	3343	3113	2244
6	3222	4344	4121	4433	5232	2245
7	4222	2355	3313	2345	4102	1354
8	4211	2145	4312	2023	1220	3344
9	5622	3343	4123	4324	4313	5545
10	5221	1133	3233	4125	6454	5542
11	222-	—	3223	5454	522-	—
12	—2	3335	5334	5456	—4	5556
13	6222	2122	4654	5663	6553	5555
14	3112	3214	2213	3355	6643	3353
15	4311	2346	4332	3454	5443	5554
16	3513	4443	3335	2213	6655	6677
17	4334	4433	2121	3454	7545	5547
18	3423	5534	3231	0003	6633	3563
19	3322	2454	2223	4543	3222	5766
20	5512	3242	6653	4466	6755	5776
21	2222	2323	7544	6656	7656	5677
22	3543	4455	7754	4364	6654	5565
23	6433	3244	5223	3467	6654	5477
24	3222	3231	6644	4356	7664	5465
25	1223	4445	5645	4464	5435	6777
26	5454	4656	5554	4477	7732	2434
27	6522	3356	5433	5576	6644	4235
28	5644	4564	4324	3366	6221	2103
29	4433	3345	5423	3444	4121	4765
30	5223	3445	3102	2444	5432	2223
31	5535	5656	3133	6546		0100

## DAYLY SUM OF K-INDICES 1951

*Tr.* means Tromsø. *BI.* means Bear Island.

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

## OZONE OBSERVATIONS

The first observations on atmospheric ozone at The Auroral Observatory, Tromsø, were undertaken by Dr. Dobson and Dr. Meetham in the summer of 1934.

In July 1935 we started regular observations on direct sun by means of a Dobson spectrograph kindly lent out to the observatory. Since August 1939 a Dobson spectrophotometer has been used.

The observational data up to the end of 1942 were published in Geofysiske Publikasjoner Vol. XIII No. 12, Oslo 1944. The observations of the years 1943 to 1949 will probably soon be printed.

In August 1950 we had the spectrophotometer back from Dr. Dobson furnished with a photomultiplier, and thus much more sensitive than earlier. In spite of that we have omitted printing of values of November, December and January on account of mistrusting to the method of evaluation of sky-observations, it may not be usable for those months.

*E. Tonsberg.*

## TABLE OF OZONE VALUES

Unit 0.001 cm.

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

Day	Aug. 1950			Sep. 1950			Oct. 1950			Feb. 1951			Mar. 1951			Apr. 1951		
	M.	N.	R.															
1 . . . . . ;	—			184	1		183	2	6	232	3	5	298	3	11	350	1	
2 . . . . .	—			200	6	6	183	1		317	2	37	261	2	15	320	6	11
3 . . . . .	—			202	2	3	199	1		295	1		305	2	11	314	5	5
4 . . . . .	—			202	1		235	1		280	1		300	1		317	5	4
5 . . . . .	—			198	4	4	235	1		358	2	5	305	3	23	331	6	11
6 . . . . .	—			202	3	4	217	2	8	293	2	4	292	5	9	333	5	4
7 . . . . .	—			210	4	3	219	2	10	335	3	27	296	4	8	323	6	11
8 . . . . .	—			211	4	5	216	2	9	296	3	15	326	3	5	338	1	
9 . . . . .	—			212	3	1	212	2	5	313	3	10	353	4	25	351	3	2
10 . . . . .	—			209	2	0	213	1		330	1		305	3	16	331	6	3
11 . . . . .	—			205	1		246	2	12	333	1		339	1		329	5	7
12 . . . . .	—			213	2	14	235	1		331	3	25	368	5	7	331	3	2
13 . . . . .	206	5	2	221	1		226	2	2	316	3	21	376	10	21	316	4	8
14 . . . . .	206	1		216	1		188	2	5	318	3	7	358	2	3	317	3	3
15 . . . . .	222	7	9	213	2	2	170	1		335	3	28	368	6	12	307	1	
16 . . . . .	209	2	0	214	1		160	1		365	1		357	3	11	337	5	6
17 . . . . .	204	1		228	2	12	178	1		357	3	3	380	3	0	322	5	13
18 . . . . .	—			204	2	5	162	1		346	1		388	1		343	2	1
19 . . . . .	201	2	2	206	3	4	170	1		332	5	6	383	4	19	345	3	11
20 . . . . .	203	3	5	207	2	1	170	1		342	5	3	365	6	11	352	1	
21 . . . . .	210	2	0	205	1		193	1		332	6	7	362	5	12	368	3	18
22 . . . . .	214	2	2	188	2	4	240	1		323	5	11	363	2	10	366	1	
23 . . . . .	—			199	2	0	215	1		332	6	15	395	1		313	3	19
24 . . . . .	—			202	1		214	2	12	345	4	13	380	1		306	5	7
25 . . . . .	—			201	2	4	209	2	8	316	1		367	1		312	4	5
26 . . . . .	—			216	1		193	1		318	3	6	358	1		291	4	8
27 . . . . .	—			218	2	4	205	2	6	347	3	23	393	4	6	285	7	5
28 . . . . .	—			204	1		191	2	22	327	2	2	360	10	13	265	3	5
29 . . . . .	—			211	1		182	1					362	6	3	290	1	
30 . . . . .	—			190	2	11	165	2	6				329	8	10	275	2	9
31 . . . . .	204	2	4				155	2	10				346	6	2			
Mean . . . . .	208			206			199			324			346			323		

## TABLE OF OZONE VALUES

Unit 0.001 cm.

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

Day	May 1951			Jun. 1951			Jul. 1951			Aug. 1951			Sep. 1951			Oct. 1951		
	M.	N.	R.	M.	N.	R.	M.	N.	R.	M.	N.	R.	M.	N.	R.	M.	N.	R.
1 . . . . .	309	1		290	1		255	1		223	8	17	191	1		204	1	
2 . . . . .	314	2	3	271	2	1	250	1		214	4	4	195	2	26	201	2	4
3 . . . . .	324	1		263	2	5	255	3	6	240	2	3	199	3	6	203	1	
4 . . . . .	300	4	4	276	2	11	248	2	6	222	2	5	211	2	1	204	1	
5 . . . . .	314	2	2	292	2	8	251	1		188	2	2	211	3	2	169	2	1
6 . . . . .	323	15	11	296	2	12	249	2	18	198	6	7	224	2	8	194	1	
7 . . . . .	315	17	11	283	1		255	3	4	208	2	3	224	1		176	1	
8 . . . . .	316	9	7	290	3	12	247	3	6	190	3	5	222	2	4	172	2	10
9 . . . . .	330	4	17	295	2	8	251	1		196	3	6	228	1		158	1	
10 . . . . .	275	6	12	291	2	4	249	2	5	206	4	12	214	2	8	162	2	3
11 . . . . .	311	2	10	292	3	4	246	5	5	205	2	2	206	1		185	1	
12 . . . . .	302	4	8	312	1		248	2	4	199	2	11	201	2	0	167	1	
13 . . . . .	281	1		283	7	19	264	2	6	202	2	1	194	2	2	174	3	12
14 . . . . .	292	1		288	2	36	235	2	28	199	5	7	196	1		174	1	
15 . . . . .	297	1		308	2	6	239	2	1	220	1		215	1		163	2	7
16 . . . . .	304	2	6	278	2	15	241	3	8	221	3	6	221	1		212	1	
17 . . . . .	280	1		261	2	8	222	2	12	219	3	10	226	3	4	222	1	
18 . . . . .	—			262	8	8	222	3	3	226	3	4	233	1		208	1	
19 . . . . .	293	1		262	3	4	236	2	4	216	1		231	1		221	2	4
20 . . . . .	—			257	3	5	243	3	4	209	4	6	—			234	2	9
21 . . . . .	293	2	6	253	3	4	243	4	5	217	3	1	201	1		249	2	2
22 . . . . .	276	3	13	247	4	7	239	2	12	217	6	4	196	2	10	267	1	
23 . . . . .	294	3	2	249	7	5	237	13	17	217	6	6	186	1		271	2	18
24 . . . . .	276	3	4	248	2	3	226	5	15	231	2	18	184	2	5	263	2	1
25 . . . . .	278	3	2	239	3	10	226	6	7	202	2	2	181	1		256	2	7
26 . . . . .	292	4	17	240	5	8	218	2	2	222	1		184	2	1	242	2	0
27 . . . . .	300	1		233	8	7	222	2	3	202	4	6	189	2	6	213	2	8
28 . . . . .	285	4	2	265	3	9	230	1		198	2	2	167	2	4	172	1	
29 . . . . .	270	11	11	256	2	7	244	3	4	—			174	1		—		
30 . . . . .	254	2	4	250	2	2	251	2	13	188	1		201	1		182	2	13
31 . . . . .	270	2	6				247	3	5	192	2	18				187	2	11
Mean . . . . .	295			271			242			210			204			204		

Т Г О М А І

RESULTS OF IONOSPHERIC OBSERVATIONS FOR THE YEAR 1951.

Critical Frequency for the E-layer, foE. Quantities Expressed in Tenth of Mc/s												
MONTHLY MEDIAN VALUES FOR EACH HOUR MET												
HOUR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-
EXPLANATION OF TABLES.												
Monthly median values are given for the following quantities for each hour MET: foE, foF1, foF2, (critical penetration frequencies for the E-, F1- and F2-layers) h'E, h'F1 (virtual heights for the E-, F1- and F2-layers) and M3000 F2-factor.												
The symbols and interpretation are in conformity with the CCIR and URSI recommendations. Note that the missing values between 22 - 07 hour are due to mains failure during January through August 1951.												
Critical Frequency for the F1-layer, foF1. Quantities Expressed in Tenths of Mc/s												
MONTHLY MEDIAN VALUES FOR EACH HOUR MET												
HOUR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-
Virtual Height for the E-layer, h'E. Quantities Expressed in Kilometers.												
MONTHLY MEDIAN VALUES FOR EACH HOUR MET												
HOUR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-
Virtual Height for the F1-layer, h'F1. Quantities Expressed in Kilometers.												
MONTHLY MEDIAN VALUES FOR EACH HOUR MET												
HOUR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-
Virtual Height for the F2-layer, h'F2. Quantities Expressed in Kilometers.												
MONTHLY MEDIAN VALUES FOR EACH HOUR MET												
HOUR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-
M3000 F2-layer Transmission Factor.												
MONTHLY MEDIAN VALUES FOR EACH HOUR MET												
HOUR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-								

## RESULTS OF MAGNETIC OBSERVATIONS, FOR THE YEAR 1951

Kosmisk Fysikk

**Tromsø.** Declination. D = 1° W + Tabular Quantities expressed in Tenths of Minutes. Gr. M. T.

JANUARY 1951.

DAY	HOURLY MEAN VALUES																							M	R	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	-139	-149	-15	25	-6	-6	9	25	22	31	37	55	96	71	123	129	-6	62	40	22	-132	0	25	12	511	
2	6	-68	-123	-129	-102	-99	-68	6	15	22	46	68	71	83	92	0	102	22	46	62	-92	62	6	-92	-5	1038
3	-31	-77	-55	-71	-154	9	-31	15	25	31	22	40	31	9	6	25	15	9	-77	-9	-6	0	-31	-102	-18	558
4	-92	-55	-25	-31	-15	-6	-9	0	6	22	25	25	40	37	52	52	-25	46	77	6	123	55	-15	12	157	
5	-9	-40	-46	15	-6	0	15	15	22	22	22	37	37	37	68	46	40	99	185	-154	-246	-114	3	992		
6	-40	-31	-6	6	15	6	-6	-9	6	9	22	22	6	6	6	0	0	6	9	15	-62	0	-6	0	287	
7	-6	-6	0	15	6	9	6	6	0	22	25	15	9	6	0	0	-6	0	-15	-37	-77	-62	-3	166		
8	-25	0	9	9	6	6	6	15	46	83	92	123	123	92	37	31	6	-6	0	-9	-6	-6	28	225		
9	0	0	0	9	0	37	22	6	25	31	31	25	22	15	9	9	6	6	6	6	22	0	12	105		
10	-62	-86	-40	-40	-31	-15	0	9	22	15	22	40	55	77	62	108	123	154	277	55	77	31	-15	15	37	1053
11	-139	-194	-246	-71	-37	-31	-22	6	37	22	37	22	15	-6	22	52	46	92	154	92	6	-185	-108	-18	1023	
12	-123	-185	-46	-46	31	37	25	40	46	46	37	62	40	22	25	0	-15	31	40	-6	6	77	6	-37	6	706
13	-40	-231	-185	-55	-139	-86	22	0	31	15	6	9	22	15	9	22	55	-123	62	6	22	-92	-25	1097		
14	-139	-154	-86	-71	-68	-52	22	31	31	37	31	9	62	46	71	114	77	9	31	123	15	-293	-139	-62	13	767
15	-92	-62	-77	-77	-86	-55	-6	37	9	22	31	77	9	40	73	22	31	15	83	92	31	-139	-323	-62	-15	918
16	-92	-15	-15	-22	-25	9	9	31	40	55	37	-46	25	-15	-231	-62	31	-15	-246	-185	-46	-37	1023			
17	-123	-37	-77	-139	-139	-6	-31	37	15	25	15	6	0	22	22	-9	-6	-25	-31	0	-37	-18	392			
18	-6	0	-22	-9	-22	-22	-9	-6	0	9	22	25	31	-55	15	6	22	0	-6	-37	-46	-92	-77	-12	407	
19	-68	-123	-185	-123	-71	-37	-9	15	31	22	46	52	46	86	46	52	52	46	55	22	31	-182	-370	-154	-31	1174
20	-262	-370	-200	-6	9	-22	-25	-25	-22	-9	9	25	55	71	62	55	40	22	9	9	15	0	-37	-25	-25	918
21	-6	-9	-9	-9	-9	-6	-6	0	0	9	15	31	25	6	-123	123	154	77	-46	0	-493	-77	-108	-18	2136	
22	-160	-370	-262	-308	-92	15	-31	154	62	-15	9	37	-62	-15	46	-46	-246	-200	62	-77	-863	-225	-139	-117	1980	
23	-216	-139	-185	-62	22	9	-22	0	-15	0	-68	0	31	55	-31	37	25	154	92	-154	-31	-125	92	-46	-37	1252
24	-55	-25	-22	0	15	37	-15	-9	0	0	31	-6	25	15	9	6	-37	-77	-25	-15	-46	-129	-68	-18	449	
25	-37	-22	-25	-9	-6	0	6	-9	-6	15	31	37	22	15	6	0	-6	6	0	-68	-62	15	-68	-9	465	
26	-46	-40	-37	-15	-9	9	9	9	22	6	9	25	9	22	40	46	92	262	123	185	92	46	-77	154	-40	976
27	-139	-68	-77	-216	-108	-77	25	9	31	25	9	31	22	52	9	37	55	-62	55	25	-46	-216	-15	-25	751	
28	-169	-154	-246	-123	-15	15	9	6	31	0	0	22	22	46	62	31	62	-15	-308	-370	31	-77	-9	-22	-39	1007
29	-40	-40	-40	-86	-15	0	9	-25	80	71	55	15	0	25	15	22	55	46	52	6	62	-200	-215	-277	-18	1294
30	-293	-117	-92	-31	-40	0	22	68	40	25	31	22	15	9	9	77	139	62	-92	83	92	6	-154	62	-6	922
31	6	-62	-287	0	-139	-216	-246	-208	-139	-45	-62	77	123	148	92	153	176	123	431	246	31	-31	-139	-215	-18	1439
M	-66	-96	-89	-52	-40	-18	-12	6	12	15	18	34	31	37	31	31	40	18	25	22	15	-96	-96	-59	-12	841
QM	-9	-12	-12	-9	-6	-3	0	3	6	12	18	22	25	25	22	15	12	6	3	0	-3	-3	-3	-6	3	

FEBRUARY.

DAY	HOURLY MEAN VALUES																							M	R	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	123	-92	-616	-709	-339	-200	-148	-83	-46	-31	15	25	15	15	52	62	55	68	102	-139	-216	-123	-9	-92	1578	
2	-22	-25	-68	-77	-46	-9	-6	0	6	6	9	6	0	-6	0	6	6	6	6	-15	-6	-46	-12	496		
3	-62	-25	-37	-37	-31	-22	-9	-6	6	9	22	25	6	0	0	15	25	25	6	-31	-46	-31	-55	-12	256	
4	-9	-6	-9	-22	-15	-9	6	37	40	42	62	77	92	77	216	165	308	123	37	-6	-31	-55	-31	43	616	
5	-31	-25	-25	-25	-46	25	22	37	37	22	62	25	22	68	92	83	77	92	114	92	-92	-246	-231	3	961	
6	-123	-246	-1078	-555	-308	-182	-88	15	15	0	2	46	25	22	0	-40	-62	-68	-31	-31	-22	-15	-9	-114	1849	
7	-62	-86	-123	-71	-71	-46	-52	-37	6	-15	9	22	22	9	-6	25	-25	-92	-179	-77	-139	-108	-52	600		
8	-139	-71	-15	-31	-22	-31	-15	-6	15	37	-22	71	25	46	139	-154	182	477	92	15	-246	-194	-123	0	1503	
9	-52	-123	-246	-200	-117	-99	-15	-46	9	-6	55	108	55	46	-182	77	9	216	-139	15	-154	-79	59	1506		
10	-62	-182	-169	-182	-92	-92	-46	-25	25	6	9	62	22	6	0	-6	-3	6	9	-6	-15	-25	-25	-18	449	
11	-185	376	-293	-364	-182	-68	-55	0	25	15	6	31	68	62	77	92	-77	-345	46	154	31	9	-55	123	-34	1053
12	-709	-832	-354	-370	-401	-253	-52	92	15	77	22	40	52	108	15	108	46	77	6	-308	-62	31	-31	0	117	2376
13	-108	-92	-246	-132	-104	-114	-6	37	62	69	86	15	62	0	25	15	83	308	-216	6	-31	-77	-9	1217		
14	-160	-308	-148	-189	-139	-108	-22	-15	-9	15	48	149	83	-9	-31	108	154	9	-77	62	139	-123	15	737		
15	-62	-31	-31	-37	-40	-25	-6	9	9	25	37	114	77	37	71	62	62	0	-37	-62	-77	-68	9	690		
16	-22	-31	-46	-40	-37	-25	-25	-9	0	3	9	6	6	6												

## Tromsø.

JANUARY 1951.

Declination. Storminess. (+ W) Unit 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	PS	NS	AS			
1	-42	-43	0	11	0	0	0	0	0	0	0	0	0	8	20	16	35	37	-4	20	13	7	-43	0	6	8	173	132	305	
2	-5	-17	-35	-39	-31	-32	-22	0	0	0	0	0	9	13	19	23	-5	28	5	15	20	-30	20	2	-32	-4	159	243	402	
3	-7	-20	-13	-20	-48	3	-13	0	0	0	0	0	0	0	0	0	0	0	0	-25	-1	0	2	-7	-30	-7	5	184	184	189
4	-27	-15	-5	-7	0	0	0	0	0	0	0	0	0	5	5	12	12	-10	15	25	2	40	18	-7	3	134	69	203		
5	0	-8	-10	8	0	0	0	0	0	0	0	0	0	0	2	5	17	13	13	32	60	-50	-80	-39	-2	150	187	337		
6	-10	-7	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-22	0	0	-2	0	41	41	
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-3	-9	-23	-20	7	166	8	174
8	-8	0	0	0	0	0	0	0	0	0	0	0	3	10	22	23	32	32	23	7	10	4	0	0	0	0	0	5	23	
9	0	0	0	0	0	0	9	2	-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	1	18	5	23	
10	-18	-25	-8	-5	0	0	0	0	0	0	0	0	0	0	6	17	13	30	46	48	90	18	25	10	-5	3	10	297	69	366
11	-42	-58	-75	-20	-10	-10	-7	2	10	2	7	0	-3	-10	-9	2	12	13	30	50	30	2	-60	-37	-8	160	341	501		
12	-37	-55	-10	-12	12	12	8	13	13	10	7	13	5	-1	1	-5	-10	8	13	-2	2	25	2	-14	0	144	146	290		
13	-10	-70	-55	-15	-43	-82	7	0	8	0	0	0	0	0	0	0	0	0	15	-40	20	2	7	-32	-10	59	293	352		
14	-42	-45	-23	-20	-20	-17	7	10	8	7	5	-4	12	7	16	32	20	1	10	40	5	-92	-45	-22	-6	180	333	513		
15	-27	-15	-20	-22	-26	-18	-2	12	1	2	5	18	-5	5	20	2	5	3	27	30	10	-45	-105	-22	-7	140	307	447		
16	0	0	-4	-3	-10	-7	3	1	5	8	11	4	-23	1	-10	-80	-22	-20	10	-5	-80	-60	-17	-14	43	369	412			
17	-37	-7	-20	-42	-43	-2	-10	10	0	0	0	0	0	0	0	0	0	0	-8	-5	-10	-10	0	-10	-8	10	204	214		
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-25	0	3	5	0	-2	-12	-15	-30	-27	-5	5	114	119		
19	-19	-35	-55	-37	-21	-12	-3	5	8	2	10	10	7	20	8	12	12	13	18	7	10	-60	-120	-52	-11	142	414	556		
20	-82	-115	-60	1	8	0	0	0	0	0	0	0	8	13	11	10	6	0	0	-10	-6	-13	57	273	330					
21	0	3	0	0	0	0	0	0	0	0	0	0	-5	-45	35	48	25	-15	0	-160	-25	-37	-7	108	287	395				
22	-49	-115	-80	-97	-28	5	-10	50	18	-10	-2	5	-28	-13	8	-20	-20	-82	-65	20	-25	-280	-73	-47	-39	106	1044	1150		
23	-67	-40	-55	-17	9	3	-7	0	-7	-5	-27	-7	2	10	-17	7	3	-52	30	-50	-10	-40	30	-17	-14	94	418	512		
24	-15	0	0	7	10	15	0	0	0	-7	-3	5	-10	0	0	0	-14	-25	-8	-5	-15	-42	-24	-5	37	168	205			
25	-7	0	0	0	0	0	0	0	0	0	0	0	0	-22	0	0	0	0	-20	-17	10	-17	-3	10	83	93				
26	-8	-3	-5	0	0	0	0	0	0	0	0	-5	-1	6	10	25	83	40	60	30	15	-25	46	11	317	47	364			
27	-42	-17	-20	-67	-33	-25	8	0	0	0	0	-1	9	-4	7	13	10	-20	18	8	-15	-70	-7	-1	73	321	394			
28	-52	-45	-75	-37	-3	5	3	2	8	-5	-5	-1	7	13	5	15	-7	-100	120	10	-25	-3	-9	-17	68	486	554			
29	-10	-8	-8	-25	-3	0	-3	8	20	18	13	-2	-8	0	-2	2	13	13	17	2	20	-65	-70	-92	-7	126	296	422		
30	-92	-33	-25	-7	-11	0	7	20	8	1	0	0	0	0	0	20	40	-4	30	27	30	2	-50	18	-3	173	252	425		
31	5	-15	-88	6	-43	-70	-80	-100	-43	-10	-15	18	32	40	23	48	52	38	140	80	10	-10	-110	-72	-7	492	656	1148		
M	-25	-26	-24	-15	-11	-6	-4	1	2	1	1	3	2	5	3	5	9	4	7	7	5	-30	-30	-20	-6	118	253	371		
MPS	0	0	0	1	1	2	1	4	3	2	2	4	4	4	7	6	8	13	10	17	15	9	4	2	2					
MNS	25	26	24	16	12	7	5	3	2	1	2	0	2	2	3	3	4	6	9	8	4	34	33	22						

## FEBRUARY.

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	PS	NS	AS			
1	47	-22	-190	-220	-102	-60	-43	-25	-15	-13	0	0	0	0	14	20	18	22	33	-43	-65	-35	2	-28	156	833	989			
2	0	-12	-15	-7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-5	0	-12	-2	-2	51	51				
3	-15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-5	-10	-13	-8	-15	-3	66	66				
4	0	0	0	0	0	0	0	0	12	10	15	20	25	22	68	60	170	40	12	-2	0	-5	-13	-5	15	384	25	409		
5	-3	-4	2	-2	-7	13	12	14	12	4	15	3	2	19	28	25	30	37	50	57	-25	-75	-70	3	302	234	536			
6	53	-72	-340	-170	-92	-55	-25	5	3	-3	0	0	0	3	4	-2	-13	-20	-22	10	-7	0	0	0	-25	29	862	891		
7	-13	-20	-30	-13	-15	-10	-12	-10	-2	-6	-8	-2	-8	-7	12	18	5	13	45	-50	60	155	30	7	-55	-20	-30	-15	377	387
8	-28	-18	-5	-1	-5	0	-6	-2	-8	-7	-12	18	5	13	45	-50	60	155	30	7	-75	-58	-35	-2	345	304	650			
9	-10	-32	-70	-55	-30	-27	-27	-13	0	-13	3	15	3	-3	15	30	35	35	30	7	-17	109	510	619						
10	-23	-52	-50	-50	-52	-25	-10	10	-3	-4	5	2	4	27	-25	25	30	3	2	-5	-10	18	-18	-18	-2	64	505	569		
11	-55	-73	-142	-70	-8	-8	-3	2	3	15	19	5	25	35	68	50	83	50	32	33	0	52	-100	1	475	456	931			
12	-25	-37	-15	-15	-15	-15	-15	-15	-15	-15	15	15	15	-14	7	30	10	32	-17	15	-83	-130	-7	187	349	536				
13	-9	-45	-58	-57	-70	-60	-27	35	27	13	-5	-8	-3	5	15	-22	-5	-45	-10	-98	-27	-75	-43	-130	-28	108	788	896		
14	-88	-33	-57	-70	-60	-27	-2	-2	-3	-9	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507	1017			
15	-100	-128	-192	-65	-45	-22	-13	-13	-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-24	582	582			
16	-190	-38	-72	-58	-18	-22	-10	14	8	-5	0	4	13	17	32	55	21	-30	8	65	-18	-57	-7	-10	-25	-14	220	560	780	
17	-38	-62	-85	-																										

## RESULTS OF MAGNETIC OBSERVATIONS, FOR THE YEAR 1951

Kosmisk Fysikk

## Tromsø. Declination. D = 1° W + Tabular Quantities expressed in Tenths of Minutes. Gr. M. T.

APRIL 1951.

DAY	HOURLY MEAN VALUES																							M	R		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	-62	-99	-86	-77	-62	-68	-68	-55	-31	-6	22	52	31	22	15	9	6	22	37	22	6	-15	-231	-462	-46	1309	
2	-401	-231	-262	-200	-149	-68	-68	-86	-71	-15	15	52	129	154	246	493	616	308	123	123	-31	-22	22	108	34	1578	
3	-77	-308	-739	-185	-123	-246	-123	31	-31	-15	25	31	123	92	86	108	62	-62	200	139	123	-308	308	31	-37	2105	
4	-493	-200	-185	-377	-377	0	-62	-46	-15	-31	6	31	92	154	154	15	108	123	25	40	-15	-216	-308	-49	1864		
5	-431	-616	-62	-993	-616	-154	-15	-15	-31	-46	-46	6	123	25	31	62	46	31	0	-46	-154	-462	-462	-200	-166	2631	
6	-246	-102	-169	-15	-246	123	-9	-46	-62	-62	6	92	0	46	86	154	-15	185	185	-339	-277	-148	-71	-216	-49	1593	
7	-277	-647	-1016	-585	-184	37	-6	-37	-40	6	40	62	154	31	86	123	200	277	88	161	154	-68	-77	-92	-77	2782	
8	-277	-308	-678	-370	-77	0	-37	-22	-40	15	62	83	77	55	129	92	92	62	-77	-216	15	-62	-123	-154	-74	2120	
9	-159	-86	-114	-206	-154	-55	-55	-31	15	22	37	99	55	62	92	92	108	154	98	-68	-31	-200	-99	-123	-22	976	
10	-206	-277	-370	-401	-139	-92	-62	-25	15	25	108	132	169	148	71	22	31	62	154	-92	-62	-62	-77	-40	1309		
11	-129	-253	-277	-246	-222	-191	-123	-52	-22	15	62	86	86	108	108	40	31	15	6	0	-31	-154	-185	55	767		
12	-770	-709	-385	-139	-62	-77	-77	-82	-82	0	31	31	92	123	114	62	15	22	46	-46	52	-31	31	-1170	-123	2933	
13	-462	-246	-216	-339	-200	-108	-77	-77	-5	9	62	123	31	246	159	246	46	185	53	62	9	31	-216	-123	-37	1503	
14	-200	-108	-277	-200	-92	-62	-46	-40	-31	-15	6	68	62	62	37	25	-25	-15	62	37	-77	-114	-139	-40	826		
15	-83	-55	-77	-92	-108	-108	-98	-55	-15	25	77	71	52	62	31	62	31	25	22	-40	-68	-99	-22	392			
16	-68	-83	-86	-92	-86	-86	-71	-46	-25	-6	25	40	40	25	9	9	6	0	0	-15	-31	-46	-28	933			
17	-246	-370	-283	-185	-139	-77	-68	-108	-15	31	71	114	145	77	52	6	15	9	25	9	-37	-46	-40	-49	767		
18	-37	-52	-62	-71	-77	-114	-108	-92	-68	-37	31	-139	-123	277	299	308	343	401	200	185	-154	-154	-77	-92	25	1624	
19	-62	-585	-251	-148	-132	-114	-55	-25	6	22	68	52	37	25	46	55	63	77	68	65	99	-31	-123	-584	-55	2000	
20	-493	-364	-401	-277	-169	-108	-46	-25	22	-40	-31	40	99	102	200	262	493	477	277	216	123	-169	-246	-462	-18	2946	
21	-154	-338	-493	-1047	-370	-185	-253	-92	-46	-108	-154	-92	92	246	200	77	62	15	25	86	62	46	-62	-77	-108	-108	2089
22	-339	46	-616	-246	-277	-92	-123	-200	-15	-62	-22	15	114	185	235	200	293	370	216	185	-77	-46	-86	-132	-18	2256	
23	-160	-431	-339	-185	-154	-102	-114	-92	-68	-22	0	25	55	62	25	-6	-5	-25	-31	-52	-102	-9	-92	-102	-77	1368	
24	-62	-68	-83	-71	-52	-40	-55	-108	-231	-92	-68	-77	-46	246	282	185	293	370	246	154	46	-37	-92	-246	15	2662	
25	-1078	-616	-308	-555	-246	-200	-216	-321	-139	-132	-37	77	88	145	169	246	339	323	216	154	-15	-108	-169	-86	2705		
26	-185	-161	-385	-308	-139	-99	-99	-81	-31	6	57	68	68	52	102	68	62	46	-6	-37	-55	-62	-62	-62	1007		
27	-62	-46	-40	-37	-25	-25	-9	-15	15	25	52	92	117	117	148	246	108	86	123	62	-62	-148	-200	18	767		
28	-123	-139	-169	-160	-123	-108	-92	-77	-31	0	57	62	77	62	46	37	9	25	15	22	31	-6	-62	-71	-31	465	
29	-108	-189	-283	-226	-129	-132	-114	-86	-46	-6	6	25	71	46	73	77	123	37	25	22	-9	-15	-22	-22	37	690	
30	-31	-40	-68	-83	-114	-132	-117	-108	-62	-25	0	22	22	15	0	-6	-22	-22	-15	-9	-6	0	-6	-37	-34	210	
M	-250	-268	-290	-262	-163	-89	-83	-68	-43	-22	9	40	68	105	114	117	120	120	83	46	-6	-68	-92	-182	-46	1576	
QM	-52	-62	-71	-86	-89	-96	-92	-74	-43	-15	12	31	43	43	31	18	12	6	3	-3	-12	-22	-31	-43	-25		

MAY.

