

# GOMOS Daily Report 07-NOV-2011

## Level 0 and Level 1 products

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This report presents the daily analysis on parameters extracted from GOMOS level 1b data (GOM\_TRA\_1P). It is intended to monitor some important parameters that will impact the quality of the level 2 products as the Spectrometers and Photometers CCD Temperatures and Dark Charge, SATU noise equivalent angle... A list of level 0 products (and content) that have arrived during the actual month to the PCF is also given.

Item	Value
Time of report generation	09NOV2011 13:08:57
Data source version	GOMOS/6.01
Start time of products	07NOV2011 10:18:50
Stop time of products	07NOV2011 10:18:50
Store outputs in DB	Yes
Nb of level 1b prods	1
Nb of prods with errors	0

## 2. Summary of products arrived in PCF (Product Control Facility)

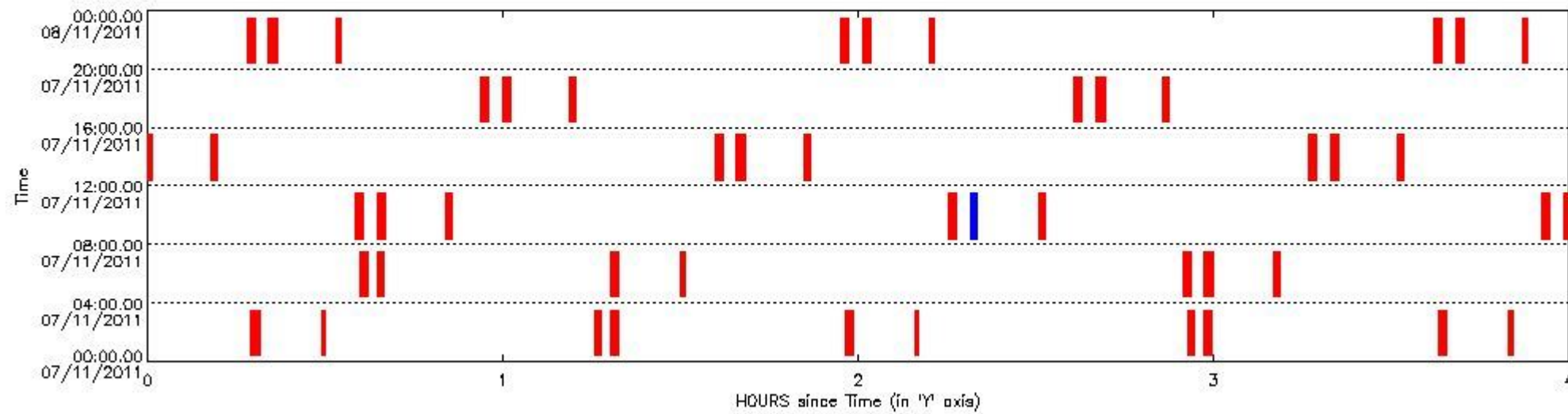
### 2.1 Level 0 products arrived in PCF (see template [here](#))

### 2.2 Plot of mission plan versus Level 0 production arrived in PCF during reporting period

Red segments are missing products.

Blue segments are available products.

Green segments are calibration measurements (not available products to users).



### 2.3 Summary of missing occultations (red segments in previous plot)

UTC start time	Star name	Star ID	Orbit
07-NOV-2011 00:17:22	32AlpLeo	22	50676
07-NOV-2011 00:29:15	DSA1054	0	50676
07-NOV-2011 01:15:19	25EtaTau	146	50676
07-NOV-2011 01:18:06	44ZetPer	150	50676
07-NOV-2011 01:57:37	32AlpLeo	22	50677
07-NOV-2011 02:09:28	DSA1054	0	50677
07-NOV-2011 02:55:34	25EtaTau	146	50677
07-NOV-2011 02:58:21	44ZetPer	150	50677
07-NOV-2011 03:37:52	32AlpLeo	22	50678
07-NOV-2011 03:49:40	DSA1054	0	50678
07-NOV-2011 04:35:50	25EtaTau	146	50678
07-NOV-2011 04:38:37	44ZetPer	150	50678
07-NOV-2011 05:18:07	32AlpLeo	22	50679
07-NOV-2011 05:29:51	DSA1054	0	50679
07-NOV-2011 06:54:43	41Gam1Leo	51	50680

