

INTEGRAL
Mission Report
INT-MOC-SYS-RP-1001-OPS-OAI
No. 311
Week 36
08.09.08
Routine Phase

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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 30.08.08 until 05.09.08 (both dates inclusive) and covers the revolutions 718, 719 and 720.

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 three hexagonal dithers of the Galactic Bulge region (RA 17:45:36.00, DEC -28:56:00.0), two hexagonal dithers of NGC 2110 (RA 05:52:11.40, DEC -07:27:22.0), two raster dithers of the Galactic Plane Region 3 (RA 13:09:32.98, DEC -62:47:56.4) and a raster dither of the Perseus Arm region (RA 04:46:58.46, DEC +45:14:46.4).

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.

Four slews were missed from TL, during the observation period due to problem on FDS.

The fuel consumption over the period between 30/08/2008 and 05/09/2008 was 0.1807 Kg. The remaining propellant is in the order of 138.6712 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.

Battery 2 reconditioning started on 2/9/2008.

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.

The PST was over-subscribed by 3 packets, which were allocated to SPI during the Instrument window for the entire reporting period.

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

The 12th annealing started on 17/08/2008 at 15:15Z and ended on 04/09/2008 at 23:50Z. This annealing progressed nominally. The following table reports the major events/steps performed:

Date/Time	Activity
17/08/2008 15:15Z	Configure SPI for start of Annealing and stop SPI active cooling
17/08/2008 16:42Z	Annealing Heater Main ON
17/08/2008 18:42Z	Annealing Heater Redundant ON
19/08/2008 03:54Z	Cold plate temperature reached 373K (100degC)
27/08/2008 10:40Z	Stop SPI Annealing: Annealing Heater Main and Redundant OFF; Heat Pipe Heater Main and Redundant OFF; Antifreeze Heater 1A ON
27/08/2008 11:14Z	ACS switch-on and calibration start (FEE#57 and FEE#81 ON)
29/08/2008 06:45Z	End of ACS Calibration
30/08/2008 02:31Z	Thermal braids temperature TM EU0398A reached 308K
30/08/2008 03:11Z	Start of cryocooler switch-on
30/08/2008 04:13Z	Cyrocooler switch-on complete and stroke set to 4x45
02/09/2008 11:41Z	Cold plate temperature TM EU0392A reached 127K
02/09/2008 11:42Z	Selected narrow range cyro temps and restored PSD nominal threshold
03/09/2008 07:31Z	Cold plate temperature TM EU0392 reached 100K
03/09/2008 07:23Z	Camera switch-on start; HV of all GeD increased in steps to 0.5kV; 1kV; 1.5kV; 2kV; 2.5kV; 3kV; 3.5kV, 4kV with

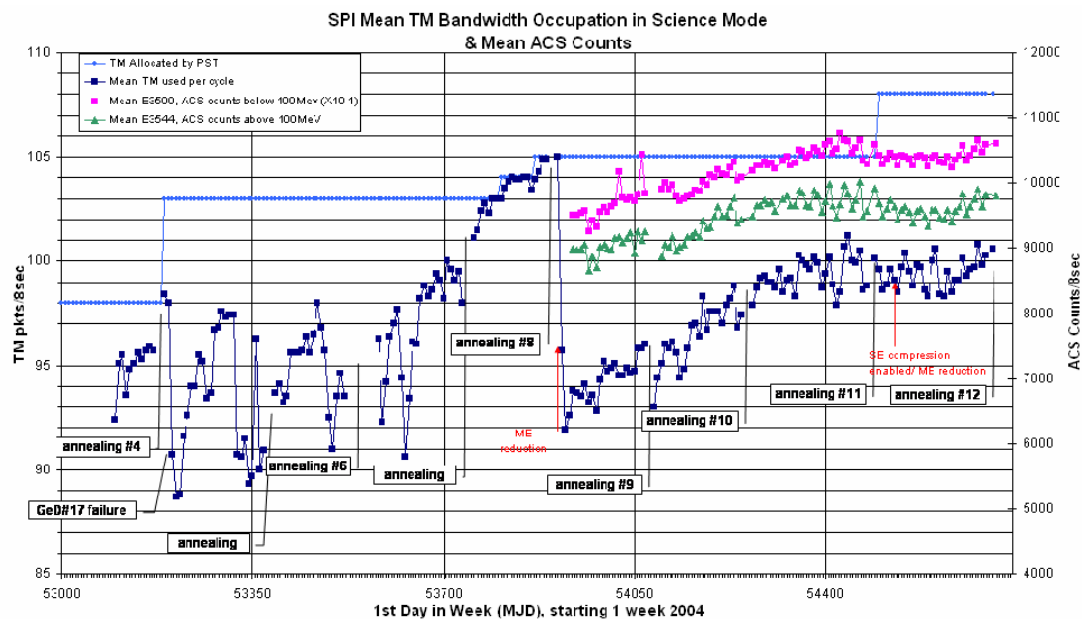
	acquisitions in PHOTON mode in between
03/09/2008 10:44Z	Camera switch-on end: SPI in PHOTON mode with all GeD HV at 4kV except for GeD#2 (0.5kV) GeD#17 (0.5kV) and GeD#12 (3kV)
03/09/2008 10:29Z	Thermal braid temperature TM E0398 reached 86K
03/09/2008 10:55Z	Start of reduction of cryocooler stroke for 80K target (FCP_SPI1_0072)
04/09/2008 06:44Z	End of reduction of cryocooler stroke for 80K target: Stroke set to 4x37
04/09/2008 08:34Z	Start of test of GeD HV: all GeD HV set to 3kV, 3.5kV, 4kV (except GeD#2 at 0.5kV and GeD#17 at 0.5kV). Then special test of GeD#12 at 3.5kV and 4kV again.
04/09/2008 13:04Z	End of test, all GeD at 4kV (except GeD#2 and GeD#17)
04/09/2008 23:50Z	To CONF, set nominal IASW parameters (including Cold Plate Monitoring and disable SE compression); set nominal GeD HV (4kV on all GeD except GeD#2 (0.5kV); GeD#17 (0.5kV) & GeD#12 (3.5kV)) and return to PHOTON
05/09/2008 01:16Z	Cold plate temperature TM EU0392 reached 80.9K

Following this annealing the overall status of the gamma-ray spectrometer is nominal, except for detector #2 (failed since 06/12/2003) and detector #17 (failed since 17/07/2004). The energy resolution of the previously degraded GeD#12 has improved following this annealing and the bias of this detector is now set to 4kV as for the other detectors.

The Stirling compressors are working nominally, maintaining the Germanium detectors at 80 +/-1K since the end of annealing.

SPI was in CONF mode with an assigned TM bandwidth of 30 packets/cycle due to the annealing until revolution 719, when the camera switch-on was performed. From this revolution onwards, SPI had the nominal allocation of 108 packets/cycle.

The following plot shows the evolution of the assigned and the average occupation of the SPI TM bandwidth along with the mean ACS count rate evolution (since July 2006). As can be seen, there is a strong correlation between the evolution of the background as measured by the ACS and the overall TM bandwidth usage.



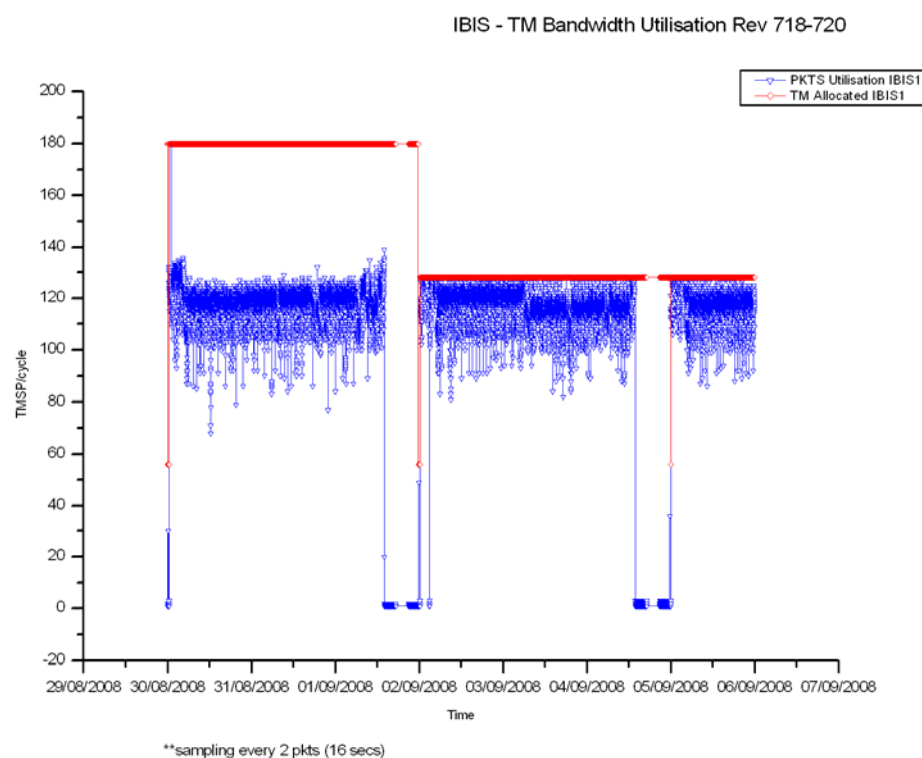
Note: Some more information concerning the SPI operations is provided in the Appendix.

3.2.2 IBIS

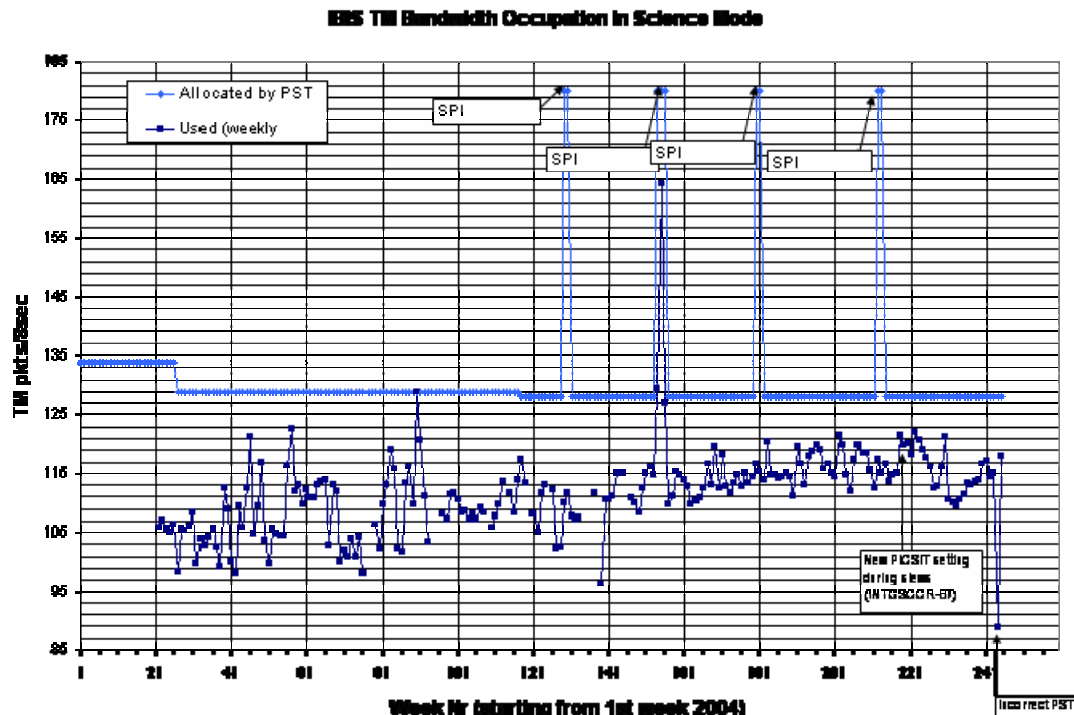
The overall status of the unit is nominal.

During the reporting period, the PST allocation to IBIS above radiation belts was 180 packets/cycle in rev 718 and 128 packets/cycle from rev 719 onwards. The IBIS mean bandwidth utilisation in science mode was 118.04 packets/cycle

The plot below shows the IBIS TM utilisation during the observation period.



