

POLAR GEOPHYSICAL INSTITUTE
RUSSIAN ACADEMY OF SCIENCES



PGI
GEOPHYSICAL DATA

2025

JANUARY

FEBRUARY

MARCH

MURMANSK, APATITY, RUSSIA

May 2025

PGI

GEOPHYSICAL DATA

V. VOROBJEV, editor

V. Burnaeva and N. Kudriashova make-up editors

This bulletin presents the preliminary ground-based optical, geomagnetic and cosmic ray data obtained by Polar Geophysical Institute in the first quarter of 2025. All-sky camera observations are published only for the quarters when observations were carried out. All data are available by request.

Reviewer Orlov K.G.

Published since 1996

CONTENTS:

Data description.....	3
Geomagnetic K-indices.....	7
Cosmic ray data.....	10
All-sky camera observations.....	11
Magnetogram plots.....	56

DATA DESCRIPTION

Magnetic data

The magnetograms (H, D, and Z) are plotted as magnetic variations recorded in Loparskaya and Lovozero stations by the three component Bobrov type magnetometer with a sampling frequency of 10 samples per seconds. The instrument has a range ± 2620 nT and a resolution of 5 pT. Magnetic observations are gathered every second and registered in the digital form as the 10-sec averaged data. Digits in the plots at the left-hand side denote the scale of the records in nT/div. Timing is provided by the GPS.

Magnetic quiet values for H, D and Z components are shown by dotted line as a daily averaged magnetic activity level for three magnetically quiet days of each month. Quiet days are brand by the symbol Q in tables of geomagnetic K-indices.

Geomagnetic K-indices

The hourly K-indices indicate the level of geomagnetic field disturbance. The maximum deflection of two components H and D from the magnetic quiet value during one-hour interval have been recalculated to the value of the local hourly K-index. The following scale has been used:

K-indices	Deflection in nT
0	0-15
1	15-30
2	30-60
3	60-120
4	120-210
5	210-360
6	360-600
7	600-990
8	990-1500
9	1500 and more

Cosmic ray data

The 18-NM-64-neutron monitor has been operating in Apatity since 1969. A plot of pressure corrected hourly data (count accumulated during one-hour interval) is presented in units of percent with respect to the monthly mean intensity. Mean values are:

January 5580.19

February 5616.16

March 5652.90

The hourly data are sent to WDC-B2 (Moscow) and WDC-C (Japan).

Please visit <http://pgia.ru/lang/ru/data>

All-sky camera observations

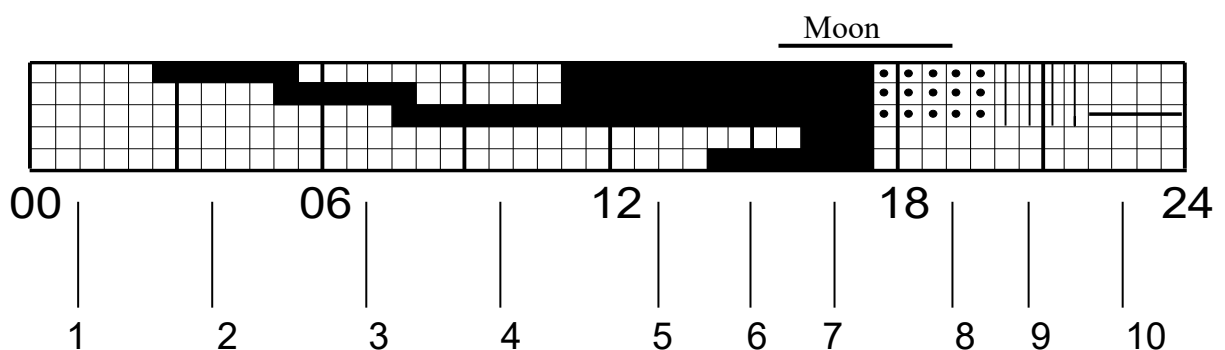
Calendar

Calendar shows the intervals of digital all-sky camera observations in Lovozero, Verhnetulomsky and Tumanny which are available during dark periods from 14:00 UT through midnight to 05:00 UT.

Ascaplots

All-sky camera observations are presented in this bulletin in the form of the standard five lines ascaplot. A detailed description of askaplots interpretation was published in: Annals of International Geophysical Year. V. XX. Part 1. P. 1-5. 1962.

Example of an ascaplot and the legend are given below. Top three lines give information on the existence of aurorae in north, zenith and south ranges of the sky, respectively. The fourth and fifth lines in the standard five lines ascaplot give the zenith range auroral intensity. We do not use all-sky camera observations to form a correct estimate of the auroral intensity.



- 1- no aurora
- 2- aurorae present in north range
- 3- weak aurorae present in zenith range
- 4- aurorae present in south range
- 5- aurorae present in north, zenith and south ranges
- 6- medium aurora in zenith, aurorae present in north and south ranges
- 7- strong aurora in zenith, aurorae present in north and south ranges
- 8- partial cloudiness
- 9- total cloudiness
- 10- no operation

Keograms

Black white keograms show the auroral display along the geomagnetic meridian of station. Here we present a few selected auroral events observed at Lovozero, Verhnetulomsky and Tumanny in night-time interval from 17:00 UT to 01:00 UT. Zenith angles are given along the vertical axis. Magnetic north is at the top of the figure.

PLEASE NOTE:

All-sky camera in Tumanny was not in operation from November 23, 2024, magnetometer in Loparskaya was not in operation from January 29, 2025 to March 21, 2025 because of some technical problems.

Coordinates of stations

Stations	Code	Geographic		Corr. Geomagnetic	
		Lat	Long	Lat	Long
<i>Tumanny</i>	TUM	69.14° N	35.82° E	65.24° N	116.7° E
<i>Loparskaya</i>	LOP	68.63° N	33.25° E	64.94° N	113.6° E
<i>Verhnetulomsky</i>	VTL	68.59° N	31.75° E	64.92° N	113.0° E
<i>Lovozero</i>	LOZ	67.97° N	35.02° E	64.17° N	115.3° E

Please visit

<http://pgia.ru/data/>

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GEOMAGNETIC K-INDICES, LOVOZERO(LOPARSKAYA)

January, 2025

Lower limit of K=9 is 1500 nT

Day	Time, UT								
	03	06	09	12	15	18	21	24	
1	5 5 6	5 4 5	3 3 3	3 4 4	4 5 5	5 5 9	6 4 6	6 3 4	
2	4 3 3	2 3 3	3 3 3	3 3 2	3 4 4	4 4 4	4 2 3	4 4 4	
3	4 3 3	4 4 2	2 2 2	2 2 2	2 1 1	1 1 1	1 1 2	2 1 2	
4	2 1 2	2 3 3	4 4 5	4 3 2	2 2 2	2 5 6	6 5 6	3 4 6	
5	6 5 3	2 3 2	2 2 2	2 2 3	3 4 4	4 4 7	6 4 4	5 4 4	
6	3 4 4	3 2 2	3 3 2	2 2 2	2 2 2	4 3 4	3 3 4	5 2 3	
7	4 4 3	2 3 2	2 1 2	2 3 3	2 1 1	3 4 3	4 3 2	2 3 5	
8	5 3 1	1 0 2	1 1 1	1 1 1	1 1 1	1 2 2	0 1 1	1 0 1	
9	2 2 1	1 0 0	0 0 0	1 1 1	4 4 4	4 3 2	2 2 2	2 3 1	
10	0 0 1	4 4 3	1 1 1	1 1 2	4 3 1	0 0 0	1 3 5	5 6 5	
11	4 3 1	1 0 0	2 1 1	1 1 1	0 1 0	1 3 2	0 1 0	1 0 0	
12	0 1 1	0 0 0	0 0 1	0 1 1	1 2 2	0 0 0	0 0 1	2 2 4	Q
13	6 5 4	2 1 1	1 1 1	1 0 0	0 0 0	0 3 3	3 4 3	4 2 4	
14	4 3 1	1 1 1	1 1 1	1 1 0	0 1 2	3 3 3	3 4 4	4 3 2	
15	4 4 3	4 4 3	1 1 2	2 1 1	2 2 3	5 4 4	4 3 3	2 2 2	
16	2 3 3	3 2 2	2 2 2	1 1 1	1 1 1	1 2 4	4 4 4	4 2 2	
17	3 5 5	4 3 2	2 2 2	1 1 1	1 2 3	5 4 2	3 4 4	2 6 5	
18	2 2 2	2 2 2	1 2 1	1 1 1	1 0 1	1 0 0	2 2 2	3 4 1	
19	1 2 1	1 1 1	2 2 2	2 2 3	3 3 3	2 0 2	3 5 5	5 6 5	
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21	3 1 2	1 2 2	2 2 1	1 1 1	1 1 1	2 2 1	4 5 4	4 5 4	
22	4 3 2	1 2 1	1 1 2	2 2 2	1 1 1	1 2 1	0 1 1	3 3 3	
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24	2 1 1	1 1 1	1 2 1	1 1 1	2 2 2	2 1 1	1 1 1	1 3 3	
25	0 0 0	0 0 0	0 0 1	1 1 1	1 1 1	1 0 1	0 0 0	0 2 2	
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	Q
27	0 0 0	0 0 0	0 1 0	0 0 1	0 1 2	5 5 4	3 3 3	2 2 3	
28	3 3 2	0 1 0	0 0 1	1 1 1	2 5 4	4 5 4	5 4 5	4 4 4	
29	3 3 0	0 0 0	0 1 0	0 1 1	1 2 3	3 3 2	1 1 3	3 3 1	
30	0 0 0	0 0 0	0 0 0	0 0 0	0 1 0	0 0 1	2 2 2	5 5 3	
31	3 0 0	0 1 0	0 1 0	0 0 1	1 2 1	1 1 1	1 1 1	1 1 1	Q

GEOMAGNETIC K-INDICES, LOVOZERO
February, 2025
Lower limit of K=9 is 1500 nT

Day	Time, UT								
	03	06	09	12	15	18	21	24	
1	1 3 5	2 2 2	2 2 -	0 1 2	2 3 5	5 5 4	3 5 6	5 4 6	
2	5 3 2	2 3 3	2 3 2	2 2 2	3 3 5	5 5 3	3 3 2	0 0 0	
3	0 0 0	0 0 0	1 0 0	1 1 1	0 0 0	0 0 0	0 0 0	0 0 0	Q
4	0 1 0	0 0 0	0 0 0	1 1 1	1 3 1	1 1 1	1 2 0	1 1 1	Q
5	1 1 1	1 1 0	0 0 1	1 1 1	1 1 1	2 4 2	2 2 0	0 2 4	
6	5 2 0	1 1 0	0 0 0	0 0 1	2 1 1	1 1 1	1 1 1	2 2 2	
7	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	Q
8	0 0 1	1 1 1	1 1 1	1 1 2	2 4 4	4 3 0	1 2 2	0 1 1	
9	0 1 1	1 1 1	1 - 2	1 - 1	1 2 3	5 5 5	4 4 5	5 6 5	
10	4 5 5	3 2 3	2 2 2	3 3 3	4 2 2	4 4 4	4 4 5	5 5 4	
11	5 6 5	3 2 2	2 1 2	2 2 3	3 3 3	4 2 1	3 4 3	3 5 5	
12	6 6 4	3 3 3	2 2 1	2 2 2	0 1 2	4 2 0	1 4 6	3 2 1	
13	4 5 5	5 3 2	2 1 2	2 3 2	3 3 5	4 3 3	3 6 5	5 6 6	
14	5 5 5	5 4 2	1 2 2	2 2 1	2 4 5	5 5 3	4 3 4	6 5 5	
15	5 5 3	4 1 2	2 2 2	2 3 3	2 2 3	4 3 3	5 4 2	3 6 6	
16	2 2 4	4 3 2	2 2 2	2 2 1	2 2 2	3 3 4	6 5 5	5 5 4	
17	4 4 3	3 1 2	2 2 1	1 1 2	1 2 4	4 5 4	4 1 0	3 5 6	
18	5 3 4	5 2 1	2 1 1	1 1 1	1 1 1	1 3 3	2 0 0	5 6 6	
19	6 6 5	3 2 3	2 3 3	2 1 1	1 1 0	0 0 3	2 3 6	5 6 5	
20	5 3 3	3 2 1	1 1 1	0 1 1	1 1 0	0 0 0	0 0 0	0 0 2	
21	3 4 3	1 1 1	1 1 1	1 1 1	1 1 0	0 0 0	0 0 0	1 3 5	
22	4 4 3	1 1 1	1 1 1	0 0 2	2 2 1	0 0 0	0 1 1	3 4 4	
23	4 2 2	1 1 1	1 1 1	1 0 0	0 0 0	0 0 1	1 1 1	1 2 5	
24	4 2 1	1 1 1	1 1 1	2 1 2	1 2 1	2 2 3	3 4 3	2 1 2	
25	2 1 1	1 1 2	2 2 1	1 1 0	0 0 0	1 3 4	4 2 4	5 3 4	
26	3 5 5	3 3 2	2 1 1	1 1 0	1 1 3	5 4 4	4 3 3	2 2 3	
27	3 5 5	3 3 2	2 2 2	1 3 5	4 2 4	5 5 4	3 5 4	5 5 6	
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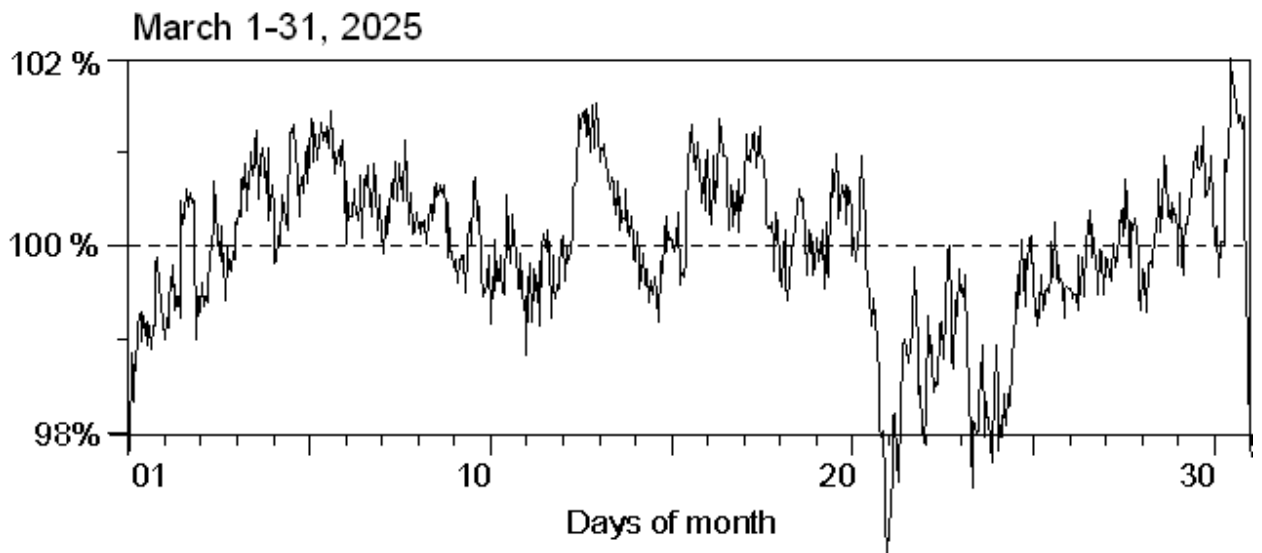
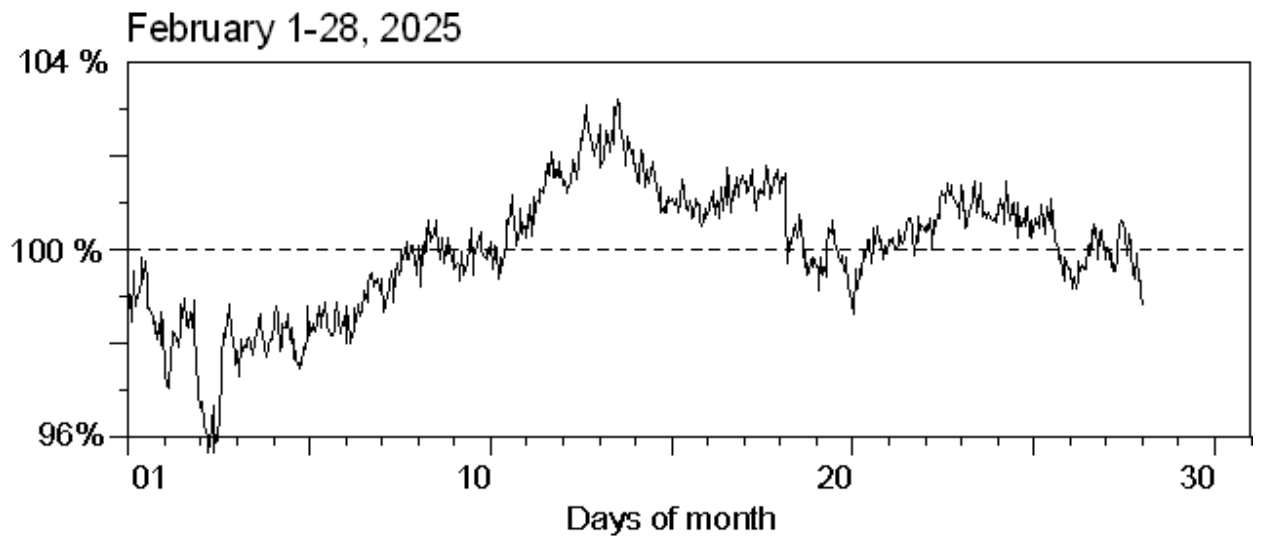
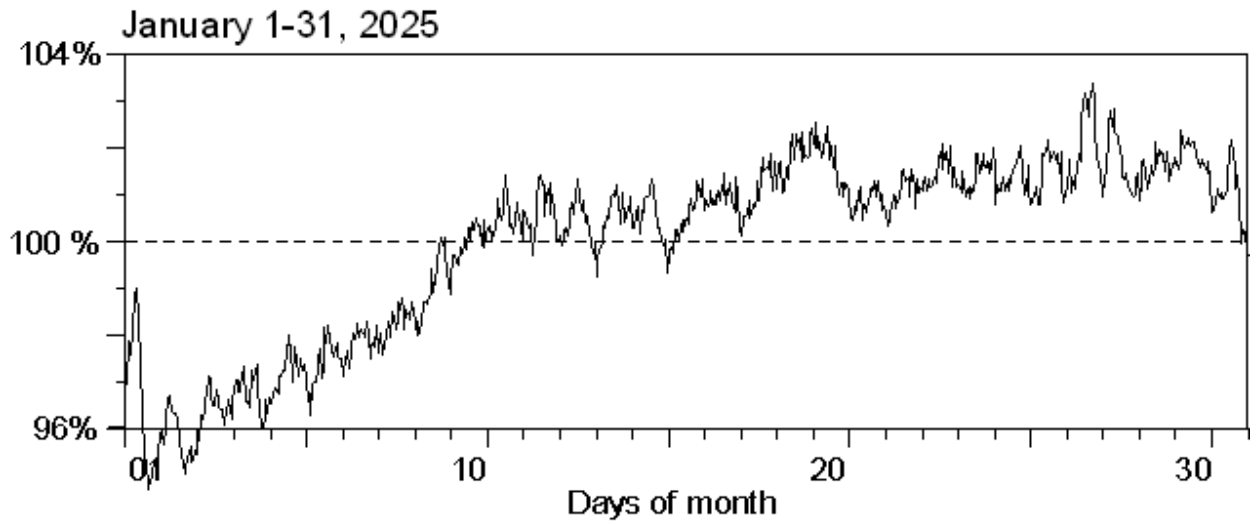
GEOMAGNETIC K-INDICES, LOVOZERO

March, 2025

Lower limit of K=9 is 1500 nT

Day	Time, UT								
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1	3 1 1	2 3 3	3 2 2	4 3 3	3 4 4	1 1 1	2 5 5	6 5 4	
2	2 0 0	1 1 2	1 2 1	1 1 1	1 1 1	0 0 0	0 0 0	0 0 0	Q
3	0 0 0	1 1 1	1 0 1	1 1 1	1 1 0	1 1 1	0 0 0	1 1 1	Q
4	0 0 0	0 1 1	1 1 1	1 1 -	- - -	- - -	- - -	- - -	
7	0 0 0	0 1 1	1 1 1	2 2 2	2 1 2	2 3 4	3 2 2	2 1 2	
8	0 0 1	1 0 1	2 2 2	2 2 2	2 2 2	2 3 3	3 7 7	6 6 6	
9	5 4 7	6 4 3	3 2 3	3 4 5	4 4 5	3 2 1	2 3 4	5 5 5	
10	4 4 1	1 2 2	1 2 1	2 2 2	2 2 2	4 1 1	0 2 3	4 4 4	
11	2 3 3	2 2 2	2 2 1	2 2 2	3 2 1	2 2 2	3 1 2	2 4 6	
12	7 6 5	5 5 4	4 3 1	3 5 5	4 5 6	5 6 6	5 7 6	4 6 6	
13	6 6 4	5 5 -	- - -	- - -	6 5 2	3 3 3	4 6 7	3 6 6	
14	5 6 6	4 3 3	2 2 2	3 2 2	2 3 5	5 4 4	3 4 5	5 6 6	
15	6 3 2	4 4 2	2 2 1	2 3 3	3 4 5	4 4 2	1 2 2	1 1 1	
16	1 2 2	1 1 1	1 2 2	1 2 2	2 2 2	1 1 1	3 1 5	5 3 5	
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20	2 1 2	2 2 2	2 2 2	2 2 2	1 1 0	0 0 0	0 0 1	5 2 1	
21	2 3 2	2 2 -	- - -	- - -	- 2 2	2 2 3	3 4 4	3 4 5	
22	6 7 7	4 3 2	2 2 1	1 2 3	3 5 6	5 5 5	3 2 5	5 6 5	
23	5 5 3	2 2 2	2 2 2	2 1 1	1 1 0	1 2 2	2 3 2	2 2 2	
24	2 5 6	6 4 3	2 2 2	1 3 4	5 6 6	5 4 5	3 3 3	3 3 2	
25	2 4 4	3 2 2	2 2 2	2 2 2	1 1 1	2 3 4	4 3 5	5 4 4	
26	4 5 5	4 2 2	2 2 2	2 2 4	5 6 5	5 5 3	2 7 6	5 4 5	
27	4 4 3	4 4 3	3 5 4	3 3 4	3 3 5	5 3 2	4 5 6	7 6 5	
28	3 1 2	2 3 2	3 2 1	2 1 2	3 3 3	3 3 2	2 3 7	7 5 4	
29	3 3 3	2 2 2	2 2 2	2 1 1	1 0 1	1 2 0	0 0 0	0 0 0	
30	1 1 1	2 2 2	2 2 2	2 2 2	2 0 1	1 1 1	1 2 1	0 0 0	
31	0 0 1	1 1 1	2 2 2	1 2 2	2 1 1	1 1 2	2 1 1	0 0 0	Q

Apatity neutron monitor



ALL – SKY CAMERA OBSERVATIONS

January - March 2025

February 26 - 27

UT	14	15	16	17	18	19	20	21	22	23	24	01	02	03	04	05
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

[illegible]

UT	14	15	16	17	18	19	20	21	22	23	24	01	02	03	04	05
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

[illegible]

CALENDAR OF TV OBSERVATIONS

March 01 - 02

[illegible]

March 02 - 03

[illegible]

March 03 - 04

[illegible]

March 04 - 05

[illegible]

March 05- 06

[illegible]

March 06 - 07

[illegible]

March 07 - 08

[illegible]

March 08 - 09

[illegible]

CALENDAR OF TV OBSERVATIONS

March ry 09 - 10

[illegible]

March 10 - 11

[illegible]

March 11 - 12

[illegible]

March 12 - 13

[illegible]

March 13 - 14

[illegible]

March 14- 15

[illegible]

March 15 - 16

[illegible]

March 16 - 17

[illegible]

CALENDAR OF TV OBSERVATIONS

March 17 - 18

[illegible]

March ry 18 - 19

[illegible]

March 19 - 20

[illegible]

March 20 - 21

[illegible]

March 21 - 22

[illegible]

March 22 - 23

[illegible]

March 23- 24

[illegible]

March 24 - 25

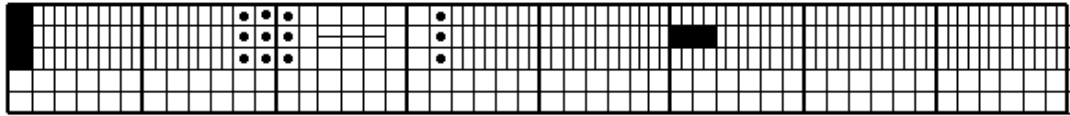
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Lovozero ascaplots

Jan. 01, 2025



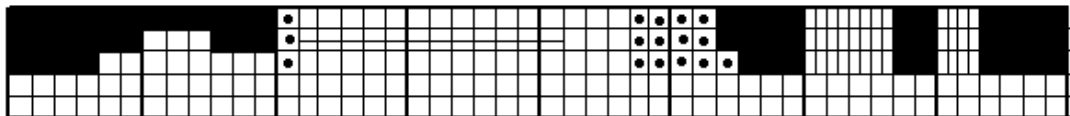
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Jan. 03, 2025



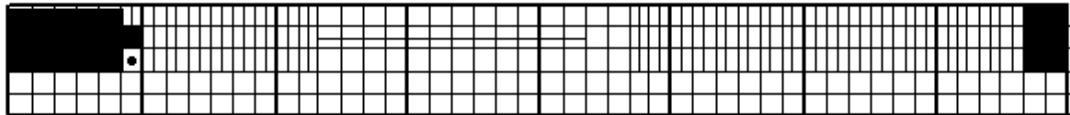
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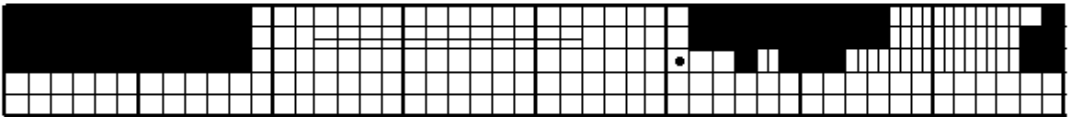
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Jan. 06, 2025



Jan. 07, 2025



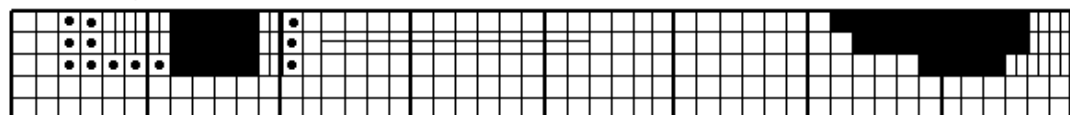
Jan. 08, 2025



Jan. 09, 2025



Jan. 10, 2025

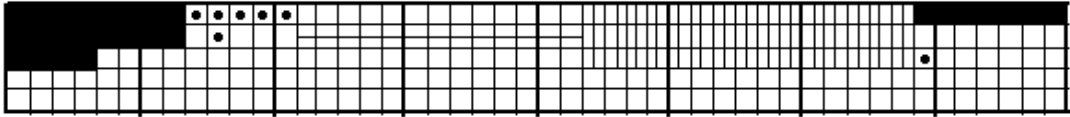


00 06 12 18 24

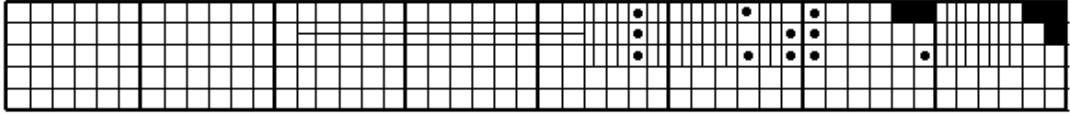
Universal Time

Lovozero ascaplots

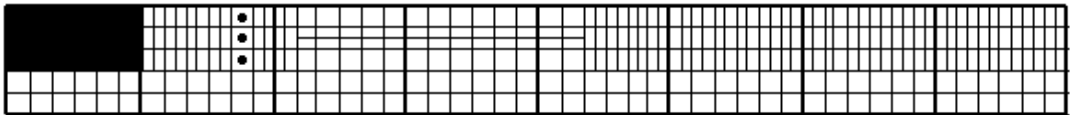
Jan. 11, 2025



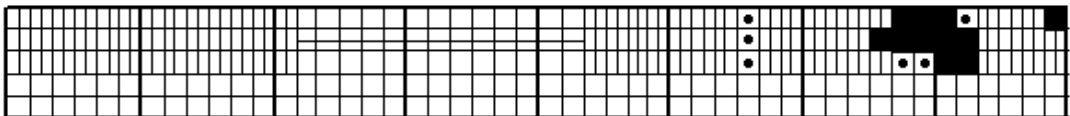
Jan. 12, 2025



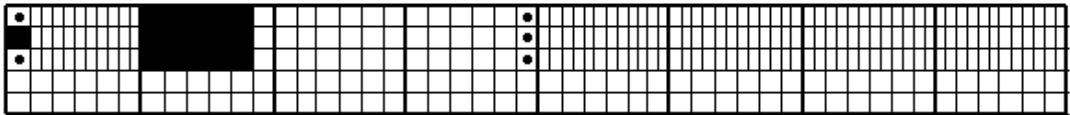
Jan. 13, 2025



Jan. 14, 2025



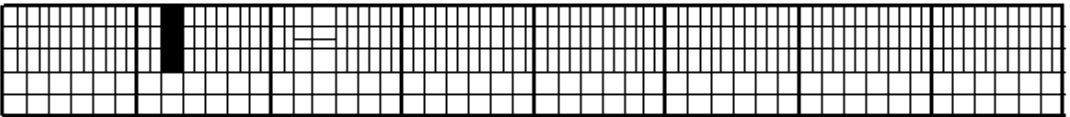
Jan. 15, 2025



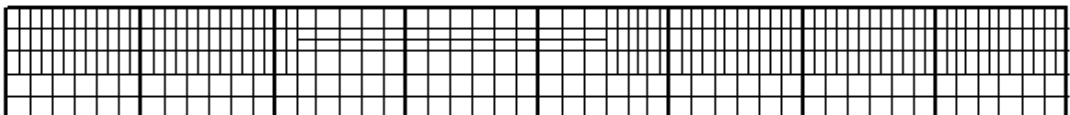
Jan. 16, 2025



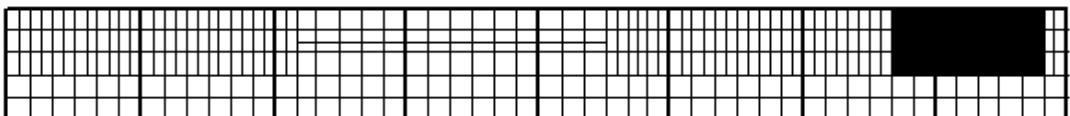
Jan. 17, 2025



Jan. 18, 2025



Jan. 19, 2025



Jan. 20, 2025



00

06

12

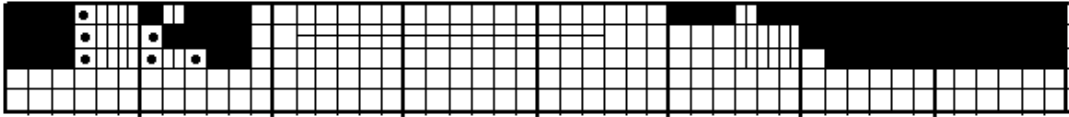
18

24

Universal Time

Lovozero ascaplots

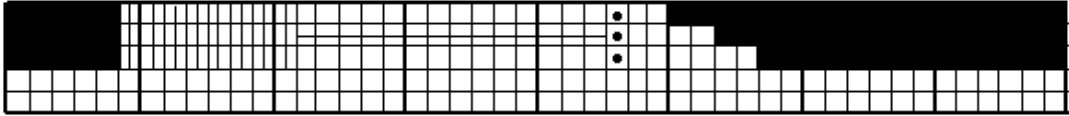
Jan. 21, 2025



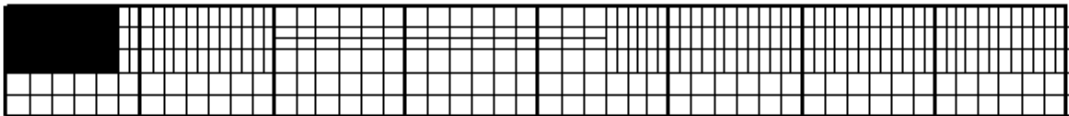
Jan. 22, 2025



Jan. 23, 2025



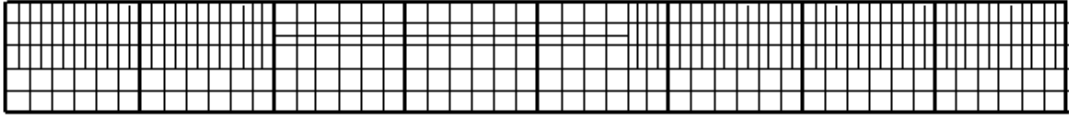
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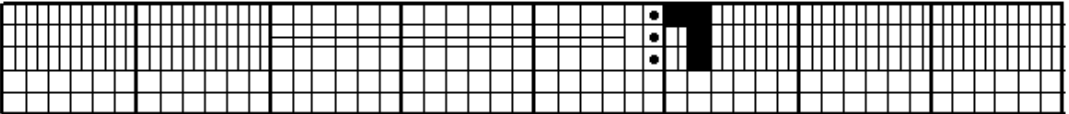
Jan. 25, 2025



