

KIRUNA GEOPHYSICAL DATA

DATA SUMMARY 10/01-03
JANUARY-MARCH 2010



Collected at
SWEDISH INSTITUTE OF SPACE PHYSICS
KIRUNA, SWEDEN

Kiruna Geophysical Data

Data Summary 10/01-03
January – March 2010

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Printed in Sweden
Swedish Institute of Space Physics
Kiruna 2011

ISSN 0453-9478

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INTRODUCTION

”Kiruna Geophysical Data” is a collection of results of ground-based more or less continuous measurements of upper atmosphere variables carried out at the Swedish Institute of Space Physics. Our objective with this data summary is to present current geophysical data, related to polar upper atmospheric conditions, to those who require it for their research work.

Coordinates of the Swedish Institute of Space Physics are:

Geogr.		Geomagn. Dipole		Corr. Geomagn.	
Lat.	Long.	Lat.	Long.	Lat.	Long.
67.8°N	20.4°E	65.2°N	116.0°E	64.8°N	104.2°E

The following ground-based measurements of upper atmospheric parameters have been conducted at the Swedish Institute of Space Physics in the period for which data is presented in this report.

	Geomagnetism		Optical aurora		Ionospheric ionization
1.	Geomagnetic digital recording	1.	All-sky camera	1.	Riometer 30.0 MHz
				2.	Riometer 38.2 MHz

The Ionospheric Observatory at Lycksele (64.7°N, 18.8°E) is also operated by the Swedish Institute of Space Physics. Magnetometer, riometer, and ionosonde measurements are conducted there.

Universal time is used in all tables.

Ionosonde data obtained at the Swedish Institute of Space Physics in Kiruna have been published together with ionosonde data from Lycksele and Uppsala in a monthly report ”Ionospheric Data Sweden” between January 1990 and March 2000. Copies are available from the Swedish Institute of Space Physics.

Scaled ionosonde parameters from 1965 – 1998 are also available from
`http://www.wdc.rl.ac.uk/wdcc1/ionosondes/data_archive.html`

The most recent data from all instruments are accessible via internet at
`http://www.irf.se/Data`

For more information contact urban.brandstrom@irf.se

GEOMAGNETIC DATA

Magnetograms

The magnetograms reproduced here are plots of data recorded by a three component digital fluxgate magnetometer with a sampling frequency of 1 sample/second.

The scaling is indicated by the tick mark values on the plots. Note that for large disturbances the normal scaling has been reduced. The positive direction of the components are: X north, Y east and Z down, in geographic coordinates.

K-indices

The K-indices give a measure of the amount of disturbance of the geomagnetic field.

A reading of maximum deflection has been made during each 3-hour interval (starting from 00 to 03 UT) of two components X and Y. The Sq + L variation has been compensated for. A detailed description of the determination of K-indices has been given by J. Bartels: The technique of scaling indices K and Q geomagnetic activity. IGY Annals 4, London 1957.

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	

ALL-SKY CAMERA DATA

Digital all-sky camera images are typically recorded in jpeg format at a rate of one frame per minute. The filename of each image contains information about UTC and exposure time. Longer exposure times are used at regular intervals (typically eight minutes). Data might be recorded at higher frame rates during selected periods. More information and image data are available from: `http://www.irf.se/allsky`

Information about available records of all-sky camera data is presented as colour keograms. Keograms are time sequences of poleward to equatorward slices through the centre of all-sky images. The top of the image points poleward, the bottom equatorward. Time is on the horizontal axis (0:00-24:00 UTC). Each page contains keograms for seven days. White areas indicate missing data (e.g. daylight conditions).

IONOSPHERIC ABSORPTION DATA

Ionospheric absorption at 30.0 MHz and 38.2 MHz is recorded by two La Jolla riometers. The riometer records of cosmic noise power are reproduced in this report. The zero power level is at bottom of each panel.

The absorption (in decibels) can be computed from the formula

$$A(dB) = 10\log_{10}\frac{P_o}{P}$$

where P is the received cosmic noise power, P_o the cosmic noise power expected under ionospherically quiet conditions at the same sidereal time.

GEOMAGNETIC K-INDICES, KIRUNA

January 2010

Lower limit of K=9 is 1500 nT

Time in UT

Day	00 - 03	03 - 06	06-09	09 - 12	12 - 15	15 - 18	18 - 21	21 - 24	Sum
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	1	1
3	0	1	1	1	1	1	0	1	6
4	1	0	0	0	0	0	0	0	1
5	0	0	0	0	0	0	0	0	0
6	1	0	0	0	0	0	0	0	1
7	0	0	0	0	0	0	1	0	1
8	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	1	0	0	1
11	1	1	1	2	1	1	3	2	12
12	1	1	0	0	0	0	2	3	7
13	4	2	2	1	1	2	2	3	17
14	1	1	0	1	1	0	2	1	7
15	0	0	0	0	0	0	4	3	7
16	0	0	0	0	0	0	0	1	1
17	0	0	0	0	0	0	0	0	0
18	0	0	0	1	1	2	1	0	5
19	0	0	0	0	0	0	0	0	0
20	1	0	0	1	1	6	6	6	21
21	3	3	2	1	1	0	0	1	11
22	0	1	0	1	0	0	1	3	6
23	4	2	0	2	2	1	1	3	15
24	1	2	1	1	1	2	2	1	11
25	2	0	0	1	1	0	0	3	7
26	2	1	0	1	0	0	2	2	8
27	0	0	0	0	0	0	1	1	2
28	1	1	0	0	0	1	3	1	7
29	1	0	0	0	0	0	0	1	2
30	2	2	0	0	1	1	1	3	10
31	3	1	0	1	0	1	2	2	10
Sum	29	19	7	15	12	19	34	42	

GEOMAGNETIC K-INDICES, KIRUNA

February 2010

Lower limit of K=9 is 1500 nT

Time in UT

Day	00 - 03	03 - 06	06 - 09	09 - 12	12 - 15	15 - 18	18 - 21	21 - 24	Sum
1	1	1	1	1	2	3	3	4	16
2	4	3	1	1	1	2	1	6	19
3	5	1	1	3	2	3	3	2	20
4	3	2	0	0	0	0	1	3	9
5	0	2	0	1	0	1	1	1	6
6	0	0	0	1	2	6	3	4	16
7	2	0	0	0	0	0	2	4	8
8	4	1	0	1	0	0	0	0	6
9	1	1	1	1	1	0	1	2	8
10	1	1	1	1	0	0	2	1	7
11	1	1	1	1	2	1	0	2	9
12	1	3	2	1	1	2	2	2	14
13	1	2	1	1	0	3	4	1	13
14	1	0	0	1	1	1	0	5	9
15	5	4	1	2	2	4	5	5	28
16	3	3	2	2	0	1	4	6	21
17	6	3	2	1	0	0	1	5	18
18	1	0	0	1	3	4	2	0	11
19	1	1	0	1	1	1	2	2	9
20	0	0	0	0	0	0	0	0	0
21	0	0	0	0	1	0	1	0	2
22	1	2	0	2	1	1	3	5	15
23	4	1	0	1	0	0	1	0	7
24	1	2	0	1	0	0	3	2	9
25	3	0	0	1	0	1	1	3	9
26	3	0	0	1	0	0	0	0	4
27	0	0	0	0	0	0	1	0	1
28	0	0	1	0	1	0	0	2	4
Sum	53	34	15	27	21	34	47	67	

GEOMAGNETIC K-INDICES, KIRUNA

March 2010

Lower limit of K=9 is 1500 nT

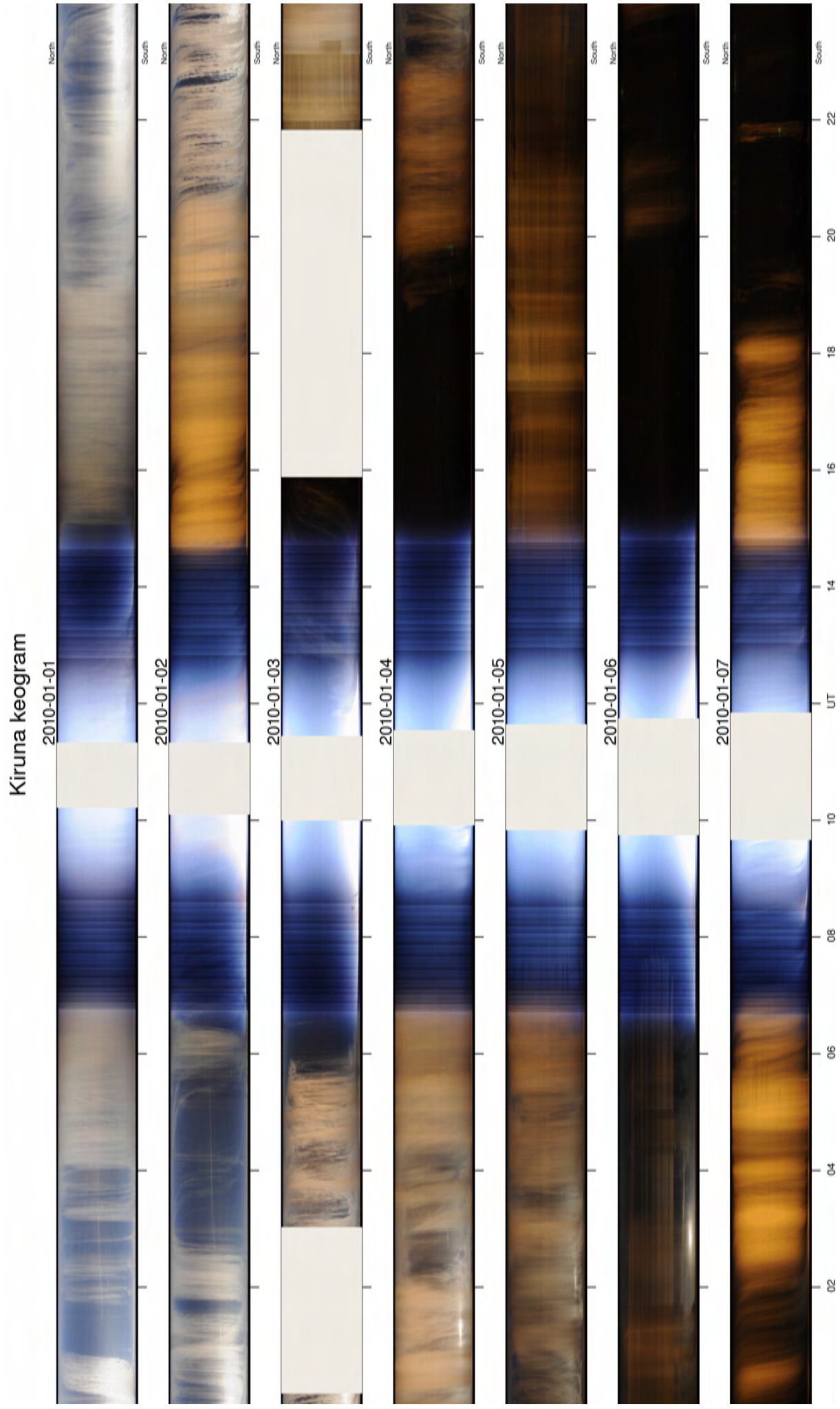
Time in UT

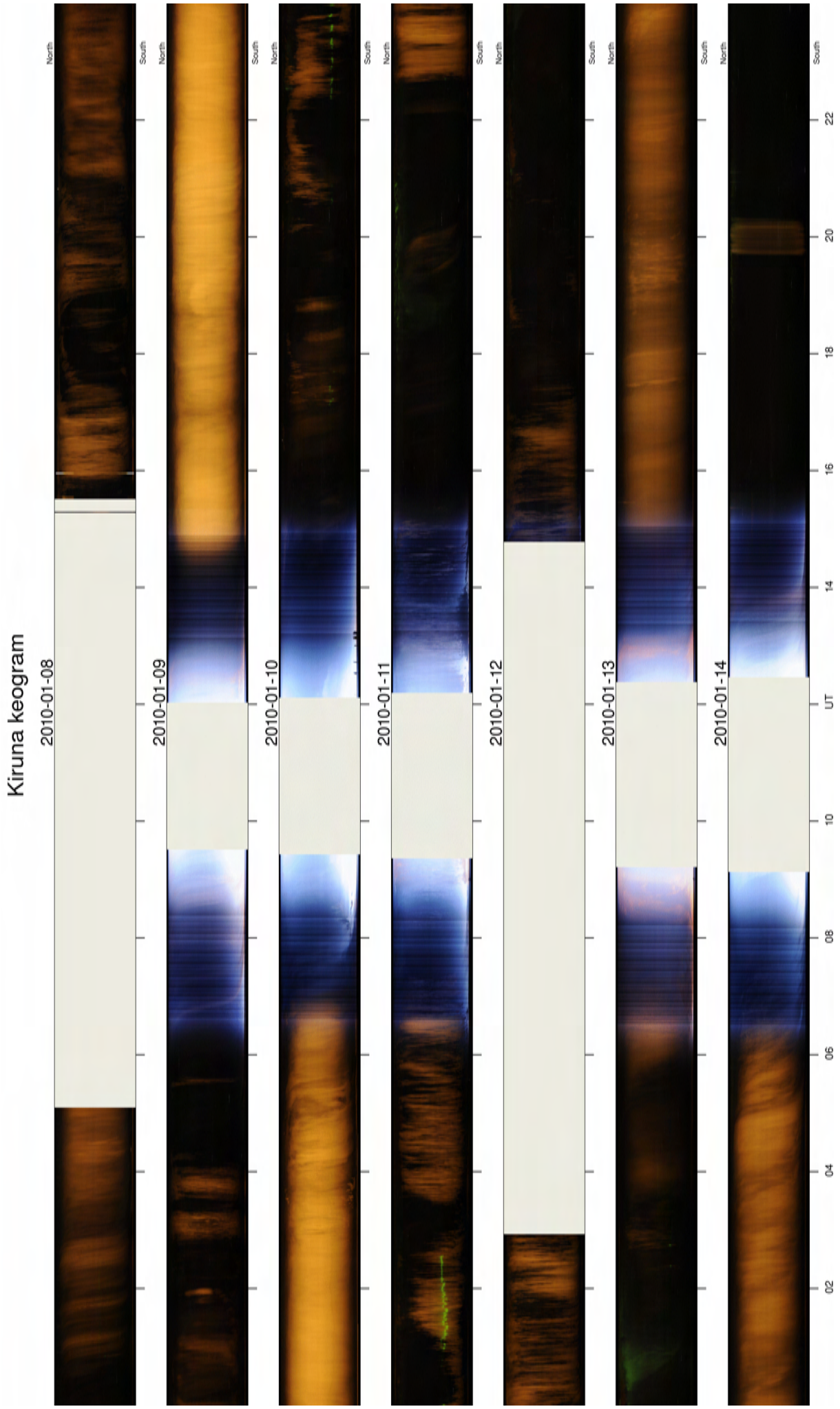
Day	00 - 03	03 - 06	06 - 09	09 - 12	12 - 15	15 - 18	18 - 21	21 - 24	Sum
1	2	1	0	1	2	1	1	2	10
2	1	0	1	2	2	2	0	3	11
3	1	2	1	1	2	3	4	4	18
4	3	2	2	1	1	2	2	2	15
5	0	0	1	1	2	0	0	0	4
6	0	0	0	0	0	1	1	3	5
7	3	2	2	2	1	0	1	1	12
8	0	1	1	0	0	0	2	1	5
9	0	0	1	1	1	1	0	0	4
10	2	0	1	1	2	4	4	6	20
11	5	1	2	2	2	1	2	2	17
12	4	2	2	2	2	3	4	4	23
13	3	0	1	1	1	1	3	2	12
14	4	0	1	1	3	1	4	4	18
15	0	0	1	1	1	1	4	1	9
16	0	1	1	1	1	1	0	4	9
17	1	2	2	2	1	1	2	5	16
18	4	2	1	1	1	1	1	3	14
19	0	0	1	1	1	1	3	3	10
20	1	2	2	1	2	1	3	0	12
21	0	1	1	1	0	0	1	1	5
22	0	1	0	1	0	0	0	0	2
23	0	0	1	1	1	0	0	1	4
24	0	0	0	1	2	2	2	3	10
25	1	1	0	1	1	2	4	2	12
26	0	1	1	2	1	1	0	2	8
27	3	1	1	1	1	1	0	0	8
28	0	2	2	2	2	2	0	1	11
29	1	1	1	2	2	1	1	5	14
30	5	1	1	2	1	1	3	3	17
31	3	1	1	1	1	2	1	4	14
Sum	47	28	33	38	40	38	53	72	

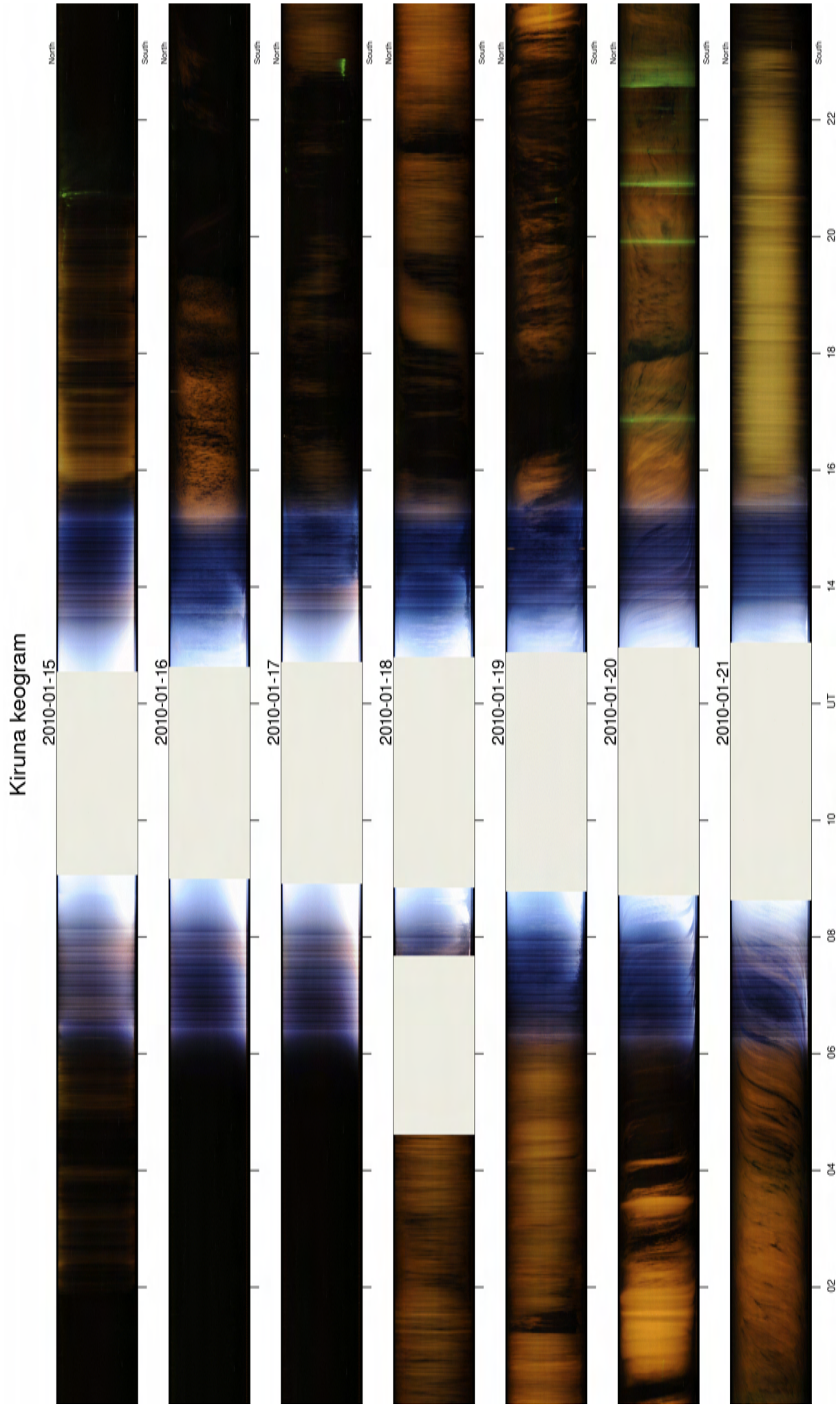
ALL-SKY CAMERA KEOGRAMS

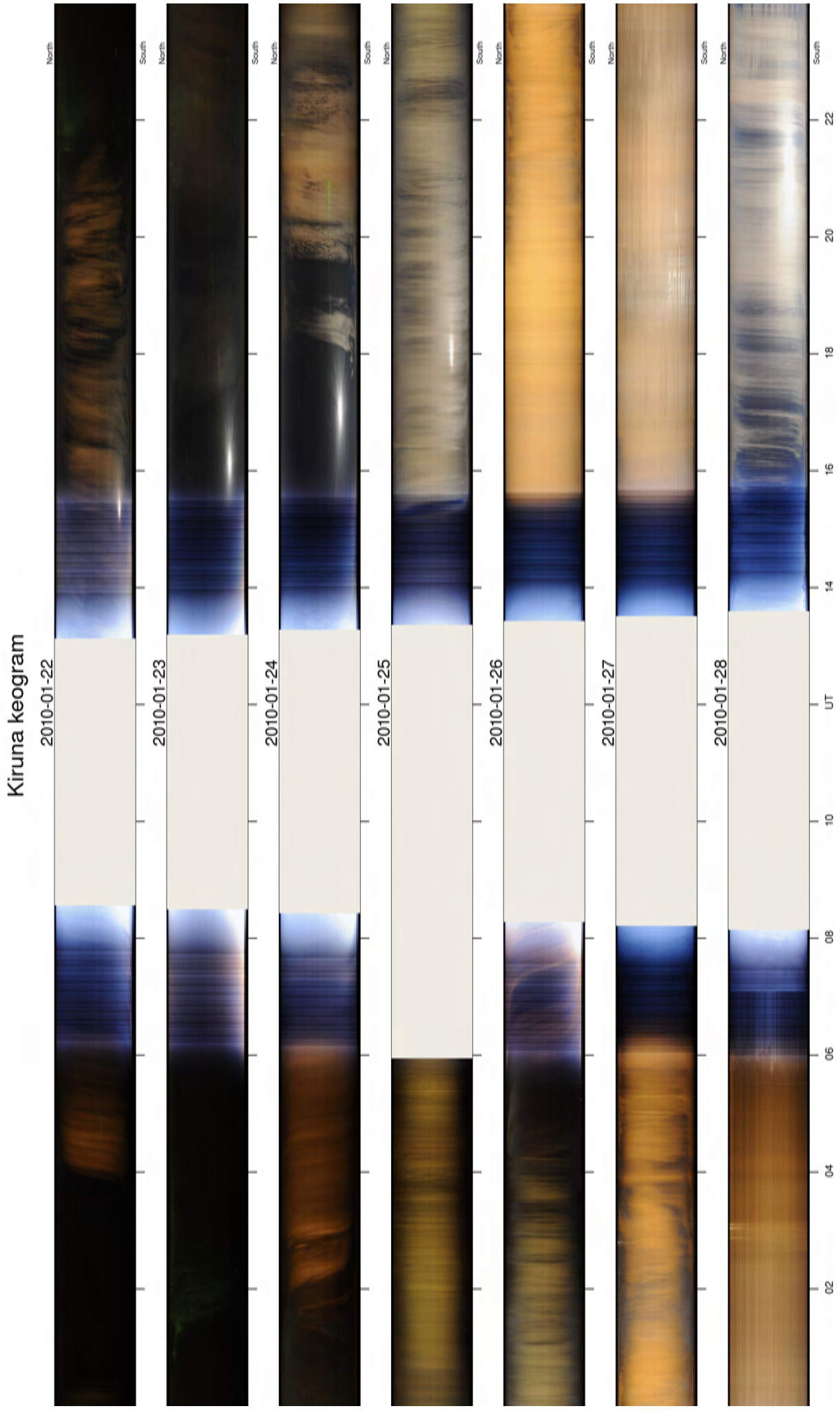
January - March 2010

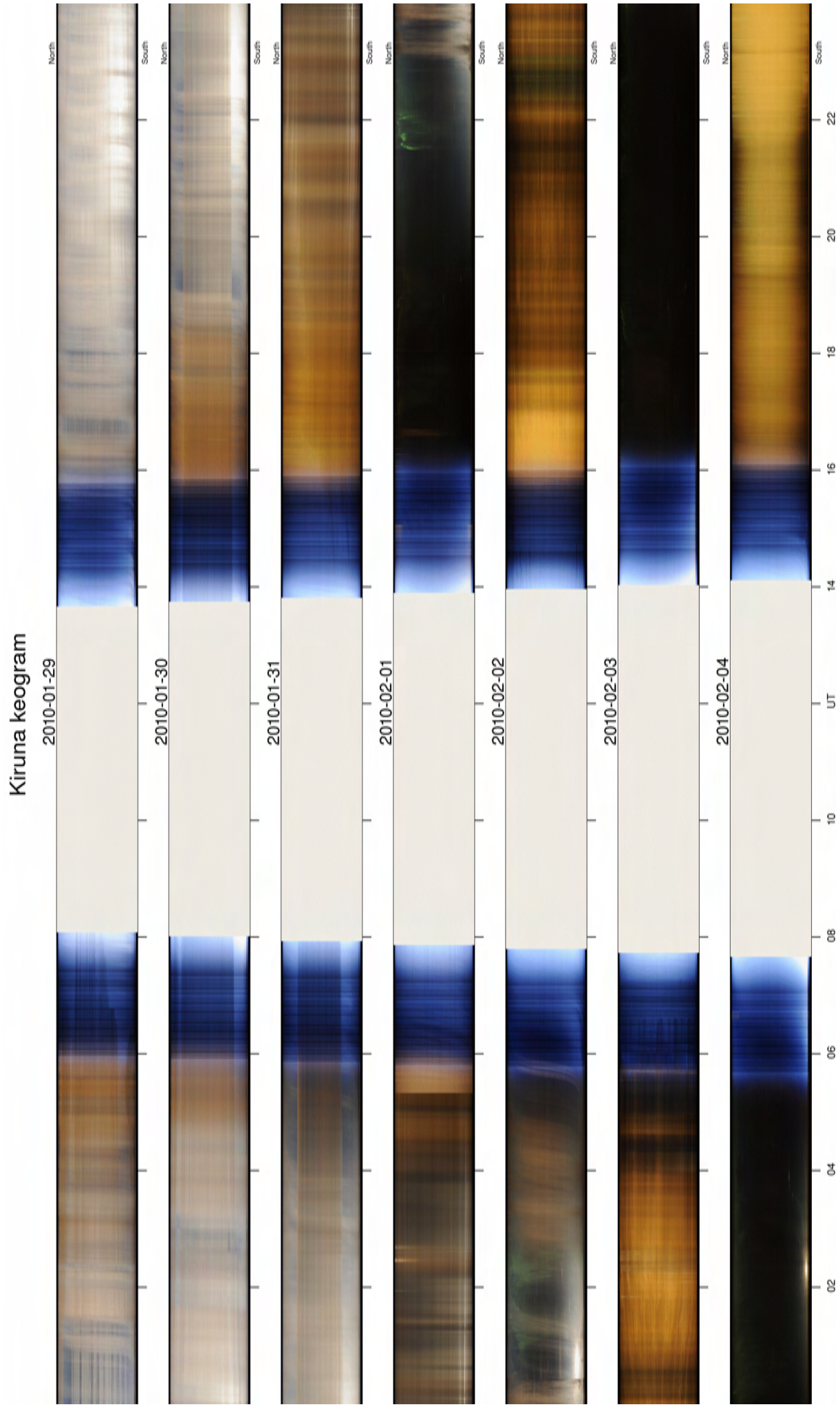
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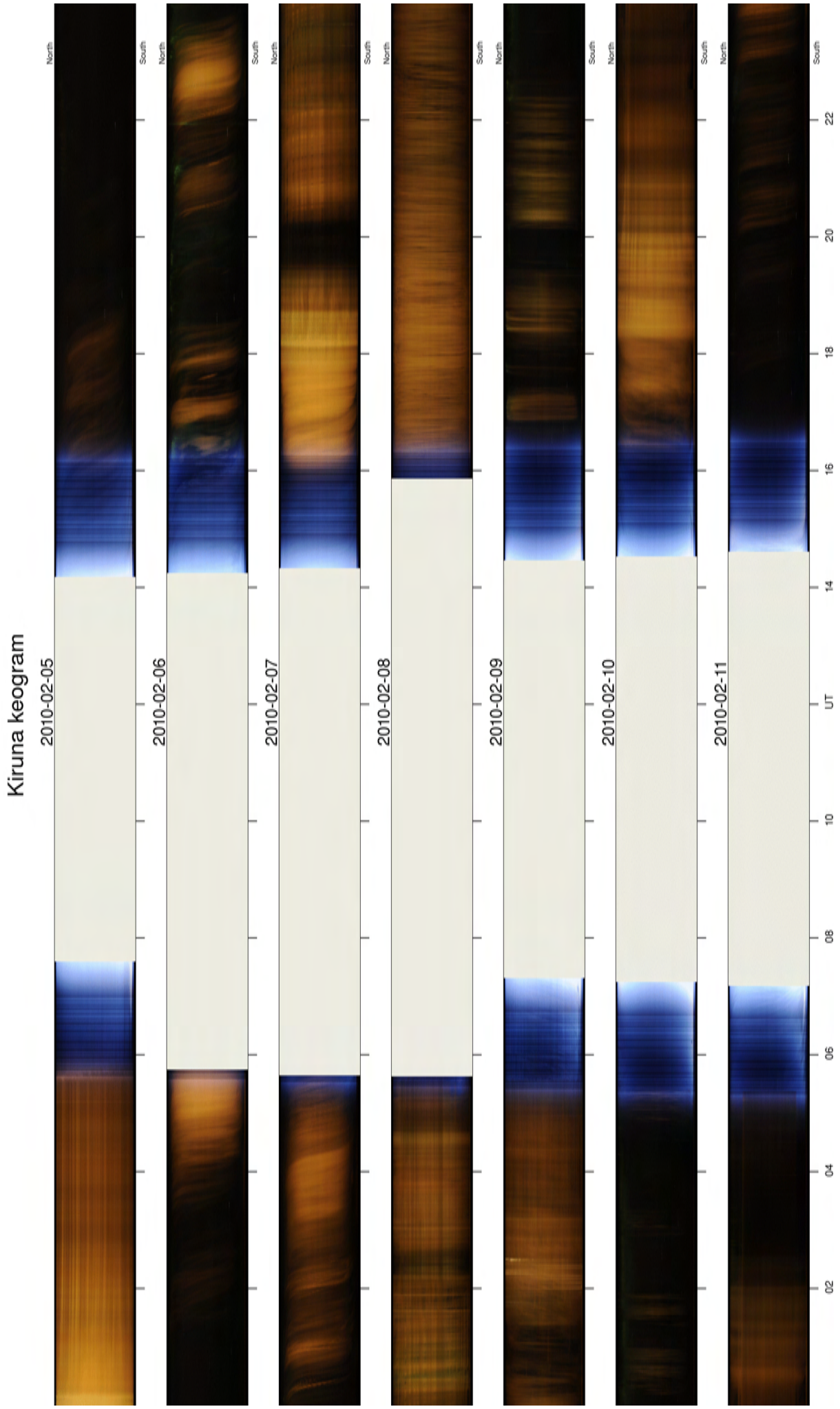

Kiruna keogram
2010-01-01
2010-01-02
2010-01-03
2010-01-04
2010-01-05
2010-01-06
2010-01-07
North
South
02
04
06
08
10
12
14
16
18
20
22
UT

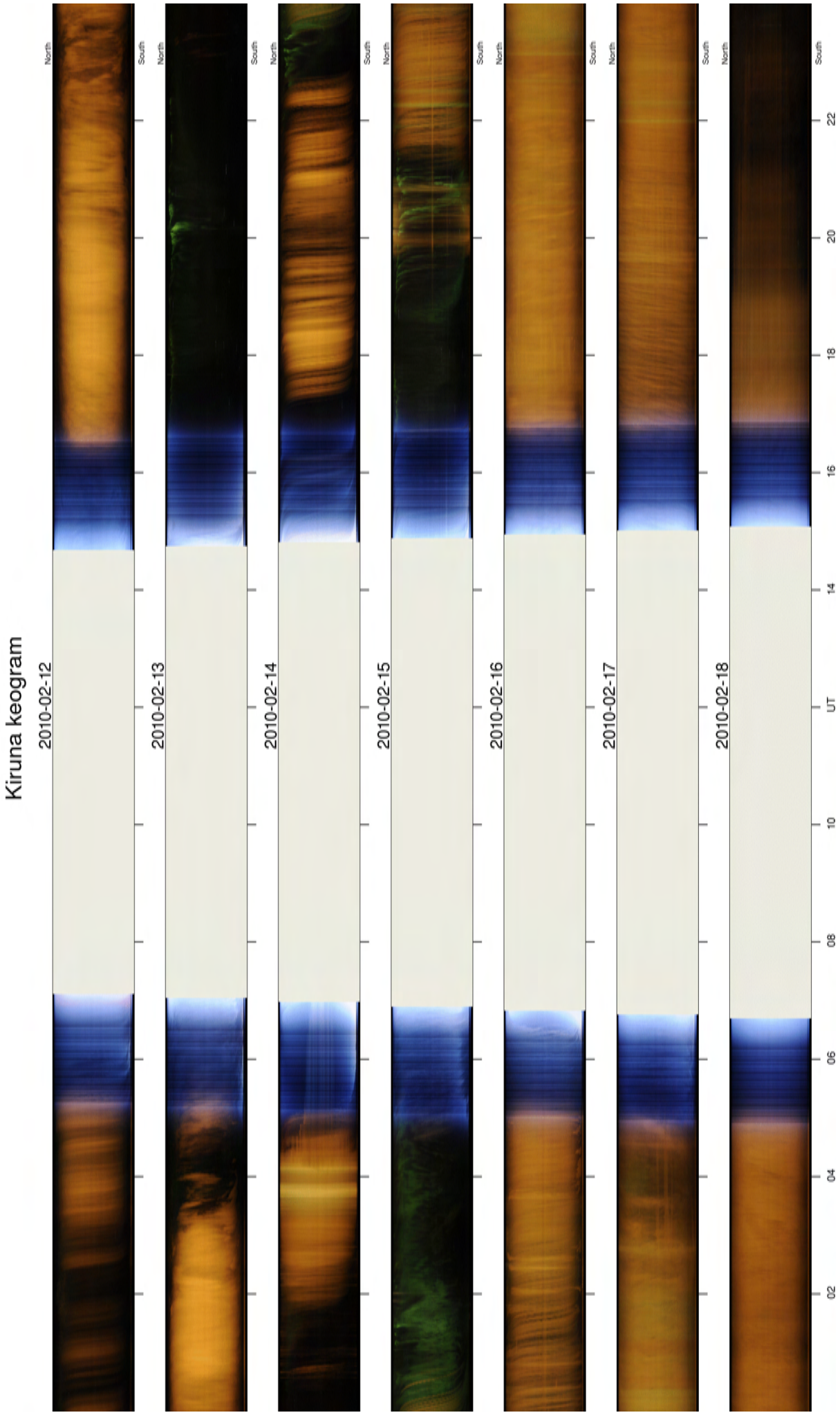

Kiruna keogram
2010-01-08
2010-01-09
2010-01-10
2010-01-11
2010-01-12
2010-01-13
2010-01-14
North
South
02
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18
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22
UT

