

POLAR GEOPHYSICAL INSTITUTE
RUSSIAN ACADEMY OF SCIENCES



PGI
GEOPHYSICAL DATA

2020

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October 2020

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 2020. All-sky camera observations are published only for the quarters when observations were carried out. All data are available by request.

Published since 1996

Reviewer K.G. Orlov

CONTENTS:

Data description.....	3
Geomagnetic K-indices.....	7
Cosmic ray data.....	10
All-sky camera observations.....	11
Magnetogram plots.....	65

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	421 832
February	425 334
March	424 600

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

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

All-sky camera observations

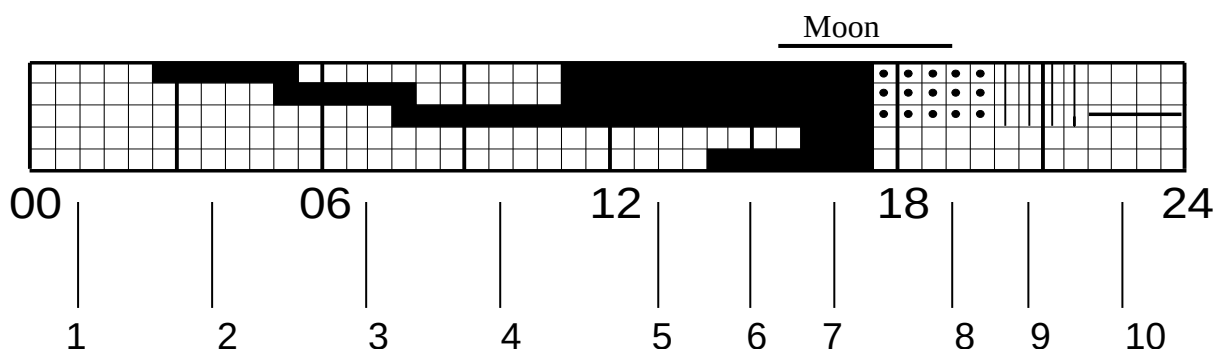
Calendar

Calendar shows the intervals of digital all-sky camera observations in Apatity and Lovozero, which are available during dark periods from 1400 to 0600 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- aurora present in north range
- 3- weak aurora present in zenith range
- 4- aurora 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 Apatity, Lovozero and Verhnetulomsky 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.

Coordinates of stations

Stations	Code	Geographic		Corr. Geomagnetic	
		Lat	Long	Lat	Long
<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
<i>Apatity</i>	APT	67.58° N	33.31° E	63.86° N	113.6° E

Please visit

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

Contact information:

	Phon	e-mail
Vyacheslav Vorobjev, Editor	+7-815-55-79-592	<i>vorobjev@pgia.ru</i>
Sergei Chernyakov, Head of LOP	+7-815-53-48-339	<i>sergeich@pgi.ru</i>
Valentin Kosolapenko, Head of LOZ	+7-815-238-31-382	<i>valkos@pgia.ru</i>

Polar Geophysical Institute
Academgorodok, 26a, APATITY
184209, RUSSIA

GEOMAGNETIC K-INDICES, LOVOZERO

January, 2020

Lower limit of K=9 is 1500 nT

Day	Time, UT								
	03	06	09	12	15	18	21	24	
1	0 0 0	0 0 0	0 0 0	0 0 1	0 0 0	0 1 0	0 2 2	0 0 0	Q
2	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 1 1	0 0 0	0 1 0	
3	0 0 0	0 1 1	1 1 1	0 0 1	1 0 1	1 1 1	1 1 1	2 2 2	
4	2 2 1	0 0 1	1 1 0	0 0 0	0 1 1	2 3 4	4 4 3	3 3 4	
5	2 2 2	1 1 0	1 0 0	0 0 1	0 0 1	1 2 3	2 4 4	3 3 3	
6	3 4 3	0 0 0	1 0 0	0 0 0	0 0 0	0 0 0	2 4 5	1 1 2	
7	1 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 1	1 2 1	3 3 1	
8	0 0 0	0 0 0	0 0 0	0 0 0	0 1 1	1 1 2	3 2 2	4 3 4	
9	3 3 2	1 1 1	2 1 1	1 2 3	2 2 2	3 1 1	3 4 2	2 3 2	
10	3 1 1	0 1 1	1 2 1	1 1 0	0 1 1	1 1 2	2 2 2	1 1 1	Q
11	1 1 1	1 1 1	1 1 0	0 0 0	0 0 1	1 0 1	1 0 0	0 1 2	
12	1 1 1	1 1 1	1 1 0	1 0 0	1 0 0	1 1 0	0 0 1	1 1 1	
13	1 0 1	1 0 0	1 0 0	0 0 0	0 0 0	0 0 0	0 0 1	1 1 0	
14	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
15	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 2	1 1 1	2 1 0	
16	0 0 0	1 1 1	1 1 0	0 0 0	0 0 0	0 0 0	0 1 1	1 0 0	
17	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 2	1 0 0	0 0 0	
18	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
19	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
20	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	1 0 0	0 0 0	
21	0 0 0	0 0 1	1 1 1	0 0 0	1 1 1	3 3 1	2 3 3	2 2 2	
22	4 3 2	1 1 1	1 1 1	0 0 0	0 1 1	0 1 1	2 1 2	5 4 2	
23	3 3 2	2 1 1	1 1 1	1 1 1	0 0 0	0 0 0	1 2 3	2 1 2	
24	2 1 1	1 0 0	1 0 0	0 0 0	0 0 0	0 0 0	0 2 1	1 0 0	
25	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
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	
27	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 1	0 0 0	
28	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 1	0 0 0	1 2 4	
29	4 4 3	2 0 0	1 1 1	1 1 1	1 1 1	1 1 3	2 0 1	1 1 2	
30	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 3 3	4 5 2	3 4 4	
31	3 3 2	2 3 2	1 1 1	1 1 2	0 1 0	0 0 0	0 0 0	1 1 2	

GEOMAGNETIC K-INDICES, LOVOZERO
February, 2020
Lower limit of K=9 is 1500 nT

Day	Time, UT								
	03	06	09	12	15	18	21	24	
1	2 1 1	0 0 1	0 1 2	1 1 2	1 1 1	1 3 2	3 3 1	3 4 4	
2	2 0 0	0 0 0	0 0 0	1 1 1	1 0 0	0 0 4	3 3 2	1 2 4	
3	1 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 1	2 1 0	0 0 0	
4	0 0 1	1 0 0	0 0 0	0 0 0	0 1 0	0 0 0	2 2 3	4 4 2	
5	1 1 0	0 0 0	0 0 0	0 0 1	1 0 1	0 1 0	0 0 1	0 0 0	
6	0 0 0	0 0 0	2 2 1	2 1 2	2 2 2	2 3 3	2 3 7	4 3 4	
7	3 4 4	2 3 2	1 1 1	0 0 1	2 2 1	0 0 2	2 3 4	4 4 4	
8	4 2 1	0 0 0	1 1 1	0 0 0	0 0 0	0 2 2	3 2 2	2 1 1	
9	1 1 2	2 0 0	0 0 0	0 0 0	0 0 0	0 0 0	1 2 2	2 2 2	
10	0 1 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 1 1	0 0 0	Q
11	1 1 0	1 1 0	0 1 0	0 0 0	0 0 0	0 0 0	0 0 0	1 2 1	
12	1 0 0	0 1 1	1 1 0	0 0 0	0 0 0	0 0 0	0 0 0	1 1 0	
13	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 1 1	1 1 0	
14	1 1 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 1	
15	0 0 0	0 0 0	0 0 0	0 0 0	1 1 0	0 0 0	0 1 0	0 0 0	
16	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	Q
17	0 0 1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 3 5	4 3 1	
18	0 1 1	0 1 0	3 3 2	1 1 2	3 4 5	6 6 5	4 3 3	1 4 3	
19	1 2 1	5 5 2	2 1 2	2 2 2	2 1 0	0 0 1	1 1 0	0 4 4	
20	3 1 1	1 1 0	0 0 0	0 0 1	1 2 1	1 1 0	3 3 2	1 3 5	
21	6 5 4	2 1 1	1 1 1	1 2 1	1 1 1	1 4 4	3 1 1	3 5 4	
22	4 3 2	0 1 1	1 1 1	1 1 1	0 1 1	2 2 2	3 4 3	3 3 2	
23	0 0 0	0 0 0	0 1 1	0 1 0	0 0 0	0 1 1	3 2 4	6 6 4	
24	2 2 1	1 0 0	0 1 0	0 0 0	0 0 0	0 0 0	0 0 0	1 2 1	
25	1 1 1	0 0 0	1 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	Q
26	0 0 0	0 0 0	0 0 0	0 0 0	1 1 0	0 0 0	0 2 3	2 0 0	
27	0 1 0	0 0 0	0 0 0	0 1 1	0 0 0	0 0 0	0 0 1	1 0 1	
28	1 1 1	2 0 0	0 0 1	1 1 1	1 1 1	1 1 1	0 0 0	2 3 3	
29	1 0 1	1 1 1	0 1 1	1 2 2	2 2 3	5 2 3	2 3 3	5 5 4	

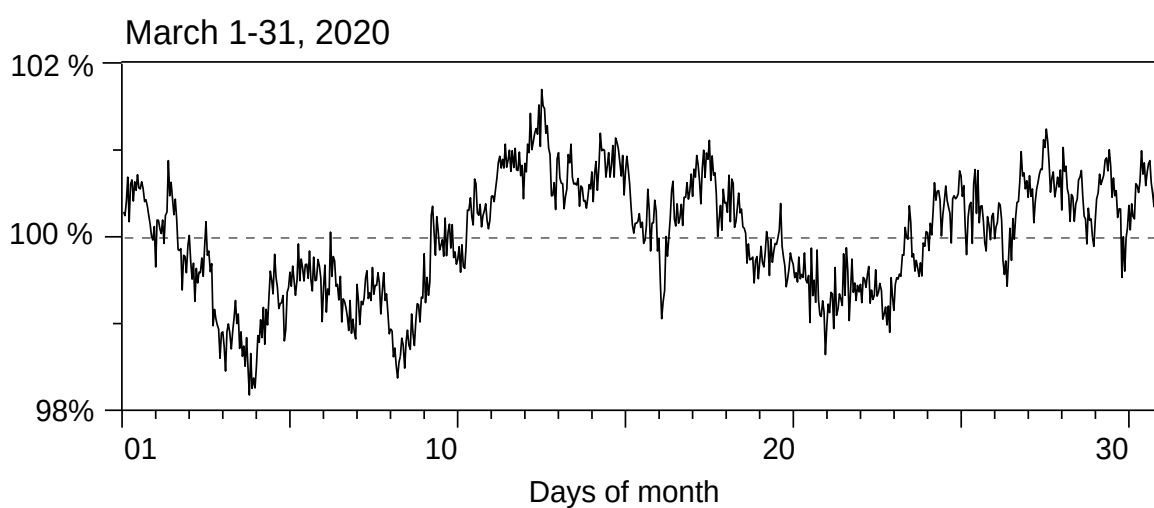
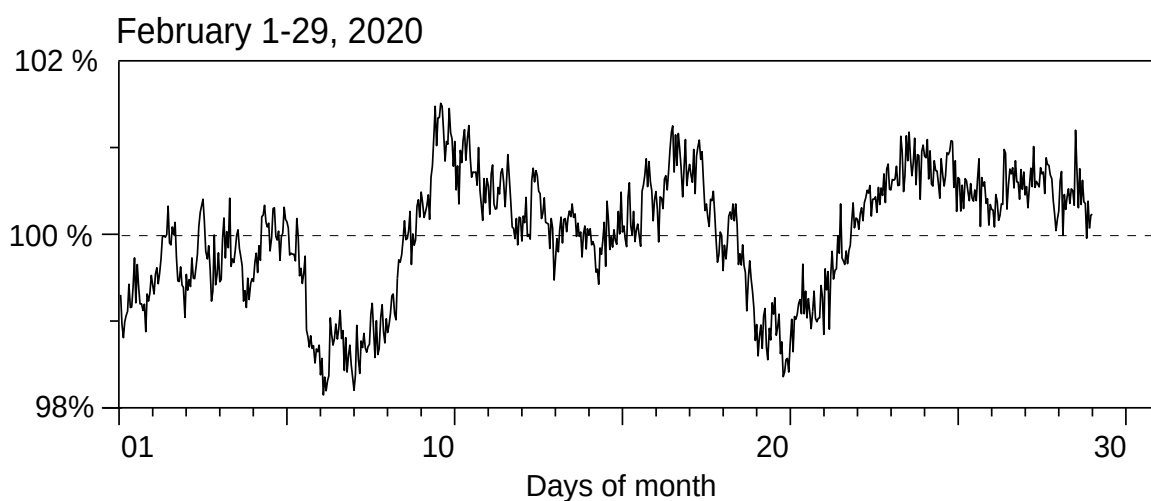
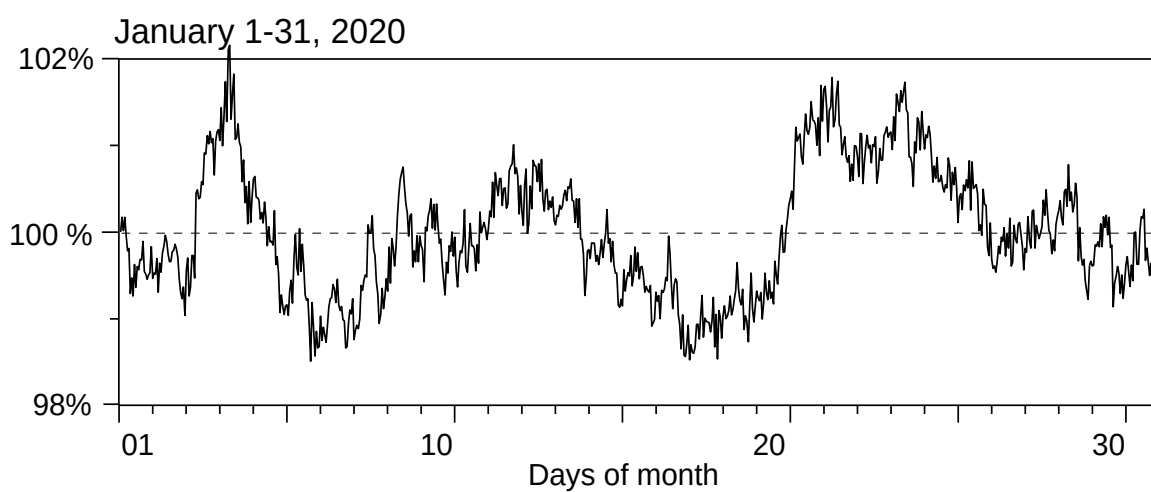
GEOMAGNETIC K-INDICES, LOVOZERO

Mach, 2020

Lower limit of K=9 is 1500 nT

Day	Time, UT								
	03	06	09	12	15	18	21	24	
1	4 4 3	0 0 1	1 0 1	1 1 1	1 0 0	0 0 0	0 0 0	0 1 1	
2	1 1 0	0 0 0	0 0 0	1 1 1	2 1 2	2 1 0	0 0 0	0 0 0	
3	1 2 2	0 0 0	0 0 1	1 0 1	1 1 2	2 0 2	1 0 0	3 3 0	
4	0 0 0	0 0 0	0 0 0	0 0 1	1 1 1	3 3 2	2 2 2	2 2 1	
5	0 0 0	0 0 0	0 0 0	0 1 0	1 0 0	0 0 0	0 0 0	0 0 0	Q
6	0 0 0	0 0 0	0 0 0	1 1 2	2 1 2	1 1 0	0 0 0	0 0 0	
7	0 0 0	0 0 1	1 1 2	1 0 1	1 1 0	0 0 0	0 0 0	0 0 0	
8	0 0 0	0 0 1	1 1 0	1 1 0	1 1 1	2 2 1	0 0 3	4 2 0	
9	0 0 0	0 0 0	1 1 0	1 1 1	0 0 0	0 1 3	3 1 1	2 2 1	
10	2 1 0	0 1 1	1 1 1	0 0 0	1 0 0	0 0 0	0 0 0	0 0 2	
11	1 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	Q
12	0 0 1	1 0 0	1 1 1	1 0 0	1 1 1	1 1 4	4 3 2	1 0 0	
13	0 0 2	2 2 1	1 1 1	1 1 1	0 0 0	0 0 2	1 2 1	0 1 0	
14	0 0 0	0 0 0	0 1 0	0 0 0	0 0 0	0 0 0	1 1 1	1 0 0	
15	0 0 0	0 0 0	0 0 1	1 1 1	1 1 0	0 0 0	2 2 2	1 2 3	
16	3 3 1	0 1 0	1 0 0	0 1 1	1 1 2	1 2 2	3 1 1	1 0 0	
17	1 1 0	0 0 1	1 1 1	1 1 1	1 1 1	1 1 1	0 0 2	3 3 0	
18	0 0 0	0 0 0	0 0 0	1 1 1	1 1 1	0 1 4	3 3 1	1 0 1	
19	6 5 3	2 1 1	1 1 1	1 1 2	2 2 2	2 1 1	1 1 0	1 1 3	
20	4 3 0	0 1 -	- - -	- - -	1 1 1	2 3 3	3 4 5	5 6 6	
21	2 1 1	1 1 1	2 1 2	1 1 1	1 1 1	0 2 2	2 2 2	2 1 1	
22	0 2 3	1 1 1	2 1 1	1 1 1	1 0 1	0 0 1	3 4 3	4 4 3	
23	3 3 3	2 2 1	1 2 1	1 1 2	2 2 2	2 2 2	2 4 5	2 0 3	
24	4 4 1	1 1 1	1 1 1	1 1 1	0 0 0	0 0 0	0 0 0	0 0 0	
25	1 1 0	0 1 1	1 1 1	0 0 1	1 1 0	0 0 0	0 1 1	1 1 0	Q
26	0 0 0	0 1 1	1 1 1	1 1 1	1 0 1	1 1 2	0 0 0	0 3 3	
27	3 2 1	1 1 1	2 1 1	1 1 0	1 0 0	1 1 3	2 1 0	0 0 0	
28	0 0 0	0 1 1	2 1 1	1 1 1	1 1 0	0 0 0	0 2 3	5 3 3	
29	0 0 0	0 0 1	1 1 2	2 1 1	2 2 3	1 4 3	0 1 3	3 2 3	
30	3 2 1	1 1 1	1 1 1	1 1 1	1 1 1	1 2 4	4 4 5	5 6 5	
31	5 5 5	4 3 2	2 2 2	1 1 2	3 3 3	3 3 2	2 5 5	3 2 0	

Apatity neutron monitor



ALL – SKY CAMERA OBSERVATIONS

January - March 2020

[illegible][illegible][illegible][illegible][illegible][illegible][illegible]

[illegible][illegible][illegible][illegible][illegible][illegible][illegible]

CALENDAR OF TV OBSERVATIONS

January22- 23

[illegible]

January 23 - 24

[illegible]

January 24 - 25

[illegible]

January 25 - 26

[illegible]

January 26 -27

[illegible]

January 27 - 28

[illegible]

January 28 - 29

[illegible]

January 30 - 31

January31[illegible]

CALENDAR OF TV OBSERVATIONS

February22- 23

[illegible]

February23 - 24

[illegible]

February 24 - 25

[illegible]

February 25 - 26

[illegible]

February 26 -27

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

February 27 - 28

[illegible]

February28

[illegible]

CALENDAR OF TV OBSERVATIONS

March 08 - 09

[illegible]

March 09 - 10

[illegible]

March 10 -11

[illegible]

March 11 - 12

[illegible]

March 12 - 13

[illegible]

March 13 - 14

[illegible]

March 14- 15

[illegible]

CALENDAR OF TV OBSERVATIONS

March 29 - 30

[illegible]

March 30 - 31

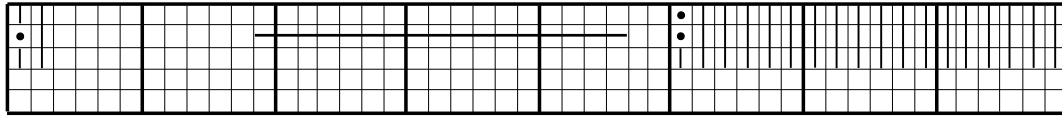
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March 31

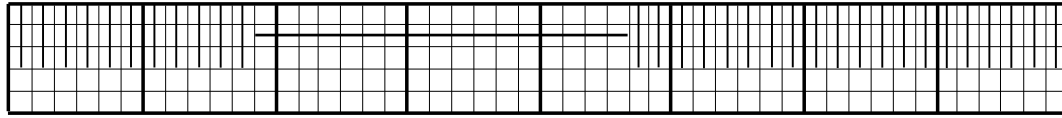
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Apatity ascaplots

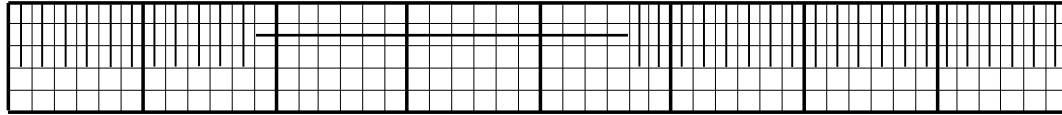
Jan. 01, 2020



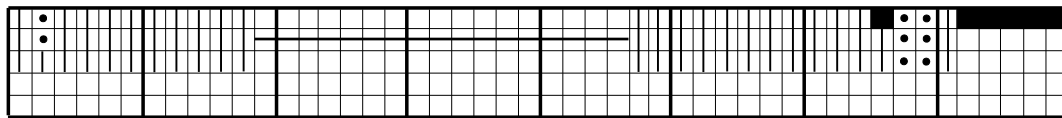
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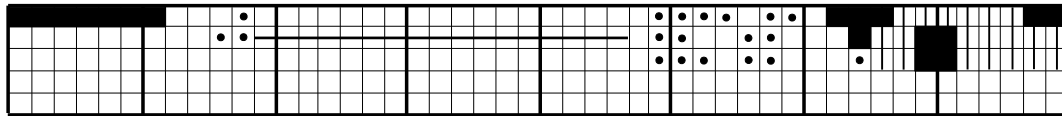
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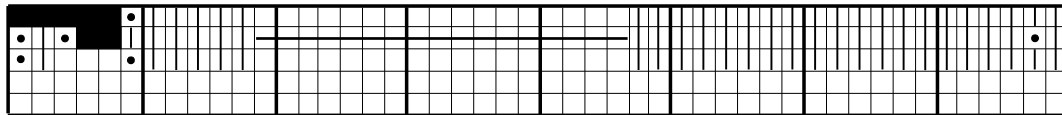
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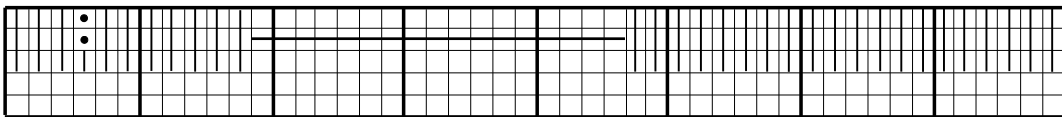
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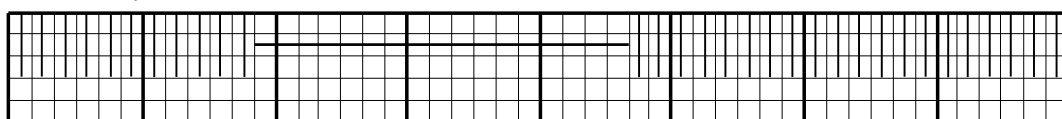
Jan. 06, 2020



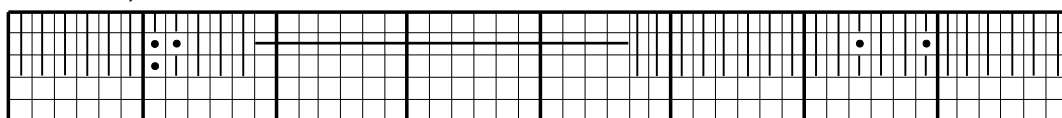
Jan. 07, 2020



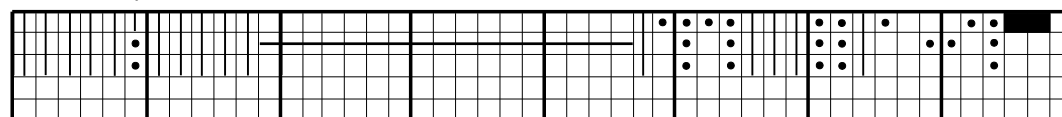
Jan. 08, 2020



Jan. 09, 2020



Jan. 10, 2020



00

06

12

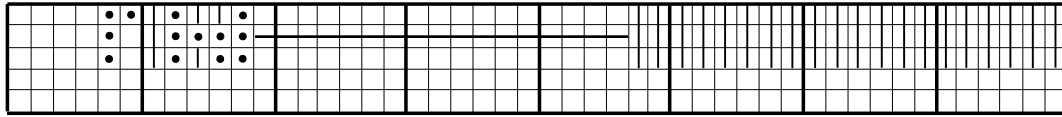
18

24

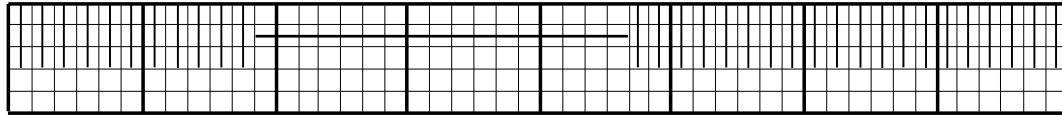
Universal Time

Apatity ascaplots

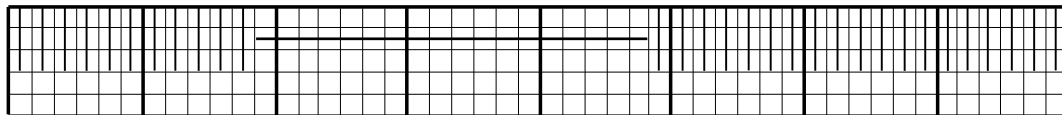
Jan. 11, 2020



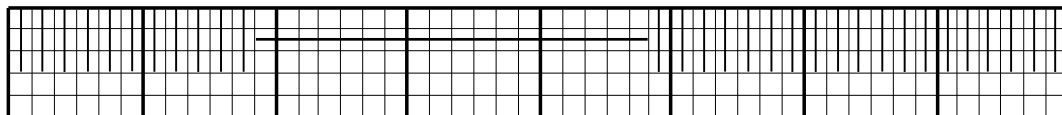
Jan. 12, 2020



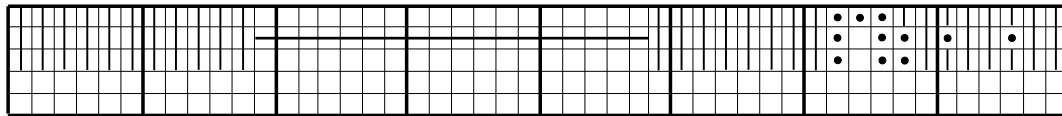
Jan. 13, 2020



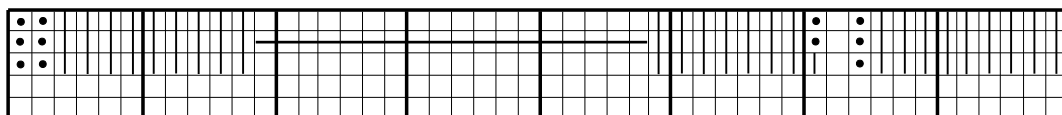
Jan. 14, 2020



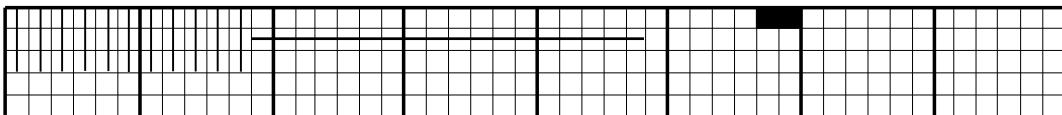
Jan. 15, 2020



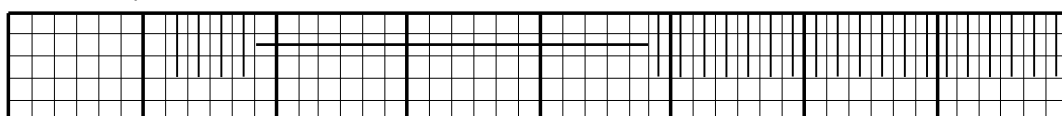
Jan. 16, 2020



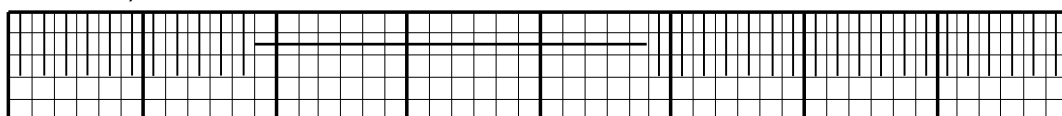
Jan. 17, 2020



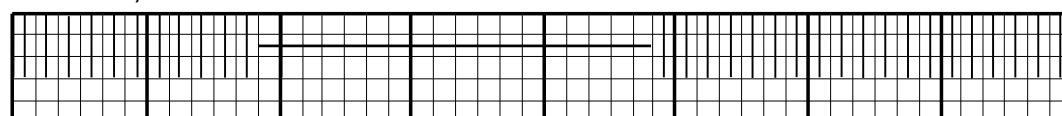
Jan. 18, 2020



Jan. 19, 2020



Jan. 20, 2020



00

06

12

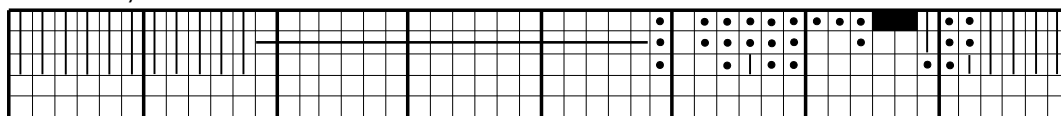
18

24

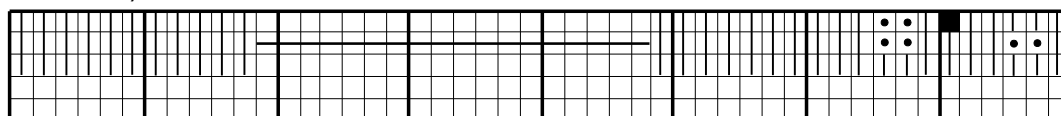
Universal Time

Apatity ascaplots

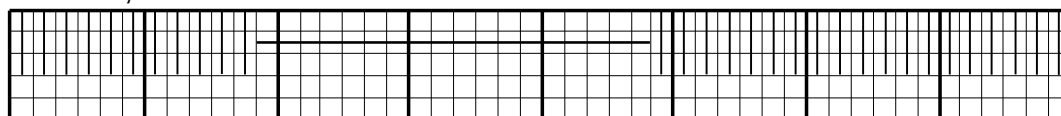
Jan. 21, 2020



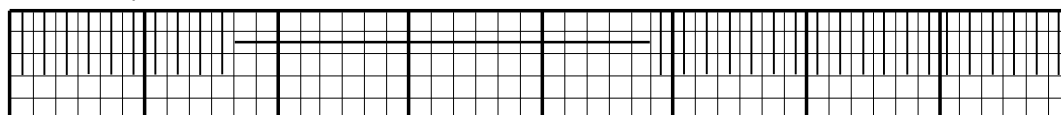
Jan. 22, 2020



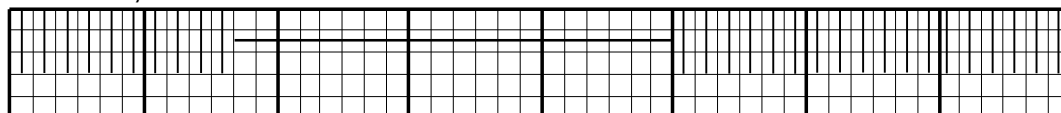
Jan. 23, 2020



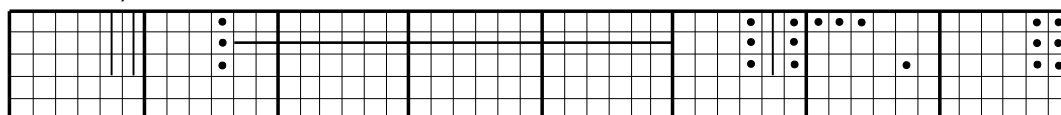
Jan. 24, 2020



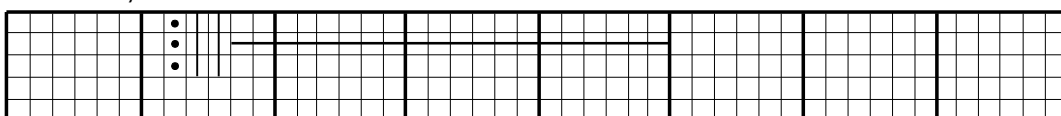
Jan. 25, 2020



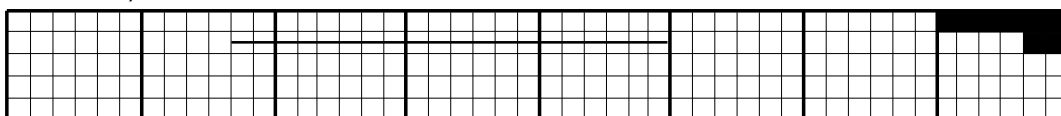
Jan. 26, 2020



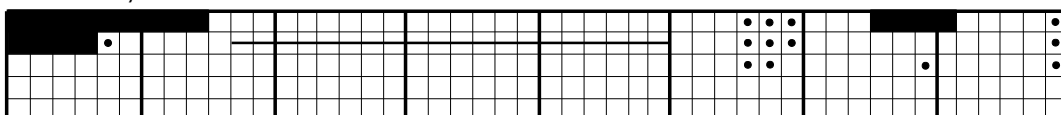
Jan. 27, 2020



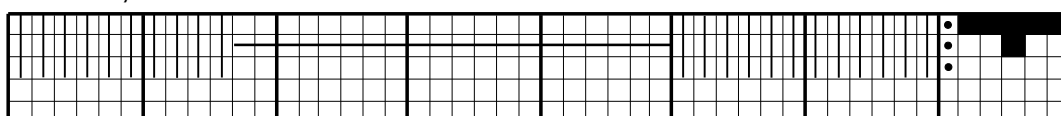
Jan. 28, 2020



Jan. 29, 2019



Jan. 30, 2020



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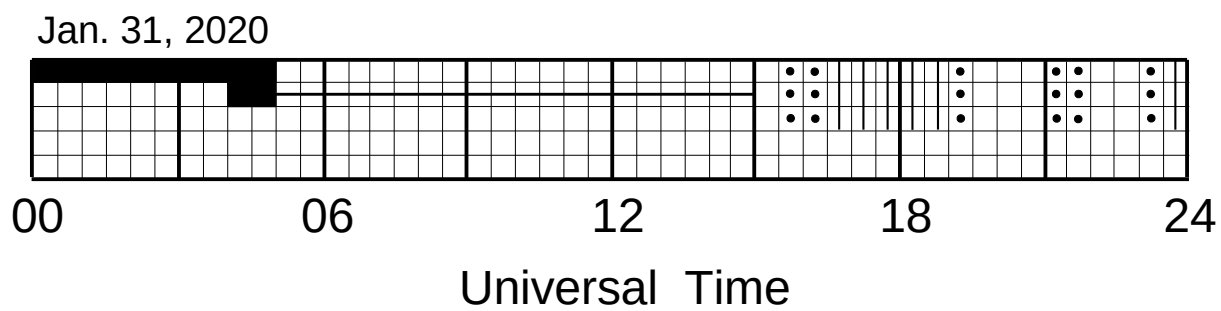
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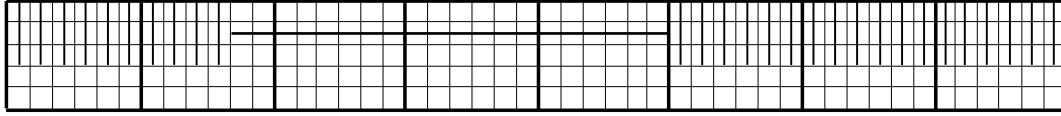
Universal Time

Apatity ascaplots

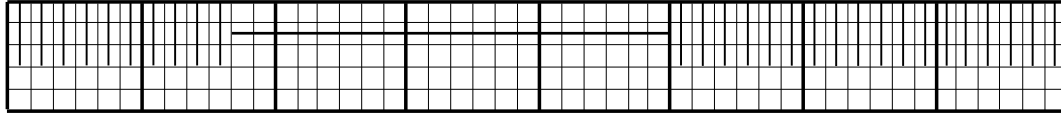


Apatity ascaplots

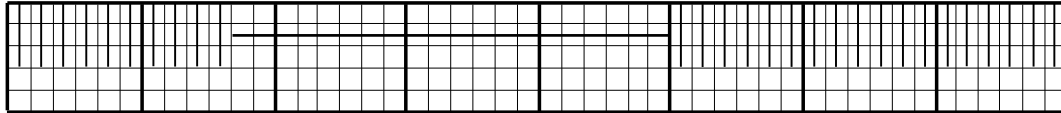
Feb. 01, 2020



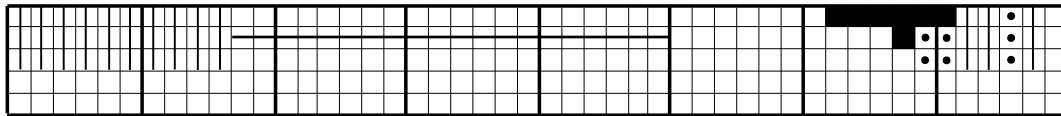
Feb. 02, 2020



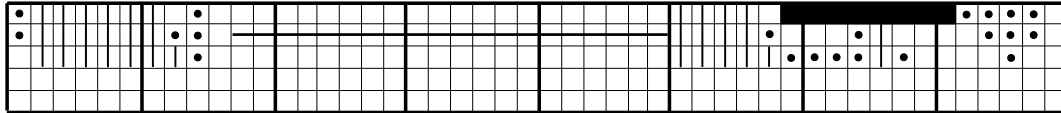
Feb. 03, 2020



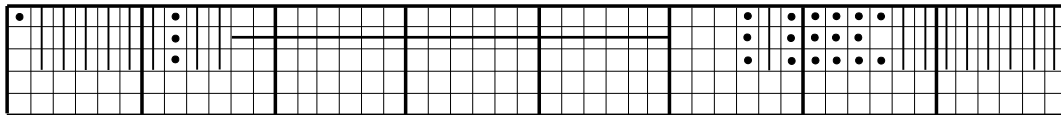
Feb. 04, 2020



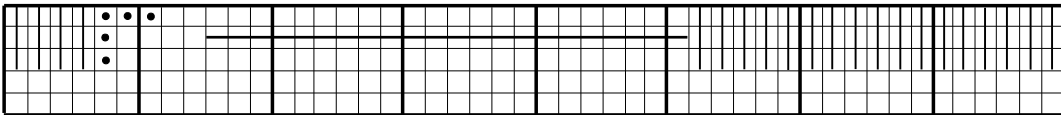
Feb. 05, 2020



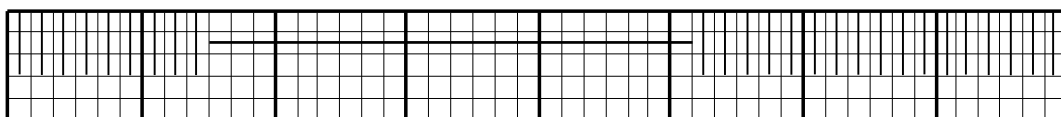
Feb. 06, 2020



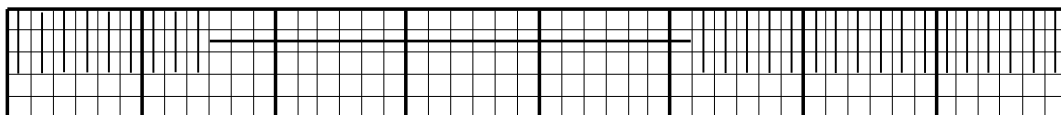
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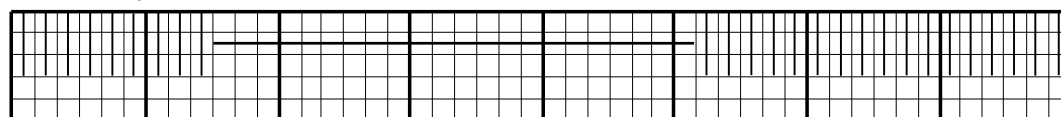
Feb. 08, 2020



Feb. 09, 2020



Feb. 10, 2020

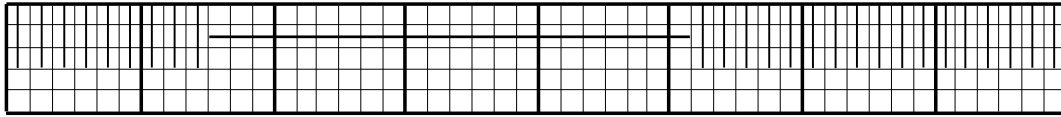


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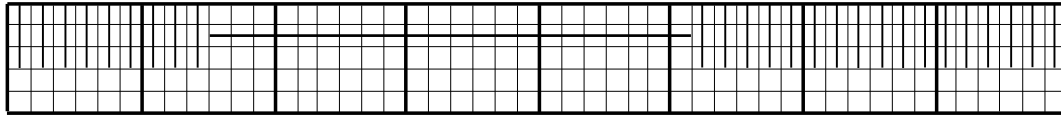
Universal Time

Apatity ascaplots

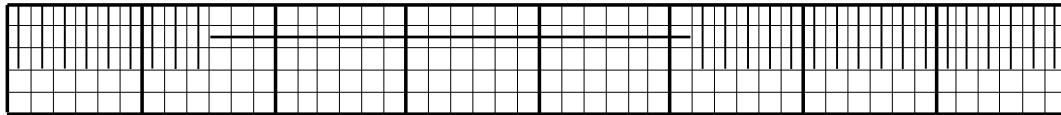
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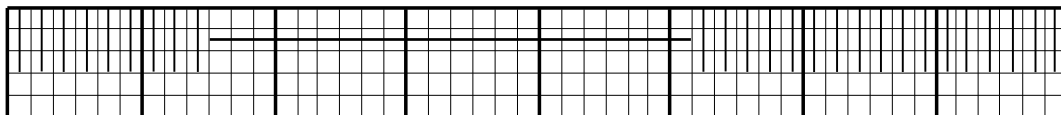
Feb. 12, 2020