A plot of the IBIS weekly bandwidth utilisation since 2004 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 and JEMX-2 were operated in Data Taking mode with a TM allocation of 15 packets/cycle during revolution 718. Thereafter, JEM-X1 was operated in Data Taking mode with a TM allocation of 8 packets/cycle, with JEM-X2 dormant (DPE OFF) with no TM slots allocated.

Note: Some more information concerning the JEM-X operations is provided in the Appendix.

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.

During this reporting period, 150 of the 153 planned science pointings were executed nominally, one was executed at the wrong attitude, one was shortened and one was lost.

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

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 blank all week. The risk of solar flares was very low.



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 good this week. Two pointings were lost. The overall performance was above the 95% requirement.

4.1 Mission Operations Centre

The performance of the MOC was good this week. A disk crash on sun128 caused the loss of 2 pointings.

4.2 Ground Stations & Network

The performance of the ground stations and Network was very good this week. There was one link drop reported from Redu, and one from DSS27, neither had any impact.

4.3 Science Ground Segment

4.3.1 ISOC

1. Mission planning

a) PSFs for revolutions 726 were received on Tuesday Sept 2, and 727, 728 and 729 on Friday Sept 5.

b) Rev 721 was re-planned by GB on Wednesday Sept 3 to add a dummy to break a long slew into two parts.

c) Rev 724 and 725 were re-planned by EK on Thursday Sept 4 to correct wrong TM settings.

d) A TSF for 720 was received on Thursday Sept 4

2. Observation status

We have received ECS files for up to Rev 714 (Sept 3)

3. ISOC Science Data Archive

No news.

4. ISOC system

ISOC system V19.4 was under testing.

5. Problems

None.

4.3.2 ISDC

Status of ISDC observation processing on 08/09/2008:

- Latest Standard Analysis completed: observation 06200010001 (Gal. Bulge region, Revolution 714) on 08/09/2008.
- Latest products archived: observation 06200520001 (PKS 0208-512, Revolution 714) on 08/09/2008.
- Latest observation products sent to the observer: observation 05200480001 (XMM-LSS, Revolutions 695-697) on 28/08/2008.

5 Special Events

6 Anomalies

The following problems were reported this week that impacted operations.

- On DoY 246, at 00:11, one of the disks in sun128 crashed. This had knock on effects taking the FD GTPs down. The result was slews failed to update and then failed to uplink. A recovery was subsequently performed using the b-chain, and the Timeline restored at 01:05. The impact was the loss of pointings 07190002 & 07190003.

The following anomaly report was entered into the ARTS system this week.

AR id	Date Created	Subject	Segment	Status
INT-3024	2008-09-02	Disk Crash on sun128	IMCS	Pending

7 Future Milestones

- The next eclipse season will begin on the 22nd September during revolution 725.

8 Appendix

The appendix includes various detailed information.

8.1 Overview of Revolutions

Revolution 718

The observations in revolution 718 began with a hexagonal dither of the Galactic Bulge region (RA 17:45:36.00, DEC -28:56:00.0), lasting ~3.5 hours. They continued with a hexagonal dither of NGC 2110 (RA 05:52:11.40, DEC -07:27:22.0), lasting ~46.6 hours. Finally a raster dither of the Galactic Plane Region 3 (RA 13:09:32.98, DEC -62:47:56.4), lasting ~4.8 hours, was performed, until the end of the revolution.

Throughout these observations, all instruments were in their nominal science modes, except SPI, which is undergoing annealing. The TM allocation was IBIS 180; SPI 30; JEM-X1 15; JEM-X2 15; OMC 9.

Revolution 719

The observations in revolution 719 began with a hexagonal dither of the Galactic Bulge region (RA 17:45:36.00, DEC -28:56:00.0), lasting ~3.5 hours. They continued with a hexagonal dither of NGC 2110 (RA 05:52:11.40, DEC -07:27:22.0), lasting ~22.9 hours. Finally a raster dither of the Galactic Plane Region 3 (RA 13:09:32.98, DEC -62:47:56.4), lasting ~28.0 hours, was performed, until the end of the revolution.

Revolution 720

The observations in revolution 720 began with a hexagonal dither of the Galactic Bulge region (RA 17:45:36.00, DEC -28:56:00.0), lasting ~3.5 hours. They continued with a raster dither of the Perseus Arm region (RA 04:46:58.46, DEC +45:14:46.4), lasting ~51.9 hours, until the end of the revolution.

Throughout the observations in revolutions 719 & 720, all instruments were in their nominal science modes, except JEM-X2, which is switched off. The TM allocation was IBIS 128; SPI 108; JEM-X1 8; JEM-X2 0; OMC 5.

8.2 Consumables

8.2.1 Detailed Fuel Book-keeping

2008-08-21T04:57:29.000Z	139.0142	F	Automatic TM processing.
2008-08-22T07:48:20.000Z	138.9917	F	Automatic TM processing.
2008-08-23T22:19:04.000Z	138.9761	F	Automatic TM processing.
2008-08-24T04:43:13.000Z	138.9536	F	Automatic TM processing.
2008-08-25T07:36:04.000Z	138.8999	F	Automatic TM processing.
2008-08-26T22:07:44.000Z	138.8864	F	Automatic TM processing.
2008-08-28T07:26:53.000Z	138.8669	F	Automatic TM processing.
2008-08-29T21:55:53.000Z	138.8519	F	Automatic TM processing.
2008-08-30T04:17:37.000Z	138.8274	F	Automatic TM processing.
2008-09-01T07:47:59.000Z	138.7863	F	Automatic TM processing.
2008-09-01T21:41:44.000Z	138.7720	F	Automatic TM processing.
2008-09-02T04:02:57.000Z	138.7597	F	Automatic TM processing.
2008-09-03T05:41:32.000Z	138.7258	F	Automatic TM processing.
2008-09-04T21:28:32.000Z	138.7128	F	Automatic TM processing.
2008-09-05T03:51:44.000Z	138.6712	F	Automatic TM processing.

This report was generated Fri Sep 5 08:00:16 GMT 2008

8.3 Detailed Satellite Information

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

8.3.1 AOCS SUMMARY OPERATIONS REPORT, 30/08/2008 – 05/09/2008

The AOCS operations were executed from the Automatic Timeline.

During this period, 87 Open Loop Slews, 83 Closed Loop Slews and 7 Momentum Biases were executed (as reported by ACC).

4 slews were missed from TL, during the observation period due to problem on FDS (job scheduler overload and GTPs processors not running).

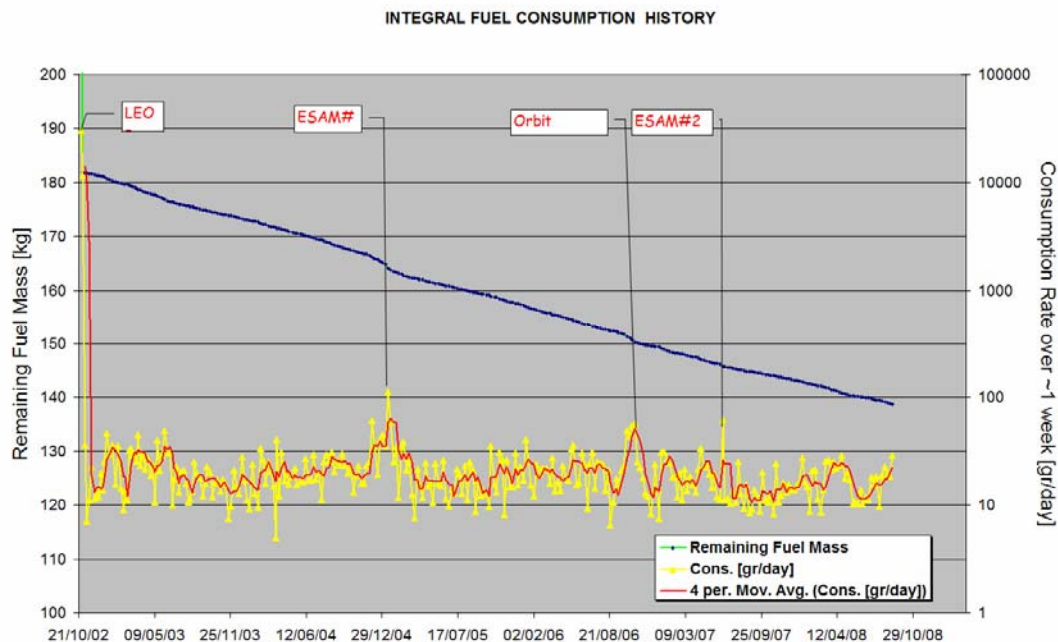
This is equivalent to $\sim 2.3\%$ of the total number of slews planned (172).

Orbit Control

No update

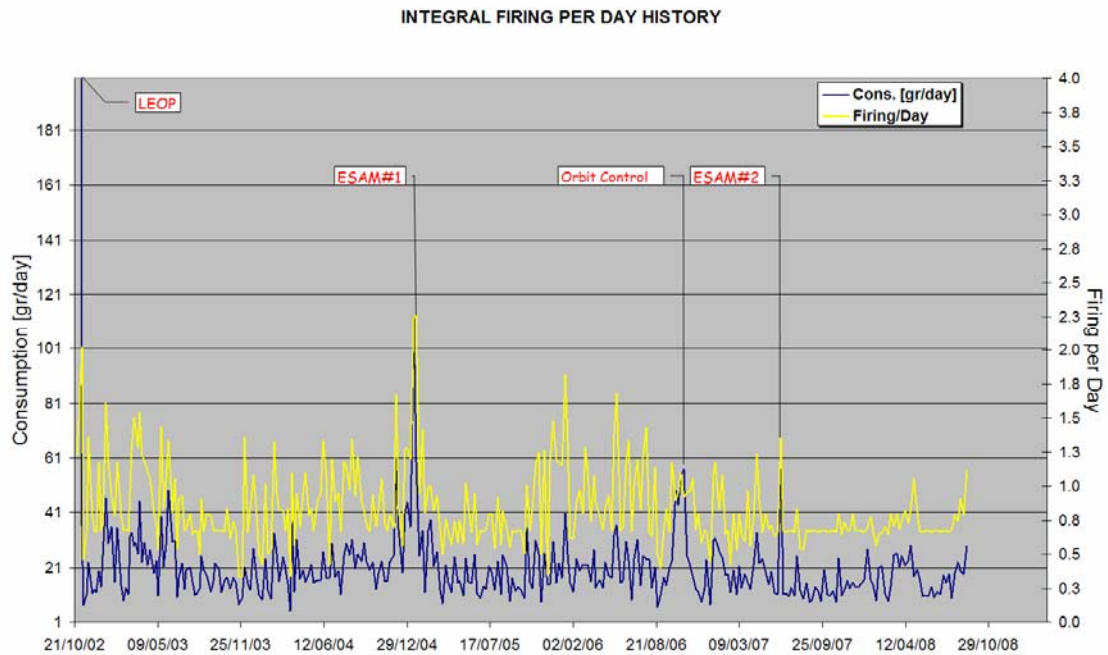
Fuel consumption

The fuel consumption (total, grams per day) over the period between 01/11/2002 and 05/09/2008 is reported in the plot below.



