

Publikasjoner fra
DET NORSKE INSTITUTT FOR KOSMISK FYSIKK
Nr. 13

B. TRUMPY and K. F. WASSERFALL:

RESULTS FROM
THE MAGNETIC STATION AT DOMBÅS
1934—36

($\varphi = 62^{\circ} 04'.7$ N, $\lambda = 9^{\circ} 05'.8$ E Gr.)

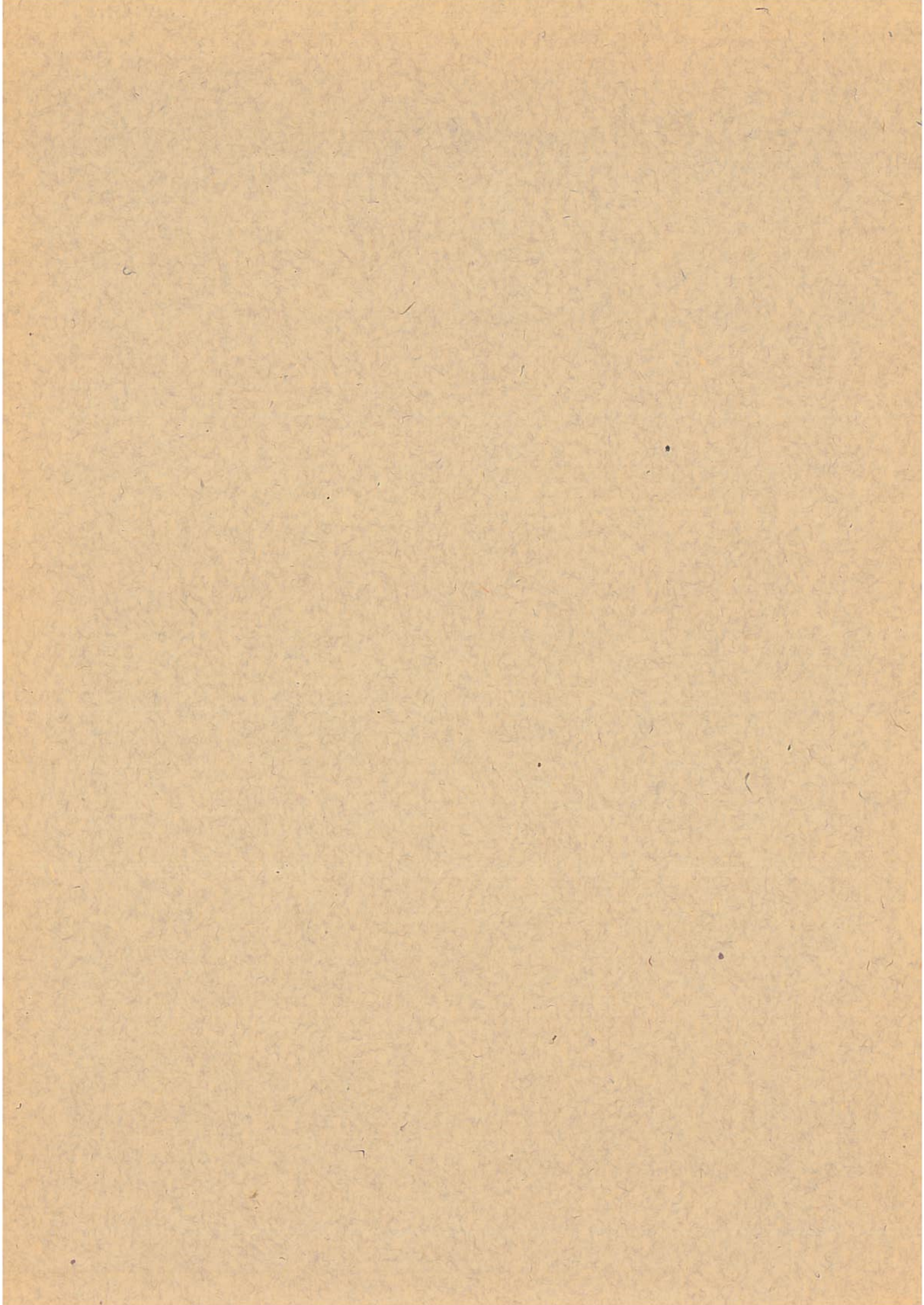
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ERRATA.

In No. 10 the following error has been detected:
In the graph at the bottom of page 20 the horizontal
arrows have been designated with W in stead of E.

RESULTS FROM THE MAGNETIC STATION AT DOMBÅS. 1934—36.

($\varphi = 62^{\circ} 04'.7$ N, $\lambda = 9^{\circ} 05'.8$ E Gr.)

BY

B. TRUMPY and K. F. WASSERFALL.

INTRODUCTION.

The magnetic station at *Dombås* was started in 1916 and the material collected between the years 1916—33 has been worked up at *Det Magnetiske Byrå* in Bergen and published in No. 9 in the present series of publications.¹

The most characteristic features in the variation, so far as this could be extracted from the tables given in the above mentioned paper, has been Preliminarily discussed in No. 10 of same series.²

The present paper contains resulting tables and graphs for the years 1934—36 arranged in more or less the same way as those published in No. 9 for the years 1916—33. The conditions at the station have been exactly the same as before. The astronomer SIGURD EINBU has been in charge of the station and the material has been worked out by WASSERFALL,—leaving the summing up of the tables and the writing of same to Miss WENCHE GARMANN.