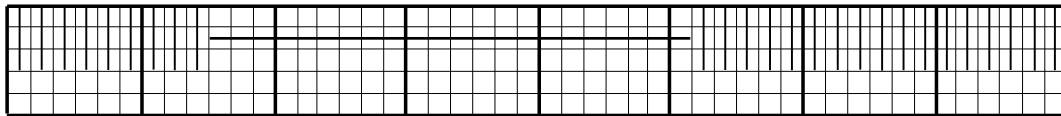
Feb. 13, 2020



Feb. 14, 2020



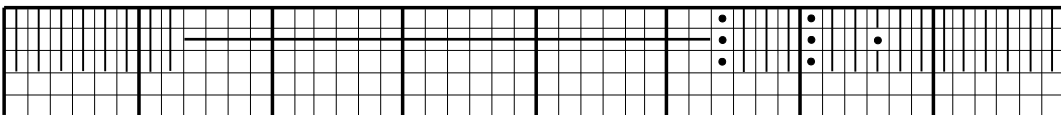
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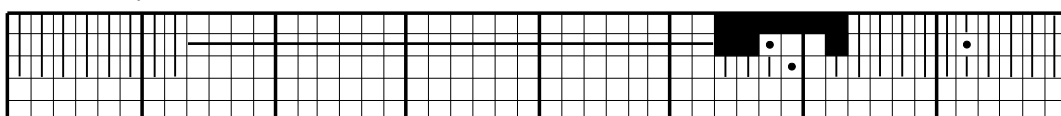
Feb. 16, 2020



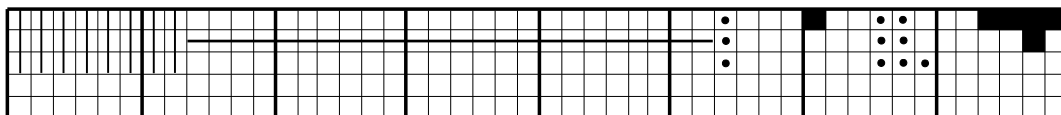
Feb. 17, 2020



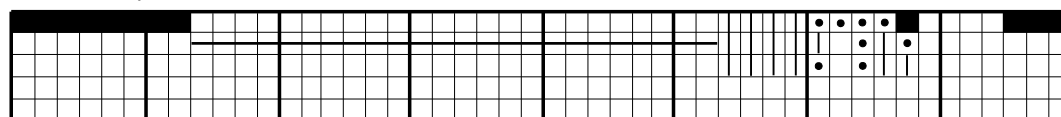
Feb. 18, 2020



Feb. 19, 2020



Feb. 20, 2020



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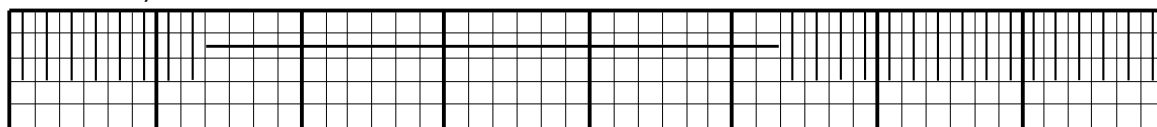
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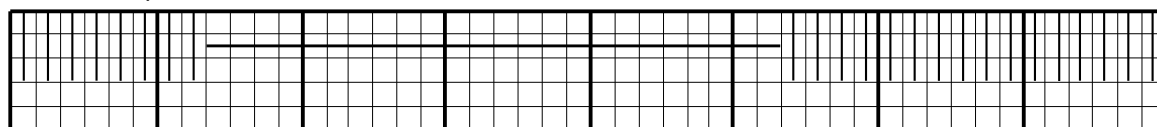
Universal Time

Apatity ascaplots

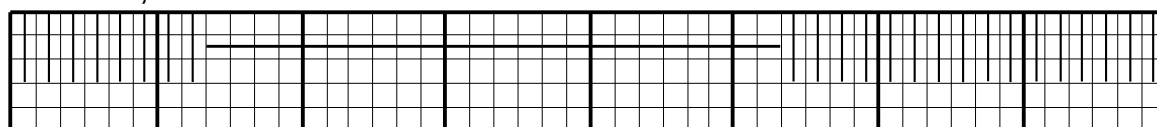
Feb. 21, 2020



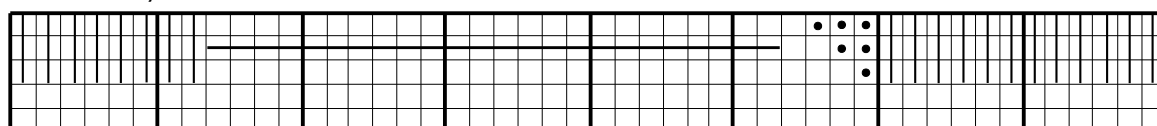
Feb. 22, 2020



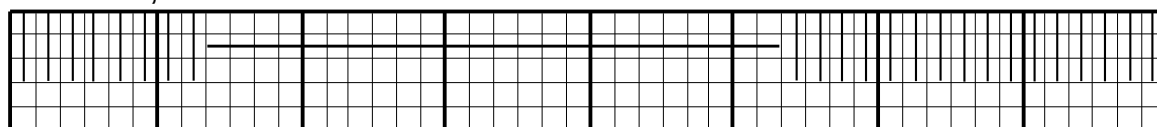
Feb. 23, 2020



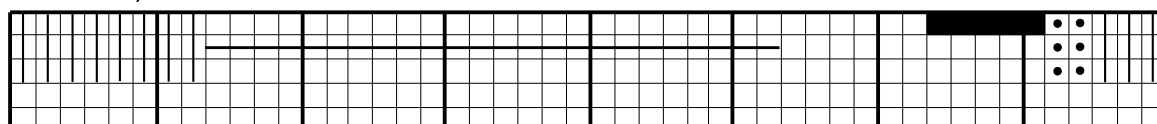
Feb. 24, 2020



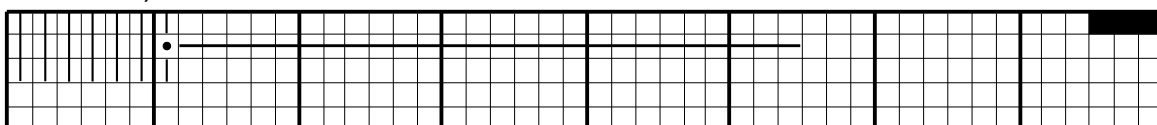
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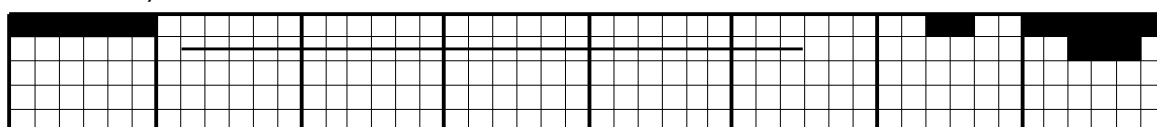
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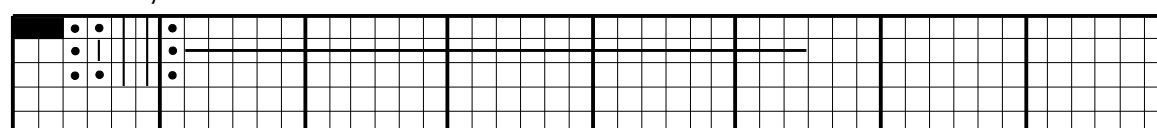
Feb. 27, 2020



Feb. 28, 2020



Feb. 29, 2020



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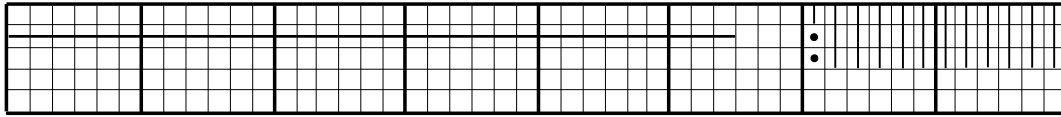
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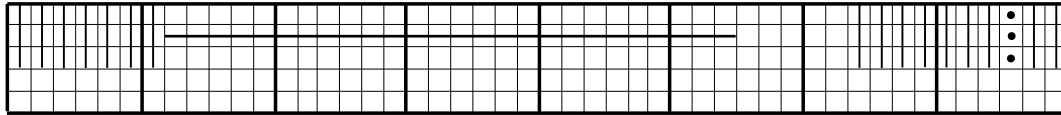
Universal Time

Apatity ascaplots

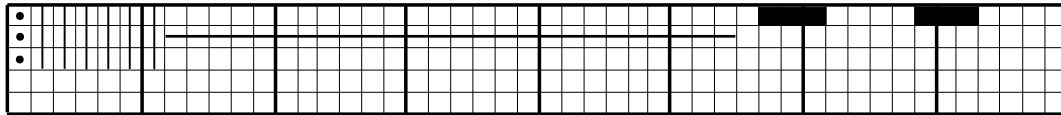
Mar. 01, 2020



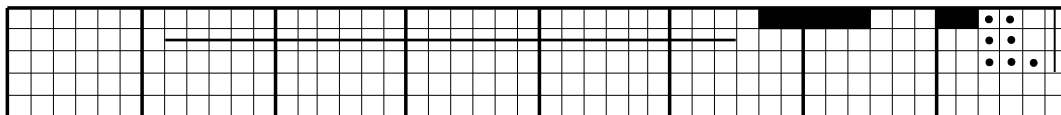
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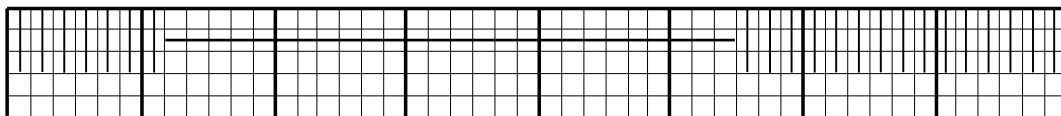
Mar. 03, 2020



Mar. 04, 2020



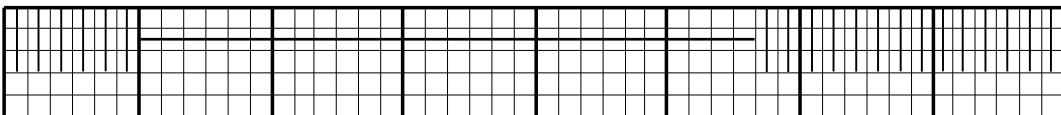
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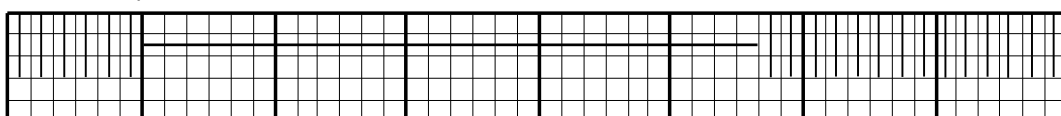
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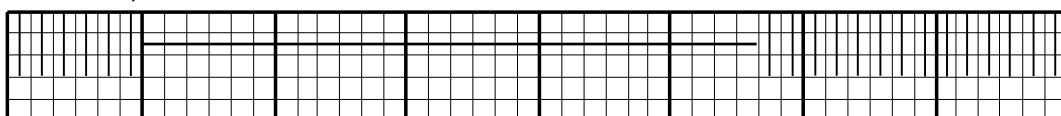
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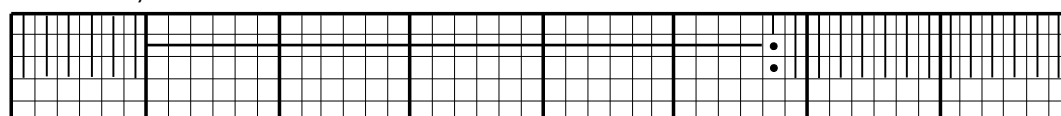
Mar. 08, 2020



Mar. 09, 2020



Mar. 10, 2020

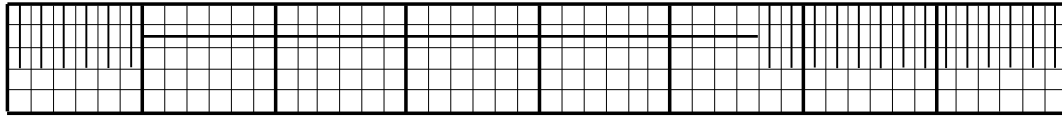


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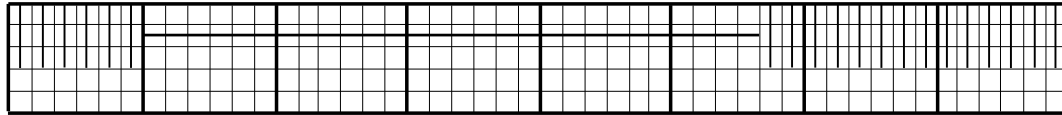
Universal Time

Apatity ascaplots

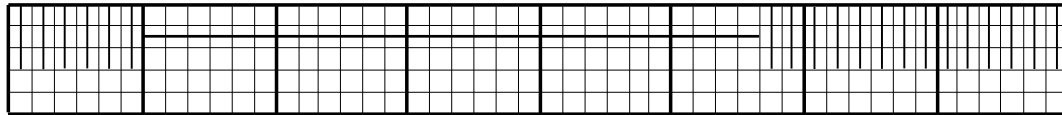
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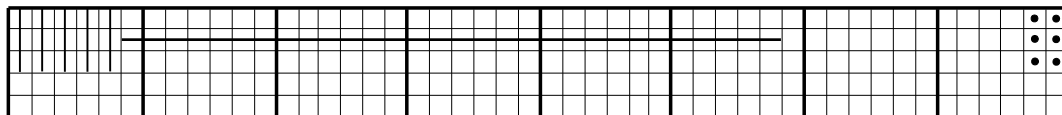
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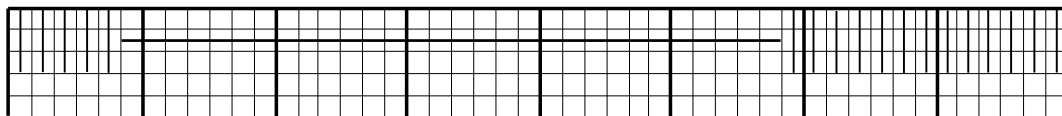
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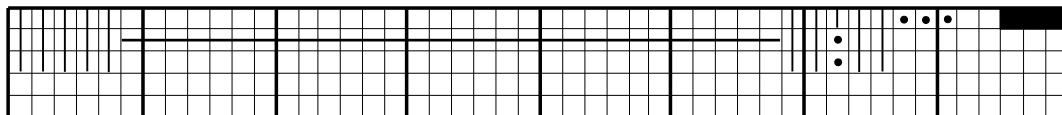
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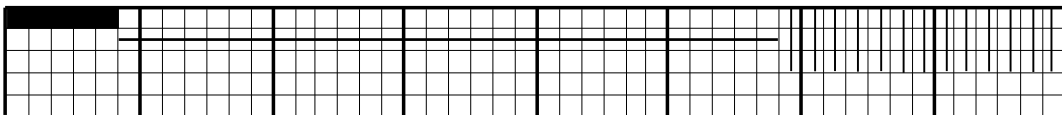
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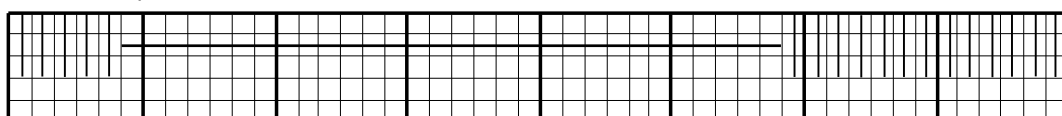
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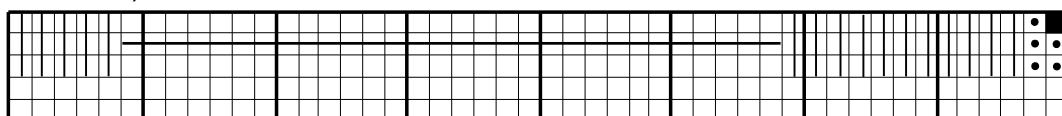
Mar. 17, 2020



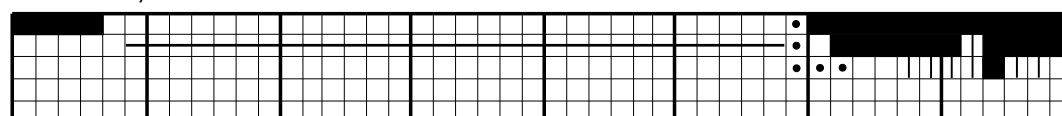
Mar. 18, 2020



Mar. 19, 2020



Mar. 20, 2020



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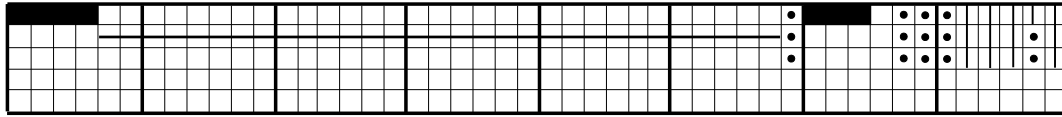
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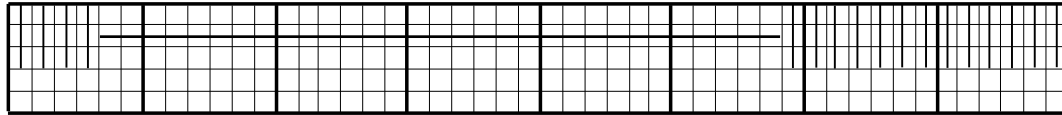
Universal Time

Apatity ascaplots

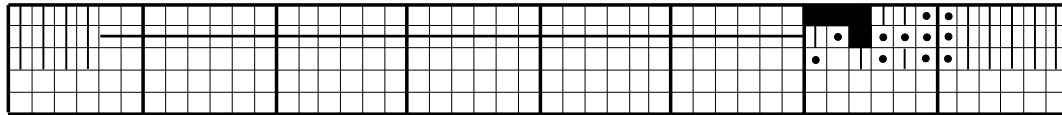
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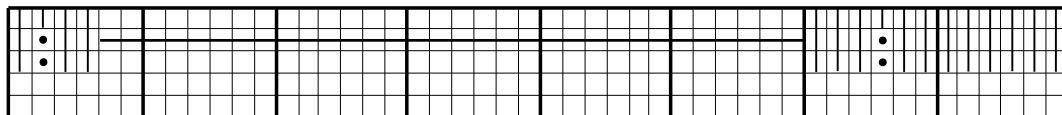
Mar. 22, 2020



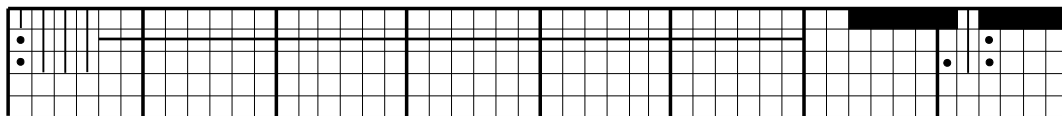
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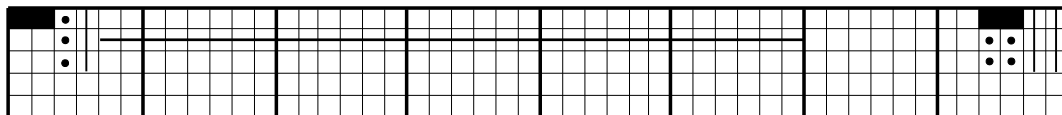
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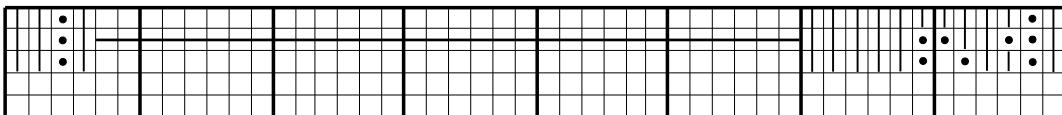
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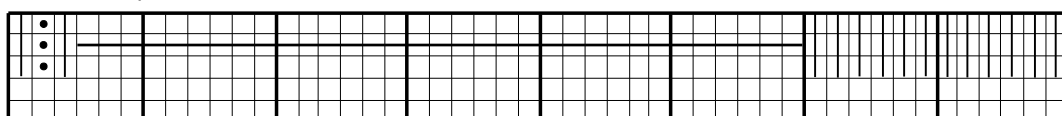
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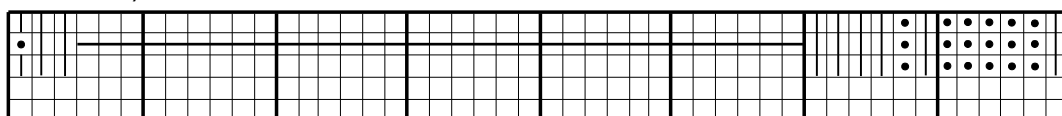
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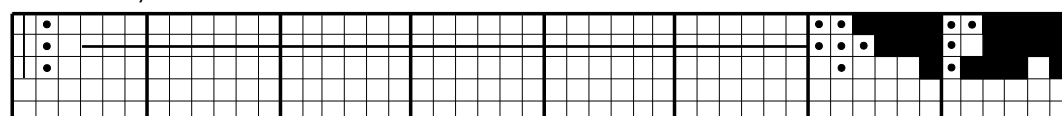
Mar. 28, 2020



Mar. 29, 2020



Mar. 30, 2020



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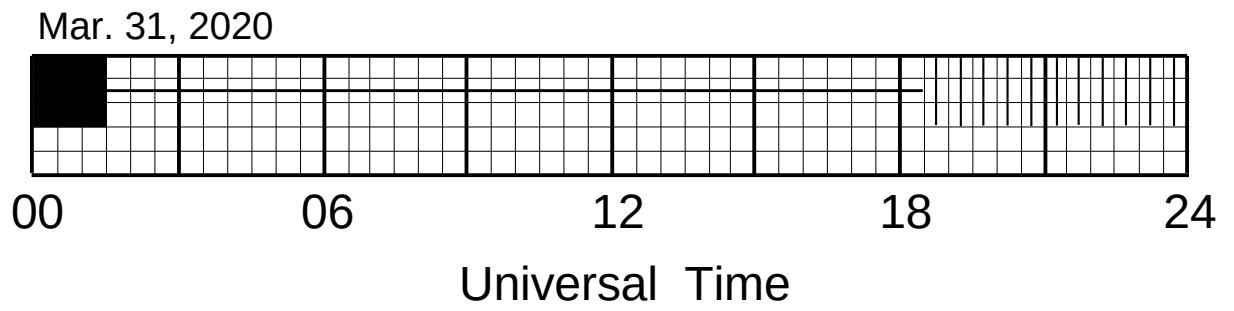
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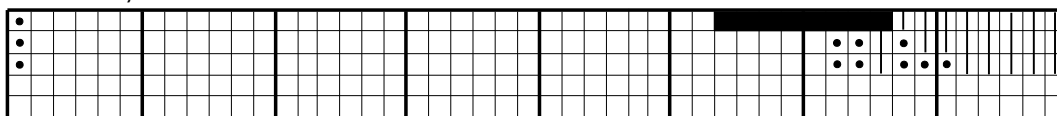
Universal Time

Apatity ascaplots

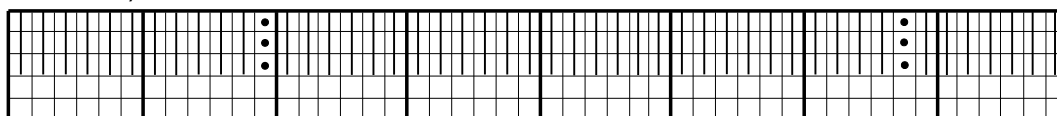


Lovozero ascaplots

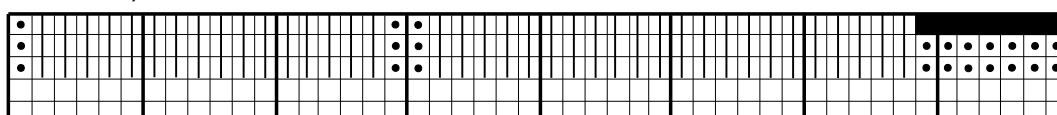
Jan. 01, 2020



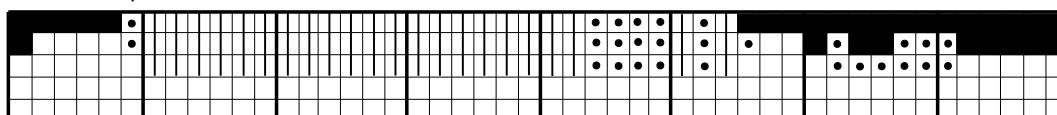
Jan. 02, 2020



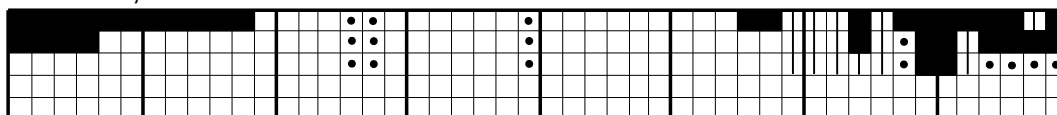
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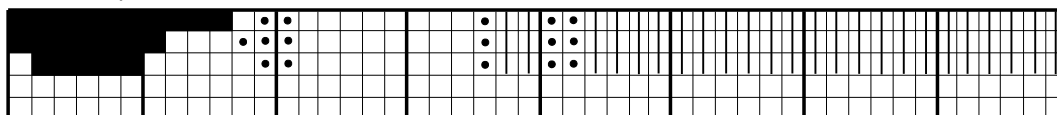
Jan. 04, 2020



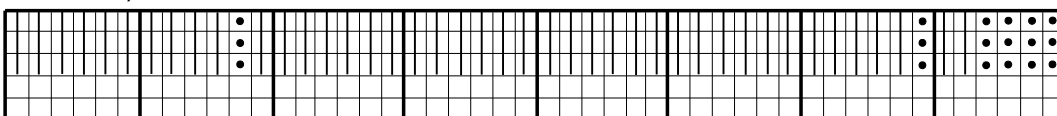
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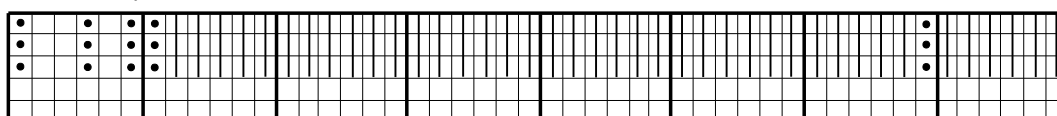
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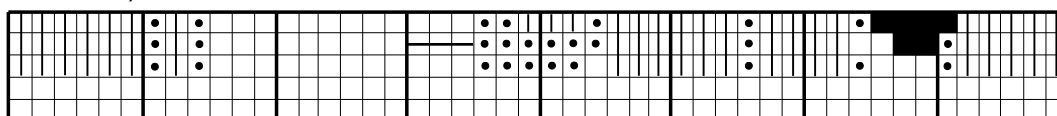
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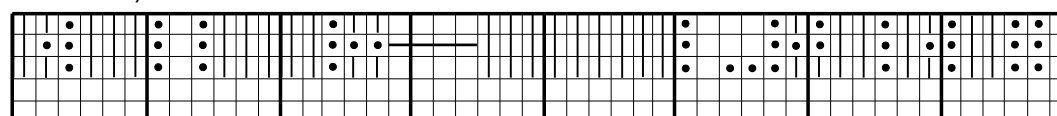
Jan. 08, 2020



Jan. 09, 2020



Jan. 10, 2020



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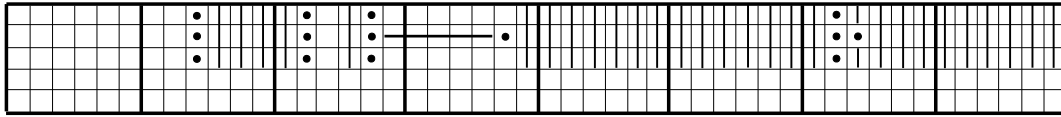
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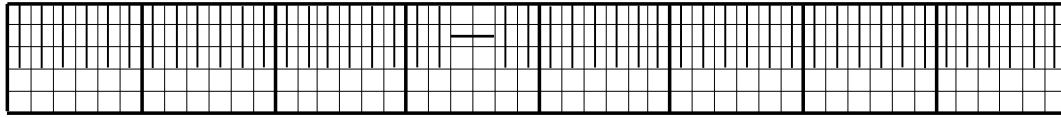
Universal Time

Lovozero ascaplots

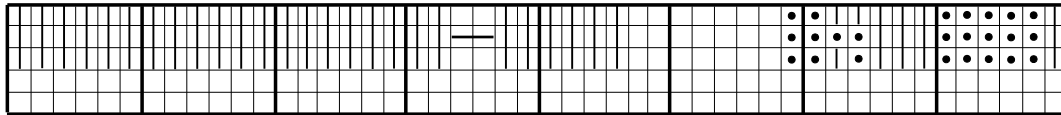
Jan. 11, 2020



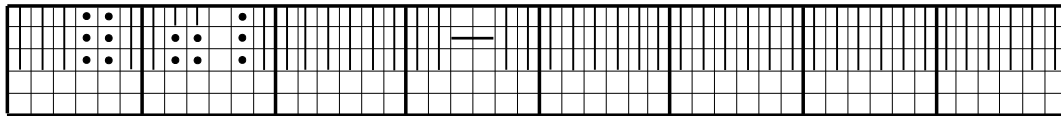
Jan. 12, 2020



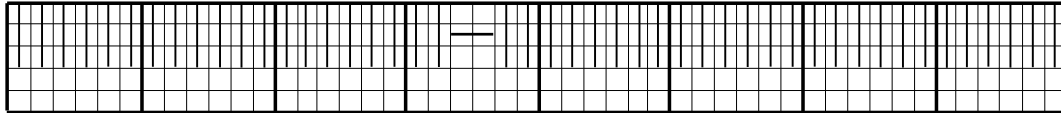
Jan. 13, 2020



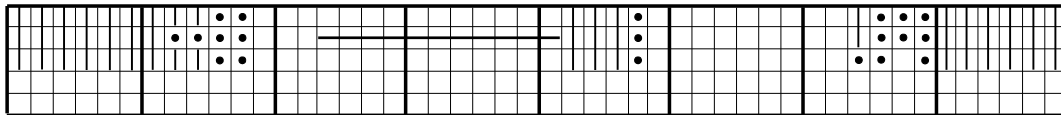
Jan. 14, 2020



Jan. 15, 2020



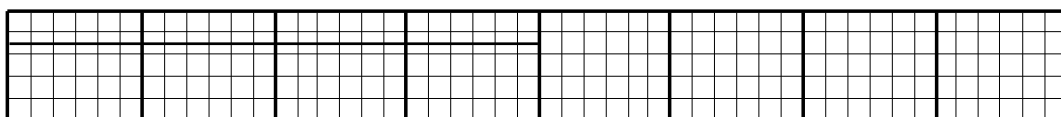
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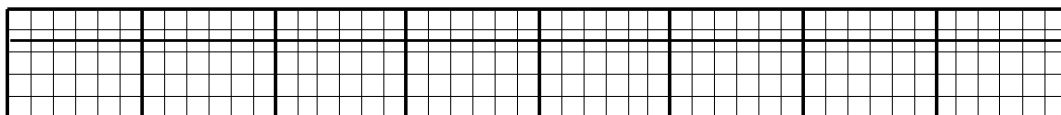
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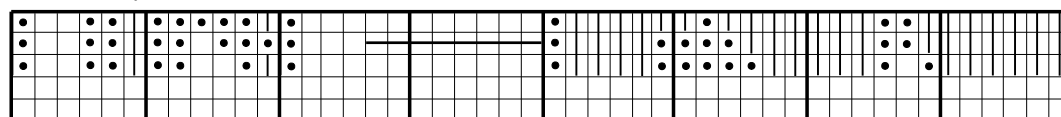
Jan. 18, 2020



Jan. 19, 2020



Jan. 20, 2020



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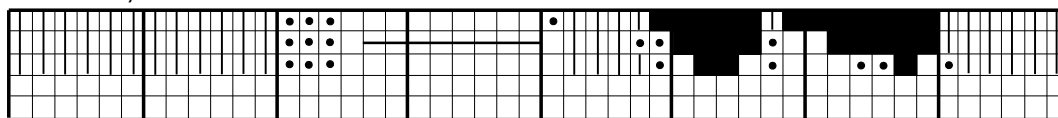
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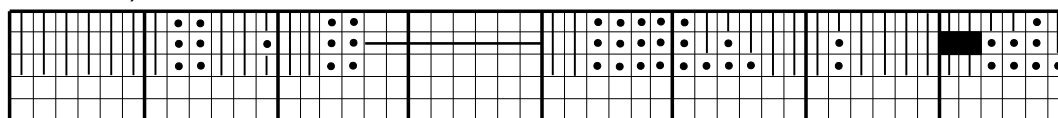
Universal Time

Lovozero ascaplots

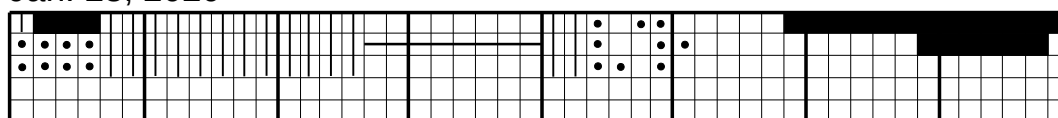
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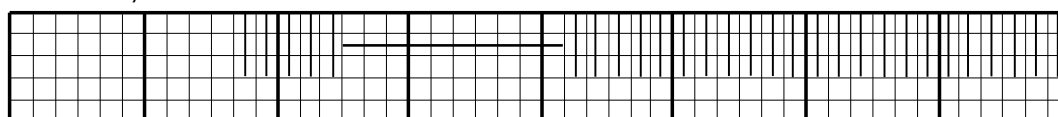
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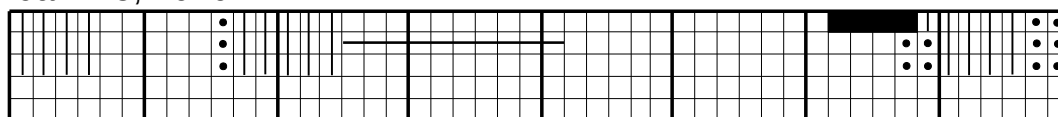
Jan. 23, 2020



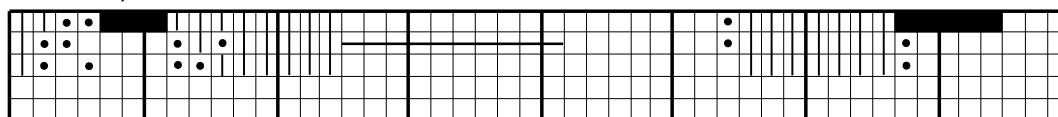
Jan. 24, 2020



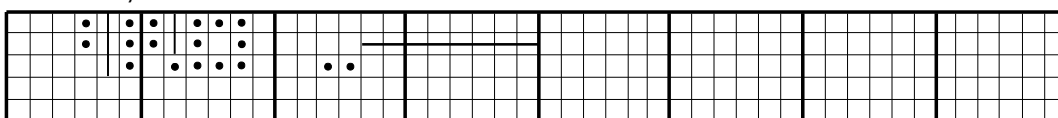
Jan. 25, 2020



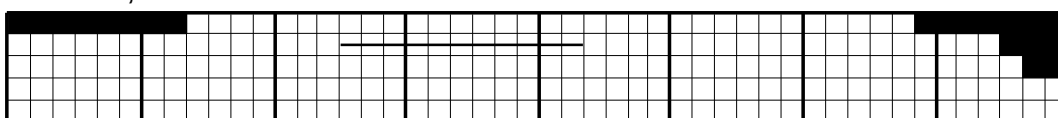
Jan. 26, 2020



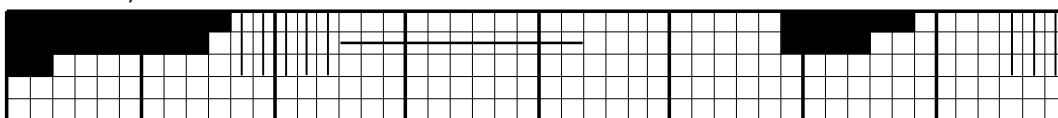
Jan. 27, 2020



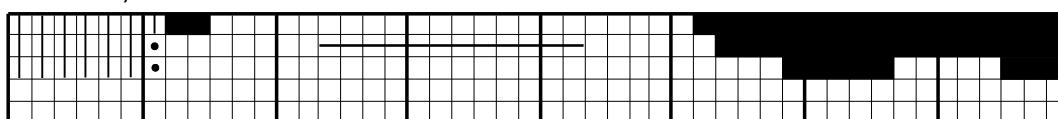
Jan. 28, 2020



Jan. 29, 2020



Jan. 30, 2020

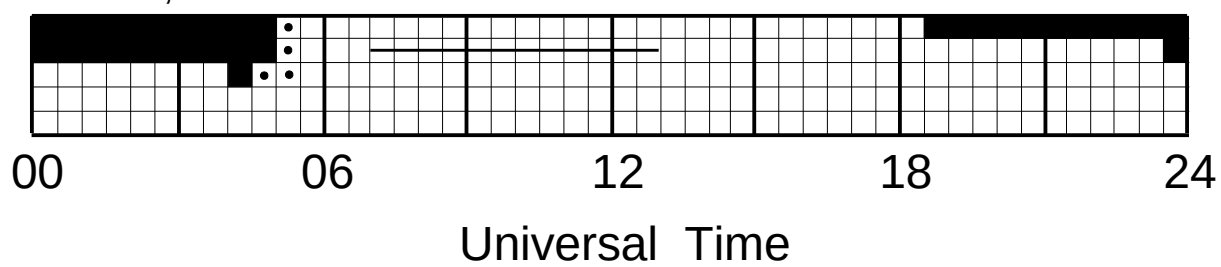


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Universal Time

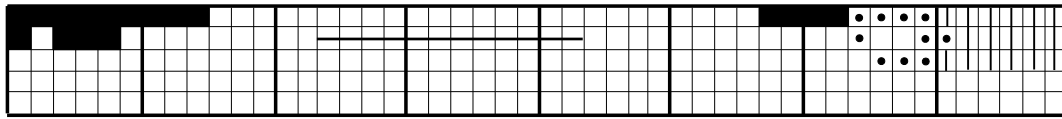
Lovozero ascaplots

Jan. 31, 2020

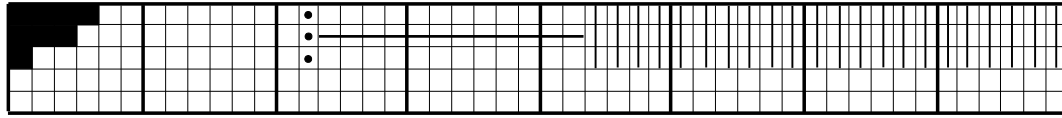


Lovozero ascaplots

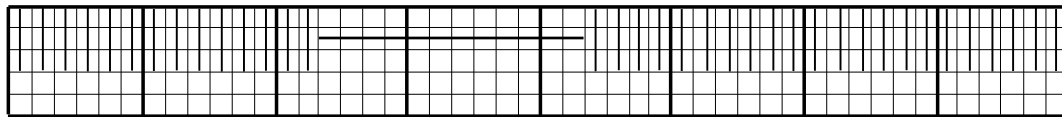
Feb. 01, 2020



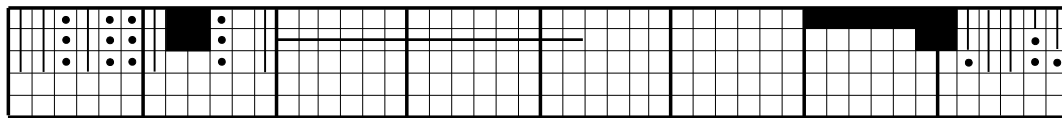
Feb. 02, 2020



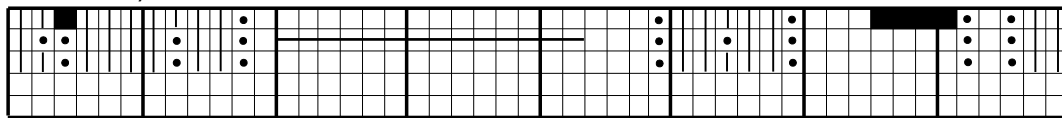
Feb. 03, 2020



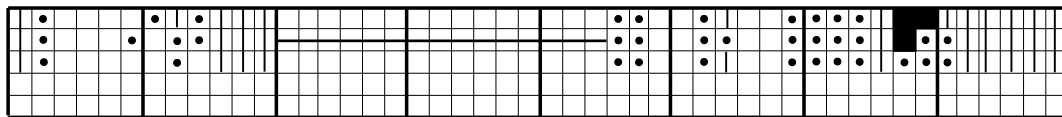
Feb. 04, 2020



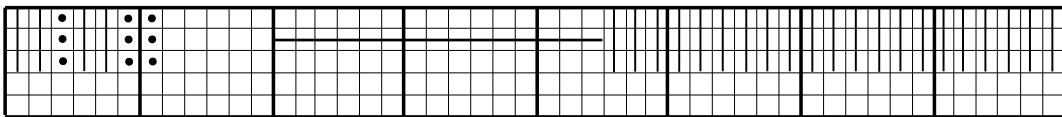
Feb. 05, 2020



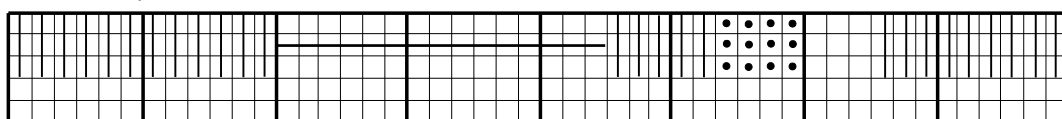
Feb. 06, 2020



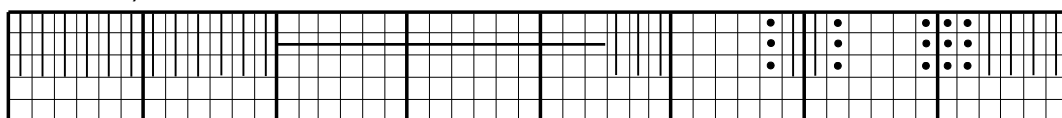
Feb. 07, 2020



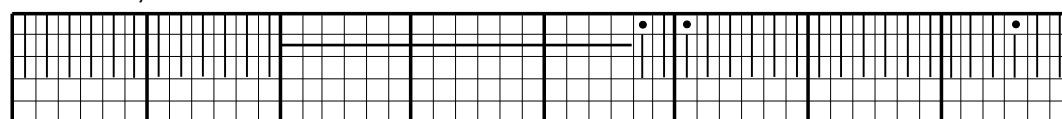
Feb. 08, 2020



Feb. 09, 2020



Feb. 10, 2020



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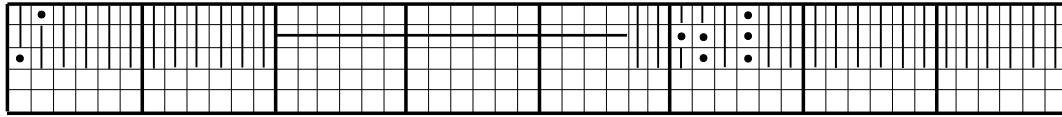
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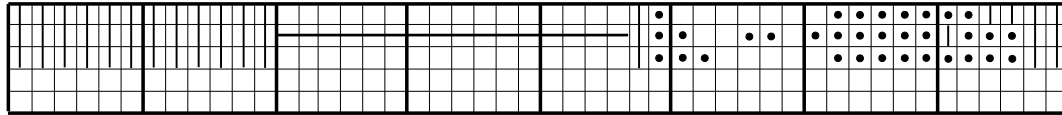
Universal Time