DAY	HOURLY MEAN VALUES																							M	R		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	-117	-139	-616	-271	-206	-237	-277	-83	-148	-169	46	55	68	40	83	139	231	277	308	216	123	-370	-585	-832	-102	2856	
2	-493	-231	-154	-185	-200	-191	-216	-108	-154	-123	-62	-62	108	268	185	216	262	77	139	62	308	-493	-416	-155	-68	2705	
3	-293	-231	-179	-154	-123	-83	-108	-83	-31	31	31	92	52	216	92	55	62	-31	-6	37	-25	-154	-323	-52	1174		
4	-955	-1232	-616	-452	-129	-92	-92	-77	-62	-108	-6	92	15	108	92	15	71	-77	185	169	68	-25	-77	-77	-136	2557	
5	-55	-46	-71	-99	-145	-132	-92	-86	-15	22	25	71	52	22	15	9	-15	-22	22	15	-6	-123	-123	-34	689		
6	-370	-169	-99	-179	-225	-123	-163	-62	-9	15	37	52	40	52	86	-25	9	40	55	56	55	9	46	-139	-129	-59	1383
7	-145	-108	-185	-106	-86	-52	-31	-51	55	6	15	55	68	144	117	31	15	6	15	51	31	31	-55	-108	-231	-25	616
8	-160	-240	-108	-165	-114	-99	-92	-52	9	71	117	108	92	117	191	99	92	68	68	68	22	83	-99	-22	511		
9	-180	-200	-120	-176	-123	-117	-117	-86	-55	-25	22	25	55	25	25	0	22	9	6	31	-25	-169	-71	-107	1007		
10	-179	-195	-148	-117	-120	-132	-123	-114	-62	-55	62	102	139	77	160	88	68	52	31	22	6	22	-62	-117	-117	1442	
11	-179	-185	-148	-117	-120	-132	-123	-114	-62	-55	62	102	139	77	160	88	68	52	31	22	6	22	-62	-117	-117	1760	
12	-117	-99	-246	-359	-153	-163	-154	-129	-83	-37	31	6	46	92	83	77	160	88	68	52	31	22	-62	-117	-117	1247	
13	-37	-617	-126	-216	-231	-139	-216	-71	-9	102	138	37	31	40	15	9	31	52	77	15	0	-154	-154	-9	361		
14	-114	-129	-176	-185	-181	-145	-92	-83	-46	-31	22	52	71	68	62	40	9	15	179	246	62	6	108	-293	-22	1112	
15																											

## RESULTS OF MAGNETIC OBSERVATIONS, FOR THE YEAR 1951

Tromsø.  
APRIL 1951.Declination. Storminess. (+ W) Unit 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	PS	NS	AS		
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	10	5	5	2	-65	-135	-7	26	200	226		
2	-113	-55	-62	-40	-18	8	8	-3	-8	0	0	17	27	35	70	155	195	98	40	40	-5	17	50	19	760	304	1064		
3	-8	-80	-217	-35	-10	-50	-10	35	5	0	3	0	25	15	18	30	15	-22	65	45	-45	-9	110	25	-7	391	570	951	
4	-143	-45	-37	-65	-60	30	10	10	-5	-3	0	15	35	40	45	0	33	40	8	18	12	-60	-85	-8	506	603	809		
5	-123	-108	3	-265	-170	-20	25	20	5	-10	-20	8	25	-20	0	15	8	0	-15	-45	-143	-140	-50	-46	111	1209	1320		
6	-63	-13	-32	20	-50	70	27	10	-5	-15	-3	20	-15	0	18	45	-10	58	60	-110	-85	-41	-13	-55	-8	328	510	838	
7	-73	-190	-307	-165	-20	42	28	13	2	7	8	10	35	-5	18	35	60	88	28	55	-45	-15	-15	-15	-18	429	850	1279	
8	-73	-80	-197	-95	5	30	18	18	2	10	15	17	10	3	82	25	25	18	-25	-70	8	-13	-30	-35	-16	236	618	854	
9	-82	-8	-4	-42	-20	12	12	15	20	12	7	22	3	5	20	25	30	48	30	-22	-5	-58	-22	-25	1	261	234	495	
10	-50	-70	-97	-105	-15	0	10	3	7	10	12	25	28	40	38	18	2	8	20	50	-25	-13	-10	-10	-5	271	395	666	
11	-25	-82	-67	-55	-42	-37	-20	0	0	0	10	15	13	17	10	0	0	0	0	0	-8	-47	-55	-15	65	418	483		
12	-233	-210	-102	-20	10	5	5	5	5	0	15	25	27	15	10	0	5	15	-15	22	-3	20	-365	-32	184	948	1132		
13	-135	-60	-47	-85	-25	-5	5	0	13	8	15	30	-5	65	35	75	10	38	27	20	8	17	-60	-25	-3	366	445	811	
14	-38	-15	-67	-40	0	0	18	12	5	0	-3	12	5	0	0	0	6	-5	20	17	-18	-27	-30	-6	92	243	335		
15	-10	2	2	5	5	0	0	5	8	15	2	10	5	15	0	8	12	3	-7	-14	4	122	34	156					
16	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			
17	-63	-100	-68	-35	-15	5	2	-10	-7	0	5	13	22	32	15	12	-3	3	3	8	-8	-5	-5	-5	2	130	312	442	
18	0	0	0	0	0	-9	-5	-5	1	0	15	-50	-55	75	87	95	100	128	65	60	-45	-43	-15	-15	16	626	242	868	
19	-3	-170	-52	-23	-13	-7	12	17	17	12	17	7	-3	-7	5	13	22	23	22	18	37	-17	-30	-155	-11	222	480	702	
20	-143	-92	-107	-65	-25	-5	-15	33	22	-8	-15	3	17	18	55	80	155	90	70	45	-62	-70	-135	0	741	742	1483		
21	-33	-90	-137	-315	-90	-30	-52	-5	0	-30	-45	-40	15	65	55	20	15	3	8	28	25	-22	-10	-10	-28	234	909	1143	
22	-93	35	-177	-55	-60	0	-10	-40	10	-15	-12	-5	22	45	85	60	90	118	70	60	-20	-8	-18	-28	2	595	541	1136	
23	-35	-120	-87	-15	-20	-3	-7	-5	-7	-15	0	0	0	8	12	5	0	0	0	-5	12	-12	-13	-13	37	344	381		
24	0	0	0	0	13	17	12	-10	-60	-25	-27	-35	-30	65	75	55	90	118	80	50	20	-5	-20	-65	13	595	277	872	
25	-333	-180	-77	-155	-50	-35	-40	-50	-30	-38	-17	15	13	32	45	75	75	108	105	70	55	2	-25	-40	-20	595	1070	1665	
26	-43	-180	-102	-75	-15	0	0	0	0	0	4	9	5	0	0	5	23	15	17	15	0	0	0	0	-13	95	415	508	
27	0	0	0	8	19	12	7	7	0	0	0	15	23	28	43	75	33	28	40	25	-13	-38	-50	11	363	101	464		
28	-23	-25	-32	-27	-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	38	117	155	
29	-18	-22	-69	-60	-7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	87	178	263
30	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	0	0	
M	-63	-67	-71	-60	-23	2	1	2	0	-3	-1	3	7	19	27	32	34	37	27	15	0	-18	-20	-44	-7	277	440	717	
MPS	0	1	0	1	1	8	7	7	4	2	4	8	11	20	27	32	35	38	28	23	11	2	5	3	3				
MNS	63	68	72	61	25	7	5	4	4	5	5	4	1	0	0	0	1	1	1	8	11	19	25	47					

MAY.

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	PS	NS	AS	
1	-11	-15	-165	-48	-27	-37	-55	-2	-33	-53	7	5	7	1	17	48	70	85	97	70	42	-113	-175	-248	-22	449	982	1431
2	-133	-45	-15	-20	-25	-22	-25	-10	-35	-38	-28	-33	20	75	50	63	80	20	42	20	102	-53	-120	-38	-7	472	640	1112
3	-68	-45	-23	-10	0	13	2	10	-12	-8	2	-3	15	5	63	23	13	15	-13	-2	14	-1	-35	-83	-6	152	313	475
4	-283	-370	-165	-110	-12	10	5	0	-5	-33	-10	-17	-10	23	20	-2	18	-30	57	55	24	7	-10	-34	-34	229	1034	1263
5	9	15	12	8	-7	-3	5	-3	10	-5	0	10	5	0	0	0	0	9	7	5	-25	-18	1	95	61	156		
6	-93	-25	3	-18	-33	0	-18	5	12	0	0	0	5	18	-15	-2	8	15	15	-43	-35	-2	-13	-9	81	297	378	
7	-20	-25	5	12	23	13	-5	0	0	0	13	22	36	28	0	0	-3	7	10	7	-11	-20	-53	1	176	142	318	
8	-25	-18	-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63		
9	32	-30	-25	15	7	3	-2	-15	-17	-18	10	27	32	35	30	38	48	60	122	120	82	67	65	-18	28	793	125	918
10	-33	-20	-35	5	20	10	10	35	45	32	2	-3	23	38	10	18	42	22	60	17	-6	-18	-18	11	421	569	156	
11	-38	-25	-33	-10	-5	0	-5	-15	-18	-3	10	-22	20	33	15	43	37	30	30	-118	-25	-118	-10	223	453	676		
12	-51	-55	-75	-25	-5	10	20	10	0	0	0	0	0	0	0	17	75	45	27	23	5	-1	-10	-11	0	232	233	465
13	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	
14	-8	-3	-5	-95	-30	-12	-20	-25	-15	-13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	-103	-120	-80	-25	-5	12	0	-12	-7	0	0	0	0	-13	-12	0	0	0	17	5	-8	-3	-3	55	132	187		
16	-15	-22	18	22	27	37	-25	-18	36	13	-31	-24	-43	-30	2	15	7	25	22	35	15	-83	-13	-3	1	274	247	521
7	-20	-29	-30	-40	-60	14	25	15	0	-12	2	-5	-10	-25	-7	8	14	0	0</									

## RESULTS OF MAGNETIC OBSERVATIONS, FOR THE YEAR 1951

Kosmisk Fysikk

Tromsø. Declination. D = 1° W + Tabular Quantities expressed in Tenths of Minutes. Gr. M. T.

JULY 1951.

DAY	HOURLY MEAN VALUES																							M	R		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	-26	-271	-330	-231	-154	-154	-148	-200	-99	-37	0	6	9	55	200	354	339	308	277	86	6	-31	-46	-92	-12	1941	
2	-308	-632	-524	-524	-339	-370	-647	-92	-62	-277	15	46	77	31	83	169	46	179	176	154	55	-15	-216	-62	-136	2182	
3	163	-185	-477	-246	-200	-154	-154	-132	-108	-139	-62	-46	55	77	123	62	92	262	62	77	99	62	0	-216	-40	1309	
4	-339	-416	-446	-185	-317	-431	-159	-108	-102	-77	-9	6	15	31	46	6	40	77	139	62	62	22	-68	-92	-92	1232	
5	-185	-139	-169	-163	-163	-123	-77	-77	-68	-52	-37	31	25	15	46	22	25	46	25	46	31	40	-15	-63	-77	-49	465
6	-129	-145	-160	-163	-154	-145	-139	-108	-99	-68	-25	-15	25	52	31	22	102	62	123	46	71	22	-108	-176	-46	423	
7	-194	-206	-169	-176	-163	-169	-154	-108	-68	-52	-6	15	22	31	37	55	92	52	92	108	77	-39	-123	-339	-62	1023	
8	-139	-200	-145	-160	-185	-148	-129	-71	-71	-40	9	40	62	55	22	15	6	52	77	86	83	-246	-123	-52	902		
9	-431	-262	-354	-323	-154	-200	-108	-123	-46	0	46	92	83	71	129	86	46	92	176	62	22	-15	-62	-123	-55	1097	
10	-194	-262	-188	-148	-154	-129	-163	-108	-123	-55	-46	-15	0	22	6	3	3	22	31	25	-15	-62	-86	-132	-74	480	
11	-132	-123	-117	-139	-160	-169	-200	-108	-68	-40	-9	37															
12																											
13	-231	-462	-401	-231	-210	-145	-92	-86	-71	-40	15	55	71	55	52	46	31	6	22	15	31	-25	-52	-77	-71	1337	
14	-83	-129	-102	-117	-117	-139	-139	-99	-71	-40	-6	46	77	77	62	22	15	22	15	15	15	0	6	-154	-34	449	
15	-246	-222	-222	-246	-160	-139	-179	-117	-71	6	15	37	46	46	51	71	92	86	200	222	233	256	46	-160	-12	1383	
16	176	-148	-216	-370	-339	-191	-114	-102	-92	-71	-77	-46	6	99	129	148	77	191	246	108	92	108	-6	-83	-5	1081	
17	-68	-192	-185	-114	-123	-154	-122	-185	-206	-62	62	77	123	139	117	108	169	31	277	154	125	85	22	-85	0	690	
18	-123	-194	-148	-160	-185	-139	-37	-62	-15	-6	25	55	-31	62	123	169	148	160	99	68	102	-123	-117	-15	1112		
19	-139	-132	-139	-132	-117	-132	-108	-86	-68	-77	-25	15	52	25	9	0	46	77	77	92	-62	-102	-99	-86	-46	465	
20	-92	-179	-370	-321	-216	-132	-102	-99	-86																		
21	-123	-132	-194	-154	-92	-92	-108	-92	-46	-15	6	55	62	62	52	-6	37	37	37	46	37	9	-31	-62	-31	210	
22	-117	-129	-308	-323	-302	-139	-200	-123	-154	-92	77	62	55	71	83	154	200	370	102	46	-6	-169	-108	-28	1368		
23	-308	-216	-154	-169	-159	-169	-129	-108	-77	-46	-6	22	62	46	37	15	22	86	92	92	46	-77	-176	-52	1457		
24	-194	-145	-154	-145	-114	-99	-86	-62	-62	-46	9	15	9	22	55	25	25	25	25	6	-9	-37	-68	-86	-43	376	
25	-92	-99	-117	-123	-117	-117	-117	-68	-55	-46	-25	14	22	52	68	66	71	83	160	62	62	0	-185	-169	-148	-31	813
26	-132	-277	-308	-246	-123	-169	-154	-92	-71	-62	-40	-9	25	77	308	77	83	129	77	-15	-68	31	-40	-40	1457		
27	-308	-647	-555	-323	-185	-198	-117	-92	-108	-71	-25	55	37	37	0	55	55	25	-31	-15	-52	-123	-102	1800			
28	-354	-160	-370	-524	-46	-77	-154	-77	-6	-92	-86	-71	52	68	55	154	246	216	216	92	-31	-68	-86	-123	-52	1818	
29	-231	-194	-163	-216	-231	-139	-114	-139	-92	-55	-22	-6	-46	22	31	25	46	62	83	99	0	-123	-132	-163	-74	751	
30	-317	-194	-129	-129	-132	-99	-92	-71	-83	-102	-92	-22	25	71	15	40	68	68	31	37	83	-108	-246	-246	-66	751	
31	-185	-493	-770	-615	-401	-308	-262	-185	-37	-55	0	-25	-46	77	123	616	678	323	200	246	92	-55	-77	71	-46	610	
M	-179	-246	-268	-234	-185	-163	-148	-102	-80	-55	-9	18	34	52	68	96	96	105	120	83	52	-25	-80	-120	-49	1038	
QM	-105	-126	-139	-145	-142	-132	-117	-92	-71	-43	-9	15	40	52	56	49	40	31	25	15	3	-24	-55	-93	-40	-37	

AUGUST.

DAY	HOURLY MEAN VALUES																							M	R		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	-739	-739	-339	-395	-262	-216	-169	-132	-102	-37	37	77	117	92	102	123	185	262	99	246	46	-62	62	-770	-105	1880	
2	-524	-555	-154	-154	-339	-283	-206	-108	-23	-52	-37	25	37	25	31	0	55	25	62	68	37	0	-62	-77	-96	2000	
3	-99	-185	-246	-139	-129	-99	-108	-99	-83	-52	-22	68	71	55	9	22	6	25	15	15	9	0	-31	-154	-49	511	
4	-200	-148	-370	-308	-216	-154	-132	-114	-92	-37	-9	37	52	129	86	31	25	123	77	37	-62	-154	-216	-65	1007		
5	-139	-493	-231	-139	-129	-129	-99	-92	-55	-30	77	77	55	55	55	46	25	46	117	108	62	31	-55	-77	-129	-43	1097
6	-126	-185	-129	-129	-129	-117	-117	-117	-117	-15	22	68	77	99	117	160	129	83	77	40	22	15	-108	-154	-25	558	
7	-108	-139	-150	-210	-154	-132	-129	-102	-77	-77	-22	22	55	55	55	55	55	55	123	83	68	62	-22	-216	-55	480	
8	-293	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216		
9	-293	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216	-216		
10	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123		
11	-108	-148	-231	-231	-185	-185	-108	-71	-62	-15	-15	6	15	6	15	6	15	6	15	6	31	-31	-62	-154	-34	1497	
12	-52	-71	-71	-92	-102	-83	-86	-77	-52	-40	-15	0	6	37	-9	6	0	31	-154	0	40	-55	-99	-308	-43	651	
13	-287	-179	-216	-200	-108	-108	-86	-77	-52	-37	-9	22	-31	31	-9	37	46	-55	-22	6	-55	-62	-102	-102	-71	751	
14	-132	-132	-139	-129	-117	-99	-86	-52	-22	6	52	68	37</														

## Tromsø.

JULY 1951.

Declination. Storminess. (+ W) Unit 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	PS	NS	AS		
1	-50	-48	-62	-28	-5	0	0	0	0	0	0	0	0	8	47	110	97	90	82	23	2	-3	3	-3	11	462	199	661	
2	-65	-230	-125	-123	-65	-77	-172	0	3	-75	8	10	12	-7	9	40	2	48	49	45	18	2	-52	7	-31	253	991	1244	
3	88	-80	-110	-33	-20	-7	-12	-13	-12	-30	-17	20	5	8	22	5	17	75	12	20	32	27	18	-43	0	329	337	666	
4	-75	-95	-100	-13	-58	-97	-7	-5	-10	-10	0	-5	-8	-7	-3	-13	0	15	37	15	20	14	-4	-3	-17	101	511	612	
5	-25	-5	-10	-6	-10	3	8	0	0	0	0	12	0	-7	0	-8	-10	-2	7	5	13	2	-9	2	-2	52	92	144	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-8	-8	20	10	32	10	23	14	-17	-30	2	109	63	172
7	-28	-27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	7	22	30	25	-25	-22	-83	-4	101	185	286	
8	-10	-25	0	0	-10	0	0	0	0	0	0	0	0	0	-13	-17	-22	2	17	23	27	-73	-22	7	-5	76	192	268	
9	-105	-45	-70	-58	-5	-22	3	-10	8	15	18	25	14	6	24	13	2	20	49	15	7	2	-2	-13	-5	221	350	551	
10	-28	-45	-15	-1	-5	1	-15	-5	-17	0	0	0	-7	-10	-16	-14	-9	0	0	0	0	0	0	0	-8	1	187	188	
11	-8	0	7	2	-7	-12	-27	-5	1	0	0	0	0	0	0	-8	-7	14	18	17	20	17	9	-5	-43	10	59	69	
12																										95	63	158	
13	-40	-110	-85	-28	-21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-11	12	284	296	
14	5	-9	0	0	0	0	0	0	0	0	0	0	0	0	0	-8	-5	0	0	0	0	0	0	0	-1	25	45	70	
15	-45	-32	-27	-53	-7	-2	-20	-8	0	12	0	0	0	0	0	0	15	18	57	67	95	90	33	-25	8	387	199	586	
16	92	-8	-25	-73	-65	-19	1	-3	-7	-8	-22	-20	-11	15	24	33	12	52	72	30	30	42	16	0	7	419	261	680	
17	13	-19	-15	10	5	7	-5	-30	-44	-5	-23	26	20	27	25	20	42	0	82	45	40	34	25	0	15	456	99	555	
18	-5	-23	-3	-5	-15	-2	26	10	18	13	11	13	-23	3	22	40	35	42	24	17	33	-33	-20	-11	7	307	140	447	
19	-10	-3	0	4	7	0	3	2	1	-10	-5	0	4	-9	-15	2	15	17	25	-20	-26	-14	-1	-2	80	128	208		
20	5	-18	-75	-28	-25	0	5	-2	-5																10	153	163		
21	-5	-3	-18	-3	-15	13	3	-5	0	0	0	0	0	0	-5	-24	-3	0	0	0	0	0	0	0	-1	31	66	97	
22	-3	-2	-55	-58	-53	-2	-27	-10	45	33	20	7	1	5	12	37	55	112	26	15	5	-37	-8	4	375	282	657		
23	-65	-30	-5	-8	0	-12	-4	-5	-2	0	1	-17	0	0	0	0	0	20	25	30	22	-7	-30	-4	98	185	283		
24	-28	-7	-5	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-2	42	42			
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	7	14	42	12	15	0	-53	-37	-21	-1	107	126	233
26	-8	-50	-55	-33	5	-12	-12	0	0	-5	-10	-8	-21	-22	7	85	12	15	19	37	25	2	-4	-37	0	244	240	484	
27	-65	-170	-135	-58	-15	8	0	0	-12	0	0	16	5	0	0	-12	-5	3	6	0	-7	0	0	-20	-17	38	499	537	
28	-80	-12	-75	-123	30	18	-12	5	21	-15	-25	-28	4	5	0	35	67	60	62	25	-10	-15	-10	-13	-4	332	418	750	
29	-40	-17	-8	-23	-30	-2	1	-15	-7	-3	-4	-7	-28	-10	-8	-7	-28	10	19	27	0	-33	-25	-26	-11	57	321	378	
30	-68	-23	0	0	0	0	0	0	4	-4	-18	-27	-12	-5	6	-13	-2	9	12	2	7	27	-28	-62	-53	-11	63	315	378
31	-25	-120	-205	-153	-65	-57	-47	-30	-9	-3	-3	-13	-28	8	22	185	207	95	57	75	30	-11	-7	37	-3	719	793	1512	
M	-23	-39	-43	-29	-15	-9	-10	-4	-3	-3	-1	0	-2	0	4	17	19	24	31	22	17	1	-8	-12	-3	-3	189	265	454
MPS	7	1	0	1	2	2	2	1	2	3	3	4	3	3	3	8	20	21	24	31	22	18	9	4	3				
MNS	29	39	43	30	17	11	12	5	5	6	4	4	5	2	3	5	2	3	0	0	1	10	12	15					

## AUGUST.

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	PS	NS	AS			
1	-205	-200	-65	-83	-43	-30	-20	-13	-13	-2	10	15	23	17	23	30	50	75	22	73	12	-15	35	-225	-22	385	914	1299		
2	-135	-140	-5	-5	-68	-62	-32	-5	-9	-9	-8	0	0	-7	-8	-20	-4	-17	-5	0	0	-5	-10	0	-23	543	543			
3	0	-23	-40	0	0	6	0	0	0	0	0	22	13	8	0	0	0	0	0	0	0	0	-30	-2	49	93	142			
4	-30	-8	-75	-55	-25	0	0	0	-5	0	0	0	0	0	0	0	32	18	0	-2	30	18	9	-35	-45	-8	107	295	402	
5	-10	-120	-30	0	0	-3	0	0	0	0	0	0	0	0	0	0	3	8	-2	25	13	7	-13	-17	-5	89	205	294		
6	-35	-20	0	0	0	0	-4	-8	15	0	0	0	0	0	0	14	28	42	32	17	15	0	0	7	-20	-23	3	170	110	280
7	0	0	-4	-20	-5	-6	-10	-5	-8	-2	-12	-2	-2	-5	-3	-8	-3	-17	8	17	9	2	-55	-45	-5	79	157	256		
8	-60	-30	-25	-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-7	14	171	185				
9	0	0	0	0	0	0	0	0	0	0	0	22	13	0	-8	7	7	2	3	2	0	0	0	0	0	0	0	0	0	
10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	17	15	10	20	7	20	18	5	3	12	3	-5	15	3	-5	15	15	18	35	60	13	7	15	5	5	14	335	5	340
12	-65	-40	-80	-20	17	15	10	2	2	-14	-12	-2	-12	30	40	50	48	30	30	25	10	12	-15	-70	-45	-3	285	363	648	
13	-50	-28	0	-45	-118	-30	-25	33	25	15	3	-13	-25	-43	-10	85	80	60	45	-2	17	25	-13	-10	-1	388	412	800		
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-7	-19	-17	-8	0	0	-13	-20	-27	-7	176	176	176		
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-7	-22	-2	2	5	23	17	7	-10	-25	1	74	68	162		
16	-8	-15	-5	-12	-9	10	8	-70	-60	-42	-7	-3	-6	-25	-30	-35	-33	-27	-25	-18	-12	-5	-15	-10	-10	-16	47	431	478	
17	0	0																												

## RESULTS OF MAGNETIC OBSERVATIONS, FOR THE YEAR 1951

Kosmisk Fysikk

Tromsø. Declination. D = 1° W + Tabular Quantities expressed in Tenths of Minutes. Gr. M. T.

OCTOBER 1951.