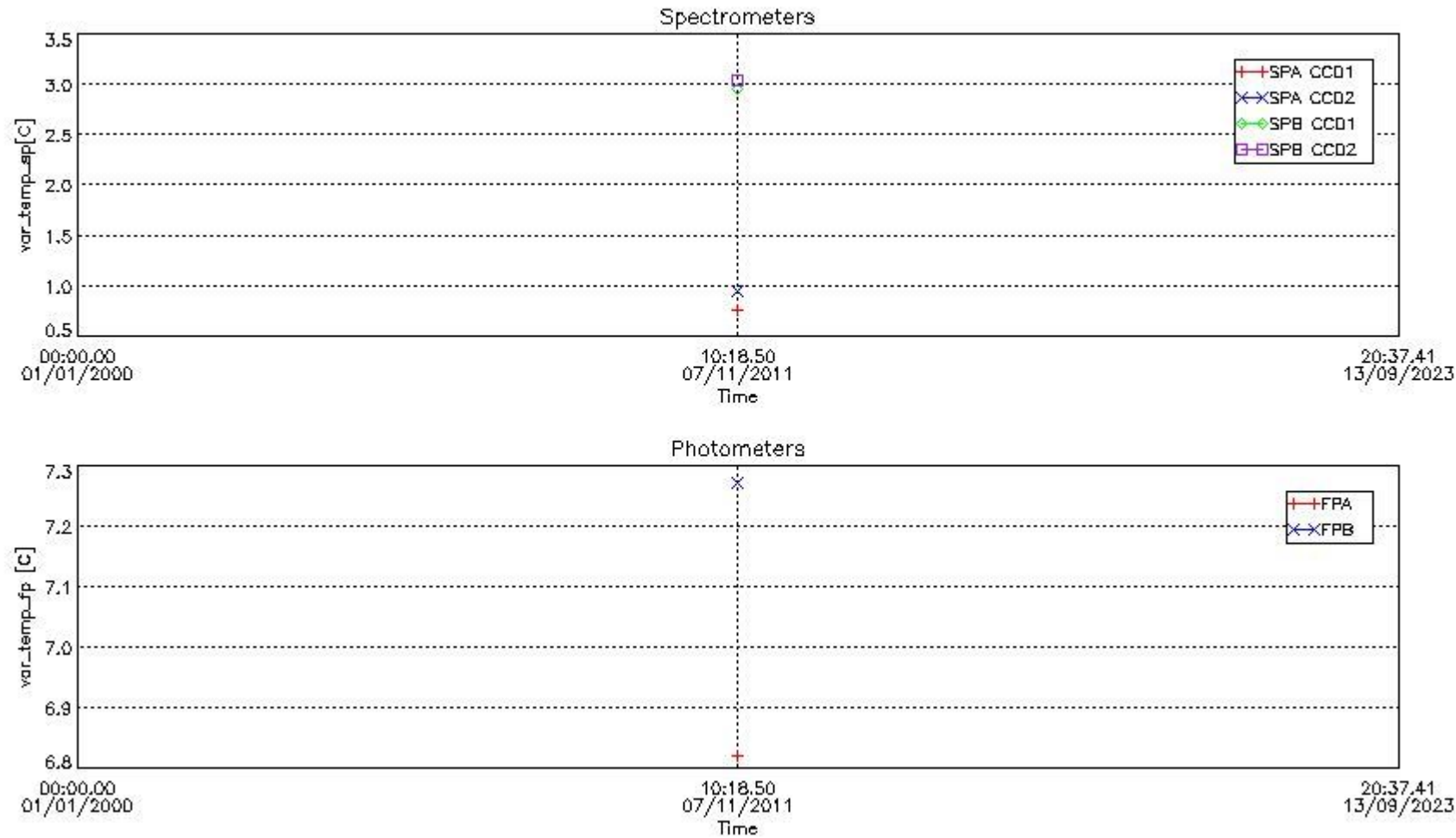
07-NOV-2011 06:58:22	32AlpLeo	22	50680
07-NOV-2011 07:10:04	DSA1054	0	50680
07-NOV-2011 08:34:57	41Gam1Leo	51	50681
07-NOV-2011 08:38:37	32AlpLeo	22	50681
07-NOV-2011 08:50:15	DSA1054	0	50681
07-NOV-2011 10:15:12	41Gam1Leo	51	50682
07-NOV-2011 10:30:28	DSA1054	0	50682
07-NOV-2011 11:55:26	41Gam1Leo	51	50683
07-NOV-2011 11:59:06	32AlpLeo	22	50683
07-NOV-2011 12:10:40	DSA1054	0	50683
07-NOV-2011 13:35:41	41Gam1Leo	51	50684
07-NOV-2011 13:39:21	32AlpLeo	22	50684
07-NOV-2011 13:50:52	DSA1054	0	50684
07-NOV-2011 15:15:55	41Gam1Leo	51	50685
07-NOV-2011 15:19:36	32AlpLeo	22	50685
07-NOV-2011 15:31:03	DSA1054	0	50685
07-NOV-2011 16:56:10	41Gam1Leo	51	50686
07-NOV-2011 16:59:51	32AlpLeo	22	50686
07-NOV-2011 17:11:15	DSA1054	0	50686
07-NOV-2011 18:36:24	41Gam1Leo	51	50687
07-NOV-2011 18:40:06	32AlpLeo	22	50687
07-NOV-2011 18:51:28	DSA1054	0	50687
07-NOV-2011 20:16:39	41Gam1Leo	51	50688
07-NOV-2011 20:20:20	32AlpLeo	22	50688
07-NOV-2011 20:31:39	DSA1054	0	50688
07-NOV-2011 21:56:53	41Gam1Leo	51	50689
07-NOV-2011 22:00:35	32AlpLeo	22	50689
07-NOV-2011 22:11:50	DSA1054	0	50689
07-NOV-2011 23:37:08	41Gam1Leo	51	50690
07-NOV-2011 23:40:50	32AlpLeo	22	50690
07-NOV-2011 23:52:03	DSA1054	0	50690

#### 2.4 Summary of processed GOM\_TRA\_1P products

**!Warning: No products without errors in DARK limb contitions found !Warning: No products without errors in BRIGHT limb contitions found**

Nr	Filename	UTC Start time	Limb	Duration	Star Id	Star Name	Star Mag	Star Temp	Nb Meas	Orbit	Prod. error
1	GOM_TRA_1PNPDK20111107_101850_000000693108_00223_50668_7070.N1	07-NOV-2011 10:18:50	Twilight_stray	68.500	22	32Alp Leo	1.3600	15200.	137	50668	No

### 3. Plot of GOMOS spectrometers and photometers temperatures from level 1b data



#### 4. Overview of dark signal processing per product

The Dark Charge (DC) is a temperature-dependant signal added to the useful measurements and it is therefore subtracted from them during the processing. There are two phenomena that produce a continuous increase of the DC: the "hot pixels" (a pixel is "hot" when its DC exceeds by a significant amount its value measured on ground at the same temperature) and the "Random Telegraphic Signal" (abrupt change positive or negative of the CCD pixel signal, random in time, affecting only the DC part of the signal and not the photon generated signal).

In this section a list of products that did not use the Dark Sky Area (DSA) observation for the DC computation is given. It is also provided the mean DC plot per product for dark limb products with no error flag set.

##### 4.1 These products did not use the DSA observation for DC computation:

Product name	DC information
GOM_TRA_1PNPDK20111107_101850_000000693108_00223_50668_7070.N1	DC map used

##### 4.2 Plot of mean dark charges per product: only products in DARK limb conditions without errors are used

No products without errors in DARK limb contitions found. No plot performed.

