

Publikasjoner fra
DET NORSKE INSTITUTT FOR KOSMISK FYSIKK
Nr. 33

THE AURORAL OBSERVATORY AT TROMSØ
($\varphi = 69^{\circ} 39'.8$ N, $\lambda = 18^{\circ} 56'.9$ E. Gr.)
RESULTS OF MAGNETIC OBSERVATIONS
FOR THE YEAR 1950

1952
A.S JOHN GRIEGS BOKTRYKKERI, BERGEN

THE UNIVERSITY OF CHICAGO
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THE ALBERTA OBSERVATORY AT THOMAS
RESULTS OF MAGNETIC OBSERVATIONS
FOR THE YEAR 1950

BY J. H. COCHRAN

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Date	H observed & adopted	D observed & adopted	V observed & adopted	H observed & adopted	D observed & adopted	V observed & adopted
11-10	17.2	11.14	0	17.2	11.14	0
11-17	17.2	11.1	0	17.2	11.1	0
11-28	17.2	11.2	0	17.2	11.2	0
11-1	17.0	11	0	17.0	11	0
11-11	17.0	11	0	17.0	11	0
11-19	17.0	11	0	17.0	11	0
11-25	17.2	11.1	0	17.2	11.1	0
11-27	17.2	11.1	0	17.2	11.1	0
11-28	17.2	11.1	0	17.2	11.1	0
11-29	17.2	11.1	0	17.2	11.1	0
11-30	17.2	11.1	0	17.2	11.1	0

THE AURORAL OBSERVATORY AT TROMSØ
 ($\varphi = 69^\circ 39'.8$ N. $\lambda = 18^\circ 56'.9$ E. Gr.)

**RESULTS OF MAGNETIC OBSERVATIONS
FOR THE YEAR 1950**

GENERAL REMARKS.

The instrumental equipment used for magnetic measurements is the same as that previously used, a description of which is given in no. 1 of the present series of publications. In addition the instruments QHM 123, QHM 164, BMZ 39 and BMZ 57 are used for determinations of the baselines for the H- and V-curves respectively, and for direct determinations of the scale values for the H-, D- and V-curves. The observations have been made by J. FRØSHAUG. The reading of the hourly values and the calculation work was performed by mr. STEINAR BERGER and miss ÅSHILD BERGER.

SCALE VALUES.

The following scale-values have been adopted:

- 1. January—23. November: D-curves: 1'.45 or 4.72 γ per mm
 H-curves: - 5.13 γ per mm
 V-curves: - 6.80 γ per mm
- 23. November—31. December: D-curves: 1'.50 or 4.88 γ per mm
 H-curves: - 5.38 γ per mm
 V-curves: - 7.25 γ per mm

BASE-LINE VALUES.

The determinations of the base line values resulted in the table given below. The observations with the BMZ 57 showed values 18 γ higher than the observations with the BMZ 39. We have chosen to use only the values from BMZ 39.

The quiet mean inclination value for the year was calculated to $77^\circ 33'.5$. The temperature coefficient for the H-variometer is 7.3 γ per degree Celsius and for the V-variometer -1.3 γ per degree Celsius.

OBSERVED AND ADOPTED BASE-LINE VALUES

Date	<i>D</i> observed	<i>D</i> adapted	Date	<i>H</i> observed	<i>H</i> adapted	Date	<i>V</i> obs.	<i>V</i> adapt.
I 3	1° 17.7 W	1° 18.0 W	I 31	11208 γ	11208 γ	III 9	50282 γ	50280 γ
II 10	17.5	.0	II 14	09	08	18	85	80
17	17.7	.0	III 1	09	08	27	87	80
27	17.7	.0	IV 8	04	08	IV 15	77	80
III 1	17.6	.0	17	06	08	20	76	80
IV 13	17.2	.0	22	10	08	29	78	80
19	18.4	.0	V 1	05	08	V 6	77	80
25	18.5	.0	10	11	08	13	81	80
27	18.5	.0	16	10	08	VI 1	78	80
V 4	18.0	.0	VI 7	09	08	6	78	80
19	18.4	.0	13	10	08	12	83	80
31	18.0	.0	22	11	08	20	78	80
VI 5	17.7	.0	VII 4	09	08	29	76	80
9	18.9	.0	13	06	08	VII 8	79	80
15	18.4	.0	VIII 19	11198	11201	VIII 21	81	80
27	18.4	.0	25	99	01	25	76	80
VII 7	18.1	.0	IX 9	11201	01	IX 13	300	80
IX 12	18.6	.0	23	11199	01	28	00	80
18	17.7	.0	26	11202	01	X 5	296	80
XII 4	1° 51.0	1° 49.7	XII 4	11230	30	XII 6	50439	50430
12	50.2	.7	7	32	30	23	35	30
20	49.7	.7	18	30	30			

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 *quiet* hourly values. The second series of tables gives the hourly values of the Storminess («average perturbing force» or «activity»). As to the definition of the storminess and the method for separating it, we refer to Nos. 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 γ , character number 1 from 400 γ to 1200 γ , and character number 2 greater than 1200 γ . 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 the 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.

John A. Frøshaug.

Declination $D = I'W + \text{Table}$ Quantities expressed in Units of Gauss

MAGNETIC FIELD VALUES

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	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	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	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	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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TABLES

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	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	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Tromsø. Declination. D = 1° W + Tabular Quantities expressed in Tenths of Minutes.