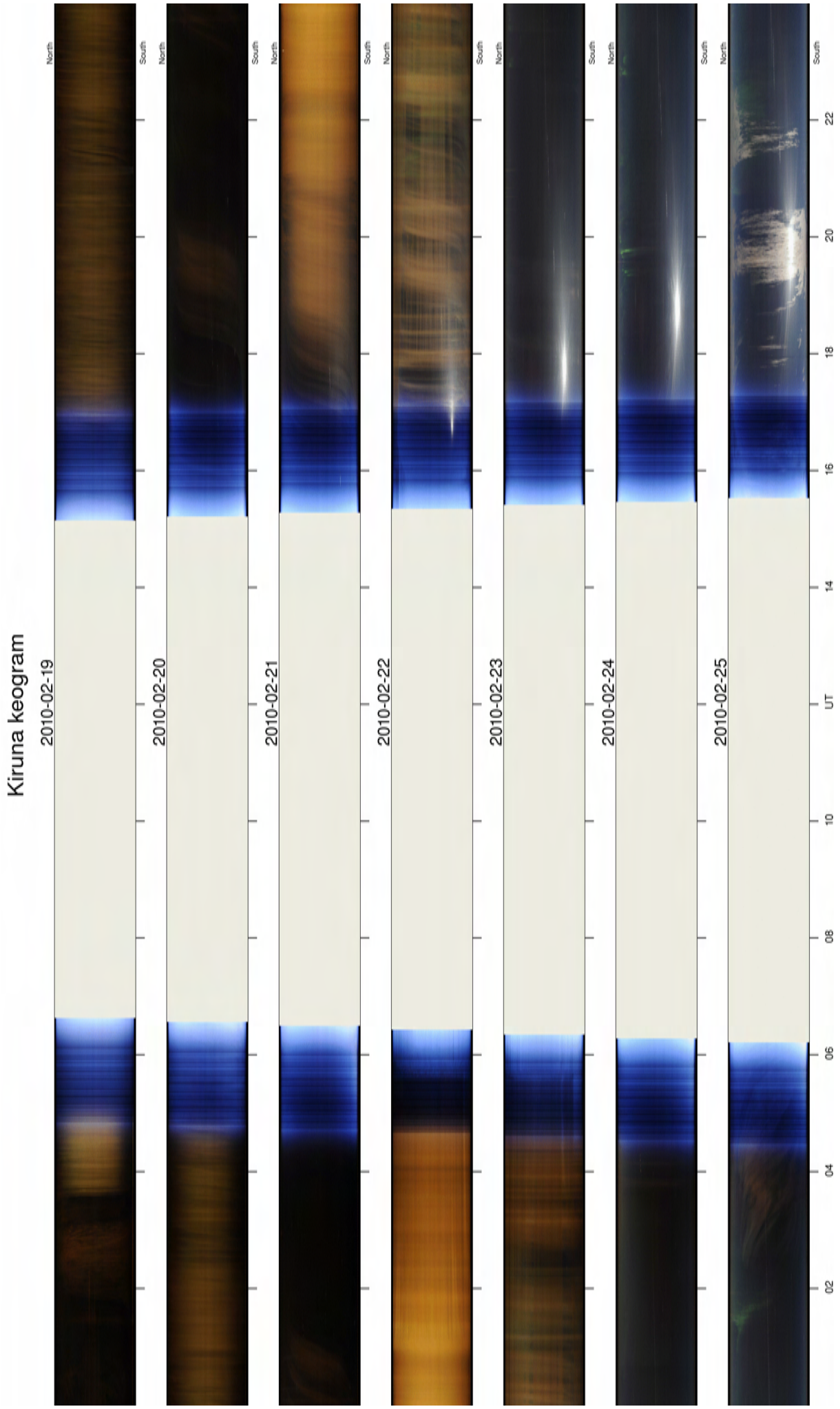

Kiruna keogram
2010-01-15
2010-01-16
2010-01-17
2010-01-18
2010-01-19
2010-01-20
2010-01-21
North
South
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22

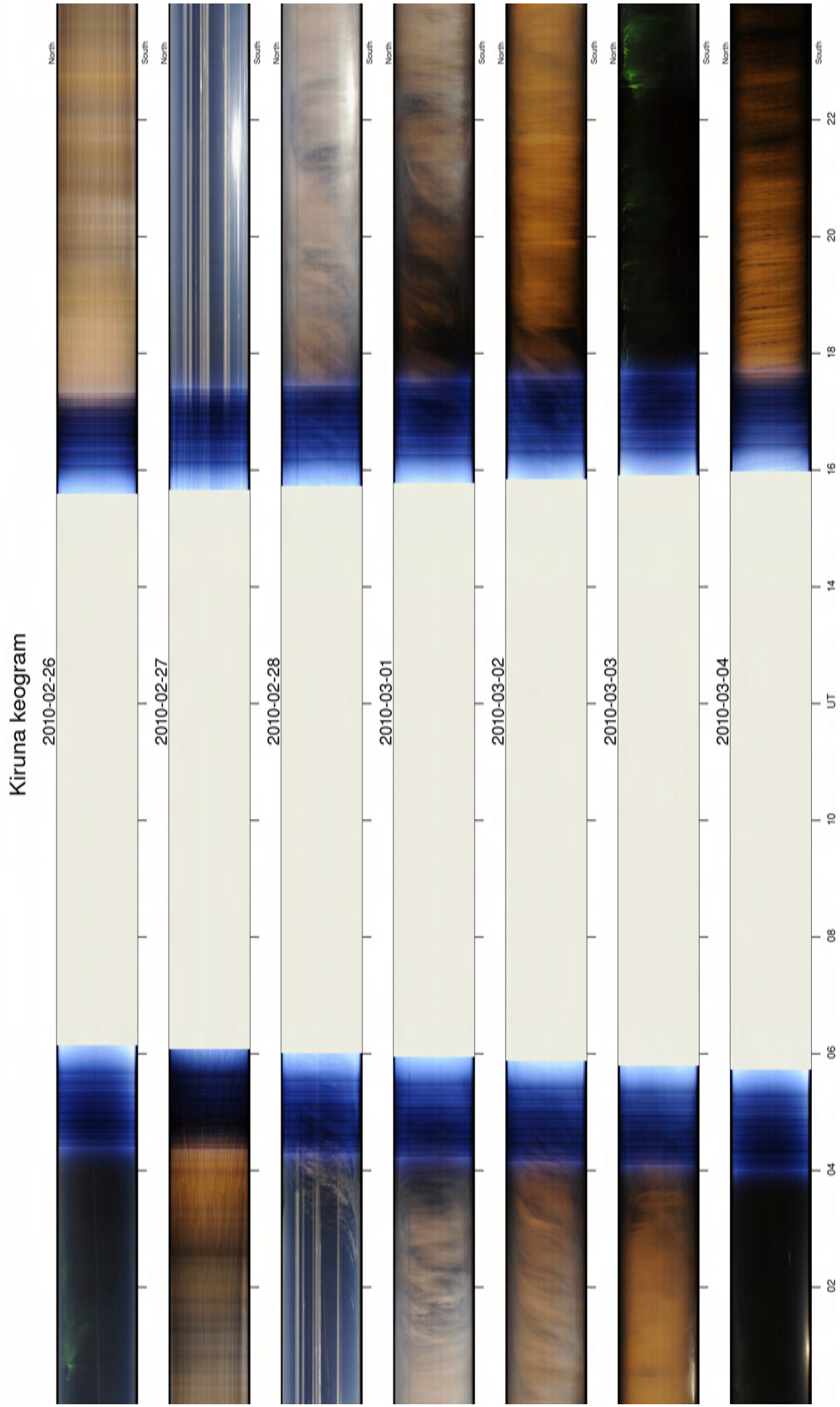

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2010-01-24
2010-01-25
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2010-01-27
2010-01-28
North
South
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22

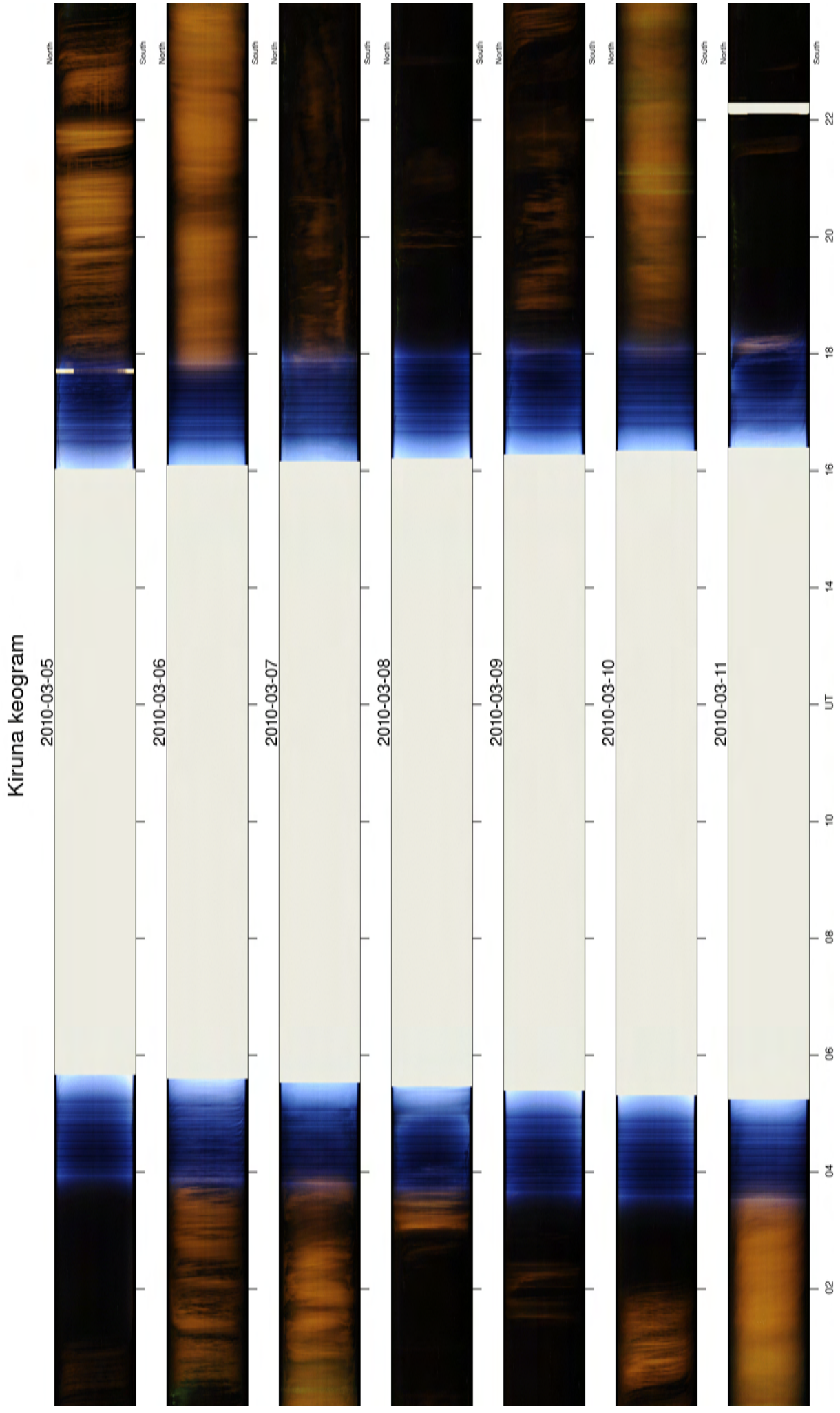

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2010-01-29
2010-01-30
2010-01-31
2010-02-01
2010-02-02
2010-02-03
2010-02-04
North
South
02
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08
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22
UT

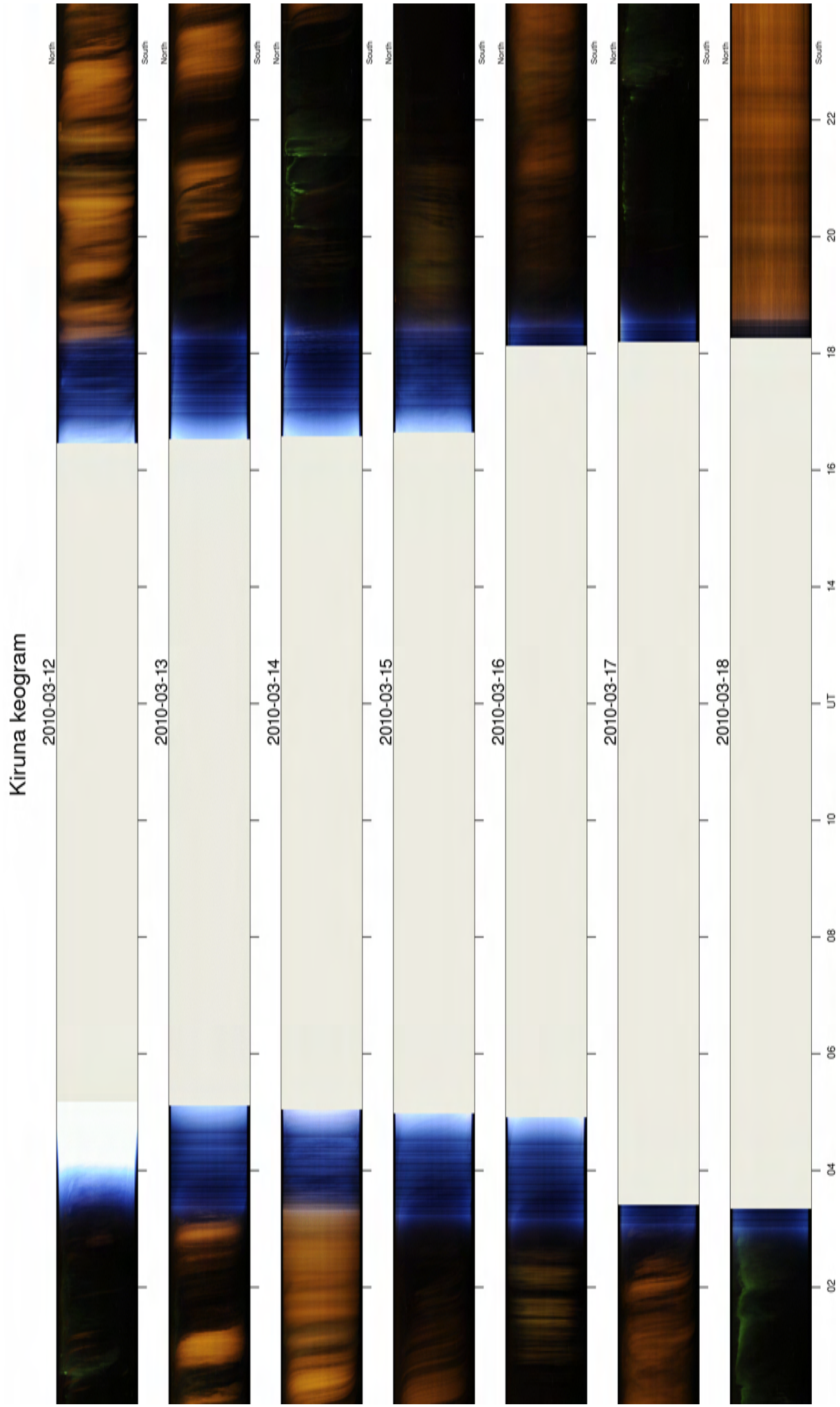

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2010-02-06
2010-02-07
2010-02-08
2010-02-09
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2010-02-11
North
South
02
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UT

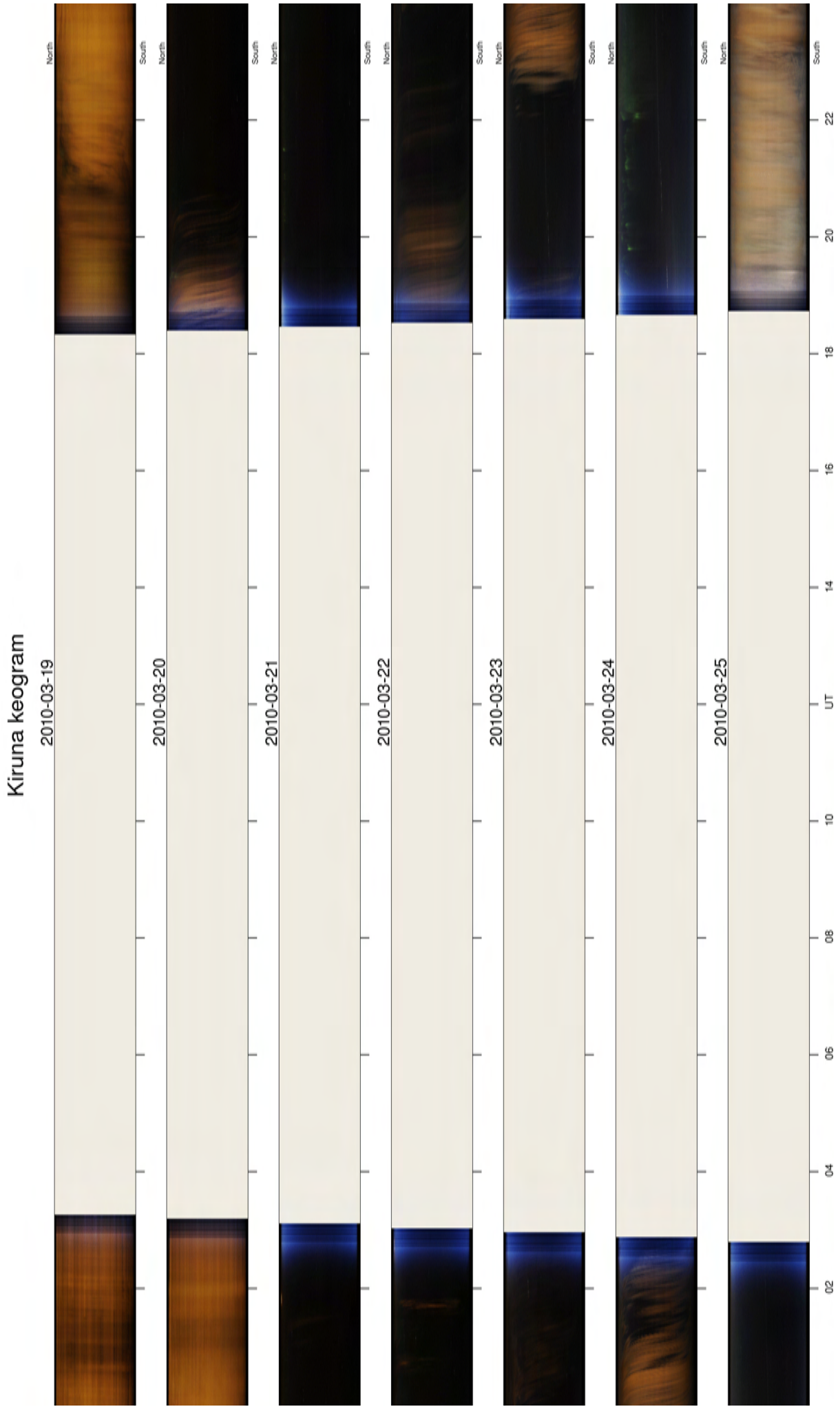

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2010-02-12
2010-02-13
2010-02-14
2010-02-15
2010-02-16
2010-02-17
2010-02-18
North
South
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22
UT

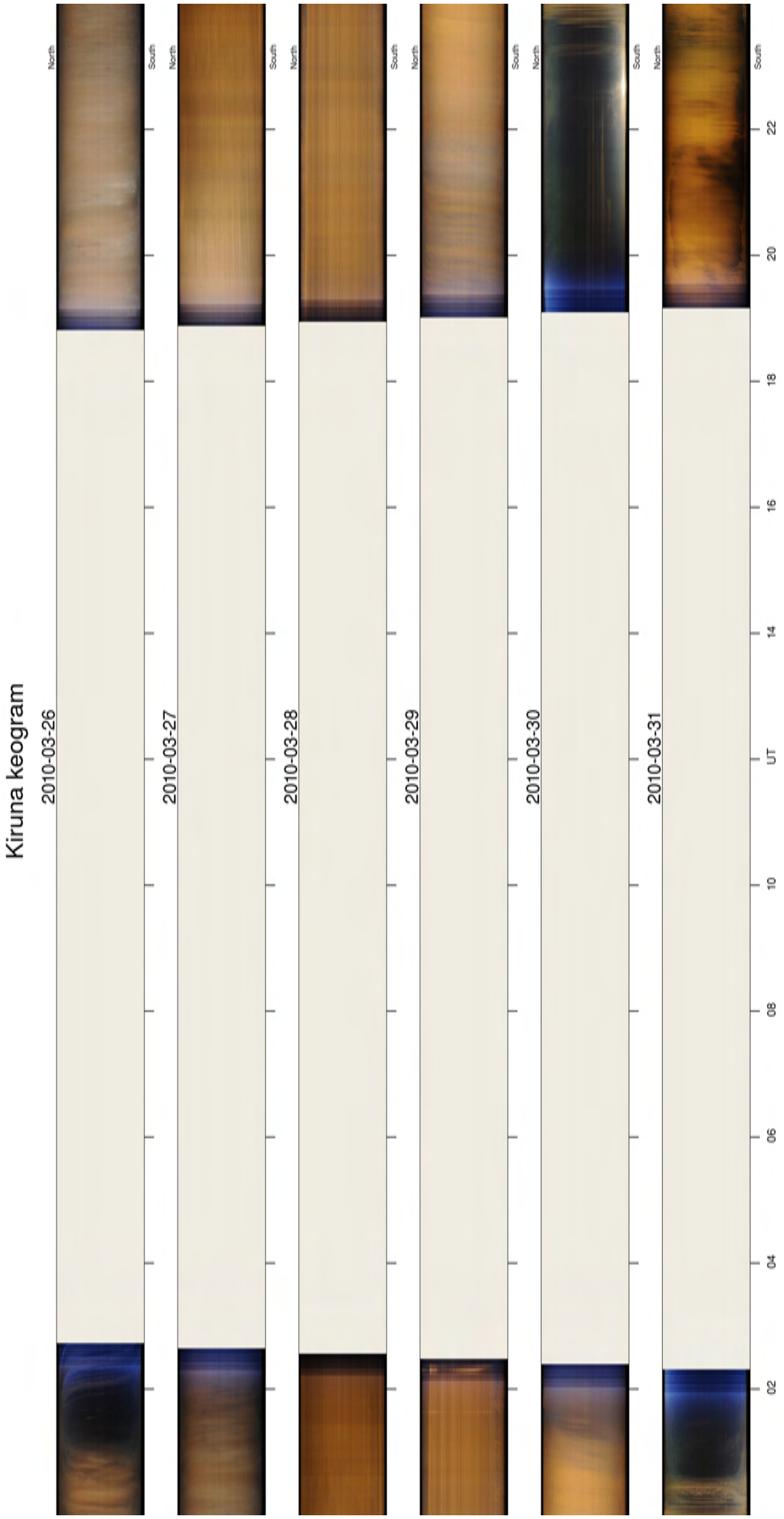

Kiruna keogram
2010-02-19
2010-02-20
2010-02-21
2010-02-22
2010-02-23
2010-02-24
2010-02-25
North
South
02
04
06
08
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12
14
16
18
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22
UT


Kiruna keogram
2010-02-26
2010-02-27
2010-02-28
2010-03-01
2010-03-02
2010-03-03
2010-03-04
North
South
02
04
06
08
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12
14
16
18
20
22
UT


Kiruna keogram
2010-03-05
2010-03-06
2010-03-07
2010-03-08
2010-03-09
2010-03-10
2010-03-11
North
South
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20
22
UT


Kiruna keogram
2010-03-12
2010-03-13
2010-03-14
2010-03-15
2010-03-16
2010-03-17
2010-03-18
North
South
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UT

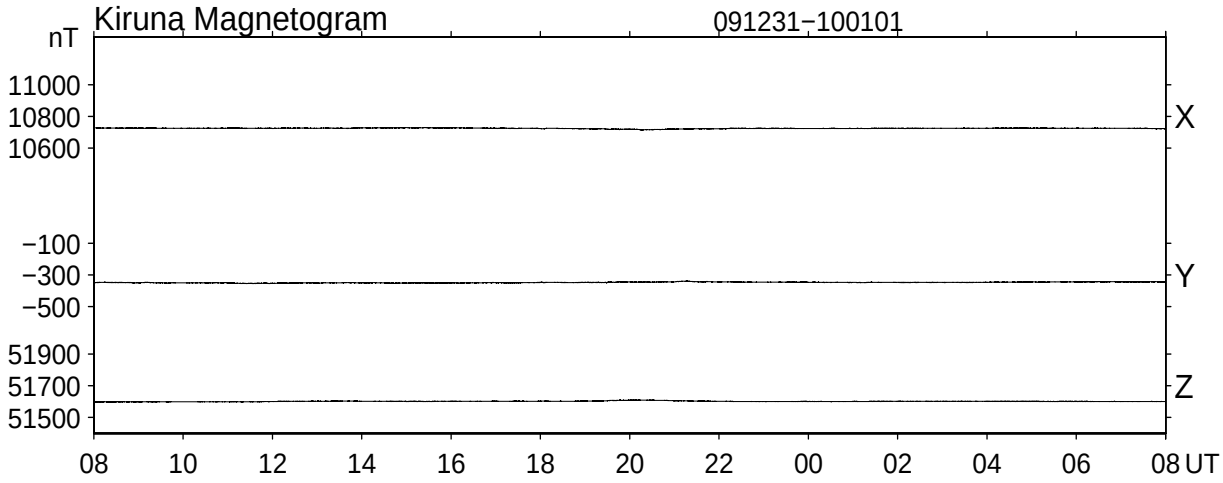

Kiruna keogram
2010-03-19
2010-03-20
2010-03-21
2010-03-22
2010-03-23
2010-03-24
2010-03-25
North
South
02
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UT

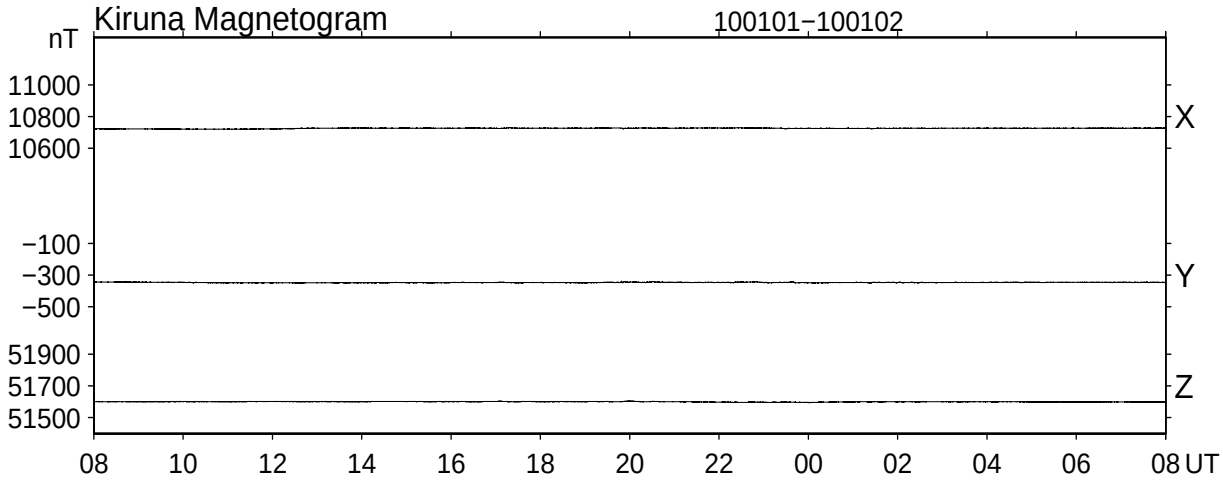

Kiruna keogram
2010-03-26
2010-03-27
2010-03-28
2010-03-29
2010-03-30
2010-03-31
North
South
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08
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UT
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20
22

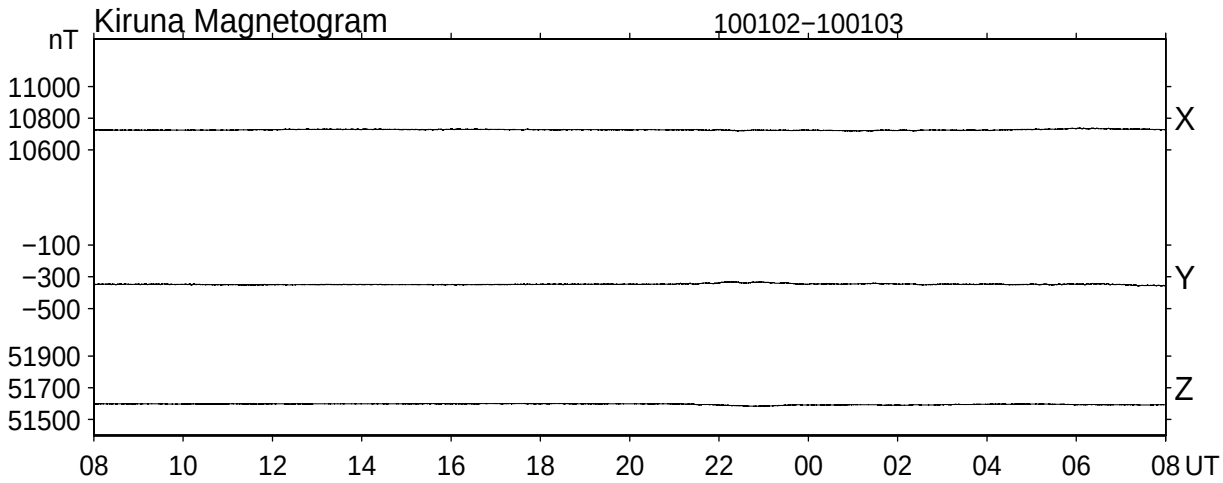
KIRUNA MAGNETOGRAM PLOTS

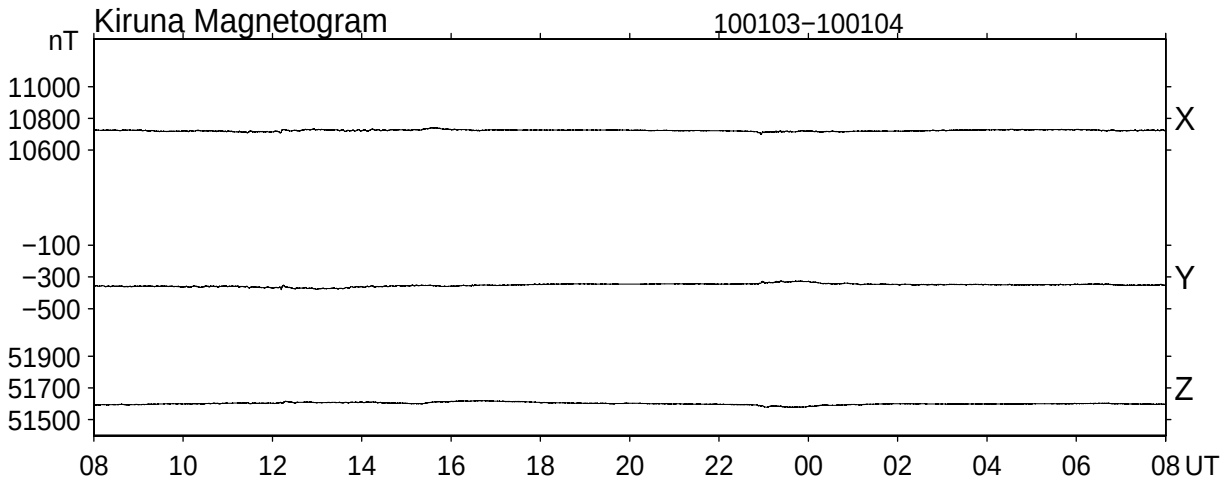
January - March 2010

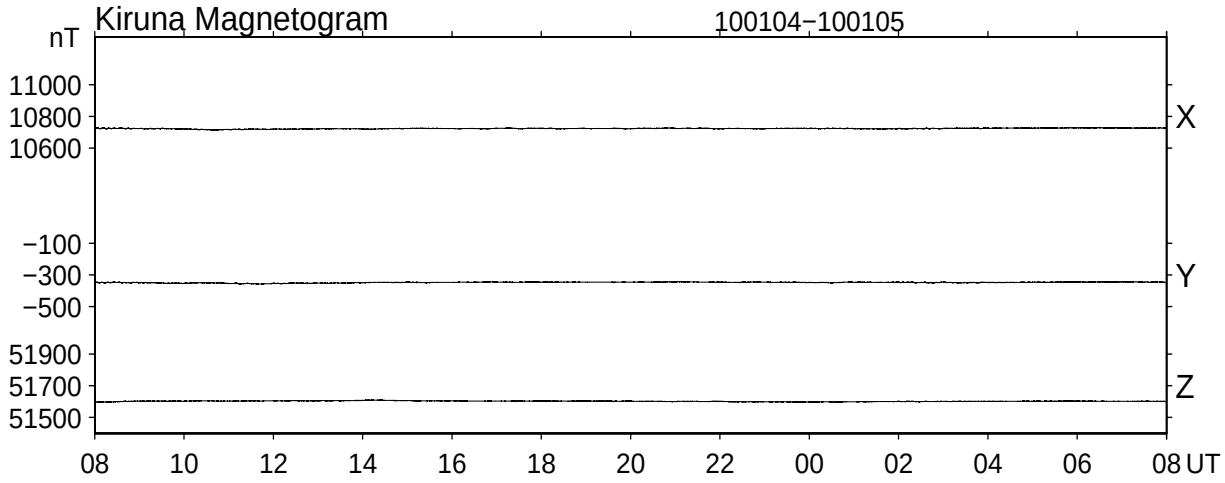
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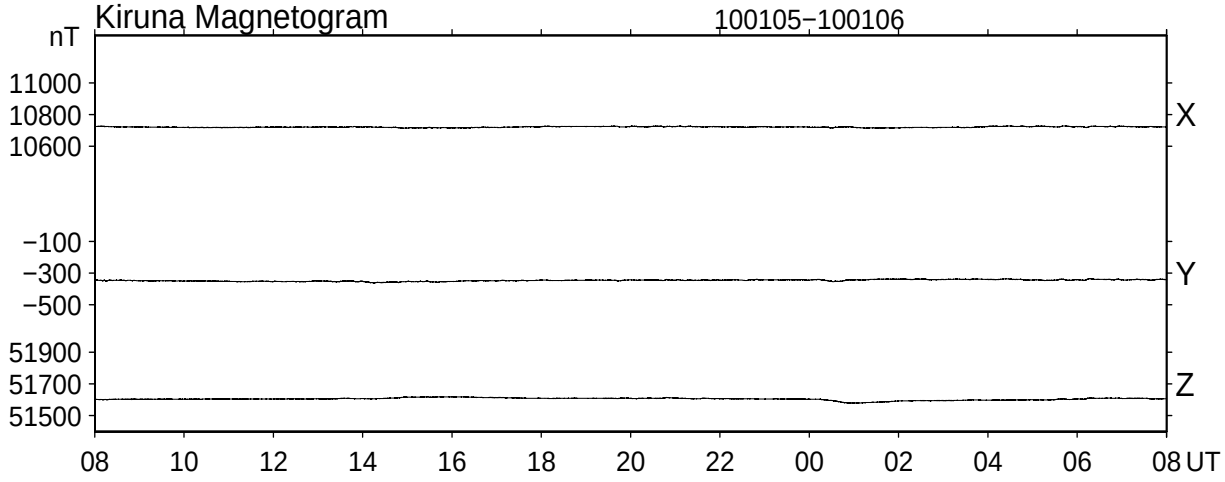

Kiruna Magnetogram
091231−100101
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

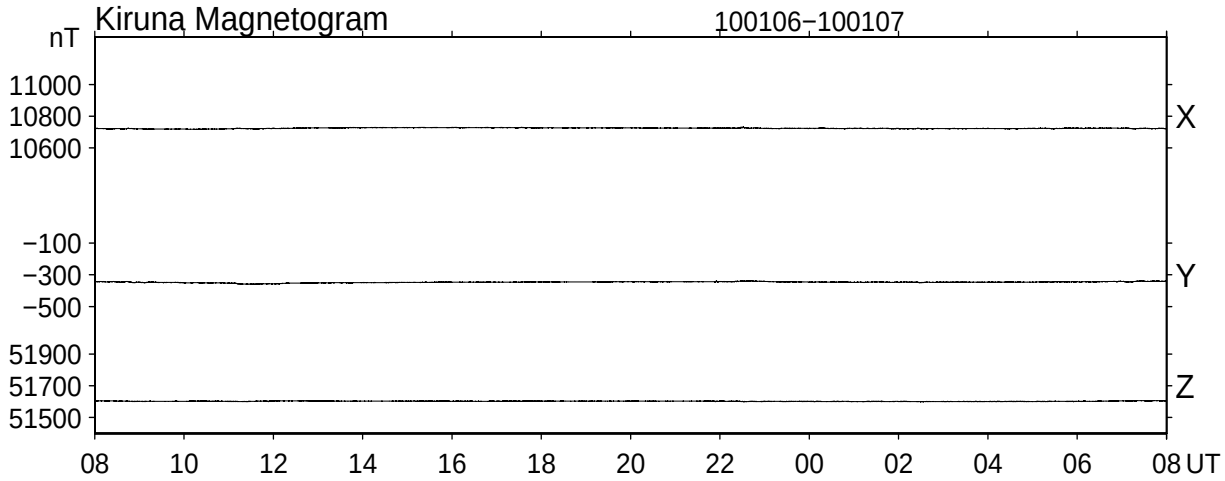

Kiruna Magnetogram
100101−100102
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

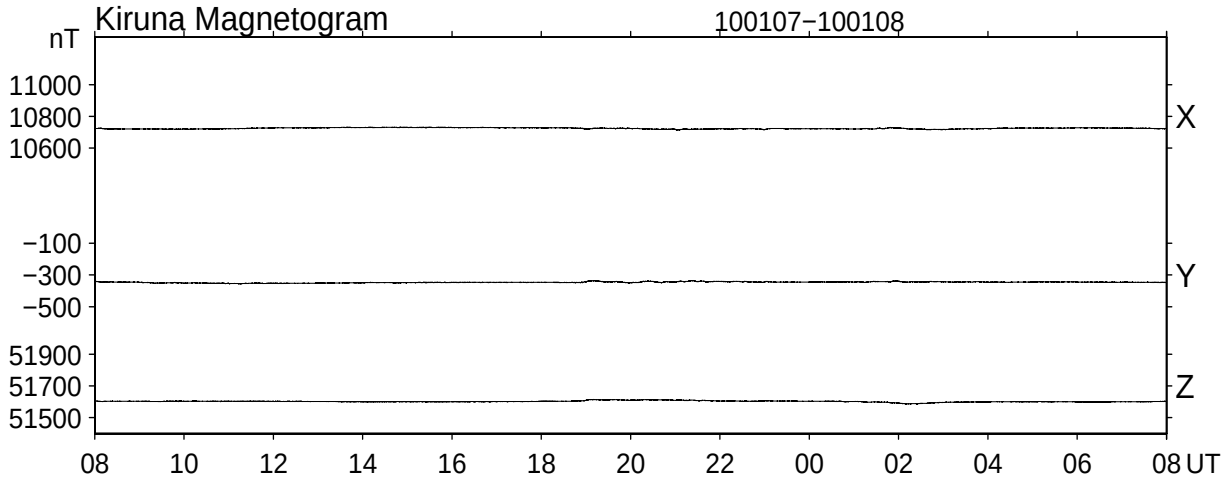

Kiruna Magnetogram
100102−100103
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