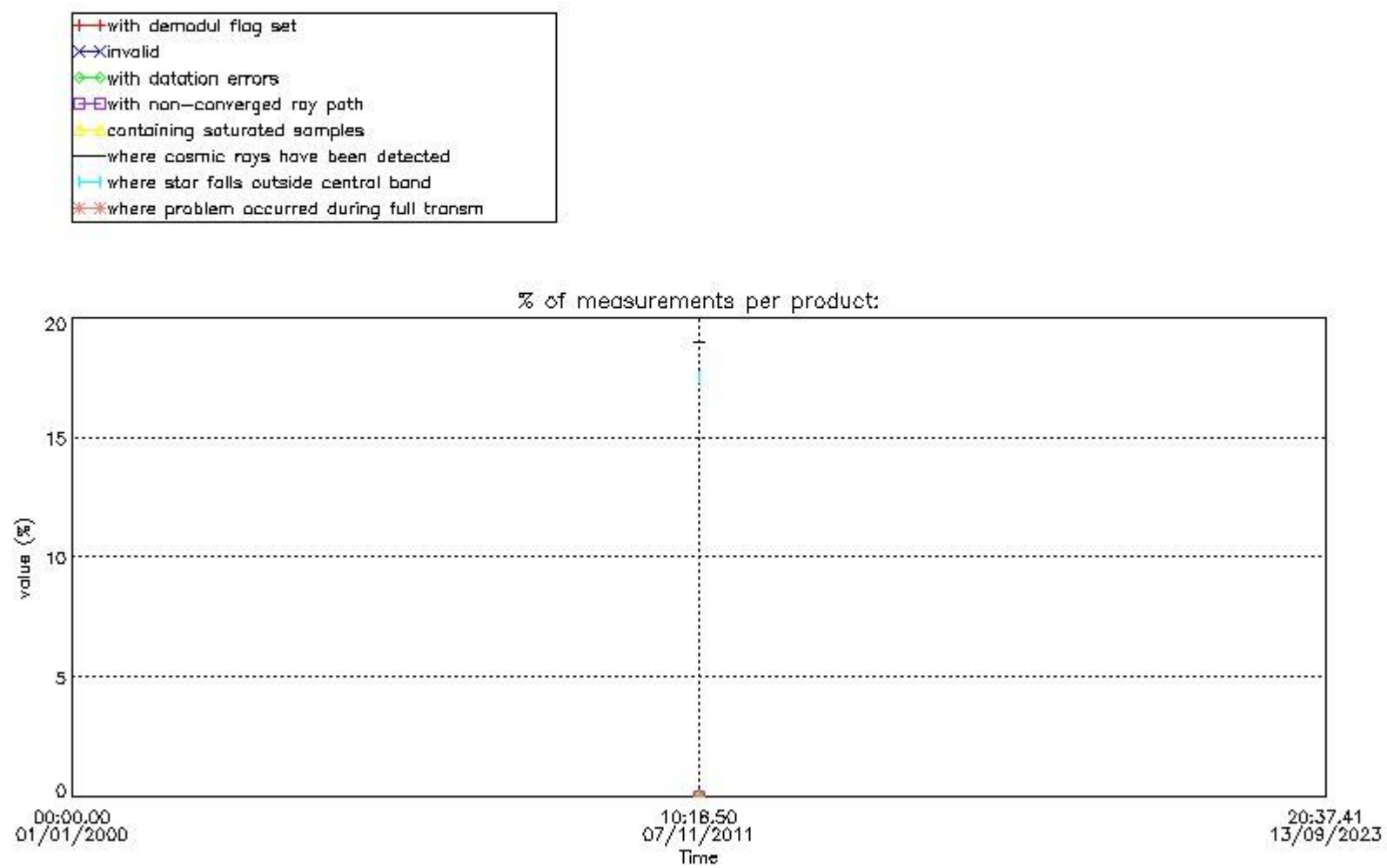
#### 5. Demodulation flag and quality information monitoring

In this section it is presented the modulation information extracted from the pcd (product confidence data) at measurement level and information extracted from the Quality Summary dataset. Only products without errors (error flag in the MPH set to "0") are used.