Gr. M. T.

JANUARY 1950. HOURLY MEAN VALUES. Table with columns DAY, 1-23, M, R. Contains magnetic declination data for January 1950.

FEBRUARY. Table with columns DAY, 1-23, M, R. Contains magnetic declination data for February 1950.

MARCH. Table with columns DAY, 1-23, M, R. Contains magnetic declination data for March 1950.

Tromsø.

Declination. Storminess. (+ W) Unit Gamma.

Gr. M. T.

JANUARY 1950.

HOURLY MEAN VALUES

Table for January 1950 showing hourly mean values for Declination, Storminess, and Unit Gamma. Columns include Day (1-31), M, PS, NS, AS, and summary rows for M, MPS, and MNS.

FEBRUARY 1950.

Table for February 1950 showing hourly mean values for Declination, Storminess, and Unit Gamma. Columns include Day (1-28), M, PS, NS, AS, and summary rows for M, MPS, and MNS.

MARCH 1950.

Table for March 1950 showing hourly mean values for Declination, Storminess, and Unit Gamma. Columns include Day (1-31), M, PS, NS, AS, and summary rows for M, MPS, and MNS.

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

Gr. M. T.

APRIL 1950.

HOURLY MEAN VALUES

Table for April 1950 showing magnetic declination data for Tromsø. Columns include Day (1-30), hours (1-23), and monthly totals (M, R).

MAY.

Table for May 1950 showing magnetic declination data for Tromsø. Columns include Day (1-31), hours (1-23), and monthly totals (M, R).

JUNE.

Table for June 1950 showing magnetic declination data for Tromsø. Columns include Day (1-30), hours (1-23), and monthly totals (M, R).

Tromsø.

Declination. Storminess. (+ W) Unit Gamma.

Gr. M. T.

APRIL 1950.

HOURLY MEAN VALUES

Table for April 1950 showing magnetic observations (DAY 1-30) with columns for declination, storminess, and unit gamma. Includes summary rows for M, P, S, NS, AC and WFS, MNS.

MAY 1950.

Table for May 1950 showing magnetic observations (DAY 1-31) with columns for declination, storminess, and unit gamma. Includes summary rows for M, P, S, NS, AS and WFS, MNS.

JUNE 1950.

Table for June 1950 showing magnetic observations (DAY 1-30) with columns for declination, storminess, and unit gamma. Includes summary rows for M, P, S, NS, AS and WFS, MNS.

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

Gr. M. T.

JULY 1950.

HOURLY MEAN VALUES

Table for July 1950 showing hourly mean values for declination. Columns include Day (1-31), hours (1-24), and summary columns M and R.

AUGUST.

Table for August 1950 showing hourly mean values for declination. Columns include Day (1-31), hours (1-24), and summary columns M and R.

SEPTEMBER.

Table for September 1950 showing hourly mean values for declination. Columns include Day (1-30), hours (1-24), and summary columns M and R.

Tromsø.

Declination. Storminess. (+ W) Unit Gamma.

Gr. M. T.

JULY 1950.

HOURLY MEAN VALUES

Table with columns Day, 1-25, M, PS, NS, AS for July 1950. Includes monthly and MFS/MNS summary rows.

AUGUST.

Table with columns DAY, 1-25, M, PS, NS, AS for August 1950. Includes monthly and MFS/MNS summary rows.

SEPTEMBER.

Table with columns DAY, 1-25, M, PS, NS, AS for September 1950. Includes monthly and MFS/MNS summary rows.

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

Gr. M. T.

OC10-RR 1950.

HOURLY MEAN VALUES

Table for October 1950 showing hourly mean values for declination. Columns include Day (1-31), M, and R. Values range from -34 to 776.

NOVEMBER.

Table for November 1950 showing hourly mean values for declination. Columns include Day (1-30), M, and R. Values range from -136 to 1812.

DECEMBER.

Table for December 1950 showing hourly mean values for declination. Columns include Day (1-31), M, and R. Values range from -77 to 210.

Tromsø.

Declination. Storminess. (+ W) Unit Gamma.

Gr. M. T.

OCTOBER 1950.

HOURLY MEAN VALUES

Table for October 1950 showing hourly mean values for declination, storminess, and unit gamma. Includes columns for Day (1-31), M, PS, NS, AS, and summary rows for M, PS, NS, AS, WPS, and WNS.

NOVEMBER.

Table for November 1950 showing hourly mean values for declination, storminess, and unit gamma. Includes columns for Day (1-30), M, PS, NS, AS, and summary rows for M, PS, NS, AS, WPS, and WNS.

DECEMBER 1950.

Table for December 1950 showing hourly mean values for declination, storminess, and unit gamma. Includes columns for Day (1-31), M, PS, NS, AS, and summary rows for M, PS, NS, AS, WPS, and WNS.

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

Gr. M. T.

JANUARY 1950.

HOURLY MEAN VALUES

Table for January 1950 showing hourly mean values for horizontal intensity. Columns include Day (1-31), hours (1-24), and monthly totals (M, R). Values range from approximately -170 to 364.

FEBRUARY.

Table for February 1950 showing hourly mean values for horizontal intensity. Columns include Day (1-28), hours (1-24), and monthly totals (M, R). Values range from approximately -350 to 330.

