

INTEGRAL
Mission Report
INT-MOC-SYS-RP-1001-OPS-OAI
No. 284
Week 09
03.03.08
Routine Phase

Prepared by: M.J.H. Walker (OPS-OAI) and INTEGRAL FCT

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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 23.02.08 until 29.02.08 (both dates inclusive) and covers the revolutions 655, 656 and 657.

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 two hexagonal dithers of the Galactic Bulge region (RA 17:45:36.00, DEC -28:56:00.0), two raster dithers of the Galactic Plane Region 1 (RA 18:04:41.75, DEC -05:04:48.4), and a raster dither of Orion OB1 (RA 05:17:00.30, DEC +01:47:17.7).

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 problems on FDS.

The fuel consumption over the period between 22/02/2008 and 29/02/2008 was 0.0677 Kg. The remaining propellant is in the order of 142.0932Kg.

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.

The wrap around of the COBT occurred as expected on the 09/02/2008 at 21:04:20z.

A PST with an over-allocation of 3 packets - all of which were assigned to SPI - was in use the entire week during the instrument window

No build of TM buffer occupancy was observed, SPI used the extra allocation for about 35% of all TM cycles.

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

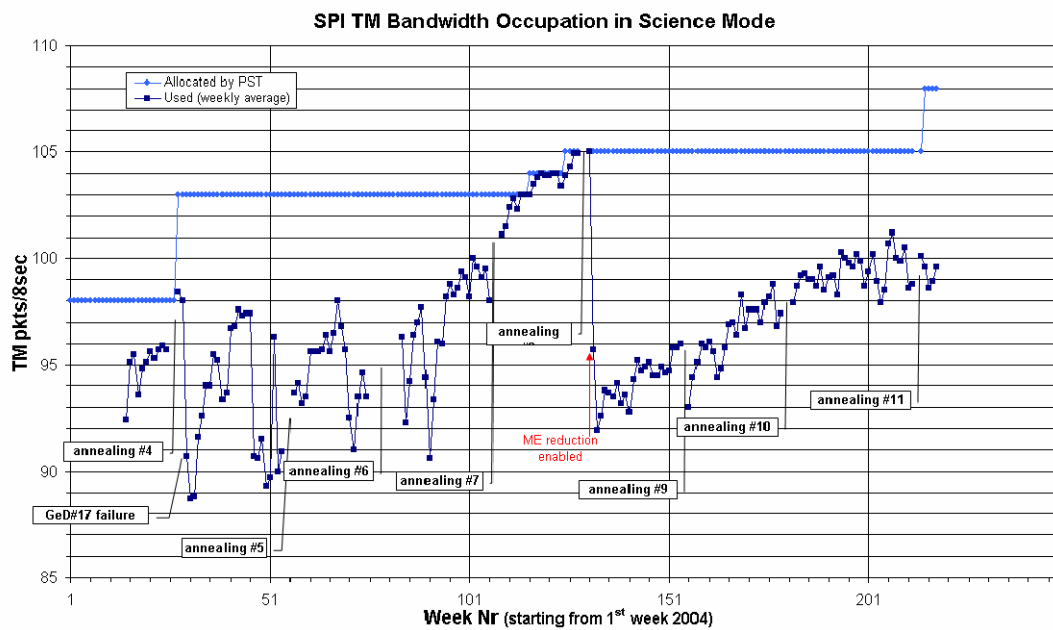
3.2.1 SPI

Following the 11th annealing, which ended on 30th January, the overall status of the gamma-ray spectrometer is nominal, except for the Ge detector #12 which, although its energy resolution improved since the previous annealing, is still showing a slightly degraded energy resolution compared to the other detectors and is therefore operating at a lower HV setting of 3.5kV (instead of 4kV). 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.

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 however the over-allocated PST with 108 packets/cycle for SPI was loaded. The average telemetry occupation in the science window when the TM allocation was 105 packets/cycle was 99.6 packets/cycle.

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



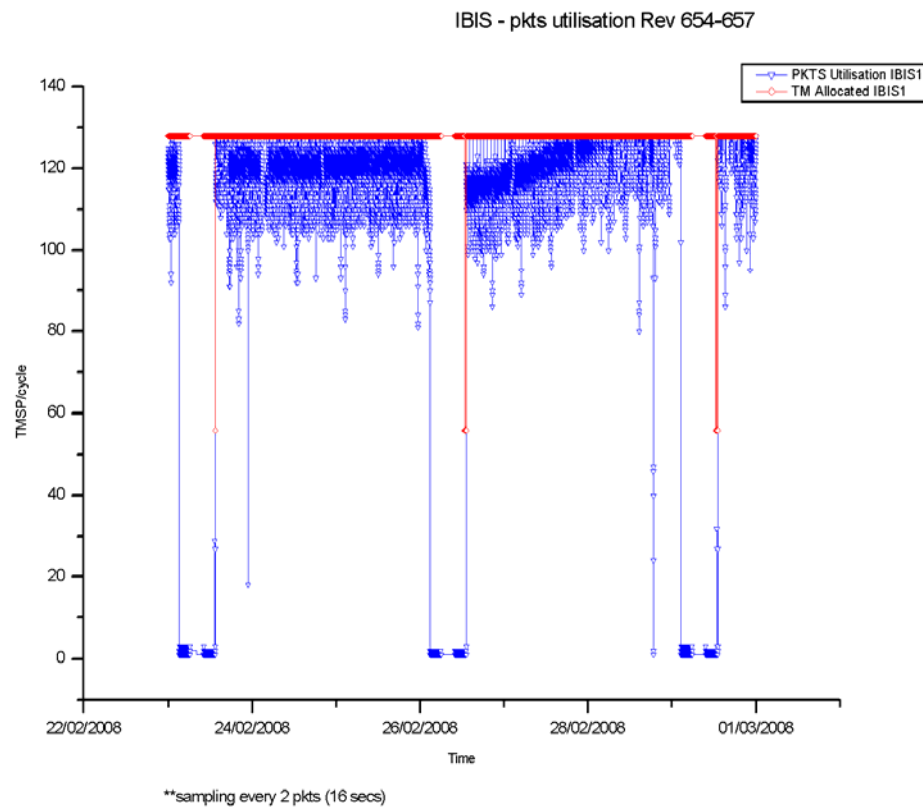
Note: Some more information concerning the SPI operations is provided in the Appendix.

3.2.2 IBIS

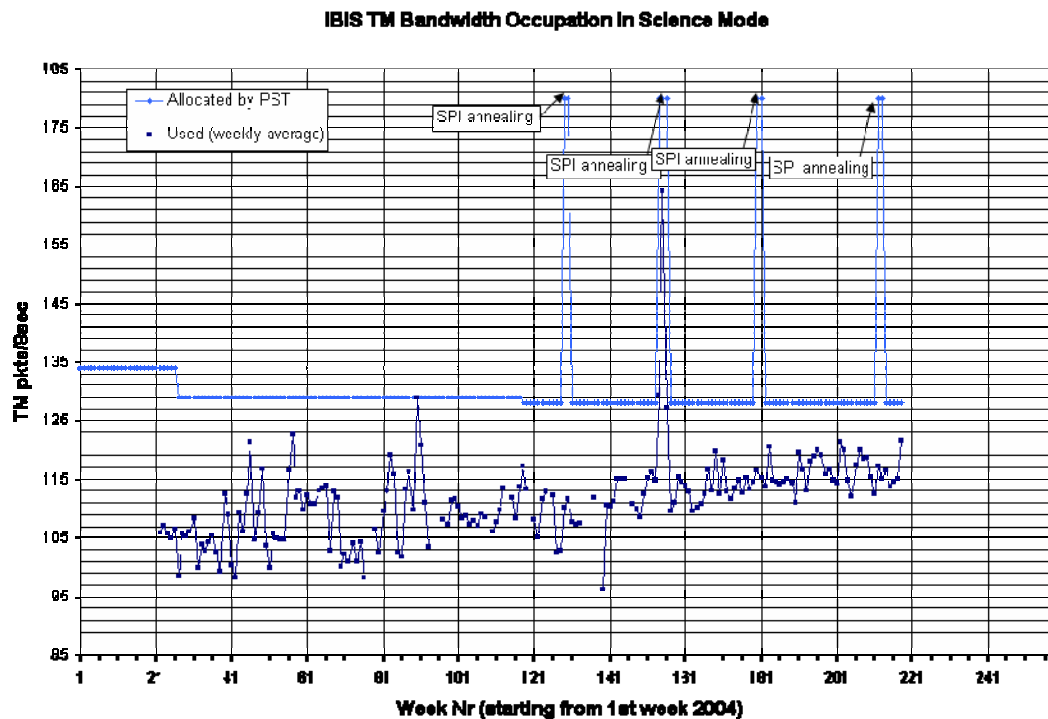
The overall status of the unit is nominal.

During the reporting period, the PST allocation to IBIS above the radiation belts was 128 packets/cycle and the IBIS mean bandwidth utilisation during the observation period (when IBIS was in Science mode) was 121.52 packets/cycle, up 6.55 on last week.

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



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 was operated in Data Taking mode with a TM allocation of 8 packets/cycle. JEM-X2 was 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, 132 of the 134 planned science pointings were executed nominally, 2 were lost.

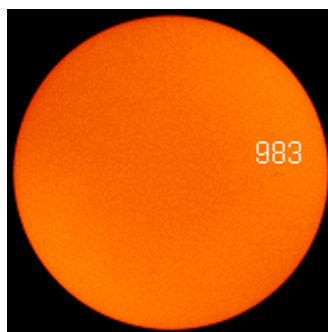
Note: Some more information concerning the OMC operations is provided in the Appendix.

