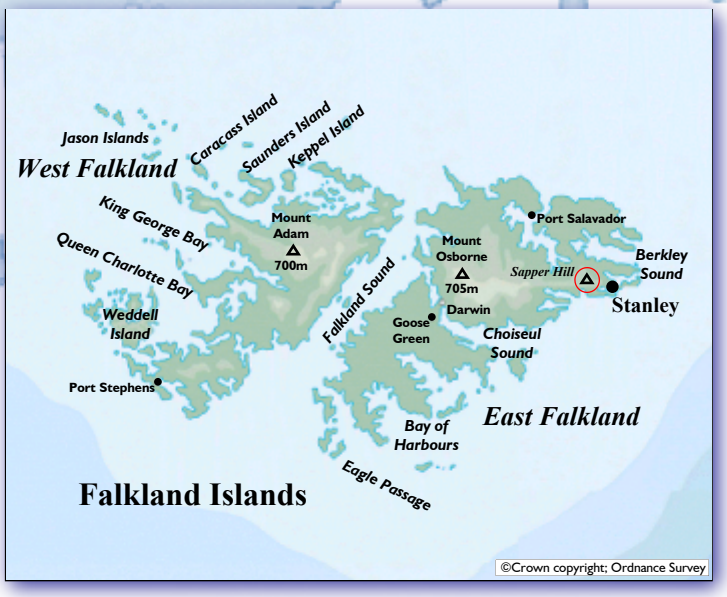
BRITISH GEOLOGICAL SURVEY

Port Stanley Observatory *Monthly Magnetic Bulletin*

October 2006

06/10/PS



British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

PORT STANLEY OBSERVATORY MAGNETIC DATA

1.1 Introduction

Port Stanley Observatory was installed by BGS with financial support from a consortium of oil companies and became operational in February 1994.

This bulletin is published to meet the needs of users of geomagnetic data. Magnetic observatory data is presented as a series of plots of one-minute, hourly and daily values, followed by a tabulation of monthly values. The operation of the observatory and presentation of data are described in the rest of this section.

Enquiries about the data should be addressed to:

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British Geological Survey
Murchison House, West Mains Road
Edinburgh EH9 3LA
Scotland, UK

Tel: +44 (0) 131 667 1000
Fax: +44 (0) 131 650 0265
E-mail: orba@bgs.ac.uk
Internet: *www.geomag.bgs.ac.uk*

1.2 Position

Port Stanley Observatory, one of the geomagnetic observatories maintained and operated by the British Geological Survey (BGS), is situated on a site at Sapper Hill near Port Stanley in the Falkland Islands.
The observatory co-ordinates are:

Geographic:	*51°42.2′S*	*302°06.6′E*
Geomagnetic:	*41°39.8′S*	*10°48.2′E*
Height above mean sea level:		*135 m*

The geomagnetic co-ordinates are calculated using the 10th generation International Geomagnetic Reference Field at epoch 2006.5.

1.3 The Observatory Operation

1.3.1 GDAS

The observatory operates under the control of the Geomagnetic Data Acquisition System (GDAS), developed by BGS, which was installed in August 2002. The system operates under the control of data acquisition software running on QNX computers, which control the data logging and communications.

There are two sets of sensors used for making magnetic measurements. A triaxial linear-core fluxgate magnetometer, manufactured by the Danish Meteorological Institute, is used to measure the variations in the horizontal (*H*) and vertical (*Z*) components of the field. The third sensor is oriented perpendicular to these, and measures variations, which are proportional to the changes in declination (*D*). Measurements are made at a rate of 1 Hz.

In addition to the fluxgate sensors there is a proton precession magnetometer making measurements of the absolute total field intensity (*F*) at a rate of 0.1Hz.

The raw unfiltered data are retrieved automatically via Internet connections to the BGS office in Edinburgh in near real-time. The fluxgate data are filtered to produce one-minute values using a 61-point cosine filter whilst the total field intensity samples are filtered using a 7-point cosine filter.

1.4 Data Presentation

The data presented in the bulletin are in the form of plots and tabulations described in the following sections.

1.4.1 Summary magnetograms

Small-scale magnetograms are plotted which allow the month's data to be viewed at a glance. They are plotted 16 days a page and show the variations in *D*, *H* and Z. The scales are shown on the right-hand side of the page. On disturbed days the scales are multiplied by a factor, which is indicated above the panel for that day. The variations are centred on the monthly mean value, shown on the left side of the page.

1.4.2 Magnetograms

The daily magnetograms are plotted using one-minute values of *D*, *H* and *Z* from the fluxgate sensors, with any gaps filled using back-up data. The magnetograms are plotted to a variable scale; scale bars are shown to the right of each plot. The absolute level (the monthly mean value) is indicated on the left side of the plots.

1.4.3 Hourly Mean Value Plots

Hourly mean values of *D*, *H* and *Z* for the past 12 months are plotted in 27-day segments corresponding to the Bartels solar rotation number. Magnetic disturbances associated with active regions on the surface of the Sun may recur after 27 days: the same is true for geomagnetically quiet intervals. Plotting the data in this way highlights this recurrence, and also illustrates seasonal and diurnal variations throughout the year.

1.4.4 Daily and Monthly Mean Values

Daily mean values of *D*, *H*, *Z* and *F* are plotted throughout the year. In addition, a table of monthly mean values of all the geomagnetic elements is provided. These values depend on accurate specification of the fluxgate sensor baselines. This data is provisional. It is anticipated that provisional values will not be altered by more than a few nT or tenths of arcminutes before being made definitive.

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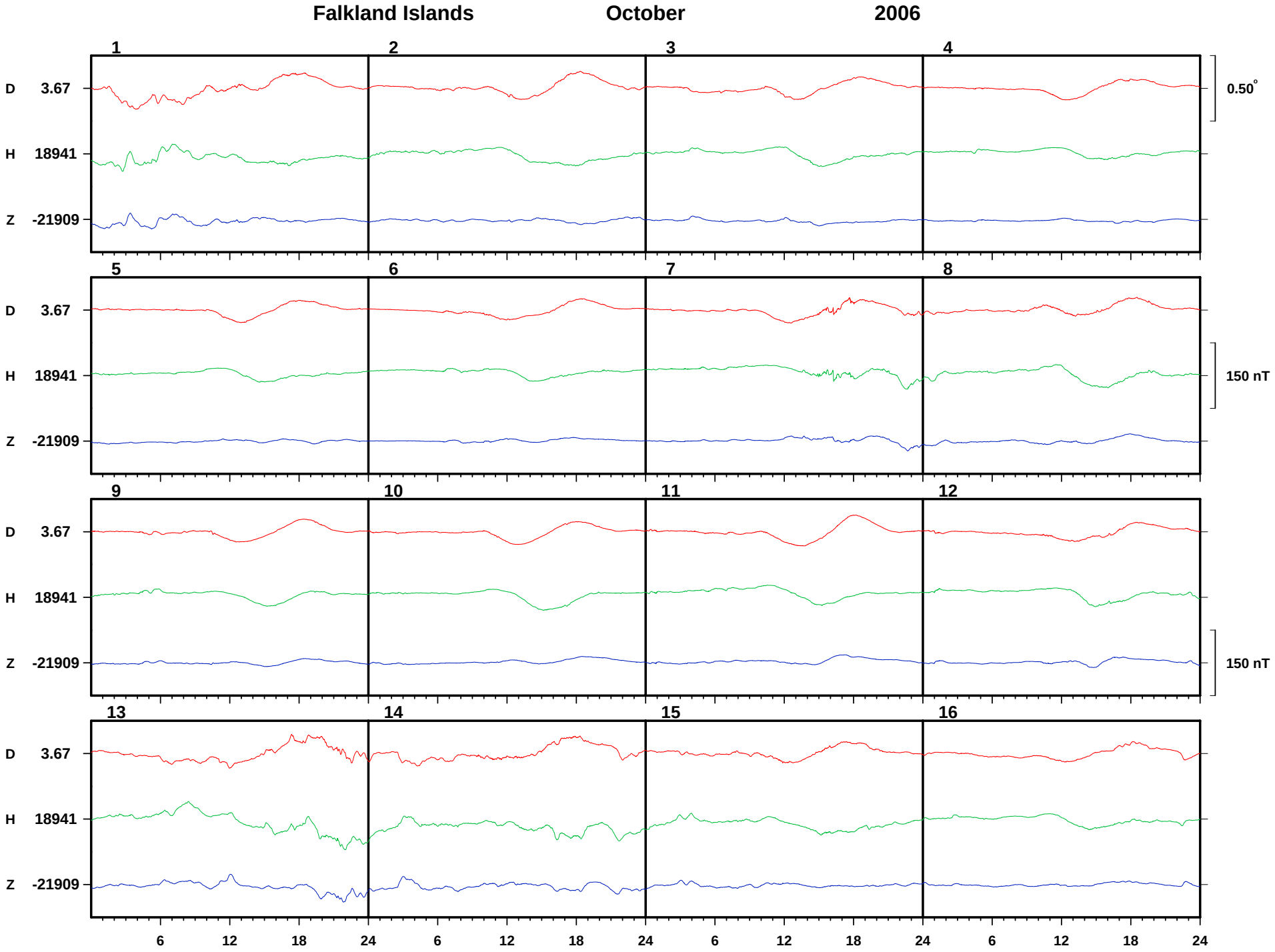
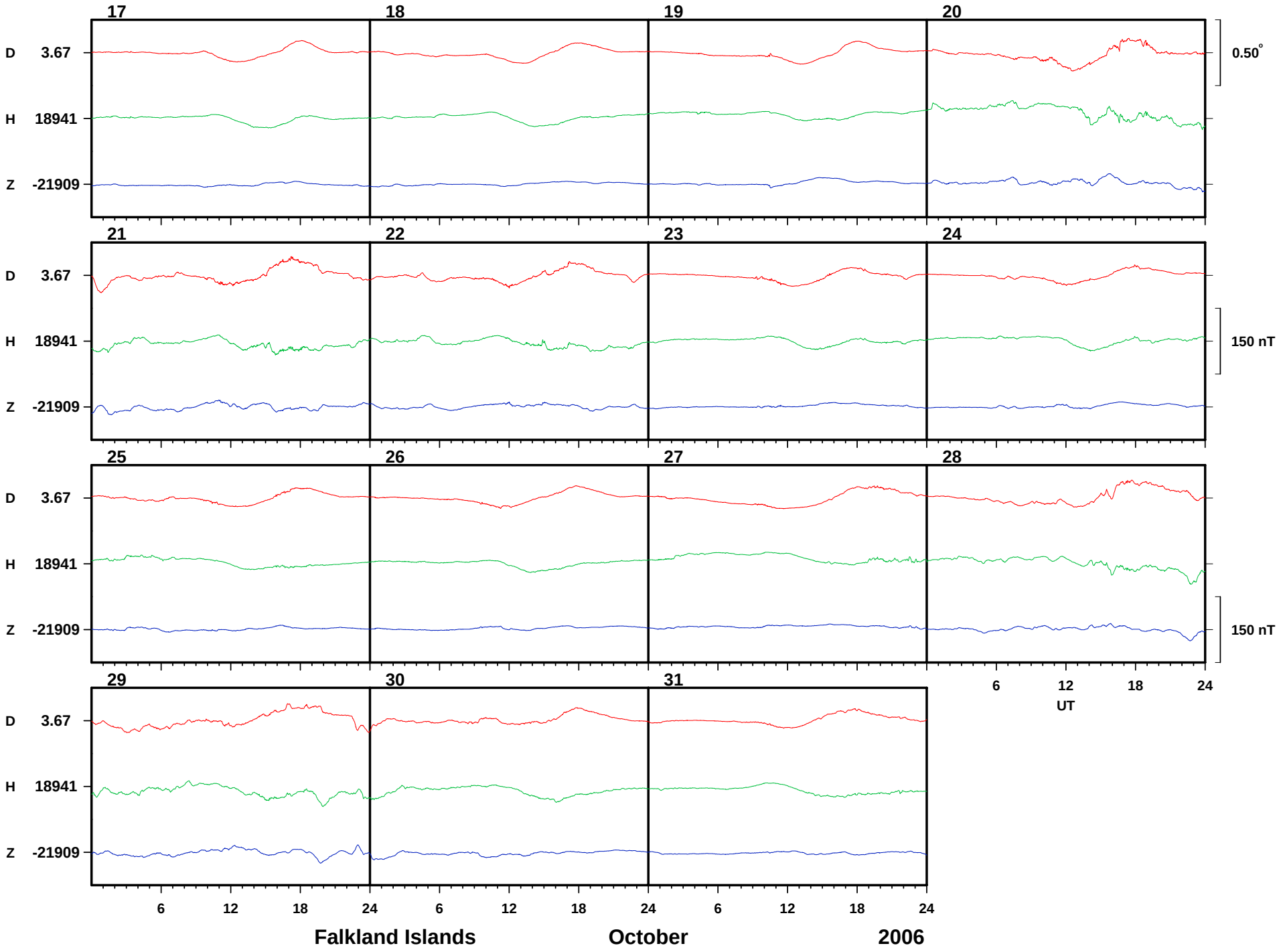
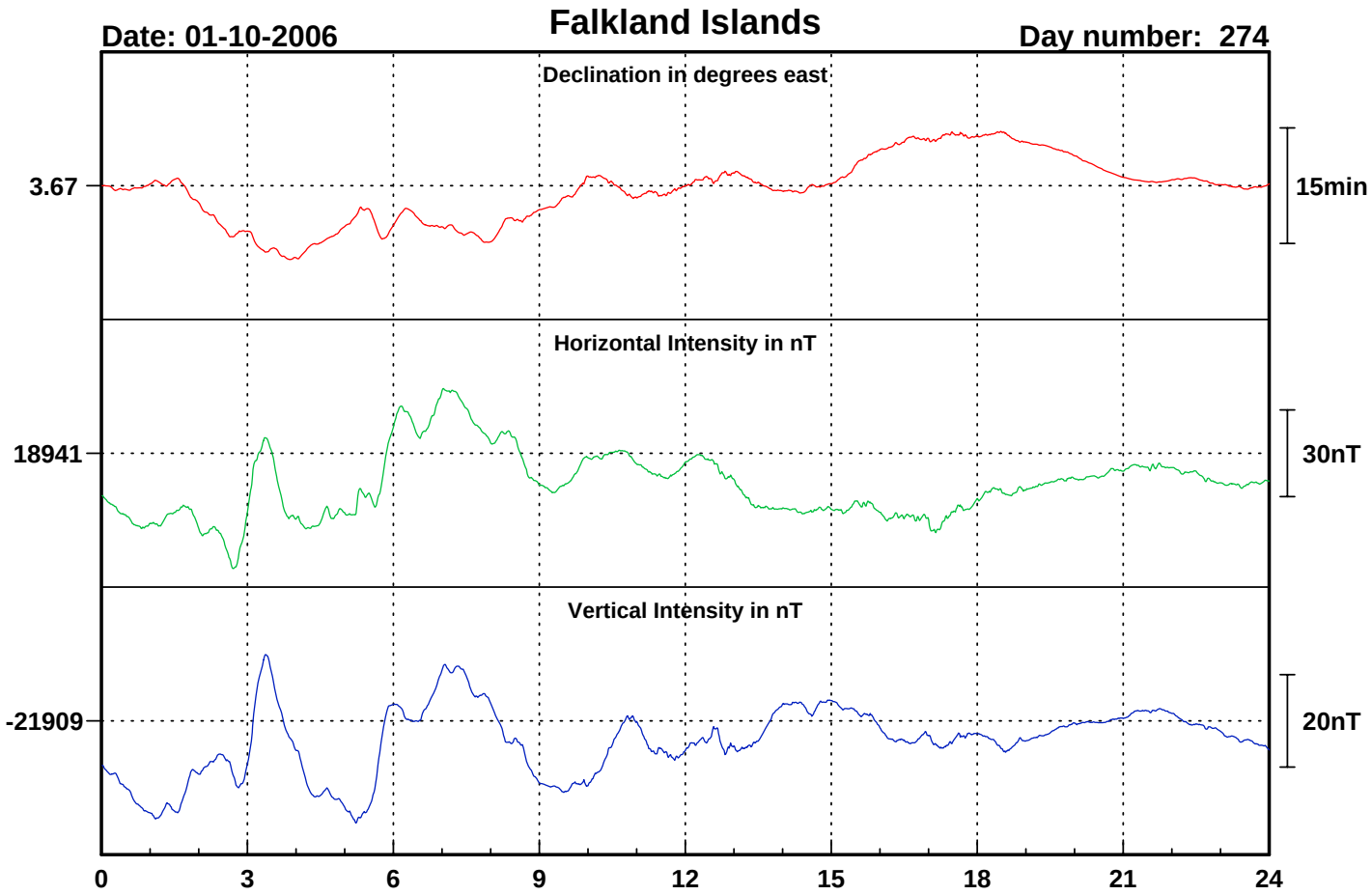