MARCH.

Table for March 1950 showing hourly mean values for horizontal intensity. Columns include Day (1-31), hours (1-24), and monthly totals (M, R). Values range from approximately -320 to 380.

Tromsø.

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

Gr. M. T.

JANUARY 1950.

HOURLY MEAN VALUES

Table for January 1950 showing magnetic observations. Columns include Day (1-31), 24 hourly values (1-24), M, PS, NS, AS, CH. Summary rows for M, WPS, and WNS are at the bottom.

FEBRUARY.

Table for February 1950 showing magnetic observations. Columns include Day (1-28), 24 hourly values (1-24), M, PS, NS, AS, CH. Summary rows for M, WPS, and WNS are at the bottom.

MARCH.

Table for March 1950 showing magnetic observations. Columns include Day (1-31), 24 hourly values (1-24), M, PS, NS, AS, CH. Summary rows for M, WPS, and WNS are at the bottom.

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

Gr. M. T.

APRIL 1950.

HOURLY MEAN VALUES

Table for April 1950 showing magnetic observations. Columns include DAY (1-30), 24 hourly values (1-24), M, and R. Data values range from -50 to 300.

MAY.

Table for May 1950 showing magnetic observations. Columns include DAY (1-31), 24 hourly values (1-24), M, and R. Data values range from -50 to 300.

JUNE.

Table for June 1950 showing magnetic observations. Columns include DAY (1-30), 24 hourly values (1-24), M, and R. Data values range from -95 to 300.

Tromsø.

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

Gr. M. T.

APRIL 1950.

HOURLY MEAN VALUES

Table for April 1950 showing magnetic observations. Columns include Day (1-30), Hourly values (1-24), M, PS, NS, AS, CH, and summary rows for MPS and MNS.

MAY.

Table for May 1950 showing magnetic observations. Columns include Day (1-31), Hourly values (1-24), M, PS, NS, AS, CH, and summary rows for MPS and MNS.

JUNE.

Table for June 1950 showing magnetic observations. Columns include Day (1-30), Hourly values (1-24), M, PS, NS, AS, CH, and summary rows for MPS and MNS.

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

Table with columns: DAY, 1-23, M, R. Title: JULY 1950. HOURLY MEAN VALUES. Contains magnetic intensity data for July.

Table with columns: DAY, 1-23, M, R. Title: AUGUST. Contains magnetic intensity data for August.

Table with columns: DAY, 1-23, M, R. Title: SEPTEMBER. Contains magnetic intensity data for September.

Tromsø.
JULY 1950.

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

Gr. M. T.

Table with columns: DAY, 1-23, M, PS, NS, AS, CH. Rows 1-31 for July 1950. Summary row M: -158 -146 -111 -66 -32 -31 -15 -5 2 6 19 23 44 66 66 73 73 55 32 -4 -44 -68 -138 -123. Summary row MPS: 0 1 1 2 4 3 4 3 5 11 20 27 46 70 69 74 73 55 33 15 4 1 0 0. Summary row MNS: 158 146 112 69 36 34 19 8 3 5 2 3 2 1 0 0 0 1 19 48 88 138 123.

AUGUST.

Table with columns: DAY, 1-23, M, PS, NS, AS, CH. Rows 1-31 for August 1950. Summary row M: -97 -103 -93 -56 -46 -32 -3 2 14 26 29 48 61 76 81 71 76 65 42 3 -32 -61 -108 -124. Summary row MPS: 1 0 0 0 1 3 10 9 18 26 31 50 62 77 81 71 76 71 47 22 11 3 0 0. Summary row MNS: 98 103 93 56 47 35 10 8 3 2 2 2 0 1 1 0 0 6 4 19 43 83 109 125.

SEPTEMBER.

Table with columns: DAY, 1-23, M, PS, NS, AS, CH. Rows 1-30 for September 1950. Summary row M: -135 -109 -75 -44 -27 -16 -8 0 9 27 38 48 61 59 84 65 57 45 4 -81 -165 -159 -152 -176. Summary row MPS: 1 0 1 4 5 8 7 8 15 29 38 48 61 60 84 65 58 27 7 1 0 1 1. Summary row MNS: 135 109 76 48 38 24 16 8 5 2 0 0 0 0 0 0 1 5 23 88 166 159 153 176.

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

Gr. M. T.

OCTOBER 1950.

HOURLY MEAN VALUES

Table for October 1950 showing hourly mean values for days 1-31. Columns include Day, hours 1-23, M, and R. Values range from -350 to 350.

NOVEMBER.

Table for November showing hourly mean values for days 1-30. Columns include Day, hours 1-23, M, and R. Values range from -400 to 350.

DECEMBER.

Table for December showing hourly mean values for days 1-31. Columns include Day, hours 1-23, M, and R. Values range from -350 to 350.

Tromsø.

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

Gr. M. T.

OCTOBER 1950.

HOURLY MEAN VALUES

Table for October 1950 showing hourly magnetic observations. Columns include Day (1-31), 24 hours of intensity/storminess values, and summary statistics (M, PS, NS, AS, CH). Summary values: M -166, PS 515, NS 1487, AS 2001, CH 1.4.

NOVEMBER 1950.

