

RUSSIAN ACADEMY OF SCIENCES
KOLA SCIENCE CENTRE



PGI
GEOPHYSICAL DATA

2013

JULY

AUGUST

SEPTEMBER

POLAR GEOPHYSICAL INSTITUTE
MURMANSK, APATITY, **RUSSIA**

PGI
GEOFYSICAL DATA

V. VOROBJEV, editor

V. Burnaeva and N. Golubtsova, make-up editors

This bulletin presents the preliminary ground-based optical, geomagnetic and cosmic ray data obtained by Polar Geophysical Institute in the third quarter of 2013. All-sky camera observations are published only for the quarter when observations were carried out. All data are available by request.

CONTENTS:

Data description	2
Geomagnetic K-indices	5
Cosmic ray data	8
Magnetogram plots	

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:

July 438 173

August 440 192

September 442 884

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

Please visit also our Internet pages: **<http://pgia.ru>**

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>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 also our Internet pages:

<http://pgia.ru>

Contact information:

	Phon	<i>e-mail</i>
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(LOPARSKAYA)

July, 2013

Lower limit of K=9 is 1500 nT

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

GEOMAGNETIC K-INDICES, LOVOZERO

August, 2013

Lower limit of K=9 is 1500 nT

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

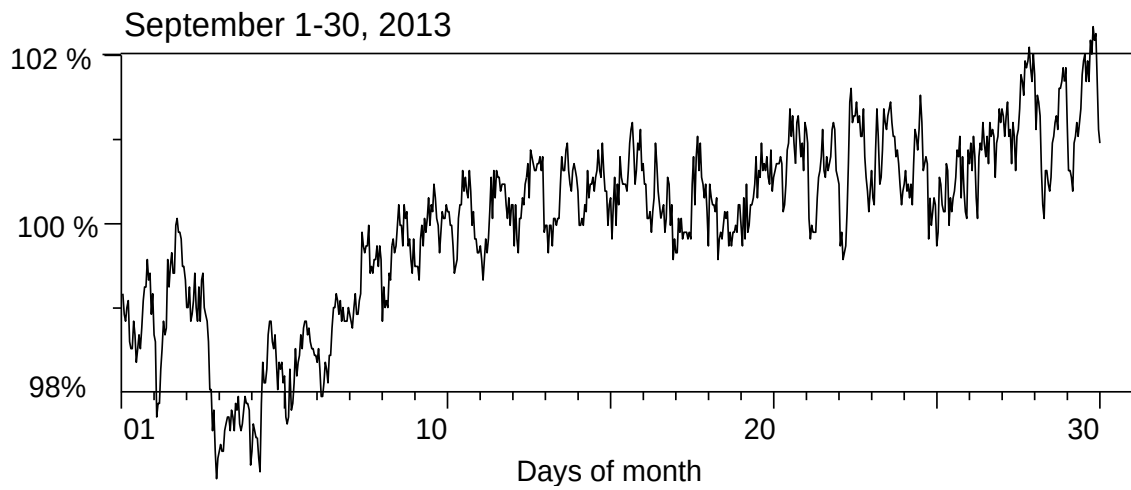
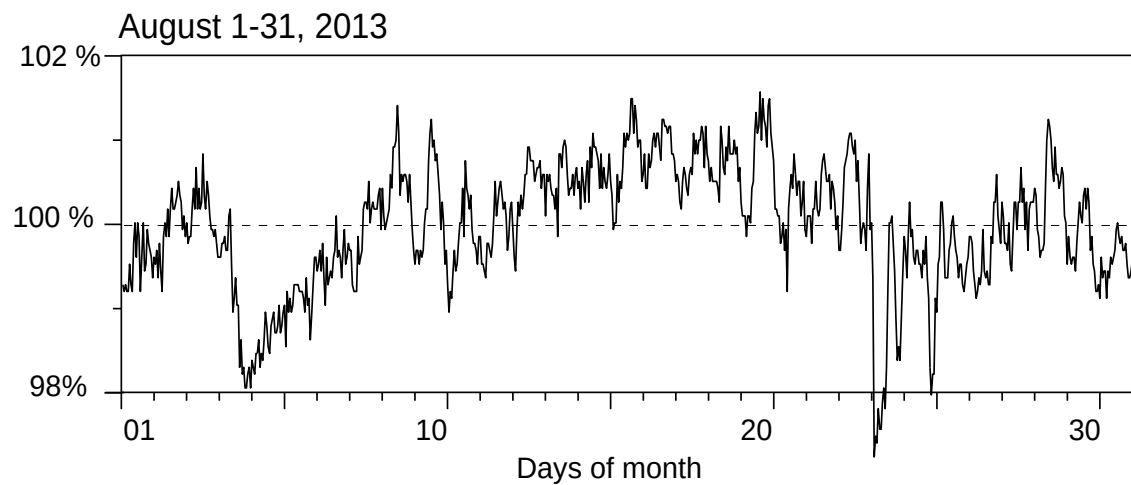
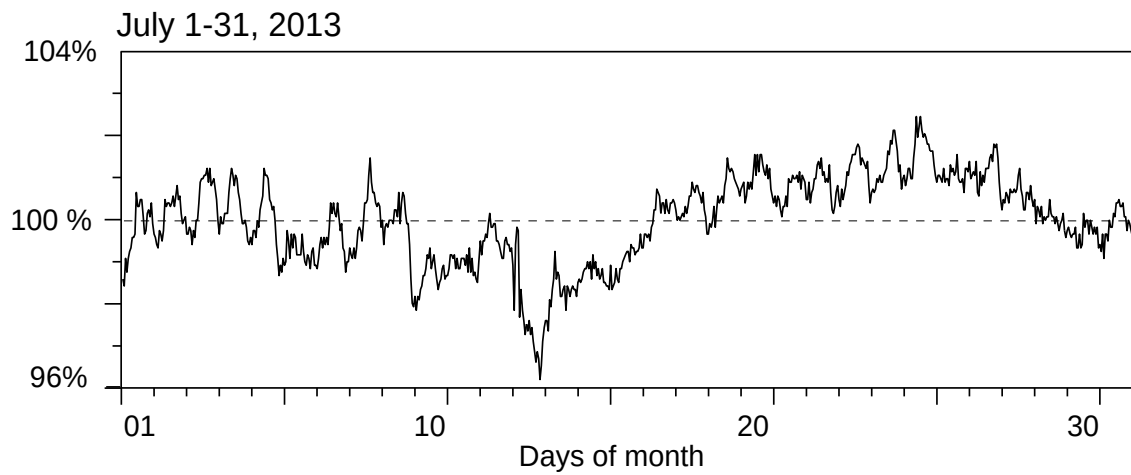
GEOMAGNETIC K-INDICES, LOVOZERO