Regarding the method employed to work out the resulting tables we refer to what has been stated in the first publication, No. 9. The tables for *quiet variation*, for *storminess* and for *absolute storminess* are arranged in chronological order and placed at the back of the paper, according to the list given on page 1. On page 19 there is a corresponding list for the graphs.

THE SCALE VALUES AND THE TEMPERATURE COEFFICIENTS OF THE VARIOMETERS.

Deflection experiments have usually been taken once a month. In Table 1 we give the results calculated by aid of the observed data. The scale value of the

¹ O. KROGNESS and K. F. WASSERFALL: Results from the magnetic station at *Dombås*. 1916—33.

² K. F. WASSERFALL: Some of the most characteristic features in the variation of magnetic elements,

Table 1.

Year	Date	ϵ_d	ϵ_h	ϵ_v
1934	Jan. 2	7.1	5.8	4.7
"	Feb. 2	"	5.9	4.6
"	March 1	"	5.8	—
"	April 1	"	5.8	4.8
"	May 2	"	5.8	4.8
"	June 4	"	6.1	5.3
"	July 7	"	5.8	—
"	Sep. 19	"	5.9	5.3
"	Nov. 3	"	6.0	(5.7)
"	Dec. 4	"	6.0	5.2
1935	Jan. 3	7.1	6.1	5.3
"	Feb. 4	"	—	5.2
"	March 7	"	5.9	5.4
"	April 3	"	5.9	5.1
"	May 2	"	(5.4)	4.8
"	June 26	"	—	4.8
"	June 28	"	5.9	5.6
"	Aug. 21	"	5.9	5.2
"	Oct. 3	"	—	5.5
1936	Jan. 2	7.1	6.3	6.0
"	Feb. 4	"	6.3	5.7
"	March 2	"	6.3	5.6
"	March 12	"	6.0	8.1
"	May 7	"	6.0	8.0
"	June 3	"	6.0	8.8
"	July 7	"	5.7	5.7
"	Sep. 3	"	5.7	7.8
"	Nov. 3	"	5.9	9.1
"	Dec. 2	"	5.9	9.1

d -variometer will be seen to have kept the value 7.1 all the time. For the h -variometer we have also adopted a constant value: $\epsilon_h = 5.9$, for the whole time and for the v -variometer we have used the scale values given in Table 2. For the calculation of the results for these two last instruments we have the formulæ:

$$\epsilon_h = \frac{a_d}{a_h} \cdot \epsilon_d, \quad \epsilon_v = q \cdot \frac{a_d}{a_v} \cdot \epsilon_d$$

respectively, whereby for the constant q we have used:

$$q = 0.57$$

in correspondence with what has been stated regarding this constant p. p. 6*—8* of No. 9.

Regarding the temperature coefficient we refer to p. p. 15*—18* of No. 9, where we had:

$$\epsilon_h = 5.38 \gamma \text{ per } 1^\circ \text{C}$$

$$\epsilon_v = 5.96 \gamma \text{ per } 1^\circ \text{C}$$

respectively for the h - and v -variometer.

Table 2.

From		Till		ϵ_v
Year	Date	Year	Date	
1933	December 1	1934	June 4	4.8
1934	June 4	1935	May 1	5.2
1935	May 1	"	June 28	4.8
1935	June 28	1936	January 2	5.3
1936	January 2	"	February 4	6.0
"	February 4	"	March 12	5.7
"	March 12	"	June 3	8.1
"	June 3	"	July 7	8.8
"	July 7	"	September 3	5.7
"	September 3	"	November 3	7.7
"	November 3	1937	January 1	9.1

ABSOLUTE DATE.

As mentioned page 18* of No. 9, absolute data for the magnetic elements are not necessary for the computation of the material, in the way this has been done in the present paper—except an approximate value for H , used in the calculation of the scale value ϵ_d for the d -variometer. For this purpose we do not need a very exact value and may thus content ourselves with an approximate annual mean.

According to two observations for H , taken by Professor TRUMPY the 20th and 21st of July 1936 we have:

$$H = 0.13985 \text{ C. G. S.}$$

According to observations taken by EINBU, 9 data for declination during 1936 resulting in:

$$D = 7^\circ 51'.0 \text{ W}$$

and 13 measurements for inclination during 1934 resulting in:

$$I = 73^\circ 32'.0$$

we may as mean annual values for the three years 1934—36 accept as approximations the data given in Table 3.

Table 3.

Year	D	I	H	V
			C. G. S.	C. G. S.
1904	8° 16' W	73° 31'.9	0.14040	0.47510
1935	8° 07' W	73° 34'.6	0.14000	0.47540
1936	7° 58' W	73° 36'.3	0.13970	0.47485

SOME RESULTS.

Besides the resulting tables and graphs given p. p. 19–23 we shall in this place add a graph, based on annual mean values for quiet diurnal variation, Fig. 1, and diurnal variation of storminess, Fig. 2.