Table for November 1950 showing hourly magnetic observations. Columns include Day (1-30), 24 hours of intensity/storminess values, and summary statistics (M, PS, NS, AS, CH). Summary values: M -130, PS 458, NS 1109, AS 1567, CH 1.3.

Table for December 1950 showing hourly magnetic observations. Columns include Day (1-31), 24 hours of intensity/storminess values, and summary statistics (M, PS, NS, AS, CH). Summary values: M -74, PS 288, NS 724, AS 1012, CH 0.9.

Tromsø. Vertical Intensity. V = 50500 + Tabular Quantities expressed in Gamma.

Gr. M. T.

JANUARY 1950.

HOURLY MEAN VALUES

Table for January 1950 showing hourly mean values for vertical intensity. Columns include Day (1-31), hours (1-24), and summary rows for M and QM.

FEBRUARY.

Table for February 1950 showing hourly mean values for vertical intensity. Columns include Day (1-28), hours (1-24), and summary rows for M and QM.

MARCH.

Table for March 1950 showing hourly mean values for vertical intensity. Columns include Day (1-31), hours (1-24), and summary rows for M and QM.

Tromsø.

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

Gr. M. T.

JANUARY 1950.

HOURLY MEAN VALUES

Table for January 1950 showing magnetic observations (DAY 1-31) with columns for vertical intensity (1-23), M, PS, NS, AS, and summary rows (M, NS, AS, MPS, MNS).

FEBRUARY 1950.

Table for February 1950 showing magnetic observations (DAY 1-28) with columns for vertical intensity (1-23), M, PS, NS, AS, and summary rows (M, NS, AS, MPS, MNS).

MARCH 1950.

Table for March 1950 showing magnetic observations (DAY 1-31) with columns for vertical intensity (1-23), M, PS, NS, AS, and summary rows (M, NS, AS, MPS, MNS).

Tromsø.

Vertical Intensity. V = 50500 + Tabular Quantities expressed in Gamma.

Gr. M. T.

APRIL 1950.

HOURLY MEAN VALUES

Table with columns DAY (1-23), M, R and rows of magnetic intensity data for April 1950. Includes summary rows M and QM.

MAY.

Table with columns DAY (1-23), M, R and rows of magnetic intensity data for May 1950. Includes summary rows M and QM.

JUNE.

Table with columns DAY (1-23), M, R and rows of magnetic intensity data for June 1950. Includes summary rows M and QM.

Tromsø.

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

Gr. M. T.

APRIL 1950.

HOURLY MEAN VALUES

Table for April 1950 showing hourly mean values for vertical intensity and storminess. Columns include Day (1-30), 24 hours (1-24), M, PS, NS, AS.

MAY 1950.

Table for May 1950 showing hourly mean values for vertical intensity and storminess. Columns include Day (1-31), 24 hours (1-24), M, PS, NS, AS.

JUNE 1950.

Table for June 1950 showing hourly mean values for vertical intensity and storminess. Columns include Day (1-30), 24 hours (1-24), M, PS, NS, AS.

Tromsø. JULY 1950.

Vertical Intensity. V = 50500 + Tabular Quantities expressed in Gamma. HOURLY MEAN VALUES

Gr. M. T.

Table for July 1950 showing magnetic observations. Columns: DAY, 1-25, M, R. Rows: 1-31. Summary rows: M, QM.

AUGUST.

Table for August 1950 showing magnetic observations. Columns: DAY, 1-25, M, R. Rows: 1-31. Summary rows: M, QM.

SEPTEMBER.

Table for September 1950 showing magnetic observations. Columns: DAY, 1-25, M, R. Rows: 1-30. Summary rows: M, QM.

Tromsø.
JULY 1950.

Vertical Intensity. Storminess (+ Down). Unit Gamma.
HOURLY MEAN VALUES

Gr. M. T.

Table with columns DAY (1-23), M, PS, NS, AS and rows for each day of July 1950, containing magnetic observation data.

AUGUST 1950.

Table with columns DAY (1-23), M, PS, NS, AS and rows for each day of August 1950, containing magnetic observation data.

SEPTEMBER.

Table with columns DAY (1-30), M, PS, NS, AS and rows for each day of September 1950, containing magnetic observation data.

Tromsø.

Vertical Intensity. V = 50500 + Tabular Quantities expressed in Gamma.

Gr. M. T.

OCTOBER 1950.

HOURLY MEAN VALUES

Table for October 1950 showing hourly mean values for vertical intensity. Columns include Day (1-31), hours (1-24), and monthly totals (M, R).

NOVEMBER.

Table for November showing hourly mean values for vertical intensity. Columns include Day (1-30), hours (1-24), and monthly totals (M, R).

DECEMBER.

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

Tromsø.

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

Gr. M. T.

OCTOBER 1950.

HOURLY MEAN VALUES

Table for October 1950 showing hourly mean values for vertical intensity and storminess. Columns include Day, hours 1-24, M, PS, NS, AS.

NOVEMBER.

Table for November 1950 showing hourly mean values for vertical intensity and storminess. Columns include Day, hours 1-24, M, PS, NS, AS.

DECEMBER.

Table for December 1950 showing hourly mean values for vertical intensity and storminess. Columns include Day, hours 1-24, M, PS, NS, AS.

Resuming Tables.

Diurnal Variation.
QUIET VALUES.

Tromsø.