Falkland Islands
October
2006
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
D
3.67
H
18941
Z
-21909
0.50°
150 nT
150 nT
6
12
18
24


17
18
19
20
D 3.67
H 18941
Z -21909
0.50°
21
22
23
24
150 nT
25
26
27
28
29
30
31
6
12
18
24
UT
Falkland Islands
October
2006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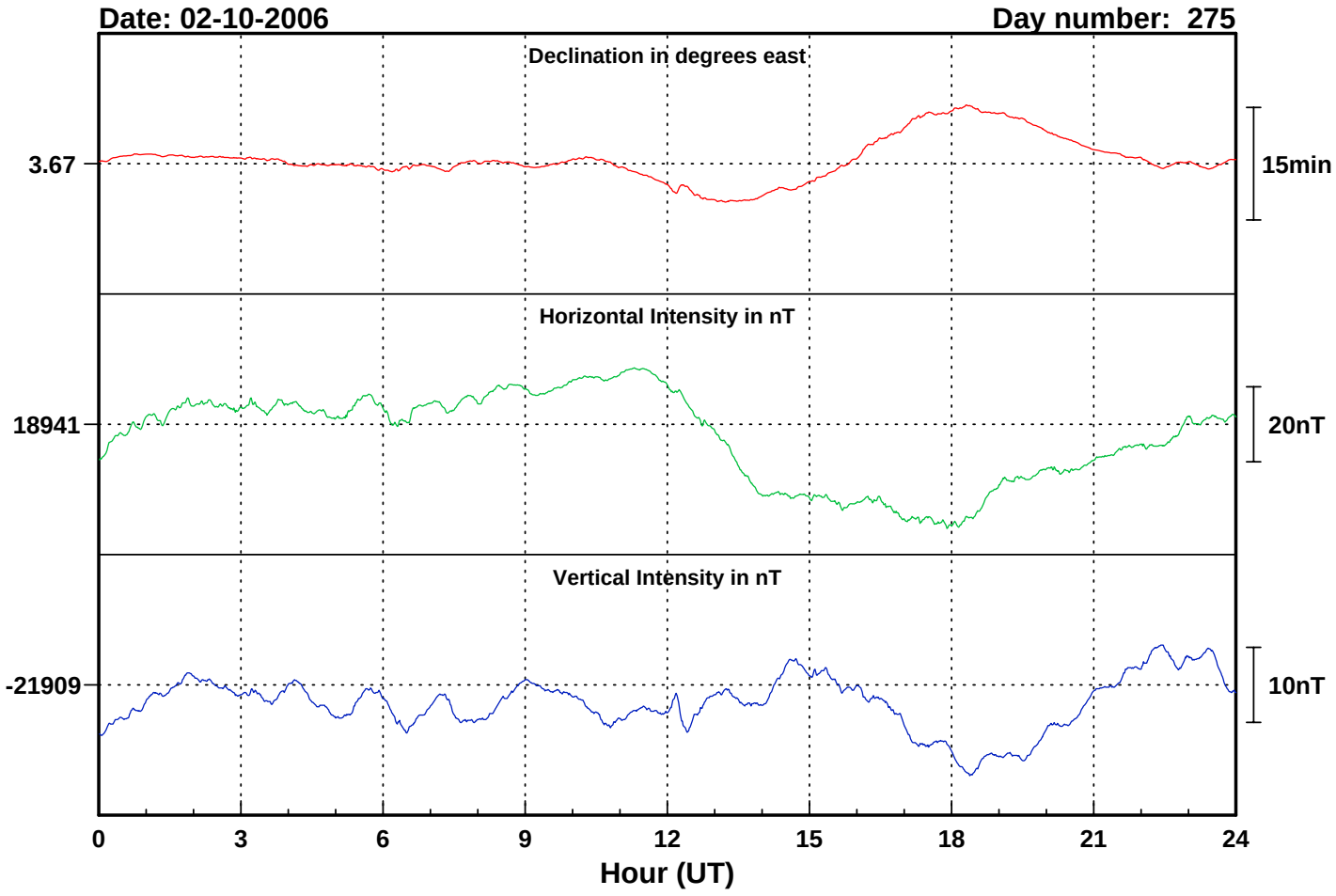
Day number: 274
Declination in degrees east
3.67
15min
Horizontal Intensity in nT
18941
30nT
Vertical Intensity in nT
-21909
20nT
0
3
6
9
12
15
18
21
24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15min
Horizontal Intensity in nT
18941
20nT
Vertical Intensity in nT
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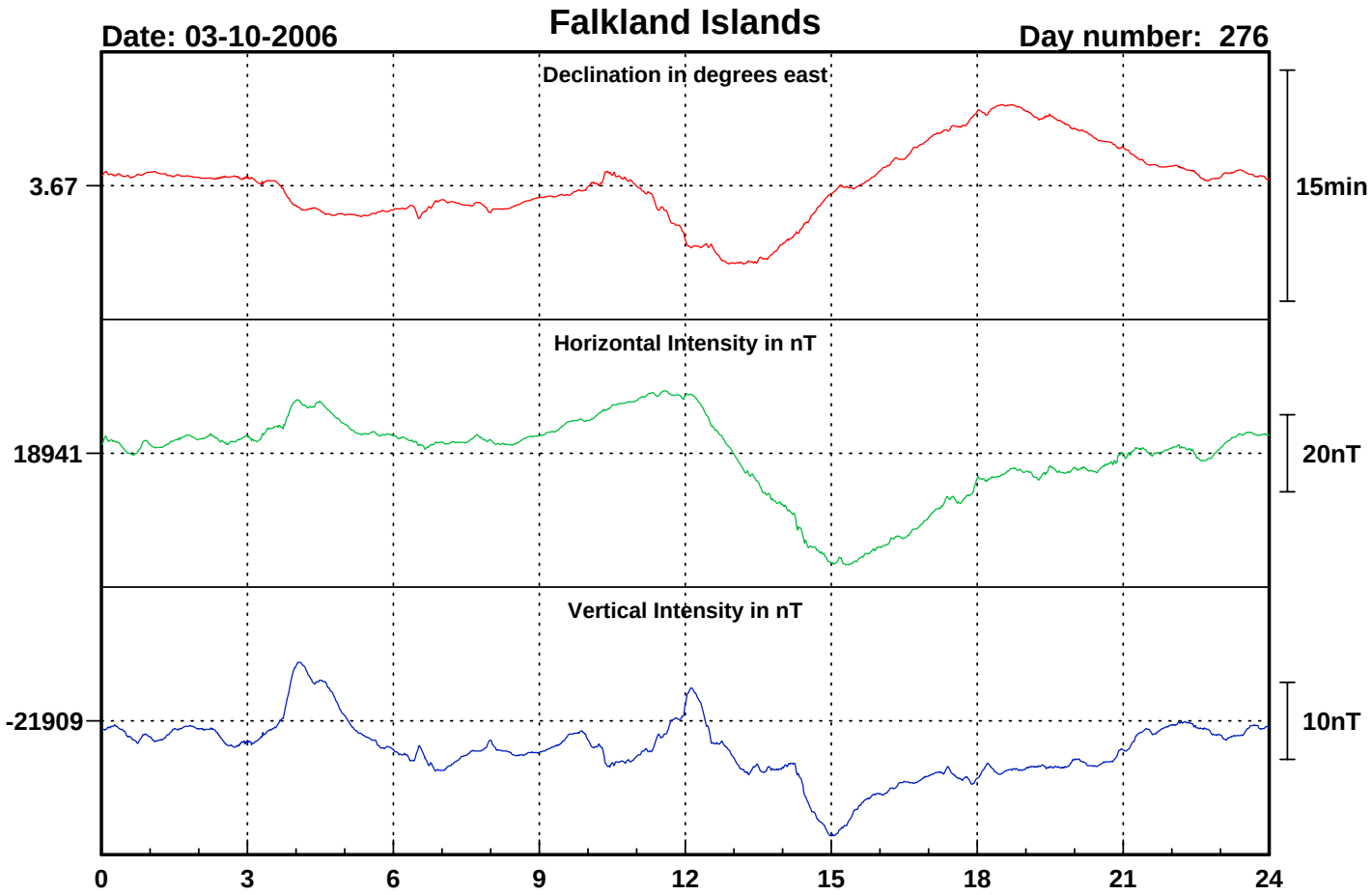
6
9
12
15
18
21
24
Hour (UT)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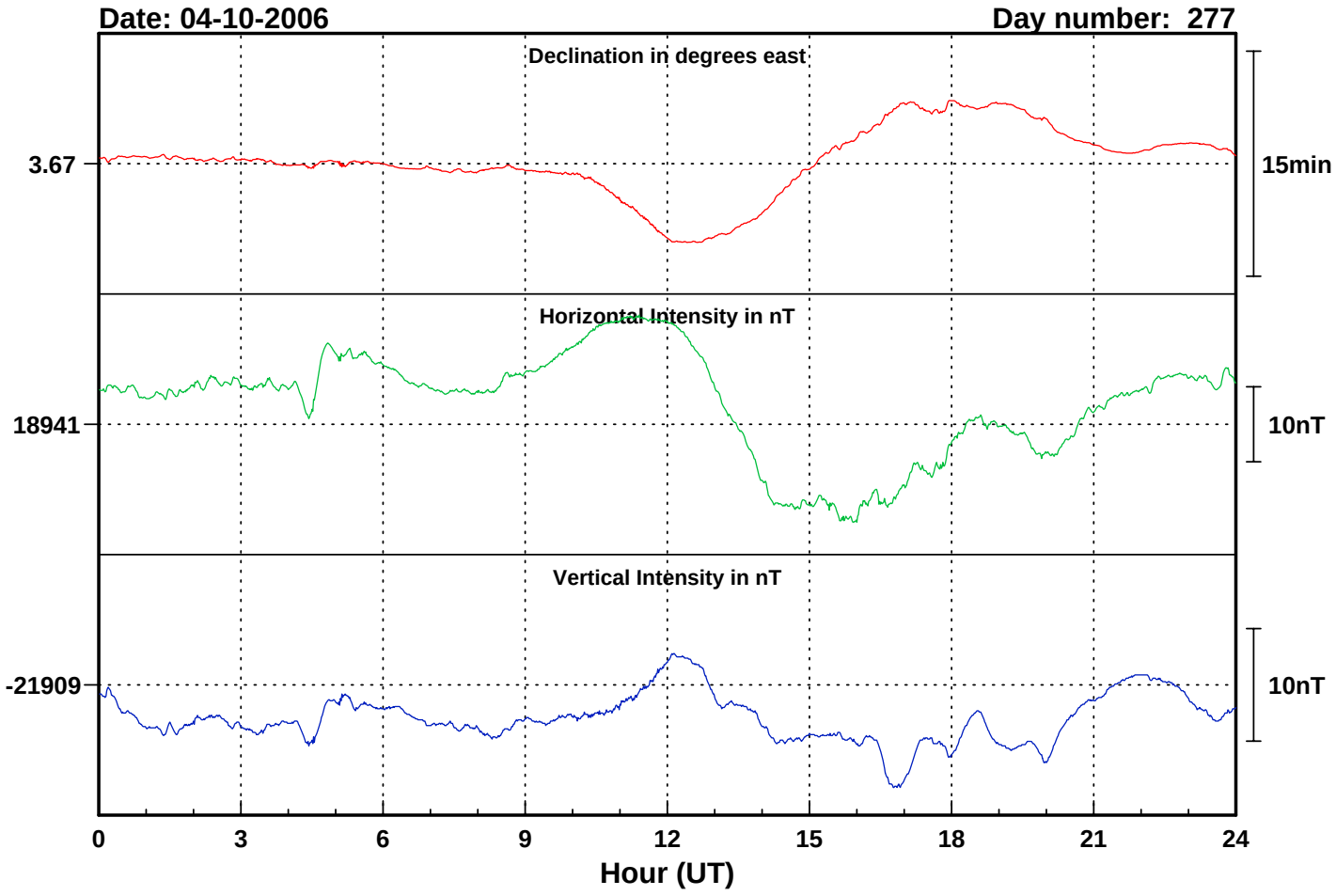
Date: 03-10-2006
Day number: 276
Declination in degrees east
3.67
15min
Horizontal Intensity in nT
18941
20nT
Vertical Intensity in nT
-21909
10nT
0
3
6
9
12
15
18
21
24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15min
Horizontal Intensity in nT
18941
10nT
Vertical Intensity in nT
-21909
10nT
0
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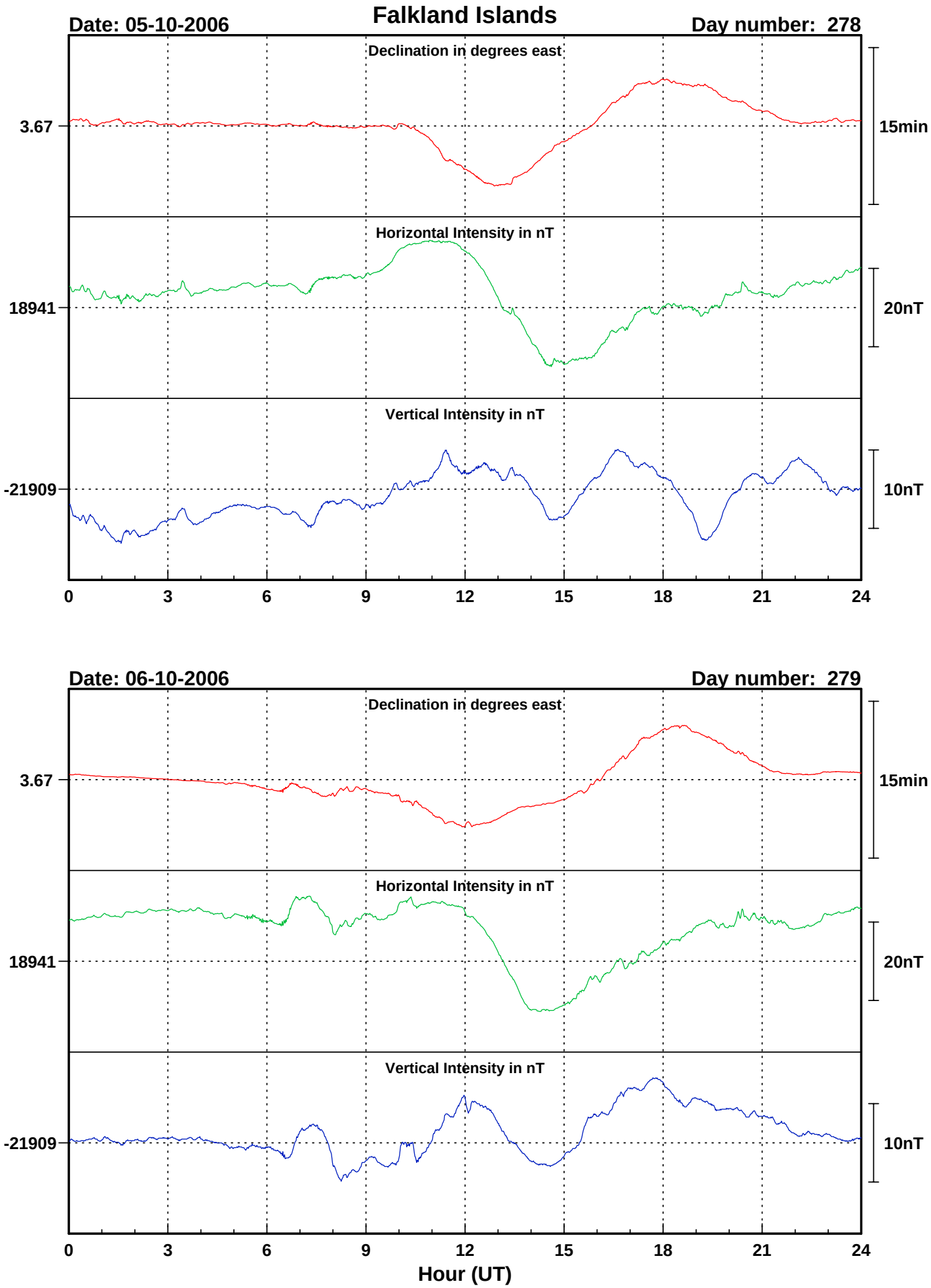
24
Hour (UT)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Day number: 278
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15min
Horizontal Intensity in nT
18941
20nT
Vertical Intensity in nT
-21909
10nT
0
3
6
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12
15
18
21
24
Date: 06-10-2006
Day number: 279
Declination in degrees east
3.67
15min
Horizontal Intensity in nT
18941
20nT
Vertical Intensity in nT
-21909
10nT
0
3
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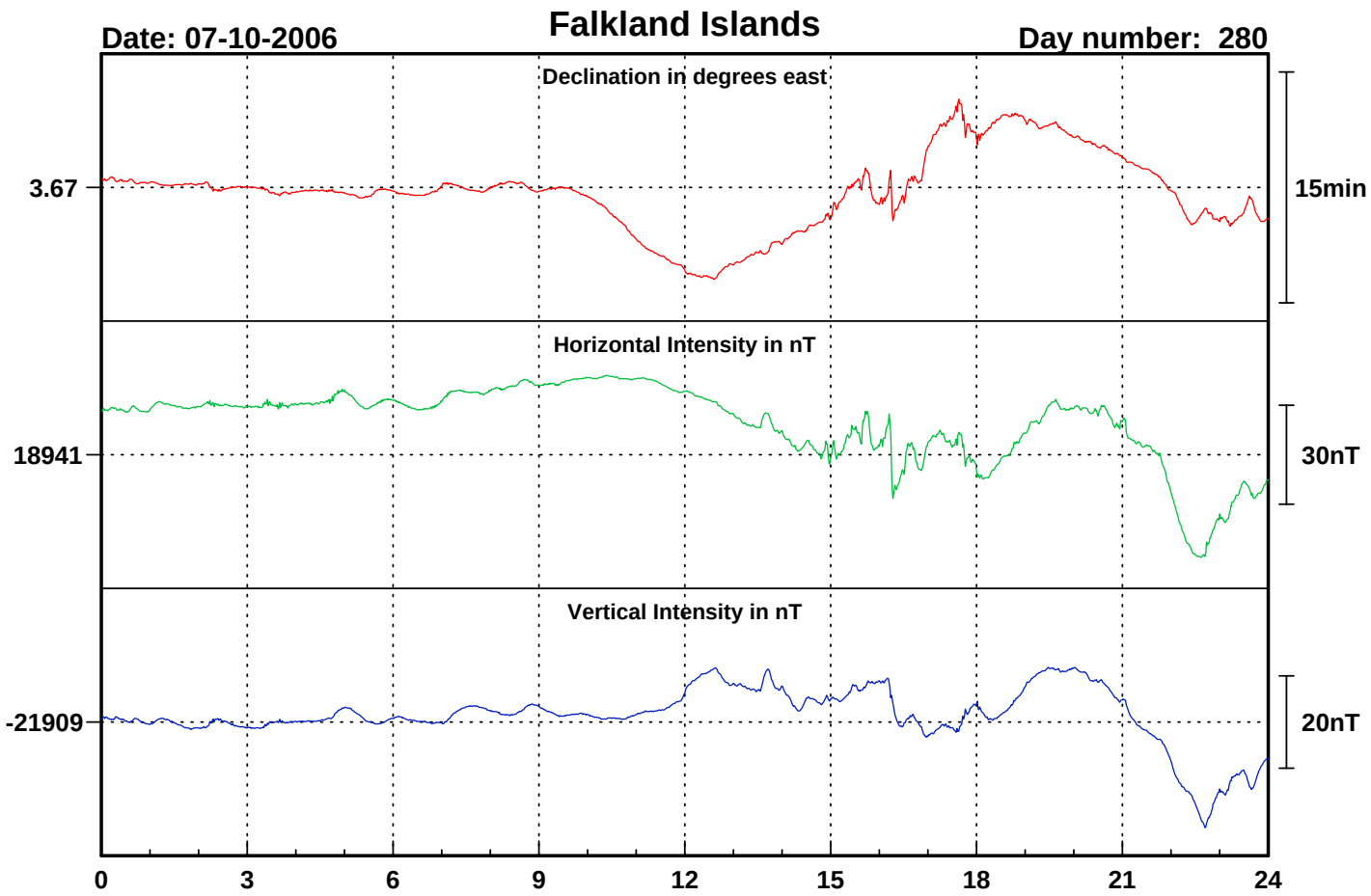