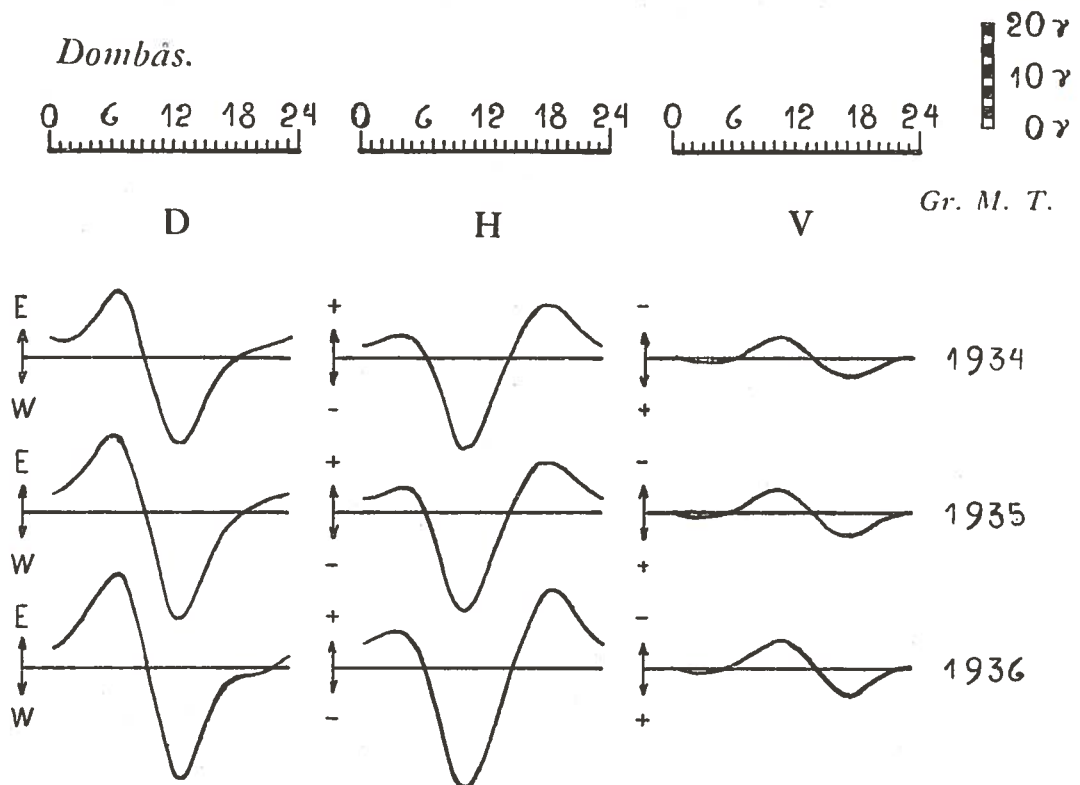


Fig. 1. Mean annual curve for quiet diurnal variation for *D*, *H* and *V* for the three years 1934–36.