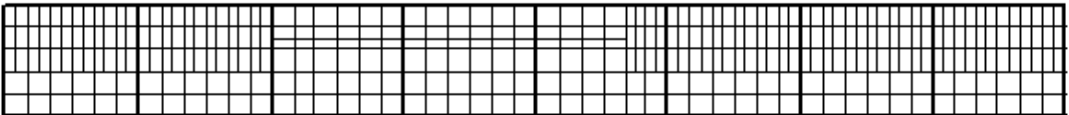
Jan. 26, 2025



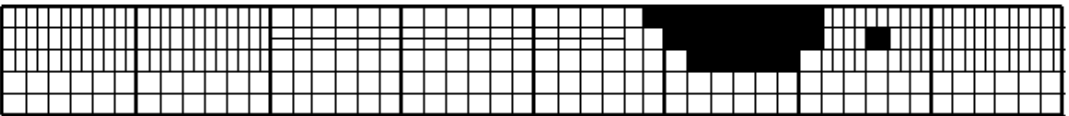
Jan. 27, 2025



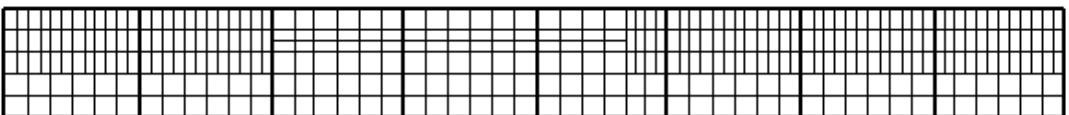
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Jan. 29, 2025

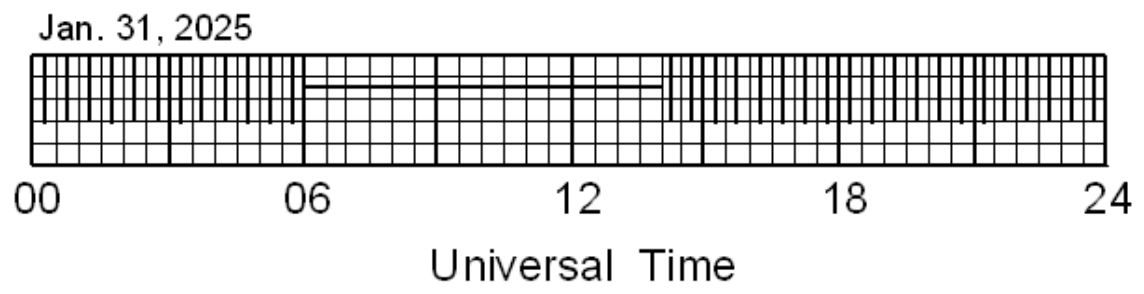


Jan. 30, 2025



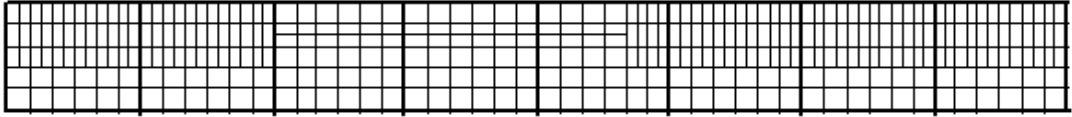
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Universal Time

Lovozero ascaplots

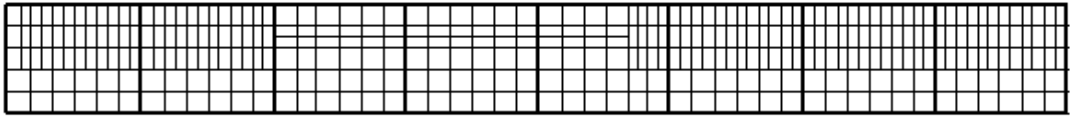


Lovozero ascaplots

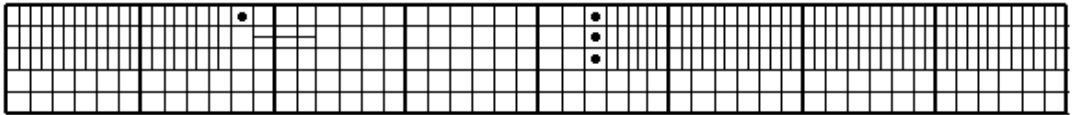
Feb. 01, 2025



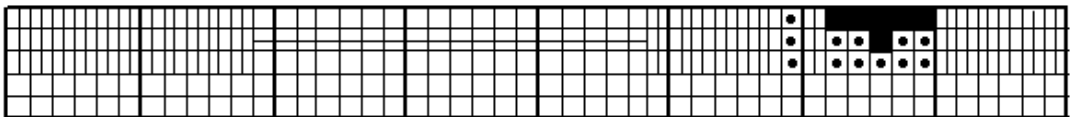
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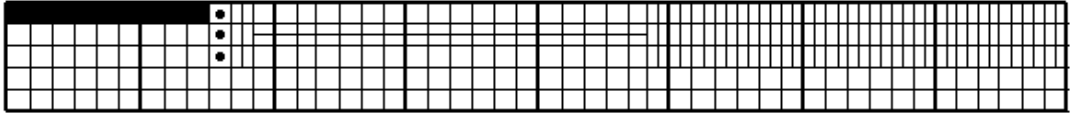
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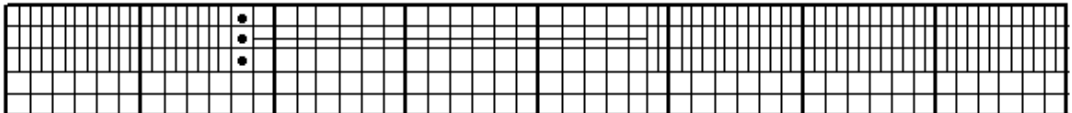
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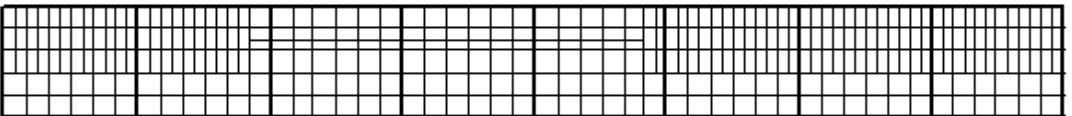
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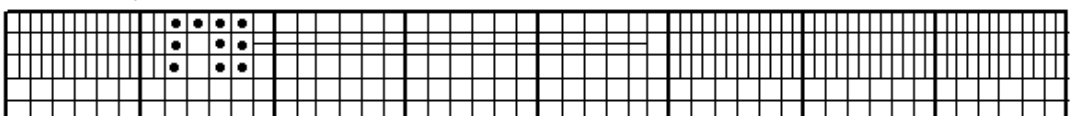
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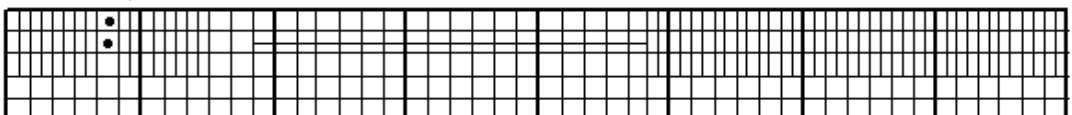
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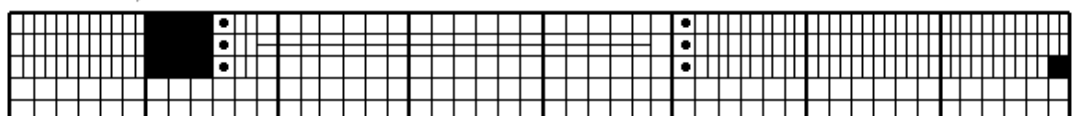
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Feb. 10, 2025

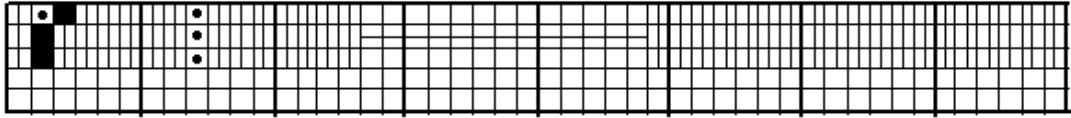


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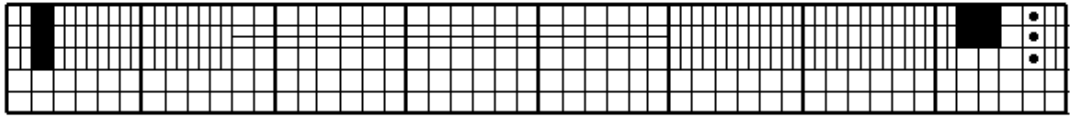
Universal Time

Lovozero ascaplots

Feb. 11, 2025



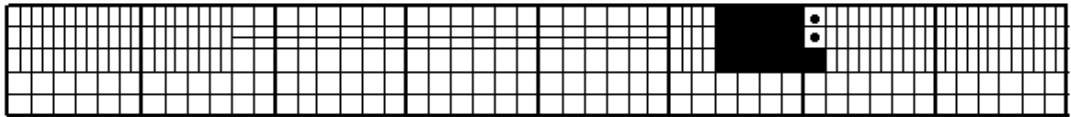
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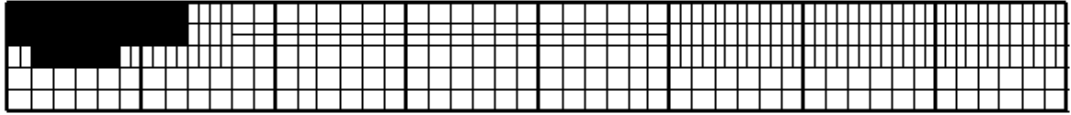
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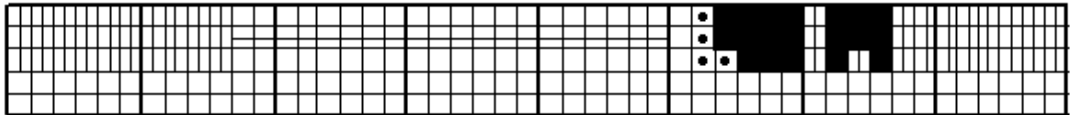
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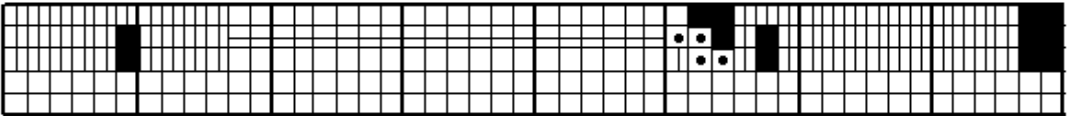
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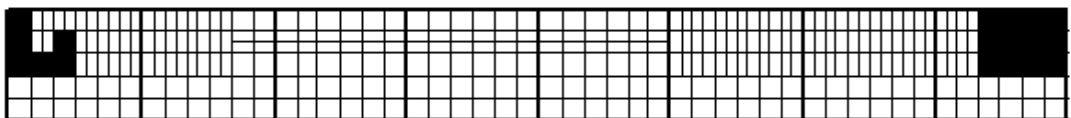
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Feb. 17, 2025



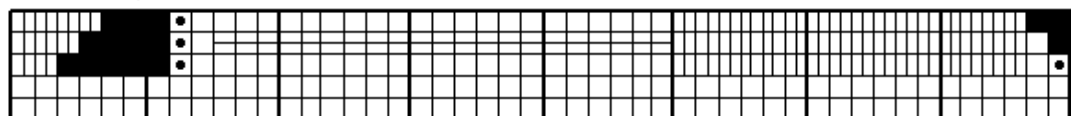
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Feb. 20, 2025

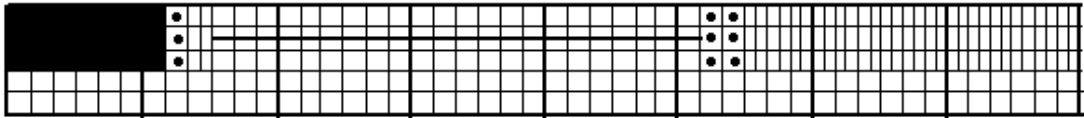


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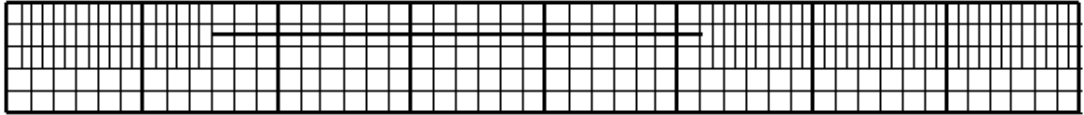
Universal Time

Lovozero ascaplots

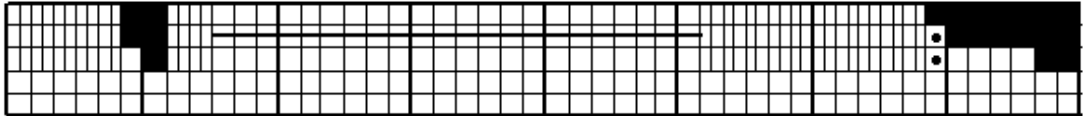
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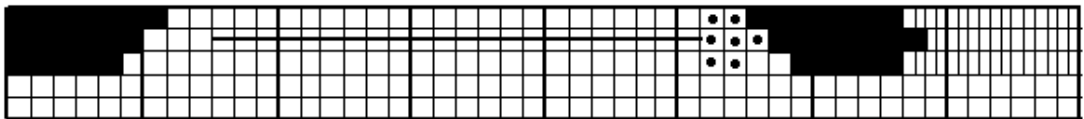
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Feb. 23, 2025



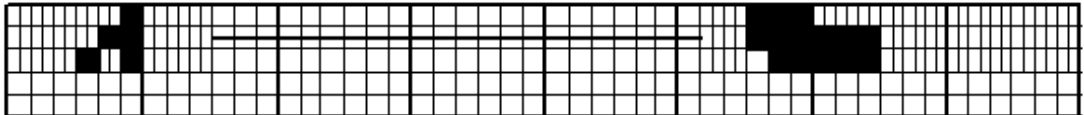
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Feb. 25, 2025



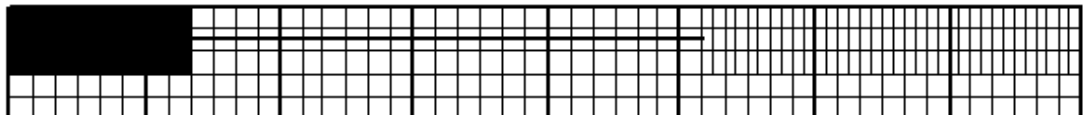
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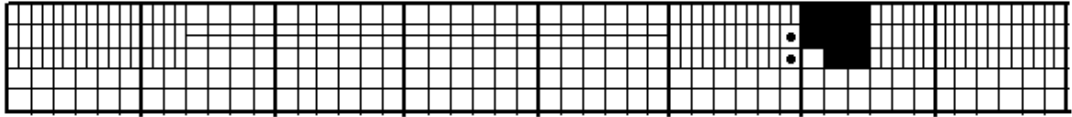


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Universal Time

Lovozero ascaplots

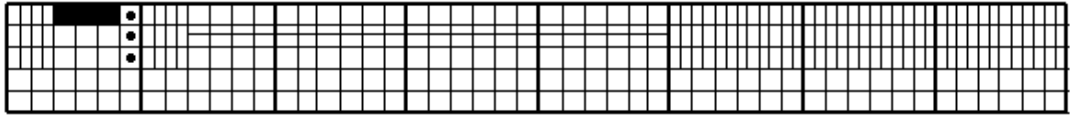
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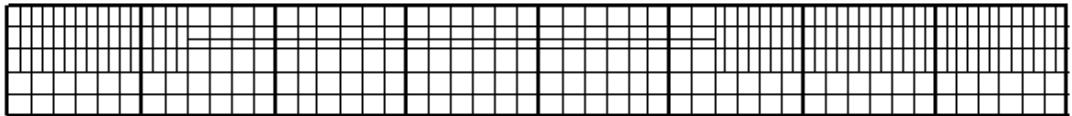
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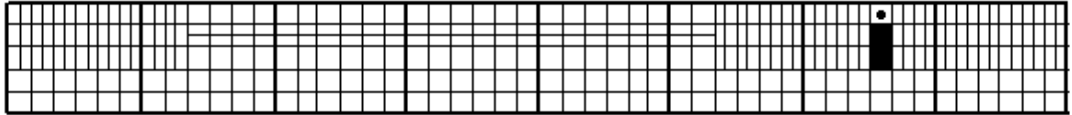
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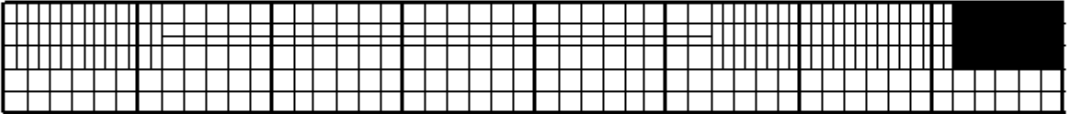
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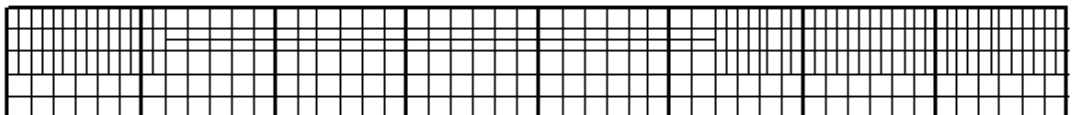
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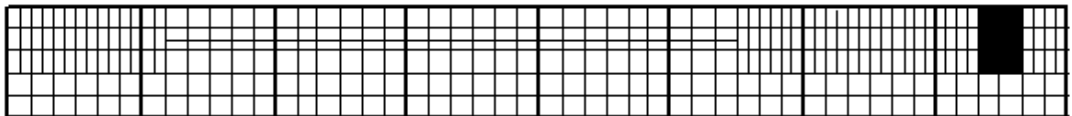
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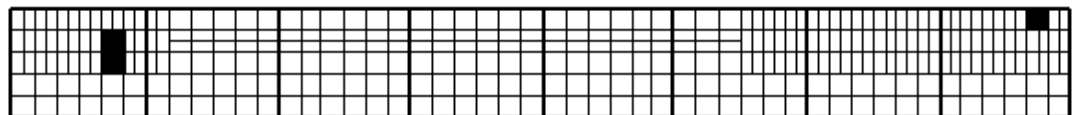
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Mar. 09, 2025



Mar. 10, 2025



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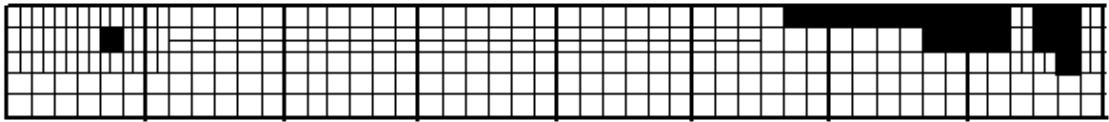
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Universal Time

32

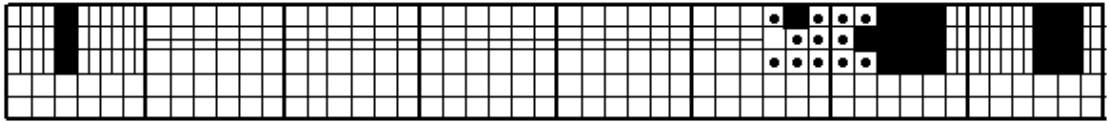
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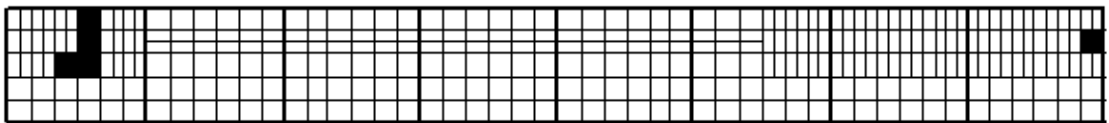
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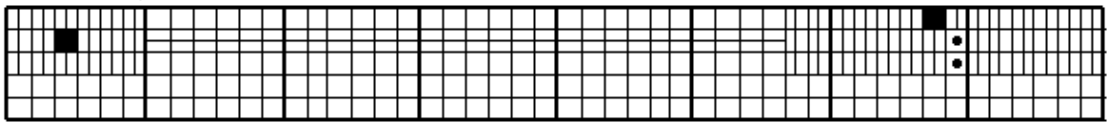
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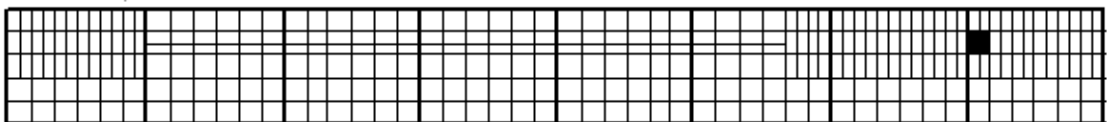
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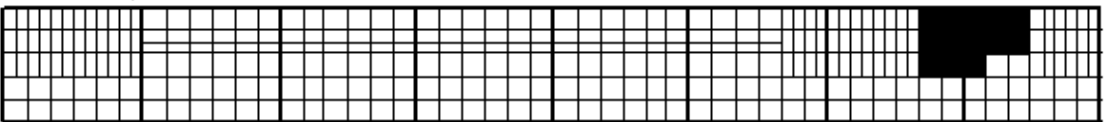
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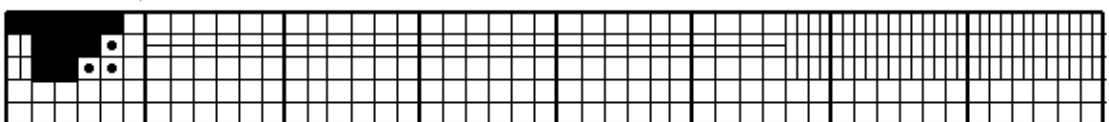
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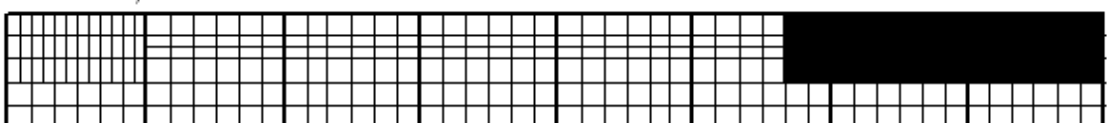
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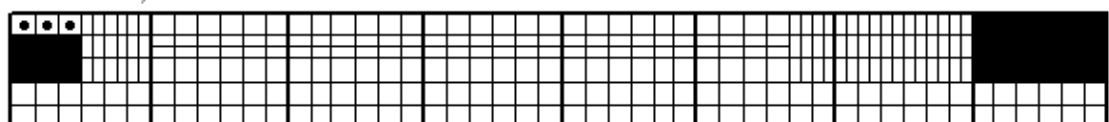
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Mar. 19, 2025



Mar. 20, 2025



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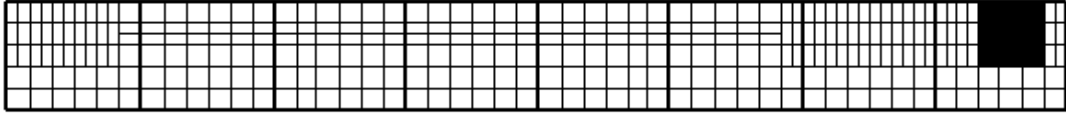
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Lovozero ascaplots

Mar. 21, 2025



Mar. 22, 2025



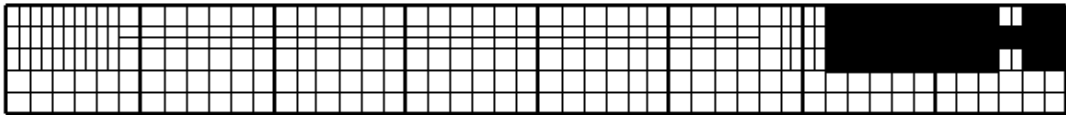
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Mar. 24, 2025



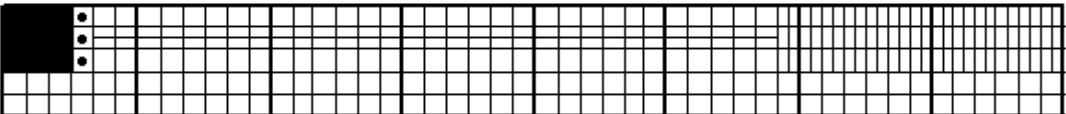
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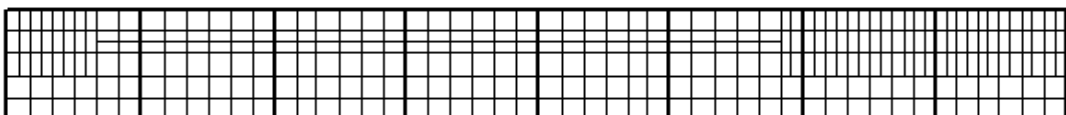
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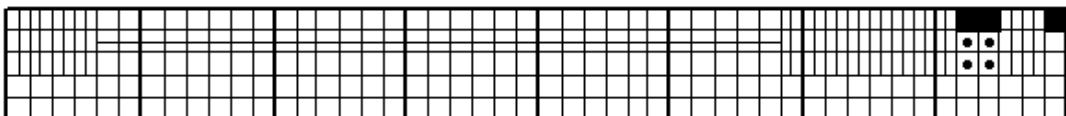
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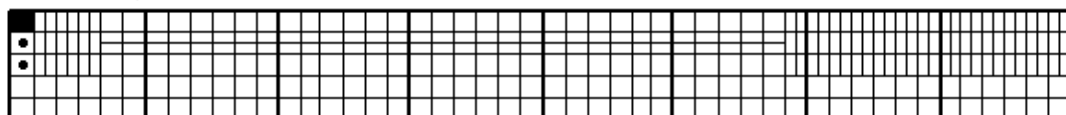
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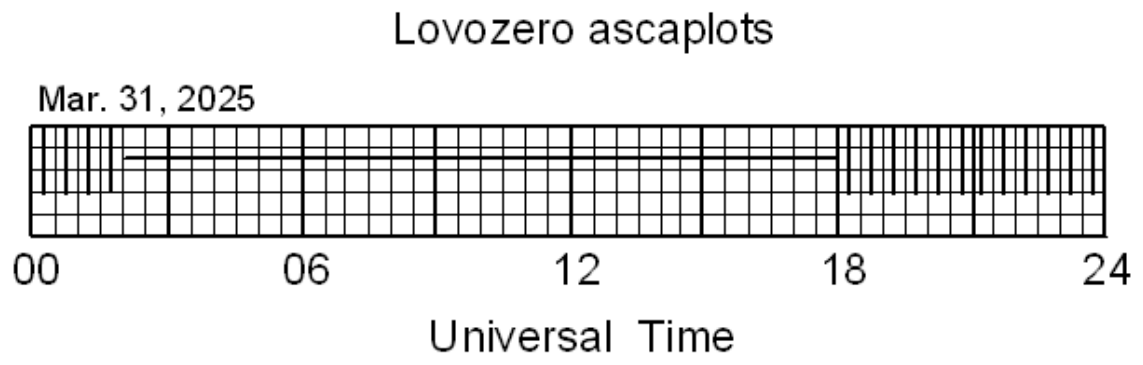


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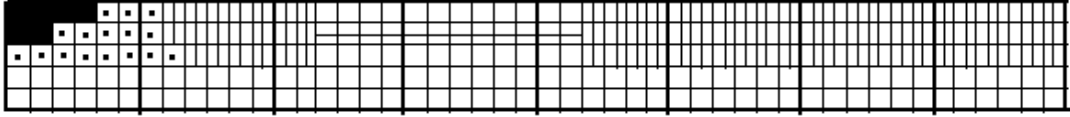
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Universal Time

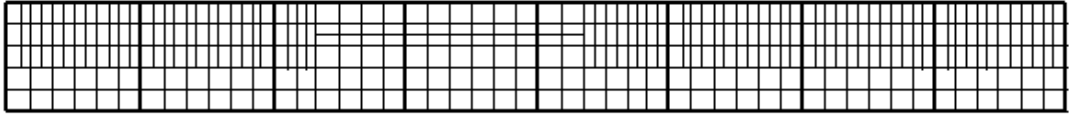


Verhnetulomsky ascaplots

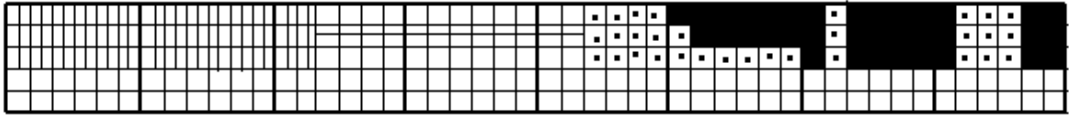
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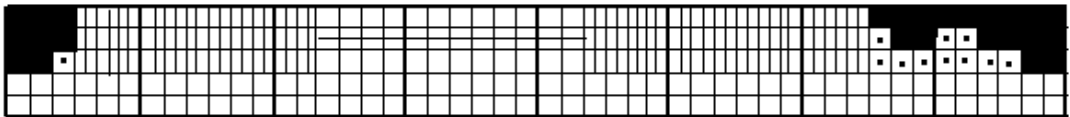
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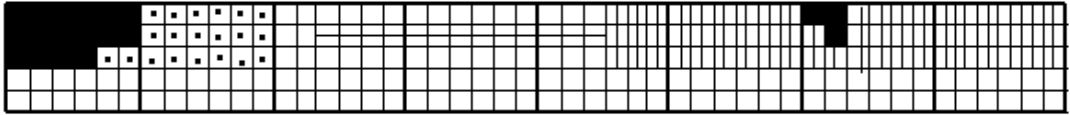
Jan. 06, 2025