24
Hour (UT)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Day number: 280
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3.67
15min
Horizontal Intensity in nT
18941
30nT
Vertical Intensity in nT
-21909
20nT
0
3
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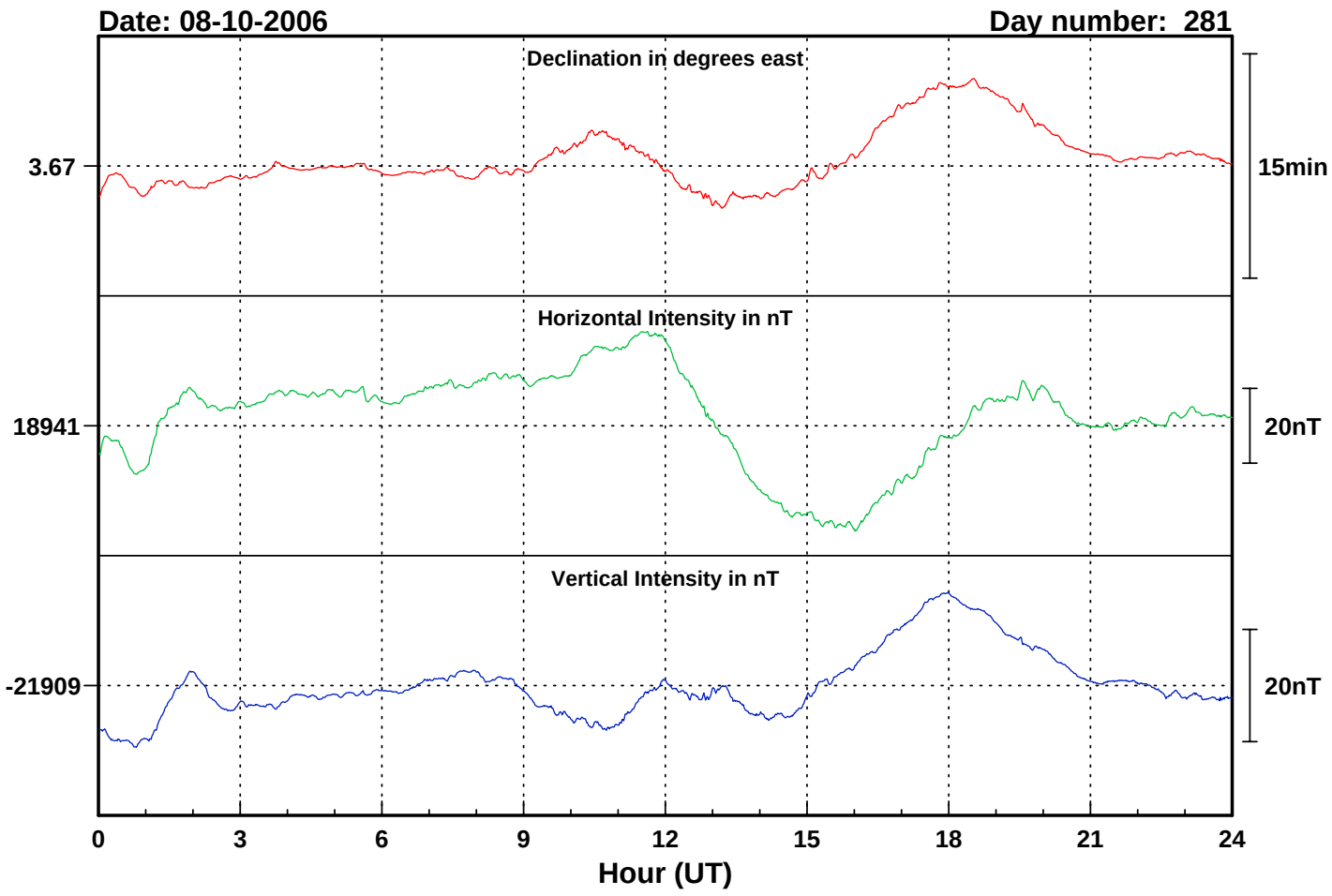
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15min
Horizontal Intensity in nT
18941
20nT
Vertical Intensity in nT
-21909
20nT
0
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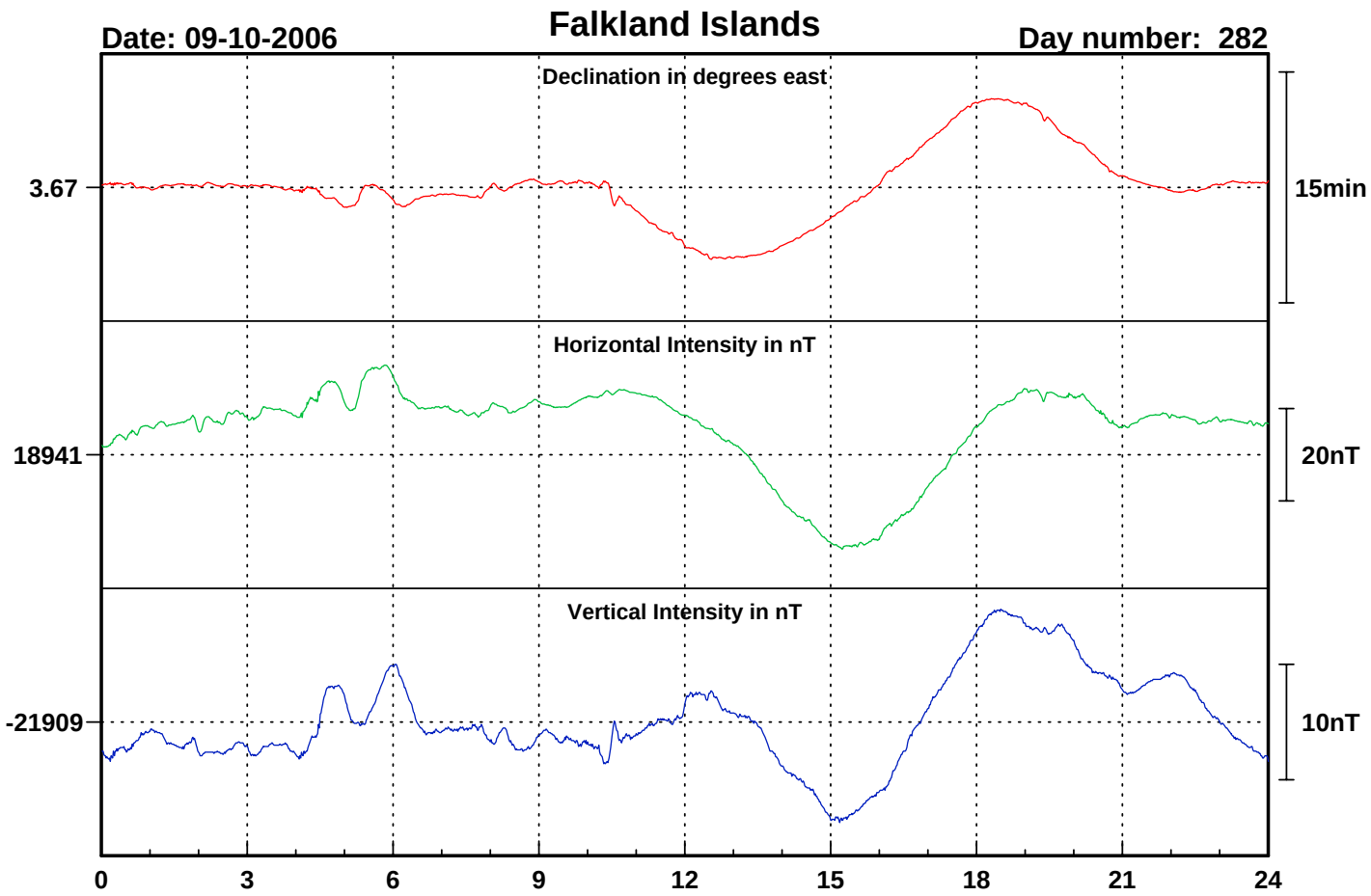
Hour (UT)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15min
Horizontal Intensity in nT
18941
20nT
Vertical Intensity in nT
-21909
10nT
0
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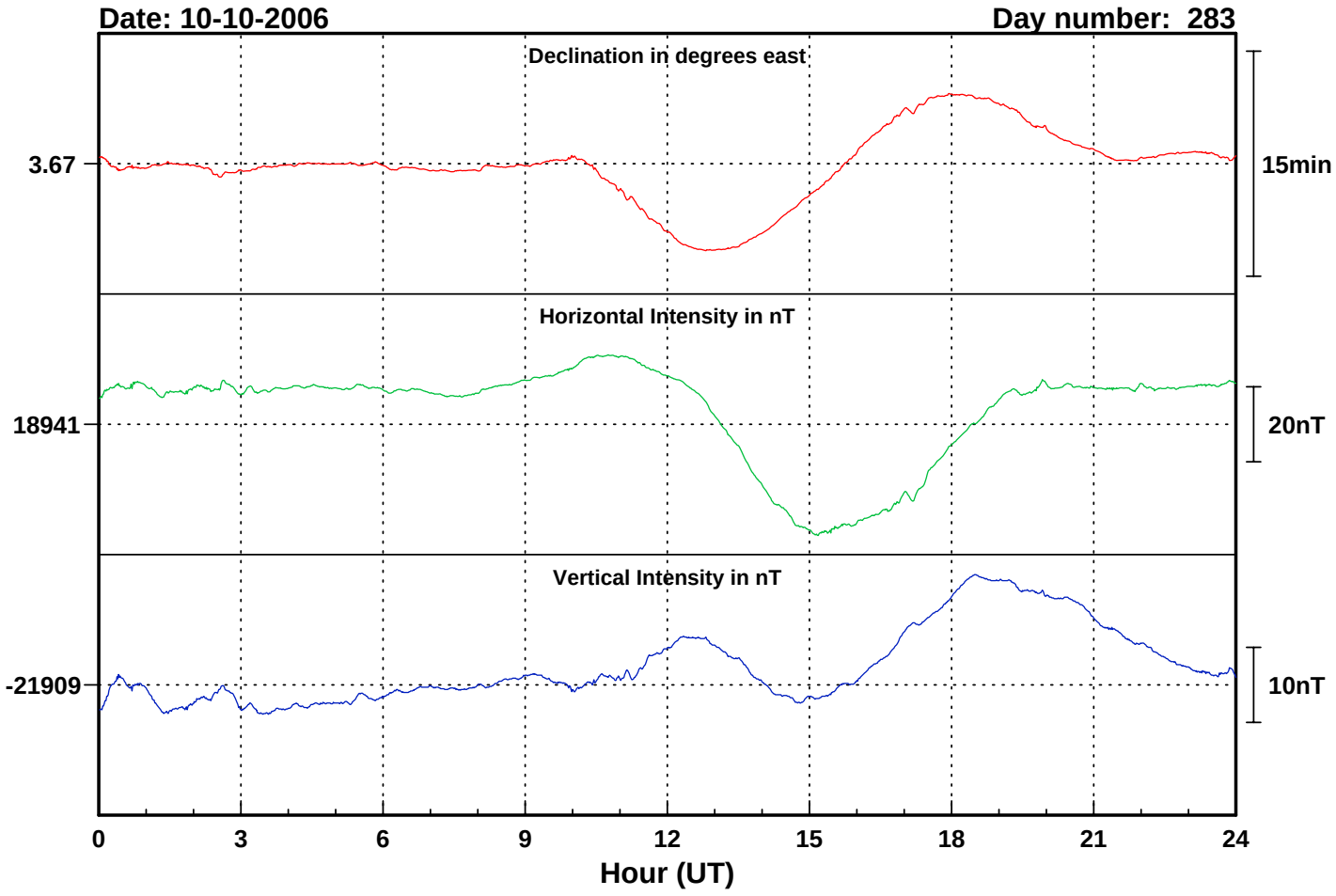
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15min
Horizontal Intensity in nT
18941
20nT
Vertical Intensity in nT
-21909
10nT
0
3
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9
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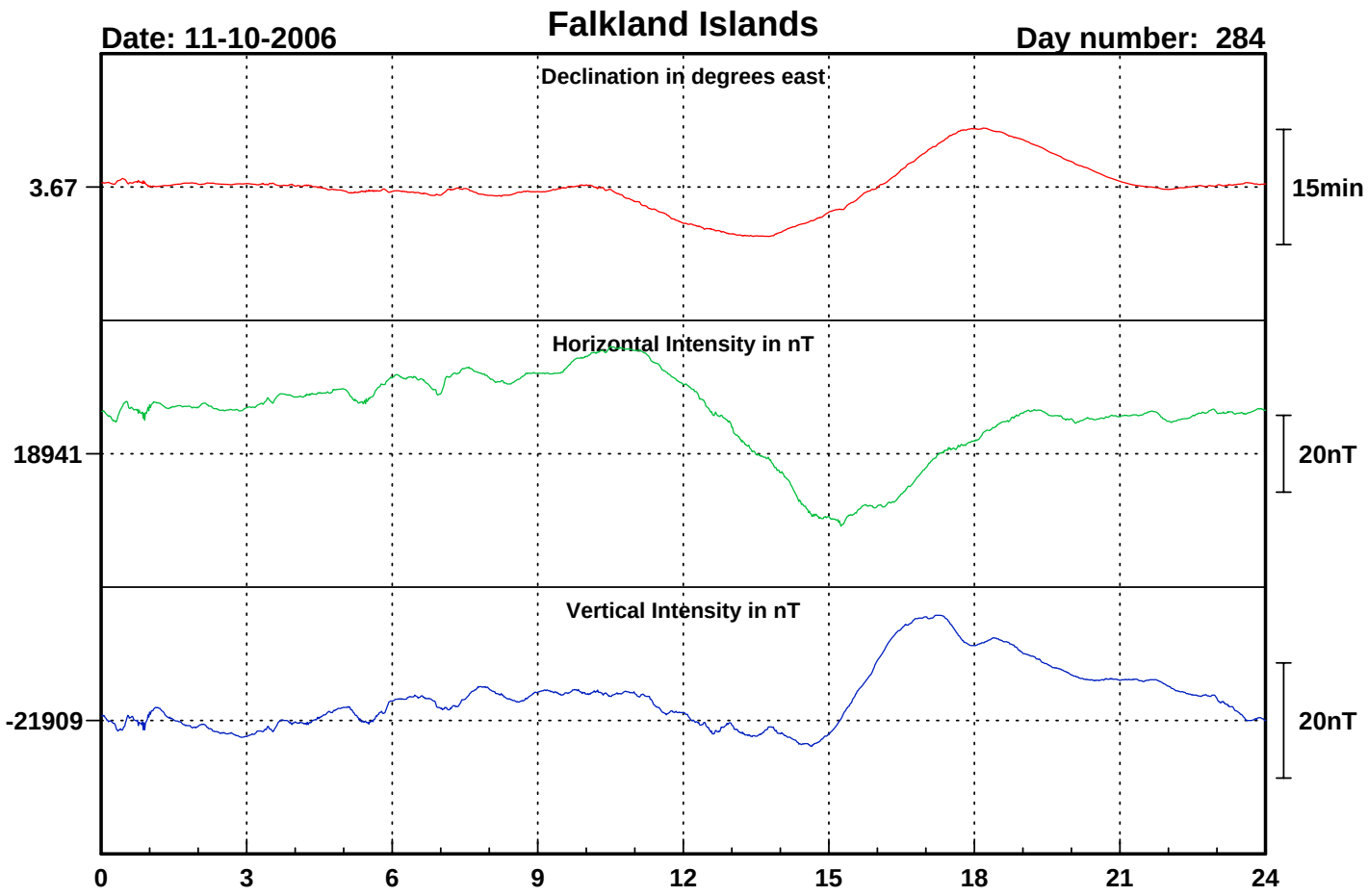
21
24
Hour (UT)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3.67
15min
Horizontal Intensity in nT
18941
20nT
Vertical Intensity in nT
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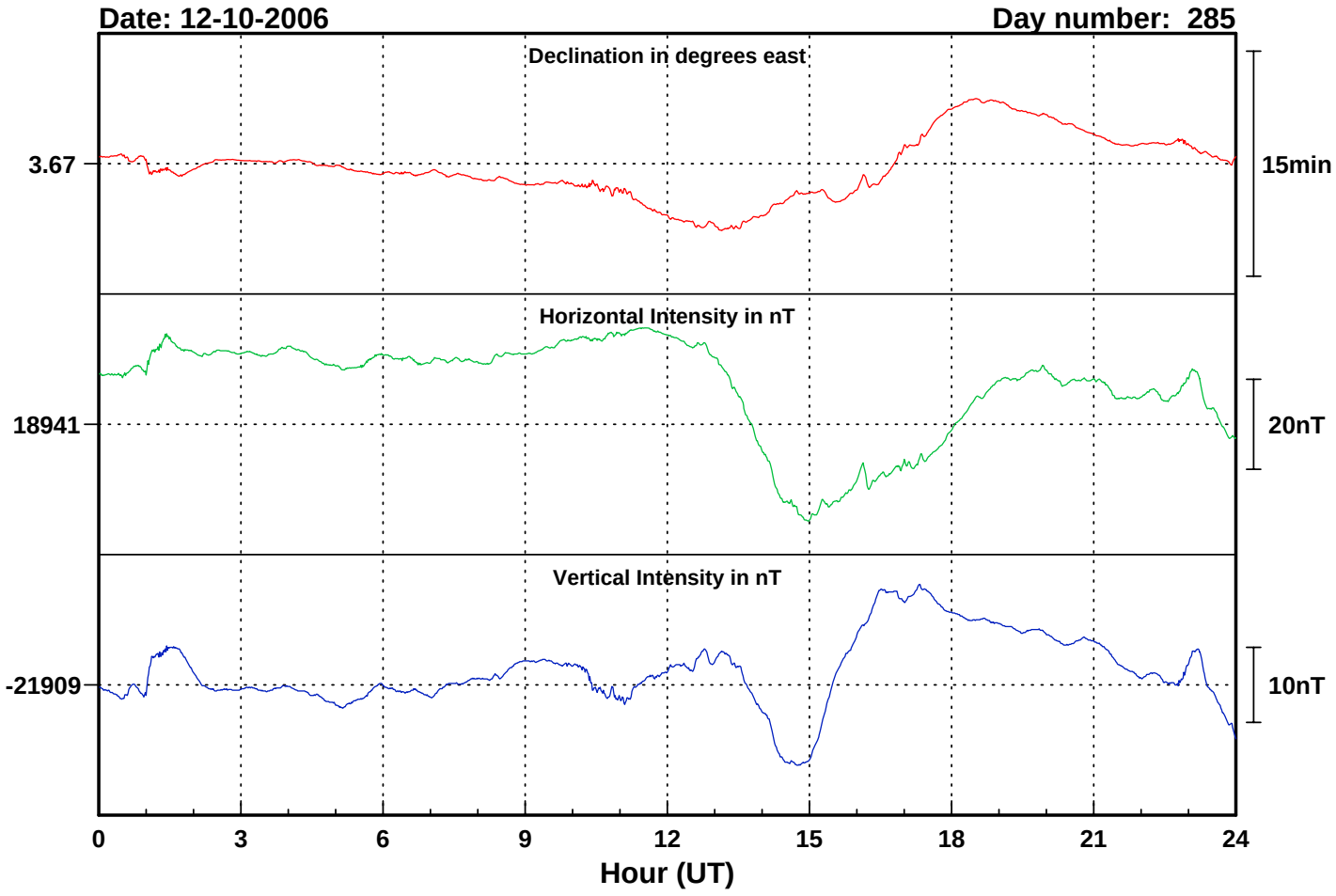
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15min
Horizontal Intensity in nT
18941
20nT
Vertical Intensity in nT
-21909
10nT
0
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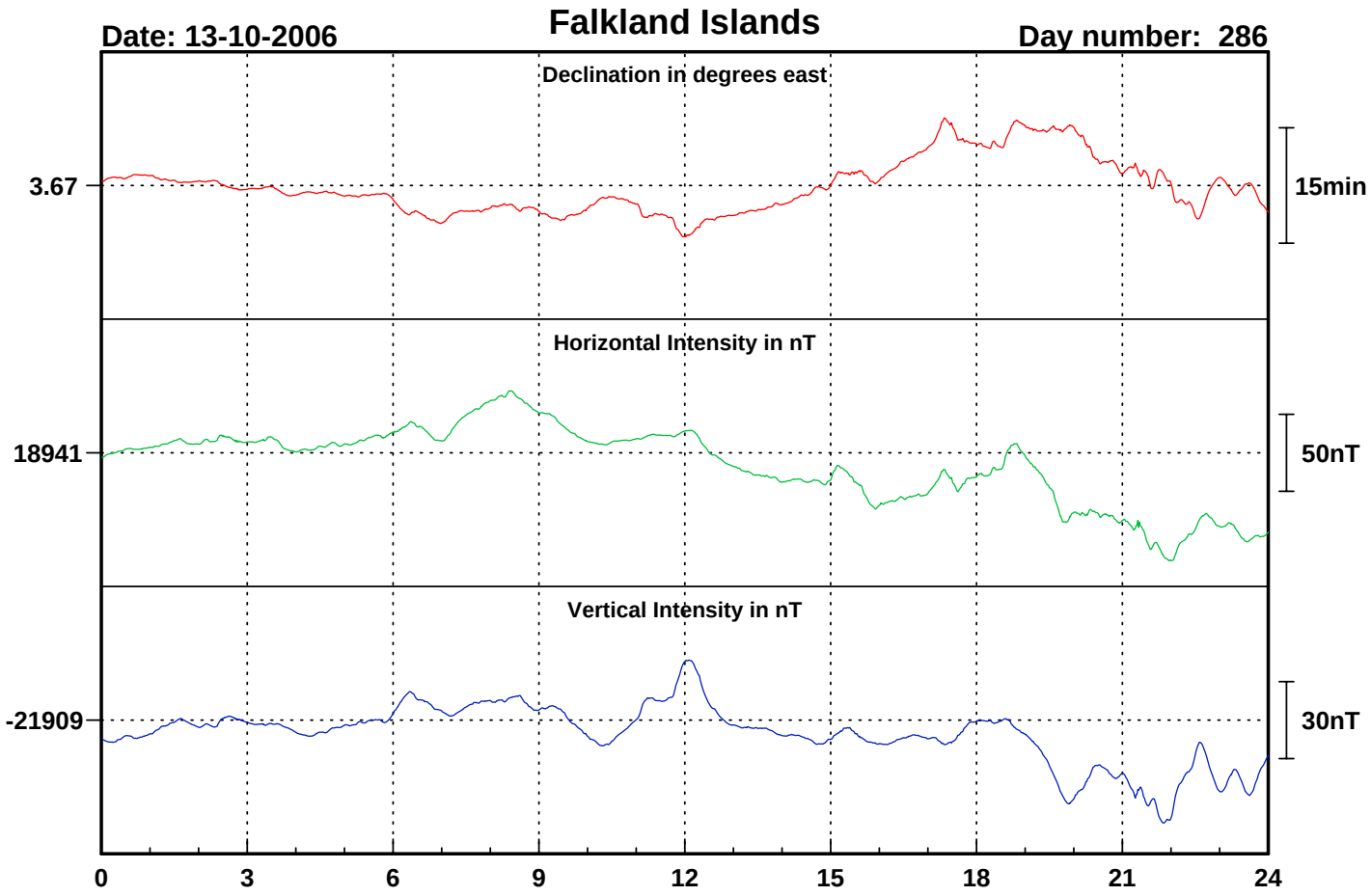
Hour (UT)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Day number: 286
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15min
Horizontal Intensity in nT
18941
50nT
Vertical Intensity in nT
-21909