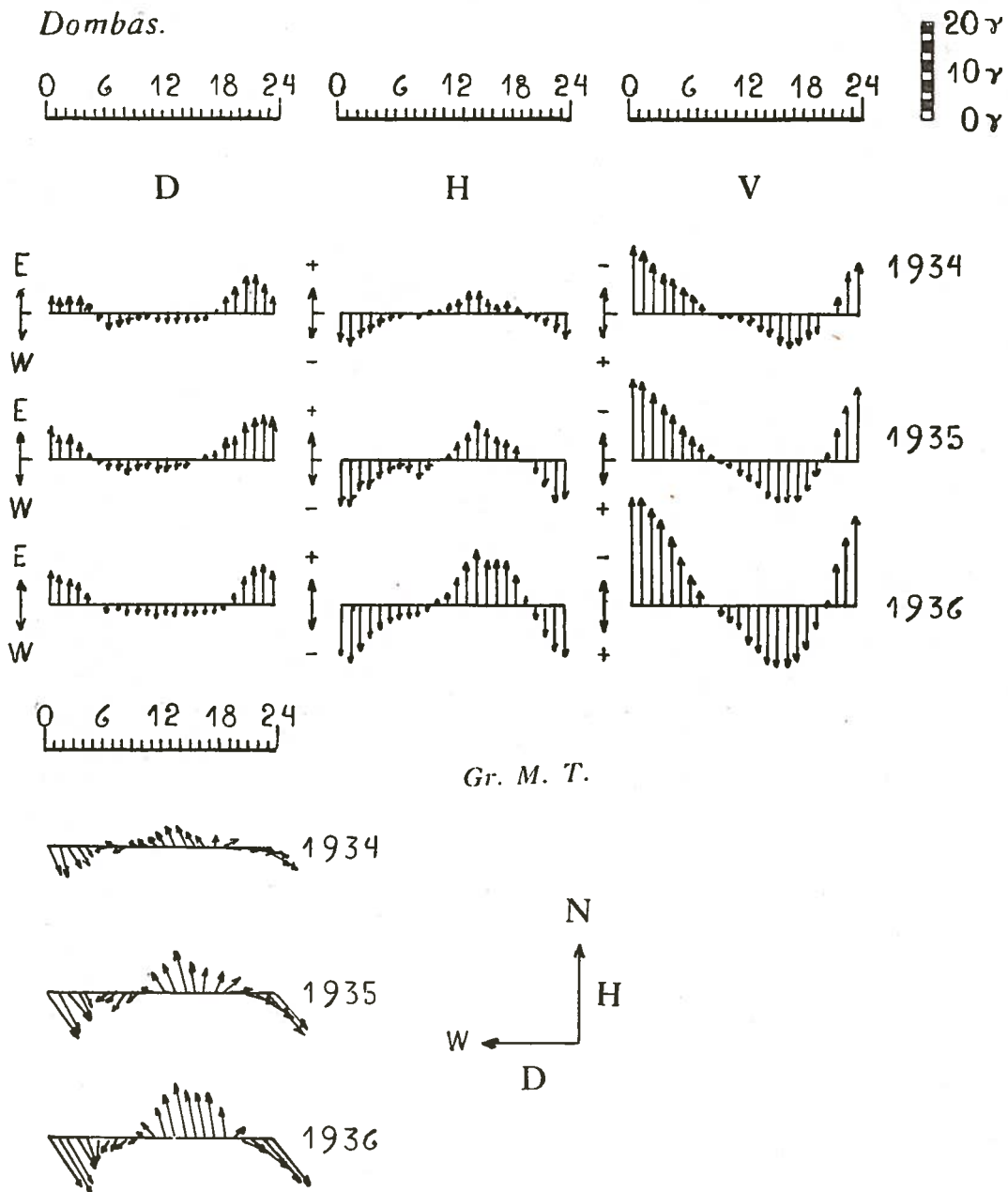


Fig. 2. Mean annual graph for the diurnal variation of storminess for *D*, *H* and *V*, besides vector diagram for *D* and *H* for the three years 1934—36.

TABLES

The 7-day normals for quiet diurnal variation for D, H and V. 1934—36	page 2— 6
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Dombás.

Vertical Intensity. Quiet Values (+ Down). Unit Gamma.

Gr. M. T.

Table with 27 columns (1-23 for data, 24-26 for MIN., MAX., AMPL.) and rows for months (JAN-DEC) and ANNUAL MEAN. Each month includes four rows of dates (e.g., 27-3, 4-11, 12-18, 19-26). Data values range from -9 to 5.

Dombás.

Declination. Quiet Values (+ W). Unit Gamma.

Gr. M. T.

Table with 27 columns (1-23 for data, 24-26 for MIN., MAX., AMPL.) and rows for months (JAN-DEC) and ANNUAL MEAN. Each month includes four rows of dates (e.g., 27-3, 4-11, 12-18, 19-26). Data values range from -11 to 12.

Dombås.

Horizontal Intensity. Quiet Values (+N). Unit Gamma.

Gr. M. T.

Table with 26 columns (1935, 1-23, MIN., MAX., AMP.) and 12 rows (JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, ANNUAL MEAN). Each month row has sub-rows for specific dates.

Dombås.

Vertical Intensity. Quiet Values (+Down). Unit Gamma.

Gr. M. T.

Table with 26 columns (1935, 1-23, MIN., MAX., AMP.) and 12 rows (JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, ANNUAL MEAN). Each month row has sub-rows for specific dates.

Dombás.

Declination. Quiet Values (+ W). Unit Gamma.

Gr. M. T.

Table with columns for 1936 (JAN-DEC), 23 numbered columns, MIN., MAX., and AMP. values. Contains numerical data for declination measurements.

Dombás.

Horizontal Intensity. Quiet Values (+ N). Unit Gamma.

Gr. M. T.

Table with columns for 1936 (JAN-DEC), 23 numbered columns, MIN., MAX., and AMP. values. Contains numerical data for horizontal intensity measurements.

Dombås.

Vertical Intensity. Quiet Values (+ Down). Unit Gamma.

Gr. M. T.

Table with columns for year (1936), month (JAN-DEC), day (27-3, 4-11, 12-18, 19-26), and 24 numbered columns (1-24). Includes sub-columns for MIN., MAX., and AMP. for each day. Annual mean values are provided at the bottom.

Dombås.

Declination. Quiet Values (+ W). Unit Gamma.

Gr. M. T.

Table with columns for year (1934), month (JAN-DEC), and 24 numbered columns (1-24). Includes sub-columns for MIN., MAX., and AMP. for each day. Annual mean values are provided at the bottom.

Dombås.

Horizontal Intensity. Quiet Values (+ N). Unit Gamma.

Gr. M. T.

Table with columns for year (1934), month (JAN-DEC), and 24 numbered columns (1-24). Includes sub-columns for MIN., MAX., and AMP. for each day. Annual mean values are provided at the bottom.

Dombås.

Vertical Intensity. Quiet Values (+ Down). Unit Gamma.

Gr. M. T.

Table with columns for year (1934), month (JAN-DEC), and 24 numbered columns (1-24). Includes sub-columns for MIN., MAX., and AMP. for each day. Annual mean values are provided at the bottom.

Dombás. Declination. Quiet Values (+ W). Unit Gamma. Gr. M. T.

Table with 26 columns (1935, 1-24, MIN., MAX., AMP.) and 13 rows (JAN-DEC, MEAN) showing declination data.

Dombás. Horizontal Intensity. Quiet Values (+ N). Unit Gamma. Gr. M. T.

Table with 26 columns (1935, 1-24, MIN., MAX., AMP.) and 13 rows (JAN-DEC, MEAN) showing horizontal intensity data.

Dombás. Vertical Intensity. Quiet Values (+ Down). Unit Gamma. Gr. M. T.