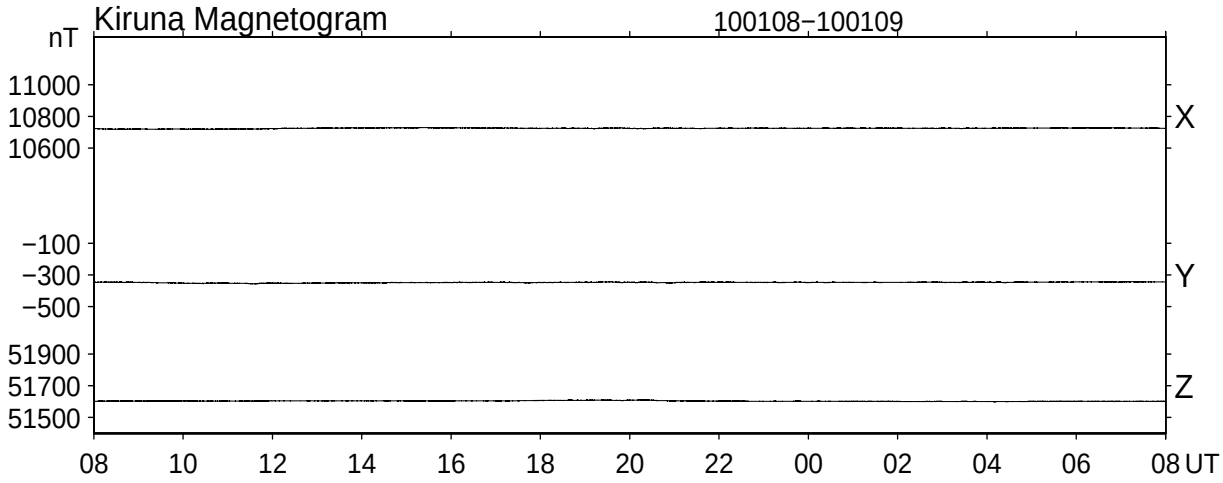

Kiruna Magnetogram
100103−100104
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

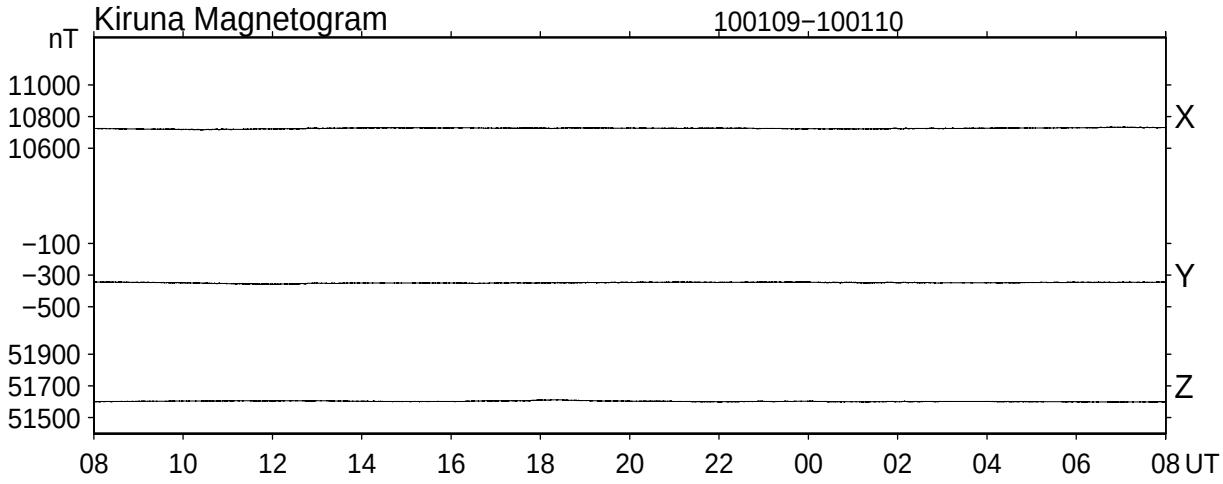

Kiruna Magnetogram
100104−100105
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

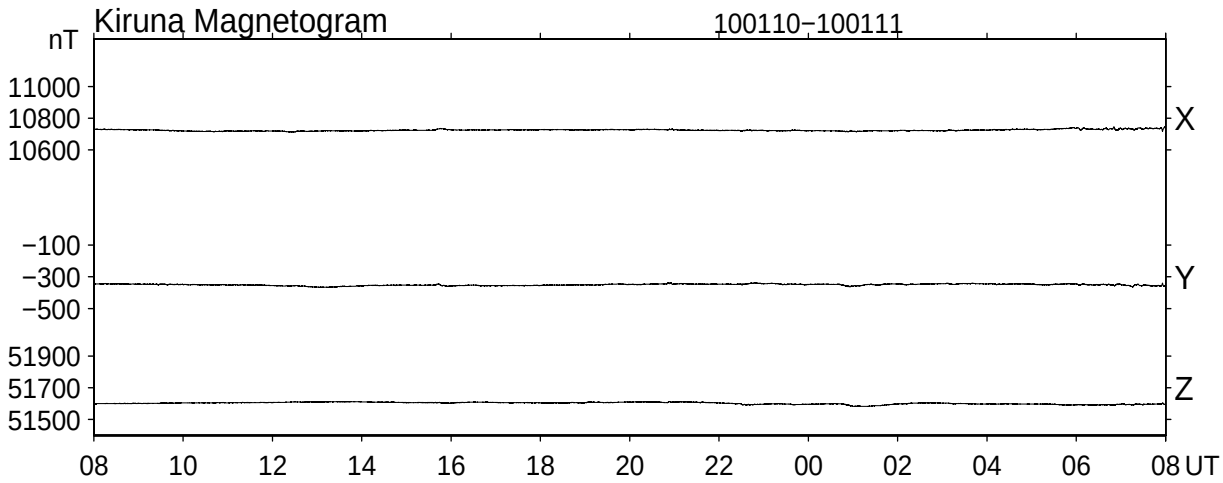

Kiruna Magnetogram
100105−100106
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
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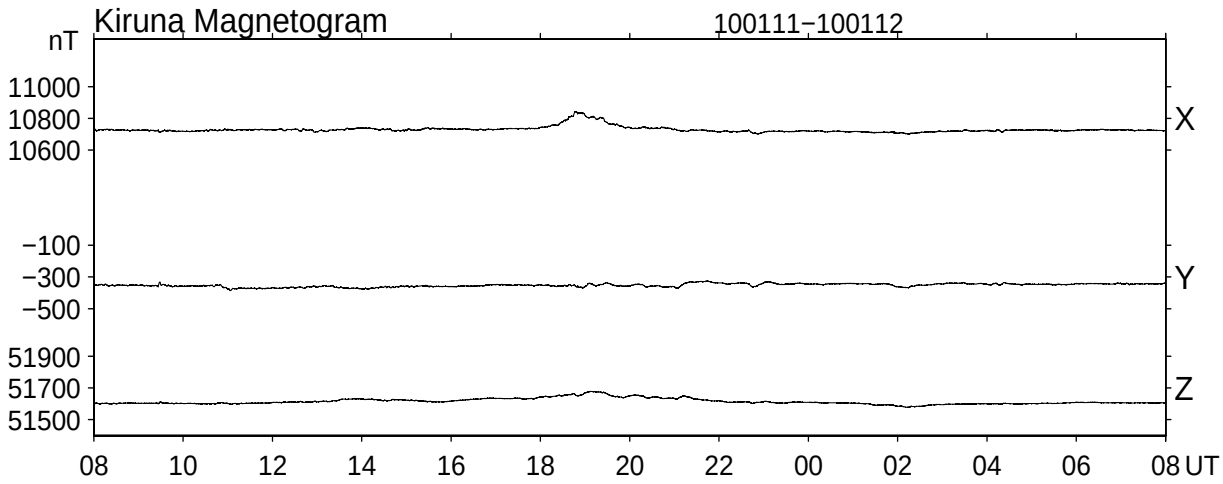

Kiruna Magnetogram
100106−100107
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
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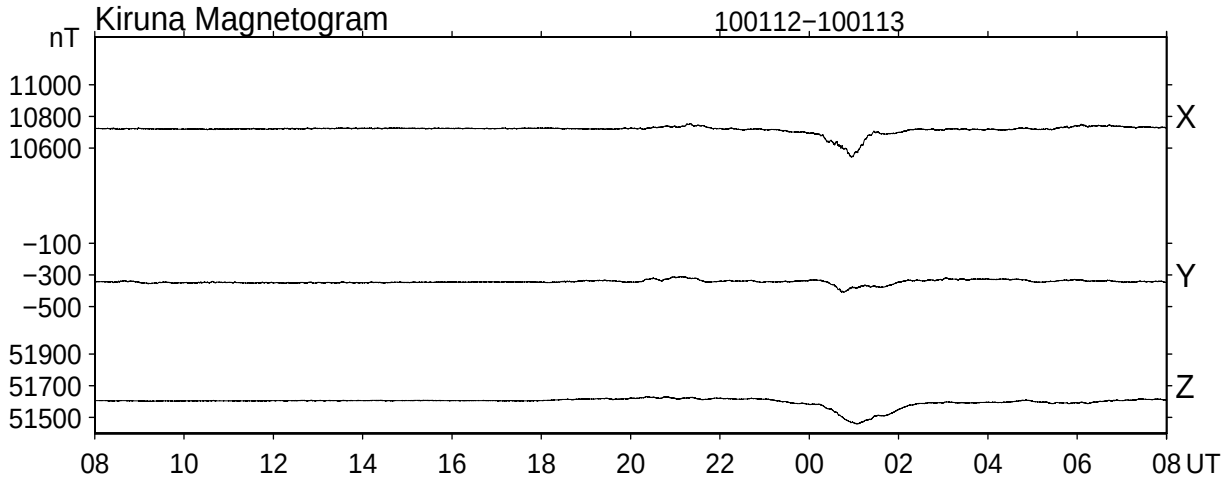

Kiruna Magnetogram
100107−100108
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
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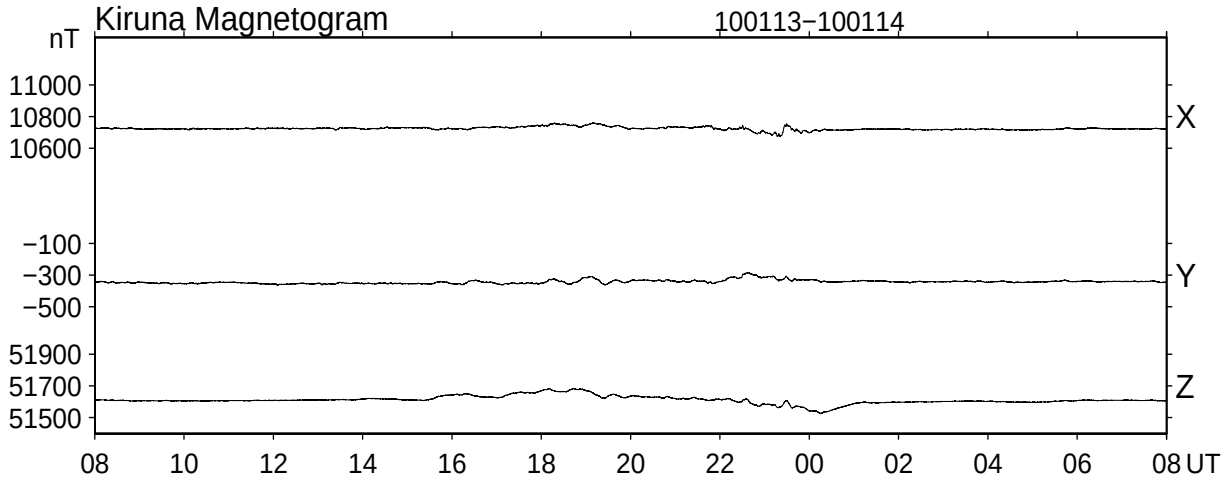

Kiruna Magnetogram
100108−100109
nT
11000
10800
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−100
−300
−500
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51700
51500
X
Y
Z
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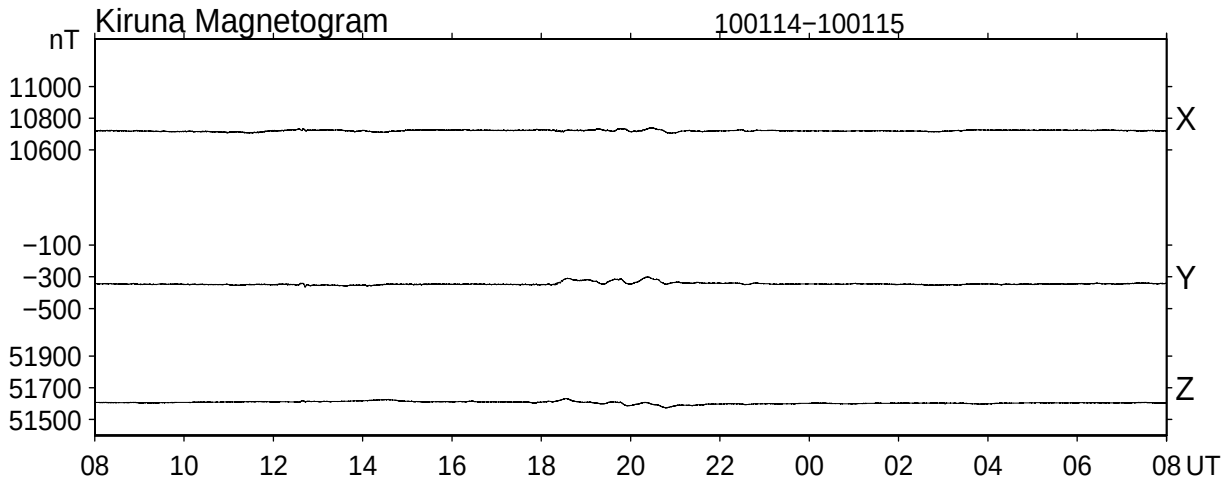

Kiruna Magnetogram
100109−100110
nT
11000
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−300
−500
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51700
51500
X
Y
Z
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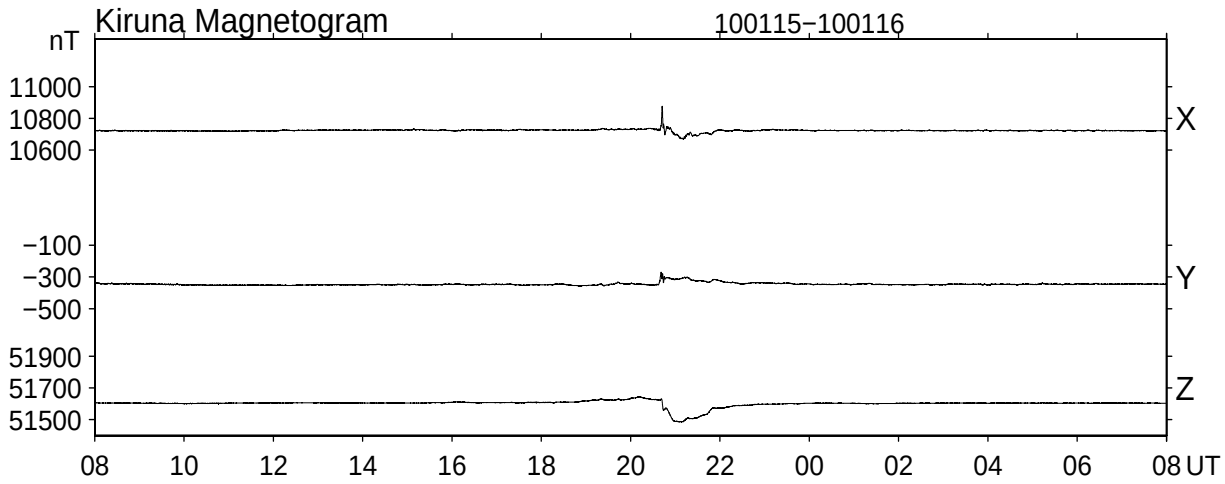

Kiruna Magnetogram
100110−100111
nT
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−300
−500
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51700
51500
X
Y
Z
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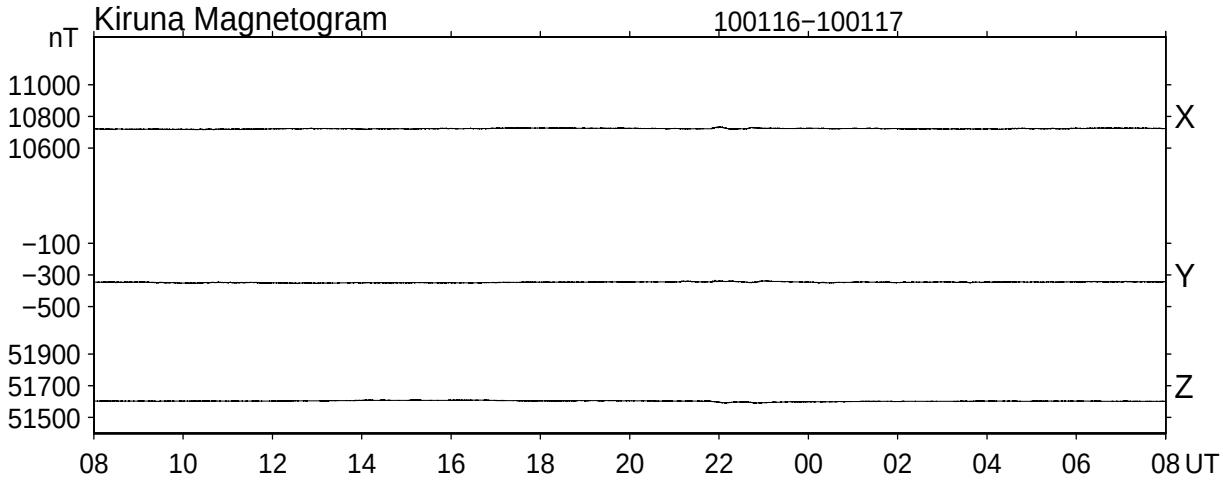

Kiruna Magnetogram
100111−100112
nT
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−300
−500
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51500
X
Y
Z
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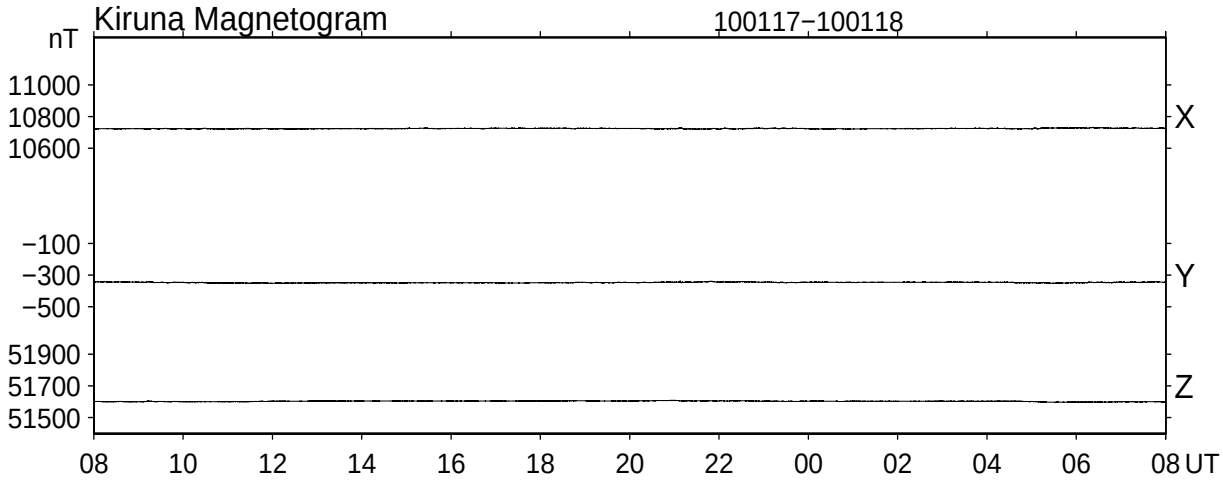

Kiruna Magnetogram
100112−100113
nT
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−500
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51700
51500
X
Y
Z
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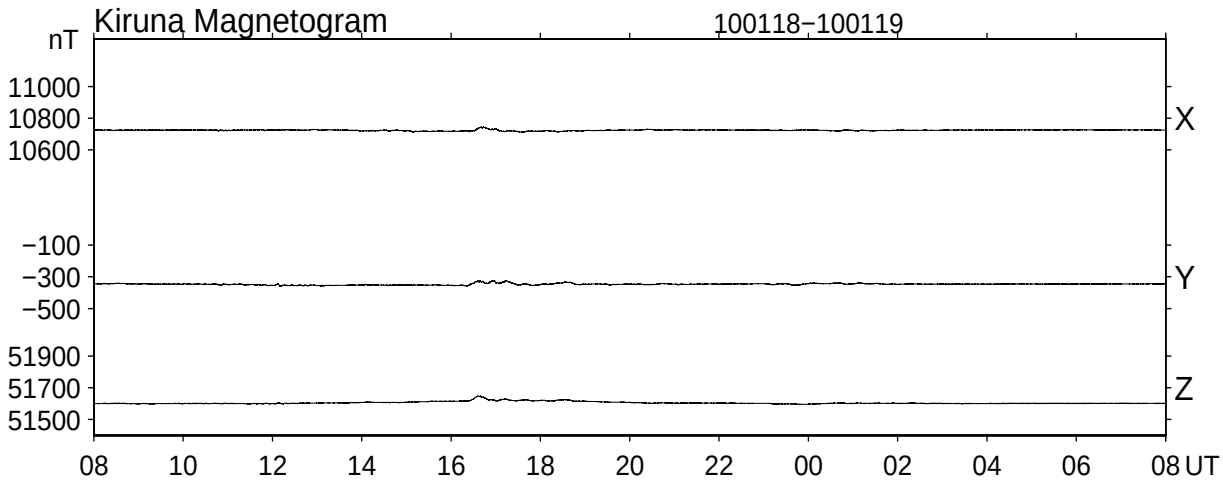

Kiruna Magnetogram
100113−100114
nT
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−300
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51700
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X
Y
Z
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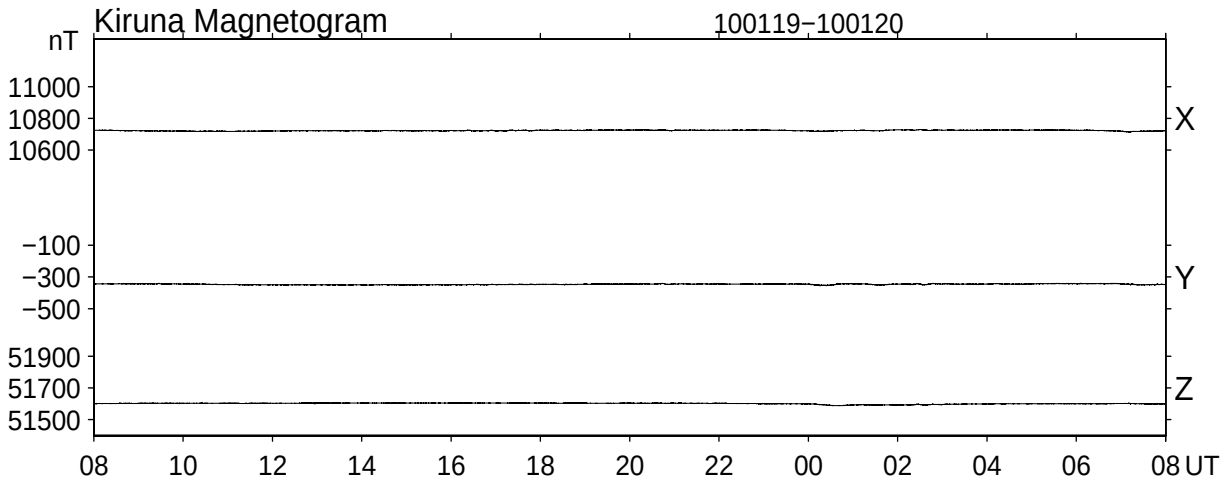

Kiruna Magnetogram
100114−100115
nT
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−300
−500
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51700
51500
X
Y
Z
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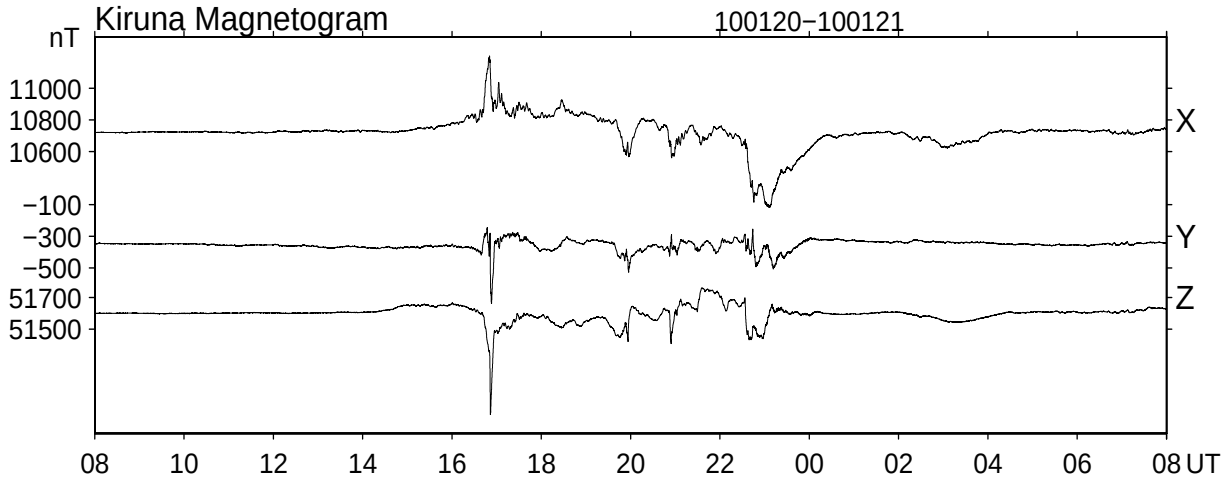

Kiruna Magnetogram
100115−100116
nT
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−300
−500
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51700
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X
Y
Z
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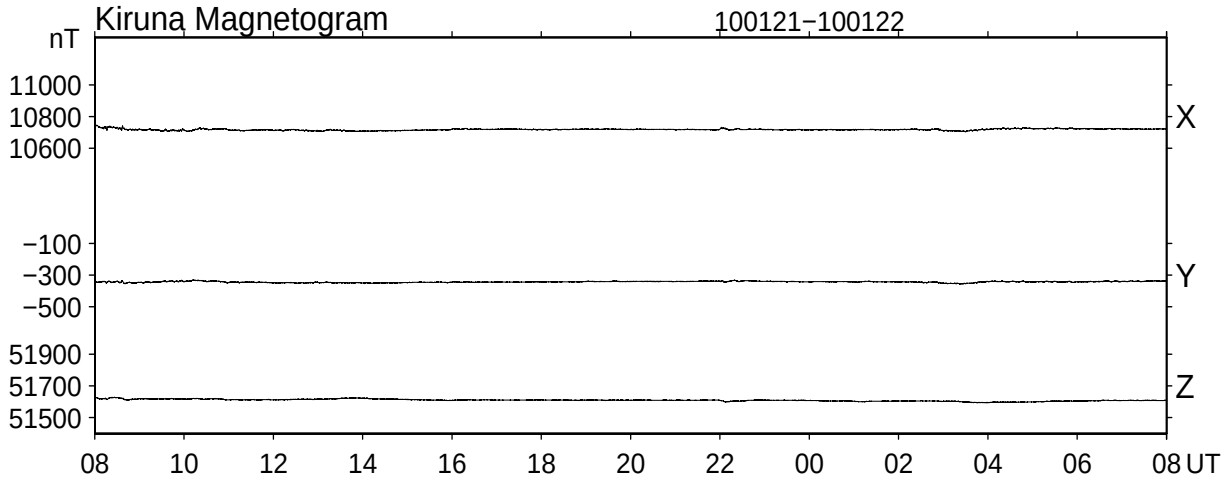

Kiruna Magnetogram
100116−100117
nT
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−100
−300
−500
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51700
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X
Y
Z
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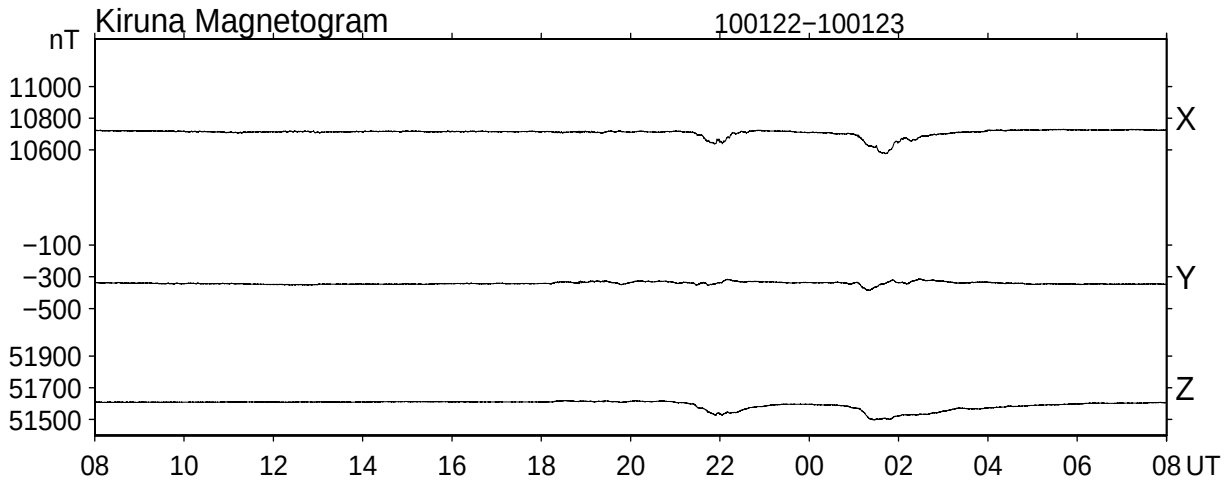

Kiruna Magnetogram
100117−100118
nT
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−300
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X
Y
Z
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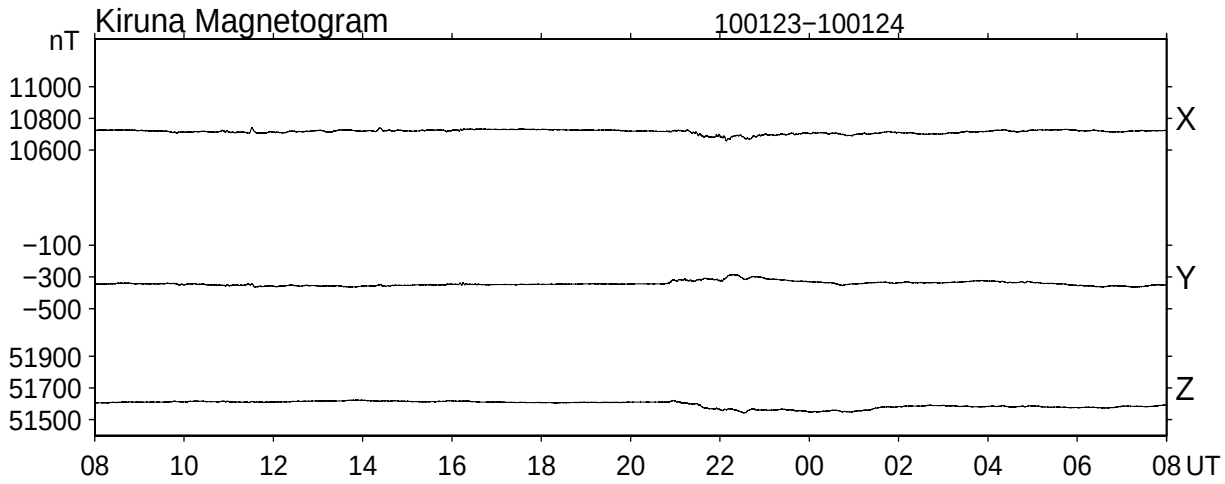

Kiruna Magnetogram
100118−100119
nT
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−300
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51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

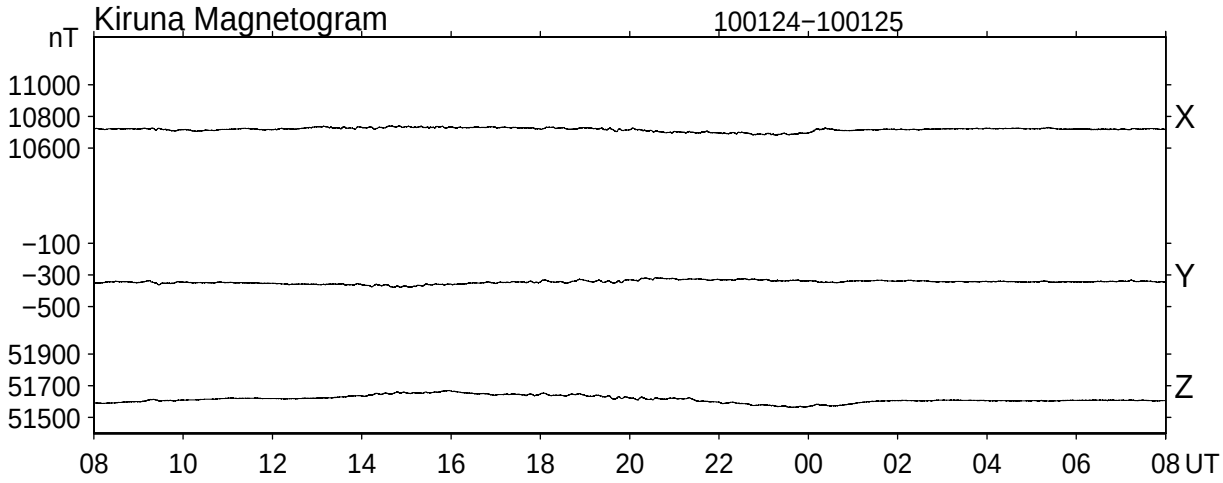

Kiruna Magnetogram
100119−100120
nT
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−100
−300
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X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

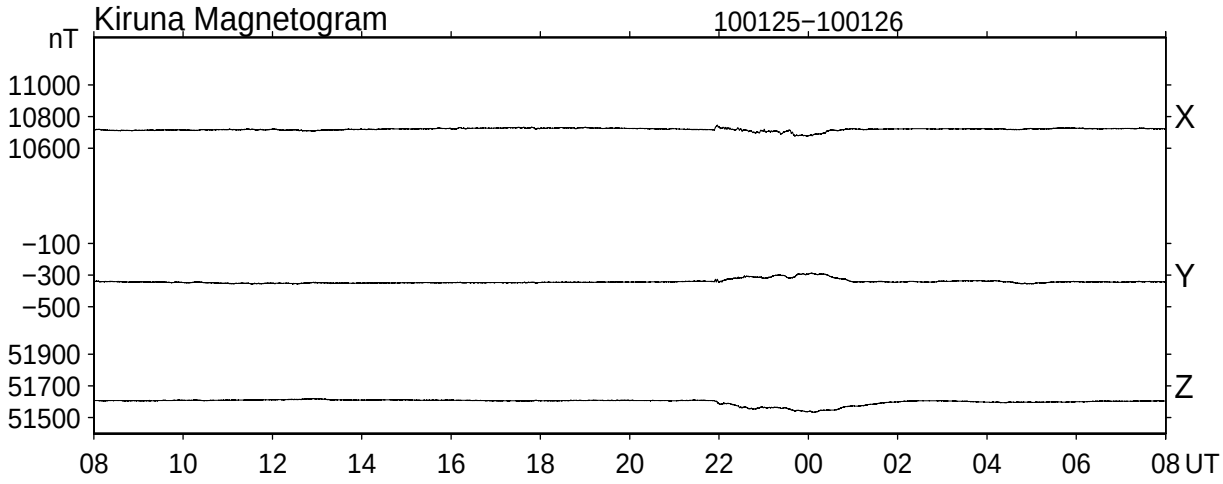

Kiruna Magnetogram
100120−100121
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11000
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−100
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X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

