EUROPEAN SPACE AGENCY
DIRECTORATE OF TECHNICAL & OPERATIONAL SUPPORT
MISSION OPERATIONS DEPARTMENT

INTEGRAL
Mission Report

INT-MOC-SYS-RP-1001-OPS-OF

No. 233
Week 10

12.03.07

Routine Phase

Prepared by: M. Walker (OPS-OFO)

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1 General

The Flight Control Team at MOC has compiled this report with some input provided by the Flight Dynamics Team, ISOC and ISDC.

It addresses the activities from 03.03.07 until 09.03.07 (both dates inclusive) and covers the revolutions 536 and 537.

2 Summary of Activities

The operations were performed according to the planning inputs from ISOC combined with some manual commanding by MOC.

The targets of these revolutions consisted of hexagonal dithers of the Galactic Bulge Region (RA 17:45:36.00, DEC -28:56:00.0), a raster dither of the Target of Opportunity GX 339-4 (RA 17:02:49.50, DEC -48:47:23.0), a raster dither of AO-4 KP: l=+6.9 (RA 18:01:12.94, DEC -22:59:28.5), a raster dither of AO-4 KP: l=-6.9 (RA 17:28:08.54, DEC -34:45:18.6) and a hexagonal dither of the Gamma Ray Source 1915+105 (RA 19:15:11.50, DEC +10:56:44.0).

Note: Some further information concerning the activities is provided in the Appendix.

3 Satellite Status

3.1 Platform

The performance of the platform was good. No new unexpected behaviour / malfunction was identified.

3.1.1 AOCS

The AOCS operations were performed from the timeline during this period.

No slews were missed from TL during the observation period.

The fuel consumption over the period between 02/03/2007 and 07/03/2007 was 0.1348 Kg. The remaining propellant is in the order of 147.8648 Kg.

Note: Some more information concerning the AOCS operations and the fuel budget is provided in the Appendix.

3.1.2 Power

The EPS is working nominally, available power from the arrays is of the order of 2100W.

3.1.3 Thermal

The thermal control of the satellite is working well. The temperatures are currently all within the specified operational limits.

3.1.4 OBDH

The OBDH subsystem is working flawlessly. No on-board communications problem has been identified.

3.1.5 RFS

The RF subsystem is working properly. The link margin is sufficient to ensure proper TM reception and execution of commands with the ranging channel enabled.

3.2 Payload

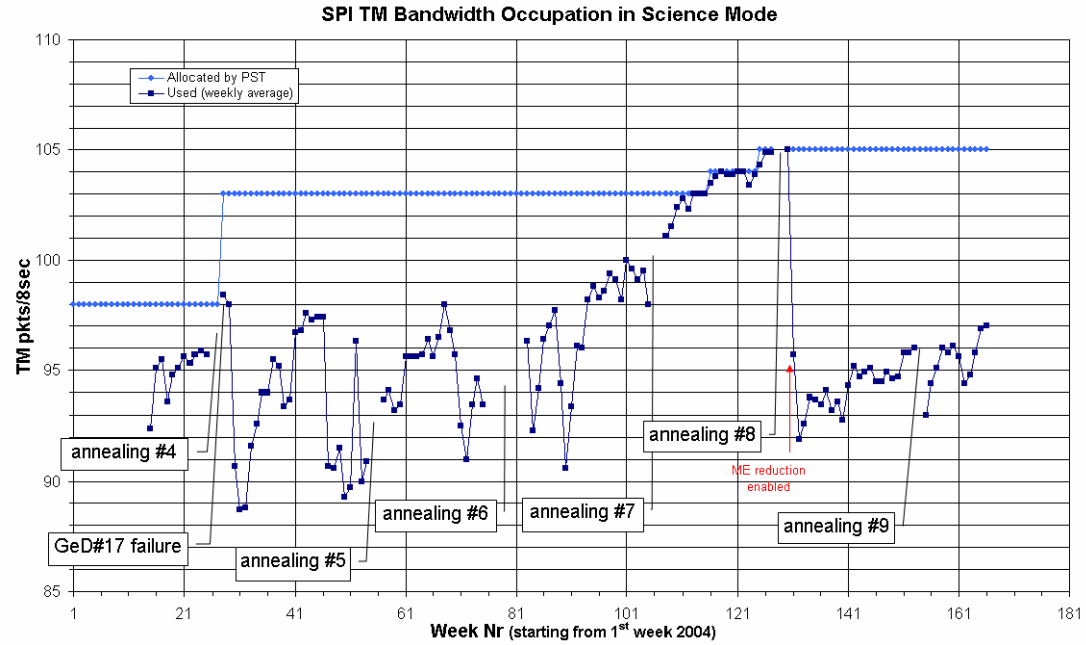
3.2.1 SPI

Following the 9th annealing, which ended on 22nd December, the overall status of the gamma-ray spectrometer is nominal, except for the Ge detector #12 which is showing a slightly degraded energy resolution and is therefore operating at a lower HV setting of 3.5kV (instead of 4kV). The energy resolution of GeD#4 was recovered with this annealing. Detector #2 is failed since 06.12.2003 and detector #17 since 17.07.2004.

The Stirling compressors are working nominally, maintaining the Germanium detectors at 80 +/-1K. The stroke of all four compressors has been set to 40 since 03.02.2007 at 13:16Z.

During science operations, the instrument was kept in photon-by-photon mode with spectra TM enabled. The assigned TM bandwidth in the science observation windows was 105 packets/cycle, with an average telemetry occupation of 97 packets/cycle.

The following plot shows the assigned and the average occupation of the SPI TM bandwidth.



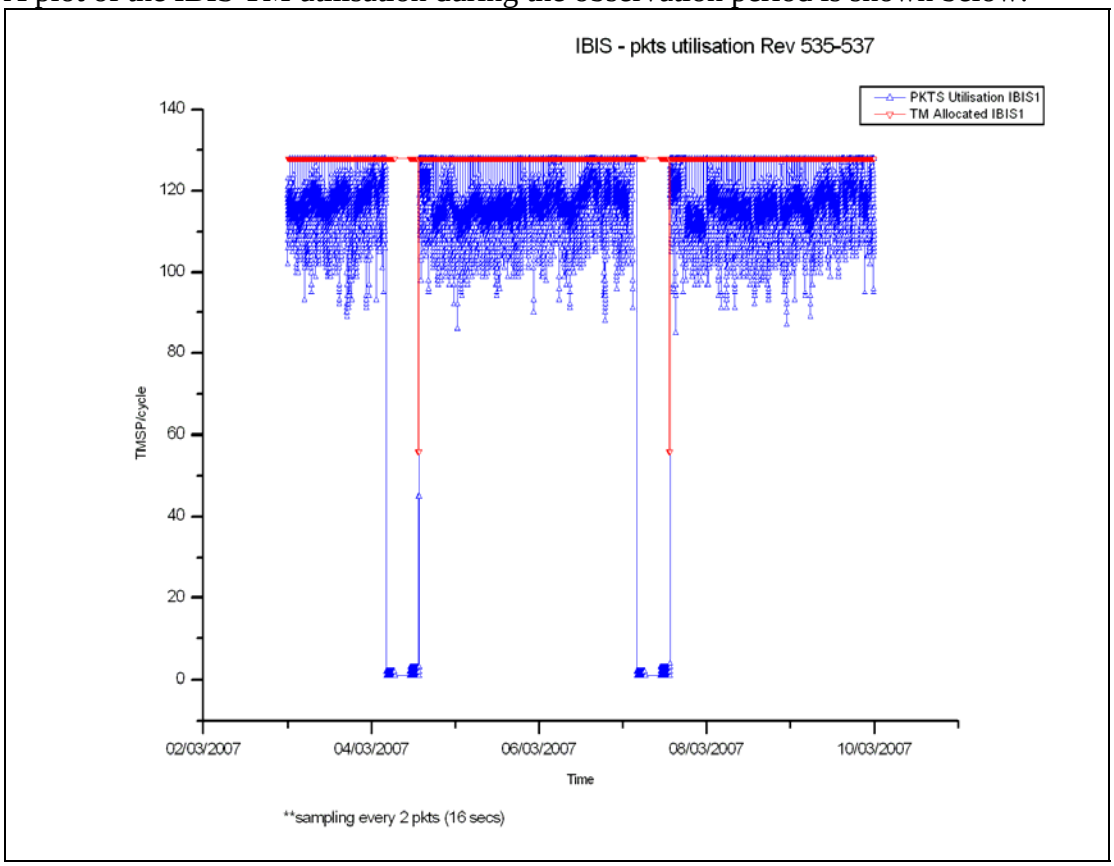
Note: Some more information concerning the SPI operations is provided in the Appendix.

3.2.2 IBIS

The overall status of the unit is nominal.

During the reporting period, the PST allocation to IBIS was 128 TMPS/cycle. The IBIS mean bandwidth utilisation during the observation period (when IBIS was in Science mode) was 116.60 TMPS/cycle, up 4.16 on last week.

A plot of the IBIS TM utilisation during the observation period is shown below:



.*Note: Some more information concerning the IBIS operations is provided in the Appendix.*

3.2.3 JEM-X

The status of both JEM-X units is nominal.

JEM-X operations were performed by the automatic Timeline.

JEM-X1 was operated in Data Taking mode with a TM allocation of 8 packets/cycle during science observations. JEM-X2 was dormant (DPE OFF) with no TM slots allocated.

Further information on the JEM-X operations can be found in the Appendix Section 8.3.4.

3.2.4 OMC

The status of OMC is nominal.

OMC operations were performed by the automatic Timeline. OMC was operated in Science Normal mode during science observations, with a TM allocation of 5 packets/cycle, except from 2007-02-27T01:00:00Z to 2007-02-27T04:46:34Z during the OMC Flat Field calibration, when it was 63 packets/cycle.

During this reporting period, all of the 188 planned science pointings for OMC were executed nominally.

Note: Some more information concerning the OMC operations is provided in the Appendix Section 8.3.5.

3.2.5 IREM

The overall status of the unit is nominal.

Solar Activity
The observation period was characterised by low solar activity.

The sun was quiet this week. Small sunspots, 944 and 945, were dissolving, leaving the sun's surface blank from 07/03/2007 until the end of the week. No threat for strong solar flare was reported.

Reference: www.spaceweather.com
Note: Some more information concerning the IREM operations is provided in the Appendix Section 8.3.6.

4 Ground Facilities

The Operational ground facilities performance was excellent this week. No pointings was lost. The overall performance was nearly 100%.

4.1 Mission Operations Centre

The performance of the MOC was good this week although it was repeatedly noticed that the connection from sun121 to the MISCdynamic Server had dropped, there was no impact. The overall performance was nearly 100%.

4.2 Ground Stations & Network

The performance of the ground stations and Network was good this week. There were, however, 4 occasions of data drops from Redu, 1 data drop from DSS-24 and 1 from DSS-27, also a complete pass from DSS-24 was lost, all without impact! The overall performance was nearly 100%.

4.3 Science Ground Segment

4.3.1 ISOC

1. Mission planning

PSFs are available up to revolution 545. Observations have been planned and files sent up to revolution 542.

TSF's up to revolution 539 have been received.

2. Observation status

No new ECS files have been received this week.

3. ISOC Science Data Archive

No news, work is ongoing on the next release.

4. ISOC system

ISOC system V14.4 has been released after successful testing and the system is ready to support AO-5. Work is ongoing on version 14.5, expected in about two weeks.

5. Problems

None.

4.3.2 ISDC

Status of ISDC observation processing on 12/03/2007:

- Latest Standard Analysis completed: observation 04700010001 (4U 0142+61, Revolution 528) on 05/03/2007.

- Latest products archived: observation 04200770001 (NGC 4151, Revolution 521-522) on 06/03/2007.

- Latest observation products sent to the observer: observation 04200770001 (NGC 4151, Revolution 521-522) on 07/03/2007.

5 Special Events

6 Anomalies

There were no problems reported that impacted operations.

The following anomaly reports were entered into the ARTS system this week:

AR id	Date Created	Subject	Segment	Status
INT-2900	01/03/2007	TKMA can prevent execution of start-script of clients	IMCS	Pending
INT-2901	05/03/2007	updated antenna.dat by FCT (Richard)		Rejected
INT-2902	05/03/2007	Interface eLog-ARTS test		Closed
INT-2903	05/03/2007	OOL signalling shall be upgraded to be in line with XMM	IMCS	Pending
INT-2904	08/03/2007	AND print header missing of sun127	IMCS	Pending
INT_SC-179	08/03/2007	SPI PSD channel rates malfunction	Payload	Open
INT_SC-180	08/03/2007	SPI IASW 433: Problem in acquiring data blocks in long HK TM packets at	Payload	Open

AR id	Date Created	Subject	Segment	Status
		mode/state change		
INT-2905	12/03/2007	Stop of NCTRS at GFCC caused IMCA to stop working	IMCS	Pending
INT-2906	12/03/2007	IDDA applications not restarted of IMCA restart	IMCS	Pending

7 Future Milestones

The following activities are foreseen in the next few weeks.

- Crab Calibration 19/03/2007 Rev. 541
- IMU Calibration and Health Check 10/04/2007 Rev. 548
- RMU-B Health Check 10/04/2007 Rev. 548
- Summer eclipse season starts 18/04/2007 Rev. 550
- Periodic Thruster Torque rescaling 24/07/2007 Rev. 583

Appendix

The appendix includes various detailed information.