Lovozero ascaplots

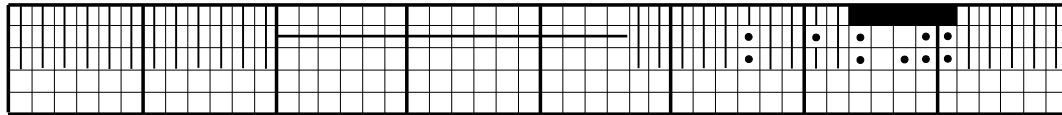
Feb. 11, 2020



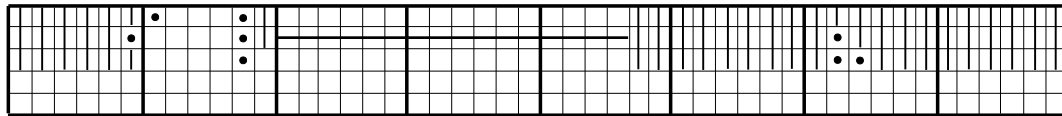
Feb. 12, 2020



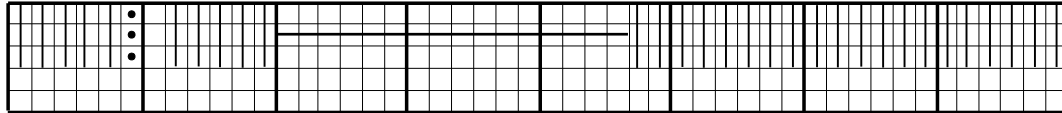
Feb. 13, 2020



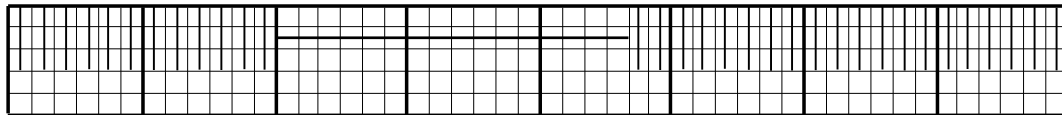
Feb. 14, 2020



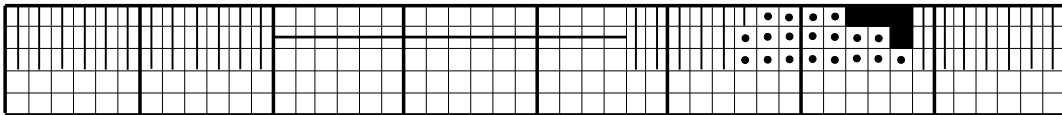
Feb. 15, 2020



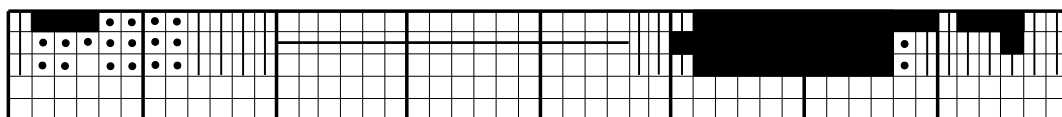
Feb. 16, 2020



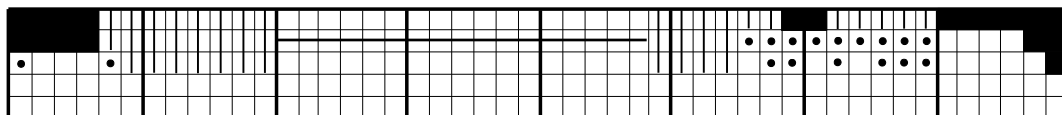
Feb. 17, 2020



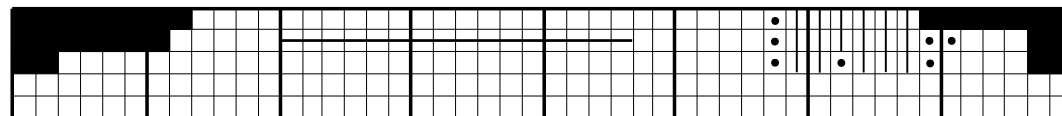
Feb. 18, 2020



Feb. 19, 2020



Feb. 20, 2020

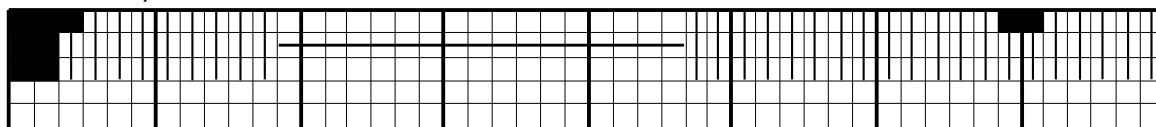


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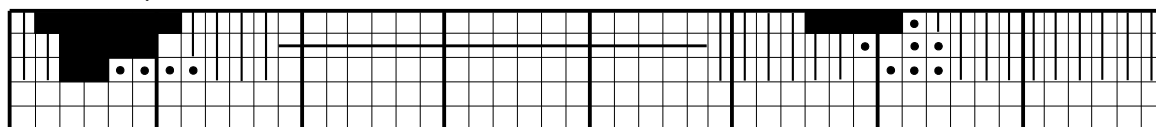
Universal Time

Lovozero ascaplots

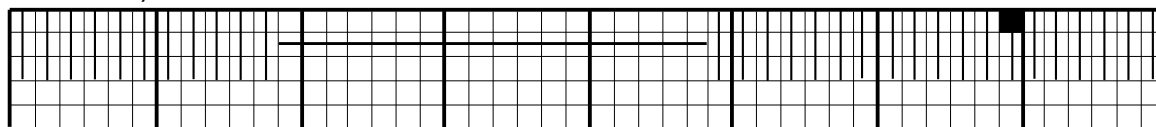
Feb. 21, 2020



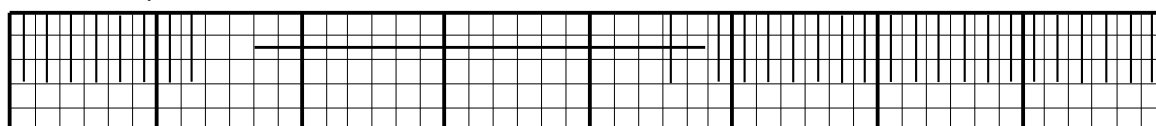
Feb. 22, 2020



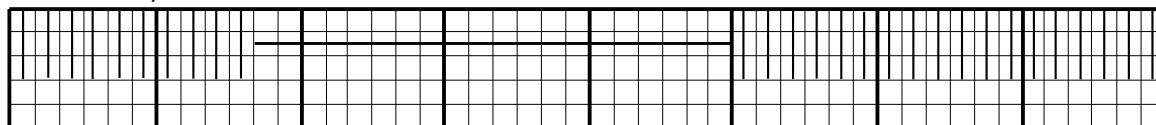
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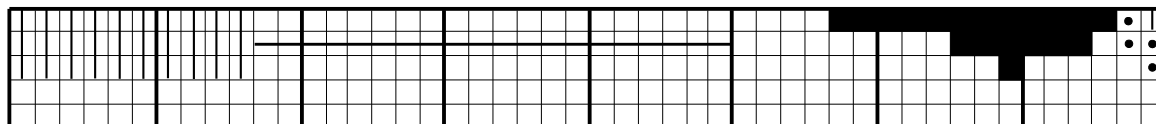
Feb. 24, 2020



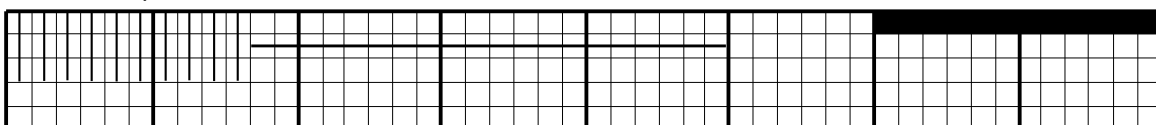
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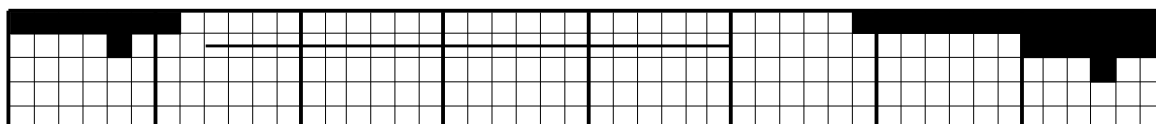
Feb. 26, 2020



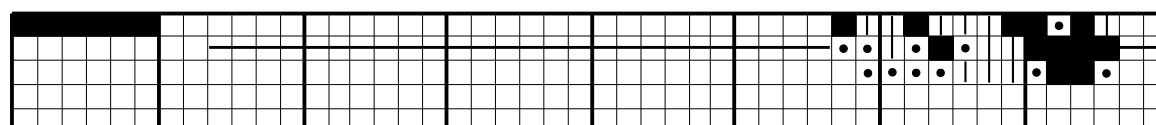
Feb. 27, 2020



Feb. 28, 2020



Feb. 29, 2020

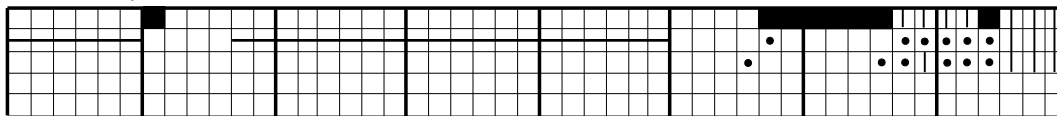


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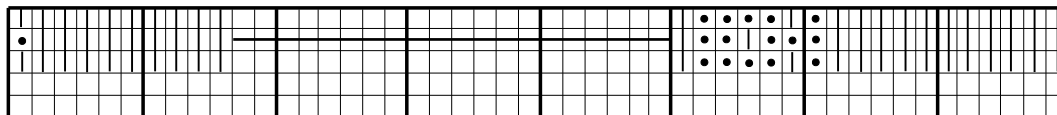
Universal Time

Lovozero ascaplots

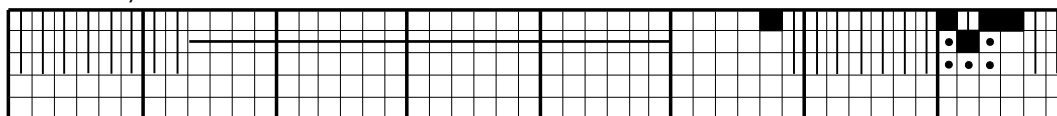
Mar. 01, 2020



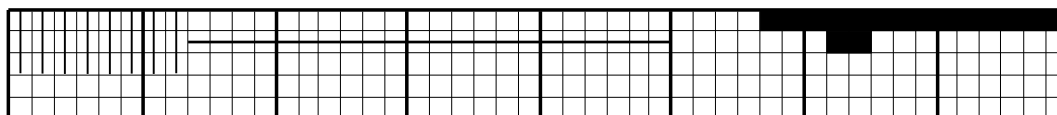
Mar. 02, 2020



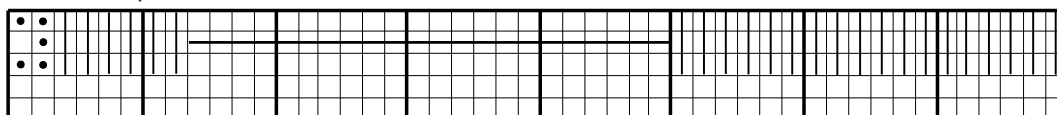
Mar. 03, 2020



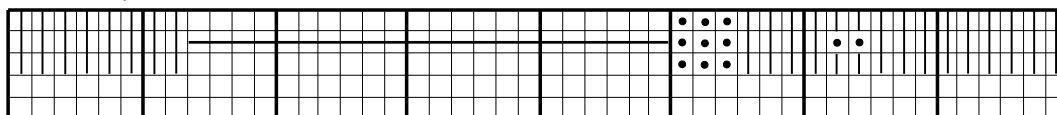
Mar. 04, 2020



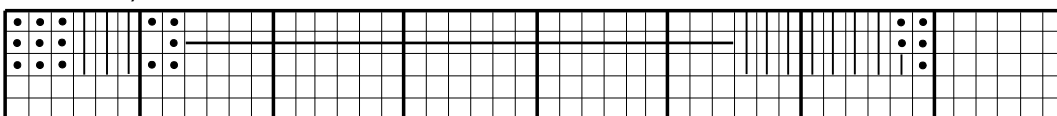
Mar. 05, 2020



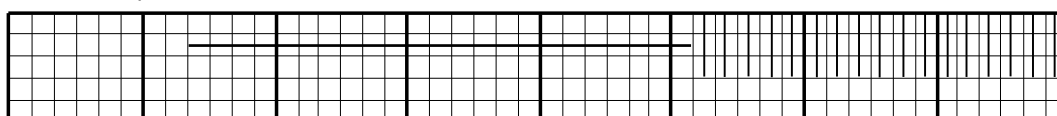
Mar. 06, 2020



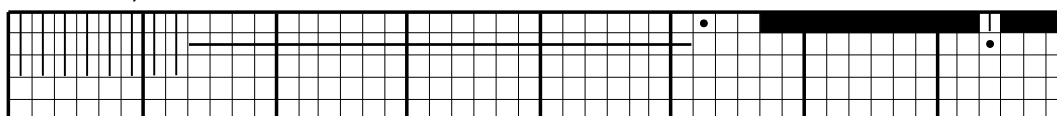
Mar. 07, 2020



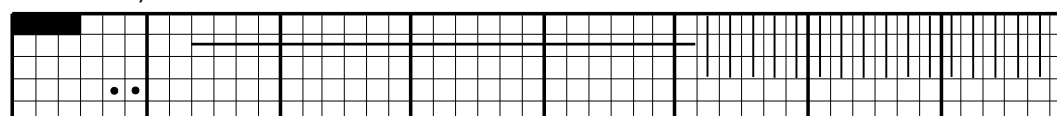
Mar. 08, 2020



Mar. 09, 2020



Mar. 10, 2020



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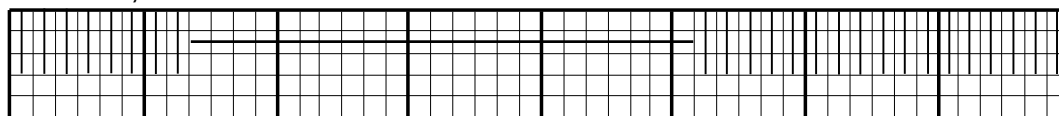
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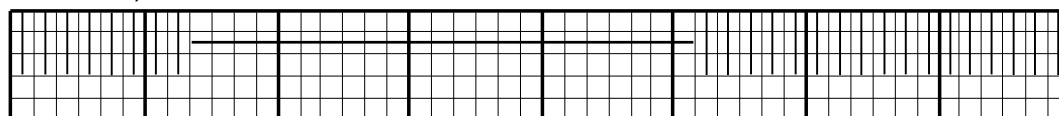
Universal Time

Lovozero ascaplots

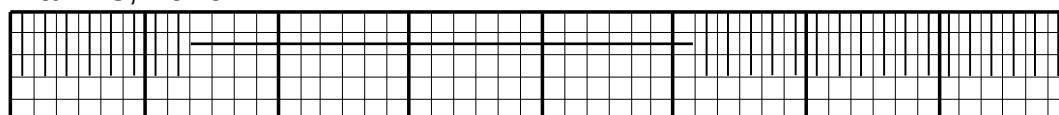
Mar. 11, 2020



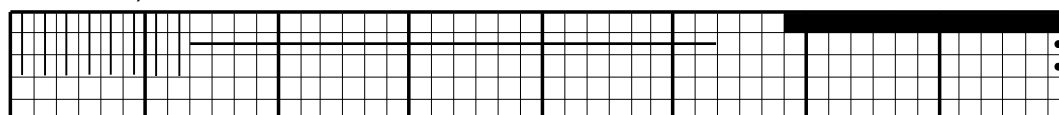
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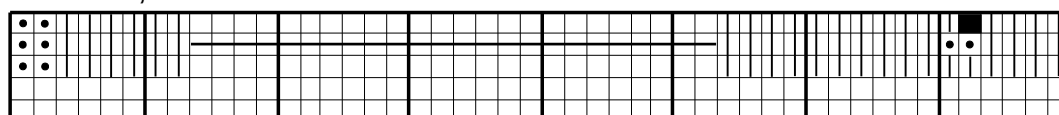
Mar. 13, 2020



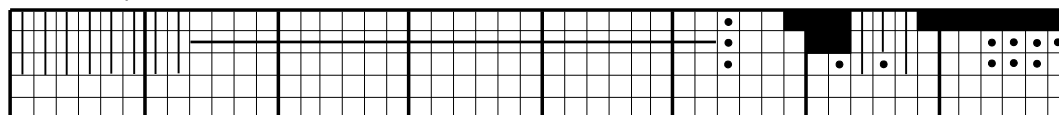
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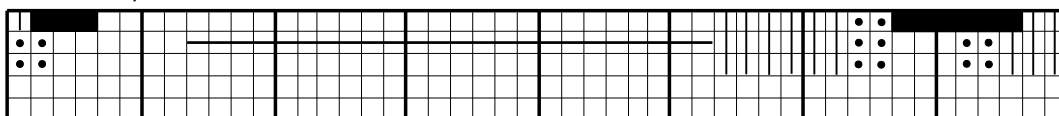
Mar. 15, 2020



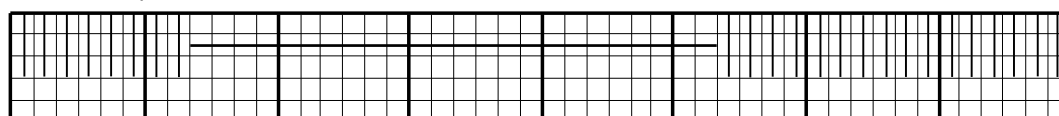
Mar. 16, 2020



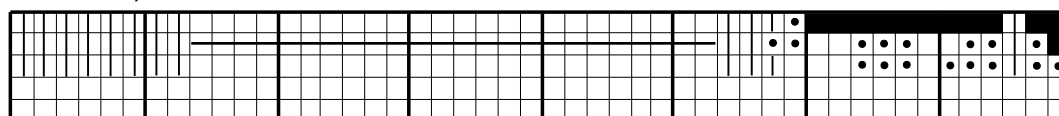
Mar. 17, 2020



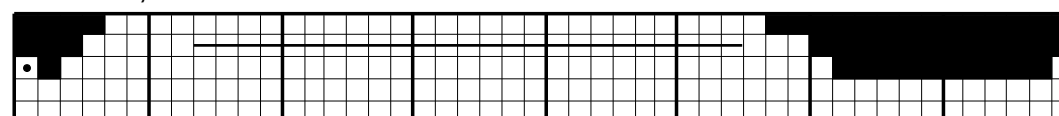
Mar. 18, 2020



Mar. 19, 2020



Mar. 20, 2020

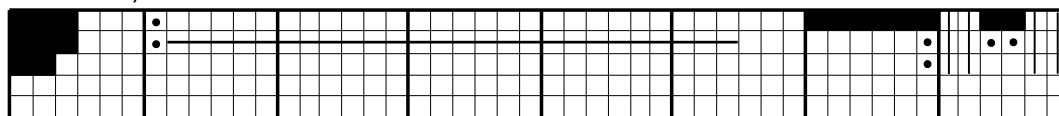


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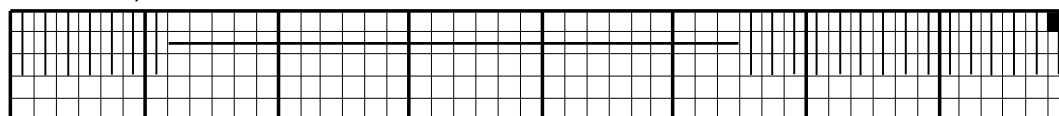
Universal Time

Lovozero ascaplots

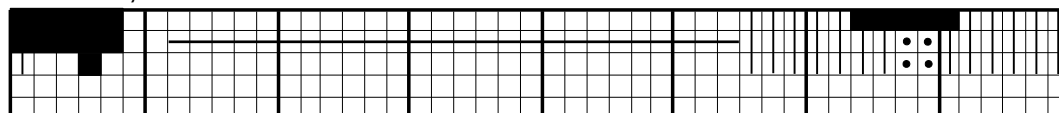
Mar. 21, 2020



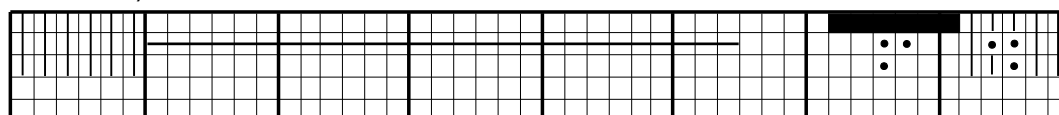
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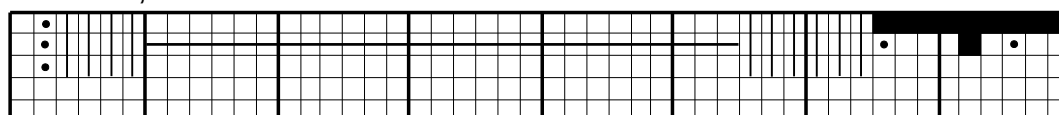
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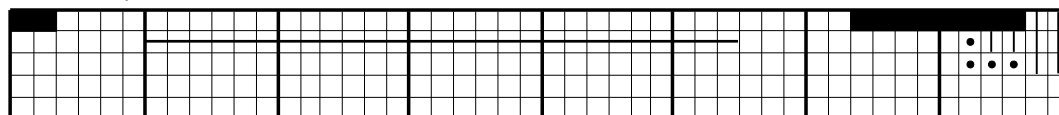
Mar. 24, 2020



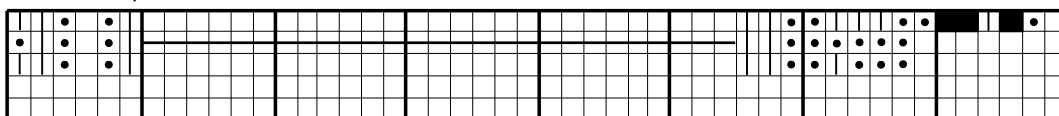
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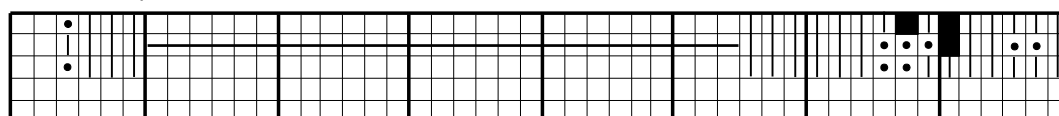
Mar. 26, 2020



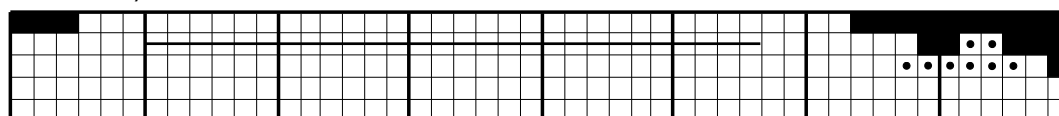
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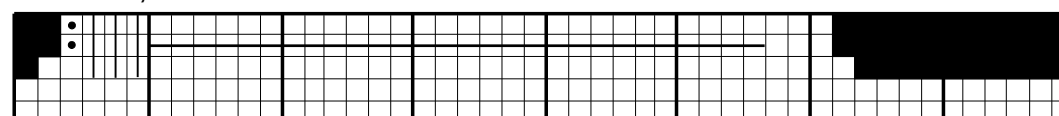
Mar. 28, 2020



Mar. 29, 2020



Mar. 30, 2020



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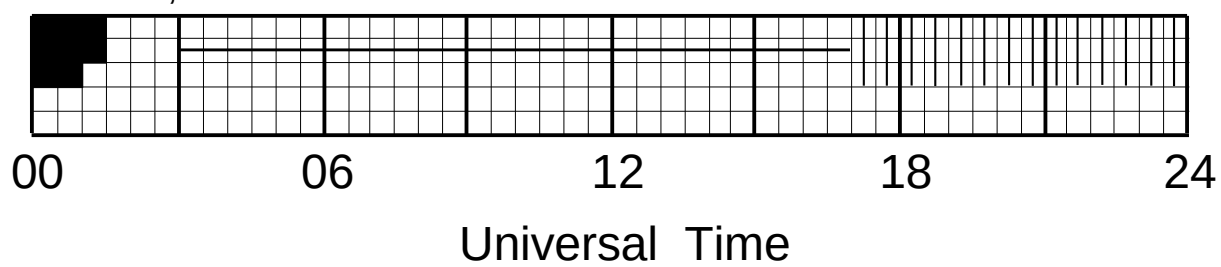
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Universal Time

Lovozero ascaplots

Mar. 31, 2020



Verhnetulomsky ascaplots

Jan. 01, 2020



Jan. 02, 2020



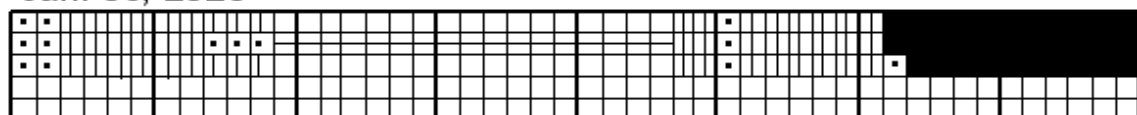
Jan. 03, 2020



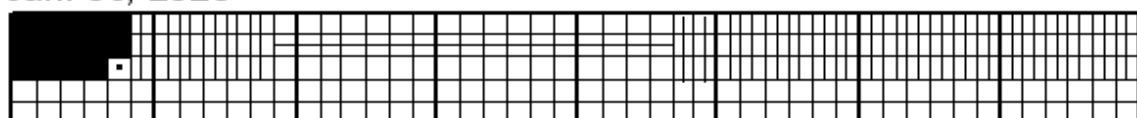
Jan. 04, 2020



Jan. 05, 2020



Jan. 06, 2020



Jan. 07, 2020



Jan. 08, 2020



Jan. 09, 2020



Jan. 10, 2020



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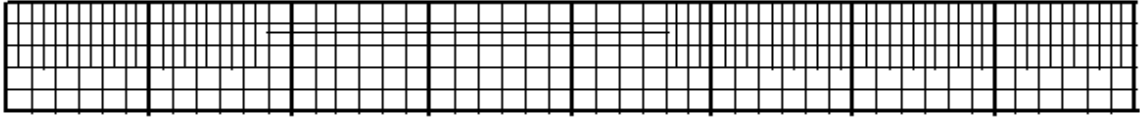
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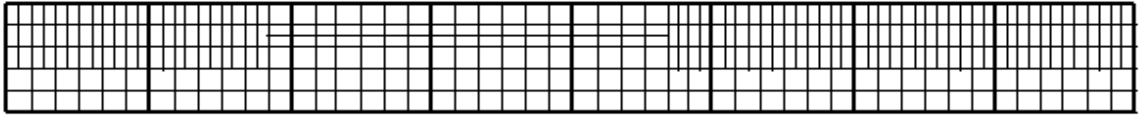
Universal Time

Verhnetulomsky ascaplots

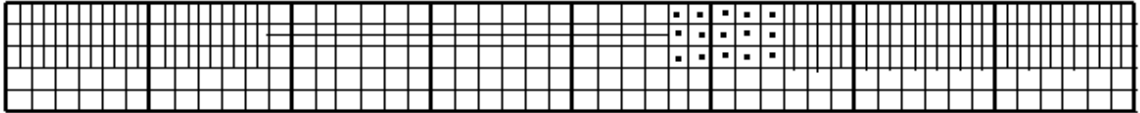
Jan. 11, 2020



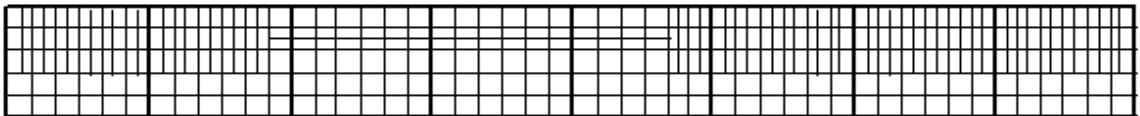
Jan. 12, 2020



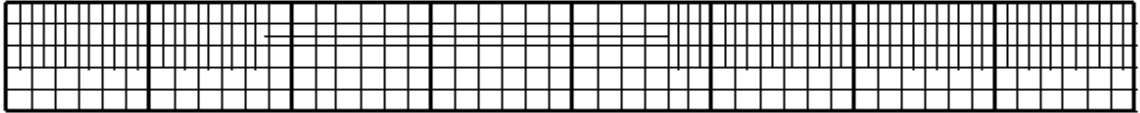
Jan. 13, 2020



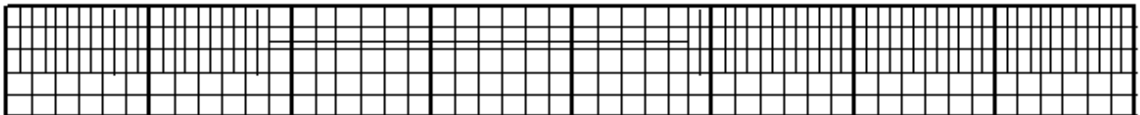
Jan. 14, 2020



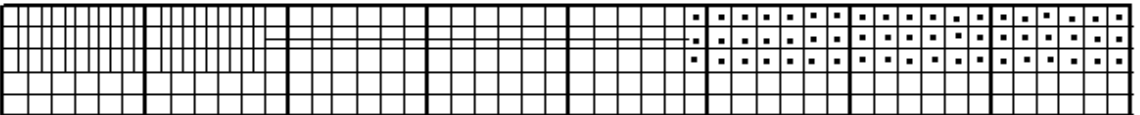
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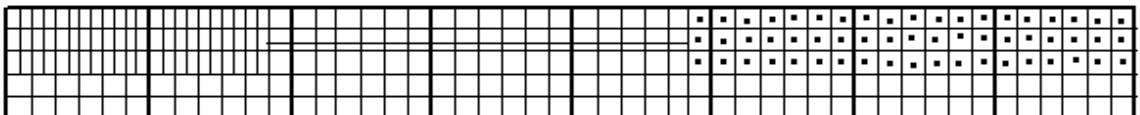
Jan. 16, 2020



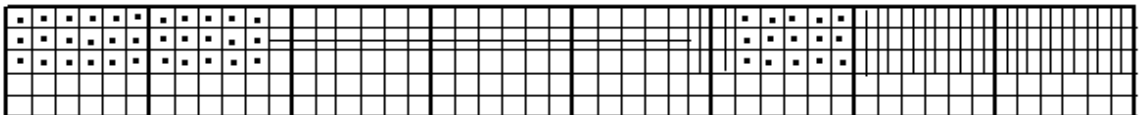
Jan. 17, 2020



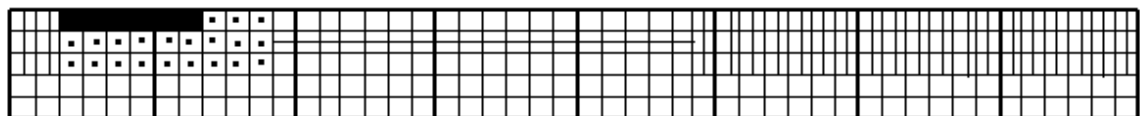
Jan. 18, 2020



Jan. 19, 2020



Jan. 20, 2020

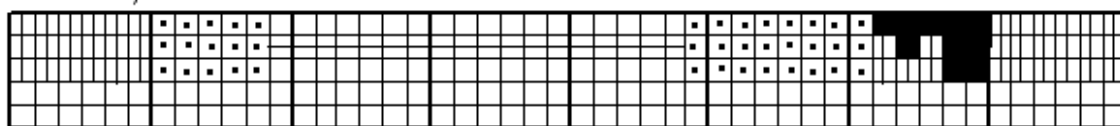


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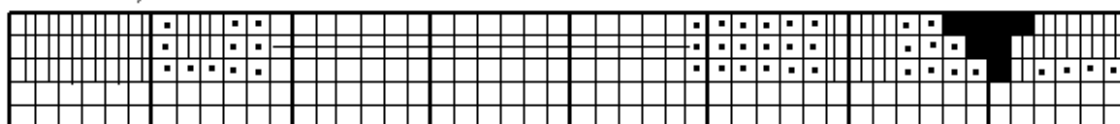
Universal Time

Verhnetulomsky ascaplots

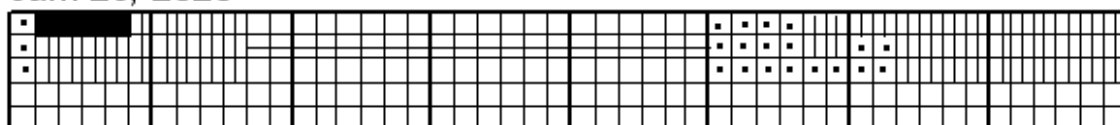
Jan. 21, 2020



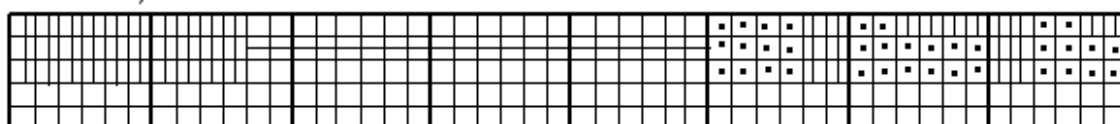
Jan. 22, 2020



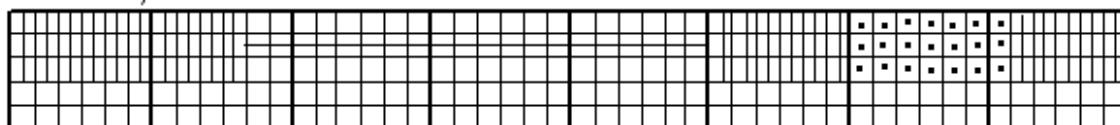
Jan. 23, 2020



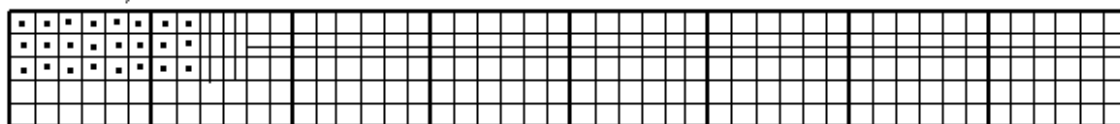
Jan. 24, 2020



Jan. 25, 2020



Jan. 26, 2020



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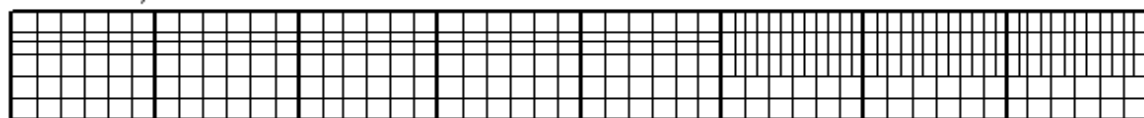
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Universal Time

Verhnetulomsky ascaplots

Feb. 02, 2020



Feb. 03, 2020



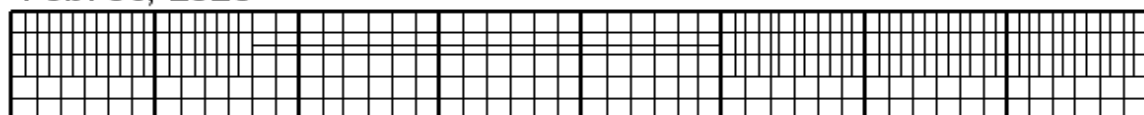
Feb. 04, 2020



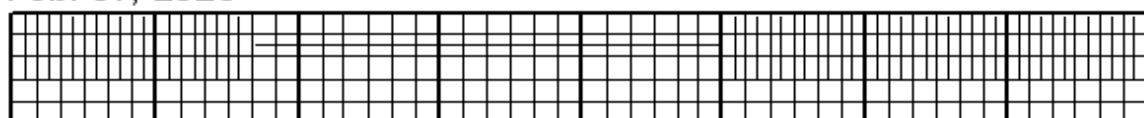
Feb. 05, 2020



Feb. 06, 2020



Feb. 07, 2020



Feb. 08, 2020



Feb. 09, 2020



Feb. 10, 2020



Feb. 11, 2020

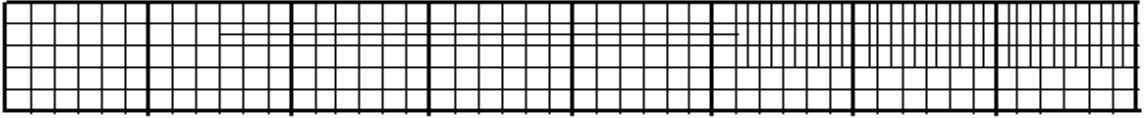


00 06 12 18 24

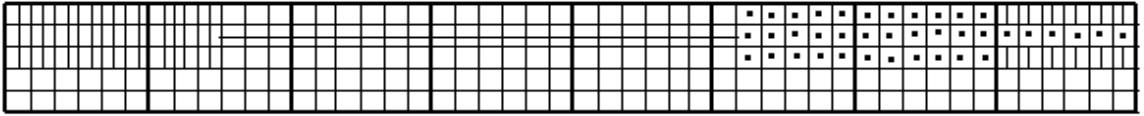
Universal Time

Verhnetulomsky ascaplots

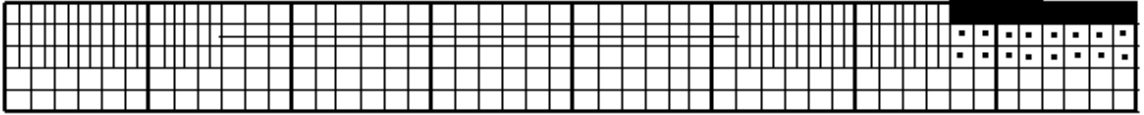
Feb. 12, 2020



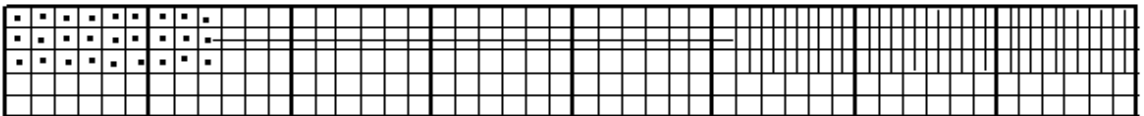
Feb. 13, 2020



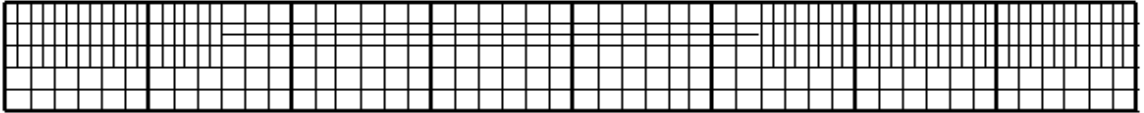
Feb. 14, 2020



Feb. 15, 2020



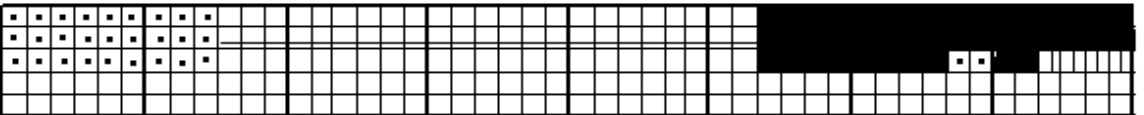
Feb. 16, 2020



Feb. 17, 2020



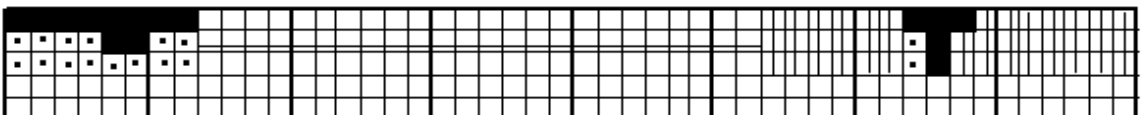
Feb. 18, 2020



Feb. 19, 2020



Feb. 20, 2020



Feb. 21, 2020



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06

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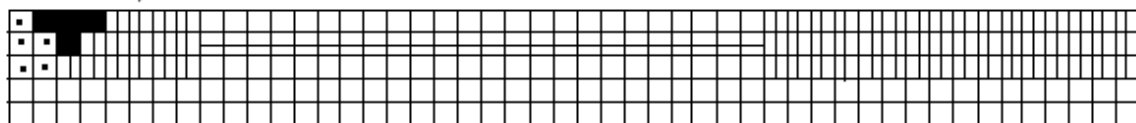
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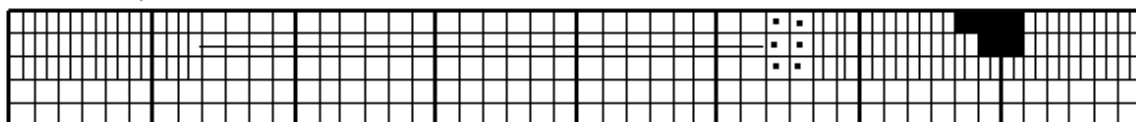
Universal Time