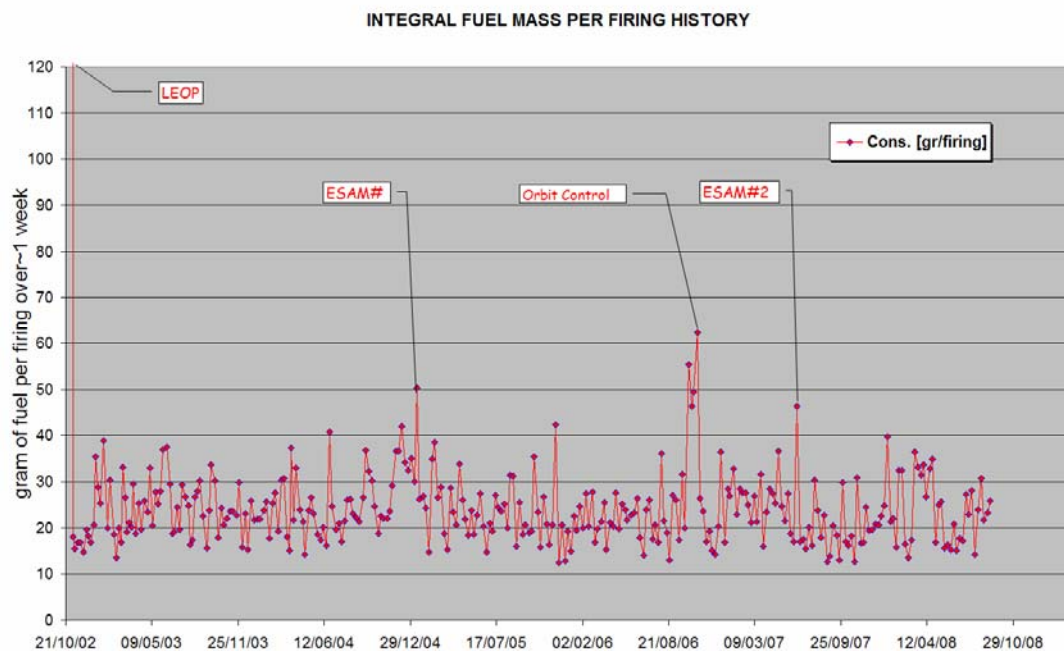
The above plot considers the ESAM fuel consumption spread over period of ~ 1 week.

The firing per day over the period between 01/11/2002 and 05/09/2008 is reported in the plot below.



The above plot considers the ESAM fuel consumption spread over period of ~1 week.

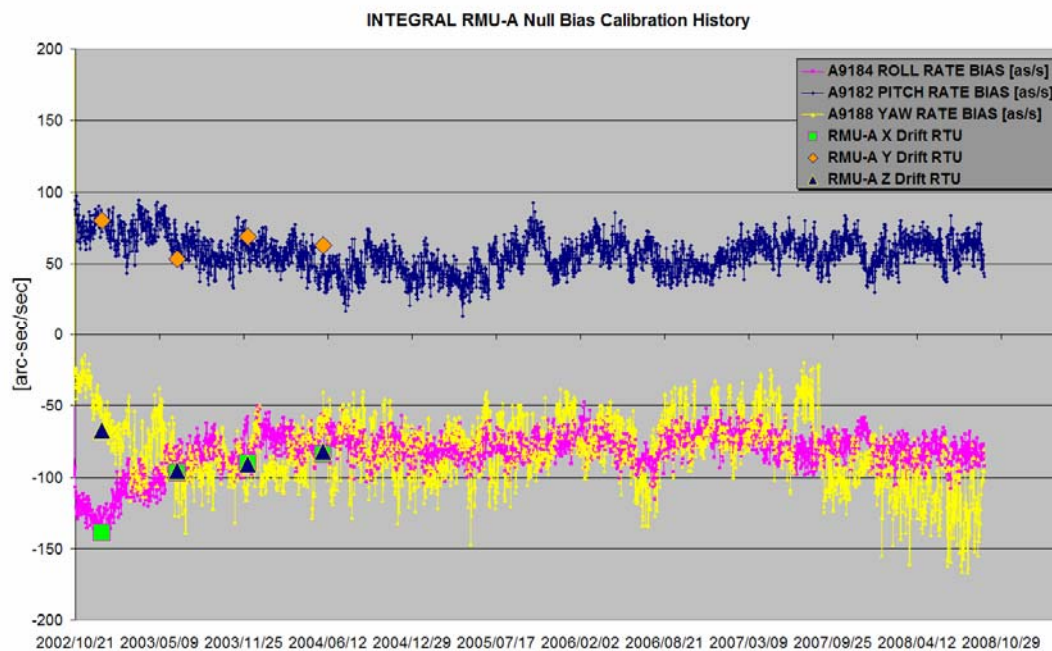
The fuel per firing over the period between 01/11/2002 and 05/09/2008 is shown in the plot below.



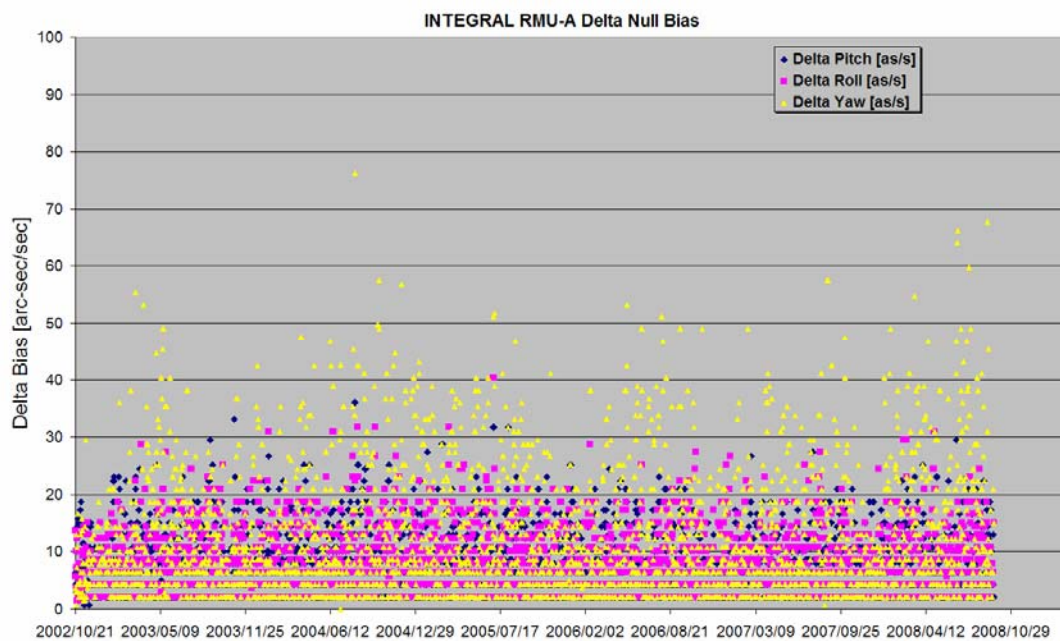
The RMU-A null bias calibration

The RMU-A null bias calibration history, on pitch, roll and yaw channel over the period between 01/11/2002 and 05/09/2008 is reported in the plot below.

The evolution of the drift on yaw channel is under constant monitoring but the values are still well within the specs. At moment the current constraints (for drift update generation) on the FDS have been relaxed to cope with the current situation.



The RMU-A delta null bias calibration history, on pitch, roll and yaw channel over period between 01/11/2002 and 05/09/2008 is reported in the plot below.



30/08/2008 (Day of Year 243, Revolution 717-718)

Nothing to report.

31/08/2008 (Day of Year 244, Revolution 718)

Nothing to report.

01/09/2008 (Day of Year 245, Revolution 718)

FDS overloaded: at 08:38z the FDS did not perform correctly the update of the slew ID 07180060. The PTV for TC A3089 (Sun Steering Law initialization) reported this problem preventing the slew ID 07180060 to be uplinked from the Autostack. The FDS likely reported an overload on the machine where running the job scheduler; this was verified by FD team during the following recovery.

A manual recovery was performed from attitude of PID 07180059 to the attitude of PID 07180060.

The next slew 07180061 was manually updated in TL.

The following slew was missed in TL: 07180060

02/09/2008 (Day of Year 246, Revolution 718-719)

FDS problem at GTPs processors : at 00:11z the PTV for TC A3189 (Start Guide Star) reported a problem, causing the slew ID 07190002 to fail release. This was caused by the FDS GTPs TM processors found not running.

A manual recovery was performed from attitude of PID 07190001 to the attitude of PID 07190004.

The next slew 07190005 was manually updated in TL.

The following slews were missed in TL: 07190002 – 03 – 04

03/09/2008 (Day of Year 247, Revolution 719)

Nothing to report.

04/09/2008 (Day of Year 248, Revolution 719)

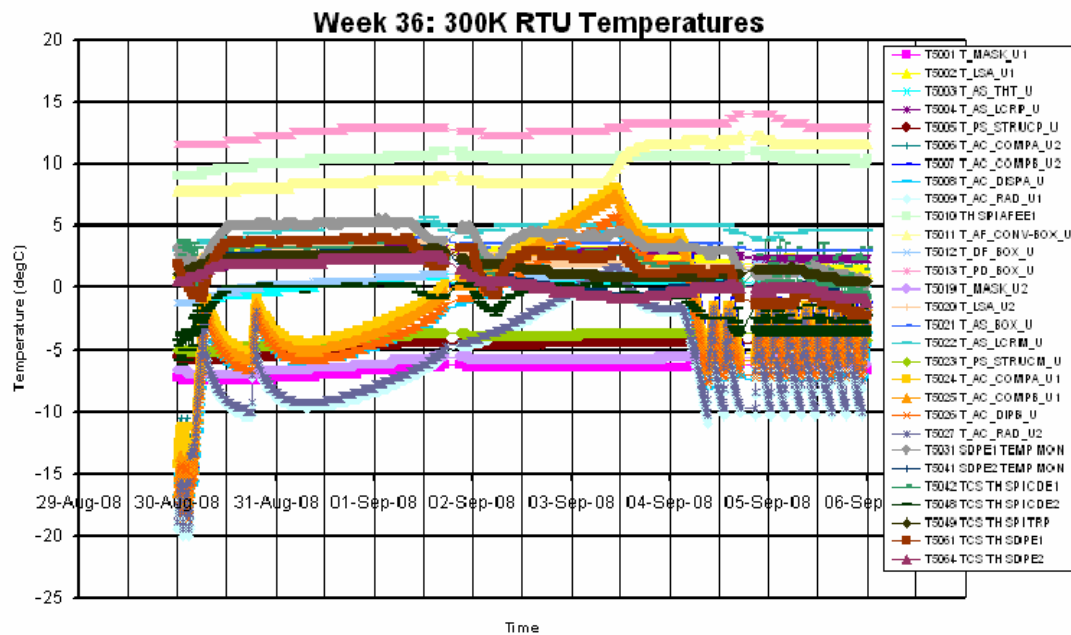
Nothing to report.

05/09/2008 (Day of Year 249, Revolution 719-720)

Nothing to report.