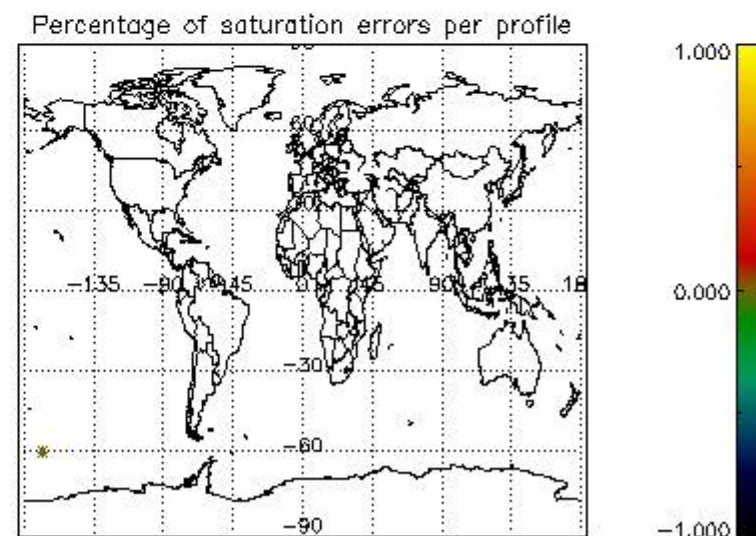
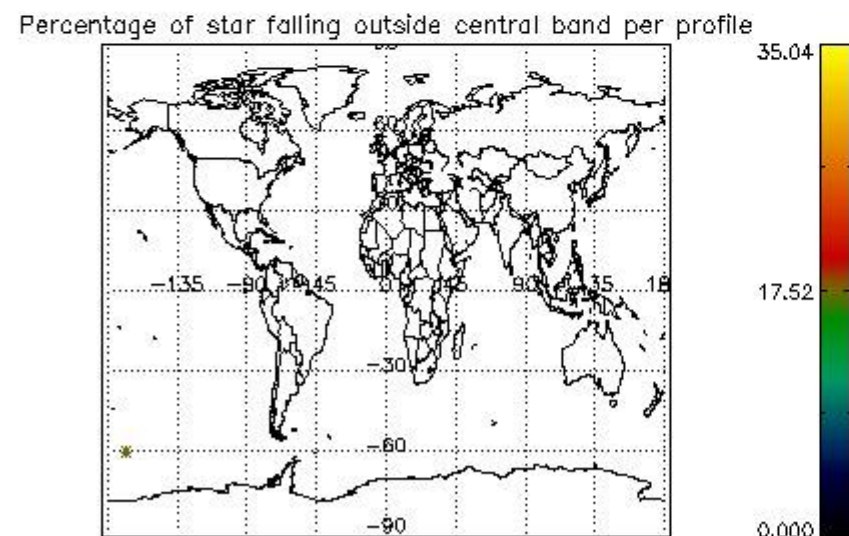
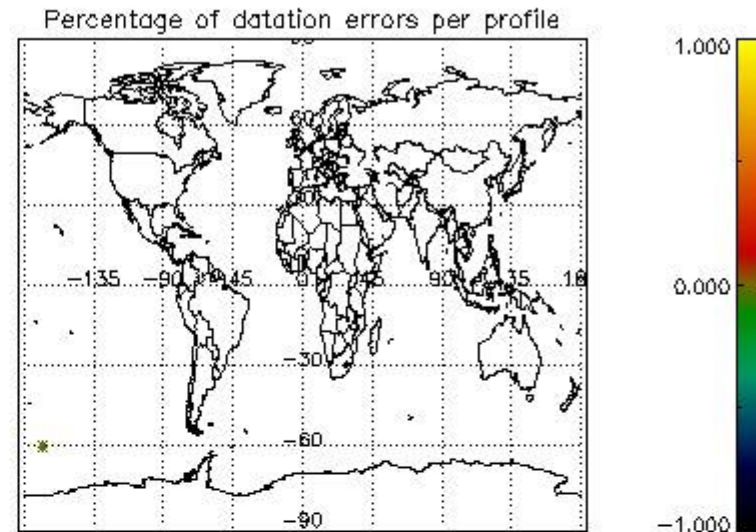
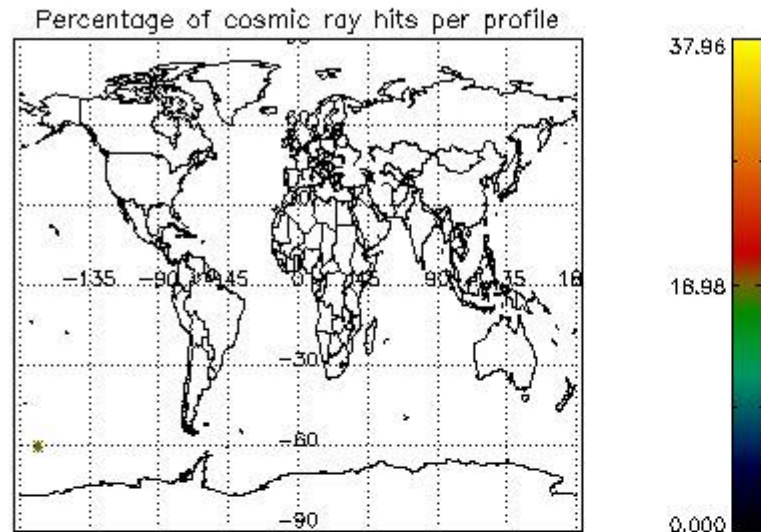
##### 5.1 Percentage of products during reporting period with:

At least one measurement with demodulation flag set:	100.000 %
Reference spectrum computed from DB:	0.00000 %
Reference spectrum with small number of measurements:	0.00000 %
SATU data not used:	0.00000 %

### 5.2 Plot quality information per product (time dependant)



### 5.3 Plot quality information per product (world map)



## 6. Statistics and plot of tangent altitude of the last measurement (DARK & BRIGHT products without errors)

### 6.1 Statistics on tangent altitude lost:

Statistics	DARK	BRIGHT	TWILIGHT
Mean:	NaN	NaN	NaN
St. deviation:	NaN	NaN	NaN
Maximum:	NaN	NaN	NaN
Minimum:	NaN	NaN	NaN
Number of data:	NaN	NaN	NaN

## 7. Star Acquisition and Tracking Unit (SATU)

The Star Acquisition and Tracking Unit (SATU) analyses the position of the tracked star beam collected by the GOMOS telescope and deflected by the optical beam dispatcher. The main function of the SATU is to detect a star, provide its image position to the science data electronics and to help the pointing function to keep the star image at a fixed position. In tracking mode the SATU data is recorded with a frequency of 100 Hz.

## 7.1 SATU 'X' and 'Y' axis plots (dark limb)

SATU CCD 'X' and 'Y' axis plots are provided in order to detect any abnormal behaviour of the tracking system. For every occultation (color) the plot should remain stable (with some noise) until we are deep in the atmosphere where big fluctuations are registered due to the refractive effects.

## 7.2 Statistics on SATU Noise Equivalent Angle (NEA) for DARK (D) and BRIGHT (B) products above 105 kms

The Star Acquisition and Tracking Unit (it is the CCD that tracks the star while it is occulted) Noise Equivalent Angle consists of the statistical angular variation of the SATU data above the atmosphere. Statistics (in microradians) above 105 km are computed for every occultation, giving four values per occultation: one in the 'X' direction and one in the 'Y' direction for dark and bright limbs. A mean value per day in every direction and limb is calculated and monitored in order to assess instrument performance in terms of star pointing.