Verhnetulomsky ascaplots

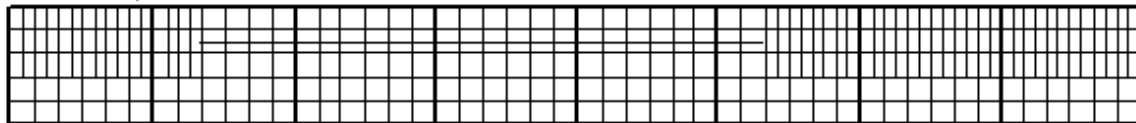
Feb. 22, 2020



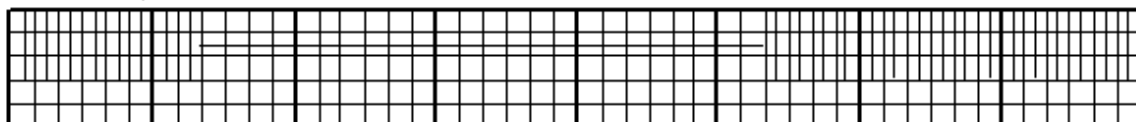
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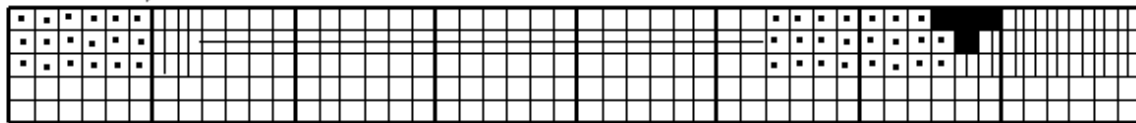
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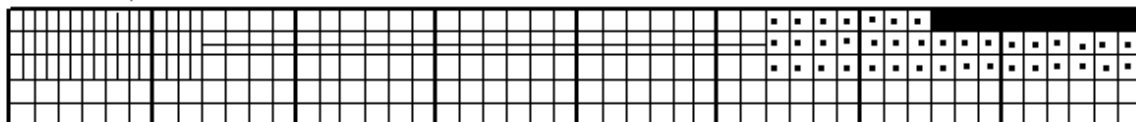
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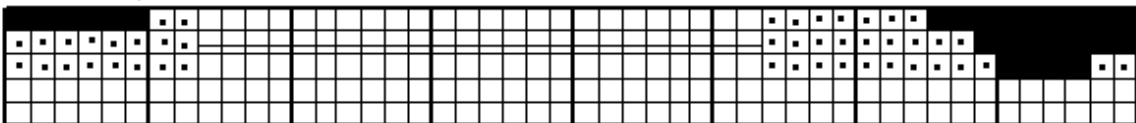
Feb. 26, 2020



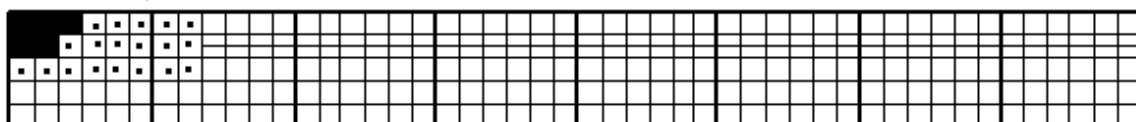
Feb. 27, 2020



Feb. 28, 2020



Feb. 29, 2020

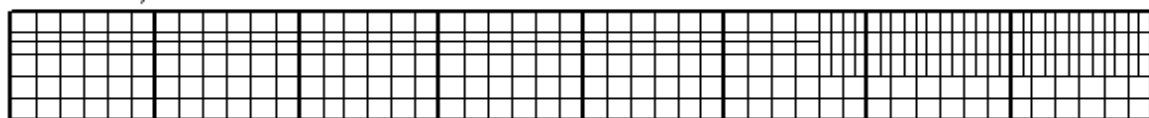


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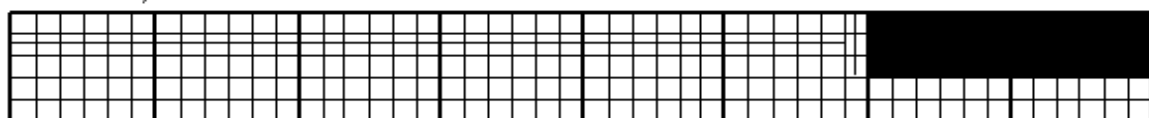
Universal Time

Verhnetulomsky ascaplots

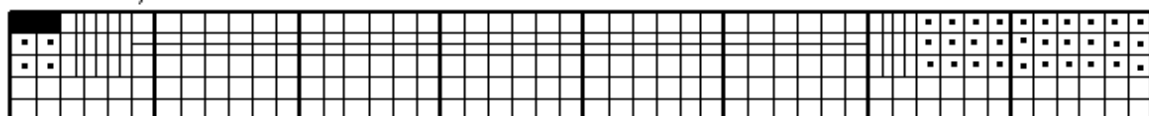
Mar. 07, 2020



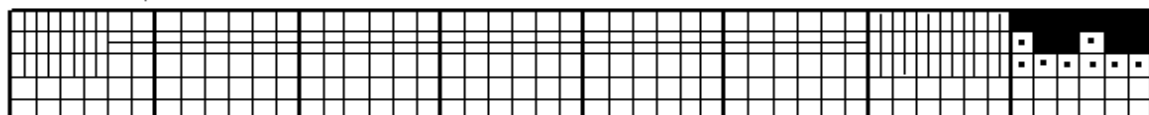
Mar. 20, 2020



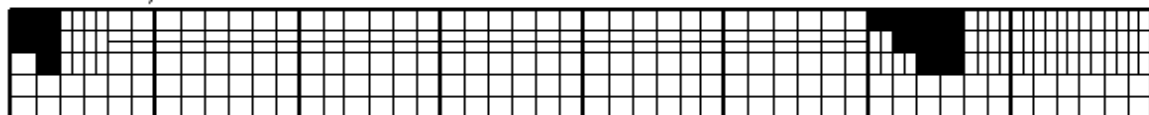
Mar. 21, 2020



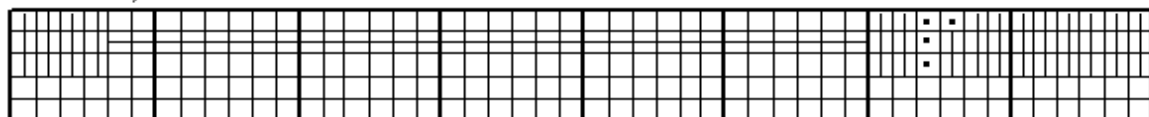
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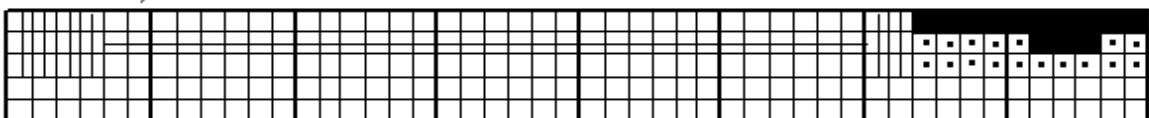
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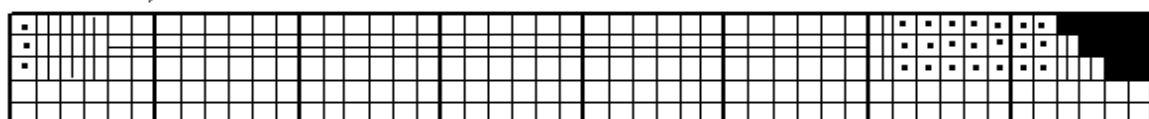
Mar. 24, 2020



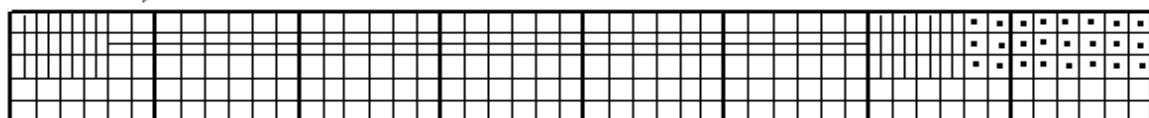
Mar. 25, 2020



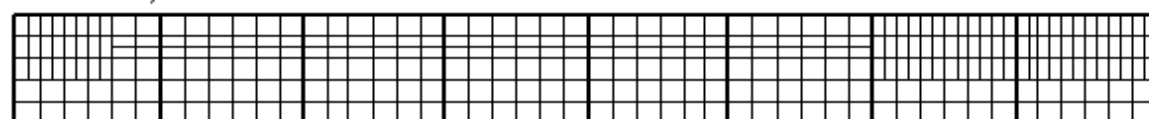
Mar. 26, 2020



Mar. 27, 2020



Mar. 28, 2020



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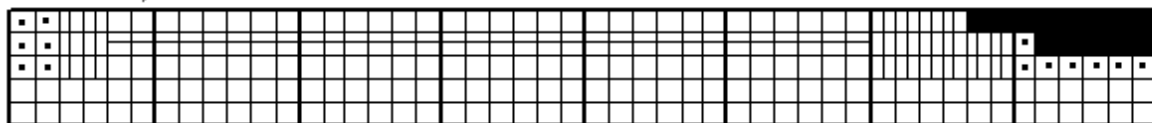
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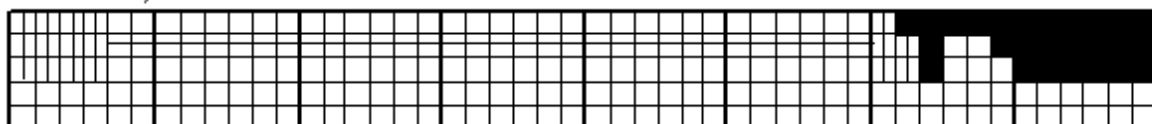
Universal Time

Verhnetulomsky ascaplots

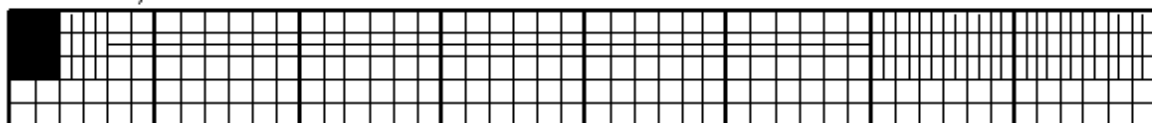
Mar. 29, 2020



Mar. 30, 2020



Mar. 31, 2020



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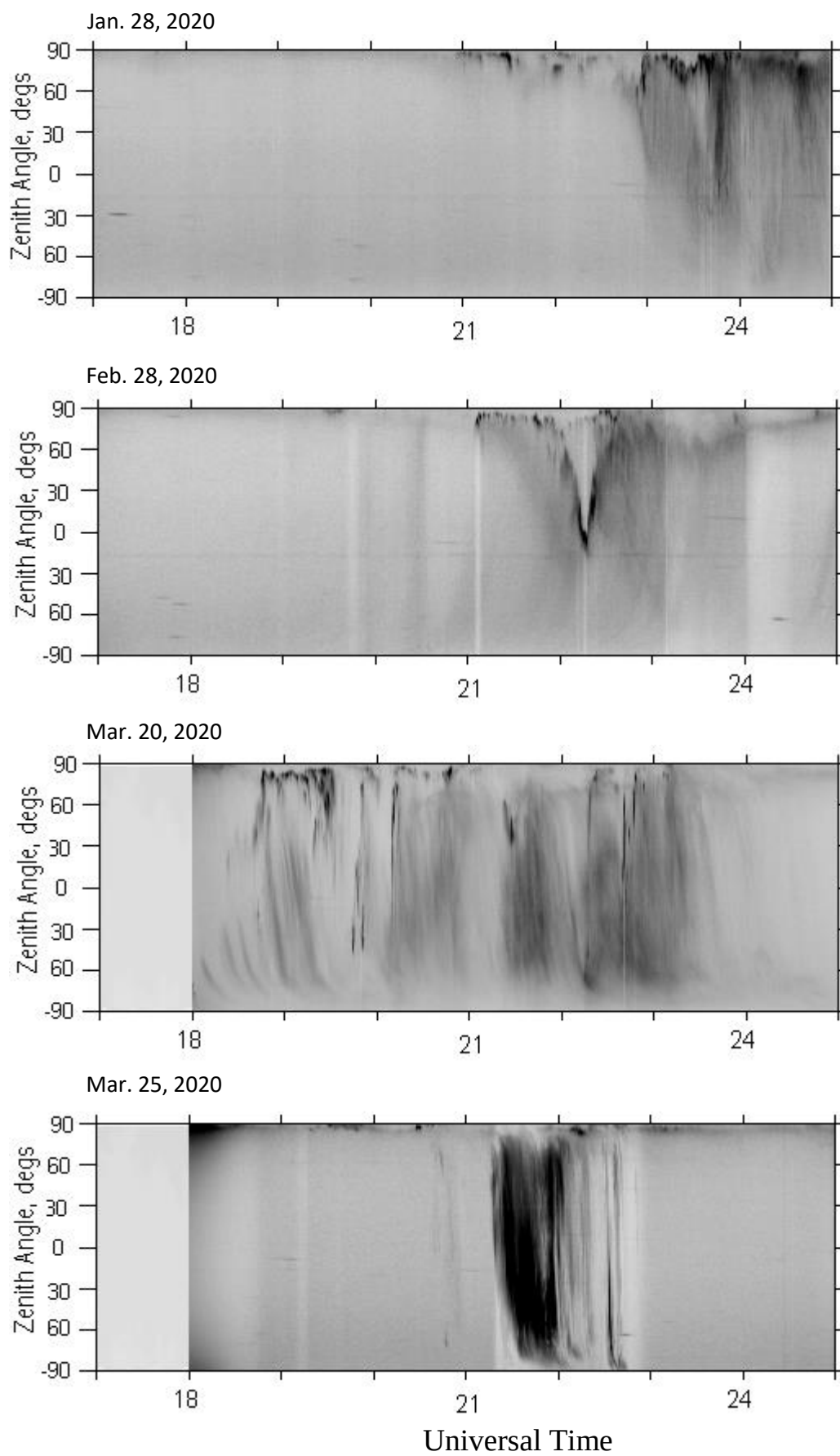
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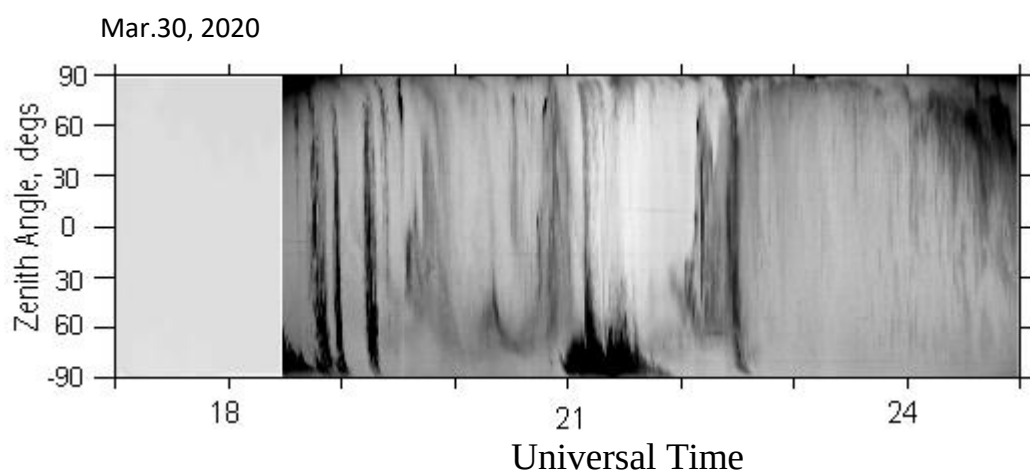
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Universal Time

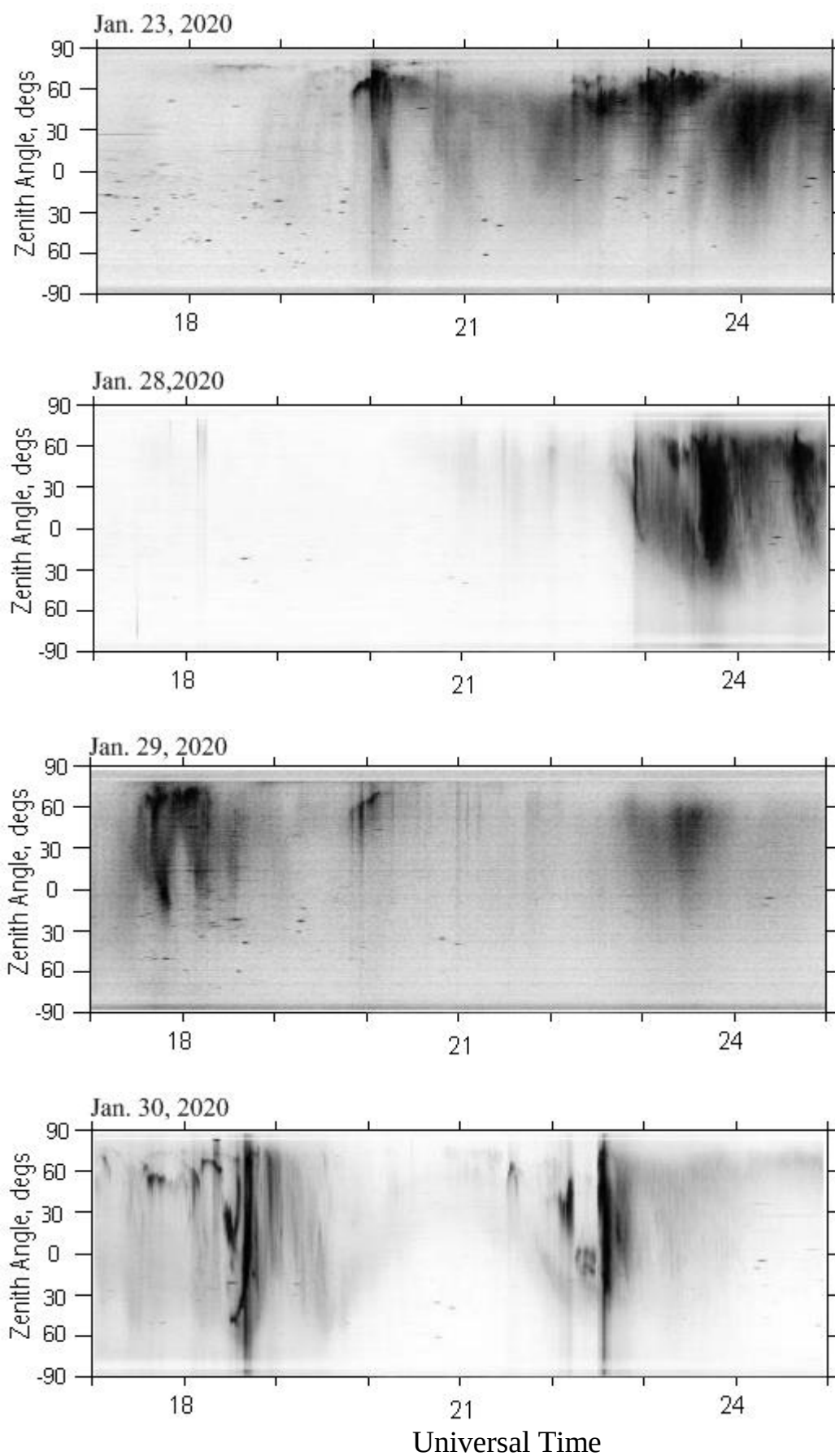
Apatity TV keograms



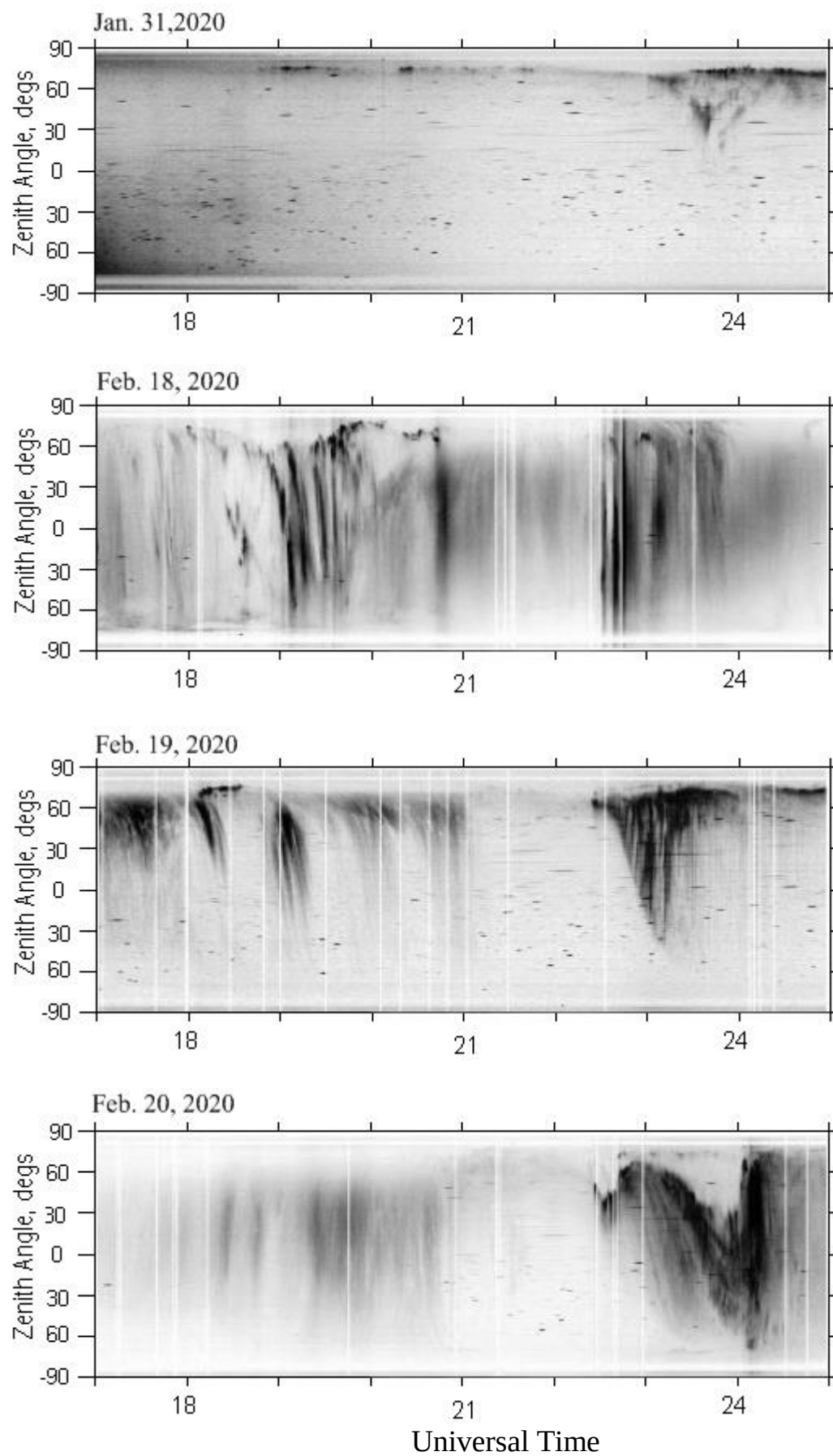
Apatity TV keograms



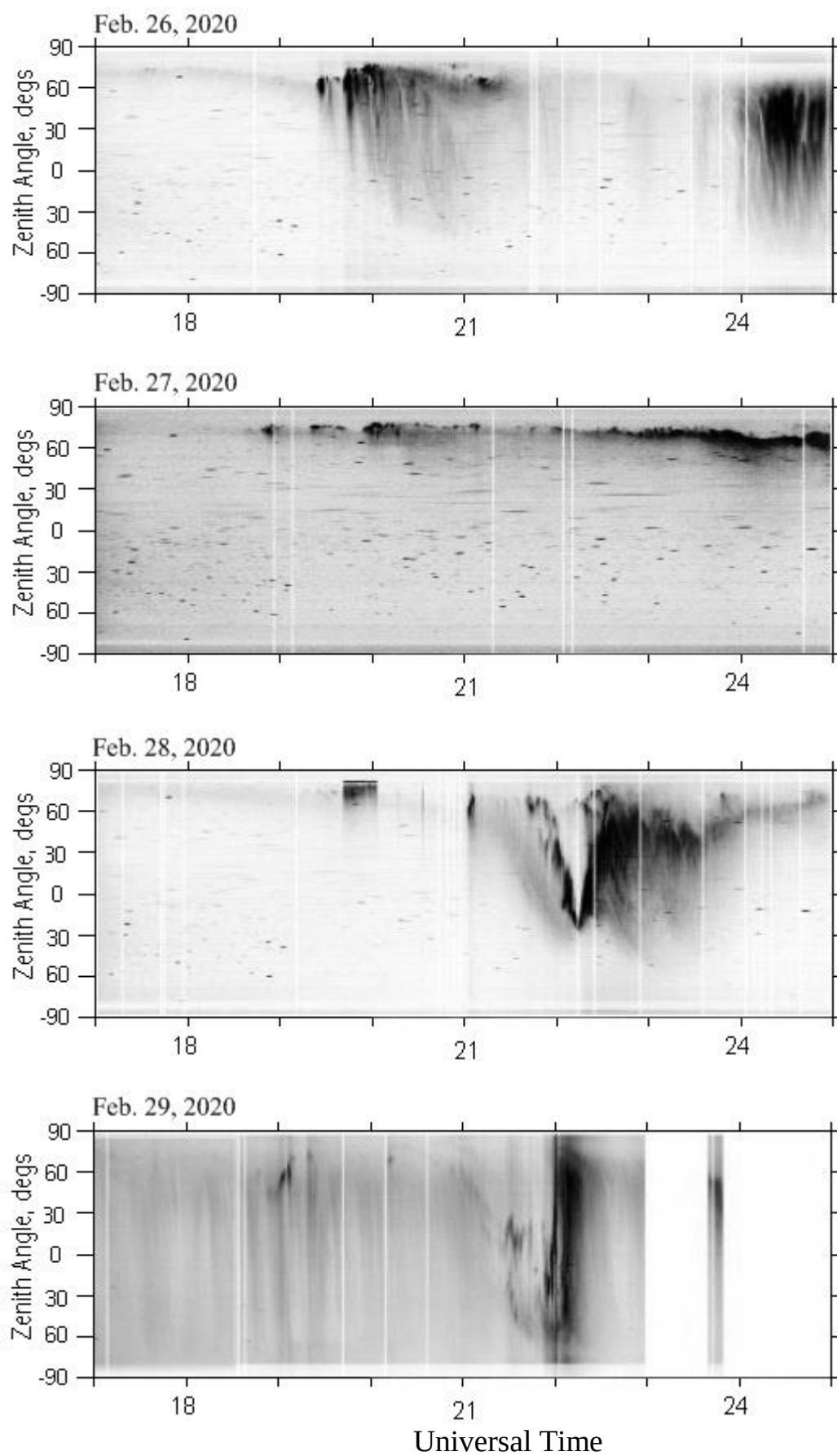
Lovozero TV keograms



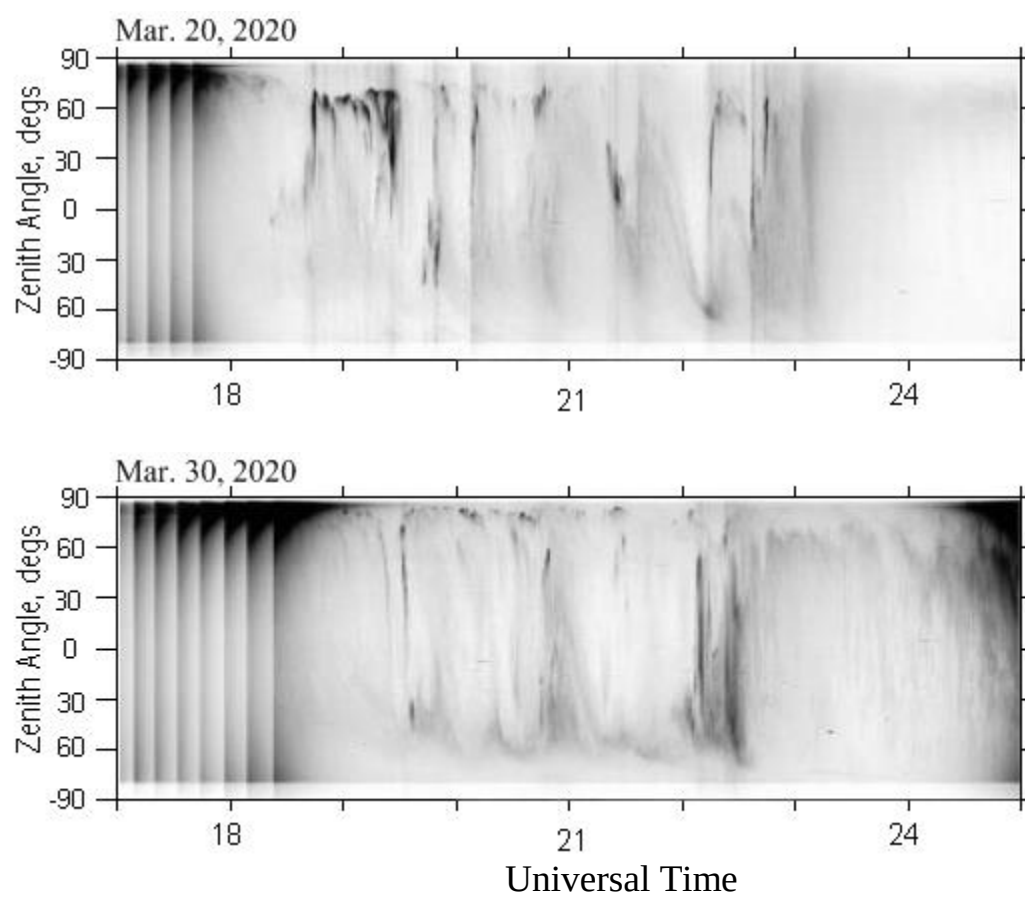
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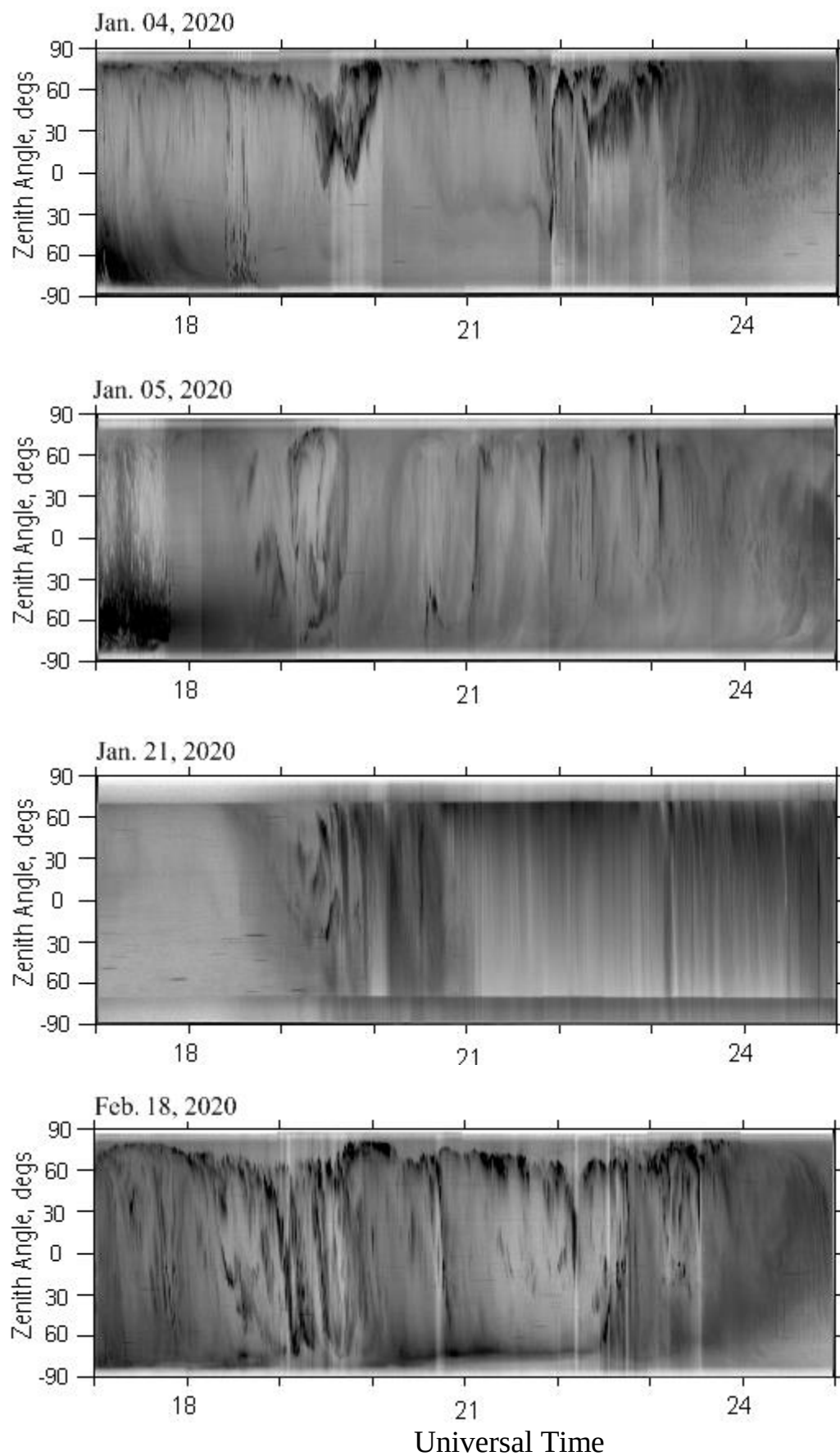
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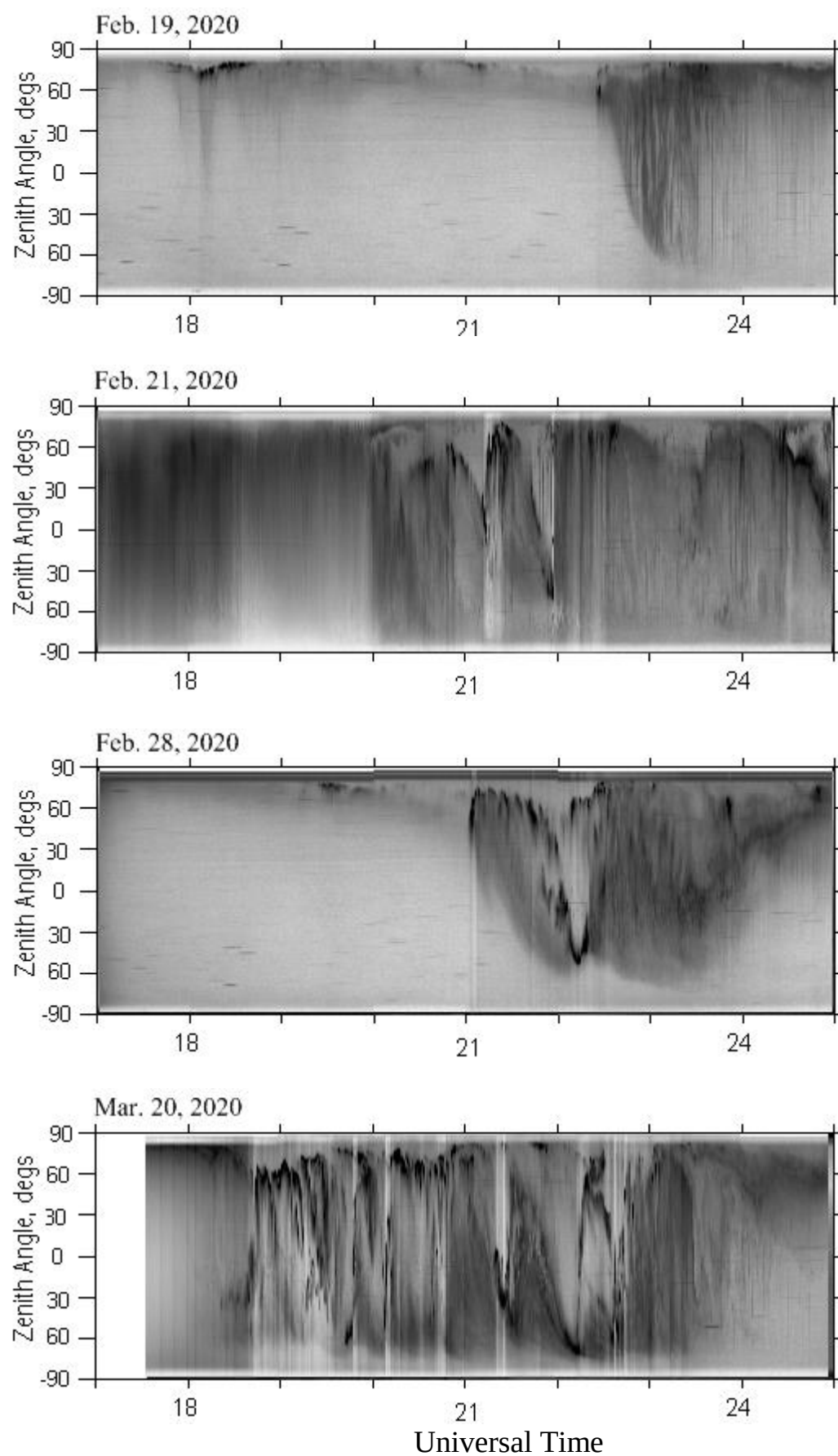
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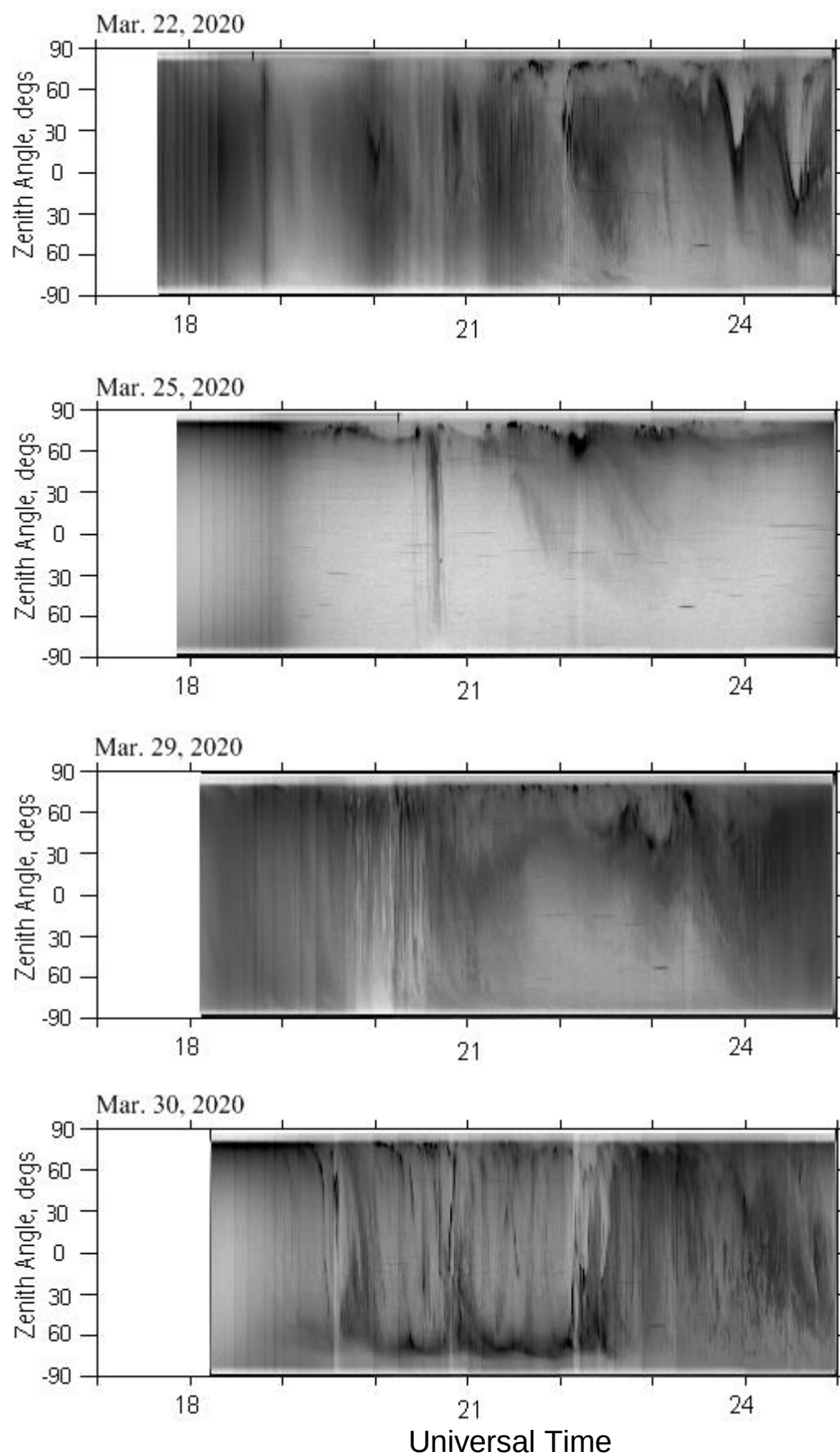
Verhnetulomsky TV keograms