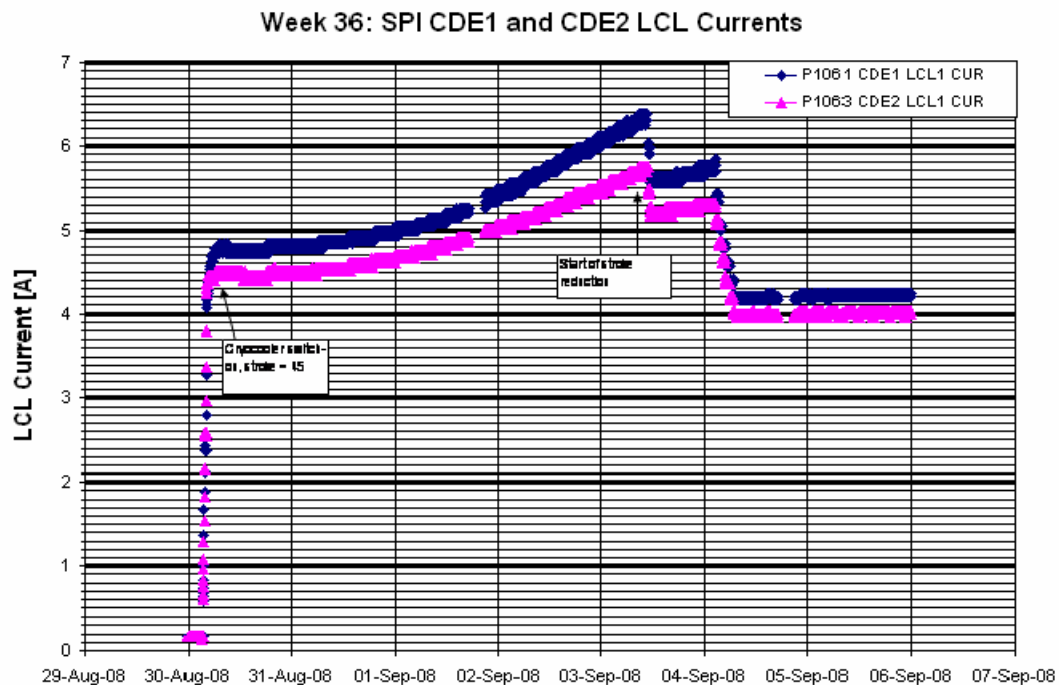
8.3.2 SPI Operations

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

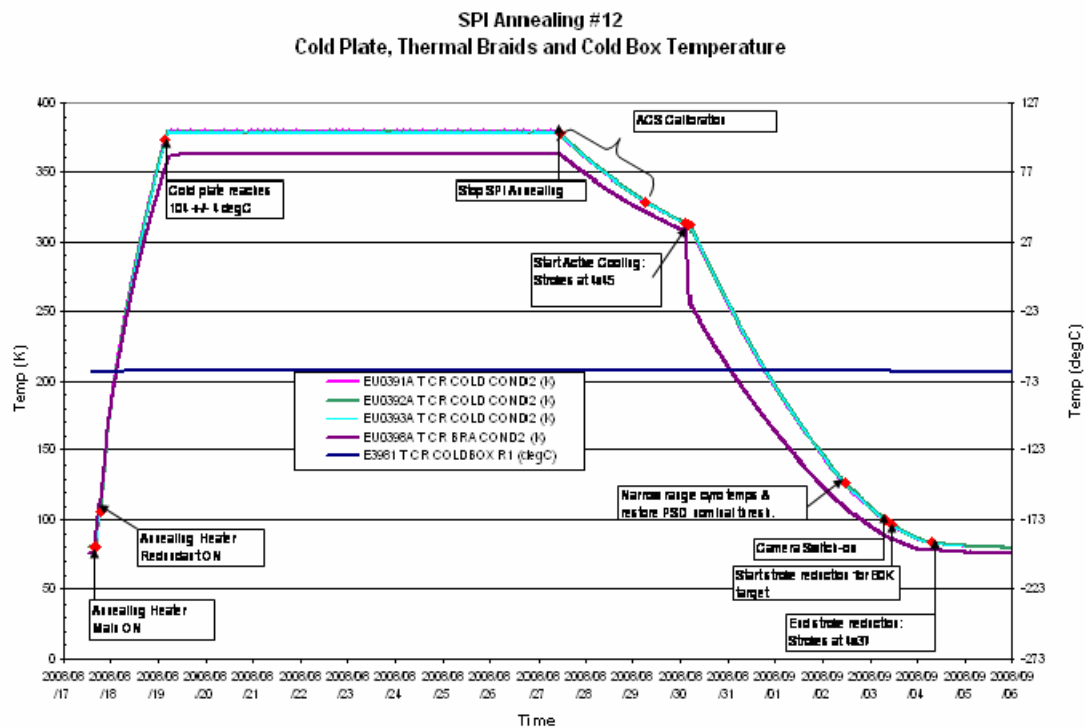


Stirling Compressors and Cryostat: The performance of the compressors is nominal.

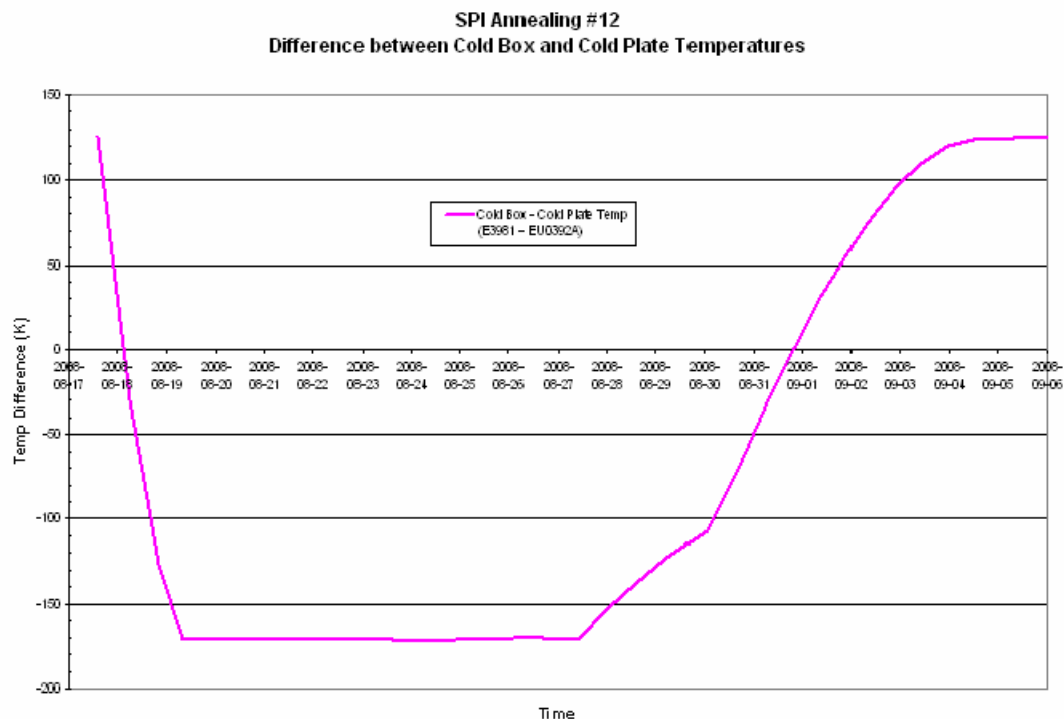
The following plot shows the evolution of the CDE LCL currents during the reporting period.



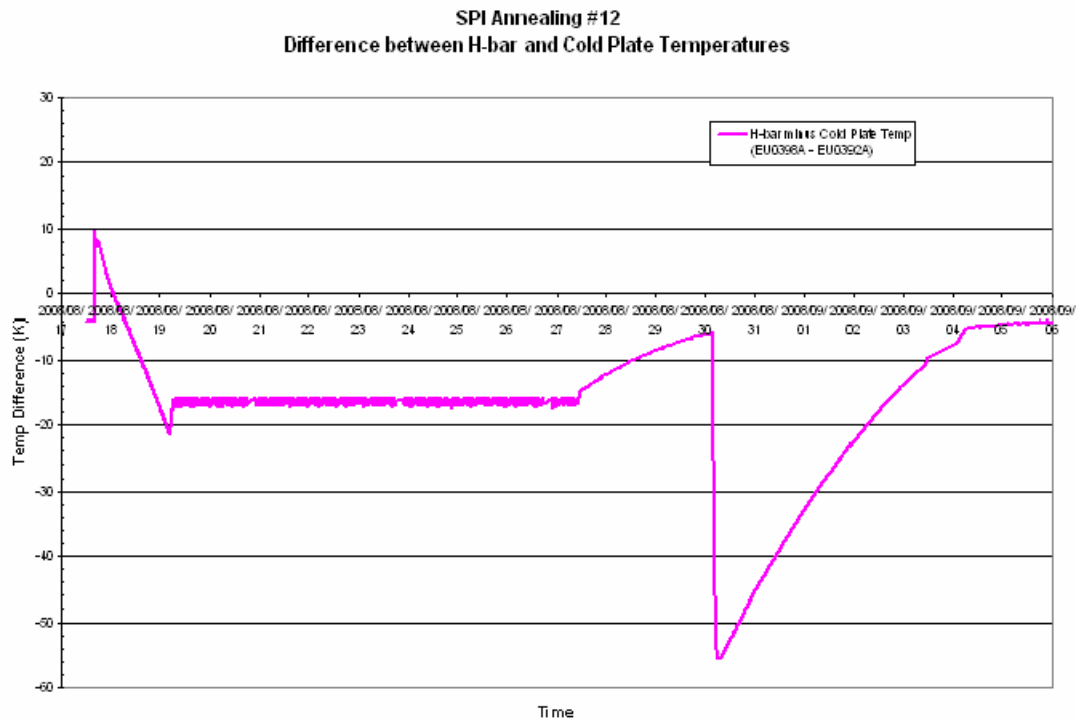
The following plot shows the evolution of the Cold Plate, Thermal Braids and Cold Box temperatures since the start of annealing.



The following plot shows the difference between the Cold Box and Cold Plate temperatures since the start of annealing.



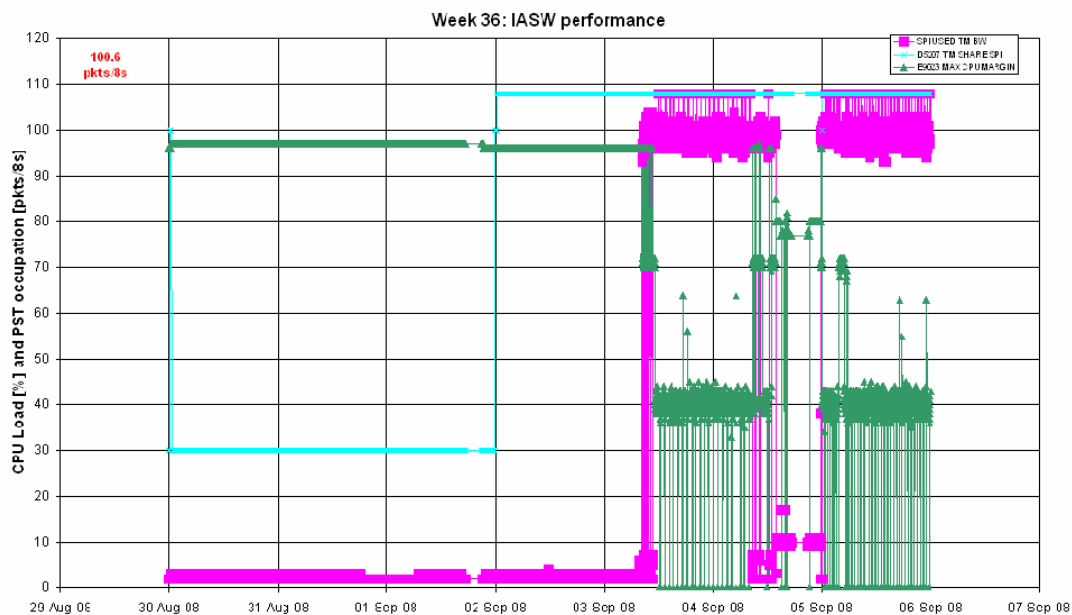
The following plot shows the difference between the H-bar and Cold Plate temperatures since the start of annealing.



DPE & IASW: The DPE health and IASW performance are nominal.

The IASW version installed is v4.3.4 with SE compression only enabled and the spectra scaling factor set to 8/19 SE. The IASW was in CONF mode due to annealing until the start of the camera switch-on on 03/09/2008 at 07:23Z.

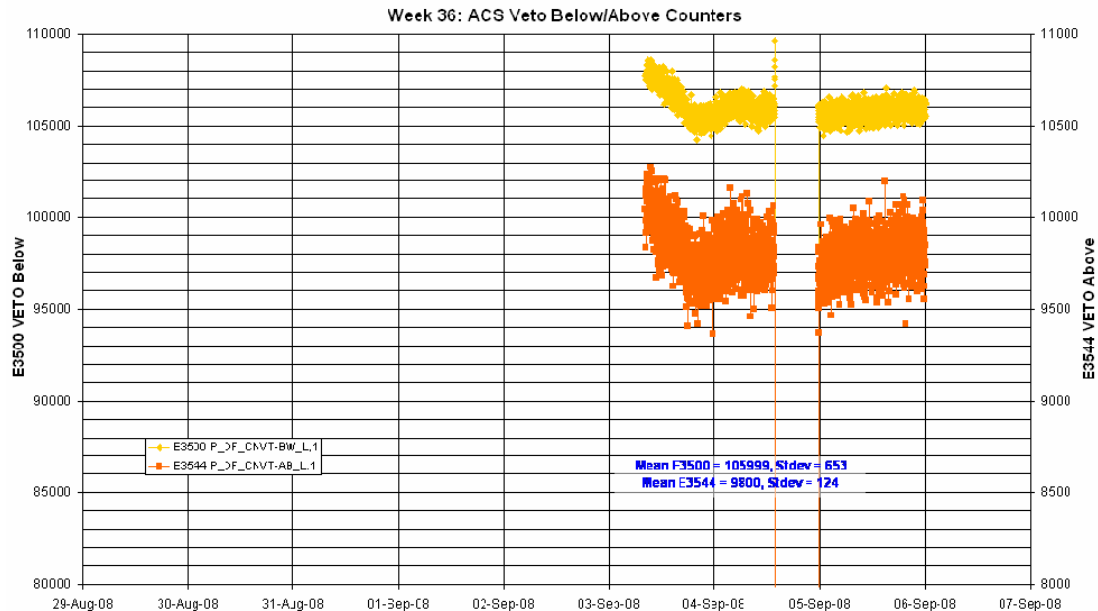
The following plot shows the IASW performance in terms of TM bandwidth occupation and DPE CPU load during the reporting period.