September, 2013

Lower limit of K=9 is 1500 nT

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

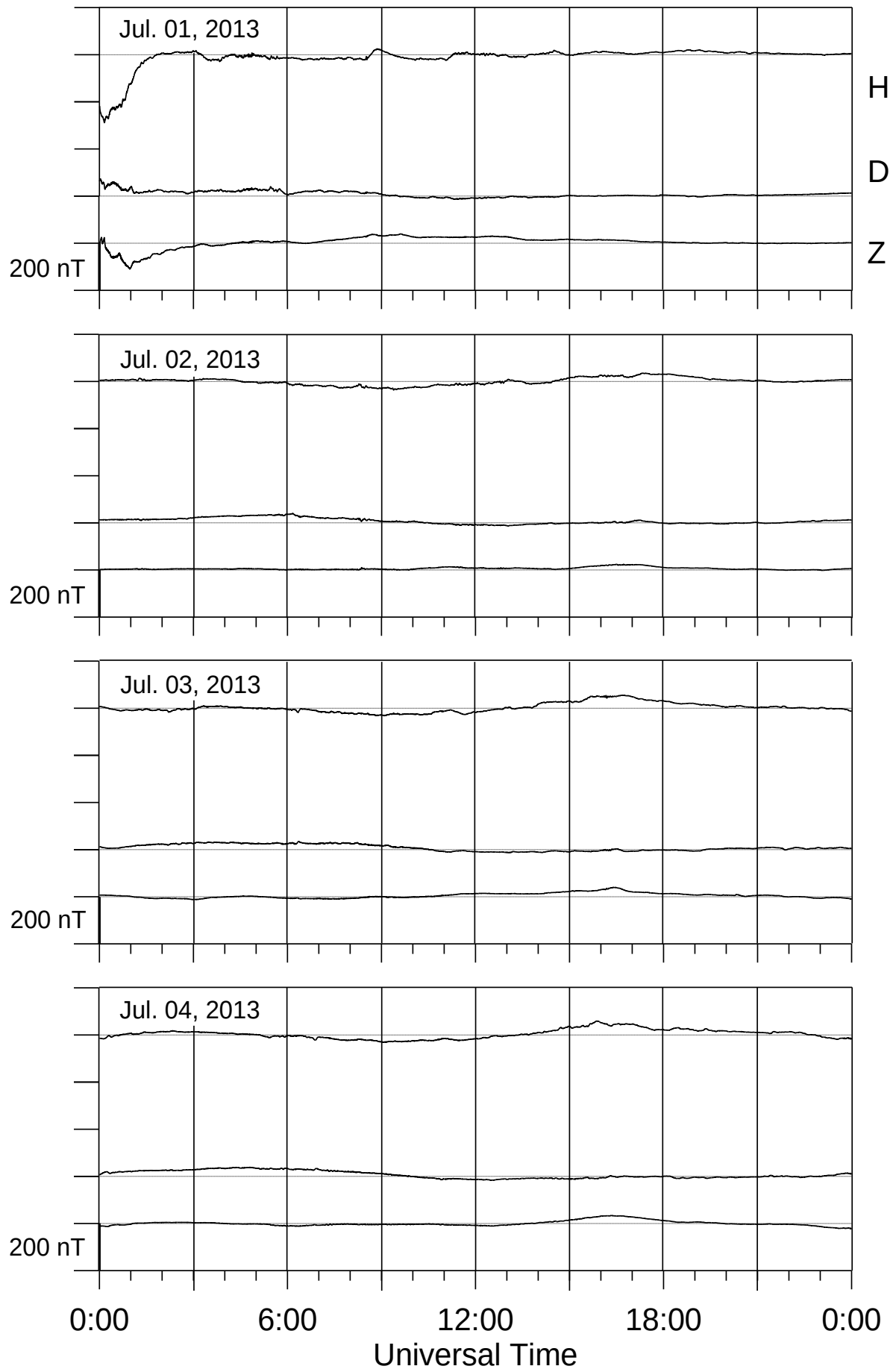
Apatity neutron monitor



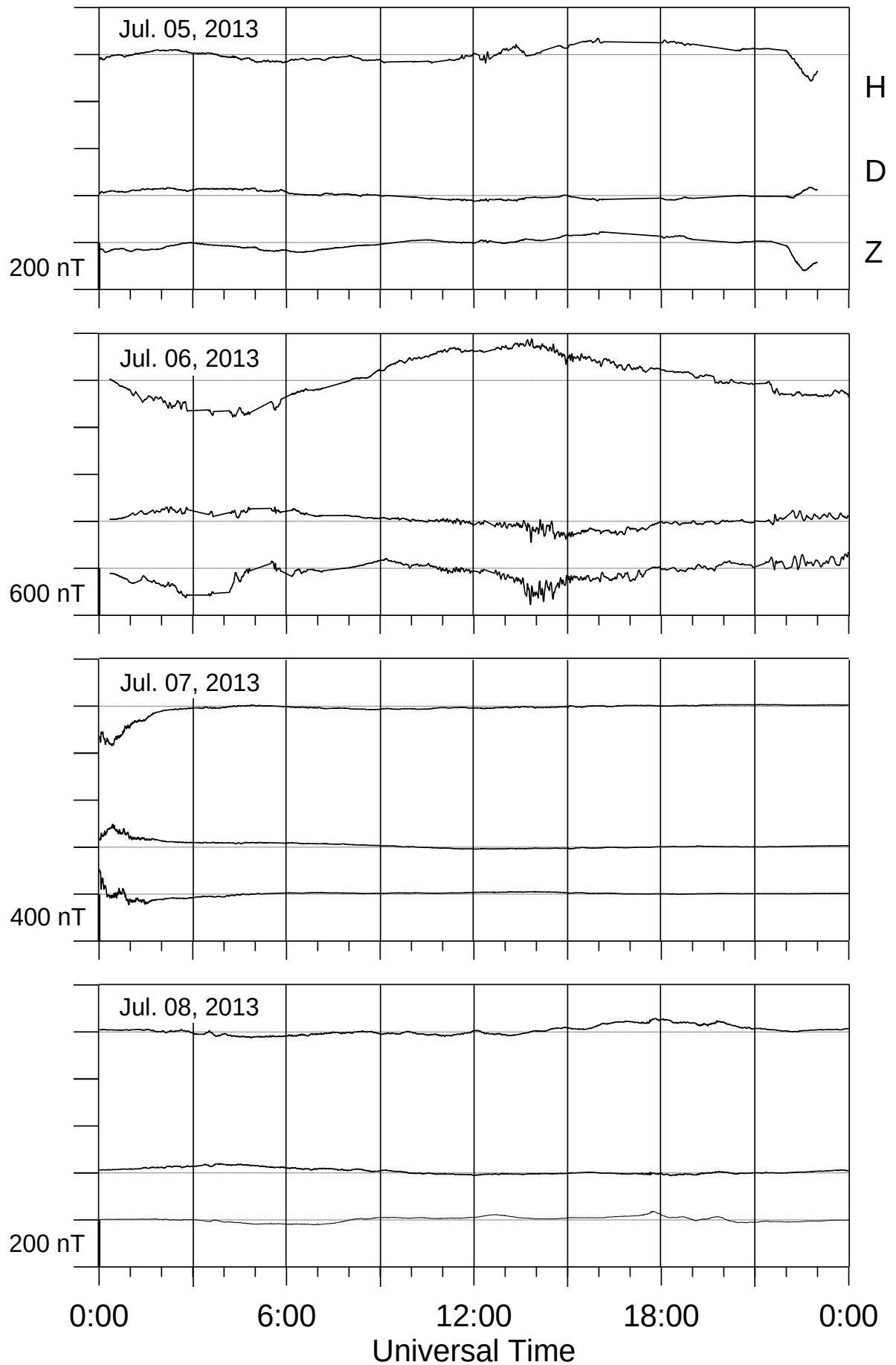
LOVOZERO MAGNETOGRAMS

July - September 2013

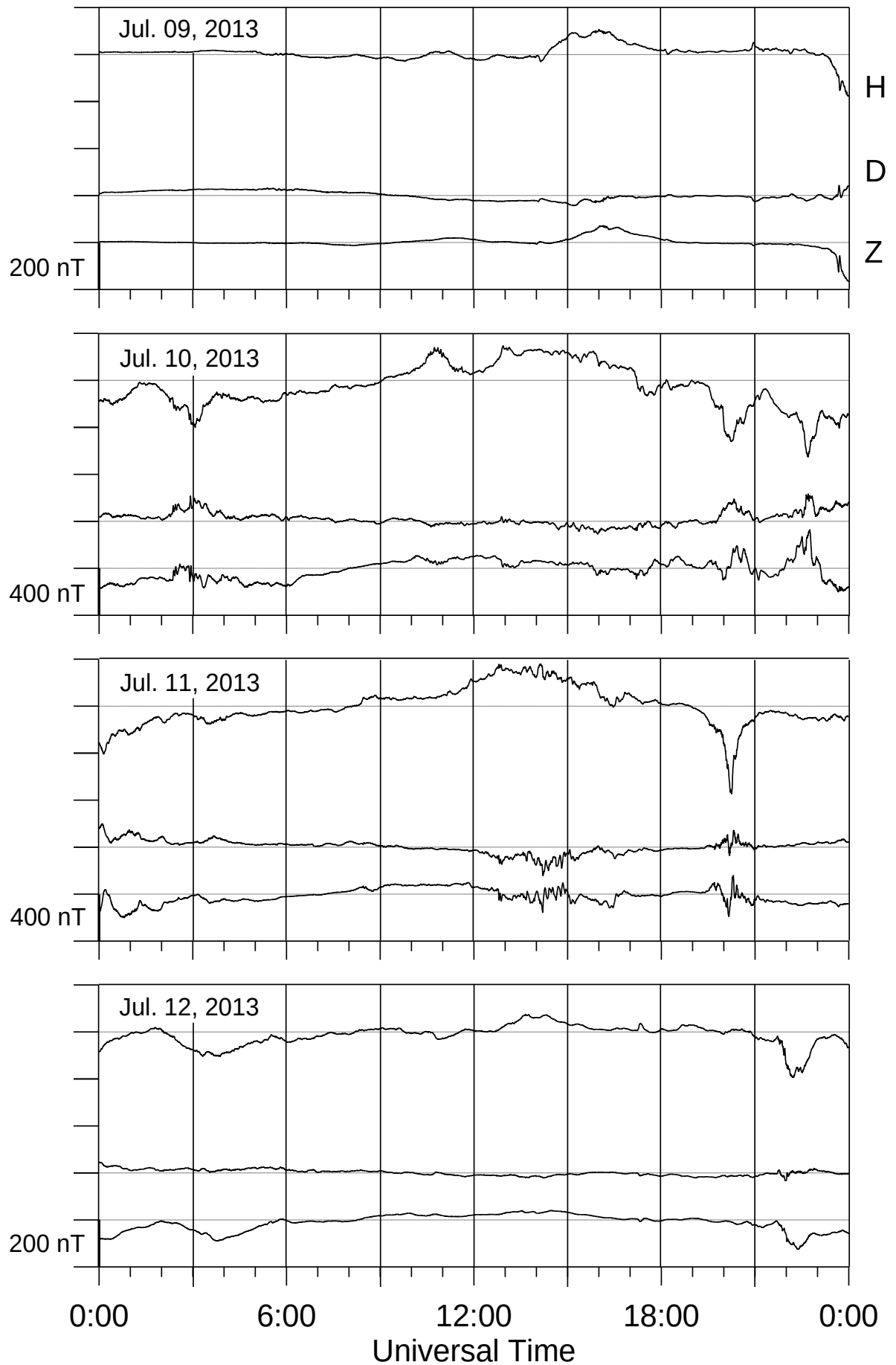
Lovozero magnetometer



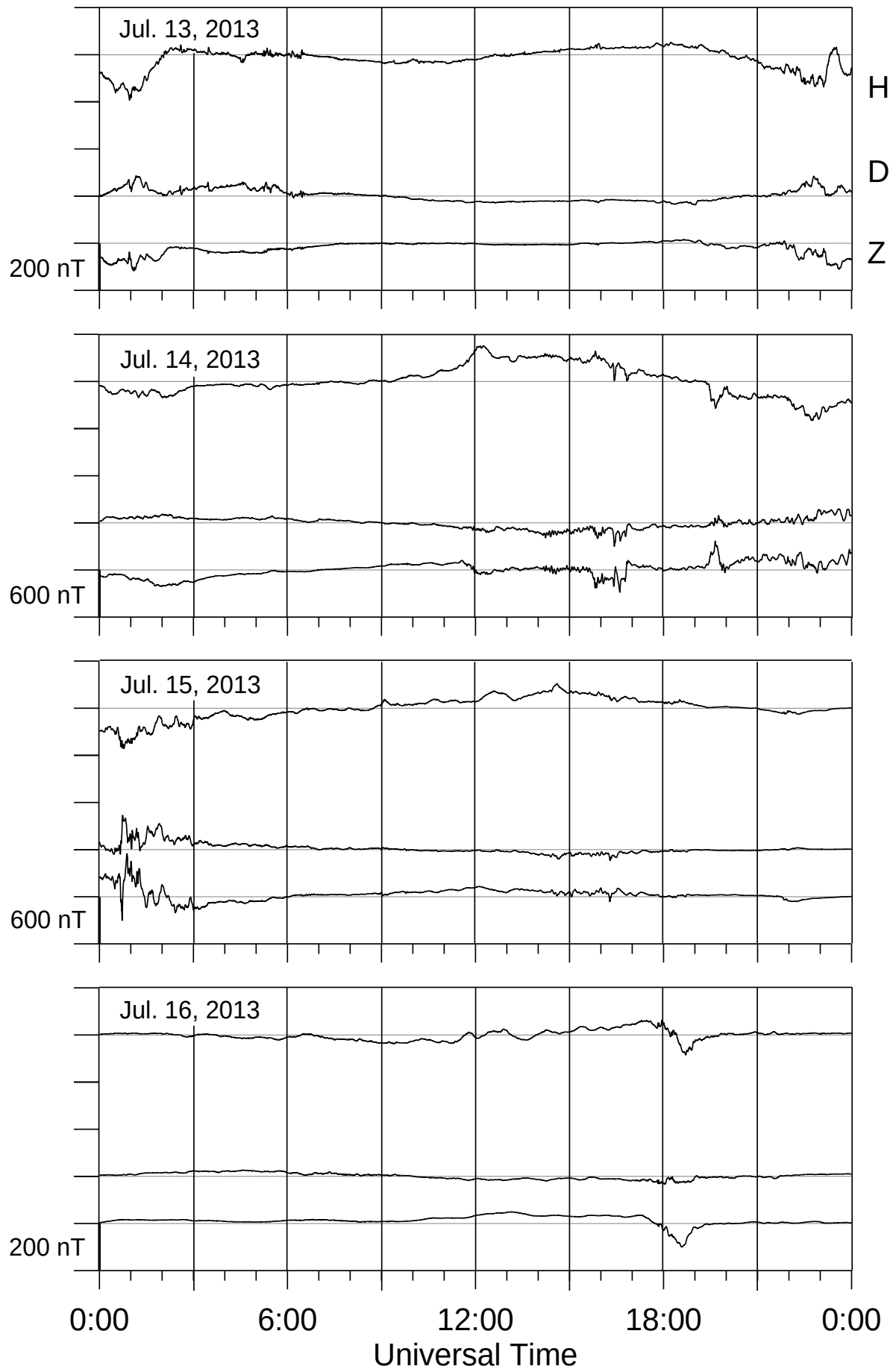
Lovozero magnetometer



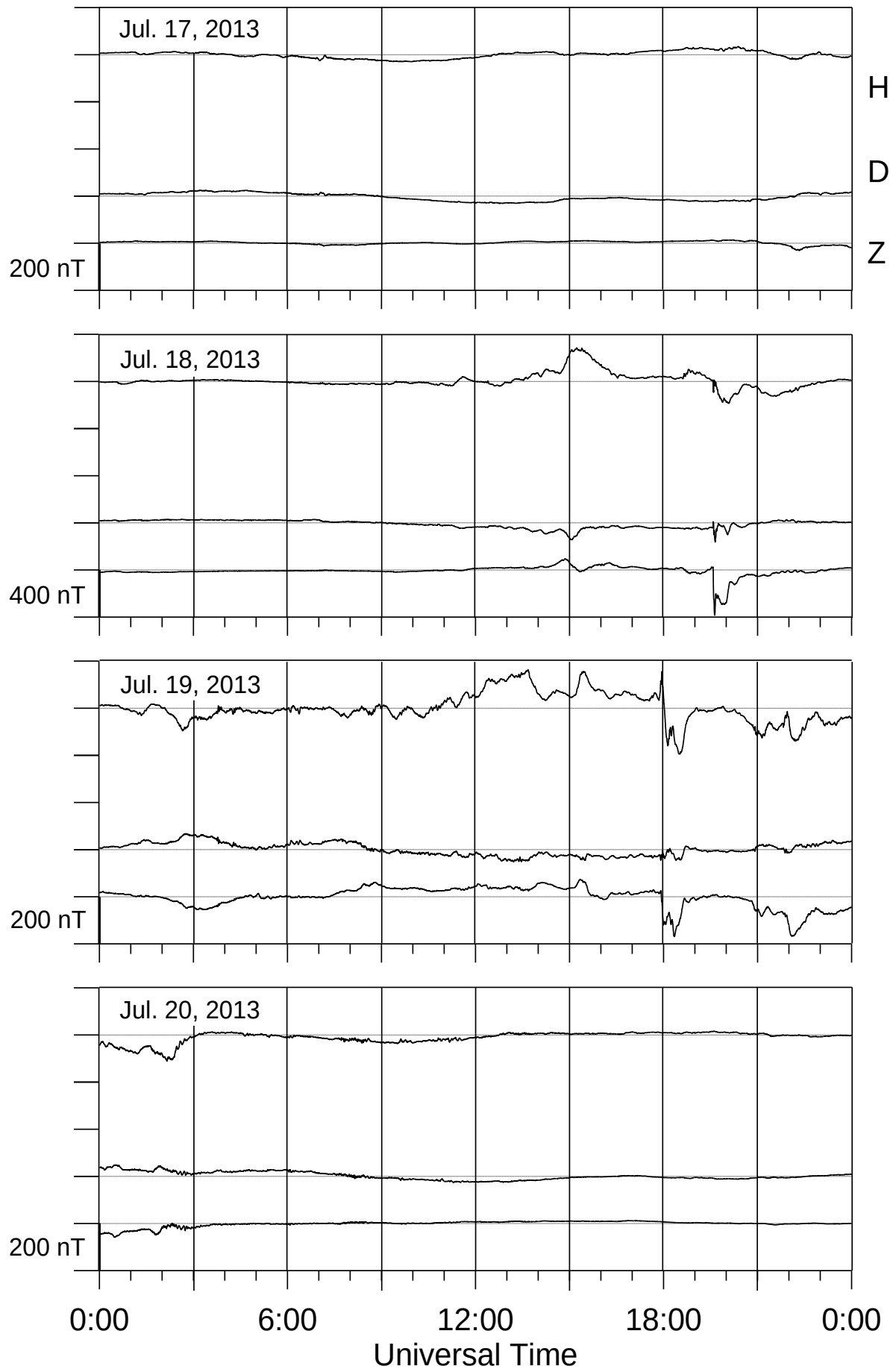
Lovozero magnetometer



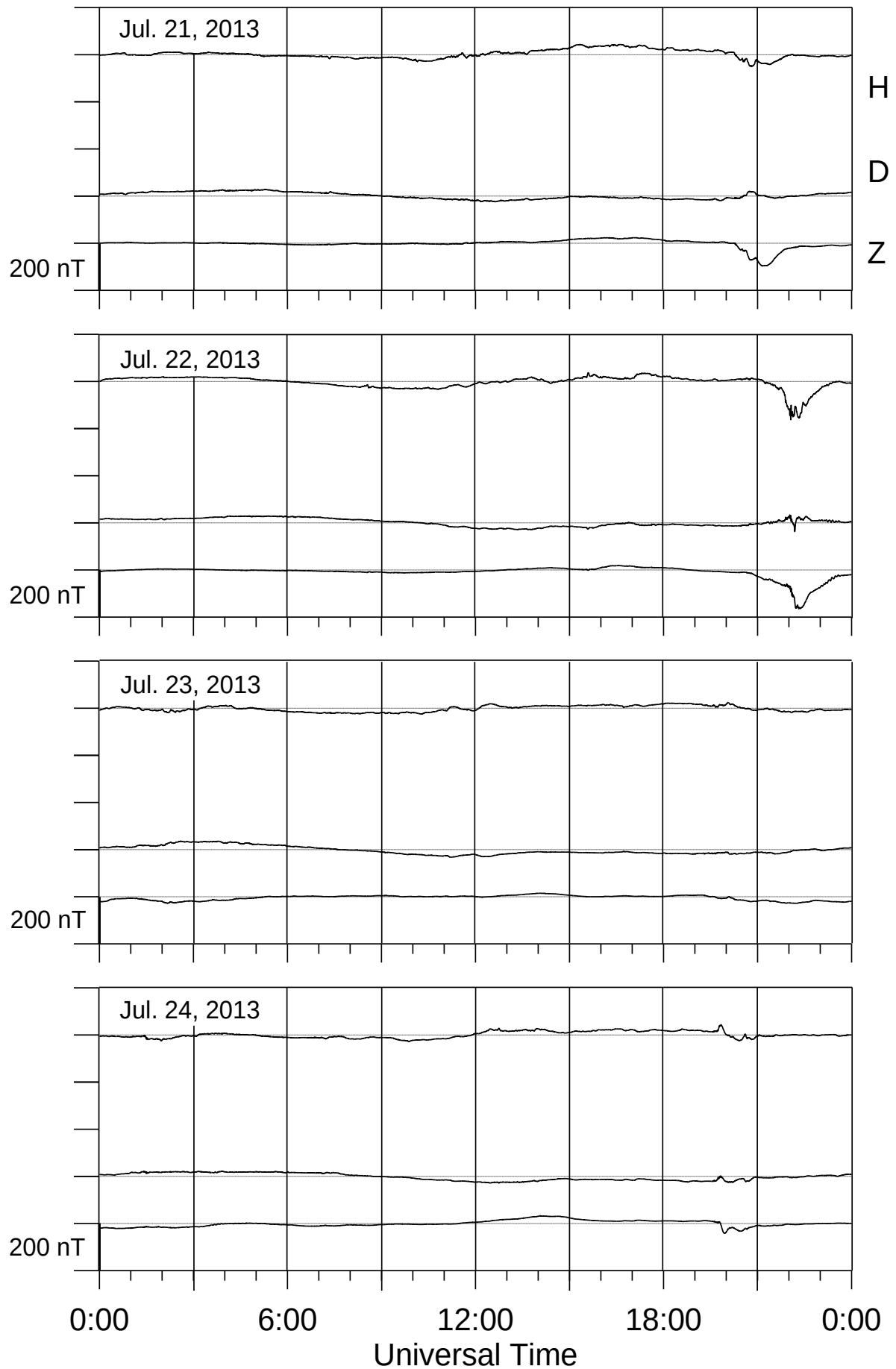