Verhnetulomsky TV keograms



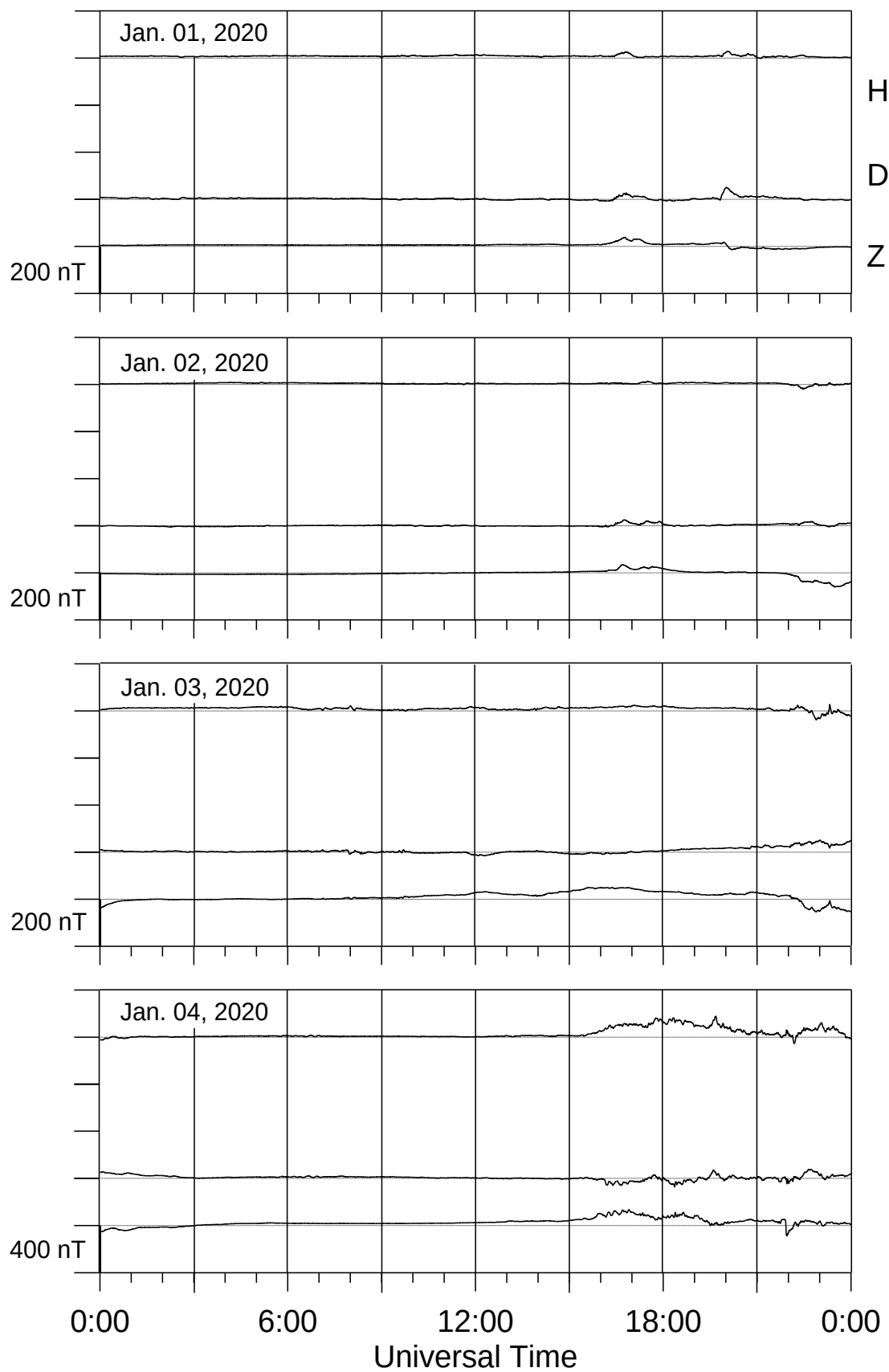
Verhnetulomsky TV keograms



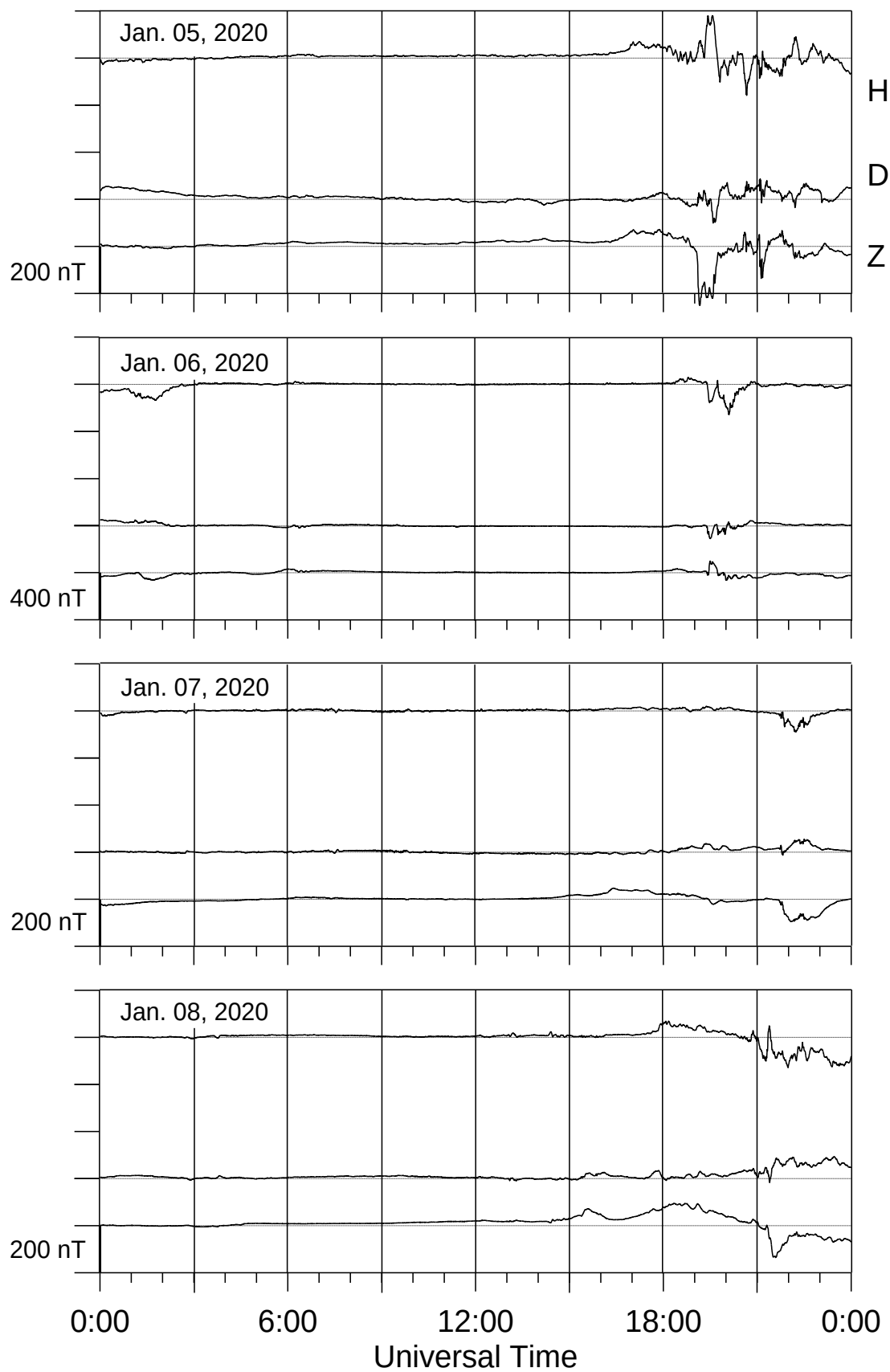
LOVOZERO MAGNETOGRAMS

January - March 2020

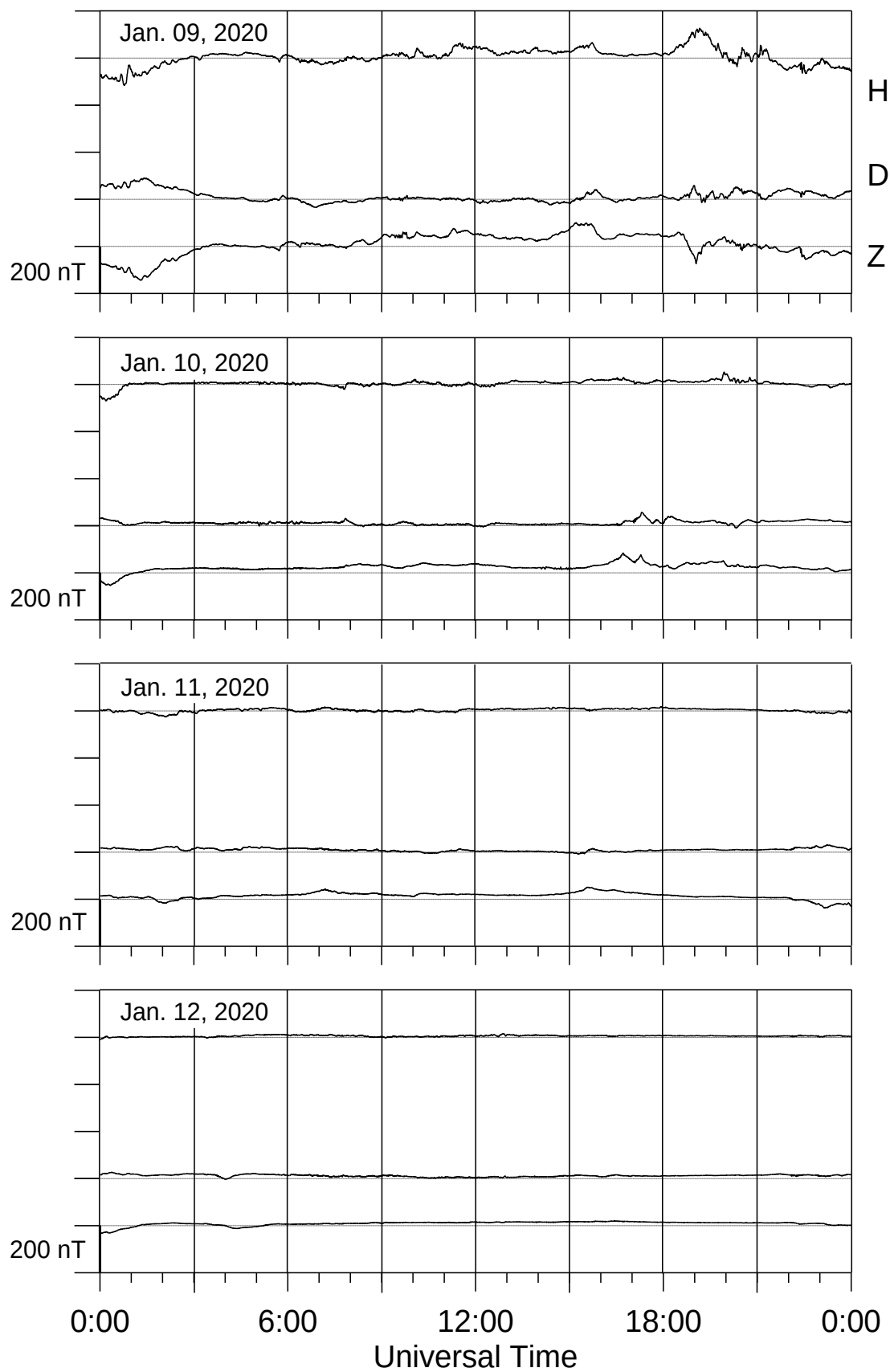
Lovozero magnetometer



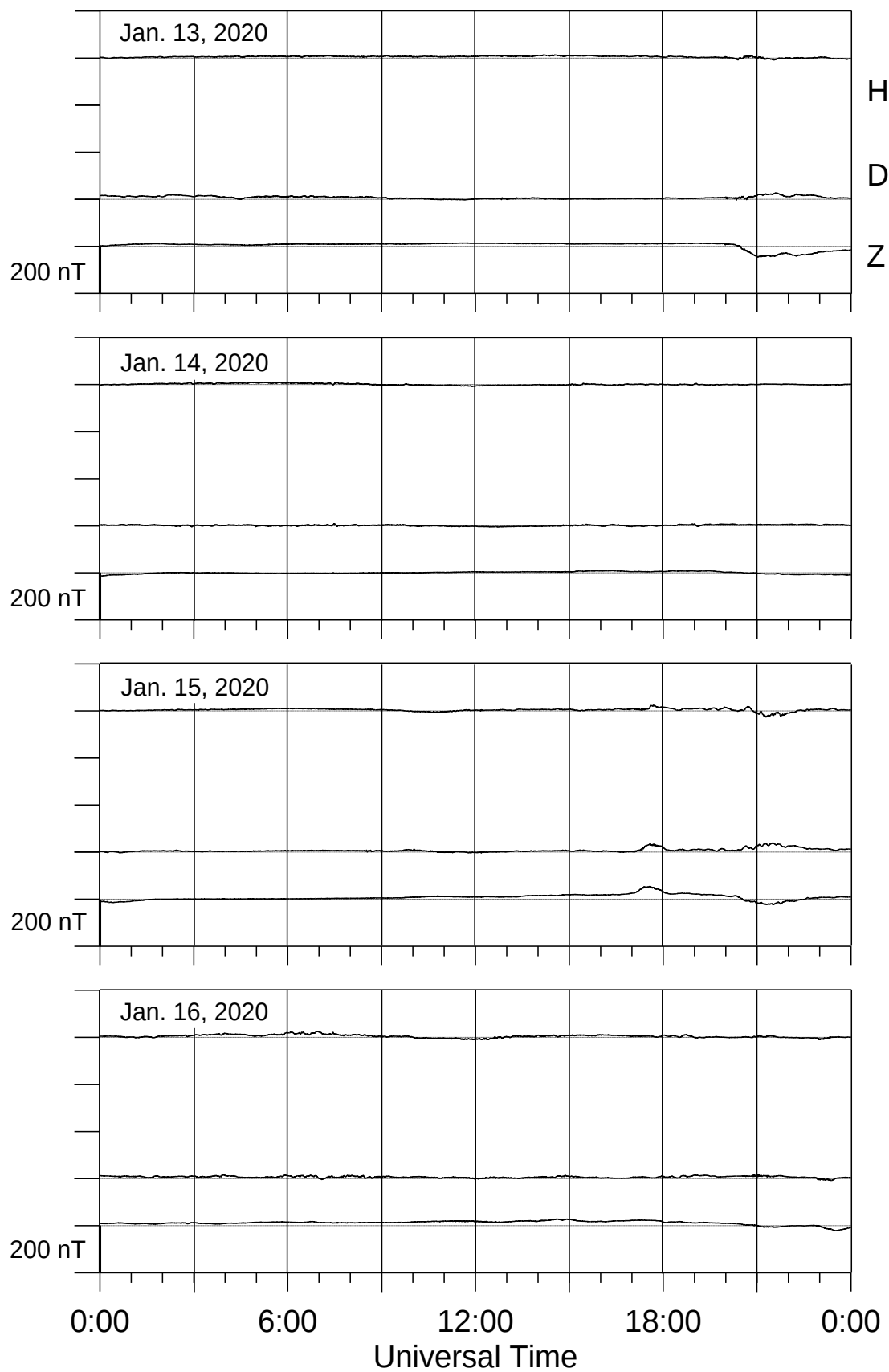
Lovozero magnetometer



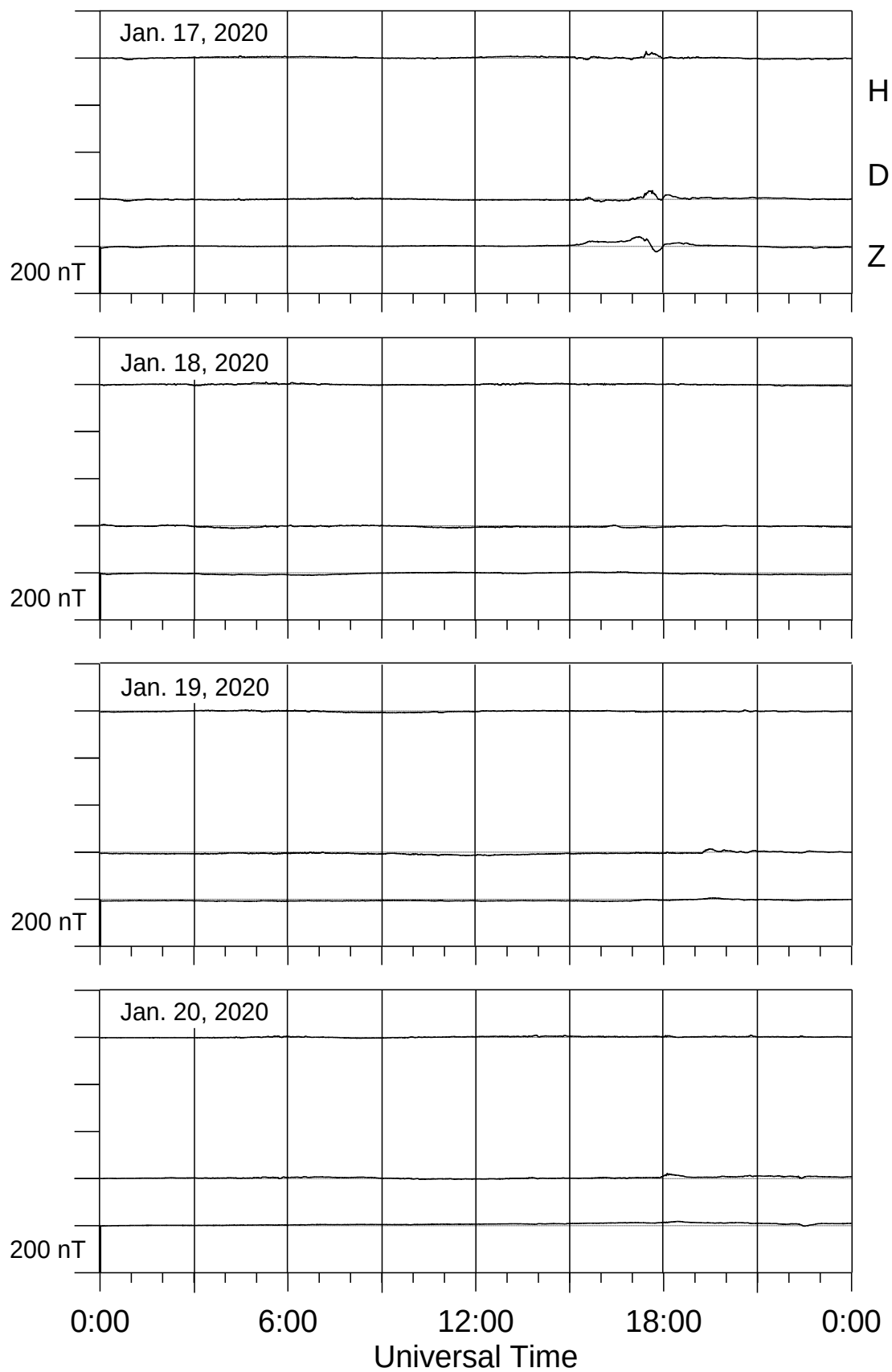
Lovozero magnetometer



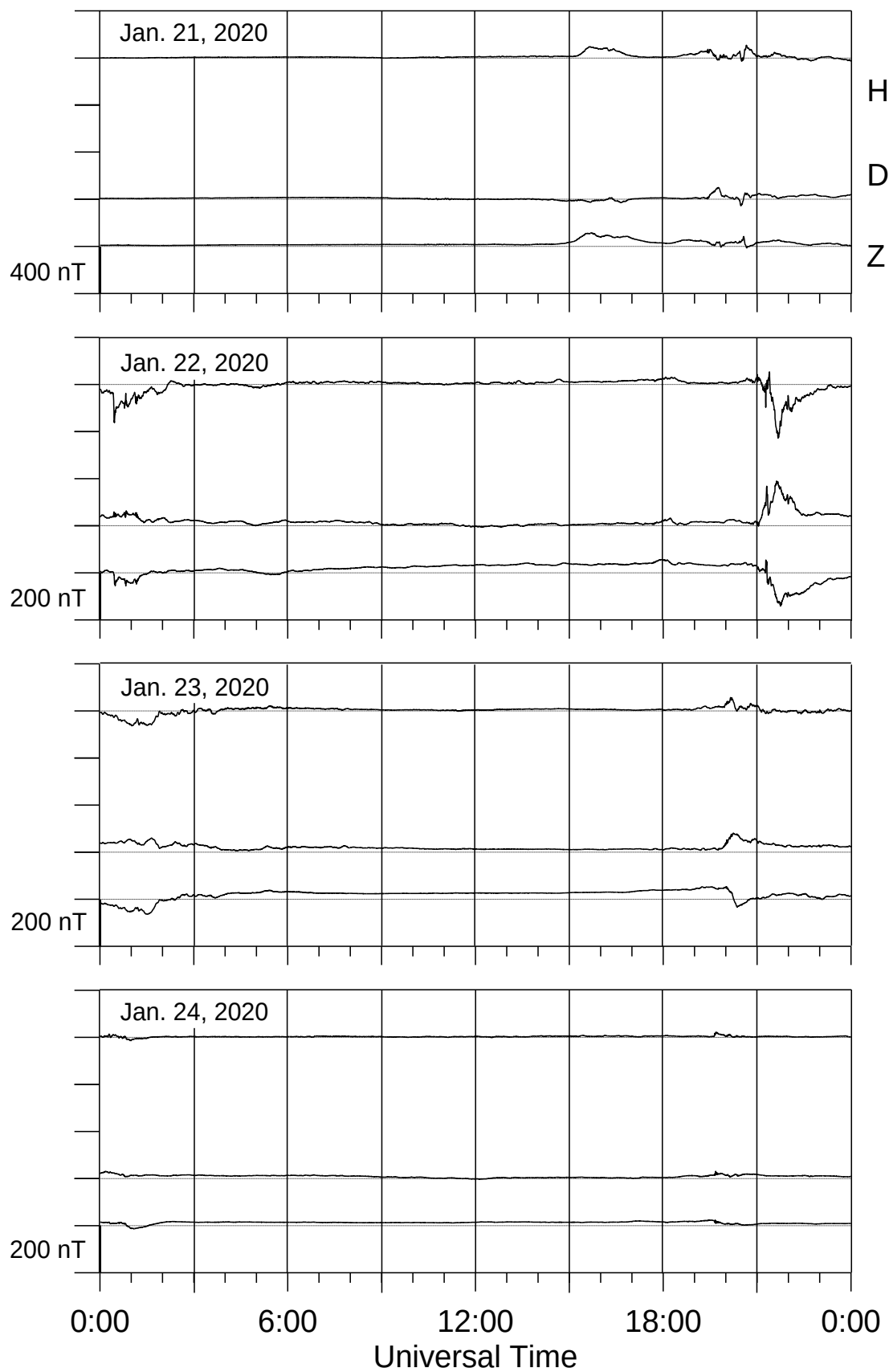
Lovozero magnetometer



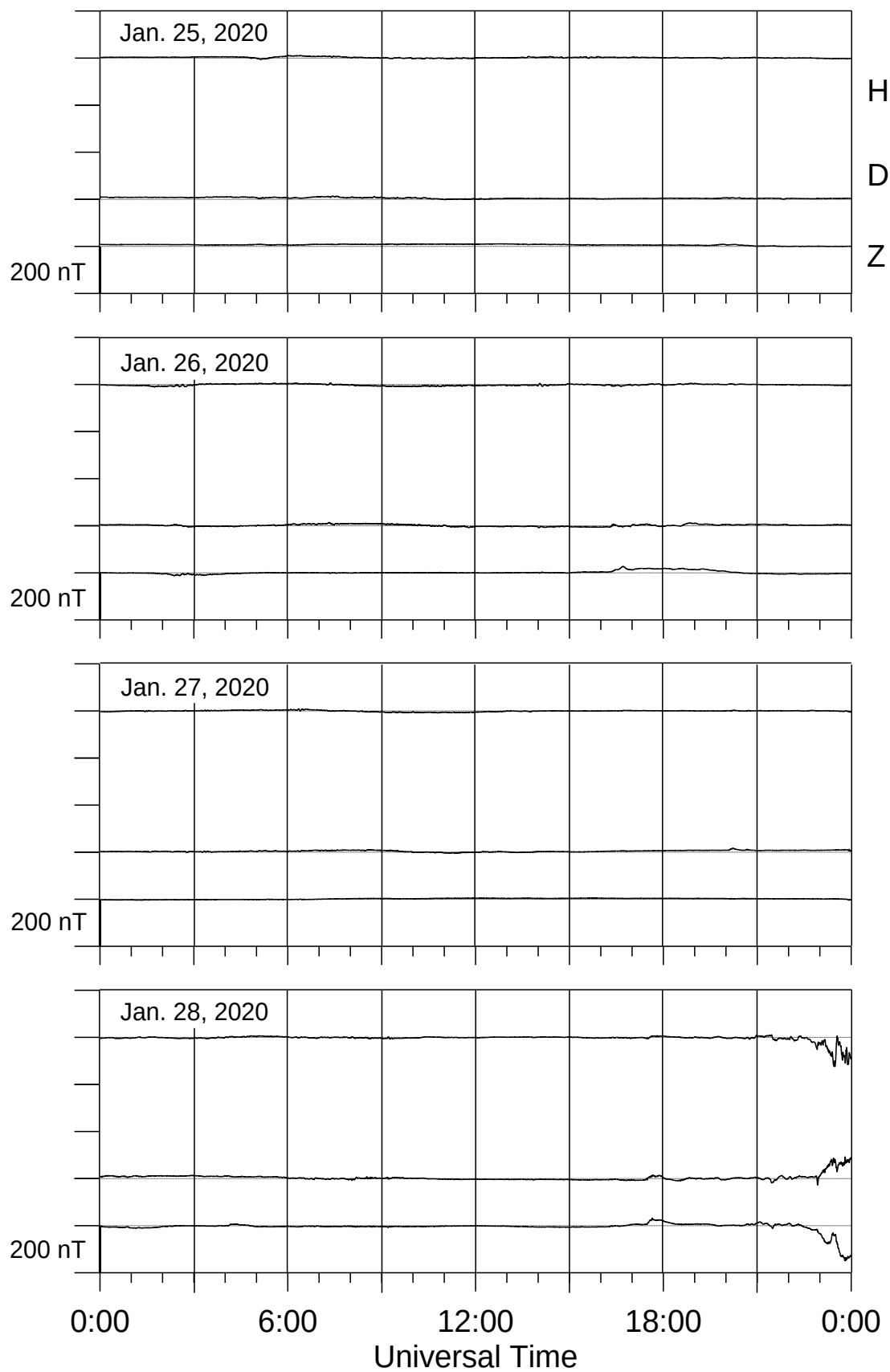
Lovozero magnetometer



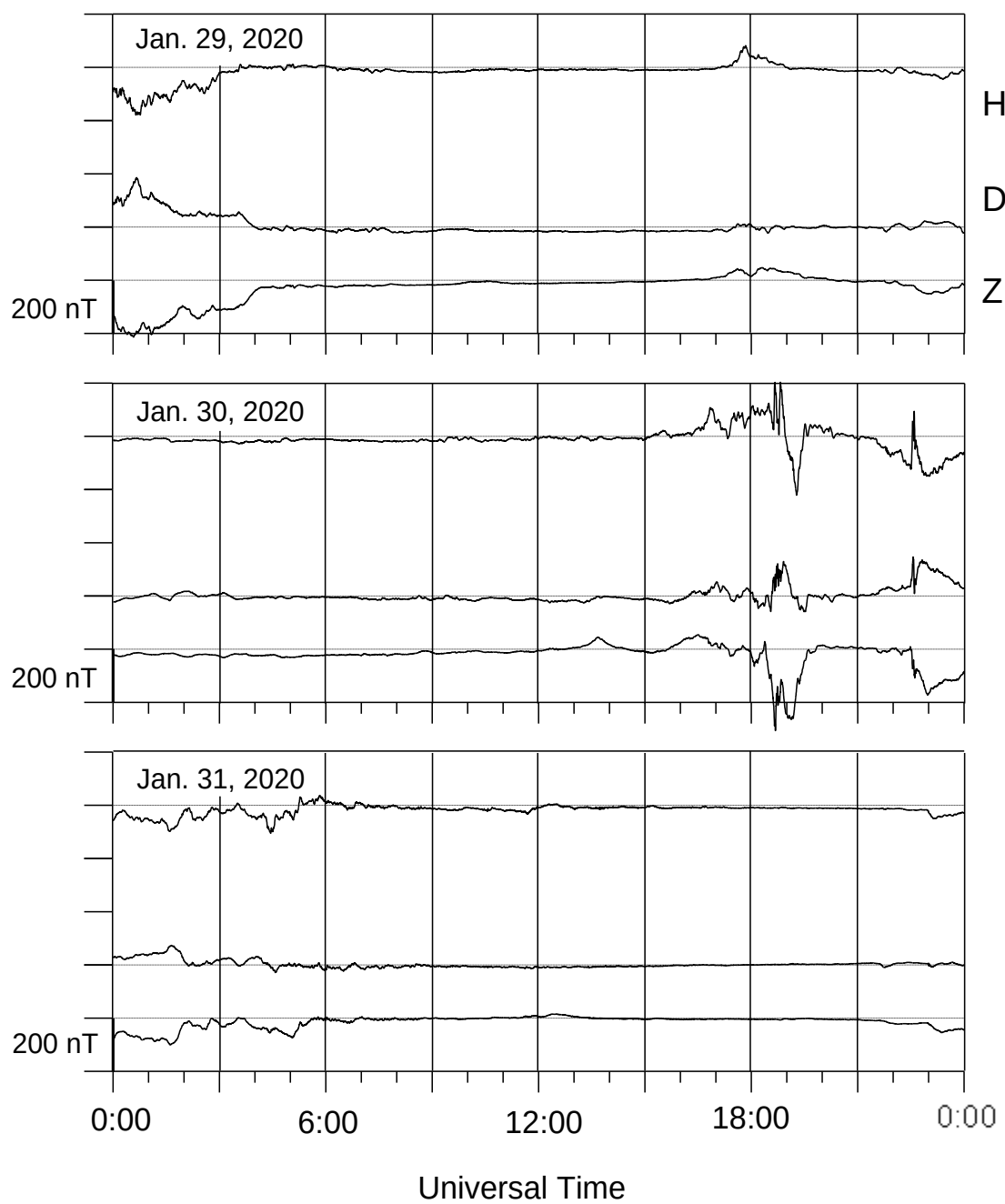
Lovozero magnetometer



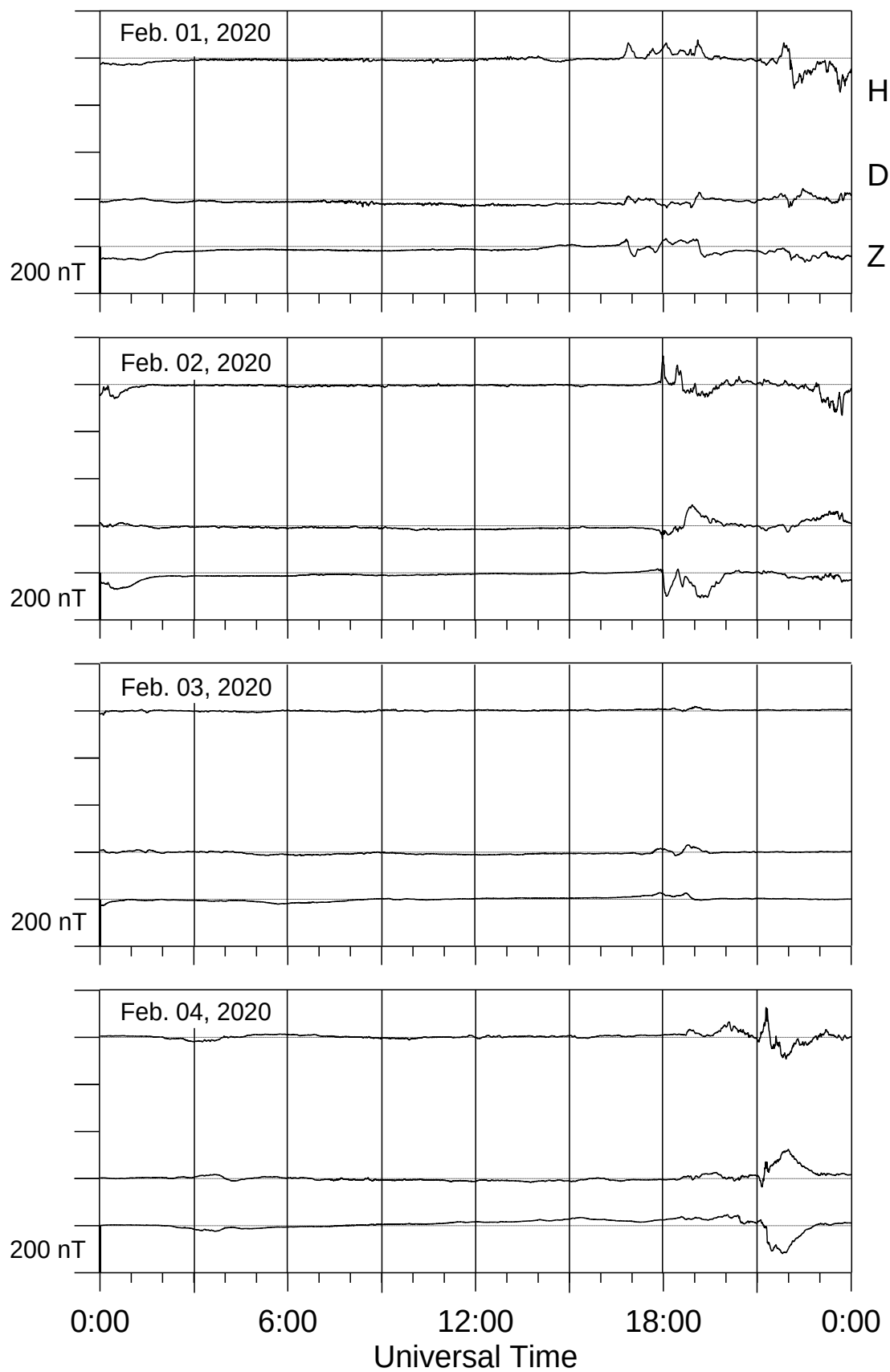
Lovozero magnetometer



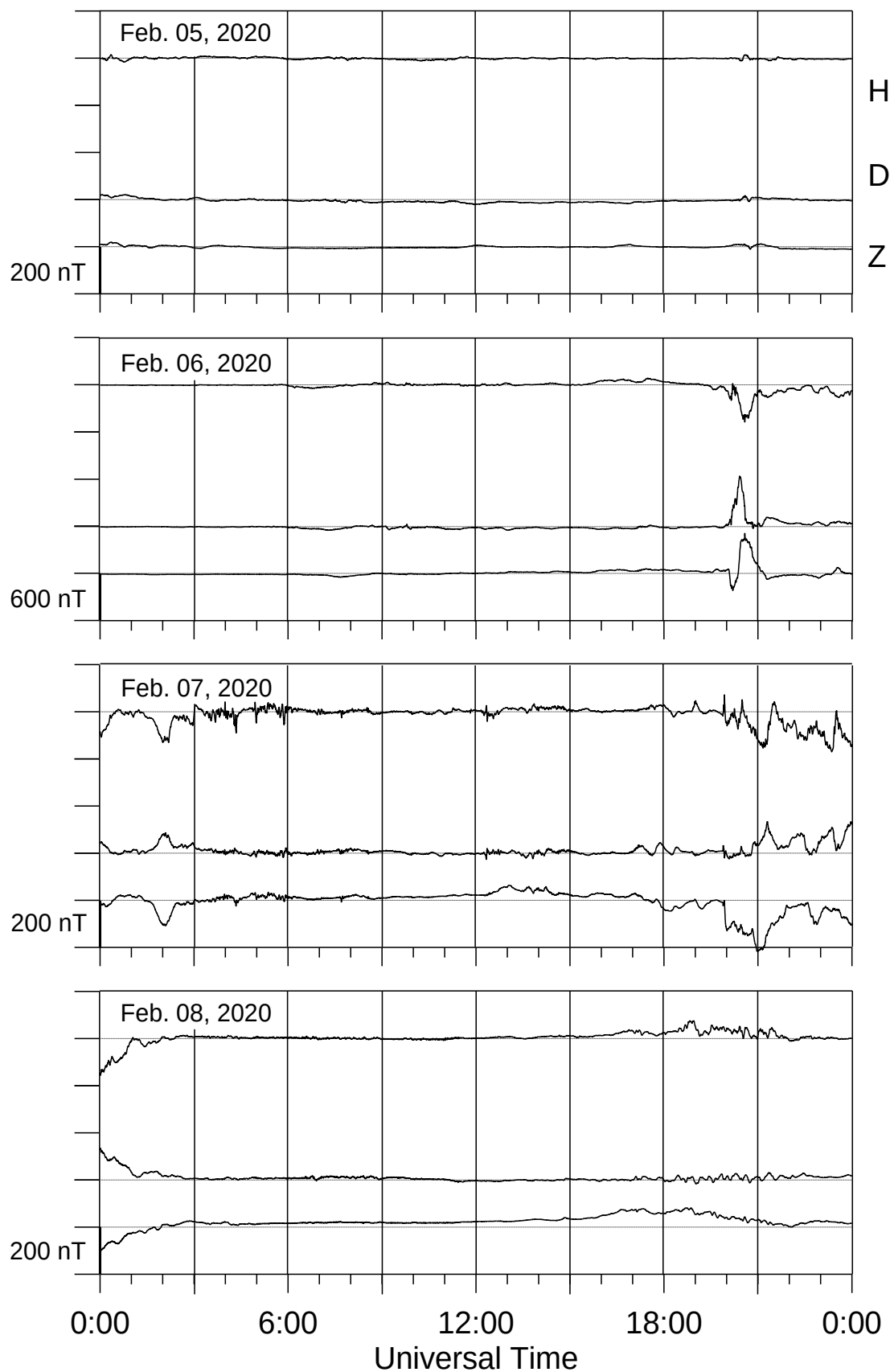
Lovozero magnetometer