### 7.2.1 SATU NEA Statistics (table)

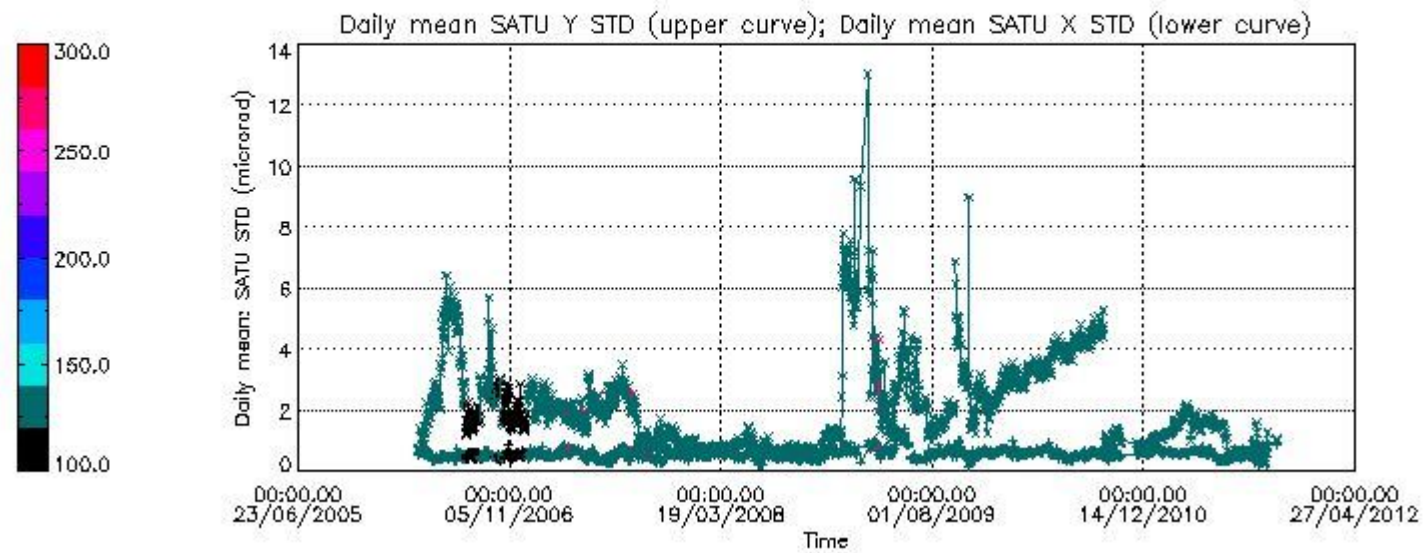
Statistics	SATU X (D)	SATU Y (D)	SATU X (B)	SATU Y (B)
Mean:	NaN	NaN	NaN	NaN
St. deviation:	NaN	NaN	NaN	NaN
Maximum:	NaN	NaN	NaN	NaN
Minimum:	NaN	NaN	NaN	NaN
Number of data:	NaN	NaN	NaN	NaN
90Percentile:	NaN	NaN	NaN	NaN

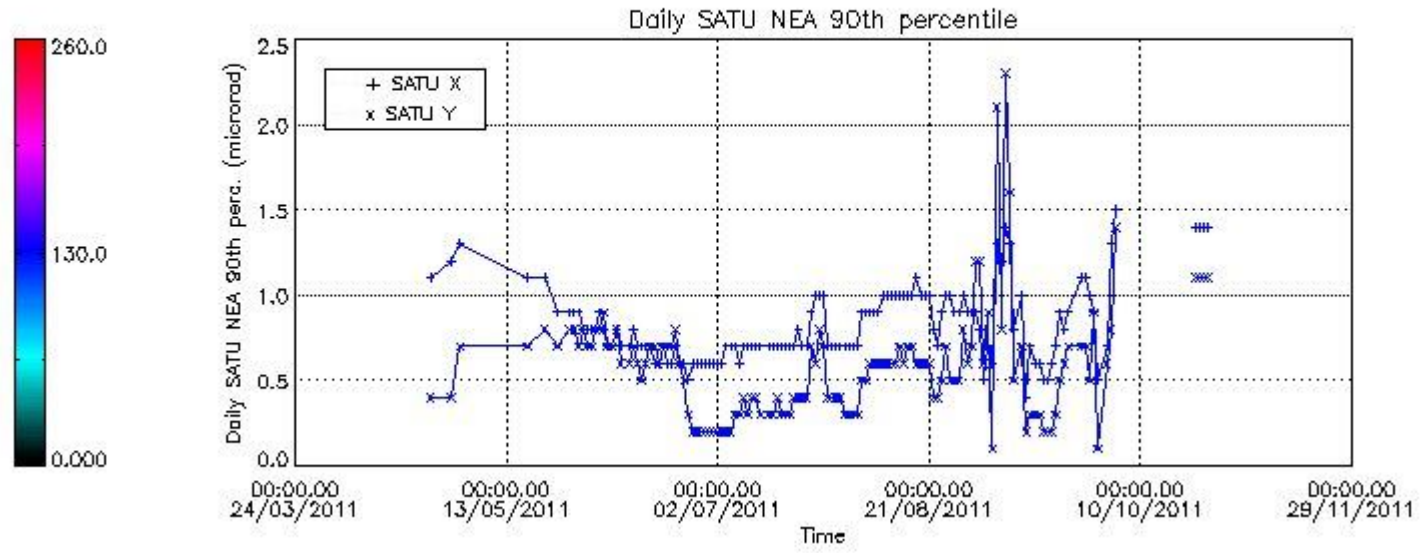
### 7.2.2 Trend of daily SATU NEA St. deviation since 1st April 2006 (dark limb) and of daily SATU NEA 90th percentile since May 2011

The long term trend of the SATU 'X' and 'Y' standard deviations should be constant during the whole mission.

The colorbar represents the start tangent altitude (km) of the occultations.