Jan. 07, 2025



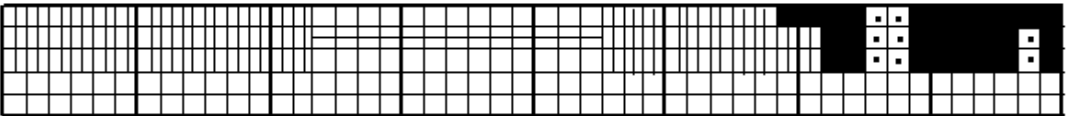
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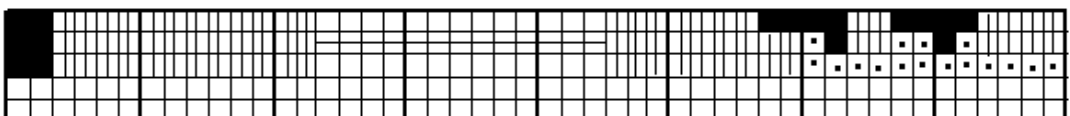
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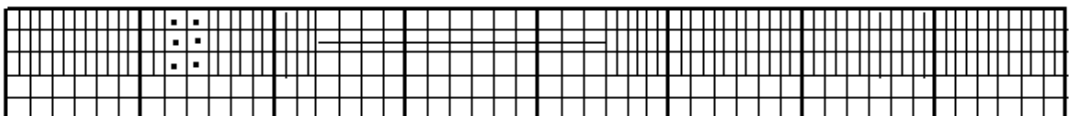
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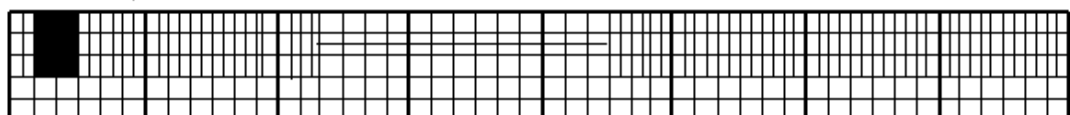
Jan. 11, 2025



Jan. 12, 2025



Jan. 13, 2025



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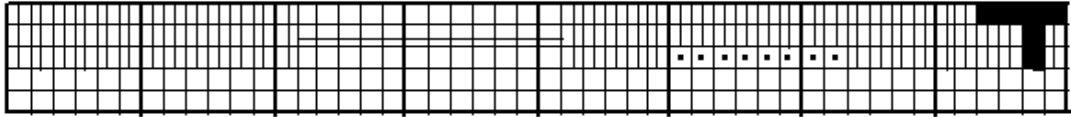
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Universal Time

Verhnetulomsky ascaplots

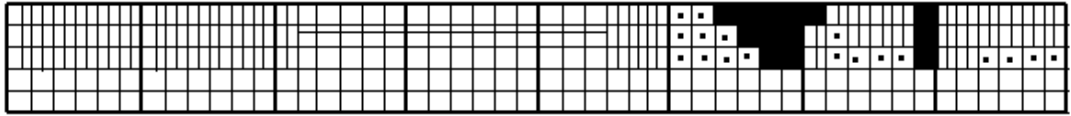
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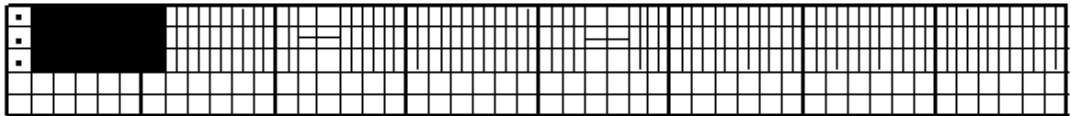
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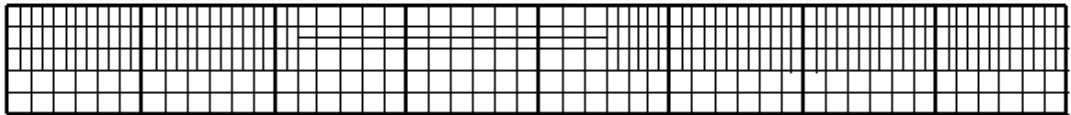
Jan. 16, 2025



Jan. 17, 2025



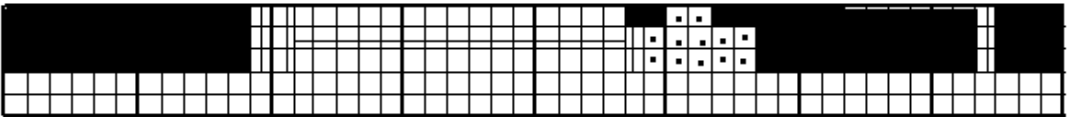
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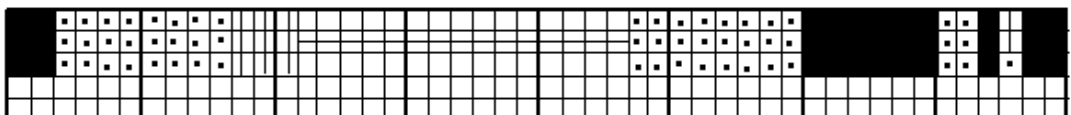
Jan. 19, 2025



Jan. 20, 2025



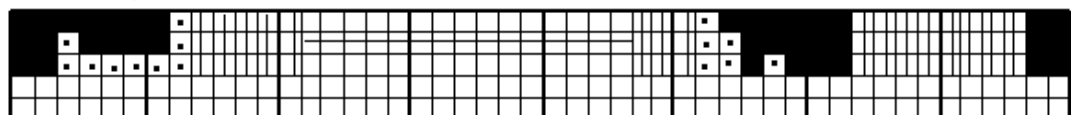
Jan. 21, 2025



Jan. 22, 2025



Jan. 23, 2025



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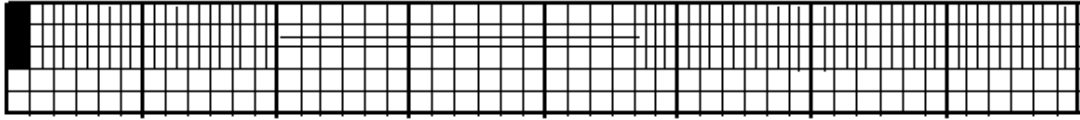
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Universal Time

Verhnetulomsky ascaplots

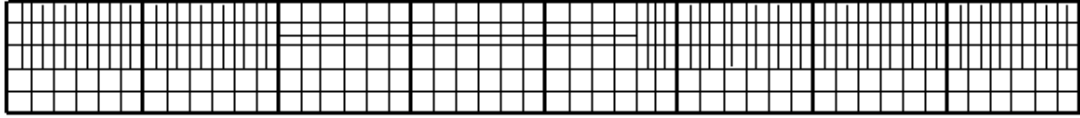
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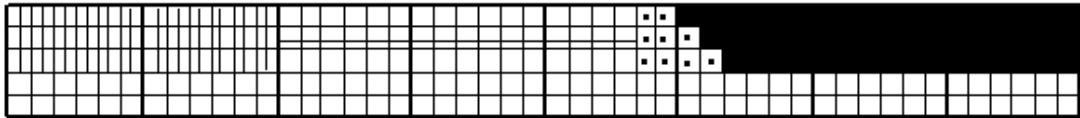
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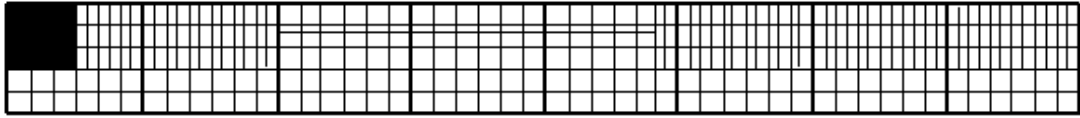
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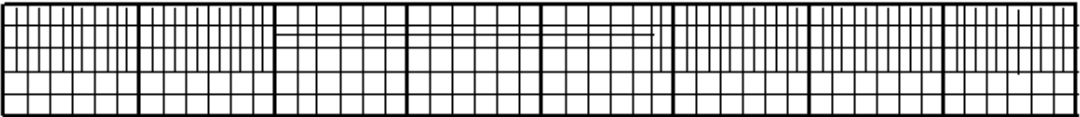
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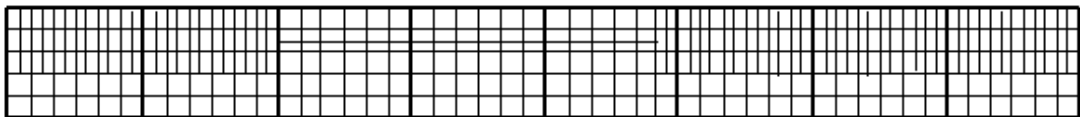
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Jan. 30, 2025



Jan. 31, 2025



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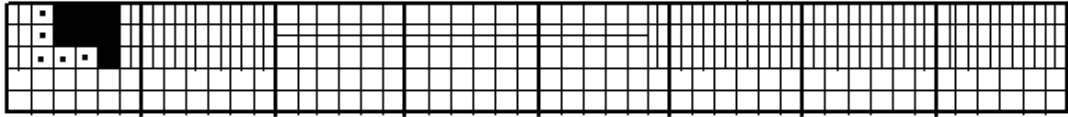
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Universal Time

Verhnetulomsky ascaplots

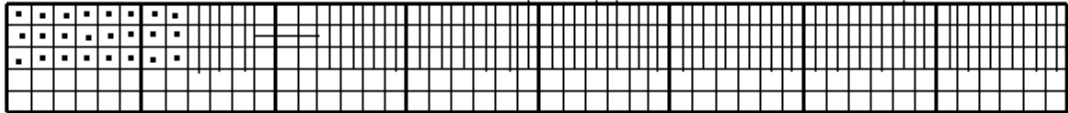
Feb. 01, 2025



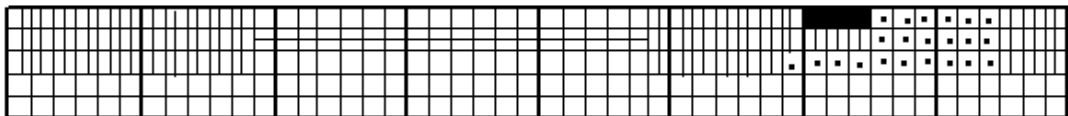
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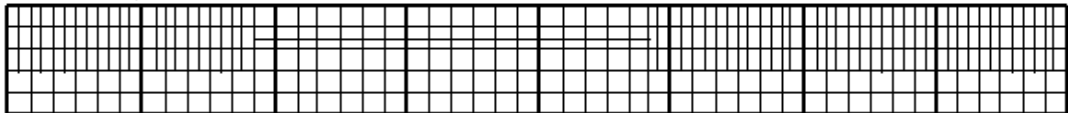
Feb. 03, 2025



Feb. 04, 2025



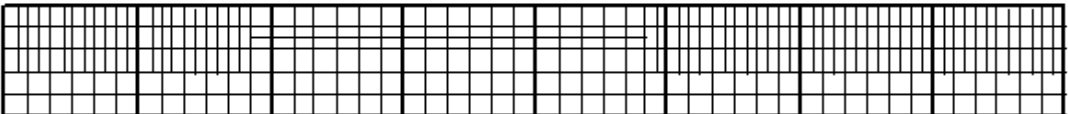
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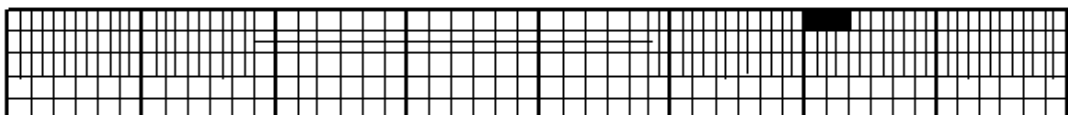
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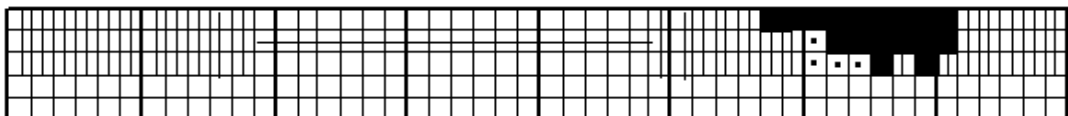
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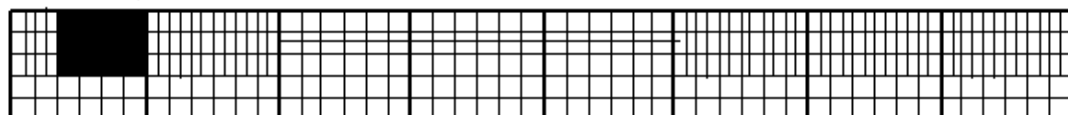
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Feb. 10, 2025

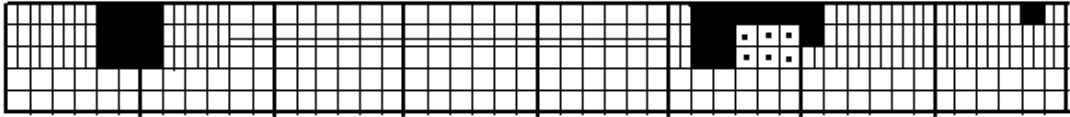


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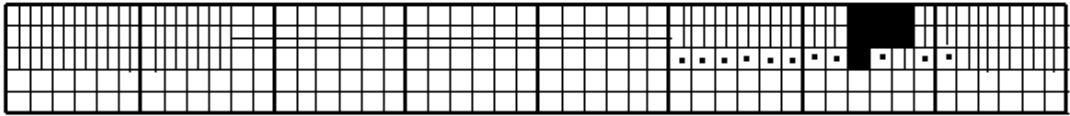
Universal Time

Verhnetulomsky ascaplots

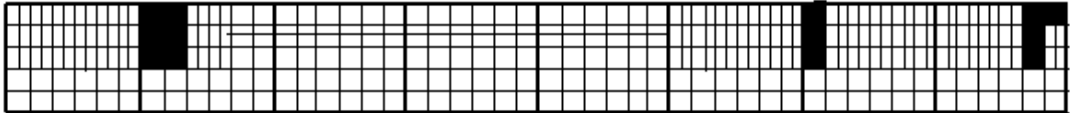
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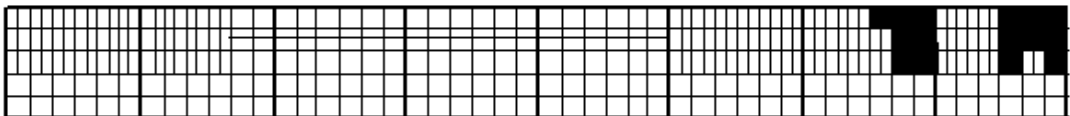
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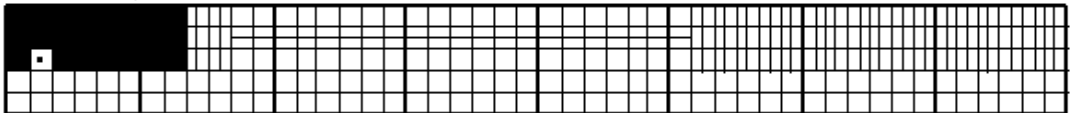
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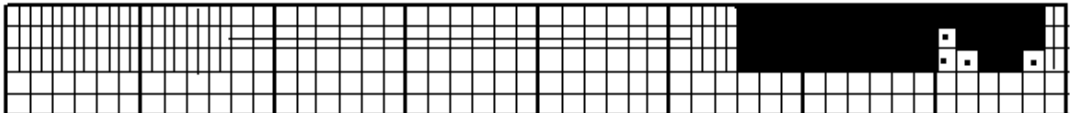
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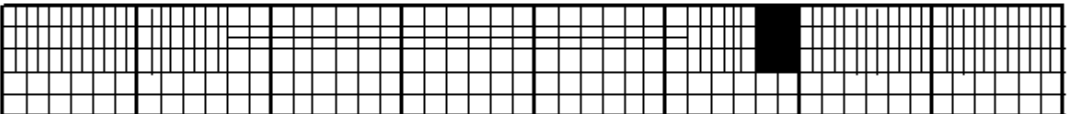
Feb. 15, 2025



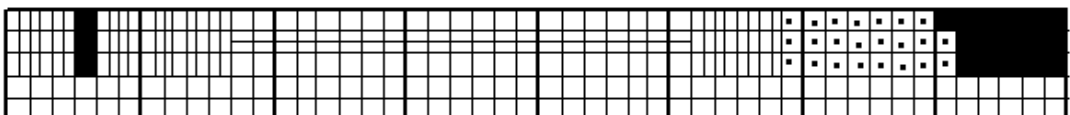
Feb. 16, 2025



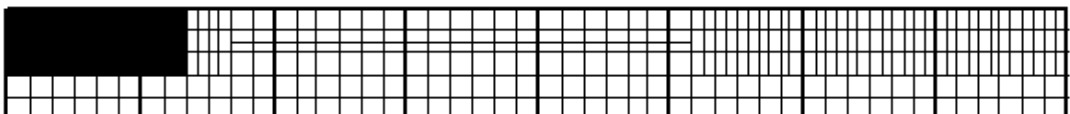
Feb. 17, 2025



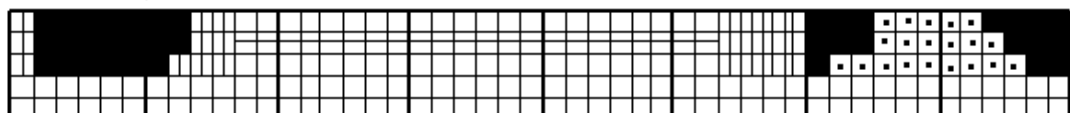
Feb. 18, 2025



Feb. 19, 2025



Feb. 20, 2025



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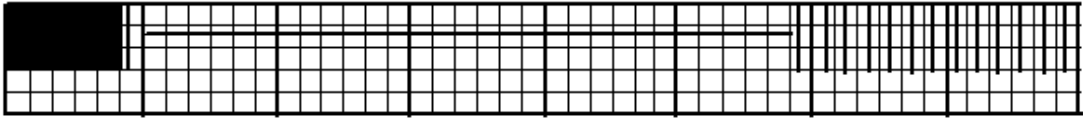
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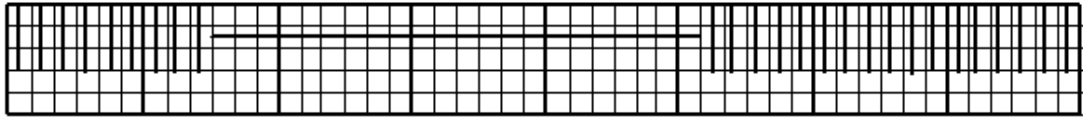
Universal Time

Verhnetulomsky ascaplots

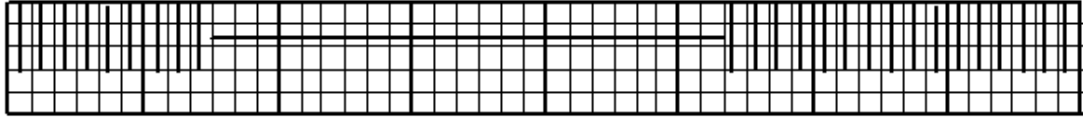
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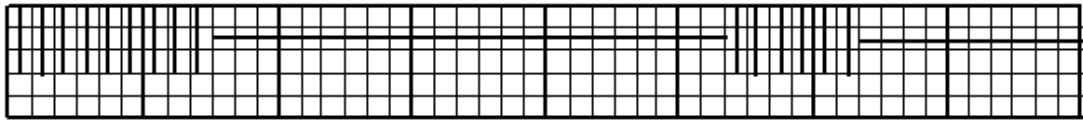
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Feb. 23, 2025



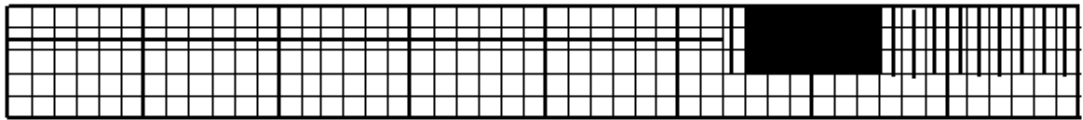
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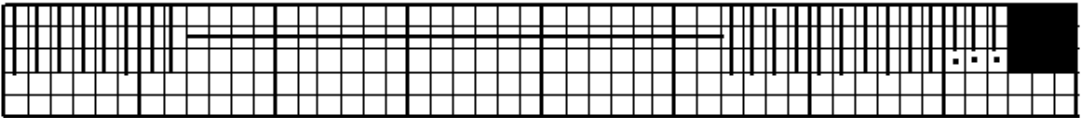
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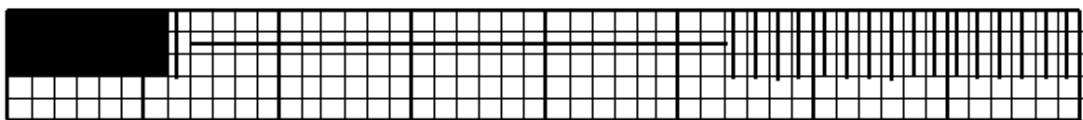
Feb. 26, 2025



Feb. 27, 2025



Feb. 28, 2025



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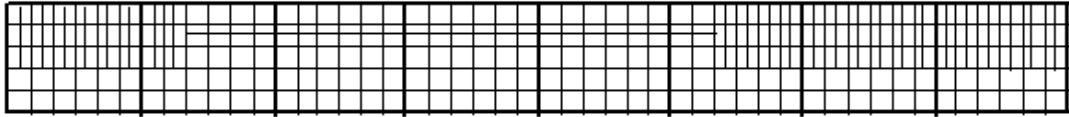
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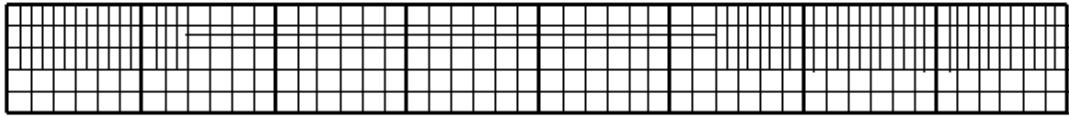
Universal Time

Verhnetulomsky ascaplots

Mar. 01, 2025



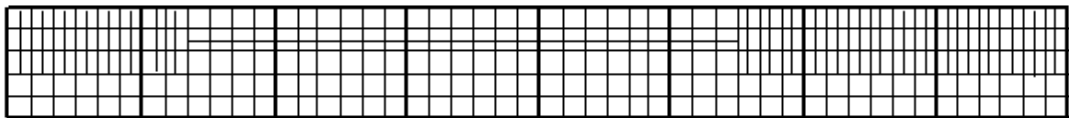
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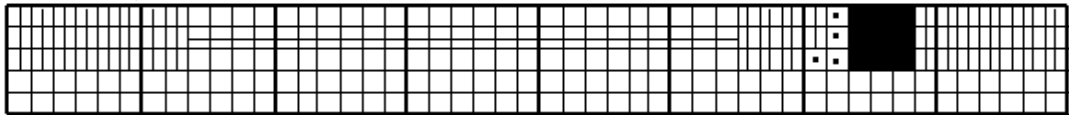
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Mar. 04, 2025



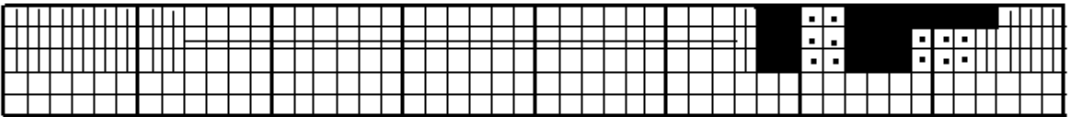
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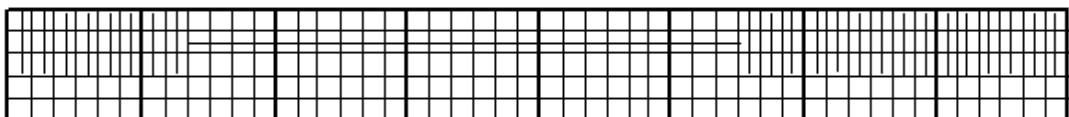
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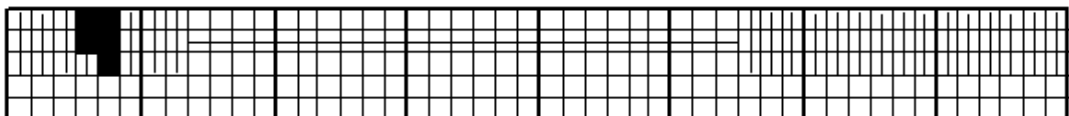
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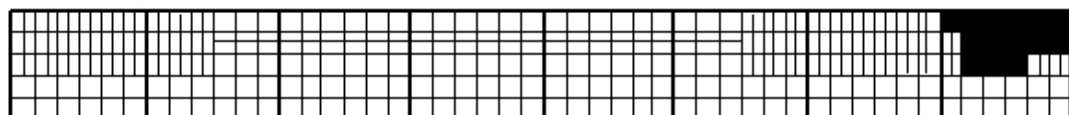
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Mar. 09, 2025



Mar. 10, 2025



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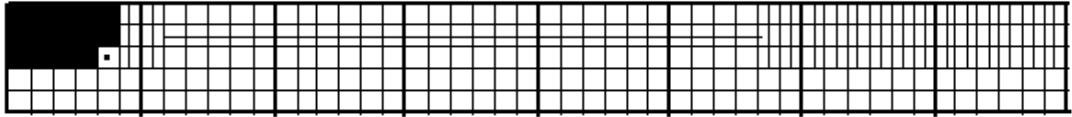
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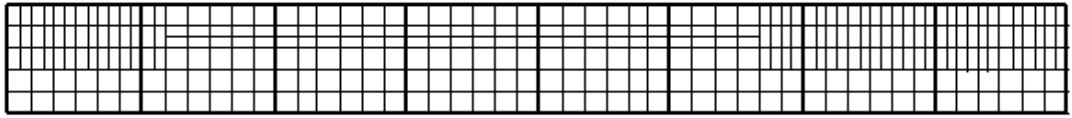
Universal Time

Verhnetulomsky ascaplots

Mar. 11, 2025



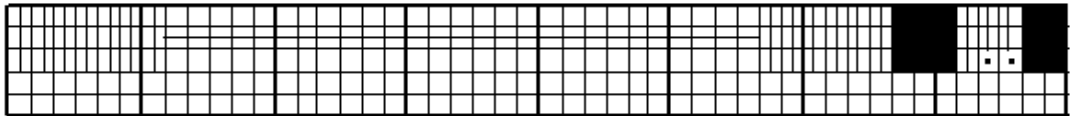
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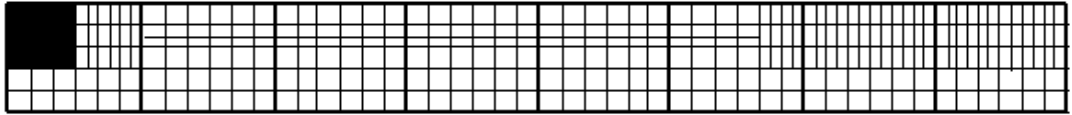
Mar. 13, 2025



Mar. 14, 2025



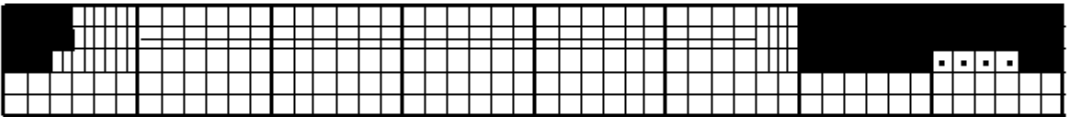
Mar. 15, 2025



Mar. 16, 2025



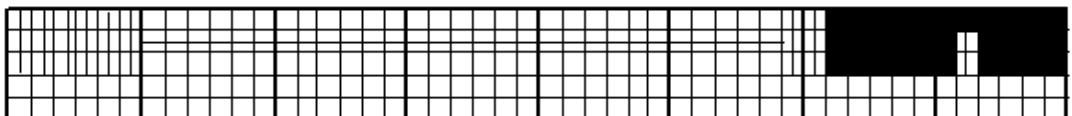
Mar. 17, 2025



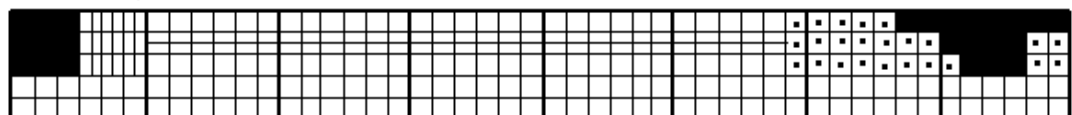
Mar. 18, 2025



Mar. 19, 2025



Mar. 20, 2025

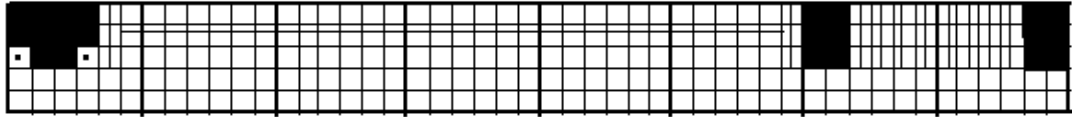


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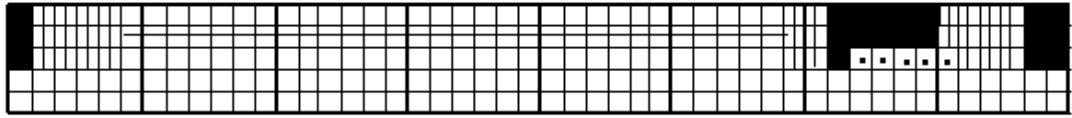
Universal Time

Verhnetulomsky ascaplots

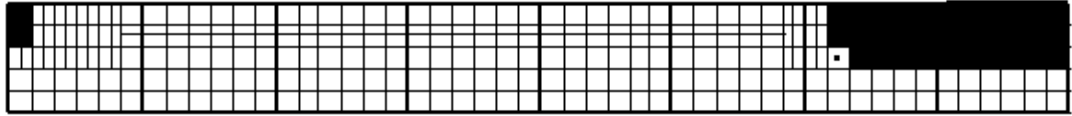
Mar. 21, 2025



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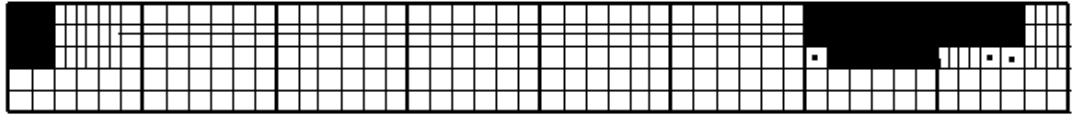
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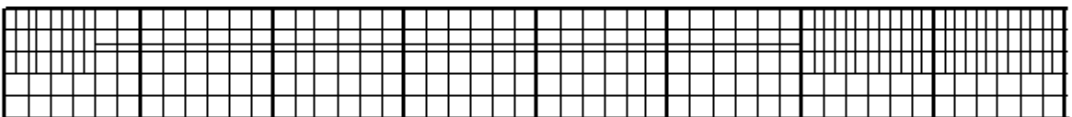
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Mar. 25, 2025