7.1 Overview of Revolutions

Revolution 536

The observations in revolution 536 began with a hexagonal dither of the Galactic Bulge Region (RA 17:45:36.00, DEC -28:56:00.0), which lasted ~3.5 hours. This was followed by a raster dither of the Target of Opportunity GX 339-4 (RA 17:02:49.50, DEC -48:47:23.0), for ~40.4 hours. This was followed by a raster dither of AO-4 KP: l=-6.9 (RA 17:28:08.54, DEC -34:45:18.6), lasting ~7.4 hours. Finally a raster dither of AO-4 KP: l=+6.9 (RA 18:01:12.94, DEC -22:59:28.5), lasting ~5.9 hours was performed up to the end of the revolution.

Revolution 537

The observations in revolution 537 began with a hexagonal dither of the Galactic Bulge Region (RA 17:45:36.00, DEC -28:56:00.0), which lasted ~3.5 hours. This was followed by a hexagonal dither of the Gamma Ray Source 1915+105 (RA 19:15:11.50, DEC +10:56:44.0), for ~5.6 hours. After this, a raster dither of AO-4 KP: l=+6.9 (RA 18:01:12.94, DEC -22:59:28.5), lasting ~12.6 hours, was executed. Following that, a raster dither of AO-4 KP: l=-6.9 (RA 17:28:08.54, DEC -34:45:18.6), lasting ~31.1 hours was performed. Finally another hexagonal dither of the Galactic Bulge Region (RA 17:45:36.00, DEC -28:56:00.0), lasting ~3.5 hours was performed up to the end of the revolution.

Throughout these observations, all instruments were in their nominal science modes, except JEM-X2, which is switched off. The TM allocation was IBIS 128; SPI 105; JEM-X1 8; JEM-X2 0; OMC 5.

7.2 Consumables

7.2.1 Detailed Fuel Book-keeping

```
2007-02-15T17:05:09.000Z     148.2091    F   Automatic TM processing.
2007-02-17T07:21:22.000Z     148.1929    F   Automatic TM processing.
2007-02-17T12:37:46.000Z     148.1748    F   Automatic TM processing.
2007-02-18T22:18:06.000Z     148.1097    F   Automatic TM processing.
2007-02-20T12:29:06.000Z     148.1000    F   Automatic TM processing.
2007-02-21T22:56:06.000Z     148.0840    F   Automatic TM processing.
2007-02-23T12:14:58.000Z     148.0579    F   Automatic TM processing.
2007-02-26T12:01:53.000Z     148.0404    F   Automatic TM processing.
2007-02-27T21:53:09.000Z     148.0126    F   Automatic TM processing.
2007-03-01T11:50:33.000Z     147.9996    F   Automatic TM processing.
2007-03-02T21:58:45.000Z     147.9808    F   Automatic TM processing.
2007-03-04T11:39:44.000Z     147.9728    F   Automatic TM processing.
2007-03-05T21:13:00.000Z     147.9590    F   Automatic TM processing.
2007-03-07T11:29:29.000Z     147.9456    F   Automatic TM processing.
2007-03-07T17:27:46.000Z     147.8648    F   Automatic TM processing.

This report was generated  Fri Mar 9 08:00:32 GMT 2007
```

7.3 Detailed Satellite Information

This section contains some detailed information concerning the various subsystems of the satellite and instruments.

7.3.1 AOCS SUMMARY OPERATIONS REPORT, 03/03/2007 –09/03/2007

AOCS operations were executed from the Automatic Timeline.

During this period, 99 Open Loop Slews, 100 Closed Loop Slews and 4 Momentum Biases were executed.

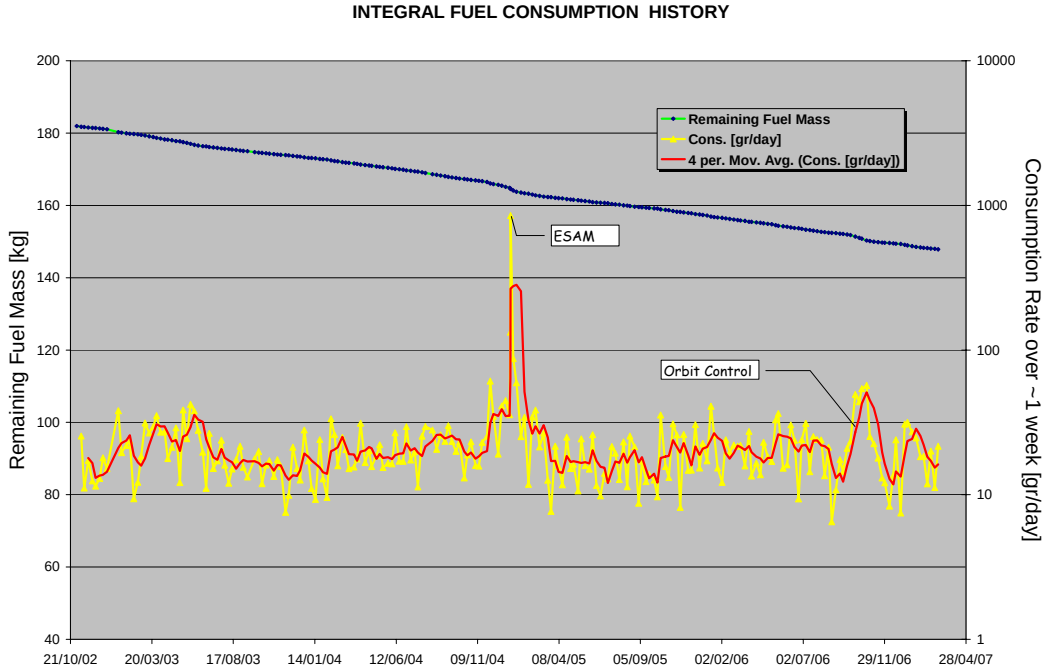
No slews were missed from TL during the observation period.

Orbit Control

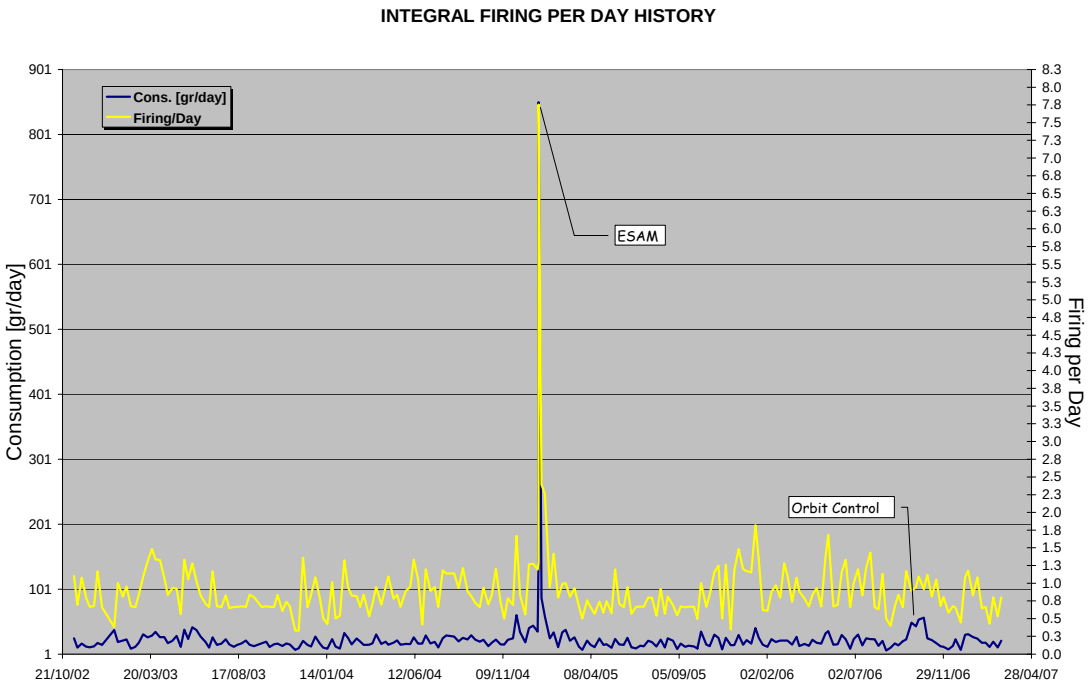
No update.

Fuel consumption

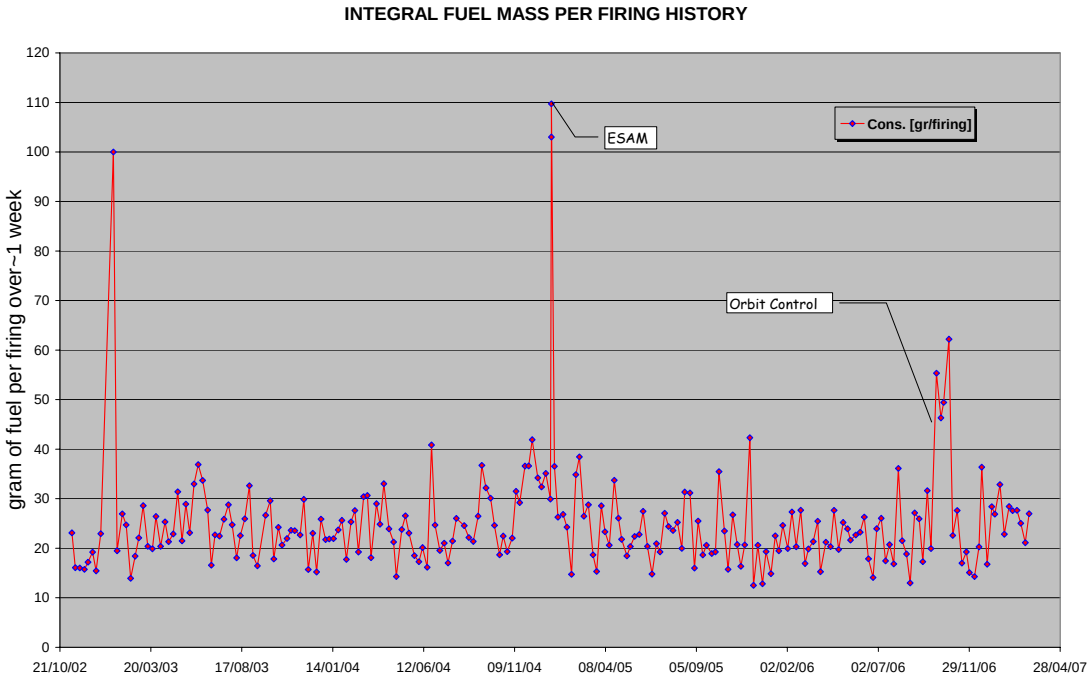
The fuel consumption (total, grams per day) over the period between 01/11/2002 and 07/03/2007 is reported in the plot below.



The firing per day over the period between 01/11/2002 and 07/03/2007 is reported in the plot below.

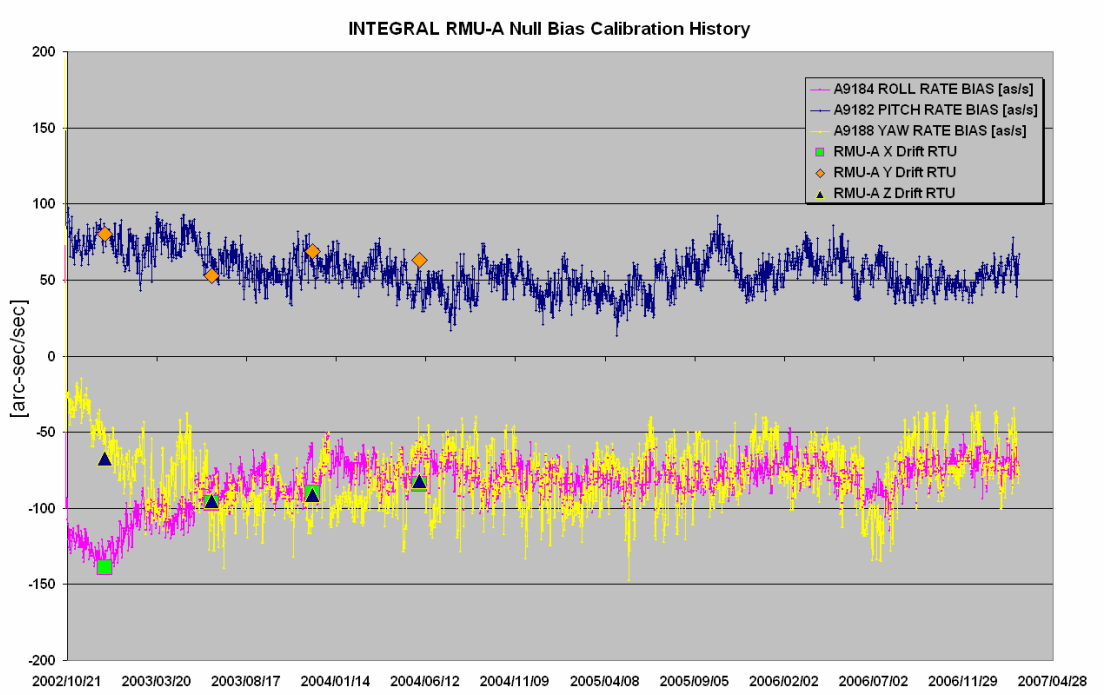


The fuel per firing over the period between 01/11/2002 and 07/03/2007 is reported in the plot below.