Upper curve: STD of SATU Y axis  
Lower curve: STD of SATU X axis



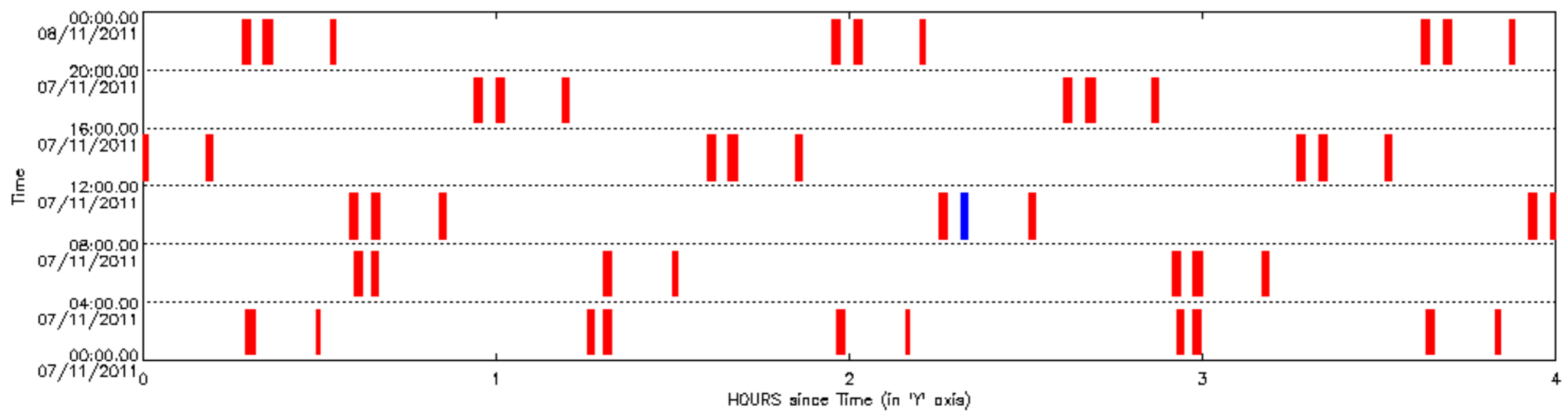


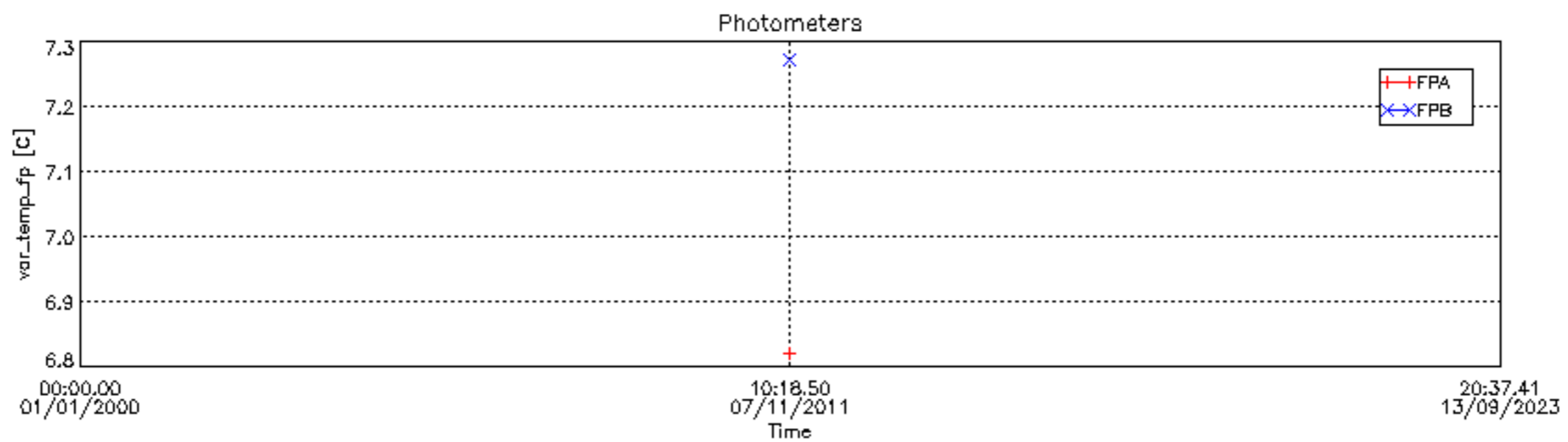
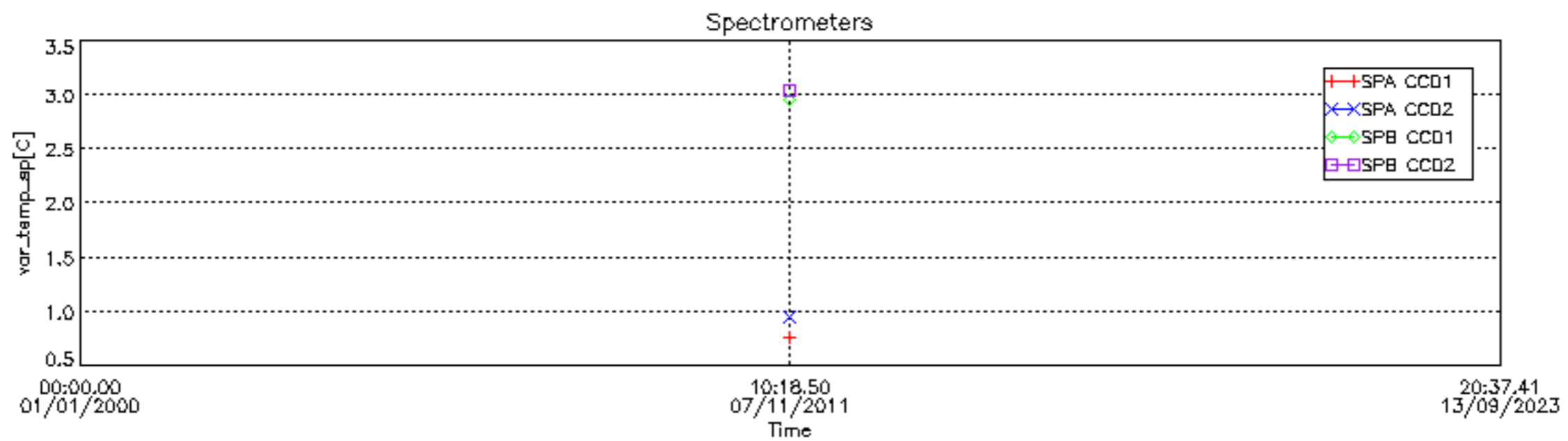
#### 8. Auxiliary Data Files used for the production reported in section 2.4

The number reported in the third column indicates since which file (see list in section 2.4) the corresponding auxiliary file has been used. The fourth column is the date of those product files.