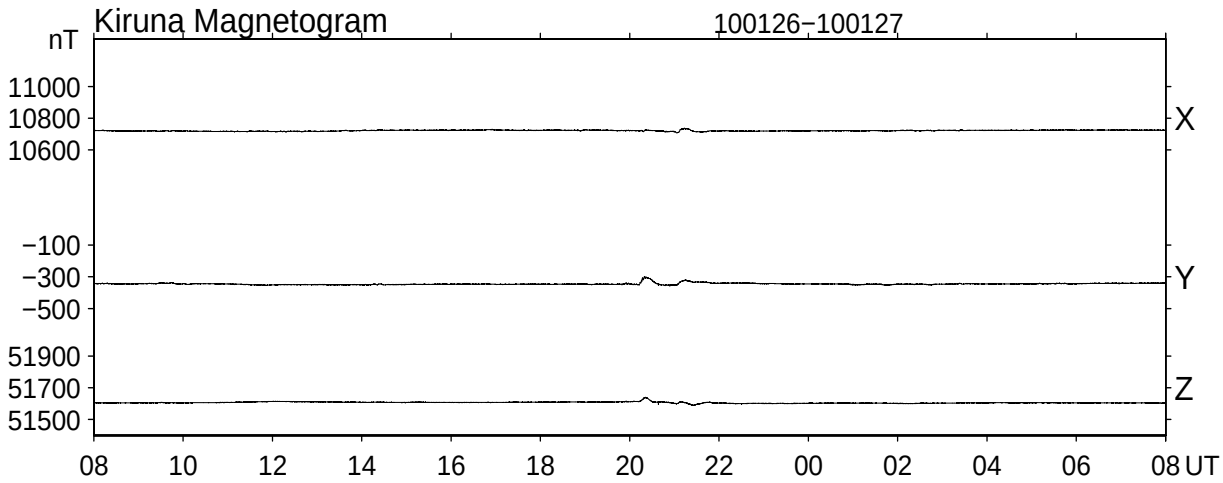

Kiruna Magnetogram
100121−100122
nT
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Y
Z
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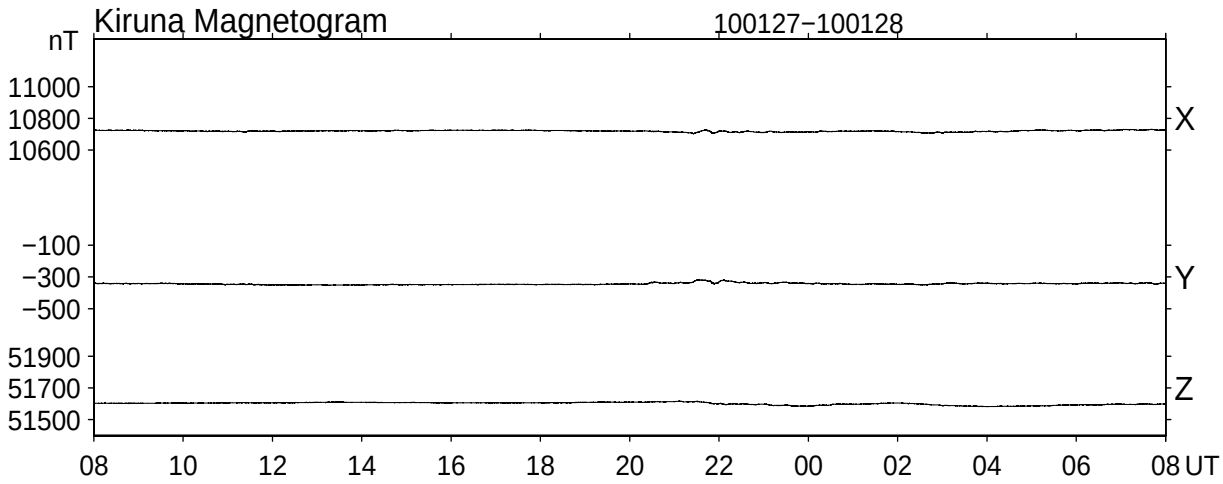

Kiruna Magnetogram
100122−100123
nT
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−300
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X
Y
Z
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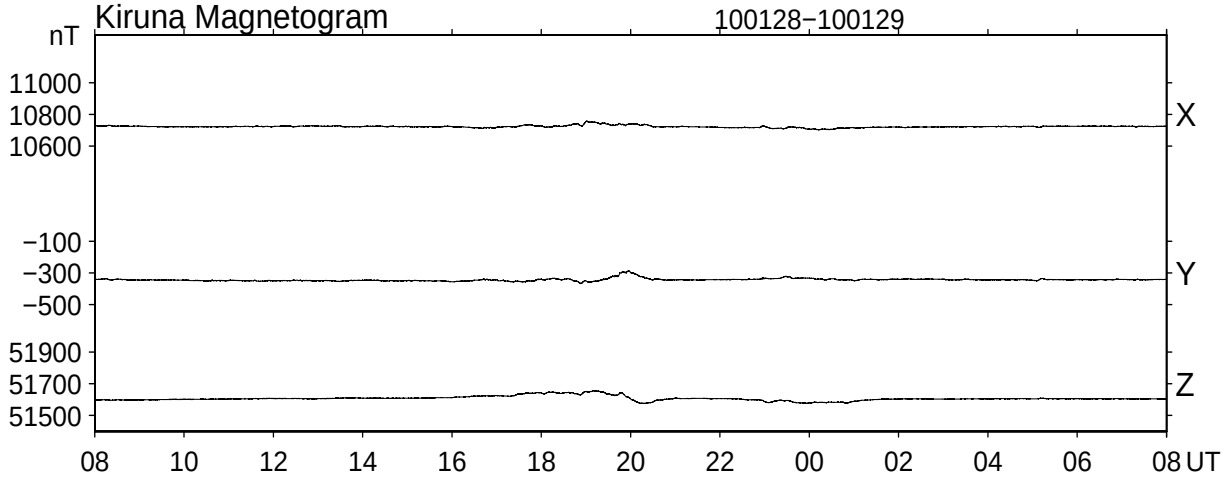

Kiruna Magnetogram
100123−100124
nT
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−300
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X
Y
Z
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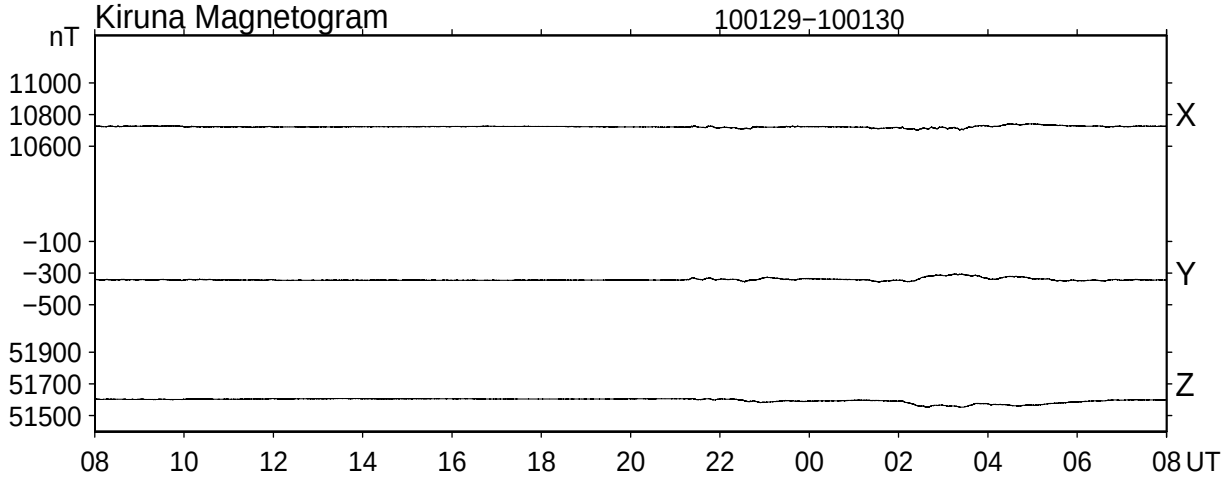

Kiruna Magnetogram
100124−100125
nT
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−300
−500
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X
Y
Z
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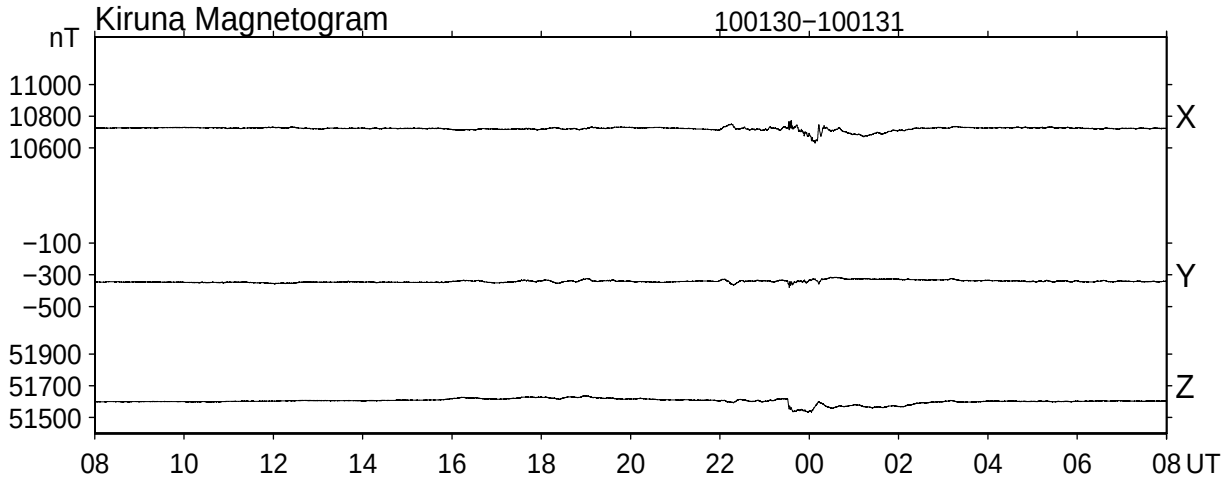

Kiruna Magnetogram
100125−100126
nT
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10800
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−100
−300
−500
51900
51700
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X
Y
Z
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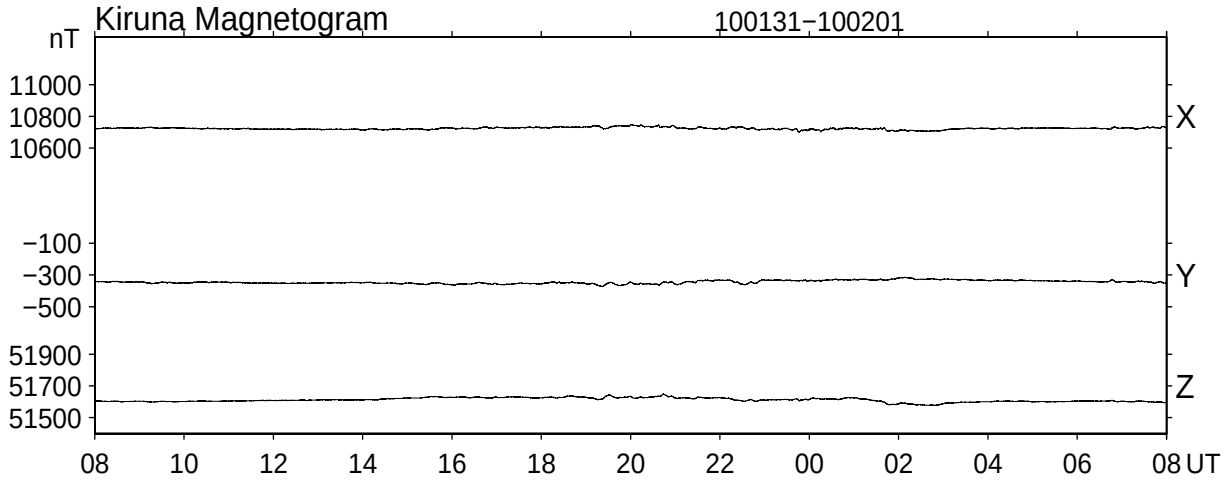

Kiruna Magnetogram
100126−100127
nT
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−100
−300
−500
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51700
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X
Y
Z
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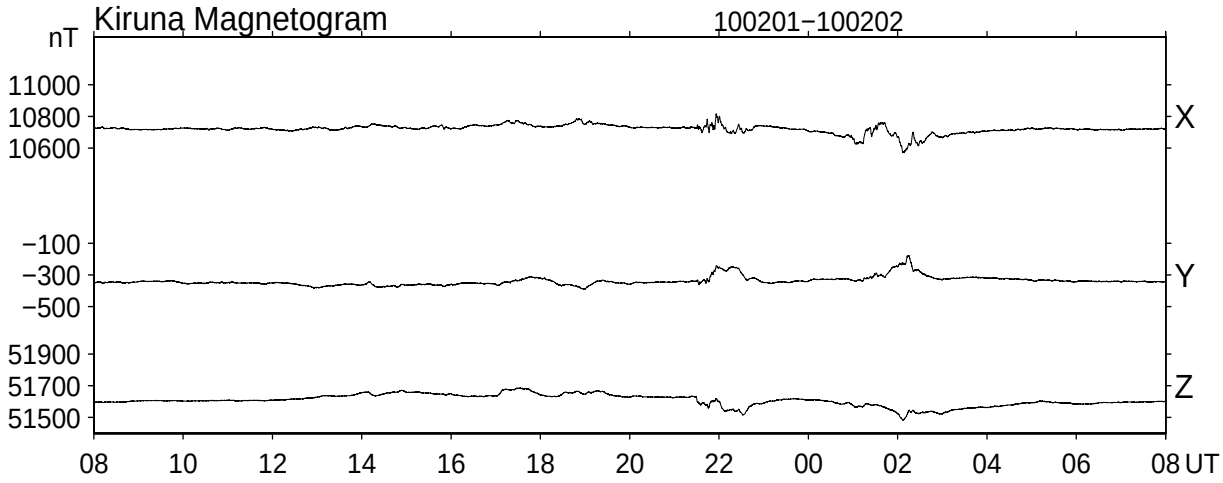

Kiruna Magnetogram
100127−100128
nT
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X
Y
Z
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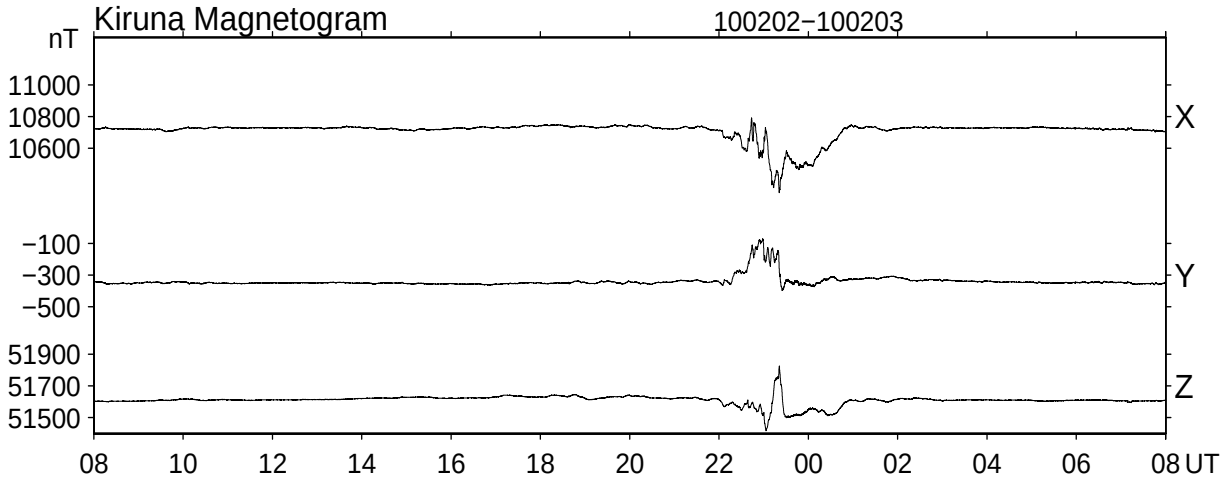

Kiruna Magnetogram
100128−100129
nT
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X
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Z
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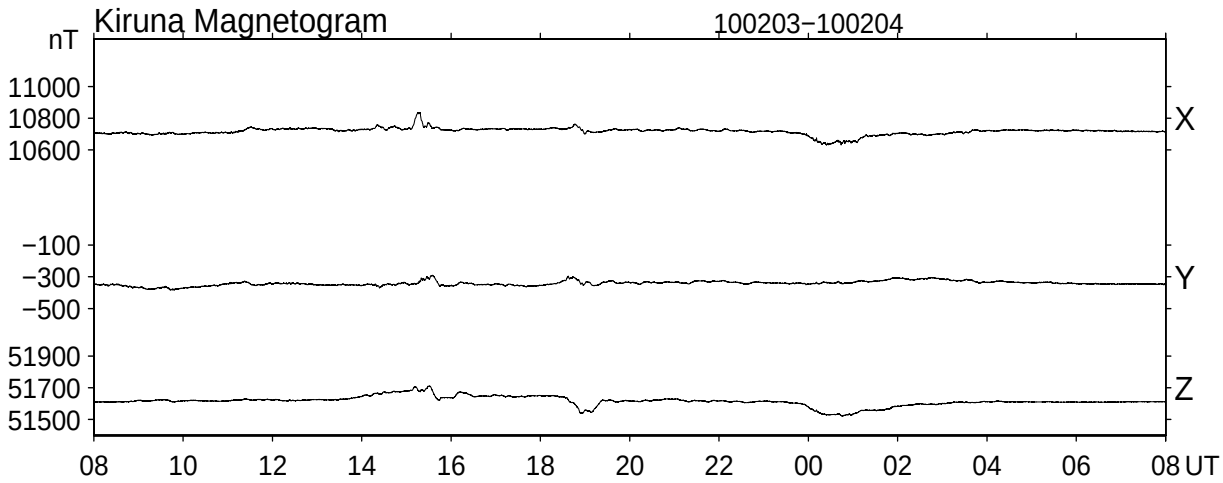

Kiruna Magnetogram
100129−100130
nT
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−500
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51700
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X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

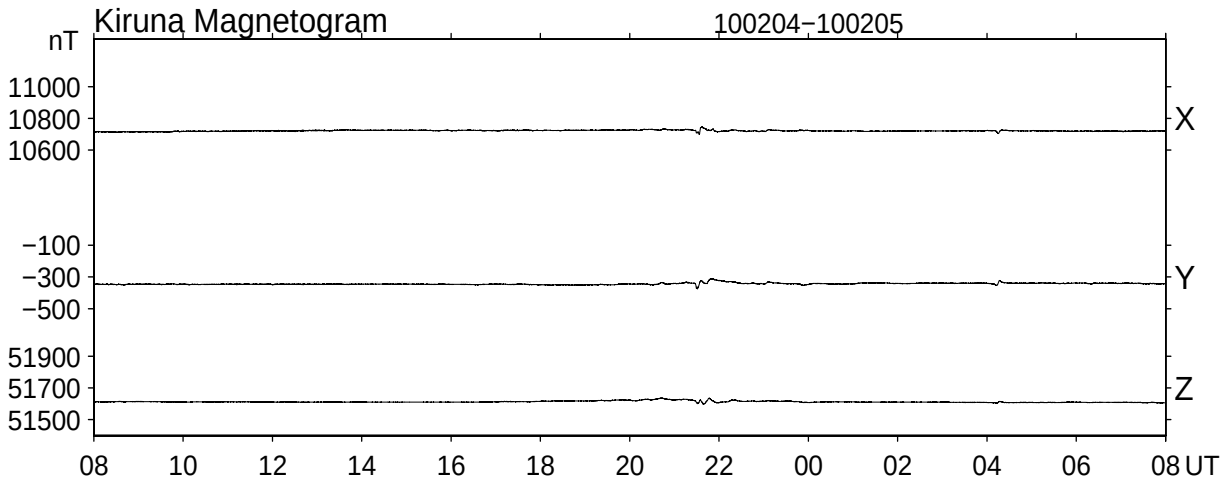

Kiruna Magnetogram
100130−100131
nT
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−300
−500
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X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

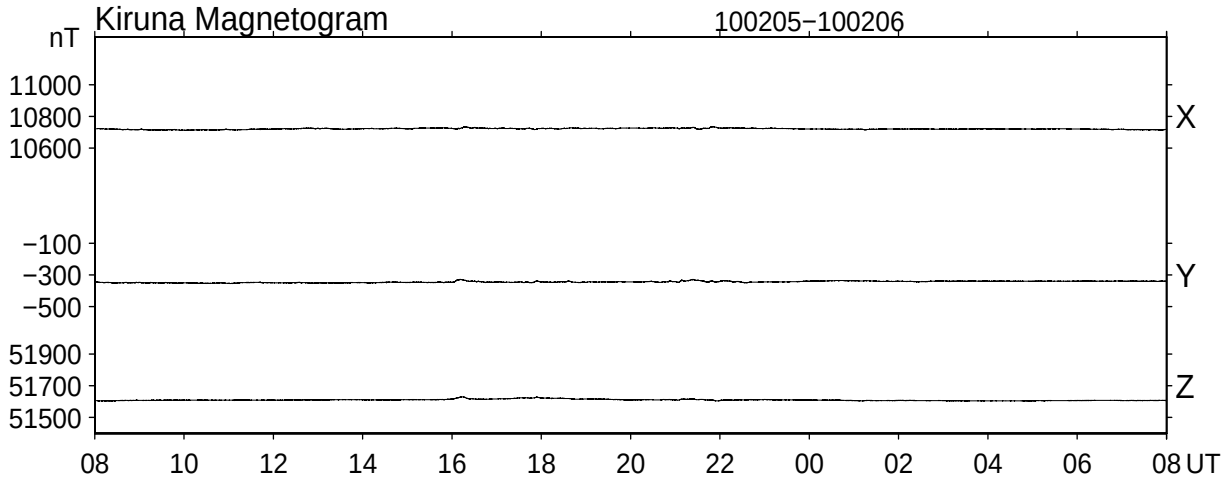

Kiruna Magnetogram
100131−100201
nT
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−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

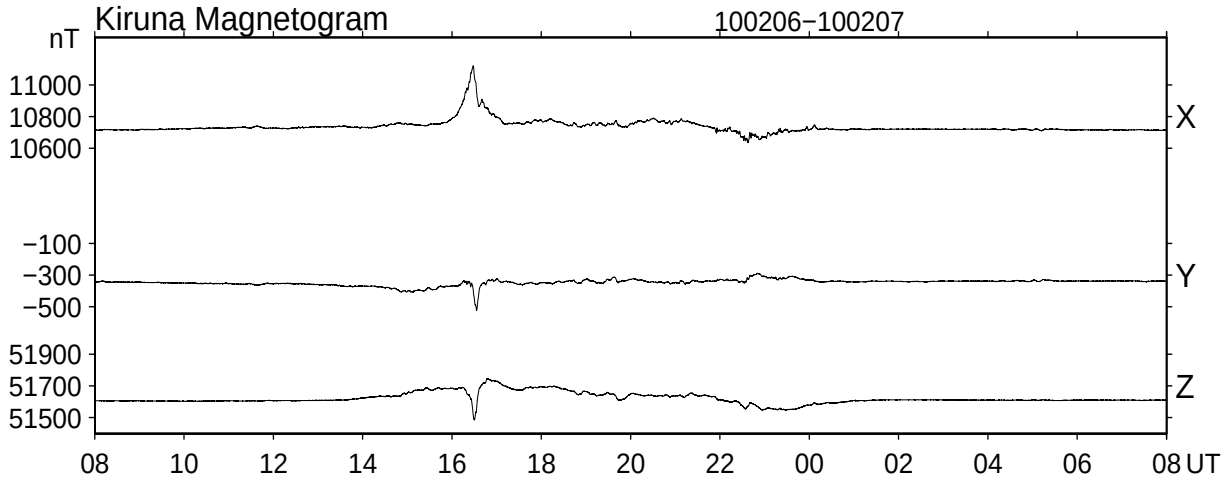

Kiruna Magnetogram
100201−100202
nT
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−300
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51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

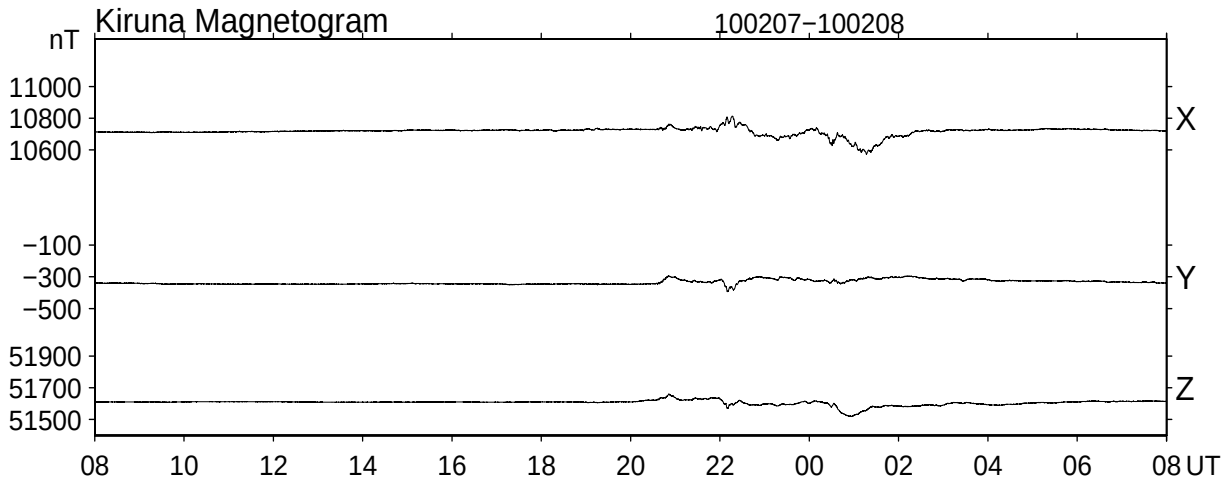

Kiruna Magnetogram
100202−100203
nT
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X
Y
Z
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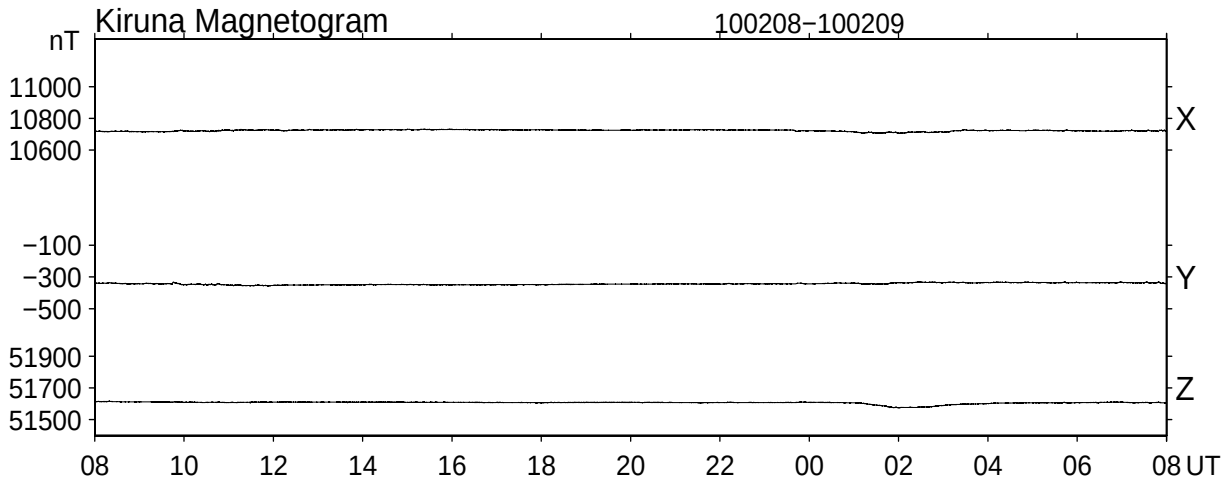

Kiruna Magnetogram
100203−100204
nT
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X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

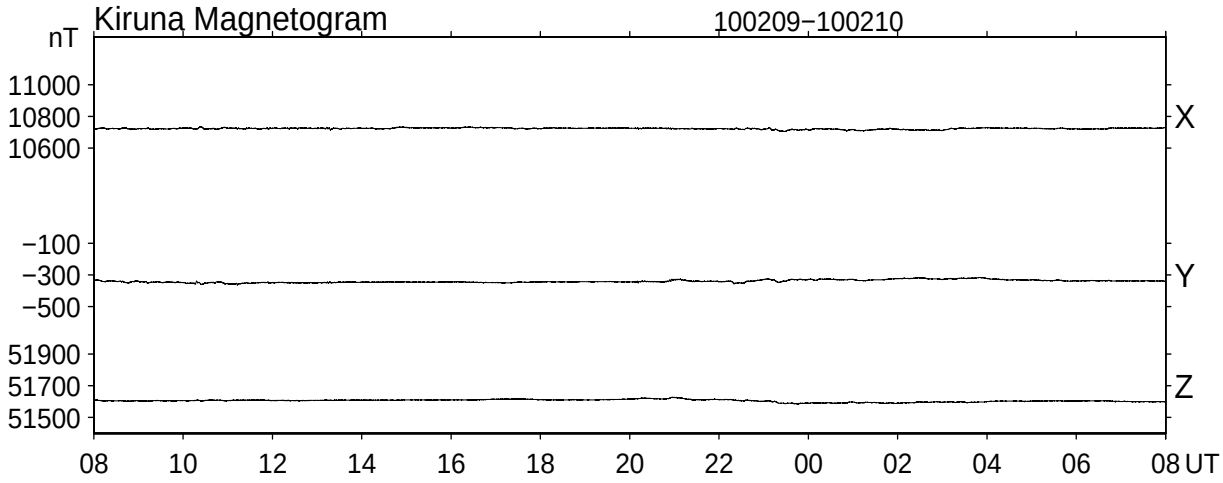

Kiruna Magnetogram
100204−100205
nT
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−300
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51700
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X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

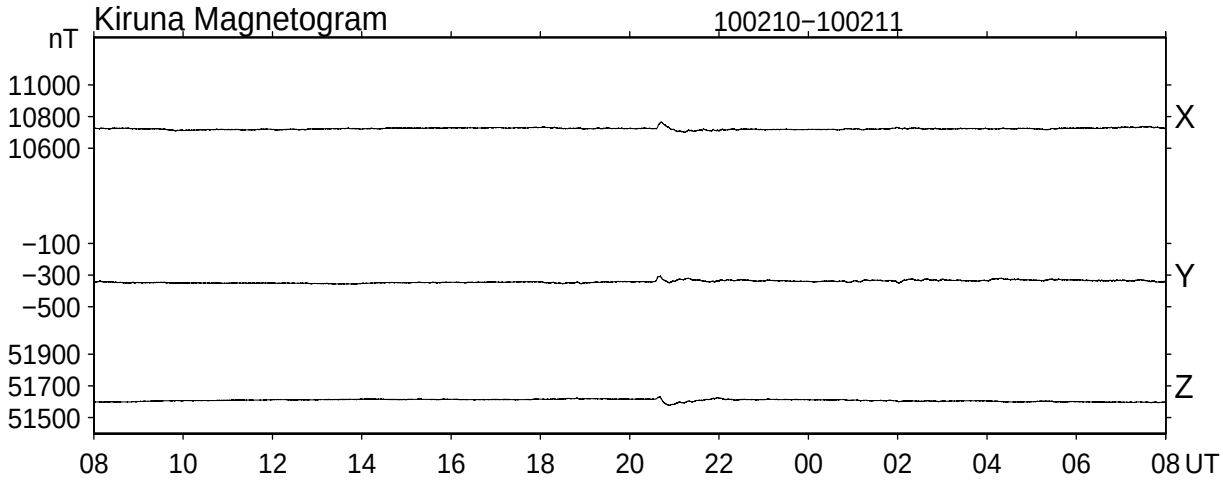

Kiruna Magnetogram
100205−100206
nT
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10800
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−300
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X
Y
Z
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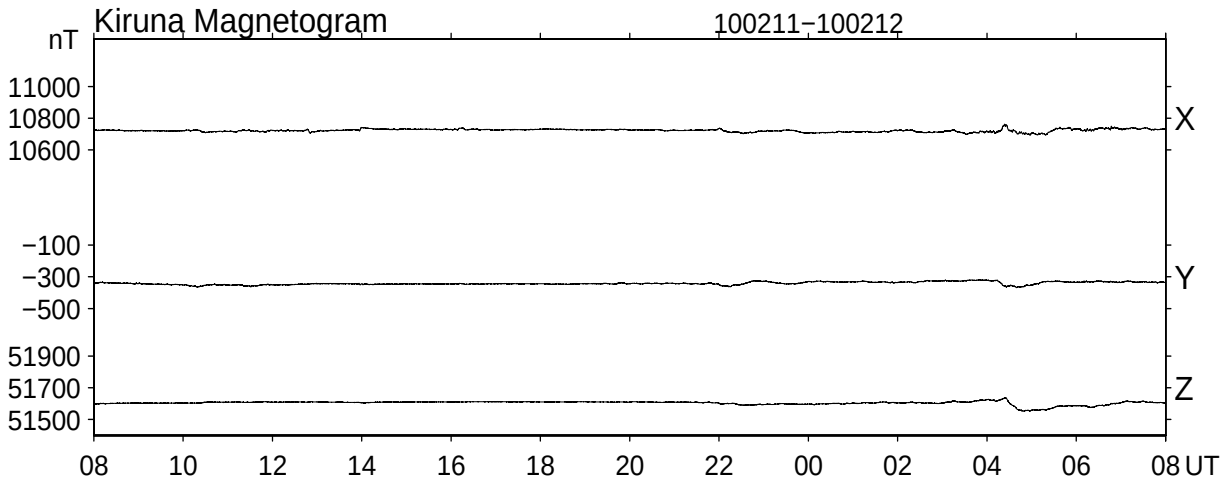

Kiruna Magnetogram
100206−100207
nT
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10800
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−300
−500
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51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

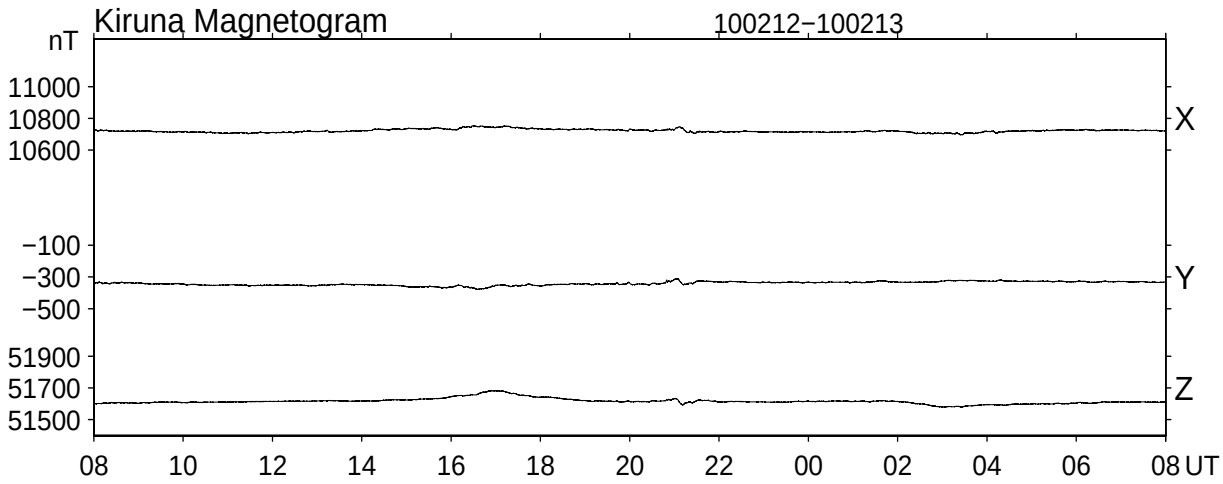

Kiruna Magnetogram
100207−100208
nT
11000
10800
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−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

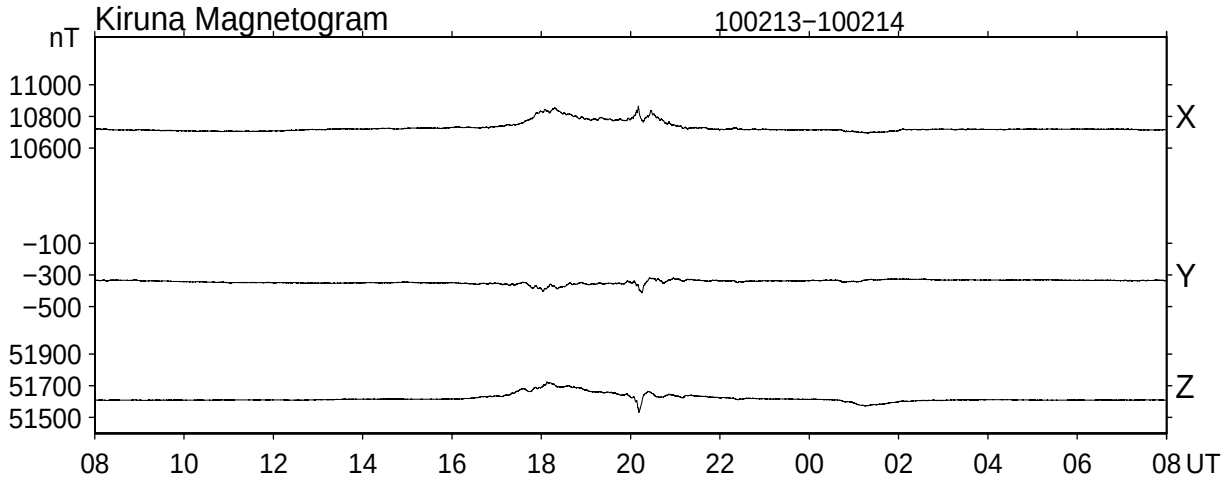

Kiruna Magnetogram
100208−100209
nT
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10800
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−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