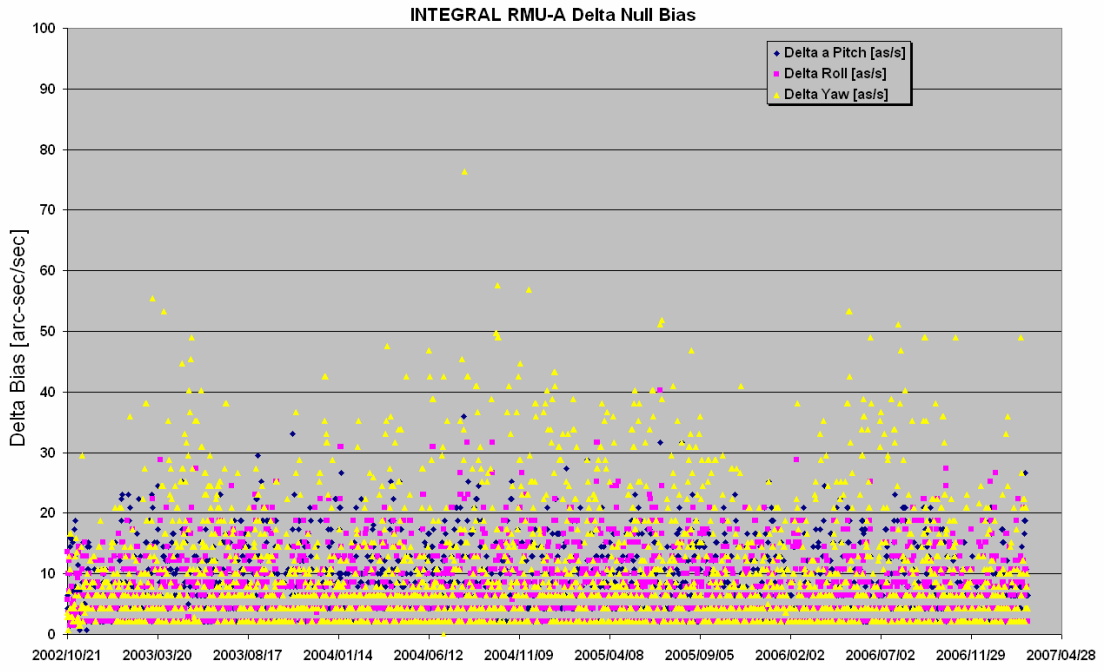


The RMU-A null bias calibration

The RMU-A null bias calibration history, on pitch, roll and yaw channel over the period between 01/11/2002 and 09/03/2007 is reported in the plot below.



The RMU-A delta null bias calibration history, on pitch, roll and yaw channel over the period between 01/11/2002 and 09/03/2007 is reported in the plot below



03/03/2007 (Day of Year 062, Revolution 535)

Nothing to report.

04/03/2007 (Day of Year 063, Revolution 535-536)

Nothing to report.

05/03/2007 (Day of Year 064, Revolution 536)

Nothing to report.

06/03/2007 (Day of Year 065, Revolution 536)

Nothing to report.

07/03/2007 (Day of Year 066, Revolution 536-537)

Nothing to report.

08/03/2007 (Day of Year 067, Revolution 537)

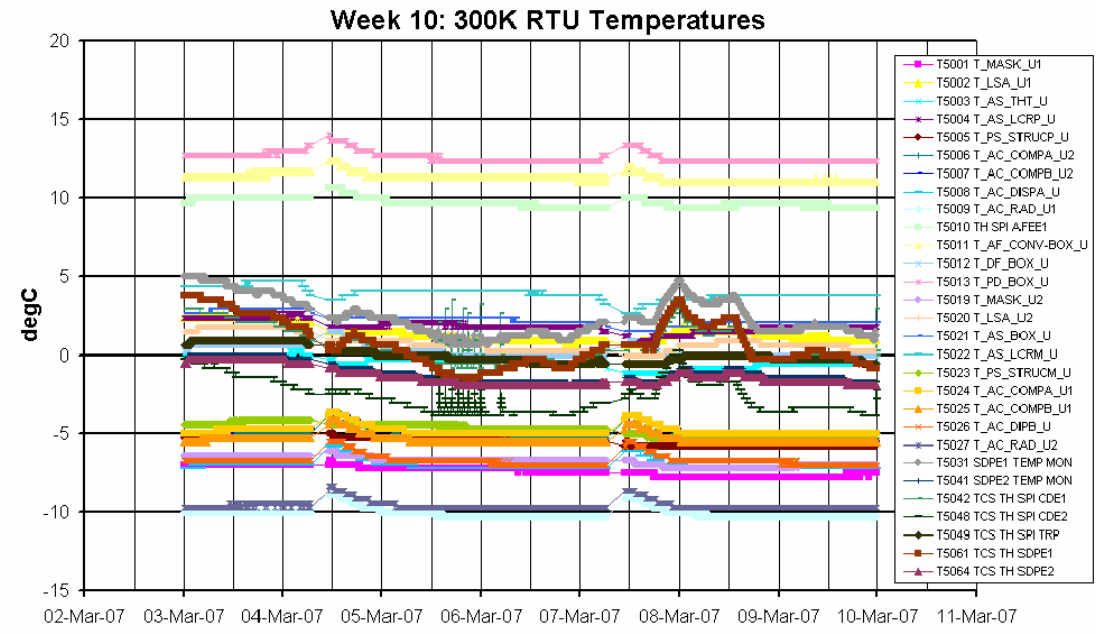
Nothing to report.

09/03/2007 (Day of Year 068, Revolution 537)

Nothing to report.

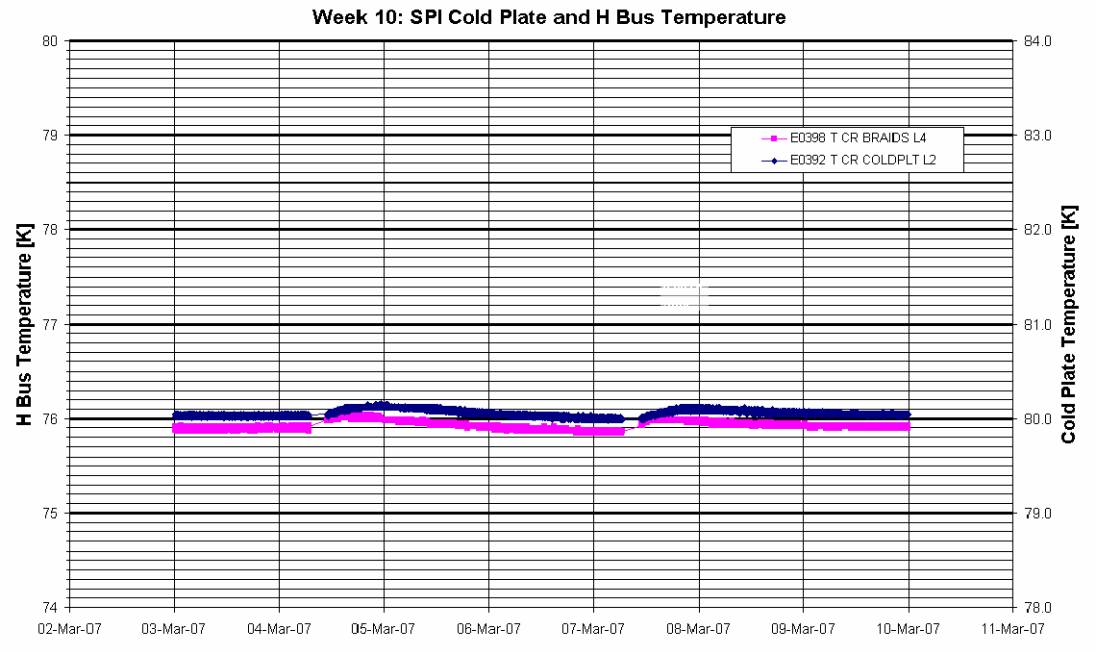
7.3.2 SPI Operations

Unit Temperatures: All the equipment temperatures are inside the operational limits. The following plot shows their evolution during the reporting period:



Stirling Compressors and Cryostat: The performance of the compressors is nominal. The cold plate temperature was maintained in the range 80K +/-1K.

The following plot shows the evolution of the cold plate and H bus temperatures during the reporting period.

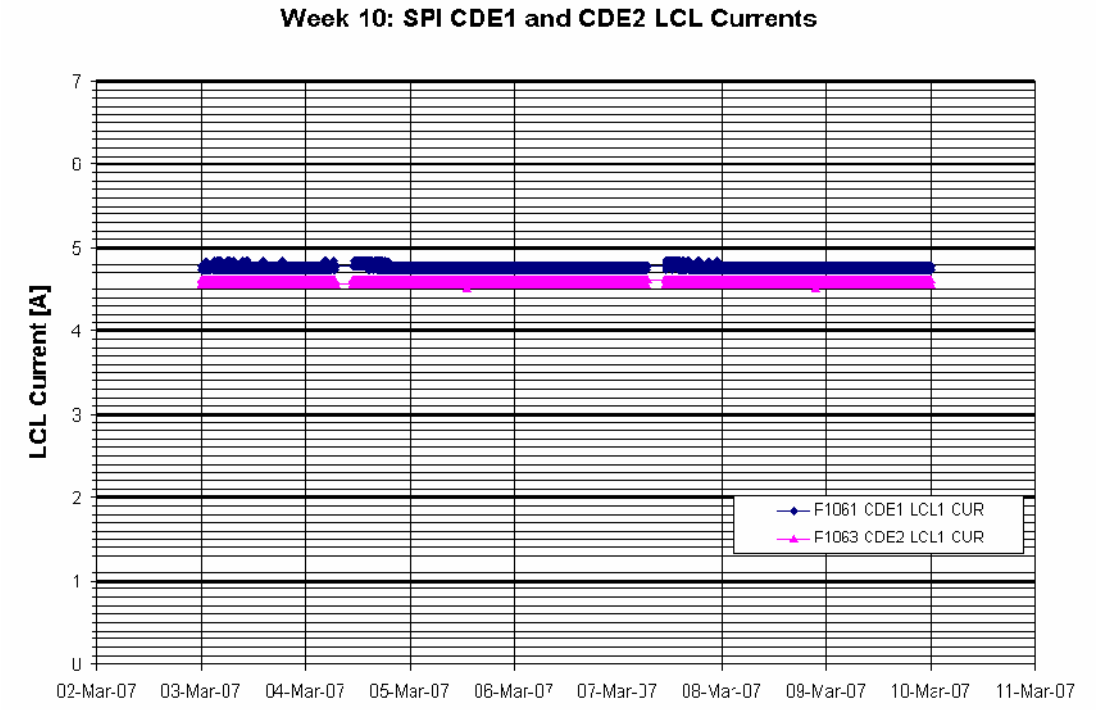


The stroke of all four compressors has been 40 since 03-02-2007 at 13:16Z.

The average LCL currents of the CDEs over the week were:

- Average CDE1 LCL Current = 4.77A
- Average CDE2 LCL Current = 4.58A

The following plot shows the evolution of the CDE currents during the reporting period.



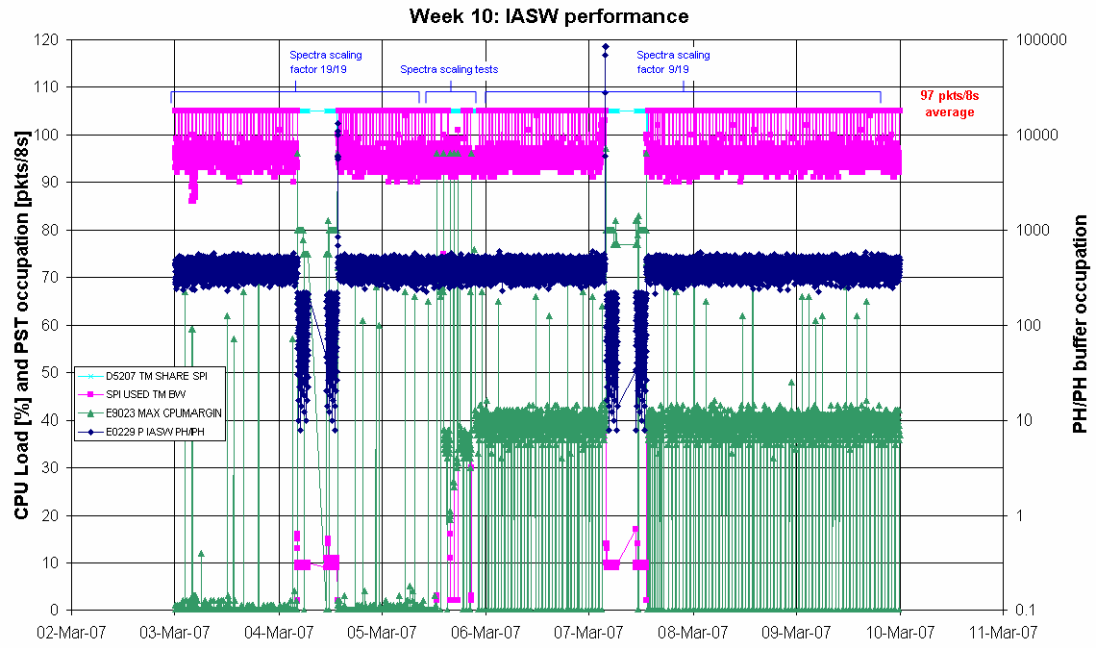
DPE & IASW: The DPE health and IASW performance is nominal. The IASW version installed is 433. The spectra scaling parameter was set to 19/19 SE, i.e. no

spectra scaling (as with IASW 432), until the tests and scaling parameter tuning performed on 05-03-2007. The operations took place from 2007-03-05T08:48:13Z to 2007-03-05T20:42:03Z and the settings for the different pointings are summarized in the following table:

TIME	POINTING	SETTING
2007/03/05 08:12:55	POINTING 05360029	Scaling factor 19/19 SE
2007/03/05 08:58:11	POINTING 05360030	TM E3980 = 10/19 SE but actual scaling factor was still 19/19 SE as there had been no transition to CONF
2007/03/05 09:43:43	POINTING 05360031	TM E3980 = 10/19 SE but actual scaling factor was still 19/19 SE as there had been no transition to CONF
2007/03/05 10:28:59	POINTING 05360032	TM E3980 = 1/19 SE but actual scaling factor was still 19/19 SE as there had been no transition to CONF
2007/03/05 11:14:31	POINTING 05360033	TM E3980 = 1/19 SE but actual scaling factor was still 19/19 SE as there had been no transition to CONF
2007/03/05 12:00:03	POINTING 05360034	TM E3980 = 1/19 SE but actual scaling factor was still 19/19 SE as there had been no transition to CONF
2007/03/05 12:43:19	Slew to POINTING 05360035	CONF, re-enabled OEM 243, PHOTON mode
2007/03/05 12:45:34	POINTING 05360035	Scaling factor 1/19 SE, spectra downlinked
2007/03/05 13:31:06	POINTING 05360036	TM E3980 = 10/19 SE but actual scaling factor was still 1/19 SE as there had been no transition to CONF. No spectra were obtained from this pointing as a transition to CONF was made before the next slew to set the scaling factor to 10/19 SE
2007/03/05 14:16:37	POINTING 05360037	Scaling factor 10/19 SE No OEM 243 Spectra downlinked
2007/03/05 15:01:53	POINTING 05360038	Scaling factor 10/19 SE No OEM 243 No spectra were obtained from this pointing as a transition to CONF was made before the next slew to set the scaling factor to 14/19 SE
2007/03/05 15:47:09	POINTING 05360039	Scaling factor 14/19 SE OEM 243! Transition to CONF, set scaling factor to 12, back to PHOTON \No spectra building started till next pointing
2007/03/05 16:32:41	POINTING 05360040	Scaling factor 12/19 SE OEM 243! Transition to CONF, set scaling factor to 11, back to PHOTON \No spectra building started till next pointing
2007/03/05 17:17:31	POINTING 05360041	Scaling factor 11/19 SE OEM 243! Transition to CONF, set scaling factor to 10, back to PHOTON \No spectra building started till next pointing
2007/03/05 18:02:47	POINTING 05360042	Scaling factor 10/19 SE No OEM 243 Spectra downlinked
2007/03/05 18:48:19	POINTING 05360043	Scaling factor 10/19 SE No OEM 243 Spectra downlinked
2007/03/05 19:33:35	POINTING 05360044	Scaling factor 10/19 SE No OEM 243 Spectra downlinked
2007/03/05 20:19:06	POINTING 05360045	Scaling factor 10/19 SE OEM 243! Transition to CONF, set scaling factor to 9, back to PHOTON \No spectra building started till next pointing
2007/03/05 21:35:48	POINTING 05360046	Scaling factor 9/19 SE No OEM 243 Spectra downlinked

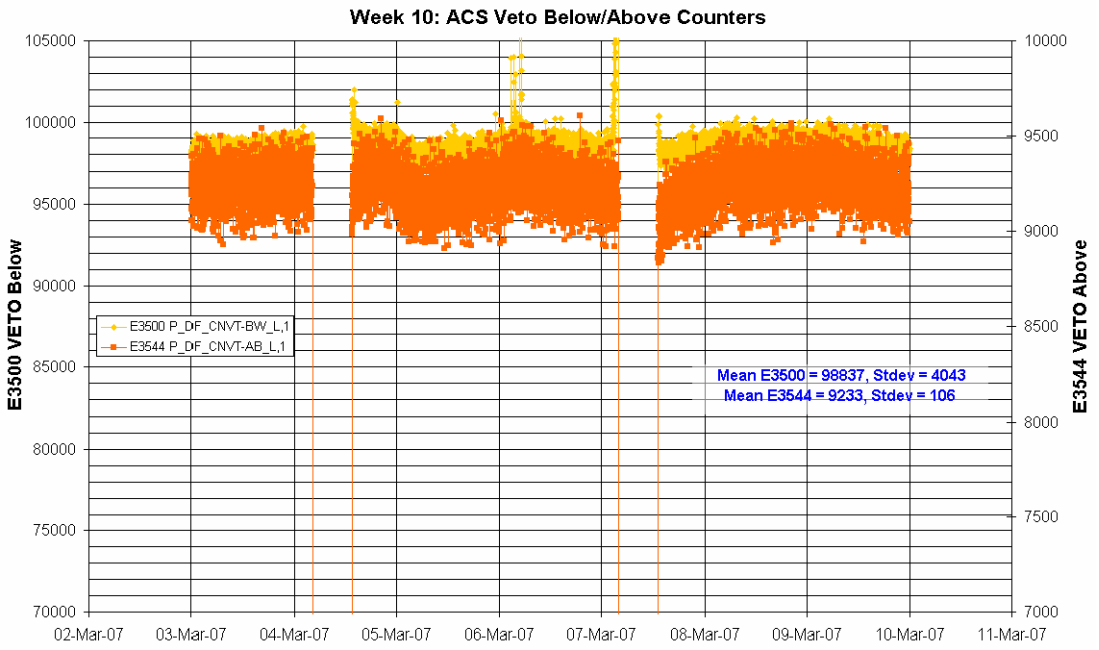
Since the end of the above activities, the spectra scaling factor has remained at 9/19 SE and no OEM 243 have been received, including in the vicinity of the radiation belts.

The average TM bandwidth occupation of SPI was 97 packets/cycle over the science window, when the TM allocation was 105 packets/cycle. The following plot shows the IASW performance in terms of TM bandwidth, event buffer occupation and DPE CPU load during the reporting period.



ACS: The performance of the ACS is nominal. except for FEE 81 which remains switched off since the anomaly on 29/10/2006 (INT_SC-162). FEE #57 is also still OFF due to the anomaly on 5/8/2003 (INT_SC-61).

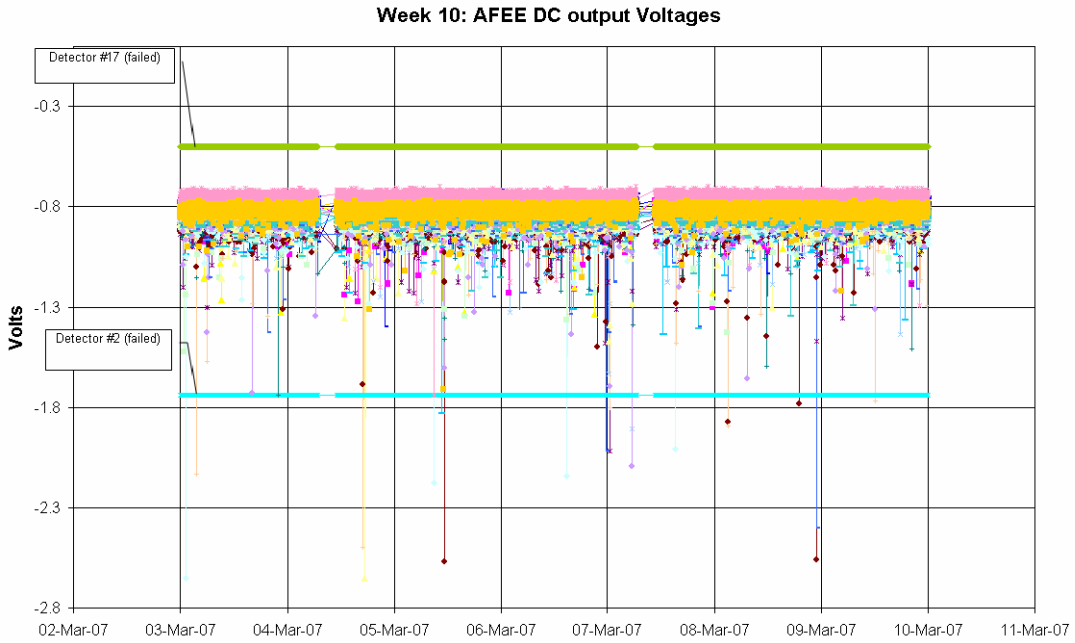
The following plot shows the ACS overall count rate evolution during the reporting period:



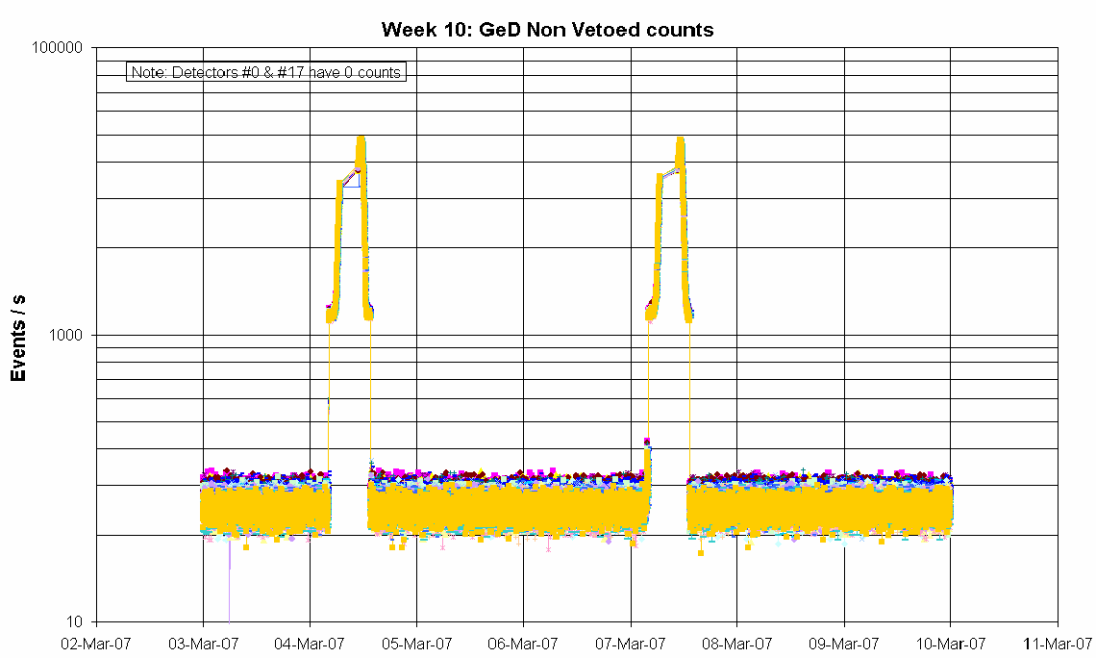
AFEE: The health of the AFEE is nominal. The performance of the AFEE and the detectors is nominal, except for the Ge detector #12 which is showing a slightly degraded energy resolution. The energy resolution of GeD#4 was recovered with the last annealing.

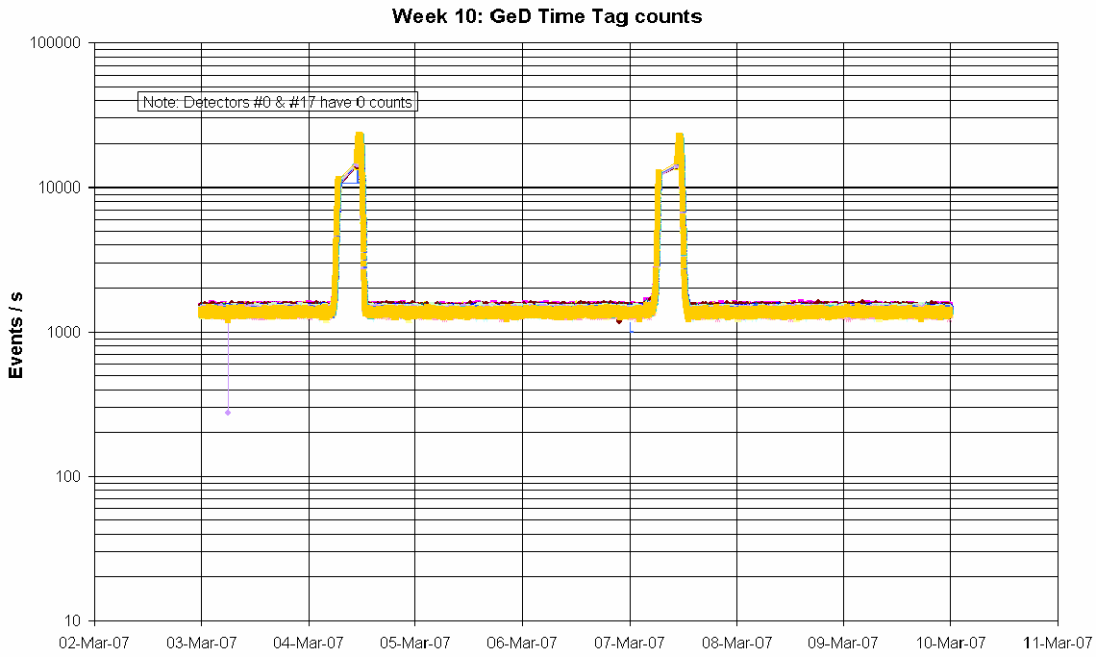
The GeD#12 HV remained at 3.5kV throughout the reporting period.