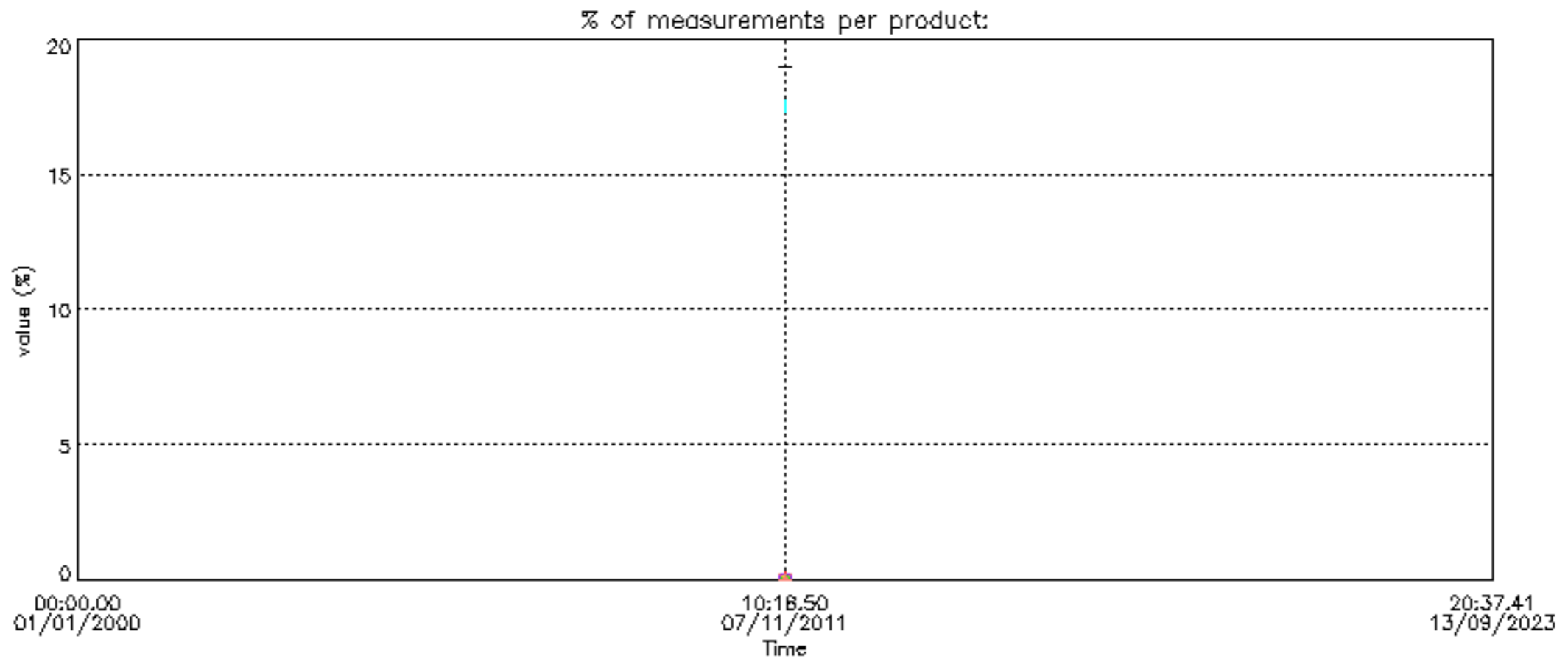
Type	Auxiliary Filename	Used since product	Used since product date
INST_PHYS_CHARACTERISTICS	GOM_INS_AXVIEC20091111_143220_20030716_120000_20500101_000000	1	07-NOV-2011 10:18:50
CALIBRATION_DATABASE	GOM_CAL_AXVIEC20111021_144853_20111020_000000_20500101_000000	1	07-NOV-2011 10:18:50
LEVEL-1B_PROC_CONFIG	GOM_PR1_AXVIEC20110513_081743_20020301_000000_20500101_000000	1	07-NOV-2011 10:18:50
STAR_CATALOGUE	GOM_CAT_AXVIEC20020121_161009_20020101_000000_20200101_000000	1	07-NOV-2011 10:18:50
STELLAR_SPECTRA_DATABANK	GOM_STS_AXVIEC20091111_151504_20020101_160000_20500101_000000	1	07-NOV-2011 10:18:50
ECMWF_FILE	AUX_ECF_AXNECM20111107_062114_20111107_090000_20111107_210000	1	07-NOV-2011 10:18:50
OPTIONAL_ECMWF_FILE	MISSING	1	07-NOV-2011 10:18:50
ORBIT_DATA_FILE	AUX_FPO_AXVPDS20111106_232114_20111106_193347_20111116_200714	1	07-NOV-2011 10:18:50