Table with 26 columns (1935, 1-24, MIN., MAX., AMP.) and 13 rows (JAN-DEC, MEAN) showing vertical intensity data.

Dombás. Declination. Quiet Values (+ W). Unit Gamma. Gr. M. T.

Table with 26 columns (1935, 1-24, MIN., MAX., AMP.) and 13 rows (JAN-DEC, MEAN) showing declination data.

Dombás. Horizontal Intensity. Quiet Values (+ N). Unit Gamma. Gr. M. T.

Table with 26 columns (1935, 1-24, MIN., MAX., AMP.) and 13 rows (JAN-DEC, MEAN) showing horizontal intensity data.

Dombás. Vertical Intensity. Quiet Values (+ Down). Unit Gamma. Gr. M. T.

Table with 26 columns (1935, 1-24, MIN., MAX., AMP.) and 13 rows (JAN-DEC, MEAN) showing vertical intensity data.

Dombás.

Declination. Storminess (+ W).

Unit Gamma.

Table with columns for months (January to June) and sub-columns for PS, NS, AS. Rows represent data for days 1-31 and a mean row.

Dombás.

Declination. Storminess (+ W).

Unit Gamma.

Table with columns for months (July to December) and sub-columns for PS, NS, AS. Rows represent data for days 1-31 and a mean row.

Dombás.

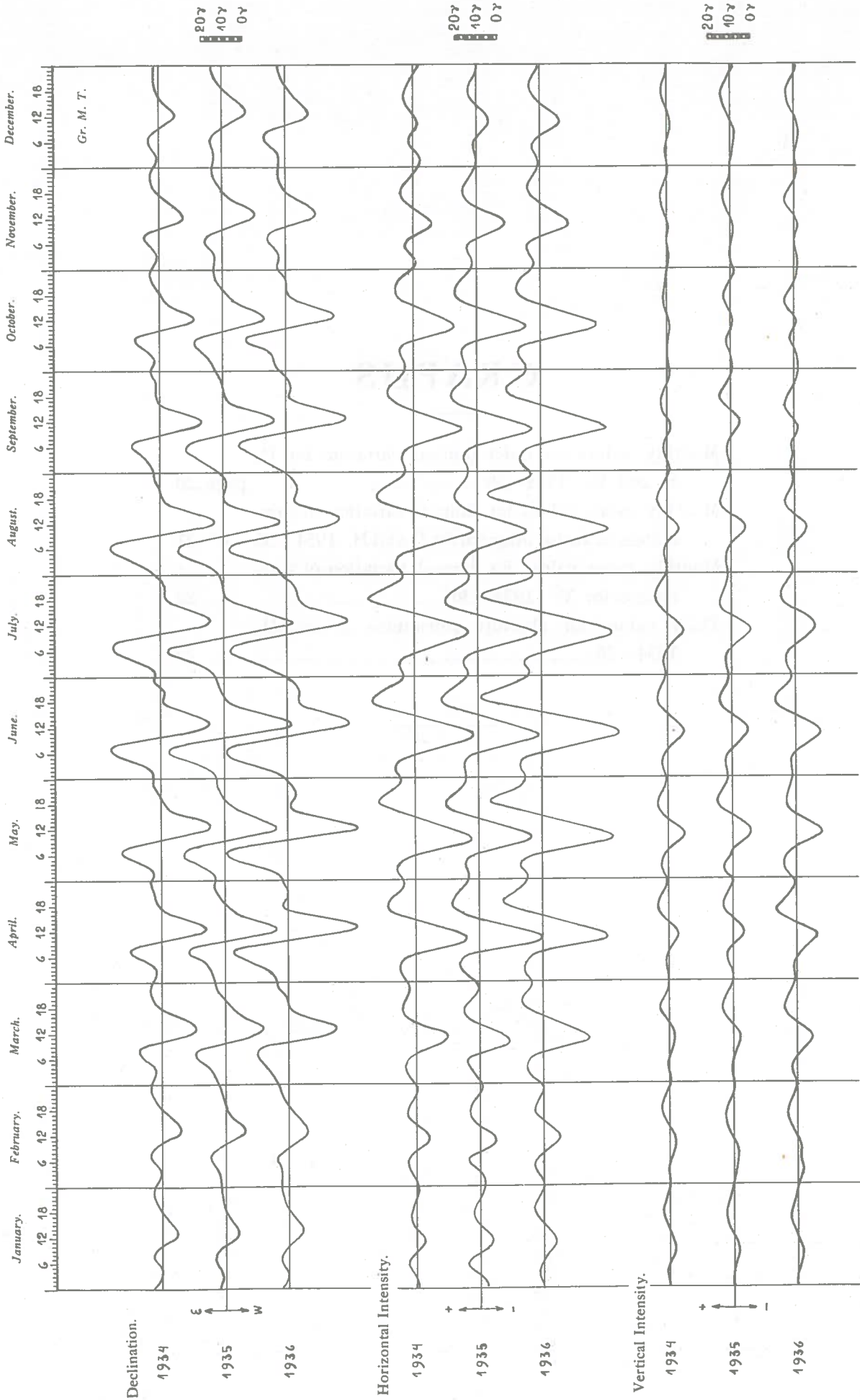
Horizontal Intensity. Storminess (+ N).

Unit Gamma.

Table with columns for months (January to June) and sub-columns for PS, NS, AS. Rows represent data for days 1-31 and a mean row.