Declination. Unit Gamma. + West.

1950.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
JANUARY	-1	-1	-3	-3	-3	-3	-2	0	3	4	5	5	5	4	3	3	1	0	0	-1	-2	0	0	
FEBRUARY	-2	-3	-6	-7	-7	-6	-6	-5	-3	0	4	8	9	7	6	5	5	3	3	3	0	-1	-1	-1
MARCH	-5	-7	-8	-11	-13	-14	-13	-11	-5	2	13	16	18	16	13	11	8	7	3	-1	-3	-3	-4	-4
APRIL	-6	-7	-9	-12	-16	-18	-19	-19	-13	-2	10	19	19	17	12	8	3	7	8	9	4	0	-3	-3
MAY	-12	-18	-23	-26	-29	-32	-32	-30	-18	-3	13	21	25	25	24	22	22	21	21	19	14	8	4	-5
JUNE	-13	-18	-26	-29	-31	-31	-28	-22	-11	2	18	23	25	25	21	17	13	16	16	17	14	6	2	-8
JULY	-18	-23	-26	-29	-31	-31	-29	-24	-13	-1	13	22	26	27	25	22	20	19	18	16	11	6	-1	-10
AUGUST	-11	-15	-20	-23	-24	-23	-20	-14	-5	5	16	22	24	22	16	11	7	7	11	10	7	3	-1	-6
SEPTEMBER	-7	-9	-11	-13	-15	-15	-13	-8	-2	5	12	16	16	14	10	5	4	7	6	4	2	0	-2	-5
OCTOBER	-6	-7	-7	-6	-6	-7	-6	-4	-2	1	6	9	9	8	7	6	4	2	2	4	3	1	-2	-4
NOVEMBER	-3	-3	-4	-5	-5	-4	-3	-2	0	2	4	6	7	8	8	7	5	3	2	1	-2	-3	-5	-5
DECEMBER	-7	-6	-5	-4	-3	-2	-1	0	2	4	5	6	7	8	7	6	5	3	1	-1	-3	-5	-6	-7
MEAN	-8	-10	-12	-14	-15	-16	-15	-12	-6	2	10	14	16	15	13	10	8	8	8	7	4	1	-1	-5

Horizontal Intensity. Unit Gamma.

JANUARY	0	0	1	2	4	3	1	-2	-6	-7	-5	-5	-3	0	2	4	5	4	2	0	-1	-2	-2	-1
FEBRUARY	0	2	5	6	5	4	2	-1	-5	-9	-10	-8	-7	-5	-3	-1	2	4	6	5	3	2	1	0
MARCH	4	4	4	5	6	8	2	-9	-16	-19	-24	-18	-11	-7	-1	9	11	11	10	5	3	1	2	3
APRIL	5	9	8	5	2	1	-8	-10	-19	-24	-17	-14	-13	-10	-3	5	13	18	19	18	15	5	3	3
MAY	7	10	12	11	5	1	-9	-20	-31	-36	-35	-26	-15	-6	2	8	14	17	20	22	18	16	12	8
JUNE	5	7	6	5	-1	-7	-11	-17	-22	-24	-26	-18	-4	5	9	12	18	21	19	16	11	5	-1	2
JULY	7	10	8	4	0	-3	-8	-14	-20	-23	-25	-20	-12	-3	3	8	11	13	14	15	14	12	10	7
AUGUST	7	12	14	14	6	3	-3	-7	-12	-23	-21	-17	-9	-2	5	8	5	5	6	3	4	3	3	3
SEPTEMBER	1	4	5	5	6	5	0	-8	-15	-21	-21	-17	-14	-4	1	9	12	13	12	11	9	6	3	3
OCTOBER	2	4	5	6	7	6	2	-3	-10	-18	-15	-12	-7	-7	-4	2	3	6	9	10	9	8	5	2
NOVEMBER	-3	-3	-1	1	2	2	1	1	-3	-5	-6	-6	-4	-2	1	3	3	4	5	7	7	5	2	0
DECEMBER	-4	-4	-3	-2	-1	1	1	0	-1	-2	-2	-1	0	1	3	4	5	5	4	2	-1	-4	-6	-6
MEAN	3	5	6	5	3	2	-3	-8	-13	-18	-17	-14	-8	-3	1	6	9	10	11	10	8	5	3	2

Vertical Intensity. Unit Gamma.

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

Monthly Means.