3.2.5 IREM

The overall status of the unit is nominal.

Solar Activity

The observation period was characterised by low solar activity. A new sun spot (#983) emerged on 25th February and had disappeared by the 29th. It posed no threat of solar flares.



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 very good this week. No pointings were lost to ground problems. The overall performance was nearly 100%.

4.1 Mission Operations Centre

The performance of the MOC was very good this week. There were no MOC problems report that impacted operations.

4.2 Ground Stations & Network

The performance of the ground stations and Network was very good this week. There was, however, one occasions where the links with DSS24 dropped, there was no impact.

4.3 Science Ground Segment

4.3.1 ISOC

1. Mission planning

New PSFs have been received for revolutions 662 to 666.

Observations have been planned for revolutions 662 to 664. Revolutions 665 and 666 will be used for the next Crab calibration observations and be planned when the details of these are settled.

TSFs have been received for revolution 658 to 663.

2. Observation status

New ECSs have been received and processed for revolution 648 to 650.

3. ISOC Science Data Archive

No news.

4. ISOC system

Version 18.0 has been formally installed on Monday 25 February on the operational system and tested to be functional.

5. Problems

None.

4.3.2 ISDC

Status of ISDC observation processing on 03/03/2008:

- Latest Standard Analysis completed: observation 05200540003 (SN 2008S, Revolutions 649-650) on 01/03/2008.

- Latest products archived: observation 05200540003 (SN 2008S, Revolutions 649-650) on 01/03/2008.

- Latest observation products sent to the observer: observation 05200080002 (Loop I-Loop IV Super, Revolution 647-648) on 03/03/2008.

5 Special Events

6 Anomalies

There were no problems reported this week that impacted operations.

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

AR id	Date Created	Subject	Segment	Status
INT_SC-220	2008-02-29	AOCS: RMU drift correction on Yaw axis exceeded the limit set in FDS	Spacecraft	Pending
INT-2981	2008-02-29	FDS: reported problem when generating RMU drift update	FDS	Pending

7 Future Milestones

The following activities are foreseen in the next few weeks.

The Spring eclipse season starts on the 30th March 2008, and continues until the last eclipse on 26th April.

8 Appendix

The appendix includes various detailed information.

8.1 Overview of Revolutions

Revolution 655

The observations in revolution 655 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 Galactic Plane Region 1 (RA 18:04:41.75, DEC -05:04:48.4), lasting ~53.7 hours, until the end of the revolution.

Revolution 656

The observations in revolution 656 consisted entirely of a raster dither of Orion OB1 (RA 05:17:00.30, DEC +01:47:17.7), lasting ~56.4 hours.

Revolution 657

The observations in revolution 657 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 Galactic Plane Region 1 (RA 18:04:41.75, DEC -05:04:48.4), lasting ~52.7 hours, until 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.

8.2 Consumables

8.2.1 Detailed Fuel Book-keeping

2008-02-06T21:38:28.000Z	142.4052	F	Automatic TM processing.
2008-02-08T11:50:16.000Z	142.3982	F	Automatic TM processing.
2008-02-09T21:44:12.000Z	142.3444	F	Automatic TM processing.
2008-02-11T11:43:52.000Z	142.2812	F	Automatic TM processing.
2008-02-11T18:13:05.000Z	142.2536	F	Automatic TM processing.
2008-02-14T11:28:16.000Z	142.2431	F	Automatic TM processing.
2008-02-15T20:46:11.000Z	142.2251	F	Automatic TM processing.
2008-02-17T11:15:59.000Z	142.2109	F	Automatic TM processing.
2008-02-18T17:49:46.000Z	142.1885	F	Automatic TM processing.
2008-02-20T11:03:59.000Z	142.1716	F	Automatic TM processing.
2008-02-21T14:25:54.000Z	142.1609	F	Automatic TM processing.
2008-02-23T10:49:50.000Z	142.1498	F	Automatic TM processing.
2008-02-24T20:29:30.000Z	142.1305	F	Automatic TM processing.
2008-02-26T10:38:31.000Z	142.1154	F	Automatic TM processing.
2008-02-27T20:36:34.000Z	142.1089	F	Automatic TM processing.

This report was generated Fri Feb 29 08:00:24 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, 23/02/2008 – 29/02/2008

The AOCS operations were executed from the Automatic Timeline.

During this period, 62 Open Loop Slews, 83 Closed Loop Slews and 5 Momentum Biases were executed (as executed by ACC).

4 slews (4 CSL) were missed from TL, during the observation period, due to problem on FDS update process.

This is equivalent to ~2.7% of the total number of slews planned (146).

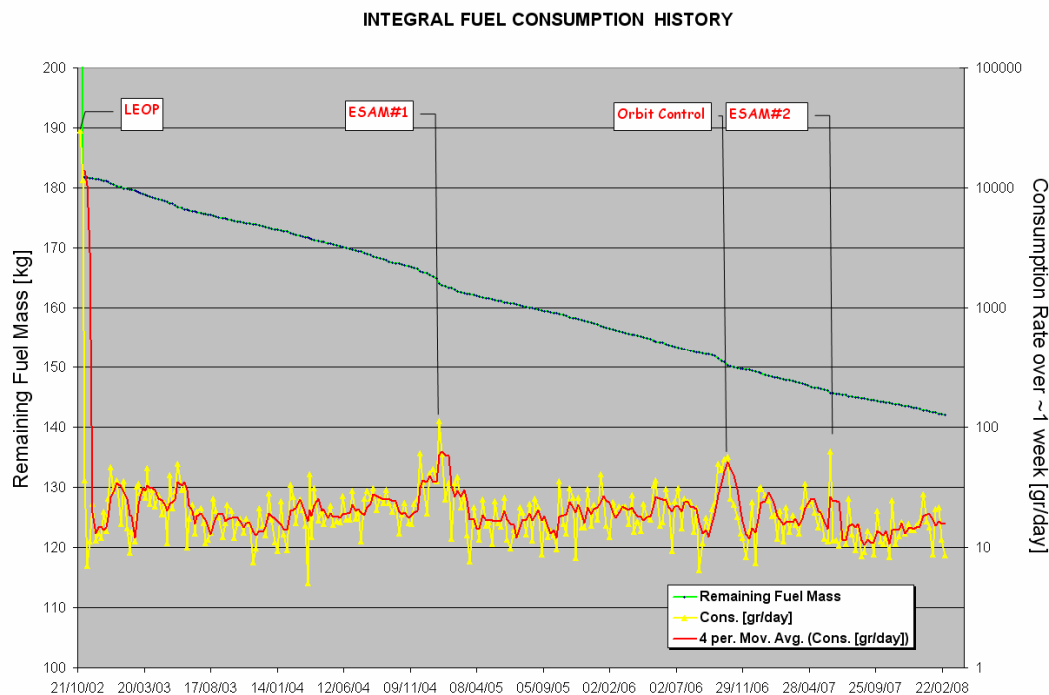
The OTF was not reached during PID 06550018, due to loss of guide star and IMU1 ON.

Orbit Control

No update.

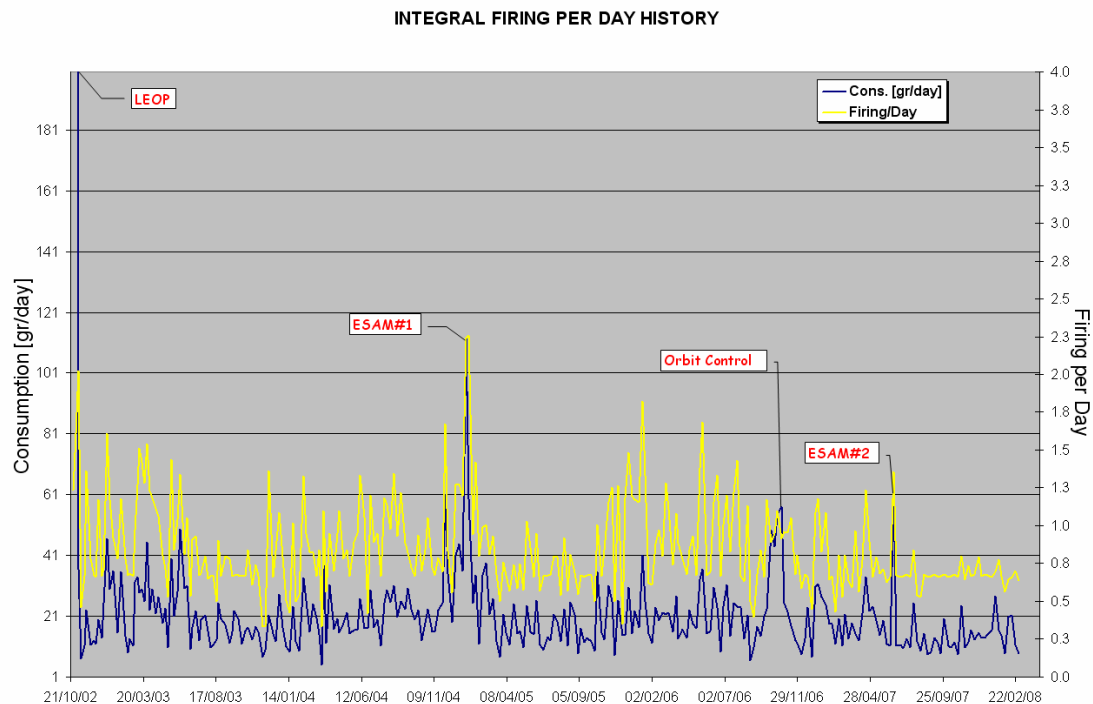
Fuel consumption

The fuel consumption (total, grams per day) over the period between 01/11/2002 and 29/02/2008 is reported in the plot below.