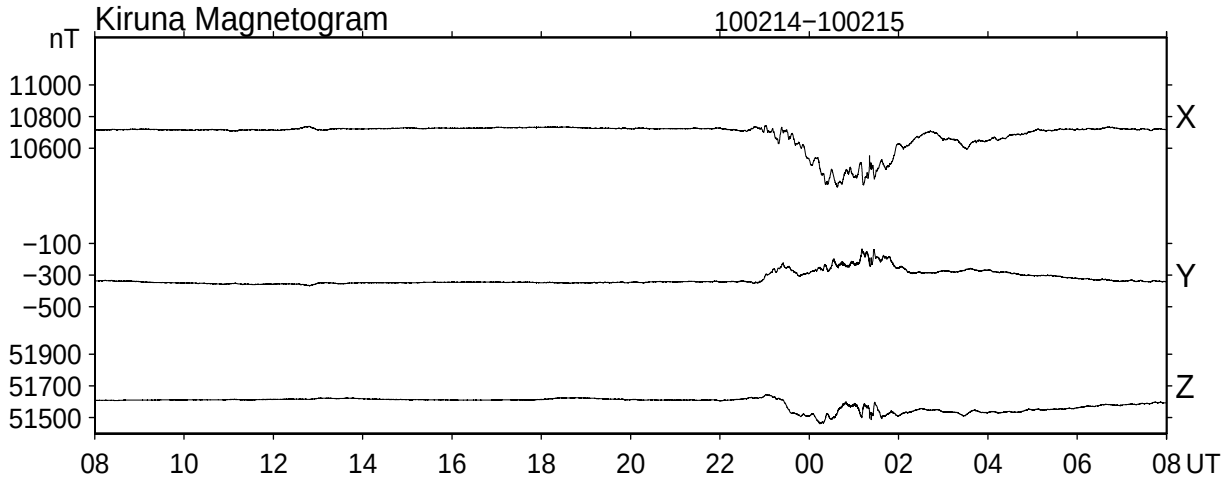

Kiruna Magnetogram
100209−100210
nT
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−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

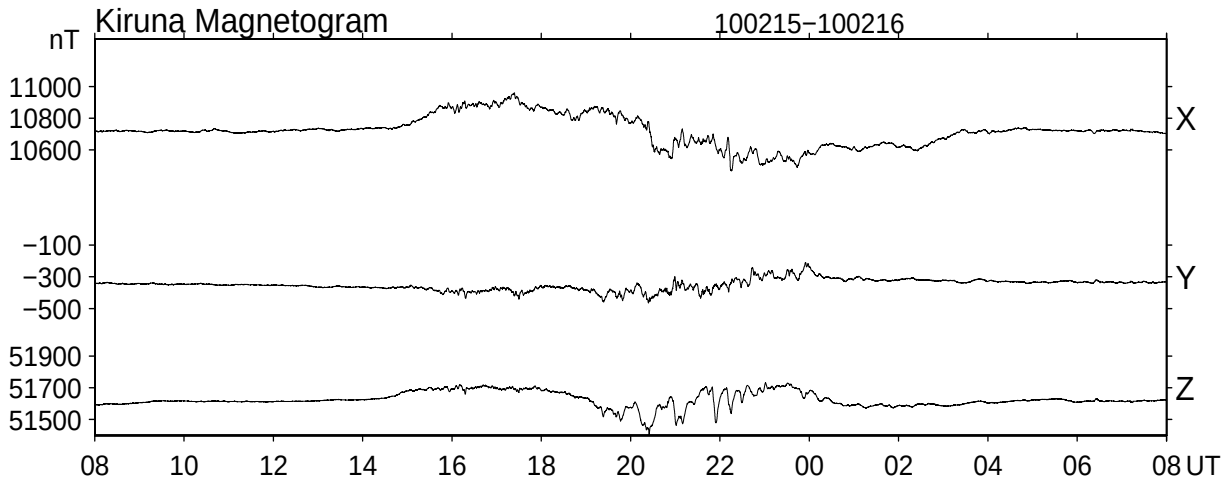

Kiruna Magnetogram
100210−100211
nT
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−300
−500
51900
51700
51500
X
Y
Z
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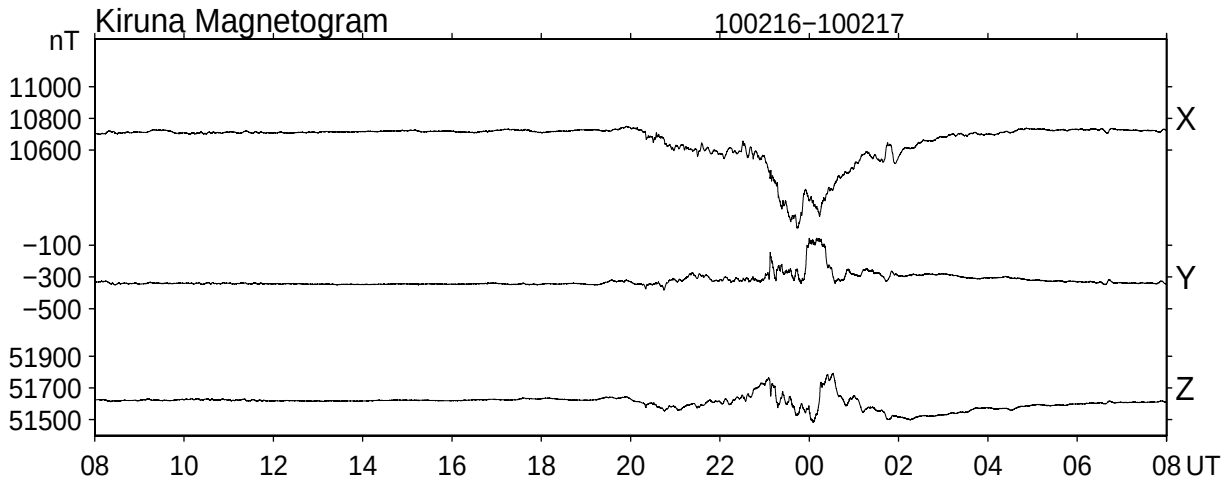

Kiruna Magnetogram
100211−100212
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

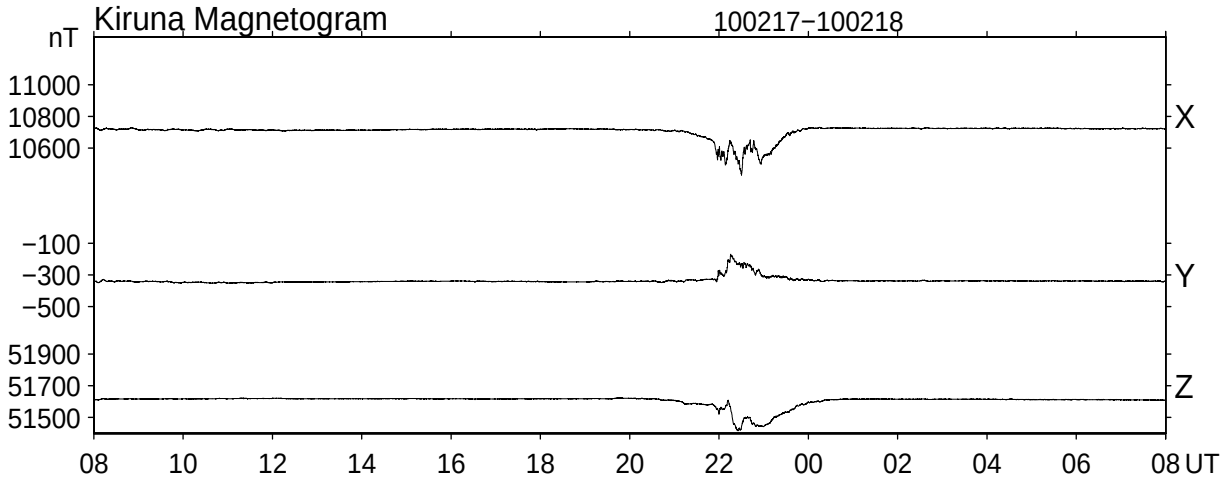

Kiruna Magnetogram
100212−100213
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

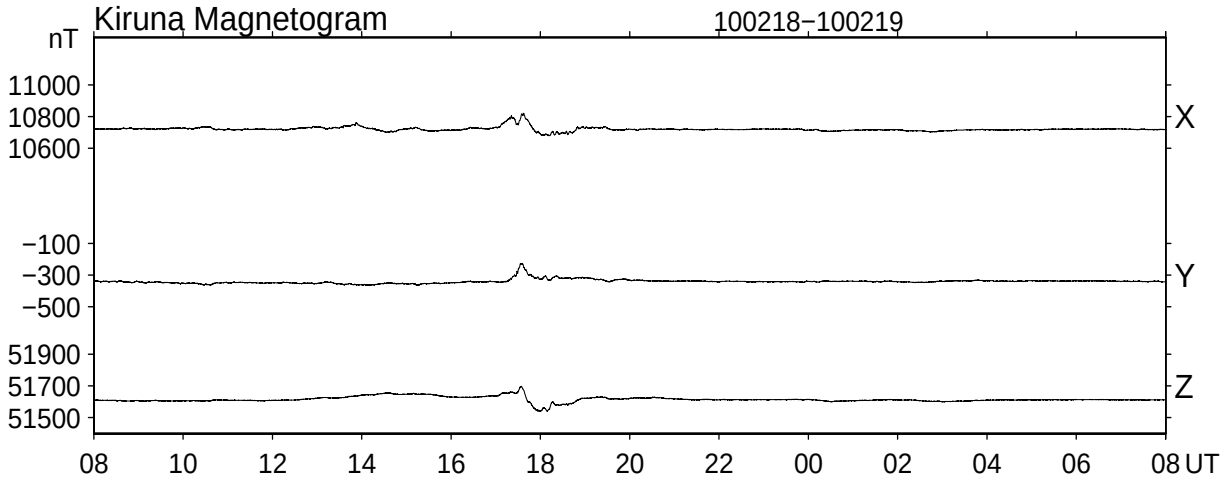

Kiruna Magnetogram
100213−100214
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

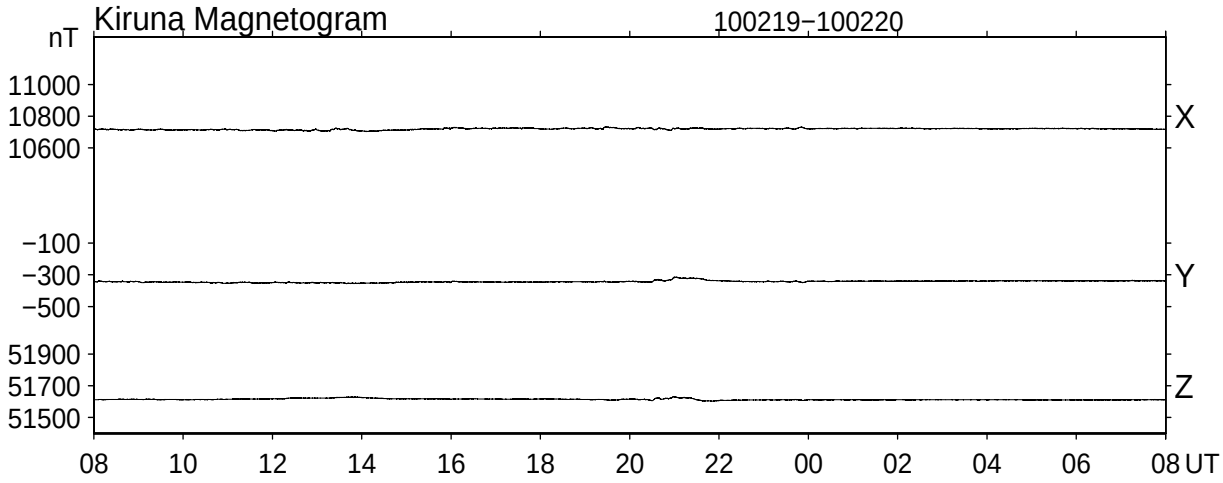

Kiruna Magnetogram
100214−100215
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

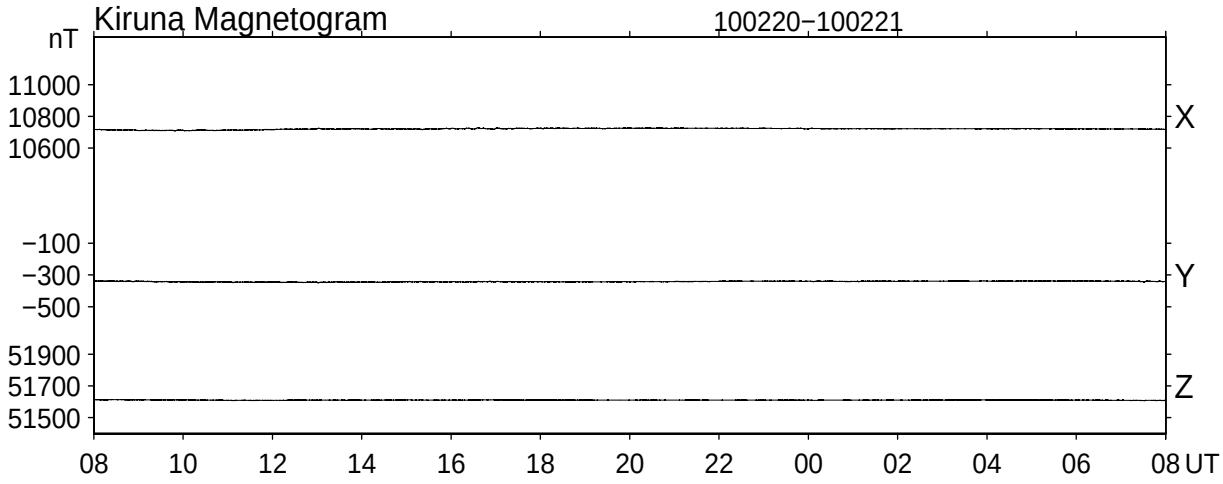

Kiruna Magnetogram
100215−100216
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

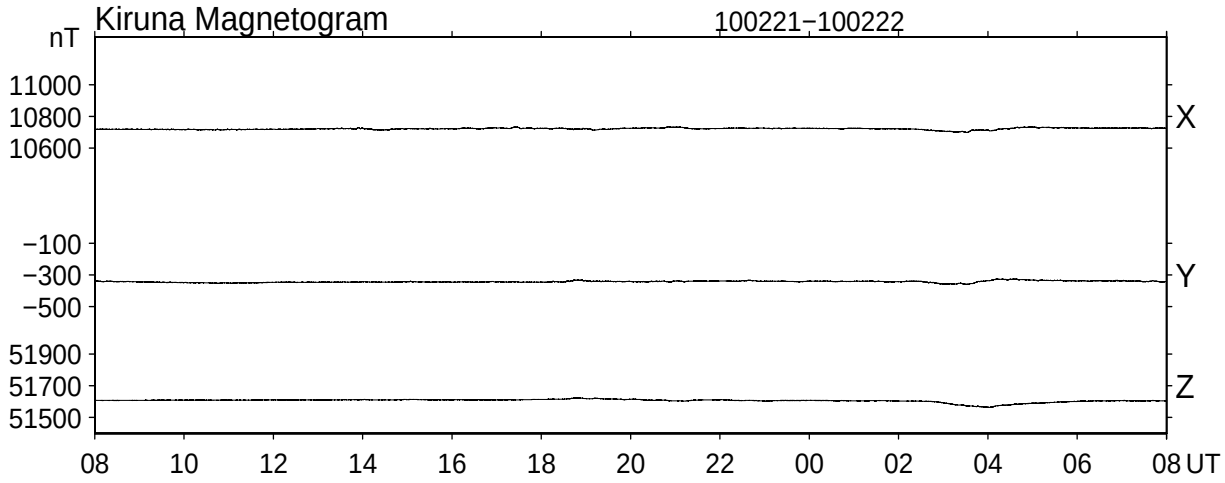

Kiruna Magnetogram
100216−100217
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

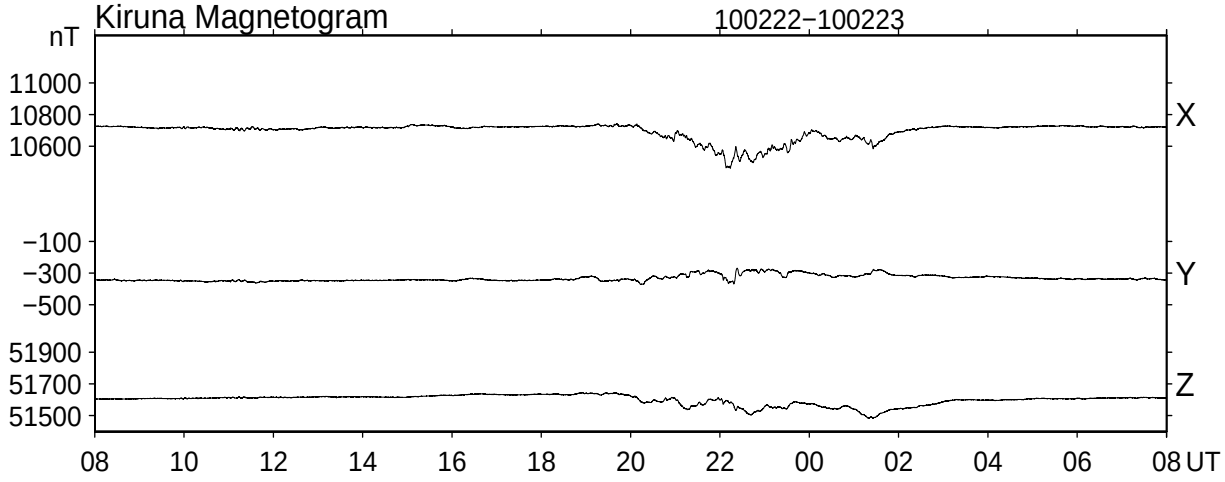

Kiruna Magnetogram
100217−100218
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

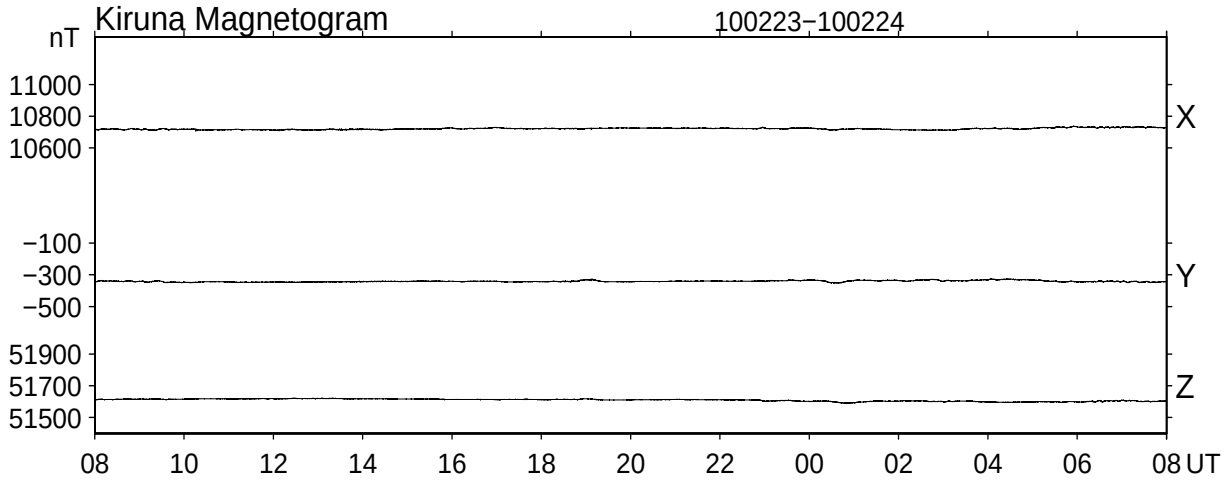

Kiruna Magnetogram
100218−100219
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

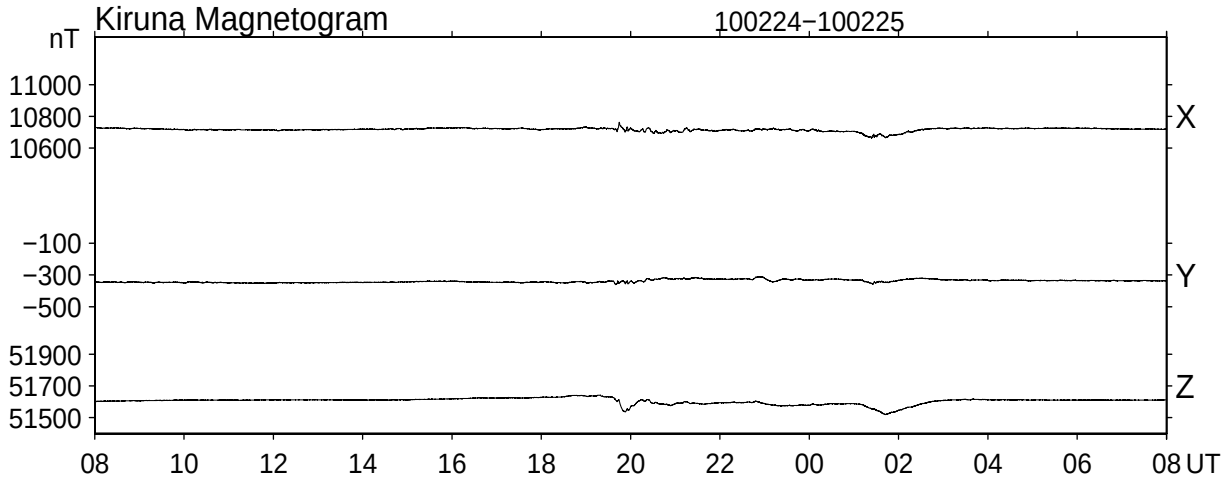

Kiruna Magnetogram
100219−100220
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

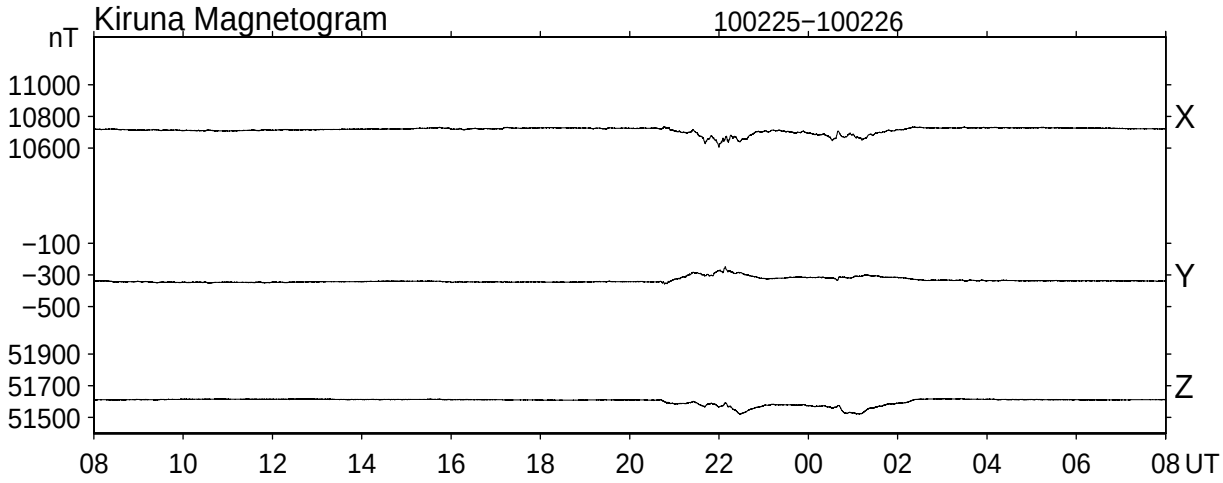

Kiruna Magnetogram
100220−100221
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

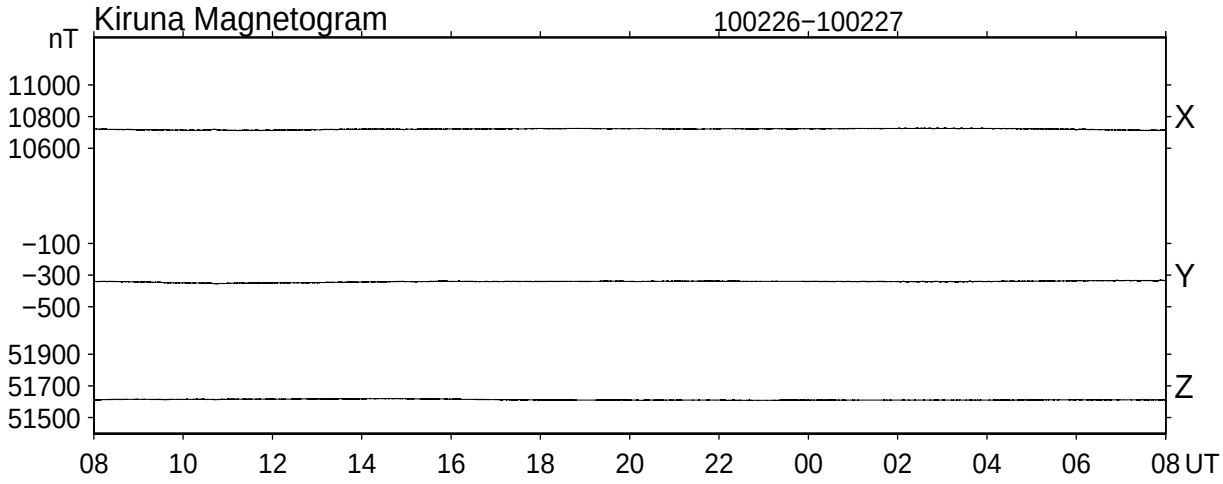

Kiruna Magnetogram
100221−100222
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

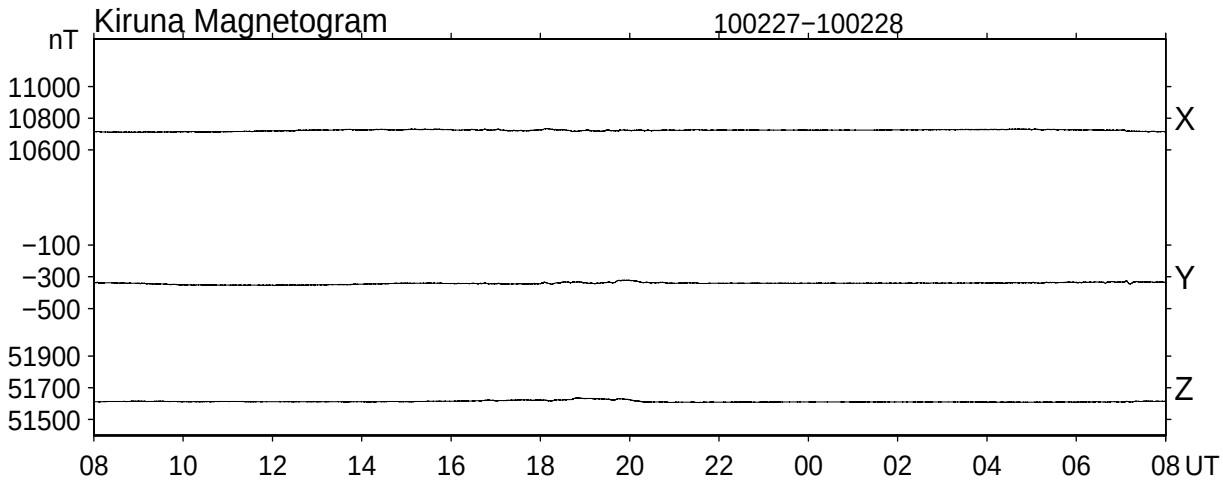

Kiruna Magnetogram
100222−100223
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

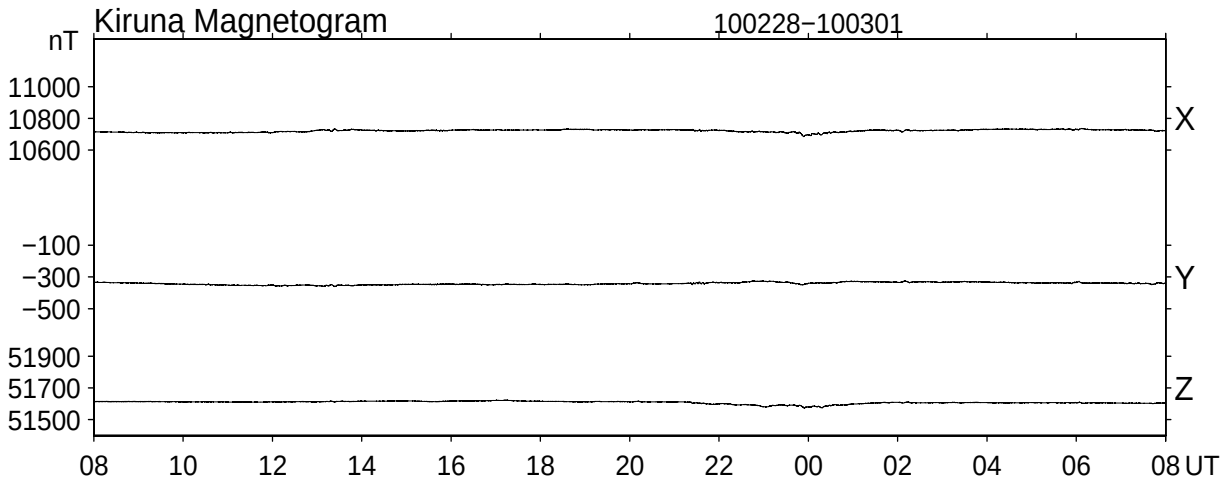

Kiruna Magnetogram
100223−100224
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

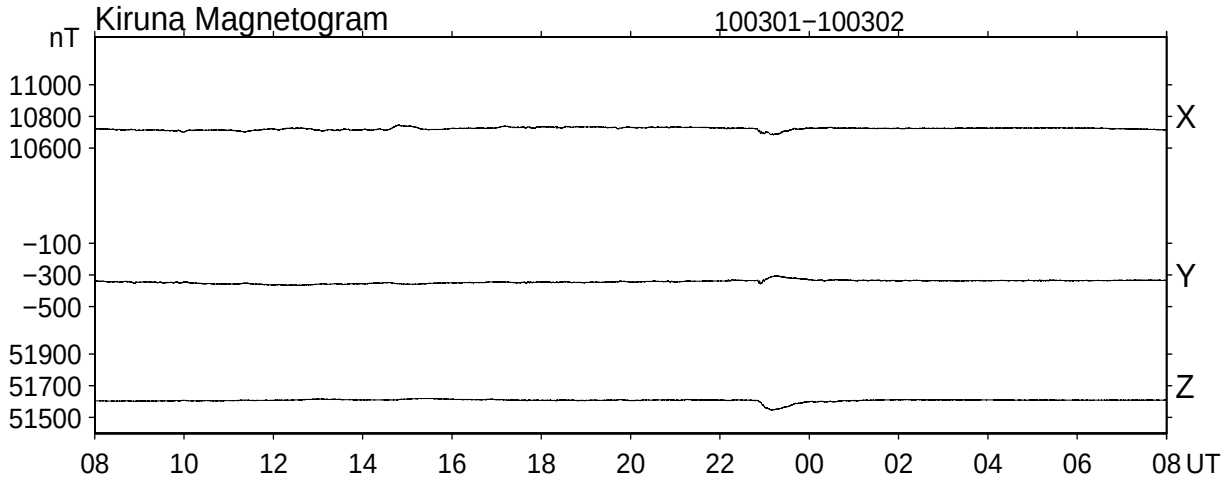

Kiruna Magnetogram
100224−100225
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

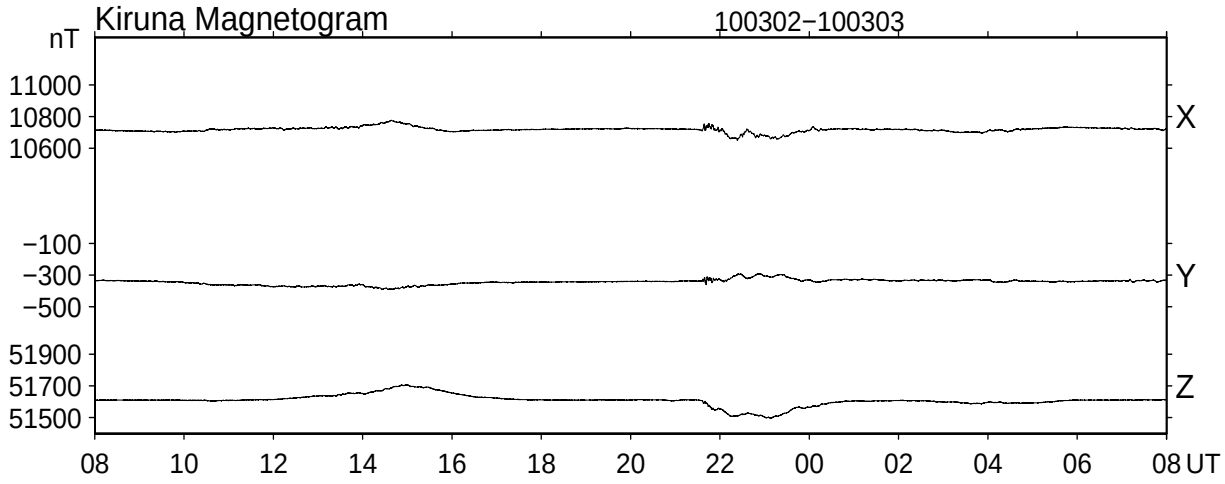

Kiruna Magnetogram
100225−100226
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

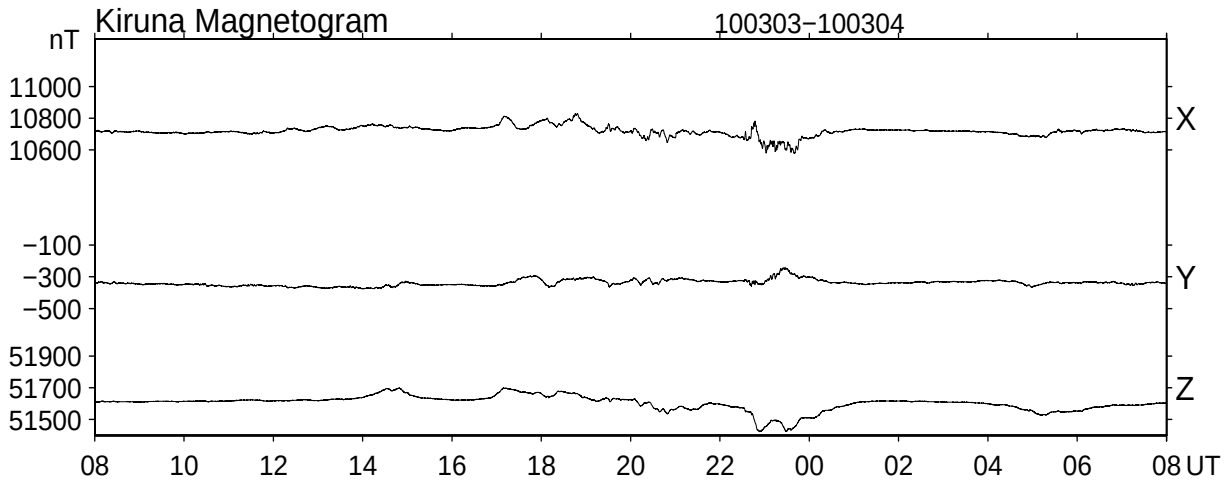

Kiruna Magnetogram
100226−100227
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

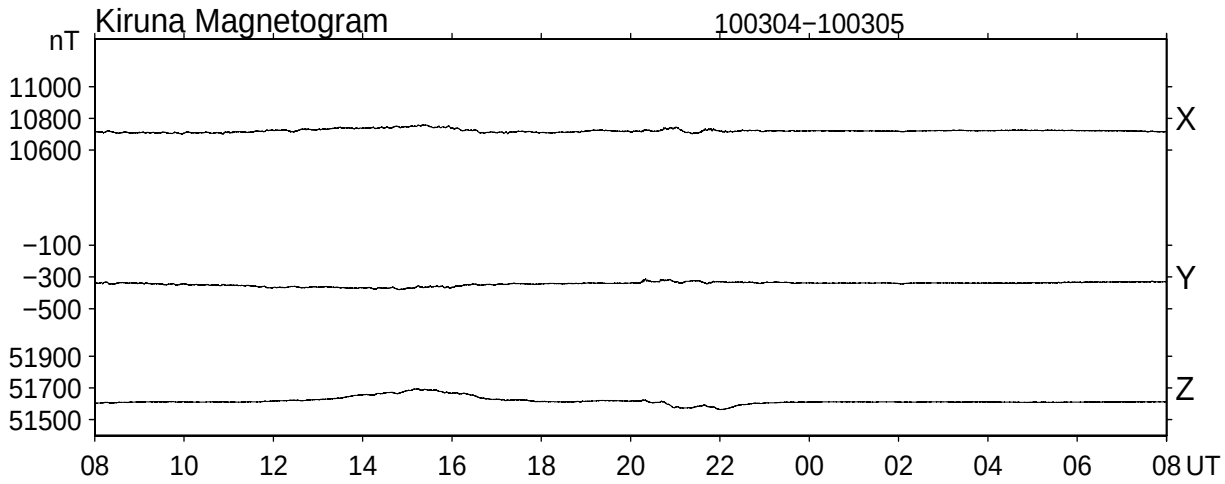

Kiruna Magnetogram
100227−100228
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