Mar. 26, 2025



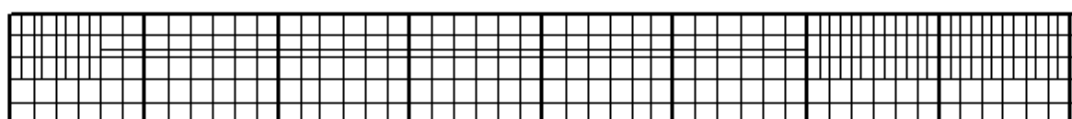
Mar. 27, 2025



Mar. 28, 2025



Mar. 29, 2025



Mar. 30, 2025



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Universal Time

Verhnetulomsky ascaplots

Mar. 31, 2025



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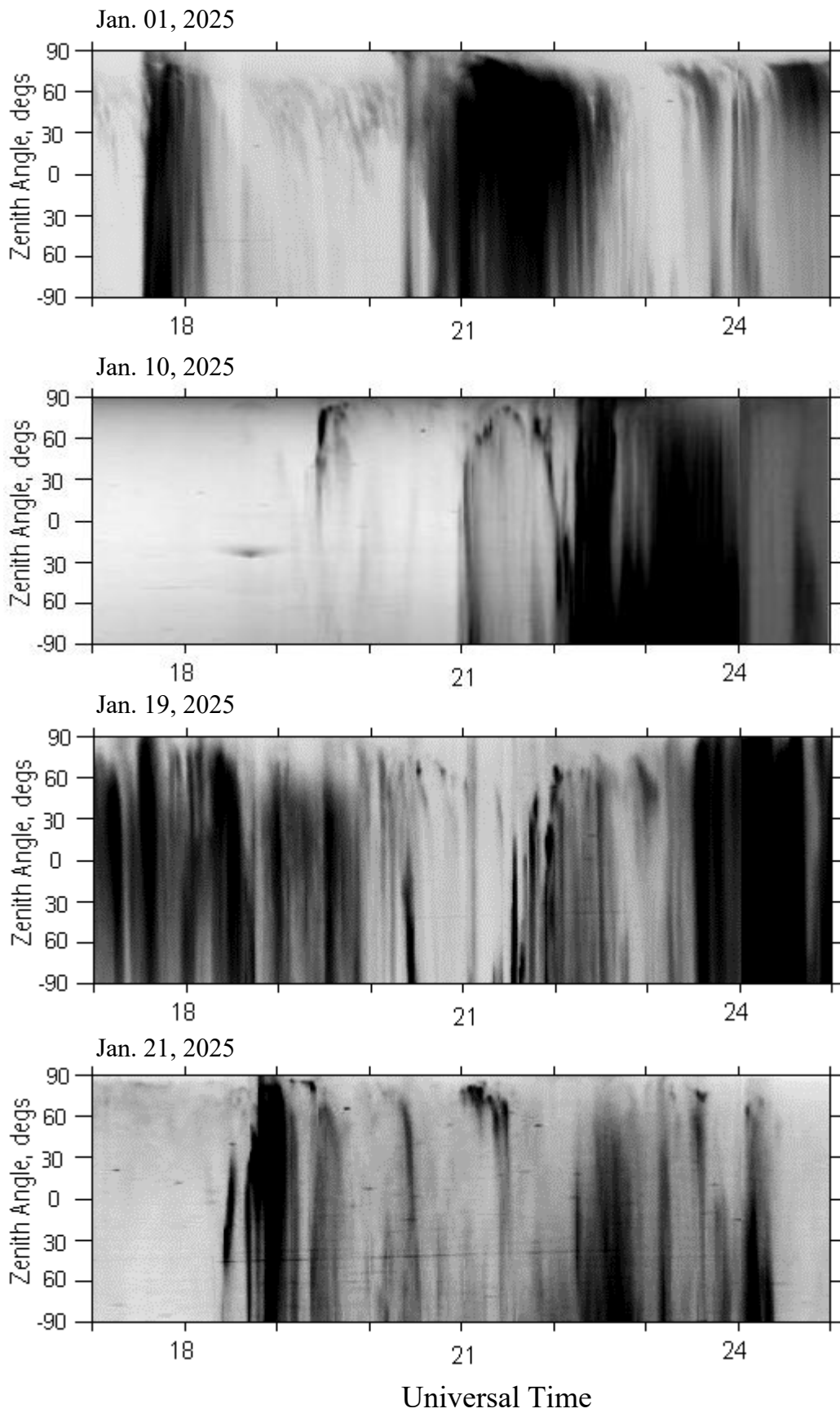
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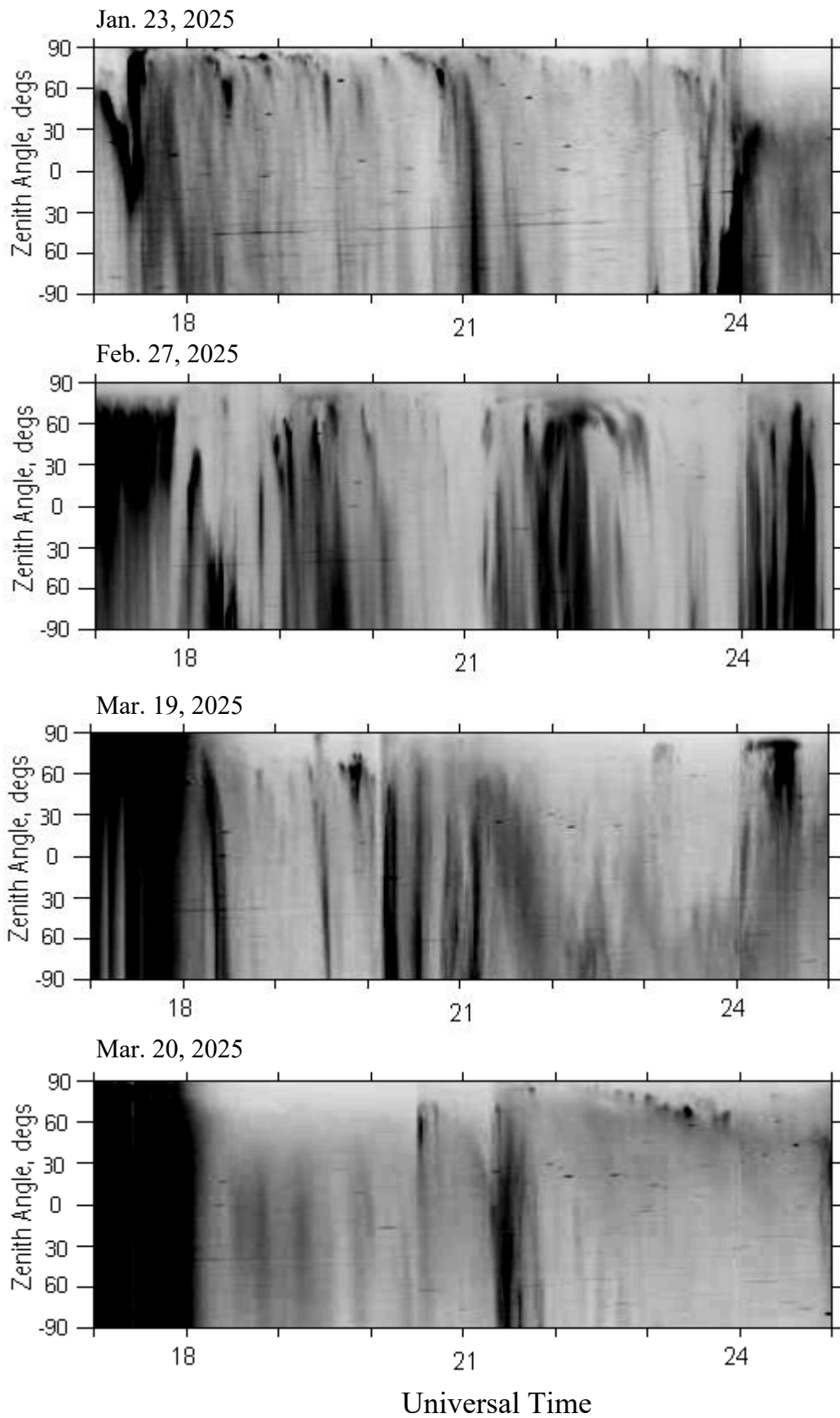
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Universal Time

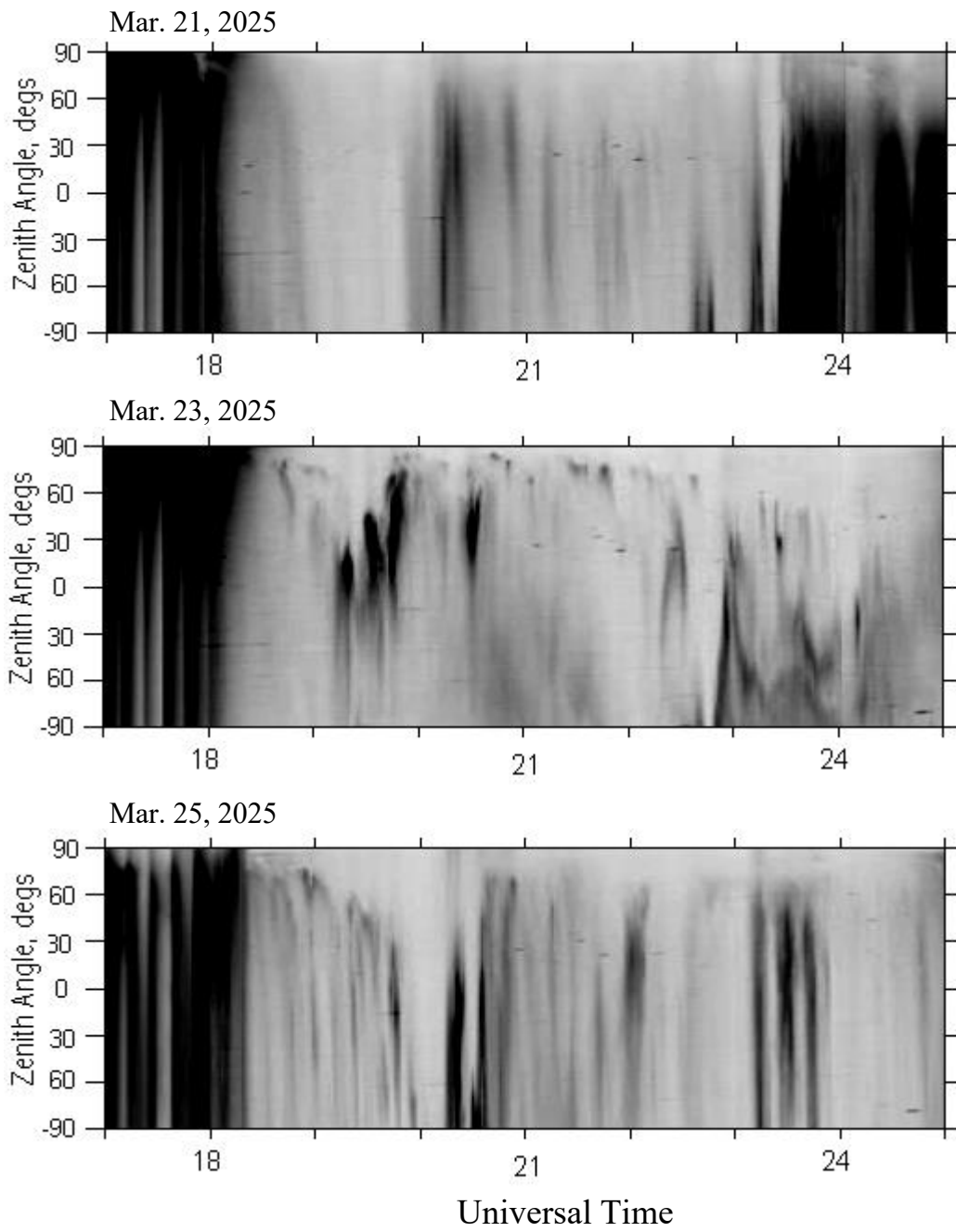
Lovozero TV keograms



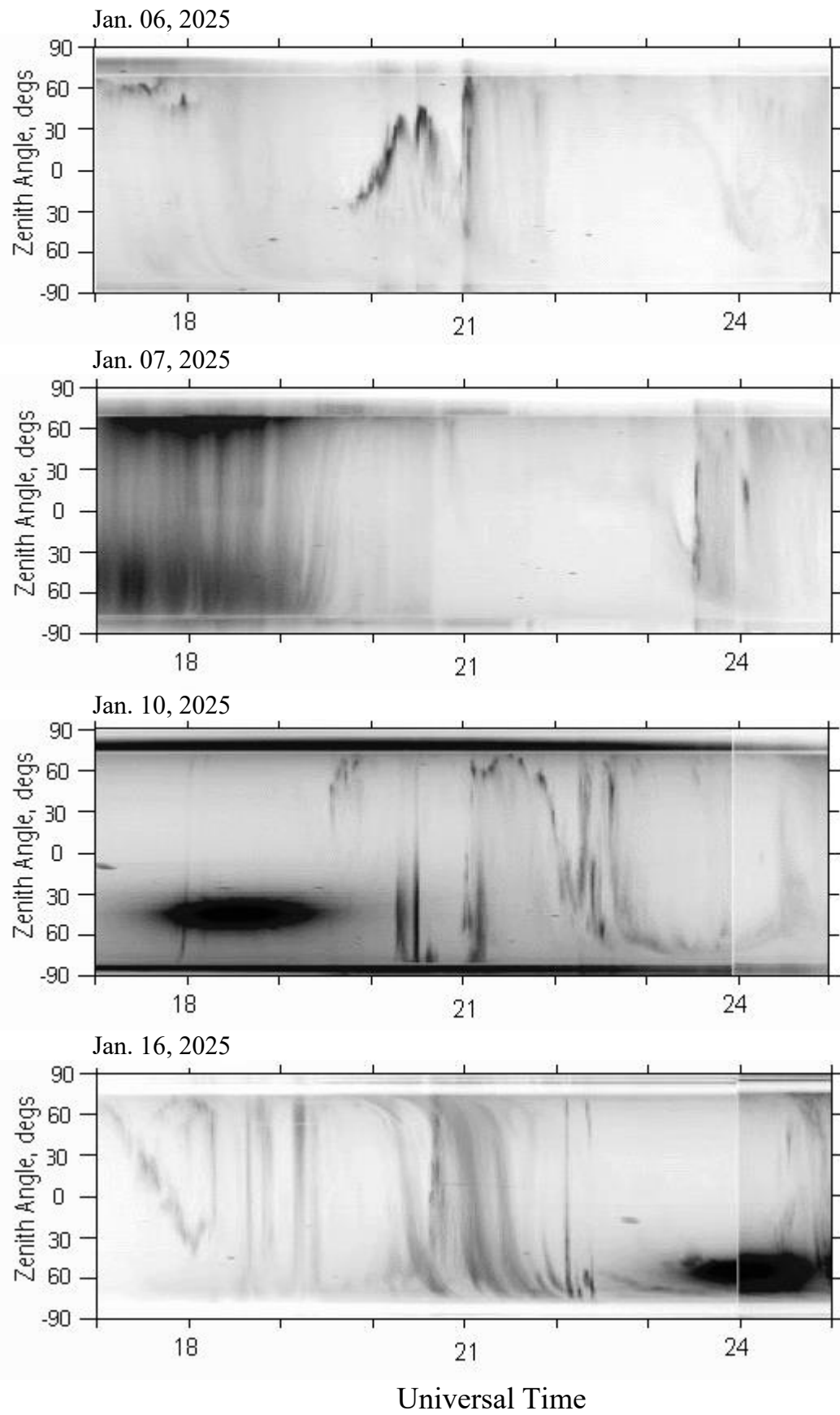
Lovozero TV keograms



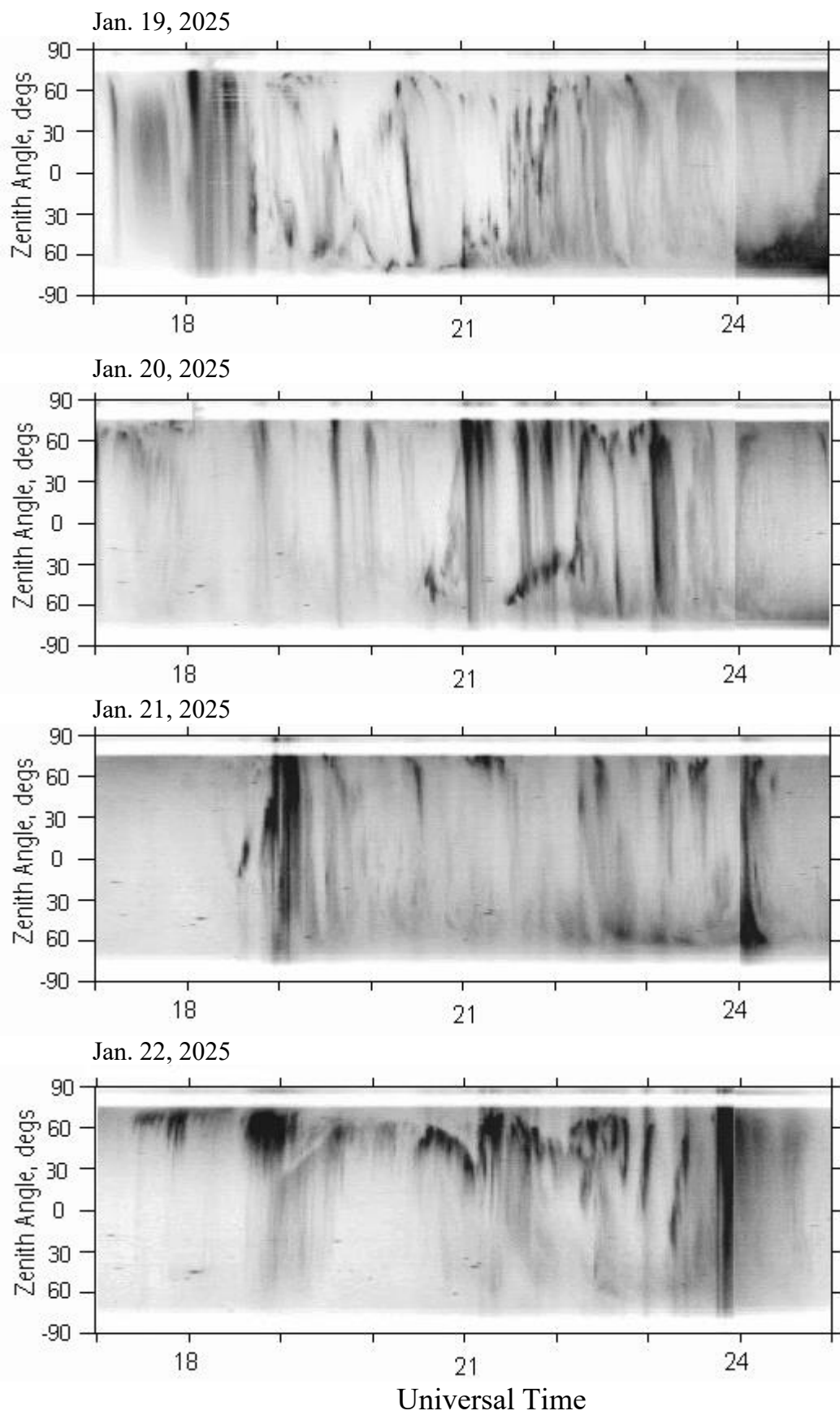
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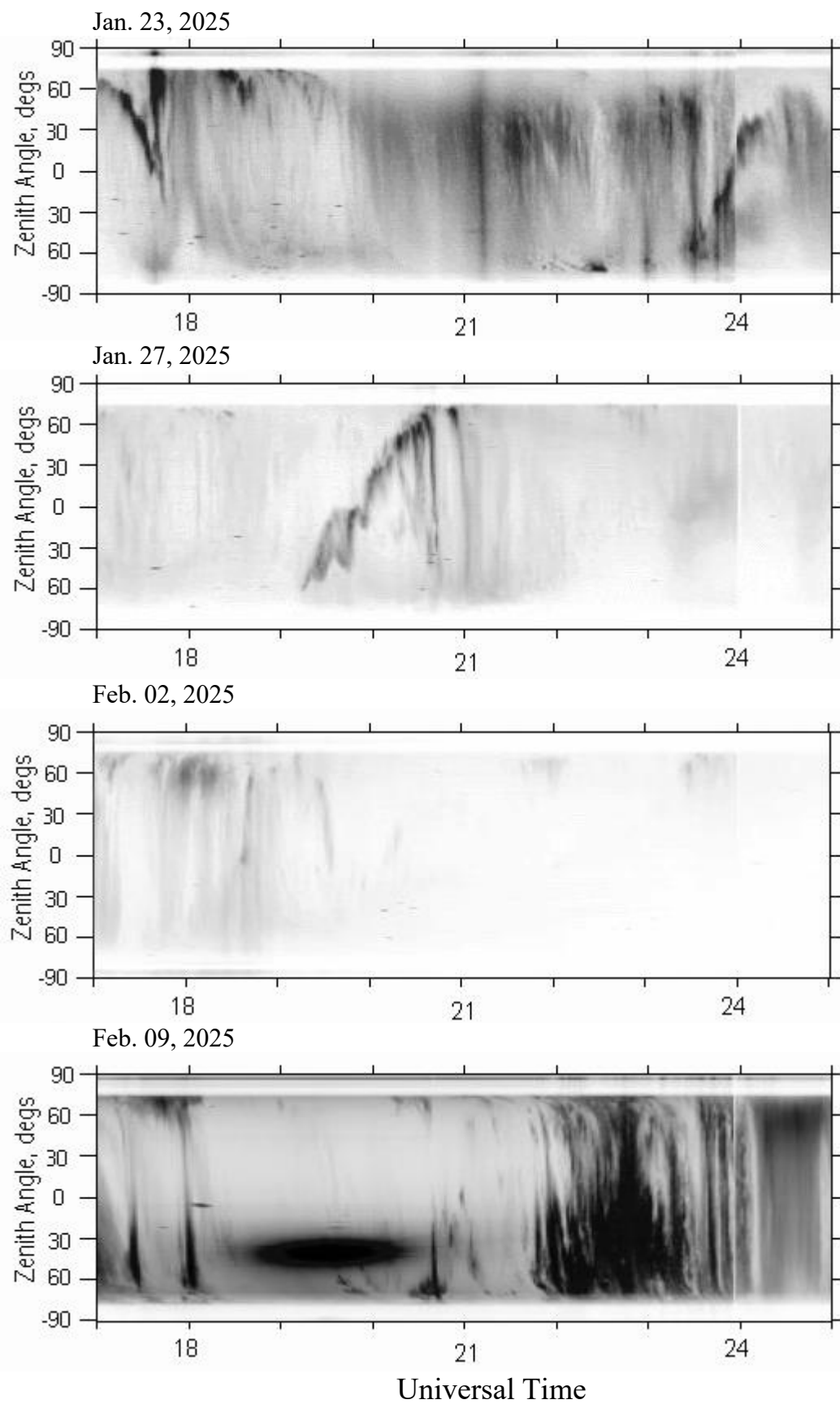
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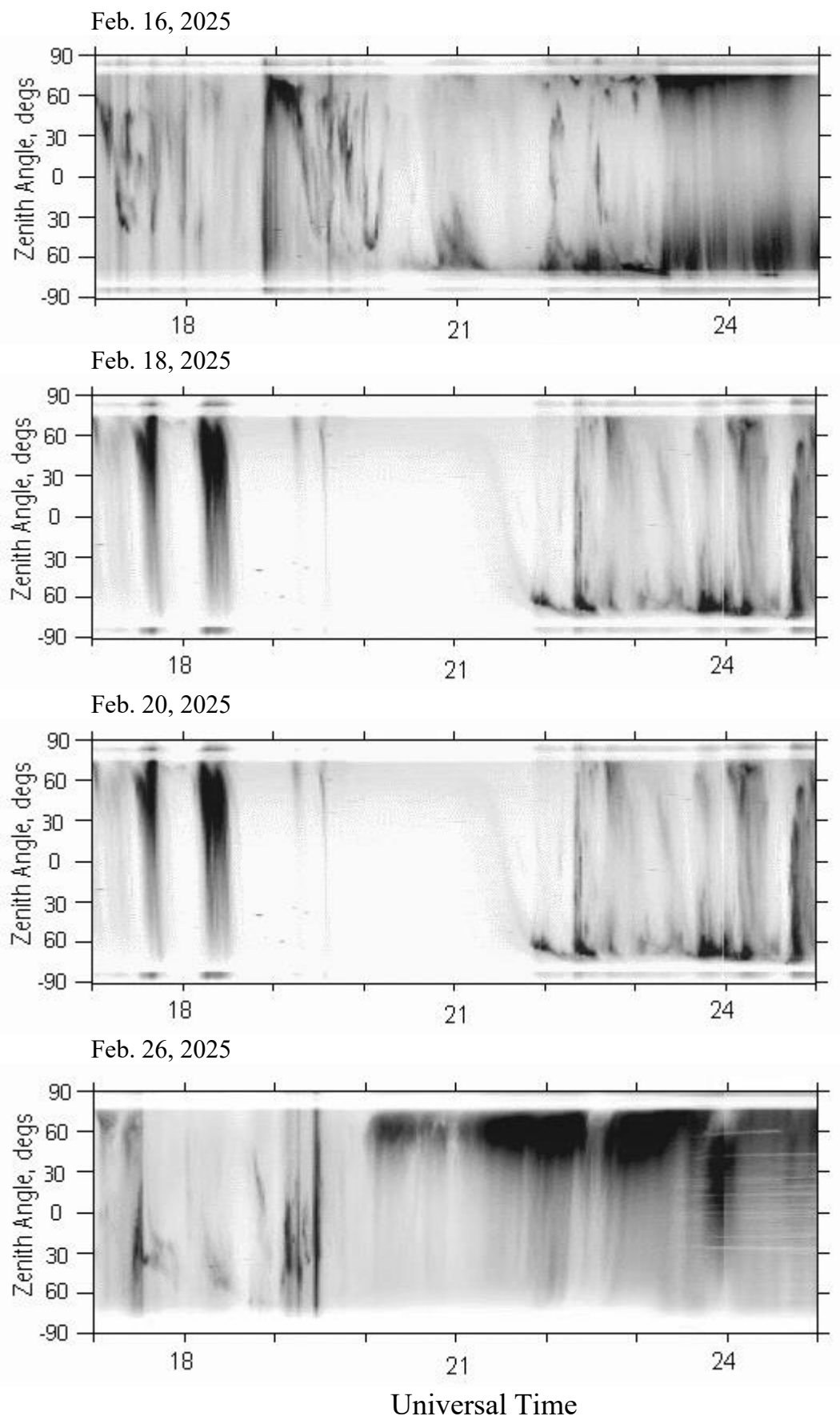
Verhnetulomsky TV keograms



Verhnetulomsky TV keograms

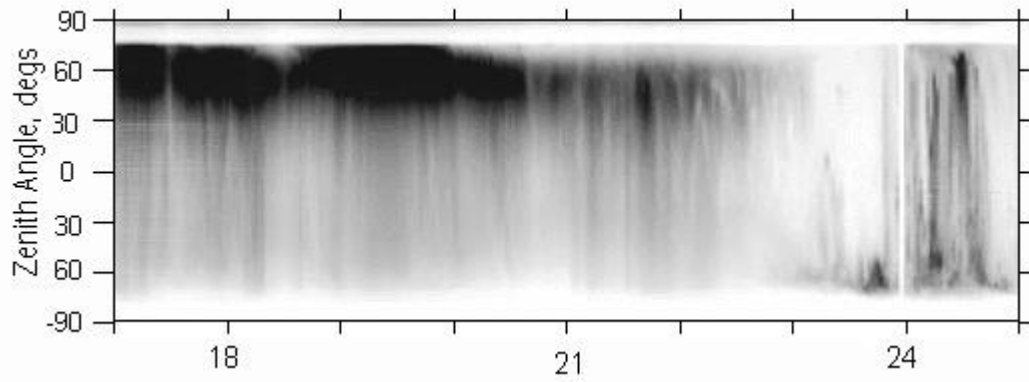


Verhnetulomsky TV keograms

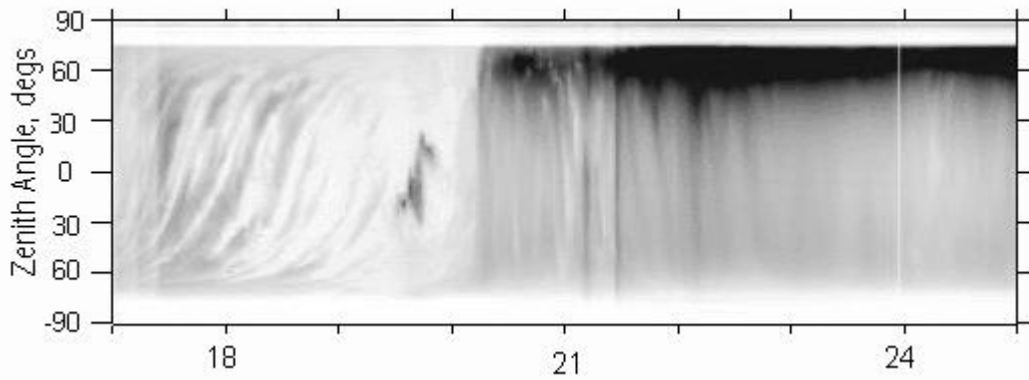


Verhnetulomsky TV keograms

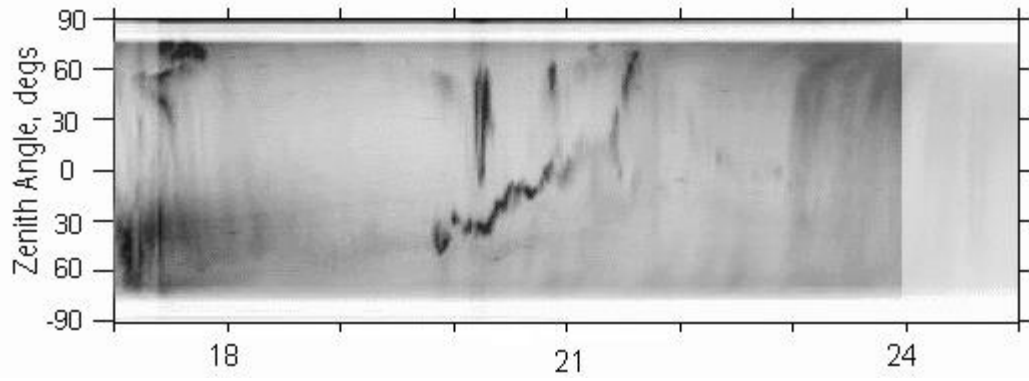
Feb. 27, 2025



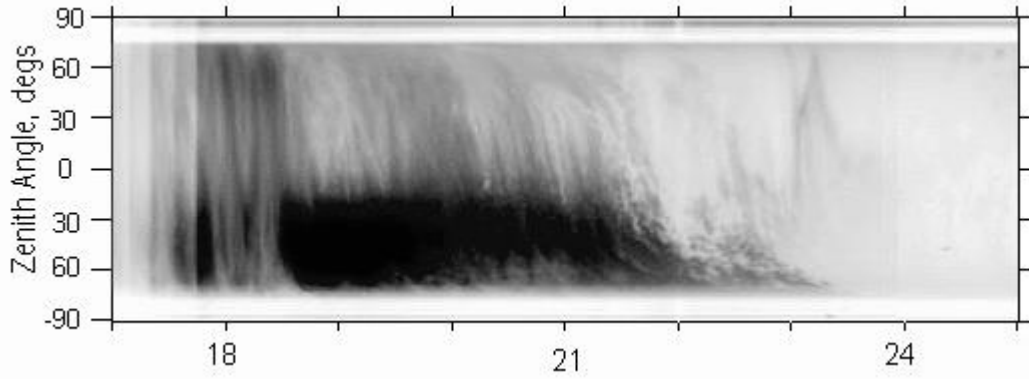
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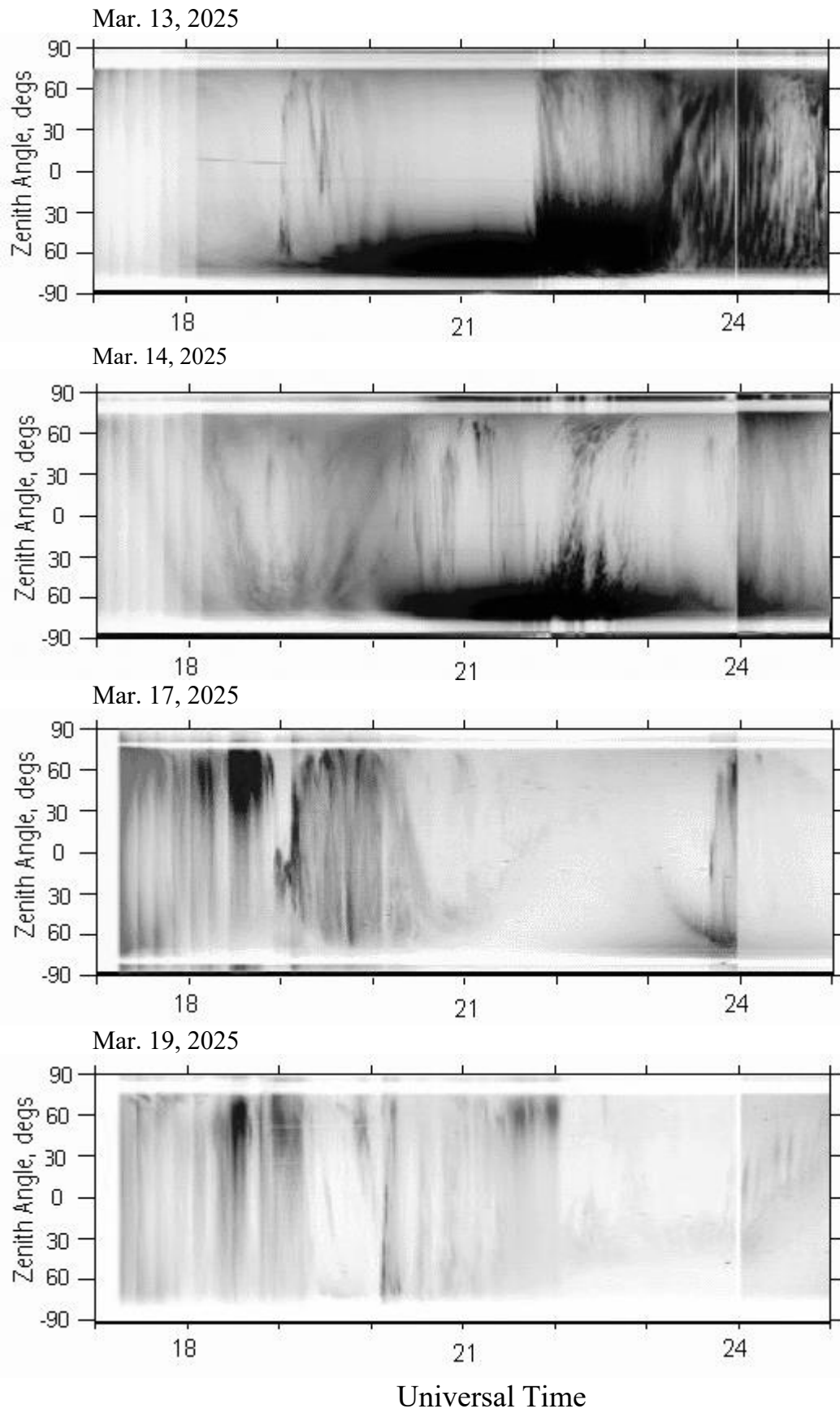