30nT
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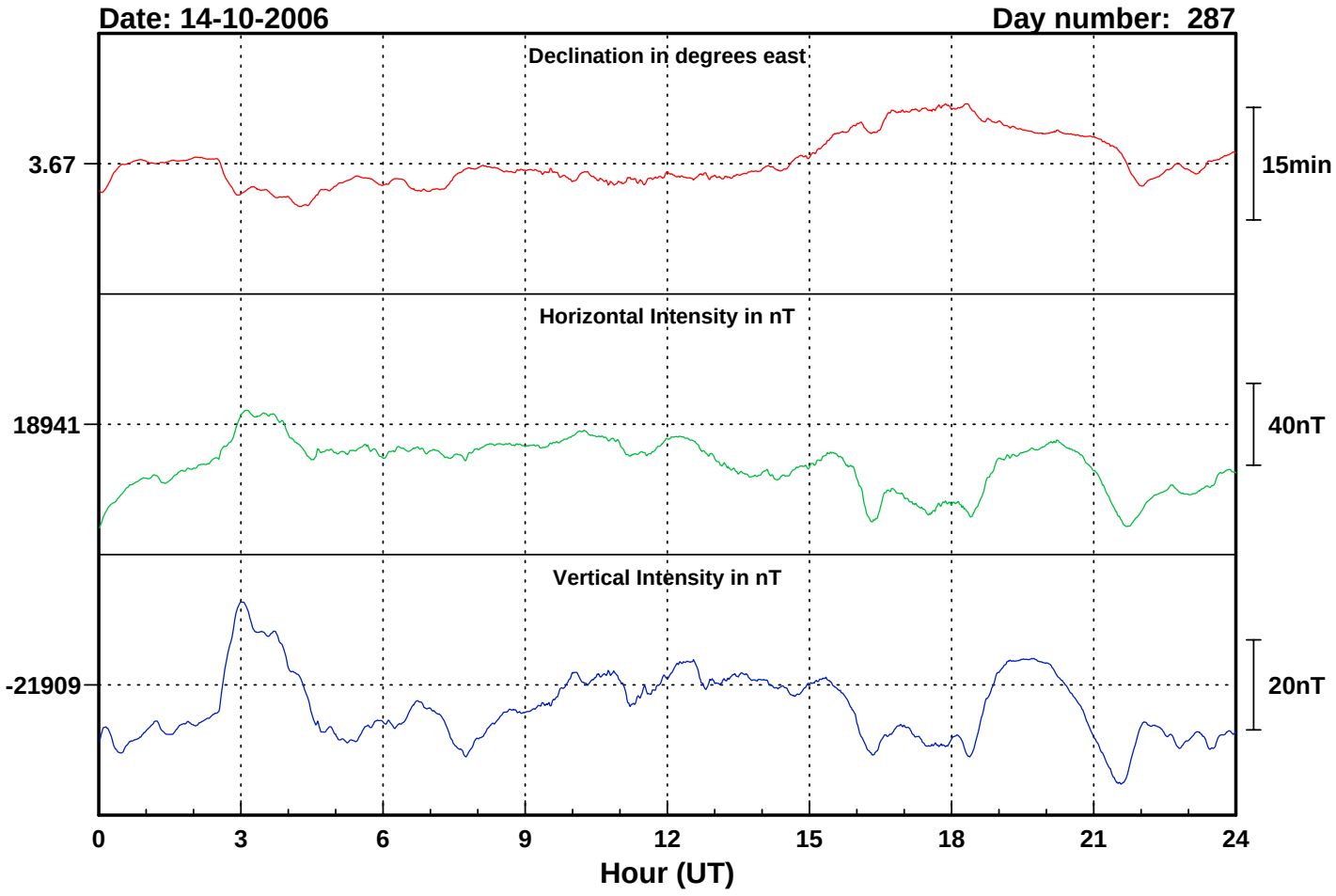
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15min
Horizontal Intensity in nT
18941
40nT
Vertical Intensity in nT
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20nT
0
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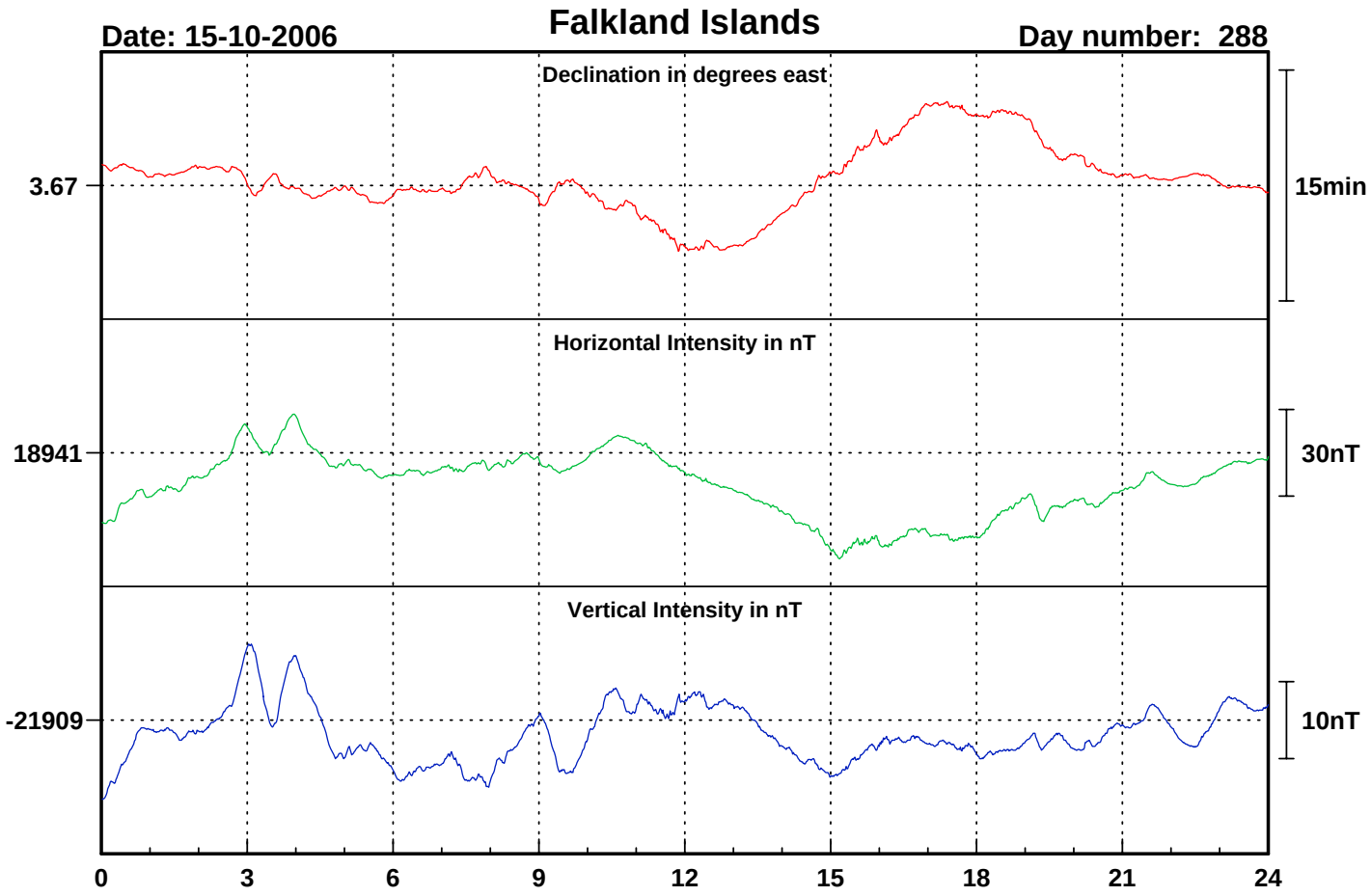
Hour (UT)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15min
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18941
30nT
Vertical Intensity in nT
-21909
10nT
0
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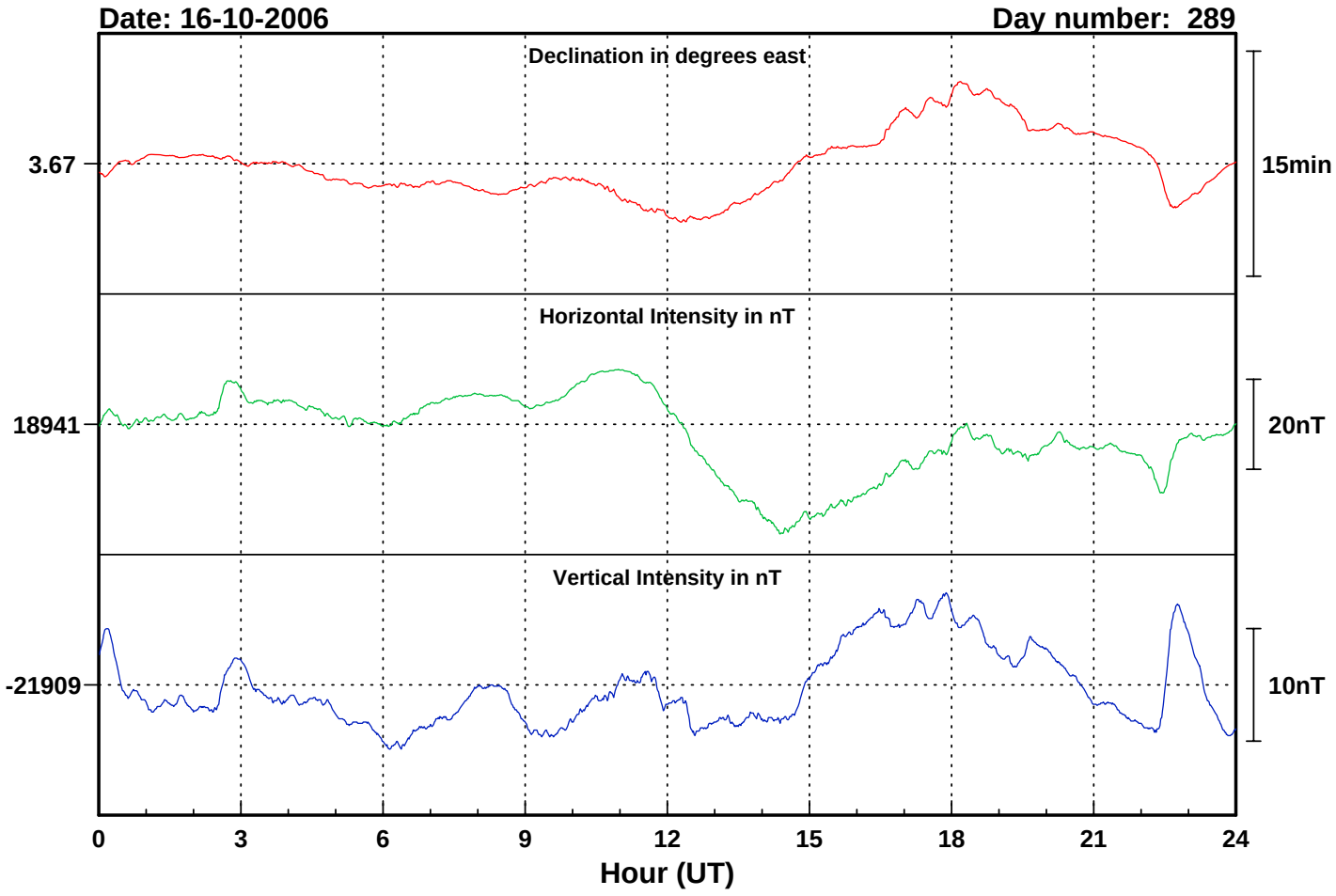
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20nT
Vertical Intensity in nT
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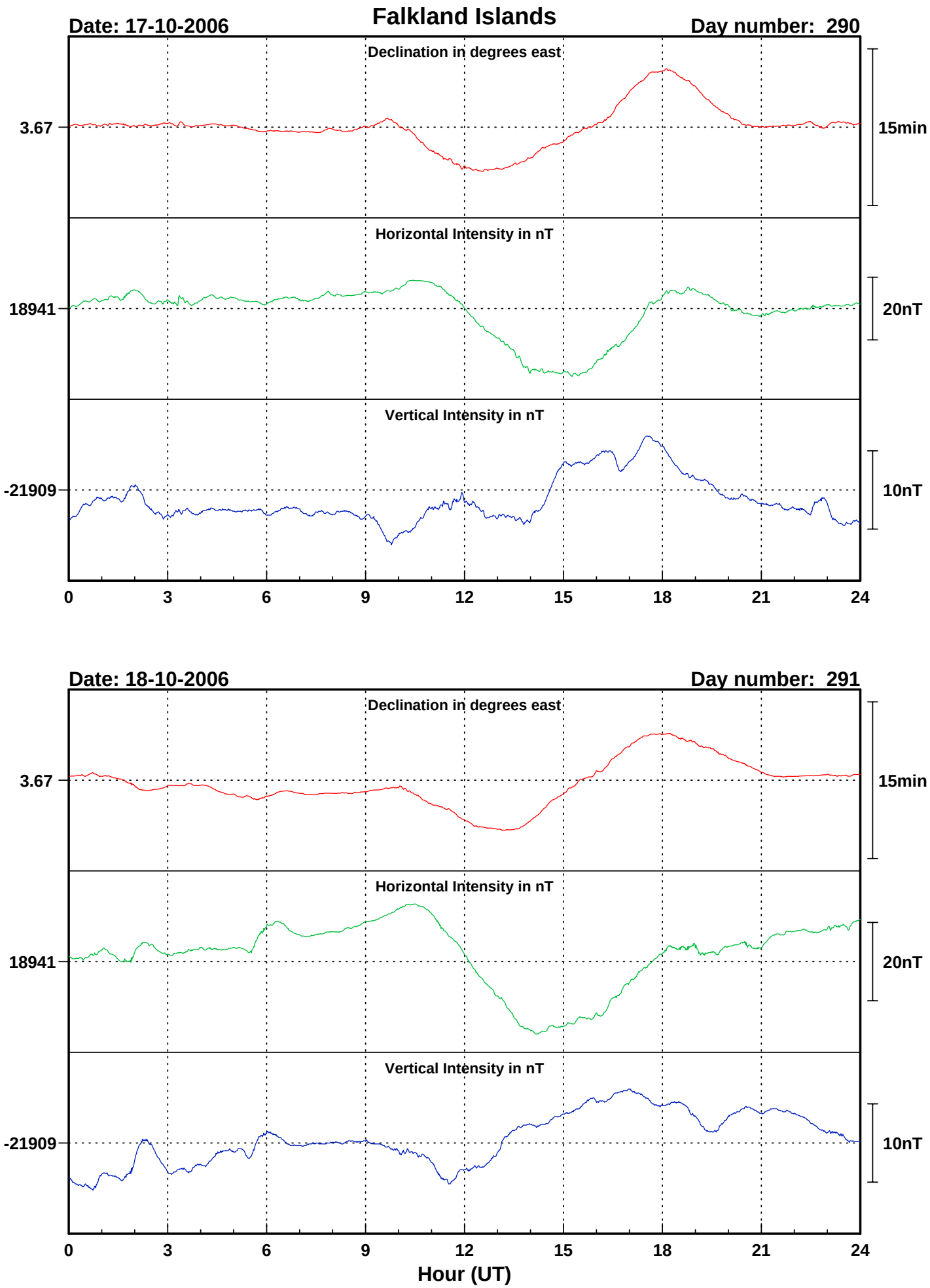
24
Hour (UT)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15min
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18941
20nT
Vertical Intensity in nT
-21909
10nT
0
3
6
9
12
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18
21
24
Date: 18-10-2006
Day number: 291
Declination in degrees east
3.67
15min
Horizontal Intensity in nT
18941
20nT
Vertical Intensity in nT
-21909
10nT
0
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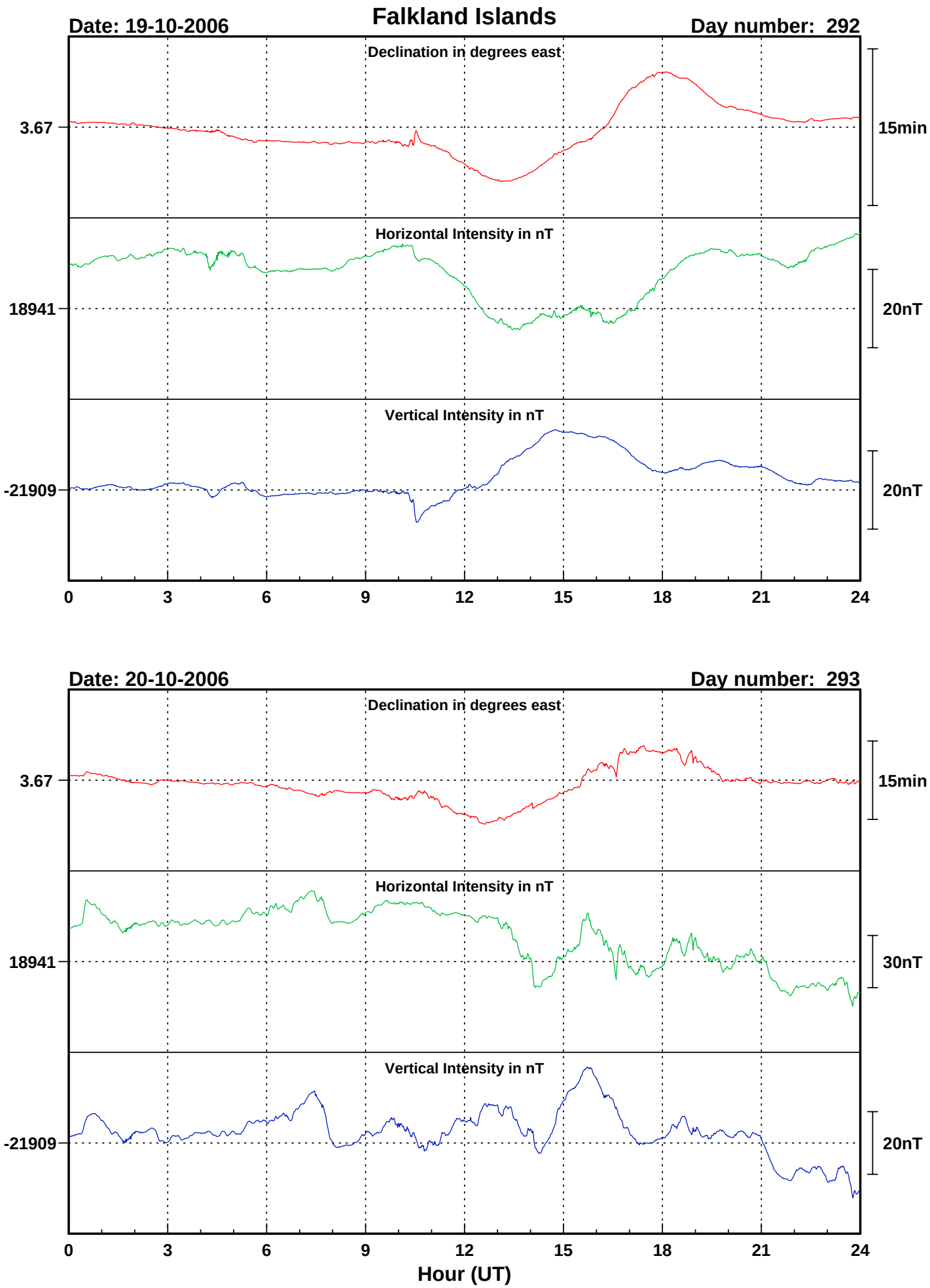
24
Hour (UT)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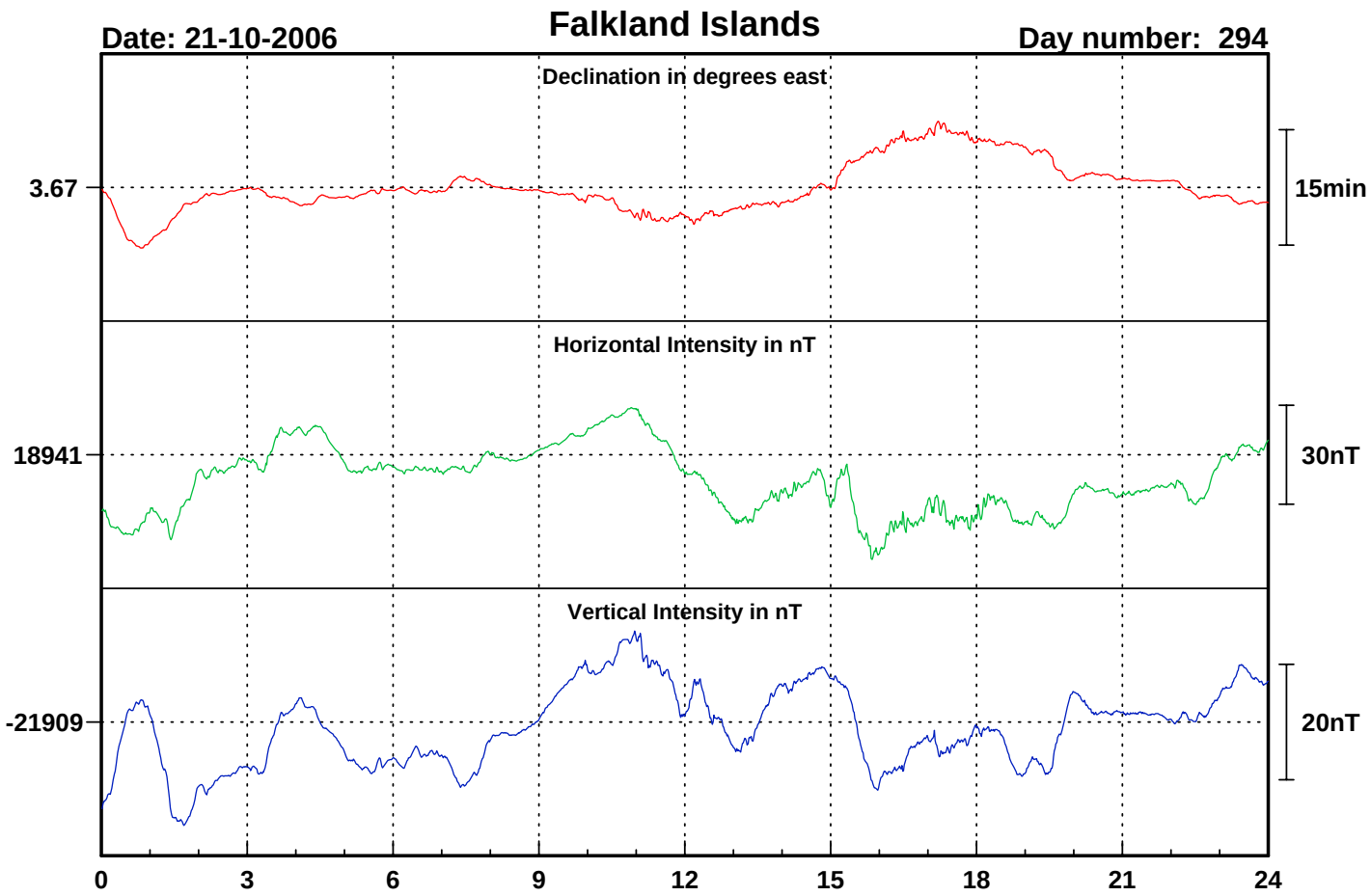
15min
Horizontal Intensity in nT
18941
20nT
Vertical Intensity in nT
-21909
20nT
0
3
6
9
12
15
18
21
24
Date: 20-10-2006
Day number: 293
Declination in degrees east
3.67
15min
Horizontal Intensity in nT
18941
30nT
Vertical Intensity in nT
-21909
20nT
0
3
6
9
12
15
18
21
24
Hour (UT)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15min