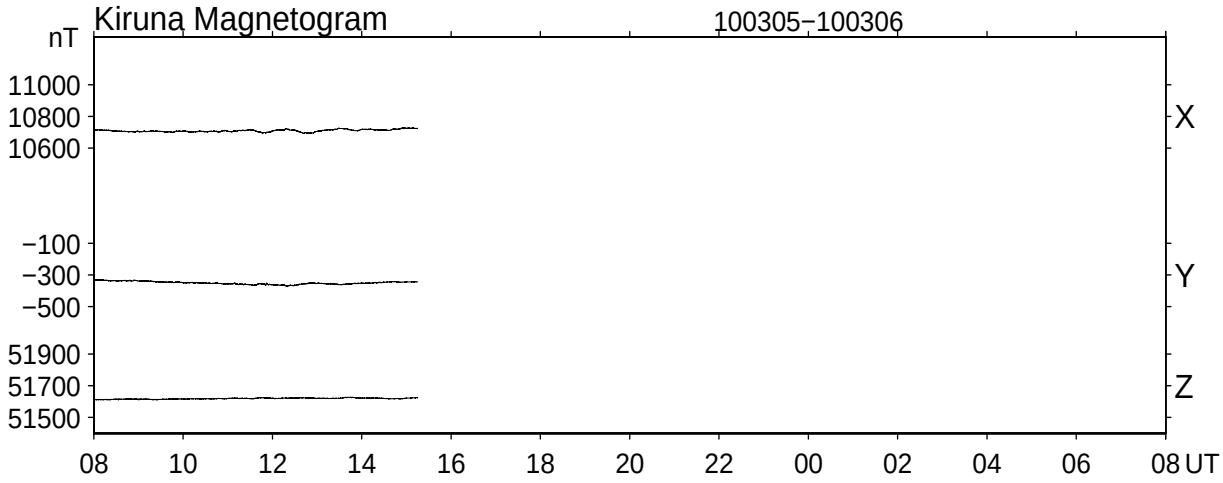

Kiruna Magnetogram
100228−100301
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

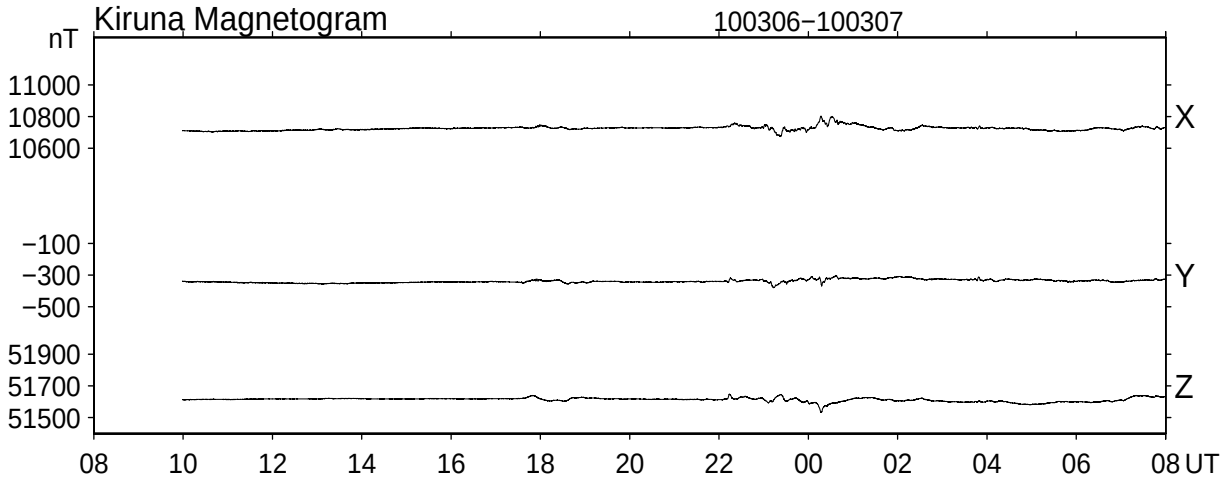

Kiruna Magnetogram
100301−100302
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

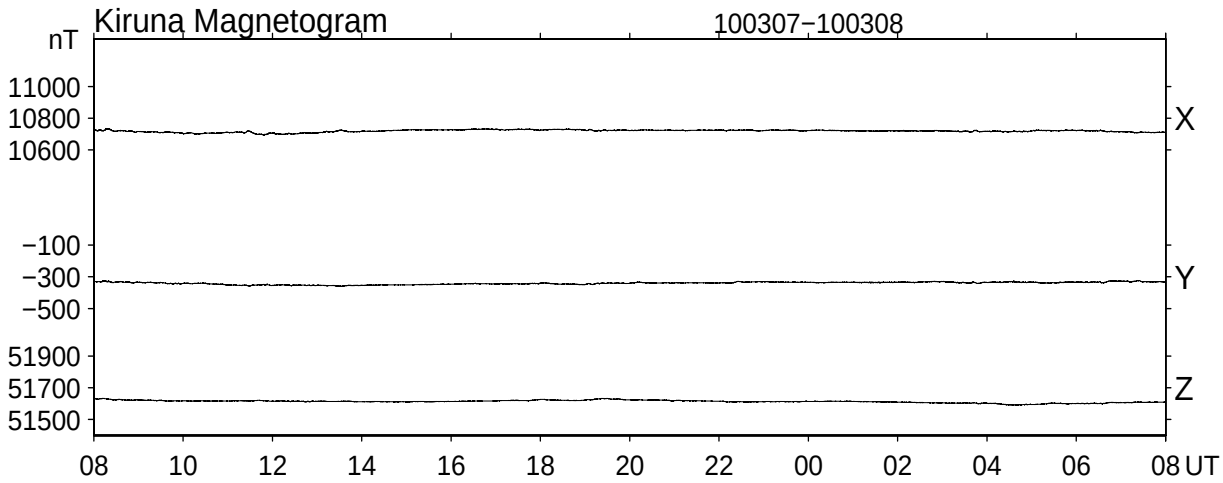

Kiruna Magnetogram
100302−100303
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

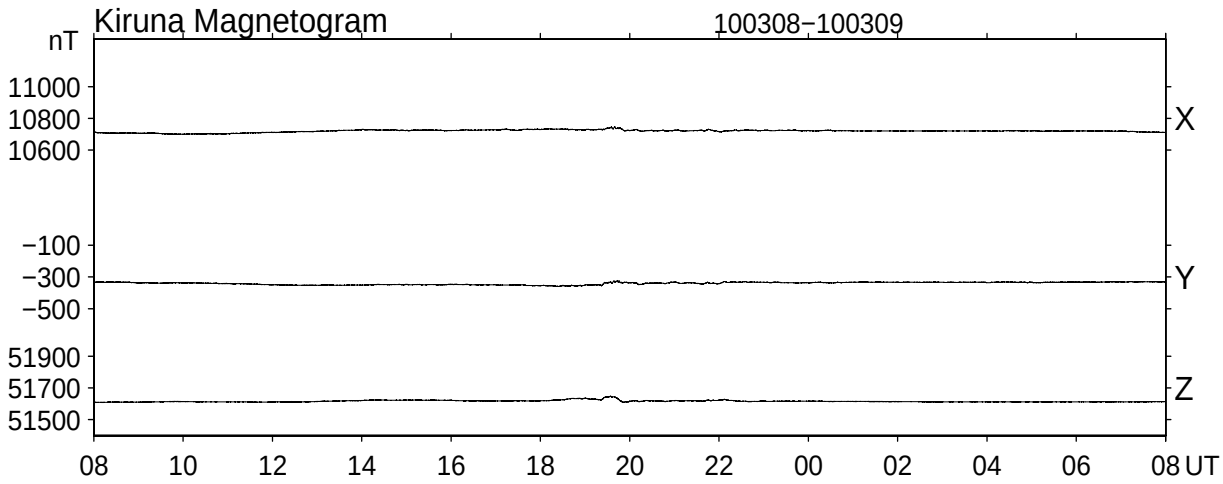

Kiruna Magnetogram
100303−100304
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

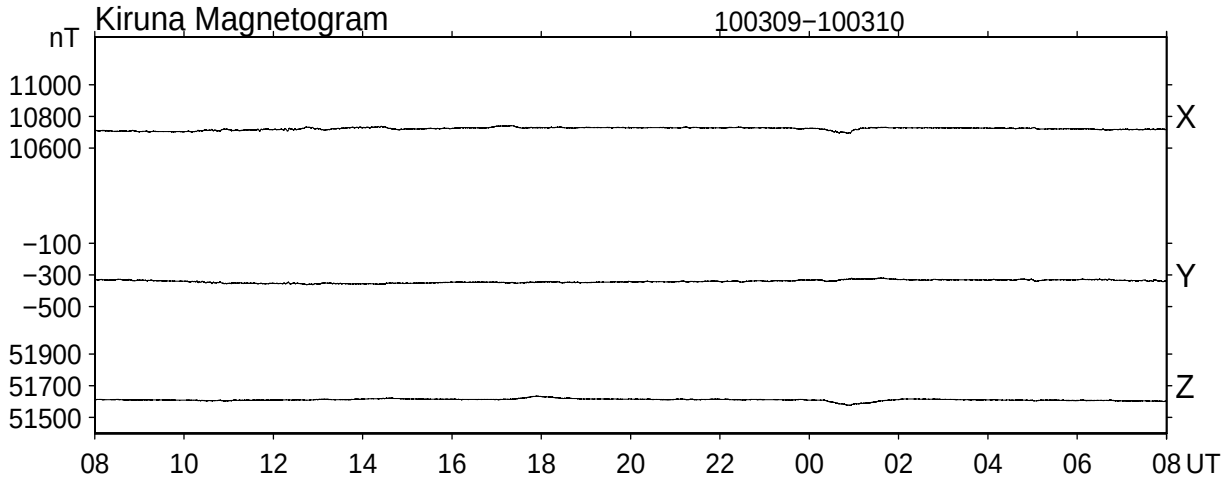

Kiruna Magnetogram
100304−100305
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

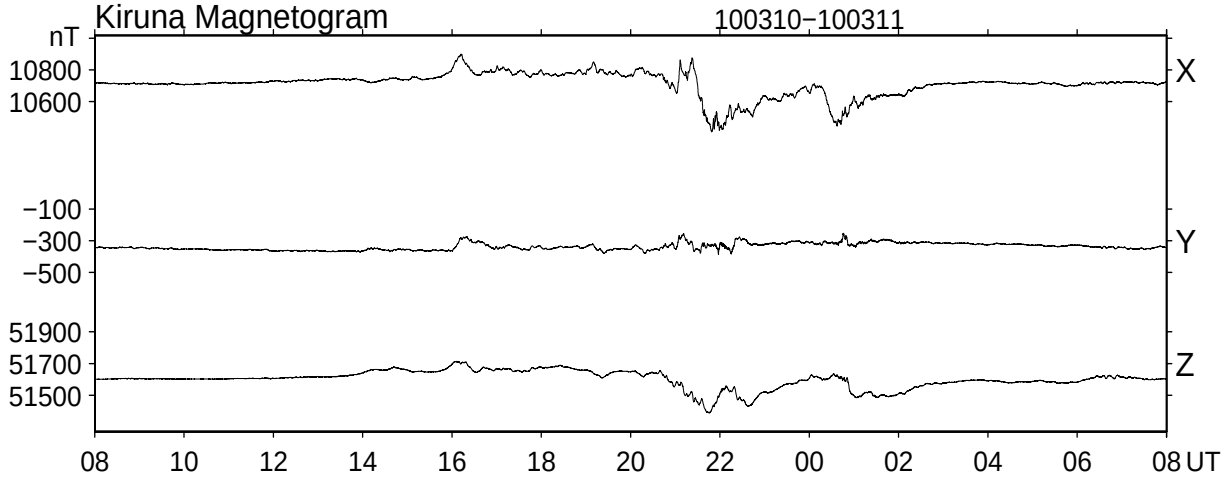

Kiruna Magnetogram
100305−100306
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
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12
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22
00
02
04
06
08 UT

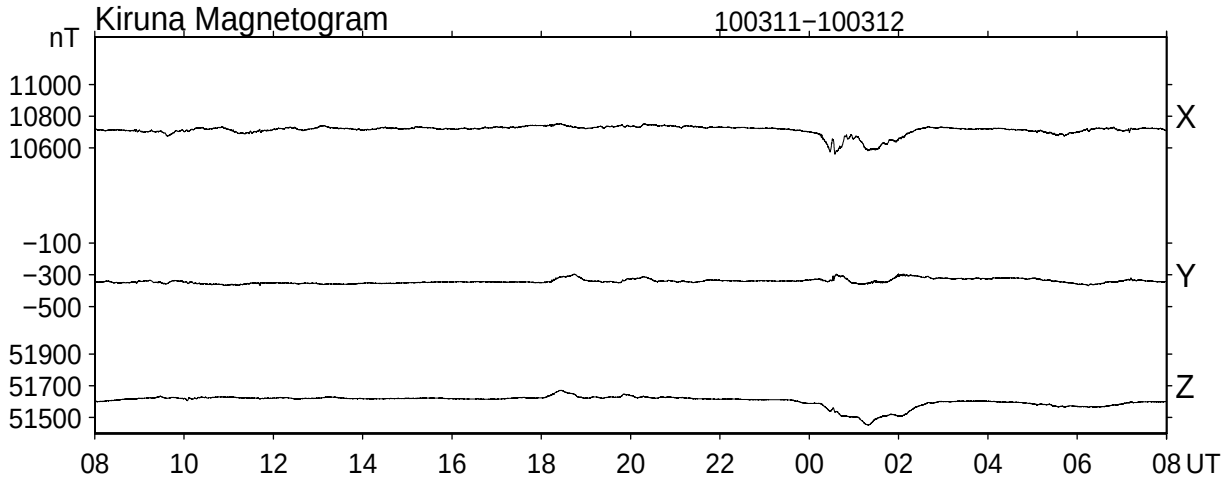

Kiruna Magnetogram
100306−100307
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08
10
12
14
16
18
20
22
00
02
04
06
08 UT

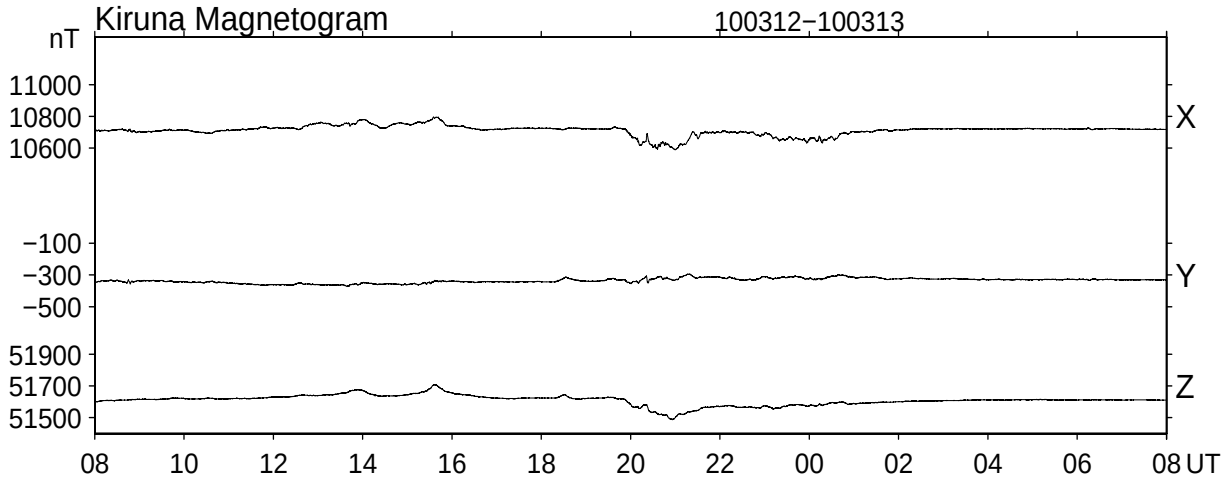

Kiruna Magnetogram
100307−100308
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08
10
12
14
16
18
20
22
00
02
04
06
08 UT

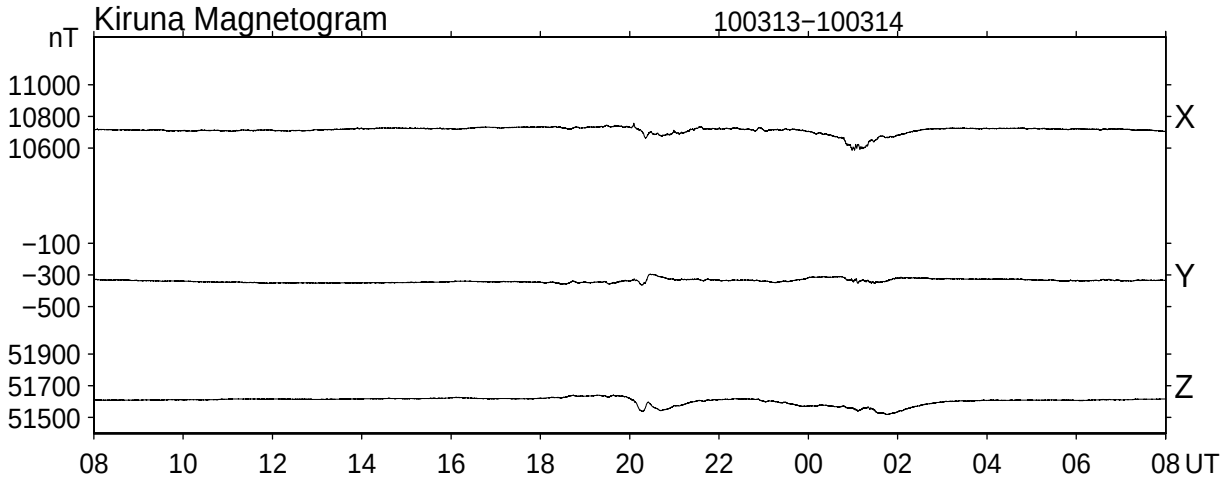

Kiruna Magnetogram
100308−100309
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
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22
00
02
04
06
08 UT

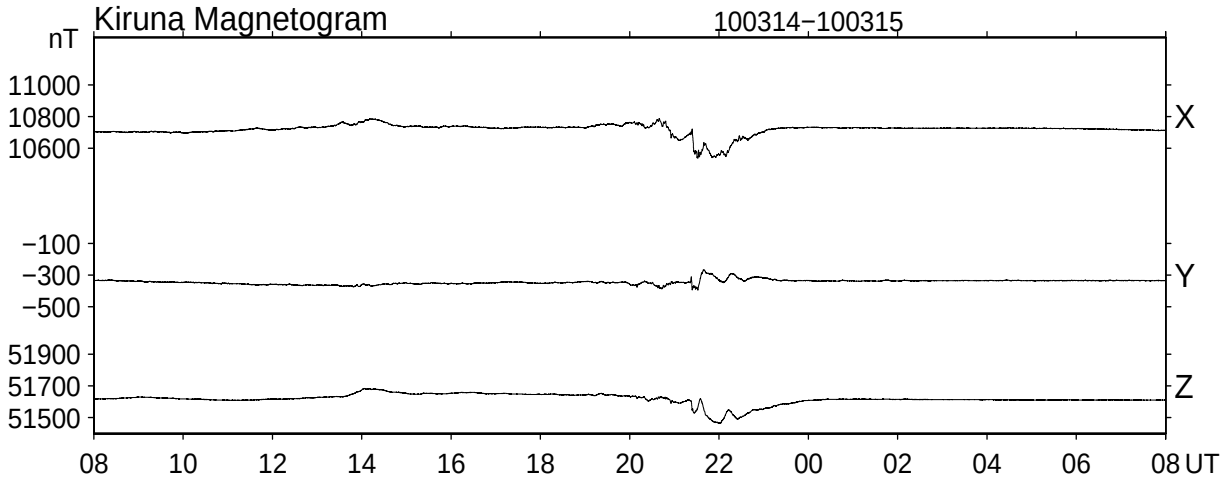

Kiruna Magnetogram
100309−100310
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

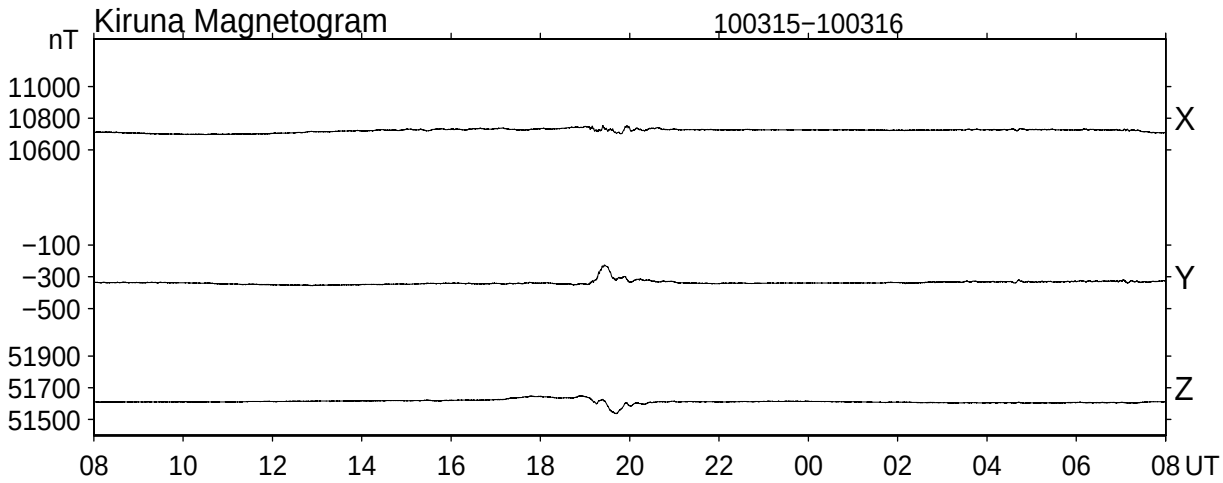

Kiruna Magnetogram
100310−100311
nT
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

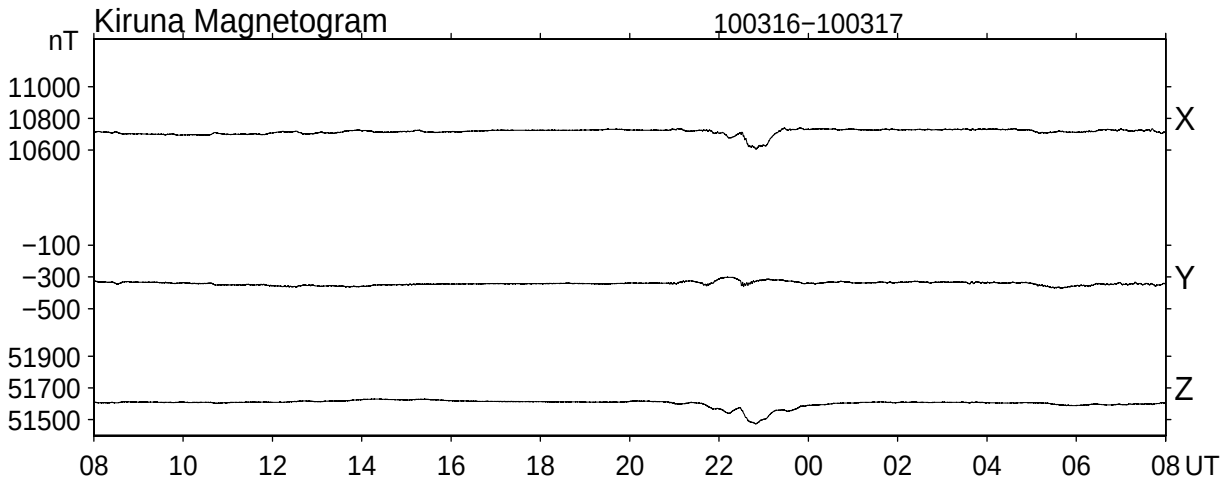

Kiruna Magnetogram
100311−100312
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

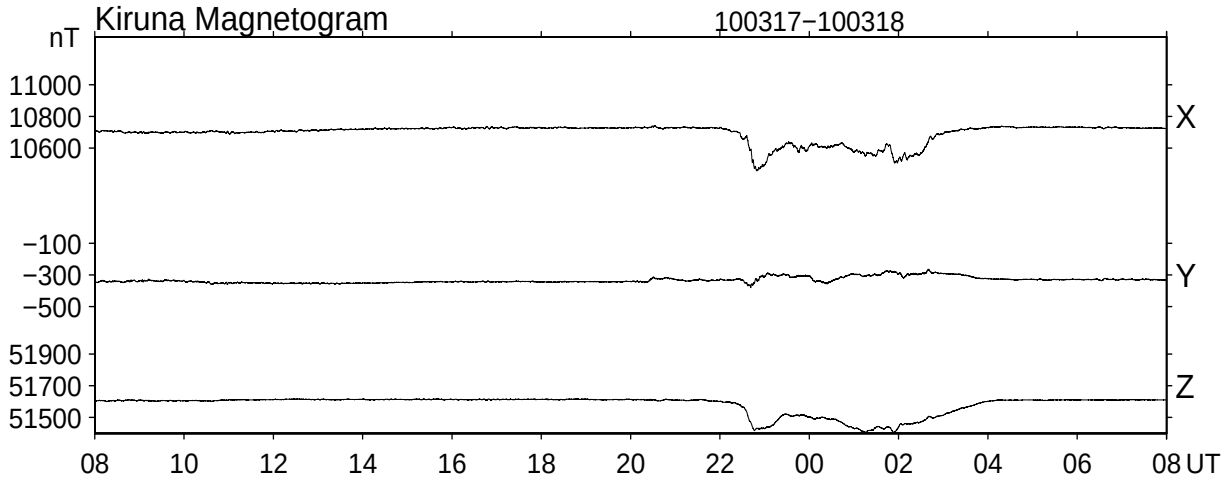

Kiruna Magnetogram
100312−100313
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

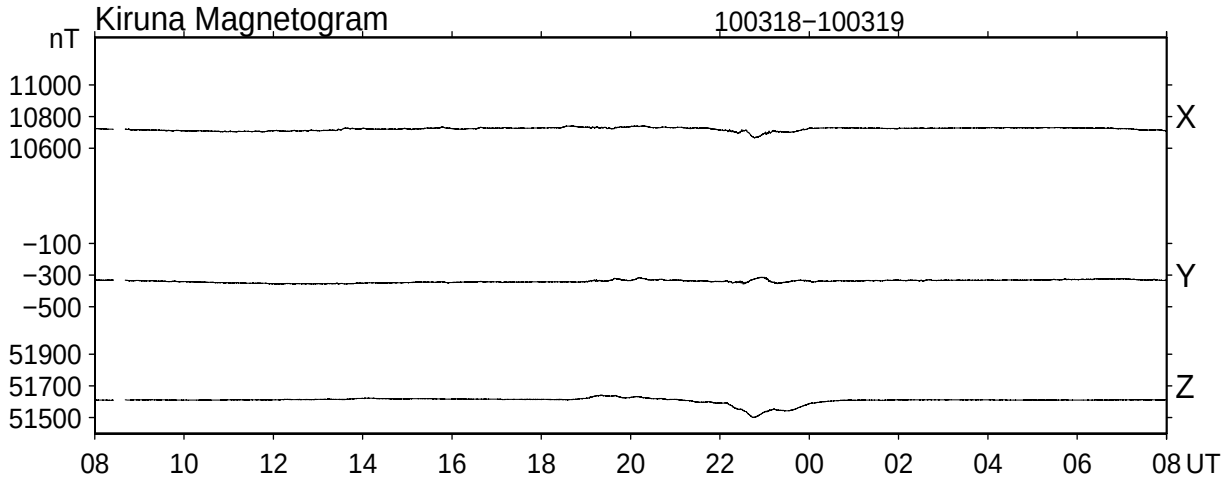

Kiruna Magnetogram
100313−100314
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

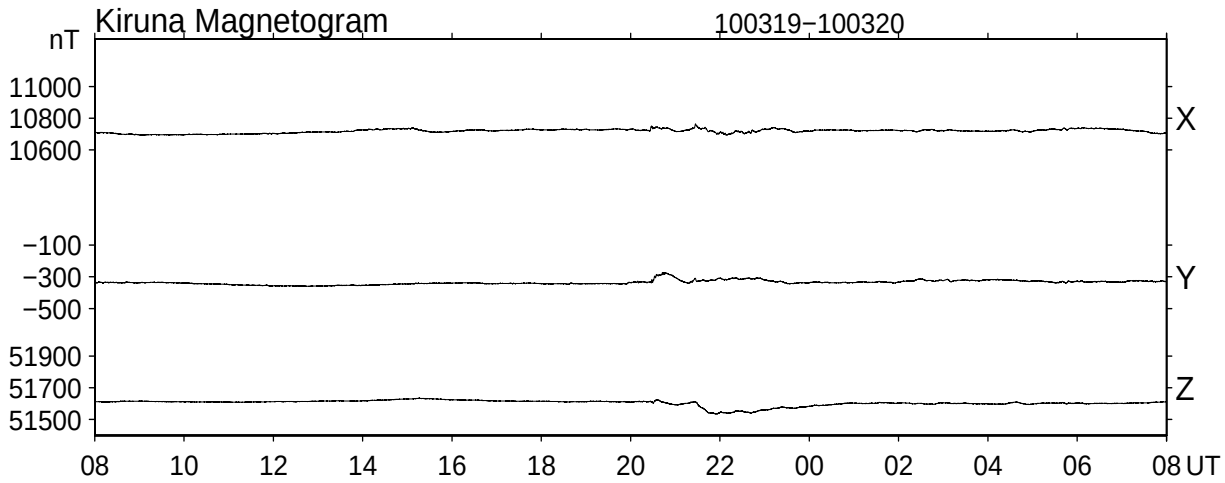

Kiruna Magnetogram
100314−100315
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

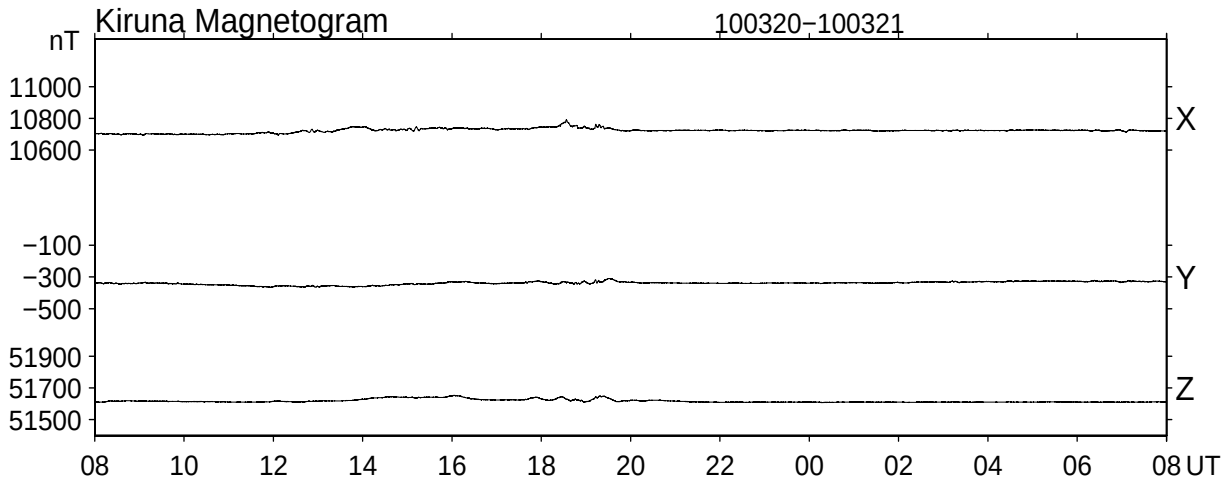

Kiruna Magnetogram
100315−100316
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

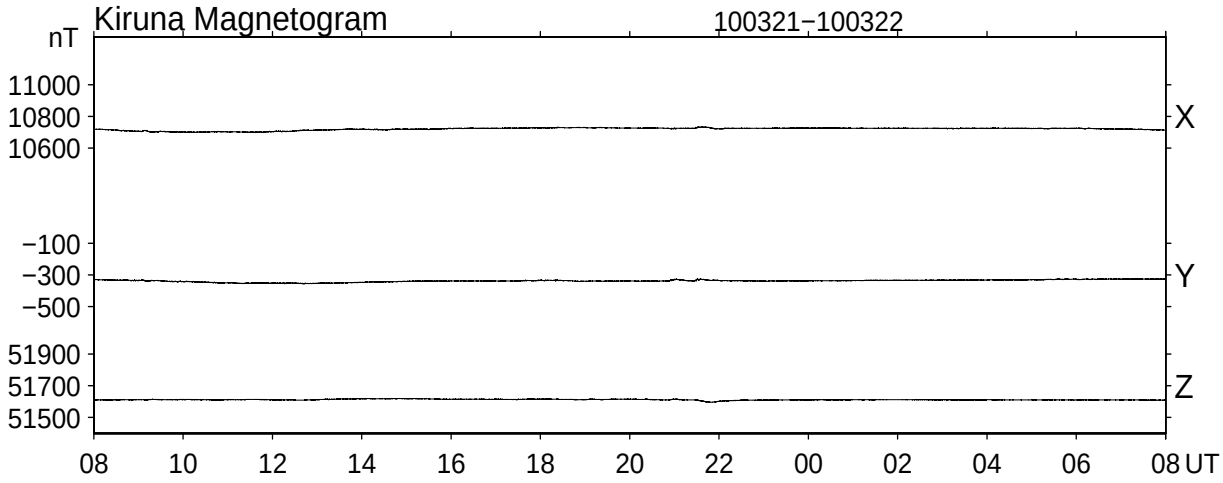

Kiruna Magnetogram
100316−100317
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

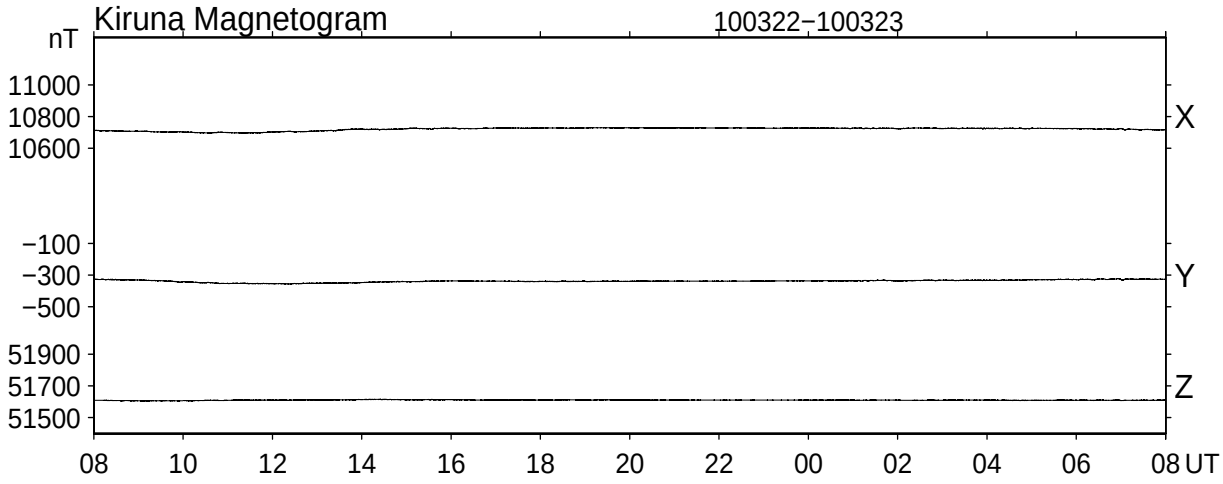

Kiruna Magnetogram
100317−100318
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

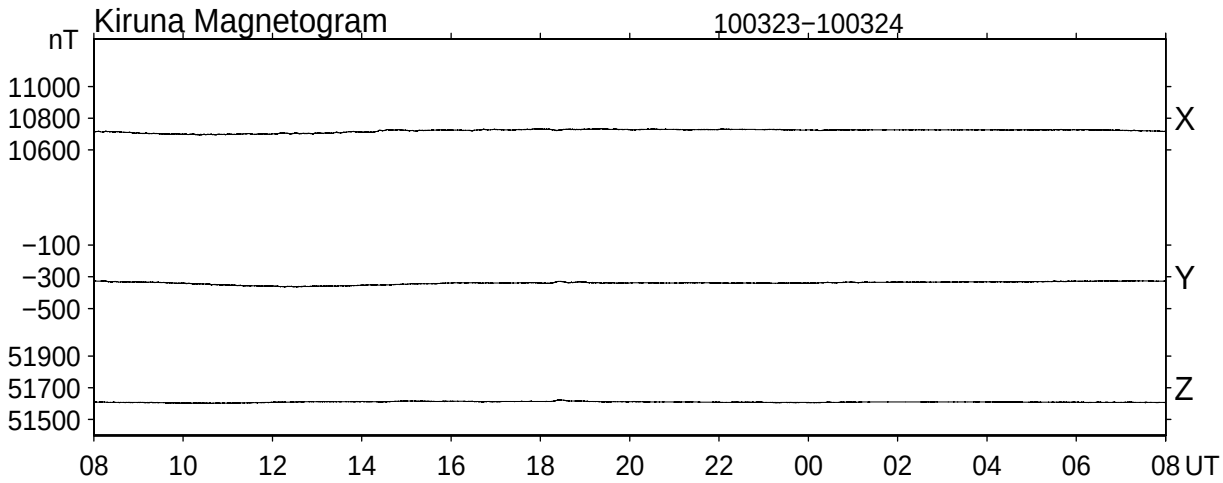

Kiruna Magnetogram
100318−100319
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