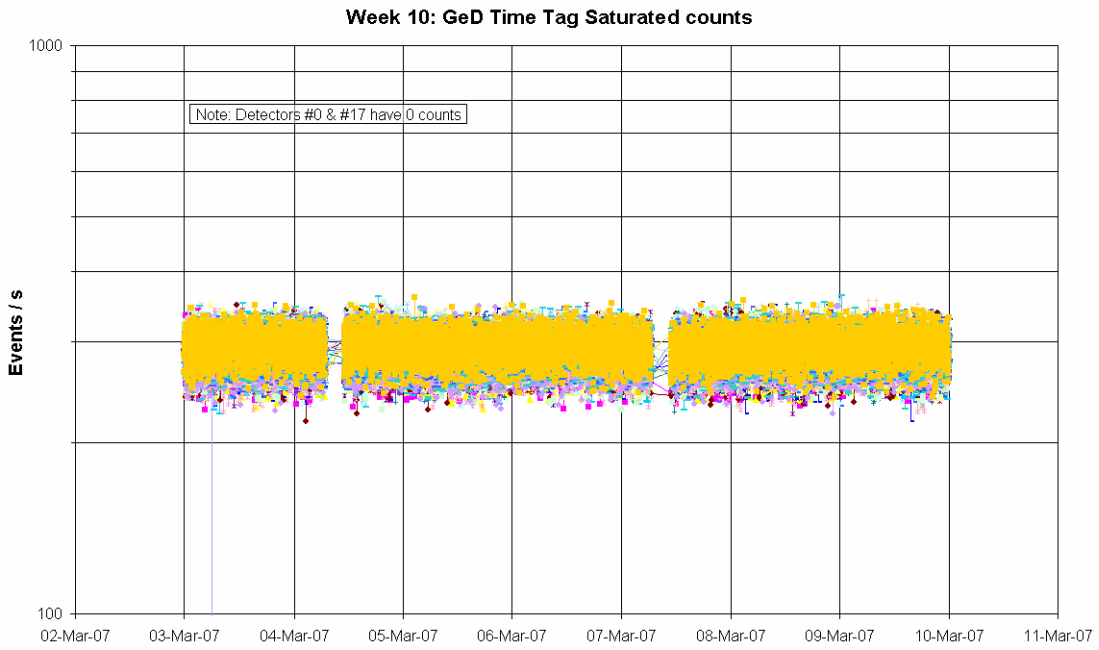
The following plot shows the dc voltage offset of the detector channels during the reporting period. The values are nominal. Detector #2 is failed since 06.12.2003 and detector #17 is failed since 17.07.2004.



DFEE: The performance of the unit is nominal. The following plots show the Non Vetoed, Time Tag and Time Tag Saturated Event Count Rates during the reporting period.


Week 10: GeD Non Vetoed counts
Note: Detectors #0 & #17 have 0 counts
Events / s
100000
1000
10
02-Mar-07
03-Mar-07
04-Mar-07
05-Mar-07
06-Mar-07
07-Mar-07
08-Mar-07
09-Mar-07
10-Mar-07
11-Mar-07

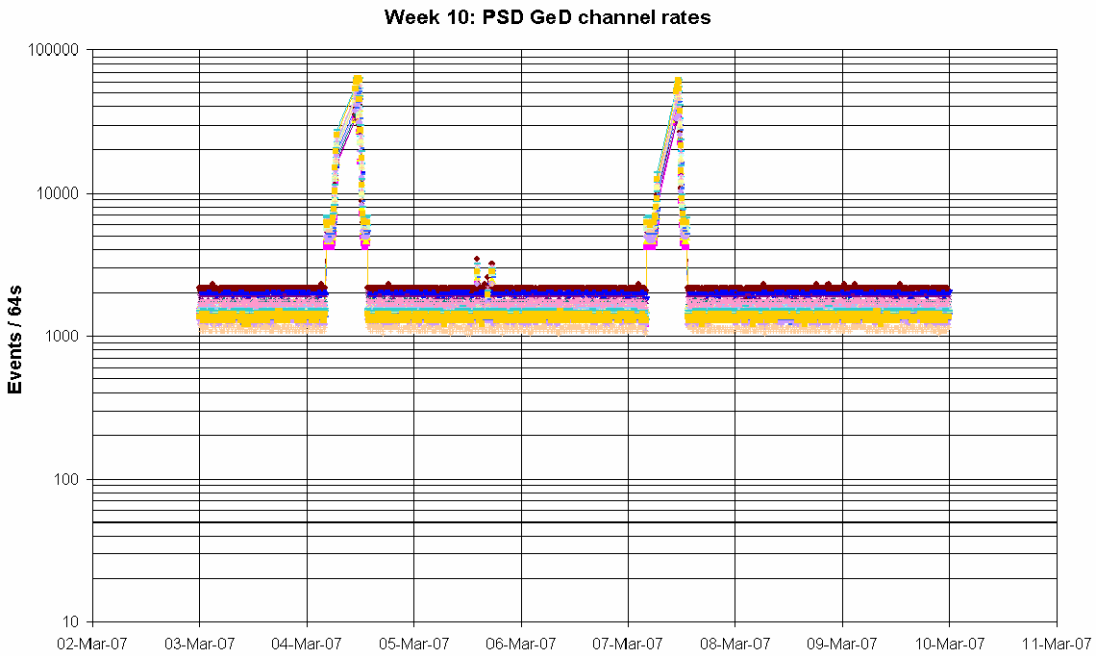

Week 10: GeD Time Tag counts
Note: Detectors #0 & #17 have 0 counts
Events / s
100000
10000
1000
100
10
02-Mar-07
03-Mar-07
04-Mar-07
05-Mar-07
06-Mar-07
07-Mar-07
08-Mar-07
09-Mar-07
10-Mar-07
11-Mar-07



PSD: The health of the unit is nominal. The following plot shows the PSD channel rates during the reporting period.

On 03/03/2007 (DOY 062) a PSD channel rates malfunction occurred, as recorded in Anomaly Report INT_SC-179:

At 04:00:25Z the TM parameters E3840 P PD CHL-RTE L0 to E3858 P PD CHL-RTE L18 (except for E3842 and E3857) all went OOL Alarm Low, with value 0. These are the PSD channel rates for all detectors except the failed GeD#2 and GeD#17 (which have no OOL defined as they are permanently zero). They remained at zero until 04:38:56Z, when they returned to a nominal value of their own accord. All other parameters, including DFEE count rates, were nominal throughout this time. Also, the PSD channel rates were nominal before and after the anomaly. This has occurred previously, as documented in anomaly reports INT_SC-90 and INT_SC-142.



Event Log:

The following non-nominal events occurred on SPI during the reporting period:

- On 2007-03-03 at 04:00:25Z TM parameters E3840-E3858 went OOL Low, returning within limits of their own accord at 04:39:53Z. These are the PSD channel rates and this anomaly is reported above in the PSD section and Anomaly Report INT_SC-179.
- On 2007-03-04 at 01:37:34Z the TM parameter E3268 S AS HV-ST L72 went OOL (value = NO EXIST VAL). This is the ACS FEE HV status #72. It returned within limits when the next packet was received at 01:48:14Z.
- On 2007-03-04 at 11:25:15Z the following OEM was received:

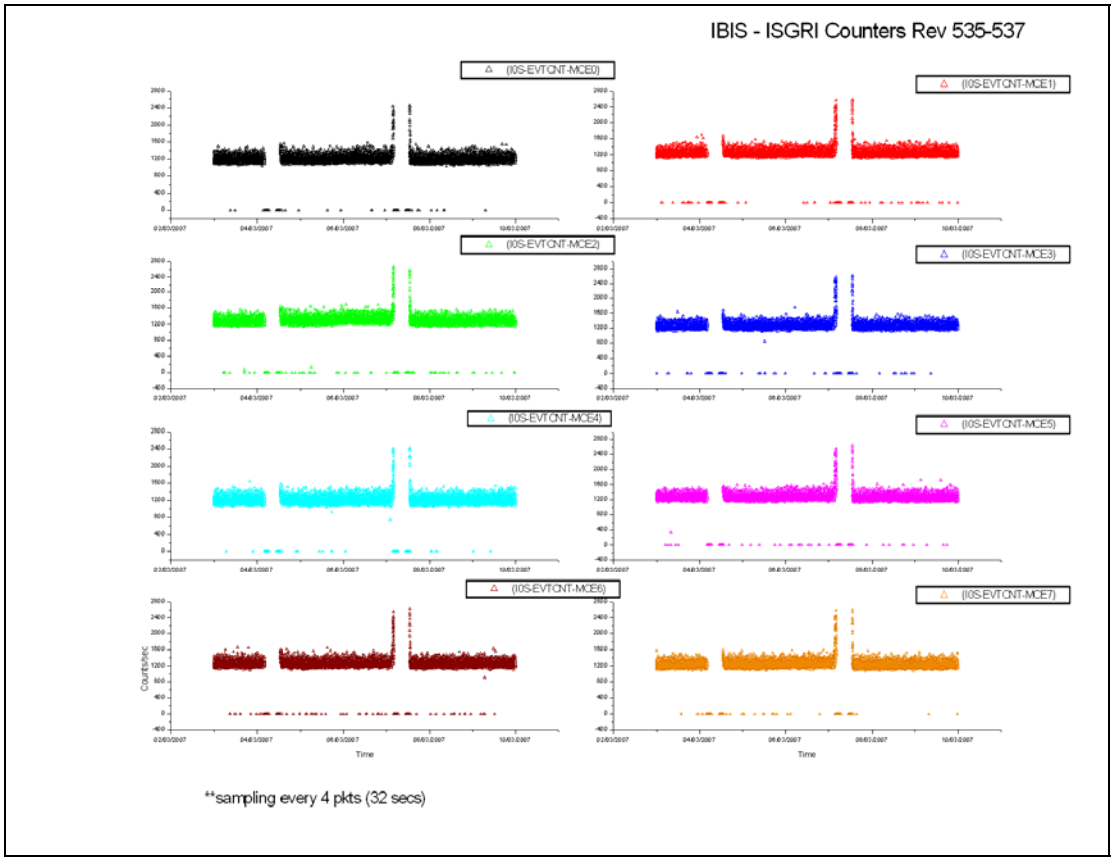
```
APID 1024   ID 1       EXCEPTION   SPI1 FIXED POINT OVERFLOW
   E9083          INTERRUPTED TASK                  22
   E9079          MESS CLASS                        1
   E9080          MESS ID                           1
   E9081          STATUS WORD INT                   4096
   E9082          INSTR COUNT INT                   419
```

  This was during the AOS_CHK window of revolution 536, when the SPI1 DPE time verification TC was sent. This OEM is sometimes received when this TC is sent and no action was taken.
- On 2007-03-07 at 03:26:08Z the TM parameter E3500 P_DF_CNVT-BW_L started toggling OOL High. This was about 30 minutes before radiation belt entry of revolution 536 and therefore no action was taken.

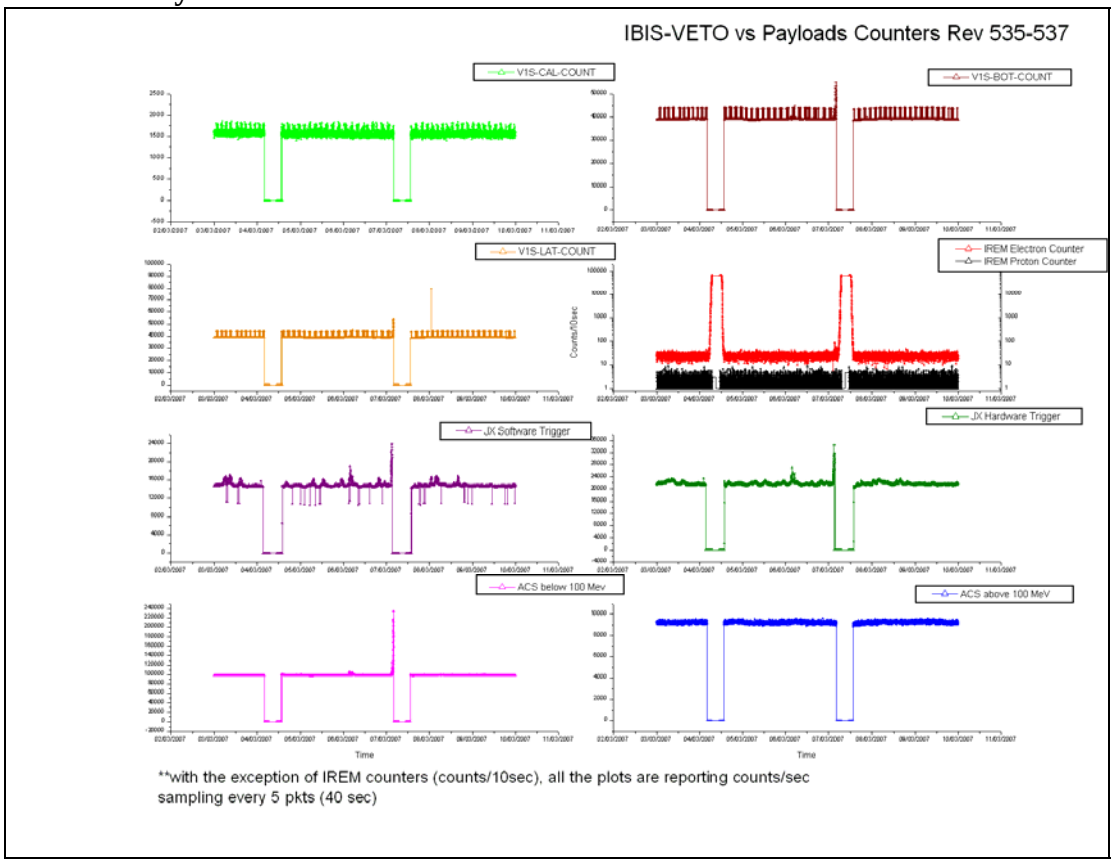
7.3.3 IBIS Operations

IBIS Event Counters Plots.