GRAPHS

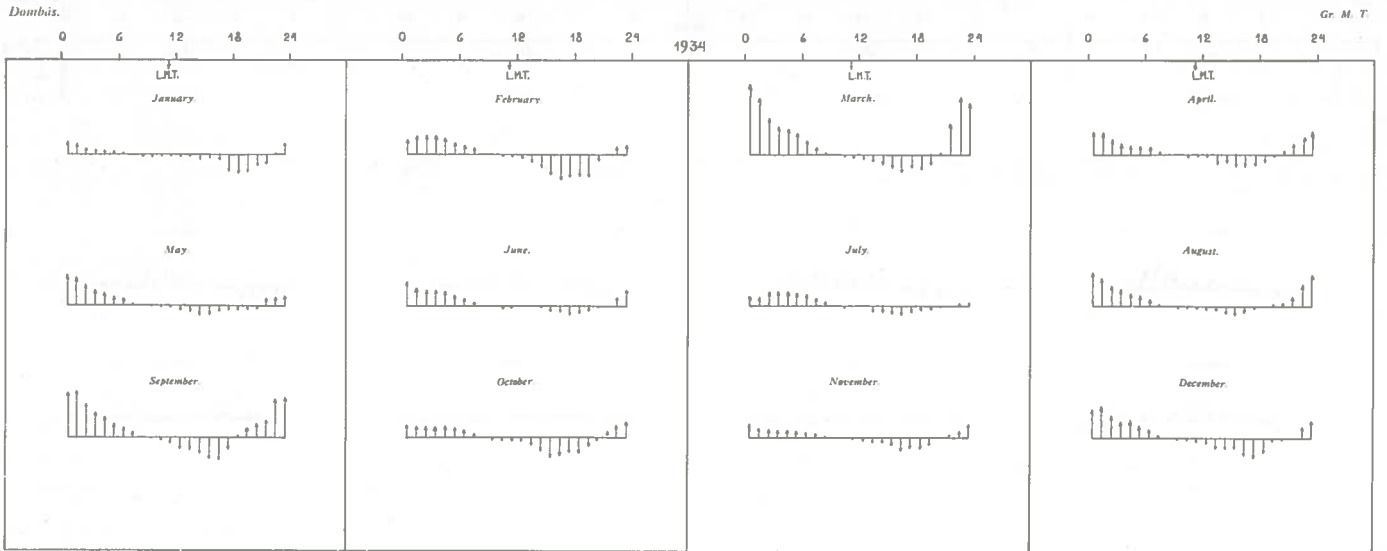
Monthly values for quiet diurnal variation for D, H and V. 1934—36	page 20
Monthly mean values for diurnal variation of storminess as vector diagram for D and H. 1934—36 »	21
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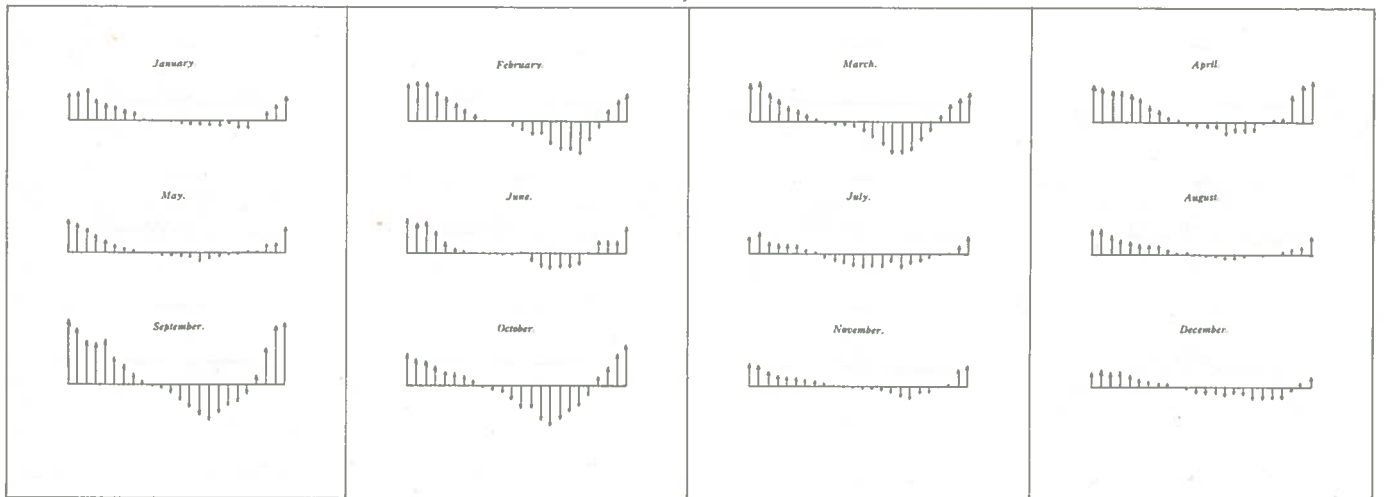
Monthly values for quiet diurnal variation for D , H and V for Dombås 1934—1936.