HOURLY 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	-185	-308	-339	-277	-154	-123	-77	-46	-55	-68	-52	-22	-25	-22	-31	-37	-22	-15	6	-62	-102	-62	-55	-163	-99	872	
2	-99	-117	-117	-114	-102	-92	-77	-68	-62	-40	-31	-25	-31	-31	-22	-31	-31	-40	-68	-77	-31	-132	-102	-99	69	690	
3	-99	-86	-102	-99	-108	-108	-102	-92	-71	-55	-31	-22	-15	-25	-52	-52	-52	-62	-83	-62	-37	-154	-83	-83	77	662	
4	-99	-86	-102	-99	-108	-108	-102	-92	-86	-68	-40	-31	0	0	22	-25	-25	0	-37	-25	-6	-62	-163	-154	-71	437	
5	-194	-129	-83	-102	-108	-108	-102	-92	-86	-68	-40	-31	0	0	22	-25	-25	0	-37	-25	-6	-62	-163	-154	-71	437	
6	-191	-231	-129	-99	-99	-114	-99	-92	-77	-55	-37	-6	0	-6	-25	-37	-37	-37	-37	-37	-62	-62	-55	-68	302		
7	-71	-86	-92	-86	-71	-55	-71	-62	-40	-37	68	86	145	139	246	370	185	308	92	-123	-123	-216	-231	12	1457		
8	-523	-314	-401	-431	-246	-108	-31	-246	-200	-154	-154	9	0	-31	-15	77	-216	-15	62	31	-15	-77	-108	-125	-126	1442	
9	-676	-709	-477	-339	-139	-108	-86	-62	-62	-92	-31	-31	15	-9	-82	46	22	86	-88	-25	-6	-216	-246	-293	-132	2407	
10	-231	-178	-431	-154	-123	-71	-92	-77	-68	-68	-40	-37	-15	-23	-37	-37	-40	-55	-62	-9	123	-99	-117	-154	-216	-80	2105
11	-323	-354	-339	-117	-108	-92	-68	-46	-77	-92	-68	-25	-92	9	15	-77	139	154	62	-62	-102	-114	-117	-68	-83	1158	
12	-99	-99	-108	-102	-55	-52	-46	-40	-46	0	-31	25	86	52	-25	-40	0	-9	-46	-15	-179	-154	-194	-49	542		
13	-222	-231	-194	-180	-277	-132	-02	-99	-77	-46	-9	22	0	46	-6	-11	-55	-55	-6	-62	-244	-139	-185	-123	-99	1081	
14	-832	-339	-210	-139	-92	-92	-99	-99	-62	-92	-62	-22	-9	-25	-37	-37	-92	154	46	-185	-616	-77	-231	-169	-142	1926	
15	-123	-169	-225	-123	-92	-99	-99	-66	-68	-40	-37	-15	-23	-37	-37	-40	-55	-62	-9	123	-99	-117	-154	-216	-80	1352	
16	-524	-370	-416	-194	-139	-86	-40	-52	-62	-9	-9	15	68	46	99	62	55	77	86	-123	0	-185	-555	-431	-111	1864	
17	-493	-565	-678	-216	-308	-62	0	-46	-154	-123	-77	-185	-46	15	46	-555	-62	15	46	216	62	-739	-308	-216	-185	2678	
18	-246	-277	-123	-616	-277	-62	-62	0	-139	-123	-92	0	6	-246	-216	-31	-370	185	22	-62	-139	-462	-154	-339	-180	2678	
19	-616	-246	-277	-123	-185	0	-92	-62	-77	-92	-62	-31	-77	-92	-37	-37	-62	185	6	31	-123	-277	-185	-108	1985		
20	-801	-370	-168	-139	-92	-46	-71	-108	-77	-77	-46	15	-17	-37	-37	-92	-108	-40	-462	-370	-216	-308	-493	-182	2407		
21	-451	-216	-231	-169	-108	-55	-46	-68	-52	-52	-37	-37	-31	-22	-71	-71	-92	-55	-25	62	-246	-148	-163	-185	-108	1309	
22	-246	-348	-293	-216	-108	-56	-99	-62	-62	-31	-22	22	15	77	154	31	-62	-68	-117	-154	-225	-80	-1112	-570			
23	-200	-231	-189	-102	-99	-77	-71	-40	-40	-46	-37	-15	-117	-9	-154	-25	-62	0	-25	-68	-108	-123	-89	600			
24	-163	-92	-92	-114	-108	-108	-77	-68	-55	-15	-31	-37	-40	-55	-55	-52	-40	-37	6	-31	-108	-200	-68	-330	-129		
25	-88	-71	-102	-108	-102	-92	-68	-62	-55	-40	-31	-37	-55	-62	-62	-59	-55	-62	-62	-68	-71	-77	-68	89			
26	-71	-86	-83	-77	-96	-92	-92	-83	-68	-40	-38	25	-62	-37	-37	-37	-37	-40	-31	-25	-277	-770	-287	-102	1624		
27	-185	-240	-216	-277	-246	-139	-99	-77	-77	-68	-55	-22	-62	-9	-22	46	62	77	25	-15	-31	55	-108	-139	-129	1532	
28	-108	-99	-99	-99	-108	-117	-68	-83	-83	-92	-68	-52	15	46	108	46	92	246	123	92	-277	-268	-293	-231	-59		
29	-222	-200	-154	-139	-139	-139	-139	-154	-102	-102	-92	-102	-102	-99	-99	-99	-102	-117	-114	-114	-132	-123	-129	-129	407		
30	-117	-117	-114	-114	-123	-117	-148	-108	-92	-77	-77	-68	-52	-68	-86	-86	-82	-86	-71	-92	-99	-102	-99	-96			
31	-102	-108	-99	-99	-108	-108	-108	-108	-102	-83	-71	-62	-68	-68	-71	-71	-68	-71	-77	-66	-92	-92	-123	-145	-92		
M	-277	-234	-219	-169	-139	-96	-80	-80	-80	-71	-46	-28	-15	-22	-15	-37	-37	3	-3	-40	-111	-151	-194	-191	-96	1197	
QM	-99	-102	-105	-105	-102	-96	-86	-77	-65	-52	-43	-37	-37	-43	-49	-55	-59	-59	-62	-68	-71	-83	-89	-96	-74		

NOVEMBER.

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	-92	-99	-102	-99	-102	-99	-83	-83	-68	-62	-46	-40	-46	-55	-40	-52	-52	-46	-52	-77	-123	-176	-114	-80	392
2	-160	-132	-169	-139	-71	-92	-37	-68	-86	-55	-55	-9	-6	-9	-15	-25	-92	-92	-132	-132	-185	-339	-308	-105	737	
3	-401	-416	-277	-216	-108	-37	-40	-68	-55	-54	-40	9	-7	-51	77	15	-37	-139	77	216	154	-555	-524	-126	3112	
4	-631	-508	-277	-616	-385	-154	-77	0	-15	-31	-46	-40	0	15	25	-139	92	77	-6	-46	-46	-246	-462	-145	2302	
5	-446	-370	-416	-246	-37	-52	-55	-92	-108	-86	-9	-62	-37	-46	-55	-52	-62	-46	-216	-308	-77	-55	-108	-129	-918	
6	-185	-117	-108	-86	-83	-55	-52	-62	-46	-15	6	15	200	277	277	246	31	-31	-77	-123	-123	-123	-123	-15	1534	
7	-401	-539	-616	-839	-246	-117	-99	-71	-15	-62	-52	-6	-62	-9	-22	46	62	77	25	-15	-31	55	-108	-139	-129	1534
8	-154	-216	-370	-108	-83	-71	-68	-68	-52	-52	-25	-6	-31	-25	-25	-9	-6	-9	-123	9	-52	-83	-68	-62	1976	
9	-68	-55	-83	-83	-55	-15	-6	-71	-45	-37	-46	-36	6	25	-68	-55	-52	-52	-6	-31	-159	-216	-15	0	18	798
10	-129	-71	-68	-55	-40	-31	-31	-31	-25	-37	-37	-37	-37	-37	-37	-37	-37	-37	-37	-37	-37	-37	-37	-40	151	
11	-37	-37	-40	-40	-46	-46	-46	-40	-37	-25	-15	-15	-6	-31	-22	9	25	15	15	-6	-92	-385	-139	-231	-52	841
12	-62	-277	-216	-68	-31	-9	-46	-6	-68	-31	-40	15	-9	31	92	123	92	9	-25	-9	-37	0	-92	-148	-25	1038
13	-129	-154	-71	-9	-25	-37	-77	-15	37	68	62	98	165	365	200	169	31	-323	-277	-308	-308	-26	1488			
14	-345	-401	-339	-139	-86	-108	-77	-77	-77	-77	-114	-123	-15	51	55	-40	-15	-15	-15	-15	-15	-15	-15	-1775		
15	-123	-453	-585	-154	-92	-77	-40	-31	-31	-22	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-123	-1509		
16	-92	-227	-194	-129	-71	-25	-68	-77	-83	-77	-68	-55	-68	-71	-58	-52	-52	-52	-52	-52	-52	-52	-52	-52	-105	647
17	-160	-132	-129	-108	-77	-91	-55	-62	-68	-62	-62	-40	-40	-40	-40	-40	-									

Tromsø.

OCTOBER 1951.

## Declination. Storminess. (+ W) Unit Gamma.

Gr. M. I.

HOURLY 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	PS	NS	AS		
1	-28	-67	-75	-55	-17	-10	3	10	7	0	0	0	0	0	0	0	8	13	22	3	-6	10	15	-18	-2	71	24	95	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-9	38	265	303		
3	-28	-5	8	0	0	0	0	0	0	0	0	0	0	0	0	0	-5	5	16	-20	0	0	0	1	56	25	81		
4	-28	-37	-5	0	0	0	0	0	0	0	0	0	0	0	0	0	12	-2	5	-15	-13	-27	-2	17	57	74			
5	-28	-37	-5	0	0	0	0	0	0	0	0	0	0	0	0	0	13	8	14	23	7	-23	-20	1	88	76	164		
6	-28	-69	-95	-105	-37	-5	18	-55	-45	-33	-35	15	12	5	10	43	-50	15	40	38	20	2	-5	-10	-17	212	617	829	
7	-188	-197	-180	-75	-12	-5	0	5	0	-13	5	2	17	12	-5	33	27	48	-8	14	23	97	-50	-55	-19	283	283	1011	
8	-43	-25	-105	-15	-7	7	-2	0	-2	-3	10	-11	19	30	38	20	30	0	7	30	-65	-113	-50	-38	-12	191	479	670	
9	-73	-82	-75	-3	-2	0	6	10	-5	-13	-7	4	-18	18	20	-7	65	70	40	2	-8	-10	-8	8	-3	243	311	554	
10	0	0	0	0	12	10	9	0	0	2	15	2	20	43	32	10	7	20	17	7	20	-31	-20	-33	6	226	84	310	
11	-40	-42	-28	-17	-57	-13	-2	-7	-5	-2	12	19	12	30	13	8	2	2	18	-55	-18	-30	-10	-9	120	324	444		
12	-236	-77	-33	-10	3	0	0	0	-13	-5	5	9	7	3	6	-10	70	38	-38	-175	2	-45	-25	-22	140	656	809		
13	-8	-22	-38	-5	3	-4	2	-8	-9	-1	7	3	4	0	1	5	2	0	17	62	-7	-11	-20	-40	-3	99	180	279	
14	-138	-87	-100	-28	-12	2	15	8	0	14	12	17	34	30	37	38	38	45	48	-18	25	-33	-150	-110	-13	373	676	1049	
15	-128	-147	-185	-35	-67	10	28	10	-30	-23	-10	-48	3	20	30	-162	0	25	35	92	45	-213	-70	-40	-36	295	1161	1456	
16	-48	-57	-5	-165	57	10	8	25	-25	-23	-15	12	14	-65	-55	8	-100	80	27	2	-20	-113	-20	-60	-28	186	848	1043	
17	-168	-47	-55	-5	-27	30	-2	5	-13	-5	2	-13	-15	3	6	0	0	80	20	35	-13	60	-30	-12	181	458	639		
18	-228	-87	-20	-12	0	15	2	-15	-8	-10	-3	7	-10	0	3	6	-10	-15	7	-128	-95	-45	-70	-130	-35	38	884	922	
19	-108	-37	-40	-20	-2	12	13	3	3	-8	-2	0	2	8	-8	-5	-10	2	12	42	-55	-21	-23	-30	-11	97	369	466	
20	-48	-80	-60	-35	3	2	0	-7	0	-3	5	5	19	20	40	68	30	70	-10	2	3	-11	-20	-43	-2	267	317	584	
21	-33	-42	-20	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73	213	286		
22	-21	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	71	111		
23	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	
24	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	0	0	
25	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	0	0	
26	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	0	0	
27	-28	-45	-35	-55	-47	-15	-4	-5	-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-9	21	259	260	
28	0	0	0	0	-2	-8	6	-2	-7	-13	-7	-5	17	30	50	33	50	100	60	55	-63	-57	-65	-45	-5	401	274	675	
29	-40	-32	-15	-10	-12	-15	-2	-20	-25	-33	-13	-8	0	0	0	0	0	0	0	0	0	0	0	0	-10	245	245		
30	0	0	0	0	0	0	-11	0	2	7	3	3	6	0	0	0	0	0	0	0	0	0	0	0	0	21	11	32	
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	23	23		
M	-58	-42	-37	-21	-12	0	3	-1	-6	-6	-1	2	7	7	9	6	7	21	19	9	-11	-22	-33	-32	-8	148	332	480	
MPS	0	0	0	0	1	3	4	3	0	1	3	5	9	11	12	12	13	21	20	15	7	5	0	0	0	0	0	0	
MNS	58	41	36	21	12	2	1	3	6	6	6	4	2	1	4	2	7	6	0	1	6	18	26	34	32	0	0	0	0

NOVEMBER.

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	K	PS	NS	AS		
1	-15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-5	-20	-37	-15	-4	92	92		
2	-29	-18	-30	-30	-20	2	-5	13	0	-8	2	0	13	12	22	9	-15	-12	-23	-40	-90	-78	-14	-2	421	506			
3	-107	-135	-110	-65	-45	-10	13	12	0	2	17	4	18	-10	5	42	22	3	-28	43	90	70	-160	-148	-20	341	818	1159	
4	-182	-140	-65	-175	-100	-25	0	25	17	10	5	4	15	20	23	-28	47	40	15	3	18	20	-60	-128	-27	262	903	1165	
5	-122	-95	-110	-55	13	8	7	-5	-5	-10	12	-7	0	0	0	0	-53	-82	-5	-2	-15	-8	-22	42	572	614			
6	-37	-13	-10	0	0	7	12	8	0	0	0	8	17	17	80	107	107	95	27	8	-5	-12	-20	-18	16	493	115	608	
7	-107	-150	-175	-216	-55	-13	-7	2	17	0	3	15	-5	12	8	32	37	40	25	15	3	10	38	-15	-23	-21	252	765	1017
8	-27	-55	-95	-10	0	0	0	0	0	0	0	0	0	0	0	0	9	13	14	58	25	3	-7	0	-2	164	204	368	
9	0	7	-2	-3	7	20	23	2	7	8	35	15	23	42	63	57	82	40	62	58	32	22	20	22	27	648	5	653	
10	-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	19	19			
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-3	118	193	311		
12	3	-65	-45	3	15	28	40	23	0	10	33	22	12	25	45	57	47	18	9	15	8	20	-10	-26	12	433	145	579	
13	-19	-25	2	22	5	20	22	17	10	-5	15	29	37	35	45	77	142	80	72	28	-85	-70	-80	-78	12	658	362	1020	
14	-89	-105	-85	-20	-3	-10	3	-18	-21	-15	-10	-8	5	-7	-10	-20	-23	10	37	-27	30	-100	-100	-83	-28	85	754	839	
15	-17	-135	-165	-25	0	10	-10	-13	-22	-15	-10	-8	5	-8	-45	-10	15	25	22	2	-5	-25	-30	-33	-30	-27	60	761	
16	-7	-65	-38	-17	2	17	3	0	10	-20	-20	-15	-20	-20	-22	-10	-5	-43	-35	0	-30	-10	-20	-20	-16	-32	422	454	

## RESULTS OF MAGNETIC OBSERVATIONS, FOR THE YEAR 1951

Kosmisk Fysikk

**Tromsø.** Horizontal Intensity.  $H = 11100 +$  Tabular Quantities expressed in Gamma. Gr. M. T.  
JANUARY 1951.

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	-5	12	110	100	75	70	75	75	73	75	75	80	92	150	175	195	230	120	88	95	30	35	95	92	360		
2	-50	-50	-40	60	-10	10	90	88	75	78	87	87	95	240	190	165	158	100	-100	-150	170	60	-15	59	732		
3	30	48	50	40	-150	-40	90	83	73	67	78	78	75	90	85	85	82	98	100	80	77	55	-10	-10	52	414	
4	47	58	60	62	77	73	72	70	72	72	72	73	78	75	83	135	110	93	120	120	80	90	48	80	251		
5	80	63	60	80	70	78	80	80	77	72	78	78	80	77	80	82	100	170	153	120	-80	-310	-270	-35	44	646	
6	70	85	77	78	78	72	70	68	68	70	73	73	73	72	72	72	75	75	80	90	78	65	68	74	151		
7	69	69	65	65	77	77	77	72	67	65	69	70	70	73	70	71	75	80	78	75	78	50	10	3	66	118	
8	30	55	87	85	82	83	82	80	65	70	82	82	108	155	192	188	98	67	62	65	63	67	62	63	86	204	
9	55	50	55	73	72	77	82	82	78	73	72	68	75	68	72	77	70	77	75	82	90	87	95	90	75		
10	50	25	63	65	70	80	78	76	74	73	75	78	78	82	80	110	200	-10	150	165	130	50	75	90	84	430	
11	-25	-240	-20	70	83	68	58	52	100	60	70	70	85	75	80	82	100	158	143	100	40	45	-230	50	45	586	
12	-90	-45	50	105	125	100	45	90	80	65	62	80	105	100	155	190	225	160	110	120	30	50	20	-25	80	404	
13	30	-130	-135	-85	10	70	110	85	120	70	90	80	82	78	72	77	83	105	-100	120	65	20	-100	27	656		
14	-95	-50	15	48	80	90	65	65	85	80	75	90	150	135	128	185	160	160	140	-40	-90	-90	60	65	500		
15	-50	-100	40	60	30	52	82	112	97	83	85	85	85	105	122	102	120	90	100	90	5	20	-85	-90	51	570	
16	-15	100	102	85	73	63	53	78	90	90	75	90	95	110	95	130	120	130	80	200	-400	-150	40	46	942		
17	-5	-90	-45	-5	24	25	60	80	90	80	73	73	80	77	82	83	97	110	88	95	85	68	48	57	360		
18	30	68	68	70	77	79	78	75	72	70	68	72	73	80	80	82	77	90	100	83	75	-20	-110	-20	59	338	
19	45	-130	-180	60	70	78	90	77	77	75	77	80	92	127	93	95	90	97	95	150	80	-120	-190	37	549		
20	-130	-290	-70	88	92	80	75	72	70	68	68	72	84	100	108	90	80	78	77	67	70	68	30	63	46	484	
21	68	70	72	73	73	73	72	72	72	72	72	72	70	72	73	130	150	50	280	170	10	-75	-350	-120	-70	49	1006
22	-45	-350	-190	-120	60	65	10	140	125	60	100	120	185	205	180	195	190	120	90	50	-180	-450	-140	-100	13	882	
23	-135	-320	-60	60	95	70	80	80	85	75	97	120	90	180	175	130	160	145	0	-140	65	-50	-290	15	31	765	
24	47	70	70	70	78	65	70	75	70	70	75	77	70	95	92	77	80	90	90	25	-10	-90	5	60	420		
25	25	78	78	90	83	87	88	78	75	70	82	70	65	85	98	90	88	75	70	68	66	70	15	10	70	253	
26	23	58	67	75	70	73	78	82	80	75	72	73	73	80	85	120	250	225	-100	30	65	80	45	70	77	742	
27	-25	45	45	-50	0	5	100	80	100	85	80	82	75	90	118	90	97	120	160	153	110	70	-40	-95	62	404	
28	-80	-70	-90	-20	110	100	85	90	68	70	90	100	70	95	110	100	115	120	-40	-180	-100	-130	90	60	32	604	
29	40	20	65	30	72	80	55	60	45	60	90	90	87	75	75	72	87	142	135	123	100	-10	-90	-130	57	360	
30	-175	70	75	77	65	70	75	72	77	75	85	78	73	70	68	90	170	160	40	110	55	-60	-90	100	59	473	
31	50	50	-95	-280	-450	-300	-220	-110	-10	60	200	200	250	300	300	260	220	150	-10	75	40	-150	-270	-260	-150	-19	1211
M	-4	-24	15	39	46	54	32	73	77	73	82	65	90	105	114	113	123	117	92	63	52	-34	-48	-1	55	513	
QM	68	69	70	71	73	73	72	71	70	69	69	70	71	71	71	72	73	74	74	73	72	71	70	68	71		

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	y	R			
1	-50	-230	-410	-320	-110	-75	-45	10	15	20	140	115	90	87	82	90	90	105	160	160	-70	-270	20	72	-14	796		
2	77	75	57	50	70	73	70	68	72	75	75	75	77	72	70	70	70	72	73	80	25	65	58	69	204			
3	30	75	80	67	70	71	70	68	68	70	72	72	73	78	80	75	77	83	102	95	80	45	65	68	72	135		
4	85	77	73	72	72	72	70	67	57	68	90	160	140	210	335	280	325	225	150	80	62	40	43	58	122			
5	60	62	67	70	63	92	83	82	78	78	85	72	72	127	240	180	150	172	150	20	65	-230	-160	56	920			
6	-60	-410	-400	-200	-230	-60	100	80	75	73	85	95	98	98	90	70	87	78	72	65	60	45	20	76	-1	769		
7	45	25	25	65	5	52	95	88	65	58	57	70	70	80	87	73	100	90	80	80	75	-90	-125	-170	28	333		
8	-20	25	82	90	75	70	67	60	70	77	62	93	78	100	215	120	-50	-140	-160	-250	-90	-40	-290	15	31	834		
9	60	-30	-140	-20	90	35	25	85	80	75	90	135	115	145	120	205	80	115	130	100	-190	-160	-40	-200	-200	-10	34	447
10	-280	-80	-100	-100	-70	0	10	110	100	90	90	180	170	145	125	150	92	89	88	98	145	120	88	30	-35	85	74	323
11	-20	-70	-72	-72	-53	-40	35	42	55	65	50	95	90	115	140	210	190	103	135	170	50	-120	-60	-78	-60	64	570	
12	-170	-265	-270	-150	25	82	78	78	73	80	115	112	250	250	235	190	112	138	85	63	-100	-290	-220	-320	8	1076		
13	-55	-20	0	25	60	70	85	80	75	90	150	155	152	160	330	190	260	-10	-160	10	180	-330	-320	-340	20	1114		
14	-5	-160	-185	-200	30	0	40	100	75	60	120	155	160	175	165	220	140	115	138	85	60	-50	-30	-39	780			
15	-90	-190	-160	5	0	30	80	82	83	77	90	92	90	80	107	128	150	175	145	93	75	70	86	135	156			
16	77	75	70	50	33	60	73	75	50	55	85	70	85	58	65	60	83	117	132	95	-140	-300	-290	-170	23	565		
17	-30	80	105	88	78	80	73	48	60	110	160	55	50	110	105													

Tromsø.

JANUARY 1951.

Horizontal Intensity. Storminess (+ N). Unit 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	PS	NS	AS	CH		
1	-65	-58	40	30	3	0	0	5	5	3	5	5	10	12	90	103	122	155	45	13	23	-40	-35	27	21	696	196	892	1	
2	-118	-100	-110	-10	-73	-82	-60	20	18	5	8	17	17	25	170	118	92	83	25	-175	-222	100	-10	-83	-14	698	1043	1741	2	
3	-58	-22	-20	-30	-223	-112	20	13	3	-3	8	8	5	20	15	13	9	23	25	5	5	-15	-80	-78	-19	172	621	793	1	
4	-21	-18	-8	-5	5	0	0	0	0	0	0	0	3	2	11	62	33	18	45	48	10	20	-20	8	257	66	323	0		
5	12	-7	-10	10	-3	6	10	10	7	2	8	8	10	7	10	27	95	78	45	-152	-380	-340	-103	-27	355	995	1340	2		
6	2	15	7	6	5	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	5	18	8	-5	0	3	68	5	73	0
7	0	0	-5	-7	5	7	9	5	2	-2	0	0	0	3	0	0	2	5	3	2	6	-20	-60	-65	-5	49	159	206	0	
8	-38	-15	17	15	9	11	82	10	-5	0	0	12	12	38	85	122	116	25	-8	-13	-10	-9	-3	-8	-5	18	554	114	668	1
9	-13	-20	3	2	4	10	12	8	3	2	0	5	-2	0	5	-3	4	0	7	15	15	17	25	22	5	159	38	197	0	
10	-18	-7	-5	-2	7	3	0	0	0	0	5	6	12	10	38	127	-85	75	90	58	-20	5	22	12	458	182	640	1		
11	-93	-310	-90	0	10	-4	-12	-18	30	10	0	0	15	5	10	10	27	83	68	25	-32	-25	-310	-28	-26	293	922	1815	2	
12	-185	-15	-20	-35	52	28	-25	20	10	-5	-8	20	35	30	85	118	152	85	35	45	-42	-20	-50	-93	-13	750	436	1186	1	
13	-35	-210	-205	-155	-63	-2	40	15	50	0	20	10	12	8	2	5	4	8	30	-175	-192	-5	-50	-168	-44	204	1260	1464	1	
14	-163	-120	-55	-22	7	18	15	-5	15	15	10	5	20	80	55	56	112	85	85	65	-112	-160	-160	-8	-7	643	805	1448	2	
15	-118	-170	-30	-10	-43	-20	12	42	27	13	15	10	35	52	30	57	15	25	15	-67	-50	-155	-158	-19	363	821	1184	1		
16	-83	30	32	15	0	-9	-17	8	20	20	5	20	25	40	25	58	87	45	55	5	-272	-470	-220	-28	-25	490	1099	1589	2	
17	-73	-160	-115	-75	-49	-47	-10	10	20	10	3	10	7	12	11	10	22	35	13	22	15	-2	-20	-15	203	551	754	1		
18	-32	-2	-2	0	0	0	0	0	0	0	0	2	8	8	0	2	15	25	8	3	-90	-180	-88	-14	71	397	468	1		
19	-23	-210	-250	-10	-3	6	20	7	7	5	10	22	57	23	17	22	22	75	8	-190	-260	-218	-34	331	1164	1495	2			
20	-198	-360	-140	18	19	7	0	0	0	0	2	18	30	18	7	3	2	8	-3	-4	-40	-5	-25	182	758	920	1			
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-16	391	765	1156	1.2		
MPS	0	2	4	5	6	5	10	10	11	4	12	14	20	34	43	41	51	43	17	-11	-55	-104	-118	-69	-16	391	765	1156	1.2	
MNS	72	93	59	37	35	24	16	7	4	1	0	0	0	0	0	1	6	13	32	64	109	120	72	*	*	*	*	*	*	

FEBRUARY.

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	PS	NS	AS	CH	
1	-118	-300	-483	-393	-182	-145	-115	-57	-50	-47	70	45	18	14	9	8	20	55	90	92	-137	-335	-45	7	-83	408	2407	2815	2
2	9	5	-16	-23	-2	0	0	0	0	0	0	0	4	0	0	0	0	0	3	12	-40	0	-7	-2	33	85	121	0	
3	-38	5	10	0	0	0	0	0	0	0	0	0	3	5	0	0	8	30	25	12	-20	0	3	2	101	58	159	0	
4	17	7	0	0	0	0	0	0	-6	2	21	110	68	137	262	208	255	155	80	12	-5	-25	-22	-7	53	1334	65	1399	2
5	-8	-6	-3	-9	22	13	15	13	11	5	2	0	54	167	108	60	102	80	48	-2	-295	-375	-225	-14	652	979	1631	2	
6	-158	-480	-473	-373	-302	-130	30	13	10	6	15	25	26	15	17	2	17	8	2	-3	-7	-20	-45	13	-71	197	1893	2090	2
7	-13	-45	-48	-8	-67	-18	25	21	0	-9	-13	3	-3	-3	7	15	3	30	20	-149	-182	-155	-100	-235	-40	121	1079	1200	1
8	-88	-45	9	17	18	5	0	0	-5	3	7	-8	21	5	27	143	50	-120	-210	-228	-187	-315	-155	-105	-48	305	1466	1771	2
9	-8	-100	-213	-93	18	-35	-45	18	5	-4	0	23	43	77	177	113	120	55	-10	-226	-267	-355	-245	-255	-91	649	1838	2487	2
10	-348	-150	-223	-143	-72	-60	-35	3	50	38	25	15	10	42	57	15	22	42	10	-36	-32	-65	-325	-165	-56	317	1655	1973	2
11	-88	-190	-383	-213	-22	-20	-2	8	20	23	28	32	37	108	50	-70	-30	-108	53	15	-75	-465	-55	390	1668	2558	2		
12	-578	-630	-213	-323	-207	-60	-55	35	23	15	45	20	-8	120	147	137	50	-100	8	41	-65	-295	-235	-83	744	2727	3471	2	
13	-88	-50	-143	-7	3	-5	45	13	25	3	20	60	73	47	132	8	45	60	30	-258	-227	-105	-265	-265	-35	564	1413	1977	2
14	-78	-120	-123	-3	11	18	10	6	5	-2	-3	0	3	-1	14	21	15	25	-10	-73	-77	-170	-80	-15	26	129	755	878	1
15	3	0	-7	0	0	0	0	0	0	-28	-9	2	19	17	22	28	75	52	21	-35	-95	20	3	259	178	437	1		
16	17	10	0	0	0	0	0	0	0	0	0	0	0	0	5	8	7	5	37	-12	0	3	3	4	103	12	115	0	
17	0	0	0	0	0	0	0	0	0	0	0	1	15	24	23	31	65	115	42	-117	-95	-15	18	3	316	245	561	1	
18	-188	-140	7	-1	15	18	20	20	12	5	12	3	-67	97	162	128	60	80	-50	-68	-40	-57	-70	-55	-4	639	736	1375	2
19	-45	-13	3	5	9	3	7	12	18	2	-7	-23	25	25	8	38	50	45	25	25	-75	-295	-395	-21	332	828	1160	1	
20	-168	-55	25	26	22	22	8	0	-2	-1	3	8	-5	5	0	0	0	2	0	5	-3	-5	-126	243	369	0			
21	-15	-18	-55	-23	18	20	5	0	-8	-2	5	25	25	25	120	33	62	95	-25	-193	-130	-130	-130	-6	635	743	1378	2	
22	-208	-480	-153	-5	-12	-70	-97	-70	5	-9	30	70	318	232	202	98	145	90	-348	-317	-685	-355	-275	-78	1200	3082	4828	2	
23	-398	-490	-213	-113	-112	-50	-67	-105	20	53	20	130	178	202	157	168	80	-10	-320	-488	-527	-185	-495	-625	-133	1008	4198	5206	2
24	-298	-250	-108	-163	-72	15	18	15	45	73	110	140	143	157	227	148</td													

## RESULTS OF MAGNETIC OBSERVATIONS, FOR THE YEAR 1951

Kosmisk Fysikk

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

APRIL 1951.