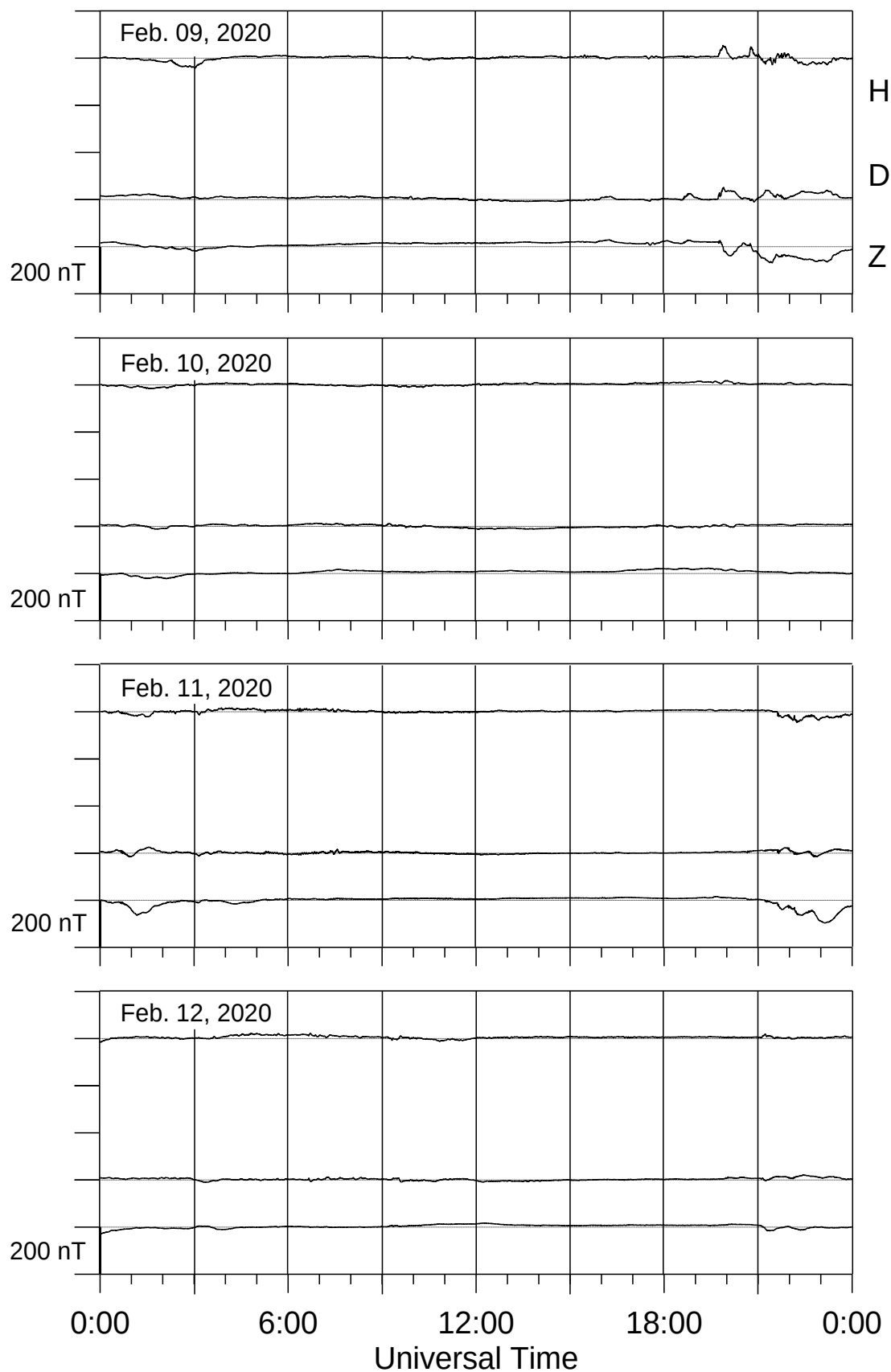
Lovozero magnetometer



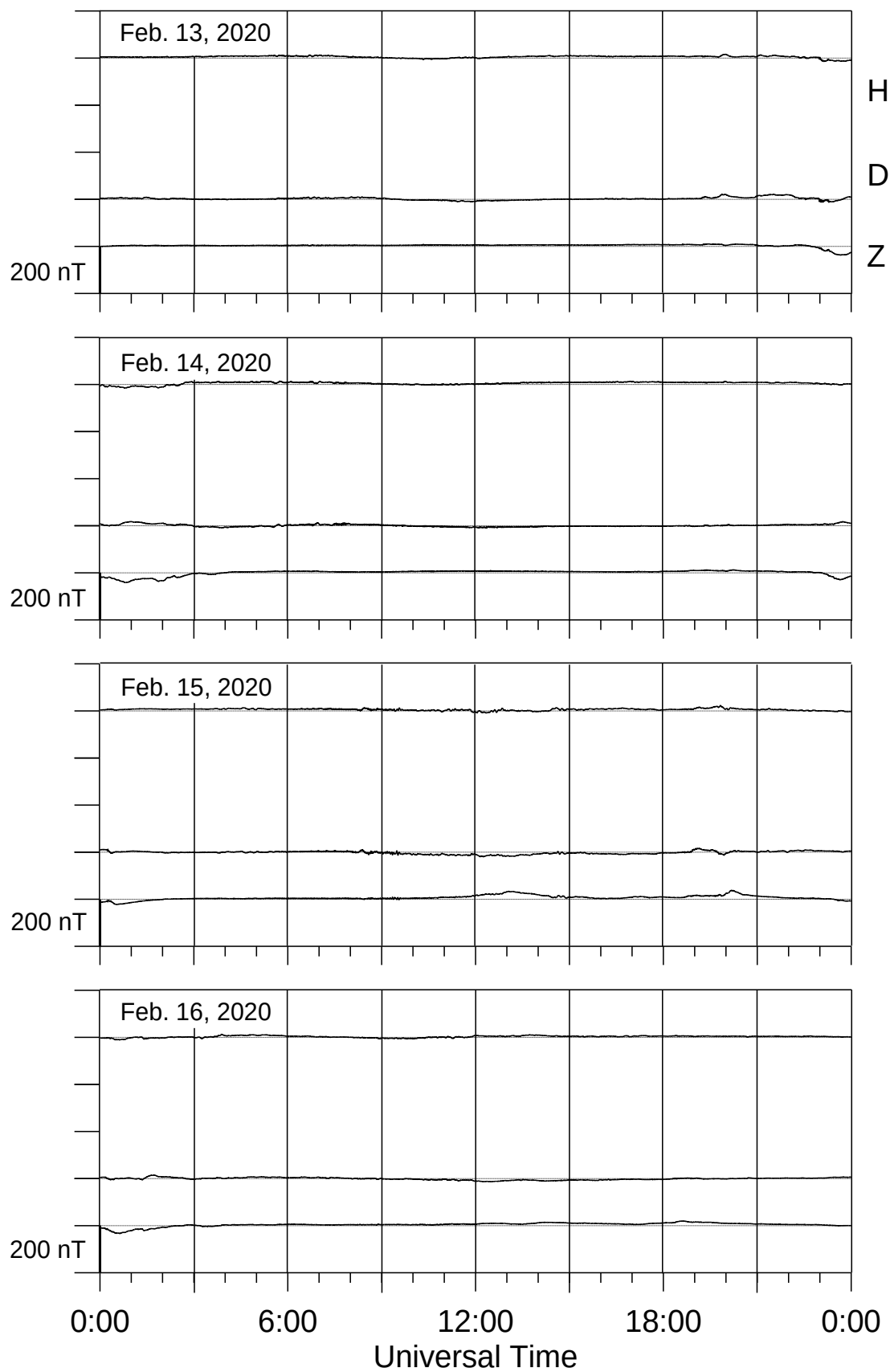
Lovozero magnetometer



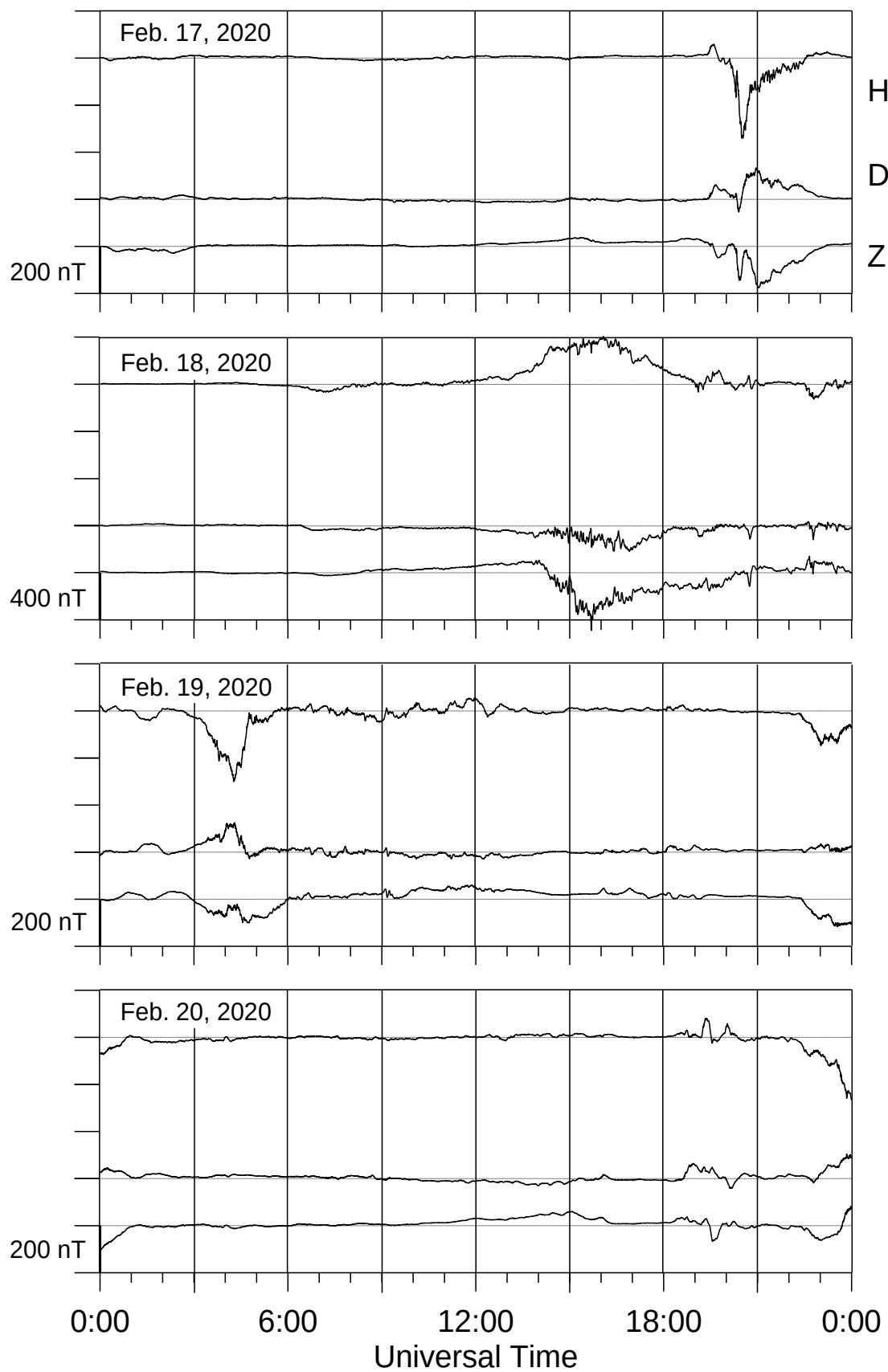
Lovozero magnetometer



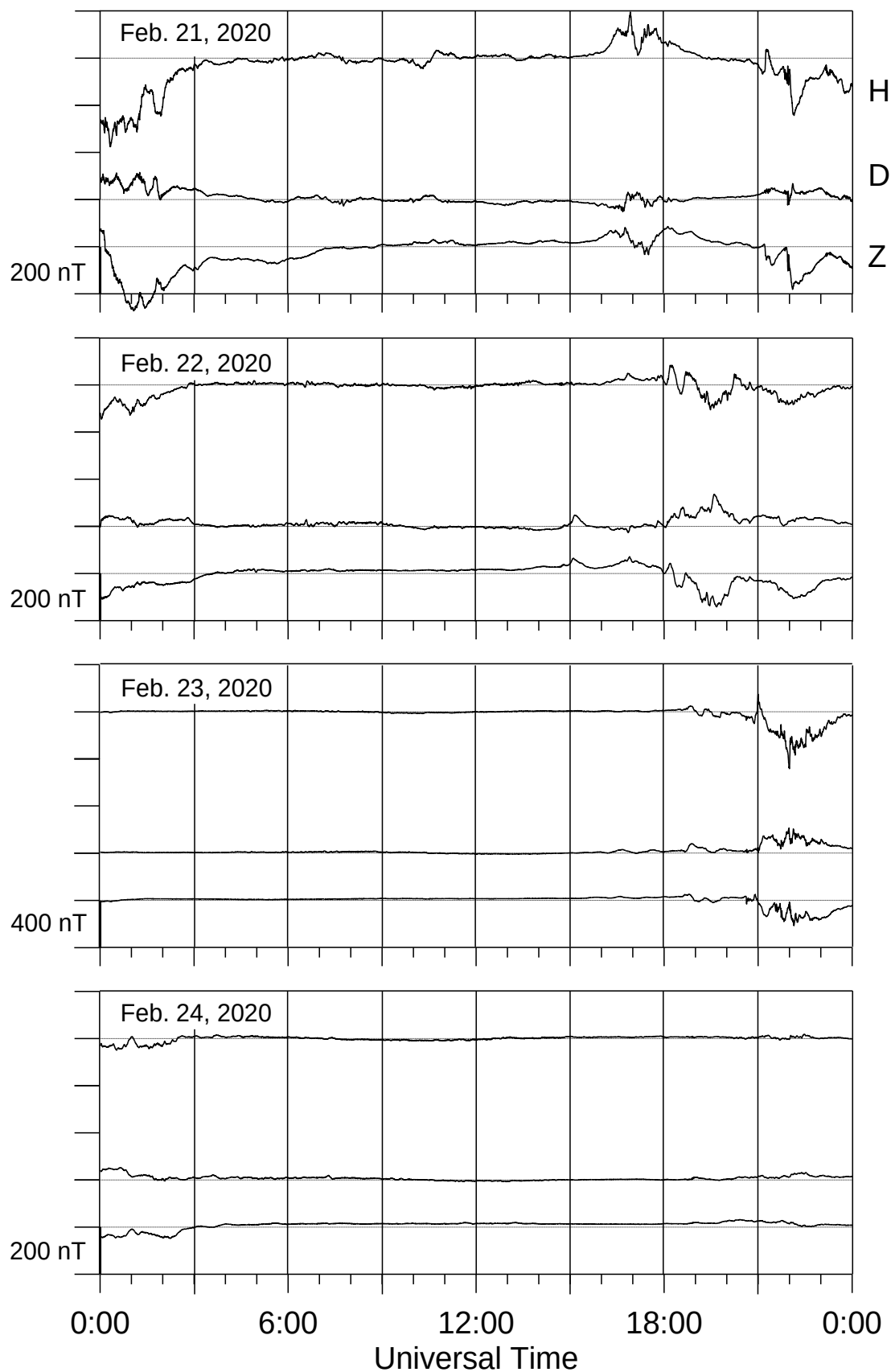
Lovozero magnetometer



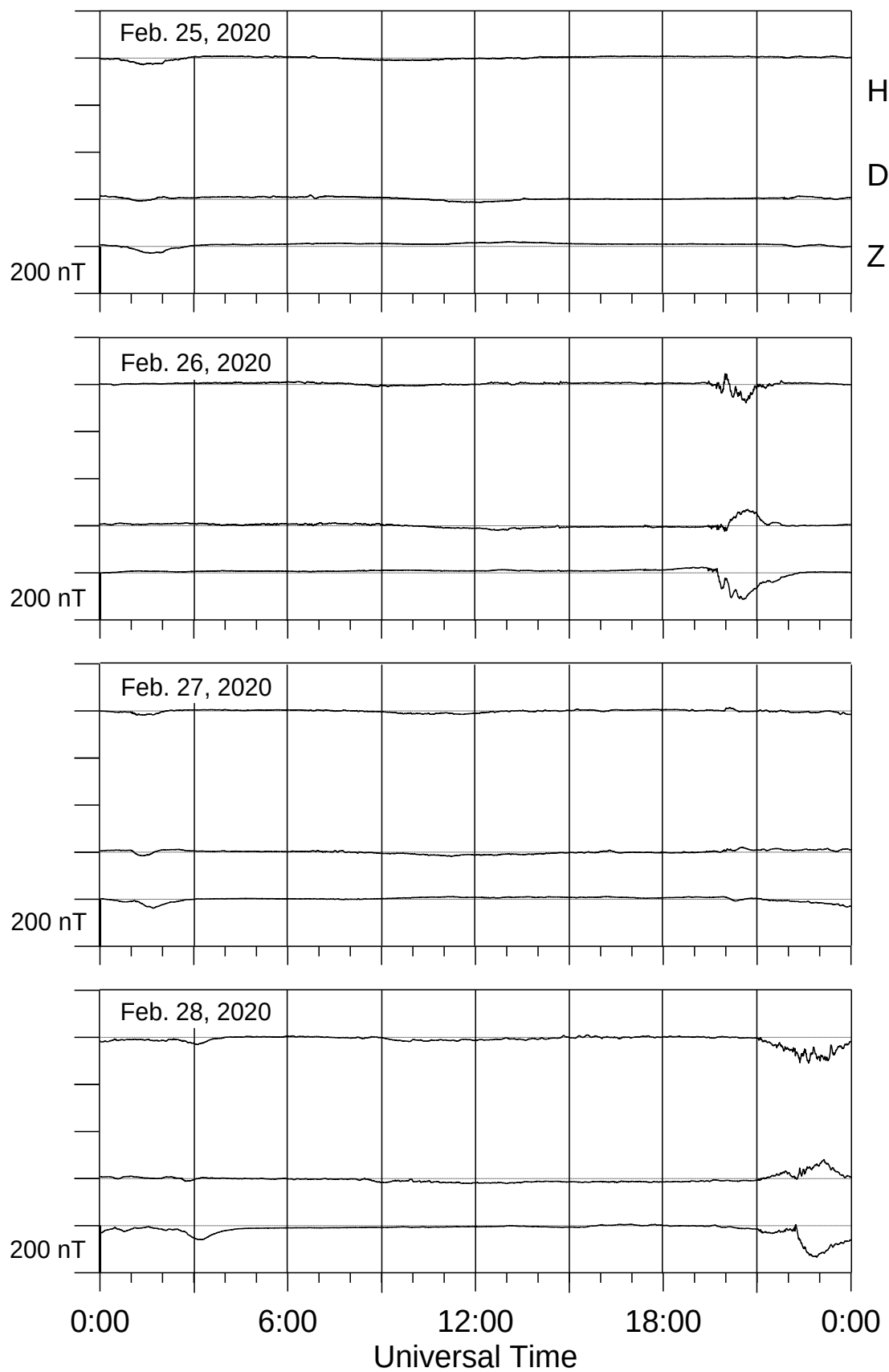
Lovozero magnetometer



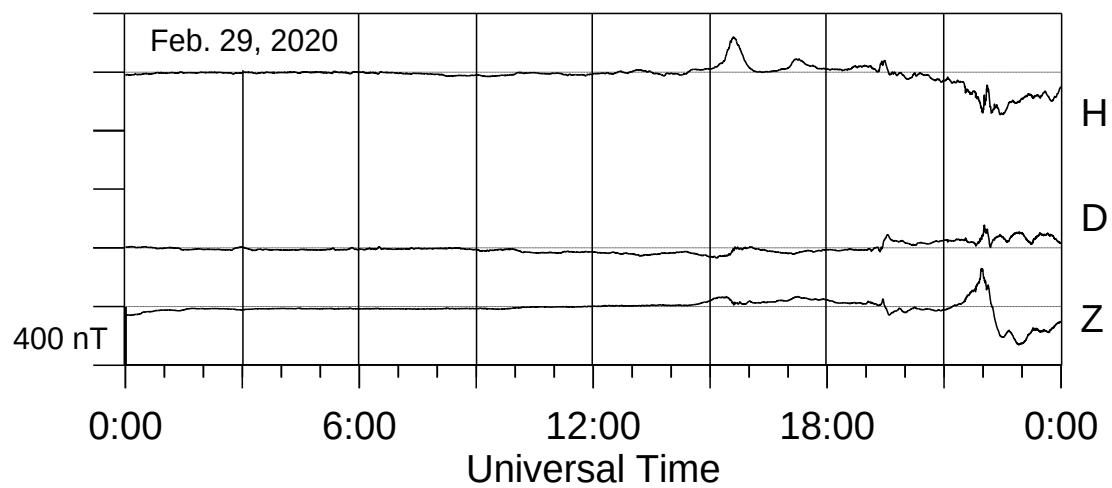
Lovozero magnetometer



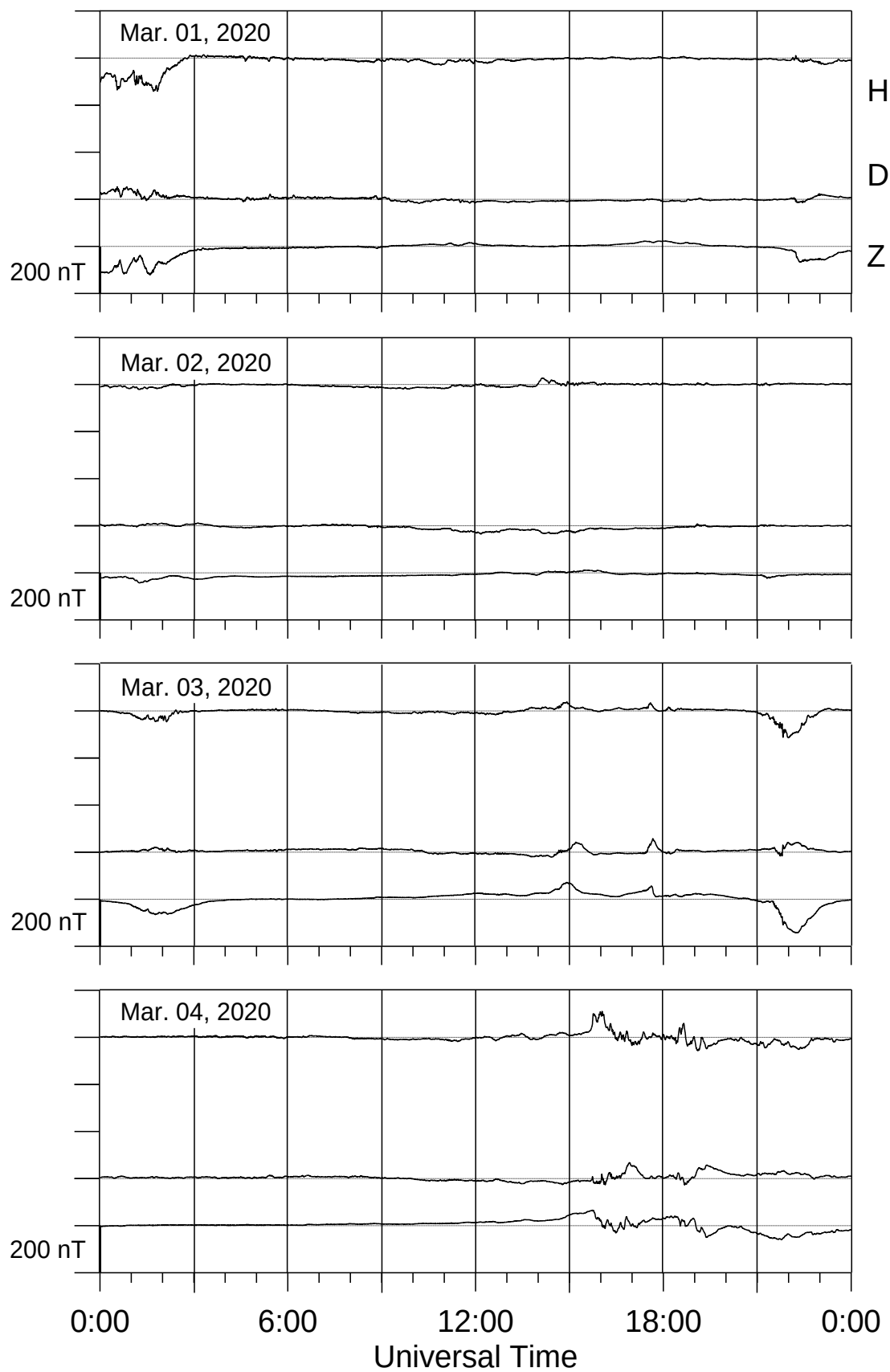
Lovozero magnetometer



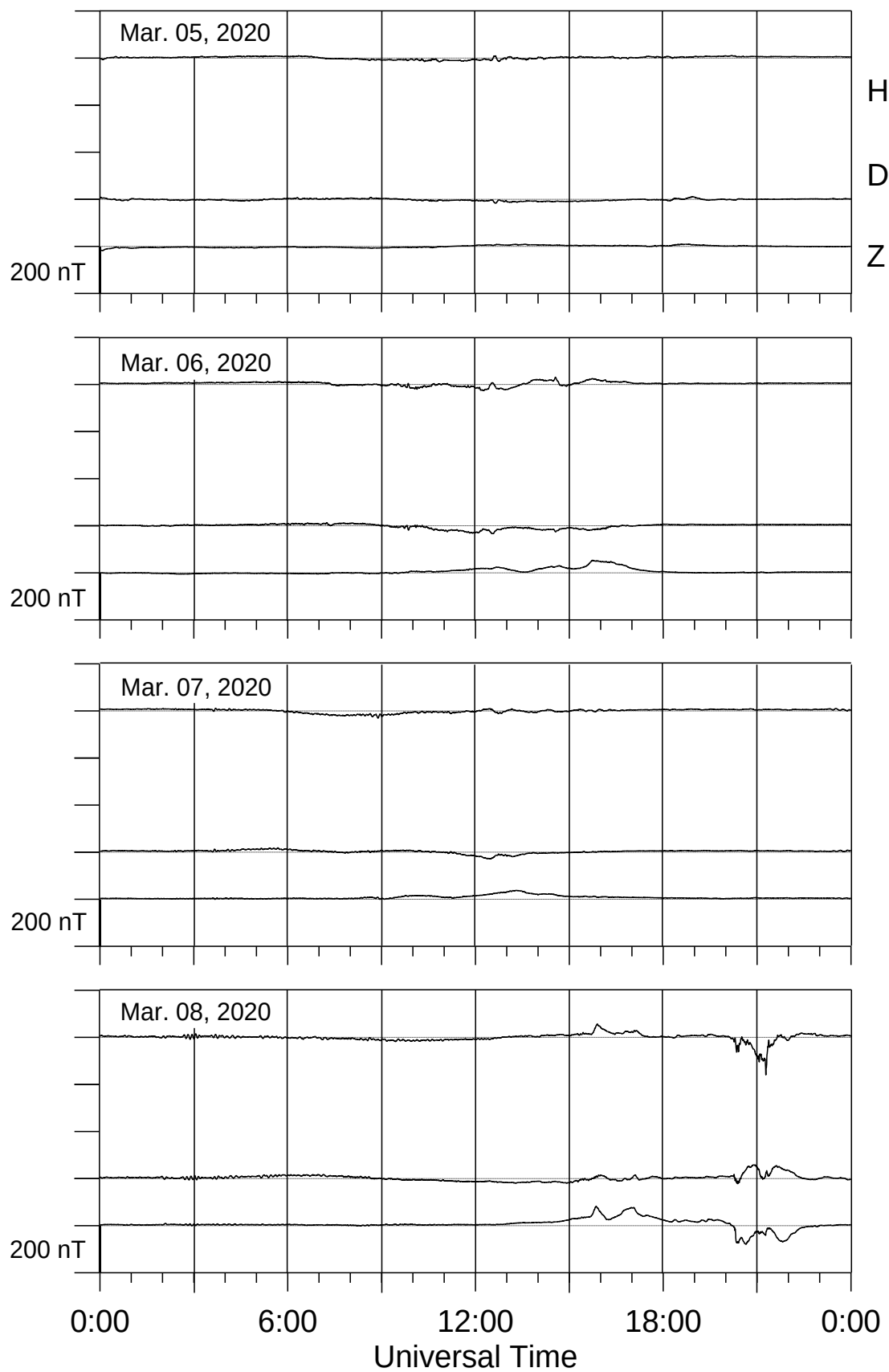
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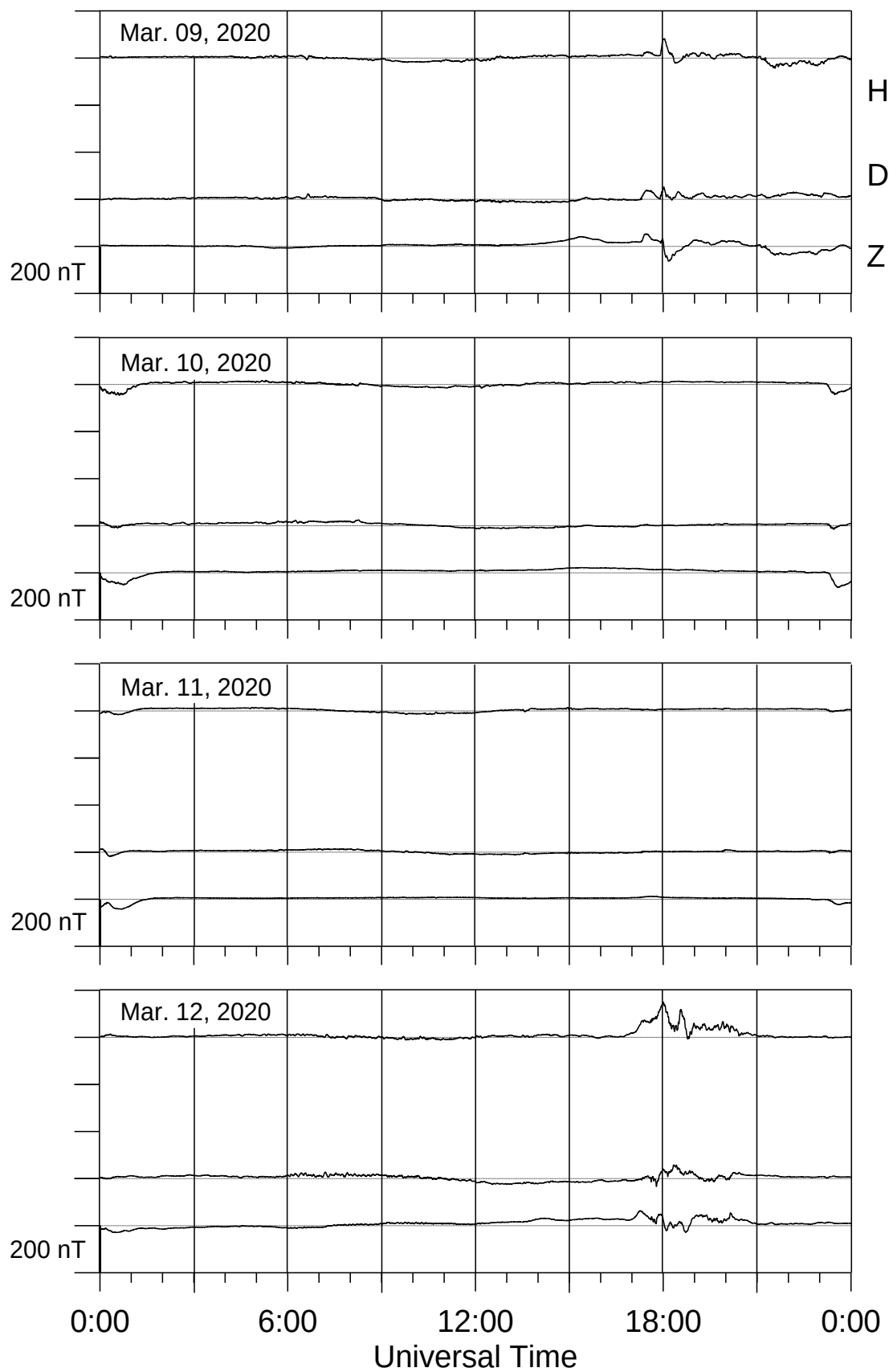
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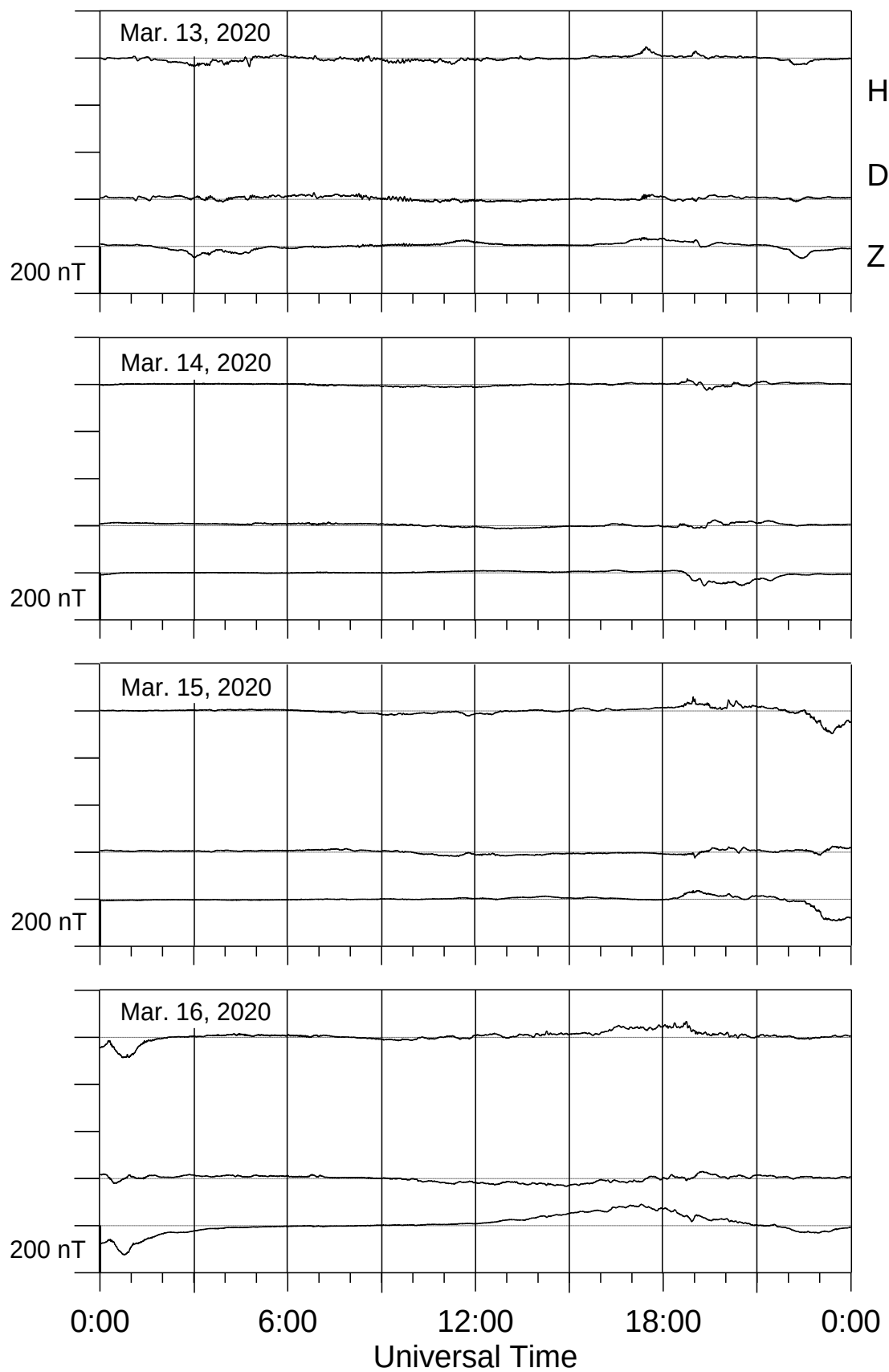
Lovozero magnetometer