Mar. 10, 2025

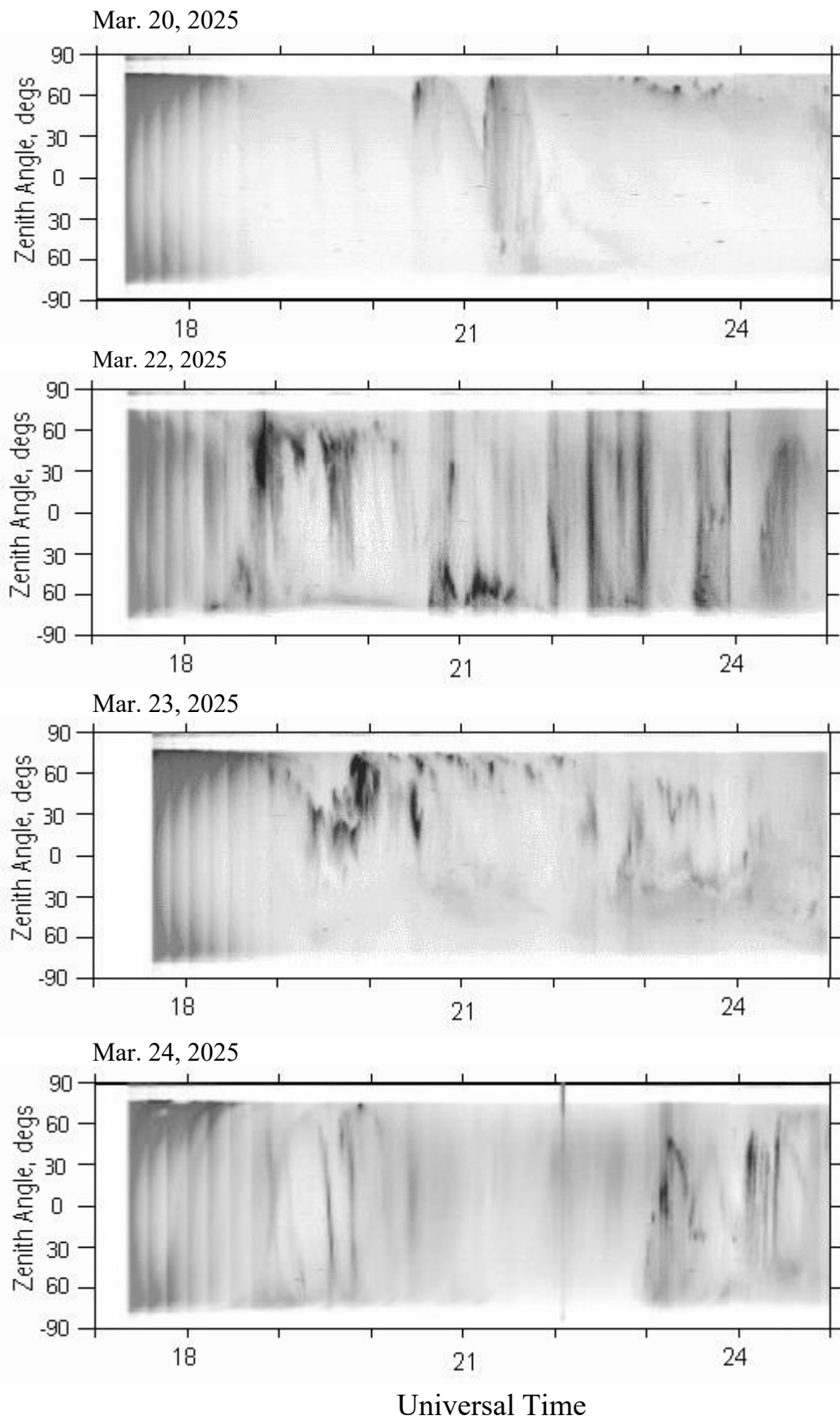


Universal Time

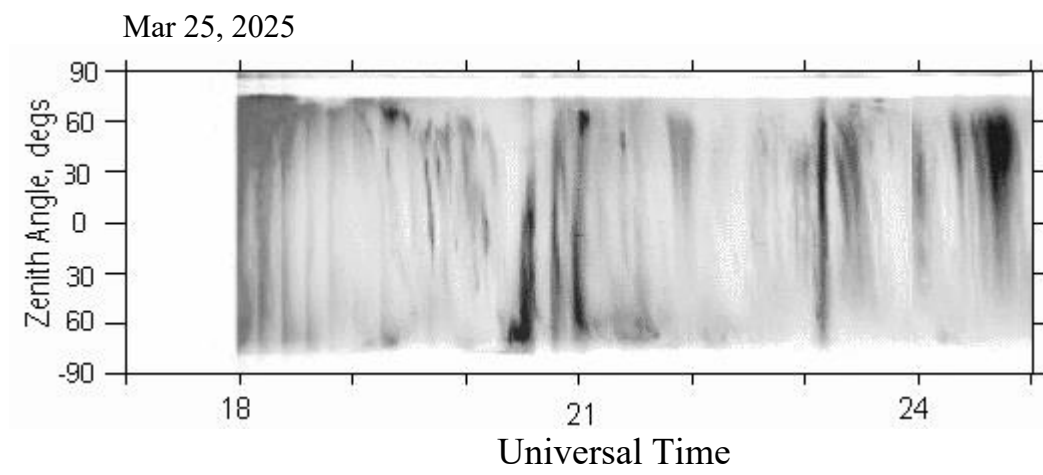
Verhnetulomsky TV keograms



Verhnetulomsky TV keograms



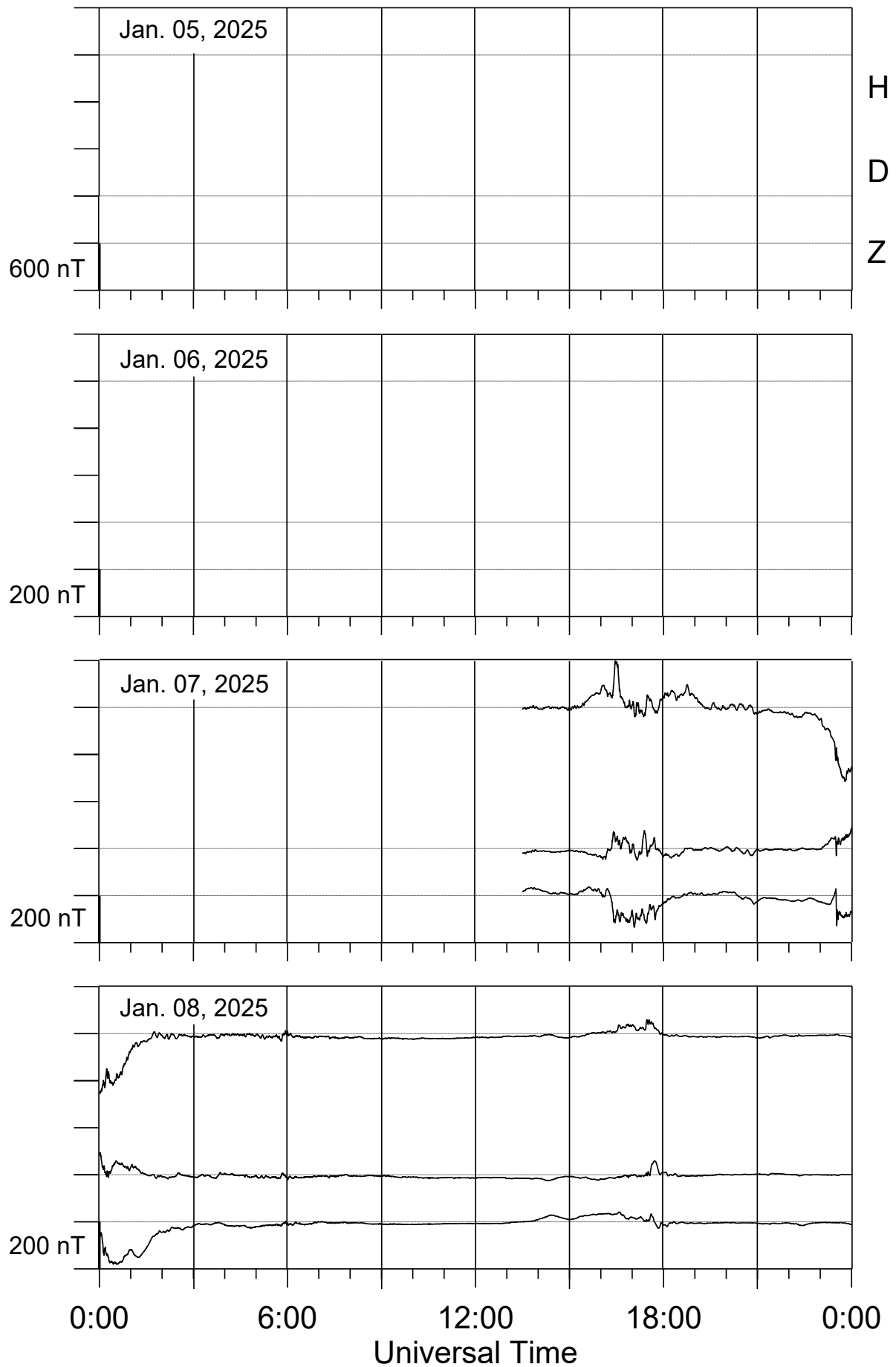
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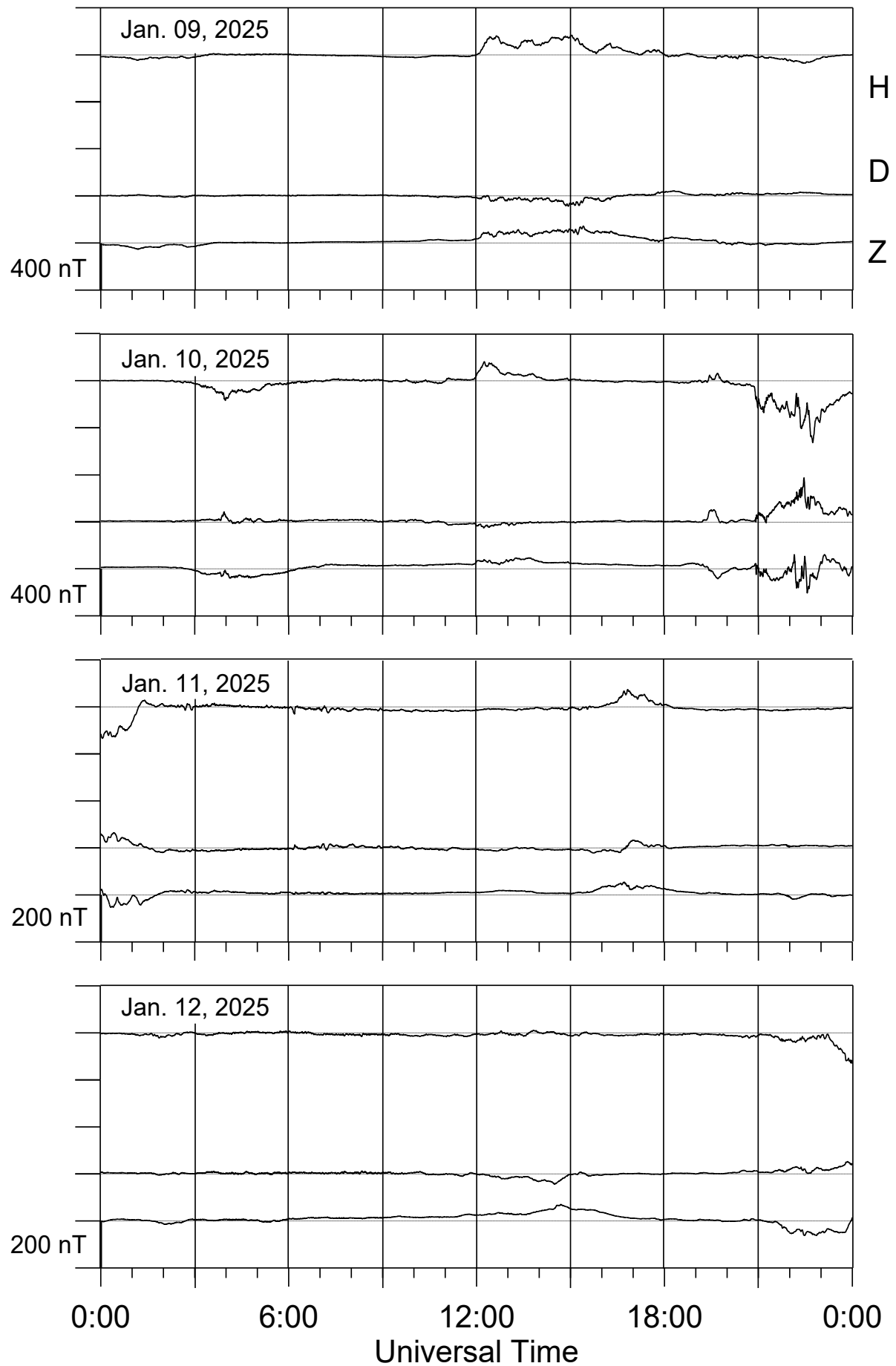
LOVOZERO MAGNETOGRAMS

January - March 2025

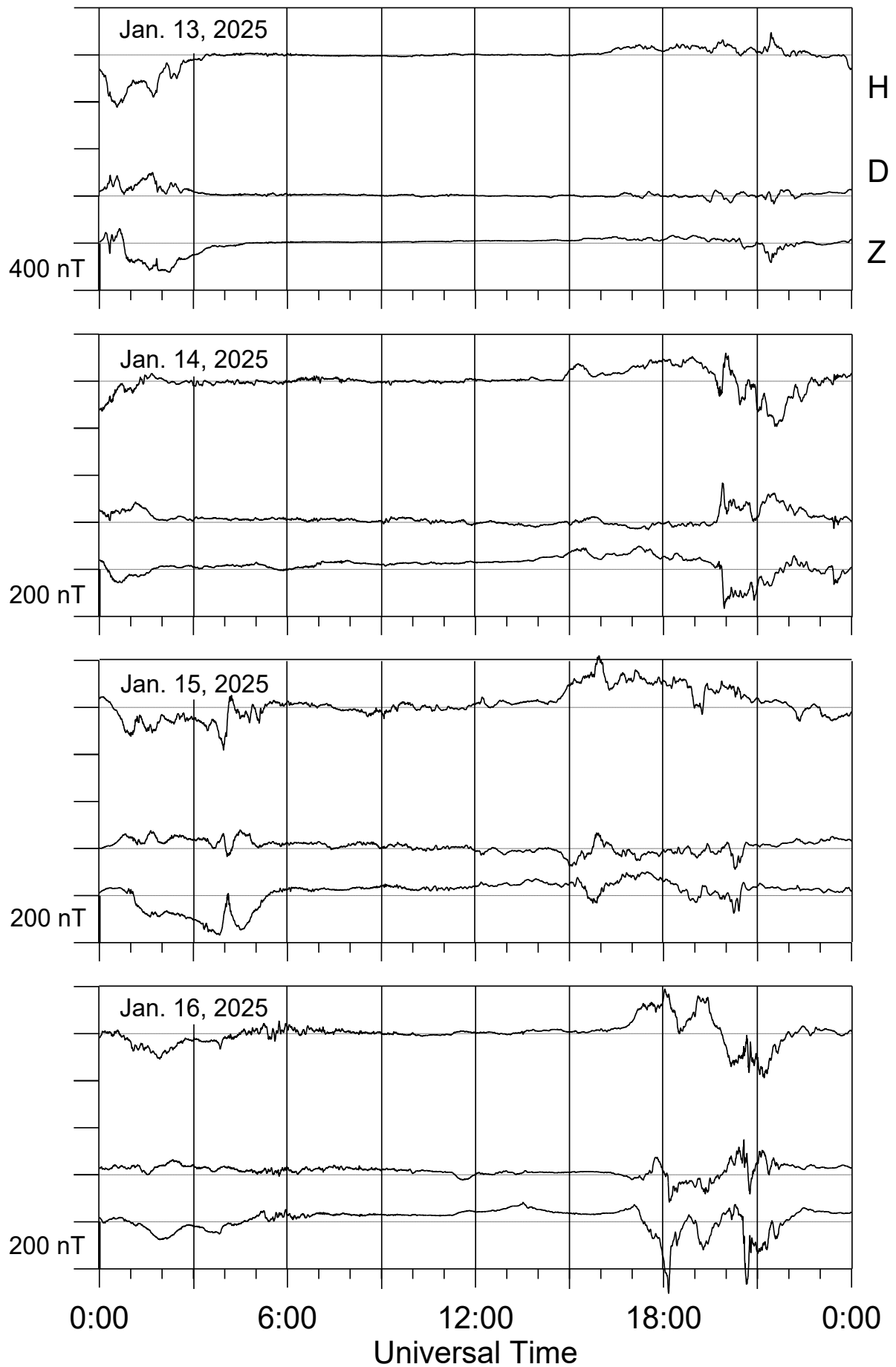
Lovozero magnetometer



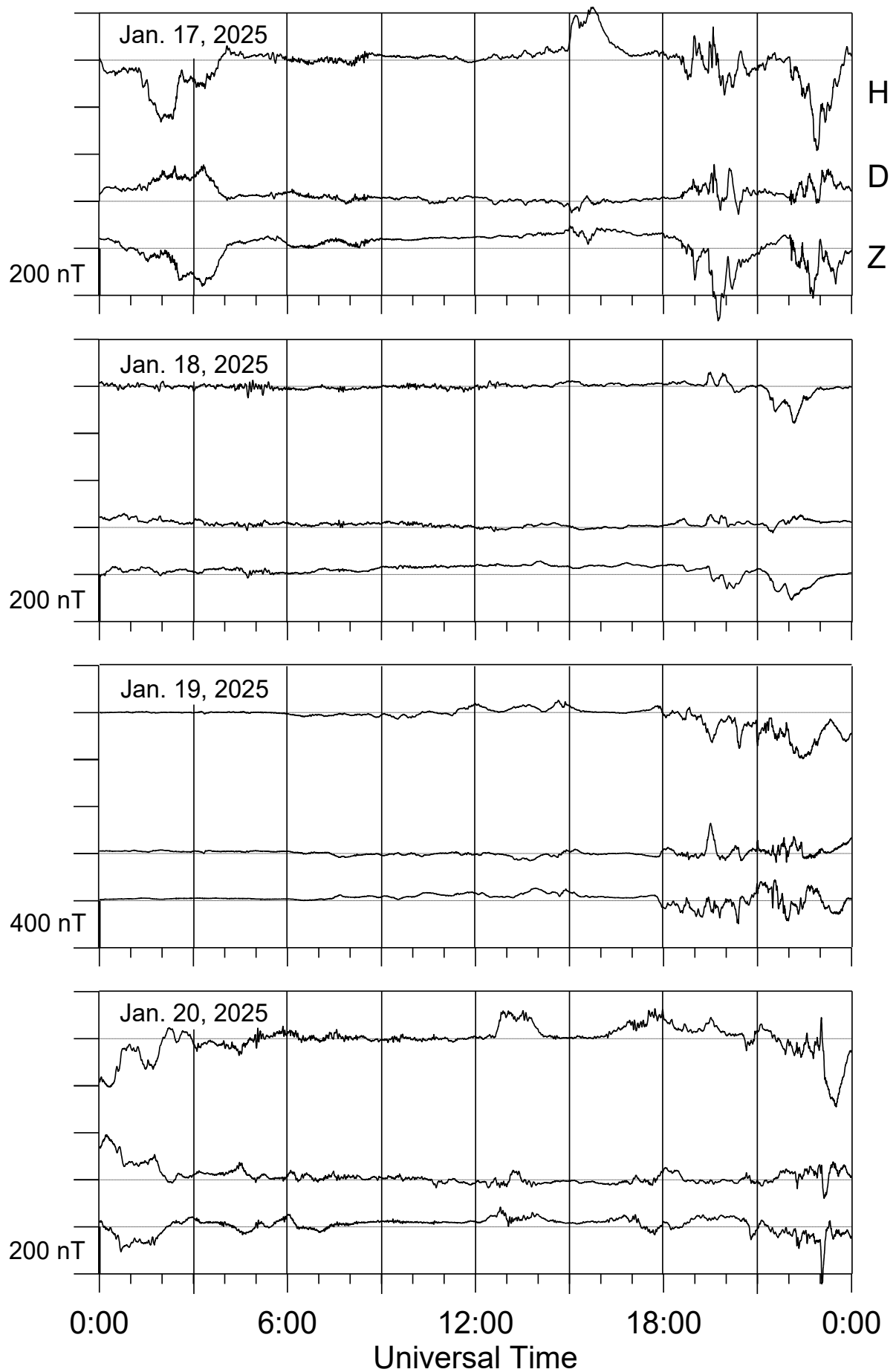
Lovozero magnetometer



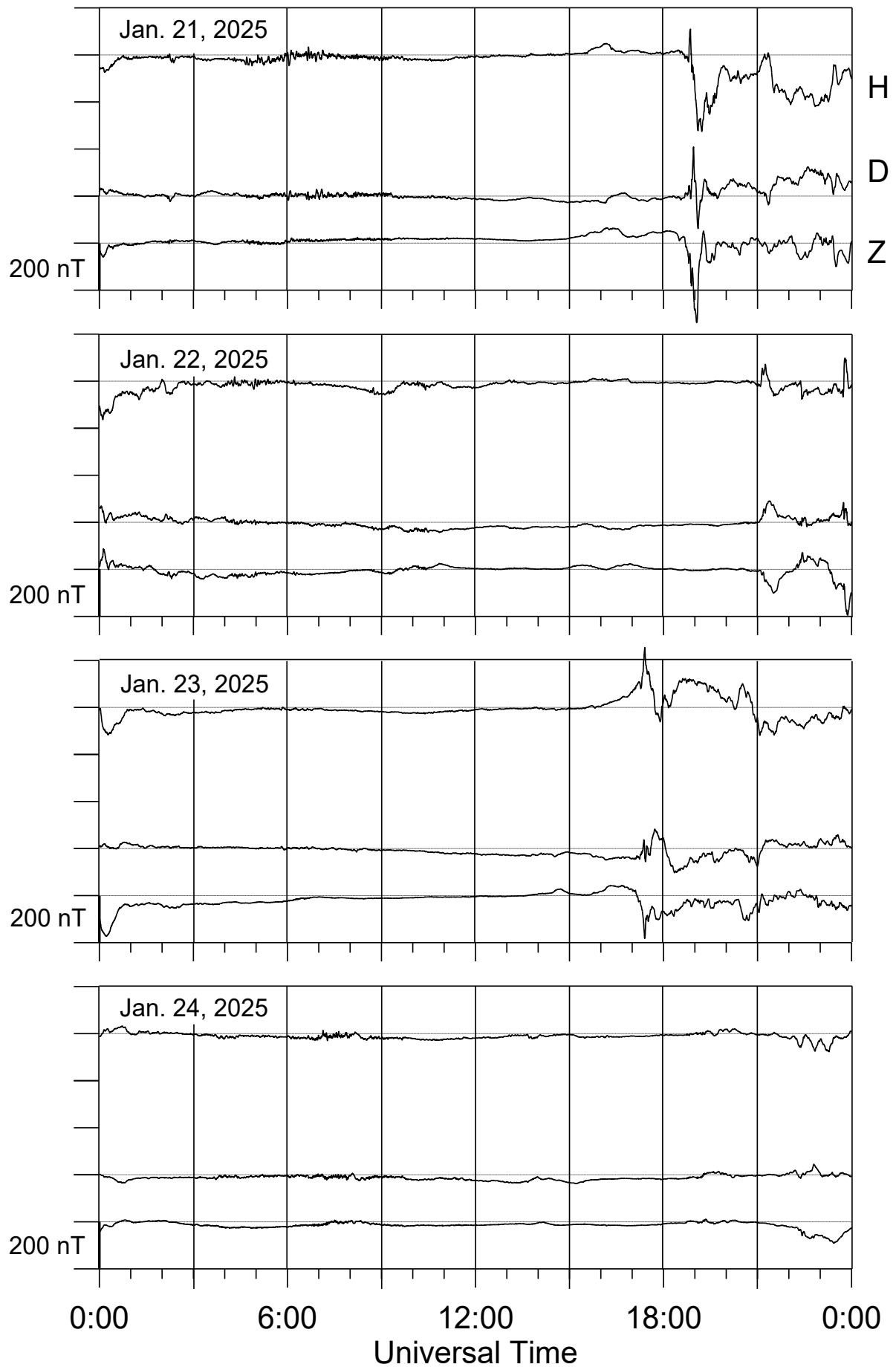
Lovozero magnetometer



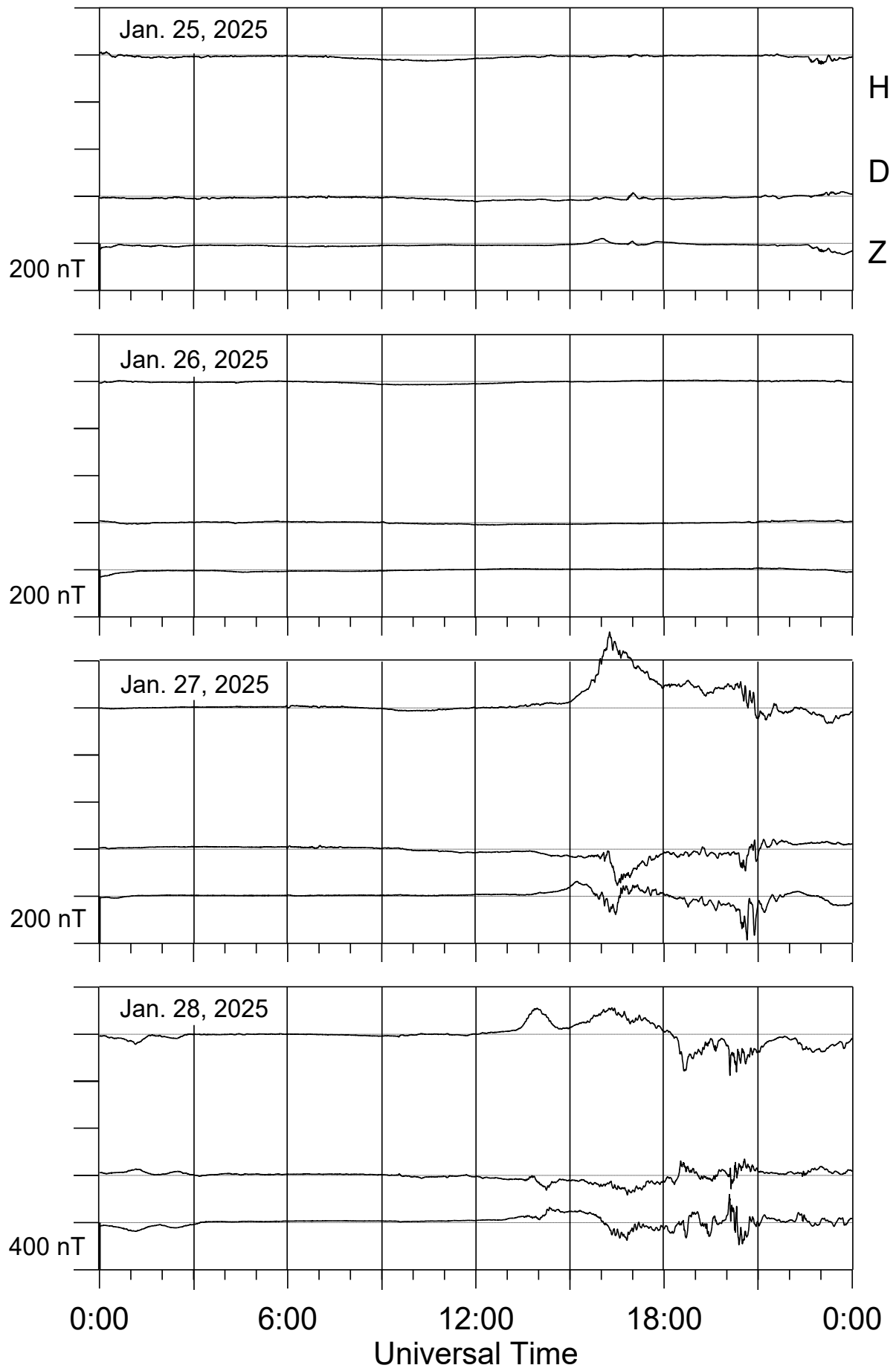
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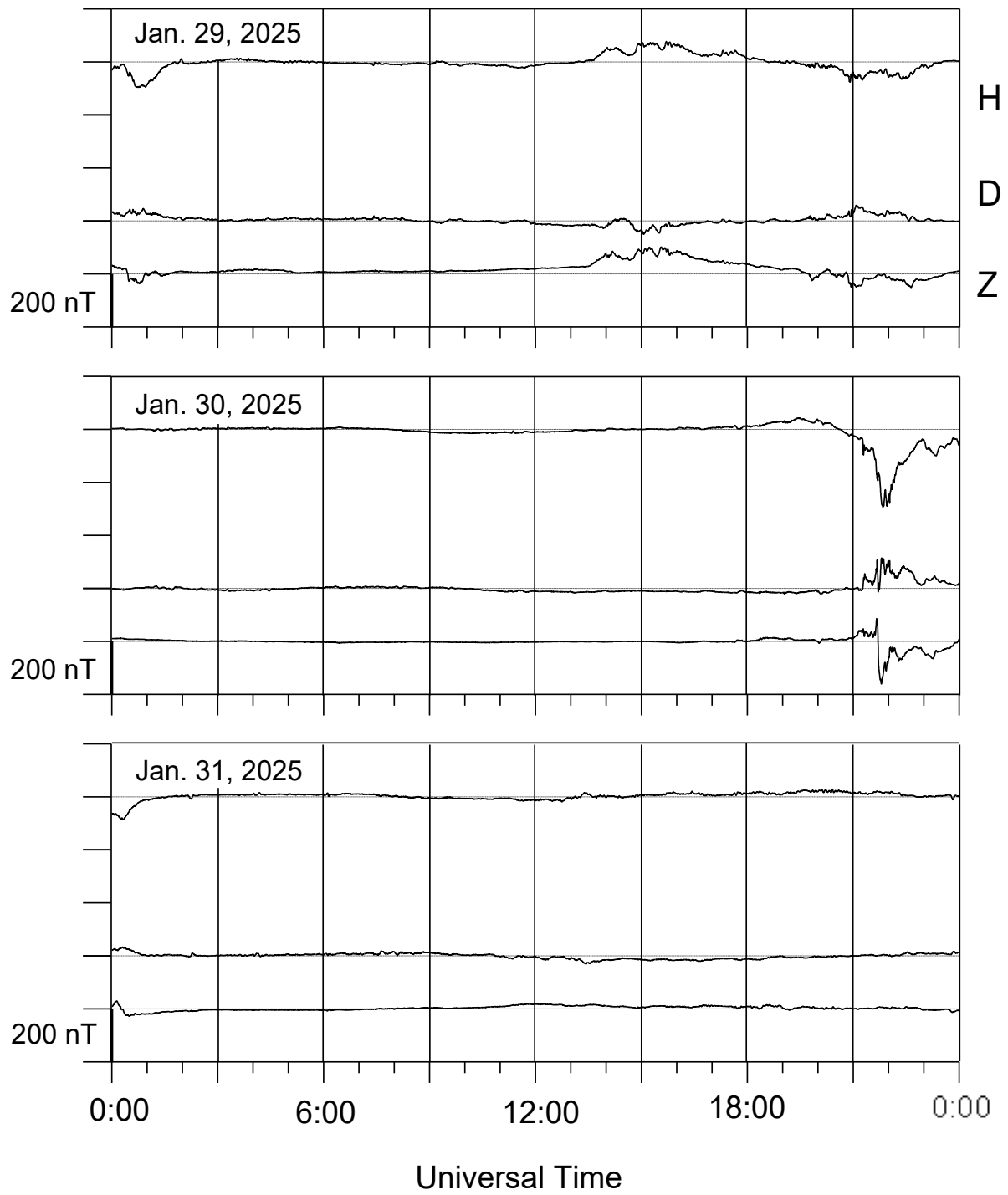
Lovozero magnetometer