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30nT
Vertical Intensity in nT
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20nT
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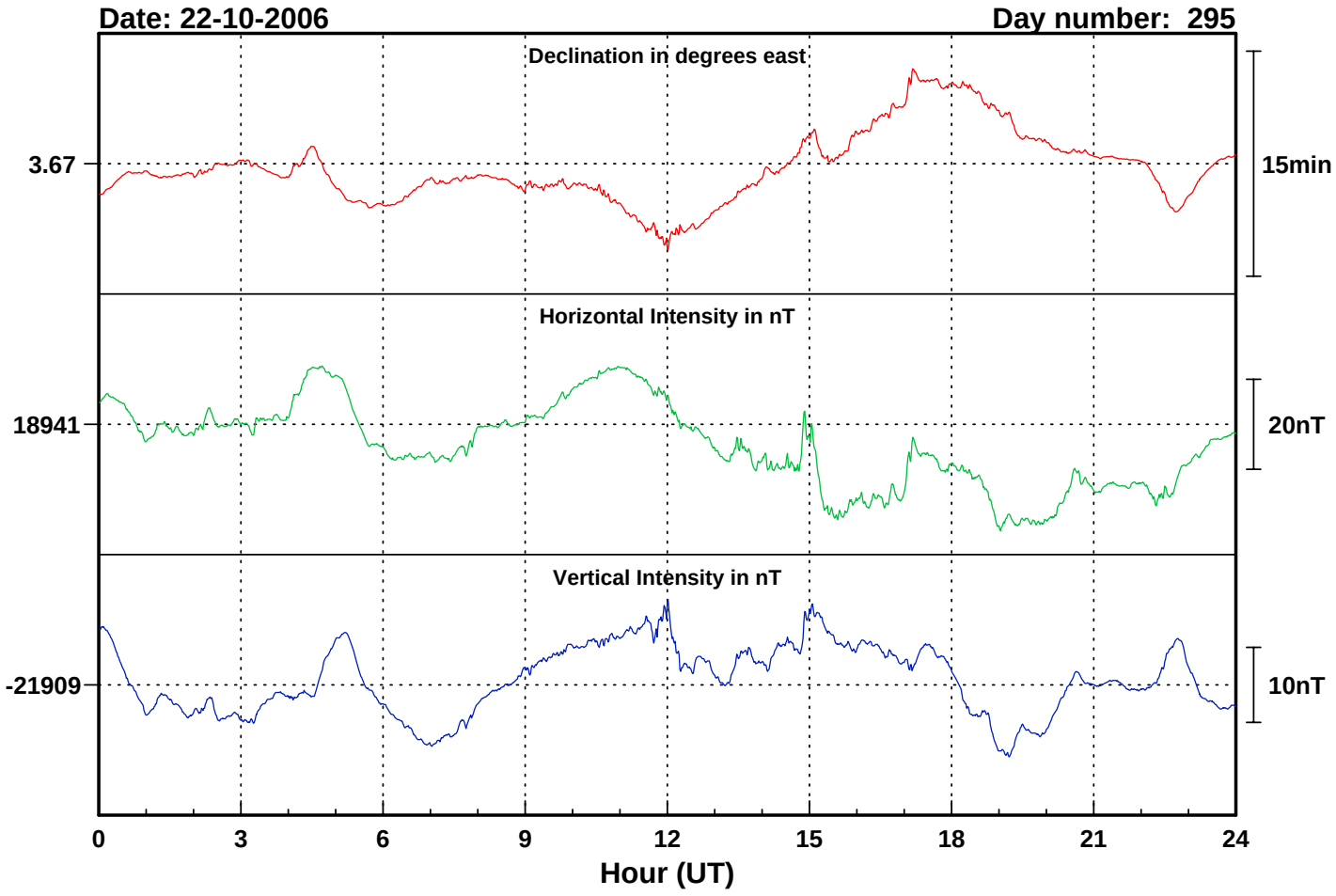
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Declination in degrees east
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15min
Horizontal Intensity in nT
18941
20nT
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10nT
0
3
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9
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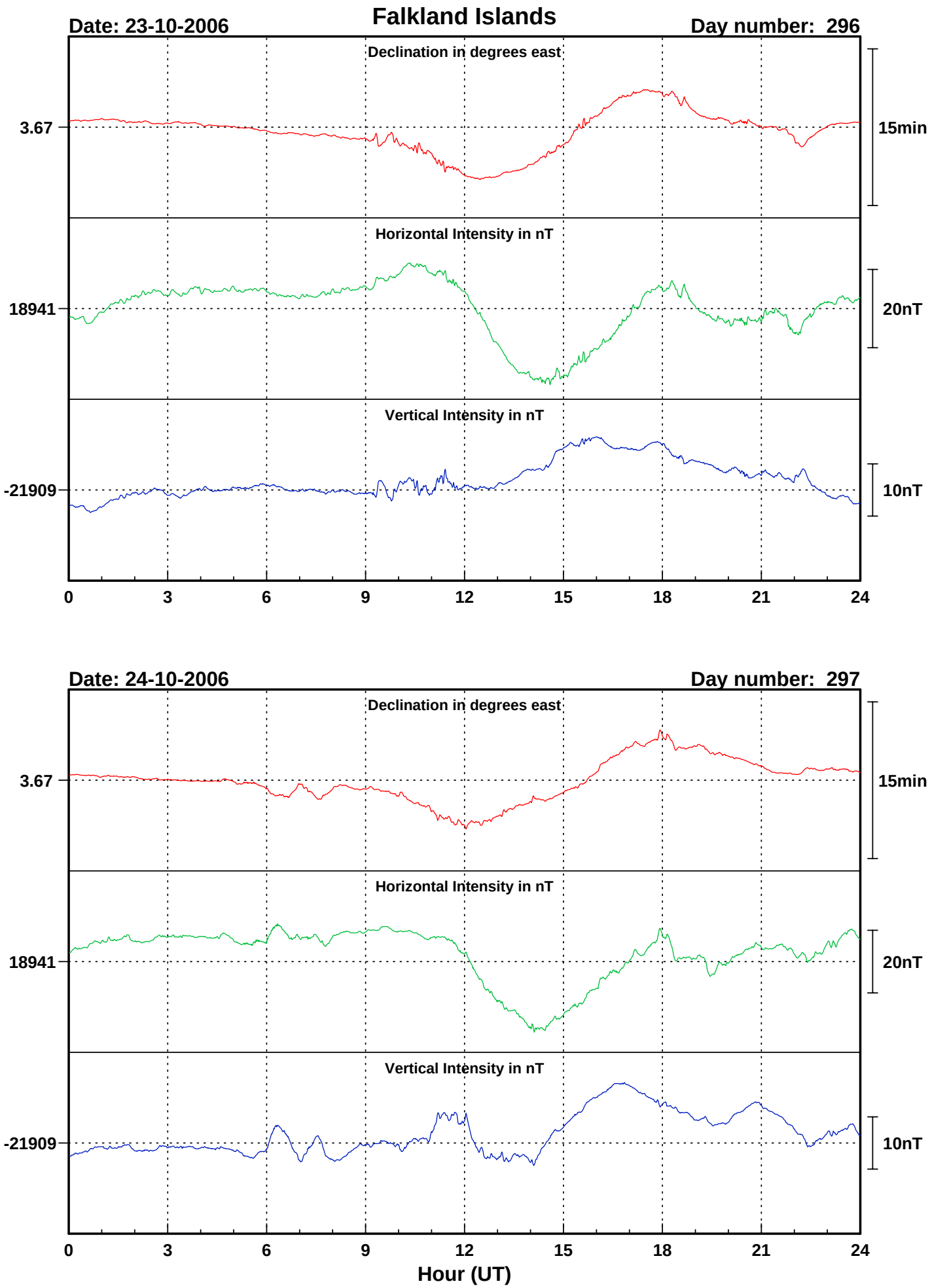
18
21
24
Hour (UT)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15min
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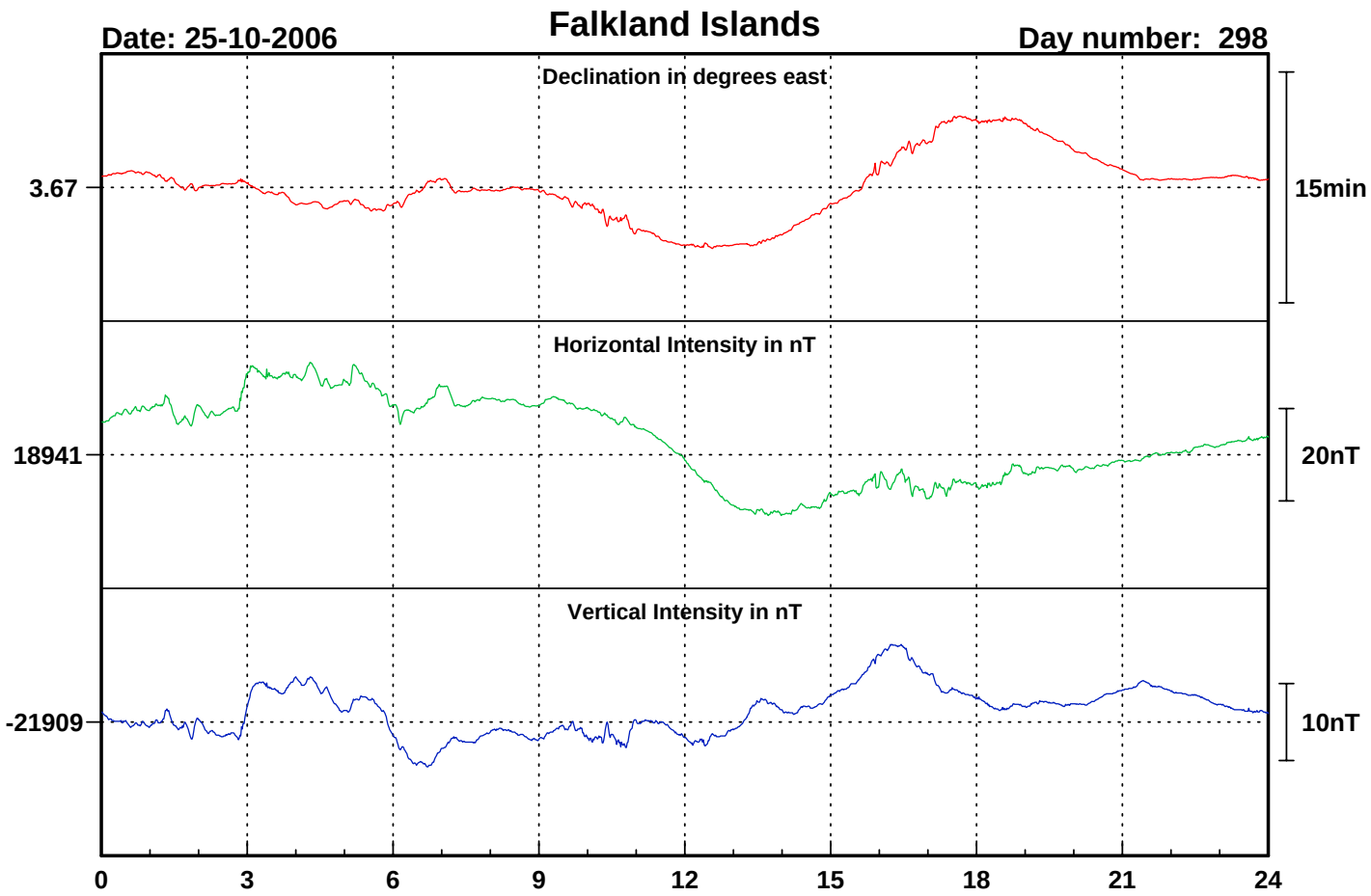
20nT
Vertical Intensity in nT
-21909
10nT
0
3
6
9
12
15
18
21
24
Date: 24-10-2006
Day number: 297
Declination in degrees east
3.67
15min
Horizontal Intensity in nT
18941
20nT
Vertical Intensity in nT
-21909
10nT
0
3
6
9
12
15
18
21
24
Hour (UT)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Day number: 298
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15min
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18941
20nT
Vertical Intensity in nT
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0
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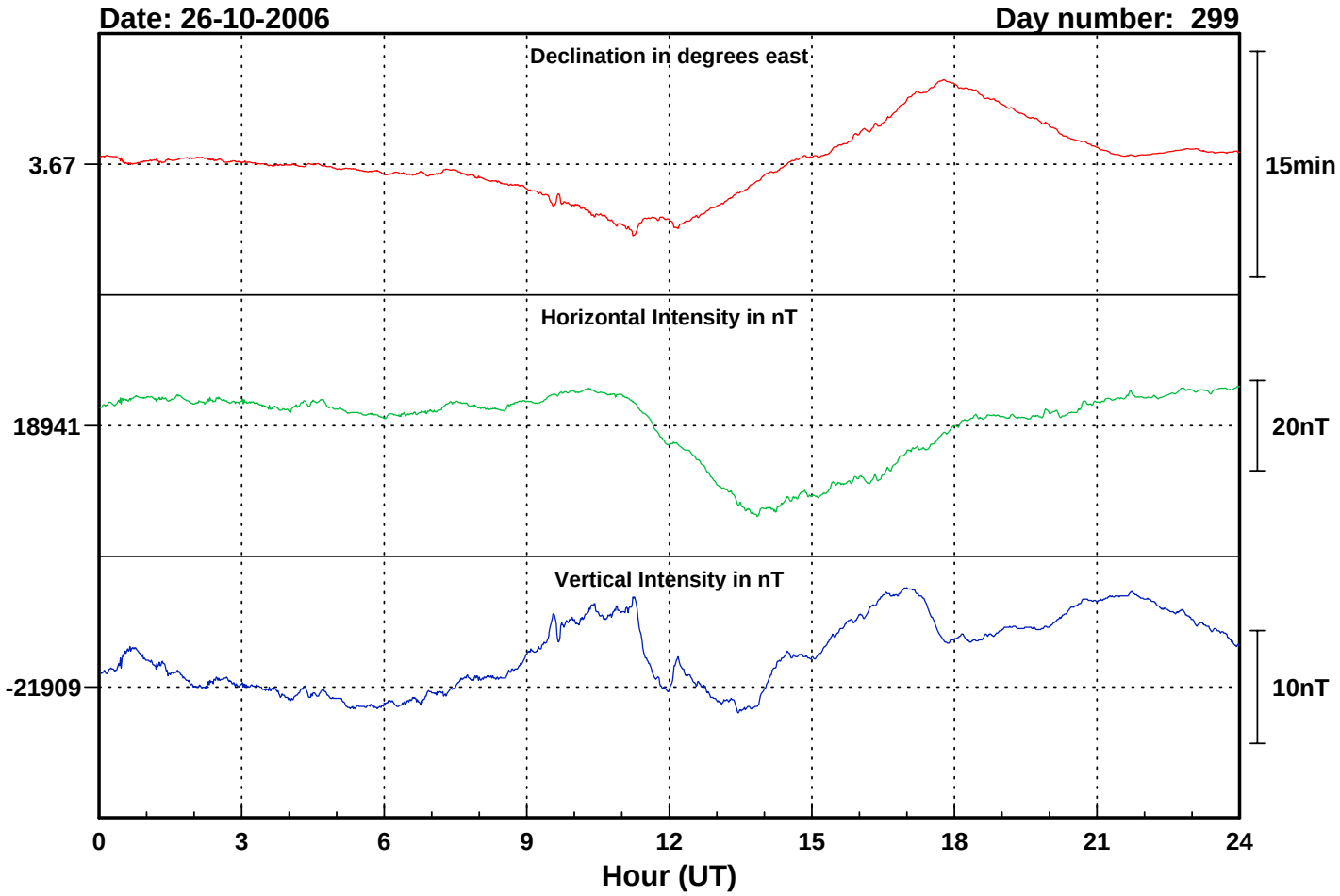
12
15
18
21
24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Day number: 299
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15min
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18941
20nT
Vertical Intensity in nT
-21909
10nT
0
3
6
9
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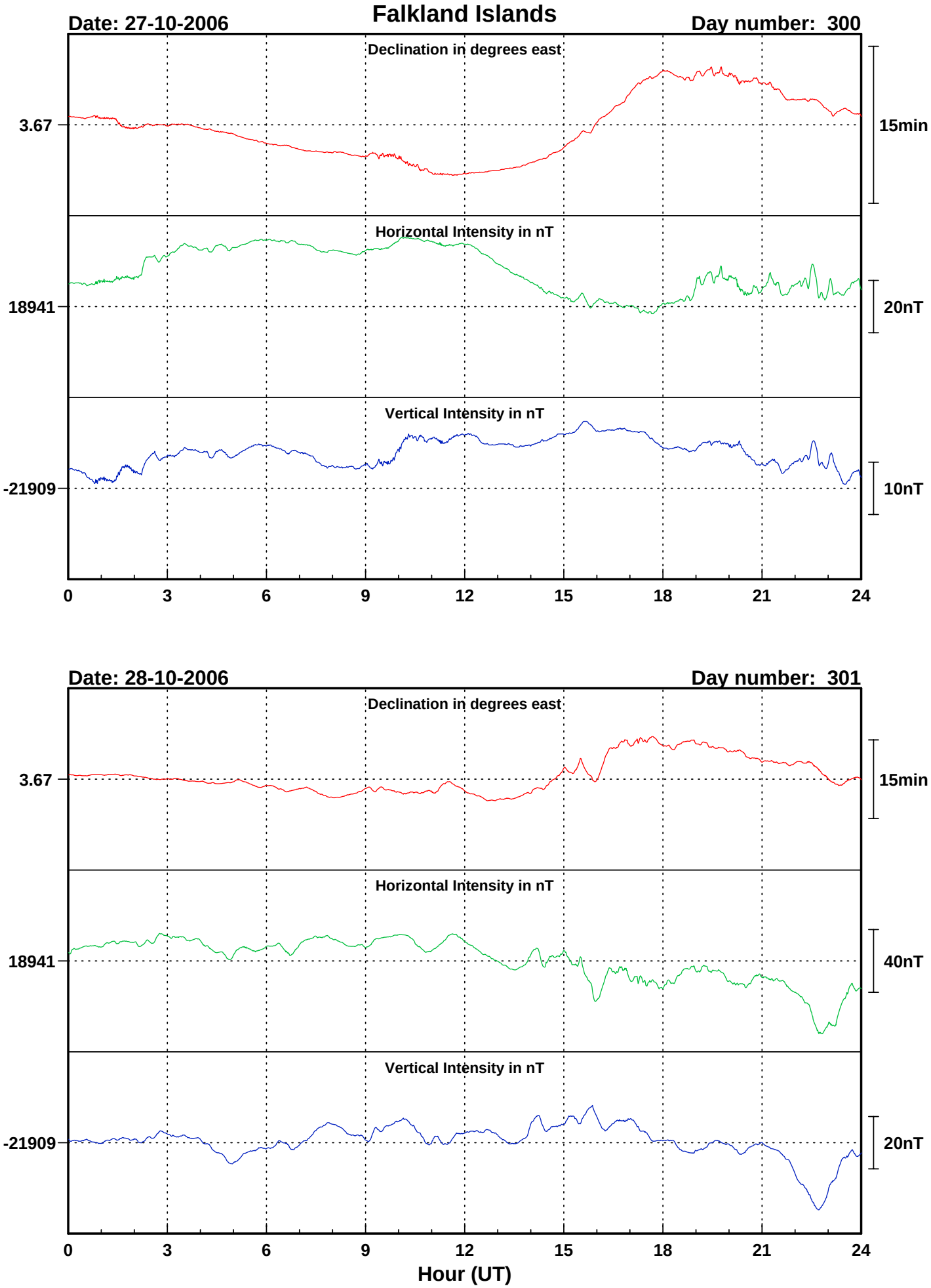
15
18
21
24
Hour (UT)