Lovozero magnetometer



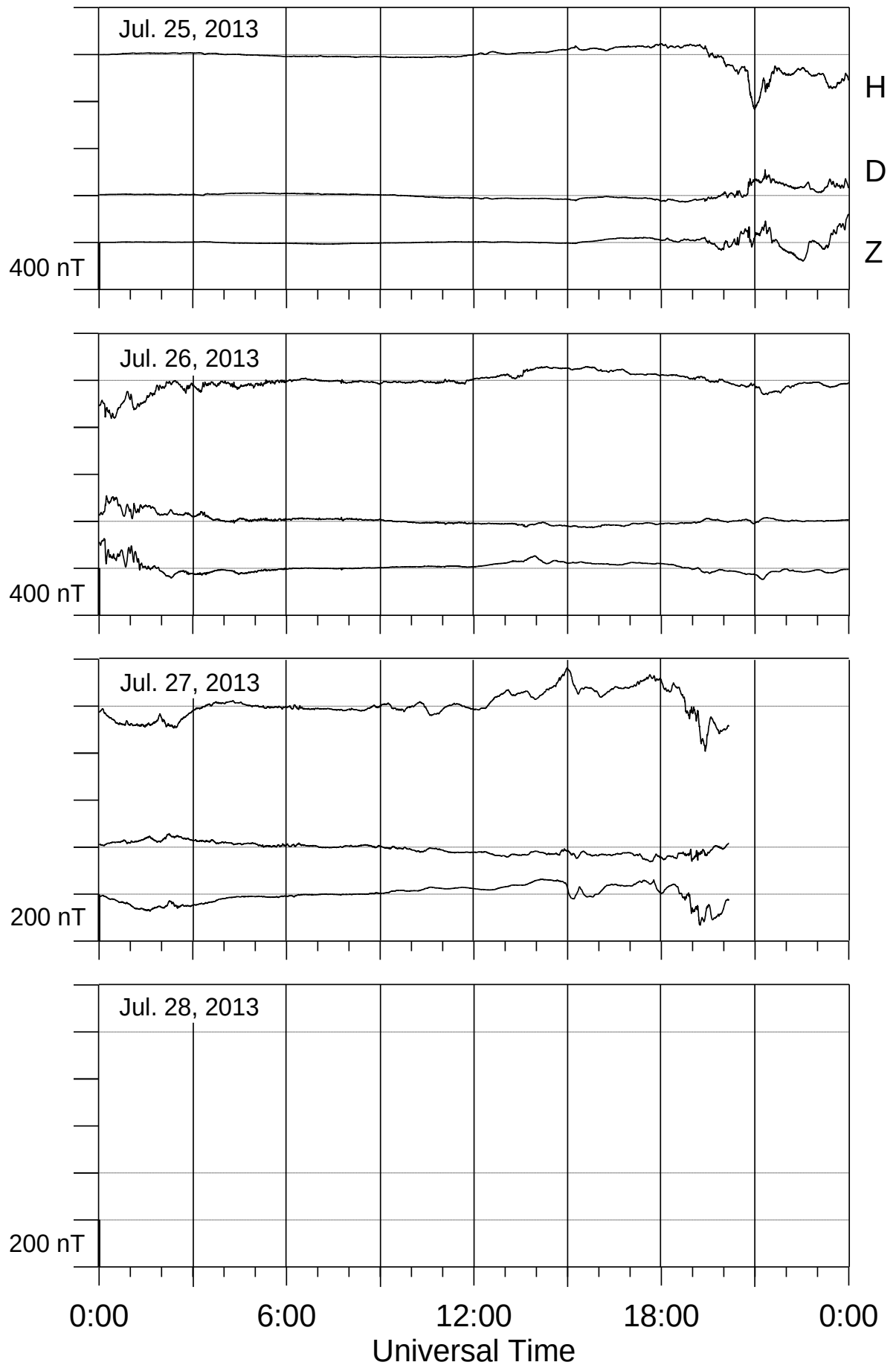
Lovozero magnetometer



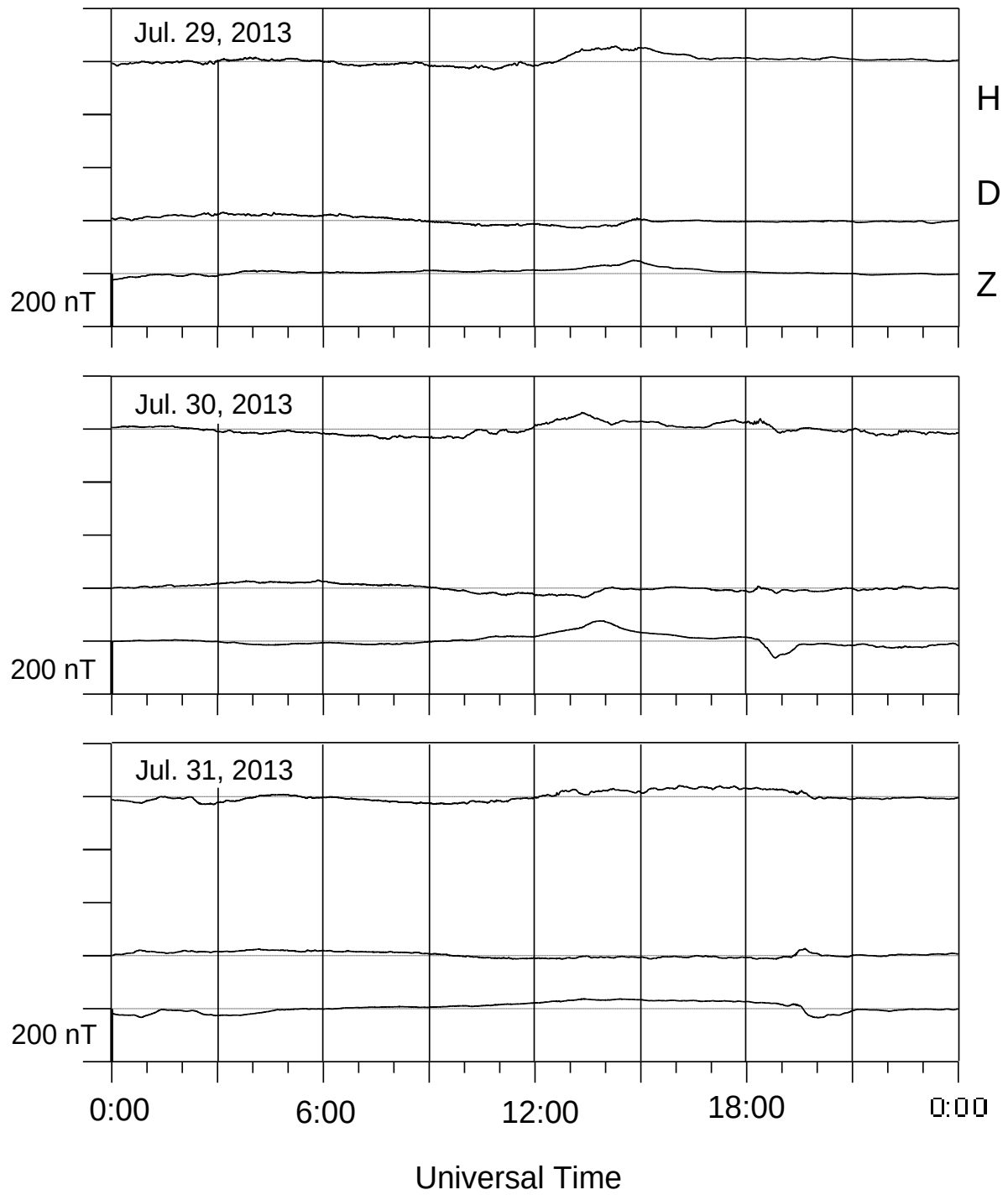
Lovozero magnetometer



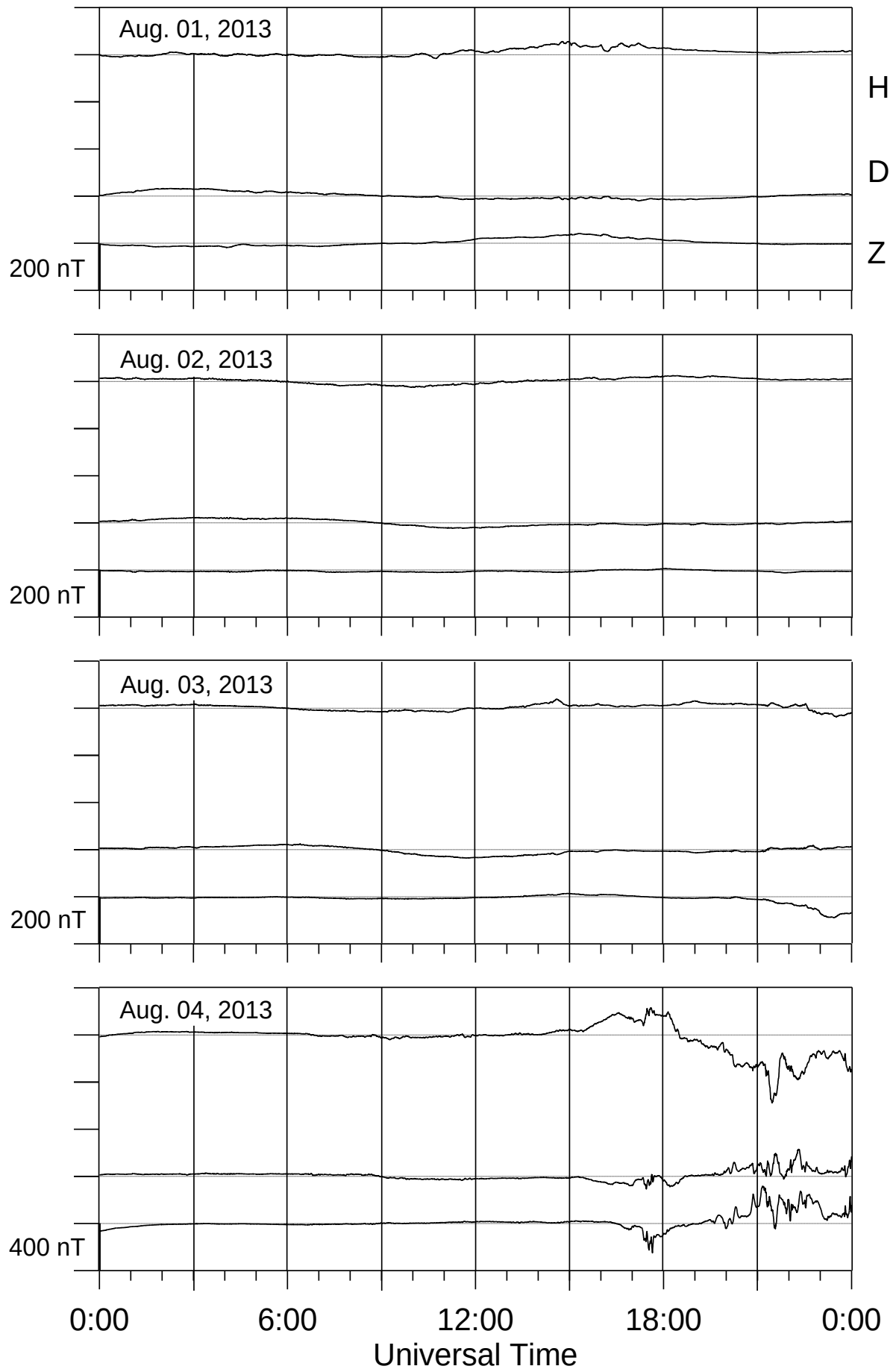
Lovozero magnetometer



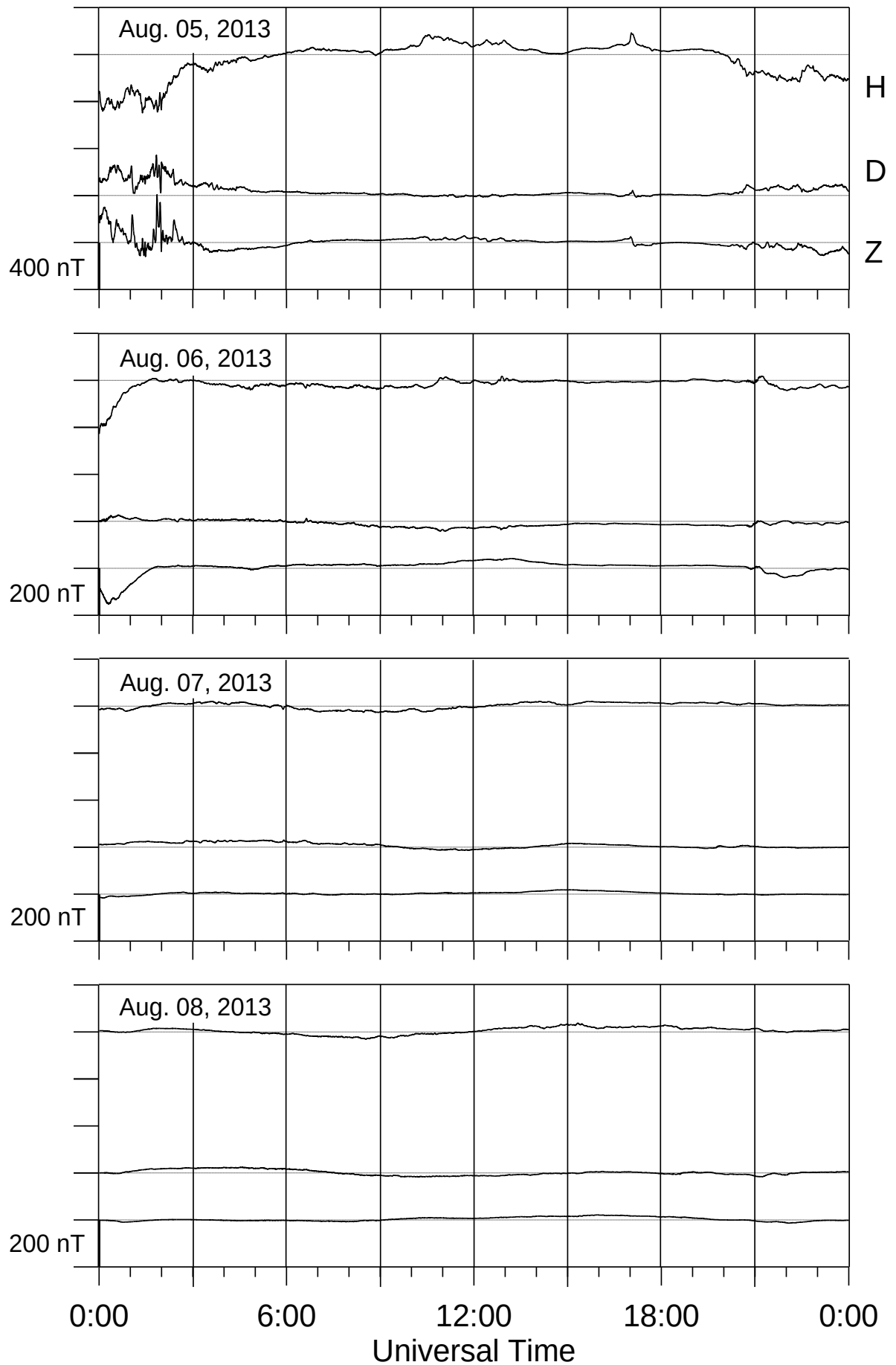
Lovozero magnetometer



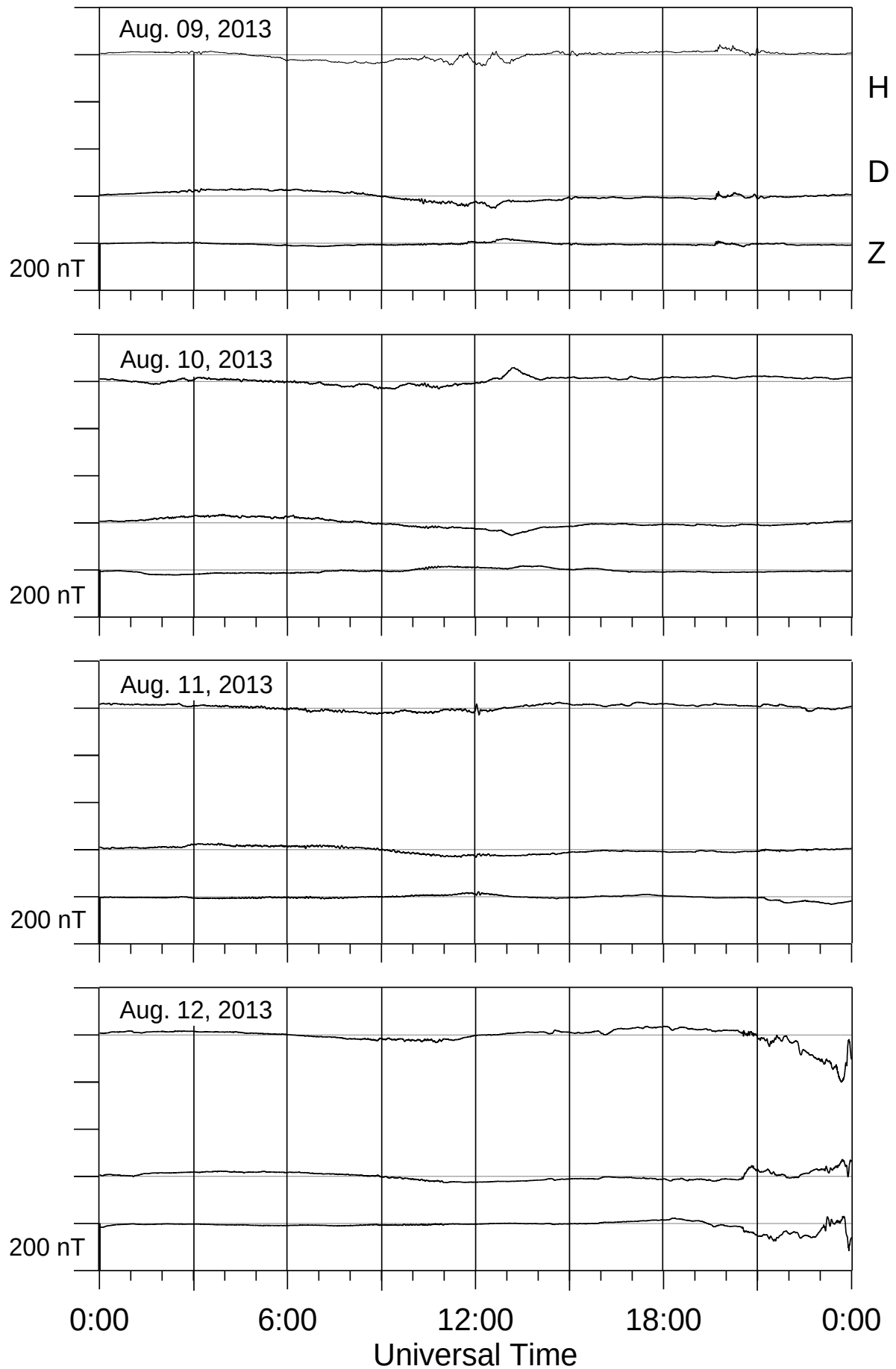
Lovozero magnetometer



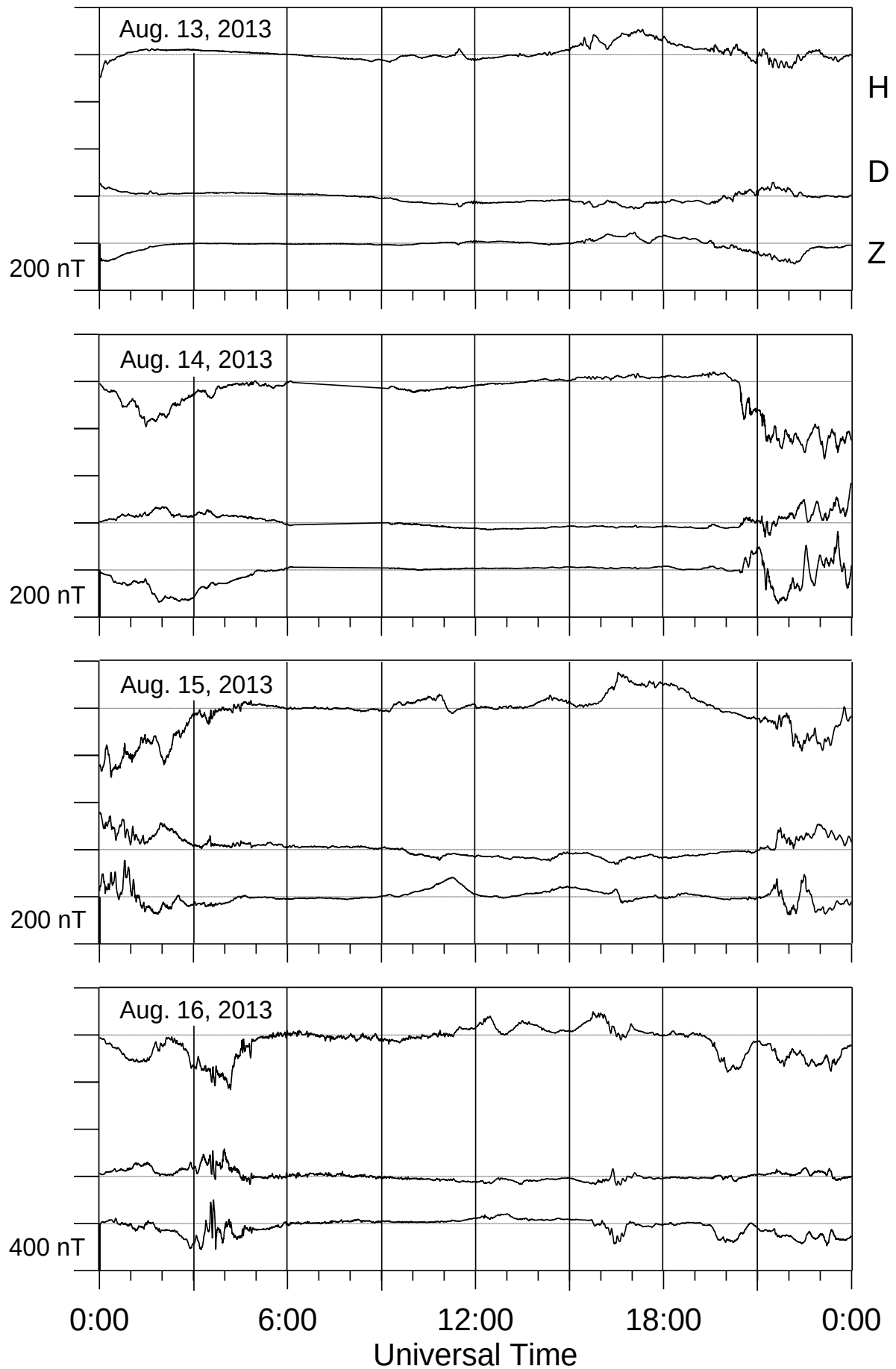
Lovozero magnetometer



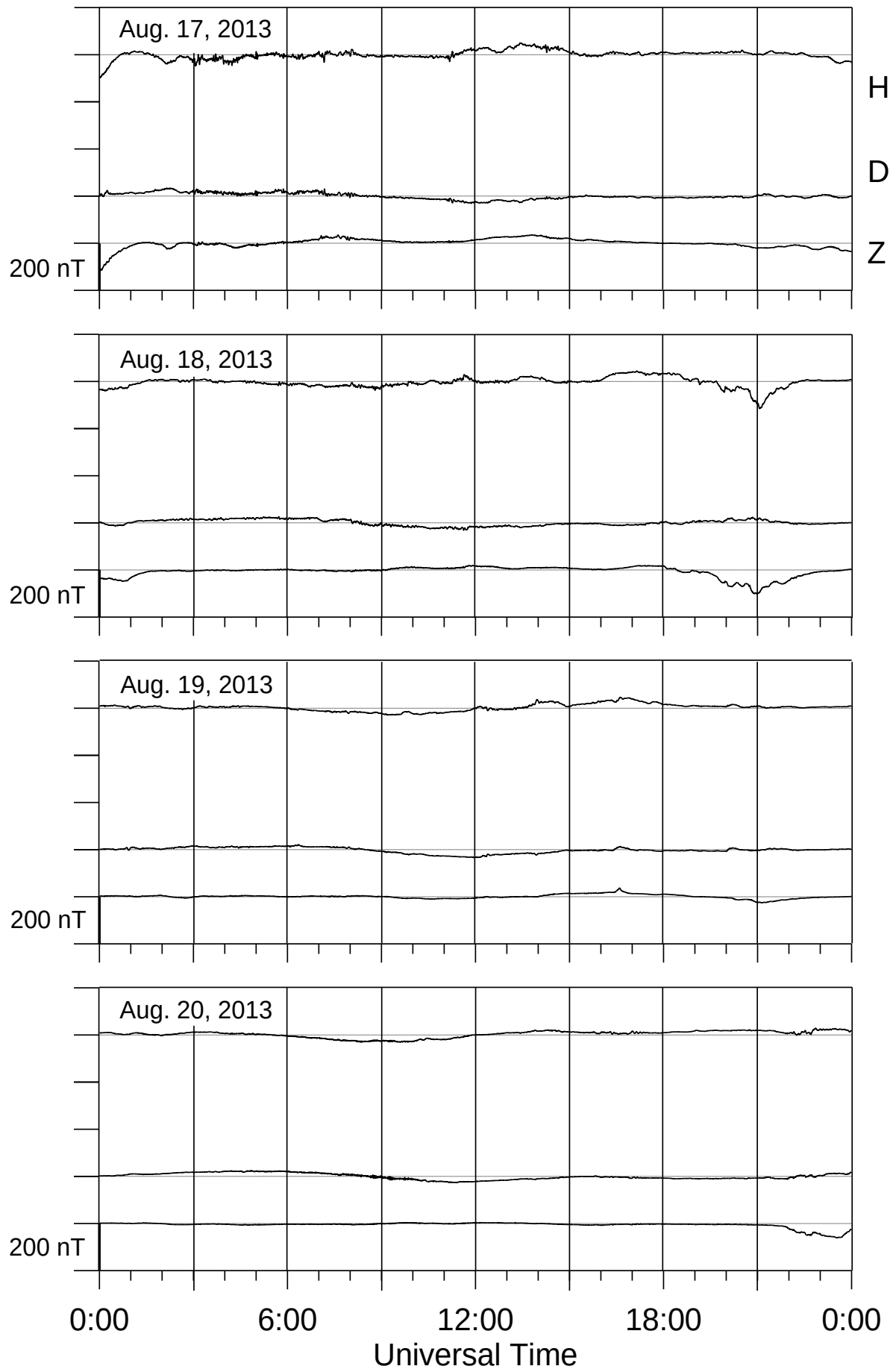