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

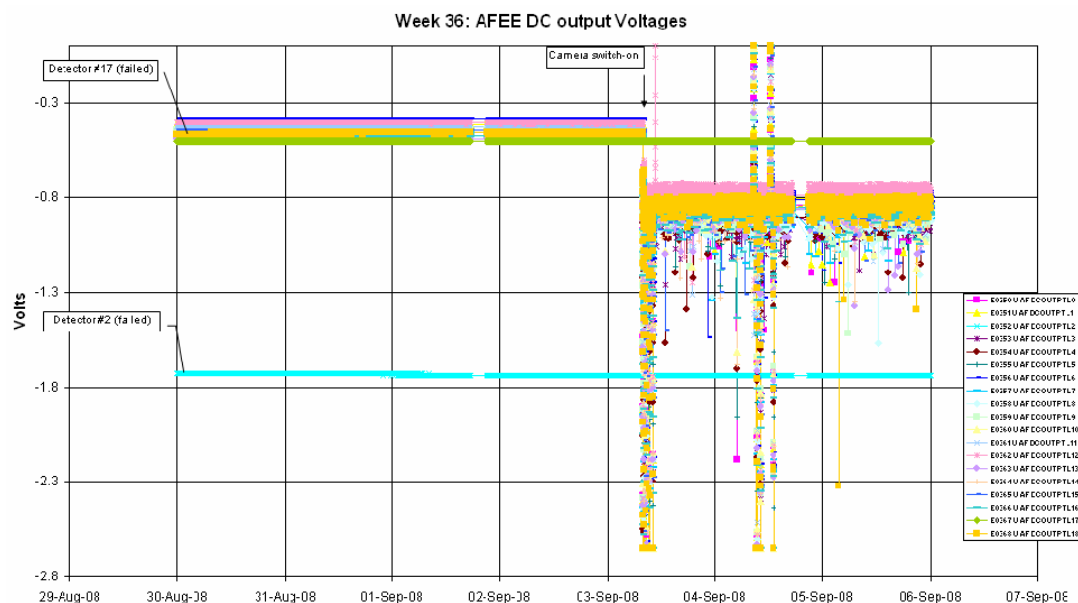
The ACS was in CONF mode due to annealing until the start of the camera switch-on on 03/09/2008 at 07:23Z.

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



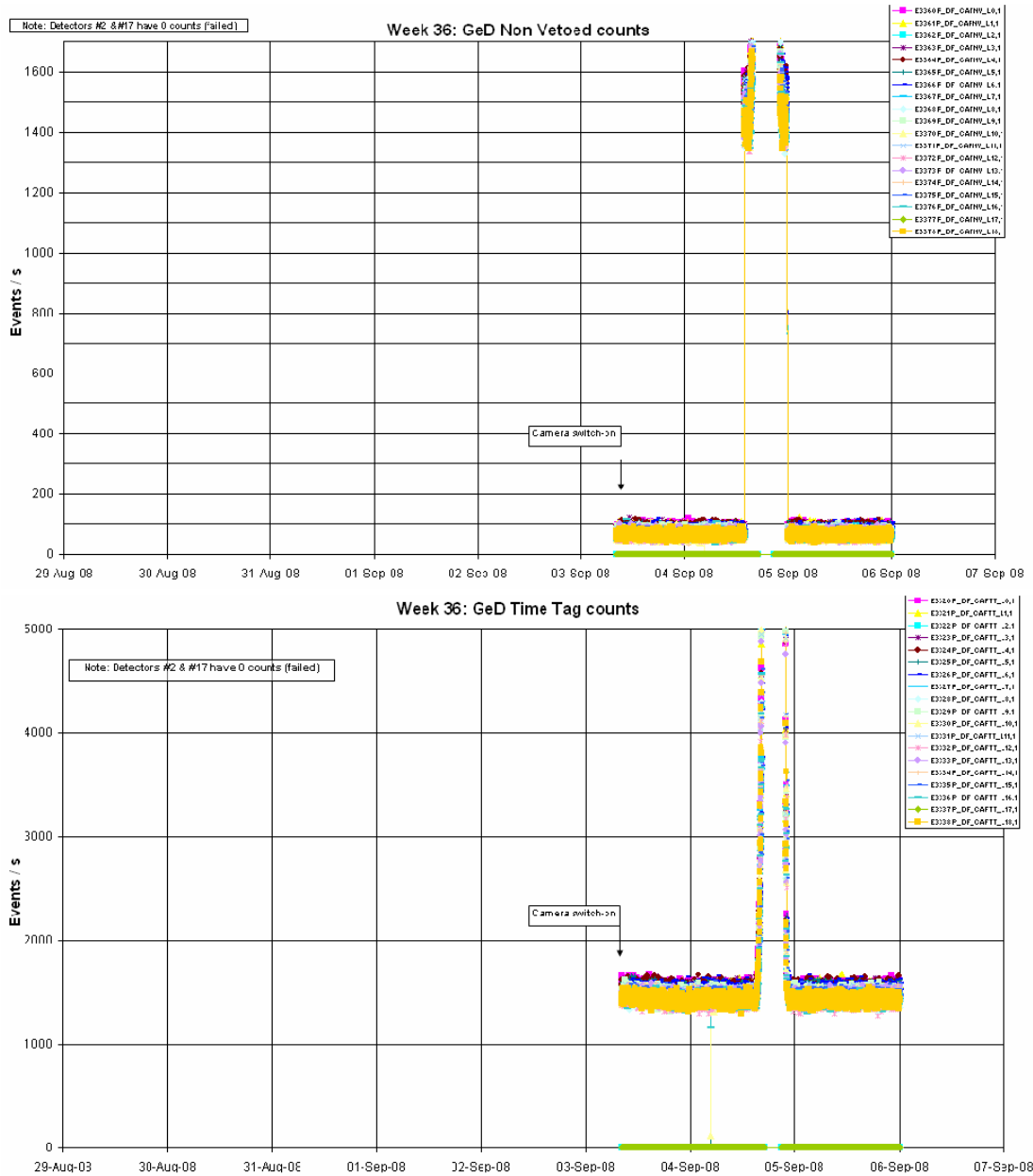
AFEE: The health of the AFEE is nominal. The following plot shows the dc voltage offset of the detector channels during the reporting period. The values are nominal. Detector #2 is failed since 06/12/2003 and detector #17 is failed since 17/07/2004.

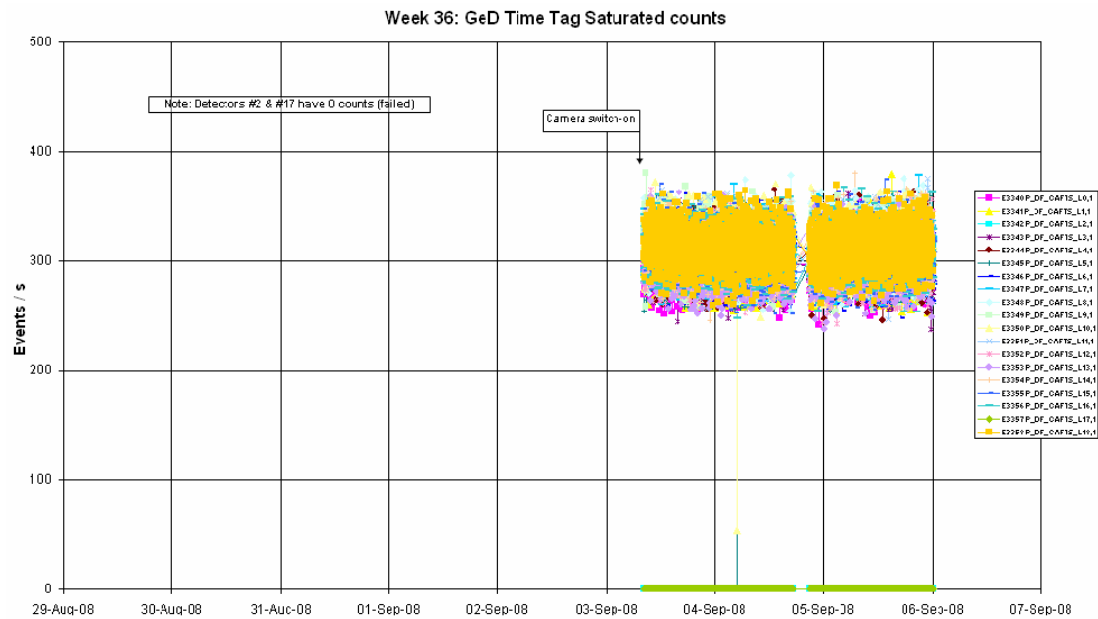
The AFEE was in CONF mode due to annealing until the start of the camera switch-on on 03/09/2008 at 07:23Z.



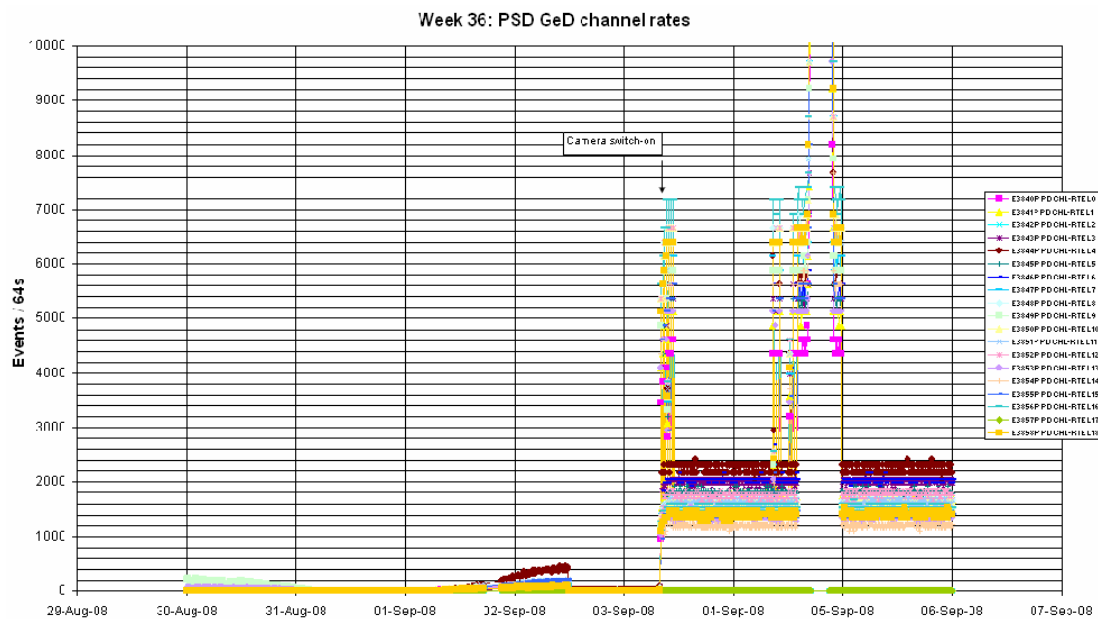
DFEE: The performance of the unit is nominal. The DFEE was in CONF mode due to annealing until the start of the camera switch-on on 03/09/2008 at 07:23Z.