Falkland Islands
Date: 27-10-2006
Day number: 300
Declination in degrees east
3.67
15min
Horizontal Intensity in nT
18941
20nT
Vertical Intensity in nT
-21909
10nT
0
3
6
9
12
15
18
21
24
Date: 28-10-2006
Day number: 301
Declination in degrees east
3.67
15min
Horizontal Intensity in nT
18941
40nT
Vertical Intensity in nT
-21909
20nT
0
3
6
9
12
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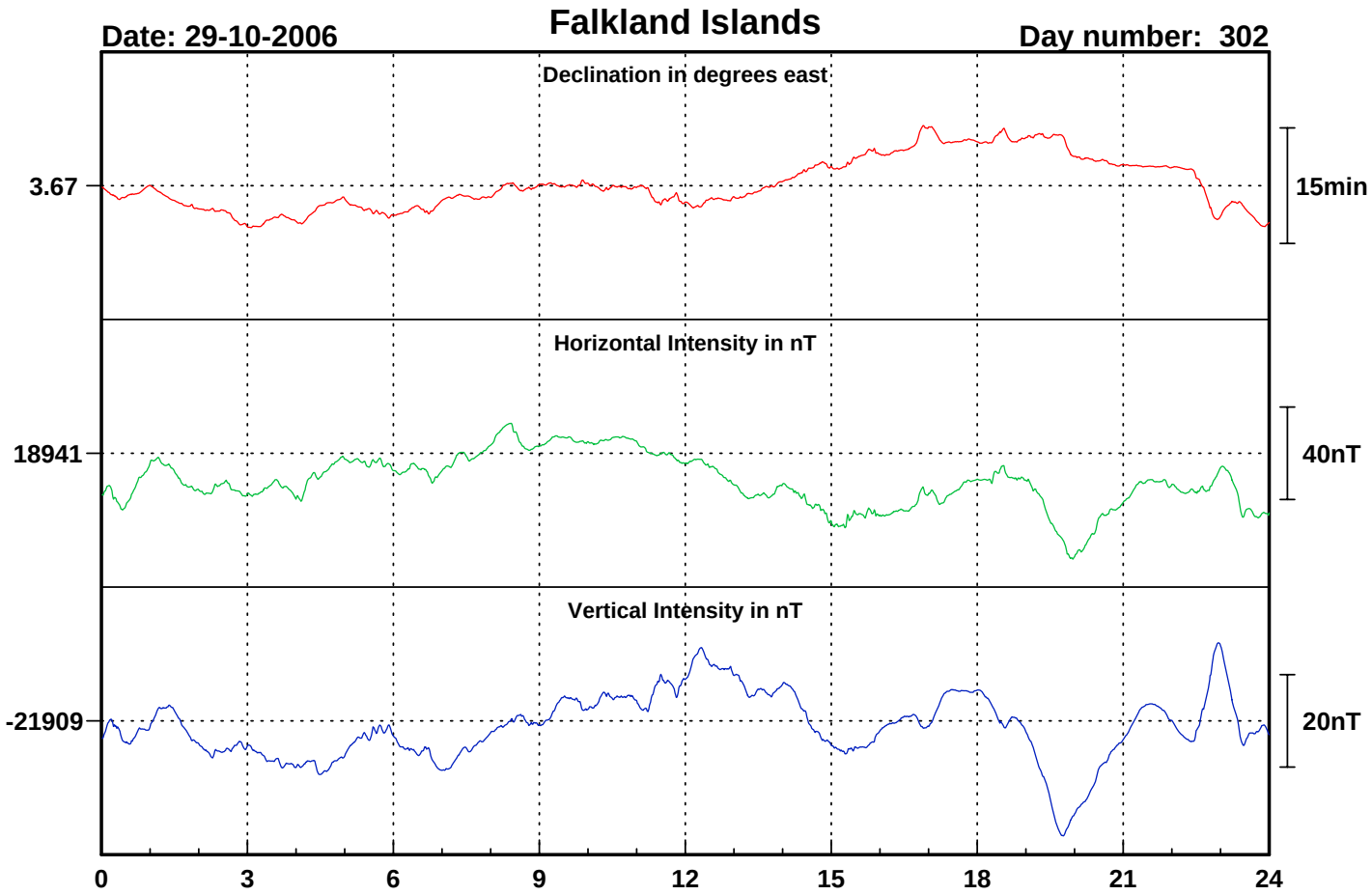
18
21
24
Hour (UT)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15min
Horizontal Intensity in nT
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40nT
Vertical Intensity in nT
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12
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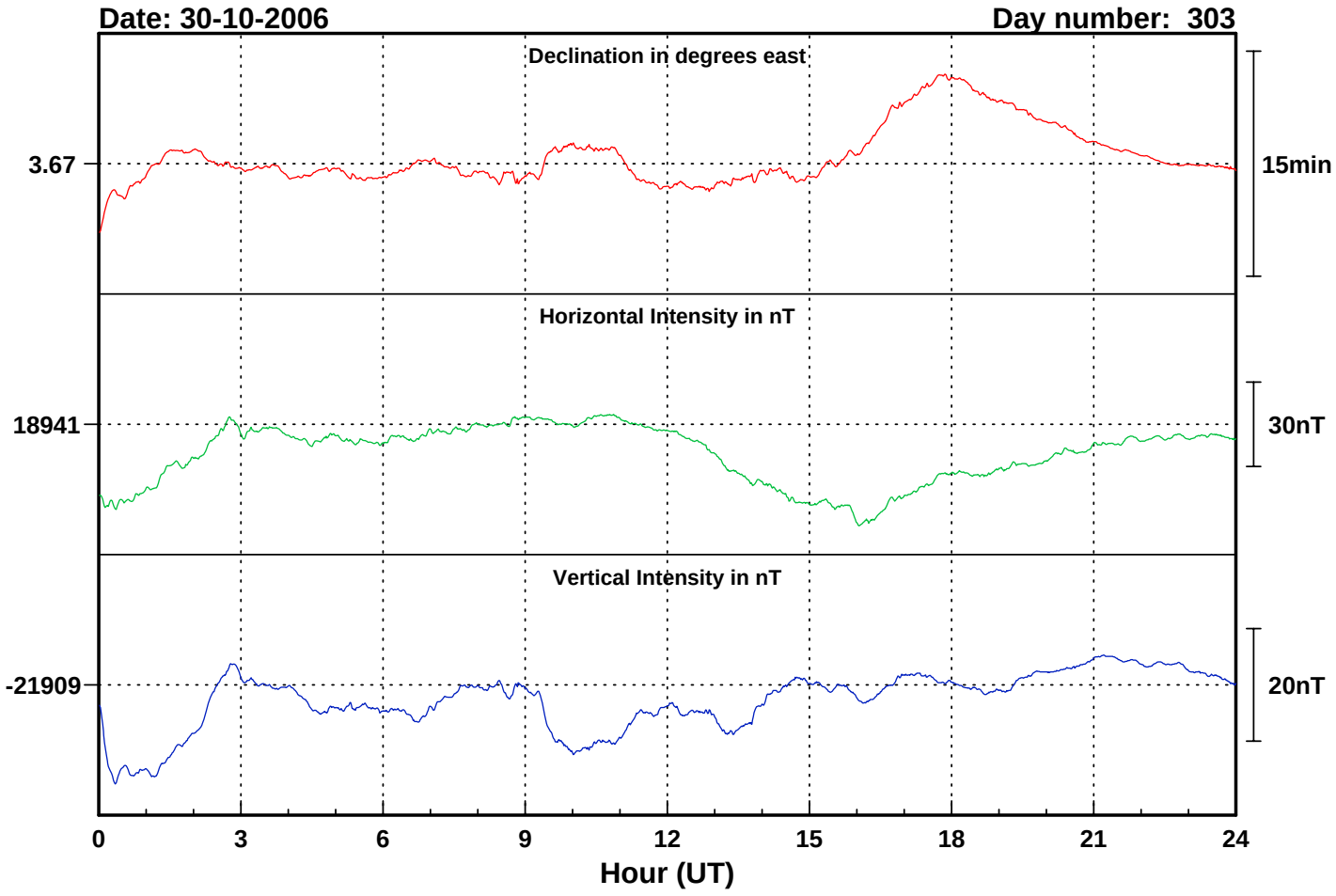
24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Day number: 303
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15min
Horizontal Intensity in nT
18941
30nT
Vertical Intensity in nT
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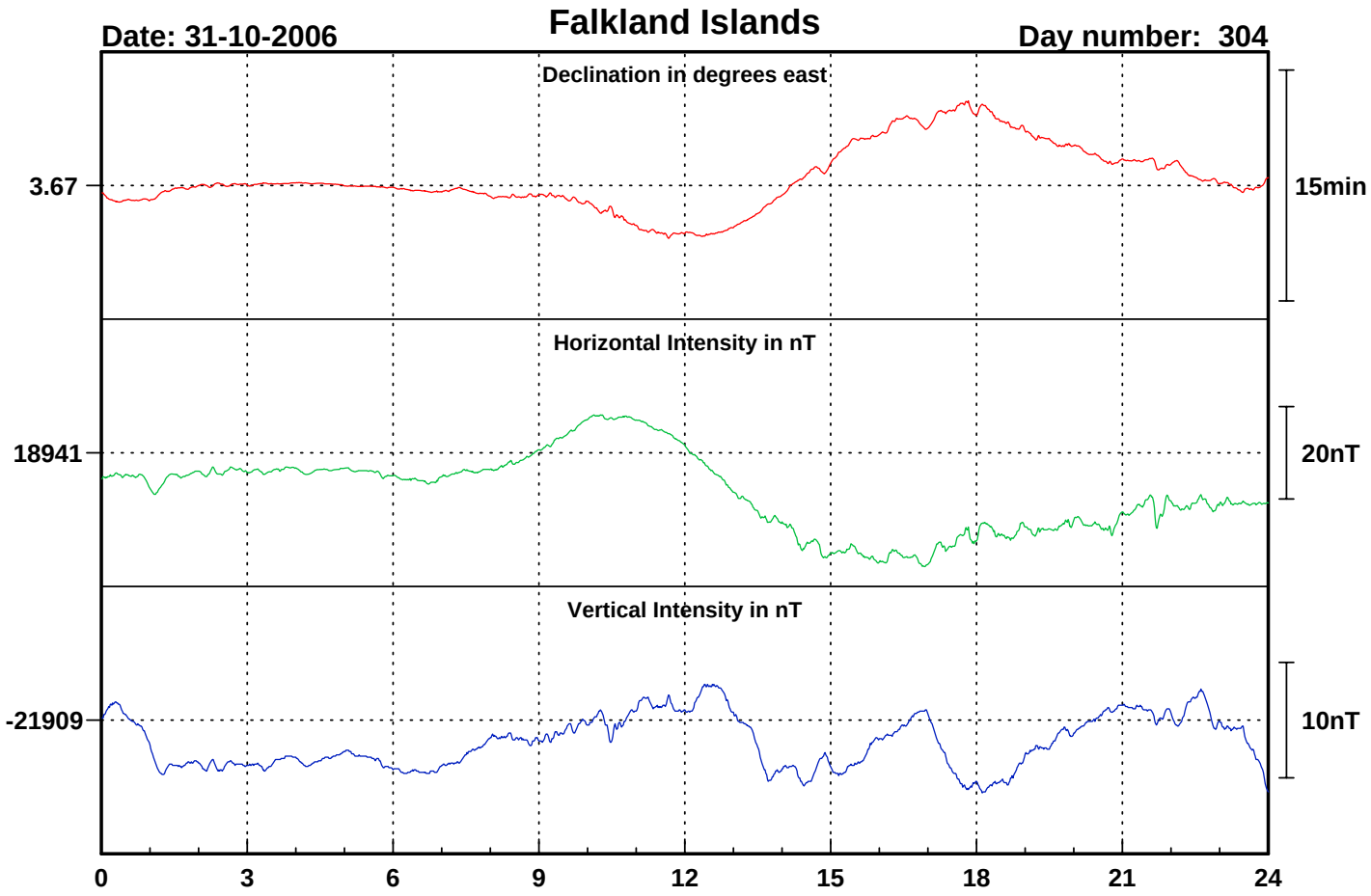
6
9
12
15
18
21
24
Hour (UT)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Day number: 304
Declination in degrees east
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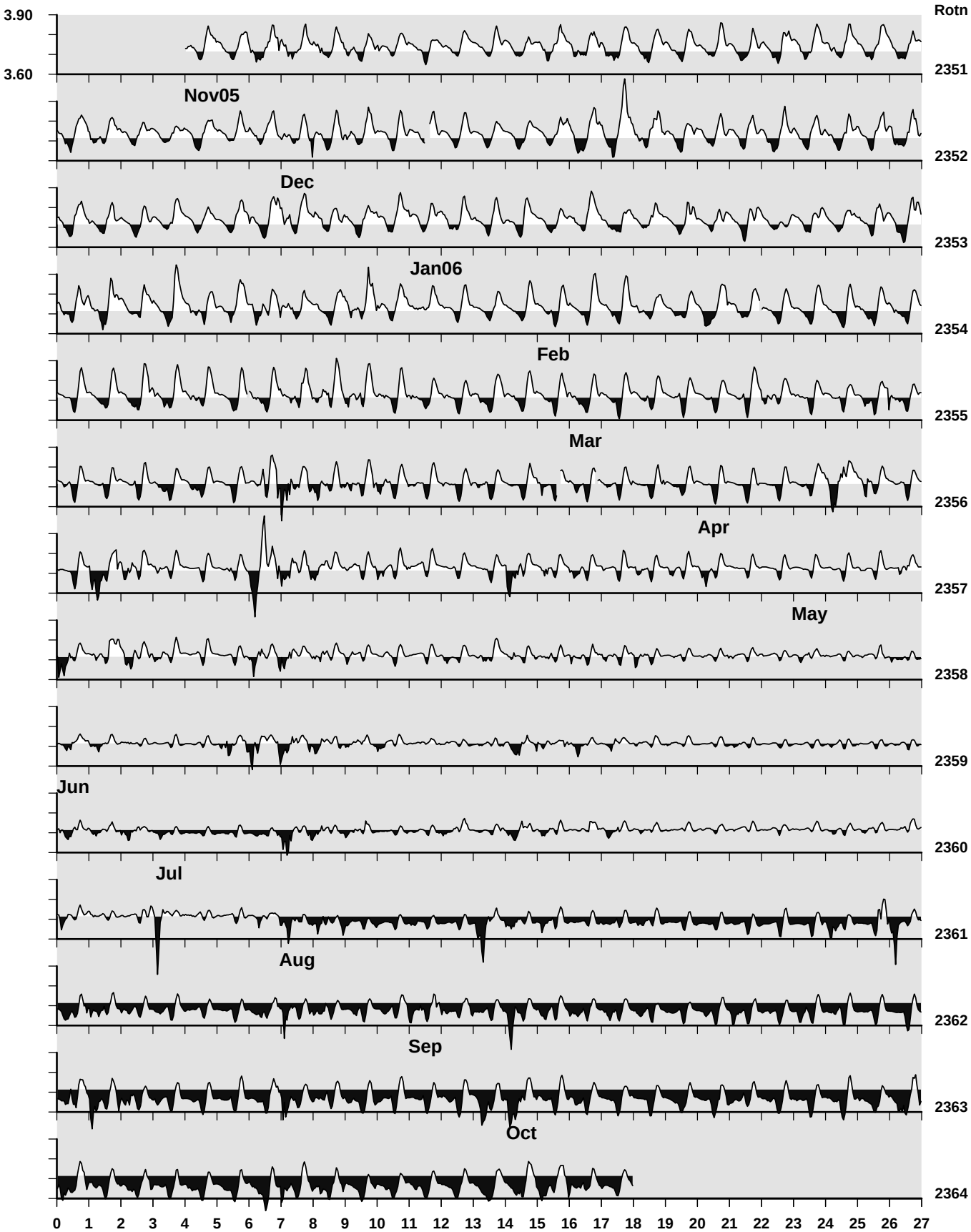
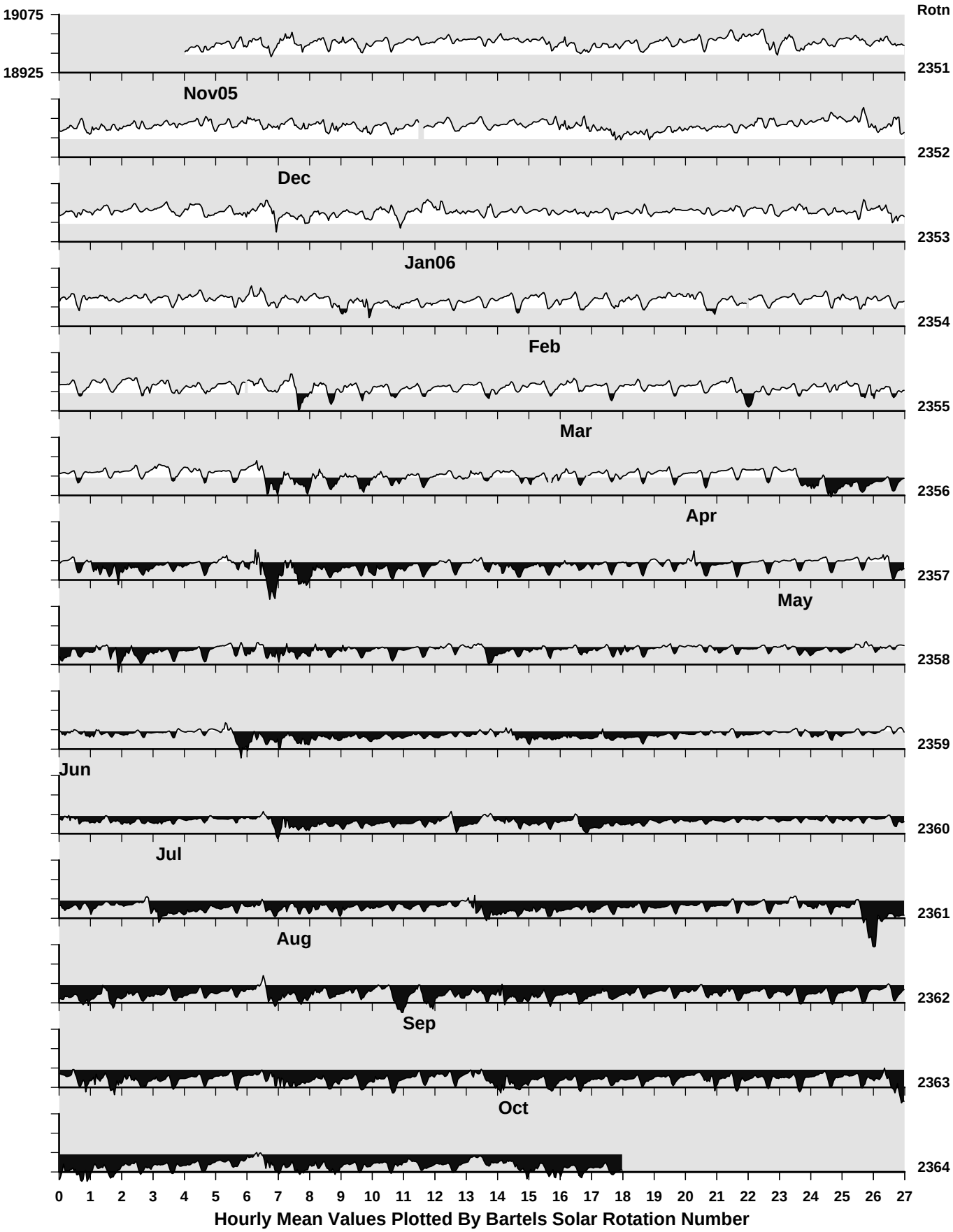
15min
Horizontal Intensity in nT
18941
20nT
Vertical Intensity in nT
-21909
10nT
0
3
6
9
12
15
18
21
24