DAY	HOURLY MEAN VALUES																							M	R		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	48	-5	26	63	72	72	68	65	62	60	58	58	60	60	67	70	78	100	125	102	80	-290	-310	-350	18	662	
2	-150	-50	-50	22	60	87	85	62	67	108	72	62	150	325	420	490	440	320	198	125	-50	-190	20	85	114	845	
3	20	-330	-300	10	50	-180	-80	-15	150	130	220	260	320	180	105	120	105	40	20	20	-160	-400	-350	-310	-16	1028	
4	-120	-20	20	-80	-80	-50	60	90	130	100	150	160	295	330	300	250	140	150	125	40	-20	-40	-520	-530	38	1135	
5	-260	-350	-50	-420	-280	-280	5	90	90	120	180	210	285	310	320	120	115	40	20	-250	-410	-400	-150	-55	1248		
6	-110	-60	-32	-80	-95	-90	-40	40	110	90	115	180	195	200	110	257	215	185	-100	-440	-320	-190	-25	-210	-4	952	
7	-450	-400	-320	-150	70	70	110	115	65	85	150	160	210	205	115	138	220	175	72	55	-170	55	-10	-130	19	1022	
8	-400	-300	-280	-125	70	110	90	33	140	85	70	85	125	70	160	225	200	155	40	-190	-35	-160	-135	-72	-2	807	
9	32	52	58	35	18	23	7	15	72	80	50	138	145	115	120	208	222	165	85	-45	-10	-110	-30	-90	56	457	
10	-85	-147	-440	-170	52	68	58	77	60	63	55	85	150	200	112	73	103	122	20	-85	28	20	3	26	812		
11	-60	-118	-130	-160	-40	-12	2	65	57	43	42	42	67	112	162	130	93	118	88	90	-30	-170	-260	9	441		
12	-510	-590	-240	-40	15	3	-22	-40	-52	35	37	50	97	145	210	185	100	90	110	15	3	-22	-135	-650	-12	1264	
13	-300	-42	30	-80	-12	60	82	60	48	58	132	220	305	240	390	330	210	155	107	90	35	-30	-240	-80	74	855	
14	-65	10	-55	17	50	78	50	45	58	75	100	140	115	72	110	120	108	188	90	25	42	-100	-62	-145	42	452	
15	-80	40	72	68	72	68	60	50	38	40	20	78	74	55	118	205	180	118	97	55	20	-45	-20	62	430		
16	-35	72	78	75	72	68	65	52	45	40	38	42	48	72	80	88	113	102	85	80	75	-20	-240	-90	43	533	
17	-180	-210	-60	28	60	68	72	60	42	40	88	98	93	125	157	103	107	125	108	80	53	60	73	53	527		
18	68	78	78	83	77	75	72	65	56	65	130	110	170	340	305	280	250	180	170	0	-410	-260	-80	-130	74	1323	
19	-850	-240	10	75	68	62	58	60	52	50	75	60	40	57	83	132	180	145	133	90	-30	-220	-410	-1	1216		
20	-360	-140	-130	-110	-68	42	60	38	72	105	93	128	200	177	320	320	285	75	50	20	-210	-280	-310	-250	5	1173	
21	-60	-350	-290	-350	-370	-70	-70	50	75	115	220	315	310	290	215	225	140	123	50	20	-80	-155	-320	15	920		
22	-410	-380	-380	-280	-130	95	70	100	155	140	160	270	250	245	290	210	190	-10	-60	-150	-120	-120	-90	-45	3	1065	
23	-58	-310	-410	-300	-130	0	78	82	63	47	48	50	55	90	113	100	98	95	68	63	60	50	-10	10	-2	721	
24	48	55	63	58	40	5	6	60	68	30	60	125	190	340	285	250	290	260	-60	110	5	20	32	28	-350	83	1114
25	-560	-540	-610	-350	-40	-30	-5	10	207	190	250	370	320	265	277	240	190	120	170	100	-40	-60	-93	-88	12	1221	
26	-110	-240	-90	-18	47	40	57	52	55	57	67	70	77	68	62	90	145	183	142	118	82	72	72	68	48	543	
27	68	65	70	63	63	58	58	45	30	40	90	105	105	217	270	220	170	150	90	-40	-100	110	76	511			
28	-12	-70	-25	43	72	67	65	58	52	57	45	63	68	60	77	112	102	130	130	120	110	60	58	38	62	523	
29	30	-18	-140	-160	28	63	60	48	37	40	43	75	160	93	140	300	213	105	65	60	57	67	60	62	667		
30	63	68	70	68	63	57	47	38	30	32	35	45	58	73	83	68	70	72	78	82	83	80	75	28	61	86	
M	-153	-140	-131	-72	-4	21	43	53	70	75	97	128	159	165	183	124	173	127	93	33	-27	-97	-111	-148	31	812	
QM	69	71	72	71	69	65	60	55	49	44	44	47	50	50	54	59	64	70	74	78	81	81	78	73	69	64	

MAY.

DAY	HOURLY MEAN VALUES																							M	R		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	-80	-320	-270	50	60	5	-98	-70	20	70	120	82	62	63	110	222	205	125	-100	-115	-450	-620	-620	-71	1367		
2	48	85	72	67	58	37	42	78	175	260	260	290	230	210	190	0	60	-30	-350	-520	-450	-100	54	1372			
3	-165	-135	-30	67	62	75	47	40	42	63	78	133	147	243	328	240	107	118	-280	18	67	-20	-68	-500	28	1076	
4	-600	-550	-270	-70	100	80	70	50	72	137	168	160	318	237	190	198	135	115	-100	-100	-35	7	42	26	1334		
5	33	68	73	68	50	40	72	55	38	45	38	57	57	72	78	73	95	78	70	80	85	18	-110	-380	36	608	
6	-380	15	75	40	-10	10	25	50	48	32	32	45	48	80	180	165	136	128	127	-230	-155	-30	-35	-10	14	673	
7	-22	-3	52	50	50	77	65	58	30	45	48	82	147	232	195	107	82	78	95	40	52	-12	-190	-155	11	495	
8	-70	30	82	87	80	73	67	58	50	38	33	50	88	67	85	115	127	130	128	102	18	38	45	8	64	264	
9	-15	5-5	38	58	50	75	62	50	33	48	45	53	52	47	50	65	73	95	107	120	130	85	70	33	-3	62	231
10	35	72	70	55	30	30	70	20	70	35	125	190	90	150	370	270	222	125	145	50	0	-85	-185	23	560		
11	-40	-75	68	65	40	65	85	180	185	50	80	110	160	185	155	125	92	70	240	180	93	37	-230	-120	-275	53	732
12	-110	-200	-130	-7	45	75	70	55	45	55	85	100	120	155	250	220	90	95	50	38	15	-13	51	570			
13	-7	65	55	67	75	68	50	45	33	52	47	50	65	73	95	107	120	130	85	62	70	33	-3	62	22	436	
14	25	70	10	-200	-50	45	77	60	57	47	45	20	52	87	155	203	192	190	142	68	-120	-210	-125	42	624</td		

Tromsø.

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

Gr. M. T.

APRIL 1951.

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	PS	NS	AS	CH		
1	-22	-75	-9	-7	0	0	0	0	0	0	0	0	0	0	0	7	5	8	25	47	22	0	-368	-383	-420	-49	114	1284	1398	2
2	-200	-100	-132	-48	-10	22	25	7	17	63	27	15	100	270	460	425	470	245	120	45	-130	-268	-53	15	58	2326	941	3267	2	
3	-50	-400	-372	-60	-20	-245	-140	-70	80	85	175	213	270	125	45	55	35	-35	-58	-60	-240	-478	-423	-380	-81	1083	3051	4114	2	
4	-190	-50	-52	-150	-150	-115	0	35	80	55	105	113	245	275	240	195	70	75	47	-40	-100	-118	-593	-600	-26	1535	2158	3693	2	
5	-330	-420	-572	-490	-350	-345	-55	35	40	75	135	163	108	230	250	165	60	40	-38	-60	-330	-488	-473	-220	-120	1291	4171	5462	2	
6	-180	-150	-104	-150	-165	-100	-15	60	45	70	133	145	145	50	192	145	110	-178	-520	-400	-268	-98	-280	-69	1095	2743	3838	2		
7	-610	-470	-392	-220	0	5	50	60	15	40	105	113	160	150	55	73	150	100	-6	-25	-250	-23	-83	-200	-46	1076	2179	3255	2	
8	-470	-370	-352	-195	0	45	30	22	90	40	25	38	75	15	100	160	130	80	-38	-270	-115	-238	-208	-142	-65	850	2398	3248	2	
9	-38	-18	-14	-35	-52	-42	-53	-40	22	35	5	91	95	60	60	143	152	90	7	-125	-98	-188	-103	-160	-8	760	958	1718	2	
10	-155	-217	-512	-240	-18	3	-2	22	10	18	10	38	100	145	145	47	3	28	44	-60	-165	-50	-53	-67	-39	613	1539	2152	2	
11	-130	-188	-202	-230	-110	-77	-58	10	7	-2	-3	-5	17	57	102	65	23	43	10	8	-10	-208	-243	-330	-56	352	1686	2038	2	
12	-580	-460	-312	-110	-55	-62	-82	-95	-102	-10	-8	3	47	90	150	120	30	15	32	-65	-77	-100	-208	-720	-107	487	3046	3533	2	
13	-370	-112	-42	-150	-82	-5	22	5	18	13	87	173	255	185	330	265	140	80	29	10	-45	-108	-313	-150	-10	1612	1377	2989	2	
14	-135	-60	-127	-53	-23	13	-10	-10	6	30	55	93	65	17	50	55	39	53	12	-55	-38	-178	-135	-215	-8	489	1036	1525	2	
15	-150	-30	0	0	0	0	-8	-17	-17	-38	20	28	-10	58	65	135	150	40	17	-25	-58	-118	-90	-4	468	561	1029	1		
16	-105	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	23	43	27	7	0	-5	-98	-313	-160	-22	144	681	825	1
17	-250	-280	-132	-42	-10	3	12	5	-8	-5	43	51	43	70	97	38	37	50	29	28	0	45	13	3	-7	567	727	1294	2	
18	7	0	0	0	0	0	0	0	0	15	85	63	120	285	245	215	180	105	92	-80	-490	-338	-155	-200	6	1412	1261	2673	2	
19	-700	-310	-62	5	-2	-3	-2	5	2	5	30	13	30	-15	-3	18	62	105	67	53	10	-108	-293	-480	-66	405	1978	2383	2	
20	-430	-210	-202	-180	-138	-23	0	17	22	60	48	81	150	122	260	255	215	0	28	-60	-290	-358	-383	-320	-56	1258	2594	3853	2	
21	-130	-420	-362	-420	-440	-135	-130	-5	25	70	175	268	260	230	150	155	65	45	-30	-60	-158	-228	-390	-50	1703	2908	4611	2		
22	-480	-450	-452	-350	-200	30	10	45	105	95	115	223	200	193	230	147	120	-65	-138	-210	-200	-198	-163	-115	-63	1513	3041	4554	2	
23	-128	-380	-482	-370	-200	-65	18	27	13	2	3	5	35	55	35	28	28	-188	-84	-37	-60	-27	4	405	1978	2085	2			
24	-22	-15	-9	-12	-30	-60	0	13	-20	15	70	143	290	230	170	225	190	-135	32	57	-55	-60	-46	-45	24	1378	809	2187	2	
25	-490	-610	-682	-420	-110	-95	-65	-45	157	145	205	323	270	210	217	275	210	45	92	20	-120	-158	-166	-158	-43	2079	3099	5176	2	
26	-180	-310	-162	-88	-23	-25	-3	0	5	12	22	23	27	23	2	25	75	98	64	38	2	-6	0	0	-17	406	797	1203	2	
27	0	0	5	0	3	3	7	-3	-15	-15	-7	40	50	45	152	200	245	92	70	10	-116	-173	-180	-17	922	511	1433	2		
28	-82	-140	-97	-27	4	0	0	0	0	9	0	16	18	5	17	47	32	55	52	40	30	-18	-15	-32	-4	325	411	735	1	
29	-40	-88	-212	-230	-42	-2	0	-7	-13	-5	-2	28	110	38	80	235	143	30	-13	-20	-23	-21	-6	-10	-3	664	734	1398	2	
30	-5	0	0	0	0	0	0	0	0	0	5	13	23	28	6	0	0	0	0	0	0	0	-42	1	75	47	122	0		
M	-218	-210	-201	-142	-74	-44	-18	1	20	29	51	81	110	110	127	129	106	56	17	-47	-107	-154	-183	-213	-32	908	1685	2593	1.8	
MPS	0	0	0	0	0	4	6	11	26	31	53	82	110	111	127	129	106	64	33	12	2	2	0	1						
MNS	218	210	202	143	74	48	23	10	5	2	0	0	1	0	0	0	0	0	9	16	59	109	156	184	214					

MAY.

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	PS	NS	AS	CH		
1	-158	-398	-349	-30	-17	-65	-150	-122	-24	35	84	37	9	2	41	148	126	43	-185	-188	-197	-522	-848	-689	-139	525	3848	4373	2	
2	-30	7	-13	19	-33	-27	131	225	224	245	267	209	161	136	111	136	111	-82	-25	-116	-432	-592	-517	-169	-13	1743	3797	2793	2	
3	-243	-213	-109	-13	-15	-5	-14	-12	-2	28	48	88	94	182	259	166	28	36	-365	-68	-15	-92	-135	-569	-35	928	1865	2793	2	
4	-678	-628	-349	-150	23	10	9	-2	28	102	132	115	265	176	121	124	56	33	28	-188	-84	-37	-60	-27	-41	1222	2201	3423	2	
5	-45	-10	-6	-12	-27	-30	11	3	6	10	0	0	0	0	0	0	0	-8	-13	-6	3	-54	-177	-449	-33	40	843	883	1	
6	-458	-63	-4	-40	-87	-80	-51	-27	6	13	-4	-13	-8	19	111	91	59	41	42	-318	-237	-102	-102	-79	-53	382	1671	1953	2	
7	-100	-81	-76	-28	-27	7	4	6	14	10	12	37	94	171	126	33	3	4	-10	-40	-34	-224	-224	-224	-15	527	957	1484	2	
8	-150	-53	0	0	0	0	0	0	0	-2	-7	2	33	5	15	40	47	48	43	16	-64	-34	-22	-6	249	396	645	1		
9	-83	-83	-41	0	-4	5	0	-2	-11	33	99	97	64	124	116	157	181	170	34	-147	-319	-109	-109	18	1256	702	1958	2		
10	-43	-6	-9	-25	-47	-40	-131	-32	26	0	89	145	37	89	301	143	63	51	66	73	67	32	-79	-142	-114	-7	572	1456	2027	2
11	-118	-143	-154	-15	-10	-2	4	-12	21	50	104	100	147	229	-6	-9	-9	158	95	7	45	-304	-187	-344	-15	960	1311	2271	2	
12	-188	-270																												

## RESULTS OF MAGNETIC OBSERVATIONS, FOR THE YEAR 1951

Kosmisk Fysikk

*Fromsø.* Horizontal Intensity. H = 11100 + Tabular Quantities expressed in Gamma.  
JULY 1951. 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	-145	-310	-105	62	90	75	67	58	55	48	80	137	210	340	435	400	245	110	-270	22	20	-50	-210	-350	42	1130		
2	-130	-780	-300	40	110	-40	-240	20	125	90	105	145	145	160	190	290	180	160	75	38	43	40	-70	-15	18	1200		
3	37	-25	-195	-10	-10	55	80	60	42	35	40	93	100	185	360	175	240	228	150	10	60	0	-160	-380	49	1060		
4	-210	-120	-70	75	-100	-190	-15	60	75	70	65	43	103	87	90	75	70	208	188	75	0	-40	-25	-310	9	759		
5	-110	-10	30	25	38	30	30	47	47	37	38	95	60	133	108	68	112	140	188	147	95	30	-40	-90	53	414		
6	0	67	55	60	50	50	48	48	38	50	45	75	125	190	160	120	138	190	193	140	90	-5	-85	-92	73	366		
7	-75	8	63	55	70	53	42	40	30	30	32	40	57	53	57	95	197	183	163	120	-10	-110	-105	-160	37	522		
8	-90	-5	73	52	22	47	58	40	40	20	18	40	57	76	92	97	102	127	130	80	-105	-130	-150	32	468			
9	-215	-95	-85	-210	10	72	57	72	57	55	57	47	73	100	195	153	132	143	80	-3	18	37	30	35	570			
10	-80	-90	60	78	68	70	58	53	60	23	58	57	68	80	70	70	72	88	103	125	48	10	32	25	51	339		
11	38	57	70	75	65	60	43	32	48	48	58	73	38	40	23	20	45	100	100	82	120	180	148	100	77	25	-60	-170
12																										20	764	
13	-310	-440	-150	52	69	30	40	58	50	55	48	45	65	98	92	83	82	77	87	100	108	70	50	33	20	764		
14	20	8	80	75	75	65	57	48	43	50	68	38	70	92	118	93	88	78	65	77	68	0	-130	55	328			
15	-155	-35	-3	40	68	72	53	42	35	20	50	50	50	87	97	92	122	168	200	103	105	70	-50	-130	48	538		
16	40	45	-3	-140	-60	58	80	72	67	62	110	132	220	235	190	340	252	210	200	118	95	100	58	58	106	603		
17	40	0	0	70	70	78	67	60	75	15	60	85	80	125	180	275	300	220	90	95	95	73	15	20	92	404		
18	-30	-20	20	58	-40	20	35	42	38	40	85	90	240	460	290	340	235	245	138	115	75	25	-48	-87	101	775		
19	-10	55	25	30	65	68	50	45	60	55	70	70	53	58	80	68	170	200	172	87	-195	-80	3	25	53	506		
20	-30	-50	-175	-90	0	48	48	50	47	210	200	220	280	265	220	165	195	175	135	25	-50	-70	-50	85	558			
21	10	-5	-25	15	47	38	47	37	30	55	43	57	95	95	108	187	167	117	115	107	70	50	28	0	62	269		
22	65	-87	-100	-63	-210	-160	-25	20	50	55	30	60	75	90	150	270	300	230	5	112	88	20	-120	-50	25	694		
23	-70	-90	-290	70	50	65	60	50	40	35	80	120	145	100	90	82	97	95	157	85	45	-7	-20	-60	39	726		
24	-20	68	60	35	33	37	40	35	35	65	40	68	90	157	170	110	112	100	103	87	53	58	58	62	69	258		
25	65	62	53	67	63	28	22	37	55	43	62	20	35	90	195	180	242	203	110	28	30	-160	-60	-10	61	624		
26	-30	-117	-70	20	60	-30	0	58	120	80	70	150	200	330	320	320	160	123	115	110	80	35	-30	-200	78	656		
27	-480	-275	-240	-100	-10	70	68	55	40	57	60	80	90	117	170	125	195	180	10	-20	55	30	-150	6	1060			
28	-300	-45	-150	-370	-140	-25	20	25	40	80	130	205	150	130	190	350	240	175	70	-80	-210	-85	0	-30	15	1044		
29	-95	-10	50	20	12	35	55	58	80	83	60	57	80	110	160	105	190	170	147	150	100	5	12	-100	-113	58	468	
30	-200	-10	73	63	45	37	50	55	30	45	53	87	110	130	92	160	245	208	160	60	0	20	-80	-150	-220	38	586	
31	-63	-320	-330	-320	-210	-110	-18	12	35	80	120	250	390	480	400	190	155	180	150	-25	-50	-85	-30	-380	21	1200		
M	-84	-83	-53	-6	13	23	32	46	53	54	66	89	118	158	166	166	178	168	164	119	78	30	-3	-42	-103	50	650	
QM	63	62	60	58	55	52	49	45	41	39	39	43	49	54	59	65	67	65	60	56	54	55	58	62	55	55		

AUGUST.

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	-410	-135	15	75	80	63	50	53	68	73	97	150	82	115	175	295	260	225	130	115	60	-440	-470	16	1081
2	-440	-367	-330	-200	-150	45	57	45	68	50	70	90	70	87	120	115	180	140	110	85	25	-130	25	-2	737	
3	58	-60	10	80	70	58	60	47	50	60	70	13	145	150	110	110	73	80	70	77	80	58	70	-20	62	328
4	-70	-20	-130	-160	15	78	63	40	37	40	52	70	75	78	205	235	150	108	135	90	75	-110	-360	-60	27	904
5	40	-45	-170	32	70	63	53	55	48	37	35	58	70	72	108	113	167	135	102	50	50	-10	-10	40	564	
6	-80	-40	72	77	78	65	52	48	30	32	38	48	60	120	195	323	225	200	153	82	40	27	-20	-20	75	527
7	25	63	67	-10	35	53	47	52	55	78	53	53	60	42	55	80	170	180	150	75	-20	-260	-123	40	592	
8	-115	-92	-45	20	70	78	77	73	60	45	40	43	57	55	82	83	88	102	113	105	40	40	-12	20	45	296
9	-90	-20	63	70	47	52	50	57	45	30	77	122	170	170	92	112	140	103	82	78	50	3	-60	-40	58	355
10	-3	70	78	77	70	35	28	40	57	53	73	30	150	180	85	67	83	80	90	108	58	-150	-140	54	468	
11	70	85	57	8	27	57	58	50	50	52	75	52	190	350	200	130	170	237	130	0	-10	30	-13	-30	85	576
12	-95	-15	-110	20	70	58	60	55	32	28	30	90	110	130	100	250	310	237	90	-7	-50	-500	-320	-105	49	1211
13	-62	30	78	-100	-350	-190	-115	30	28	52	80	135	212	460	280	250	240	137	140	80	38	30	37	60	67	1135
14	72	73	65	63	62	57	55	33	30	32	37	48	70	98	102	102	63	80	95	80	60	23	-45	-60	48	253
15	-25	-67	-120	-150	-50	-15	-60	-5	-3	20	53	40	52	75	73	87	78	120	165	118	70	-58	-80	-50	50	387
16	47	38	62	57	40	68	47	65	60	90	215	200	167	67	57	63	62	77	68	67	67	55	70	78	371	
17	58	62	57	63	63	45	42	40	35	40	57	7														

## Tromsø.

Horizontal Intensity. Storminess (+ N). Unit Gamma.  
HOURLY MEAN VALUES

Gr. M. T.

JULY 1951.

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	PS	NS	AS	CH			
1	-208	-372	-165	4	35	15	0	0	0	0	35	94	160	285	375	335	178	45	-330	-33	-35	-105	-268	-412	-15	1561	1928	3489	2		
2	-193	-782	-360	-18	55	-92	-290	-25	85	50	65	102	95	105	140	225	115	105	15	-17	-12	-15	-128	-77	-35	1155	2009	3164	2		
3	-26	-87	-255	-68	-65	3	30	15	2	-5	0	50	50	130	300	110	173	163	90	-45	5	-55	-218	-442	-6	1121	1266	2387	2		
4	-273	-182	-130	17	-155	-242	-85	15	35	30	25	0	53	32	30	10	3	143	128	20	-55	-95	-83	-372	-46	541	1652	2193	2		
5	-173	-72	-30	-33	-17	-18	-20	2	7	-3	-2	52	10	78	48	23	45	75	188	92	40	-25	-98	-158	-1	600	643	1233	2		
6	-63	5	-5	2	-5	-2	-2	3	-2	10	5	32	75	135	100	55	71	125	133	-85	55	-60	-143	-154	18	871	436	1307	2		
7	-138	-54	3	-3	15	0	0	0	0	0	10	0	0	32	130	118	103	65	-65	-165	-183	-242	-16	476	850	1326	2				
8	-153	-67	13	-6	-33	-5	8	-4	0	20	-22	-3	7	20	32	32	15	37	67	75	25	-160	-188	-222	-21	351	863	1214	2		
9	-278	-157	-145	-268	-45	20	7	27	17	15	14	-3	18	40	130	86	67	83	25	-58	-37	-21	-32	-20	566	1044	1610	2			
10	-113	-152	0	20	13	18	8	-12	20	-17	18	12	18	25	10	5	5	23	43	70	-7	-45	-26	-37	-4	308	409	717	1		
11	-25	-6	5	5	0	3	-7	-13	8	8	18	30													77	51	128				
12																									425	427	852	1			
13	-373	-502	-210	-6	13	-22	-10	13	10	15	8	2	15	15	45	38	18	12	27	45	53	15	-8	-30	-34	331	1161	1497	2		
14	-43	-54	20	17	15	0	0	0	0	10	28	20	37	58	28	21	13	18	10	22	13	-58	-192	-1	335	347	682	1			
15	-218	-97	-63	-18	13	20	3	-3	-5	-20	10	7	0	32	37	27	15	103	140	45	50	-15	-108	-192	-7	557	724	1281	2		
16	-20	-17	-63	-198	-115	6	30	27	27	22	70	89	170	180	130	275	185	145	140	63	40	45	0	-4	51	1644	417	2061	2		
17	-23	-62	-60	12	15	26	17	15	35	-25	20	52	50	30	70	120	210	233	155	30	40	18	-43	-34	37	1138	247	1385	2		
18	-33	-82	-40	0	95	-32	-15	-3	-2	0	45	47	190	405	230	285	168	168	70	20	-30	-66	-149	47	1708	687	2295	2			
19	-73	-7	-35	-28	13	8	-10	0	20	15	30	27	3	3	20	23	103	165	112	32	-250	-135	-55	-37	574	630	1804	2			
20	-33	-112	-235	-148	-55	-4	5	7	10	160	177	230	210	160	100	98	130	110	80	-30	-105	-128	-112	-28	1637	964	2601	2			
21	-53	-57	-85	-43	-6	-14	-3	-8	-10	15	3	14	45	40	48	122	100	52	55	52	15	-5	-62	8	561	378	939	1			
22	-128	-149	-160	-121	-265	-212	-75	-25	10	15	-10	17	25	35	90	205	233	165	55	57	33	-35	-178	-112	-22	940	1470	2410	2		
23	-153	-152	-350	12	-5	-13	10	5	0	-5	40	77	95	45	30	17	30	27	97	30	-10	-62	-78	-122	-12	528	917	1445	2		
24	-83	8	8	-13	-12	-8	0	0	0	27	0	25	40	102	110	45	45	35	43	32	0	0	0	17	520	113	633	1			
25	0	0	-5	18	15	-17	-18	0	15	3	22	-23	-15	35	135	115	175	138	50	-27	-25	-215	-118	-72	8	715	535	1250	2		
26	-93	-179	-130	-38	5	-82	-50	13	80	40	30	107	150	275	260	255	93	58	55	55	25	-20	-88	-262	23	1501	942	2443	2		
27	-543	-337	-300	-158	-65	18	18	10	0	0	17	17	10	35	57	105	58	130	120	45	45	-75	0	-25	-212	-49	595	1763	2358	2	
28	-363	-107	-190	-428	-195	-77	-30	-20	0	40	90	162	100	75	130	265	173	110	10	-135	-265	-140	-58	-92	-39	1155	2100	3255	2		
29	-156	-52	-10	-38	-43	-17	5	35	43	20	17	37	60	105	45	125	103	82	45	50	-45	-158	-173	3	812	744	1556	2			
30	-363	-72	-13	5	-10	-15	0	10	-10	5	13	44	60	75	32	95	178	143	0	-55	-35	-135	-208	-282	-17	673	1085	1758	2		
31	-126	-382	-390	-378	-265	-162	-68	-33	-5	40	80	207	340	425	340	125	88	115	90	-80	-105	-140	-88	-442	-34	1850	2664	4514	2		
M	-147	-145	-112	-64	-42	-29	-18	2	12	16	26	47	68	102	106	114	101	99	62	23	-22	-58	-100	-165	-5	833	947	1781	1.6		
MPS	0	0	2	3	7	5	7	14	19	28	48	69	102	106	114	101	99	73	37	14	4	0	0	0	0	0	0	0	0	0	0
MNS	147	145	114	67	48	34	22	5	1	2	1	0	0	0	0	0	0	0	11	15	36	62	100	165							

AUGUST.

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	PS	NS	AS	CH		
1	-413	-475	-202	-50	12	20	6	-3	8	28	28	49	97	25	55	110	228	190	153	57	43	-10	-505	-533	-45	1109	2191	3300	2	
2	-503	-415	-397	-265	-193	-15	0	-8	23	10	25	42	18	30	50	50	113	100	68	37	13	45	-195	-38	-58	634	2029	2663	2	
3	-5	-125	-57	15	7	-2	-3	-6	5	20	25	25	35	92	93	50	8	5	10	-2	4	8	-12	5	-83	3	362	295	677	1
4	-133	-45	-197	-225	-48	18	6	-13	-8	0	7	22	4	21	145	170	83	38	63	17	3	-180	-425	-143	-34	597	1417	2014	2	
5	-23	-133	-237	-33	-3	7	4	2	3	-3	-10	10	17	15	48	48	85	97	63	30	-22	-120	-75	-73	-20	428	915	1343	2	
6	-143	-105	5	12	15	5	-5	-5	-15	8	-7	0	7	63	135	258	158	130	80	10	-32	-43	-83	-14	878	631	1409	2		
7	-38	-2	-75	-83	-25	-4	-6	7	15	33	5	0	3	18	10	10	77	77	3	-90	-325	-6	-13	364	682	1046	1			
8	-178	-151	-112	-45	7	18	20	20	15	5	-3	-9	-3	-13	5	15	26	18	30	40	33	-50	-73	-17	252	670	922	1		
9	-153	-85	-4	5	-16	-8	-7	4	0	-10	32	74	117	113	32	47	73	33	10	5	-22	-67	-125	-103	-2	545	640	1145	1	
10	-66	0	0	0	-33	-37	-20	-22	-23	-7	-3	10	7	42	53	55	143	197	78	69	-82	-20	-53	-35	-1	696	722	1418	2	
11	7	20	-10	-55	-33	0	5	5	10	7	27	137	283	140	65	103	167	58	-73	-82	-40	-78	-93	24	1044	472	1516	2		
12	-158	-177	-45	7	-22	3	17	10	80	70	8																			

## RESULTS OF MAGNETIC OBSERVATIONS, FOR THE YEAR 1951

Kosmisk Fysikk

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

OCTOBER 1951.

Gr. M. T.