The following plots show the Non Vetoed, Time Tag and Time Tag Saturated Event count rates during the reporting period.





PSD: The health of the unit is nominal. The following plot shows the PSD channel rates during the reporting period. The PSD was in CONF mode due to annealing until the start of the camera switch-on on 03/09/2008 at 07:23Z.



Event Log:

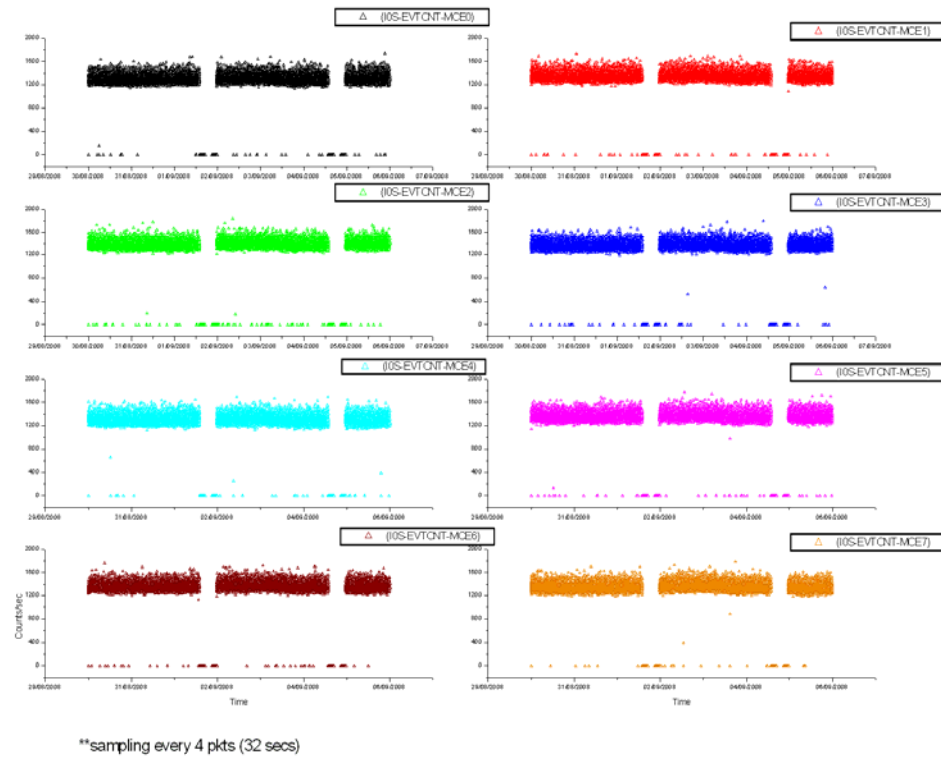
No non-nominal events occurred on SPI over the reporting period.

8.3.3 IBIS Operations

IBIS Event Counters Plots

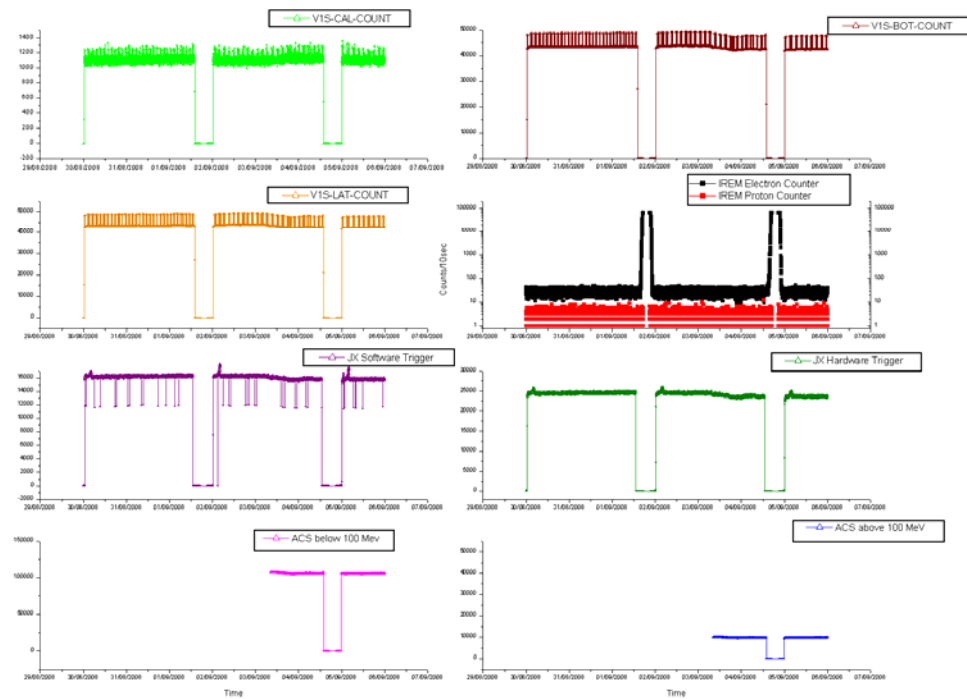
ISGRI Counters:

IBIS - ISGRI Counters Rev 718-720



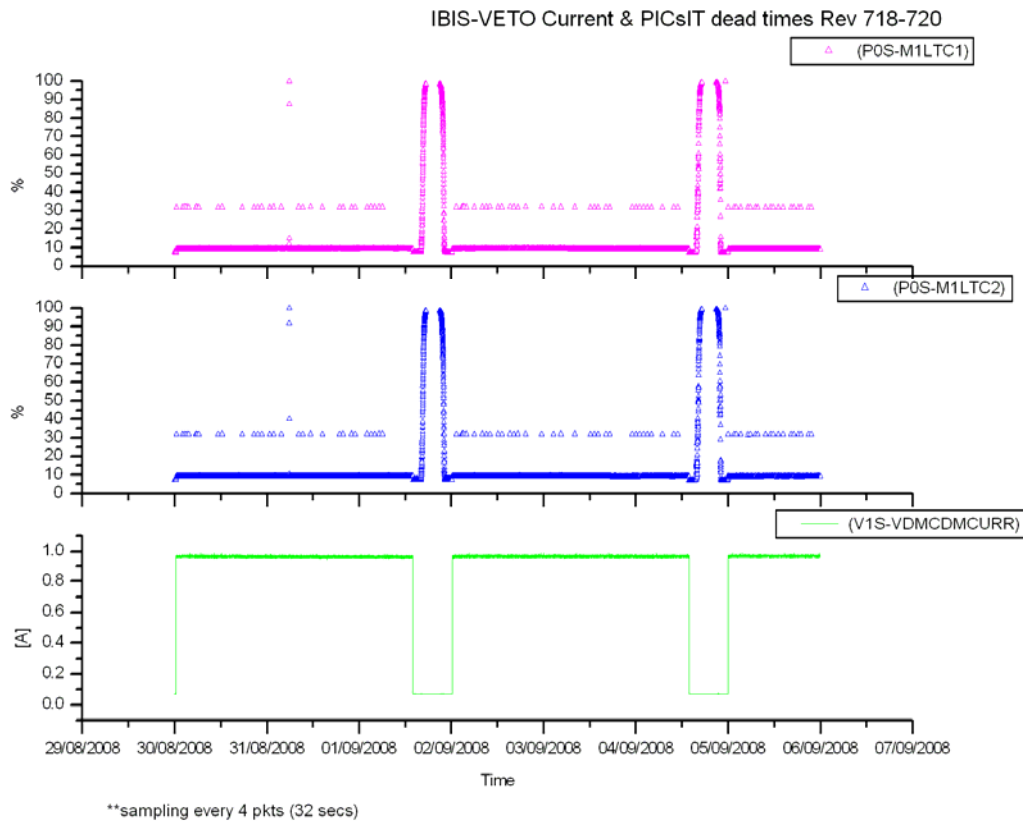
VETO vs Payload Counters:

IBIS-VETO vs Payloads Counters Rev 718-720

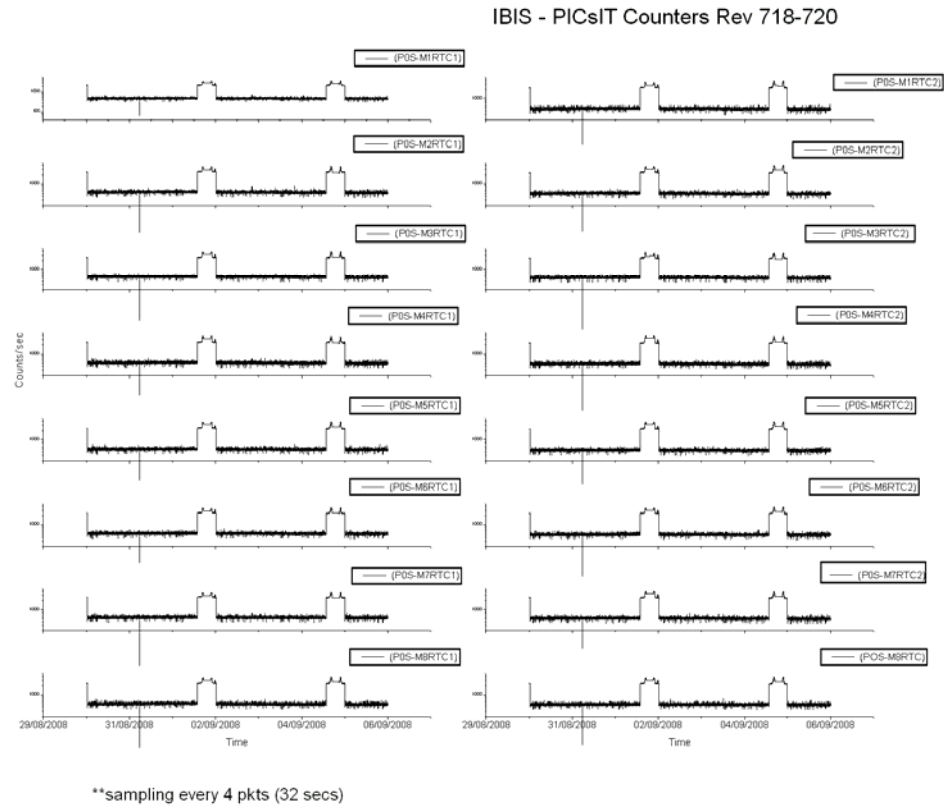


The week was characterised by low radiation as reported by the payload.

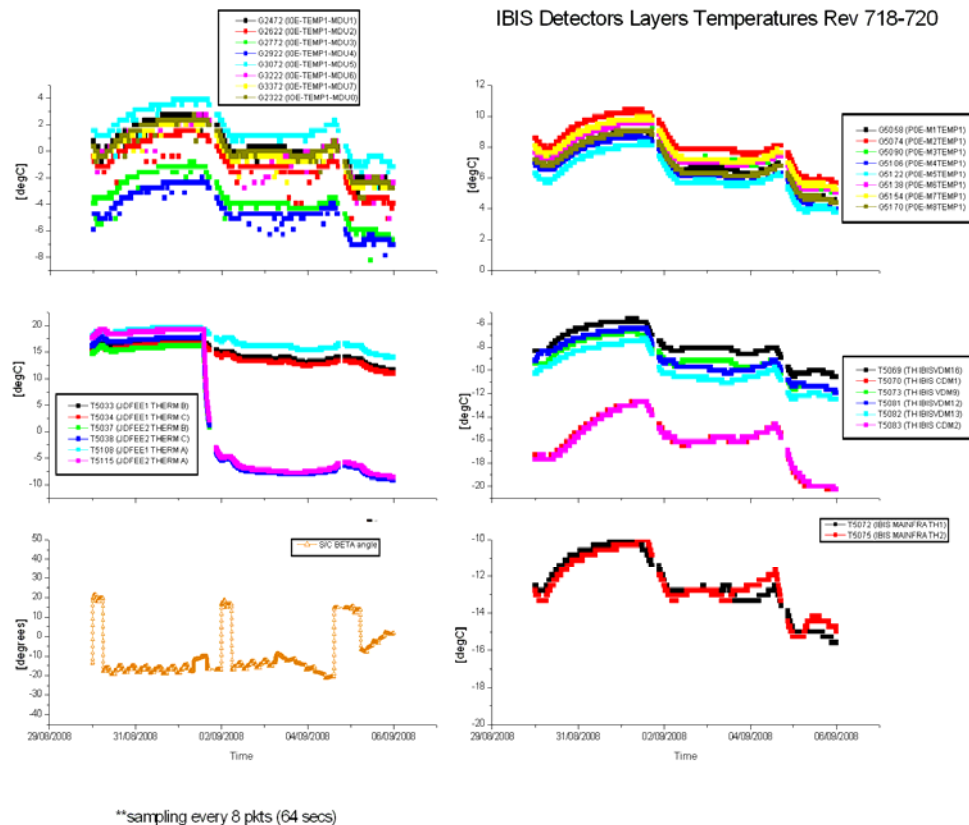
VETO Current:



PICsIT Counters:



IBIS Detectors Layers Temperatures:



IBIS daily report:

The usual Out Of Limits on TM parameter G8015 (S1E-A2_PMT_V), G5002 (P0S-Mi_RTC1) and G5003 (P0S-Mi_RTC2) families and G2000 family (IOE-OVFWPXADD-Mi) were received during the radiation belt passages.