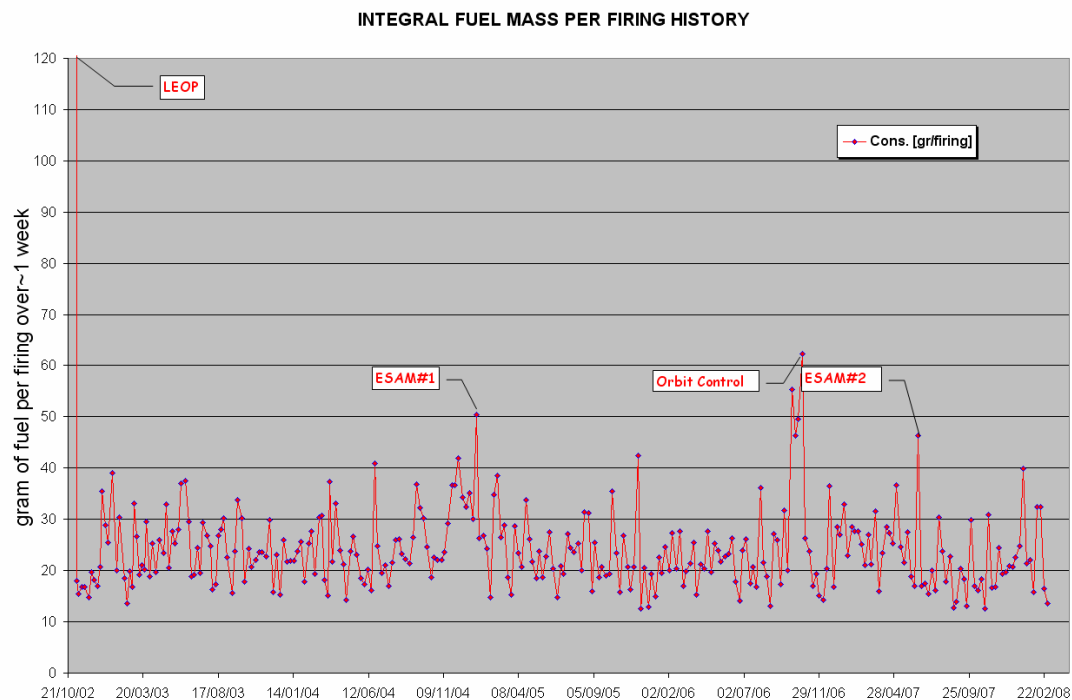
The above plot considers the ESAM fuel consumption spread over period of ~1 week.

The firing per day over the period between 01/11/2002 and 29/02/2008 is reported in the plot below.



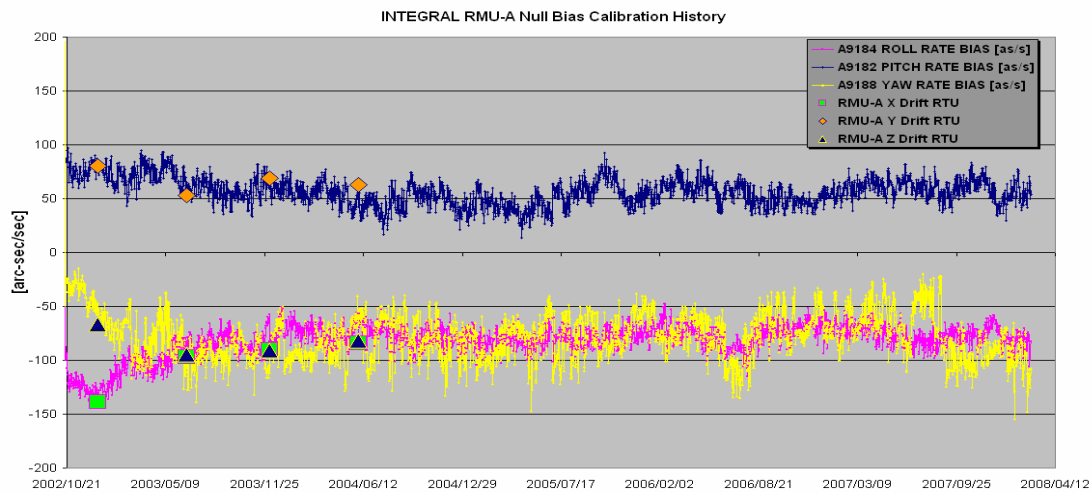
The above plot considers the ESAM fuel consumption spread over period of ~1 week.

The fuel per firing over the period between 01/11/2002 and 29/02/2008 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 22/02/2008 is reported in the plot below.

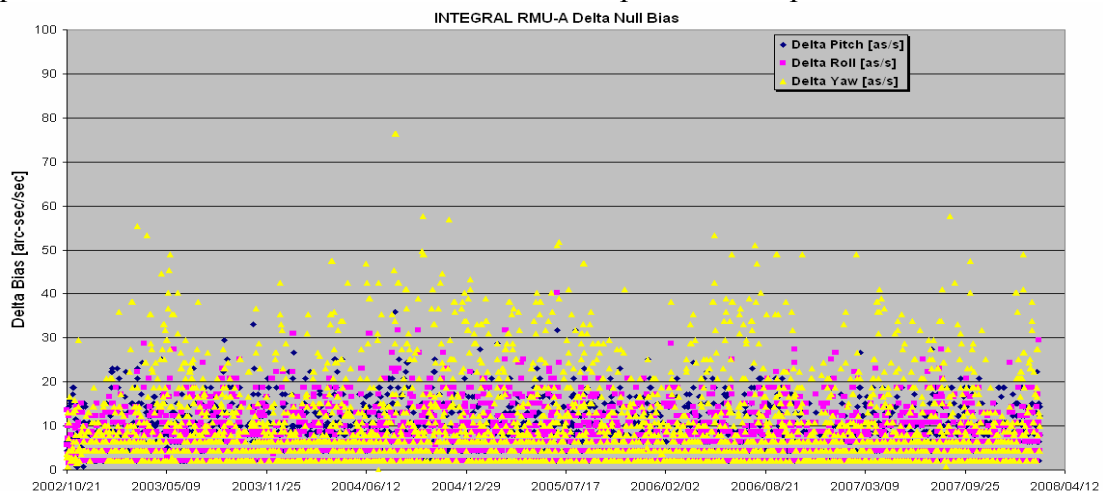


Problems have been reported during the last period on FDS when generating the drift update for the RMU-A Yaw channel: the limits set on FDS have been violated few times. The evolution of the drift on yaw channel is under constant monitoring but the values are still well within the specs. At moment the current constraints (for drift update generation) on the FDS have been relaxed to cope with the current situation. Below are reported the current values applied in FDS.

Target date 2008-03-01			
	RMU-A(X)	RMU-A(Y)	RMU-A(Z)
Average	-78.81	54.66	-99.30
Std. Dev.	7.77	10.33	17.78
Trend	-72.66	43.70	-128.77
Factor	3	3	3
Width	45	63	106
New Lower Hard Limit	-119	-18	-235
New Upper Hard Limit	-27	106	-23
New Lower Soft Limit	-95	12	-182
New Upper Soft Limit	-50	75	-76

Last Change: 2008-02-18			
Old Lower Hard Limit	-119	-18	-235
Old Upper Hard Limit	-27	106	-23
Old Lower Soft Limit	-95	12	-182
Old Upper Soft Limit	-50	75	-76

The RMU-A delta null bias calibration history, on pitch, roll and yaw channel over period between 01/11/2002 and 22/02/2008 is reported in the plot below.



23/02/2008 (Day of Year 054, Revolution 654-655)

Problem on FDS: at 11:00z a problem on the attitude determination process on the FDS caused the update for slew ID 06550001 to fail. During the execution of the RWB activity, at the beginning of the revolution 655, a small change in attitude (~160 arcsec) occurred. This caused the update for the first slew of the revolution (a CSL) to fail due to the fact that the originally planned slew guide star, lying at the edge of the STR FOV, was not found anymore during the attitude reconstruction process after the RWB and no other suitable stars were found for the CSL execution.

A manual recovery was performed from the attitude of PID 06540063 to the attitude of PID 06550001 (by OSL) and the slew ID 06550002 was updated in TL at 11:35z. The AOCS s/s was enabled in TL at 13:35z.

The following slew was missed in TL: 06550001(CSL)

Problem on FDS: at 14:39z a problem on the attitude determination process on the FDS caused the update for slew ID 06550004 to fail. The number of valid stars in the STR FoV was below the requested threshold (≥ 3) and no slew update was generated.

A manual recovery was performed from the attitude of PID 06550003 to the attitude of PID 06550005 (by OSL) and the slew ID 06550006 was updated in TL at 15:49z. The AOCS s/s was enabled in TL at 15:49z.

The following slews were missed in TL: 06550004(CSL)-06550005(CSL)

24/02/2008 (Day of Year 055, Revolution 655)

Loss of guide star: at 03:02:38z a loss of the selected guide star occurred during PID 06550018. The origin of the event is not clear, likely due to SEU affecting the STR. Nevertheless the attitude for PID 06550018 (RA 18:17:26.40 DEC -00:26:26.8) reports (from Star Catalogue) several extended objects but not bright objects.

As foreseen by the IPS logic, the ACC switched ON the IMU 1, a new automatic mapping was commanded and a new guide star picked.

The next slew ID 06550019 was manually updated in TL.

The OTF was not reached during PID 06550018.

25/02/2008 (Day of Year 056, Revolution 655)

Nothing to report.