HOURLY 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																										
2	20	-110	-140	-10	67	30	-10	65	75	80	55	57	60	62	63	67	108	117	105	60	40	35	50	50	50	
3	70	35	50	72	70	70	68	65	60	57	62	90	90	78	77	70	72	77	75	-10	-5	58	48	61	285	
4	50	63	68	70	68	68	63	58	52	47	48	50	58	62	68	75	78	80	95	30	50	38	-3	-75	52	
5	-22	10	78	75	72	67	58	53	50	50	53	65	70	72	80	92	110	120	67	70	10	-18	-3	56	215	
6	-40	-82	60	80	75	70	67	62	55	50	48	52	53	60	65	72	78	82	85	88	100	90	85	83	60	
7	78	73	60	42	45	65	68	70	58	78	82	140	230	360	200	215	180	85	25	75	10	-52	-70	84	673	
8	40	-30	-150	-420	-140	90	40	80	120	190	220	98	163	240	200	190	105	60	80	10	30	10	-90	-640	21	1227
9	-400	-260	-160	-70	50	65	80	50	85	55	68	75	140	250	285	220	157	160	125	100	20	-350	-370	-110	18	1205
10	-5	-20	-170	-60	60	80	60	52	70	60	133	202	180	158	235	140	70	-170	90	75	-130	-340	-110	-12	28	
11	-140	-230	-30	90	90	72	38	120	65	48	72	143	175	162	200	200	100	60	-3	30	43	50	65	48	613	
12	59	52	42	20	60	62	63	70	57	65	62	60	70	140	160	105	95	118	95	45	-20	-100	-45	-40	55	366
13	-42	-25	10	10	-40	28	80	80	68	105	210	222	185	130	120	77	72	108	50	-170	-180	-280	-410	20	925	
14	-370	-80	0	50	72	85	78	76	50	57	63	60	63	85	130	110	88	-90	-270	-340	-165	-65	0	-10	759	
15	35	18	-30	70	75	82	75	60	67	50	52	68	68	73	82	88	95	112	-180	-150	-12	-70	-360	21	592	
16	-310	-150	-90	50	45	60	43	78	52	72	150	125	140	145	202	235	200	150	50	-60	-150	-180	-410	-380	3	1011
17	-210	-300	-610	-350	-30	110	70	170	225	180	300	340	300	205	250	200	155	10	-120	-550	-480	-400	-160	-80	-34	1716
18	-300	-60	75	-240	10	100	80	120	200	175	155	135	140	192	205	154	125	-35	70	-10	-220	-500	-250	-190	6	1038
19	-340	-220	-280	-200	60	30	70	120	120	140	130	118	180	138	102	105	0	-300	-370	-150	-125	-260	-250	-480	-67	1103
20	-480	-110	60	80	70	105	105	78	92	115	88	150	107	100	108	78	98	112	100	-10	-350	-150	-180	-280	2	904
21	-130	-3	0	40	-15	52	85	85	82	70	72	50	105	132	160	150	128	-130	-190	-50	-68	-65	31	624		
22	-85	-200	-190	-28	65	92	75	75	67	63	82	100	170	270	360	200	100	-200	95	60	67	-230	-50	45	872	
23	-125	-100	30	93	87	87	73	63	57	68	73	98	120	152	155	160	155	105	165	133	92	0	-170	-70	62	527
24	50	85	82	75	68	68	75	65	63	63	60	63	68	70	72	73	77	78	95	130	117	102	20	25	73	204
25	78	97	78	75	77	77	70	67	63	65	68	70	68	70	73	78	80	83	85	87	88	88	82	77	65	
26	78	72	77	78	82	80	73	70	72	68	95	122	60	68	77	90	102	103	128	60	68	-120	-380	-100	47	662
27	10	-65	12	2	-50	20	80	85	82	65	68	68	100	102	92	85	72	80	73	65	50	57	60	45	-25	274
28	70	77	77	72	68	50	72	65	67	57	78	80	200	320	-50	-5	40	-530	-360	-200	-580	-175	-40	-15	-25	1593
29	28	28	75	82	82	75	60	48	43	50	42	45	60	48	50	48	52	53	65	60	52	35	37	50	53	194
30	50	50	52	53	55	55	53	52	50	48	58	57	60	53	52	55	55	57	67	88	80	67	57	55	57	108
31	55	53	58	60	63	68	65	62	55	52	50	52	55	58	62	67	70	72	73	70	68	20	-20	56	161	
M	-74	-43	-27	-1	43	69	66	76	79	73	89	98	112	127	131	119	105	48	45	1	-62	-76	-86	-93	34	640
QM	65	65	67	69	70	70	67	62	57	54	53	54	57	60	63	66	68	70	72	73	72	70	67	65	65	

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	42	72	68	67	67	68	67	63	57	55	53	57	68	70	72	73	85	118	98	93	40	20	58	67	178			
2	30	30	-15	-22	18	62	80	73	63	55	67	68	97	125	202	210	172	60	20	-30	-15	-80	-200	-180	37	516		
3	-250	-220	-200	-240	-30	15	75	80	68	68	67	140	255	222	190	120	65	100	70	-120	-550	-370	-370	-31	1076			
4	-330	-190	-220	-360	-150	-30	70	98	105	70	45	58	90	120	190	130	237	150	100	65	25	-160	-110	-295	-12	796		
5	-300	-120	-125	-20	135	102	72	72	55	75	95	75	68	67	88	125	60	18	30	67	-60	-310	14	667				
6	0	58	70	75	67	63	73	75	65	60	87	107	133	213	340	330	360	255	160	40	-450	50	28	35	0	92	1194	
7	-210	-270	-430	-210	25	90	87	65	65	65	90	60	140	172	112	100	245	240	190	80	120	62	40	28	0	38	812	
8	-23	-95	-150	65	78	78	75	70	68	68	70	73	85	82	80	80	95	108	132	90	-25	100	83	83	58	490		
9	80	82	62	55	45	68	65	80	75	85	98	70	77	105	240	300	310	200	202	140	140	150	15	120	120	120	120	120
10	25	72	73	72	73	72	70	68	68	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	113
11	72	73	73	75	73	72	72	70	72	68	67	68	70	78	83	100	97	93	87	80	100	120	85	87	55	45	450	
12	-280	-350	-40	100	88	62	80	88	85	82	87	82	82	110	97	117	170	250	140	142	-20	-90	-170	10	-8	70	694	
13	-15	-10	60	90	95	75	73	70	77	78	80	85	140	230	210	30	35	95	88	115	72	78	70	32	90	78	323	
14	50	43	67	110	90	90	87	80	70	68	80	80	80	80	80	75	80	90	95	115	72	78	70	20	10	1146		
15	20	10	60	100	95	90	85	80	70	68	78	77	80	80	80	75	80	85	90	100	115	130	130	10	10	10	10	10
16	-30	40	72	85	103	90	90	85	80	80	83	83	80	80	83	87	85	87	85	87	102	70	-20	82	50	-110	64	468
17	-130	25	78	80	82	83	83	80	88	80	88	80	1															

Tromsø.

OCTOBER 1951.

Horizontal Intensity. Storminess (+ N). Unit 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	PS	NS	AS	CH		
1	-45	-175	-207	-80	-3	-40	-77	3	18	0	0	0	0	0	2	40	47	33	-13	-33	-27	-20	-17	122	120	242	0	1		
2	-35	-22	0	0	0	0	0	0	0	7	35	33	10	15	12	5	26	20	25	23	0	-10	-172	-20	-10	-28	155			
3	-12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	114	256	370	0	1			
4	-15	-20	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10	23	-43	-23	-34	-73	-142	-12	43	332	375	0	1	
5	-92	-60	8	0	0	0	0	0	0	0	0	0	7	5	7	15	24	40	38	-6	-3	-62	-88	-70	-10	144	361	525	1	
6	-105	-147	-7	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-10	27	259	286	1			
7	13	8	-7	-28	75	-5	0	8	10	-5	25	27	83	170	297	135	147	110	13	-48	-148	-62	-122	-137	19	1046	587	1633	2	
8	-25	-95	-217	-490	-210	20	-27	58	63	135	167	43	106	180	137	125	47	-10	8	-63	-43	-23	-507	-507	-35	1079	1909	2988	2	
9	-465	-325	-227	-140	-20	-8	13	-12	28	0	15	20	83	190	222	155	89	110	53	27	-53	-422	-440	-177	-53	1005	2286	3291	2	
10	-70	-45	-237	-130	-10	10	-7	-10	13	5	80	147	123	75	172	85	18	2	-203	-412	-180	-79	-37	732	1623	2355	2			
11	-205	-295	-97	20	20	2	-29	48	8	-7	19	88	118	102	137	175	132	30	-12	-76	-43	-29	-20	-2	4	899	815	1714	2	
12	-7	-13	-25	-50	-10	-8	-4	8	0	10	29	5	8	80	97	40	27	48	23	-28	-93	-172	-115	-107	-11	370	631	1001	1	
13	-107	-96	-57	-60	-110	-42	13	20	23	13	52	155	165	125	57	55	9	2	36	-23	-245	-252	-350	-477	-45	735	1811	2546	2	
14	-435	-145	-67	-20	2	15	10	16	10	3	0	0	0	22	65	42	18	-182	-343	-413	-237	-155	-67	-76	203	2227	2227	2		
15	-30	-47	-97	0	5	12	8	-2	12	0	0	13	10	6	5	14	20	25	40	-193	-225	-84	-140	-427	-45	170	1243	1413	2	
16	-375	-215	-157	-20	-35	-10	-24	16	-5	7	97	70	83	85	159	170	132	80	-22	-153	-223	-252	-480	-447	-63	879	2388	3267	2	
17	-275	-365	-677	-420	-100	40	3	108	168	65	247	285	243	145	287	145	87	-60	-192	-603	-553	-472	-230	-147	-95	1023	4094	5917	2	
18	-365	-125	8	-310	-60	30	13	58	143	115	102	80	83	132	142	88	57	-105	-2	-63	-293	-572	-330	-257	-60	1051	2482	3533	2	
19	-405	-285	-347	-270	-10	-40	3	63	63	85	77	63	123	75	39	90	-68	-370	-442	-223	-198	-332	-320	-670	-137	681	3980	4661	2	
20	-545	-175	-7	10	0	35	38	16	35	60	35	75	50	40	39	13	30	42	28	-83	-433	-222	-250	-347	-63	546	2062	2608	2	
21	-195	-68	-67	-30	-85	-18	18	25	25	15	19	15	0	40	42	67	92	80	56	-203	-263	-122	-138	-132	-53	492	1321	1813	2	
22	-150	-265	-157	-98	-5	20	8	13	10	8	29	45	113	210	297	135	132	-60	-272	22	-13	-5	-300	-117	-17	1042	1442	2484	2	
23	-190	-165	-37	23	17	17	6	0	0	7	40	43	63	92	218	225	87	35	93	60	19	-72	-240	-137	9	1045	841	1886	2	
24	-15	18	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	57	44	30	-50	-42	3	189	107	296	0
25	13	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	40	0	40	0		
26	0	0	0	0	0	0	0	0	0	3	35	67	3	8	14	25	34	33	56	-13	-5	-192	-450	-167	-22	278	827	1105	1	
27	-55	-130	-55	-68	-120	-50	13	23	25	10	15	13	43	42	29	20	4	10	0	-8	-23	-15	-10	-28	-12	247	556	803	1	
28	0	0	0	0	0	0	-15	9	3	9	2	25	25	143	260	-113	-70	-28	-600	-432	-273	-653	-247	-110	-82	-89	476	2623	3099	2
29	-37	-32	18	12	12	5	-7	-14	-12	3	-3	2	13	0	0	0	0	0	8	0	5	-20	-15	0	-3	63	150	213	0	
30	0	0	0	0	0	0	0	0	0	-2	6	5	8	0	0	0	0	0	9	28	20	9	0	0	-3	85	2	87	0	
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-43	-80	-5	0	123	123	0	0	
M	-139	-108	-91	-71	-24	1	0	14	22	18	36	43	55	67	75	59	37	-23	-31	-72	-135	-148	-156	-157	-31	509	1229	1738	1.3	
MPS	1	2	1	3	2	7	5	16	22	19	36	43	55	67	78	61	40	24	19	6	3	1	0	0	0	0	0	0	0	
MNS	140	110	90	75	26	8	6	1	1	0	0	0	0	0	4	2	3	47	49	79	138	150	156	157						

NOVEMBER.

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	PS	NS	AS	CH		
1	-23	4	0	0	0	0	0	0	0	0	0	6	3	0	0	0	10	40	23	16	-32	-50	-12	-1	104	117	521	1		
2	-40	-40	-87	-95	-75	-13	5	-2	-10	-17	-3	-2	25	52	127	133	94	-20	-58	-105	-90	-152	-270	-250	-36	436	1311	1747	2	
3	-320	-290	-272	-315	-105	-60	0	5	-5	8	-2	-3	68	182	147	113	112	42	15	22	-1	-5	-195	-622	-440	-104	587	3087	3674	2
4	-400	-260	-292	-455	-225	-105	-5	23	32	-2	-25	-12	18	18	55	115	53	159	70	22	-10	-50	-232	-180	-365	-85	547	2596	3143	2
5	-370	-190	-197	60	27	0	0	0	0	0	0	0	0	0	0	0	15	50	-18	-46	-5	-130	-380	-55	185	1509	1694	2		
6	-70	12	0	7	0	0	13	0	-10	15	37	63	141	267	255	283	177	80	-37	-525	-25	-44	-35	-70	-36	776	1633	2409	2	
7	-280	-340	-502	-285	-50	15	22	10	-8	8	-10	70	100	39	25	168	162	110	2	45	-13	-32	-42	-70	-36	776	1633	2409	2	
8	-93	-165	-222	-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	180	590	770	1	
9	-13	-165	-22	-12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10	-45	-120	-20	23	9	10	0	7	0	10	12	0	13	28	43	17	12	28	10	78	73	30	-135	8	-3	42	501	922	1	
11	10	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	14	0	63	45	12	-50	4	154	52	206	0	
12	-35	-7	-12	13	16	12	10	8	7	12	7	55	20	37	90	150	60	52	-2	-165	-245	-63	-80	-7	546	704	1250</			

## RESULTS OF MAGNETIC OBSERVATIONS, FOR THE YEAR 1951

Kosmisk Fysikk

**Tromsø.** Vertical Intensity. V = 50618 + Tabular Quantities expressed in Gamma. Gr. M. T.

JANUARY 1951.

HOURLY 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	70	35	30	82	70	52	55	48	50	50	52	57	55	65	110	107	82	52	90	80	50	-10	-15	32	56	225
2	67	27	-25	40	-8	-75	0	35	55	55	67	68	65	52	87	85	70	30	-30	-120	0	40	-50	24	326	
3	-25	50	33	37	0	-92	-10	17	37	67	70	72	73	85	75	80	80	73	45	-35	35	40	-10	-13	33	226
4	37	48	50	50	50	50	48	48	48	52	58	65	65	65	68	78	62	67	48	0	-70	28	57	47	232	
5	58	70	40	48	45	45	48	45	47	52	55	63	60	62	60	62	53	42	12	110	130	-100	-10	48	232	
6	30	60	62	52	55	55	55	55	55	58	65	63	72	75	70	63	62	58	60	60	10	40	53	52	660	
7	55	53	42	33	37	42	47	50	50	62	65	67	68	63	65	75	67	57	49	40	5	27	52	52	123	
8	25	30	47	57	57	52	50	50	57	58	78	95	118	120	88	93	77	60	57	58	58	57	50	55	87	
9	48	35	42	42	35	30	48	50	47	52	57	60	62	58	58	60	58	65	65	58	60	52	67	53	138	
10	55	18	2B	30	33	30	37	43	47	50	52	58	68	72	72	-10	-110	-130	53	-20	20	65	47	26	203	
11	70	20	-22	25	50	58	50	42	42	60	52	60	68	65	68	72	15	5	-30	-40	30	60	10	37	334	
12	100	135	0	25	50	65	55	30	45	88	80	70	80	83	108	105	88	53	40	-5	32	30	37	62	290	
13	35	110	75	-15	-50	-2	52	70	75	80	80	70	65	63	62	68	70	78	40	-10	-50	40	0	100	46	435
14	115	100	30	20	27	48	42	30	47	55	70	75	85	102	95	92	83	40	-52	-35	10	-22	70	30	48	
15	140	30	15	70	20	17	8	40	68	55	67	70	88	77	80	103	80	72	-15	-70	30	20	-20	-50	41	442
16	-60	20	77	68	60	50	39	33	63	65	77	72	88	110	58	70	52	0	-115	-70	30	150	30	10	41	667
17	70	70	5	10	5	3	3	32	48	63	67	67	67	73	70	73	80	68	58	60	40	45	51	225		
18	47	58	58	52	50	48	48	45	55	58	60	63	98	80	70	82	83	77	62	-30	-95	-80	47	283		
19	38	10	10	-27	8	17	32	37	38	55	58	68	88	82	84	53	57	15	30	-10	130	205	50	493		
20	245	90	40	18	58	58	58	55	55	57	58	70	75	100	80	87	58	55	60	48	53	38	66	471		
21	45	47	48	48	50	48	47	47	45	45	45	52	55	57	58	-200	-400	-250	-70	105	70	180	20	90	13	798
22	160	-180	10	-80	-40	15	60	75	80	110	80	70	120	-10	-105	-20	-40	10	-70	-70	-180	0	130	5	725	
23	170	100	-60	-30	18	60	60	60	85	110	80	80	115	100	65	60	-65	-45	-35	80	140	-20	52	442		
24	5	20	48	45	48	47	32	48	53	57	65	75	100	87	77	80	75	70	60	25	-5	-2	-7	-5	42	196
25	25	47	63	65	63	58	58	60	67	73	73	80	75	80	110	73	72	63	65	-10	-87	-35	0	50	247	
26	12	30	47	48	43	43	47	45	45	52	55	50	67	62	78	85	90	-60	-140	60	15	18	60	120	37	261
27	150	70	65	50	30	15	13	50	55	62	68	68	70	80	93	70	70	45	-12	38	20	-15	-12	23	49	297
28	145	100	70	-20	10	50	67	68	62	65	75	72	83	100	65	43	-130	-140	70	65	20	60	47	587		
29	65	45	45	57	30	55	42	47	47	45	65	77	93	88	75	65	63	60	-8	-20	-5	-60	140	125	56	493
30	40	-50	35	35	43	45	53	47	40	55	70	75	68	67	63	58	10	-20	-20	-90	5	48	-10	-120	23	326
31	30	70	140	-50	-300	-90	80	80	35	50	0	30	15	35	15	20	-88	-200	-210	-60	140	100	80	80	0	798
M	65	45	36	27	26	31	40	47	51	61	63	66	73	71	71	63	44	28	-1	10	22	25	28	36	43	374
QM	50	51	51	50	49	48	48	49	51	53	56	59	61	63	64	65	65	64	62	60	57	54	52	50	56	56

FEBRUARY.

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	90	50	-60	-220	-105	-50	-20	-10	-2	40	40	57	67	62	72	67	37	58	40	20	20	25	16	711	
2	65	77	72	58	53	58	57	53	57	62	68	70	68	67	63	62	62	60	60	-20	15	27	55	225	
3	30	37	68	65	52	50	50	50	55	60	67	68	67	67	65	62	62	58	-2	20	40	32	51	123	
4	60	60	58	57	53	50	48	48	48	50	55	70	88	90	50	-90	40	80	83	65	55	30	47	52	334
5	50	58	60	58	50	23	48	45	43	48	52	68	67	90	58	93	68	50	12	-10	140	130	120	58	450
6	180	450	80	-220	-210	-85	-15	15	40	55	82	80	88	85	90	80	83	82	67	53	33	40	55	55	943
7	72	70	48	48	58	57	62	57	55	60	63	67	67	62	67	62	70	70	77	50	10	-20	72	100	110
8	25	30	35	60	63	57	57	60	65	70	78	87	80	68	35	-130	60	140	230	170	30	70	58	740	
9	42	135	85	-7	35	20	-8	25	25	60	67	70	72	73	80	-80	-130	-30	63	-20	-80	60	280	5	178
10	80	170	105	-10	-20	-20	-20	-18	12	45	70	78	80	75	75	75	75	75	75	75	75	75	75	75	79
11	0	140	120	-30	-35	-25	22	45	43	60	75	70	70	87	78	75	75	75	75	75	75	75	75	75	79
12	-50	30	150	80	-80	-40	-5	-20	15	45	62	85	97	118	25	20	60	70	160	120	25	80	130	21	544
13	0	57	110	50	40	27	47	57	67	72	93	95	105	100	20	20	30	52	80	50	57	57	348		
14	0	48	10	17	38	58	67	77	72	72	78	78	75	72	72	72	72	72	72	72	72	72	72	72	297
15	57	70	68	63	50	50	50	60	65	70	70	70	89	107	127	118	90	85	85	77	68	68	73	123	
16	65	65	62	55	32	25	32	20	35	30	50	77	90	85	97	150	123	100	55	60	110	78	60	70	66
17	70	60	-10	5	-22	40	53	57	58	53	45	62	40	-190	-70	-70	15	123	210	250	210	225	48	812	
18	105	150	100	80	67	55	85	100	83	87	88	93	102	90	80	95	40	38	-35	-130	-10	160	250	78	863
19	380	20	10	150	50	-100	-13	20	60	87	88	83	100	92	100	75	85	40	38	-30	-130				

## Tromsø.

JANUARY 1951.

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

Gr. M. T.

DAY	HOURLY MEAN VALUES																							M	PS	NS	AS	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	20	-15	32	20	0	0	0	0	0	0	0	0	0	7	48	42	17	-13	28	20	-7	-65	-65	-18	2	234	183	427
2	-48	17	-25	-75	-10	-56	-123	-50	-18	0	0	10	10	8	-10	22	20	5	-32	-50	-177	-55	-12	-100	-51	92	559	951
3	-75	0	-17	-13	-50	-140	-58	-33	-13	14	15	12	13	22	10	15	15	8	-17	-95	-22	-15	-62	-165	-27	124	733	897
4	-10	0	0	0	0	0	0	0	0	0	0	0	0	0	5	18	2	-12	-57	-125	-24	7	-8	37	228	265		
5	3	17	-12	0	0	0	0	0	0	0	0	0	0	0	0	2	-4	-10	55	55	75	-152	-60	-5	152	281	433	
6	-18	10	10	0	0	0	0	0	0	0	0	0	0	7	10	7	0	0	0	-47	-15	0	0	-2	44	80	124	
7	0	0	0	-8	-15	-10	-3	0	0	0	0	0	0	0	0	0	10	7	0	-7	-13	-47	-23	-5	17	126	143	
8	-27	-23	-8	0	0	0	0	0	0	0	0	0	0	18	35	55	55	23	28	14	0	0	0	0	7	228	58	286
9	-2	-15	-6	-6	-12	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	-1	22	43	65
10	10	-27	-15	-13	-10	-13	-6	0	0	0	0	0	0	6	7	7	-75	-175	-192	-7	-77	-35	-13	-3	-26	30	661	691
11	20	-30	-72	-25	0	10	2	-8	-8	-3	0	8	3	7	-50	-57	90	-97	-25	8	-140	-22	70	605	675			
12	50	85	-50	-25	0	17	7	-20	-5	35	85	10	20	20	43	40	23	23	-10	-20	-62	-23	-22	-113	2	398	350	748
13	-15	60	25	-65	-100	-50	4	20	25	27	25	10	0	0	5	5	13	22	-70	-107	-15	-62	50	-8	291	474	765	
14	55	50	-20	-30	-23	0	-6	-20	-3	2	15	15	25	39	30	27	18	-25	-114	-95	-47	-77	18	-120	-12	294	579	873
15	90	-20	-35	29	-30	-30	-40	-10	18	2	12	10	26	14	15	38	15	7	-77	-150	-27	-35	-72	-200	-18	269	706	975
16	-110	-30	27	18	10	2	-10	-17	13	12	22	12	28	47	-7	5	-6	-65	-177	-130	-27	95	-22	-140	-19	291	742	1033
17	20	20	-45	-40	-43	-45	-45	-20	10	0	0	0	0	0	0	0	8	-2	-10	-3	0	-10	-10	-10	-10	48	283	331
18	-8	0	0	0	0	0	0	0	0	0	0	0	0	0	33	15	5	17	20	5	-85	-147	-110	-10	112	350	462	
19	-12	-40	-40	-77	-42	-30	-16	-13	-15	0	0	8	28	25	17	-17	-12	-3	-5	-45	-27	-65	78	155	-6	331	459	770
20	185	40	-90	-35	0	0	0	0	0	0	0	0	10	12	35	13	0	0	0	3	4	5	-5	7	303	134	437	
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-262	-465	-315	-132	45	13	125	-42	40	-41	223	1216	1439
22	110	-230	-40	-130	-90	-33	12	25	30	57	25	20	60	-75	-170	-85	-107	-55	-132	-130	-57	-235	-52	-20	-54	339	1637	1976
23	120	50	-110	-80	-32	12	12	10	10	32	55	20	20	7	50	0	-5	-127	105	92	25	68	-170	-7	546	721	1267	
24	-45	-30	0	0	0	0	-16	0	0	0	8	15	40	24	12	15	10	5	-2	-35	-62	-57	-57	-65	-10	129	359	488
25	-25	-3	13	15	13	10	10	10	17	20	18	20	15	42	0	0	0	0	-70	-142	-87	-50	-7	216	377	593		
26	-38	-18	0	0	0	0	0	0	0	0	0	0	0	10	20	25	-125	-202	0	-42	-37	8	70	-13	148	462	610	
27	100	20	15	0	-20	-33	-35	0	5	9	13	8	10	17	18	15	5	-20	-74	-25	-37	-70	-64	-127	-11	235	505	740
28	85	50	20	-70	-40	2	19	18	12	12	18	12	23	10	0	35	0	-22	-192	-200	13	10	-42	-90	-13	339	656	995
29	15	-5	-5	7	-20	7	-6	-3	-3	12	22	33	28	12	0	2	-2	-5	-70	-80	-62	-115	88	-25	-7	224	403	627
30	-10	100	-15	-15	-7	-3	2	-3	-13	0	10	12	0	0	0	0	-52	-83	-82	-150	-52	-7	-62	-170	-25	124	724	848
31	-20	20	90	-100	-350	-138	32	30	15	-3	-55	-30	-45	-28	-50	-45	-153	-365	-272	-120	83	45	28	-70	-58	343	1744	2087
M	14	2	-12	-23	-28	-17	-9	-3	2	8	7	7	12	8	6	-1	-21	-36	-61	-50	-35	-30	-25	-53	-14	201	541	742
MPS	28	17	7	3	1	2	3	4	5	8	9	8	13	11	14	12	7	4	3	3	6	12	10	11				
MNS	15	16	19	26	29	19	12	6	3	0	2	1	1	3	8	13	28	40	64	53	41	42	36	64				

## FEBRUARY.

DAY	HOURLY MEAN VALUES																							M	PS	NS	AS	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	37	-5	-115	-273	-157	-100	-70	-62	-57	-17	-20	-8	0	-8	-5	-6	7	4	-23	-2	-17	-57	-35	-30	-42	48	1067	1115
2	12	22	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-7	-75	-38	-25	-4	41	145	186	
3	-20	-16	13	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-7	25	181	206	
4	0	0	0	0	0	0	0	0	0	0	0	0	0	10	23	20	-20	-18	-155	-23	20	23	7	-6	103	254	357	
5	-7	0	0	-5	-30	-30	-30	-30	-30	-30	-30	-30	-30	-30	-30	-30	-30	-30	-30	-30	-30	-30	-30	0	302	290	592	
6	127	395	25	-273	-262	-155	-65	-37	-15	-2	22	15	20	15	20	20	25	17	23	22	10	-4	-22	-15	-3	756	830	1588
7	20	15	13	-5	-6	-5	7	5	0	0	0	0	0	0	0	0	0	0	0	5	5	14	205	205	347			
8	-28	-25	-20	-12	-23	0	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	0	368	348	716
9	-10	80	30	-30	-17	-30	-58	-24	5	10	10	10	10	7	5	10	-150	-198	95	0	-80	-140	-223	-3	481	521	1002	
10	27	115	50	-63	-72	-70	-60	-40	-13	0	13	15	17	0	0	0	0	0	0	0	0	0	0	0	-2	179	1242	
11	-53	85	65	-83	-87	-75	-28	-7	-12	3	15	5	2	17	8	7	-20	-43	-150	-100	-137	3	75	175	-14	460	795	1255
12	-103	-25	95	-133	-92	-55	-70	-37	-10	10	25	5	25	20	30	48	-45	-48	-5	-220	-180	-32						

## RESULTS OF MAGNETIC OBSERVATIONS, FOR THE YEAR 1951

Kosmisk Fysikk

## Tromsø. Vertical Intensity. V = 50618 + Tabular Quantities expressed in Gamma.

APRIL 1951.

Gr. M. T.