DECLINATION.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
DIRECT VALUES. $D = 1^\circ W + \dots$	7.1	6.2	5.5	5.2	5.2	4.0	3.1	1.5	2.8	3.6	-1.5	0.0	3.6
QUIET VALUES. $D = 1^\circ W + \dots$	7.7	7.4	7.1	5.5	5.9	4.9	4.0	2.5	4.3	7.1	0.3	1.5	4.9
RANGE (UNIT MINUTES)	84	82	68	106	102	86	84	91	89	74	79	84	86
QUIET RANGE (UNIT γ)	8	16	32	38	57	56	58	48	31	16	13	15	32
STORMINESS. MEAN (UNIT γ)	-3	-4	-4	-1	-3	-3	-2	-3	-5	-12	-6	-6	-4
DIURNAL SUM PS (UNIT γ)	128	140	121	293	211	182	183	231	163	130	129	94	167
NS	205	233	229	310	262	256	242	299	293	407	279	227	270
AS	333	373	350	604	473	438	426	530	456	537	408	321	437
HORIZONTAL INTENSITY.													
DIRECT VALUES. $H = 11100 + \dots$	65	56	53	51	57	59	58	57	37	29	46	55	52
QUIET VALUES. $H = 11100 + \dots$	70	70	64	64	76	76	80	64	63	70	73	74	70
RANGE (UNIT γ)	411	504	417	567	638	501	553	591	645	654	637	522	553
QUIET RANGE.	12	16	35	43	58	57	40	37	34	28	13	11	32
STORMINESS. MEAN (UNIT γ)	-6	-14	-9	-13	-18	-17	-21	-8	-27	-42	-27	-18	18
DIURNAL SUM PS (UNIT γ)	391	417	383	737	685	519	520	669	577	515	458	288	513
NS	526	762	602	1058	1120	930	1016	851	1228	1487	1109	724	951
AS	918	1179	985	1795	1805	1449	1536	1520	1805	2001	1567	1012	1464
VERTICAL INTENSITY.													
DIRECT VALUES. $V = 50500 + \dots$	96	108	116	125	131	122	136	144	142	147	131	153	129
QUIET VALUES. $V = 50500 + \dots$	101	106	113	121	122	120	124	134	139	142	141	155	127
RANGE (UNIT γ)	262	373	288	372	383	271	307	375	459	510	481	336	368
QUIET RANGE.	9	10	12	15	15	18	10	11	15	13	8	16	13
STORMINESS MEAN (UNIT γ)	-5	2	2	4	9	1	13	11	5	5	-10	-3	3
DIURNAL SUM PS (UNIT γ)	161	357	346	502	547	352	569	640	520	685	350	298	446
NS	309	313	298	407	331	324	261	385	404	569	591	367	380
AS	491	670	644	909	877	678	830	1025	924	1254	942	665	826

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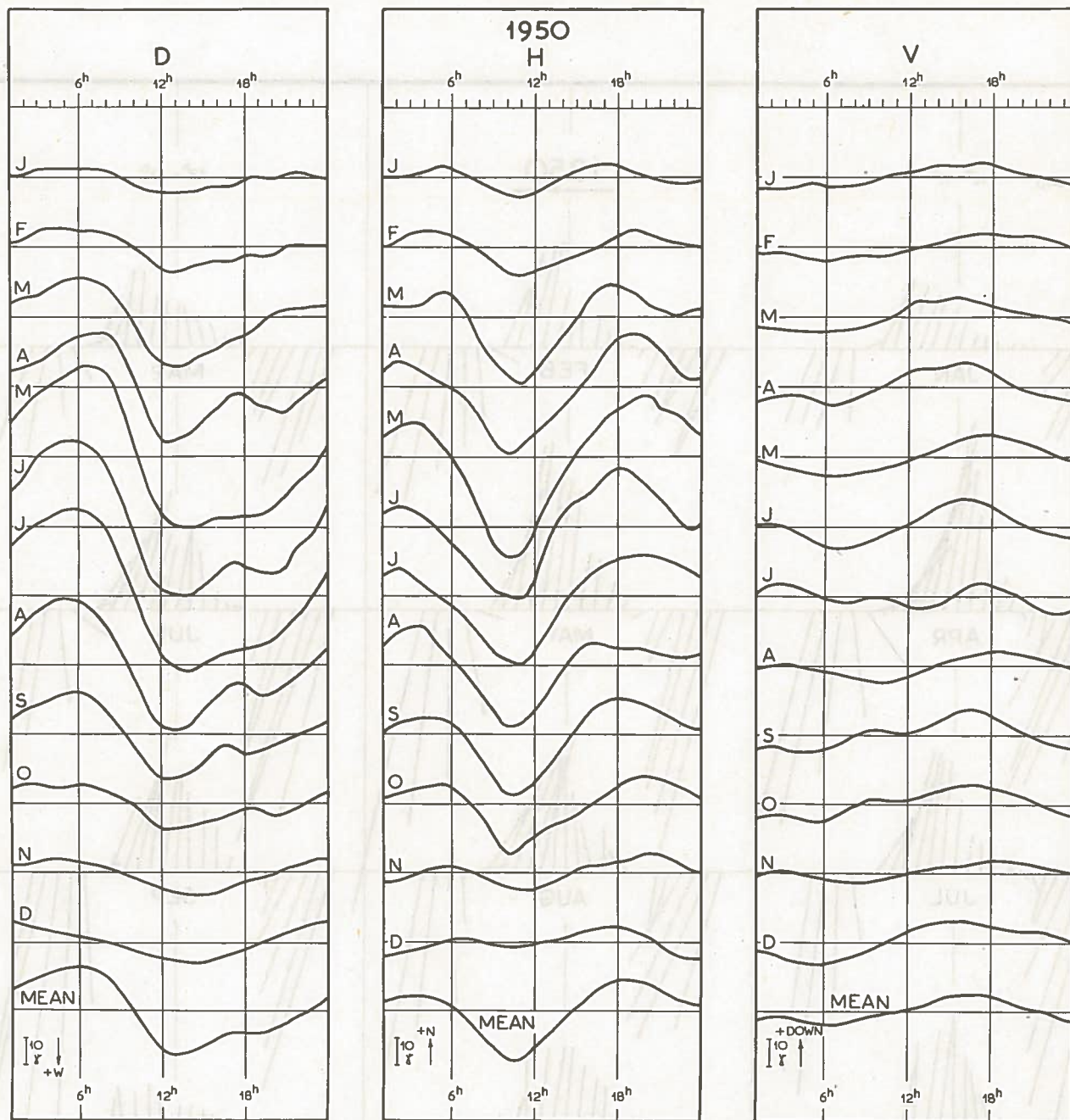


Fig. 1. The Quiet Diurnal Variation, smoothed Values.