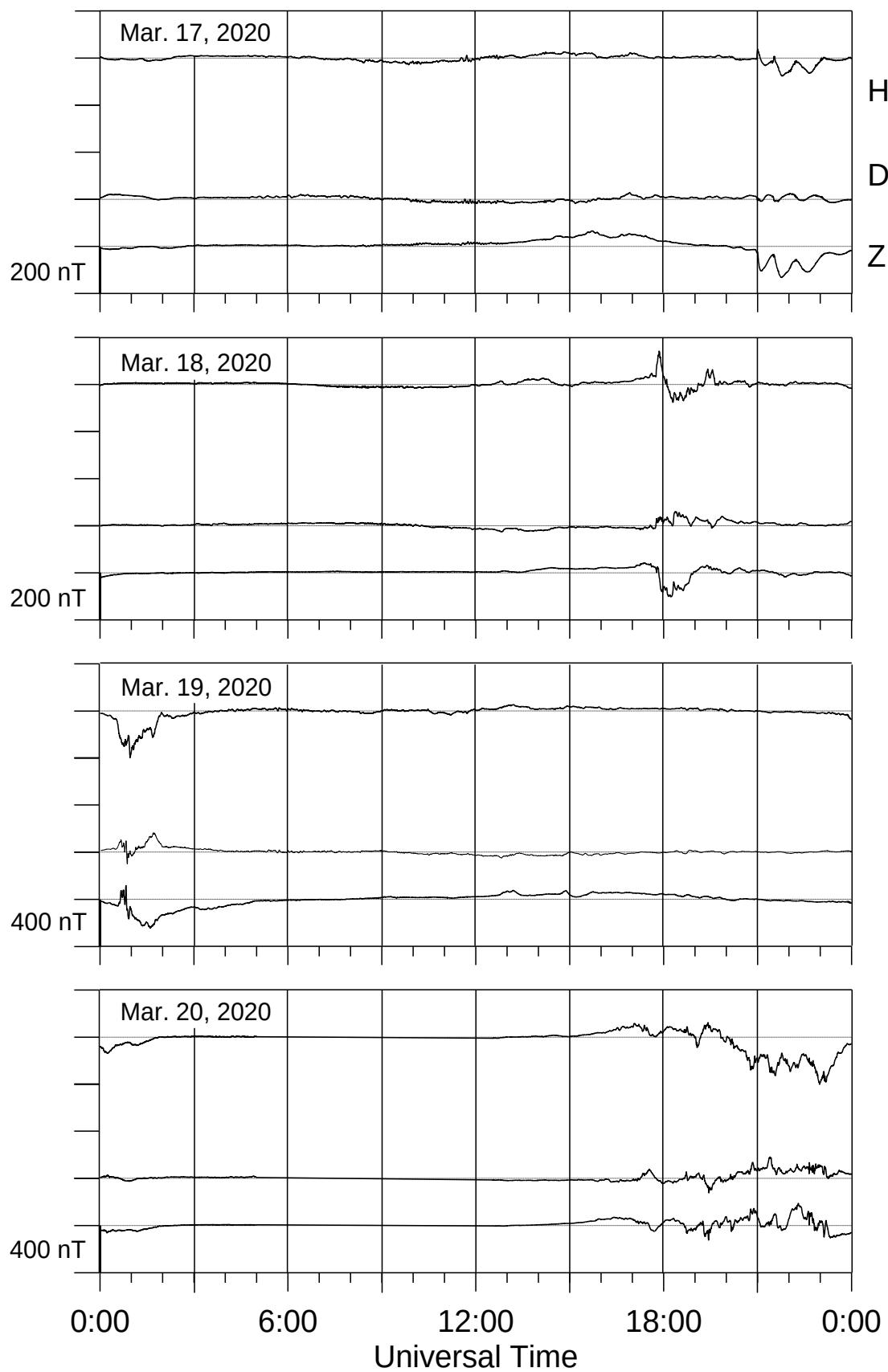
Lovozero magnetometer



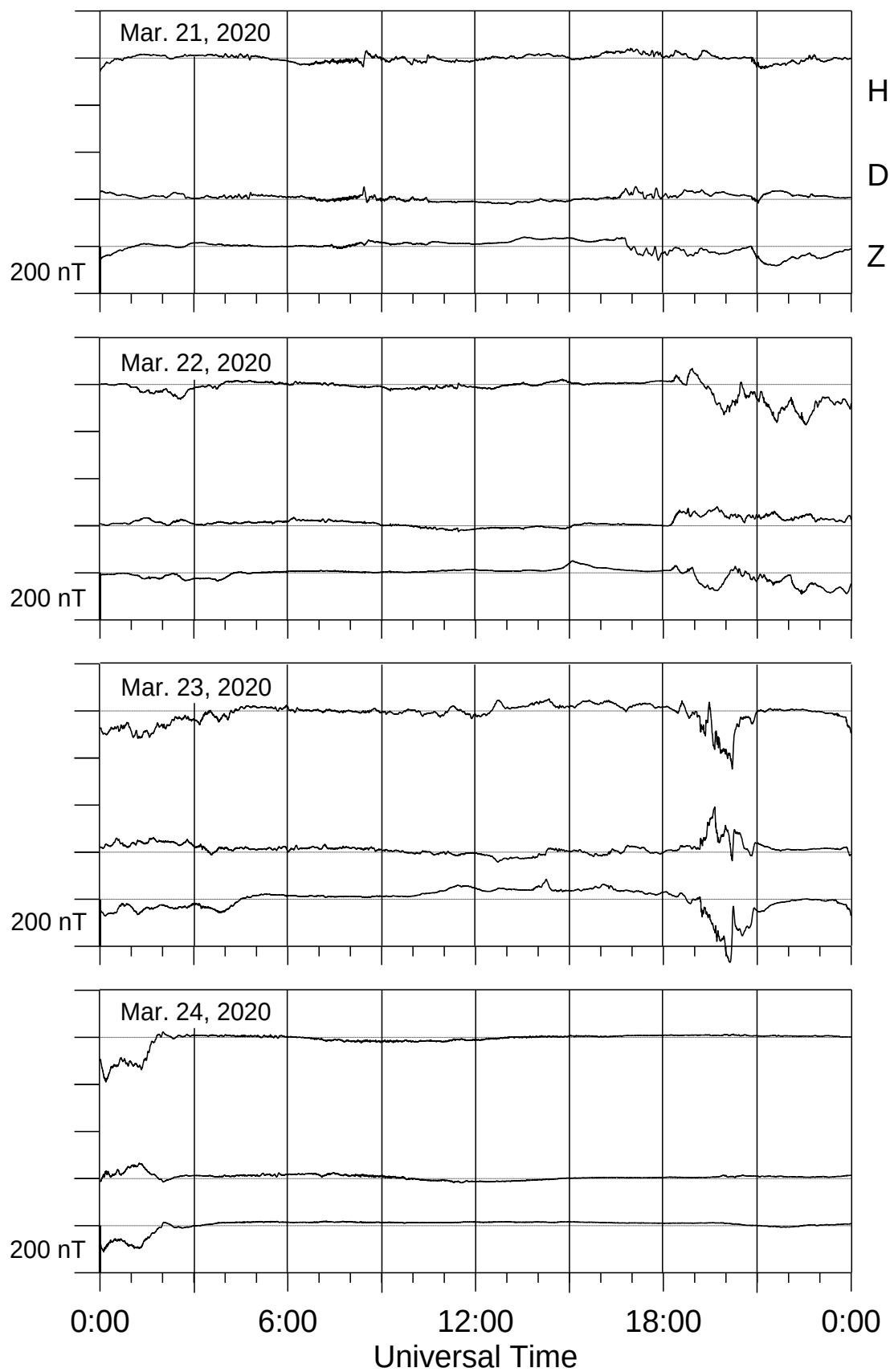
Lovozero magnetometer



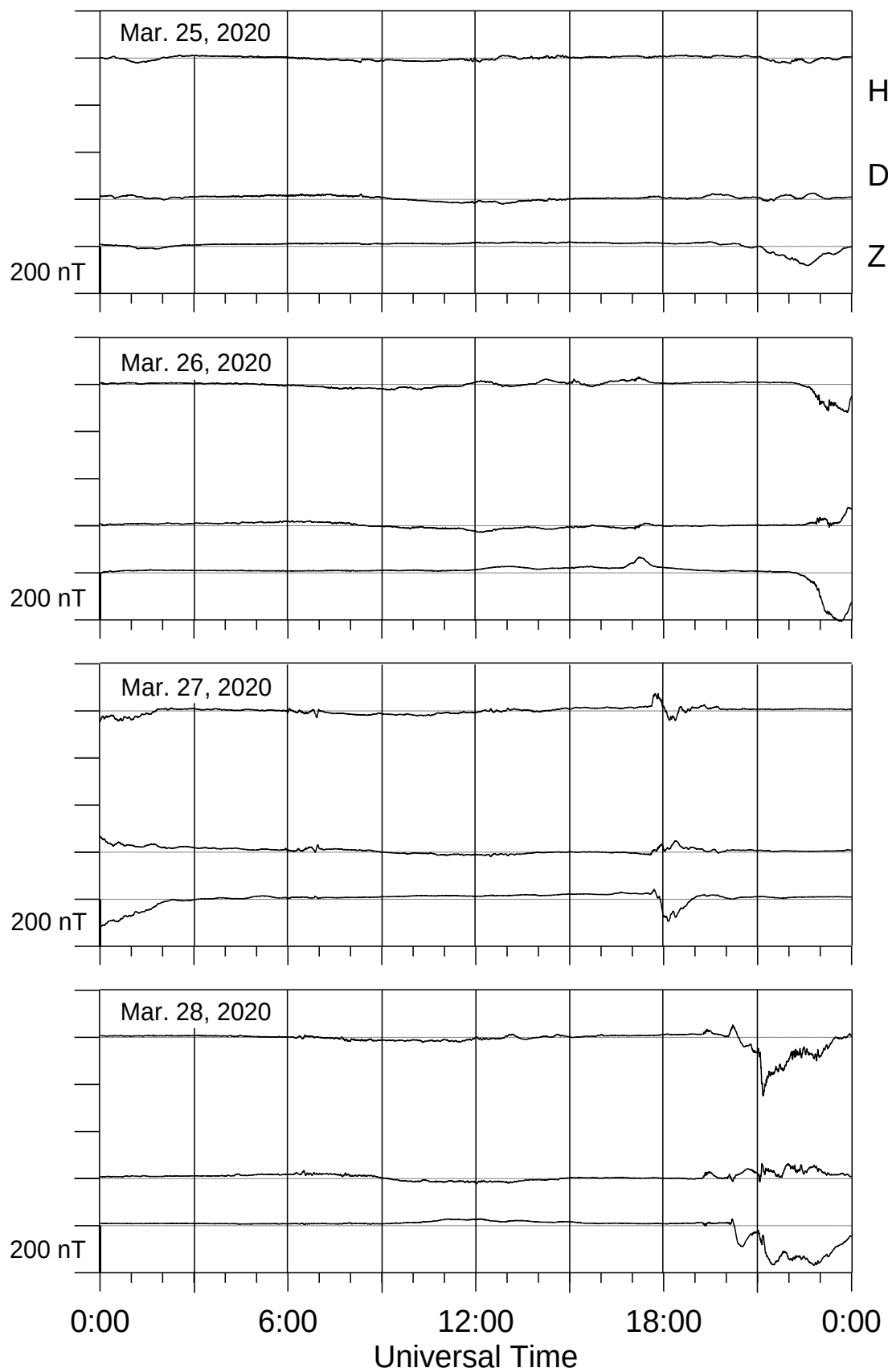
Lovozero magnetometer



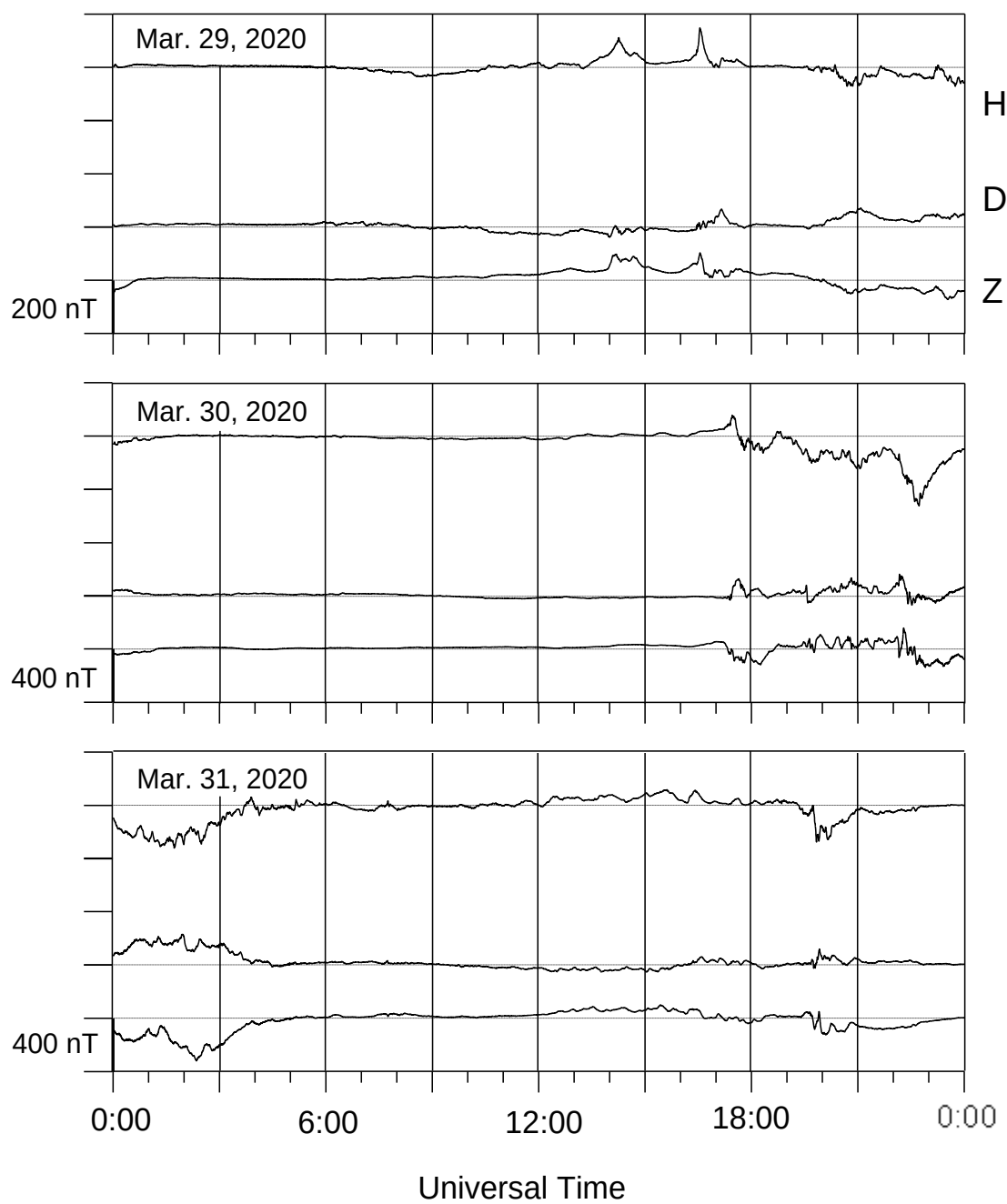
Lovozero magnetometer



Lovozero magnetometer



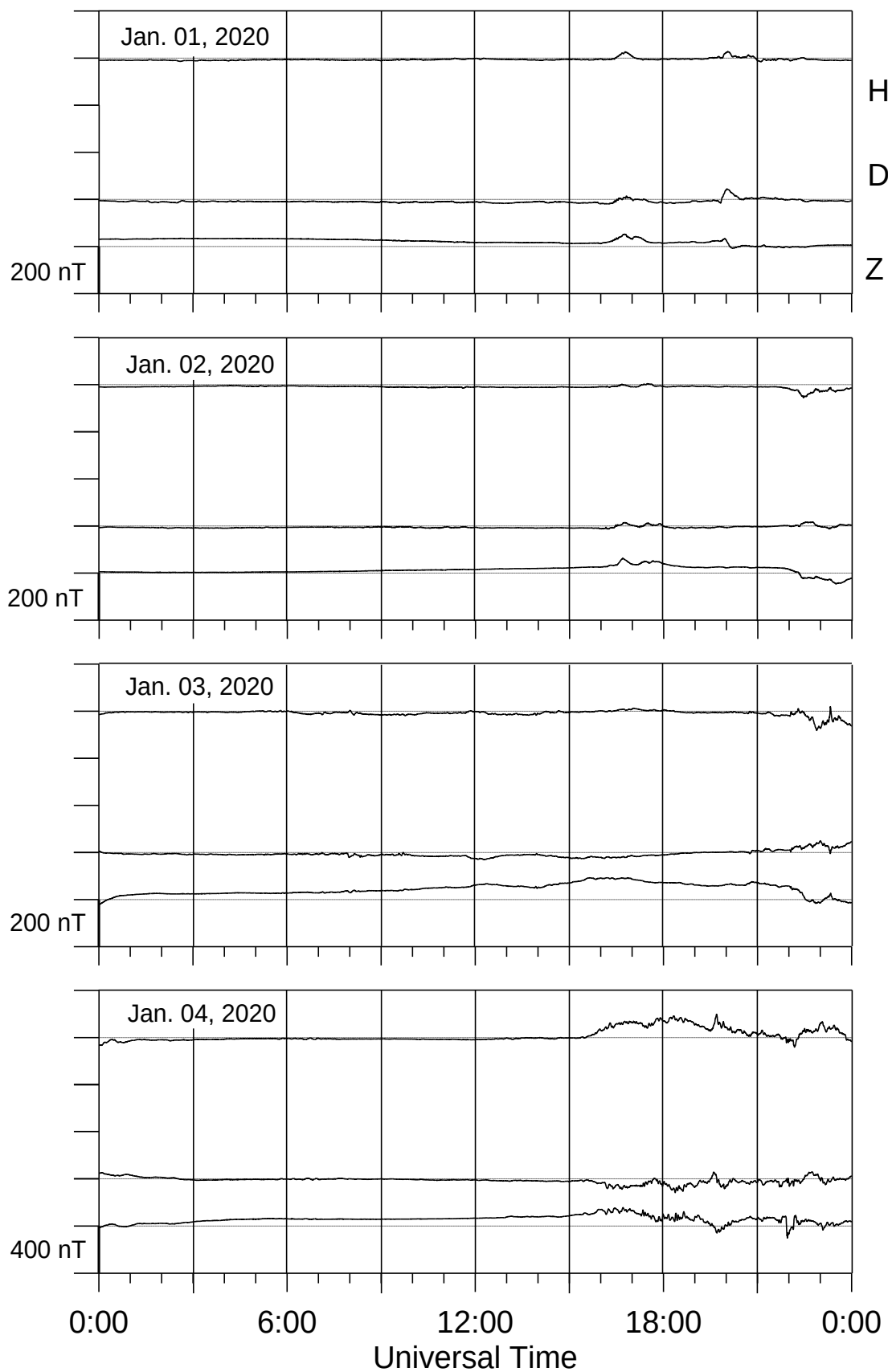
Lovozero magnetometer



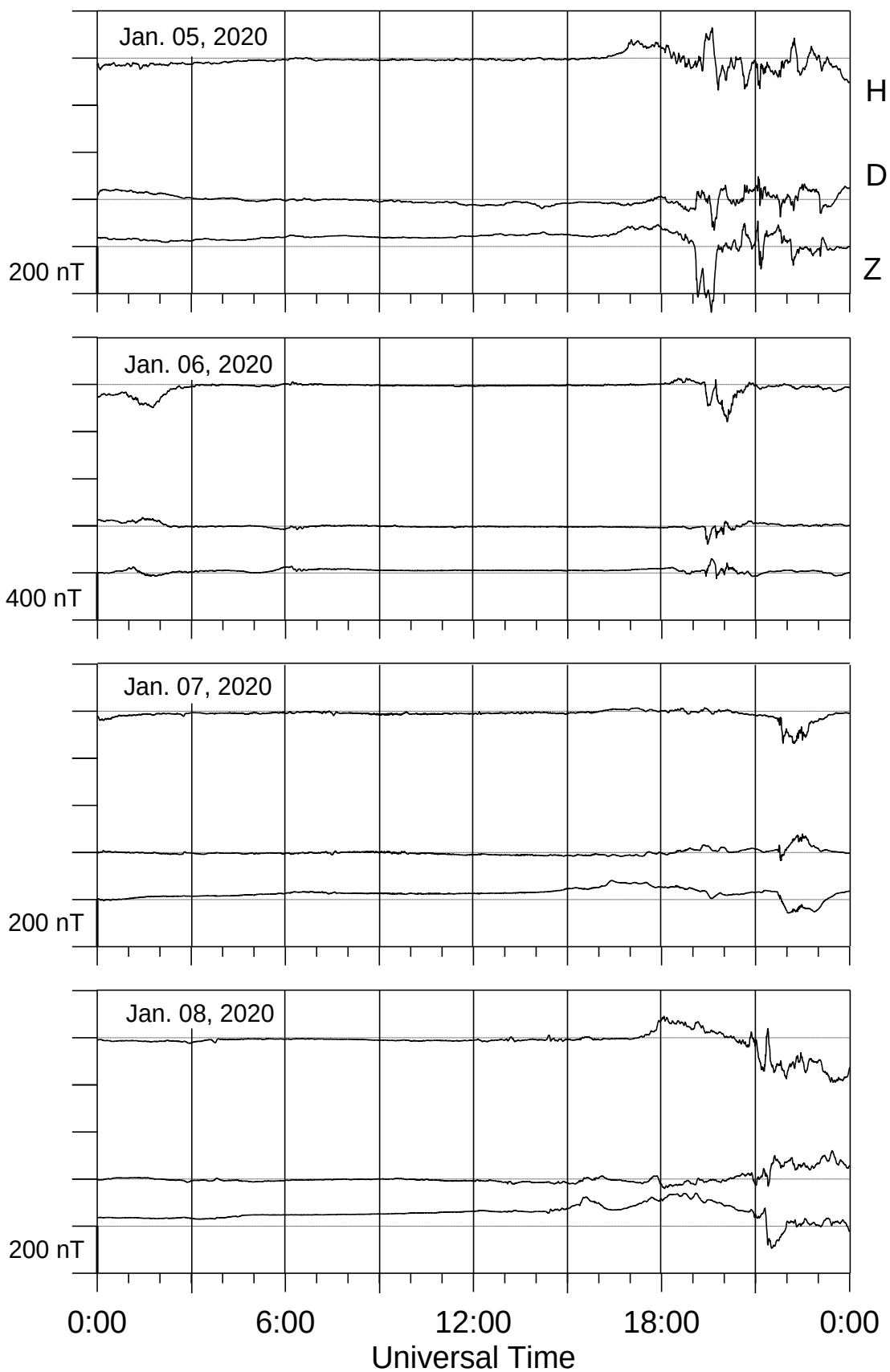
LOPARSKAYA MAGNETOGRAMS

January - March 2020

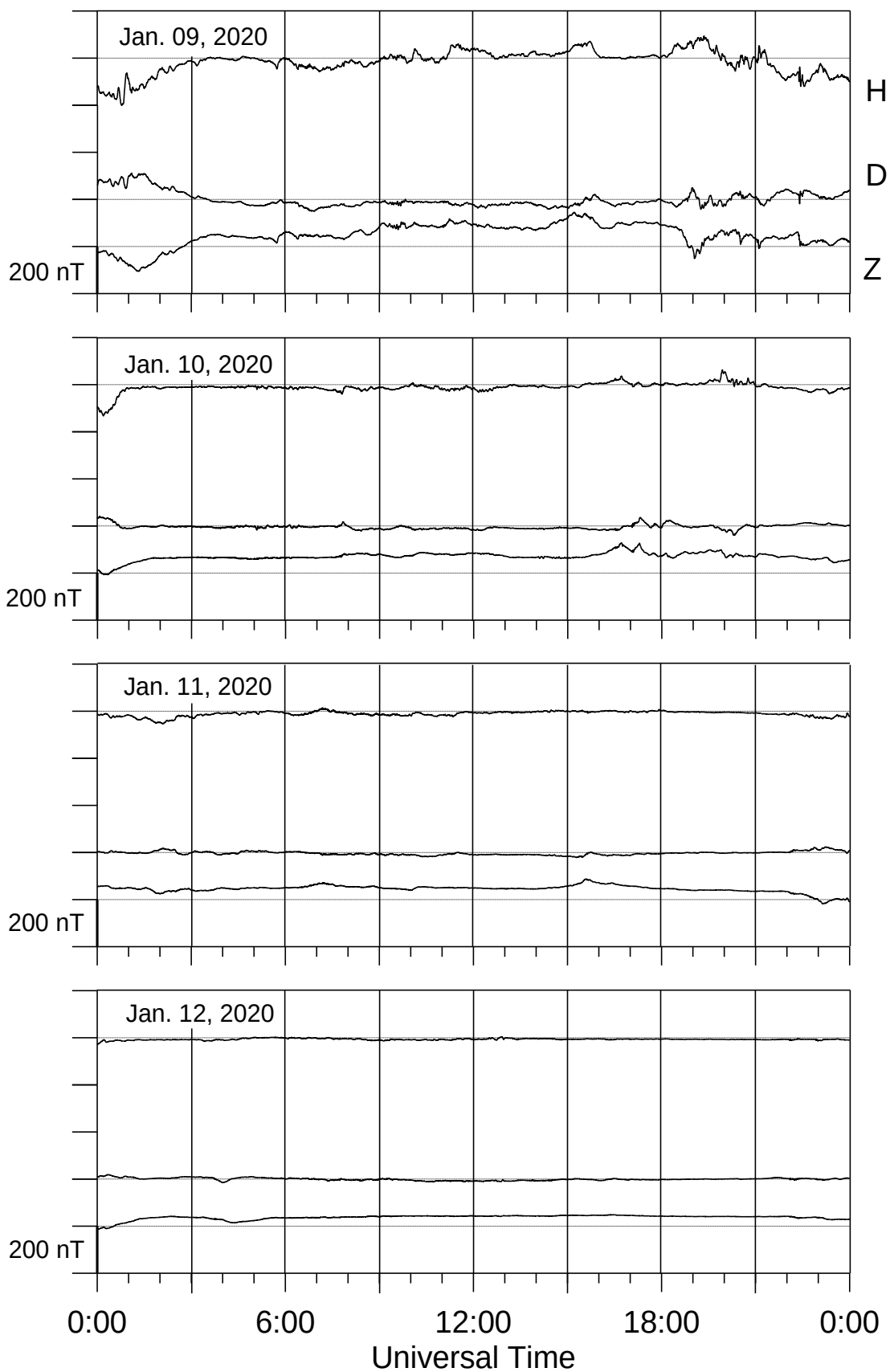
Loparskaya magnetometer



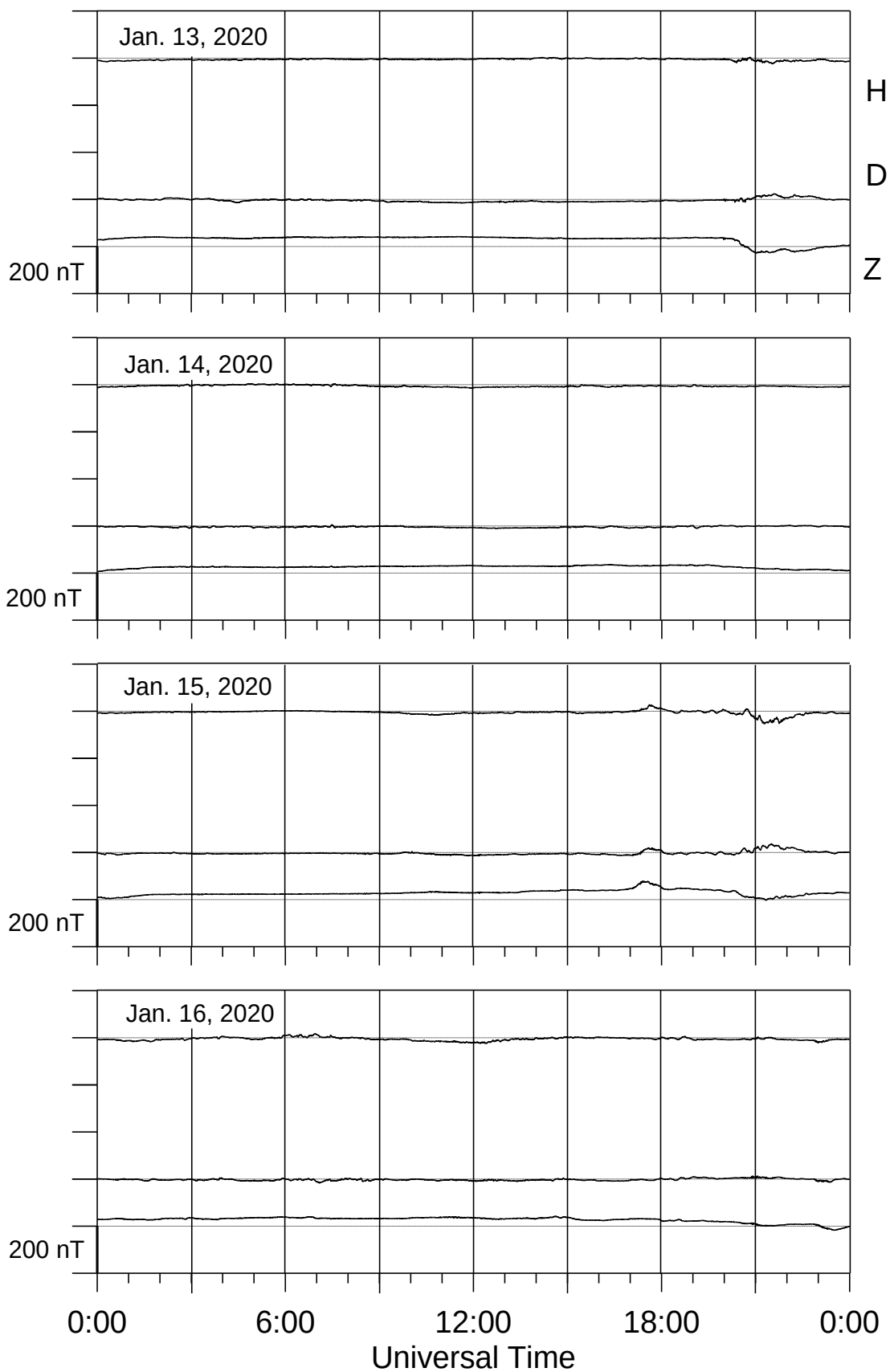
Loparskaya magnetometer



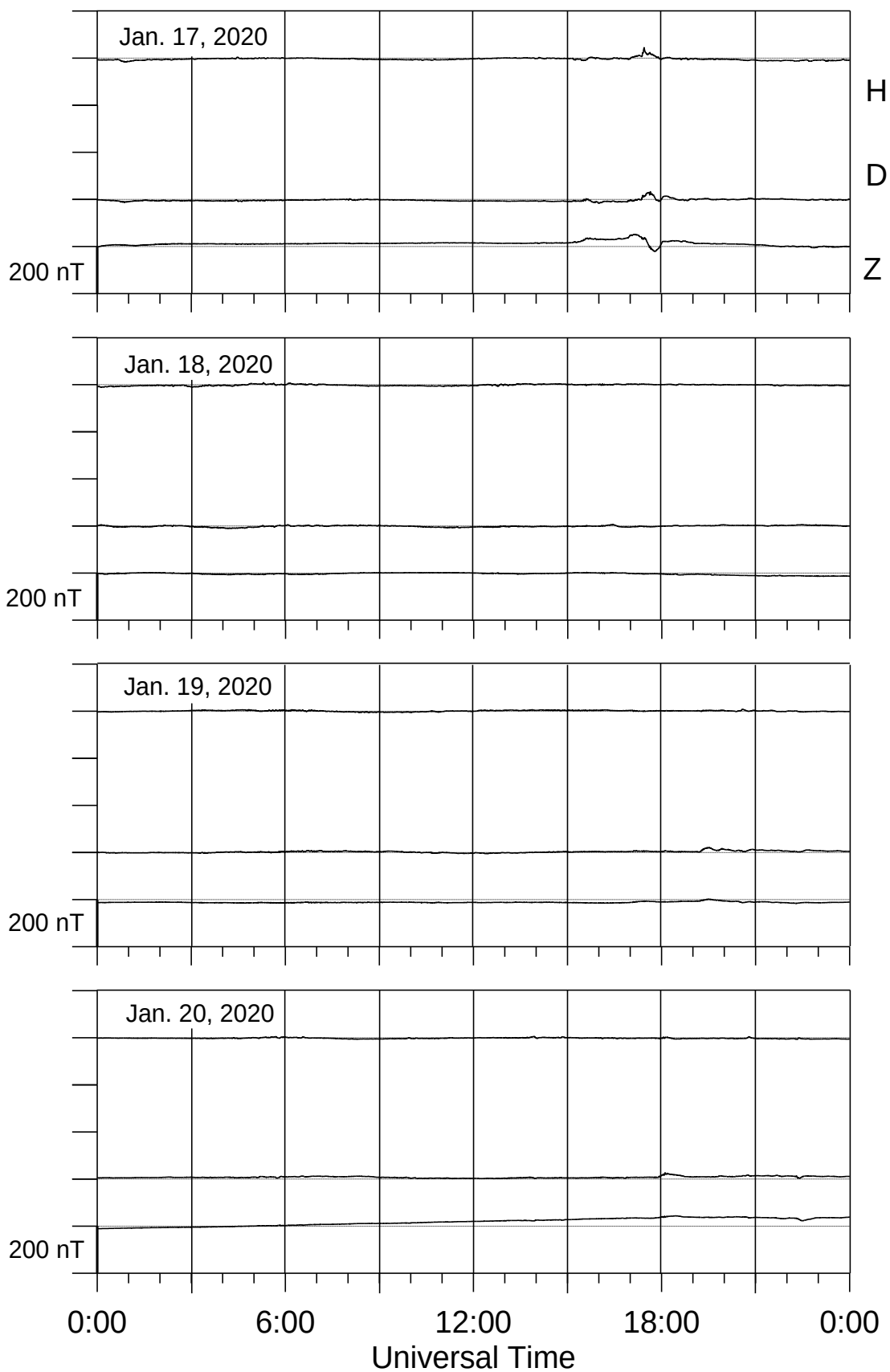
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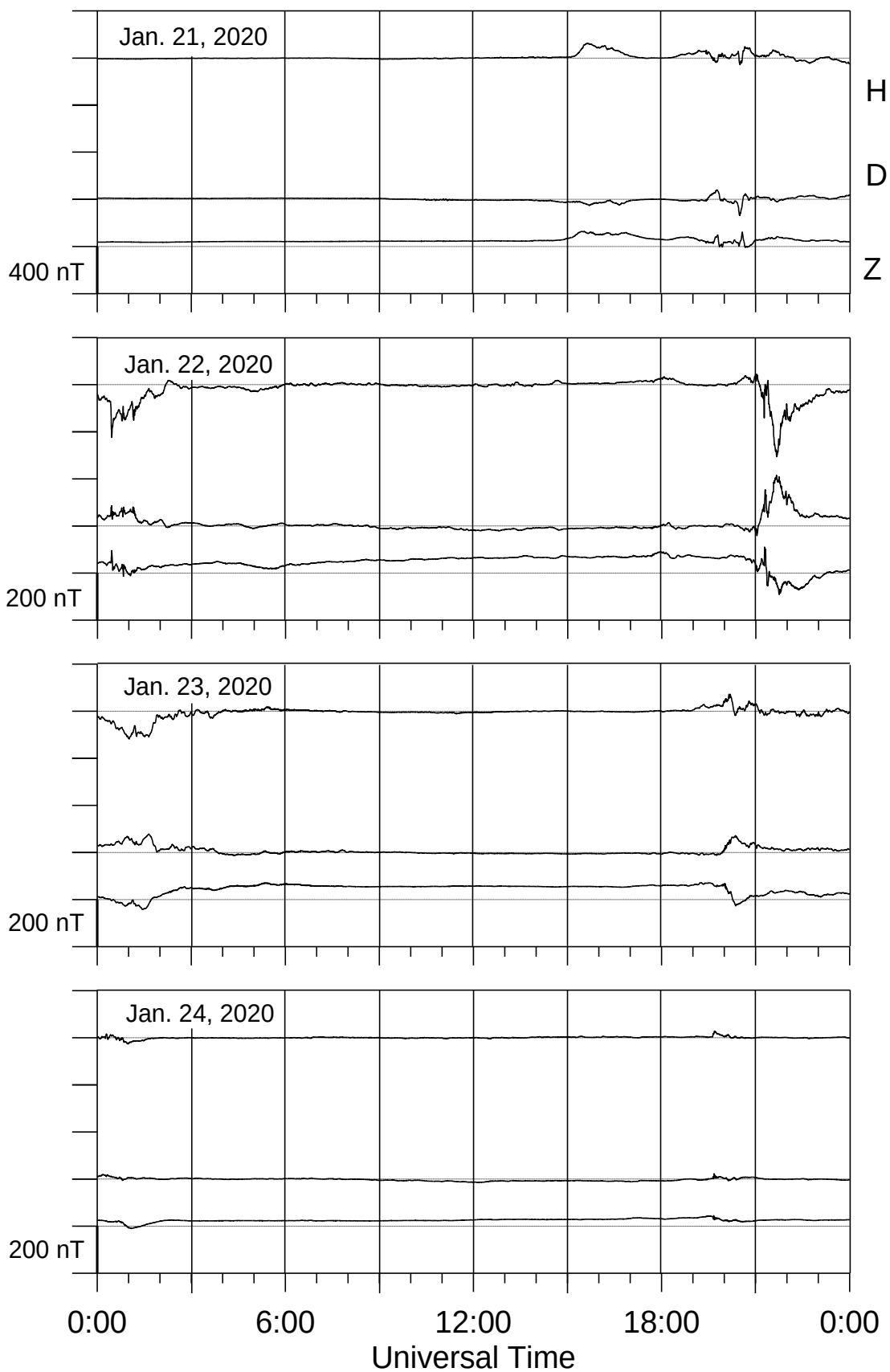
Loparskaya magnetometer



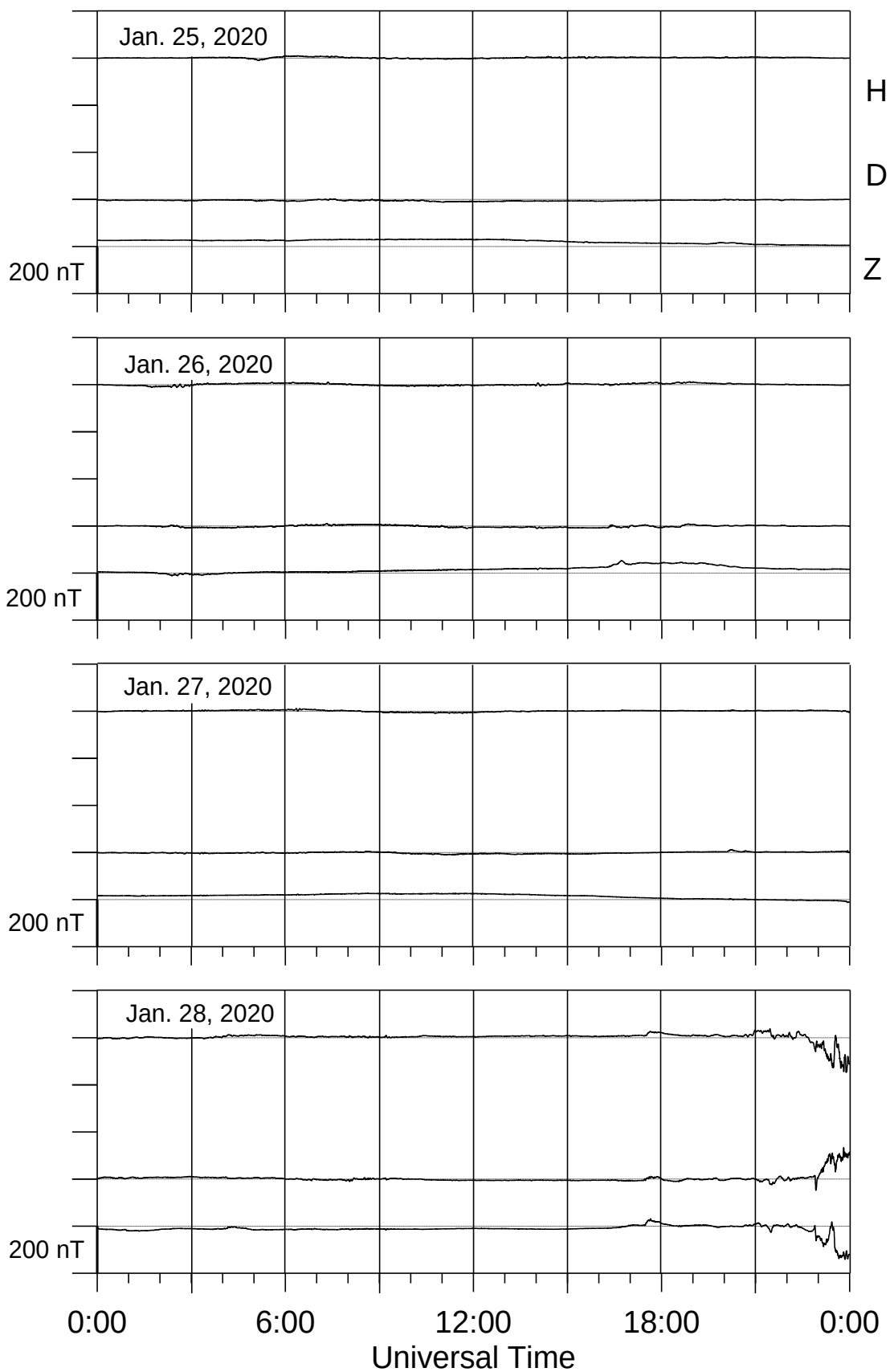
Loparskaya magnetometer



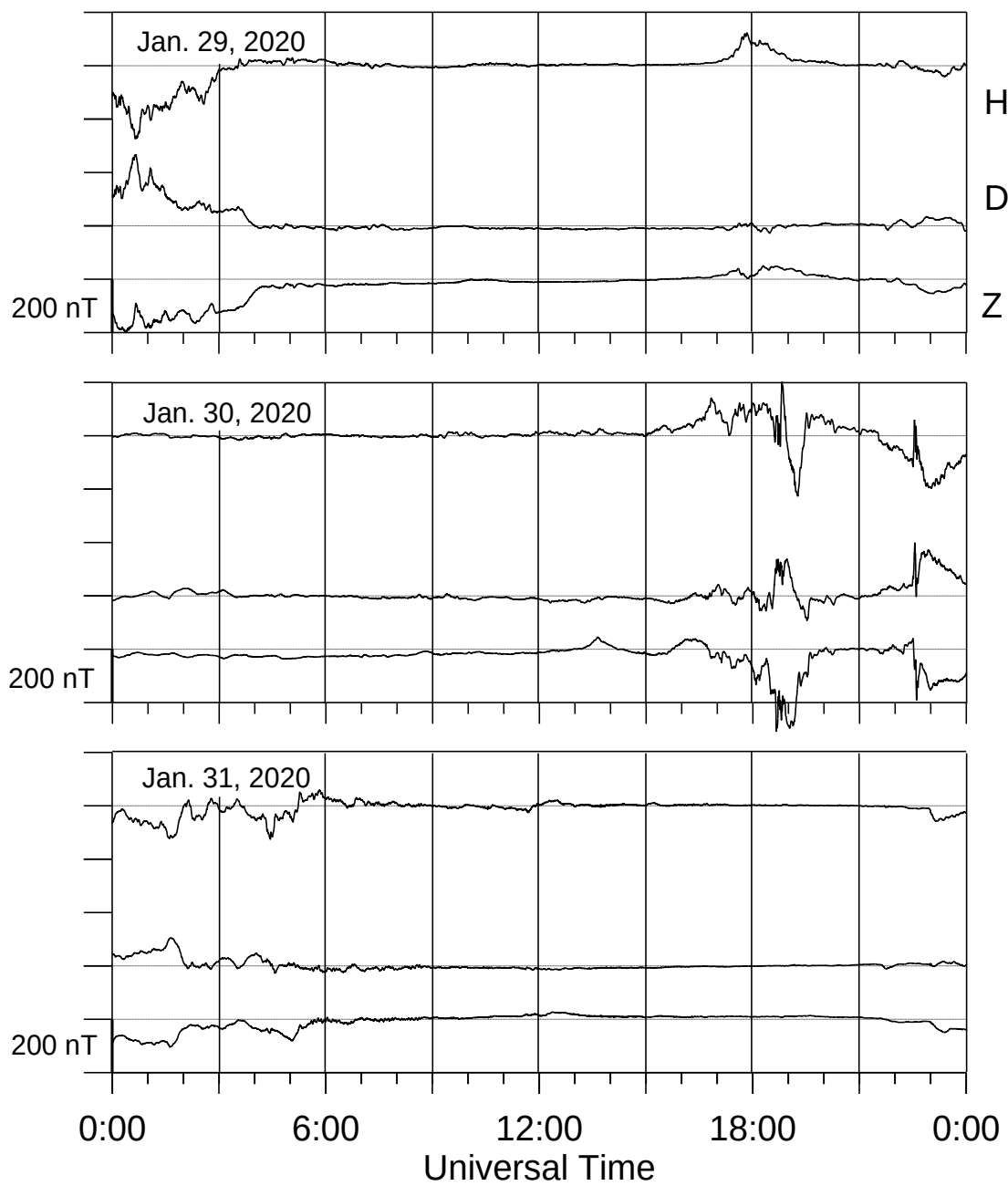
Loparskaya magnetometer



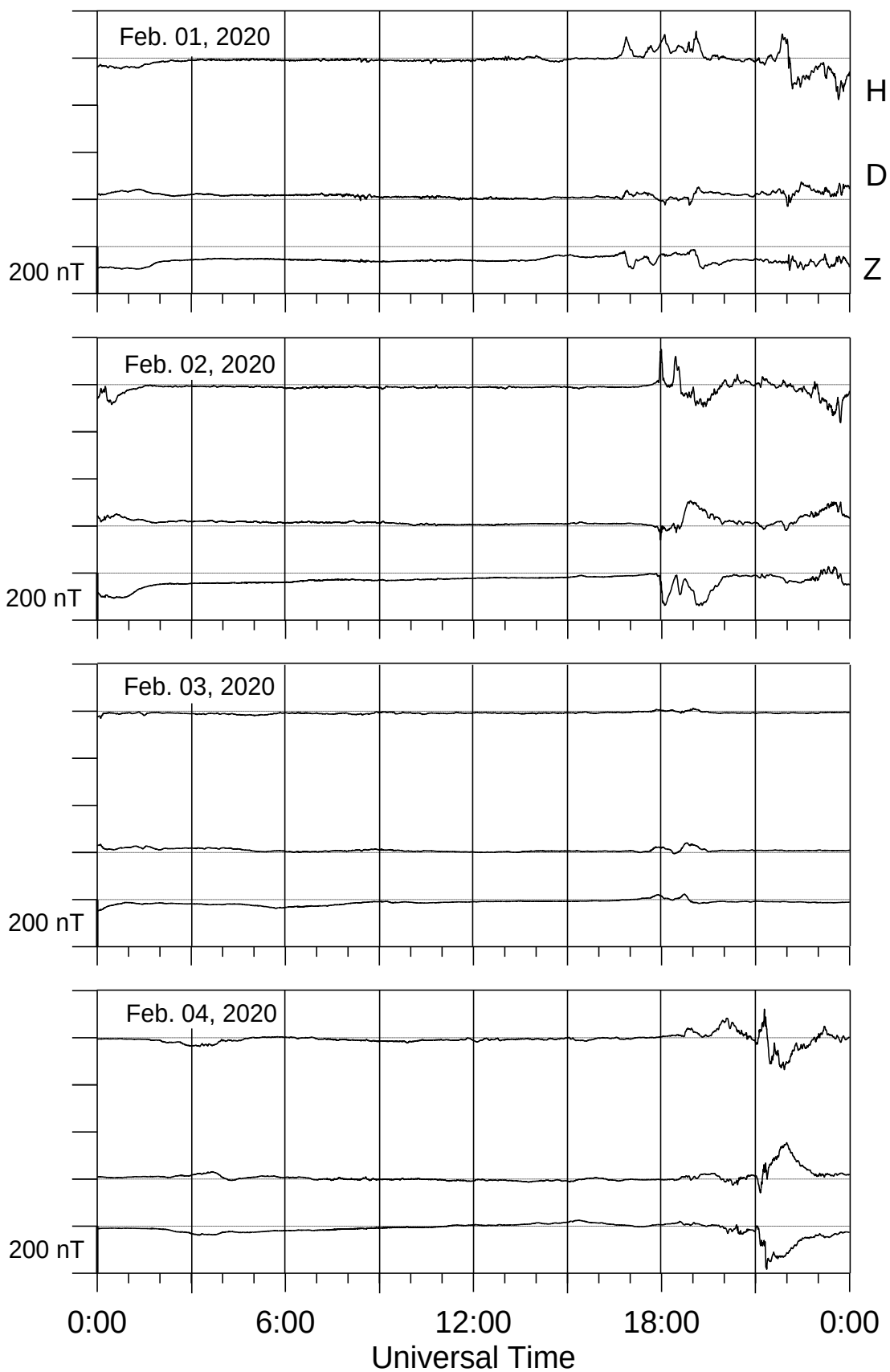
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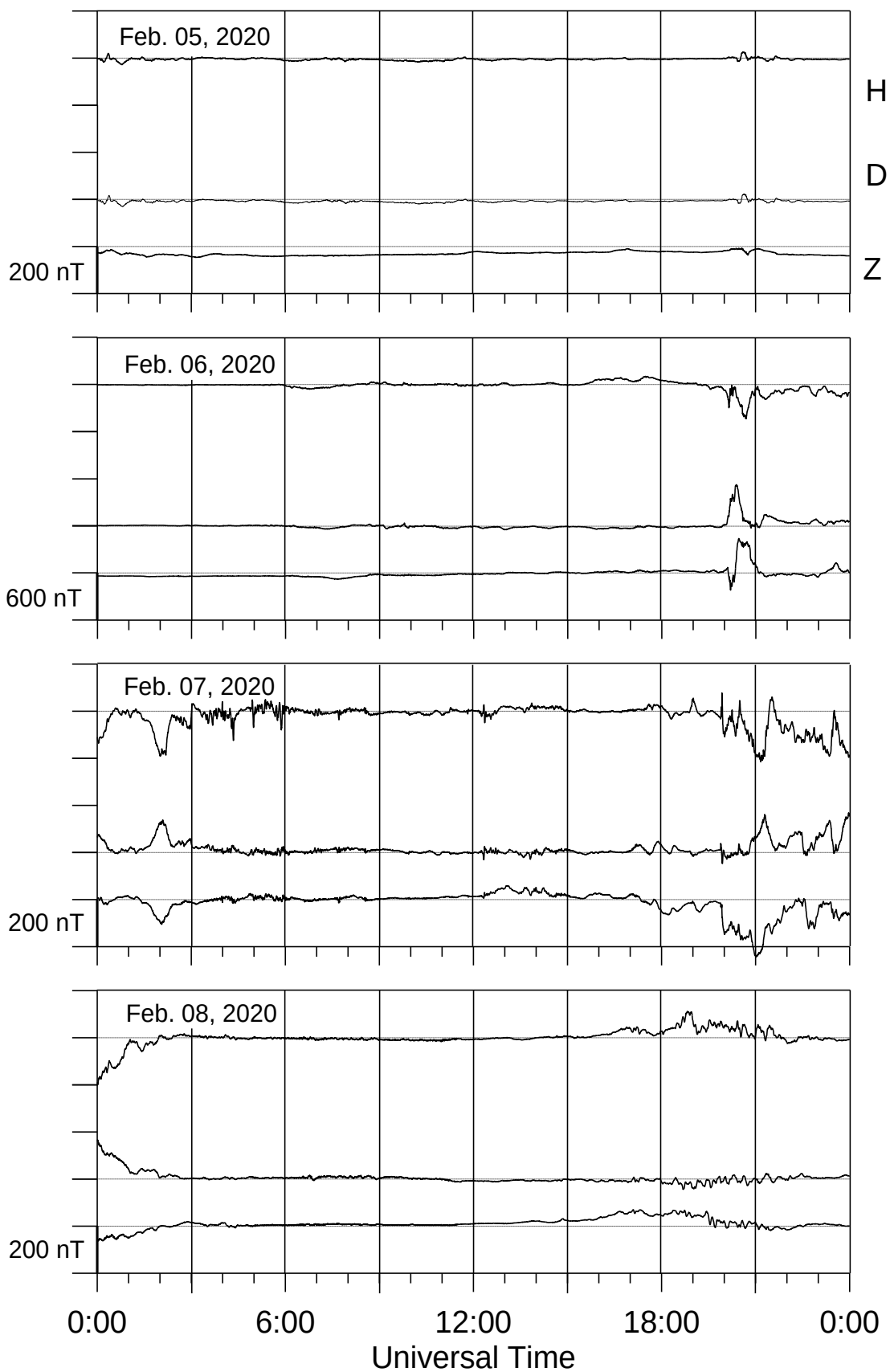
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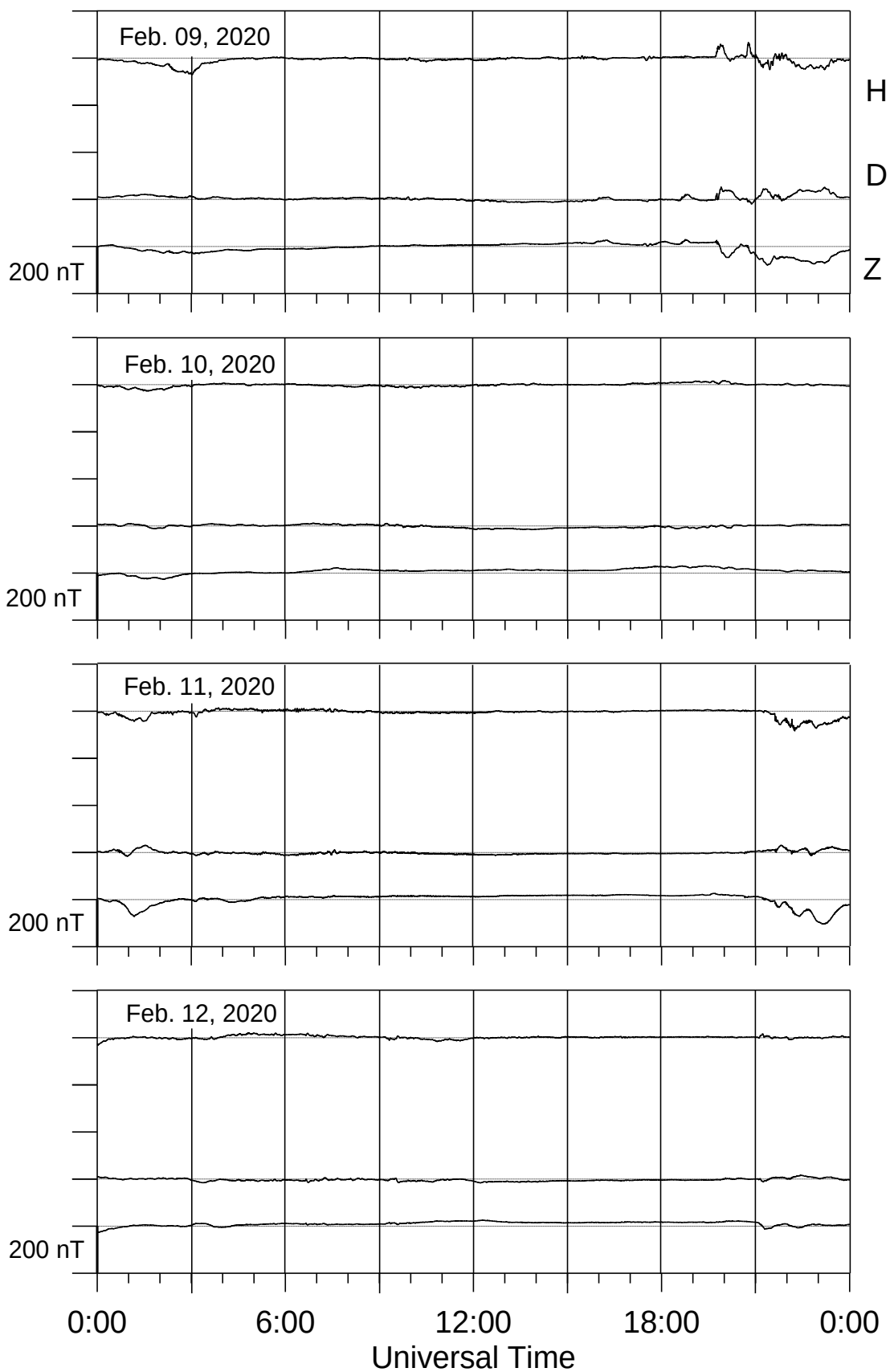
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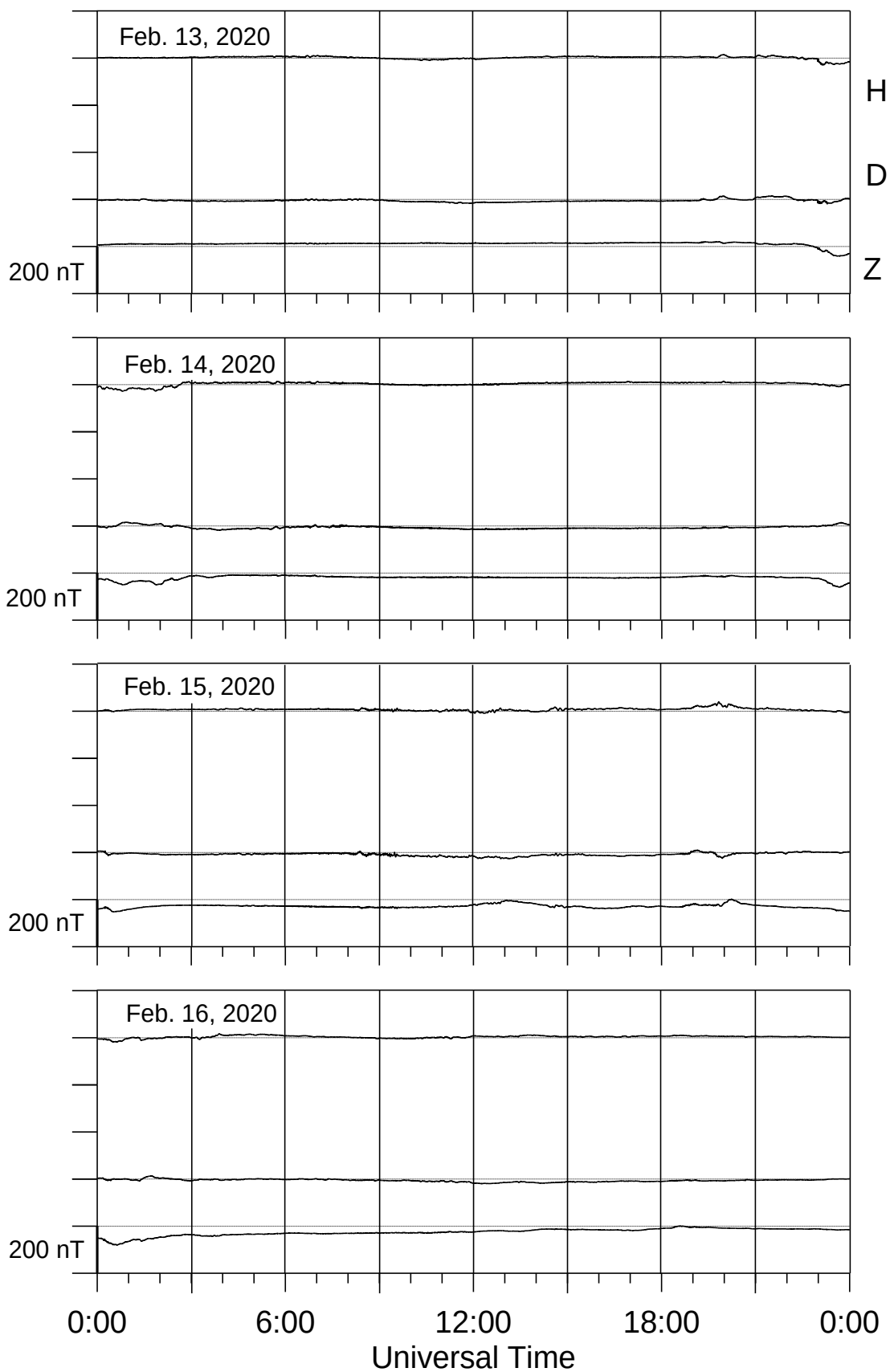
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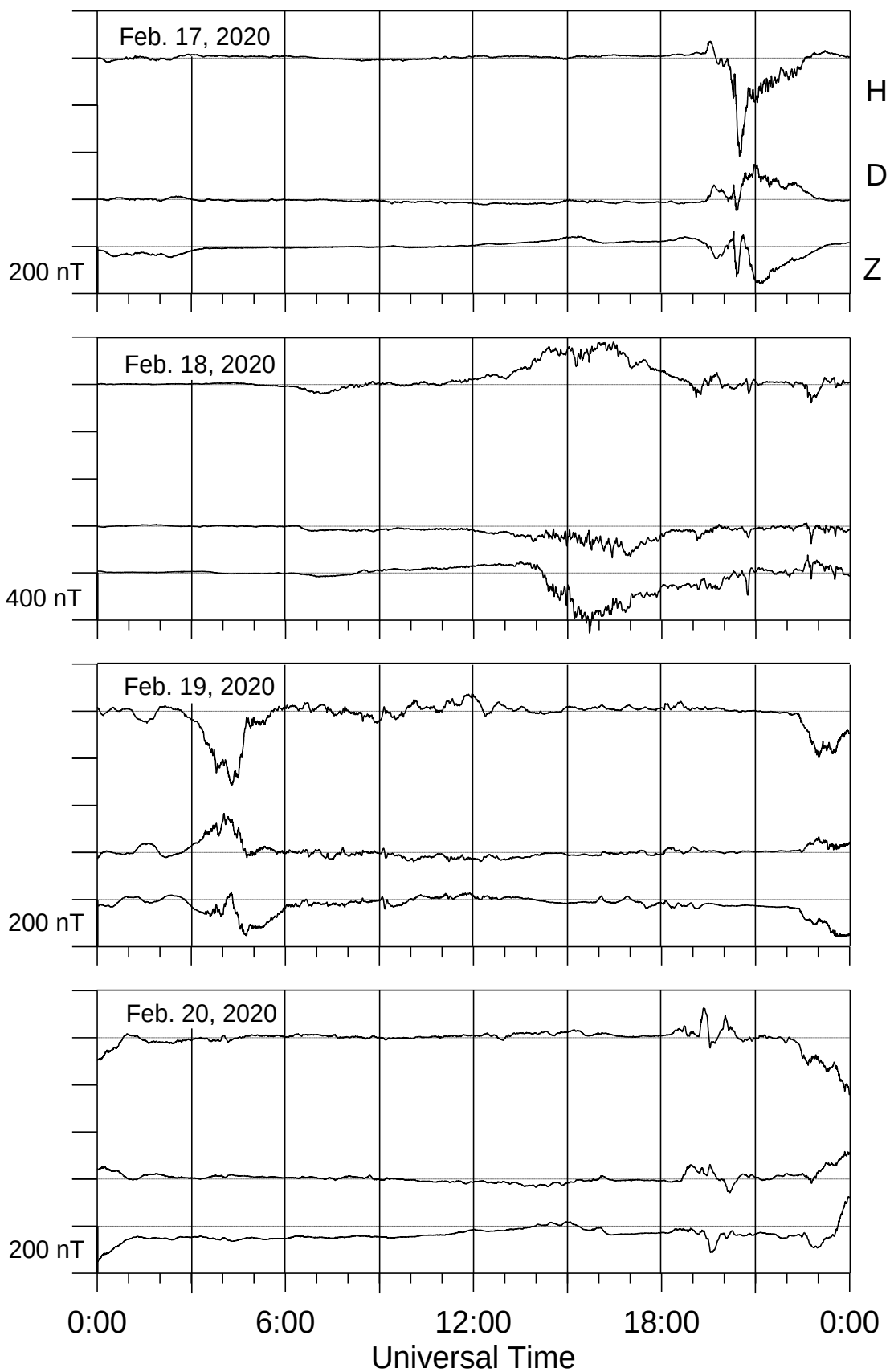
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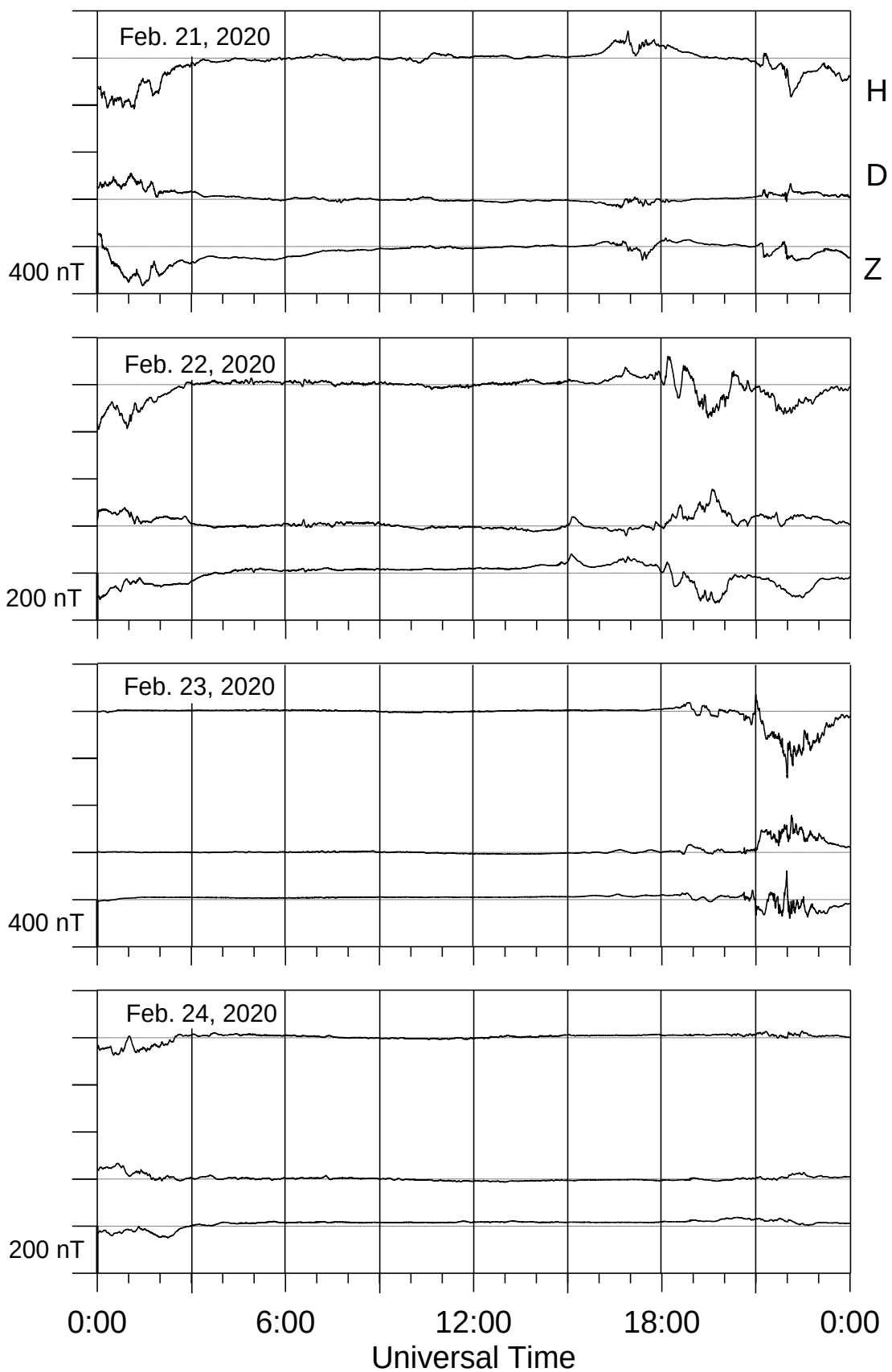
Loparskaya magnetometer