Lovozero magnetometer



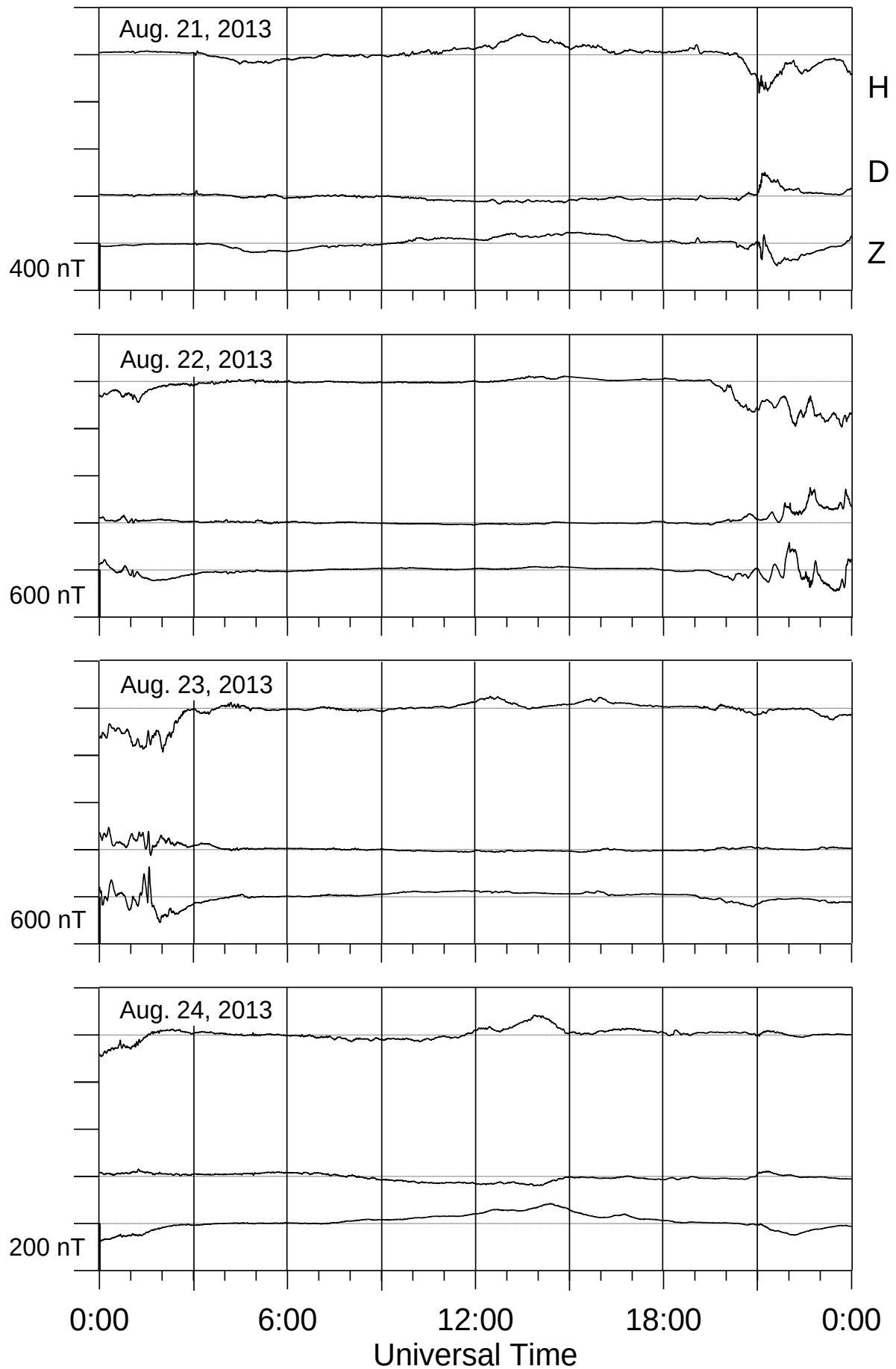
Lovozero magnetometer



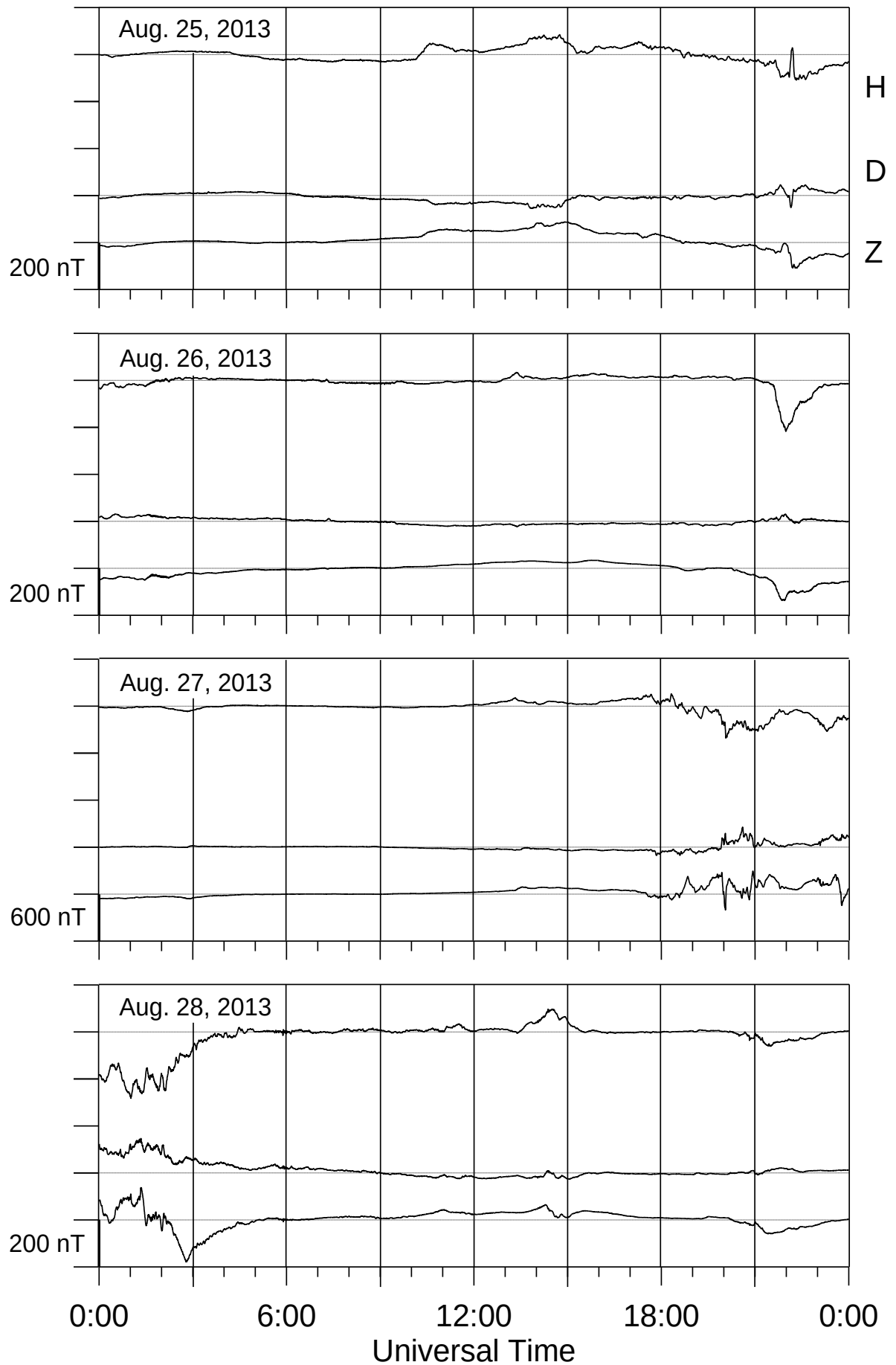
Lovozero magnetometer



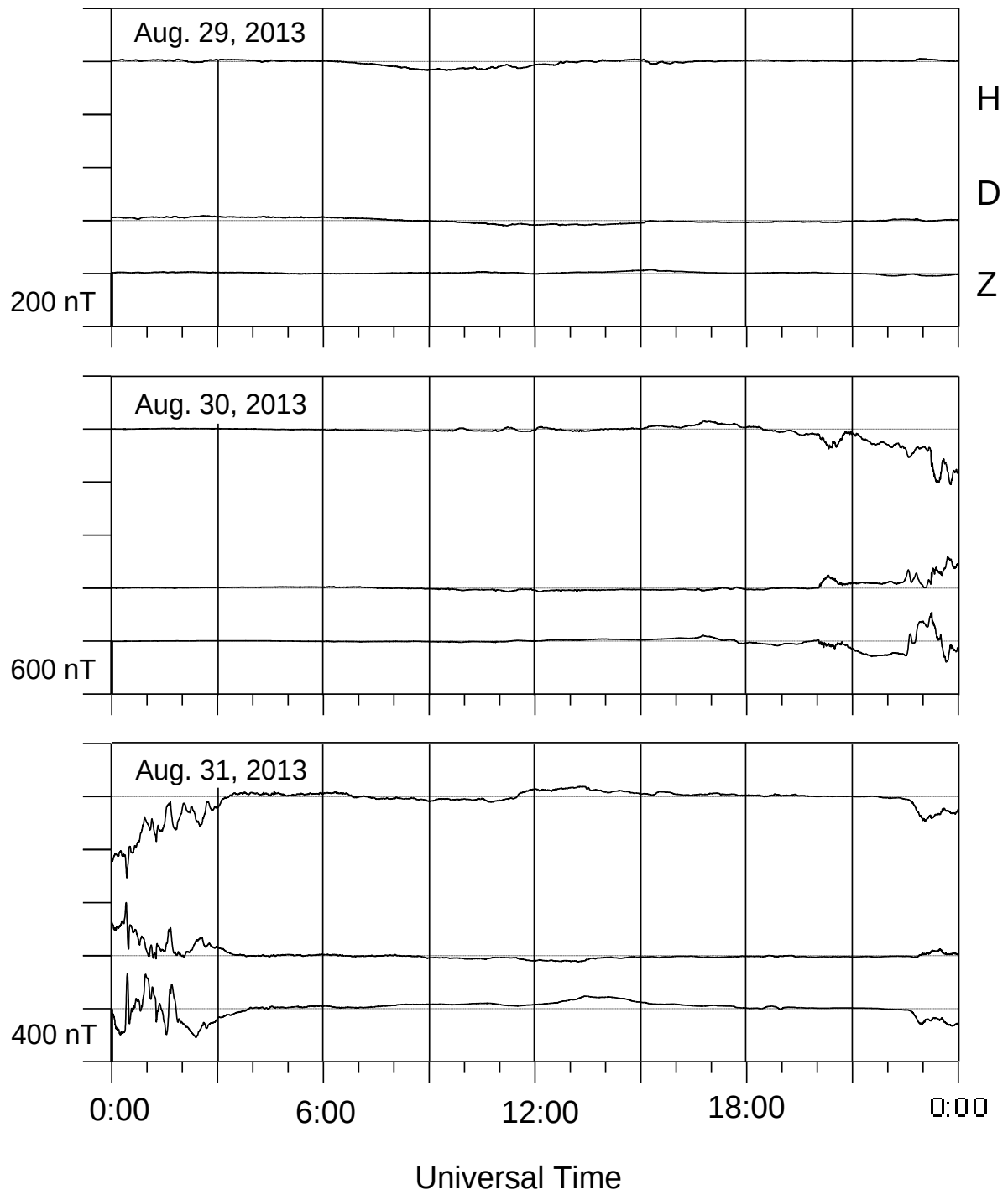
Lovozero magnetometer



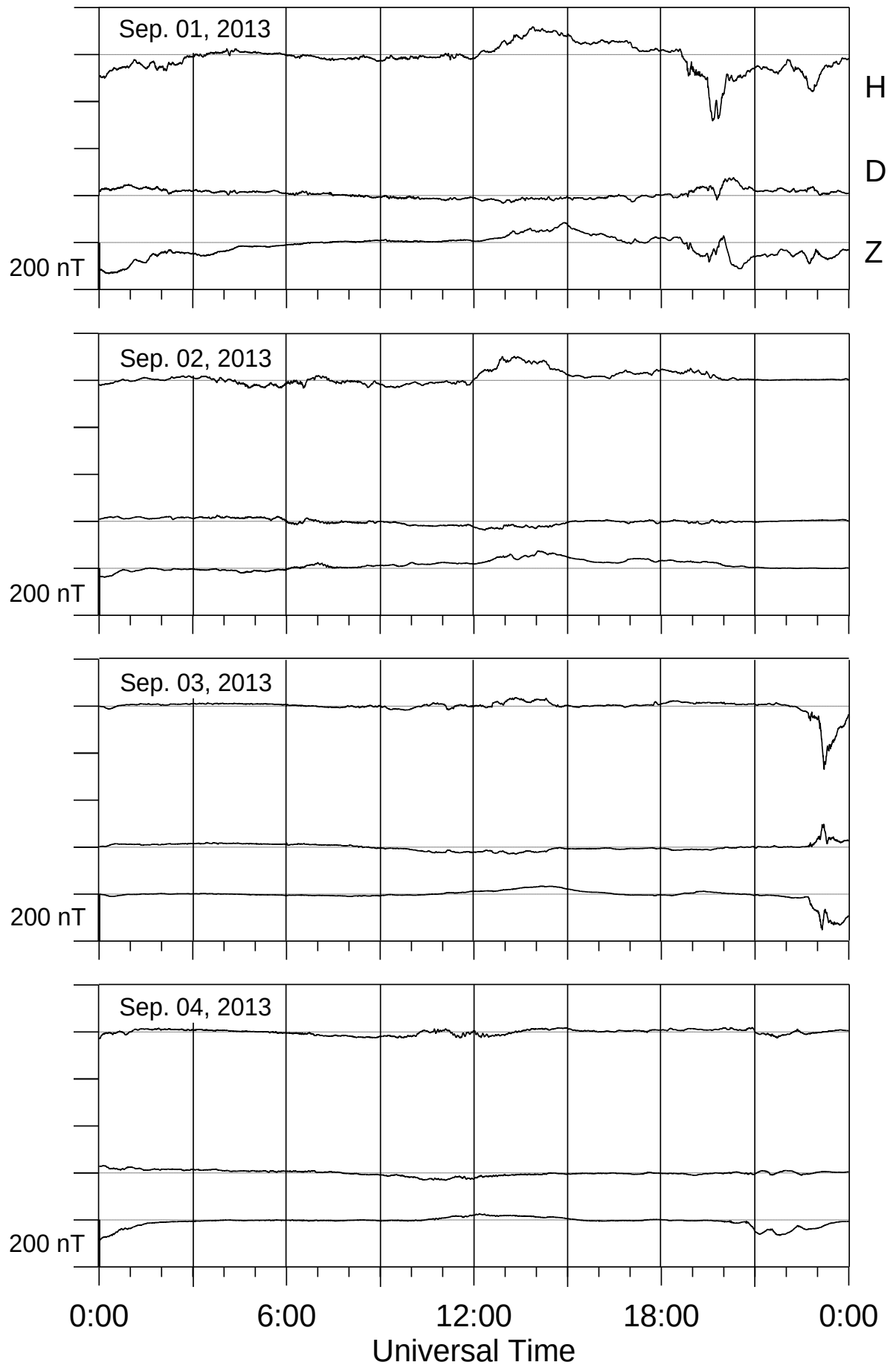
Lovozero magnetometer



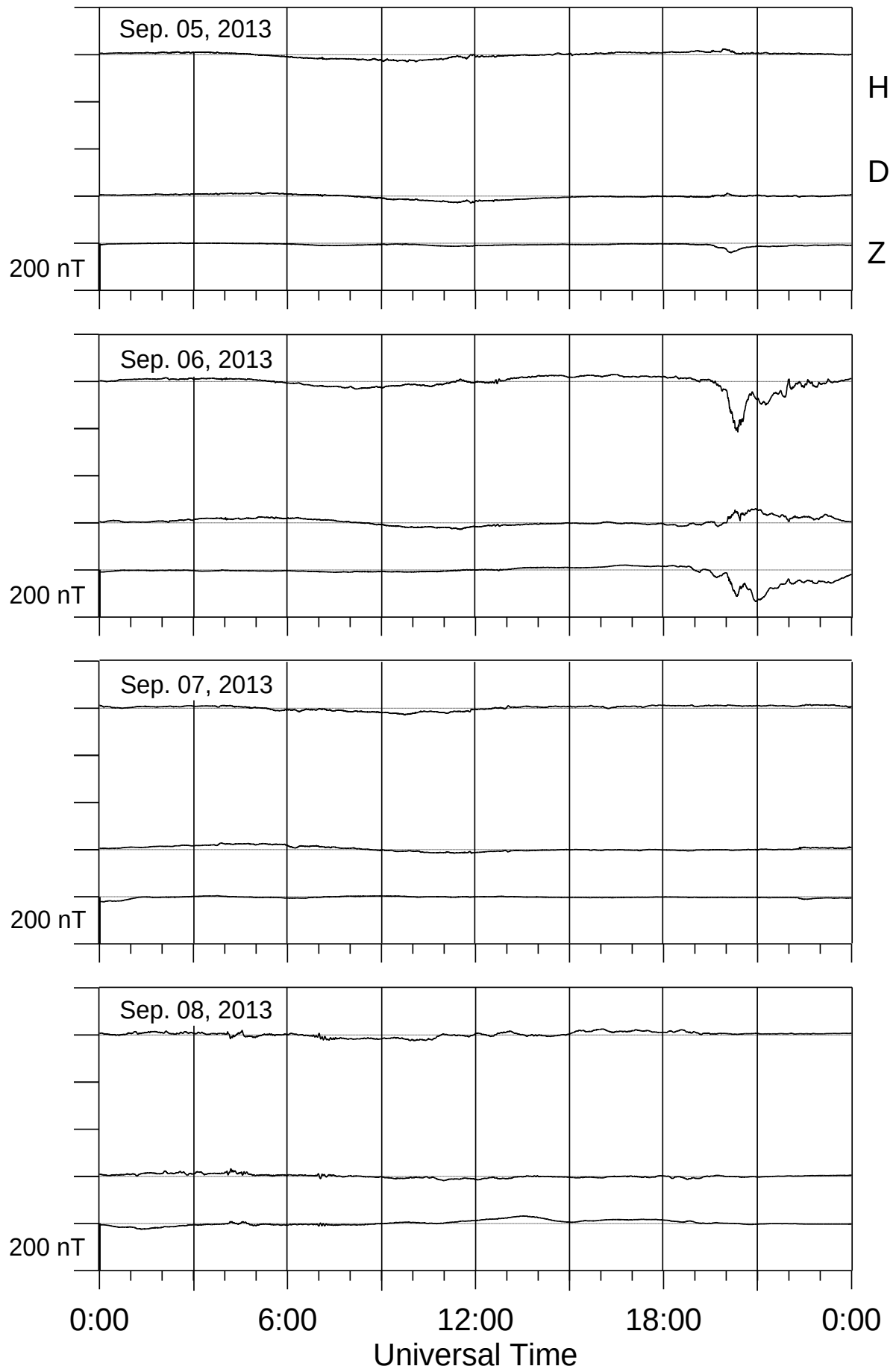
Lovozero magnetometer



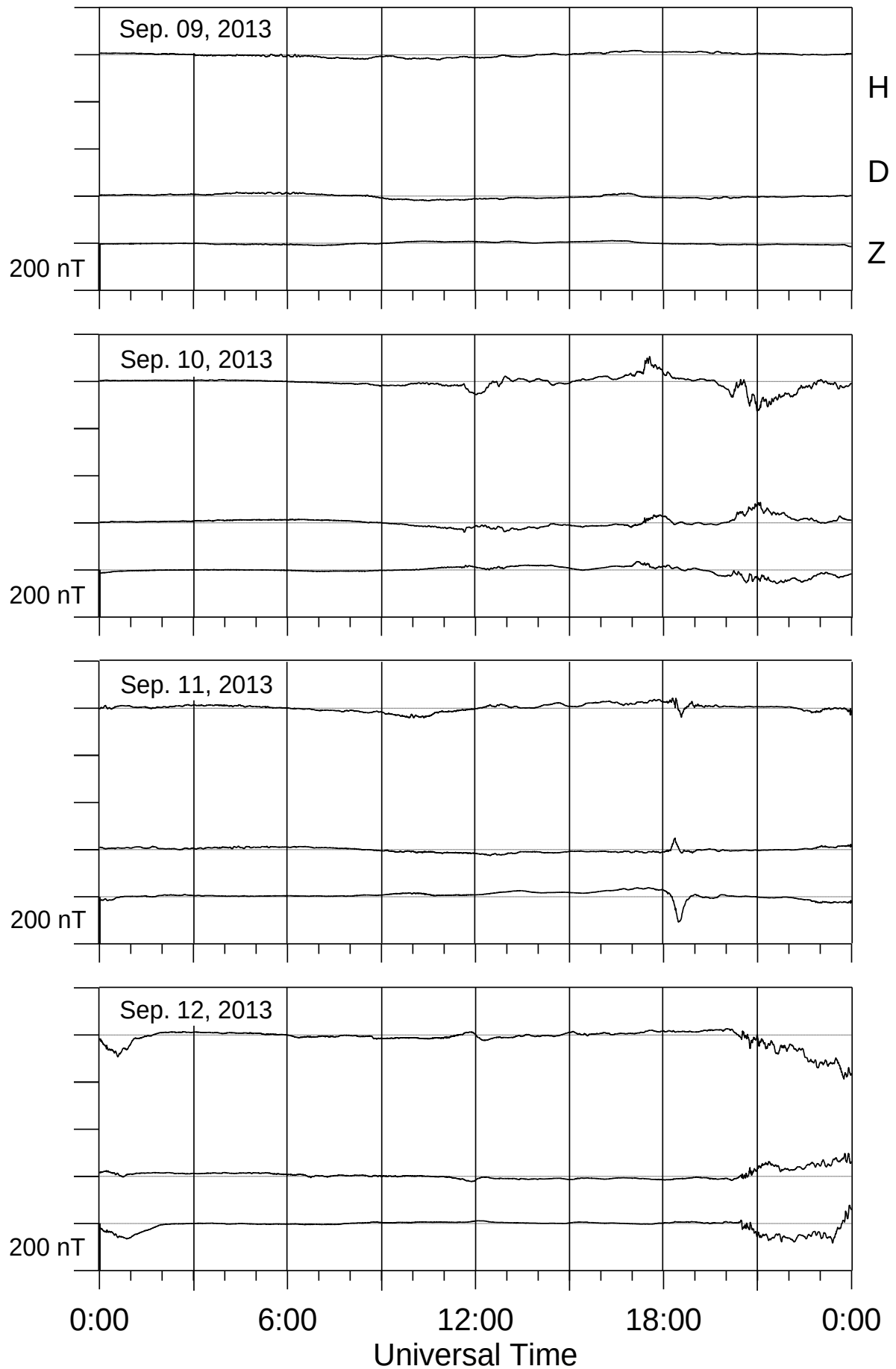
Lovozero magnetometer



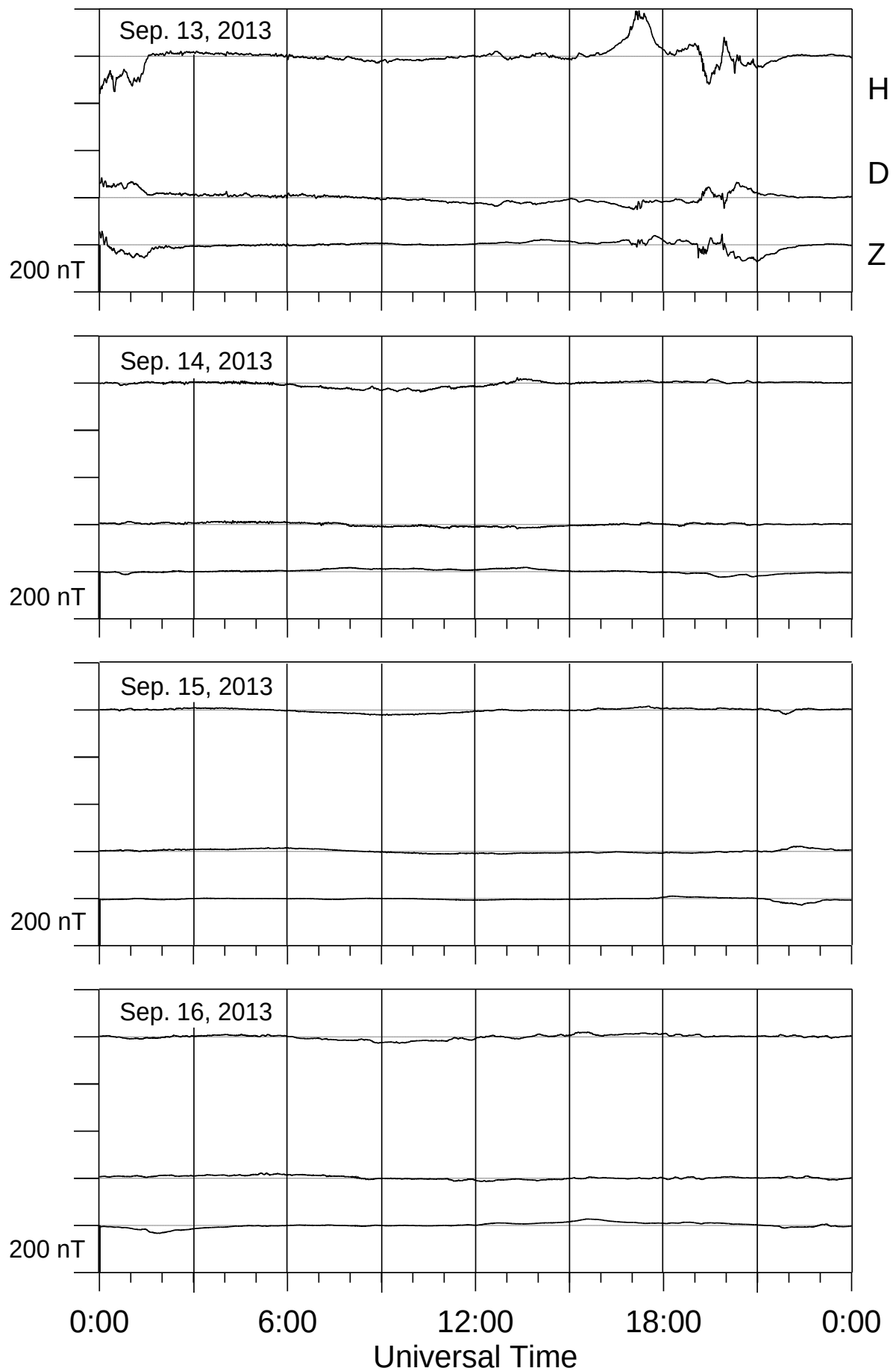
Lovozero magnetometer