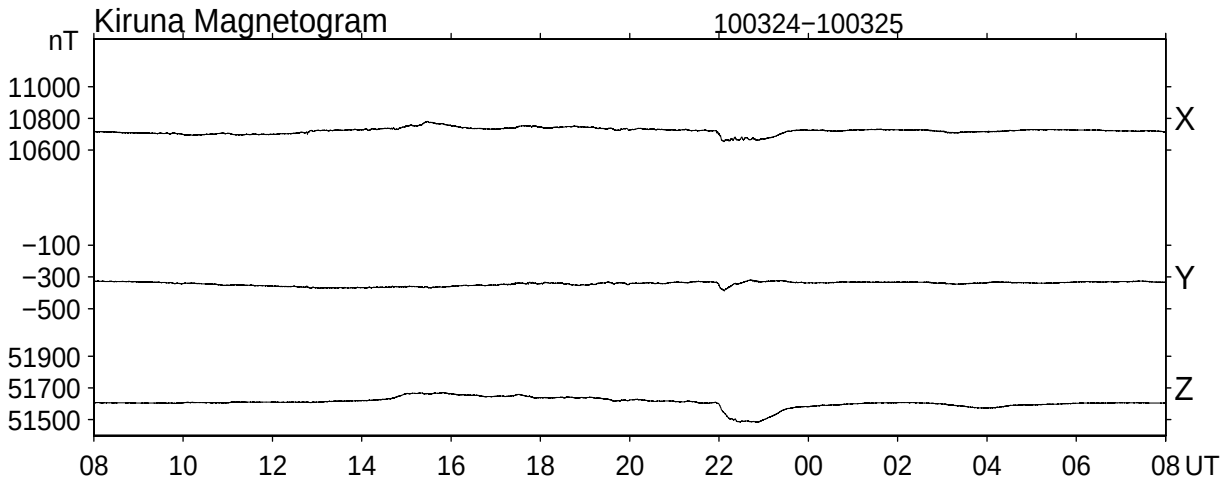

Kiruna Magnetogram
100319−100320
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

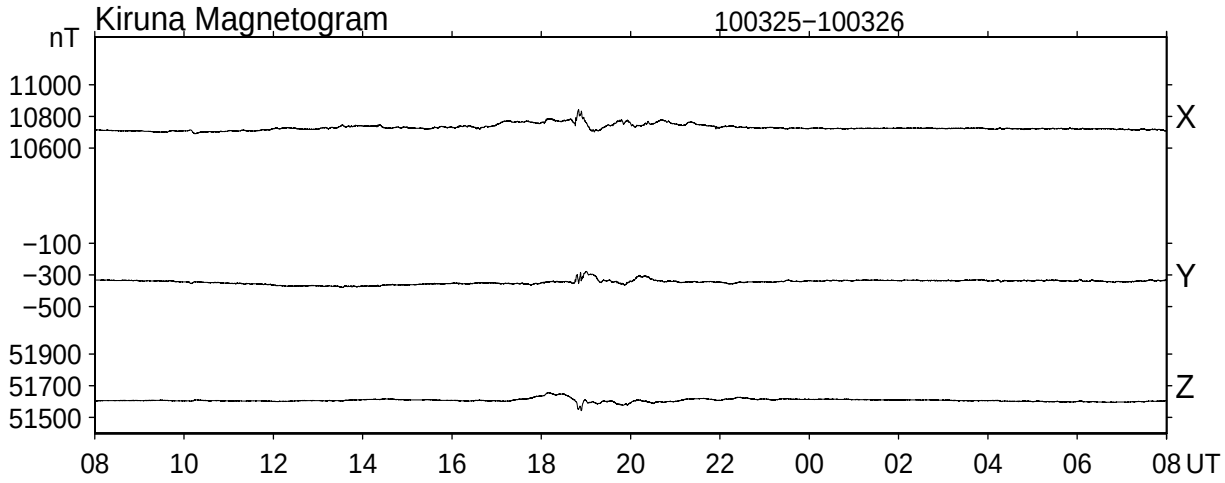

Kiruna Magnetogram
100320−100321
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

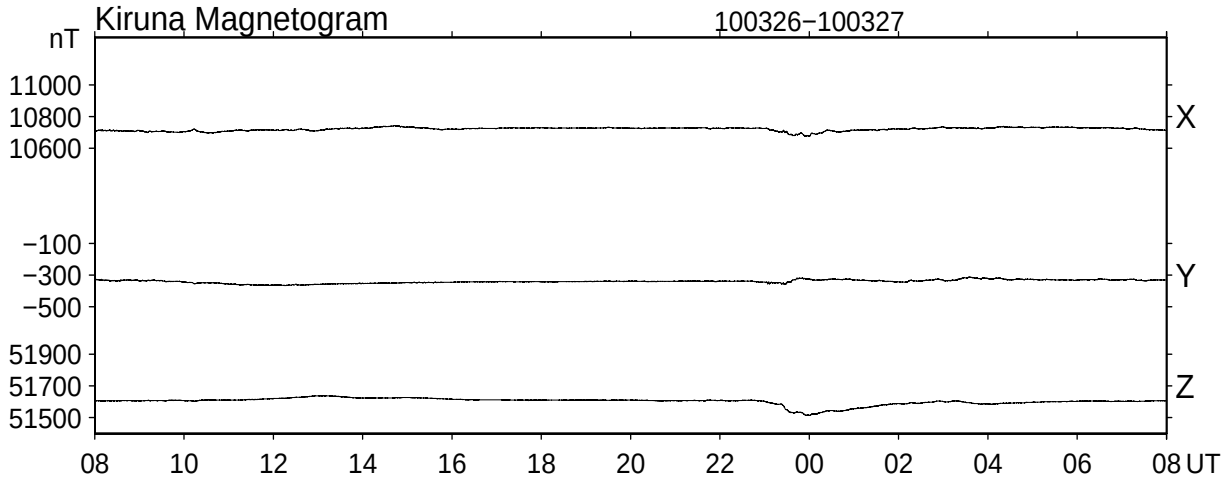

Kiruna Magnetogram
100321−100322
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

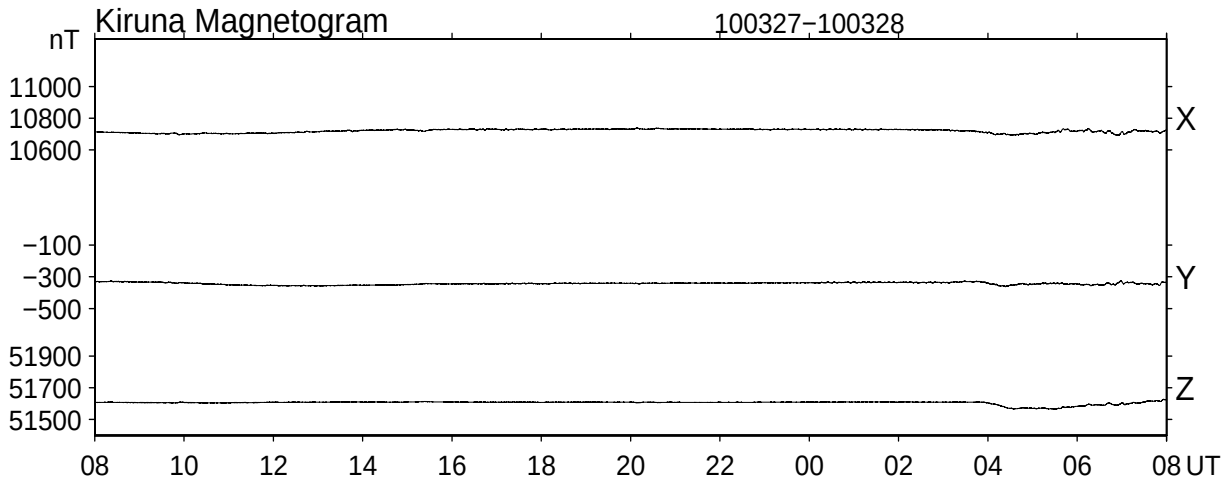

Kiruna Magnetogram
100322−100323
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

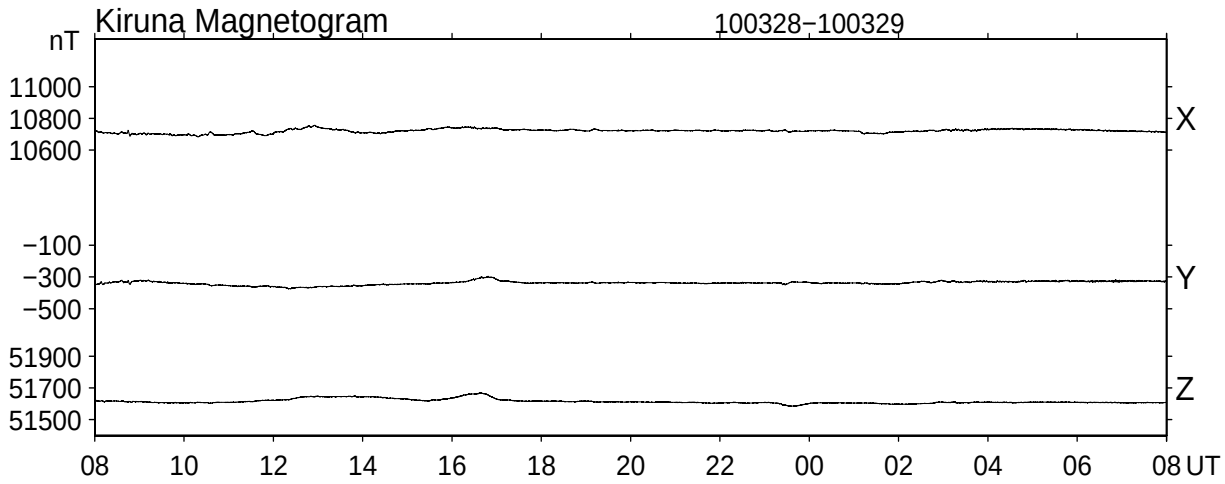

Kiruna Magnetogram
100323−100324
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

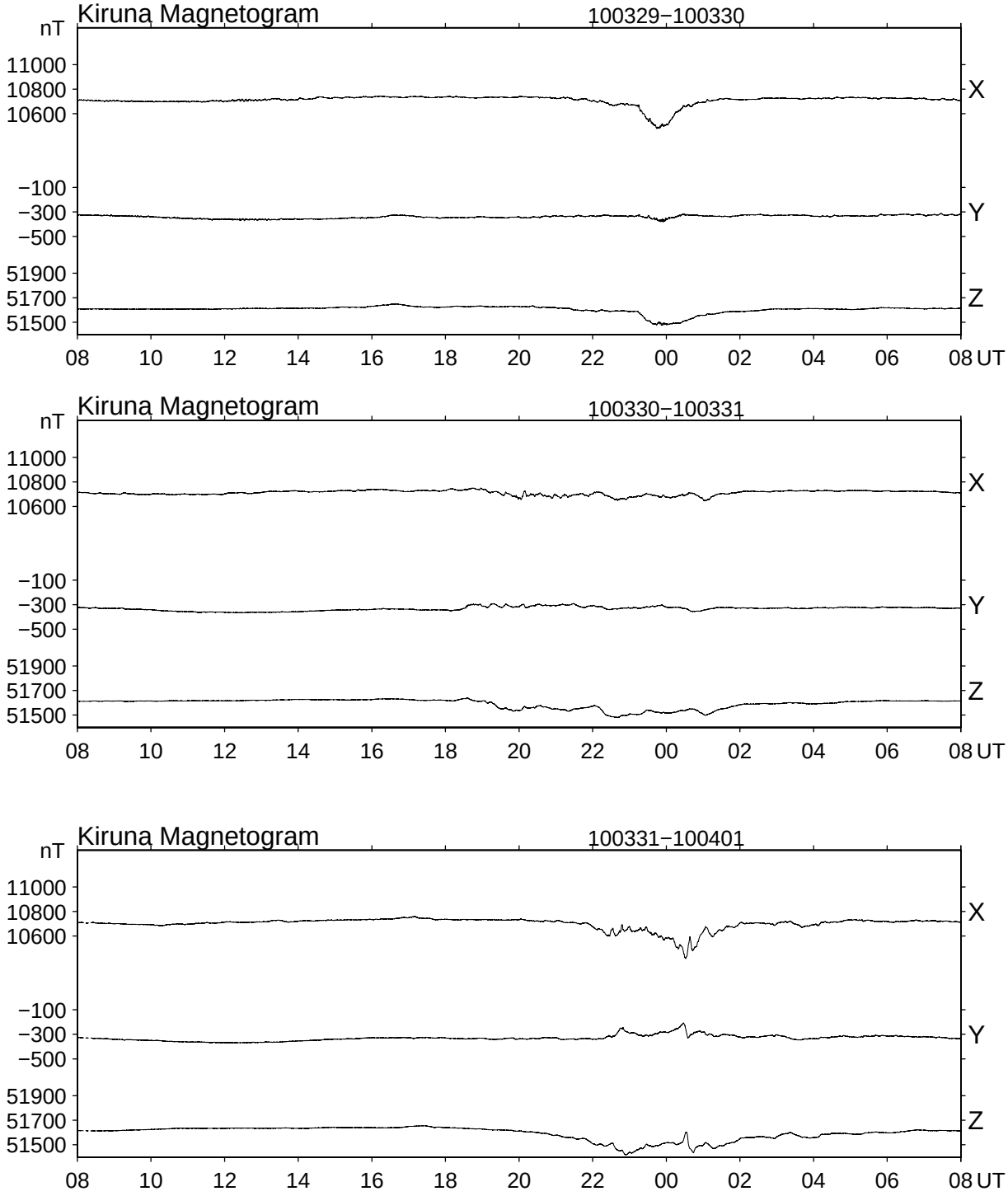

Kiruna Magnetogram
100324−100325
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT


Kiruna Magnetogram
100325−100326
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT


Kiruna Magnetogram
100326−100327
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT


Kiruna Magnetogram
100327−100328
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

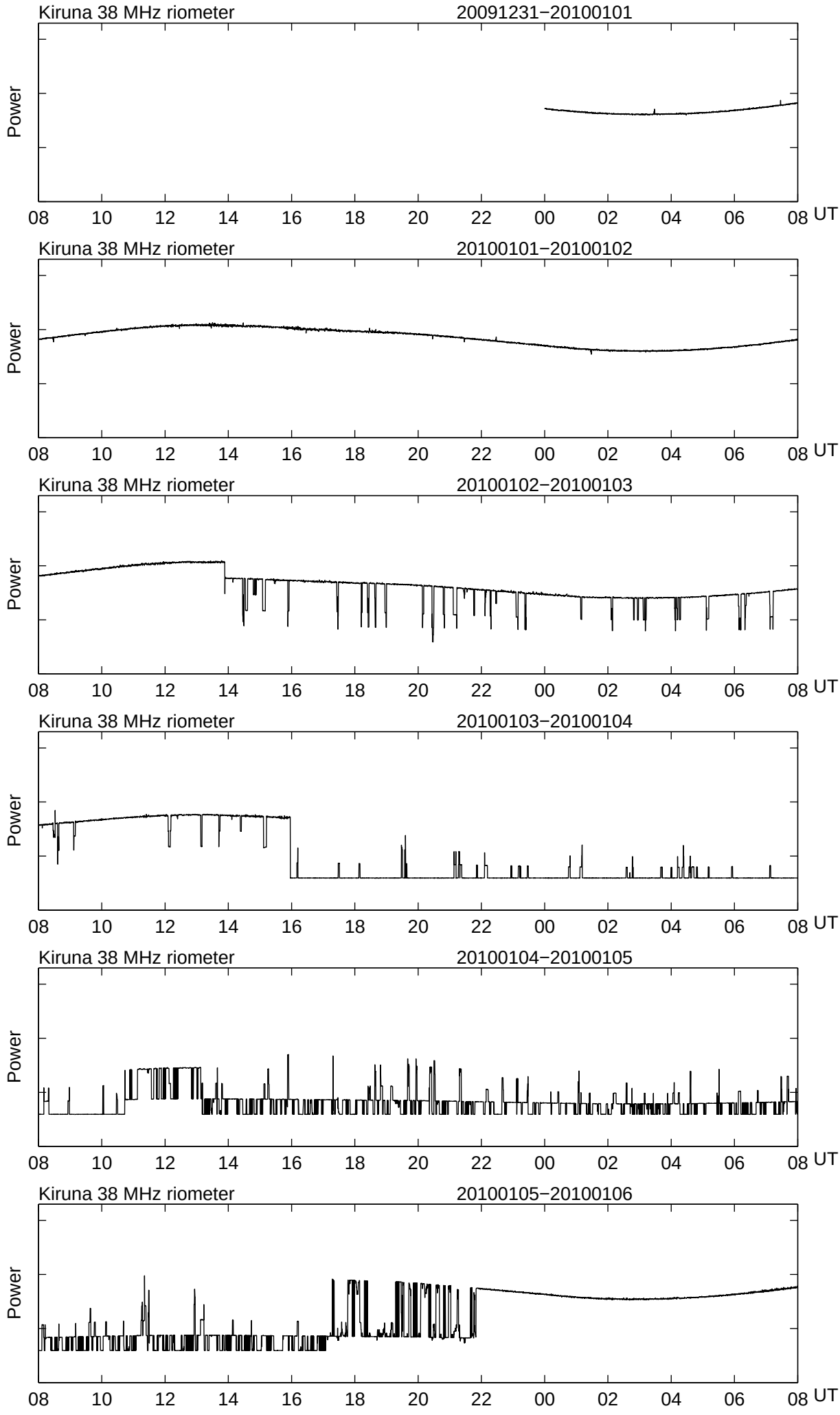

Kiruna Magnetogram
100328−100329
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

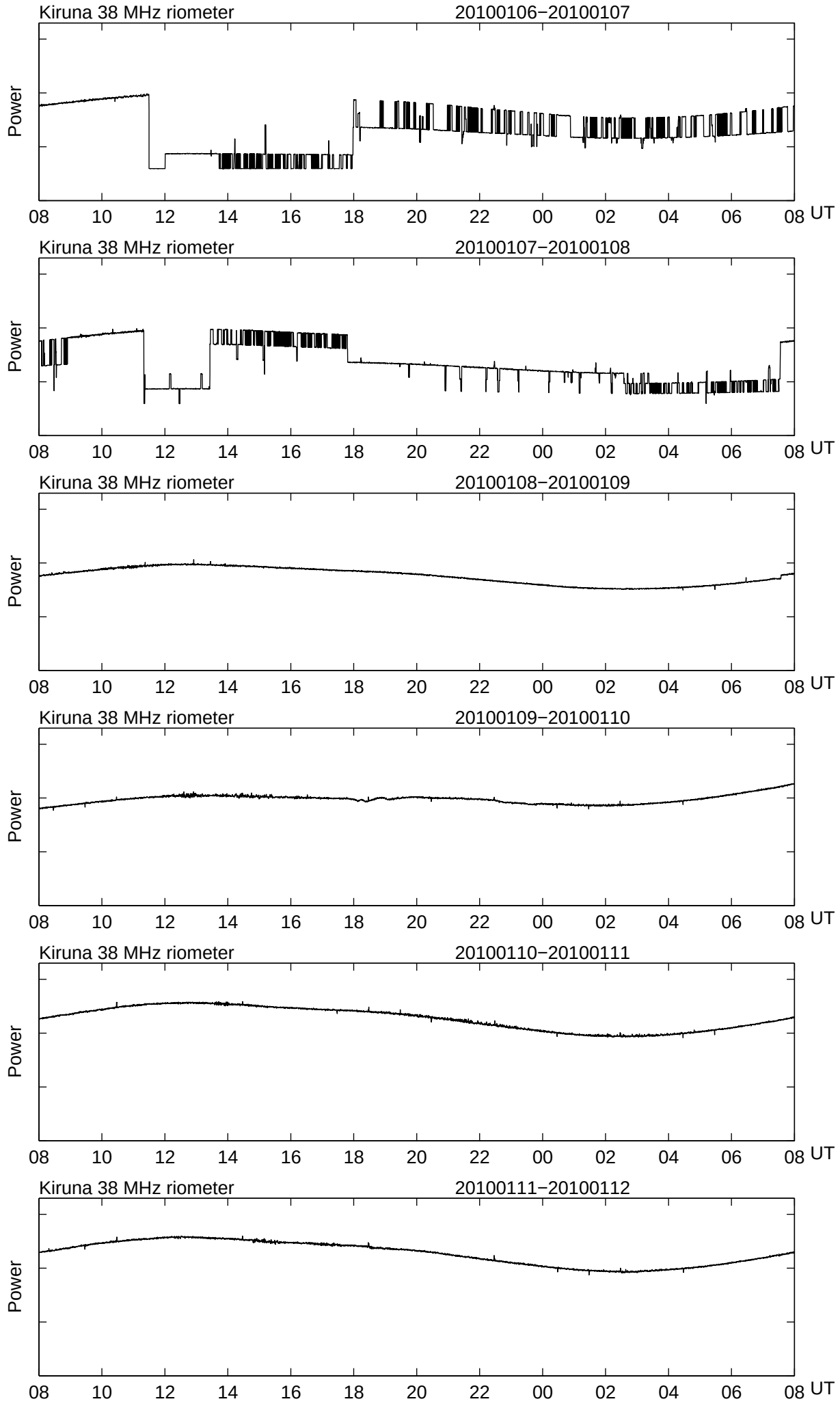

Kiruna Magnetogram
100329−100330
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08
10
12
14
16
18
20
22
00
02
04
06
08 UT
Kiruna Magnetogram
100330−100331
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08
10
12
14
16
18
20
22
00
02
04
06
08 UT
Kiruna Magnetogram
100331−100401
nT
11000
10800
10600
−100
−300
−500
51900
51700
51500
X
Y
Z
08
10
12
14
16
18
20
22
00
02
04
06
08 UT

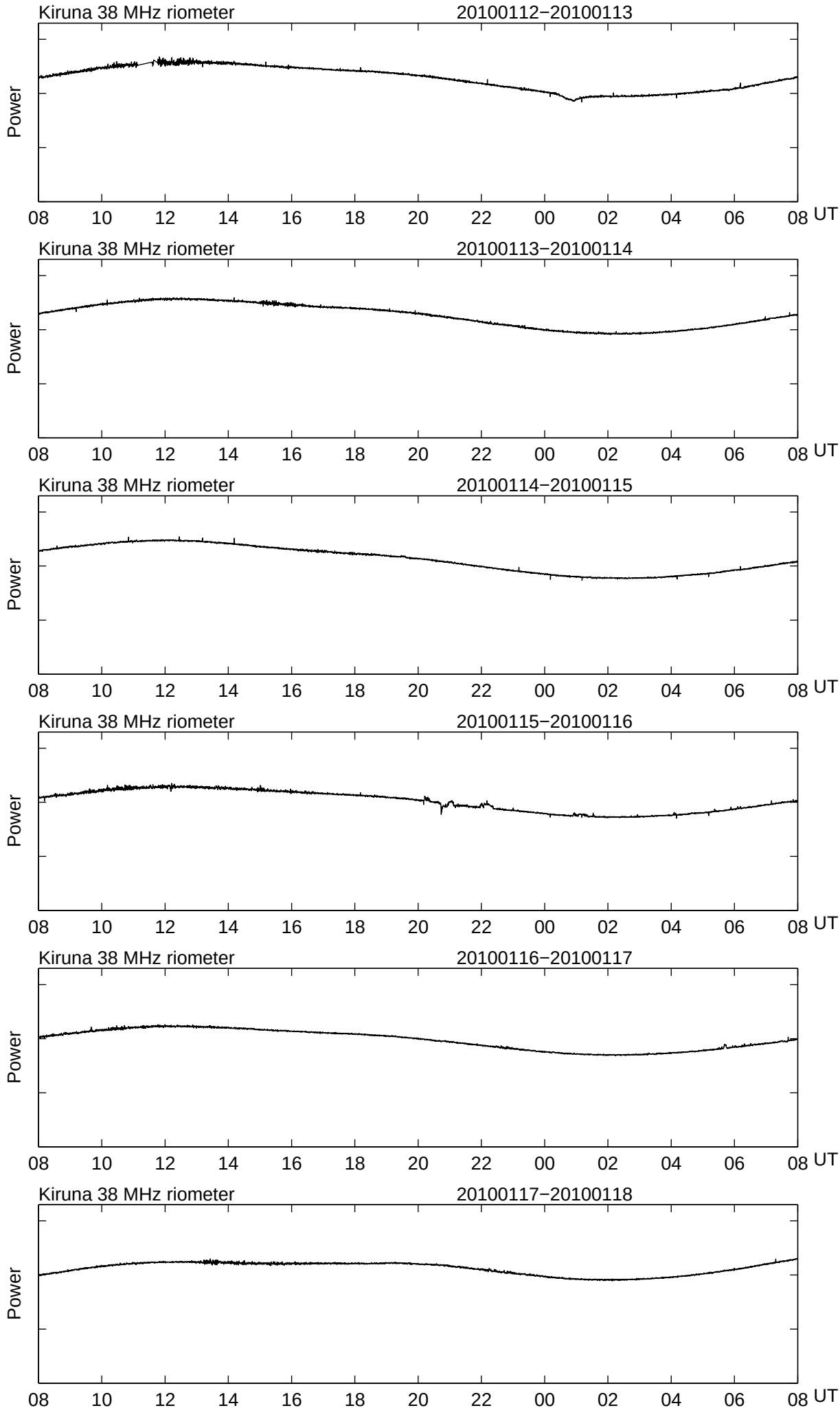
KIRUNA VERTICAL RIOMETER

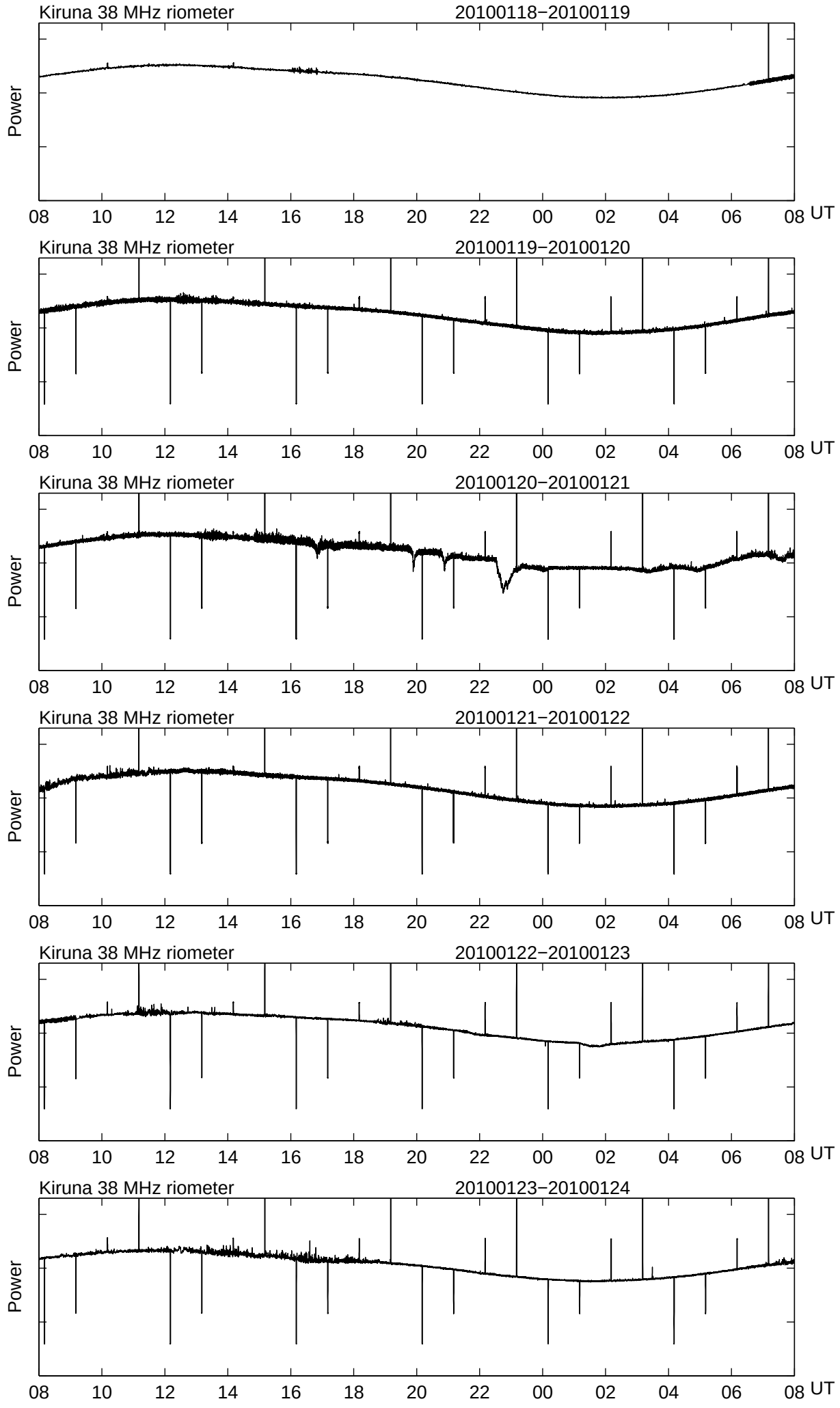
January - March 2010

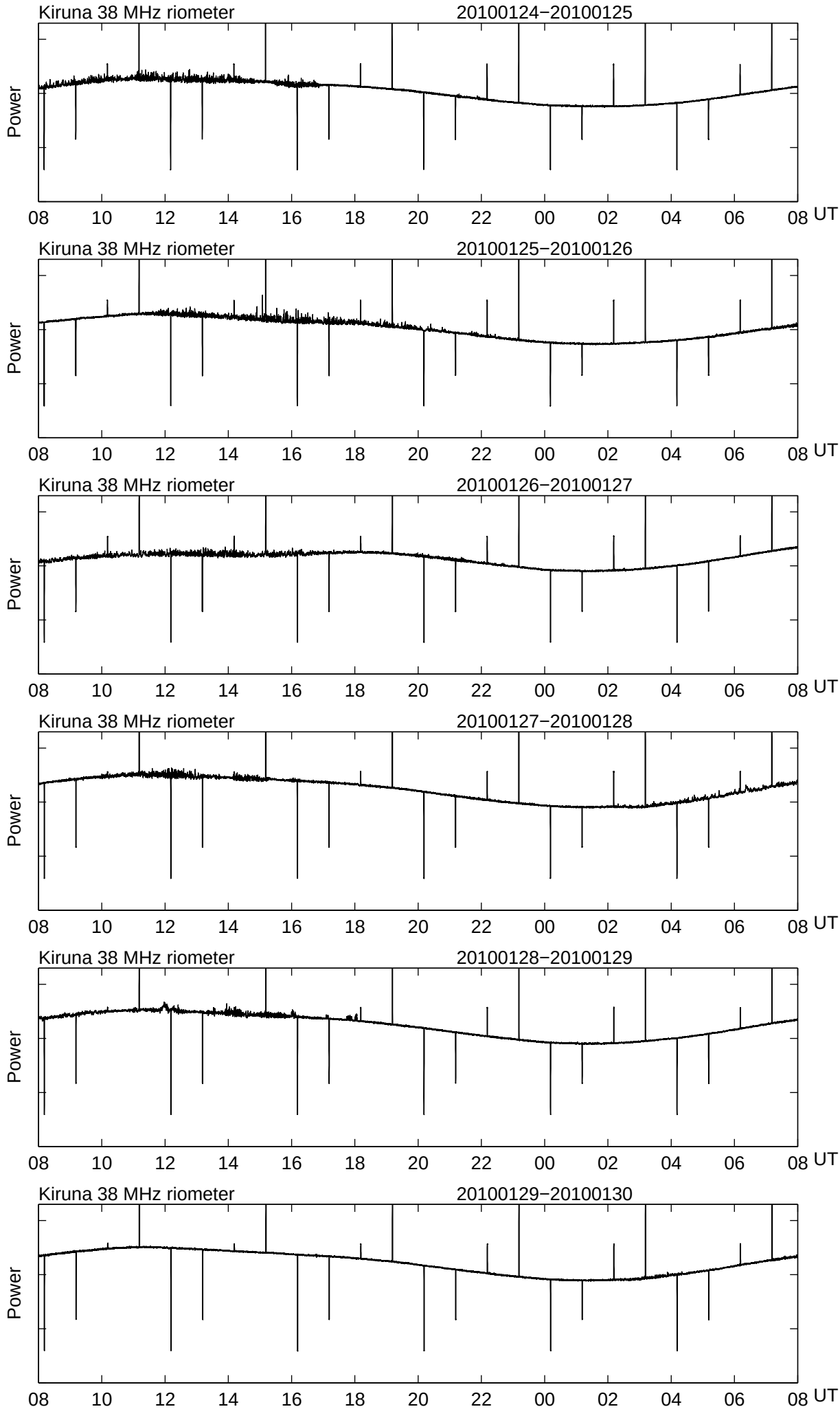
http://www.irf.se/~rio

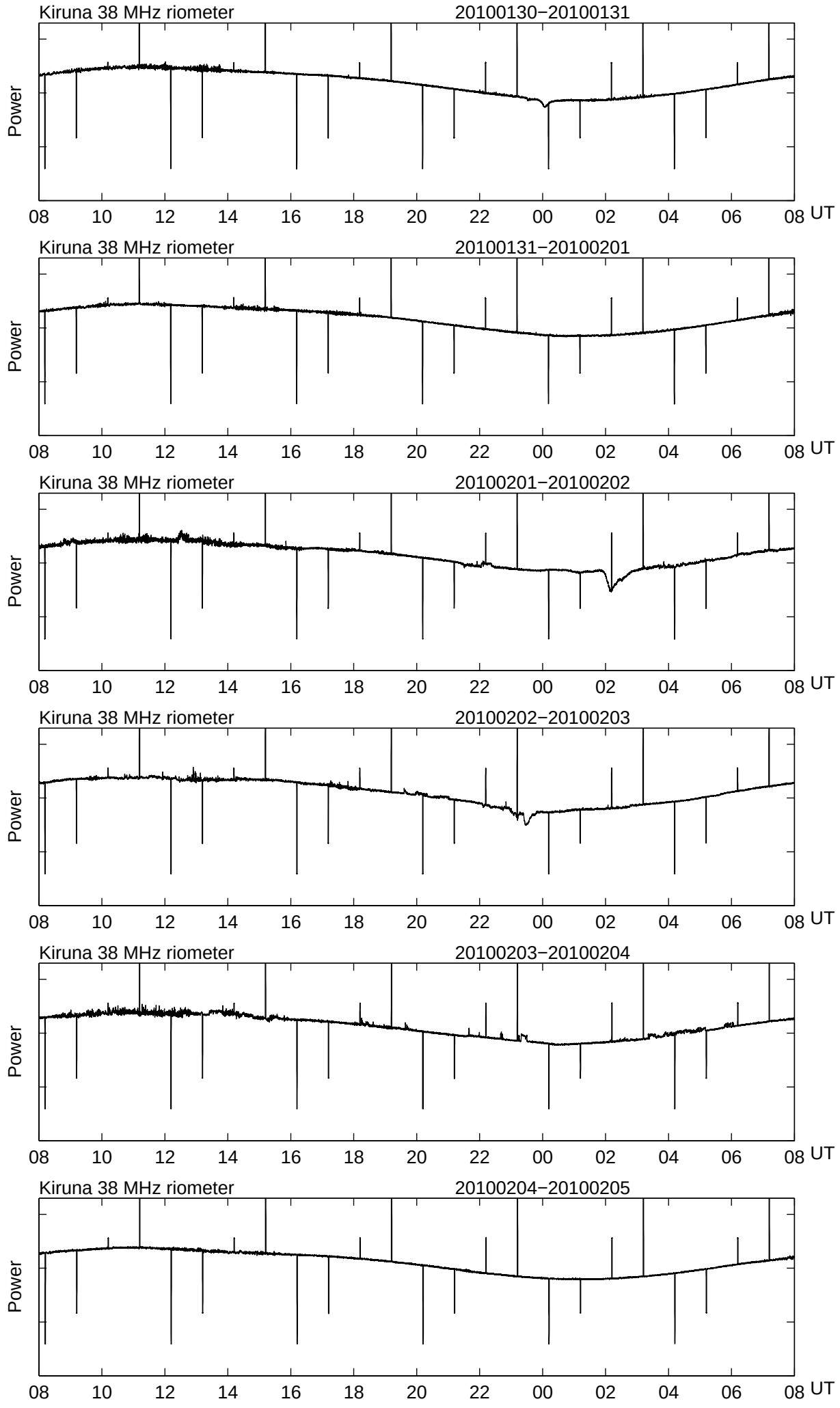

Kiruna 38 MHz riometer
20091231−20100101
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100101−20100102
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100102−20100103
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100103−20100104
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100104−20100105
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100105−20100106
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