ISGRI Counters:

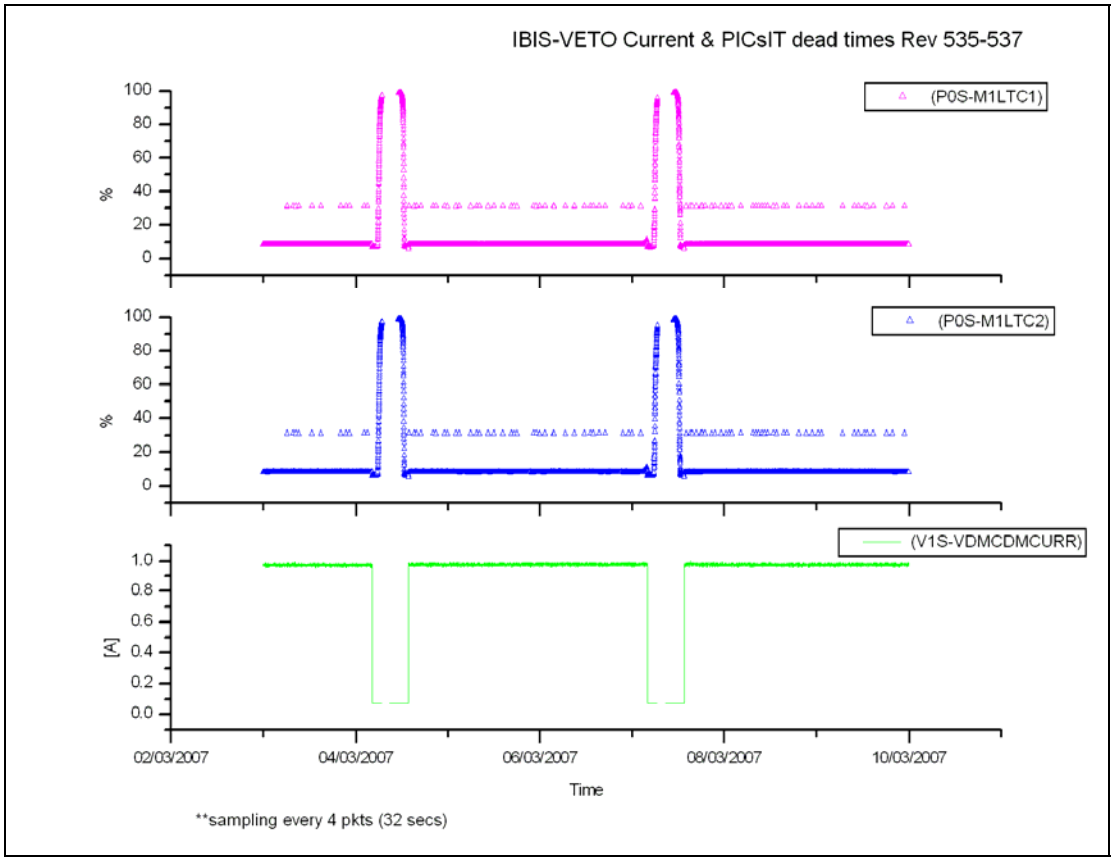


VETO vs Payloads Counters:

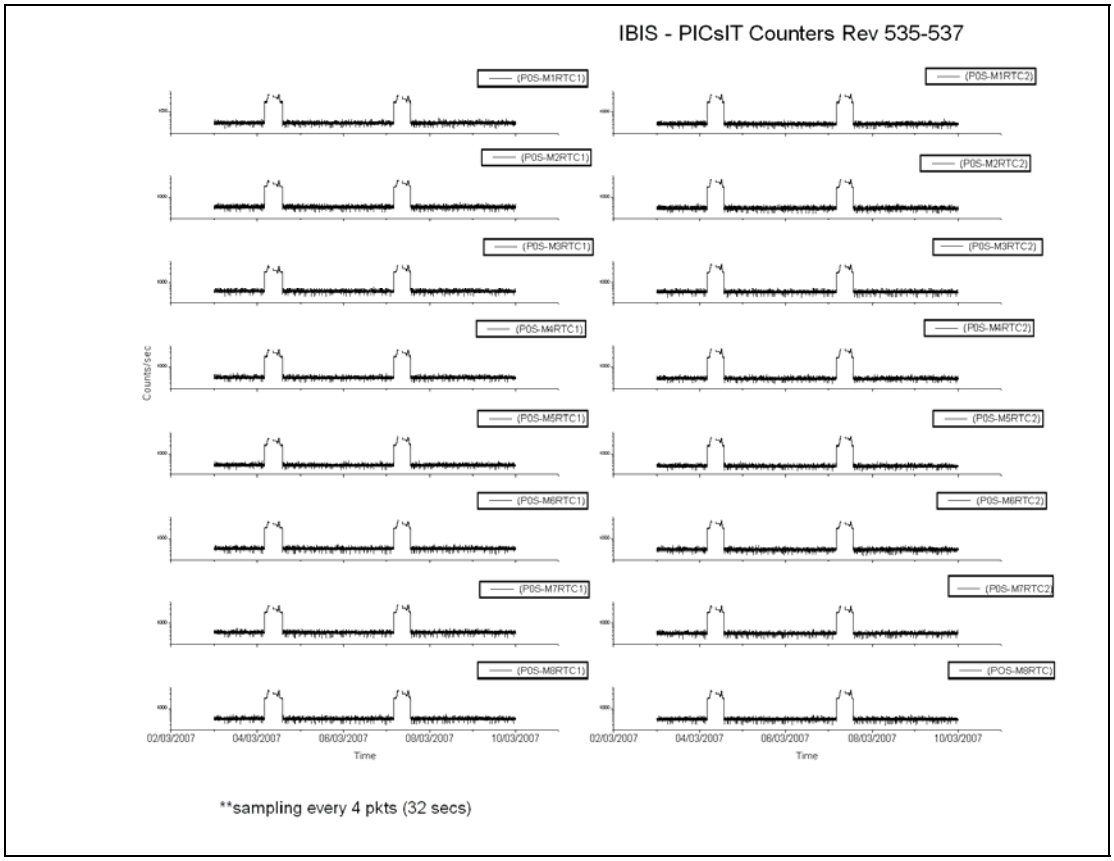


The week was characterised by low radiation.

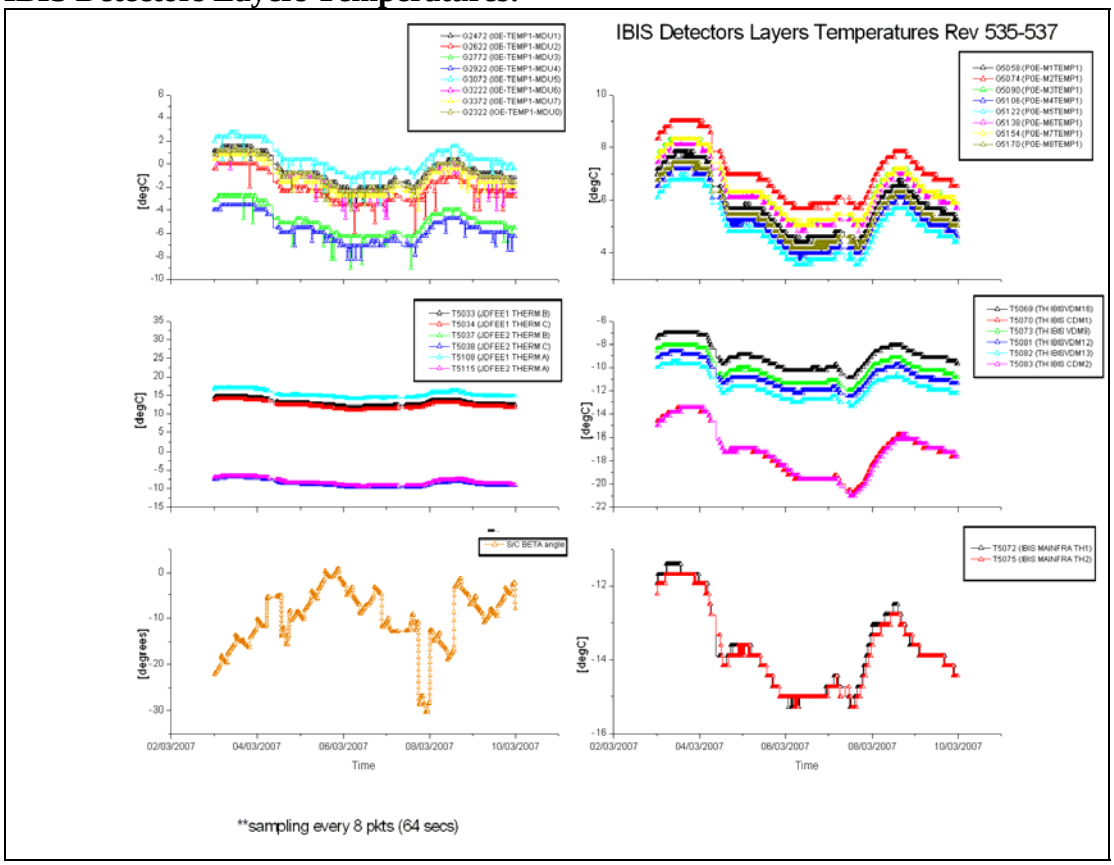
VETO Current:



PICsIT Counters:



IBIS Detectors Layers Temperatures:



IBIS daily report:

The usual Out Of Limits on TM parameter G8015 (S1E-A2_PMT_V), families G5002 (P0S-Mi_RTC1) and G5003 (P0S-Mi_RTC2), families G2014 (I0E-OVFWPXADD-Mi) were reported at Radiation Belts passage.

DoY 2007.066 (07/03/2007):

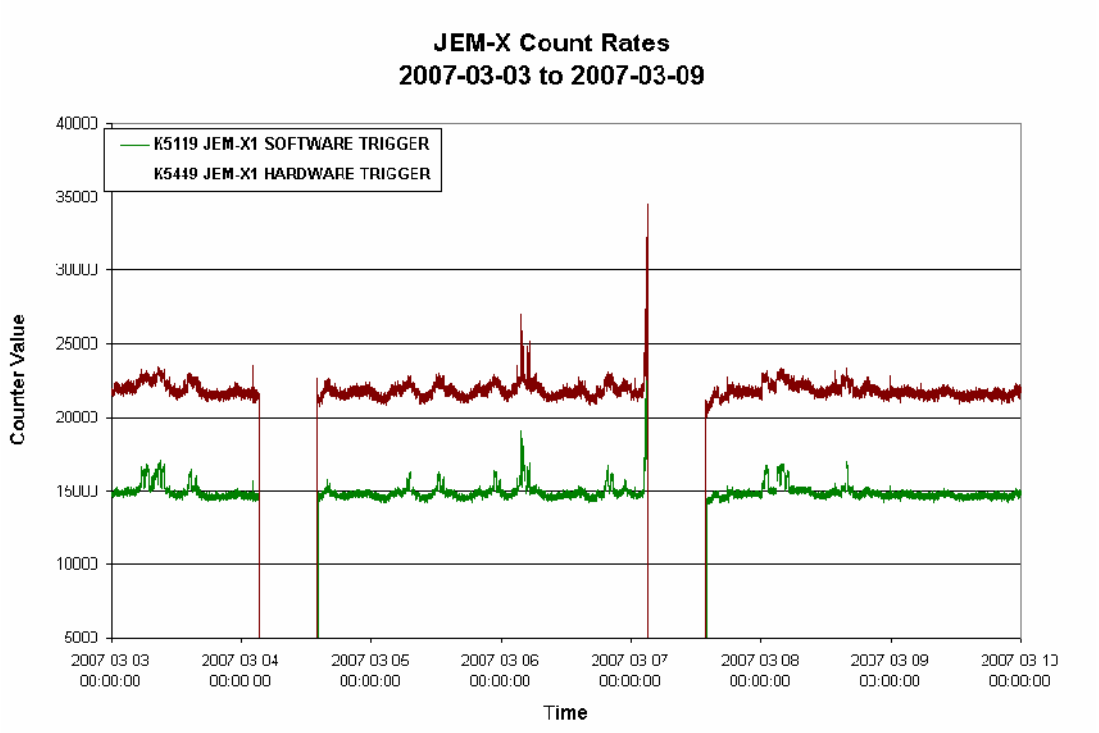
At 03:04Z, TM parameter G8080 (S1E-VS_HBRA-RT) was reported OOL high.
At 03:44Z, TM parameters G6062 (V1S-BOT-COUNT) and G6063 (V1S-LAT-COUNT) were reported OOL High.
At 03:48Z TM family G2013 (I0S-EVTCNT_MCEi) was reported OOL High.
All these parameters returned inside limits in the next cycle. They all featured a noisy background as the S/C was approaching the Radiation Belts. At 04:02Z IBIS went to Safe configuration due to Belts entry (timeline).
No action was taken.