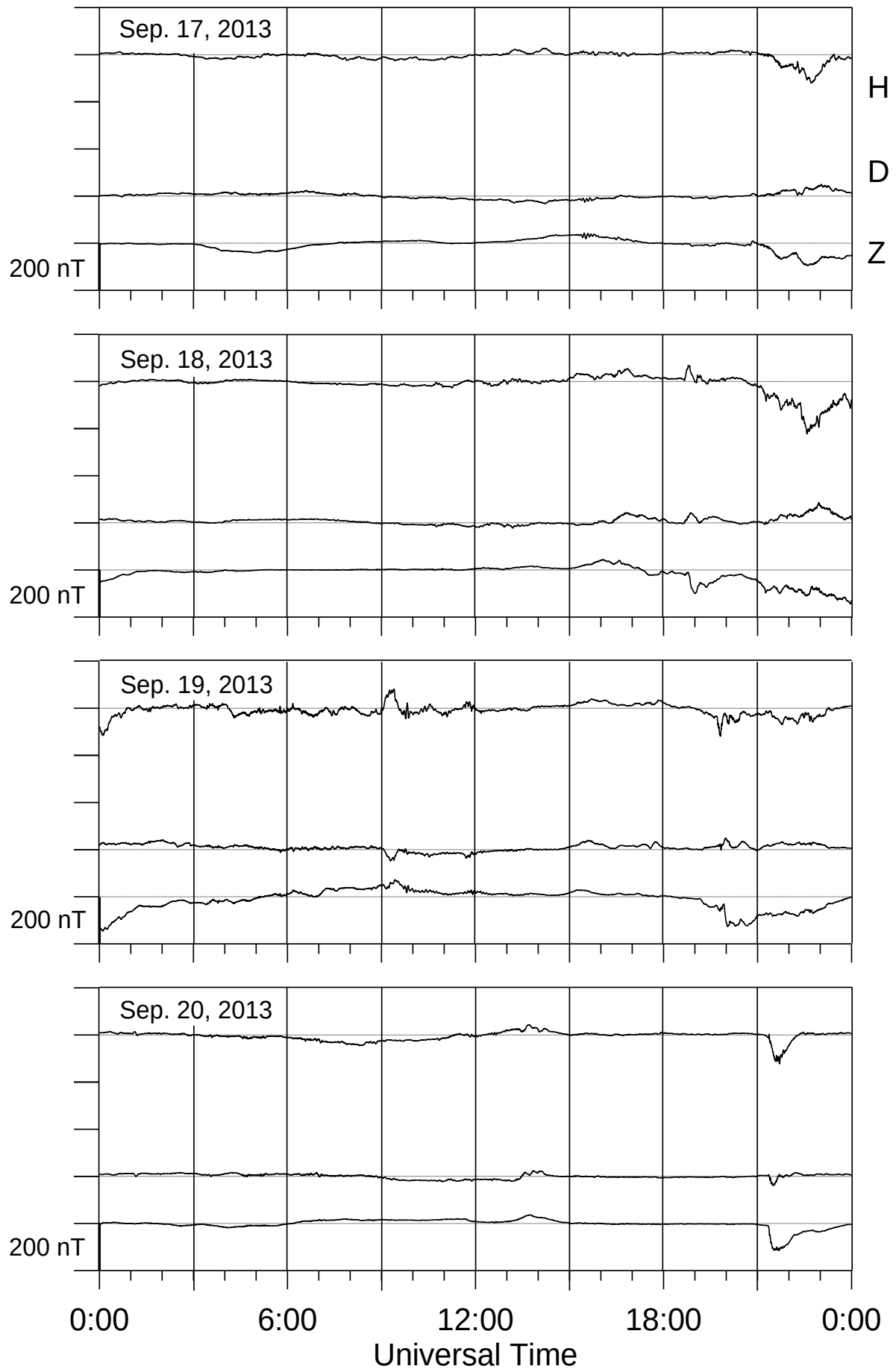
Lovozero magnetometer



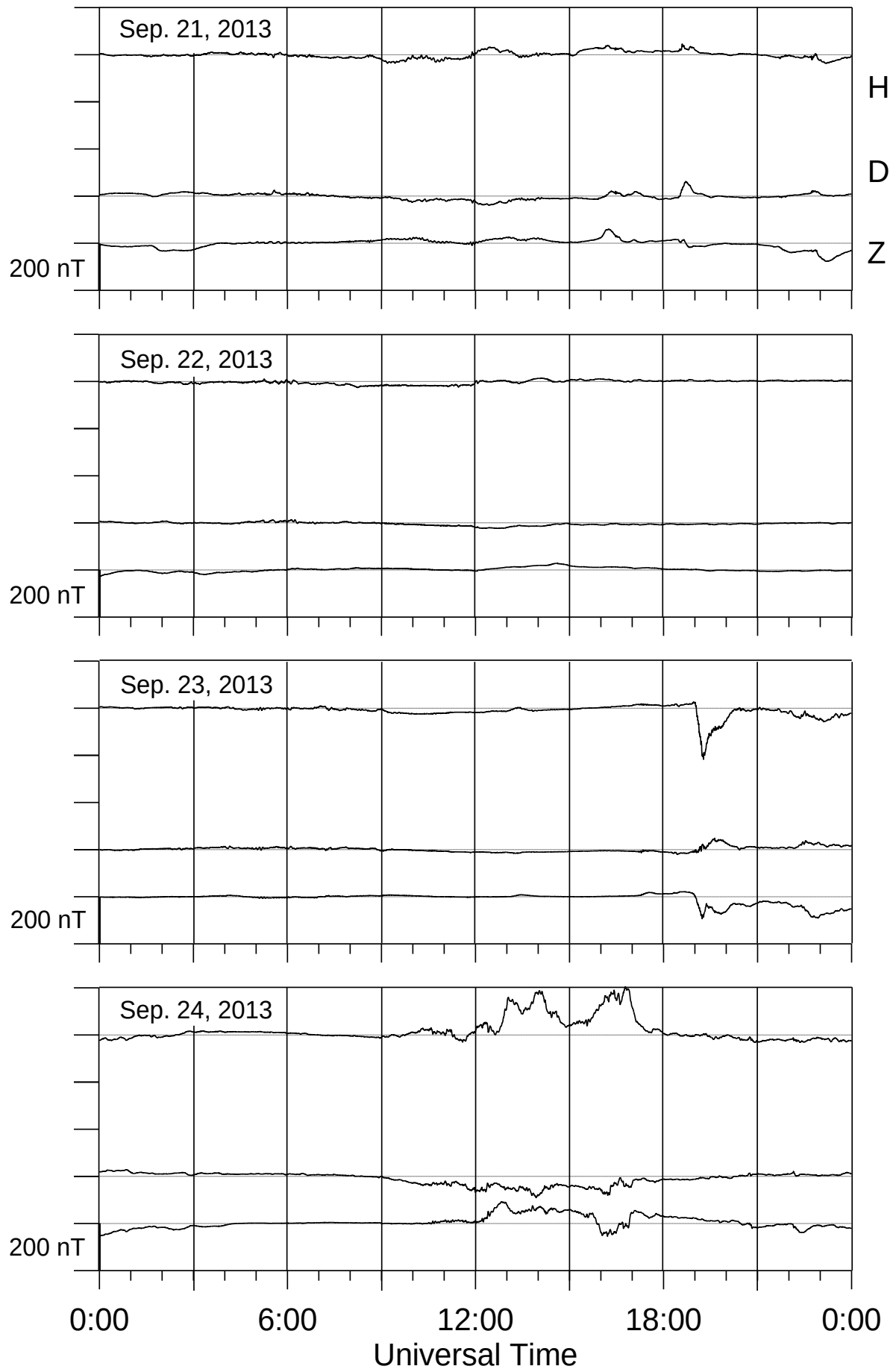
Lovozero magnetometer



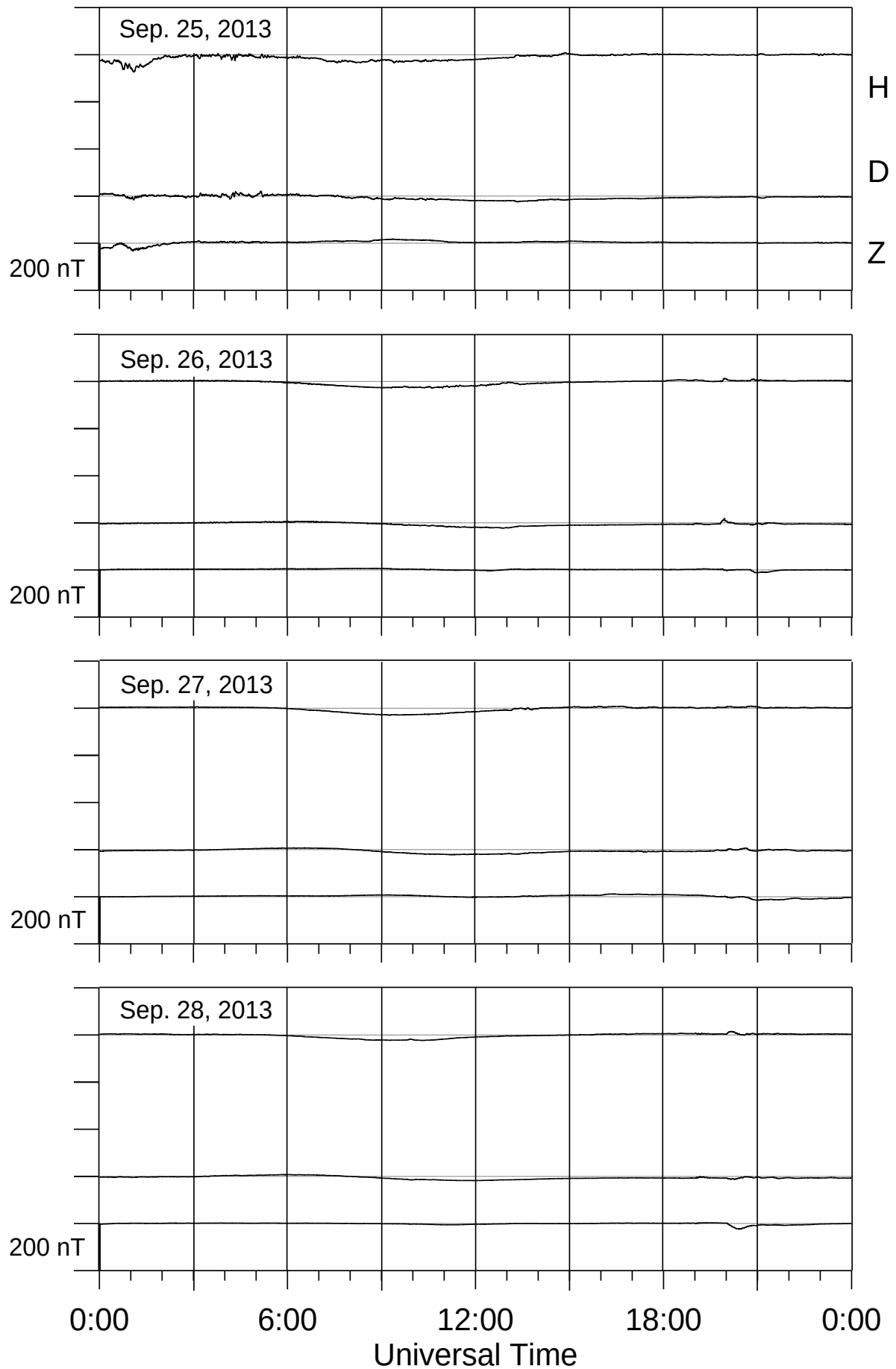
Lovozero magnetometer



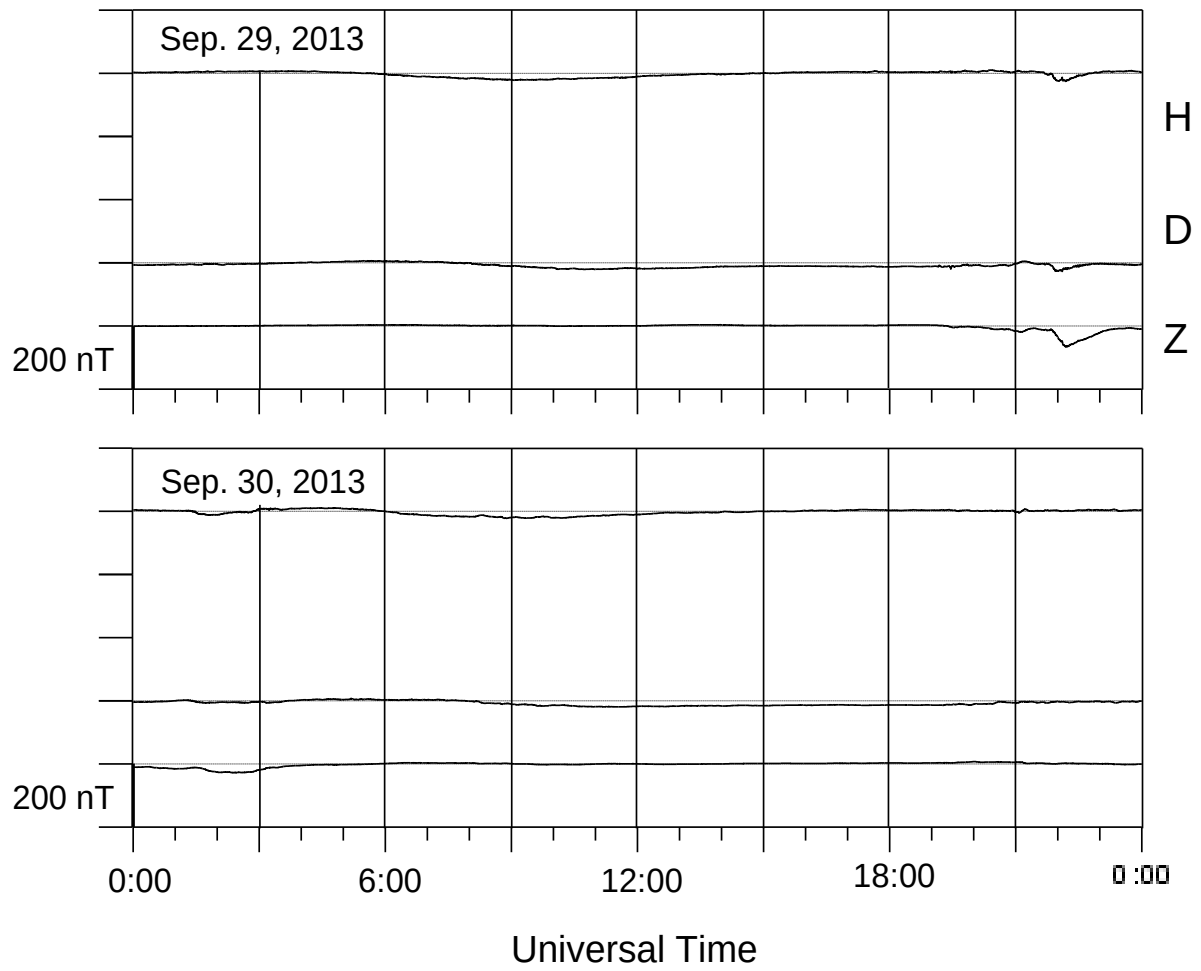
Lovozero magnetometer



Lovozero magnetometer



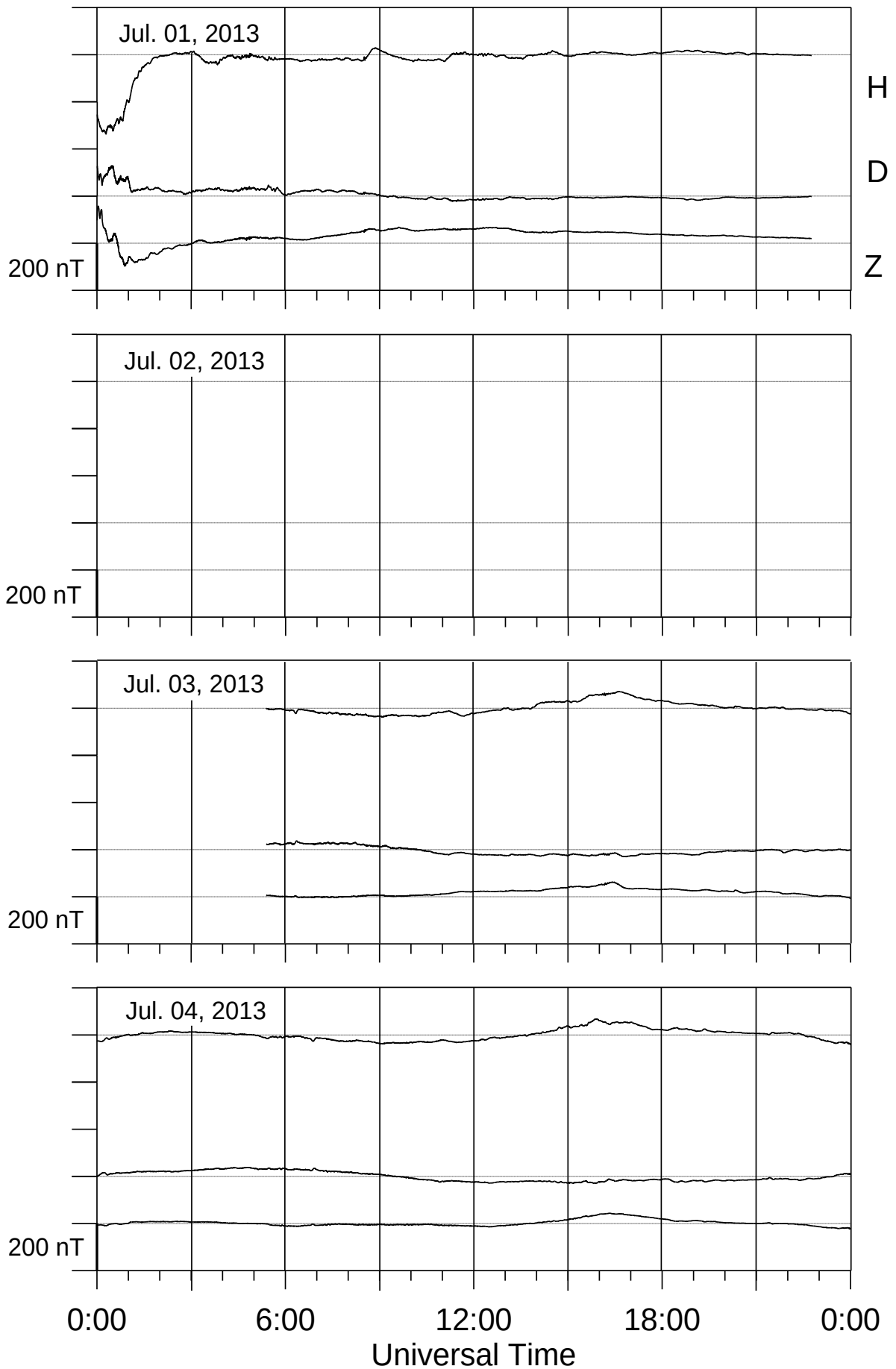
Lovozero magnetometer



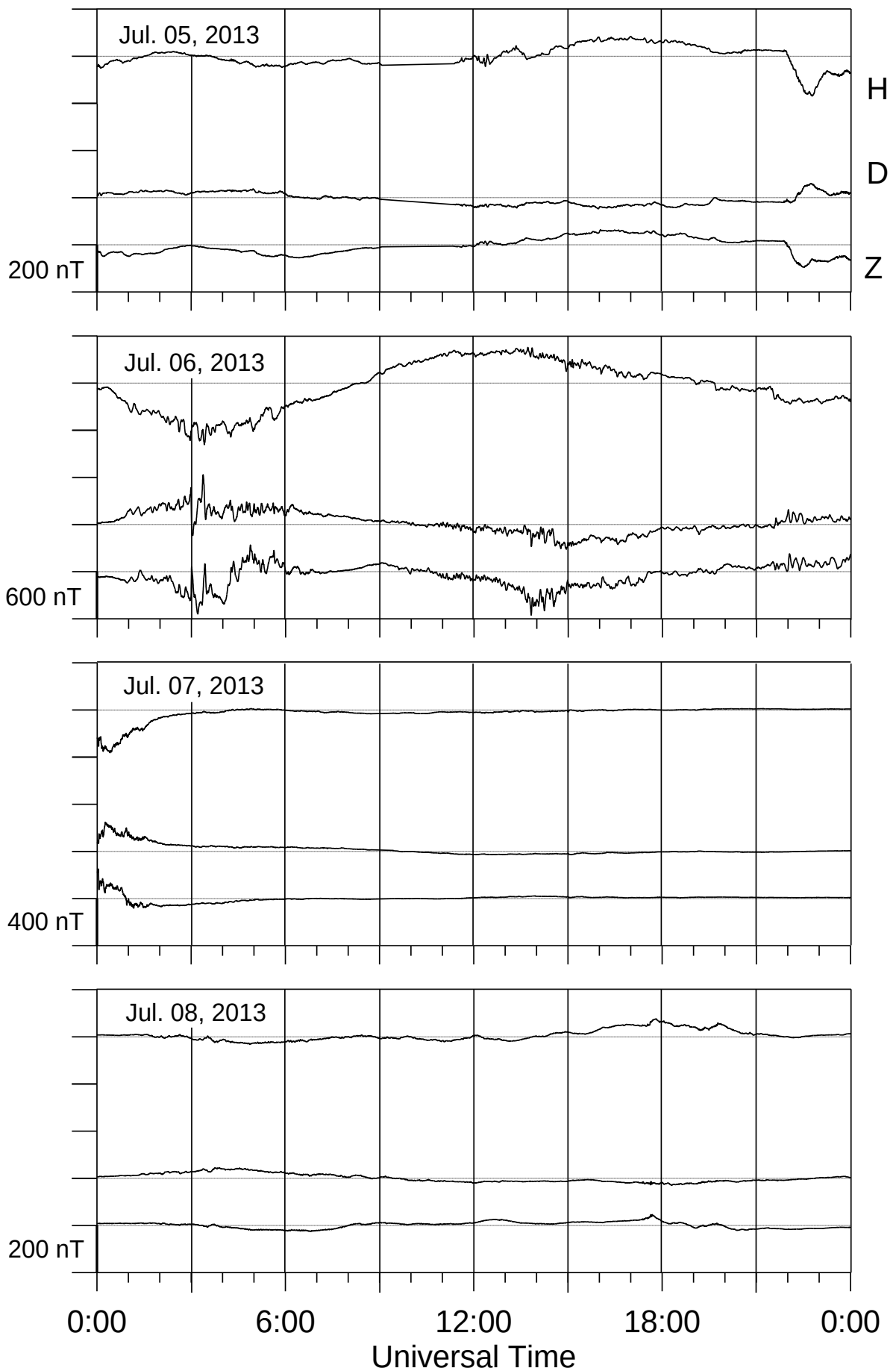
LOPARSKAYA MAGNETOGRAMS

July - September 2013

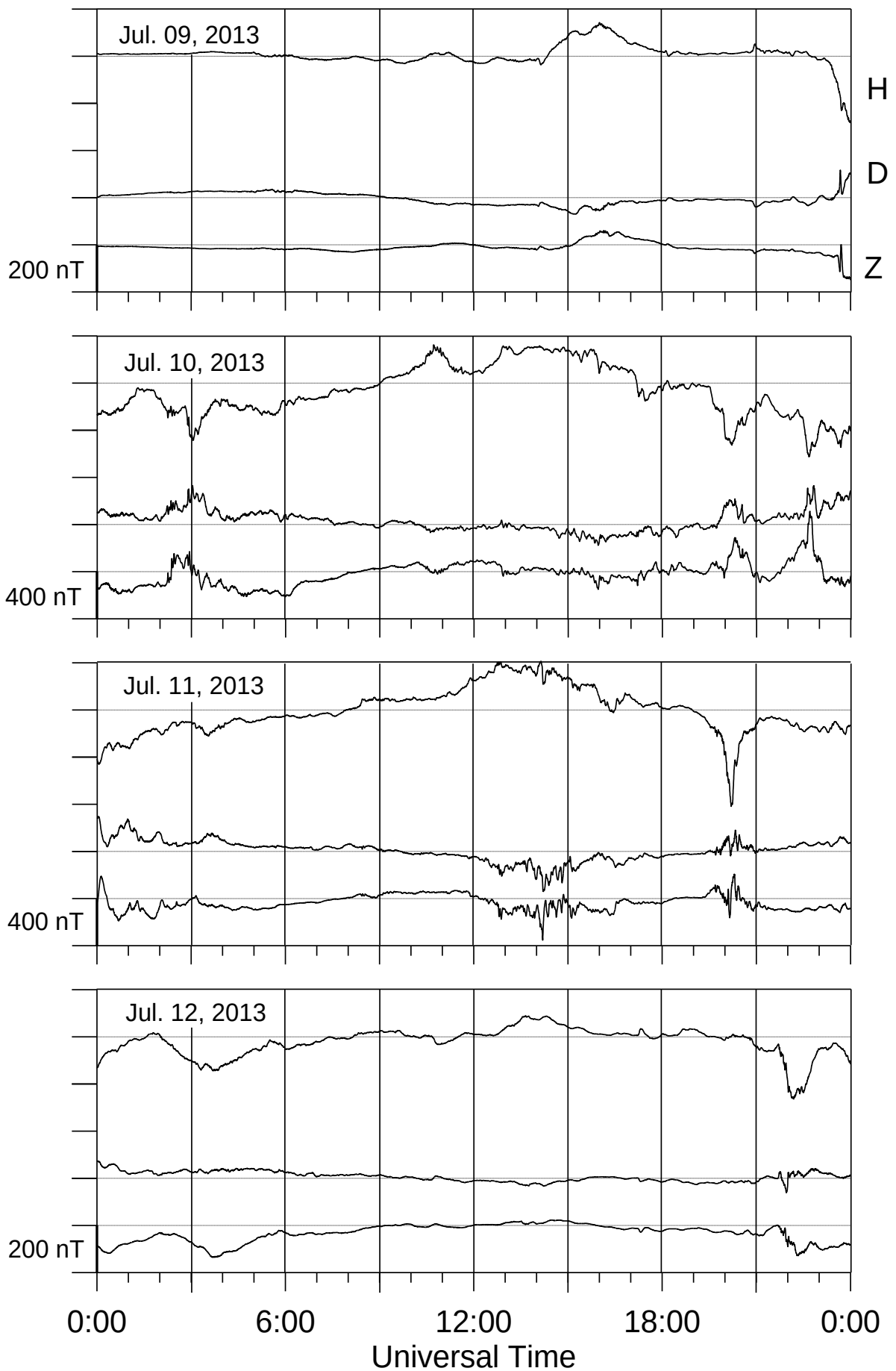