Falkland Islands Observatory: Declination (degrees)



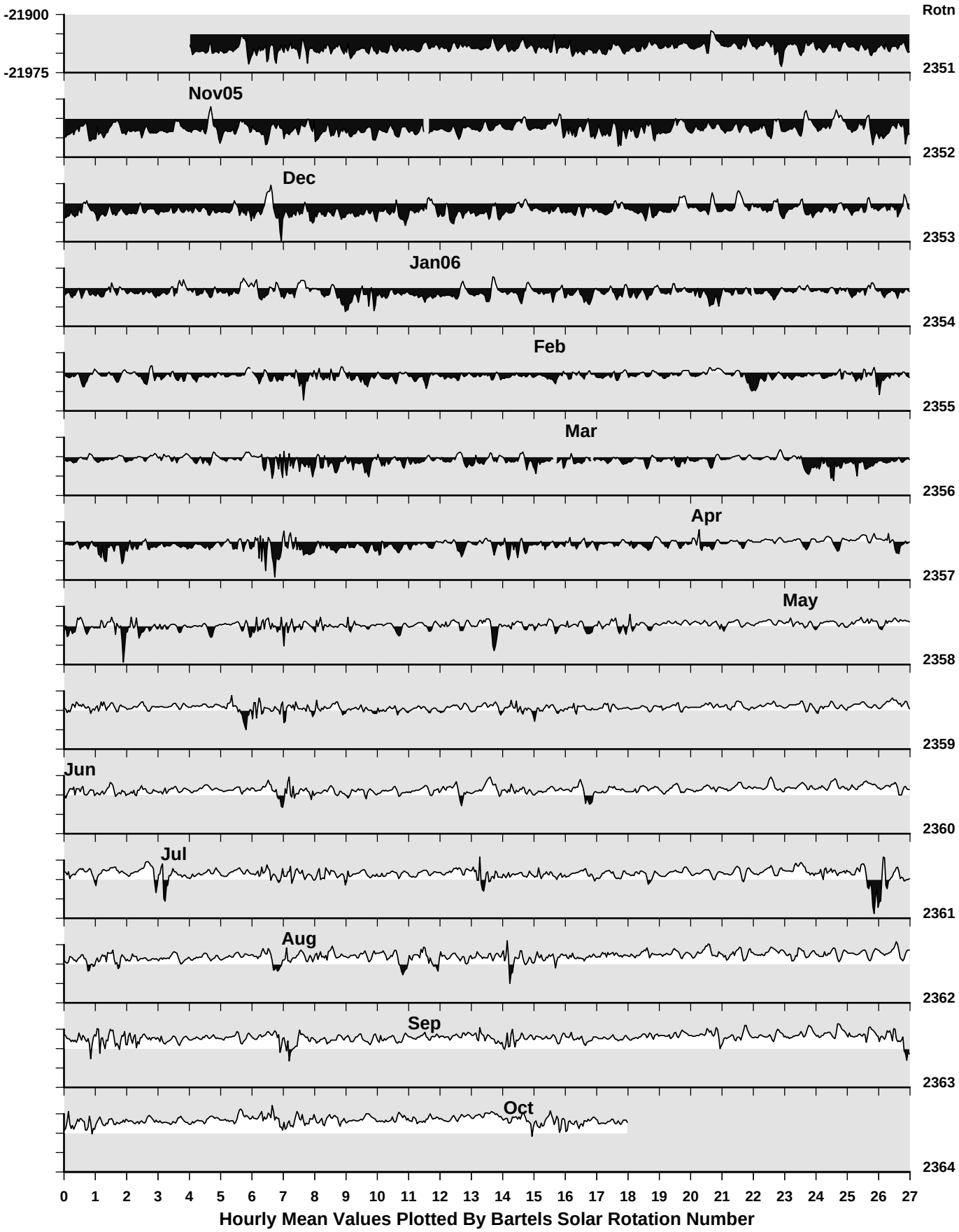
Hourly Mean Values Plotted By Bartels Solar Rotation Number