7.3.4 JEM-X Operations

JEM-X Count Rates

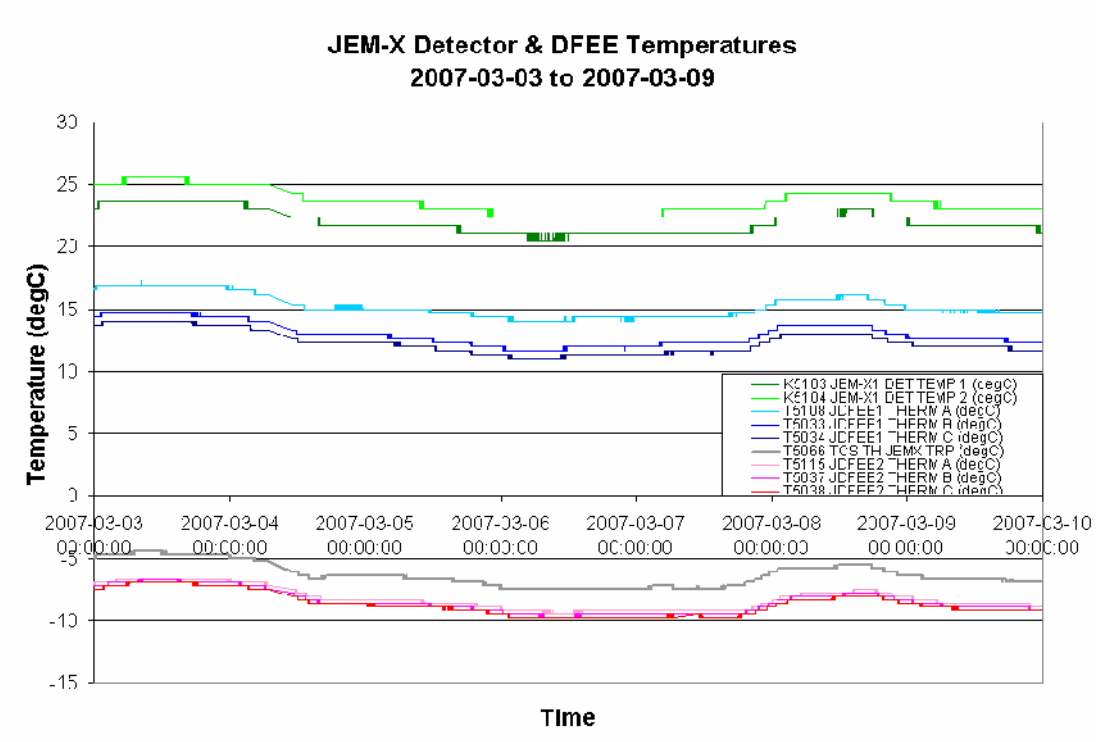
JEM-X count rates over the reporting period are displayed in the following graph[1].

[1] Data sampled (1 frame in 4) and smoothed to remove spikes in S/W Trigger due to flushing of buffer after slews.



JEM-X Temperatures

JEM-X Detector and DFEE temperatures, along with the temperature on the detector bench between the two units, over the reporting period are displayed in the following graph[2].



[2] Data sampled (1 frame in 8)

JEM-X Daily Report

2007-03-03 (DOY 062, Rev 535) to 2007-03-06 (DOY 065, Rev 536)

JEM-X1 operations executed nominally.

2007-03-07 (DOY 066, Rev 536-537)

Due to high background radiation conditions before the expected radiation belt entry, at 02:58:49Z the TM parameter K5449 HARDWARE TRIGGER started toggling OOL High and at 03:05:05Z the TM parameter K5136 BUFFER LOSS also went OOL High. The situation remained as such until 03:06Z, when JEM-X1 was commanded to Safe mode as planned by the Timeline before radiation belt entry of revolution 536.

JEM-X1 operations continued nominally.

2007-03-08 (DOY 067, Rev 537) to 2007-03-09 (DOY 068, Rev 537)

JEM-X1 operations executed nominally.

7.3.5 OMC Operations

2007-03-03 (DoY 062, Rev 535) to 2007-03-06 (DoY 065, Rev 536)

Nothing to Report

2007-03-07 (DoY 066, Rev 536)

At 18:05:44, a Trigger command was sent by ISDC. This command was rejected, as the unit was in Stand-by mode at the time. There was no impact.

```
2007.066.18.05.43.923   2007.066.18.05.48.479   1792   RealTime   131     TC REJECT
REJECTED TC1                                             0       0    65535   PR    N
E   E
```

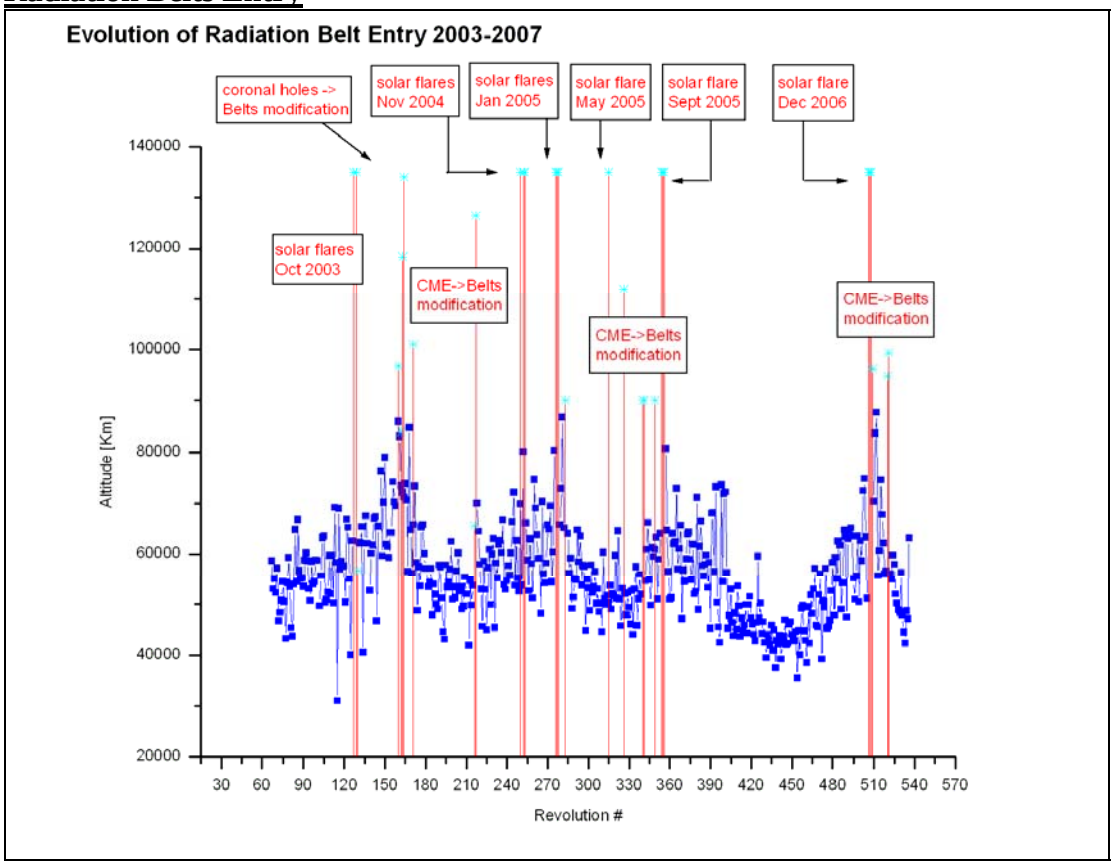
2007-03-08 (DoY 067, Rev 537) to 2007-03-09 (DoY 068, Rev 537)

Nothing to Report

On DoY 063 at 04:14:42 and DoY 066 at 04:01:55 OMC went to SAFE mode nominally, at the radiation belt entry time as set in the Broadcast Packet.

7.3.6 IREM Operations

Radiation Belts Entry



IREM daily report

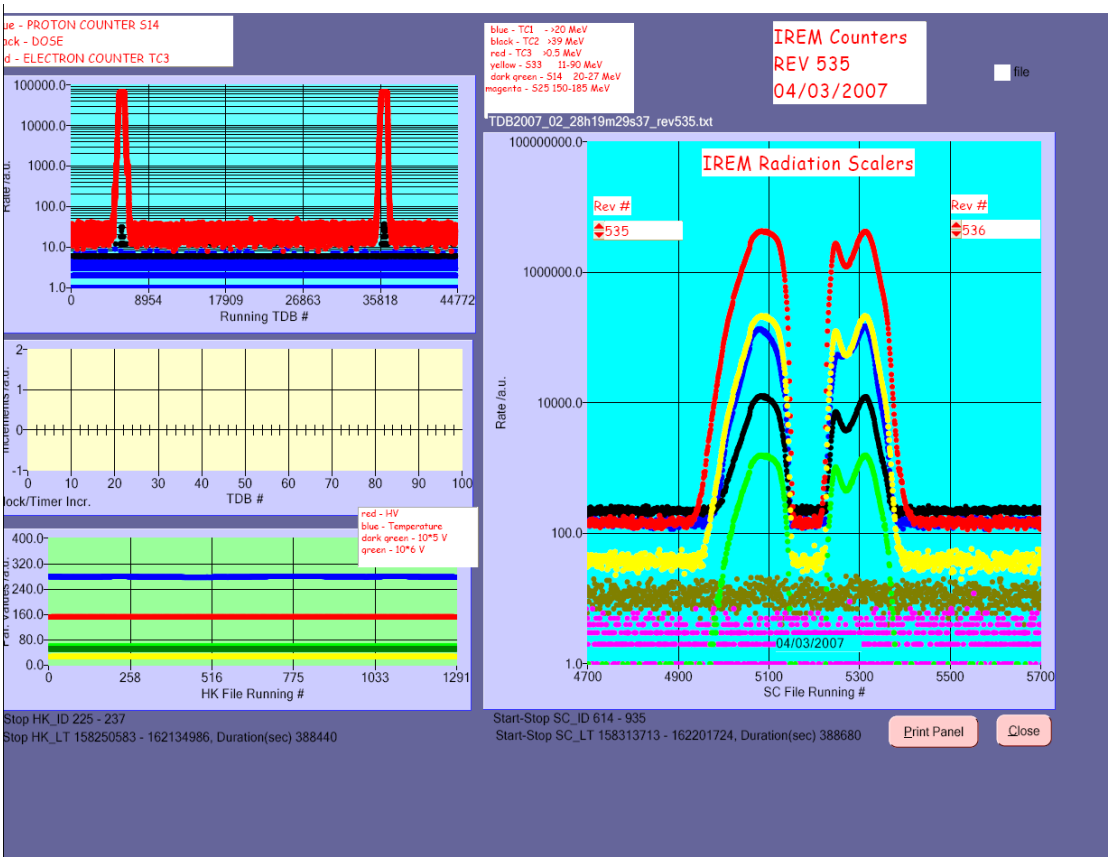
Nothing to report

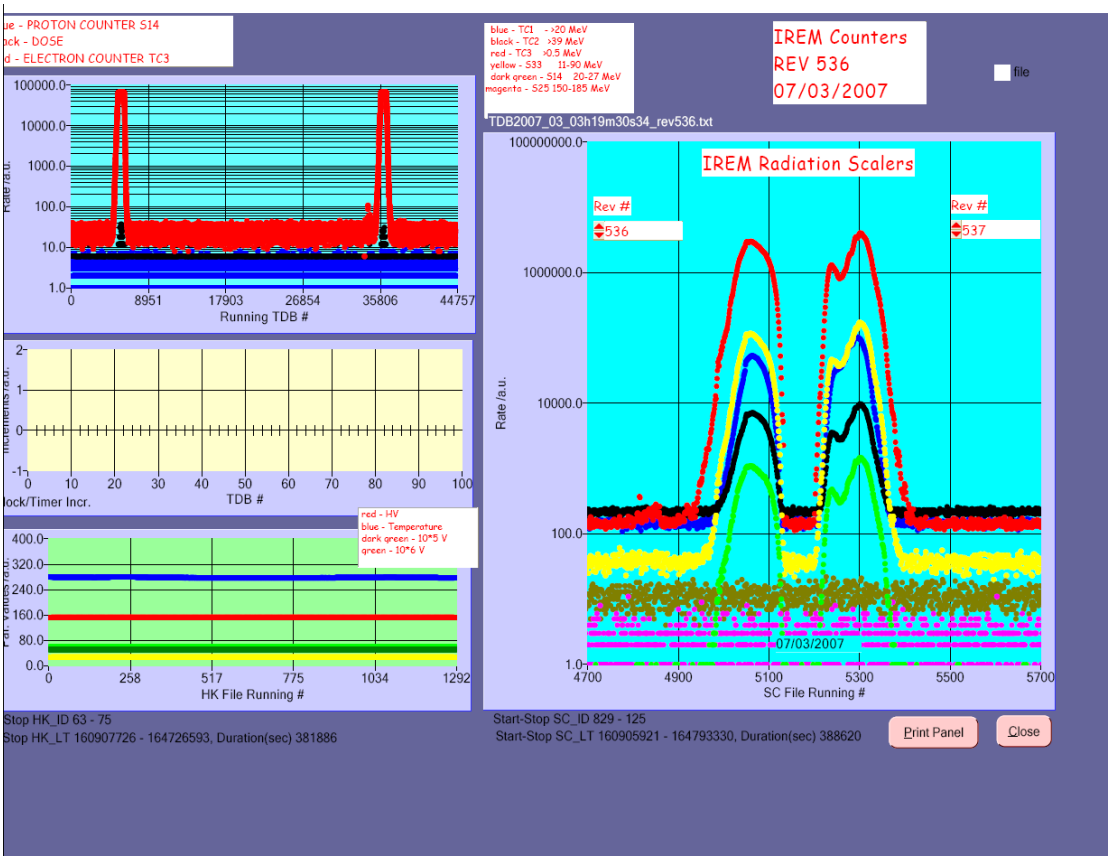
Electron Belts

REV	S/C BCPKT (electron)	Electron CUT-OFF Observed Entry/Exit	Observed Entry/Exit Altitude [Km]	Electron CUT-OFF Predicted Entry/Exit	Predicted Entry/Exit Altitude [Km]
535	RAD_ENTR R 2007-03-04T04:14:36Z	2007-03-04 05:19:45	47124.6	2007-03-04 05:10:22	48200
536	RAD_EXIT R 2007-03-04T13:32:15Z	2007-03-04 12:59:37	<<43474.4	2007-03-04 13:10:22	41968
536	RAD_ENTR R 2007-03-07T04:01:49Z	2007-03-07 03:04:57	63204.7	2007-03-07 05:02:06	47716
537	RAD_EXIT R 2007-03-07T13:19:49Z	2007-03-07 13:07:13	<<43474.4	2007-03-07 13:02:06	42433