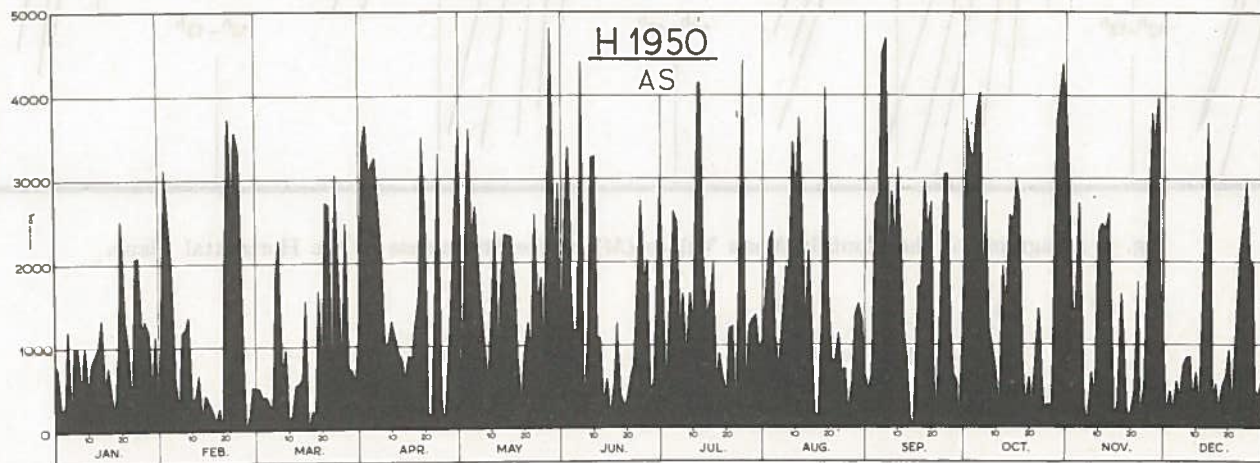


Fig. 2. The Diurnal Sum of the Absolute Storminess of H.