Loparskaya magnetometer



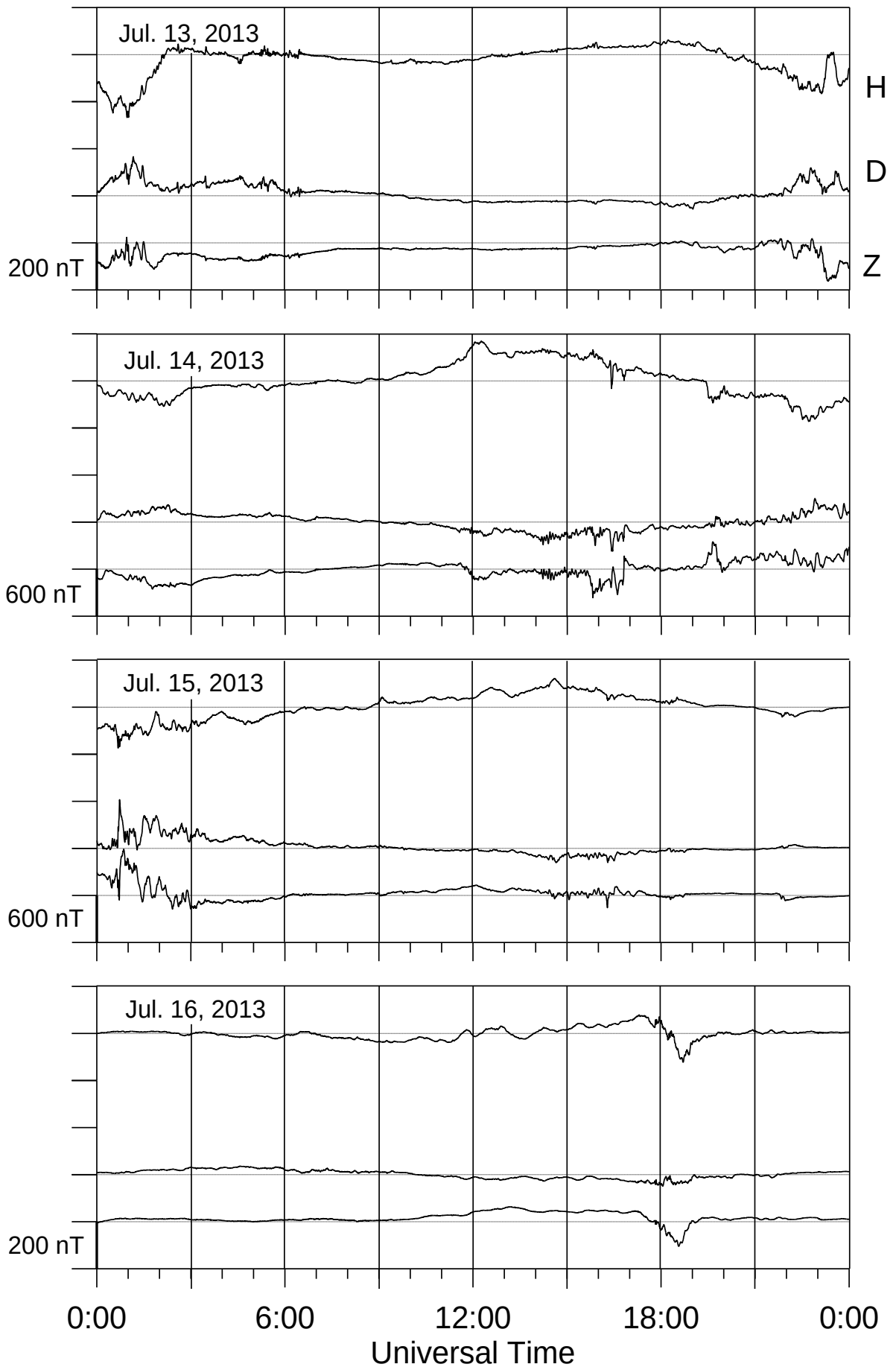
Loparskaya magnetometer



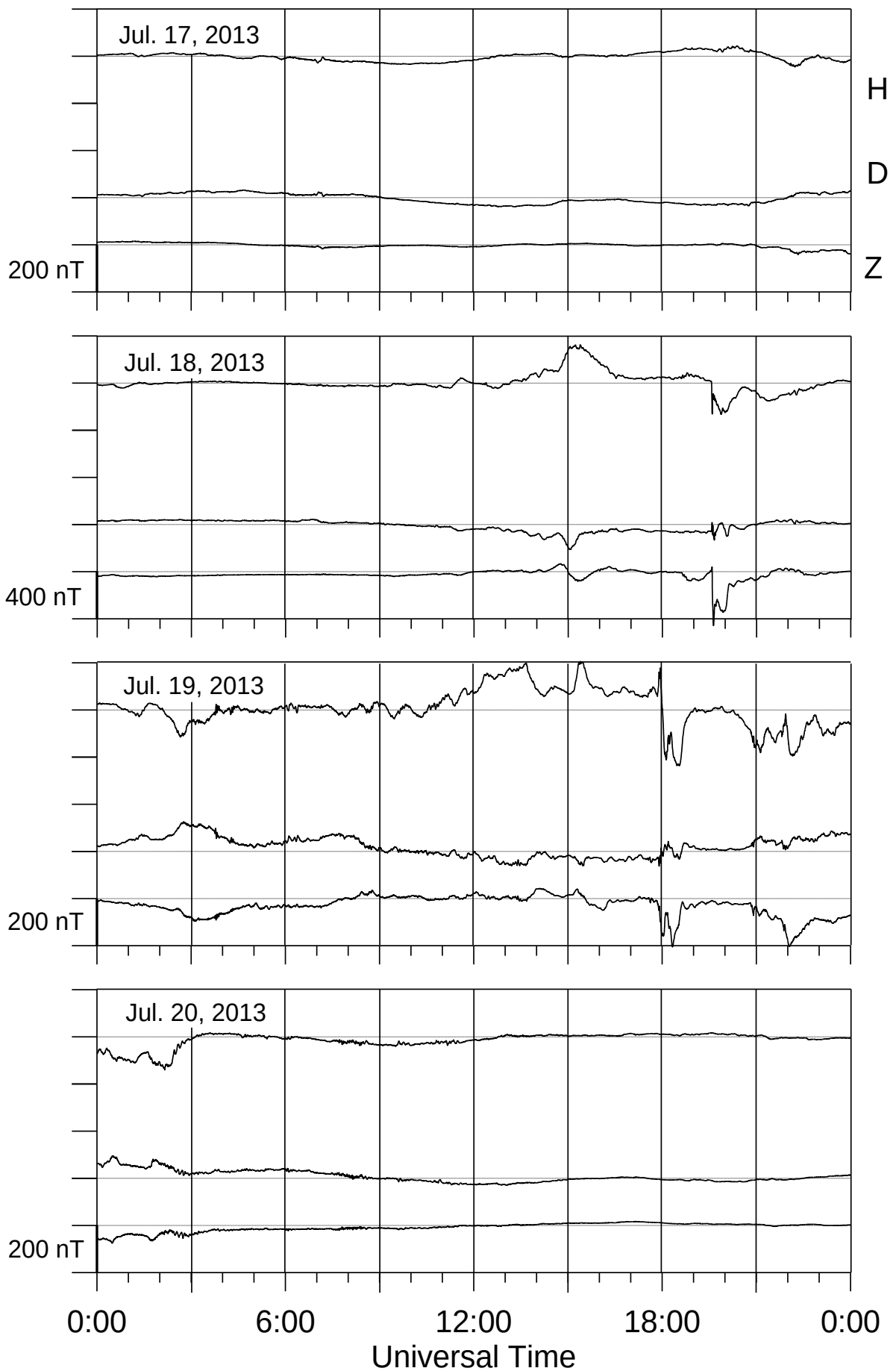
Loparskaya magnetometer



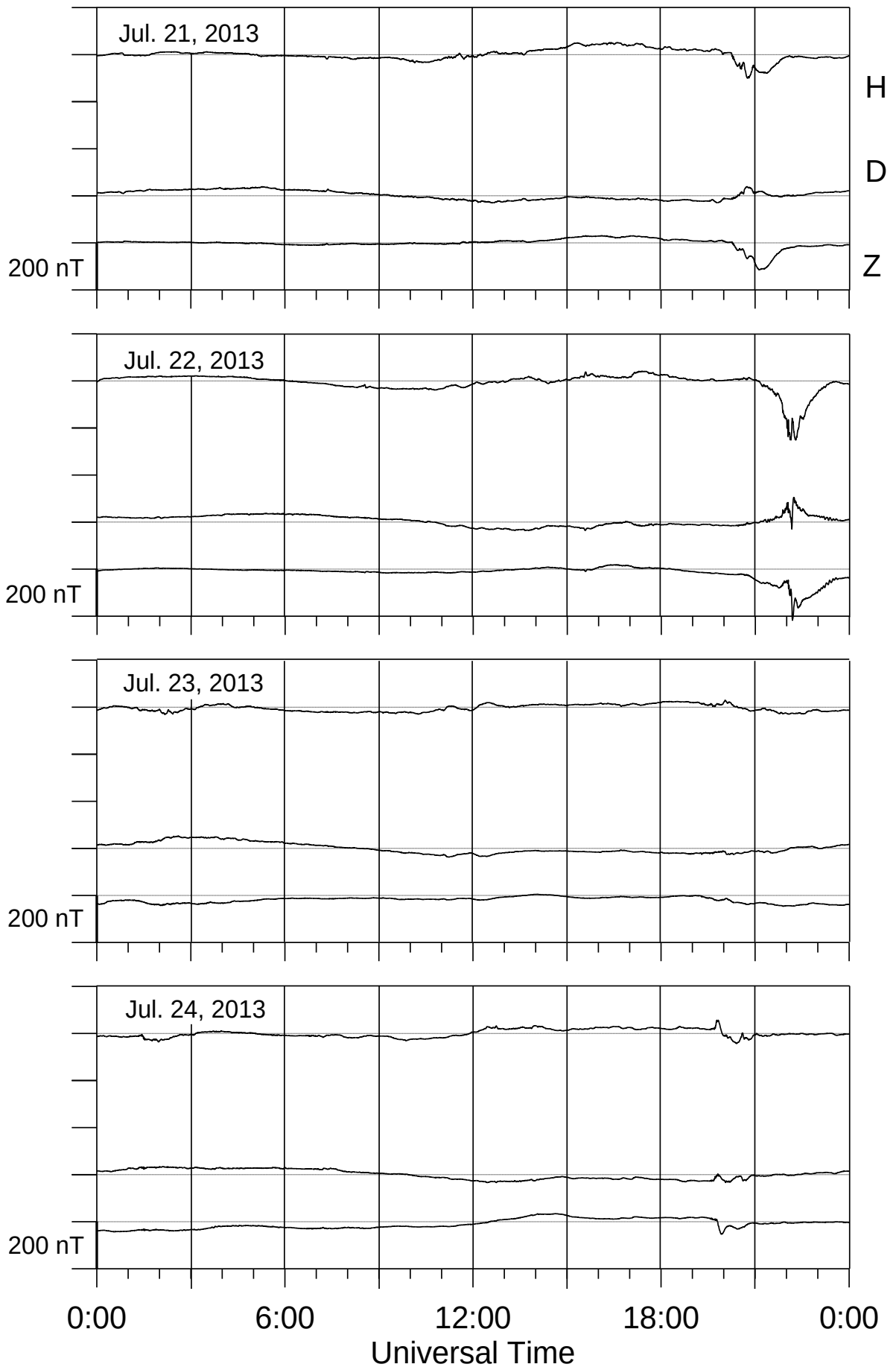
Loparskaya magnetometer



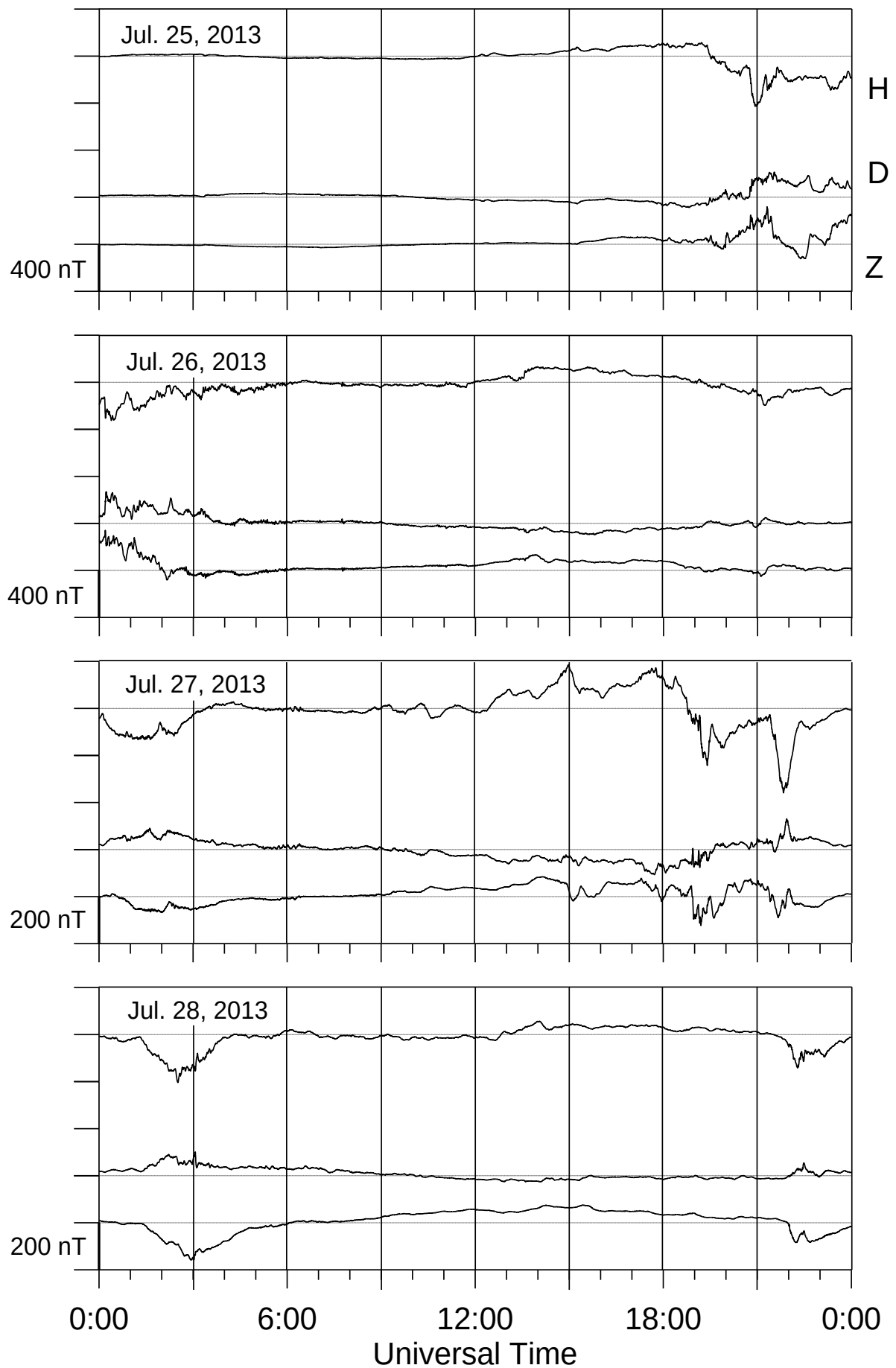
Loparskaya magnetometer



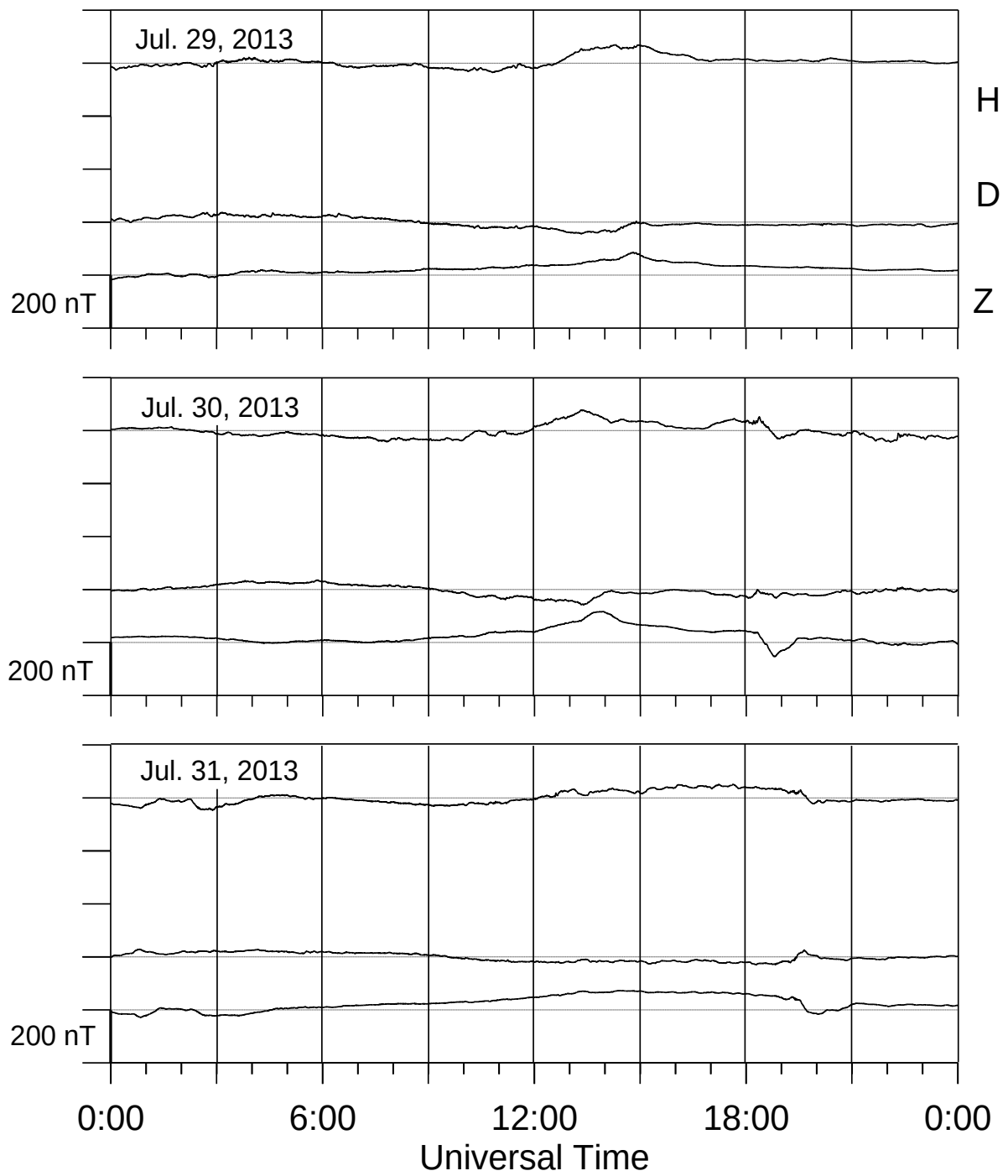
Loparskaya magnetometer



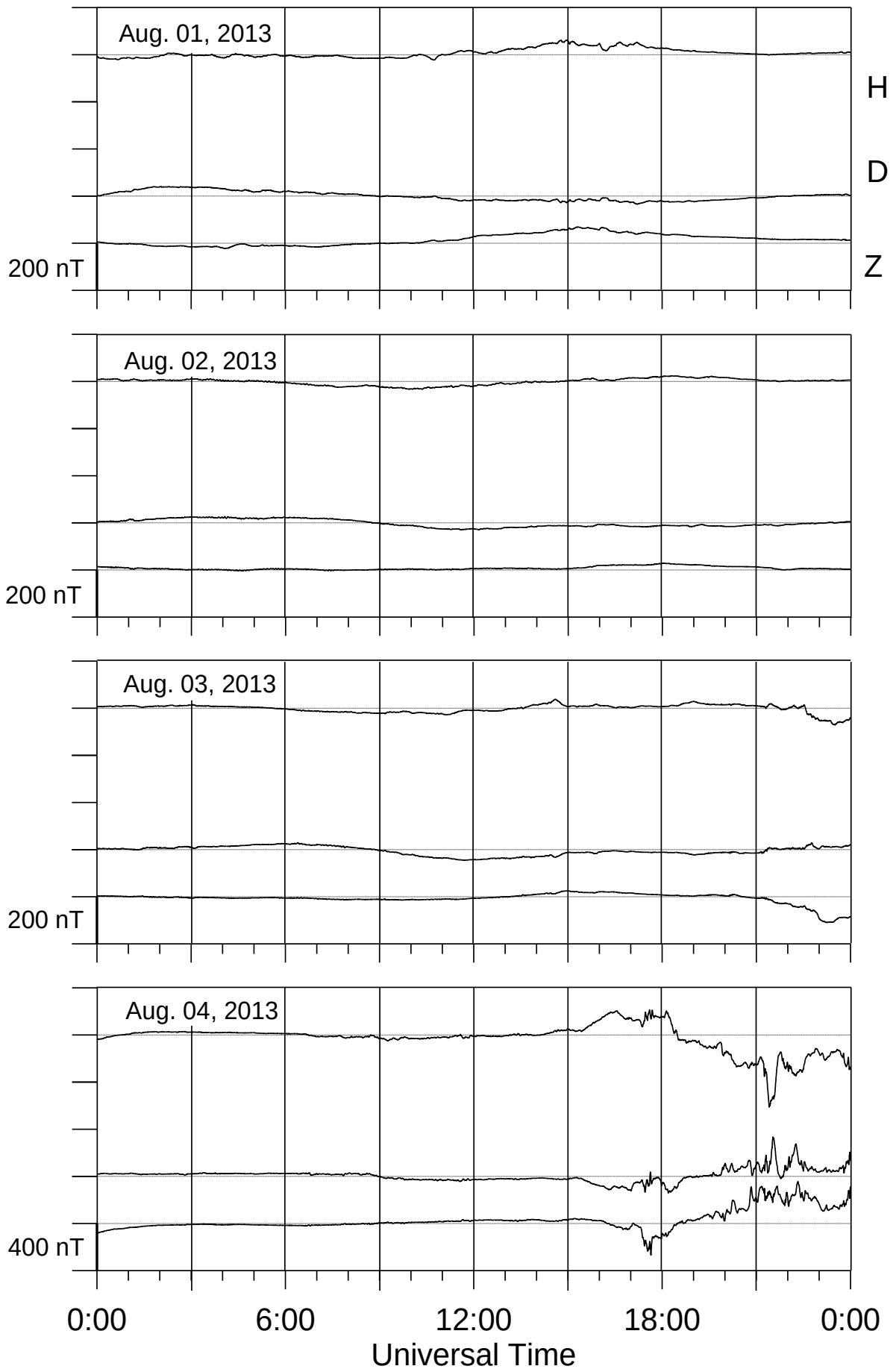
Loparskaya magnetometer



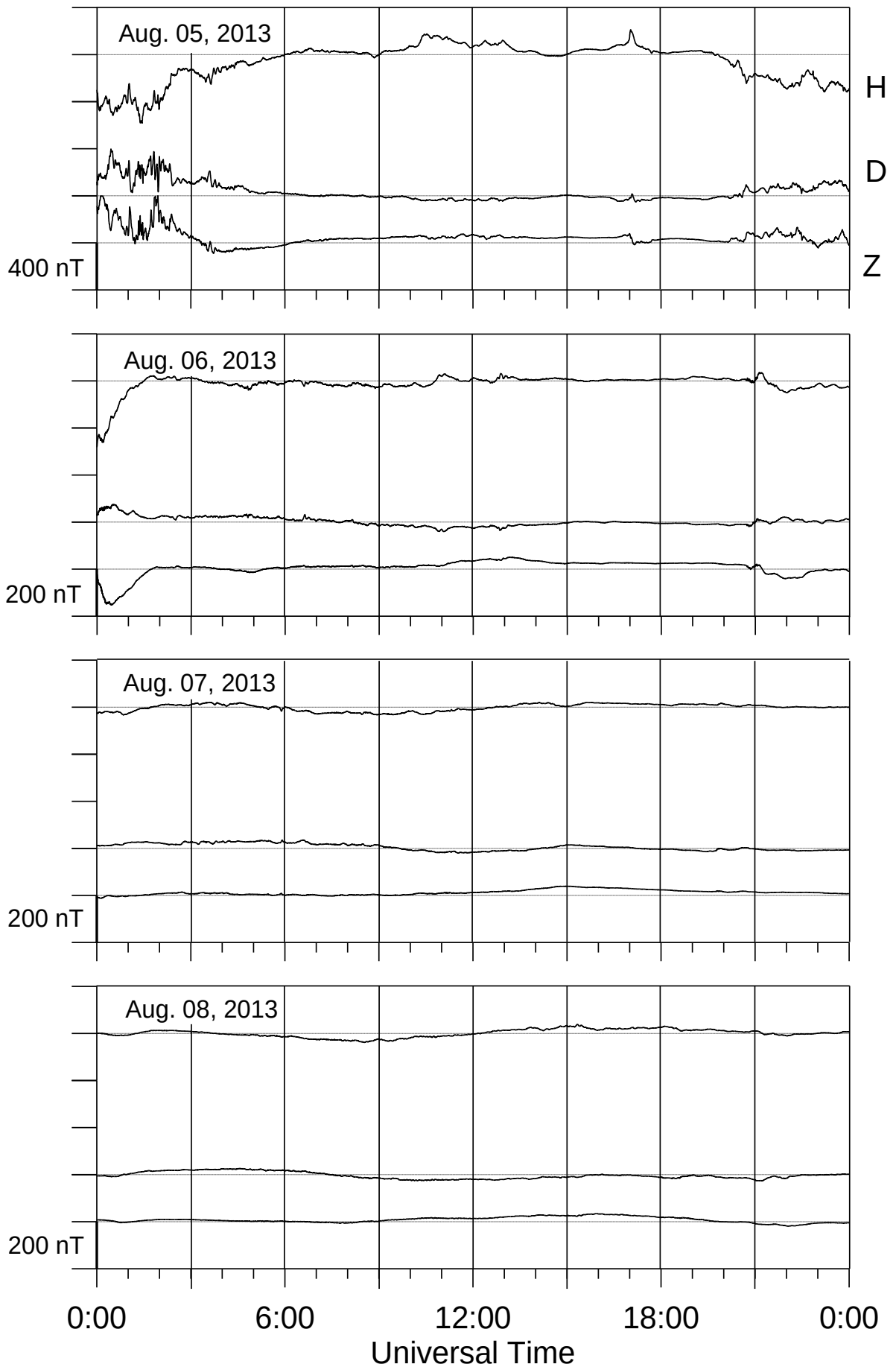
Loparskaya magnetometer