Reference
Very small error vs reference (less than 10 minutes)
Small error vs reference (between 10 and 30 minutes)
Large error vs reference (more than 30 minutes)
Radiation Spike

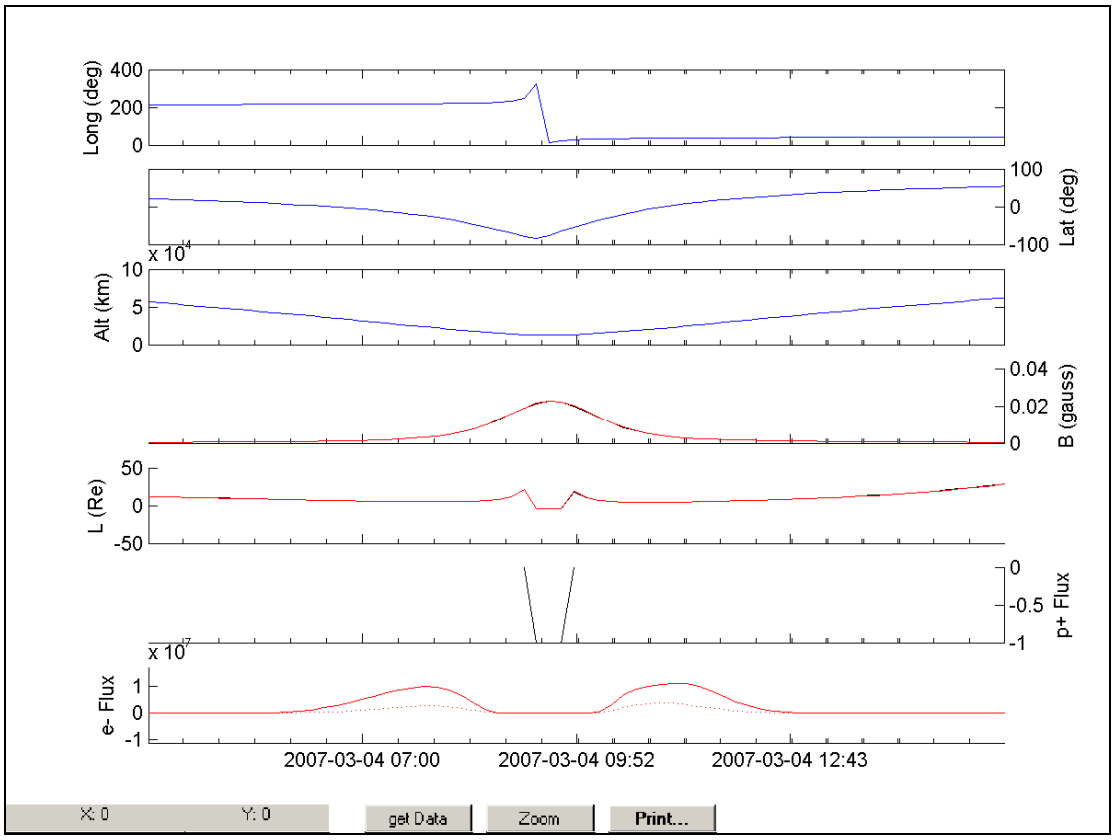
IREM radiation counters:



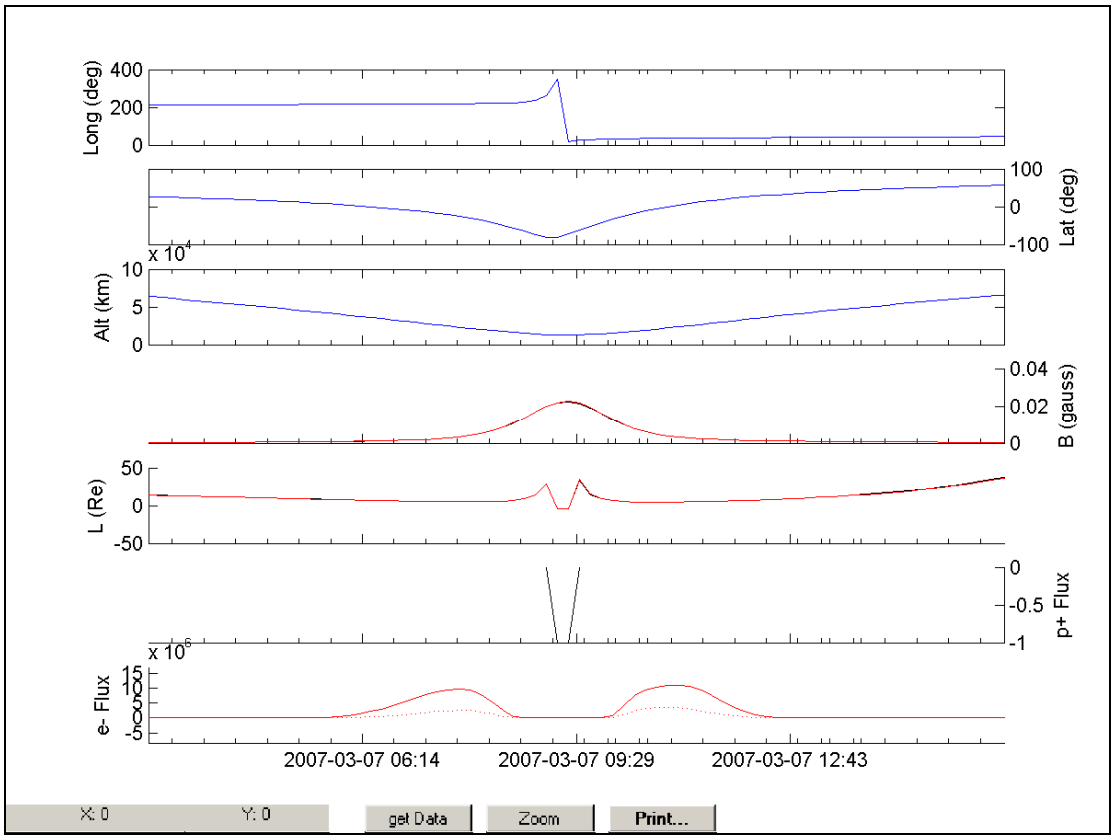


IREM Predicted Radiation Belt Passages

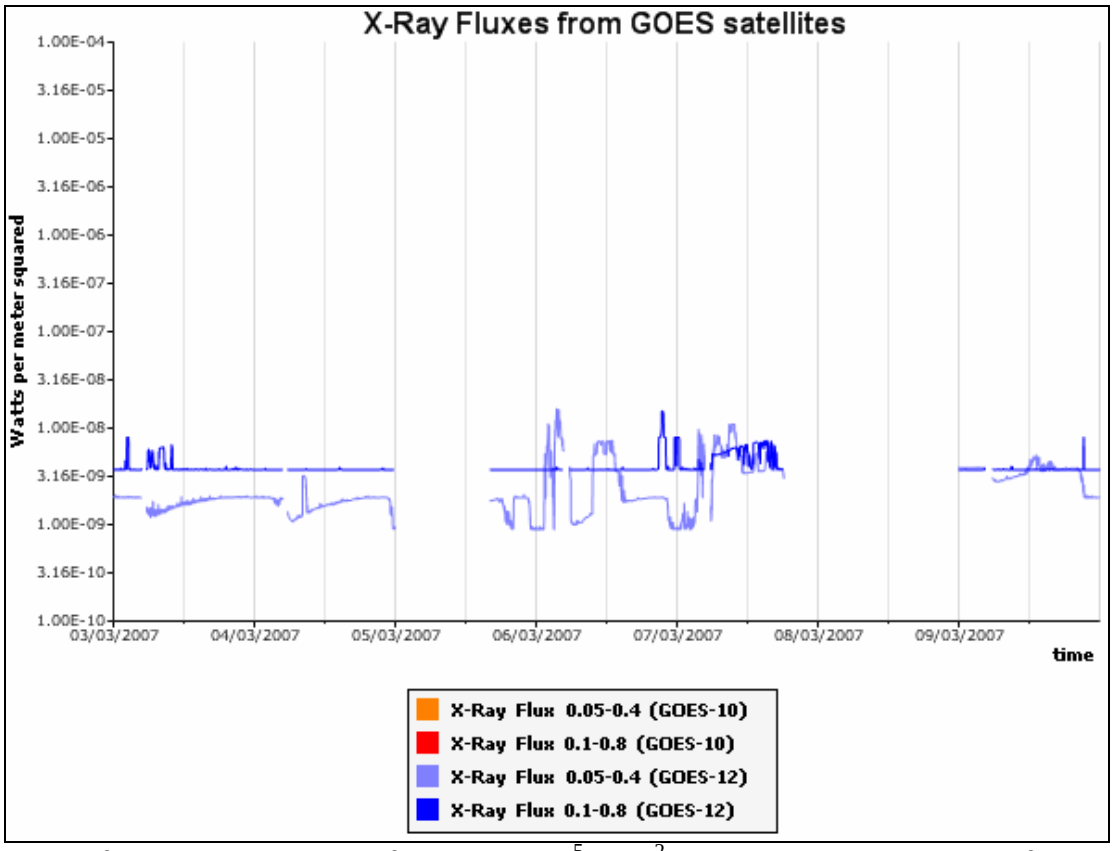
Rev 535



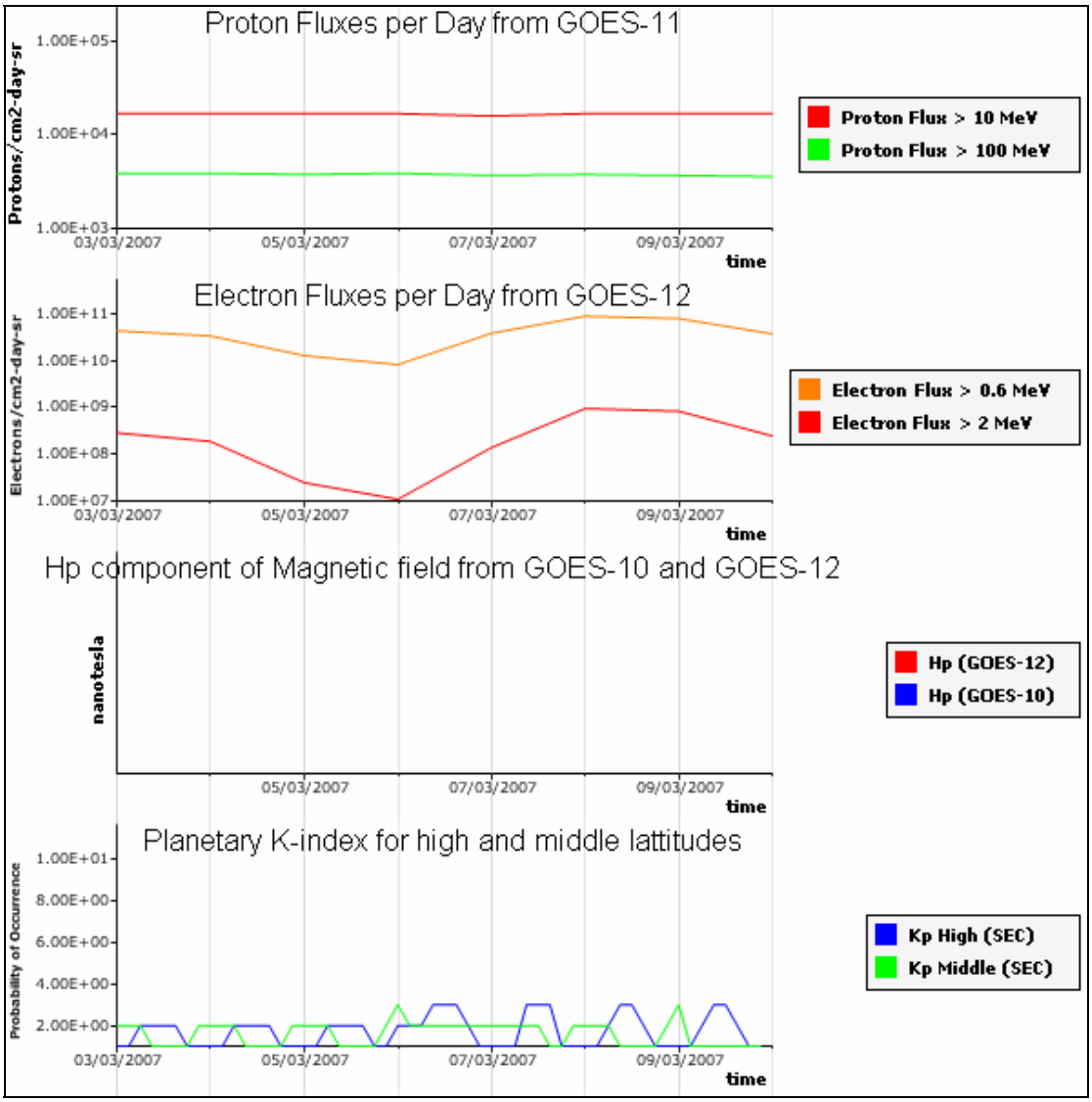
Rev 536



SEC-GOES Observed Particles Fluxes (using SEIS/RAT tool):



X-Ray fluxes start to be significant over 10^{-5} W/m^2 (corresponding to M-class flares). Above 10^{-4} W /m^2, they correspond to strong X-class flares.



Proton and electron flux are reporting low radiation background this week.

Hp component of the Geomagnetic Field is essentially parallel to the Earth's rotation axis. A drop near 0 nT is associated with a significant variation in the magnetic field. No Hp data are available this week.

Kp index is based on ground magnetometers. Kp >=5 features storm-level geomagnetic activity.