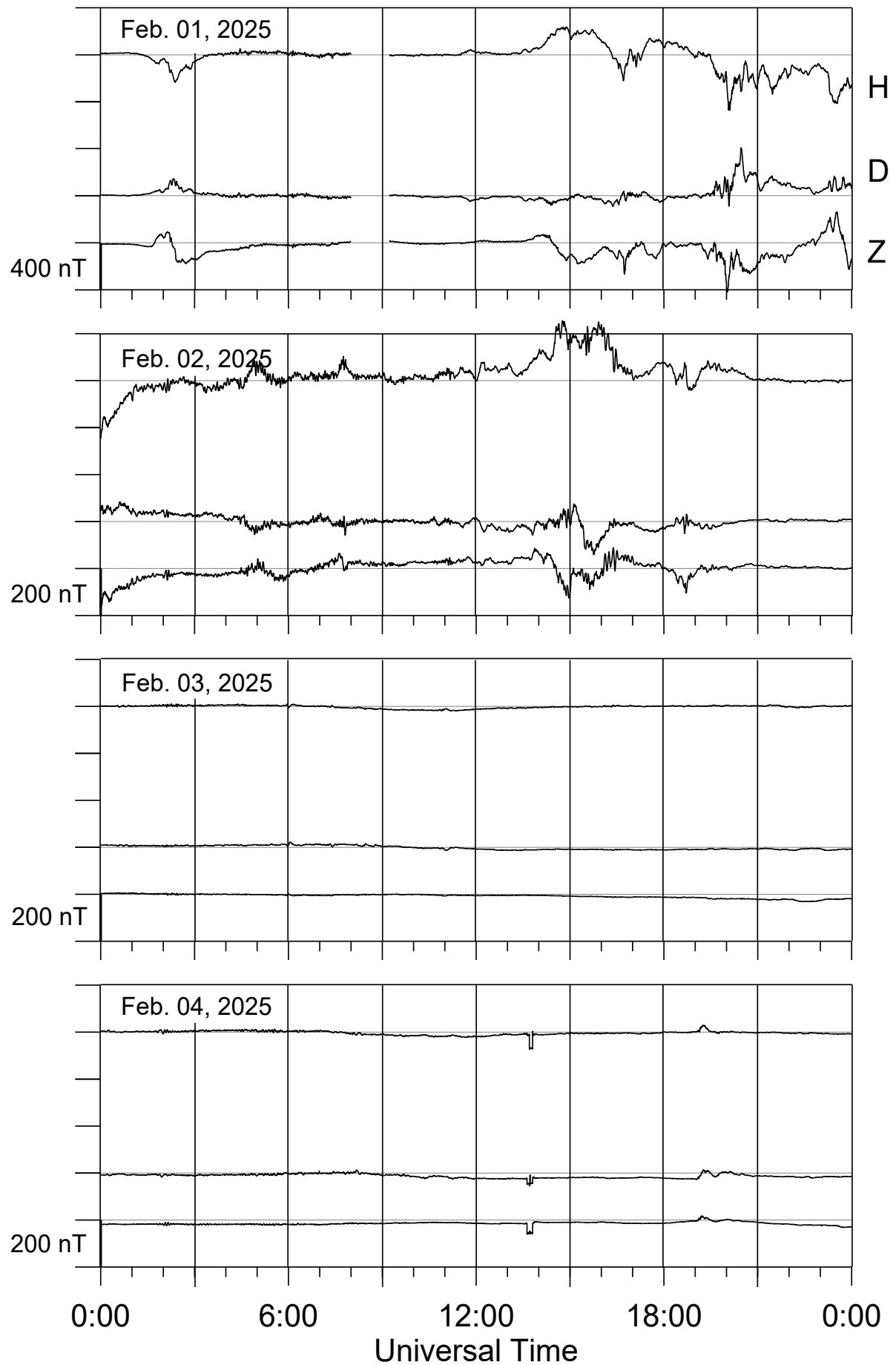
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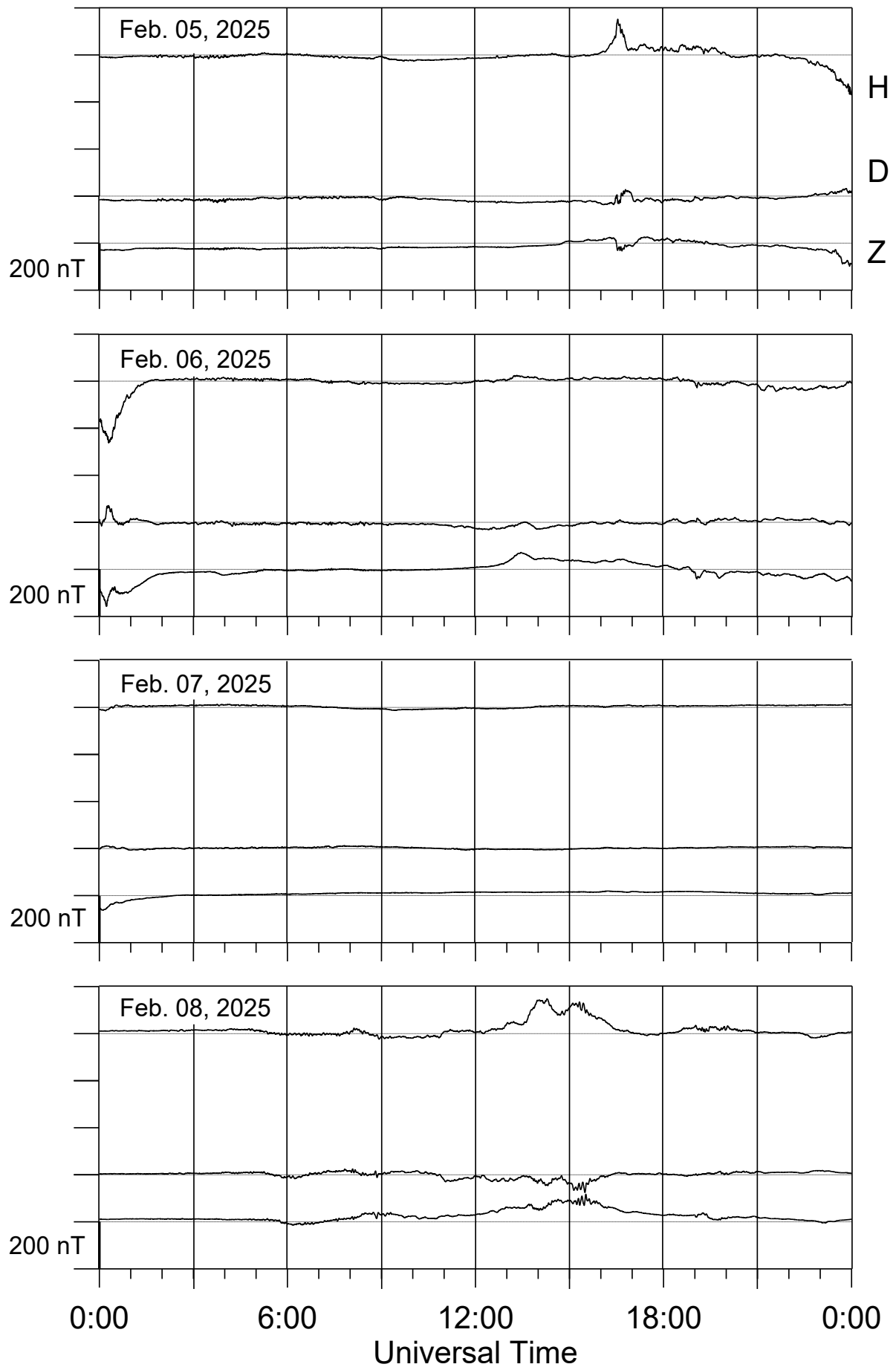
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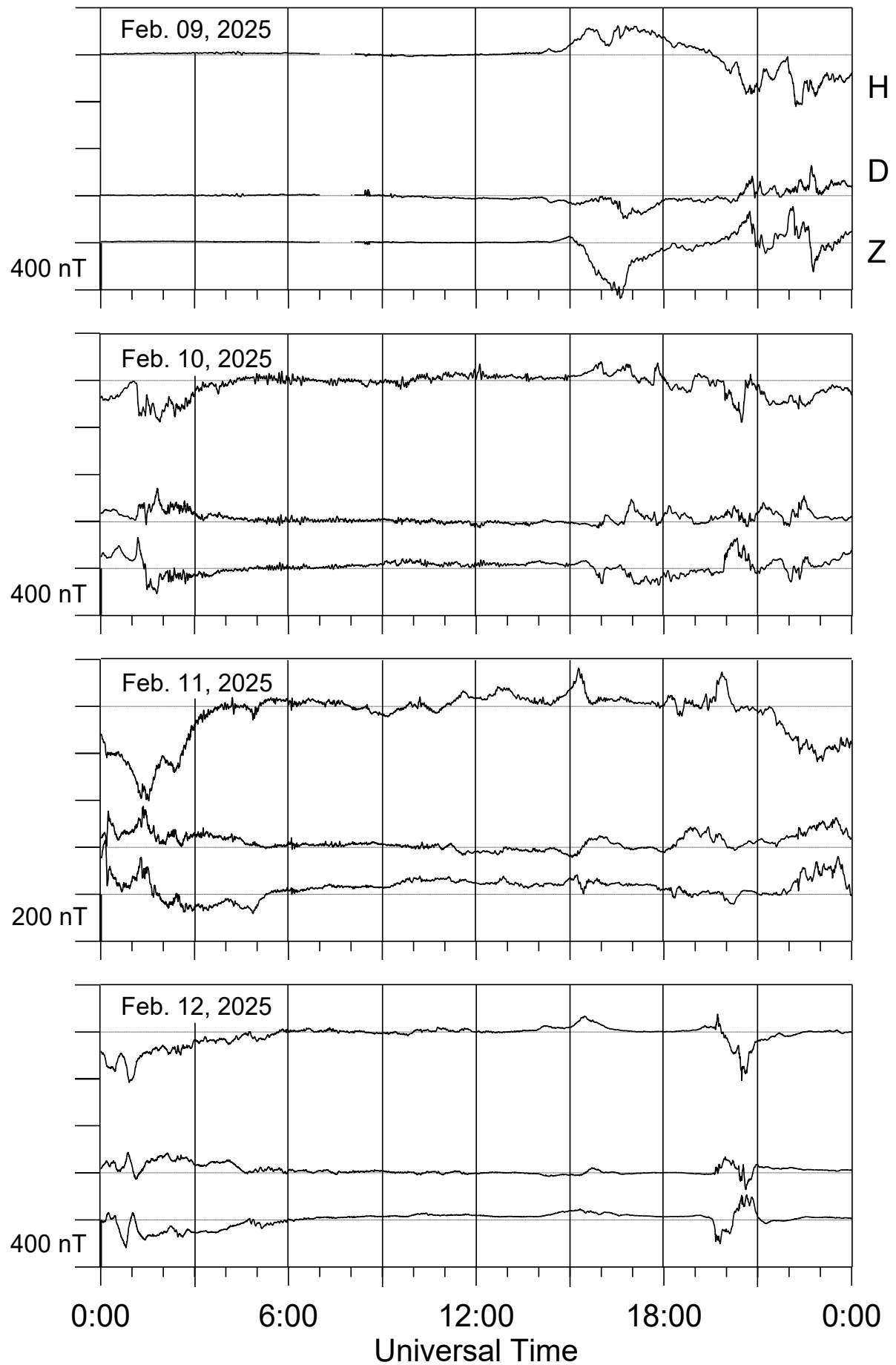
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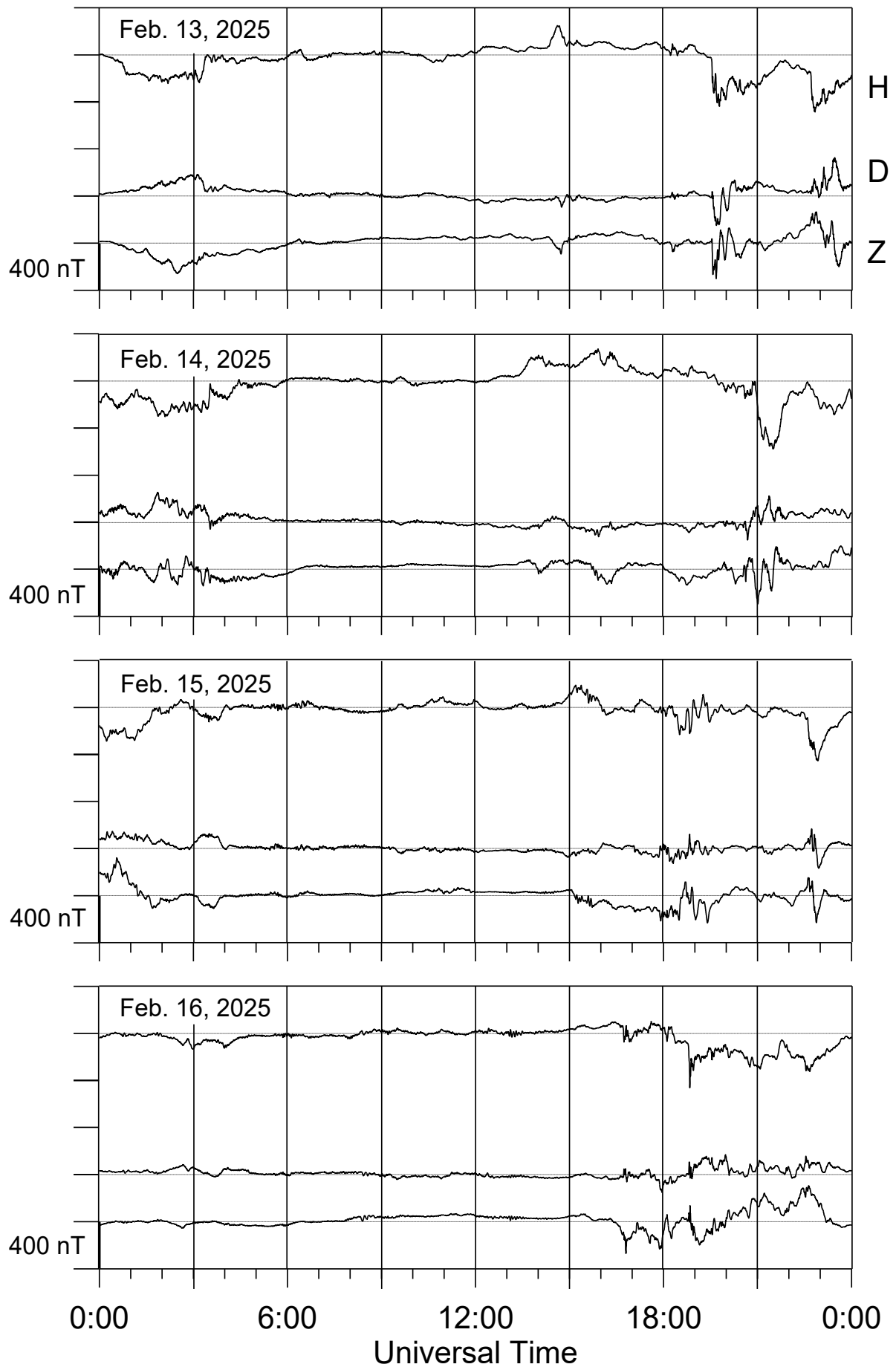
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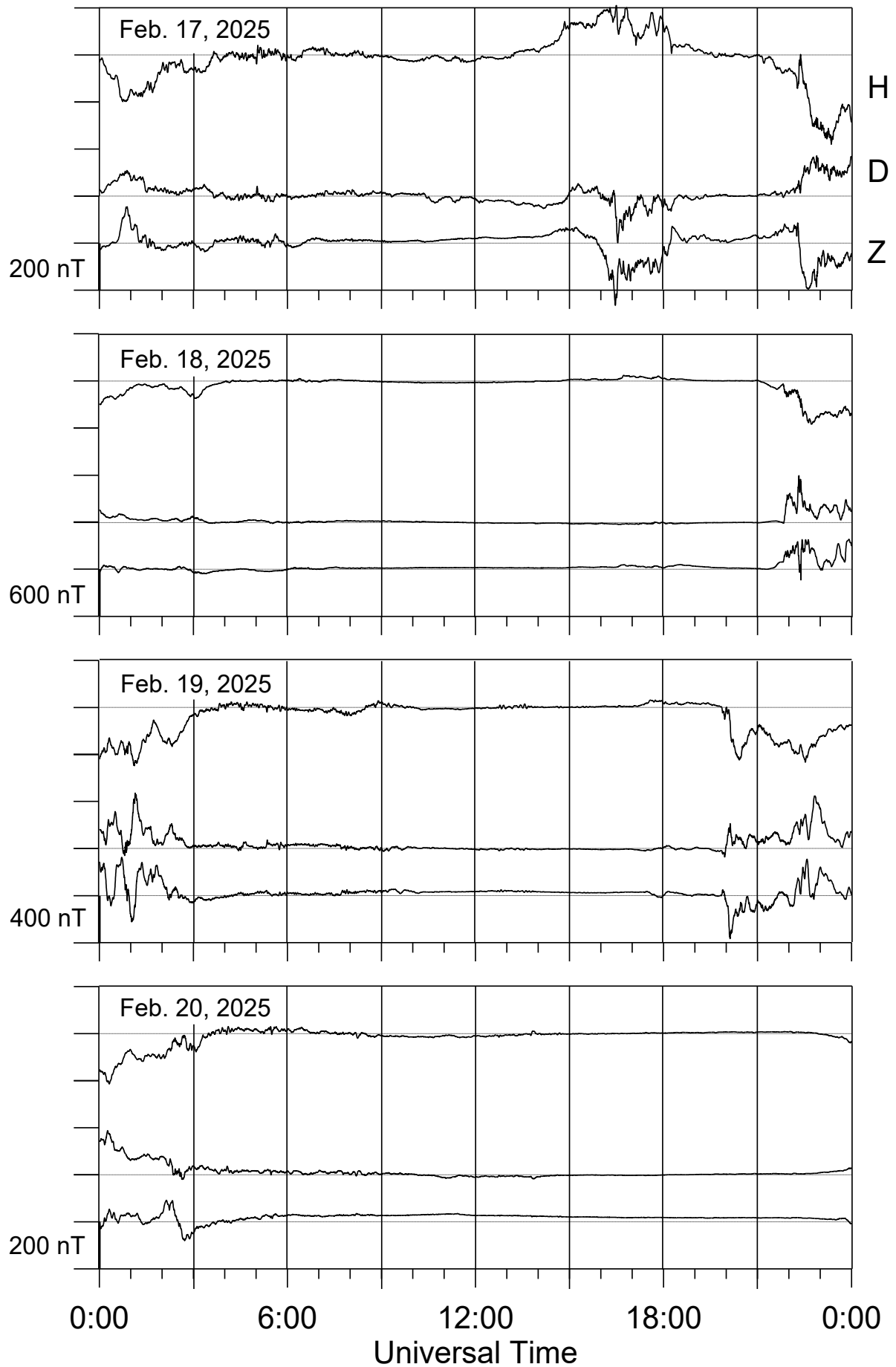
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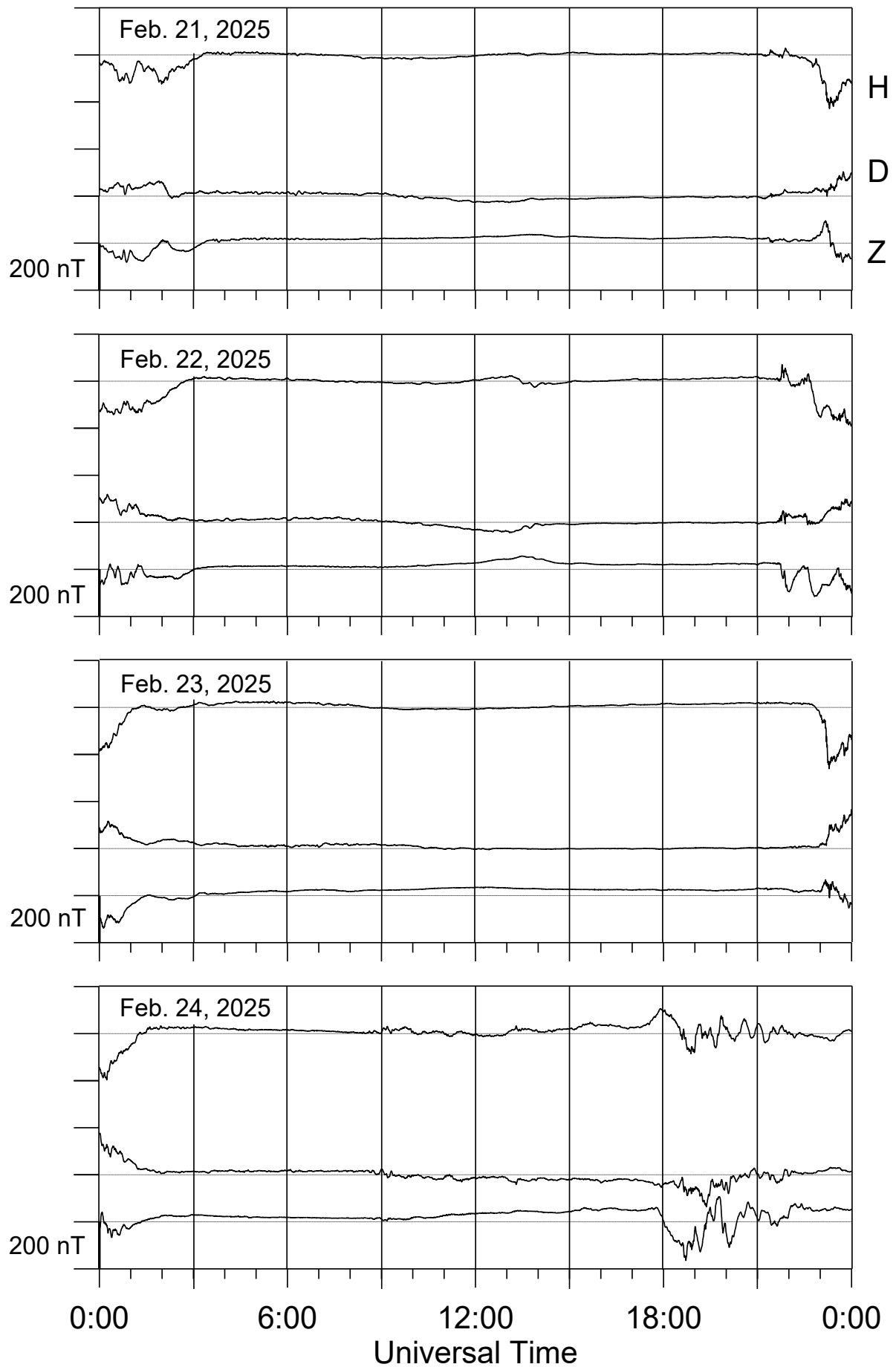
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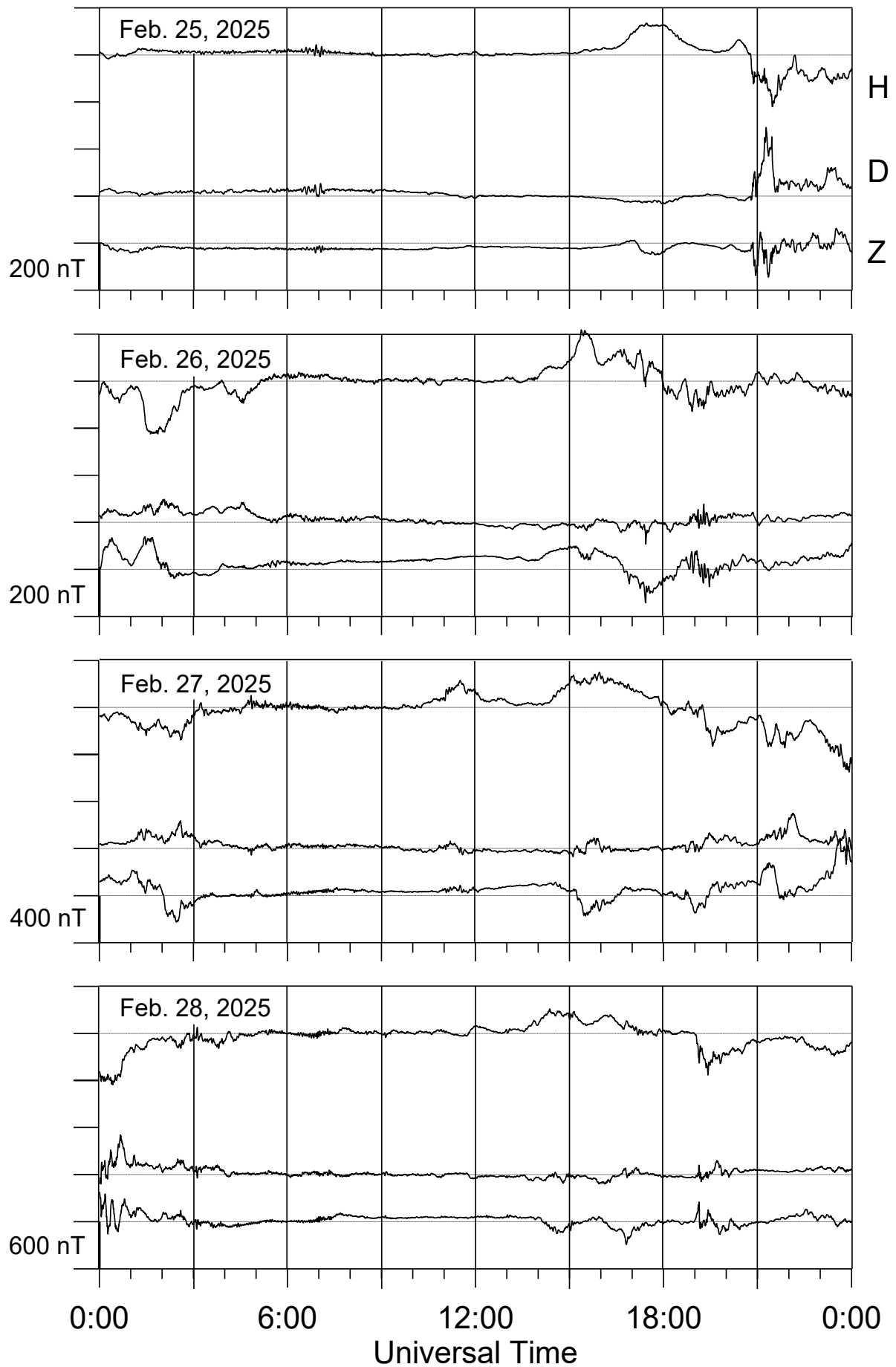
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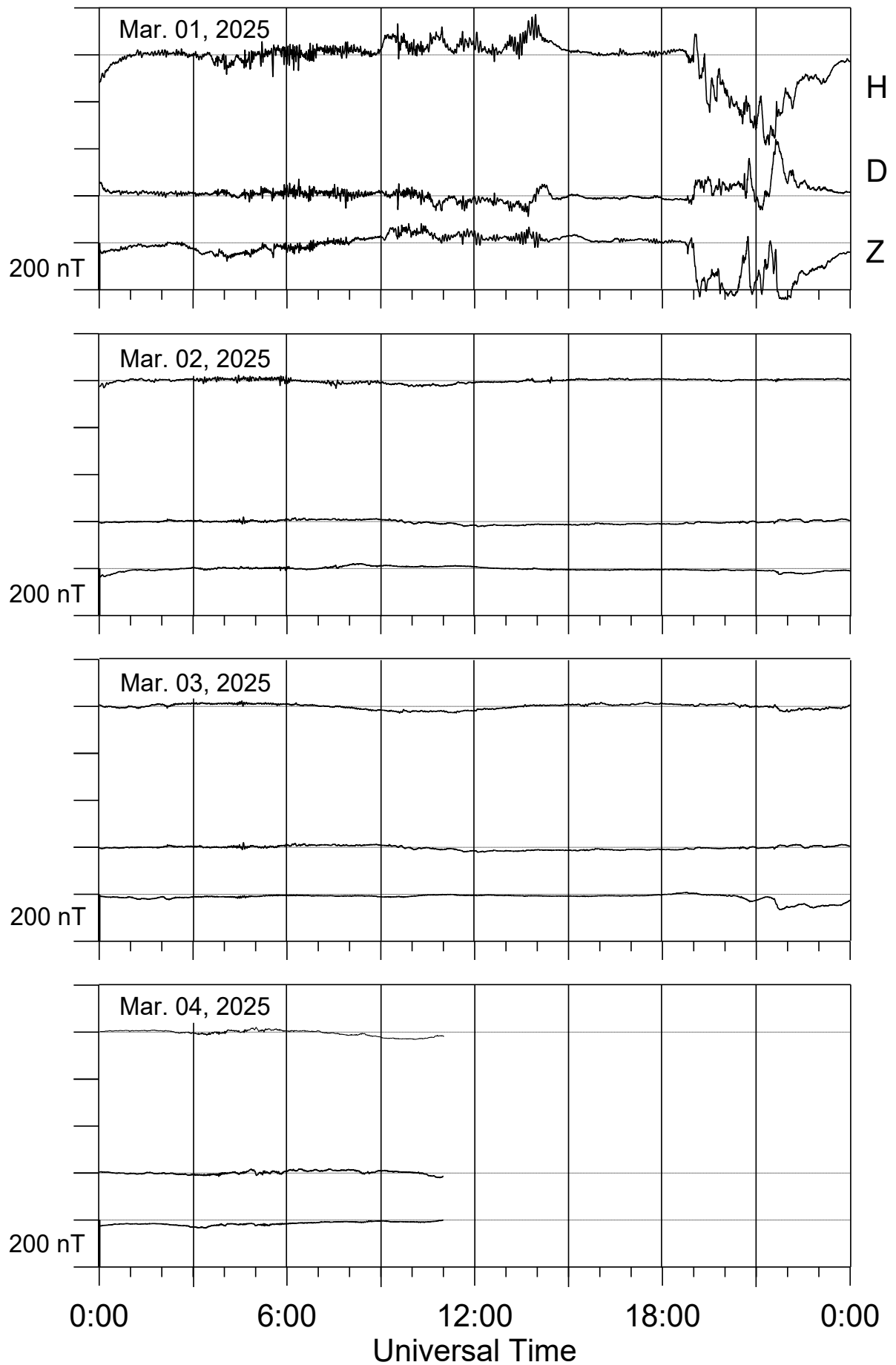