HOURLY 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	62	60	40	47	60	62	64	67	67	72	82	88	83	80	80	82	75	65	63	52	67	80	120	40	69	319
2	100	160	135	58	2	6	57	62	63	70	85	78	63	50	-5	-190	-350	-100	43	60	125	40	40	125	32	718
3	275	580	320	50	115	145	-5	78	132	60	40	48	0	120	125	105	-80	-180	-20	60	375	70	-10	10	101	1109
4	90	100	70	60	110	0	40	70	88	80	73	95	40	-110	-50	-10	-120	-40	80	110	200	200	70	420	69	979
5	385	500	270	-10	10	-30	-38	30	75	75	100	50	88	68	-40	70	103	85	10	20	-20	150	140	80	90	993
6	170	85	18	5	10	-15	-7	43	62	80	90	50	110	90	102	5	-20	-8	170	70	130	140	90	410	78	856
7	380	190	180	50	2	17	70	100	112	95	83	115	85	87	100	102	50	-65	70	120	255	75	125	280	112	943
8	110	100	-20	-50	-60	60	87	88	90	90	90	85	108	108	80	90	5	0	5	22	95	280	250	71	631	
9	120	78	78	48	50	52	55	82	95	82	80	143	100	82	30	-50	50	18	55	70	55	80	66	319		
10	115	250	280	-50	-80	5	15	65	62	65	68	78	97	80	120	157	120	83	60	70	80	88	87	100	84	508
11	180	165	50	-25	-22	-3	10	47	58	62	67	72	80	85	95	85	88	80	87	82	80	110	100	190	76	365
12	120	100	100	30	63	78	75	77	80	87	85	85	92	102	115	123	95	73	20	25	70	180	-10	80	370	
13	270	200	128	150	40	22	50	65	62	70	63	40	45	-250	-70	17	95	0	98	95	92	200	345	120	81	921
14	240	110	140	70	45	67	72	92	95	95	100	83	100	113	97	110	98	88	55	87	95	215	137	110	105	399
15	30	25	62	77	78	85	78	75	77	78	93	82	118	117	95	105	80	68	88	95	95	80	100	82	152	
16	40	57	73	75	73	70	70	70	75	75	73	72	72	78	93	95	83	77	75	112	240	80	85	341		
17	180	70	-43	-22	-7	-2	37	58	62	70	87	92	108	122	117	105	108	80	78	85	75	70	71	370		
18	67	68	70	68	68	67	63	62	50	45	30	0	-230	-70	-8	-20	-200	-65	50	160	110	150	190	230	38	776
19	80	40	-40	32	40	42	52	63	72	77	60	98	78	85	80	83	88	87	77	72	68	120	290	240	63	544
20	110	-35	-70	-52	-53	-5	25	30	67	77	92	117	82	130	50	-55	-90	-8	40	260	330	380	300	80	595	
21	180	380	210	120	100	-100	-10	2	50	65	30	-200	-270	-250	-50	25	20	33	55	62	80	140	150	330	47	1030
22	290	140	160	110	-100	-2	57	73	65	60	62	55	-20	-70	65	-65	-20	142	280	200	175	218	190	86	725	
23	90	170	330	180	-90	-38	50	77	77	75	78	78	73	95	127	112	92	83	80	78	72	45	50	86	667	
24	63	70	78	78	70	40	25	52	100	112	120	150	80	-210	-165	-170	-140	-30	100	170	185	180	163	370	62	783
25	130	30	220	10	-90	30	35	30	40	82	45	-7	12	10	5	-40	-100	0	25	70	150	220	270	59	819	
26	300	300	40	-2	-12	30	50	50	73	87	90	78	80	82	80	78	75	63	45	62	87	82	78	78	82	500
27	75	72	75	73	70	65	65	65	77	75	72	85	75	105	122	120	100	50	10	98	83	118	170	100	83	290
28	85	180	25	33	43	58	68	70	70	78	80	90	100	95	90	83	112	85	92	68	63	93	90	105	82	145
29	93	108	170	50	10	48	60	67	78	82	93	110	95	145	85	28	60	123	92	78	72	72	72	82	82	283
30	68	73	73	75	73	73	72	68	67	68	68	83	83	75	70	68	67	65	70	70	65	65	80	71	36	
M	147	144	104	44	21	31	45	62	74	77	76	65	59	43	50	51	16	23	68	86	113	125	142	161	77	583
QM	71	72	73	73	71	69	68	68	70	71	72	74	75	76	77	78	79	78	77	76	74	73	72	74	74	

MAY.

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	180	120	60	-20	27	18	40	7	32	75	57	43	52	88	80	60	-80	-75	-20	140	180	530	600	500	112	943	
2	340	90	45	67	67	72	75	68	65	50	25	0	-170	-150	-10	45	-20	35	12	140	230	200	100	115	62	1088	
3	245	90	15	65	70	80	63	92	98	80	82	75	60	10	80	112	75	-50	0	62	160	110	260	85	660		
4	450	320	130	0	18	48	70	75	78	105	97	70	80	112	90	75	20	52	170	100	102	145	82	104	725		
5	72	80	63	88	90	70	67	73	68	80	95	100	82	87	82	90	82	72	65	75	135	148	86	254			
6	-10	-20	40	55	22	-6	15	38	55	60	67	68	72	73	135	98	87	72	210	15	-8	2	32	52	457		
7	65	42	25	45	45	67	82	83	88	80	88	100	110	150	118	118	102	87	20	40	60	10	-6	71	232		
8	0	15	50	68	70	72	70	72	72	82	90	112	93	112	100	97	80	52	48	52	78	71	138				
9	60	67	58	75	72	73	73	78	80	90	125	112	118	98	110	70	-25	70	-20	60	80	100	200	84	740		
10	60	65	72	60	90	110	80	145	110	130	120	130	130	130	130	130	130	130	130	130	130	130	130	80	435		
11	145	185	120	40	42	50	65	93	70	90	110	93	90	32	88	90	110	30	25	90	115	305	90	190	98	442	
12	250	185	90	55	45	75	85	82	93	87	87	92	118	133	87	25	-50	0	50	72	88	110	98	84	493		
13	77	68	75	67	73	72	70	75	83	83	77	75	73	80	90	93	78	68	73	78	90	100	78	94			
14	63	58	77	120	-25	-3	35	55	60	63	77	55	75	70	83	110	120	105	92	100	92	220	110	195	85	464	
15	190	120	230	10	20	45	77	80	75	90	80	87	82	90	120	120	120	120	120	120	120	120	120	120	406		
16	120	60	-20	-50	-80	7	22	45	52	63	60	62	63	77	85	80	88	82	82	82	82	82	82	82	66	486	
17	-10	210	120	-80	-60	-28	7	42	78	85	80	60	-120	77	80	85	-40	-10	63	58	50	50	30	77	100	88	725
18	230	75	190	15	35	60	80	85	85	93	80	95	90	105	97	105	88	85	80	50	50	50	30	7			

Tromsø.

APRIL 1951.

Vertical Intensity. Storminess (+ Down). Unit 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	PS	NS	AS	
1	-8	-12	-33	-26	-10	-5	0	0	0	0	10	13	0	0	0	0	-12	-15	-25	-8	5	47	-32	-5	75	186	261	
2	30	88	62	-35	-68	-62	-10	-6	-7	0	13	3	-12	-25	-82	-268	-430	-180	-35	-17	50	-35	-33	53	-42	299	1305	1604
3	205	508	247	-23	45	75	-73	10	62	-10	-32	27	75	65	48	-27	-160	-260	-98	-17	300	-5	-63	-62	30	1619	898	2517
4	20	28	-3	-13	40	-70	28	2	18	10	0	20	-35	-185	-127	-88	-200	-120	2	33	125	-3	348	-2	799	844	1643	
5	315	428	197	-83	-100	-106	-38	5	5	28	-25	13	-7	-107	-8	23	5	-68	-57	-95	75	67	8	17	1169	754	1923	
6	100	13	-55	-68	-60	-55	-75	-25	8	10	18	-25	35	15	25	-73	-100	-86	92	-7	55	65	17	338	5	783	669	1452
7	310	118	117	-23	-68	-53	2	32	42	25	10	40	10	12	23	24	-30	-145	-8	43	170	0	52	208	38	1238	327	1565
8	40	28	-93	-123	-130	-10	20	20	20	18	10	33	33	3	12	-75	-80	-78	-72	-53	20	207	178	-2	662	714	1376	
9	50	6	5	-25	-20	-18	-16	-13	12	25	10	5	68	25	5	12	-50	-130	-28	-60	-20	-5	-18	8	-7	231	403	634
10	45	178	207	-123	-150	-65	-53	-3	-8	-5	-4	3	22	5	43	80	40	3	-18	5	13	14	28	10	686	436	1122	
11	110	93	-23	-98	-92	-73	-58	-20	-12	-8	0	0	0	3	12	2	6	0	5	0	0	33	25	118	0	407	384	791
12	50	28	27	-43	-7	8	4	7	7	10	6	10	10	17	25	37	43	15	-5	-57	-50	-5	107	-82	7	411	249	660
13	200	128	55	77	-30	-48	-18	-3	-8	0	-10	-35	10	-325	-147	-60	15	-80	2	18	18	125	272	48	9	986	764	1750
14	170	38	67	-3	-25	-3	4	24	25	25	28	8	25	38	20	32	18	8	-23	10	20	140	64	38	31	802	54	856
15	-40	-35	-10	4	8	15	5	0	0	18	7	43	42	18	0	-12	10	18	20	5	27	8	7	275	97	372		
16	-30	-15	0	0	0	0	0	0	0	0	0	5	18	35	15	13	3	0	0	37	167	8	11	301	45	346		
17	129	-2	-116	-95	-77	-72	-30	-10	-8	0	15	17	33	47	40	27	28	0	0	0	20	0	0	-3	347	410	757	
18	0	0	0	0	0	0	0	-20	-35	-42	-75	-315	-145	-85	-98	-280	-145	-28	83	35	75	117	158	-33	468	1268	1756	
19	10	-32	-33	-40	-30	-28	-16	-5	2	7	-12	15	3	10	3	6	8	7	0	-5	-7	45	217	168	12	499	208	707
20	40	-107	-143	-125	-123	-75	-43	-38	3	7	20	42	7	55	-27	-133	-170	-88	-38	123	185	255	307	228	7	1269	1113	2382
21	110	308	137	47	30	-170	-68	-66	-20	-15	-42	-275	-195	-325	-127	-53	-60	-47	-23	-15	5	65	57	258	-20	1017	1501	2518
22	220	68	87	37	-170	-72	-10	5	-5	-10	-10	-70	-20	-95	-147	-13	-145	-100	64	203	125	100	245	118	17	1272	567	2139
23	20	98	257	107	-160	-108	-18	10	7	7	0	0	4	18	50	32	10	0	0	-5	-30	-23	12	620	344	984		
24	-12	-7	0	0	-30	-43	-16	30	42	48	75	5	-285	-242	-248	-220	-110	22	93	110	105	90	298	-12	918	1213	2131	
25	60	-42	147	-63	-160	-40	-33	-38	30	12	-27	-82	-65	-65	-72	-118	-180	-80	-53	-7	75	145	197	173	-14	809	1153	1962
26	230	228	-33	-75	-82	-40	-18	3	17	18	3	5	7	3	0	-5	-17	-33	-15	7	0	0	0	8	521	336	857	
27	0	0	0	0	0	0	0	7	5	0	-7	0	30	45	22	-30	70	20	6	43	95	27	28	9	328	107	435	
28	15	108	-48	-40	-27	-12	0	0	0	0	8	15	25	20	13	5	32	5	14	-10	-12	18	17	23	7	326	149	475
29	23	36	97	-23	-60	-22	-8	0	0	8	12	20	35	20	20	70	8	-50	-20	63	14	0	0	0	10	413	596	44
30	0	0	0	0	0	0	0	0	0	0	0	15	13	3	0	0	0	0	0	0	0	0	0	13	2	44		
M	80	76	37	-29	-50	-39	-21	-6	4	5	4	-8	-11	-31	-26	-27	-63	-55	-10	9	37	50	72	89	4	653	566	1219
MFS	83	84	56	9	4	3	2	4	8	8	10	12	13	17	12	13	9	4	9	21	45	52	78	85				
MNS	3	8	20	38	54	42	23	10	4	3	6	20	24	49	39	40	72	59	18	12	8	2	6	7				

MAY.

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	PS	NS	AS		
1	108	47	-15	-95	-35	-52	-30	-63	-38	5	-13	-30	-53	13	5	-18	-160	-155	-100	60	103	455	527	428	37	1751	857	2608	
2	268	17	-30	-8	-6	2	5	-2	-5	-20	-45	-72	-245	-225	-65	-33	-100	-45	-68	60	153	125	27	43	-12	700	989	1689	
3	173	17	-60	-10	-3	-15	23	22	22	18	10	10	0	-15	-65	2	32	-5	-130	-80	-15	85	37	168	11	649	383	1032	
4	374	247	55	-75	-55	-22	0	5	8	35	27	-2	-75	5	37	12	-5	-60	-28	90	23	72	10	30	1031	322	1353		
5	0	7	8	13	17	0	0	0	0	0	10	20	13	25	23	21	4	10	2	-2	-12	0	62	76	12	302	22	324	
6	-82	-93	-35	-20	-50	-75	-55	-30	-10	0	0	0	7	0	0	-2	57	18	7	-8	130	-62	-83	-70	-40	-21	219	715	934
7	-7	-30	-50	-30	-28	-3	12	13	18	10	18	28	35	10	35	72	38	22	7	-60	-37	-5	-63	-80	-4	318	43	721	
8	-72	-58	-20	0	0	0	0	0	0	0	10	15	37	18	34	20	17	0	-10	-25	-27	-20	6	-3	157	232	389		
9	-10	0	10	5	0	0	0	0	0	0	0	0	0	0	7	18	20	5	0	0	5	3	139	16	155				
10	-8	-8	-3	-15	-13	-20	-10	-7	-15	-1	-7	-5	1	3	5	35	42	25	12	20	-5	-15	3	145	37	782			
11	73	112	45	-35	-20	-5	-23	0	20	40	20	15	-43	13	12	30	-50	-45	10	38	220	17	118	24	806	228	1034		
12	178	102	15	-40	-28	5	15	13	12	23	17	15	43	58	10	-55	-130	-80	-30	-5	13	37	26	10	599	368	967		
13	5	5	0	0	0	0	0	0	0	0	15	13	10	0	0	7	18	20	5	7	4	3	13	16	1	345	368	1696	
14	-10	-5	2	45	-19	-73	-35	-10	-7	-15	3	-5	3	8	35	42	25	12	20	-5	-15	3	17	24	139	16	155		
15	118	47	155	-65	-53	-25	-7	10	17	-25	25	15	30	20	25	8	5	17	22	47	13	37	23	-9	346	811			
16	48	-13	-95	-125	-153</td																								

## RESULTS OF MAGNETIC OBSERVATIONS, FOR THE YEAR 1951

Kosmisk Fysikk

**Tromsø.** Vertical Intensity. V = 50618 + Tabular Quantities expressed in Gamma.

JULY 1951. 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	85	90	-40	-25	33	65	68	60	62	60	45	70	118	90	53	-10	-10	0	120	110	75	170	230	450	81	725	
2	550	800	310	310	470	430	100	35	140	175	140	170	120	98	40	90	20	100	120	180	280	225	180	235	943		
3	160	260	130	-2	5	50	85	80	70	85	95	122	98	105	0	117	62	-10	20	93	98	260	300	220	104	544	
4	130	100	50	35	85	60	-7	20	60	80	88	80	87	82	80	80	85	90	80	20	90	120	280	81	471		
5	-10	13	25	42	48	78	82	80	67	70	70	68	107	100	92	92	92	90	70	77	62	73	117	115	72	189	
6	12	62	75	68	70	78	80	78	88	83	90	98	90	92	128	115	72	90	67	62	55	78	115	52	80	131	
7	-3	0	28	55	52	78	70	63	62	62	63	78	82	85	80	68	67	75	62	75	145	62	100	90	67	261	
8	-15	-7	45	68	58	60	70	70	72	77	65	58	70	70	80	82	85	65	58	60	42	100	150	260	73	413	
9	240	210	110	120	-2	40	45	52	58	56	65	80	77	83	77	82	105	102	80	50	20	50	93	85	84	493	
10	62	20	20	70	70	72	82	80	80	60	62	48	68	77	82	72	63	58	40	22	45	45	52	60	109		
11	57	55	57	68	70	72	80	75	75	95	112	130	120	180	112	65	65	70	72	68	73	70	25				
12																											
13	110	110	-10	22	43	38	12	57	67	80	95	70	73	87	82	70	68	70	63	63	42	67	63	62	63	406	
14	35	10	20	52	65	70	68	62	58	58	77	98	83	95	100	112	95	73	67	58	52	60	50	150	70	181	
15	40	5	7	0	10	35	67	68	72	75	80	82	102	80	60	68	83	13	60	80	165	370	240	81	623		
16	85	120	130	230	5	30	52	53	72	100	195	180	160	115	48	60	40	22	110	80	80	95	108	91	326		
17	120	140	82	50	58	63	63	70	87	90	80	60	63	78	83	95	20	35	-10	0	65	90	120	185	74	225	
18	165	100	70	52	63	33	30	45	75	87	93	125	160	70	95	50	60	-40	65	80	90	150	32	102	77	370	
19	108	73	72	50	58	72	70	75	85	110	95	85	92	85	73	90	80	67	40	80	170	60	38	68	79	276	
20	70	112	145	-30	-30	15	45	80	87	90	83	80	70	87	20	-35	-52	-40									
21	30	40	50	60	58	62	72	88	70	98	97	102	120	112	100	83	93	82	78	70	68	77	80	77	109		
22	80	40	2	-3	85	-55	7	55	123	100	70	62	72	100	120	20	30	170	100	90	180	255	290	87	435		
23	330	410	120	-40	8	40	50	67	92	95	110	118	93	118	113	97	100	83	85	83	80	80	80	75	82	316	
24	82	47	50	50	52	65	73	70	80	93	102	93	140	100	110	92	98	90	83	83	80	80	80	80	78	355	
25	68	67	67	62	68	65	60	58	72	78	80	120	113	75	85	110	70	18	10	70	110	200	80	73	78	870	
26	160	85	40	-8	20	85	75	115	70	72	70	98	110	80	75	-100	50	75	70	68	152	150	185	380	91	877	
27	90	10	150	40	-20	17	45	63	90	112	93	72	87	72	70	88	67	60	80	100	80	125	240	79	442		
28	150	-63	-40	80	-160	-60	15	67	70	95	125	98	112	105	85	-50	-40	-30	30	190	150	70	115	200	55	551	
29	170	70	60	20	35	38	58	82	110	95	73	70	117	100	110	63	80	82	60	73	82	60	95	200	84	305	
30	100	2	50	62	63	67	72	63	65	80	85	108	110	115	100	132	90	82	55	10	25	88	250	95	240	89	
31	3	100	20	-100	-80	-37	45	63	83	90	110	67	-18	-103	-270	-260	-110	50	20	-60	140	110	95	127	320	11	870
M	113	106	74	50	41	60	70	70	78	87	91	95	99	99	90	78	58	58	52	61	73	90	120	135	179	82	401
QM	62	61	62	64	66	68	69	70	69	68	68	70	72	74	76	73	71	68	66	65	64	64	63	67	67	67	67

AUGUST.

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	30	150	-85	-25	30	50	60	63	67	60	65	90	85	93	75	65	-30	-25	25	50	180	205	440	440	90	798
2	180	160	170	-140	-40	30	30	62	62	67	78	77	72	80	90	93	73	78	20	72	80	20	40	15	57	653
3	60	70	40	63	70	60	65	67	70	60	67	85	90	105	92	73	75	67	70	68	60	62	65	115	72	174
4	50	50	115	5	-22	25	50	55	58	60	70	70	90	98	95	110	100	100	100	37	52	63	115	20	455	
5	30	190	-70	-55	10	55	60	67	70	65	60	62	72	90	95	105	90	90	60	52	72	65	15	70	55	442
6	125	55	35	52	68	70	70	68	68	62	63	60	63	55	90	50	30	35	65	92	88	80	-10	45	62	232
7	32	63	67	55	20	50	58	60	58	75	80	73	80	70	77	67	60	63	25	20	72	190	250	15	68	479
8	10	-10	-25	-3	20	28	67	80	78	75	65	72	68	72	80	80	73	67	58	42	58	63	53	131		
9	65	0	28	58	63	58	73	78	98	90	83	120	130	145	140	95	110	100	83	73	80	80	25	15	79	239
10	12	52	73	78	78	78	67	62	62	80	77	83	72	155	110	70	62	65	65	45	45	60	-60	64	174	
11	12	55	55	42	37	32	40	70	85	92	122	130	120	140	157	150	97	35	20	120	130	105	122	230	91	319
12	185	30	50	32	38	40	58	80	92	118	130	145	195	75	110	88	90	120	107	205	250	150	160	110	106	537
13	93	50	50	52	220	80	75	55	97	102	85	75	120	-120	-230	-130	25	370	320	58	100	5	95	57	1015	
14	85	78	73	72	65	67	70	77	68	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	334	
15	80	65	140	30	5	32	65	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	305
16	150	30	70	63	70	70	60	45	45	35	80	82	72	90	88	82	78	72	73	70	70	70	70	70	70	457
17	150	50	45	80	75	73	68	70	63	78	83	95	105	90	67	60	100	80	65	50	62	77	189			
18	77	83	80	75	50	30	45	60	73	75																

## Tromsø.

JULY 1951.

Vertical Intensity. Storminess (+ Down). Unit 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	PS	NS	AS		
1	23	30	-102	-90	-32	-3	-2	-10	-8	-23	0	46	15	-42	-85	-80	-68	55	45	10	105	165	387	14	881	551	1432		
2	498	740	498	245	245	402	360	30	-35	72	107	70	98	45	23	-33	20	-48	35	55	115	215	160	117	43	4140	116	4266	
3	98	200	68	-87	-60	-18	15	10	0	17	27	52	26	30	-75	44	-8	-76	-45	18	33	195	235	157	36	1225	351	1576	
4	68	40	-12	-30	-2	-8	-77	-50	-10	12	12	18	12	12	7	7	10	17	25	15	-45	25	55	217	14	572	232	804	
5	-72	-47	-37	-22	-17	10	12	10	-3	2	2	-35	25	17	20	22	22	5	22	-3	8	52	52	5	316	203	519		
6	-50	2	13	3	5	10	10	8	18	15	22	28	18	17	53	42	2	2	-3	0	13	50	-10	12	353	63	416		
7	-65	-60	-34	-10	-13	10	5	0	0	0	10	12	13	8	0	0	10	80	-3	35	27	1	220	185	405				
8	-77	-67	-20	0	-10	-10	0	0	0	10	0	-12	0	0	12	20	25	0	0	-20	35	55	217	8	404	216	620		
9	178	150	48	55	-67	-28	-25	-18	-12	-3	7	10	2	7	32	32	12	-15	-45	-15	18	20	22	16	605	228	833		
10	0	-40	-42	5	0	0	12	10	10	-10	-25	-7	0	0	0	0	0	-17	-33	-8	-7	0	-6	47	189	256			
11	0	0	0	0	0	0	0	0	23	42	60	48	7	2	10	-5	-27	-7	30	20	-7	-3	5	7	3	8	5	-38	
12																									97	87	184		
13	48	50	-72	-43	-22	-30	-58	-15	-3	10	23	3	0	12	7	0	0	0	0	-20	5	0	0	-5	155	264	419		
14	25	-50	-42	-10	0	3	3	0	-7	-10	10	28	10	20	25	40	25	5	0	-6	0	-12	87	6	281	137	418		
15	-22	-57	-55	-65	-55	-35	-3	0	0	0	10	10	27	5	-13	-2	15	-52	-5	15	100	305	177	15	664	362	1026		
16	23	60	68	165	-60	-65	-40	-18	-17	4	32	125	108	85	40	-25	-10	-28	-43	45	15	15	30	34	23	860	304	1164	
17	58	80	20	-15	-7	-5	-7	17	22	12	-10	-10	3	8	22	-50	-33	-75	-65	-6	25	55	120	7	442	279	721		
18	103	40	8	-13	-2	-35	-40	-25	5	20	25	55	88	-5	20	-23	-10	-108	-2	18	25	85	-33	-40	7	492	336	828	
19	46	13	10	-15	-7	4	0	5	15	42	27	15	20	10	-2	17	10	0	-25	15	105	-5	-27	5	12	359	81	440	
20	8	52	83	-95	-95	-53	-25	10	17	22	15	10	-2	12	-55	-108	-122	-108							229	663	892		
21	-32	-20	-18	-5	-7	-10	-8	2	18	2	30	27	30	45	37	27	13	5	3	12	17	10	323	94	417				
22	18	-20	-68	-20	-123	-63	-15	53	32	2	-8	0	25	45	32	-50	-38	105	35	25	115	190	227	20	924	445	1369		
23	268	350	58	-105	-57	-28	-20	-3	22	27	48	46	20	43	38	24	30	15	0	0	5	55	160	107	4	1518	213	1531	
24	20	-13	-12	-15	-13	-3	3	0	10	15	34	23	68	25	35	12	13	15	0	0	0	0	0	9	273	56	329		
25	0	0	0	8	3	-3	-7	4	10	12	50	40	0	10	37	0	-50	-55	5	45	155	15	10	11	384	115	499		
26	98	25	-22	-73	-45	-17	5	45	0	4	2	28	38	5	0	-173	-20	7	5	3	67	85	120	317	23	891	333	1224	
27	28	-50	88	-25	-85	-50	-35	-7	20	44	25	2	-5	-3	18	0	-5	15	35	15	15	60	177	11	542	268	810		
28	88	-123	-102	15	-255	-128	-55	-3	0	27	57	28	40	30	10	-123	-110	-98	-35	125	85	5	50	137	71	697	1002	1699	
29	108	10	-12	-45	-30	-30	-12	12	49	27	5	0	45	25	35	10	10	-10	15	8	17	-5	30	137	17	534	134	668	
30	38	-58	-12	0	0	0	4	-7	10	17	40	40	43	25	57	17	12	-13	-13	-5	-55	-40	23	185	177	20	688	198	886
31	-59	40	-42	-165	-145	-105	-25	-8	13	22	42	-3	-90	-178	-345	-333	-180	-18	-45	-125	45	30	62	257	-56	511	1866	2377	
M	49	43	9	-16	-25	-10	-2	-1	6	15	21	21	24	12	0	-16	-13	-17	-5	5	20	45	71	107	14	632	309	941	
MPS	61	63	32	16	10	15	14	5	0	16	22	24	28	18	18	18	14	8	6	2	6	9	16	26	45	74	110		
MNS	13	20	23	33	35	25	17	6	3	1	1	2	4	6	17	31	22	23	14	11	6	1	3	5	3	1	1	1	1

AUGUST.

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	PS	NS	AS	
1	-35	85	-152	-93	-40	-18	-7	-2	2	-5	2	25	17	20	0	-8	-100	-95	-50	-20	110	138	375	375	22	1149	625	1774
2	115	95	103	-148	-210	-108	-35	0	0	0	8	4	0	2	8	13	-5	-5	-55	0	8	-47	-25	-50	-14	356	683	1039
3	-3	8	-20	3	8	-3	0	0	-5	2	20	22	32	17	0	0	-6	0	0	-5	0	0	5	167	42	209		
4	-15	-15	48	-63	-92	-43	-17	-10	-7	7	5	22	25	10	37	30	30	-33	-18	-7	48	155	-35	-35	2	417	360	777
5	-35	125	-137	-123	-60	-13	-5	0	0	0	0	7	17	15	32	20	-10	-18	2	-5	-52	-68	5	-13	223	526	749	
6	60	-10	-32	-18	0	0	0	0	0	0	0	0	-13	17	-23	-40	-35	16	22	18	13	-75	-20	-5	145	266	411	
7	33	-2	0	13	-77	-47	-17	-5	-7	10	17	45	2	2	7	0	0	-42	-50	2	123	185	-50	6	439	298	737	
8	-55	-75	-92	-70	-50	-40	0	15	13	7	3	2	-4	-3	3	0	0	-5	0	-10	-23	-5	-16	43	455	478		
9	0	-65	-40	-10	-7	-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	482	222	704	
10	-53	13	10	8	0	0	0	10	0	10	5	4	6	2	7	24	27	55	10	-60	-52	-30	-22	63	195	745		
11	-53	-10	-12	-26	-33	-27	5	20	60	65	52	67	82	57	27	-35	-50	50	60	38	57	165	23	832	282	1114		
12	120	-35	-17	-36	-32	-28	-10	15	27	43	67	80	127	2	35	10	18	20	50	37	180	83	95	45	37	1054	158	2121
13	28	-15	-17	-16	150	12	8	-10	32	37	22	10	52	-193	-305	-343	-200	-45	300	250	-12	33	-60	30	-11	964	1216	2180
14	18	10	0	0	0	0	0	0	18	33	27	32	30	57	100	42	-2	-60	-86	-15	13	28	40	74	14	494	170	664
15	0	73	-33	-20	-25	0	0	0	0	0	10	5	4	7	24	27	55	10	-60	-52	-30	63	85	55	15	550	195	

## RESULTS OF MAGNETIC OBSERVATIONS, FOR THE YEAR 1951

Kosmisk Fysikk

**Tromsø.** Vertical Intensity.  $V = 50618 +$  Tabular Quantities expressed in Gamma. Gr. M. I.

OCTOBER 1951.