2008-08-30 (DOY 243, Rev 718)

IBIS operations executed nominally.

2008-08-31 (DOY 244, Rev 718)

At 05:51:54Z the TM parameters families G5068 and G5072 failed status consistency check (value = TRUE). These are the PDM semi-module FIFO error flags. At 05:52:45Z the TM parameter families G5002 and G5003 for the PDM semi-module counters started going OOL Low. As they had all returned within limits by 05:53:30Z, no action was taken.

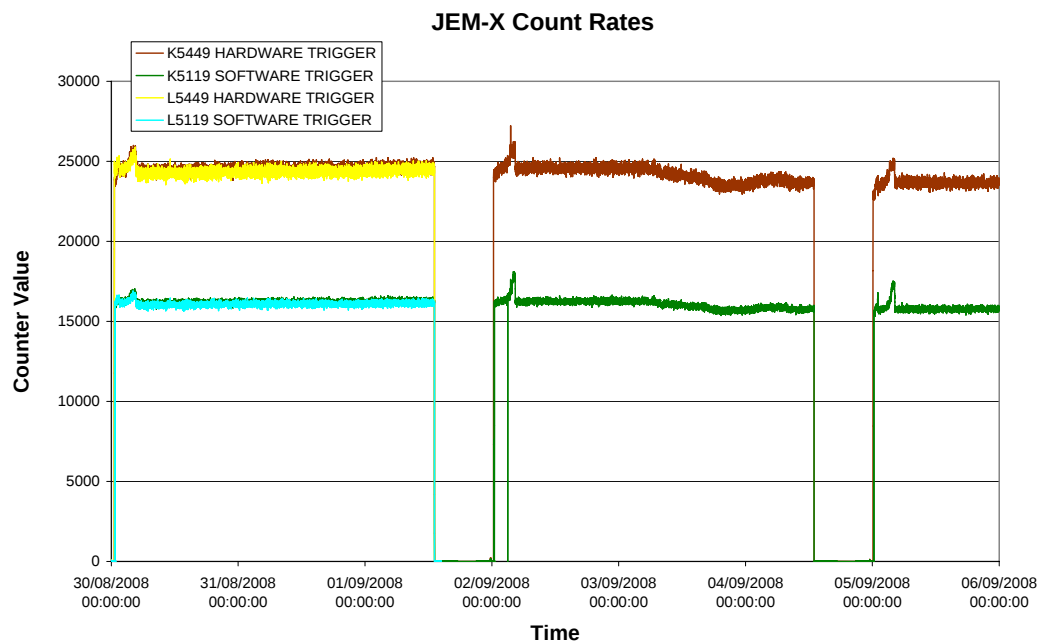
2008-09-01 (DOY 245, Rev 718-719) to 2008-09-05 (DOY 249, Rev 720)

IBIS operations executed nominally.

8.3.4 JEM-X Operations

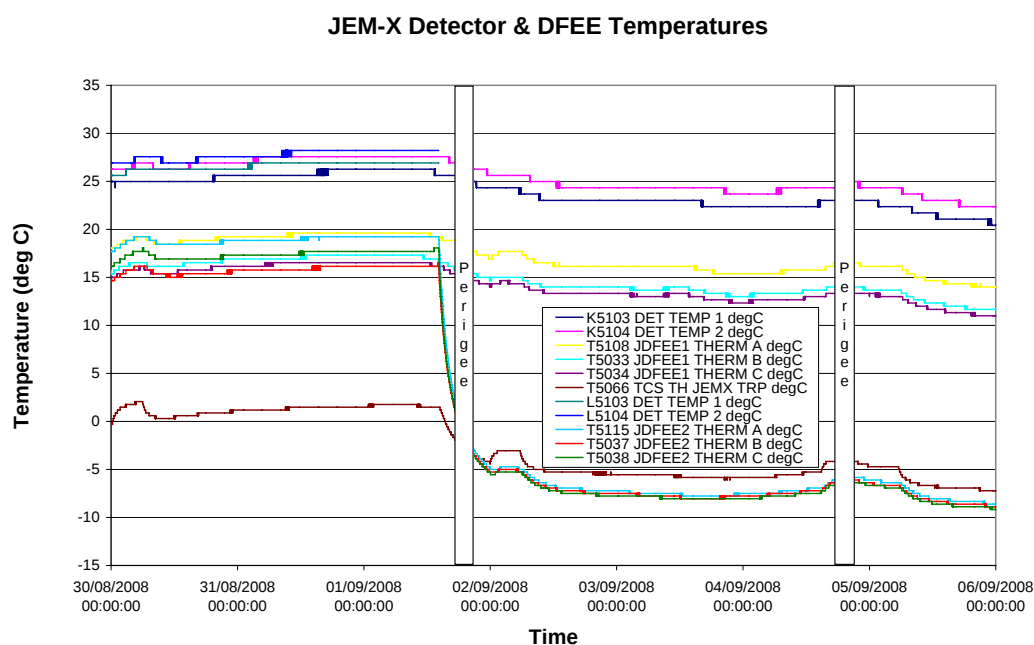
JEM-X Count Rates

JEM-X count rates over the reporting period are displayed in the following graph¹.



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 graph².



JEM-X Daily Report

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

² Data sampled (1 frame in 8)

2008-08-30 (DoY 243, Rev 718)

On this day, the following anomalous OEMs were received:

2008.243.12.47.56.659	2008.243.12.48.06.187	1536	RealTime	5		EXCEPTION
JEM-X1 EXC IACS INTERF EXID			0	0	65535	PR N
E E						
FIX6		0				
K9079	MESS CLASS	1				
K9080	MESS ID	5				
K9065	CSSW OPERAT ID	START				
K9066	TASK ID 8	IASW				
K9067	LOGICAL ADDRESS	4989				
2008.243.12.47.56.659	2008.243.12.48.06.241	1536	RealTime	6		EXCEPTION
JEM-X1 EXC IACS INTERF CULP			0	0	65535	PR N
E E						
FIX6		0				
K9079	MESS CLASS	1				
K9080	MESS ID	6				
K9065	CSSW OPERAT ID	START				
K9066	TASK ID 8	IASW				
K9067	LOGICAL ADDRESS	19726				

No action was taken and there was no impact.

2008-08-31 (DoY 244, Rev 718)

JEM-X 1&2 operations executed nominally.

2008-09-01 (DoY 245, Rev 718)

At 14:06, INT_OPS_338 was executed to switch off FCP_JEM-X2. This was completed nominally.

2008-09-02 (DoY 246, Rev 719) to 2008-09-05 (DoY 249, Rev 720)

JEM-X 1 operations executed nominally.

8.3.5 OMC Operations

2008-08-23 (DoY 236, Rev 715)

Nothing to report.

2008-08-24 (DoY 237, Rev 716)

At 00:53, a TM drop from Redu forced the suspension of the Timeline. During the recovery, a PST command was missed, and the allocation left at 5 packets per cycle instead of the planned 9. This was not corrected until 26th at 12:46. The impact was the loss of pointing 07160001 and a reduction in TM from a planned 9 to 5 packets per cycle affecting pointings 07160002 to 07160090 (83 pointings).

2008-08-25 (DoY 238, Rev 716) to 2008-08-29 (DoY 242, Rev 717)

Nothing to report.

2008-08-30 (DoY 243, Rev 718) to 2008-08-31 (DoY 244, Rev 718)

Nothing to report.

2008-09-01 (DoY 245, Rev 718)

At 08:38, a FDS problem prevented the slew commands from uplinking. The Timeline was stopped, and a recovery performed. At 09:21, the OMC commands for this pointing were manually uplinked. The impact was pointing 07180060 was shortened from a planned 3471 to 1712 seconds.

2008-09-02 (DoY 246, Rev 719)

At 00:11, an AOCS command failed to uplink. The timeline was stopped, and a recovery performed. This was completed at 01:10. The impact was pointing 07190002 was executed at the wrong attitude and pointing 07190003 was lost, it was at this time the following OEMs were received:

2008.246.00.46.19.529	2008.246.00.46.29.179	1792	RealTime	131	TC	REJECT		
REJECTED TC1			0	0	65535	PR	N	
E	E							
2008.246.00.46.25.779	2008.246.00.46.37.212	1792	RealTime	131	TC	REJECT		
REJECTED TC1			0	0	65535	PR	N	
E	E							

These correspond to the M1130 (RESET IM) and MU1310 (IMAGING-A) commands for that pointing.

2008-09-03 (DoY 247, Rev 719) to 2008-09-05 (DoY 249, Rev 720)

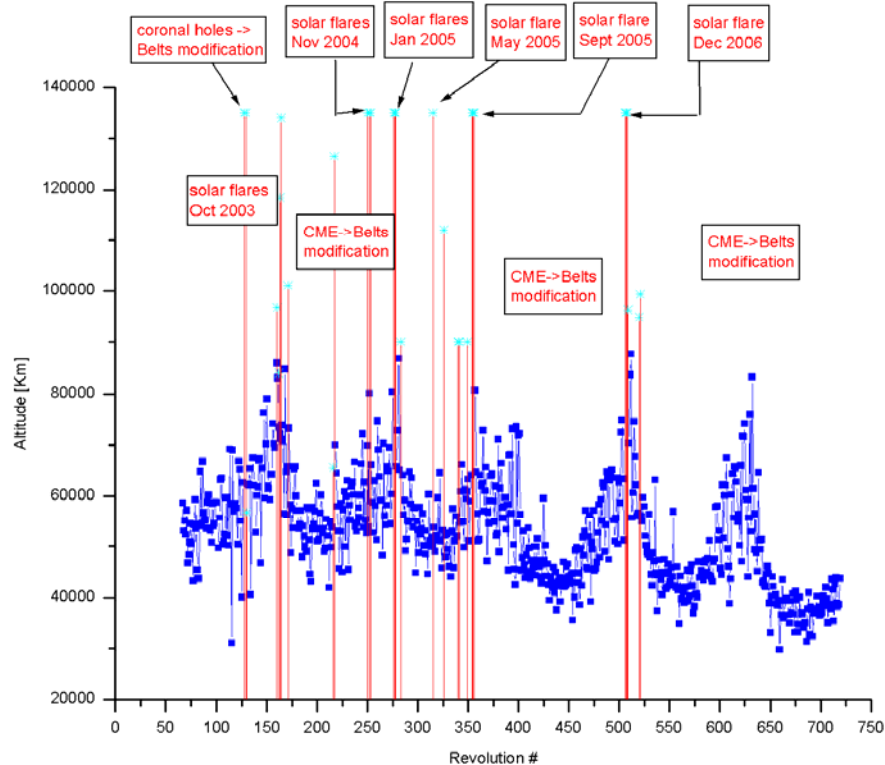
Nothing to report.

On DoY 245 at 14:02:56 and DoY 248 at 13:50:56 OMC went to SAFE mode nominally, at the radiation belt entry time as set in the Broadcast Packet.