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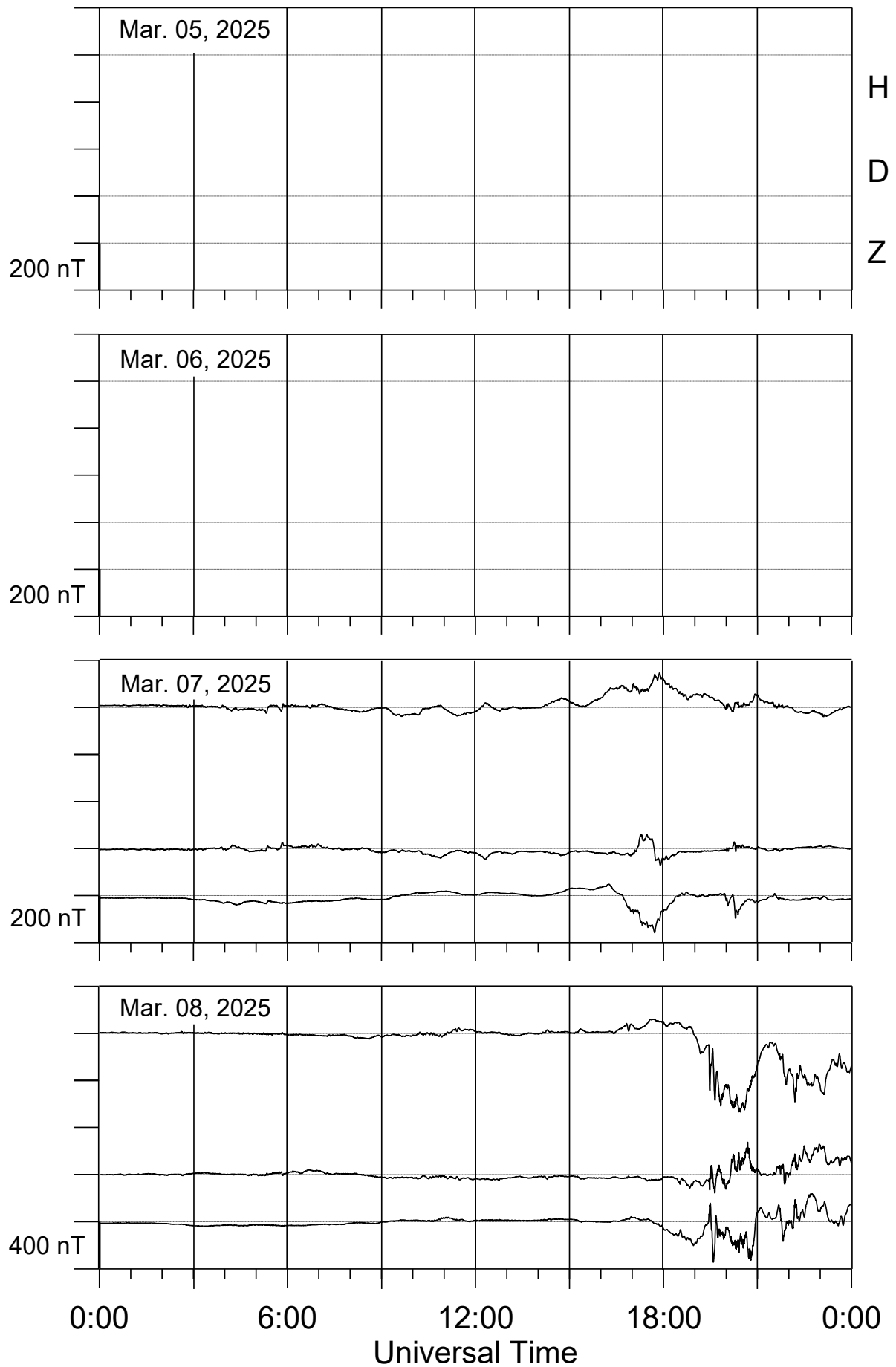
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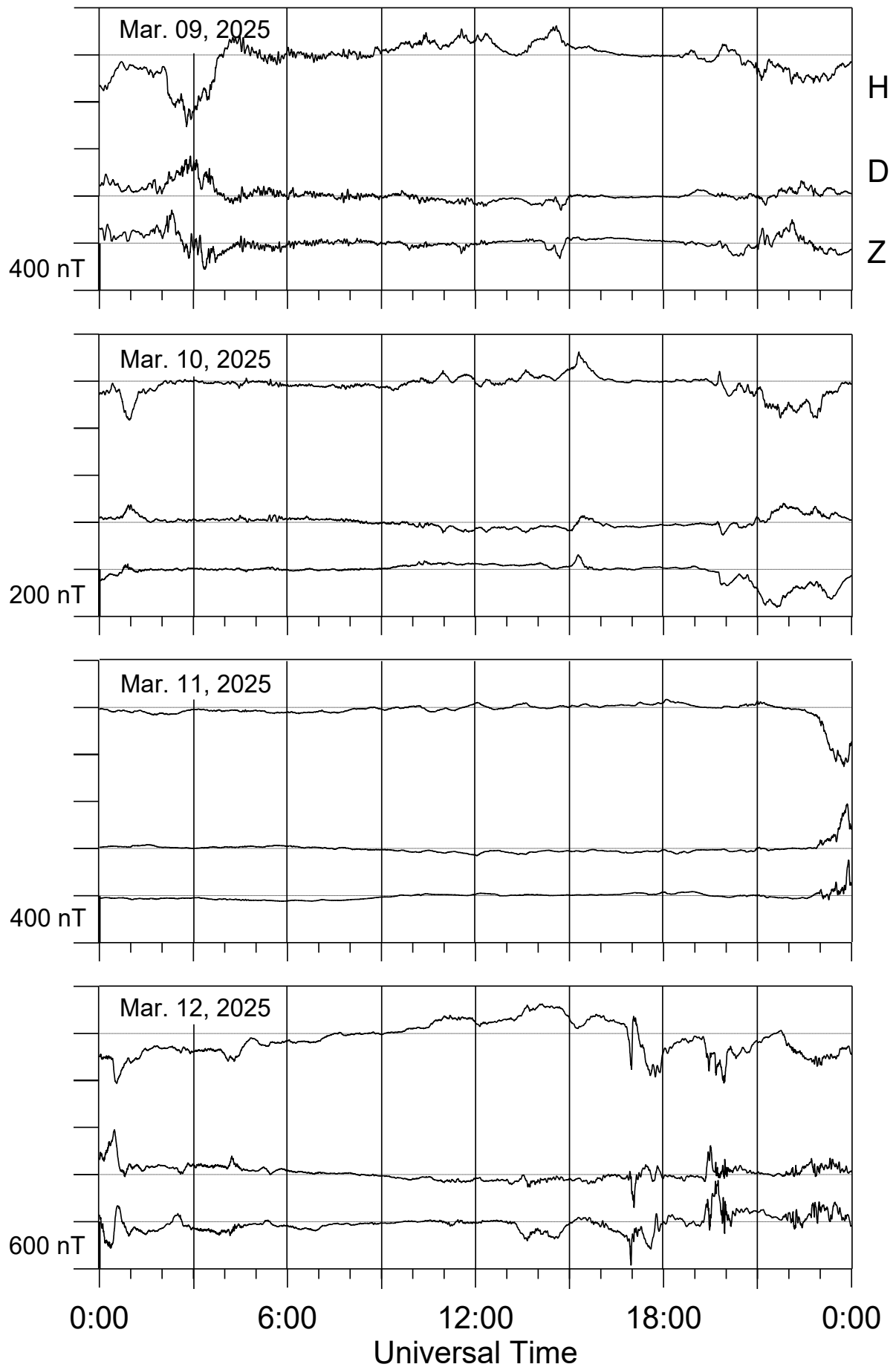
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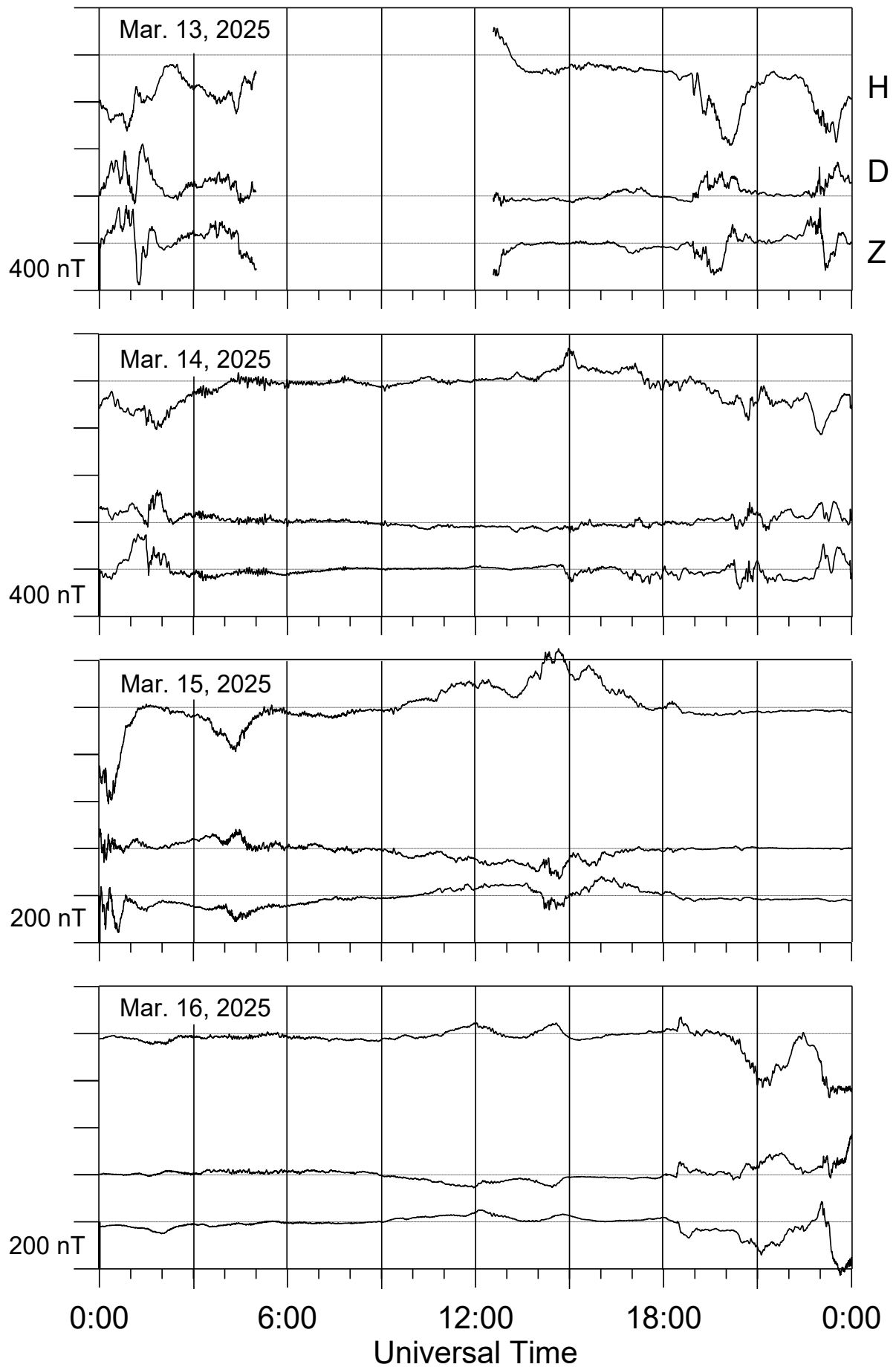
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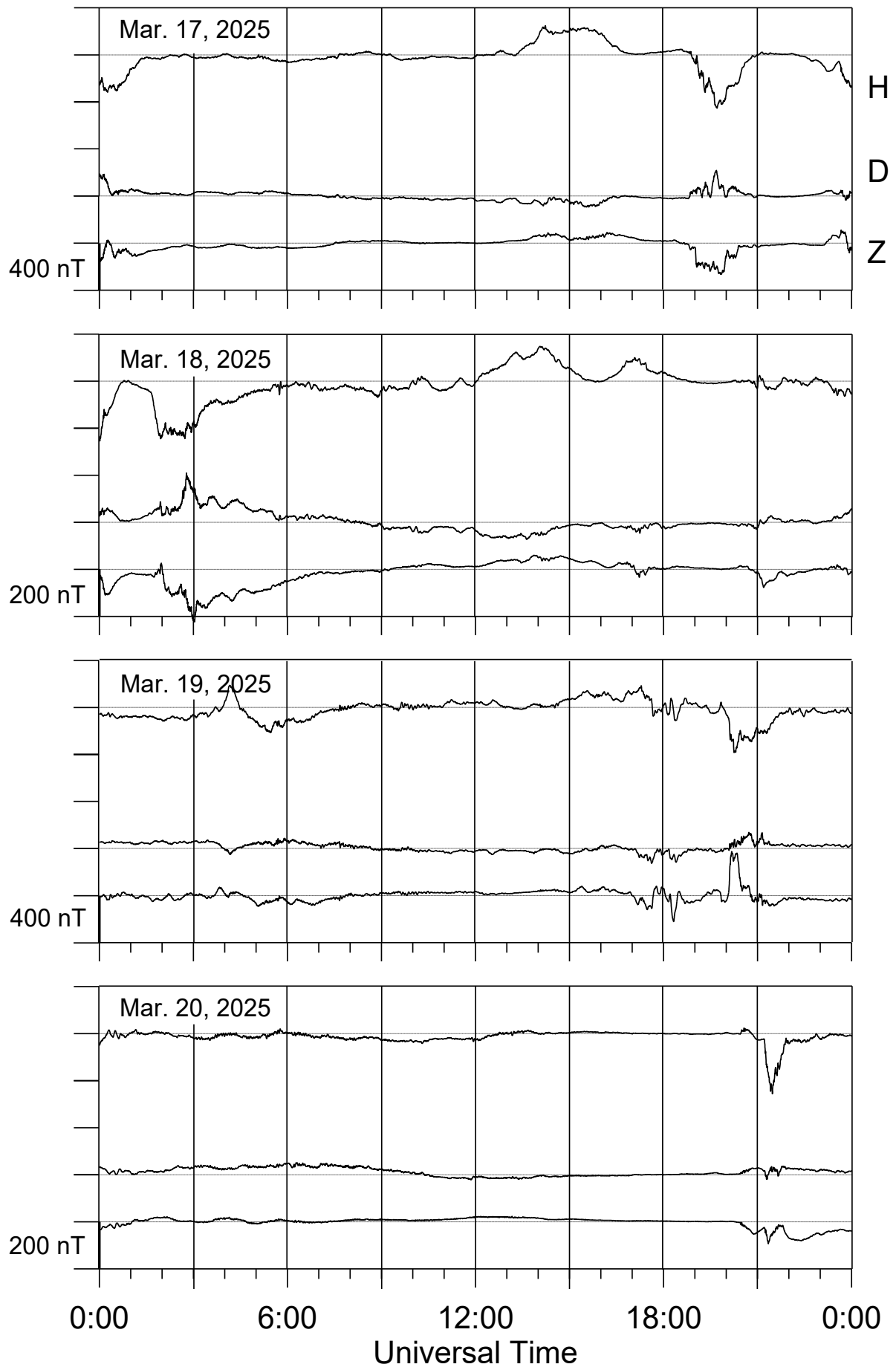
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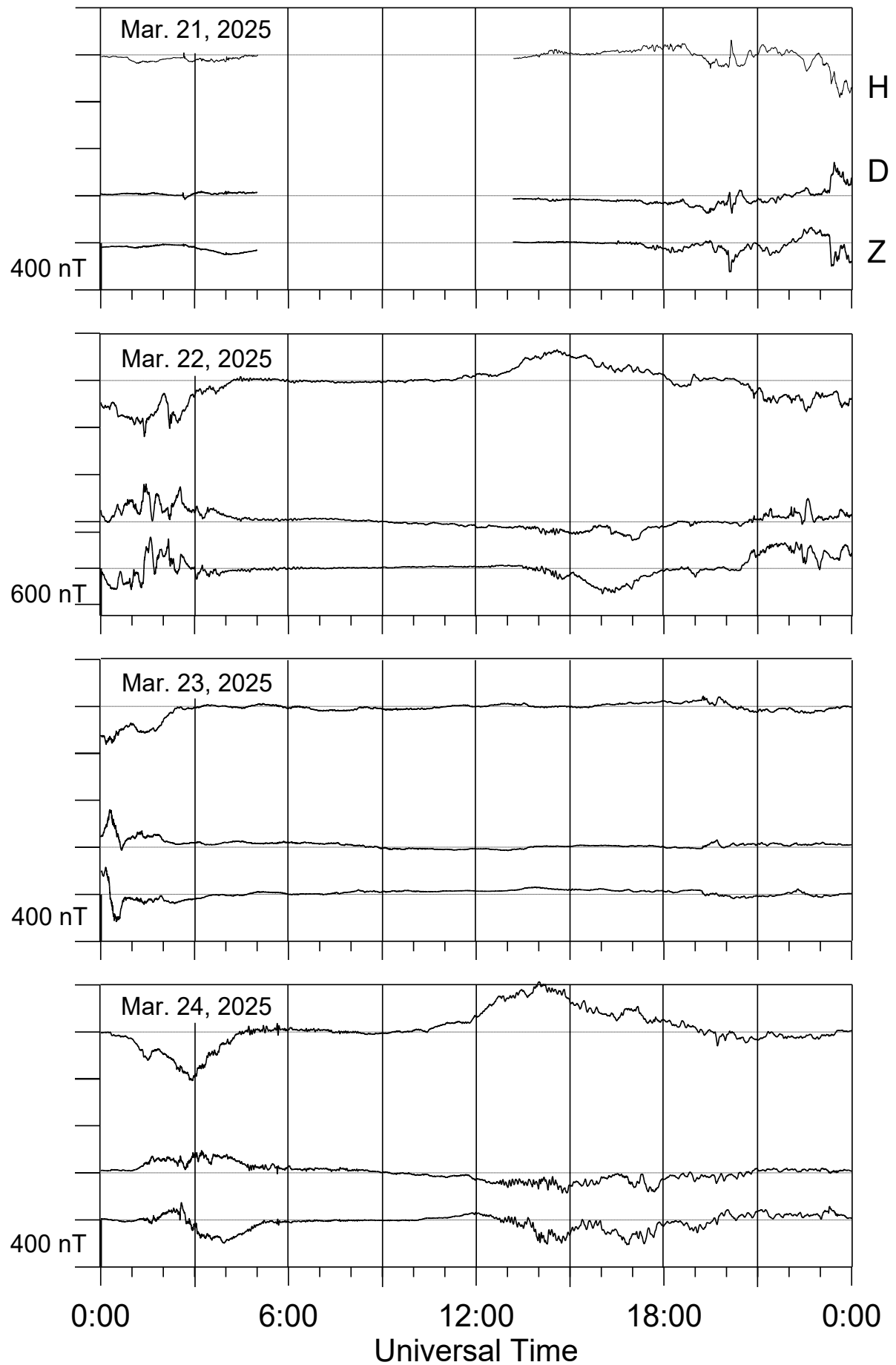
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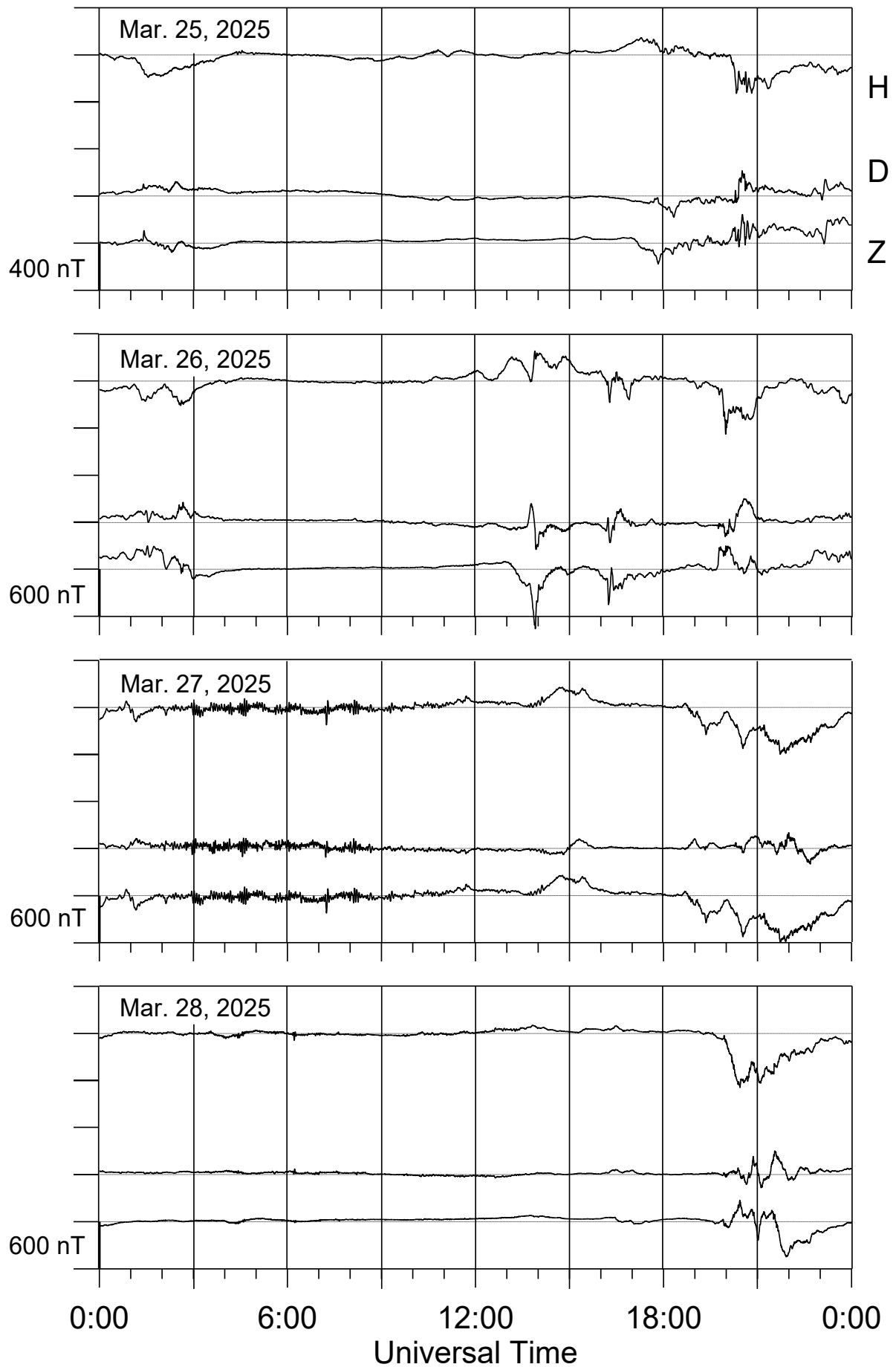
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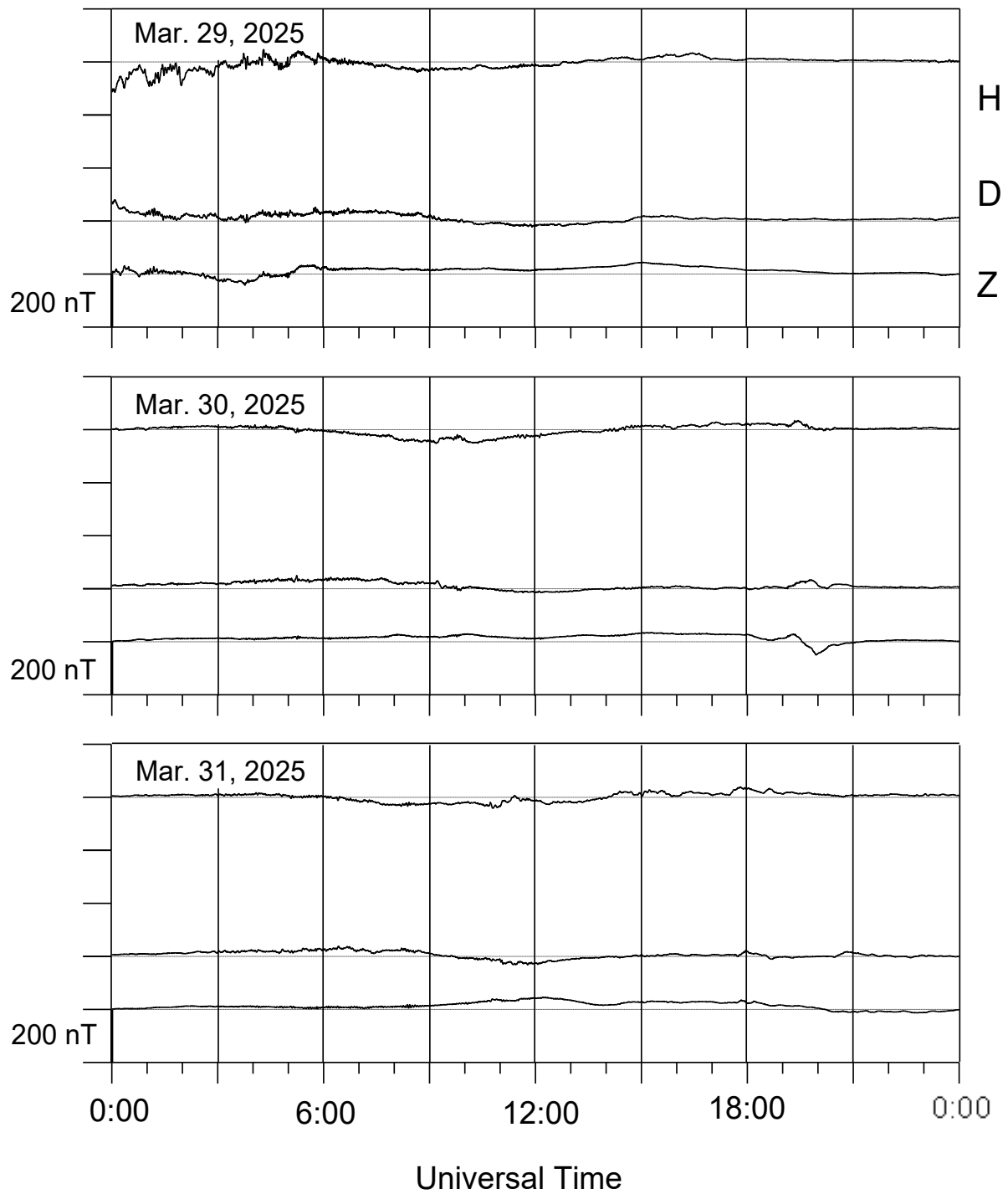
Lovozero magnetometer