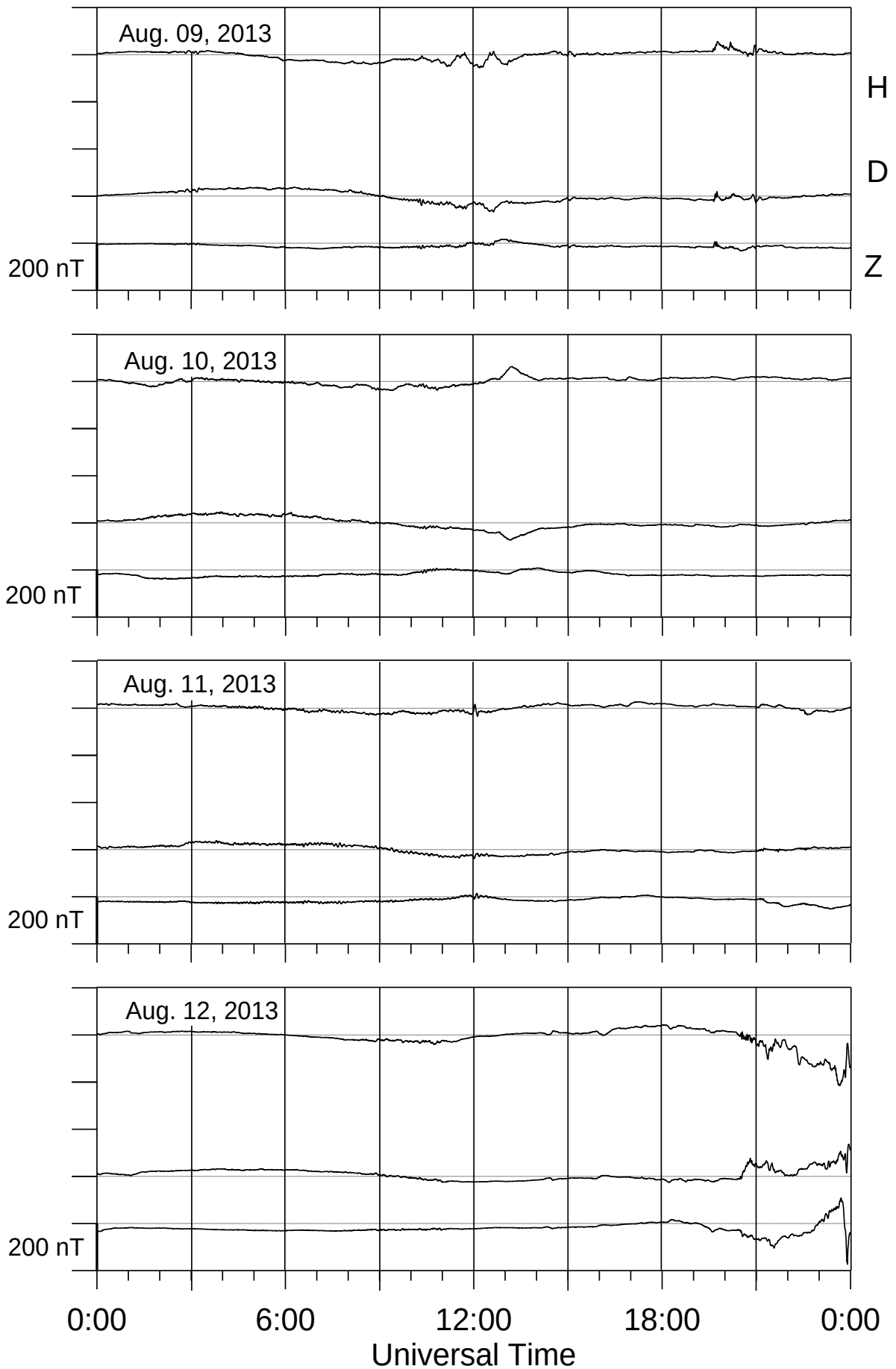
Loparskaya magnetometer



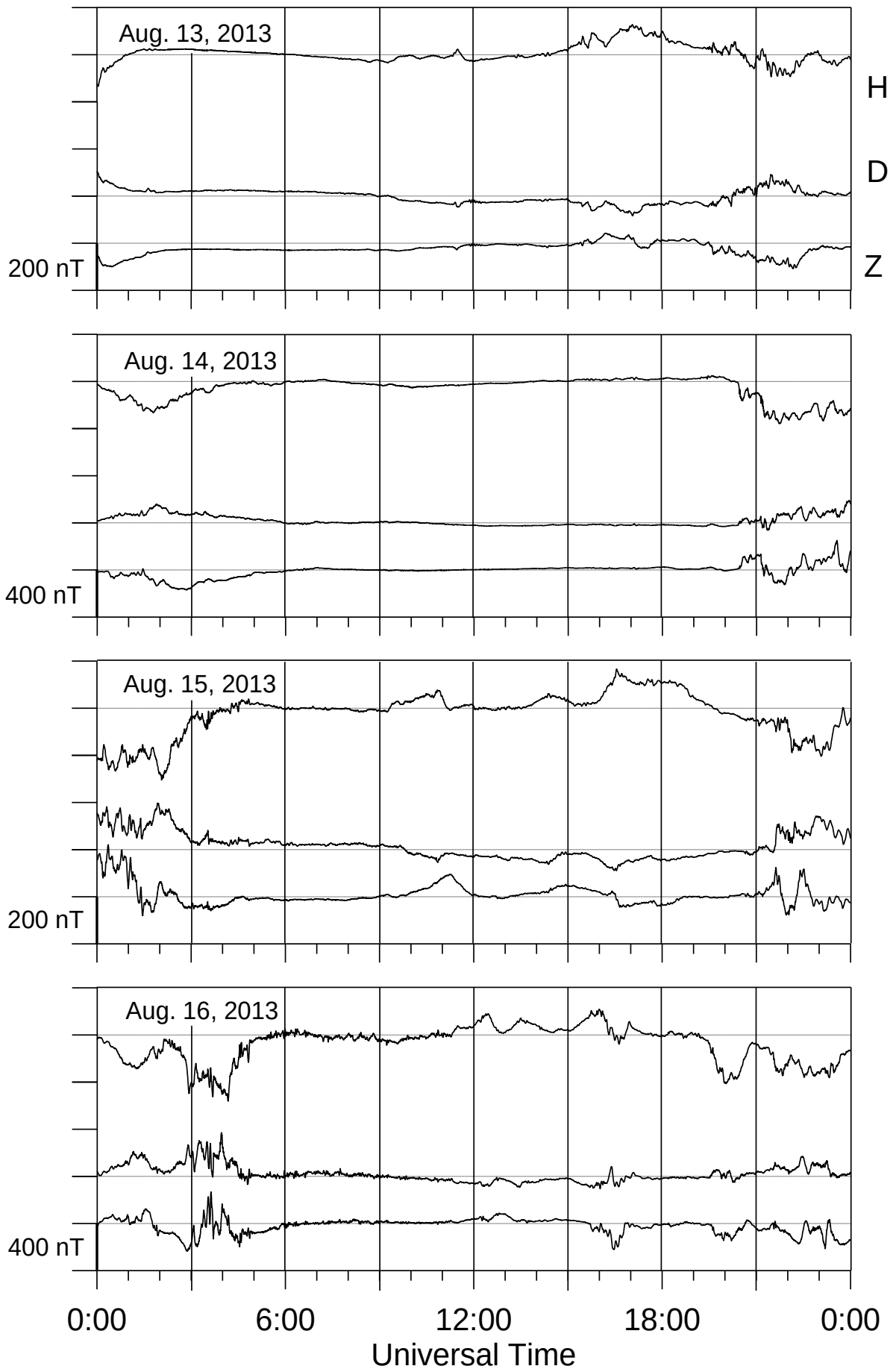
Loparskaya magnetometer



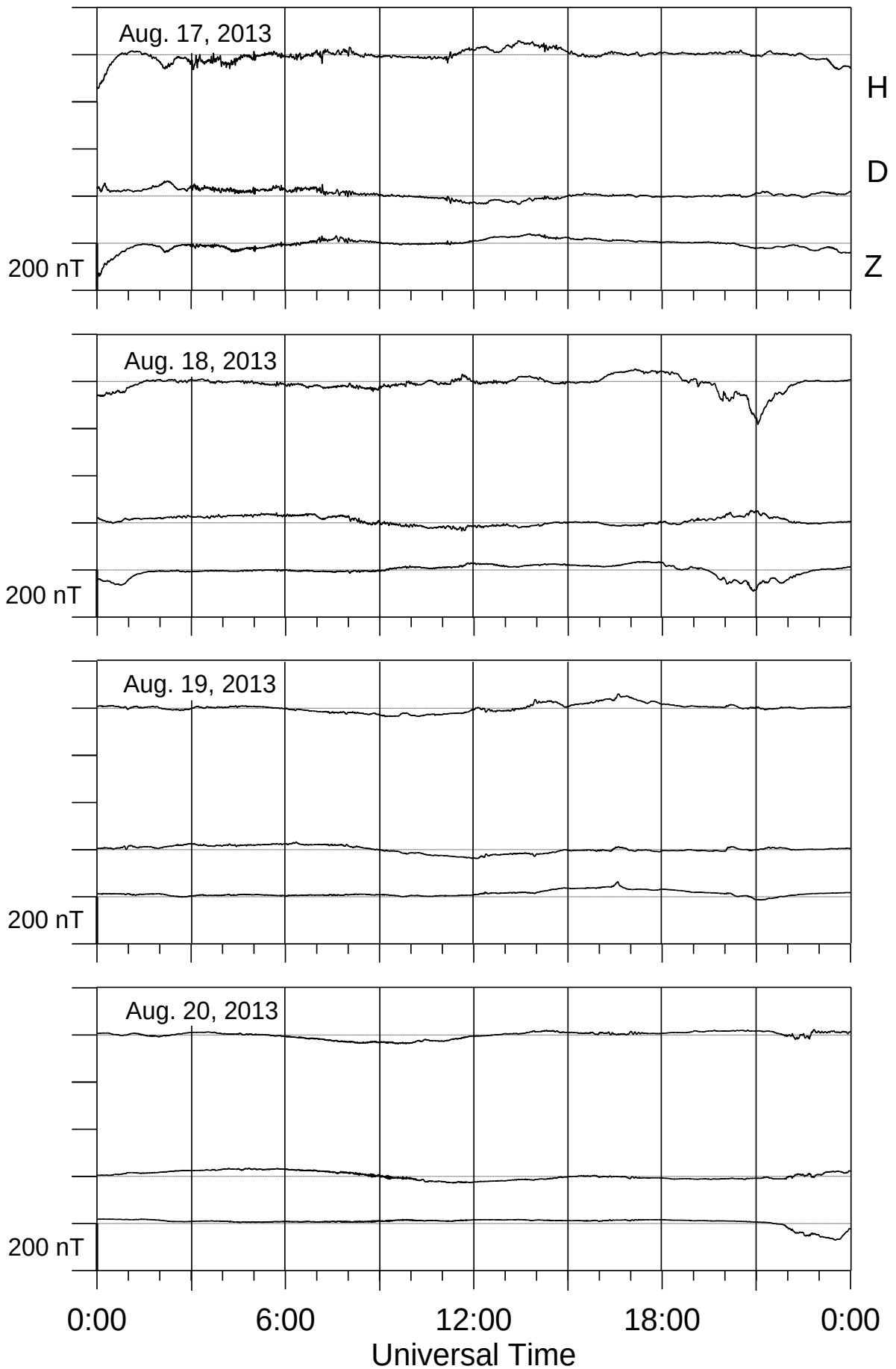
Loparskaya magnetometer



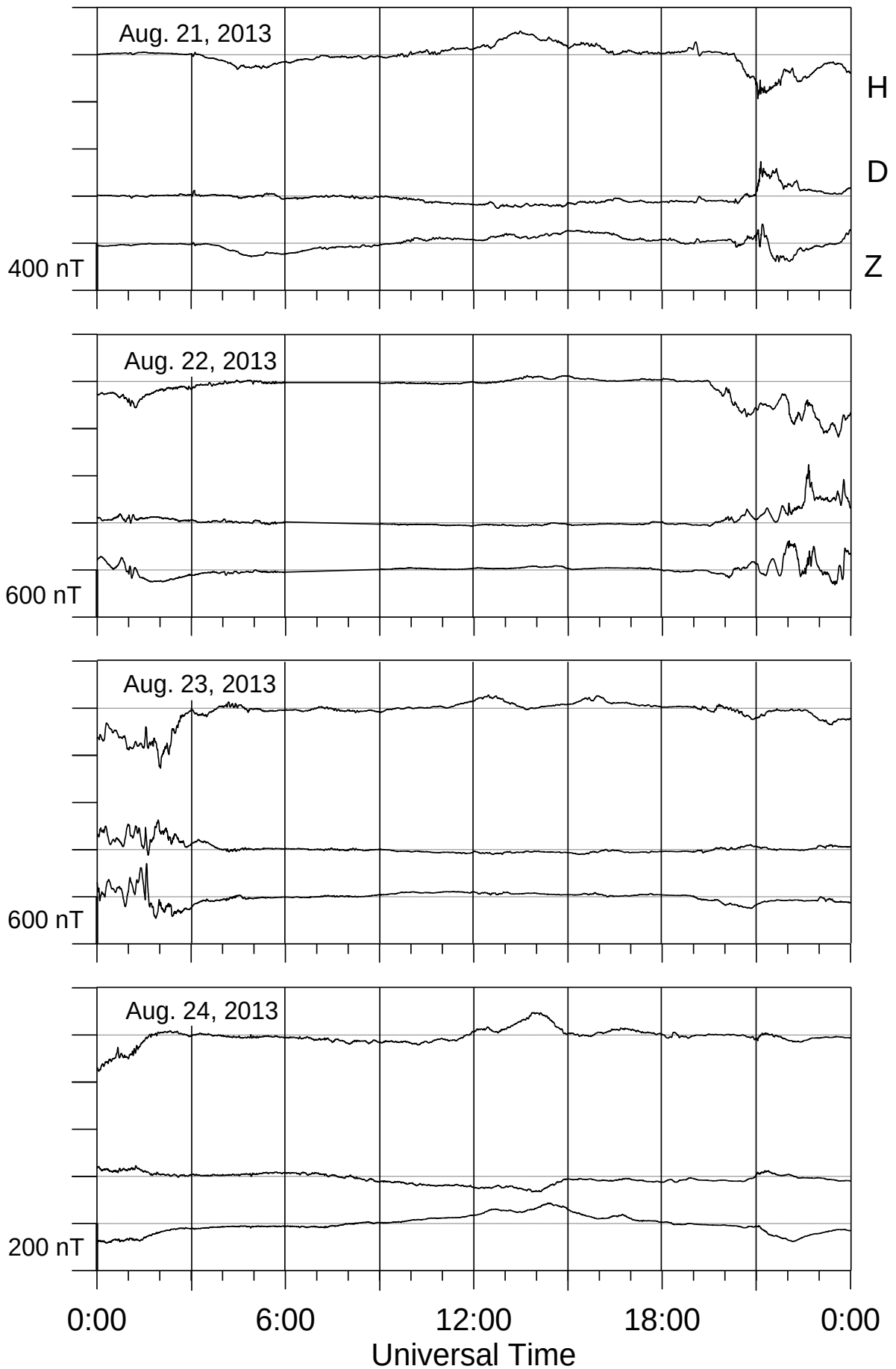
Loparskaya magnetometer



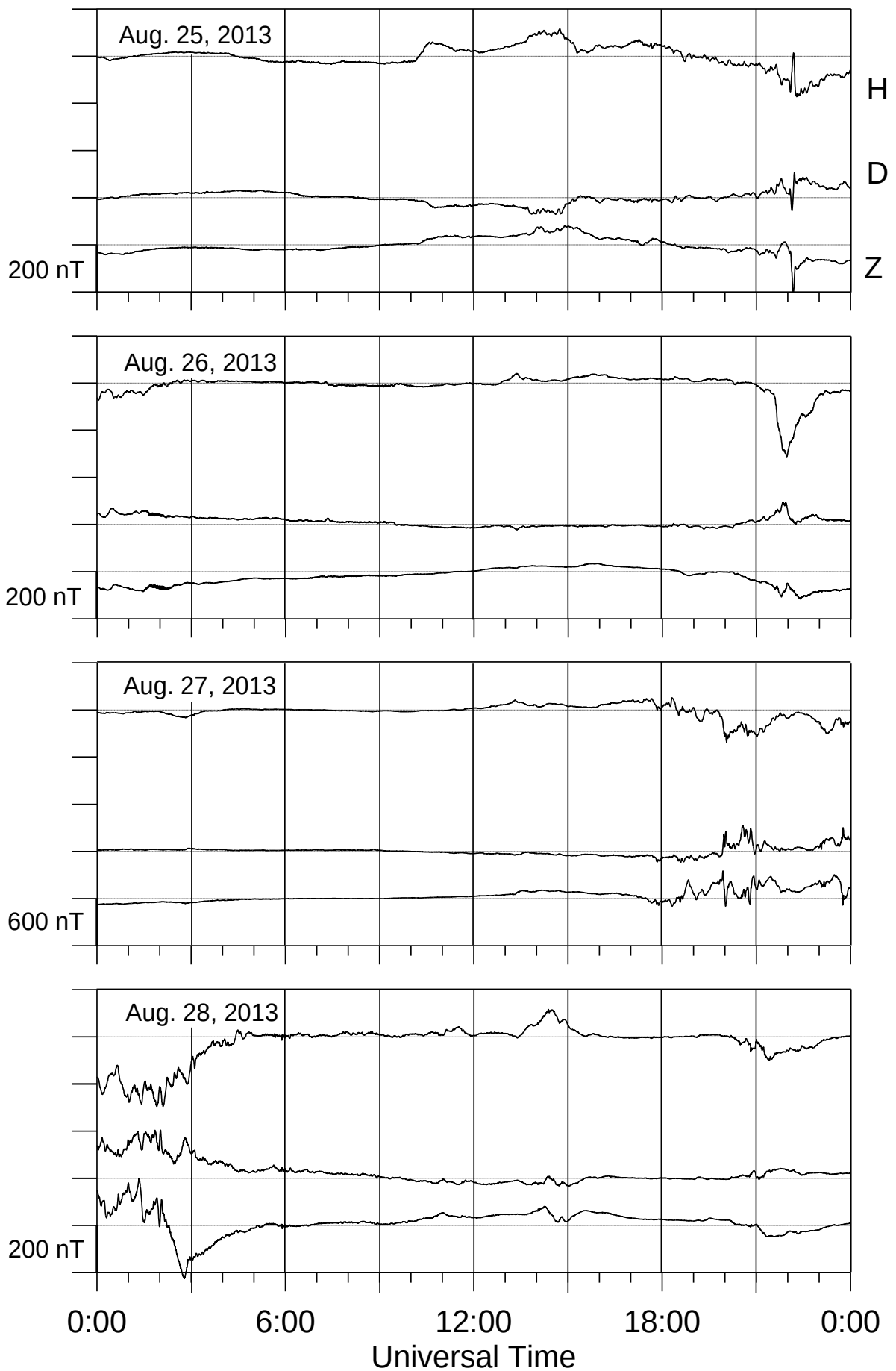
Loparskaya magnetometer



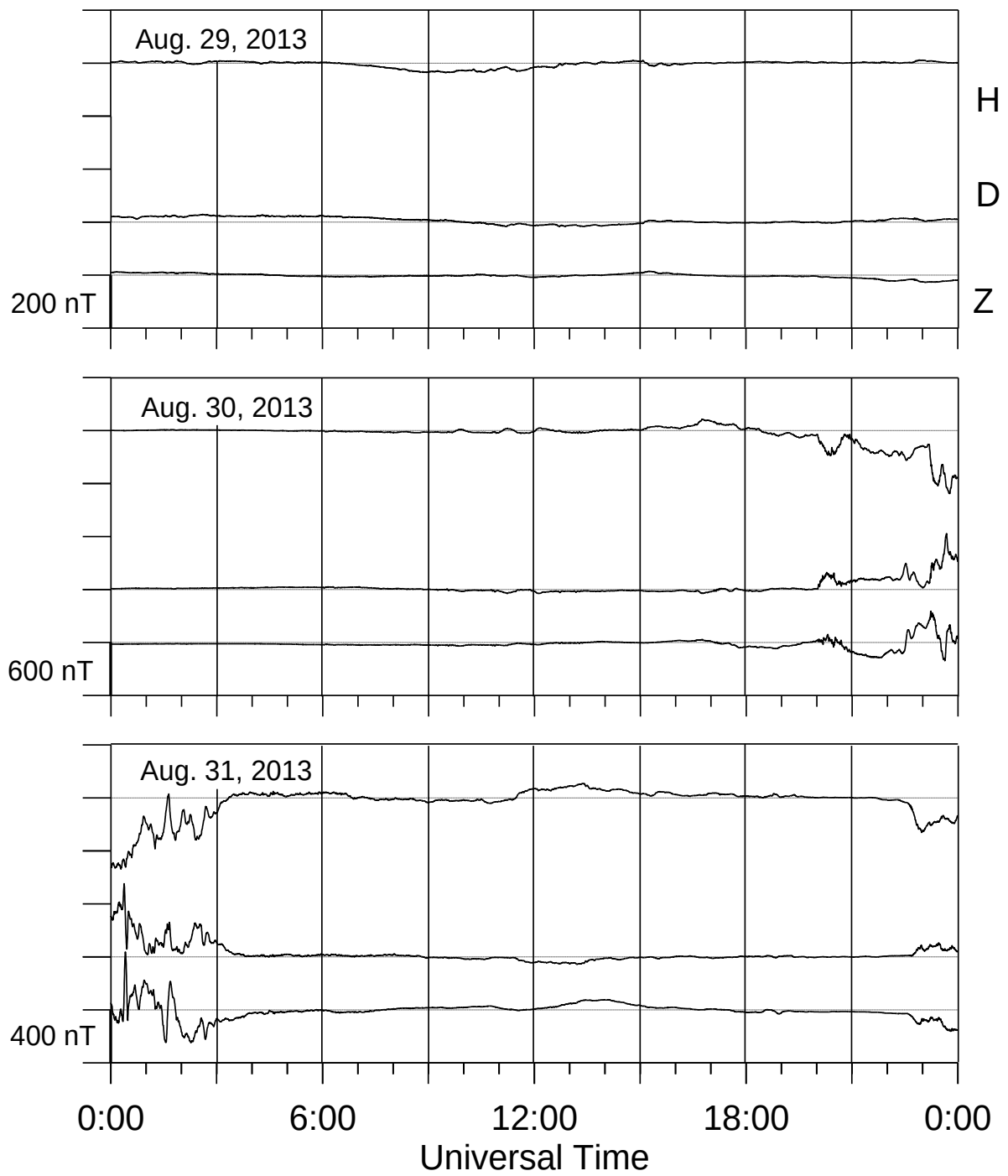
Loparskaya magnetometer



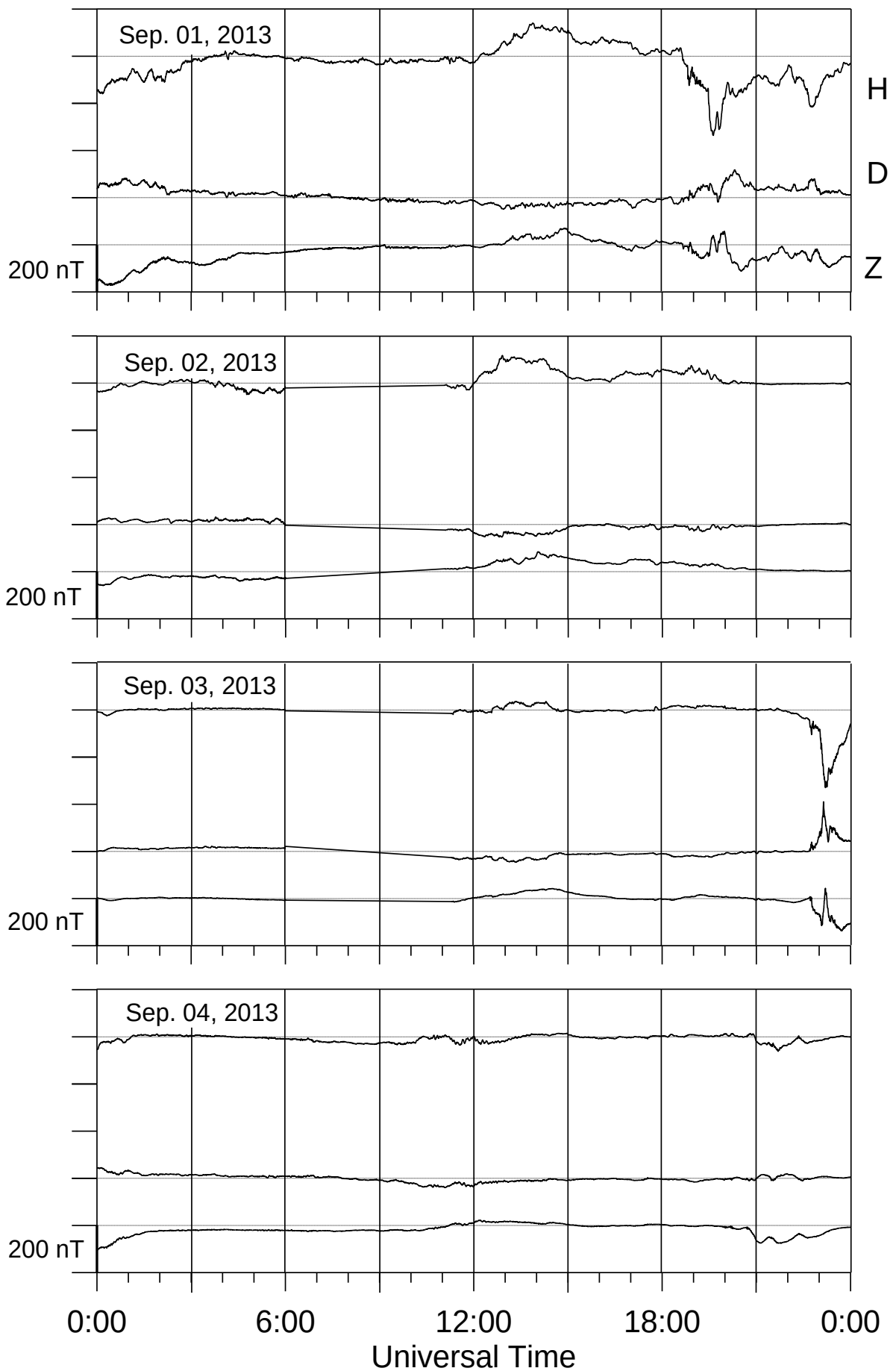
Loparskaya magnetometer