26/02/2008 (Day of Year 057, Revolution 655-656)

Nothing to report.

27/02/2008 (Day of Year 058, Revolution 656)

Problem on FDS: at 01:28z a problem on the attitude determination process on the FDS caused the update for CSL ID 06560015 to fail: FDS failed the update because it was requested to generate the next slew as an OSL.

A manual recovery was performed from the attitude of PID 06560014 to the attitude of PID 06560015 (by OSL) and the slew ID 06560016 was updated in TL at 02:39z. The AOCS s/s was enabled in TL at 02:39z.

The following slew was missed in TL: 06560015(CSL)

28/02/2008 (Day of Year 059, Revolution 656)

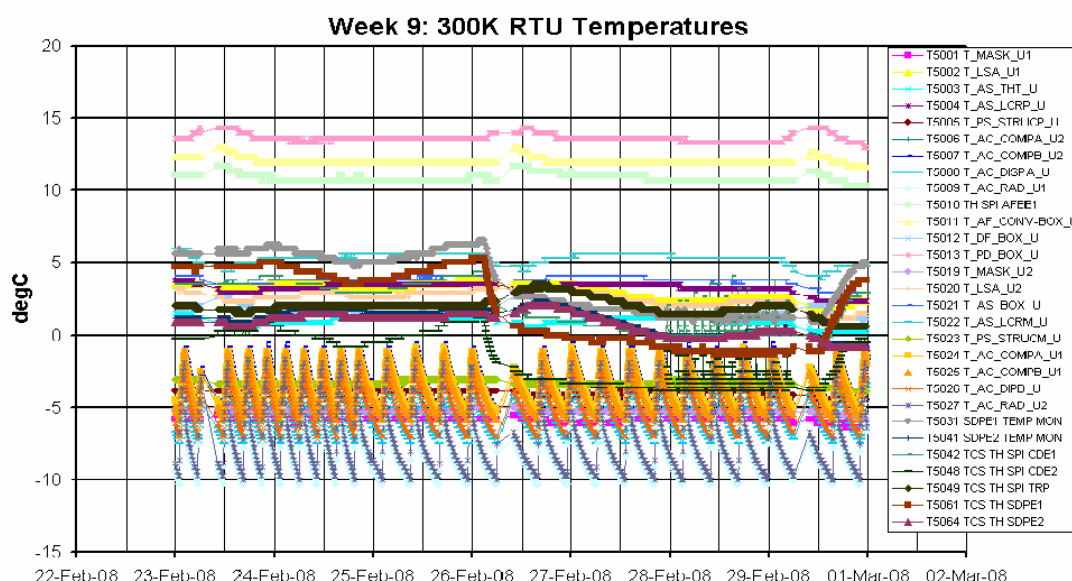
Nothing to report.

29/02/2008 (Day of Year 060, Revolution 656-657)

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.

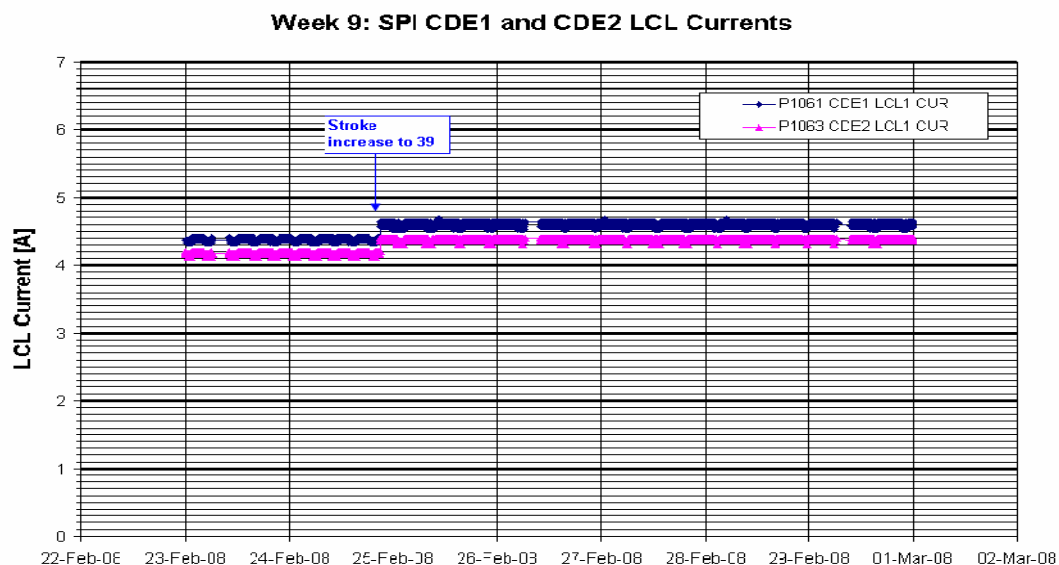


Stirling Compressors and Cryostat: The performance of the compressors is nominal. The cold plate temperature was maintained in the range 80K +/-1K.

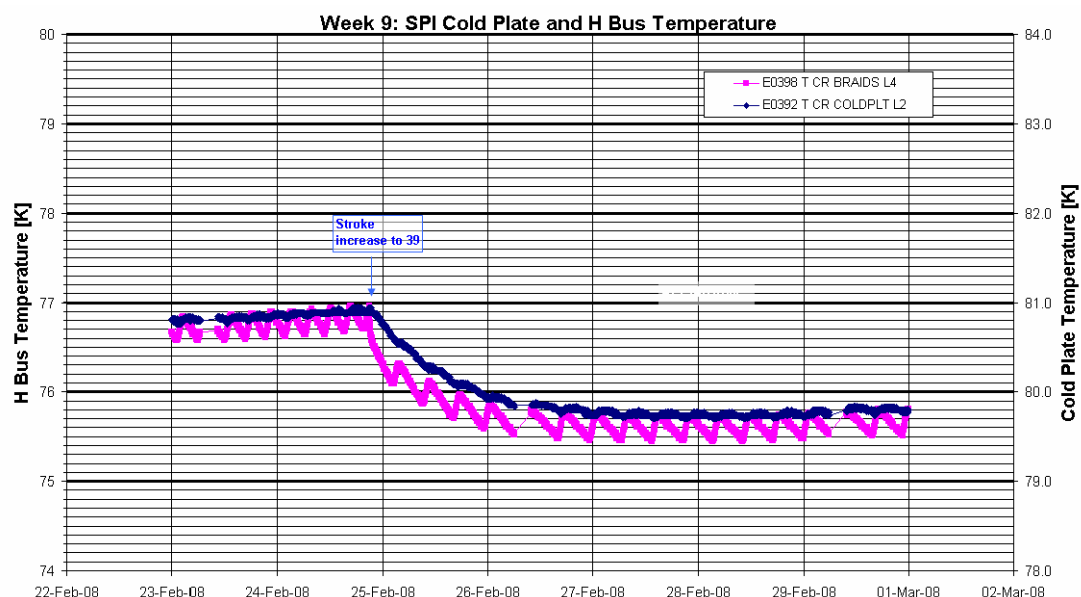
The stroke of all four compressors was set to 38 until 2008-02-24 at 21:00:29Z, when the stroke of all four compressors was increase to 39 as the cold plate temperature, TM parameter E0392 had reached 80.9K. The average CDE LCL currents when the strokes were 39 were as follows:

- CDE1 LCL Current = 4.59A
- CDE2 LCL Current = 4.37A

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 and H bar temperatures during the reporting period.

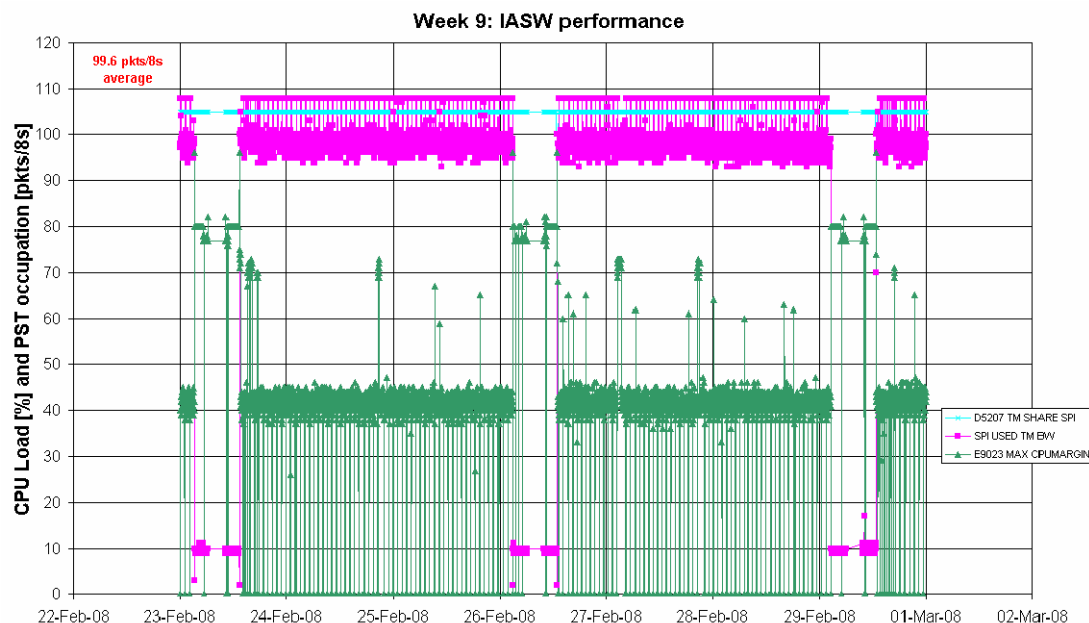


DPE & IASW: The DPE health and IASW performance is nominal.