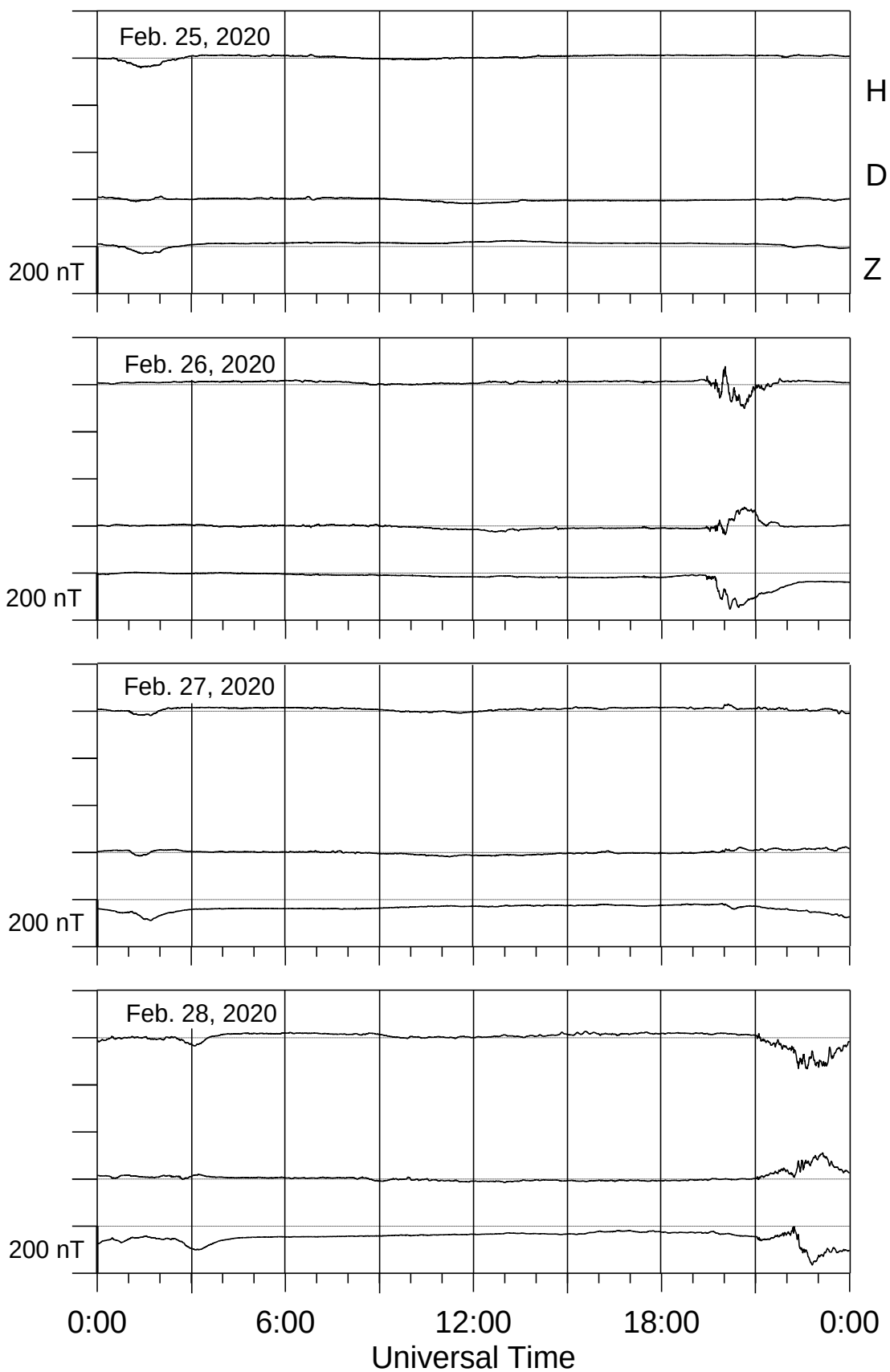
Loparskaya magnetometer



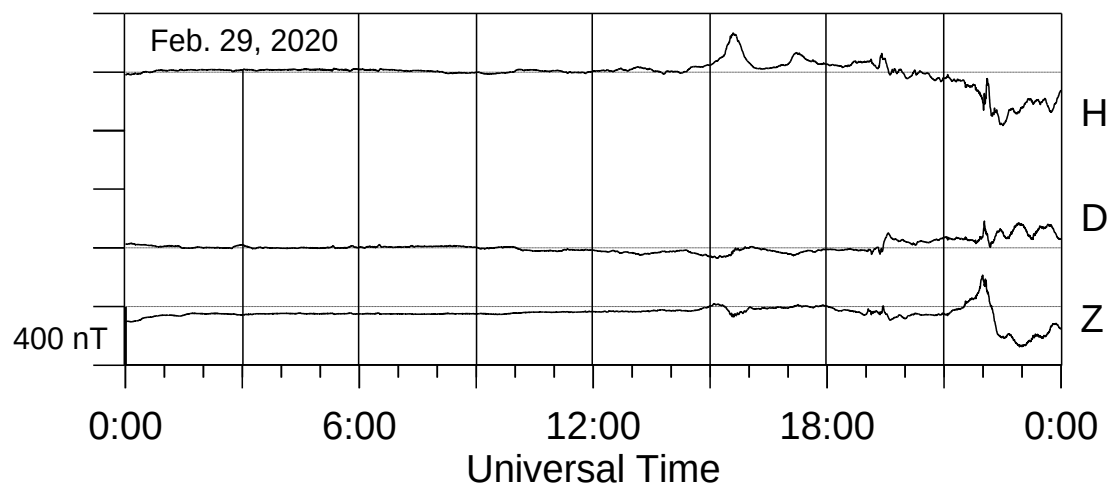
Loparskaya magnetometer



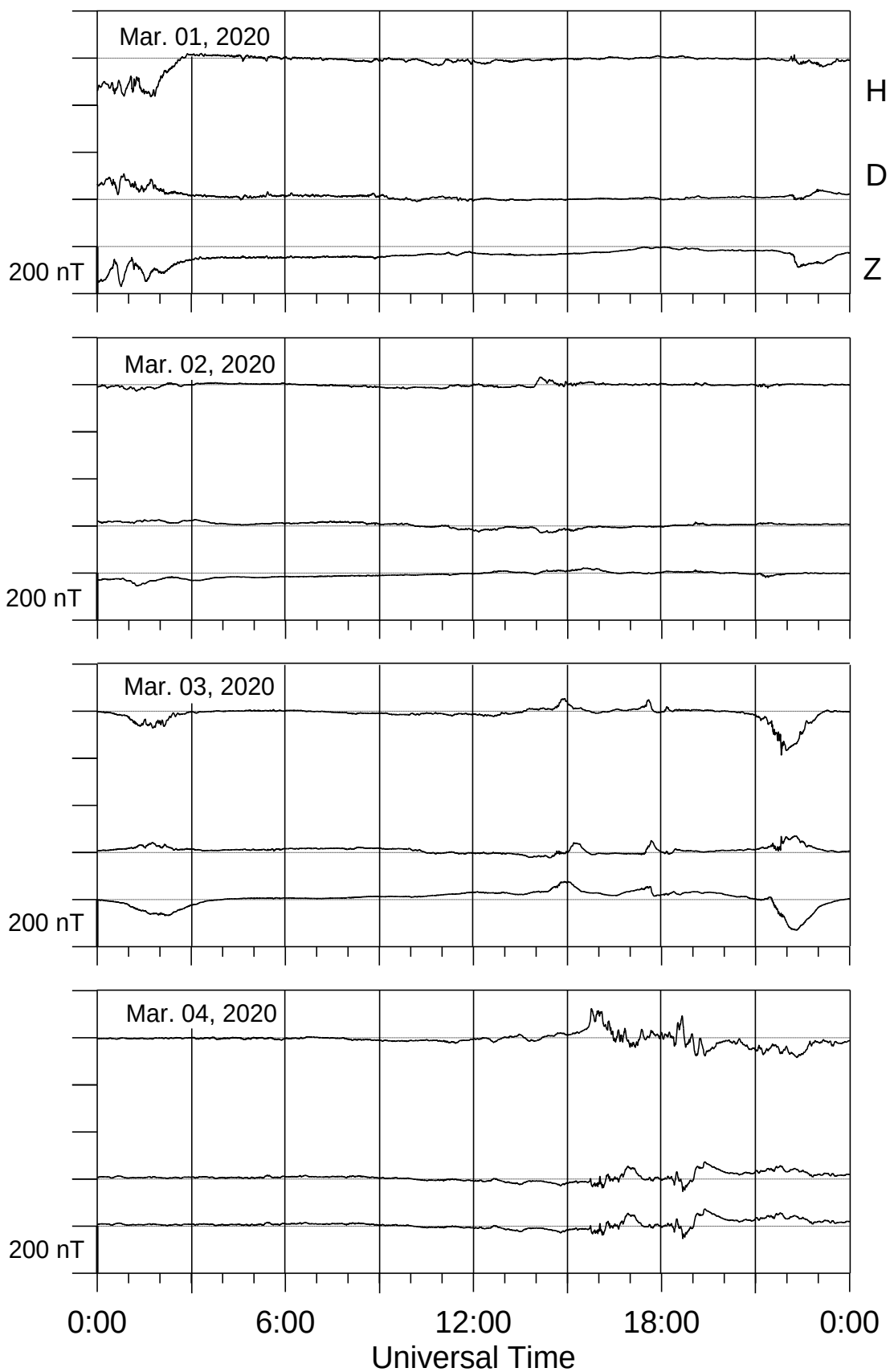
Loparskaya magnetometer



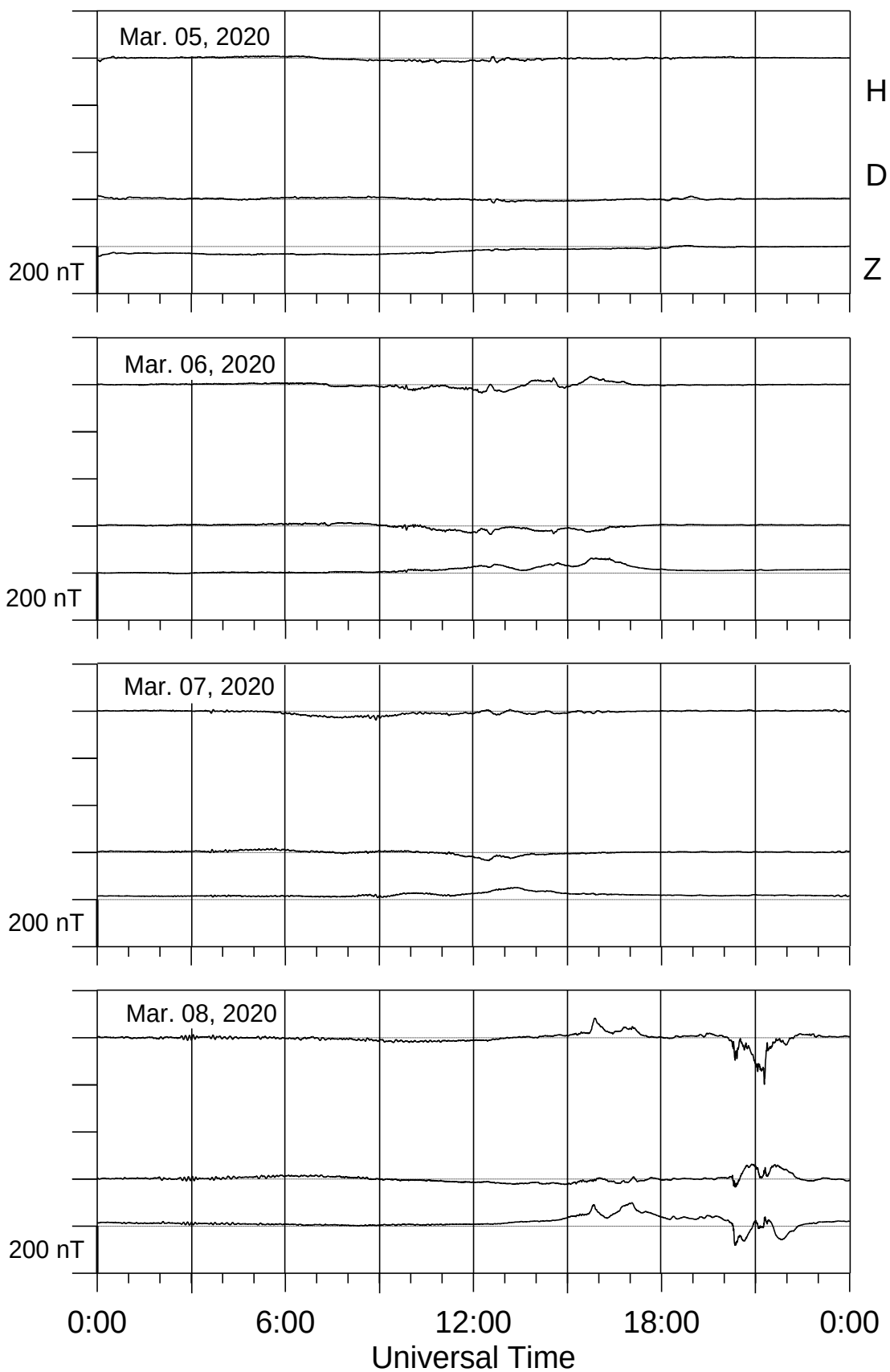
Loparskaya magnetometer



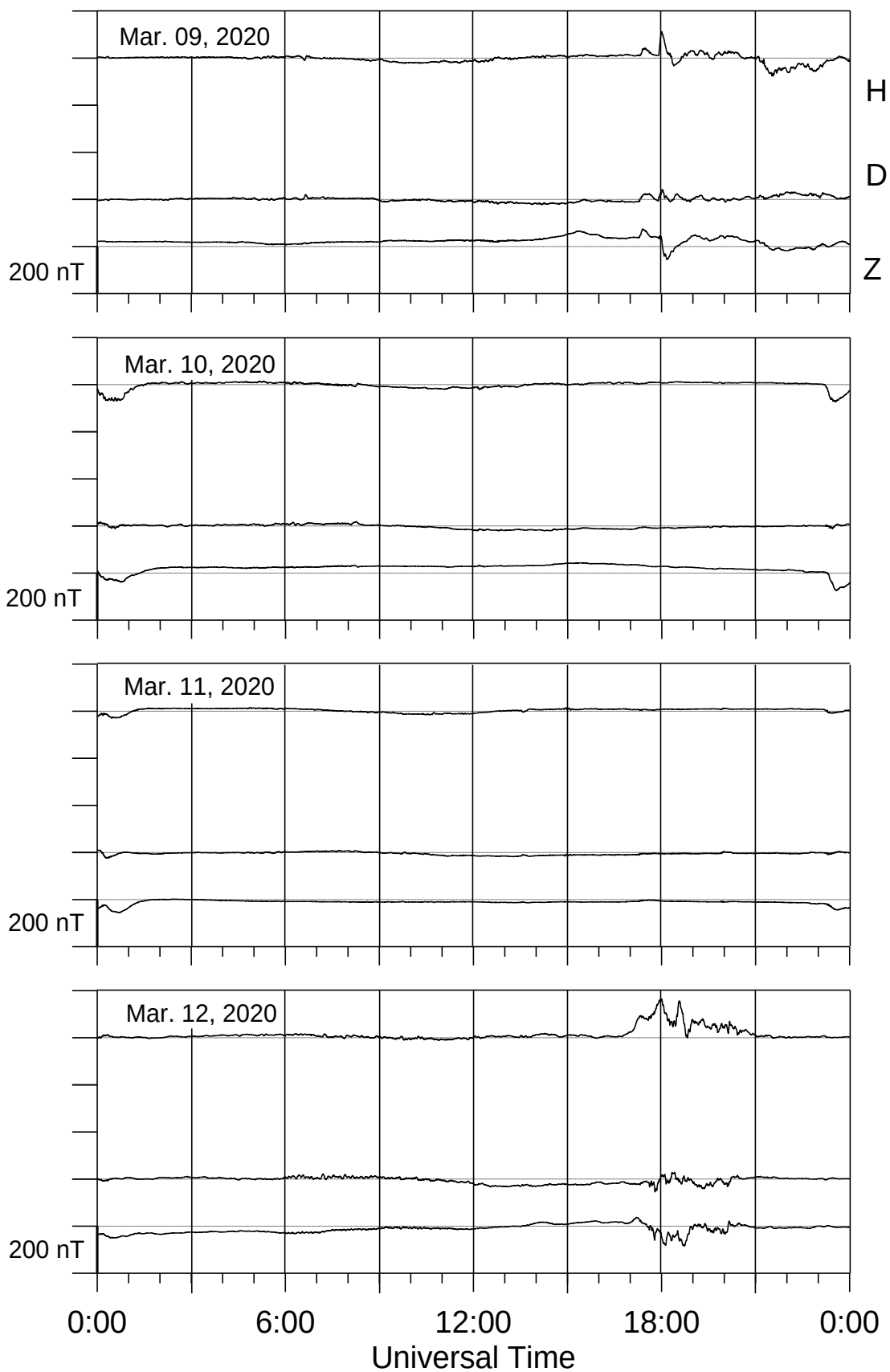
Loparskaya magnetometer



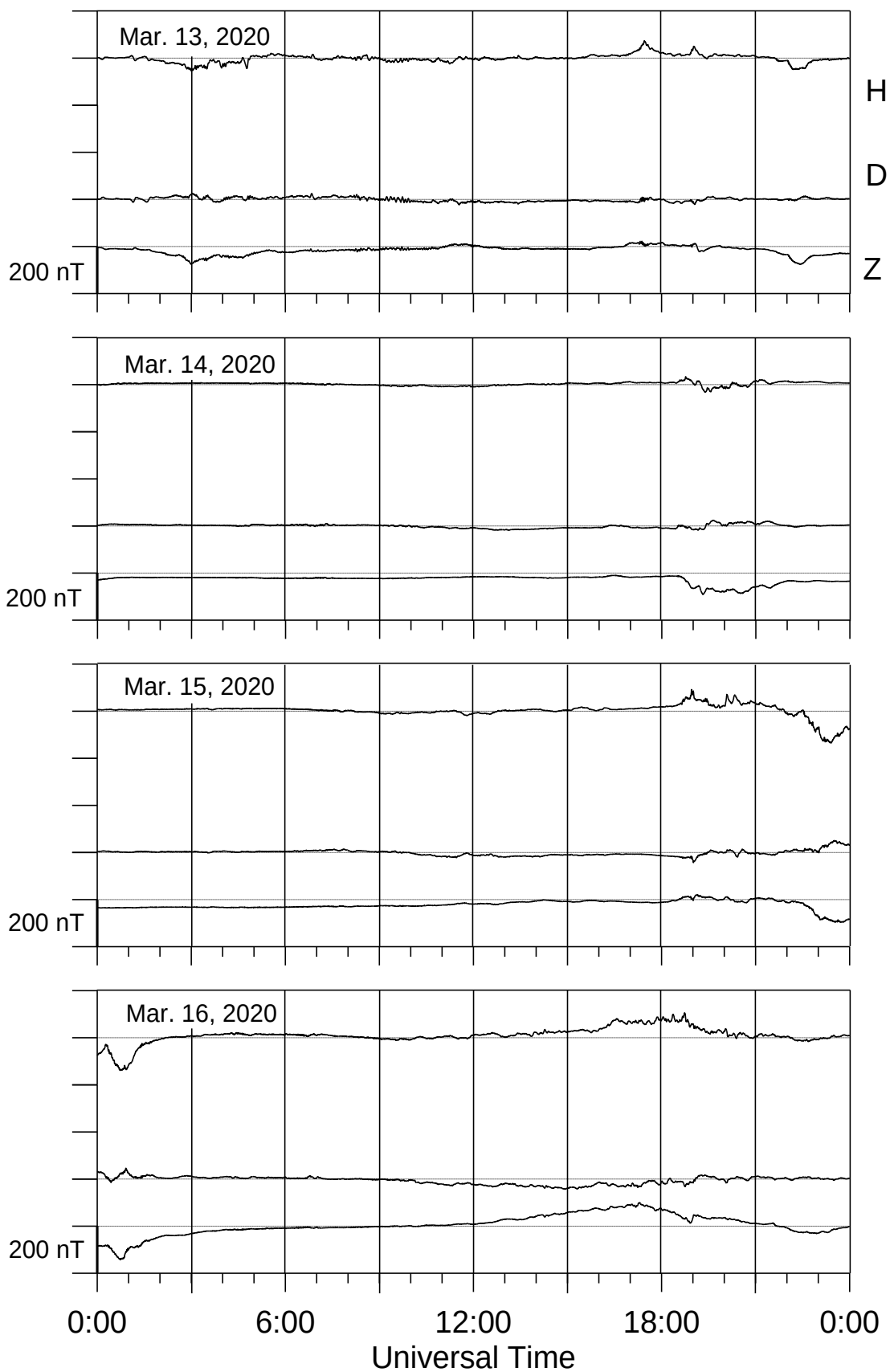
Loparskaya magnetometer



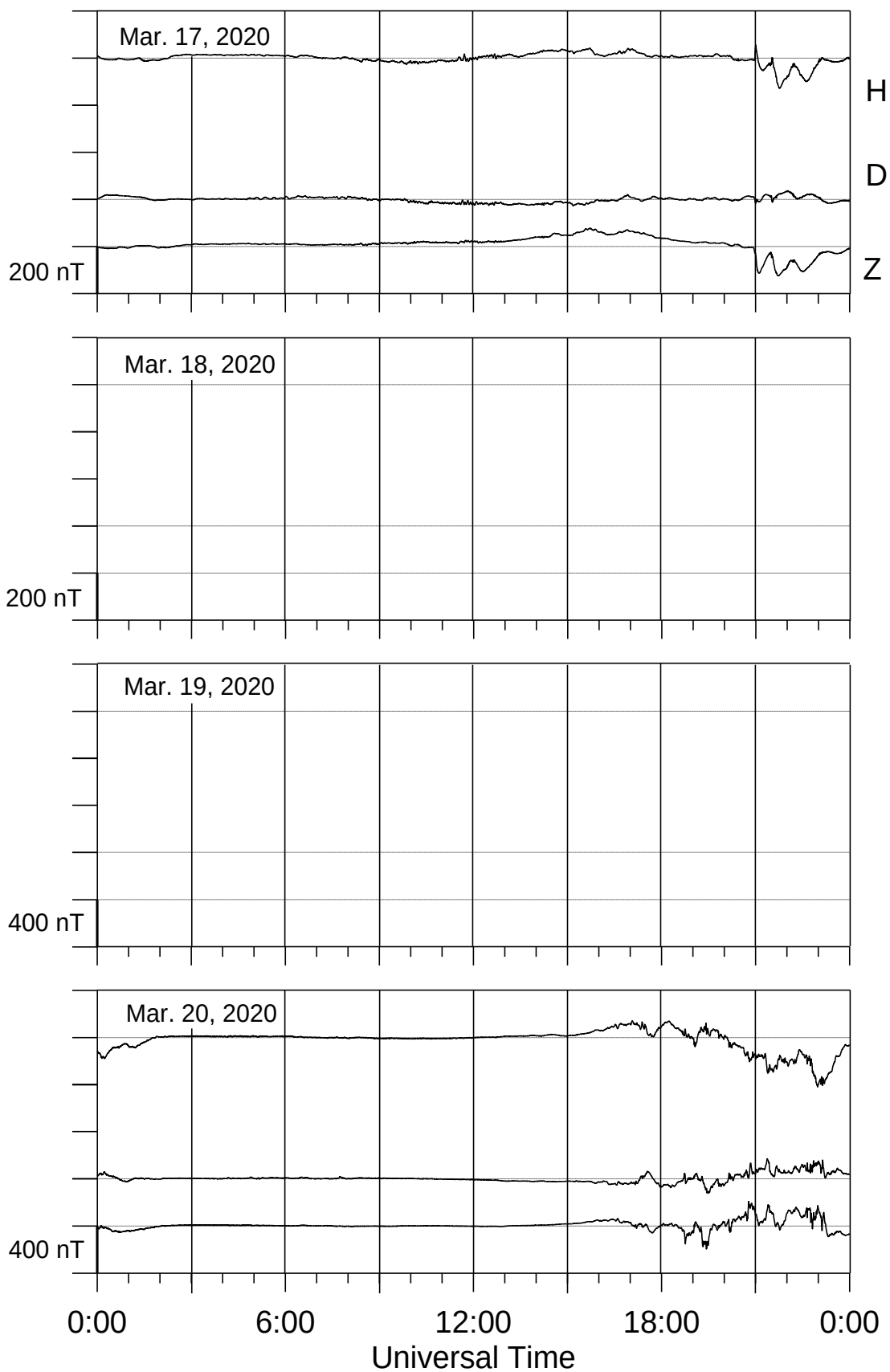
Loparskaya magnetometer



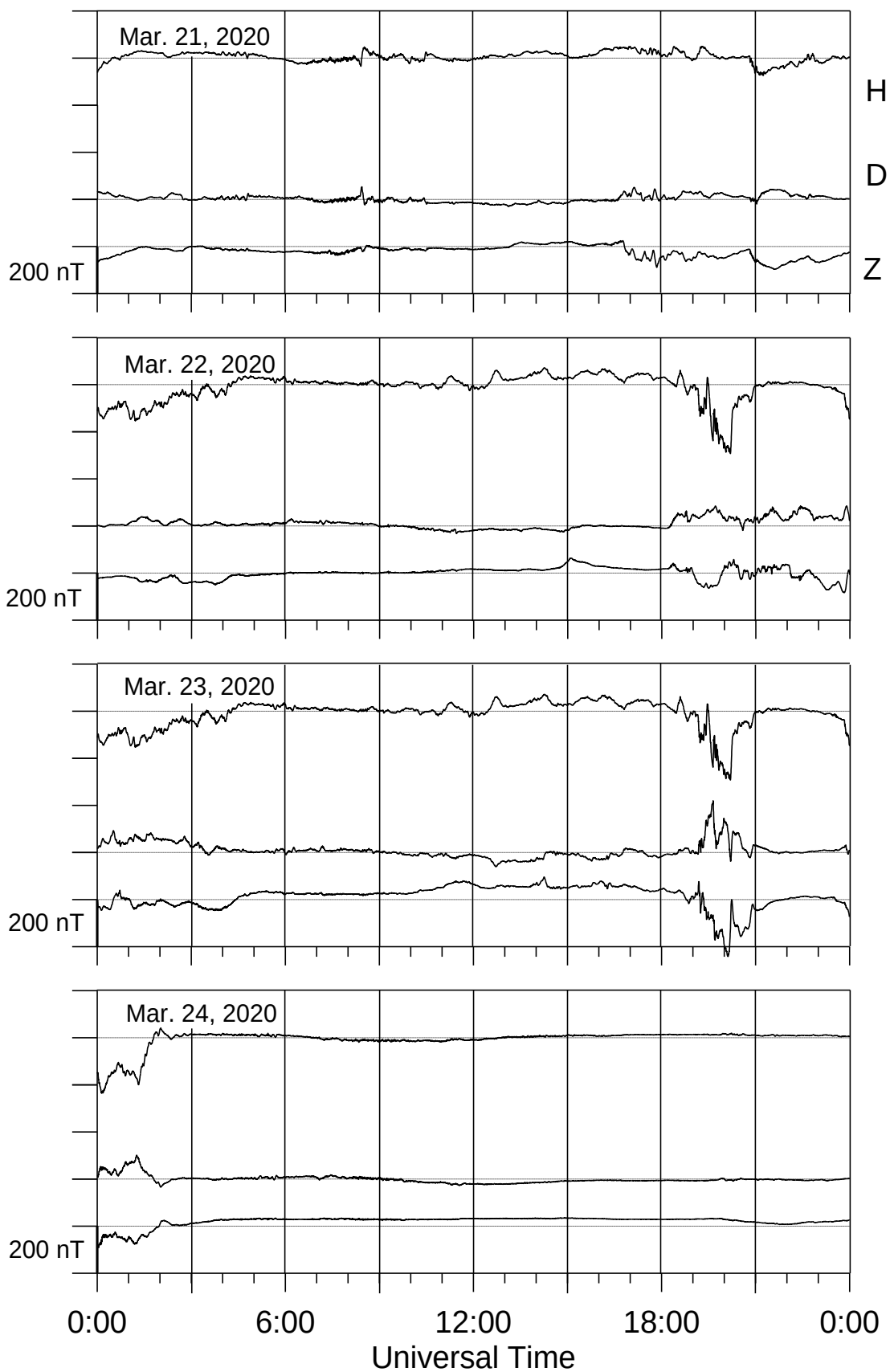
Loparskaya magnetometer



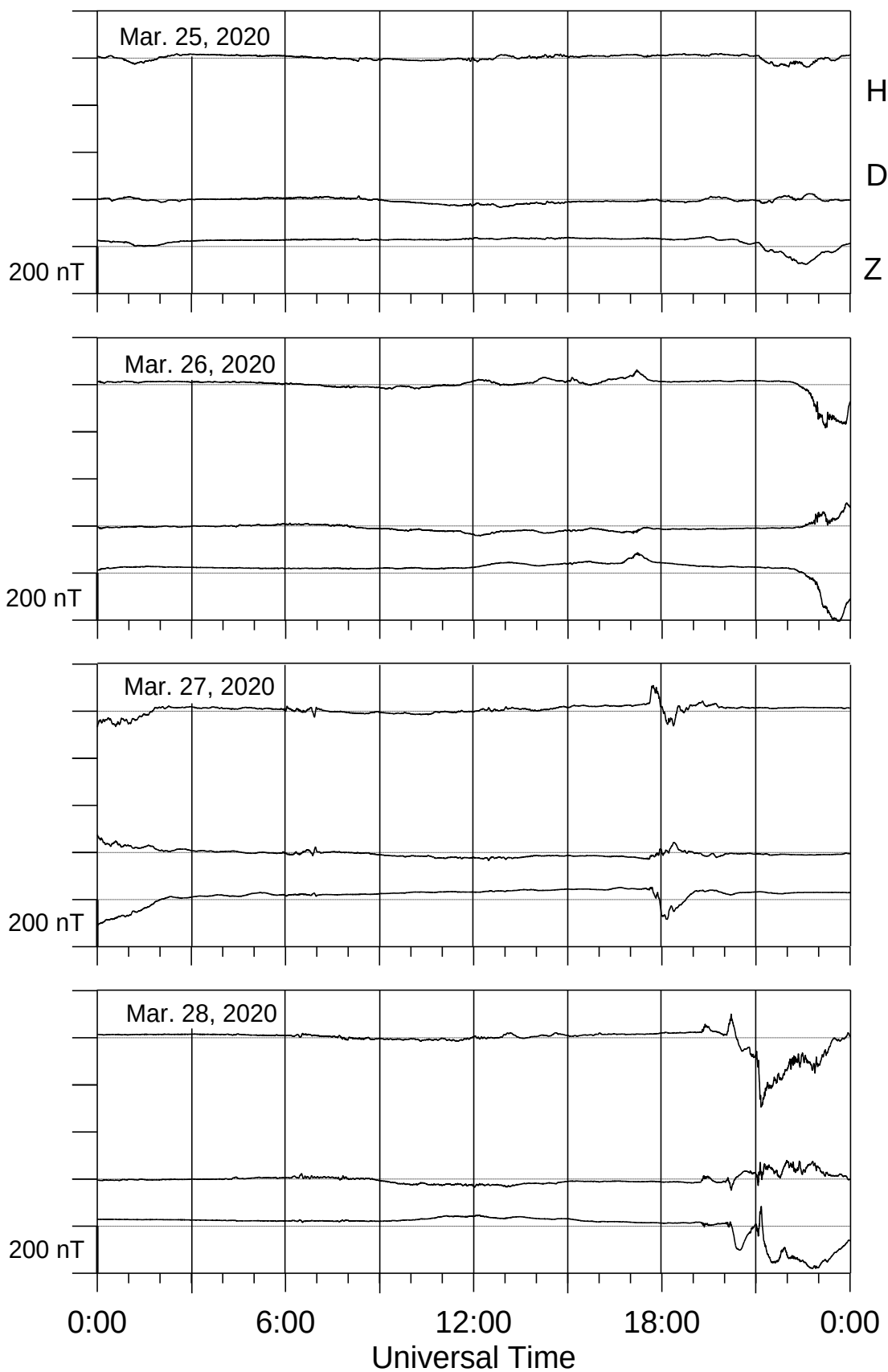
Loparskaya magnetometer



Loparskaya magnetometer



Loparskaya magnetometer



Loparskaya magnetometer