DAY	HOURLY MEAN VALUES																							M	R		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	70	150	-10	-10	35	65	40	78	87	88	85	83	85	88	90	93	85	98	68	80	73	75	75	38	76	355	
2	83	62	58	77	80	80	83	87	88	88	85	85	90	92	97	98	95	90	90	78	110	45	82	76	283		
3	67	68	80	88	88	87	88	88	87	85	85	85	87	92	90	90	88	50	75	58	93	85	82	82	189		
4	48	63	80	89	88	87	83	82	82	80	80	80	82	88	90	90	100	100	65	58	-10	110	85	105	79	232	
5	80	50	35	70	83	82	82	85	87	83	85	85	83	80	83	83	82	82	88	88	82	78	80	79	94		
6	80	78	65	37	28	30	38	57	67	85	80	95	110	100	10	-200	-80	70	112	220	410	370	460	350	97	979	
7	210	270	370	65	70	18	70	120	130	85	55	72	75	-45	-80	8	-80	-185	50	110	165	145	250	290	93	848	
8	90	30	75	-8	30	65	80	105	118	155	122	102	102	80	40	100	122	35	65	50	180	325	180	95	97	841	
9	97	85	210	78	43	68	90	95	95	97	130	140	160	97	120	-40	-90	10	115	185	240	220	240	108	696		
10	338	120	-8	30	80	70	85	115	132	115	100	112	148	128	122	50	-20	10	0	90	107	105	95	92	92	515	
11	92	85	78	70	58	62	63	73	92	97	100	135	112	90	132	133	118	92	73	105	135	158	142	185	103	174	
12	140	150	82	85	40	-12	32	75	75	85	97	140	155	150	120	105	102	102	70	60	80	360	400	440	121	776	
13	205	135	78	72	82	85	93	95	97	102	98	92	100	100	105	80	-10	170	460	10	100	110	147	113	885		
14	95	80	78	72	85	87	87	98	98	95	103	103	103	112	112	112	75	95	90	245	100	99	421				
15	-30	-5	15	32	42	30	40	68	100	100	110	92	98	150	132	100	40	60	110	230	290	260	400	180	110	848	
16	170	390	10	-70	-20	60	115	122	130	125	80	5	15	75	18	-110	-180	30	15	-20	0	150	105	220	66	955	
17	320	90	50	145	80	40	50	110	120	150	115	105	108	155	90	98	35	-200	-10	110	340	290	-50	70	100	1022	
18	360	-10	10	-100	-70	3	85	118	120	105	97	95	140	130	120	120	-30	-70	300	200	205	340	370	440	128	870	
19	270	150	40	60	77	88	118	127	132	115	130	112	120	143	102	118	115	85	83	110	180	20	110	110	113	689	
20	20	32	25	48	50	13	60	88	95	110	137	132	105	130	122	113	65	80	-3	30	100	190	80	355			
21	225	290	80	18	5	58	63	87	85	92	105	122	135	125	115	-55	-95	-80	70	150	75	115	200	250	130	92	566
22	160	10	2	40	88	93	97	105	113	107	108	117	120	120	130	100	110	45	5	75	87	60	50	30	63	239	
23	38	67	98	97	90	88	88	87	85	85	90	93	92	90	88	85	85	88	65	75	82	80	82	82	85	162	
24	65	100	90	95	85	83	82	82	83	83	88	90	92	90	87	88	82	82	83	82	83	82	82	85	75		
25	80	77	87	77	77	77	77	75	75	78	105	125	90	85	93	98	88	72	75	118	200	160	70	93	353		
26	115	120	60	30	35	-5	30	72	80	88	88	90	88	112	135	120	95	95	93	97	98	95	97	83	84	261	
27	77	82	82	80	78	78	72	77	75	80	85	97	87	-150	-350	-300	-130	5	80	300	470	148	190	300	67	1088	
28	170	120	100	95	102	112	110	100	102	95	95	102	105	115	110	112	110	108	102	105	98	102	98	92	107	51	
29	95	97	95	95	95	92	102	98	97	100	102	108	102	102	102	98	98	97	95	90	97	98	95	92	97	116	
30	92	90	90	92	90	90	88	88	88	90	90	88	90	90	92	90	90	90	90	90	92	90	90	90	89	131	
M	131	104	74	55	60	62	76	92	97	97	95	98	103	94	71	67	49	46	86	114	132	149	155	149	94	492	
QM	85	84	83	83	84	85	86	87	88	89	89	89	90	91	92	91	90	89	89	90	89	87	86	88	88		

NOVEMBER.

DAY	HOURLY MEAN VALUES																							M	R		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	62	90	97	97	97	96	95	97	93	95	97	98	99	107	105	102	107	105	105	90	45	40	82	93	91	181	
2	110	80	60	-57	-25	28	67	88	98	98	112	112	110	120	90	72	60	90	110	88	140	250	265	93	428		
3	125	-60	-50	-90	-105	-38	27	77	102	120	108	98	95	30	108	115	125	52	50	8	30	240	440	300	300	79	732
4	330	275	270	120	-18	20	62	77	95	95	110	95	85	100	110	148	120	105	105	105	100	200	220	220	121	595	
5	220	52	30	10	25	25	85	92	110	112	105	110	140	118	97	97	90	88	70	-15	70	88	120	45	45	45	
6	-2	45	70	70	80	67	80	92	115	132	130	138	138	90	-100	-60	-15	12	130	470	115	135	142	240	96	841	
7	215	260	140	-50	-75	-2	55	68	90	110	105	105	105	118	127	50	-30	-25	28	20	40	25	112	150	74	537	
8	132	220	80	20	60	68	80	85	92	97	97	100	103	103	97	97	98	100	70	20	125	102	97	93	94	406	
9	96	97	92	72	63	72	62	90	102	102	92	95	108	93	87	87	85	85	80	120	125	100	100	111	312		
10	73	83	88	87	86	84	84	82	82	82	82	82	82	82	82	82	82	82	83	90	-30	30	120	120	56		
11	88	89	89	88	88	87	85	83	82	82	83	83	87	87	87	87	88	89	97	95	108	103	85	81	210		
12	260	70	-70	20	48	50	70	75	118	110	115	115	50	-50	-60	8	95	88	88	80	117	157	185	76	544		
13	145	92	68	72	35	62	75	83	92	120	115	92	100	75	-100	-170	-110	160	110	240	235	310	260	100	718		
14	350	260	0	35	30	85	90	97	112	105	97	92	110	90	75	80	38	85	-10	120	50	310	240	300	111	870	
15	190	80	-18	30</td																							

## Tromsø.

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

Gr. M. T.

OCTOBER 1851.

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	PS	NS	AS			
1	-55	-93	-93	-48	-20	-45	-7	0	0	0	0	0	0	0	-7	8	-22	-10	-17	-15	-12	-47	8	130	138					
2	-15	-65	-93	-48	-20	-45	-7	0	2	0	0	0	0	0	0	0	0	0	-10	25	-38	0	-17	27	434	461				
3	0	-20	-22	0	2	0	3	4	0	0	0	0	28	17	10	0	0	0	0	20	50	-20	0	-1	84	112	116			
4	-8	-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-40	-15	-32	6	0	-4	6	105	111				
5	-37	-22	-5	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10	-25	-32	-100	20	-2	20	-7	60	223	283		
6	-5	-35	-48	-13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-4	101	101			
7	-5	-7	-18	-46	-57	-55	-47	-50	-20	-5	-10	5	20	10	-80	-292	-170	-20	22	130	320	280	373	265	23	1425	862	2287		
8	125	185	287	-7	-13	-67	-16	35	43	-3	-35	-18	-15	-137	-172	-82	-170	-275	-40	20	75	55	265	205	10	1293	1049	2342		
9	5	-50	-8	-90	-53	-20	-5	20	30	47	42	12	12	-18	-52	10	32	-55	-25	-40	90	235	93	10	10	565	410	1048		
10	12	0	127	-4	-40	-17	5	10	8	7	7	40	50	68	5	30	-130	-180	-80	25	95	150	133	155	20	927	451	1378		
11	253	35	-91	-52	-3	-15	0	30	45	27	10	22	58	36	30	-40	-110	-80	-90	9	17	12	0	0	4	575	481	1056		
12	0	0	0	-12	-27	-23	-18	-8	5	9	10	45	22	-2	40	45	28	2	-17	15	45	68	55	100	16	487	107	594		
13	55	45	0	3	-43	-97	53	10	-12	-3	7	50	45	58	28	15	12	-20	-30	-30	-270	313	355	47	1531	215	1546			
14	120	50	-5	-10	0	0	0	0	0	0	0	0	0	0	8	-13	-100	80	370	-80	10	23	62	21	723	208	931			
15	5	-5	-5	-10	0	0	0	0	0	0	0	0	0	0	20	22	22	-20	-15	-25	0	158	15	7	242	80	322			
16	-115	-90	-68	-50	-40	-65	-45	-17	15	12	20	2	8	58	40	10	-50	-30	20	140	200	170	513	95	23	1101	560	1561		
17	165	305	-73	-152	-103	-25	30	37	43	37	-10	-85	-75	-17	74	-200	-270	-60	60	-95	-90	60	18	135	-12	964	1255	2219		
18	235	5	-33	63	-3	-45	-55	25	33	33	25	15	18	43	-2	8	-55	-290	-100	20	250	200	133	-15	11	982	711	1693		
19	275	93	-73	-182	-153	-82	0	23	43	17	7	5	50	38	28	22	-120	-160	210	110	115	250	283	355	40	1831	865	2695		
20	185	65	43	-22	-6	3	35	42	45	27	40	22	30	50	10	28	25	-5	-7	20	90	-70	23	25	25	763	153	916		
21	-65	-53	-58	-34	-33	-72	-25	3	8	22	47	42	28	13	38	32	23	-25	-22	-10	-93	-60	13	105	-7	374	550	924		
22	140	205	-3	-64	-78	-27	-22	0	0	0	15	32	45	35	-145	-187	-170	-20	40	-15	25	110	145	45	4	835	731	1566		
23	75	-75	-80	-45	0	0	0	15	23	17	28	37	30	36	38	8	20	-45	-85	-15	-3	-30	-37	-55	-7	305	470	775		
24	-47	-18	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-18	-7	2	28	-20	-3	38	110	148				
25	-20	15	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	20	40			
26	0	0	0	0	0	0	0	0	0	0	0	0	23	38	0	0	6	10	0	0	-10	30	110	173	-15	15	390	25	415	
27	30	35	-23	-52	-48	-90	-55	-13	0	0	0	0	0	22	45	27	0	0	0	0	0	0	0	-5	-5	157	288	443		
28	-6	0	0	0	0	0	0	0	0	0	0	0	7	-3	-242	-442	-390	-220	-85	-10	210	580	58	103	215	-18	973	1398	2371	
29	85	35	17	12	17	27	25	13	10	0	10	15	23	18	22	20	18	12	12	0	0	0	0	0	0	16	391	391	391	
30	0	0	0	0	0	0	10	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	13	13	13		
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-30	-1	18	30	48		
M	47	14	-10	-28	-24	-21	-5	6	10	8	6	8	13	-3	-16	-29	-41	-44	-4	24	42	59	74	64	7	548	391	939		
MPS	57	32	15	3	1	1	5	9	11	9	8	12	16	16	13	9	7	2	14	35	57	67	82	70						
MNS	10	18	24	30	24	23	10	2	1	0	2	3	3	13	29	38	48	46	18	11	15	8	8	6						

NOVEMBER.

DAY	1	2	3	4	5	6	7	8	9	10	11	12	15	14	15	16	17	18	19	20	21	22	23	M	PS	NS	AS				
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47				
1	-25	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-10	-50	-50	-8	5	6	5	145	150			
2	23	25	-5	-73	-139	-107	-55	-18	3	11	10	22	22	18	27	-5	-23	-35	-5	-15	-5	50	160	177	4	563	470	1033	2360		
3	-212	-145	-135	-173	-187	-120	-65	-8	17	53	20	8	5	-62	15	20	30	45	-87	-65	147	350	210	212	-9	1067	1293	1199	426		
4	243	190	185	37	-100	-62	21	12	10	23	7	-5	10	18	-8	-90	-115	-25	0	45	47	110	130	132	32	1625	1625	1625	780		
5	133	-33	-55	-73	-57	3	9	15	27	18	22	50	28	6	4	2	-5	-7	-25	-110	-23	-2	30	-43	-4	347	453	1199	426		
6	-89	-40	-15	-13	-2	-15	-3	7	30	45	42	48	48	-2	-193	-155	-110	-83	35	375	22	45	52	152	8	901	720	1621	150		
7	128	175	55	-133	-157	-84	-28	-17	5	23	42	13	28	26	34	-45	-125	-120	-67	-75	-53	-65	22	62	-15	613	969	1582	1582		
8	45	135	-5	-63	-14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-32	-85	22	0	0	0	202	199	401	401		
9	0	0	0	-16	-22	-16	-30	-5	5	0	0	15	3	-5	-23	-45	-97	-178	-85	-45	-33	-73	-52	12	-29	35	725	760	760	760	
10	-19	-7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	26	26	26		
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	18	17	13	8	-10	42	-20	-95	27	1	157	125	285	285
12	173	-15	-155	-63	-34	-32	-13	10	33	23	20	25	25	-42	-143	-155	-87	0	3	-7	-13	27	77	97	-11	493	579	1582	1582		
13	58	-7	-17	-11	-47	-20	-8	-2	7	55	27	2	10	-17	-193	-265	-205	65	15	145	142	220	170	152	11	1055	1838	1838	1838		
14	263	175	-85	-48	-52	5	7	12	27	18	9	2	20	-2	-18	-15	-57	-180	-105	25	-43	220	150	212	22	1143	605	1748	1748		
15	103	-5	-93	-98	-52	-22	-8	25	30	35	60	32	28	28	47	3	3	-125	-95	-45	32	80	135	222	15	861	543	1404	1404		
16	-72	-77	-67	-20	-30	-37	-13	3	5	18	29	30	35	18	37	17	10	-90	-17	-55	-96	-50	-18	-1	-18	202	643	845	845		
17	12	0	0	0	0	0	0	0	0	0	0	7	13	0	0	0	-9	-60	-23	-75	-8	-20	-70	-16	-9	52	263	315	315		
18	23	-10	-23	-15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-8	-98	-125	-72	-13	-14	23	364	364	364			
19	8	0	-15	-35	-54	-13	0	0	0	0	0	0	0	0	0	-9	-10	15	23	2	-6	-12	-130	-125	-15	46	409	457	457		
20	-72	-8	-10	-3	-21	0	0	0	0	0	0	0	0	0	0	0	-145	-125	-83	-235	-23	-15	30	2	-30	32	740	772	772		
21	-22	-33	-15	2	-14	-12	0	0	0	0	0	0	0	0	0	0	0	0	-9	-23	-123	-122	-20	72	-13	74	393	467	467		
22	-7	-88	-25	-17	-7	0	0	0	0	0	0	0	0	0	5	-5	-20	-35	-135	-115	-48	-30	10	12	-21	27	532	532	532		
23	-7	-25	-3	-45	-19	-15	0	0	0	0	0	0	0	0	-9	-13	-75	-45	-35	-60	0	42	-12	20	-8	-13	62	371	4333	4333	
24	83	35	-18	15	-15	-2	0	0	0	0	0	0	0	0	-40	-203	0	35	-5	-15	42	12	0	-38	-4	237	321	558	558		
25	33	65	-45	-8	15	-2	2	7	12	6	20	8	2	0	-53	-55	25	25	-25	-15	27	250	0	-108	9	517	311	828	828		
26	-17	-30	13	8	-5	0	0	0	0	0	0	0	22	53	2	50	13	-12	-5	-155	-96	-25	-15	2	-8	163	360	523	523		
27	-12	-45	-40	-5	2	0	0	0	0	0	0	0	0	0	0	0	0	5	3	-18	-45	-33	-15	-8	10	213	213	213			
28	-9	8	1	-28	-18	0	0	0	0	0	0	0	12	39	20	-45	-98	-92	-55	-105	47	300	260	38	8	687	488	1175	1175		
29	-57	15	-5	-33	-24	-30	0	-5	2	32	20	7	60	-3	-40	-23	-85	-17	-8	-33	-113	-140	40	102	-14	278	614	892	892		
30	-77	-60	-18	-10	-7	-10	2	8	8	1	7	-2	-5	23	27	22	30	-75	-45	20	87	-10	-20	-11	-5	235	350	585	585		
	M	21	8	-20	-31	-34	-20	-7	2	7	11	11	9	12	3	-16	-35	-37	-39	-30	-22	-5	30	32	41	-5	376	487	863	863	
	MPS	44	28	8	2	1	0	1	3	7	11	11	9	12	8	8	4	4	5	3	21	23	56	50	55						
	MNS	23	21	28	35	20	8	2	0	0	0	0	0	0	5	24	40	41	45	32	43	28	27	18	14						

DECEMBER.

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	PS	RS	A3	
1	-13	-15	-30	-20	-31	-17	5	17	15	32	31	27	23	38	10	-2	-28	-62	-20	5	45	90	-105	1	355	341	696	
2	2	12	-73	-65	-68	-57	-52	-35	-15	17	12	11	34	35	20	15	-132	-93	48	100	50	105	120	82	3	663	590	1253
3	102	175	-15	-80	-58	-42	-43	-16	-2	13	12	10	14	18	40	48	-7	-5	3	-10	105	150	160	50	27	905	264	1169
4	-5	-65	-33	-25	-12	-12	-13	-15	-10	-15	-10	-3	-25	-155	-60	23	-43	-112	-110	-100	-150	20	-15	-38	47	968	1015	2686
5	-18	5	0	-25	-15	0	0	0	0	0	12	17	40	5	5	1	-8	30	-55	-5	-5	-50	-35	-4	120	209	547	1209
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-10	-88	-30	0	5	-5	5	128	153	399
7	-6	-1	0	0	0	0	0	0	0	-5	0	10	27	15	-2	-22	-22	-93	-77	-50	97	20	30	30	-3	221	286	507
8	142	243	-200	-152	-85	-57	-26	21	47	18	15	8	12	30	-120	-120	-96	-42	20	40	25	55	200	-5	876	1002	1878	
9	2	3	50	-52	-13	-32	2	15	25	48	5	-127	-3	-260	-340	-310	-82	-73	-132	-160	-60	-18	30	50	-60	228	1622	1890
10	-3	1	15	23	-5	-37	12	21	42	38	35	51	29	40	7	-80	-22	-123	-152	-160	-150	-40	230	-70	-12	544	842	1386
11	-133	-207	-110	-70	-83	-65	-28	31	72	88	25	18	14	55	-10	-110	-67	7	-17	-100	10	20	50	-30	-27	390	1030	1420
12	-68	-27	-8	2	0	0	0	25	25	28	11	12	43	20	10	15	7	0	-18	-50	-73	-45	-50	-6	198	339	507	
13	-26	2	10	-15	-7	-14	-5	0	0	10	0	0	5	22	8	13	21	0	-7	-8	-15	-25	3	-1	94	122	216	
14	-25	-25	-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-18	0	90	60	10	5	170	50	220	
15	-15	75	-15	-18	-23	18	16	5	5	-5	-2	-2	17	12	-10	30	-4	-13	18	210	95	-15	-20	20	8	426	235	661
16	-23	-35	5	-45	-27	-10	4	8	13	0	0	0	0	0	0	0	10	2	18	27	-15	-87	-75	-40	-15	87	388	475
17	-10	5	12	-17	-26	-14	-10	-10	-2	-3	15	-7	22	42	-20	-100	-217	-173	-232	-120	-140	25	110	65	-34	294	1101	1395
18	198	-75	5	5	-23	-42	23	9	-3	5	5	8	2	28	25	8	-24	-113	82	-50	-10	10	-140	-155	-26	215	833	1048
19	-26	5	5	-27	-43	-29	-20	-5	-7	15	15	1	-8	30	-20	-160	-27	-63	-177	-50	-15	0	-80	-190	-35	91	921	1012
20	-98	-55	-25	-10	-48	-10	10	-3	2	28	15	15	7	10	0	3	3	4	-32	-45	17	5	-45	-80	-14	117	451	568
21	-68	-25	15	-2	0	0	0	0	0	0	0	0	0	0	0	4	22	0	0	0	0	0	15	-95	-6	56	180	246
22	-45	-33	-55	-25	-78	-92	-30	-21	-17	2	13	5	12	-15	-150	-220	-312	-143	58	-92	60	250	70	45	-34	515	1328	'1843
23	18	205	15	-80	-10	0	0	0	12	25	15	0	0	5	0	-6	-40	-12	-10	0	0	0	-9	5	295	167	462	
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-43	-28	-20	-21	-5	112	112	112
25	-14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	-27	-30	-3	5	71	76	76	
26	-7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	8	8	0	0	0	1	27	7	343	
27	0	0	0	0	-2	-17	-16	-7	0	0	0	0	0	0	0	0	0	0	-9	-13	-100	-235	-17	399	295	399		
28	-218	-170	-95	-90	147	298	118	-83	-95	-175	35	-207	-238	-340	-250	-120	-42	-128	-62	150	0	20	50	150	-56	968	2513	3281
29	72	-92	-20	0	0	0	0	0	0	0	8	16	22	32	47	48	25	12	3	0	0	-32	-7	0	6	285	151	436
30	0	0	0	0	0	0	0	0	0	0	8	5	20	25	8	10	13	24	8	-2	-8	12	50	-25	6	183	35	218
31	-38	-20	5	-7	4	-12	-12	-11	5	-5	35	8	-3	-2	-20	-85	-64	-163	-52	-80	40	-190	-80	40	-29	157	844	981
M	-22	-2	-20	-23	-17	-8	-2	-3	3	5	10	-4	1	-5	-28	-37	-32	-43	-29	-21	-12	3	12	-14	-12	275	561	836
MPS	11	24	4	2	5	10	6	4	8	11	11	8	9	16	7	7	4	2	9	17	14	25	36	24				
MNS	33	25	25	25	22	19	8	7	5	7	1	11	8	21	35	44	37	45	37	38	26	22	24	38				

## Resuming Tables.

Diurnal Variation.  
QUIET VALUES.

Tromsø.

## Declination. Unit Gamma. + West.

1951.	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	-5	-5	-4	-3	-2	-1	0	1	3	5	6	7	7	6	4	3	1	0	-1	-2	-2	-2
FEBRUARY	-5	-6	-7	-7	-6	-5	-3	0	3	5	7	8	7	5	4	3	3	3	2	0	-2	-3	-4
MARCH	-7	-8	-9	-10	-10	-9	-6	-3	1	5	9	12	14	13	10	6	4	3	3	2	1	-1	-3
APRIL	-9	-12	-15	-18	-21	-23	-22	-16	-6	3	12	16	22	22	18	14	12	10	9	7	4	1	-2
MAY	-16	-19	-23	-28	-30	-28	-23	-14	-3	9	19	24	25	23	20	18	16	15	14	12	9	4	-4
JUNE	-11	-19	-31	-36	-36	-33	-26	-18	-9	1	12	21	27	29	28	25	22	20	18	15	10	5	0
JULY	-21	-28	-32	-34	-33	-30	-25	-17	-10	-1	10	19	26	30	31	29	26	23	21	18	14	6	-5
AUGUST	-23	-29	-32	-32	-30	-27	-23	-17	-8	2	14	23	26	25	23	21	21	22	21	19	15	7	-4
SEPTEMBER	-22	-27	-29	-28	-25	-21	-16	-8	3	15	22	24	23	19	14	11	10	10	11	9	5	-3	-12
OCTOBER	-8	-9	-10	-10	-9	-7	-4	-1	3	7	10	12	12	10	8	6	5	5	4	2	0	-3	-5
NOVEMBER	-2	-3	-4	-5	-5	-5	-4	-3	-1	0	2	4	5	6	5	4	4	5	4	3	2	1	0
DECEMBER	-5	-5	-5	-5	-5	-4	-3	-2	-1	1	3	5	6	7	6	5	3	1	-1	-2	-3	-4	-5
MEAN	-11	-14	-17	-18	-18	-16	-13	-8	-2	4	10	15	17	16	15	12	11	10	9	8	5	2	-3

## Horizontal Intensity. Unit Gamma.

JANUARY	-3	-2	-1	0	2	2	1	0	-1	-2	-2	-1	0	0	0	1	2	3	3	2	1	0	-1	-3
FEBRUARY	-1	1	4	4	3	2	0	-2	-3	-2	0	2	3	4	4	3	2	1	0	-1	-2	-3	-4	-4
MARCH	2	3	3	2	1	-1	-4	-8	-9	-8	-6	-4	-2	0	1	3	5	6	6	5	3	2	1	
APRIL	5	7	8	7	5	1	-4	-9	-15	-20	-20	-17	-14	-10	-5	0	6	10	14	17	17	14	9	5
MAY	7	10	11	12	9	2	-7	-16	-24	-33	-32	-23	-15	-7	1	6	11	14	17	18	14	4	-1	2
JUNE	2	4	6	7	7	3	-6	-15	-23	-20	-16	-11	-6	-2	10	15	14	12	9	4	0	-3	-2	0
JULY	8	7	5	5	0	-3	-6	-10	-14	-16	-16	-12	-6	-1	4	10	12	10	5	1	-1	0	3	7
AUGUST	2	4	6	4	2	-1	-4	-8	-15	-21	-17	-13	-8	-4	0	5	6	9	11	13	11	8	4	2
SEPTEMBER	9	11	13	13	11	8	2	-6	-14	-23	-26	-24	-20	-15	-10	-5	0	5	9	11	12	11	9	8
OCTOBER	0	0	2	4	5	5	2	-3	-8	-11	-12	-11	-8	-5	-2	1	3	5	7	8	8	7	5	2
NOVEMBER	-4	-3	-2	-1	0	1	1	0	-1	-2	-3	-3	-2	-1	1	3	4	5	4	2	0	-2	-3	-4
DECEMBER	-5	-2	-1	0	1	2	1	0	-1	-2	-1	0	1	3	4	5	5	3	1	-1	-2	-3	-4	
MEAN	2	3	5	5	4	2	-2	-6	-11	-13	-13	-10	-7	-3	1	4	6	7	7	7	5	3	2	1

## Vertical Intensity. Unit Gamma.

JANUARY	-6	-5	-5	-6	-7	-8	-7	-5	-3	0	3	5	7	8	9	9	8	6	4	1	-2	-4	-5
FEBRUARY	-6	-5	-5	-6	-7	-8	-7	-5	-2	2	6	9	10	10	9	7	4	2	0	-2	-2	-3	-5
MARCH	-3	-2	-2	-3	-5	-6	-6	-5	-5	0	2	4	6	7	8	7	5	4	3	3	0	-2	-3
APRIL	-3	-2	-1	-1	-3	-5	-6	-6	-4	-3	-2	0	1	2	3	4	5	5	4	3	2	0	-1
MAY	-2	-1	0	0	-1	-3	-4	-5	-5	-4	-3	-2	0	1	2	4	5	6	5	3	1	-1	-2
JUNE	-4	-3	-2	-1	0	1	1	0	-1	-2	-3	-2	-1	0	1	3	4	4	3	1	0	-1	-2
JULY	-5	-6	-5	-5	-1	1	2	3	2	1	1	3	5	7	7	6	4	1	-1	-2	-3	-3	-4
AUGUST	-3	-2	0	1	2	1	0	-1	-2	-3	-4	-3	-1	0	1	6	7	6	3	2	2	0	-2
SEPTEMBER	-3	-4	-5	-6	-7	-6	-5	-4	-3	-1	1	2	4	6	7	7	5	3	2	3	3	2	1
OCTOBER	-3	-4	-5	-6	-5	-4	-3	-2	-1	0	1	2	3	4	4	3	2	1	1	2	2	1	-1
NOVEMBER	-2	-3	-5	-6	-7	-2	-6	-5	-4	-2	-1	1	2	3	4	5	6	7	6	5	4	2	1
DECEMBER	0	-2	-3	-4	-5	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	4	3	2	3	3	1
MEAN	-3	-3	-3	-3	-4	-4	-4	-4	-3	-2	-1	1	3	5	5	6	5	4	3	2	1	0	-1

## Monthly Means.

DECLINATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
DIRECT VALUES D 1 W+ .....	-1.2	-3.4	-5.1	-4.6	-4.6	-3.7	-4.9	-6.2	-9.9	-9.6	-9.2	-10.2	-5.9
QUIET VALUES D 1 W+ .....	0.3	-0.6	-1.2	-2.5	-3.4	-2.8	-4.0	-3.7	-6.2	-7.4	-6.5	-8.6	-3.9
RANGE (UNIT MINUTES)	84	116	113	158	119	91	104	113	147	118	117	105	115
QUIET RANGE (UNIT )	12	15	24	45	55	65	65	58	53	22	11	12	36
STORMINESS. MEAN (UNIT )	-6	-9	-7	-7	-4	-4	-3	-8	-12	-8	-9	-5	-7
DIURNAL SUM PS (UNIT )	118	154	195	277	231	177	189	144	216	148	151	131	176
NS	253	362	359	440	323	265	265	334	514	332	378	255	340
AS	371	516	554	717	554	442	454	478	729	480	529	386	518
HORIZONTAL INTENSITY													
DIRECT VALUES H 11100+.....	55	36	38	31	44	58	50	41	12	34	54	61	43
QUIET VALUES H 11100+.....	71	69	68	64	68	63	55	61	59	65	74	76	66
RANGE (UNIT )	513	751	677	812	680	609	650	746	840	640	654	638	683
QUIET RANGE	6	8	15	37	51	38	28	33	39	20	9	9	24
STORMINESS. MEAN (UNIT )	-16	-33	-29	-32	-22	-4	-5	-18	-46	-31	-20	-18	26
DIURNAL SUM PS (UNIT )	391	480	621	908	692	729	633	819	847	509	541	512	657
NS	765	1283	1325	1685	1224	821	947	1257	1953	1229	1015	736	1203
AS	1156	1763	1946	2593	1916	1550	1780	2076	2800	1738	1556	1448	1860
VERTICAL INTENSITY													
DIRECT VALUES V 50618+.....	43	51	71	77	80	75	82	79	88	94	84	75	75
QUIET VALUES V 50618+.....	56	59	69	74	74	65	67	67	79	88	89	88	73
RANGE (UNIT )	374	513	495	583	432	583	401	473	655	492	443	433	471
QUIET RANGE	17	18	14	11	11	8	13	11	14	9	14	11	13
STORMINESS. MEAN (UNIT )	-14	-6	3	4	6	10	14	11	9	7	-5	-12	2
DIURNAL SUM PS (UNIT )	201	388	523	653	527	532	632	623	851	548	376	275	509
NS	541	523	458	566	389	281	309	352	611	391	487	561	456
AS	742	911	981	1219	916	813	941	975	1442	939	863	836	965

## Resuming Tables.

## Storminess.

Tromsø.