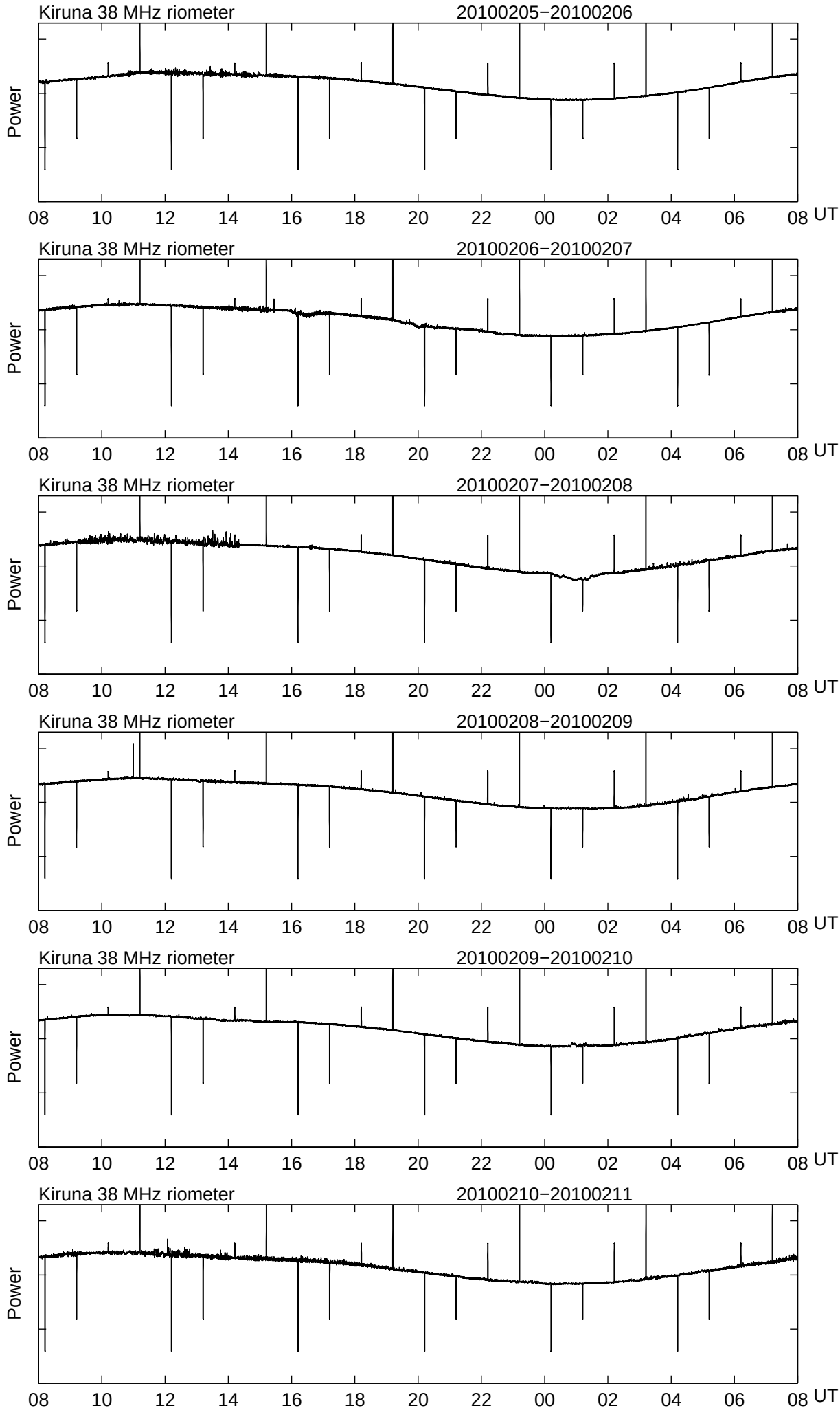

Kiruna 38 MHz riometer
20100106−20100107
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100107−20100108
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100108−20100109
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100109−20100110
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100110−20100111
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100111−20100112
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

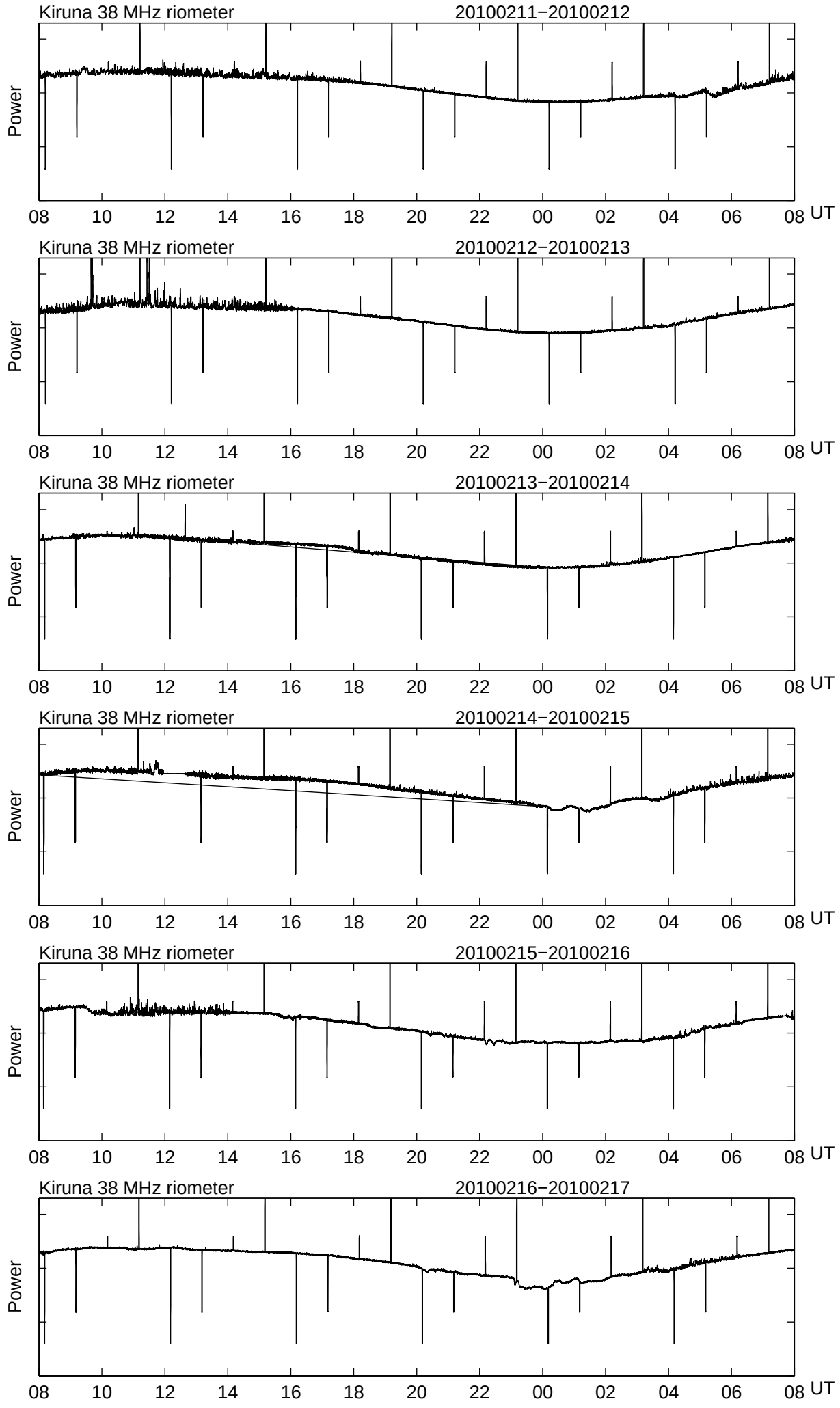

Kiruna 38 MHz riometer
20100112−20100113
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100113−20100114
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100114−20100115
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100115−20100116
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100116−20100117
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100117−20100118
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

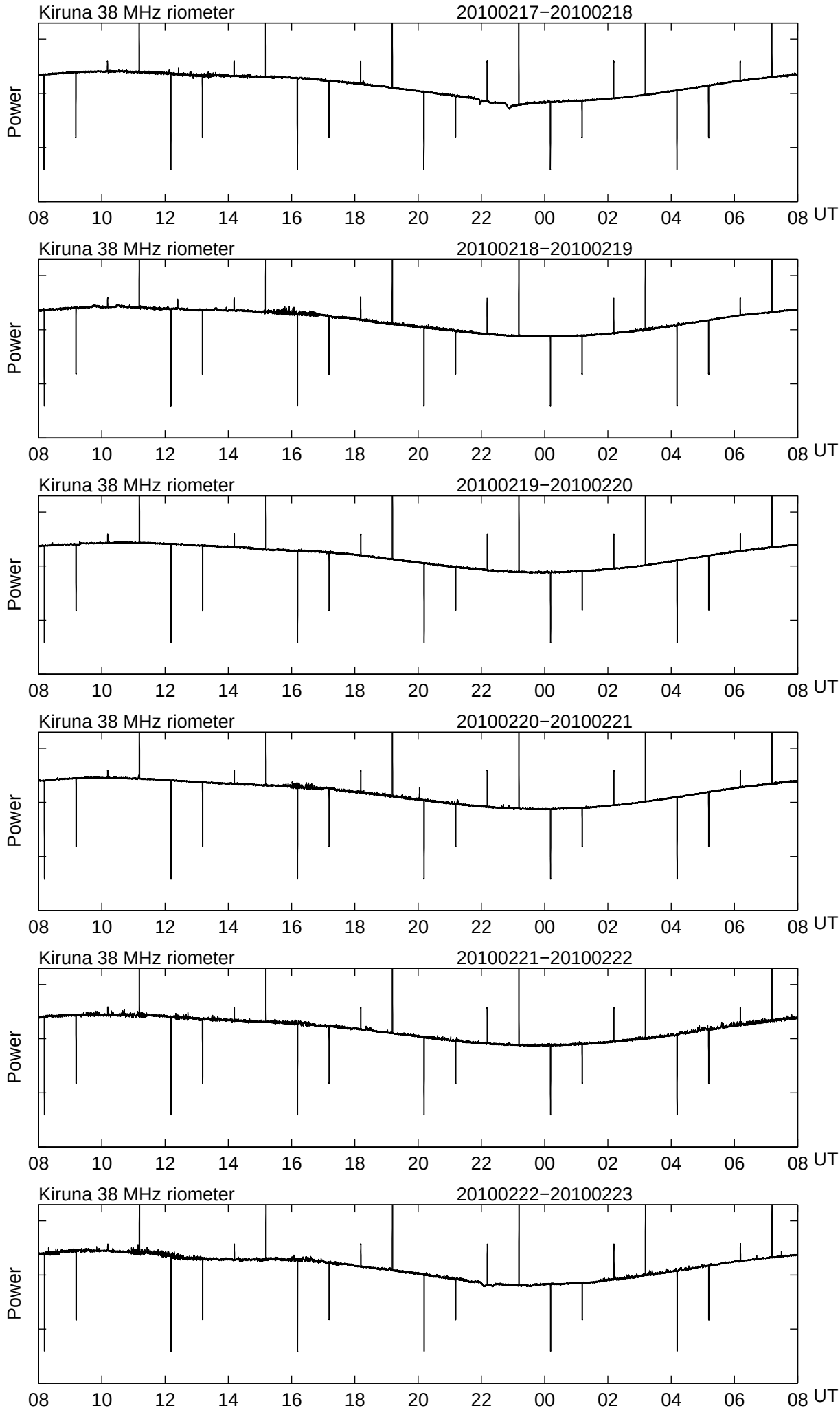

Kiruna 38 MHz riometer
20100118−20100119
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100119−20100120
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100120−20100121
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100121−20100122
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100122−20100123
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100123−20100124
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

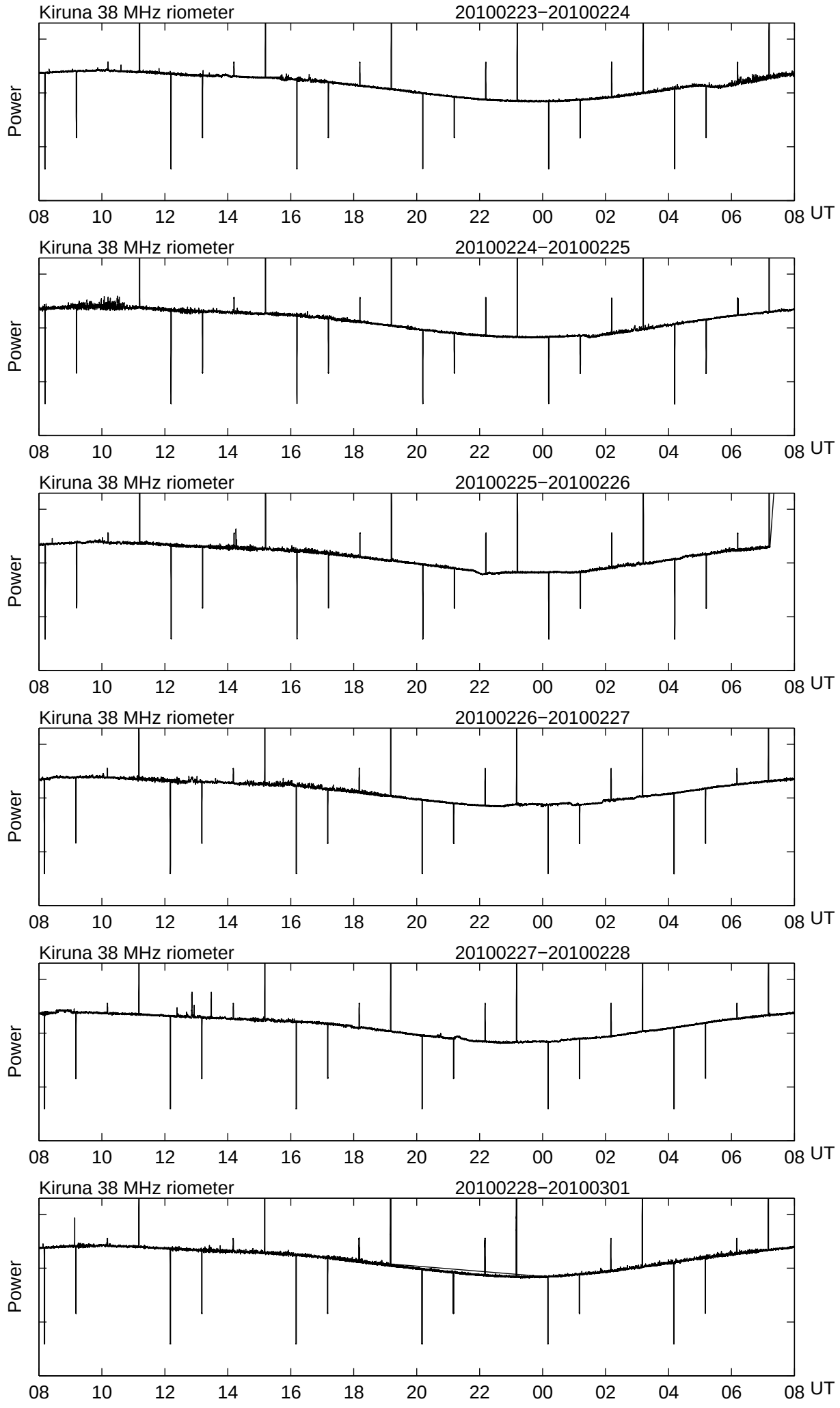

Kiruna 38 MHz riometer
20100124−20100125
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100125−20100126
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100126−20100127
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100127−20100128
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100128−20100129
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100129−20100130
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

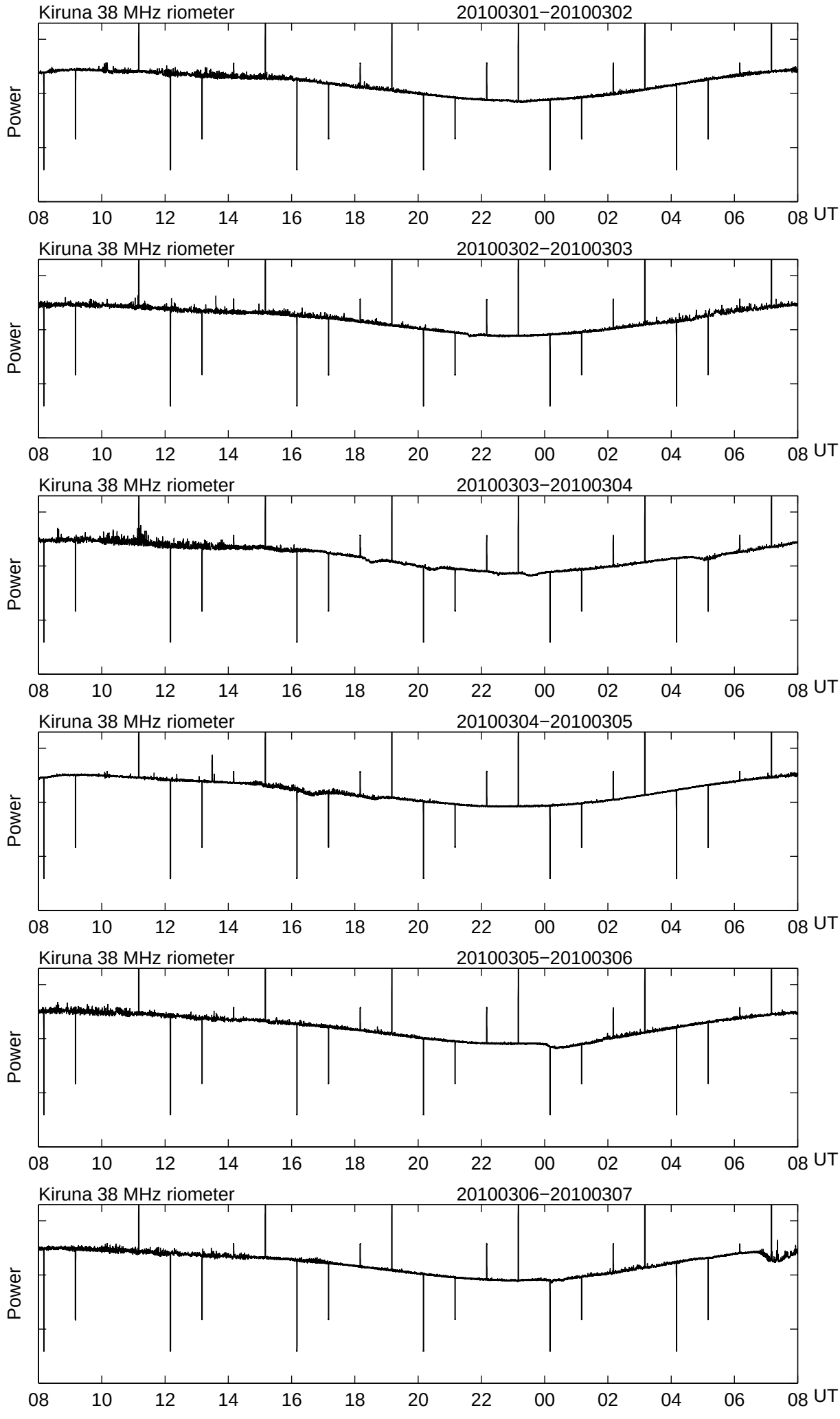

Kiruna 38 MHz riometer
20100130−20100131
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100131−20100201
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100201−20100202
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100202−20100203
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100203−20100204
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100204−20100205
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

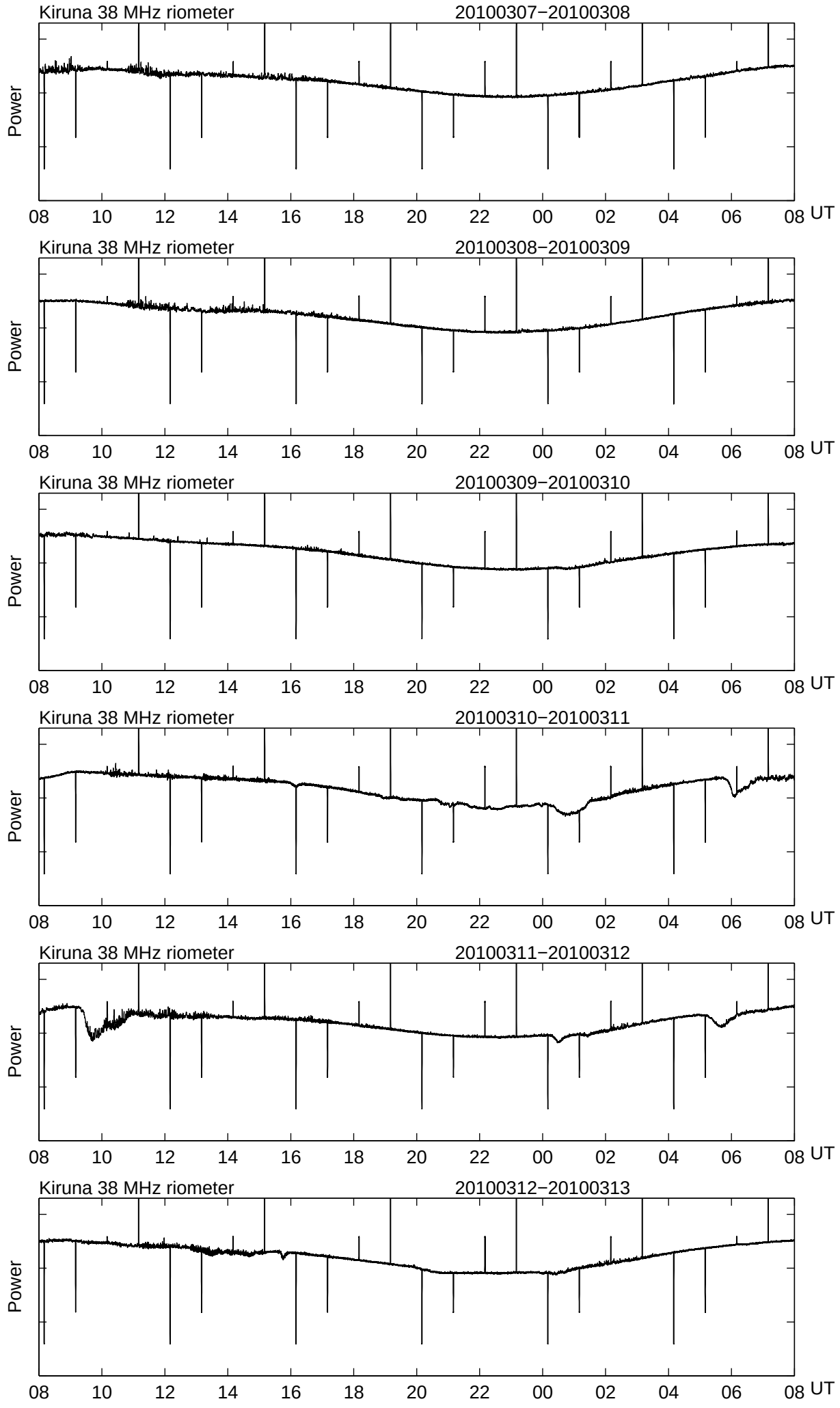

Kiruna 38 MHz riometer
20100205−20100206
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100206−20100207
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100207−20100208
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100208−20100209
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100209−20100210
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100210−20100211
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

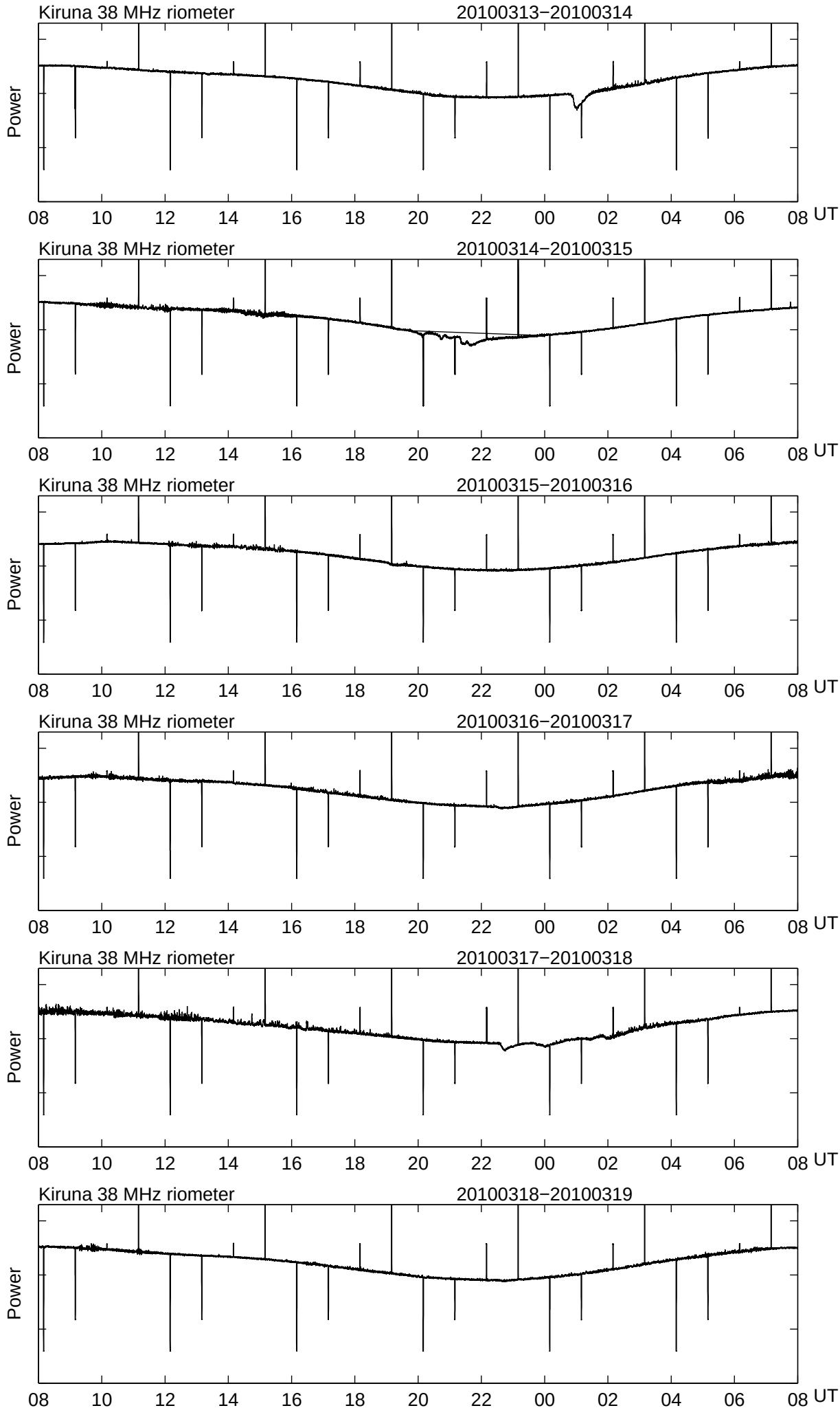

Kiruna 38 MHz riometer
20100211−20100212
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100212−20100213
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100213−20100214
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100214−20100215
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100215−20100216
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100216−20100217
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

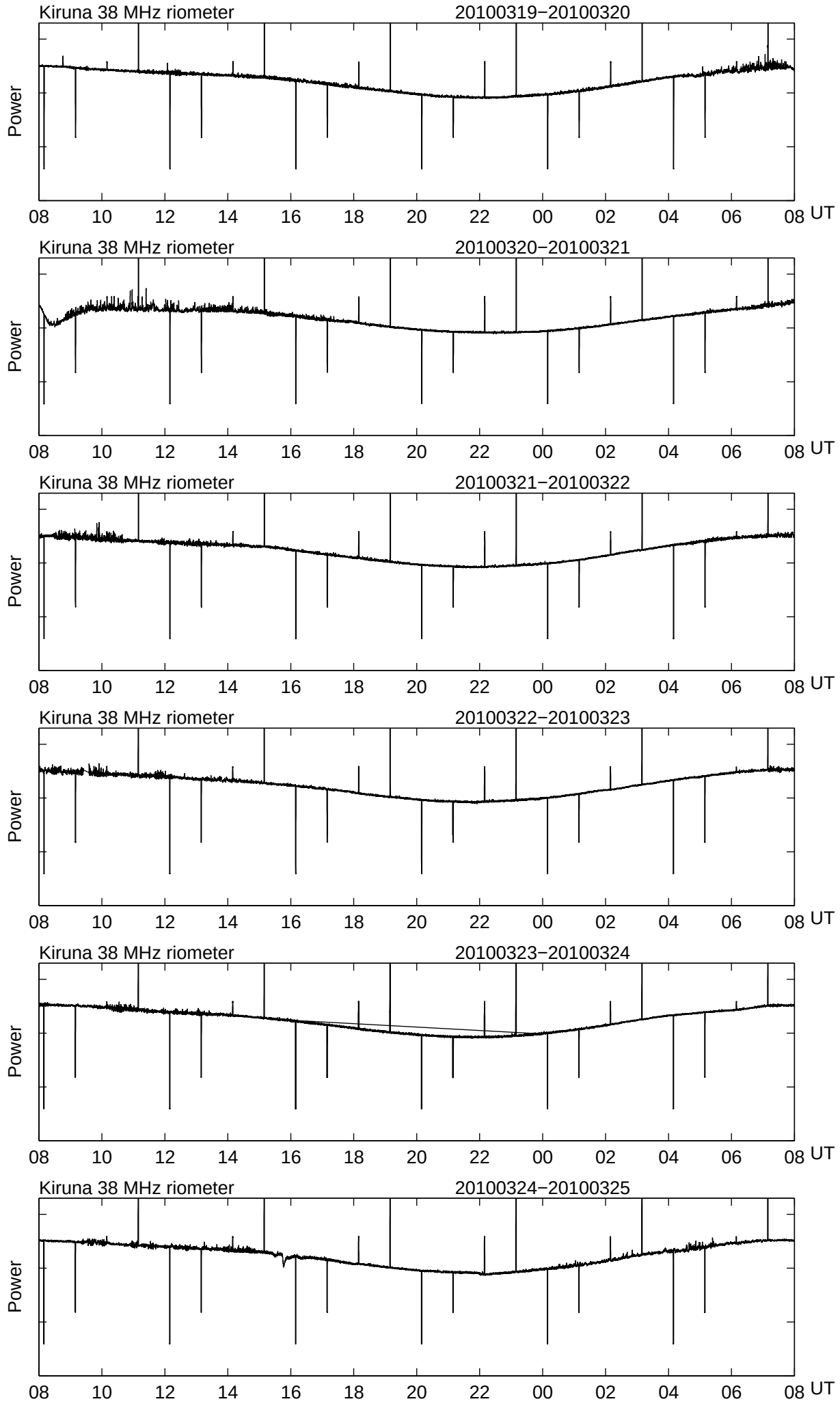

Kiruna 38 MHz riometer
20100217−20100218
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100218−20100219
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100219−20100220
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100220−20100221
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100221−20100222
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100222−20100223
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

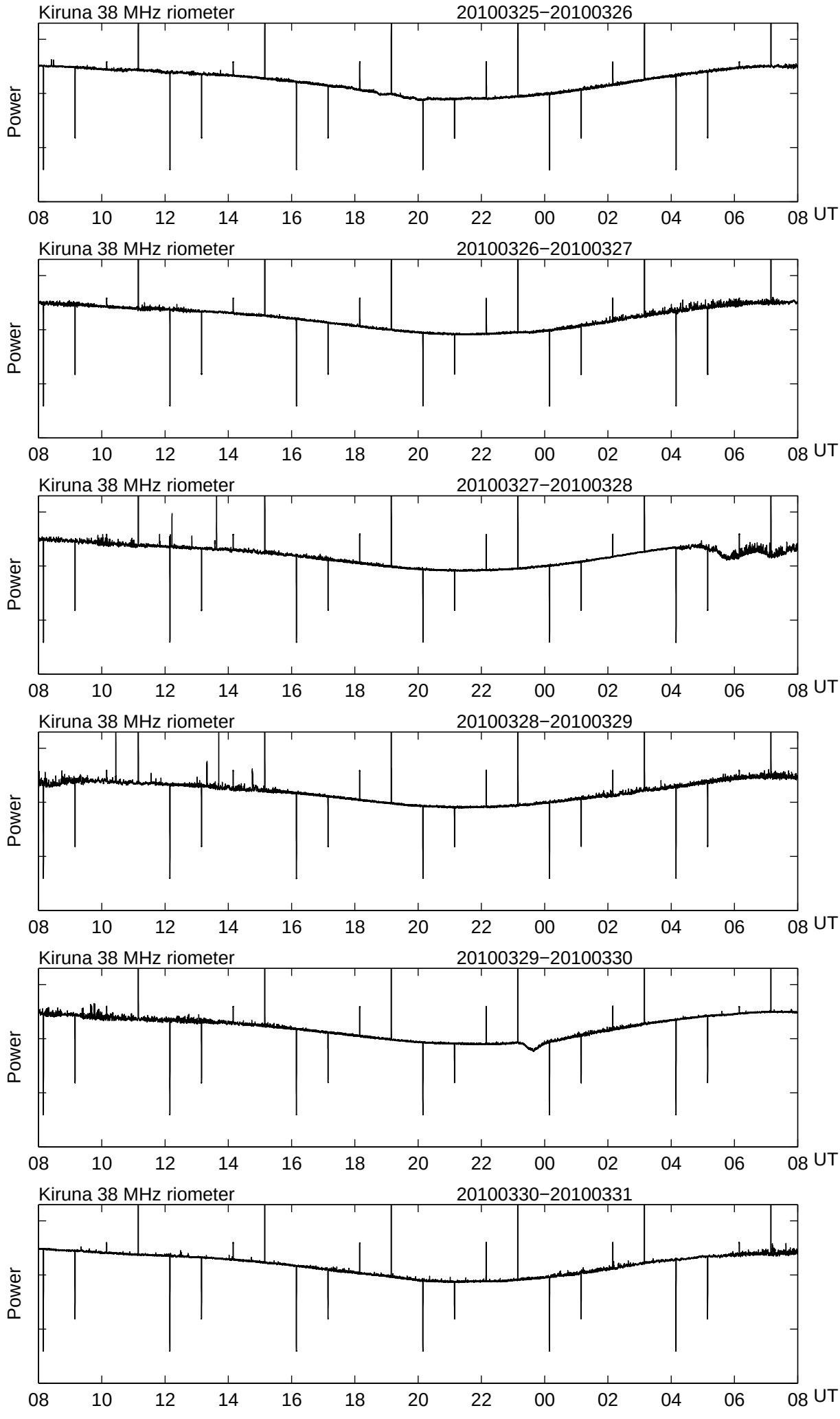

Kiruna 38 MHz riometer
20100223−20100224
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100224−20100225
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100225−20100226
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100226−20100227
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100227−20100228
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100228−20100301
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT

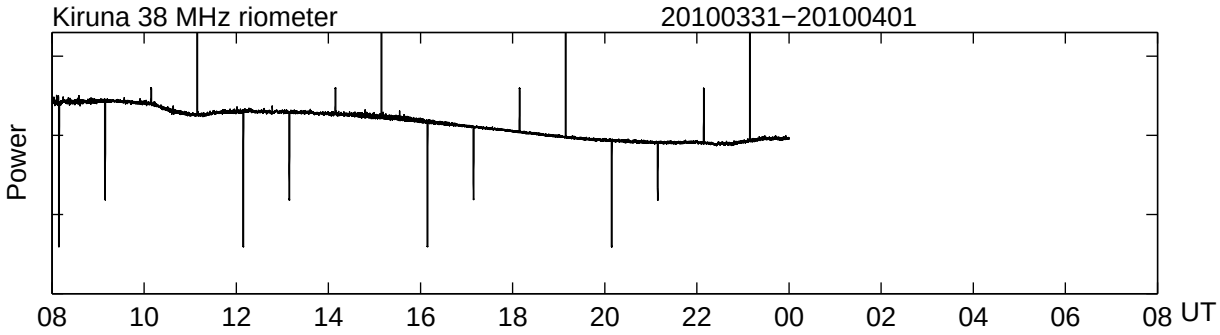

Kiruna 38 MHz riometer
20100301−20100302
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100302−20100303
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100303−20100304
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100304−20100305
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100305−20100306
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100306−20100307
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT


Kiruna 38 MHz riometer
20100307−20100308
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100308−20100309
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100309−20100310
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100310−20100311
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100311−20100312
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100312−20100313
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT


Kiruna 38 MHz riometer
20100313−20100314
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100314−20100315
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100315−20100316
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100316−20100317
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100317−20100318
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100318−20100319
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT


Kiruna 38 MHz riometer
20100319−20100320
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100320−20100321
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100321−20100322
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100322−20100323
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100323−20100324
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100324−20100325
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT


Kiruna 38 MHz riometer
20100325−20100326
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100326−20100327
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100327−20100328
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100328−20100329
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100329−20100330
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT
Kiruna 38 MHz riometer
20100330−20100331
Power
08 10 12 14 16 18 20 22 00 02 04 06 08 UT


Kiruna 38 MHz riometer
20100331−20100401
Power
08
10
12
14
16
18
20
22
00
02
04
06
08
UT



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