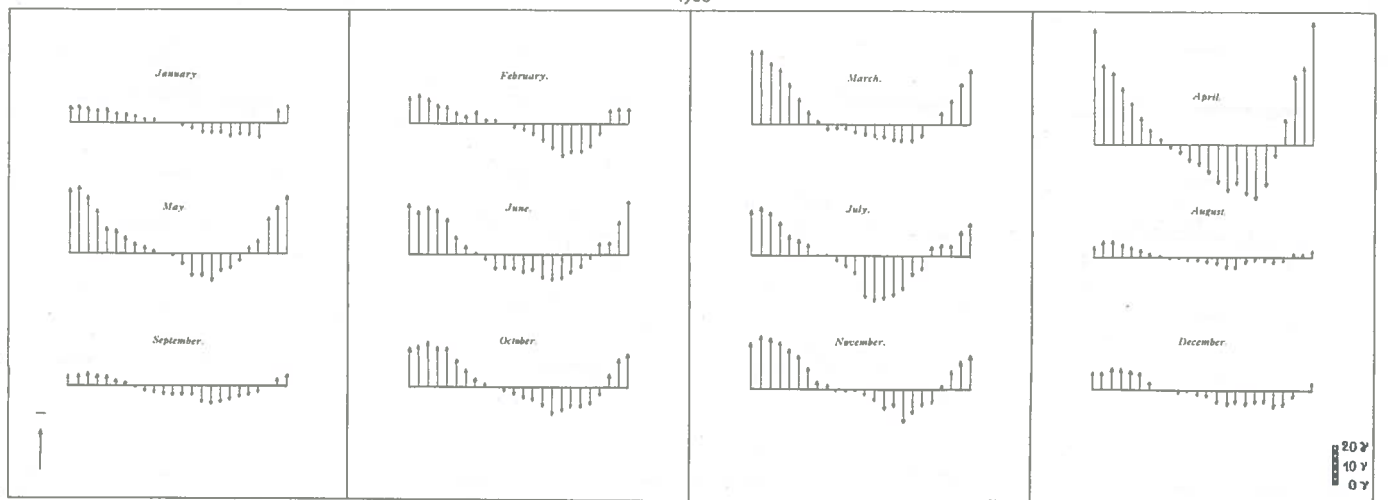
Monthly mean values for diurnal variation of Storminess as vector diagram for *D* and *H*. 1934—1936.