The IASW version installed is v4.3.4 with ME reduction only enabled and the spectra scaling factor set to 8/19 SE.

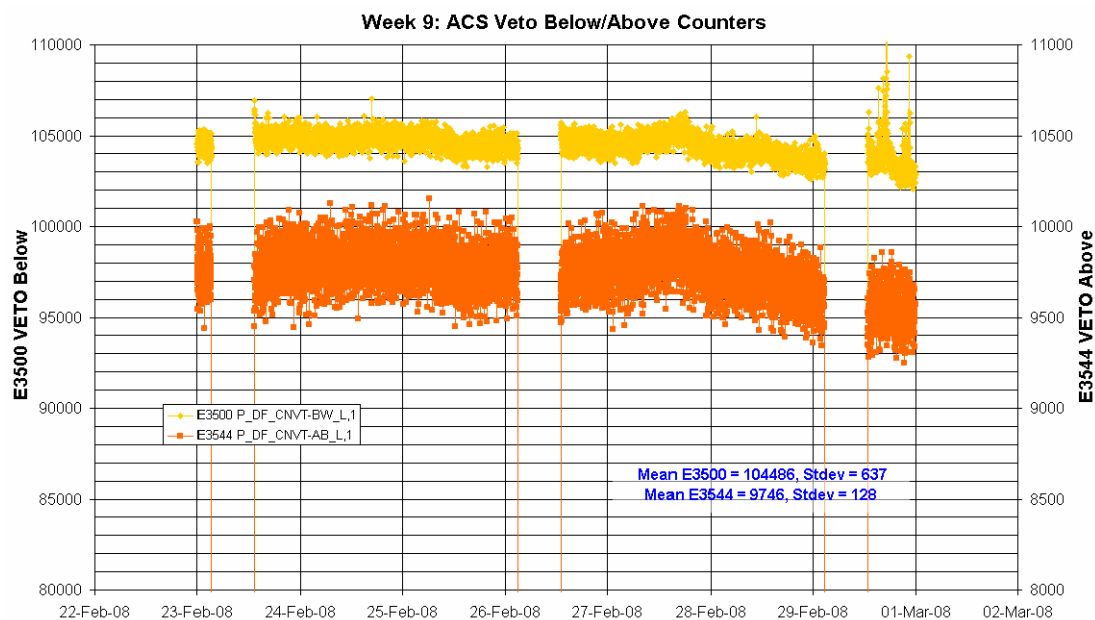
The average TM bandwidth occupation of SPI was 99.6 packets/cycle over the science window. The TM allocation in the science window was 105 packets/cycle, however the over-allocated PST with 108 packets/cycle for SPI was used (see plot below). Note that the Broadcast Packet TM allocation was not updated. This did not cause any problems and SPI used the additional TM bandwidth during spectra transmission.

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

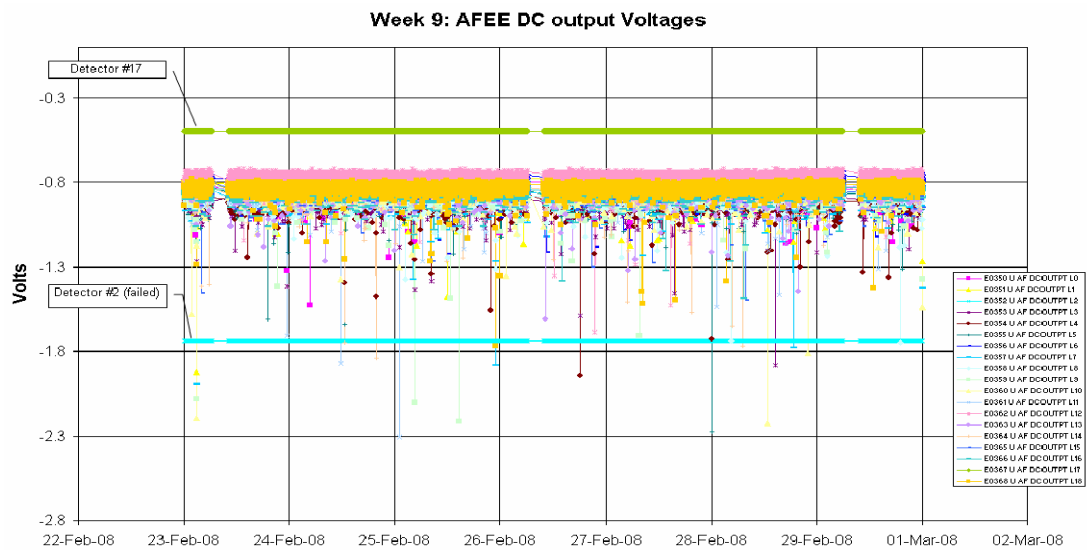


ACS: The performance of the ACS is nominal, except for FEE #81 which remains nominally switched off since the anomaly on 29/10/2006 (INT_SC-162) and FEE #57 which is nominally OFF due to the anomaly on 5/8/2003 (INT_SC-61).

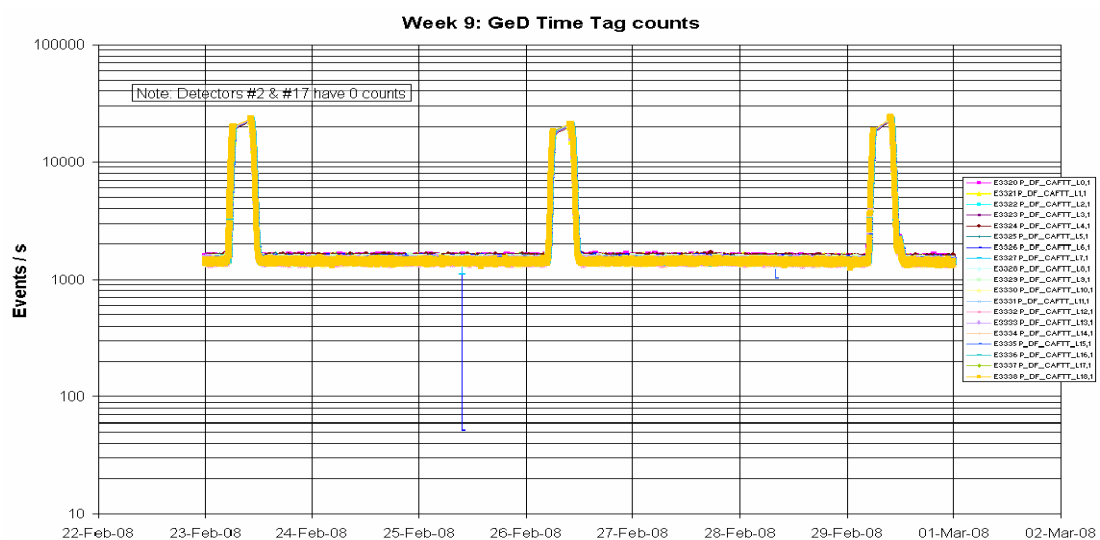
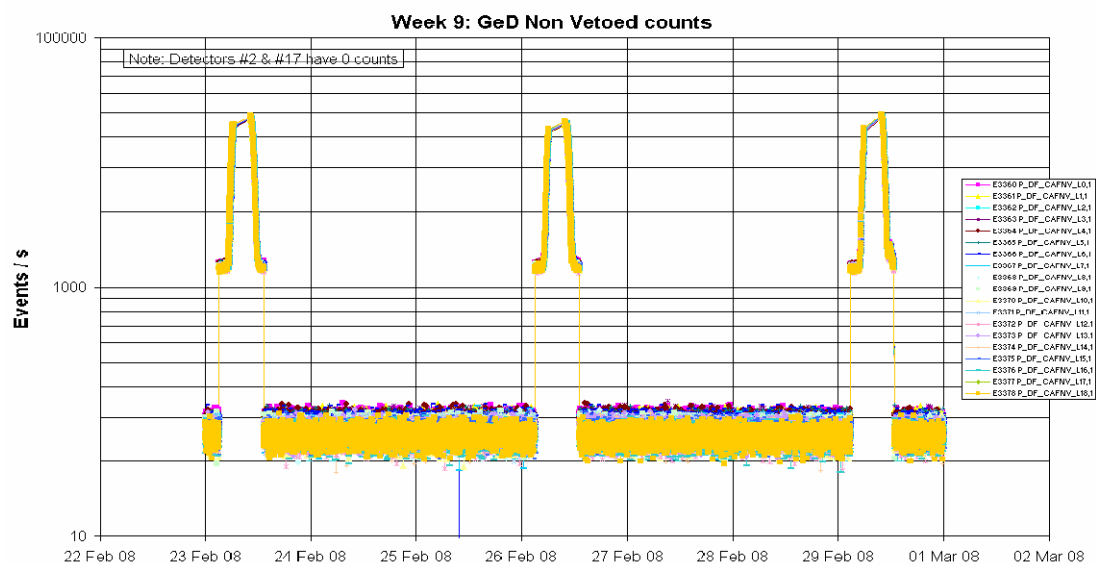
The following plot shows the ACS overall count rate evolution during the reporting period:

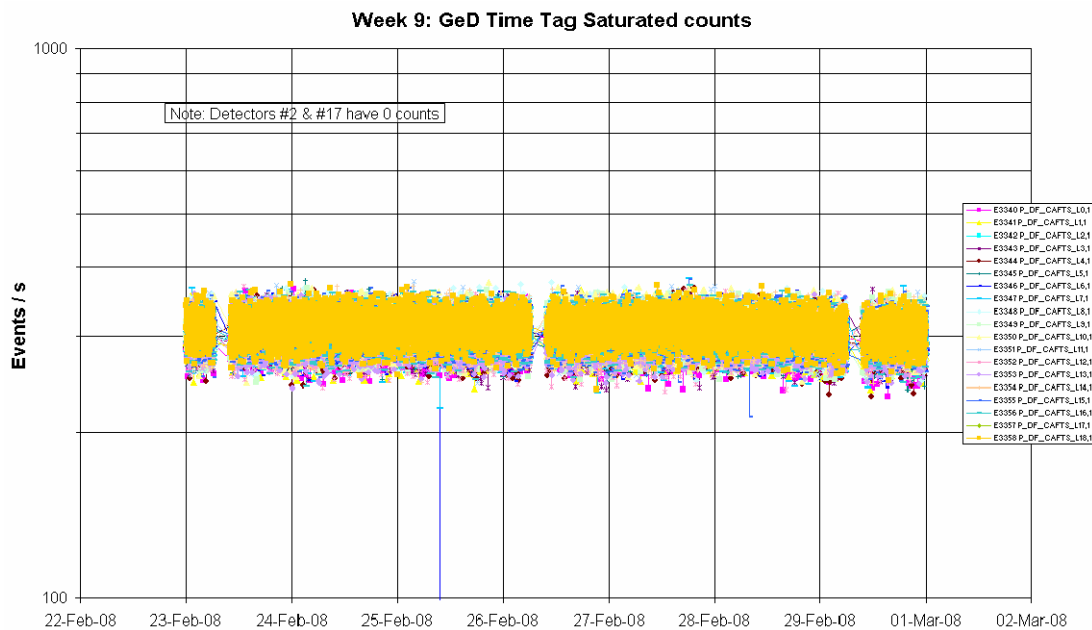


AFEE: The health of the AFEE is nominal. The following plot shows the dc voltage offset of the detector channels during the reporting period. The values are nominal. Detector #2 is failed since 06/12/2003 and detector #17 is failed since 17/07/2004.

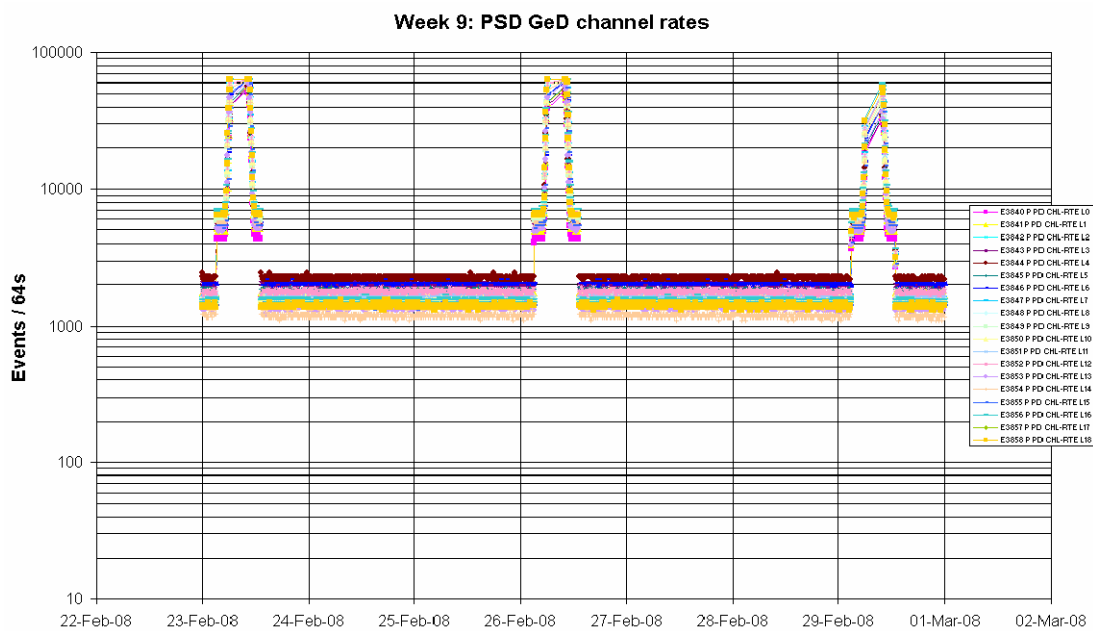


DFEE: The performance of the unit is nominal. The following plots show the Non Vetoed, Time Tag and Time Tag Saturated Event count rates during the reporting period.





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



Event Log:

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

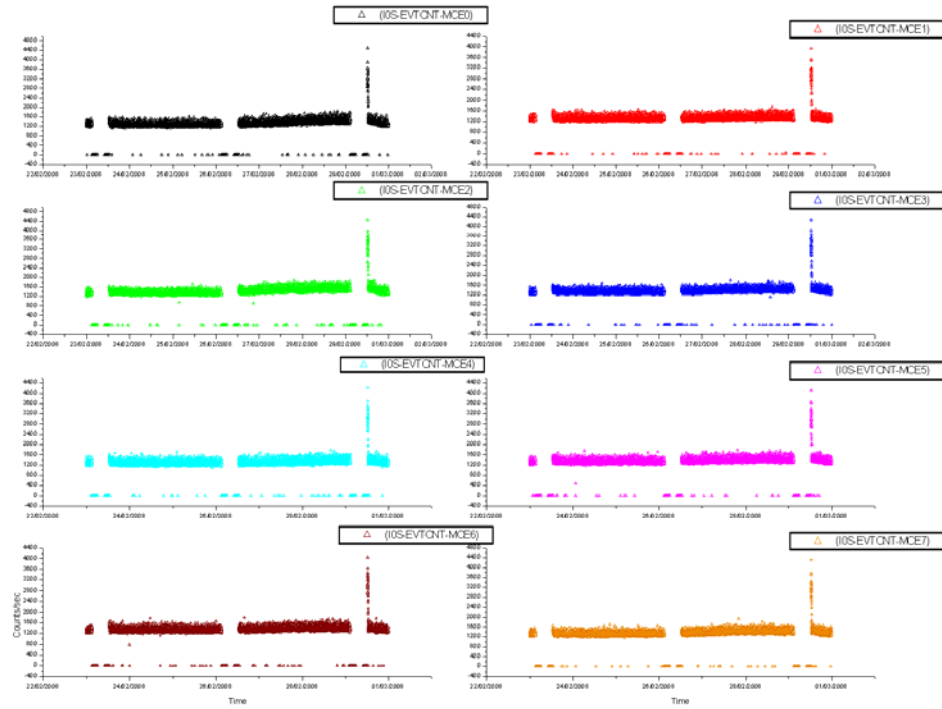
- On 2008-02-23 at 06:05:01Z OEM APID 1024 ID 1 EXCEPTION SPI1 FIXED POINT OVERFLOW was received. This was during the LOS_CHK window of revolution 654, when the time verification TC was sent. This OEM is sometimes received when this TC is sent and no action was taken.

8.3.3 IBIS Operations

IBIS Event Counters Plots

ISGRI Counters:

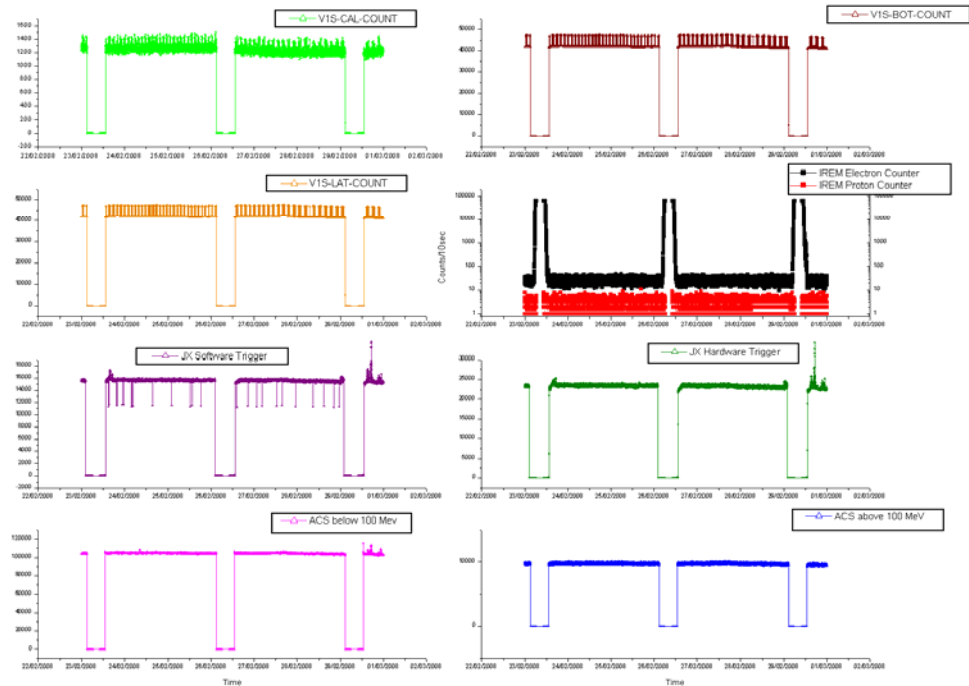
IBIS - ISGRI Counters Rev 654-657



**sampling every 4 pkts (32 secs)

VETO vs Payload Counters:

IBIS-VETO vs Payloads Counters Rev 654-657

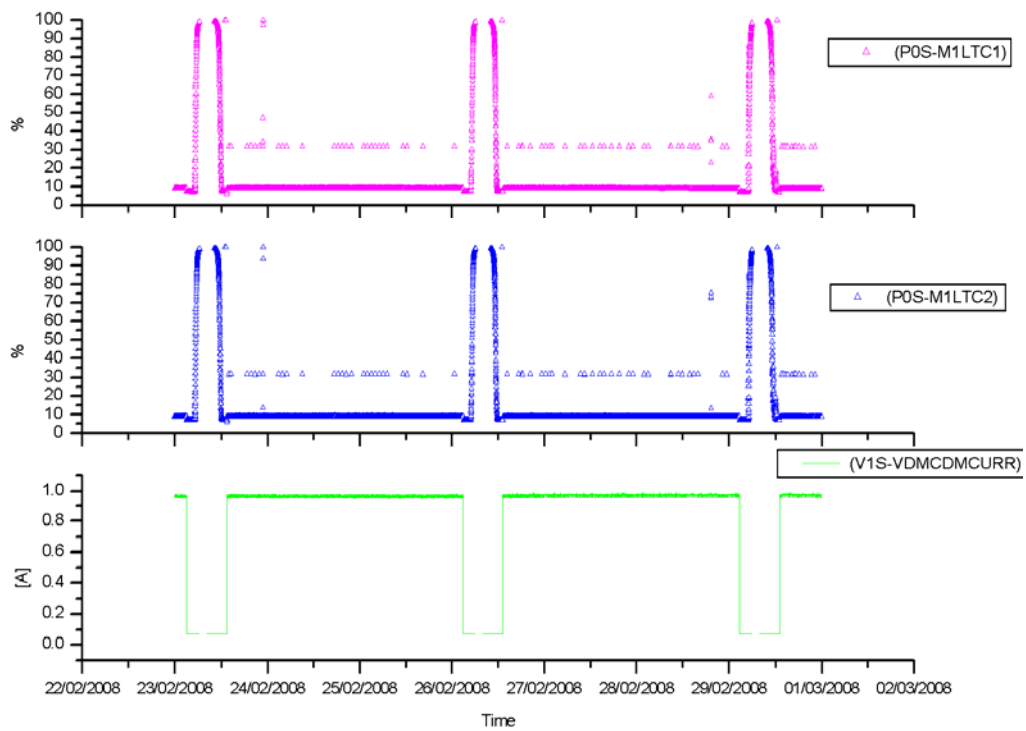


**with the exception of IREM counters (counts/10sec), all the plots are reporting counts/sec sampling every 5 pkts (40 sec)

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

VETO Current:

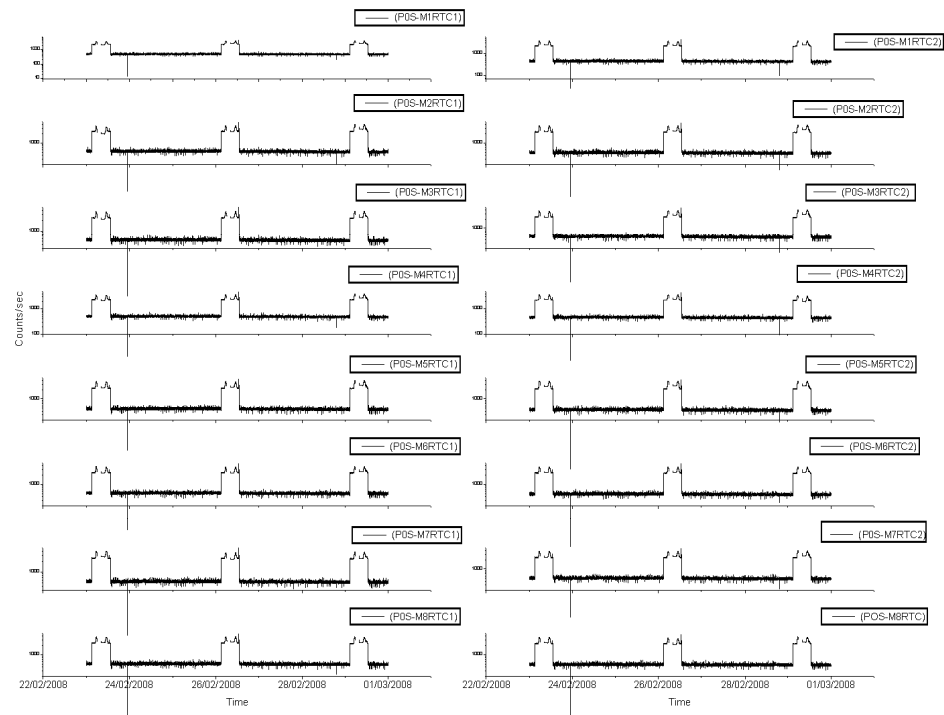
IBIS-VETO Current & PICsIT dead times Rev 654-657



**sampling every 4 pkts (32 secs)

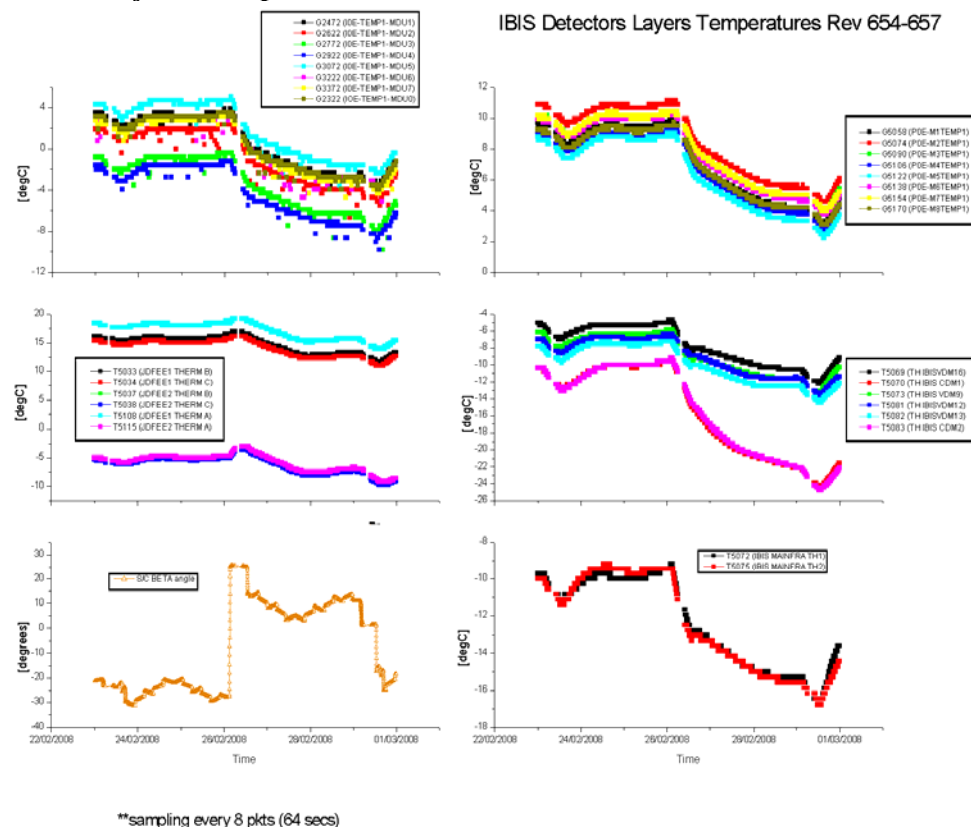
PICsIT Counters:

IBIS - PICsIT Counters Rev 654-657



**sampling every 4 pkts (32 secs)

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 (I0E-OVFWPXADD-Mi) were received during the radiation belt passages.

In addition, the TM parameter G8080 went OOL Warning High several times during the week. This is the Valid event rate on HBRA. As at each occurrence it remained OOL for only 1 TM cycle, no action was taken. This indicates an overflow in the counters and affects only the quality of the scientific data but not the safety of the instrument.

2008-02-23 (DOY 054, Rev 654-655)

At 22:50:56Z the TM parameter families G5068 and G5072 failed status consistency check (value = TRUE). These are the PDM semi-module FIFO error flags and at 22:51:31Z the TM parameters families G5002 and G5003 for the PDM semi-module counters started going OOL. As these were followed at 22:54:53Z by OEM APID 1280 ID 132 EVENT IBIS1 IASW HEPI RESYNCHRONIZED, indicating that HEPI resynchronised autonomously, by which time all the above parameters had returned within limits, no action was taken.

2008-02-24 (DOY 055, Rev 655) to 2008-02-27 (DOY 058, Rev 656)

IBIS operations executed nominally.

2008-02-28 (DOY 059, Rev 656)

At 19:25:04Z TM parameter families G5068 and G5072 for the PDM semi-module FIFO error flags went OOL (failed status consistency check). As they returned within limits at 19:26:40Z no action was taken.

At 18:22Z, following a ground station handover, TM parameter X7500 went OOL, indicating a problem with the histogram process. The following recovery procedure was then executed to force the histogram accumulation and download process to resume:

- 18:51:40Z FCP_IBIS1_0312
- 18:55:09Z TC G0129 uplinked to return IBIS to Science Standard mode.

IBIS operations continued nominally.