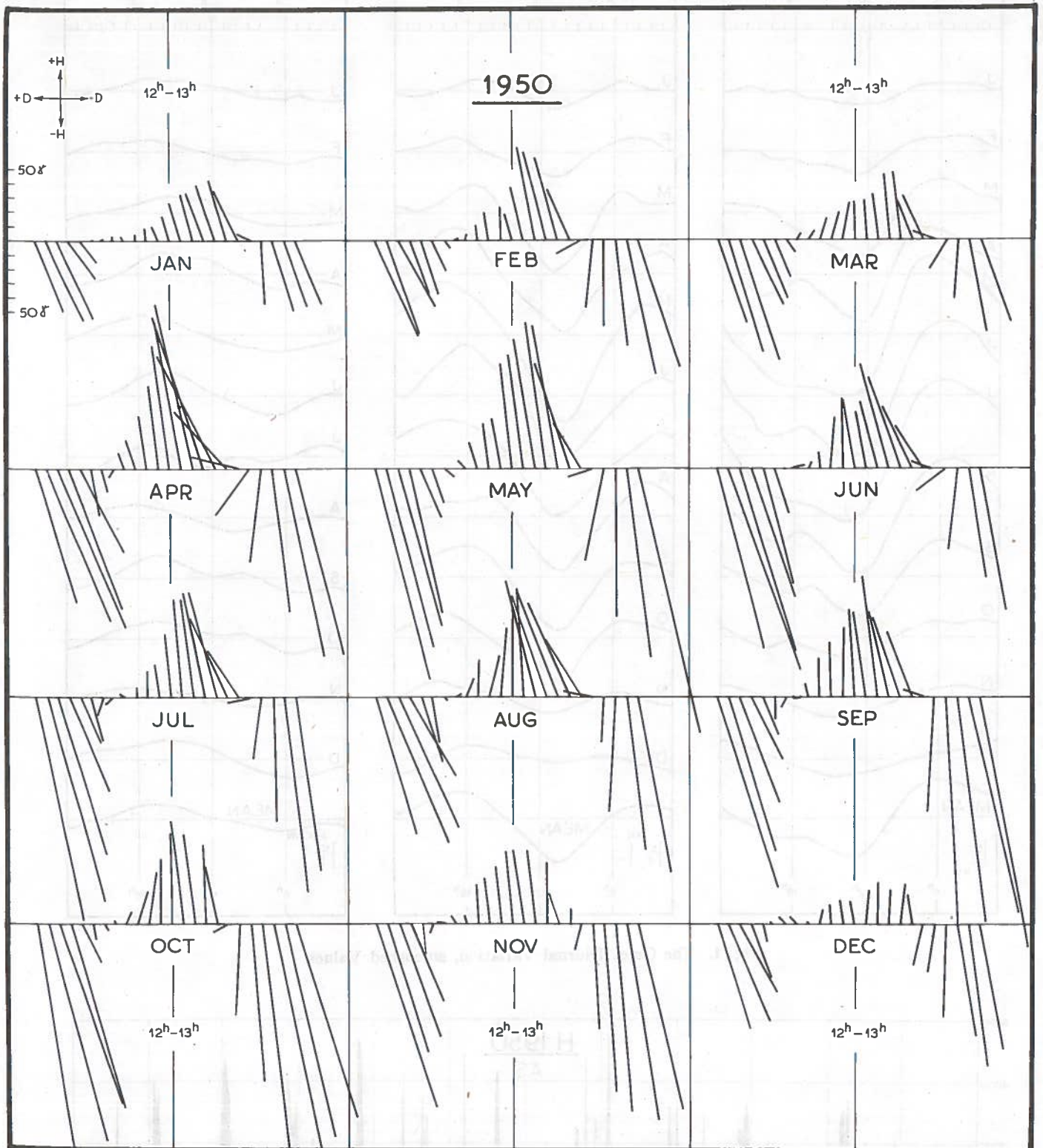


Fig. 3. Diagrams of the Monthly Mean Values (M) of the Storminess in the Horizontal Plane.

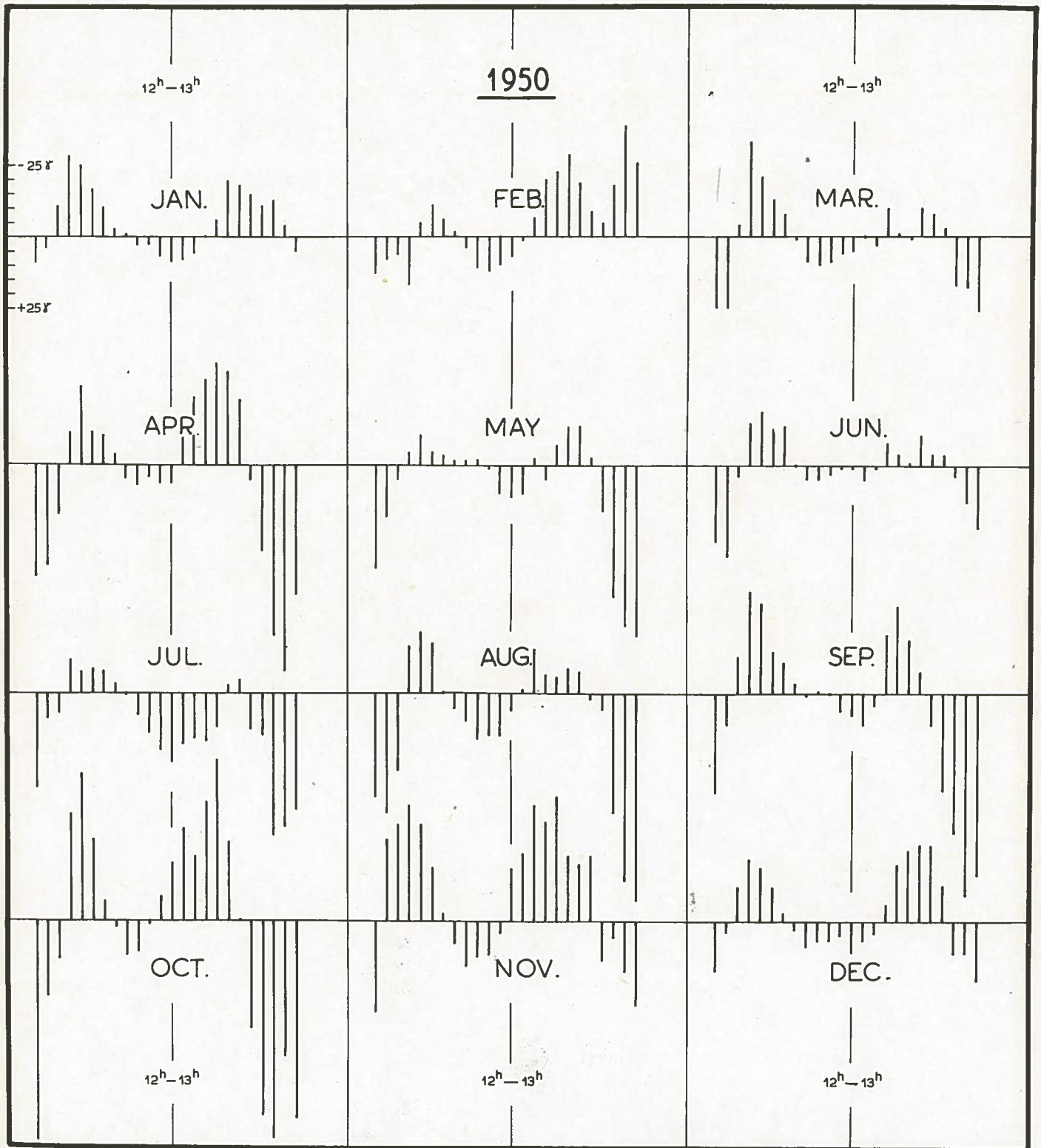


Fig. 4. Diagrams of the Monthly Mean Values (*M*) of the Storminess of the Vertical Intensity.

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