Falkland Islands Observatory: Horizontal Intensity (nT)



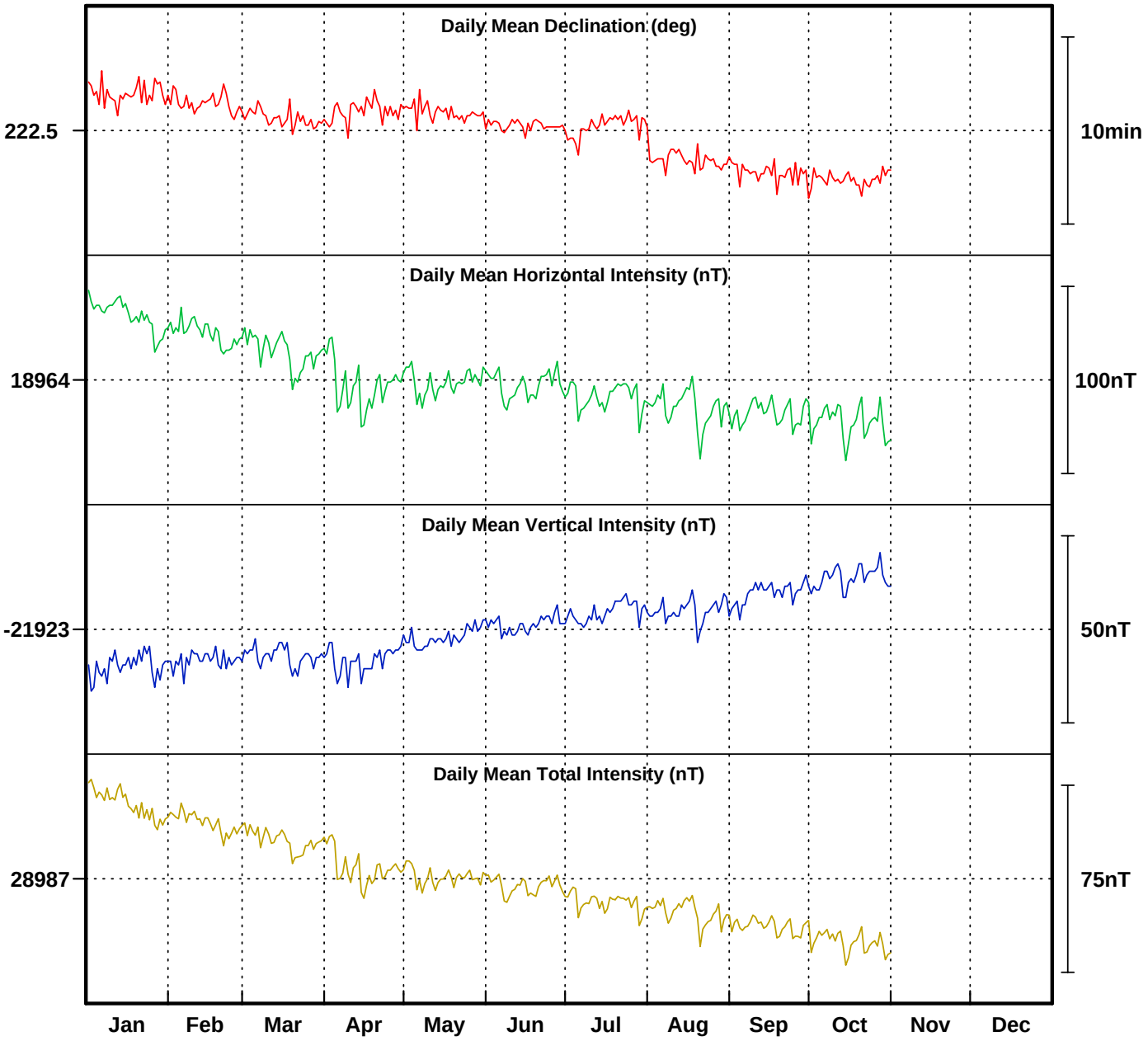
Hourly Mean Values Plotted By Bartels Solar Rotation Number

Falkland Islands Observatory: Vertical Intensity (nT)



Hourly Mean Values Plotted By Bartels Solar Rotation Number

Falklands Is Observatory 2006



Monthly Mean Values for Port Stanley Observatory 2006

Month	*D*	*H*	*I*	*X*	*Y*	*Z*	*F*
January	3° 44.5′	18998 nT	-49° 6.0′	18958 nT	1240 nT	-21932 nT	29017 nT
February	3° 44.0′	18989 nT	-49° 6.7′	18949 nT	1236 nT	-21931 nT	29009 nT
March	3° 43.2′	18979 nT	-49° 7.5′	18939 nT	1231 nT	-21930 nT	29002 nT
April	3° 43.5′	18961 nT	-49° 9.2′	18921 nT	1232 nT	-21931 nT	28991 nT
May	3° 43.4′	18963 nT	-49° 8.6′	18923 nT	1232 nT	-21925 nT	28987 nT
June	3° 42.8′	18961 nT	-49° 8.5′	18921 nT	1228 nT	-21921 nT	28984 nT
July	3° 42.8′	18955 nT	-49° 8.8′	18915 nT	1227 nT	-21918 nT	28977 nT
August	3° 40.9′	18949 nT	-49° 9.3′	18910 nT	1217 nT	-21918 nT	28973 nT
September	3° 40.2′	18946 nT	-49° 9.1′	18908 nT	1213 nT	-21913 nT	28968 nT
October	3° 39.9′	18941 nT	-49° 9.3′	18902 nT	1211 nT	-21909 nT	28961 nT

Note

i. The values shown here are provisional.