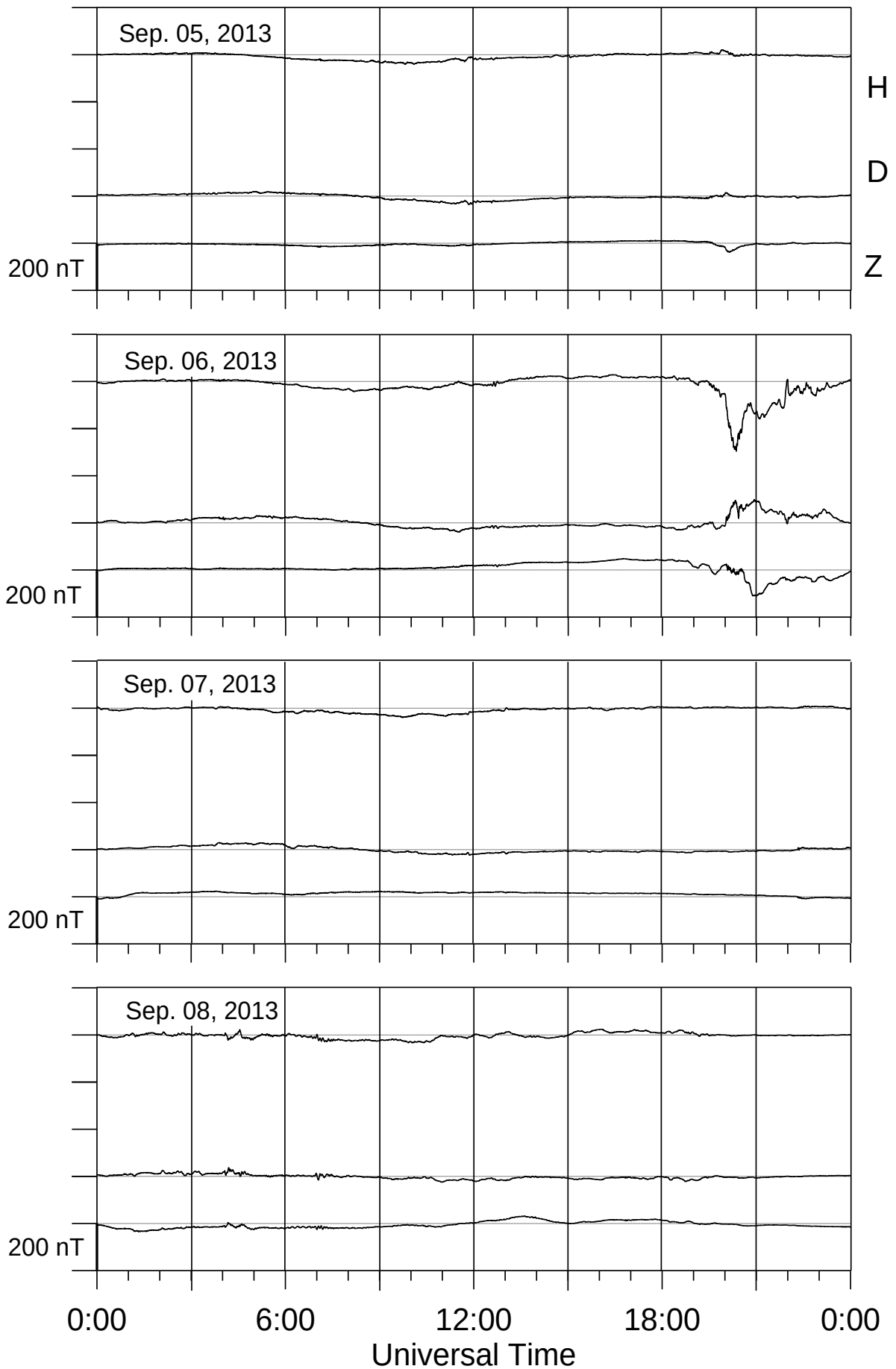
Loparskaya magnetometer



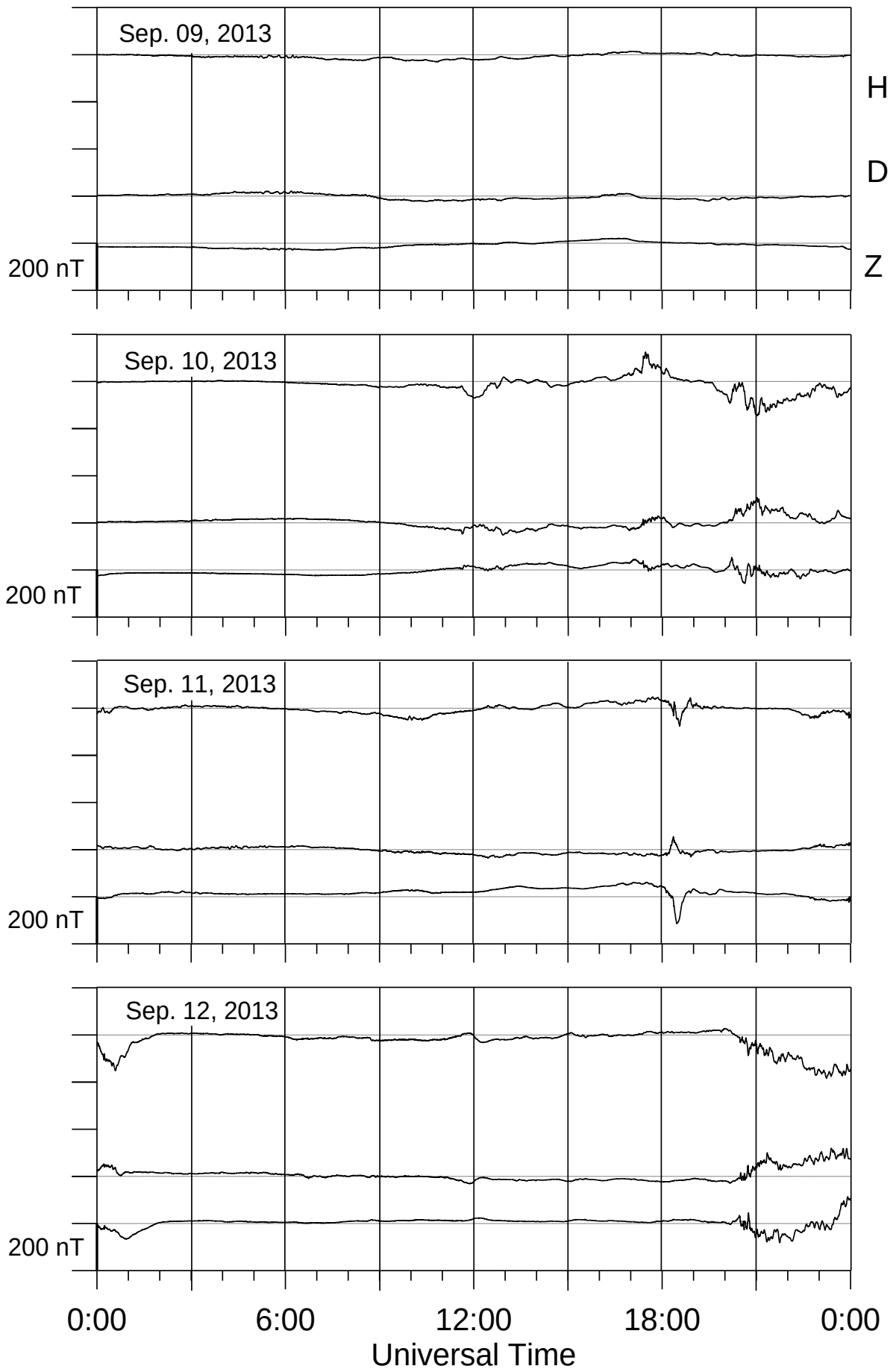
Loparskaya magnetometer



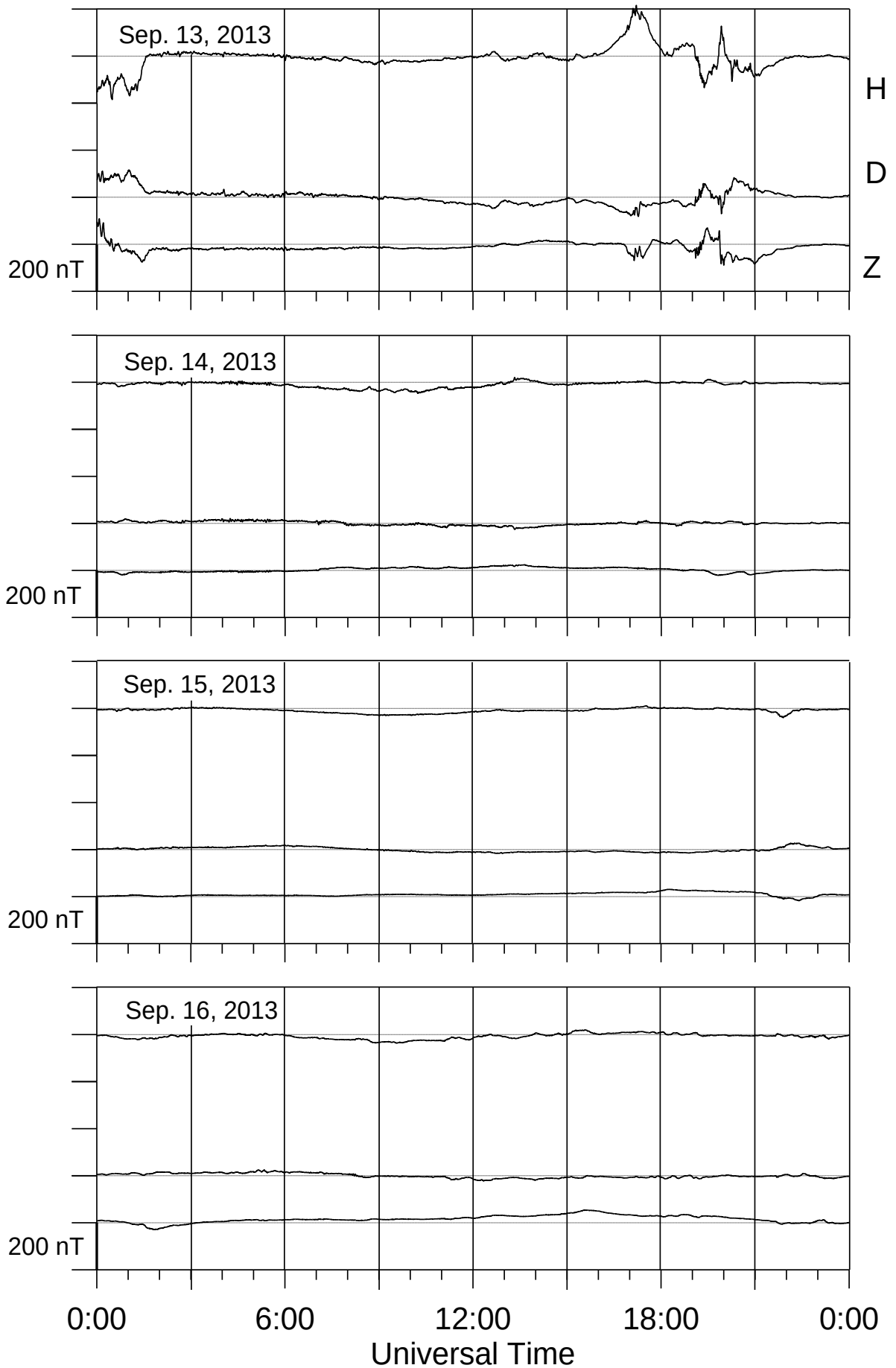
Loparskaya magnetometer



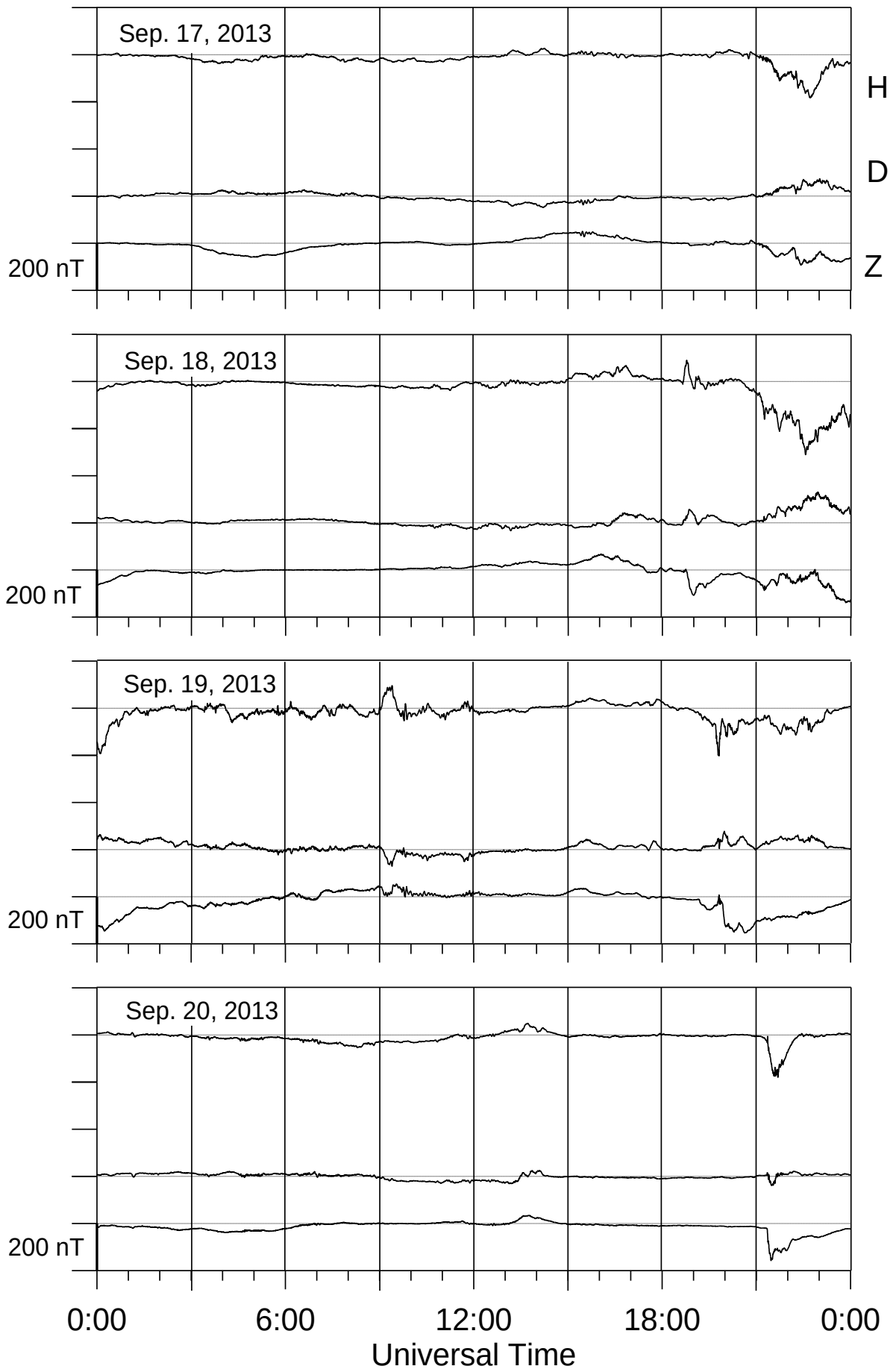
Loparskaya magnetometer



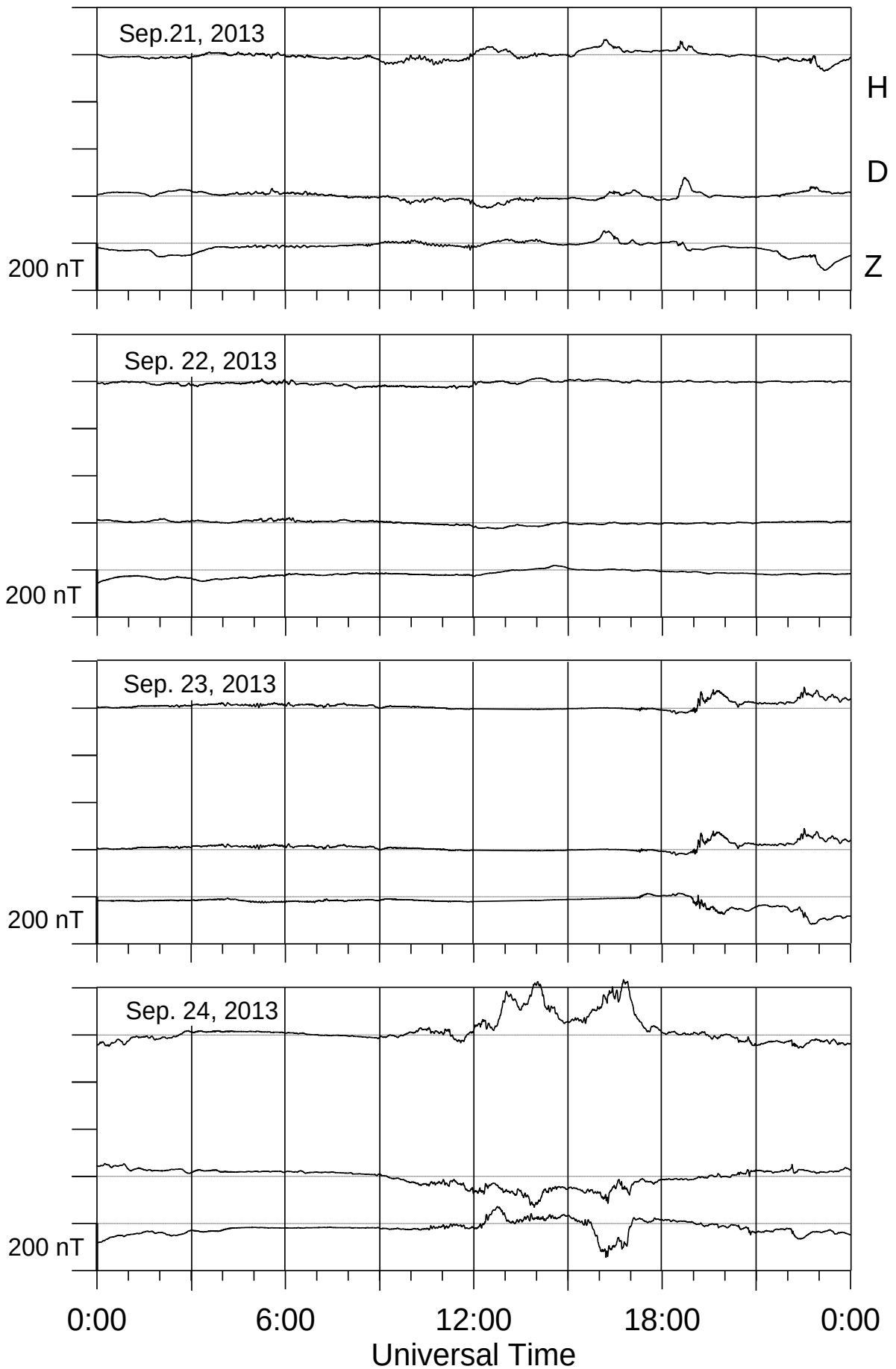
Loparskaya magnetometer



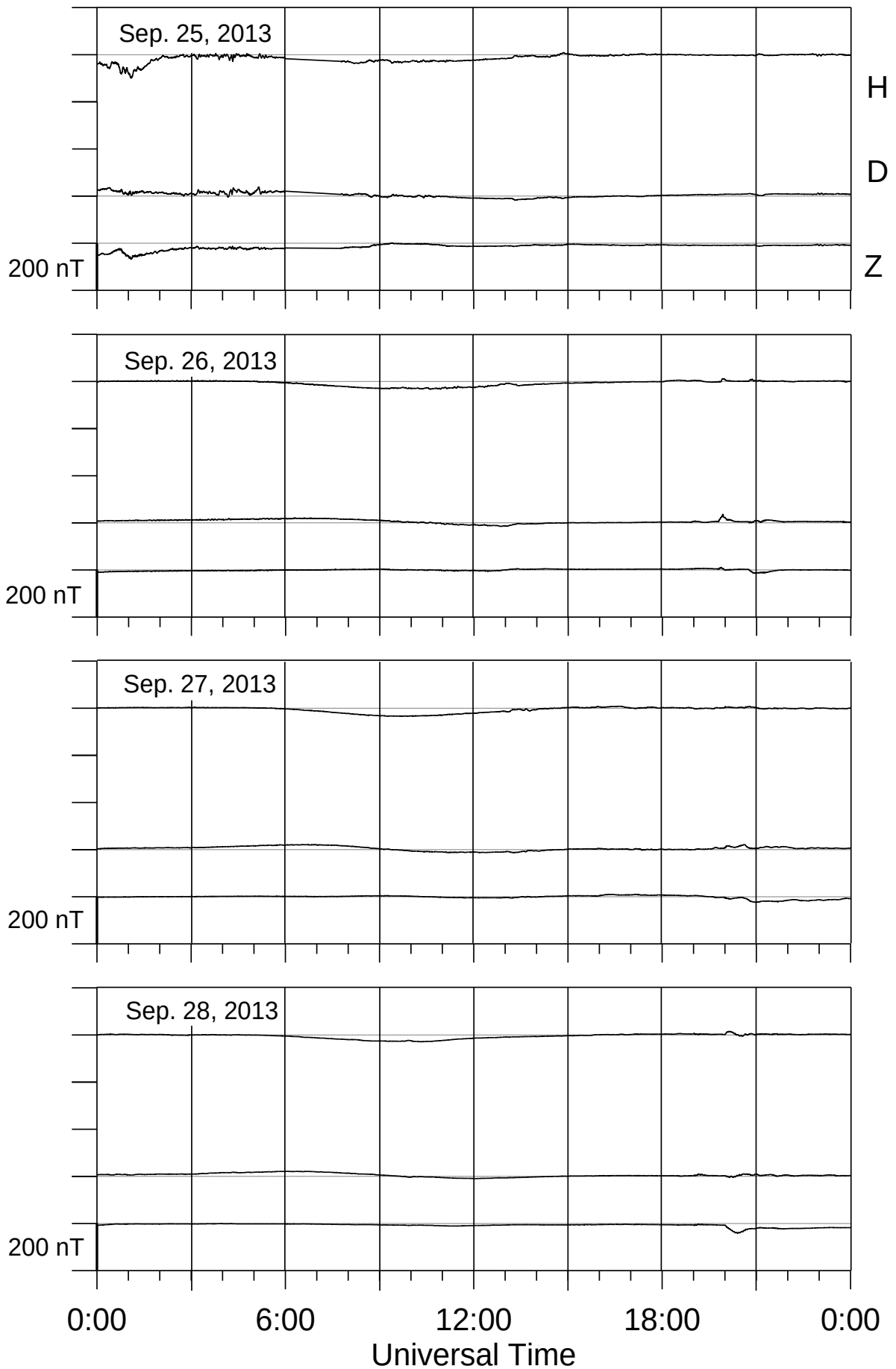
Loparskaya magnetometer



Loparskaya magnetometer



Loparskaya magnetometer



Loparskay magnetometer