Lovozero magnetometer



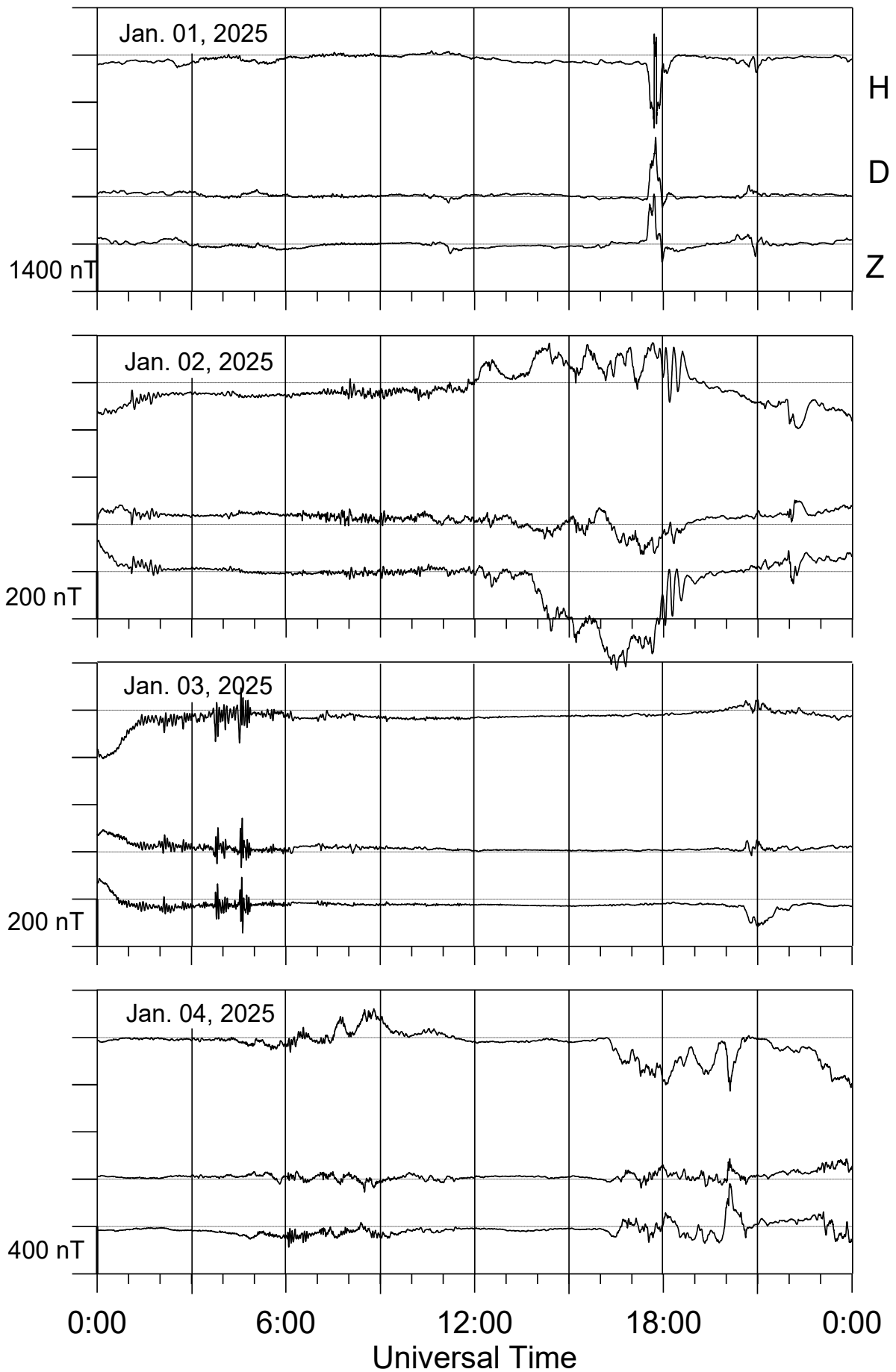
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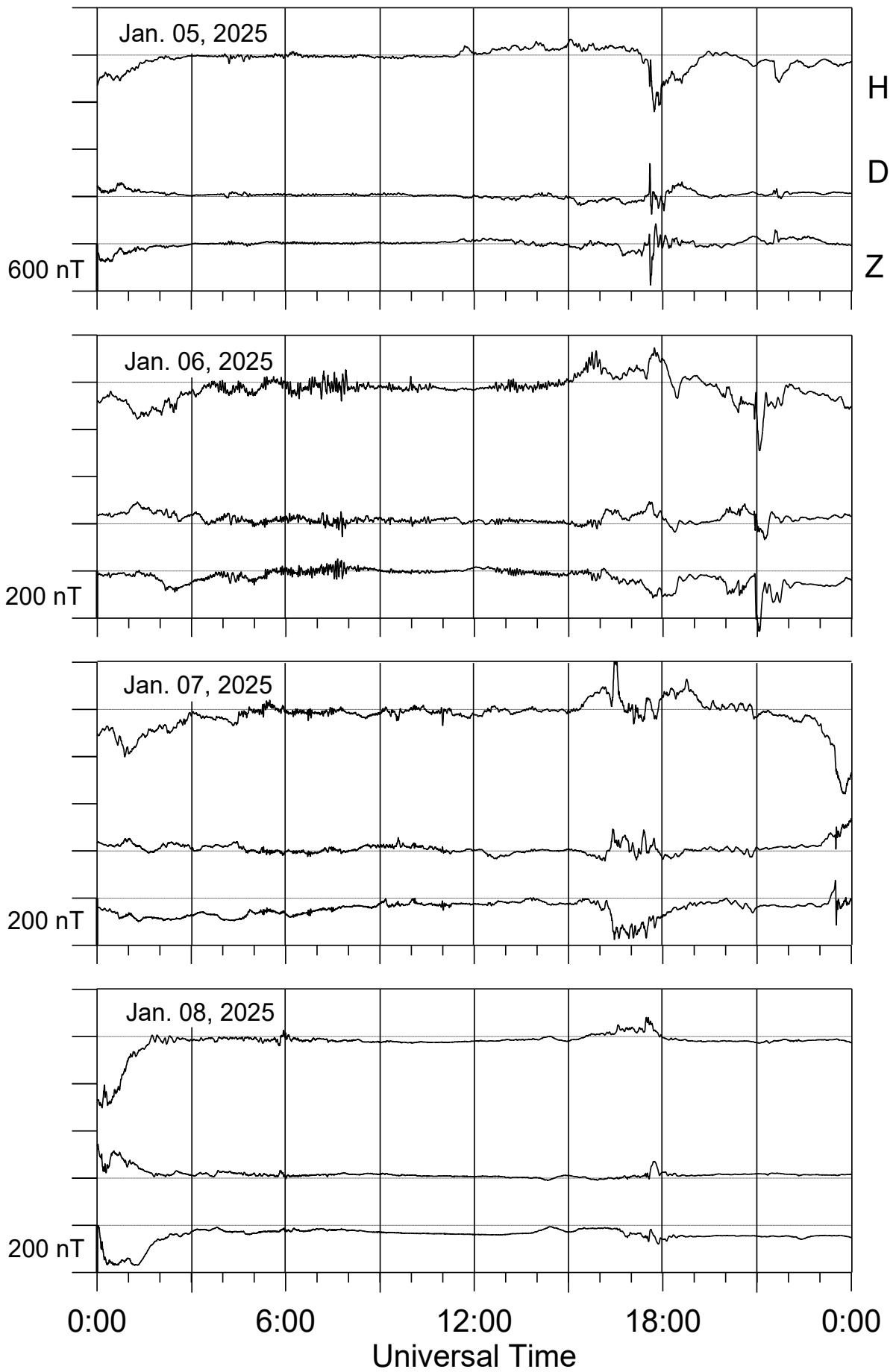
LOPARSKAYA MAGNETOGRAMS

January - March 2025

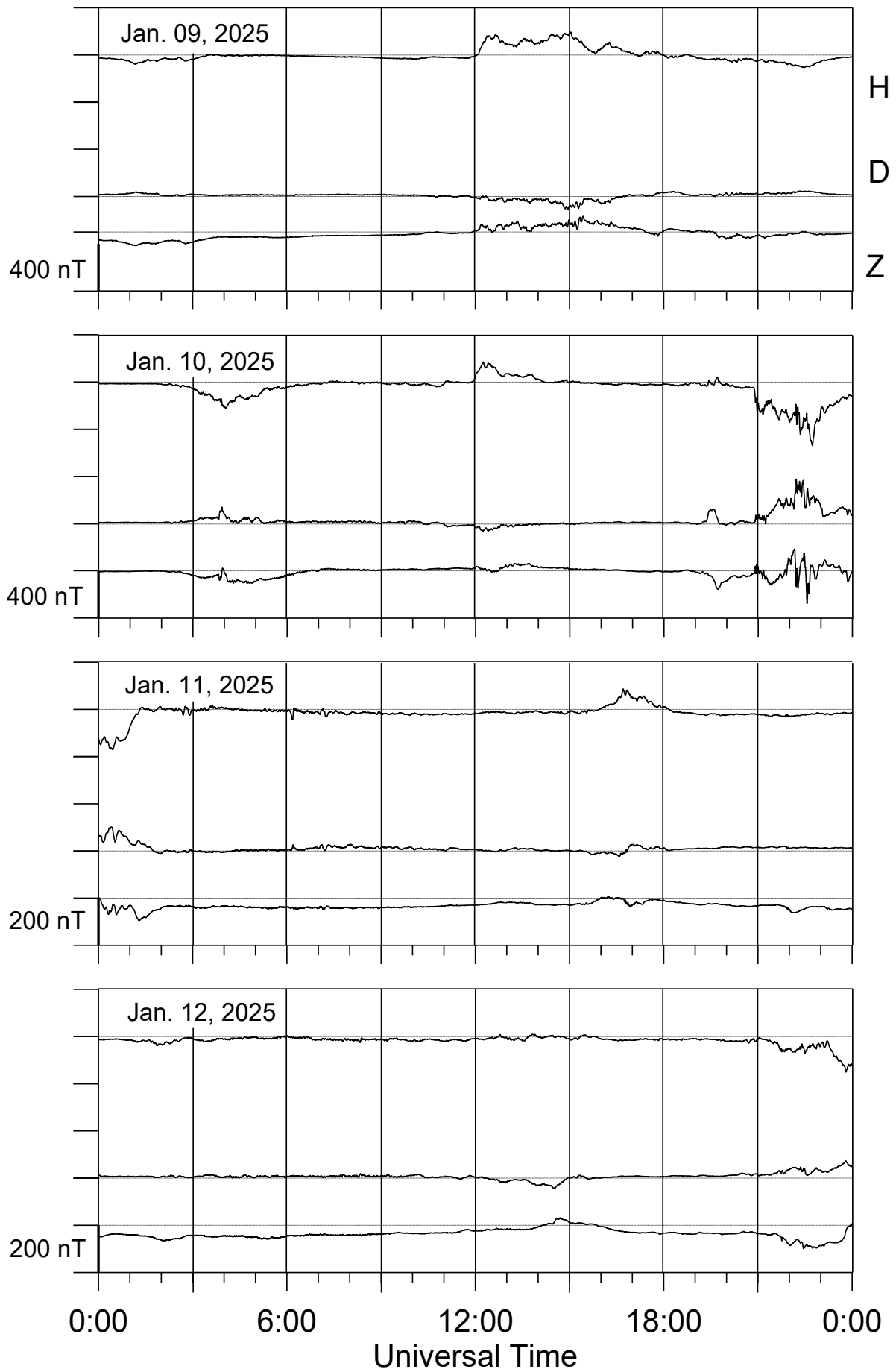
Loparskaya magnetometer



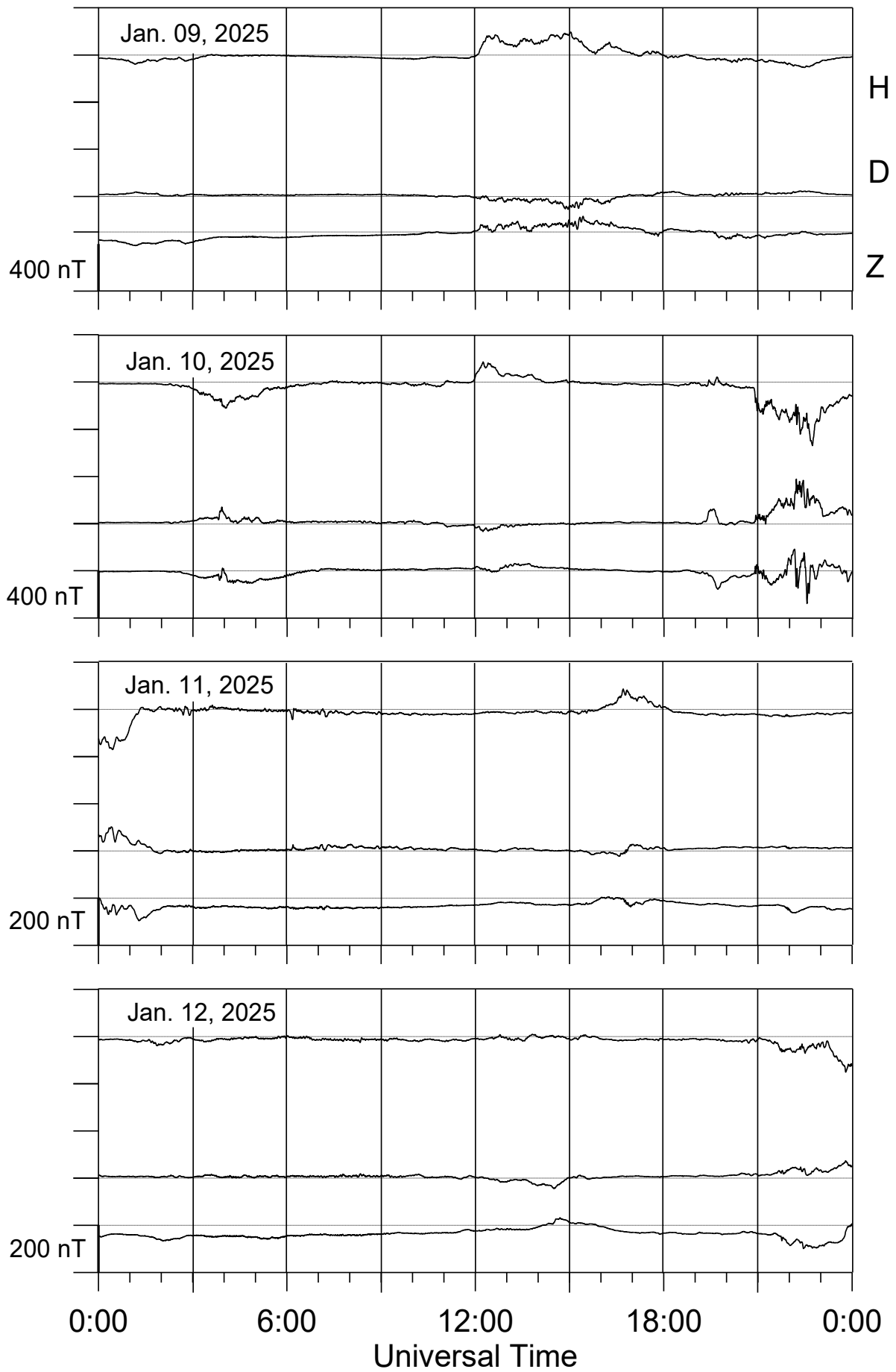
Loparskaya magnetometer



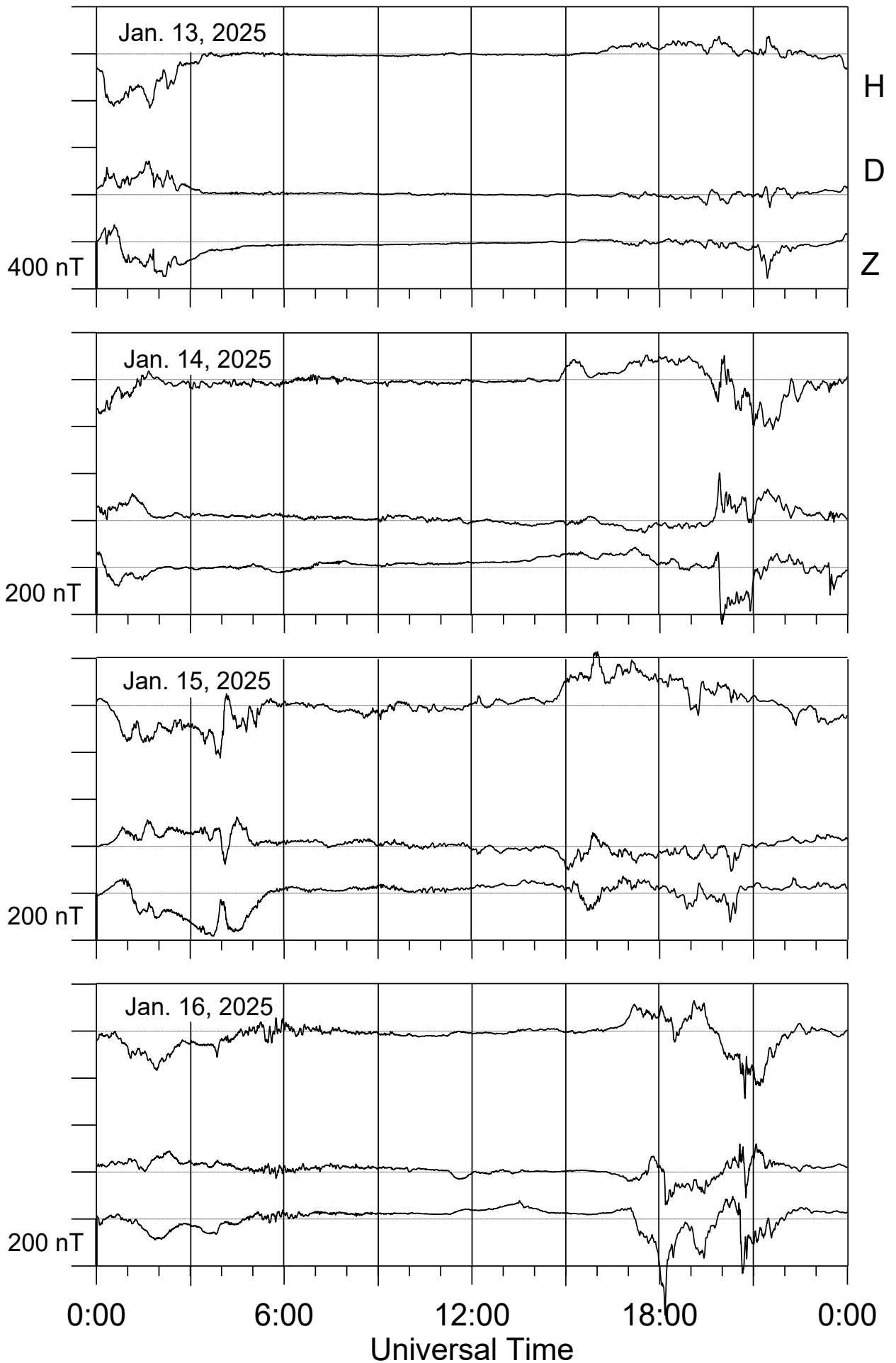
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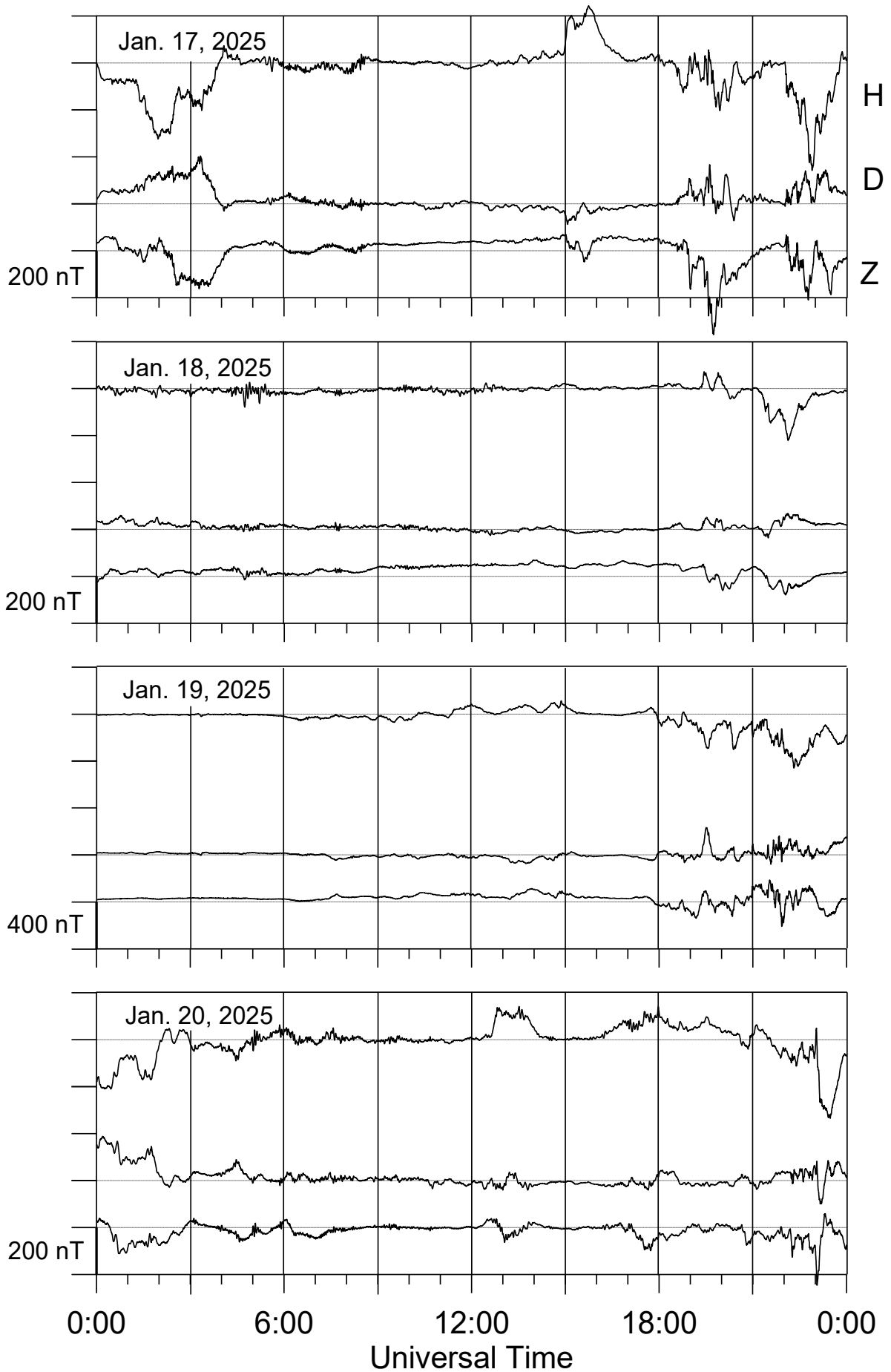
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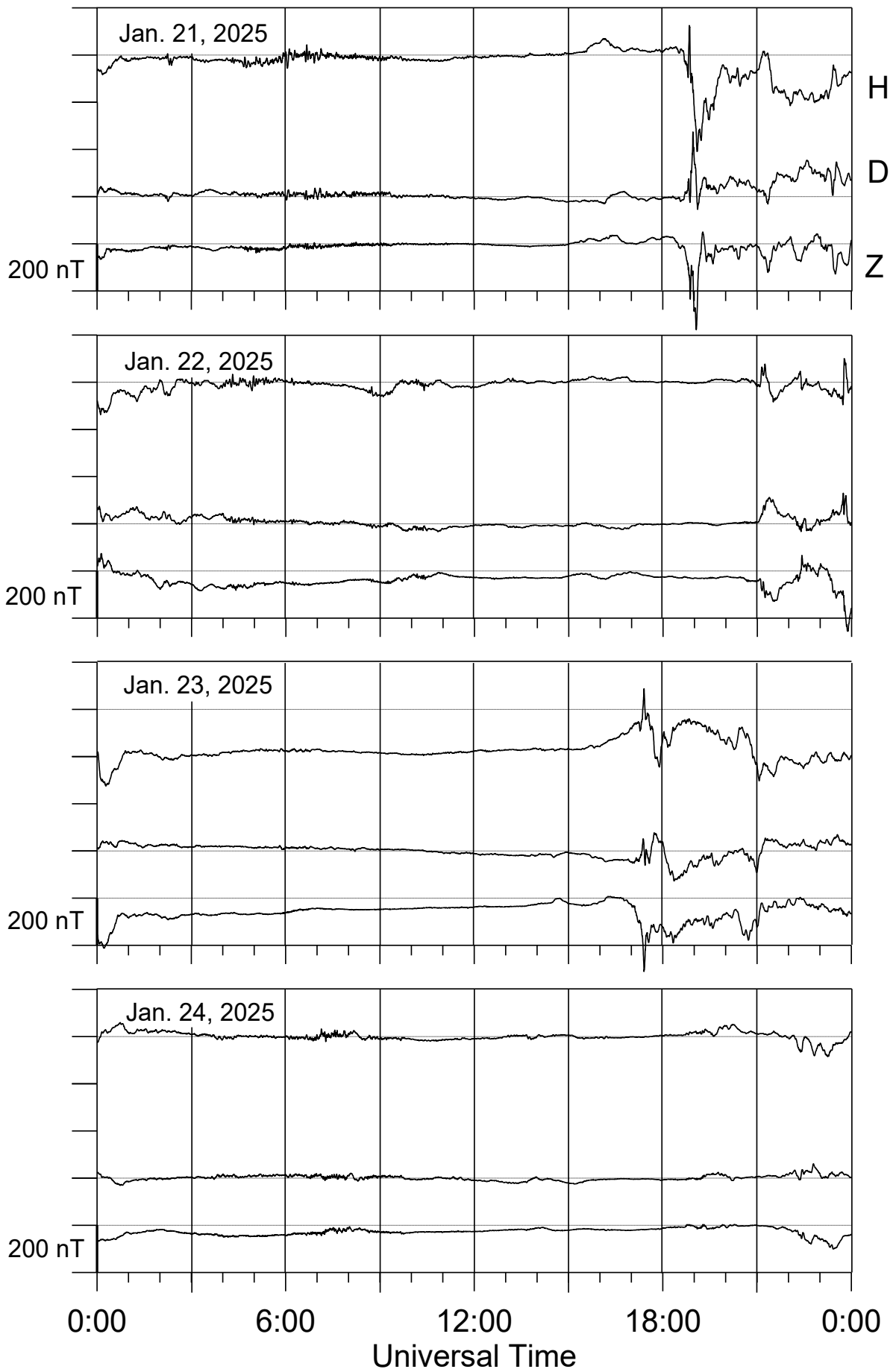
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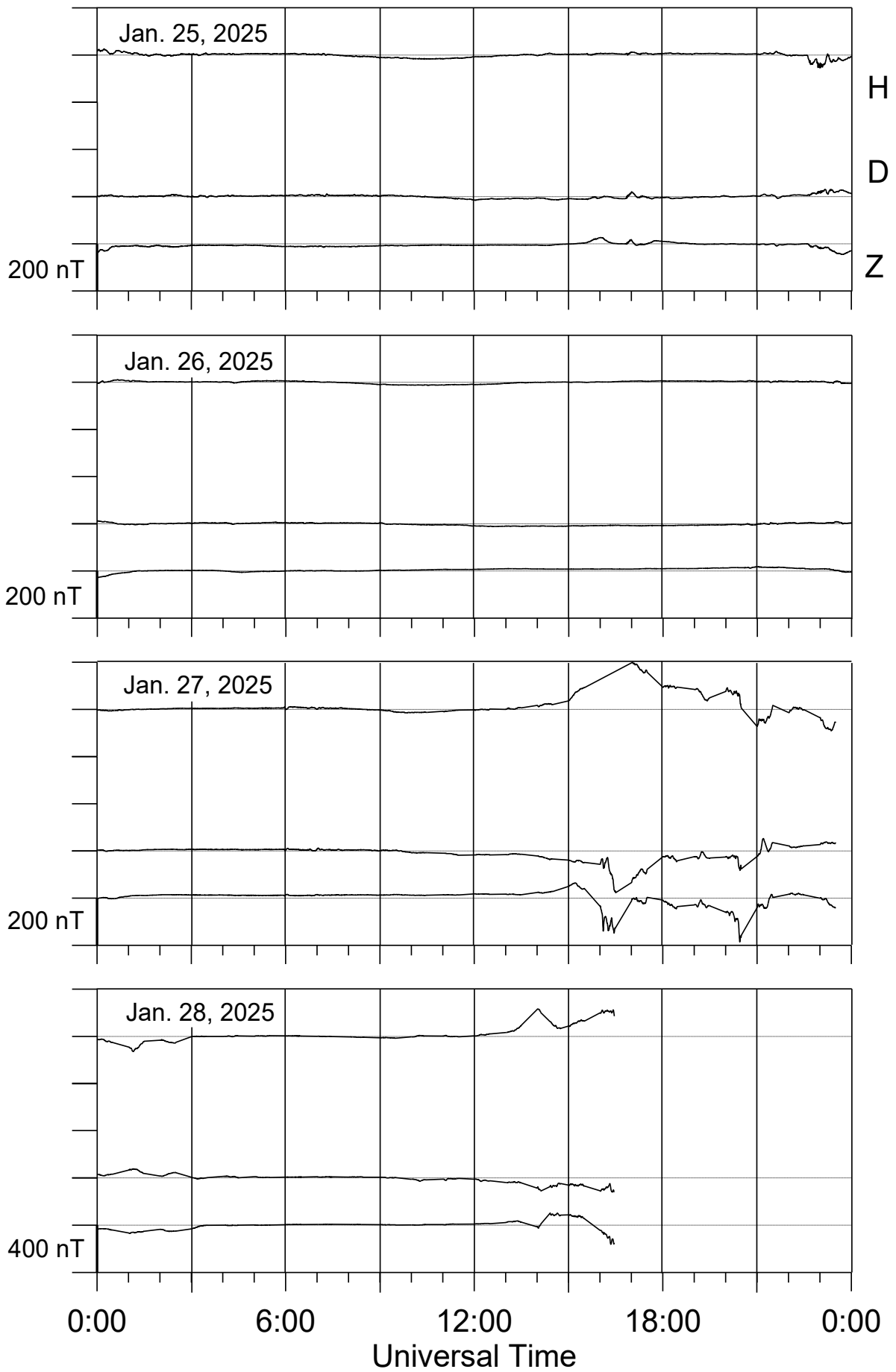
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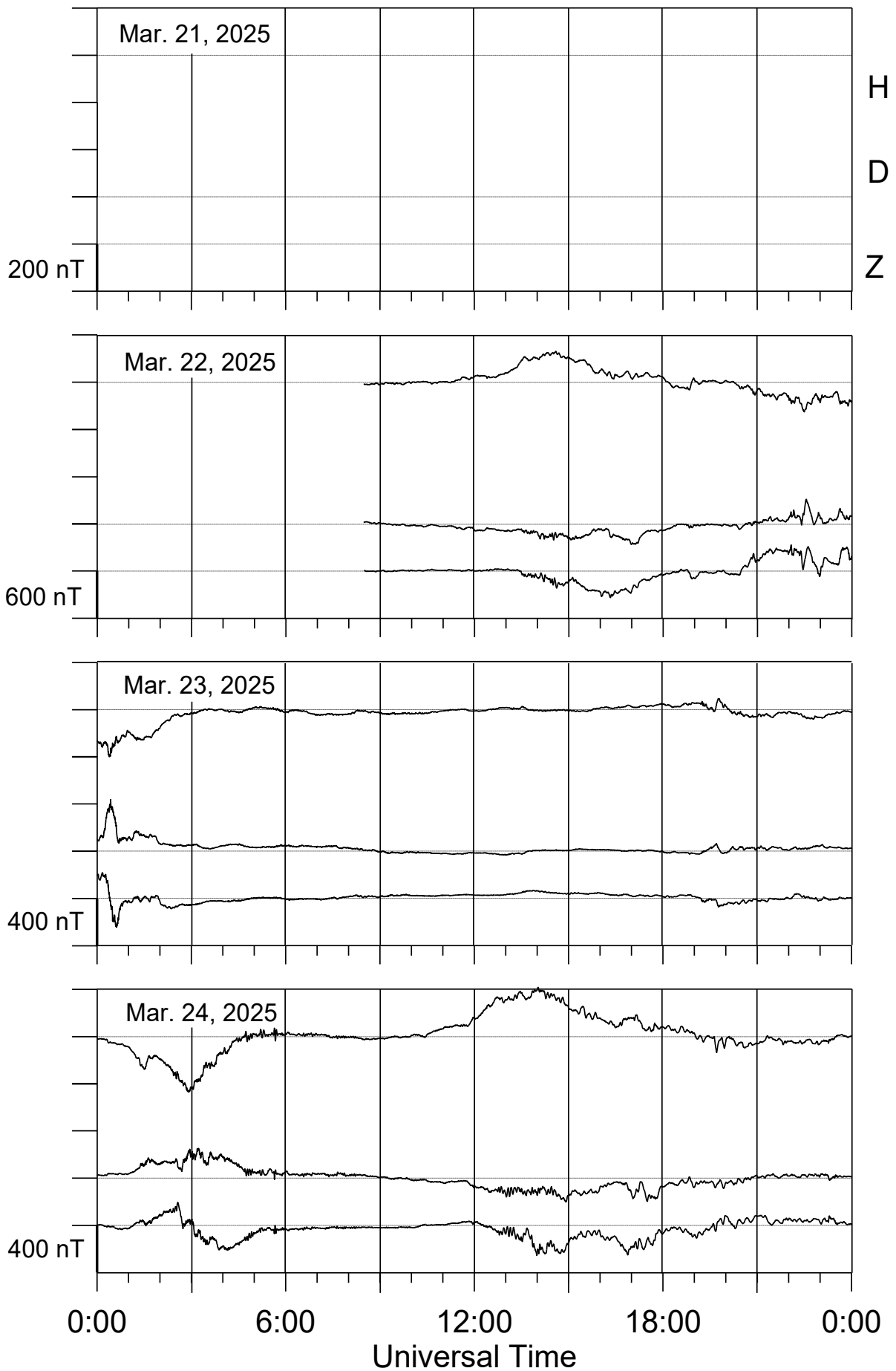
Loparskaya magnetometer



Loparskaya magnetometer



Loparskaya magnetometer



Loparskaya magnetometer