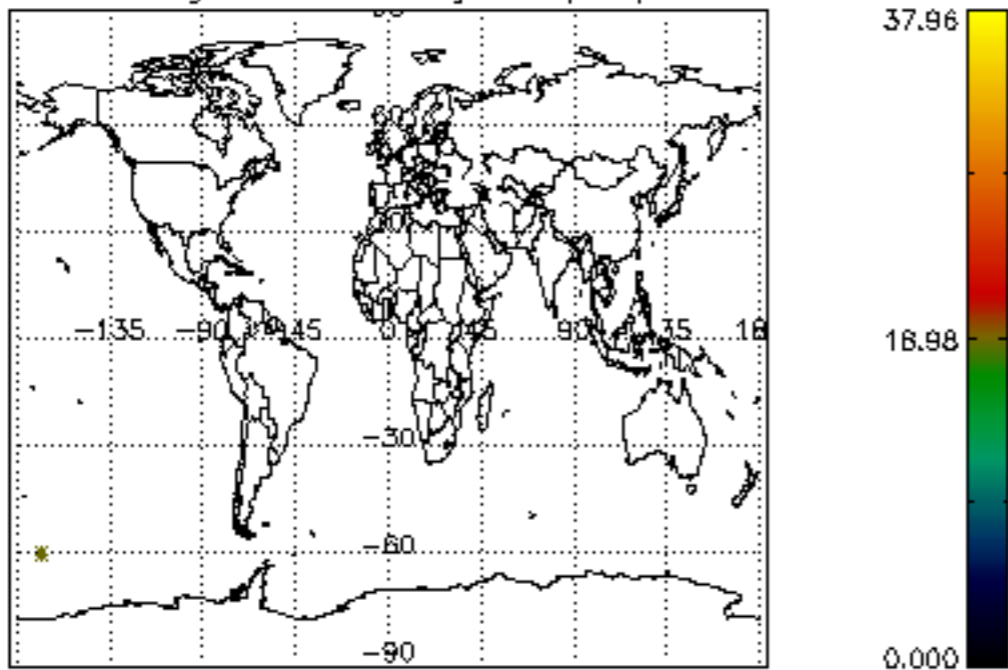




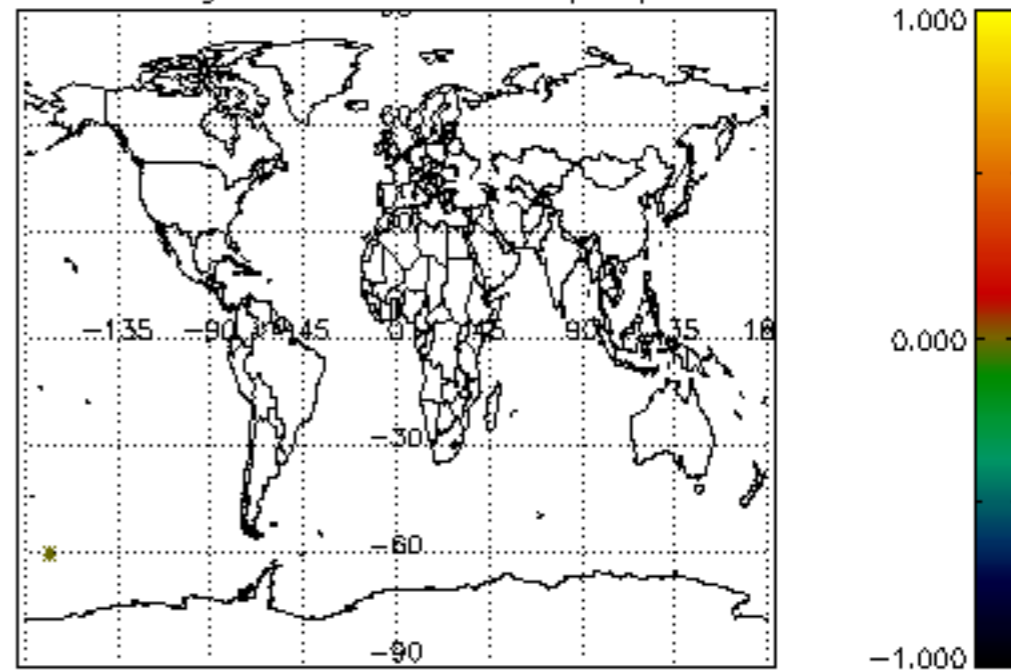
- + with demodul flag set
- x invalid
- ◇ with datation errors
- with non-converged ray path
- △ containing saturated samples
- where cosmic rays have been detected
- ⊢ where star falls outside central band
- \* where problem occurred during full transm



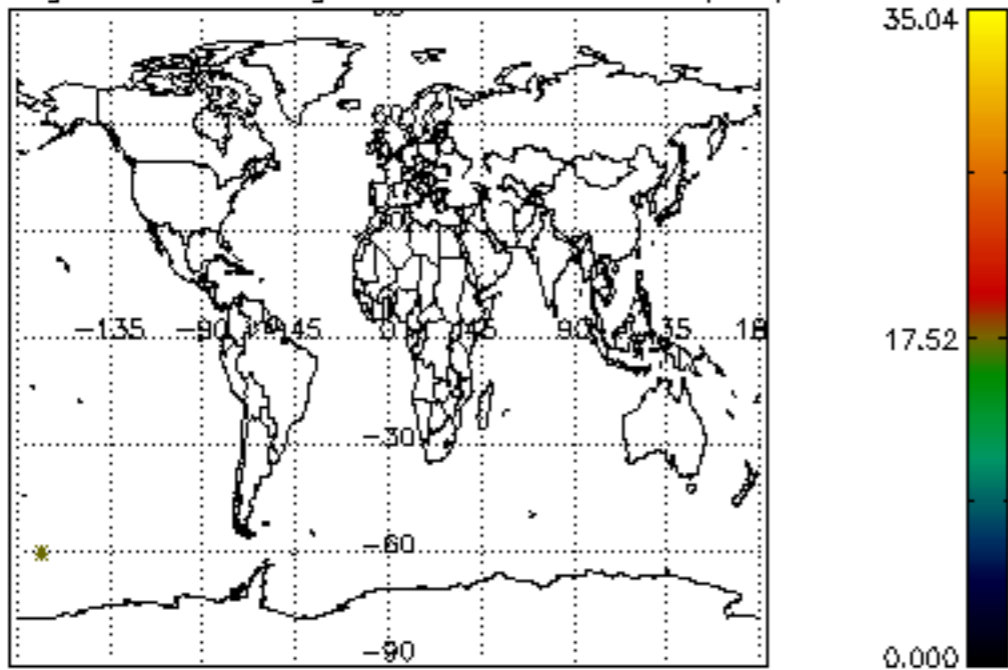
Percentage of cosmic ray hits per profile



Percentage of datation errors per profile



Percentage of star falling outside central band per profile



Percentage of saturation errors per profile