## Declination. Unit Gamma. + West.

1951.		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	0	0	0	1	1	2	1	4	3	2	2	4	4	7	6	8	13	10	17	15	9	4	2	2
FEB	MPS	2	5	1	1	0	3	2	5	6	3	4	5	8	14	14	12	12	12	16	9	8	7	5	2
MAR	MPS	1	0	0	0	0	1	5	4	4	2	6	8	10	14	24	24	23	24	16	17	6	3	2	0
APR	MPS	0	1	0	1	1	8	7	7	4	2	4	8	11	20	27	32	35	38	28	23	11	2	5	3
MAY	MPS	2	1	1	1	1	4	3	3	4	5	4	8	10	15	17	20	23	25	29	25	7	3	0	0
JUN	MPS	0	0	1	2	3	4	2	3	4	1	1	3	4	8	10	17	16	14	21	26	20	9	5	2
JUL	MPS	7	1	0	1	2	2	2	1	2	3	3	4	3	3	8	20	21	24	31	22	18	9	4	3
AUG	MPS	1	1	1	0	2	3	3	6	5	3	2	2	3	4	10	15	17	18	20	17	6	3	5	0
SEP	MPS	1	2	3	4	3	4	6	4	2	1	1	2	5	8	16	24	30	34	32	15	10	4	3	3
OCT	MPS	0	0	0	0	1	3	4	3	0	1	3	5	9	11	12	12	13	21	20	15	7	5	0	0
NOV	MPS	0	0	0	1	1	4	5	4	2	2	5	5	7	8	15	18	21	16	13	10	8	6	2	1
DEC	MPS	2	1	2	0	2	5	7	5	5	3	3	6	9	10	9	8	5	12	14	9	6	3	2	1
MEAN		1	1	1	1	1	4	4	4	4	2	3	5	7	10	14	17	18	21	21	17	11	5	3	1
JAN	MNS	25	26	24	16	12	7	5	3	2	1	2	0	2	2	3	3	4	6	9	8	4	34	33	22
FEB	MNS	32	44	54	44	55	18	9	4	1	2	1	1	1	0	0	4	5	7	12	18	10	14	22	24
MAR	MNS	47	43	47	35	24	9	4	6	5	4	2	1	1	1	1	2	3	3	3	7	10	18	36	47
APR	MNS	63	68	72	61	25	7	5	4	4	5	5	5	4	1	0	0	0	1	1	8	11	19	25	47
MAY	MNS	55	55	53	30	14	6	6	4	6	10	4	2	1	1	1	1	2	0	1	3	12	21	35	
JUN	MNS	42	37	28	24	16	14	17	7	5	6	5	5	4	3	3	2	3	1	1	1	4	4	12	24
JUL	MNS	29	39	43	30	17	11	12	5	5	6	4	4	5	2	3	5	3	0	0	0	1	10	12	15
AUG	MNS	42	39	36	27	22	9	4	2	7	5	6	5	6	4	5	6	3	7	3	2	16	14	24	40
SEP	MNS	55	61	57	62	38	12	3	4	12	24	21	17	9	13	5	4	2	0	7	9	7	20	33	37
OCT	MNS	58	41	36	21	12	2	1	3	6	6	4	2	1	4	2	7	6	0	1	6	18	26	34	32
NOV	MNS	46	50	43	25	11	3	1	1	2	3	2	2	3	3	5	3	6	3	7	25	25	31	36	44
DEC	MNS	25	26	17	14	7	3	-6	3	3	1	2	2	2	4	3	9	4	17	12	15	21	29	29	
MEAN		43	44	43	32	19	8	6	4	5	6	5	4	3	3	3	3	4	3	5	8	10	19	26	33
JAN	MPS + MNS	-25	-26	-24	-15	-11	-6	-4	1	2	1	1	3	2	5	3	5	9	4	7	7	5	-30	-30	-20
FEB	MPS + MNS	-30	-39	-54	-44	-34	-16	-7	1	6	0	3	4	6	13	14	9	7	5	5	-8	-2	-7	-17	-22
MAR	MPS + MNS	-46	-44	-46	-35	-23	-8	1	-2	-2	-1	4	8	9	13	23	22	20	21	14	11	-4	-15	-35	-47
APR	MPS + MNS	-63	-67	-71	-60	-23	2	1	2	0	-3	-1	3	7	19	27	32	34	37	27	15	0	-18	-20	-44
MAY	MPS + MNS	-53	-54	-52	-29	-12	-2	-3	-1	-2	-8	0	6	10	14	16	18	22	21	25	29	20	-5	-17	-35
JUN	MPS + MNS	-41	-37	-26	-21	-15	-10	-15	-4	-1	-5	-4	-2	1	5	7	15	14	13	20	25	16	5	-7	-21
JUL	MPS + MNS	-23	-39	-43	-29	-15	-9	-10	-4	-3	-3	-1	0	-2	0	4	17	19	24	51	22	17	1	-8	-12
AUG	MPS + MNS	-42	-39	-35	-27	-20	-6	-1	4	-2	-2	-4	-3	-3	0	5	7	14	12	17	15	-10	-11	-19	-39
SEP	MPS + MNS	-54	-59	-55	-59	-36	-8	3	0	-11	-23	-19	-15	-4	-5	11	20	27	33	25	6	2	-16	-30	-34
OCT	MPS + MNS	-58	-42	-37	-21	-12	0	3	-1	-6	-6	-1	2	7	7	9	6	7	21	19	9	-11	-22	-33	-32
NOV	MPS + MNS	-45	-50	-43	-24	-9	0	4	2	1	-2	3	3	4	5	8	16	15	13	6	-15	-17	-25	-34	-45
DEC	MPS + MNS	-23	-25	-16	-13	-5	3	1	3	2	2	1	4	7	8	5	5	-4	8	-3	-8	-19	-27	-28	
MEAN		-42	-45	-42	-31	-18	-5	-2	0	-1	-5	-1	1	4	7	11	14	15	18	16	9	0	-14	-23	-31

## Horizontal Intensity. Unit Gamma.

1951.		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	0	2	4	5	6	5	10	10	11	4	12	14	20	34	45	41	52	48	50	21	9	5	2	3
FEB	MPS	2	2	2	2	4	5	9	8	10	11	14	27	38	46	81	63	55	44	29	12	9	4	1	2
MAR	MPS	1	1	1	6	1	4	5	10	7	14	30	43	66	83	101	106	66	44	18	9	3	0	1	0
APR	MPS	0	0	0	0	0	4	6	11	26	31	53	92	110	111	127	129	106	64	33	12	2	2	0	1
MAY	MPS	0	0	1	0	2	3	6	9	16	34	46	55	77	87	86	90	74	46	37	15	5	3	1	0
JUN	MPS	1	1	1	6	2	3	5	5	11	14	20	45	71	91	100	95	85	66	56	35	12	4	2	1
JUL	MPS	0	0	2	3	7	5	5	7	14	19	28	48	69	102	106	114	101	99	73	37	14	4	0	0
AUG	MPS	1	1	1	2	3	3	5	6	9	15	38	51	84	109	110	102	112	87	48	18	7	2	0	6
SEP	MPS	3	1	0	0	2	5	7	15	19	43	66	90	112	130	136	93	62	37	14	7	1	0	0	0
OCT	MPS	1	.2	1	3	2	7	5	16	22	19	36	43	55	67	78	61	40	24	19	6	3	1	0	0
NOV	MPS	1	4	2	12	10	8	11	10	11	7	11	16	35	57	85	83	74	46	29	12	6	6	3	1
DEC	MPS	1	2	1	1	10	12	15	13	15	17	19	29	41	59	70	53	39	36	19	22	22	3	2	1
MEAN		1	1	1	3	4	5	7	10	14	19	31	45	65	81	94	86	72	53	34	17	8	3	1	1
JAN	MNS	72	95	59	37	35	24	16	7	4	1	0	0	0	0	0	0	1	6	13	32	64	109	120	72
FEB	MNS	131	168	130	79	52	36	32	15	5	4	1	2	3	1	0	1	0	7	29	88	84	127	148	140
MAR	MNS	150	125	104	62	46	30	16	5	4	6	3	2	1	1	0	1	0	16	67	72	126	137	181	172
APR	MNS	218	210	202	143	74	48	23	10	5	2	2	0	0	1	0	0	0	9	16	59	109	156	184	214
MAY	MNS	169	163	144	89	41	20	17	9	3	1	1	2	1											

JUL	MNS	147	145	114	67	48	34	22	5	1	2	1	2	1	0	0	0	0	11	15	36	62	100	165	
AUG	MNS	142	135	120	85	71	34	16	7	3	3	2	1	0	2	1	0	0	4	3	53	81	130	199	164
SEP	MNS	224	221	181	133	111	59	24	10	3	1	1	0	0	0	2	5	29	30	101	106	131	183	203	207
OCT	MNS	140	110	90	75	26	8	6	1	1	0	0	0	0	0	4	2	3	47	49	79	138	150	156	157
NOV	MNS	134	110	75	44	18	6	1	1	2	2	2	1	0	0	0	2	1	14	21	76	117	121	126	139
DEC	MNS	86	76	36	21	20	21	9	6	9	16	9	13	0	0	0	7	21	53	45	98	109	136	144	
MEAN		145	138	112	75	49	30	17	7	4	3	2	2	1	1	1	1	4	14	32	56	90	122	148	155
JAN	MPS + MNS	-72	-92	-55	-33	-29	-19	-6	3	7	3	12	14	20	34	43	41	51	43	17	-11	-55	-104	-118	-69
FEB	MPS + MNS	-129	-167	-128	-77	-48	-31	-23	-8	6	7	14	25	35	45	81	63	55	36	0	-76	-76	-123	-147	-138
MAR	MPS + MNS	-148	-124	-103	-56	-45	-26	-11	5	3	8	27	41	64	82	100	106	66	29	-49	-63	-124	-137	-180	-172
APR	MPS + MNS	-218	-210	-201	-142	-74	-44	-18	1	20	29	51	81	110	110	127	129	106	56	17	-47	-107	-154	-183	-213
MAY	MPS + MNS	-169	-163	-142	-89	-39	-17	-12	0	13	33	45	53	76	87	85	89	73	41	18	-20	-68	-105	-140	-182
JUN	MPS + MNS	-127	-103	-89	-53	-43	-32	-20	-5	4	13	18	42	70	91	100	94	83	64	53	29	-25	-63	-86	-107
JUL	MPS + MNS	-147	-145	-112	-64	-42	-29	-18	2	12	16	26	47	68	102	106	114	101	99	62	23	-22	-58	-100	-165
AUG	MPS + MNS	-142	-135	-119	-63	-31	-11	-2	6	12	36	50	84	107	109	102	112	83	45	-36	-73	-128	-199	-158	
SEP	MPS + MNS	-220	-221	-181	-133	-108	-54	-17	3	16	43	65	90	111	130	134	87	53	7	-87	-99	-130	-182	-203	-206
OCT	MPS + MNS	-139	-108	-91	-71	-24	1	0	14	22	18	36	43	55	67	75	59	37	-23	-31	-72	-135	-148	-156	-157
NOV	MPS + MNS	-133	-106	-73	-32	-7	1	10	9	8	5	9	16	35	57	65	81	72	32	8	-64	-111	-115	-123	-138
DEC	MPS + MNS	-85	-75	-34	-20	-10	-9	5	7	6	2	9	17	41	58	70	53	32	15	-34	-24	-67	-106	-134	-143
MEAN		-144	-137	-111	-71	-45	-24	-10	2	10	16	29	43	64	81	93	85	68	40	2	-38	-83	-119	-147	-164

Vertical Intensity. Unit Gamma.

1951.	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	28	17	7	3	1	2	3	4	5	8	9	8	13	11	14	12	7	4	3	3	6	12	10	11	
FEB	MPS	42	65	30	5	7	1	1	3	4	4	9	11	12	11	7	11	8	5	4	6	25	40	43	35	
MAR	MPS	56	25	7	12	1	0	2	3	5	9	17	16	19	18	16	20	19	12	15	35	48	44	57	67	
APR	MPS	83	84	56	9	4	3	2	4	8	8	10	12	13	17	12	13	9	4	9	21	45	52	78	95	
MAY	MPS	71	56	19	6	1	2	4	4	8	11	17	14	14	17	24	21	15	8	2	12	24	56	63	78	
JUN	MPS	58	39	23	17	15	12	7	5	6	8	12	19	27	30	27	20	14	11	7	6	25	39	49	53	
JUL	MPS	61	63	32	16	10	15	14	5	9	16	22	24	28	18	18	14	8	6	9	16	26	45	74	110	
AUG	MPS	51	43	17	8	14	4	4	6	17	23	25	30	29	25	26	17	10	5	15	34	37	4	76	66	
SEP	MPS	127	89	44	9	5	8	3	10	20	14	11	19	9	6	8	7	8	4	31	32	41	93	107	126	
OCT	MPS	57	32	15	3	1	1	5	9	11	9	8	12	16	16	13	9	7	2	14	35	57	67	82	70	
NOV	MPS	44	28	6	2	1	0	1	3	7	11	11	9	12	8	8	4	4	5	3	21	23	56	50	55	
DEC	MPS	11	24	4	2	5	10	6	4	8	11	11	8	9	16	7	7	4	2	9	17	14	25	36	24	
MEAN		57	45	22	8	5	5	4	5	9	11	14	15	17	16	15	13	9	6	10	20	31	44	61	66	
JAN	MNS	15	16	19	26	29	19	12	6	3	0	2	1	1	3	8	13	28	40	64	53	41	42	36	64	
FEB	MNS	13	6	15	39	33	31	29	22	13	4	1	1	5	5	23	20	28	32	45	43	30	19	31	37	
MAR	MNS	12	22	24	27	28	31	25	13	3	3	3	2	5	17	28	43	37	30	16	19	26	19	13	12	
APR	MNS	3	8	20	38	54	42	23	10	4	3	6	20	24	49	39	40	82	59	18	12	8	2	6	7	
MAY	MNS	15	17	25	44	40	24	14	9	4	4	4	5	22	11	11	8	26	24	25	22	13	10	8	10	
JUN	MNS	5	14	27	28	25	18	15	10	3	5	5	3	1	6	11	20	15	11	15	9	14	7	7	7	
JUL	MNS	13	20	23	33	35	25	17	6	3	1	1	2	4	6	17	31	22	25	14	11	6	1	3	3	
AUG	MNS	14	18	25	44	26	20	8	3	1	0	0	0	1	8	24	24	25	26	29	9	6	18	10	13	
SEP	MNS	14	19	27	29	50	30	20	9	3	10	11	11	20	51	65	79	55	39	23	14	5	10	8	10	
OCT	MNS	10	18	24	30	24	25	10	2	1	0	2	3	3	13	29	38	48	46	18	11	15	8	8	6	
NOV	MNS	23	21	28	33	35	20	8	2	0	0	0	0	5	24	40	41	45	32	43	28	27	18	14		
DEC	MNS	33	25	25	22	19	8	7	5	7	1	11	8	21	35	44	37	45	37	38	26	22	24	37		
MEAN		14	17	24	33	33	25	16	8	4	3	3	5	8	16	26	33	36	35	28	24	18	15	14	18	
JAN	MPS + MNS	14	2	-12	-23	-28	-17	-9	-3	2	8	7	7	12	8	6	-1	-21	-36	-61	-50	-35	-30	-25	-53	
FEB	MPS + MNS	29	59	15	-34	-26	-30	-27	-19	-9	0	7	11	7	6	-15	-9	-20	-26	-42	-37	-5	21	13	-2	
MAR	MPS + MNS	44	3	-17	-16	-26	-30	-23	-9	2	6	14	14	14	1	-12	-23	-18	-18	-1	16	22	25	44	55	
APR	MPS + MNS	80	76	37	-29	-50	-39	-21	-6	4	5	4	4	-8	-11	-31	-26	-27	-63	-55	-10	9	37	50	72	89
MAY	MPS + MNS	56	20	-6	-38	-39	-22	-9	-4	3	7	12	9	-8	6	12	13	-10	-16	-25	-10	12	46	55	69	
JUN	MPS + MNS	53	26	-4	-11	-10	-6	-7	-5	3	3	7	16	27	25	16	0	-1	-1	-8	-3	11	33	42	46	
JUL	MPS + MNS	49	43	9	-16	-25	-10	-2	-1	6	15	21	21	24	12	0	-16	-13	-17	-5	5	20	45	71	107	
AUG	MPS + MNS	36	25	-8	-36	-12	-16	-4	4	16	25	25	30	28	16	2	-7	-15	-20	-14	25	31	25	66	53	
SEP	MPS + MNS	113	70	17	-21	-45	-22	-17	1	18	4	0	8	-11	-45	-57	-72	-47	-34	8	18	35	83	100	116	
OCT	MPS + MNS	47	14	-10	-28	-24	-21	-5	6	10	8	6	8	13	3	-16	-29	-41	-44	-4	24	42	59			

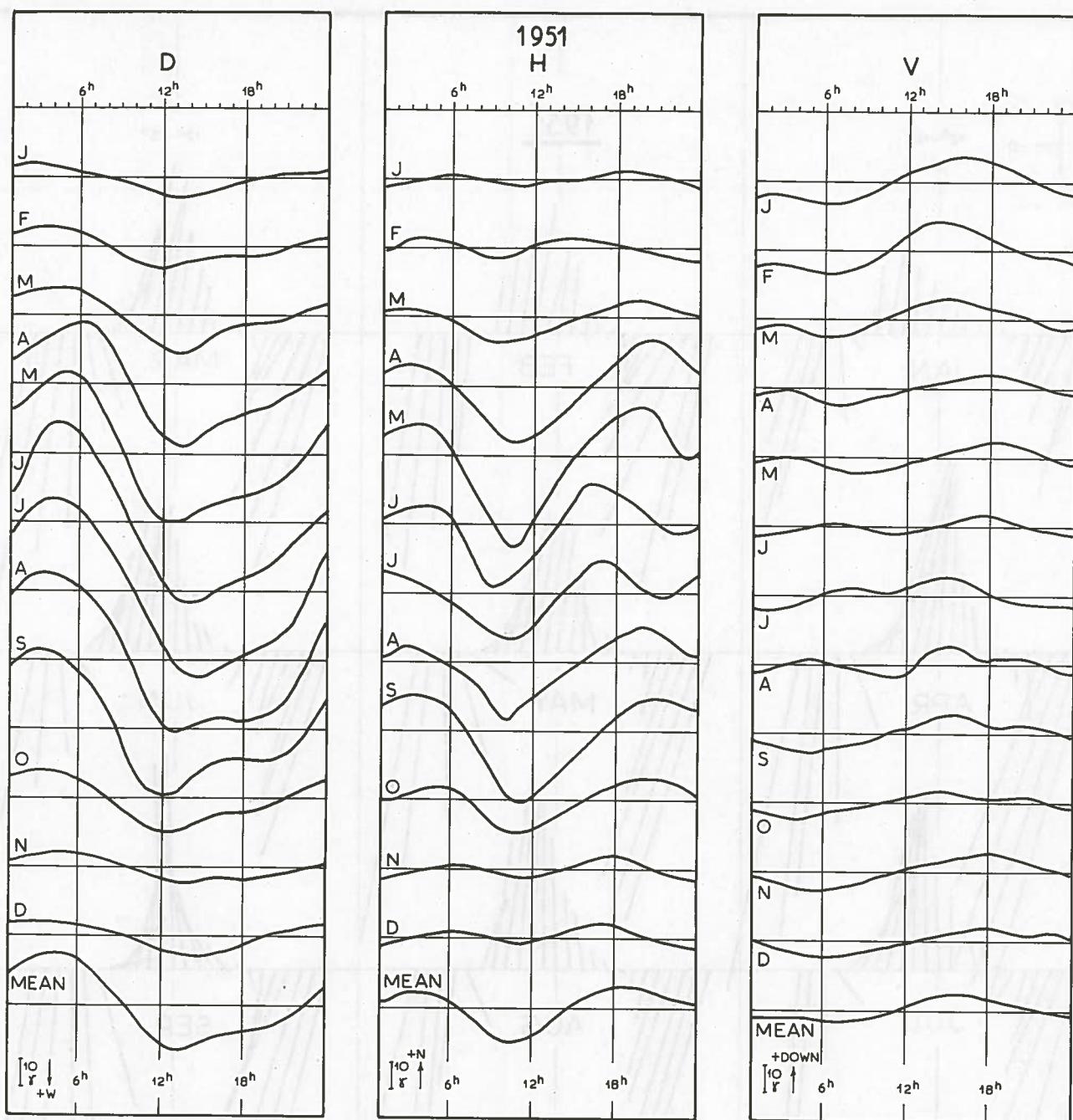
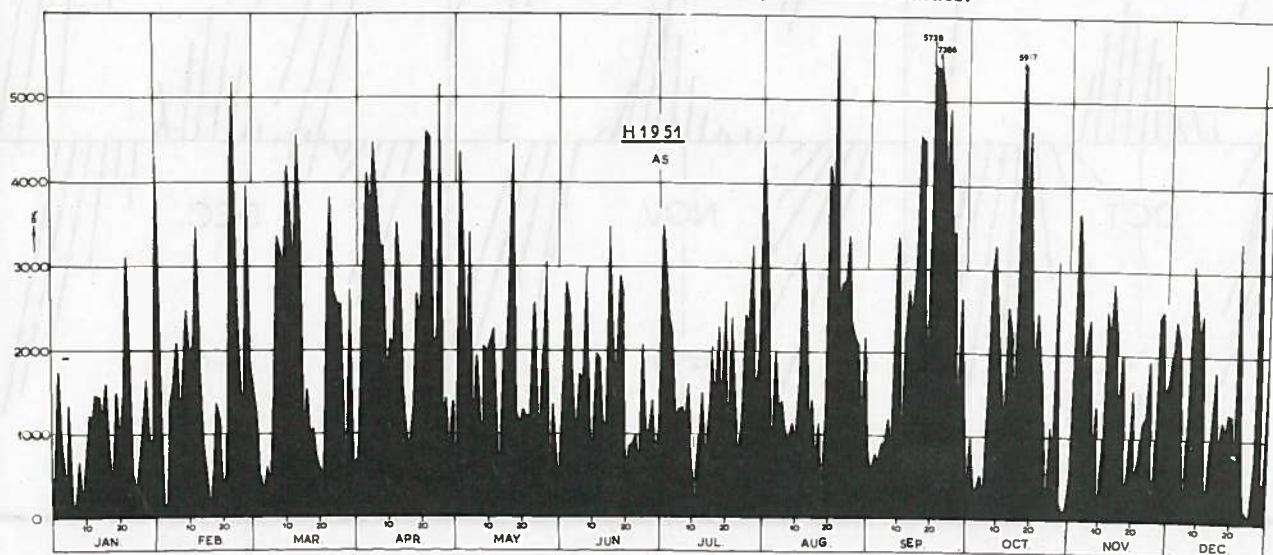


Fig. 1. The Quiet Diurnal Variation, smoothed Values.

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

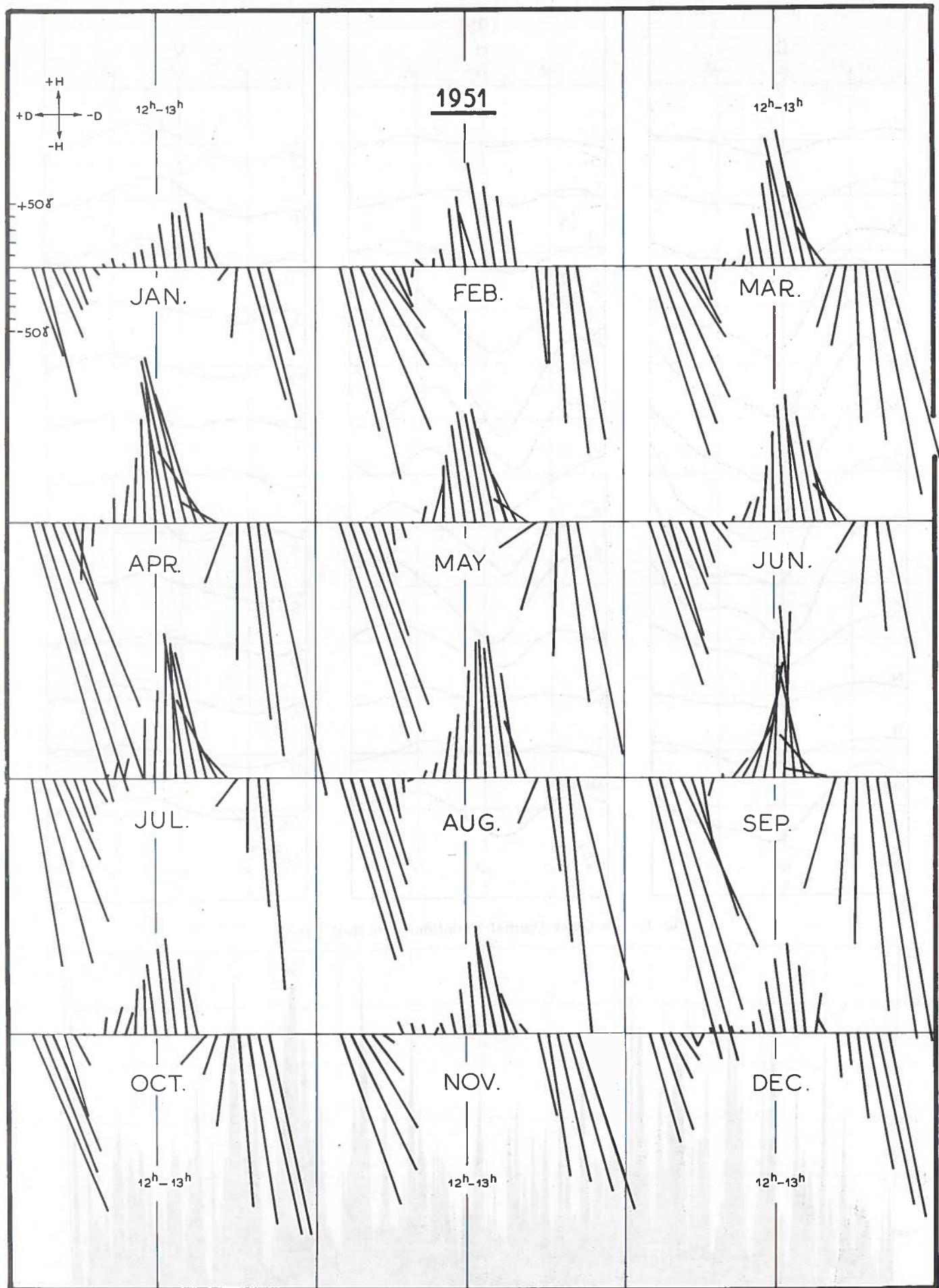


Fig. 3. Diagrams of the Monthly Mean Values ( $M$ ) of the Storminess in the Horizontal Plane.

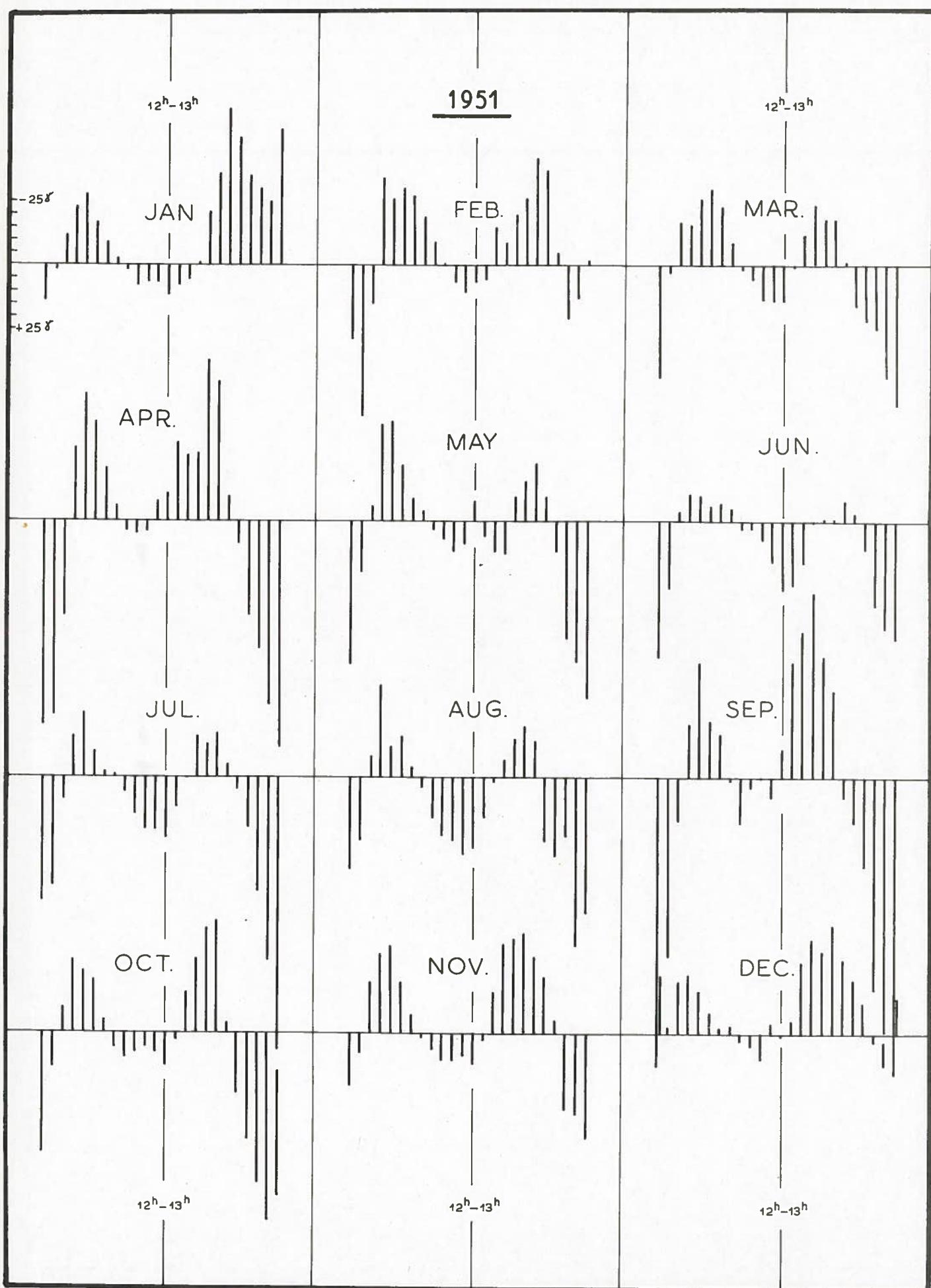


Fig. 4. Diagrams of the Monthly Mean Values ( $M$ ) of the Storminess of the Vertical Intensity.