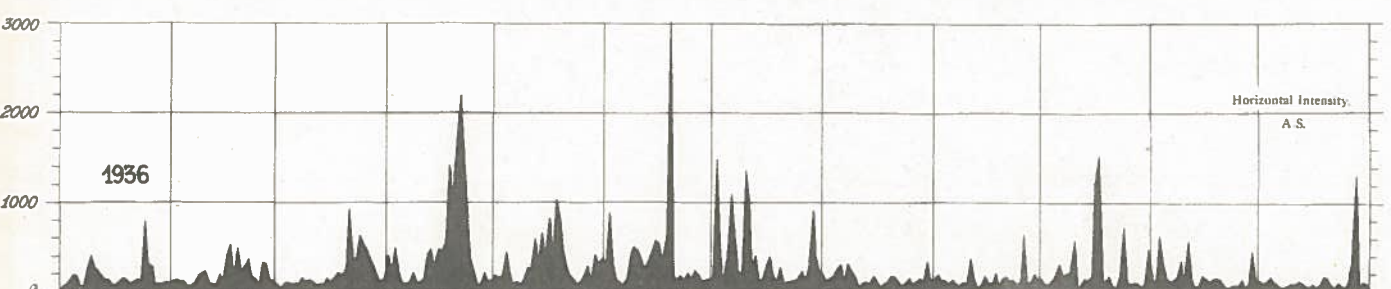
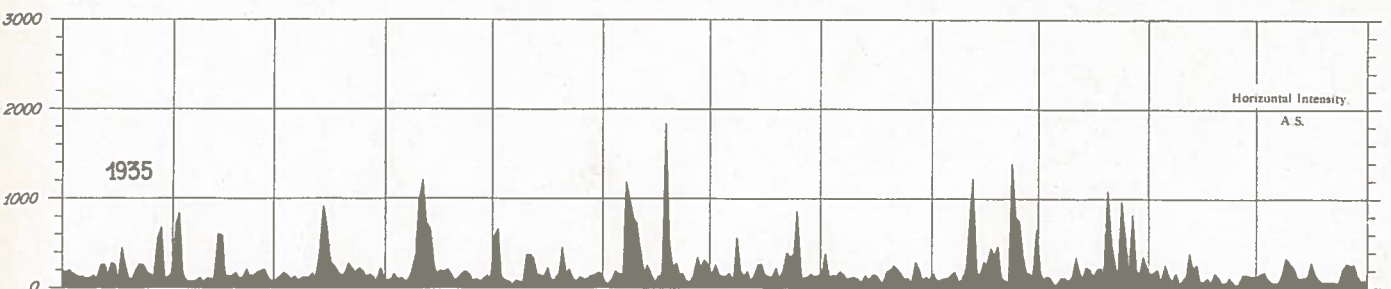
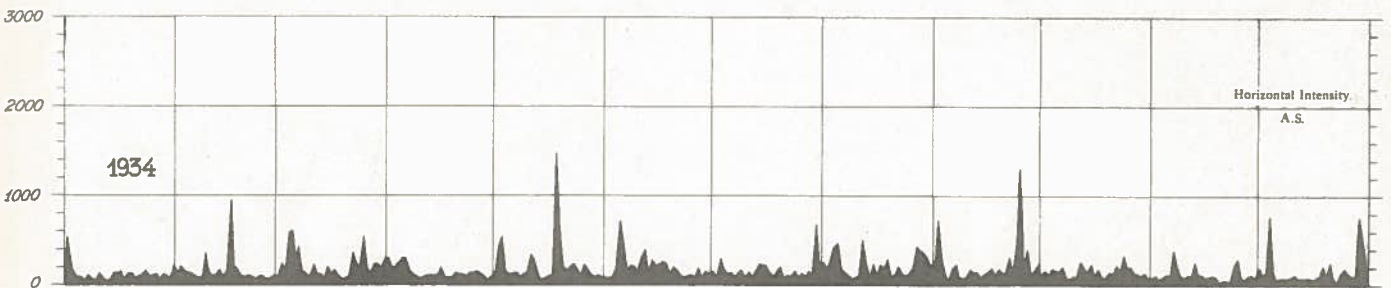
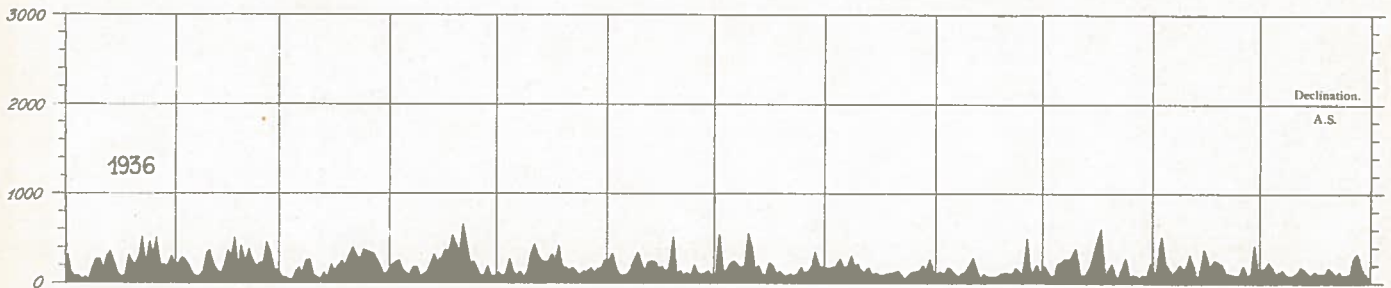
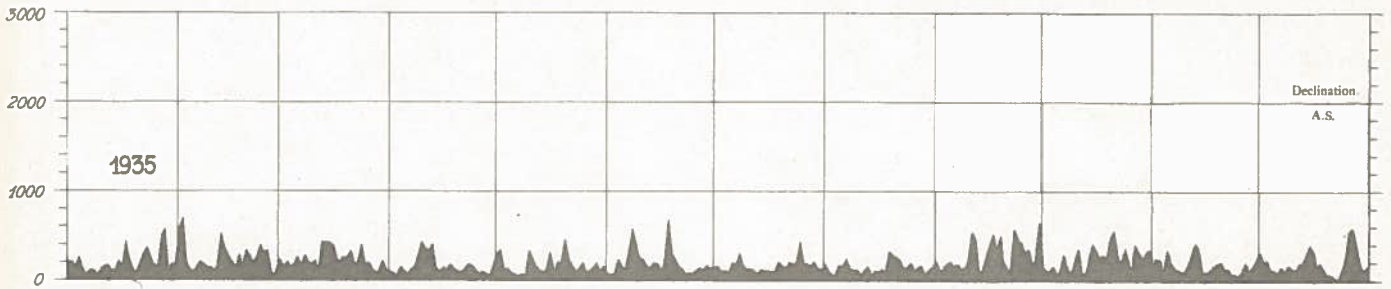
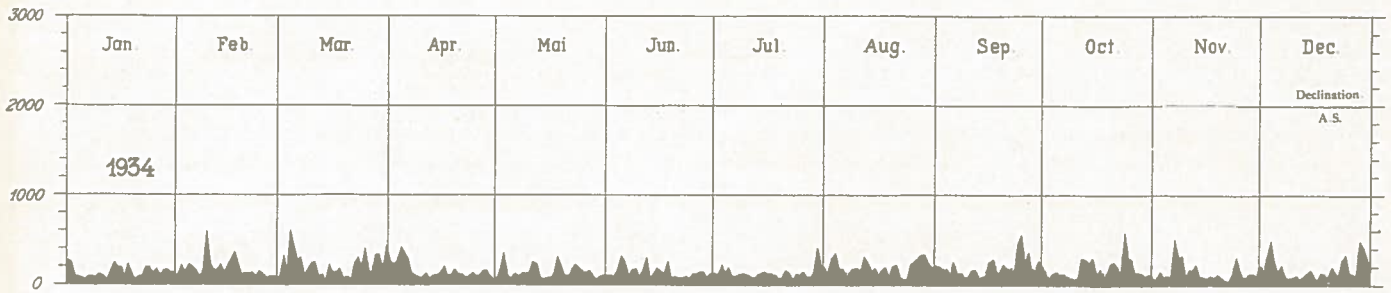
1935



1936



Monthly mean diurnal variation for Storminess in the vertical intensity. 1934—1936



Daily values for absolute Storminess for *D* and *H*. 1934—1936.