8.3.6 IREM Operations

Radiation Belts Entry

Evolution of Radiation Belt Entry 2003-2008



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]
718	RAD_ENTR R 2008-09-01T14:02:54Z	01/09/2008 16:00:31	38597.2	01-Sep-2008 15:57:05	38870.18
719	RAD_EXIT R 2008-09-01T23:56:51Z	01/09/2008 22:20:07	>>33529.9	01-Sep-2008 23:07:05	45923.9
719	RAD_ENTR R 2008-09-04T13:50:54Z	04/09/2008 15:15:59	43706.0	04-Sep-2008 15:53:53	38125.64
720	RAD_EXIT R 2008-09-04T23:44:19Z	04/09/2008 22:27:51	>>33548.3	04-Sep-2008 23:03:53	46693.3

Reference

High radiation

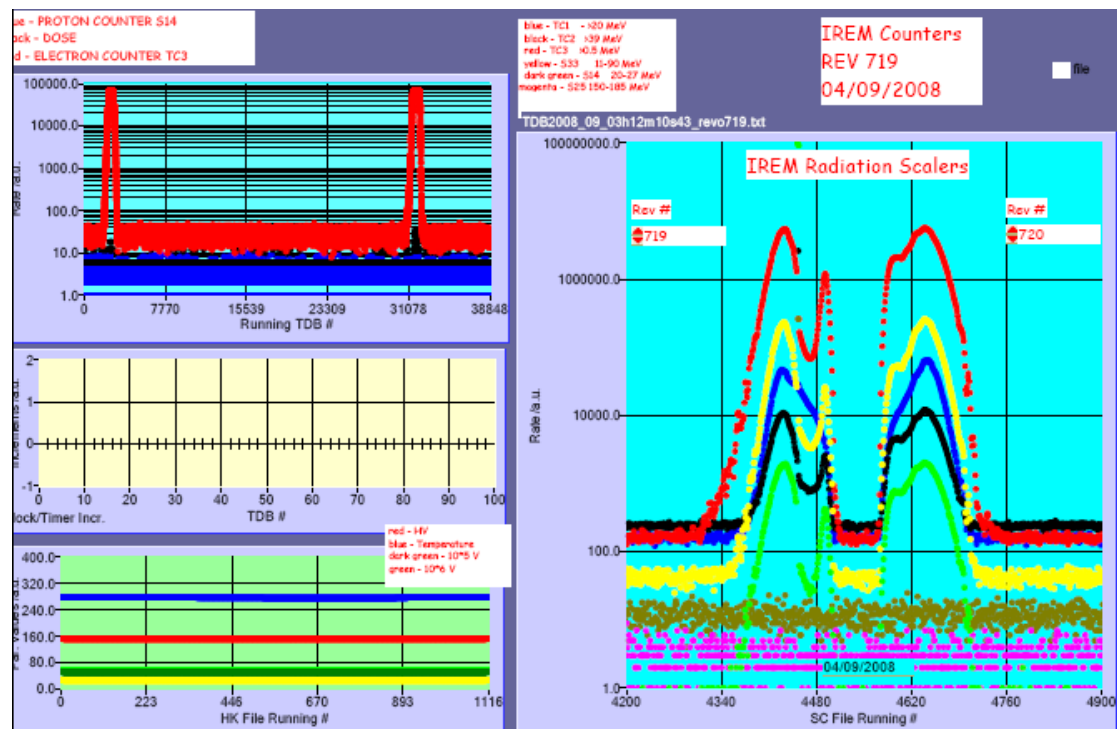
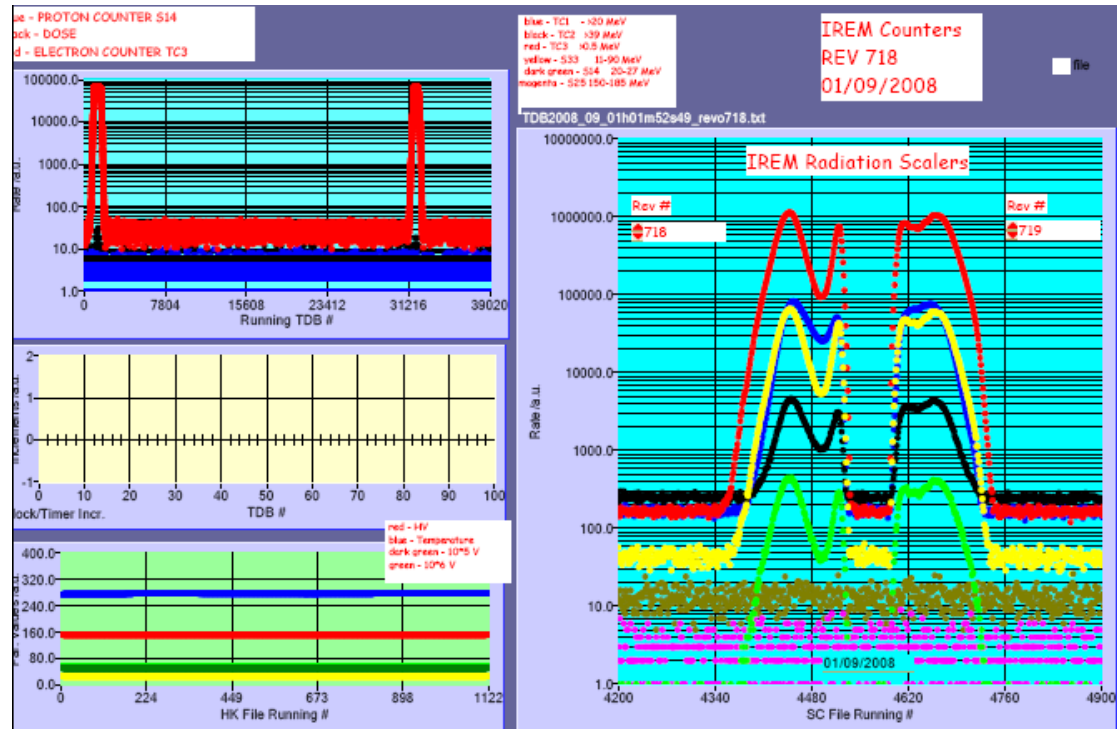
Very small error vs reference (less than 10 minutes)

Small error vs reference (between 10 and 30 minutes)

Large error vs reference (more than 30 minutes)

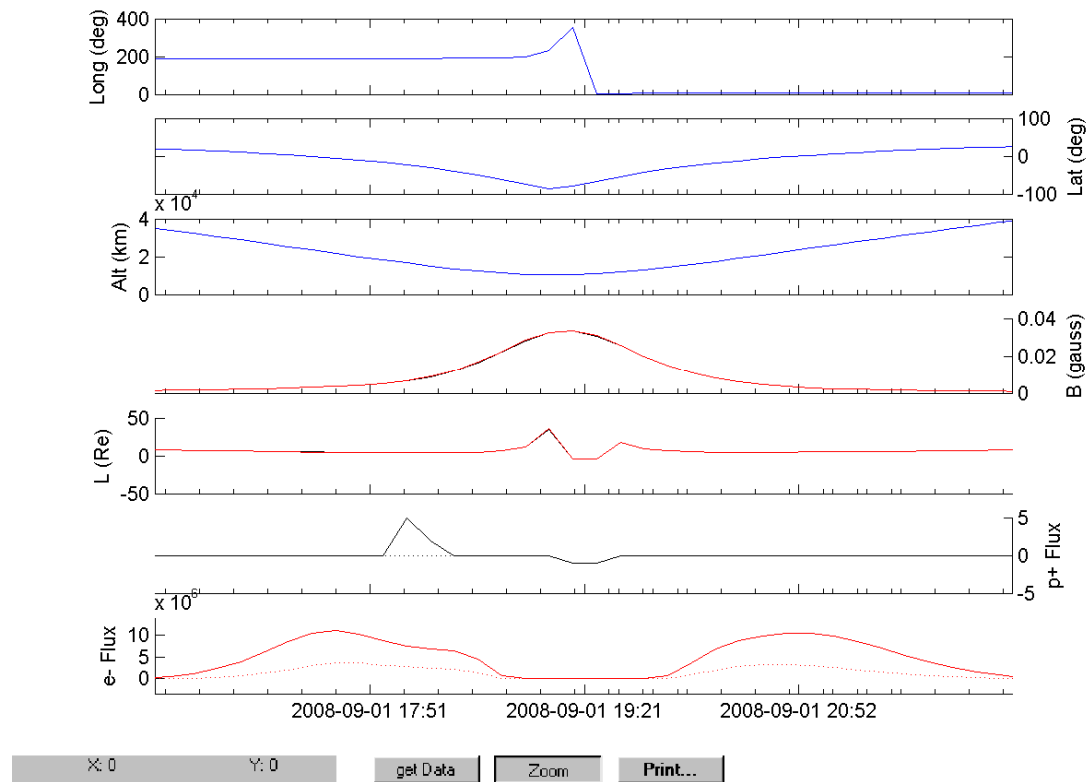
* Rad belt entry time ignoring previous threshold crossings where a gap of more than 30 minutes is present.

IREM radiation counters:

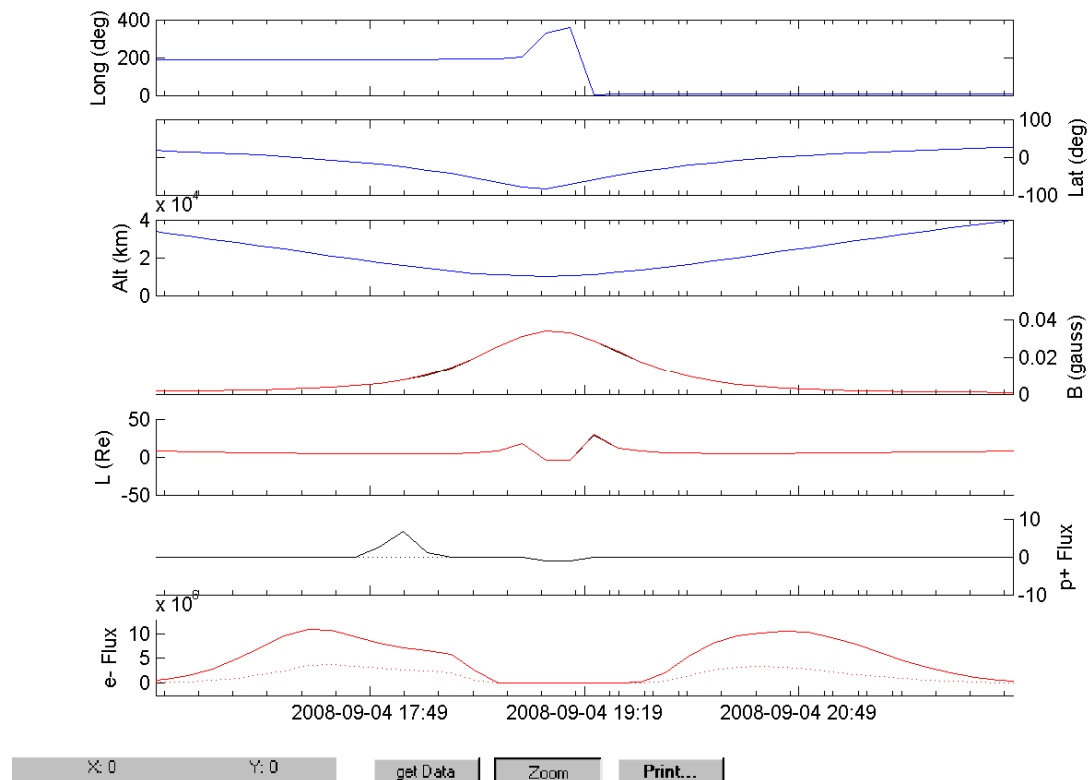


IREM Predicted Radiation Belt Passages

Rev 718



Rev 719



Doc. Title : INTEGRAL Mission Report #311
Doc. Ref. : INT-MOC-SYS-RP-1001-OPS-OAI
Date : 08/09/08

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Rev. : 0
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SEC-GOES Observed Particles Fluxes (using SEIS/RAT tool):

Due to a problem on the SEISDM server, no data are available this week. However, the week was very quiet and no radiation was reported.