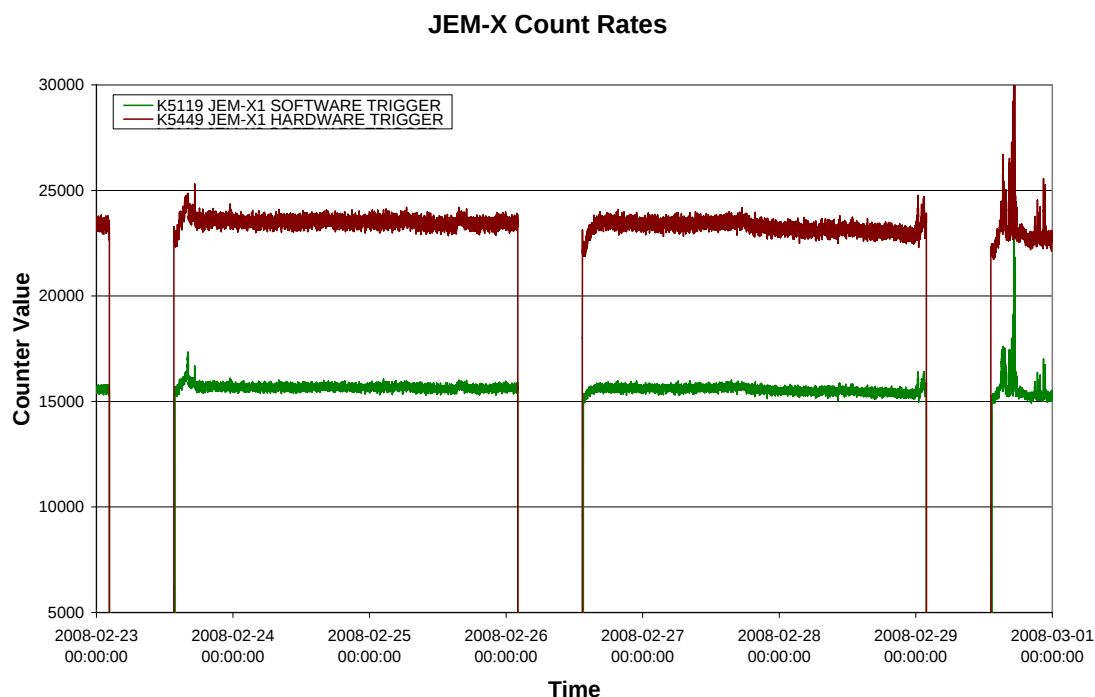
2008-02-29 (DOY 060, Rev 656-657)

At 12:30:03Z, during the execution of the ED GEISCL03 before radiation belt exit of revolution 657, all the parameters in the TM parameter family G2013 (number of events triggering the MCEi per second) started toggling OOL warning High. As they had all returned within limits by 12:45:47Z, no action was taken.

8.3.4 JEM-X Operations

JEM-X Count Rates

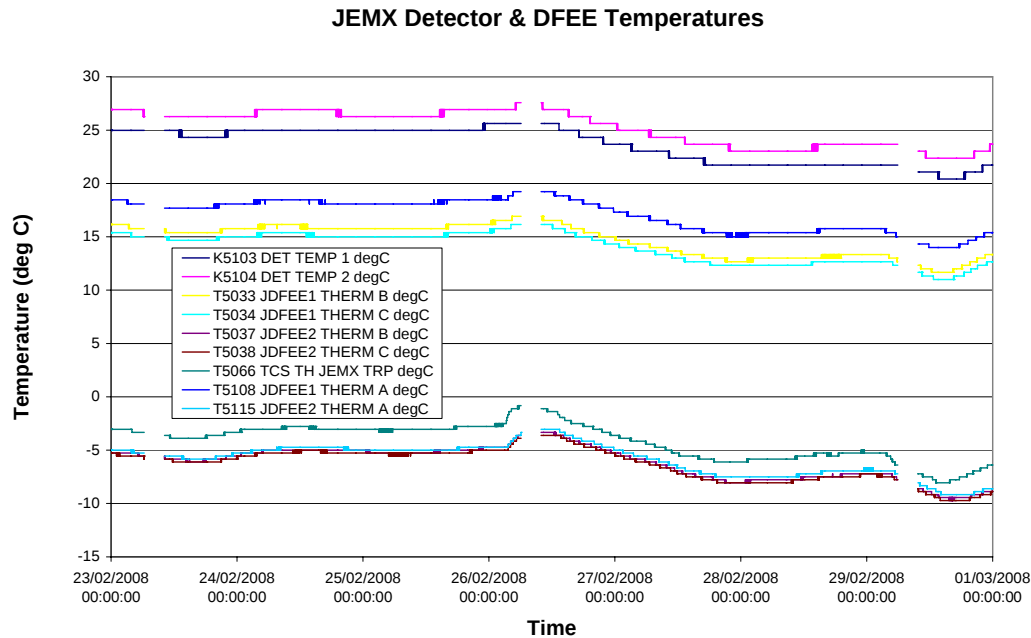
JEM-X count rates over the reporting period are displayed in the following graph¹.



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 graph².



JEM-X Daily Report

2008-02-23 (DoY 054, Rev 654-655) to 2008-02-27 (DoY 058, Rev 656)

JEM-X1 operations executed nominally

2008-02-28 (DoY 059, Rev 656)

On this day, the following anomalous OEMs were received, at the indicated times:

2008.059.06.23.22.651	2008.059.06.23.25.733	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			
2008.059.06.23.22.651	2008.059.06.23.25.738	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 the messages did not reappear. There was no impact.

2008-02-29 (DoY 060, Rev 656--657)

² Data sampled (1 frame in 8)

At 12:34:54 and 12:41:19, the TM parameter K5317 exceeded hard limits. At 17:25:55, parameters K5136 and K5449 exceeded their soft limits. Later, at 17:14:54 and 17:25:18, K5449 went out of soft limits again. No action was taken and there was no impact.

8.3.5 OMC Operations

2008-02-23 (DoY 054, Rev 654-655)

At 14:39, an AOCS problem forced the suspension of the Timeline. A manual recovery was subsequently performed and the Timeline recovered at 15:49. The impact was the loss of pointing 06550004. It was at this time the following OEMs were received:

2008.054.15.05.55.648	2008.054.15.06.00.863	1792	RealTime	131	TC REJECT
REJECTED TC1			0	0	65535 PR N
E E					
2008.054.15.06.01.773	2008.054.15.06.09.103	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.

2008-02-24 (DoY 055, Rev 655) to 2008-02-26 (DoY 057, Rev 655-656)

Nothing to Report.

2008-02-27 (DoY 058, Rev 656)

At 01:28, an AOCS problem forced the suspension of the Timeline. A manual recovery was performed, and the Timeline rejoined at 02:39. The impact was the loss of pointing 06560015. It was at this time the following OEMs were received:

2008.058.02.23.30.830	2008.058.02.23.37.508	1792	RealTime	131	TC REJECT
REJECTED TC1			0	0	65535 PR N
E E					
2008.058.02.23.37.080	2008.058.02.23.43.587	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.

2008-02-28 (DoY 059, Rev 656) to 2008-02-29 (DoY 060, Rev 656-657)

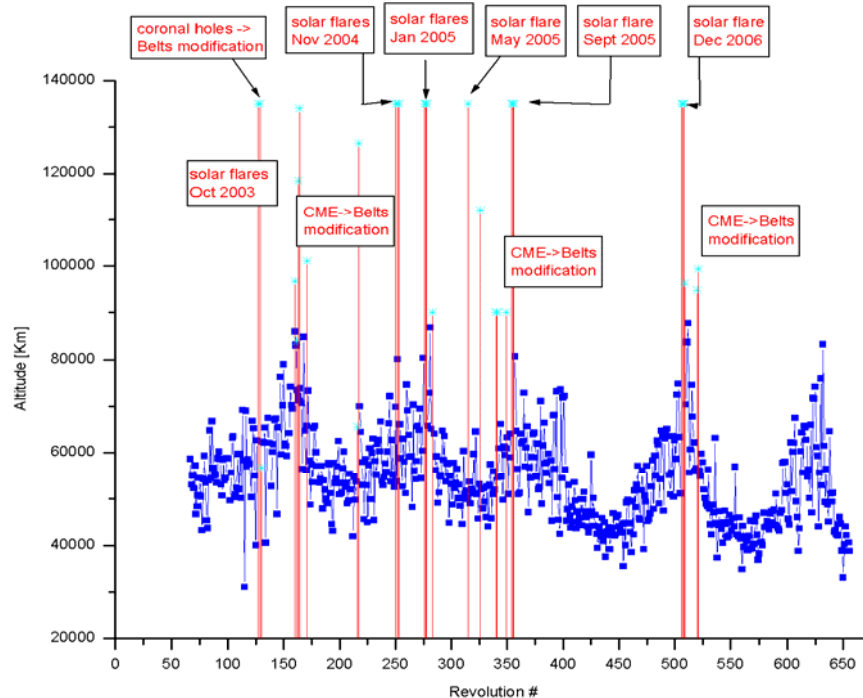
Nothing to Report.

On DoY 054 at 03:10:45, DoY 057 at 02:58:06 and DoY 060 at 02:45:58 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]
654	RAD_ENTR R 2008-02- 23T03:10:42Z	23/02/2008 05:08:20	38827.0	23-Feb-2008 04:44:46	42315.89
655	RAD_EXIT R 2008-02- 23T13:14:15Z	23/02/2008 12:52:20	>>33232.9	23-Feb-2008 12:14:46	44660.33
655	RAD_ENTR R 2008-02- 26T02:57:59Z	26/02/2008 04:44:29	40608.6	26-Feb-2008 04:26:40	43105.93
656	RAD_EXIT R 2008-02- 26T13:01:18Z	26/02/2008 12:00:21	>>33240.2	26-Feb-2008 12:06:40	45407.47
656	RAD_ENTR R 2008-02- 29T02:45:50Z	29/02/2008 04:44:21	38775.0	29-Feb-2008 04:16:40	42942.81
657	RAD_EXIT R 2008-02- 29T12:48:41Z	29/02/2008 12:41:17	51930.5	29-Feb-2008 11:56:40	45629.26

Reference

High radiation

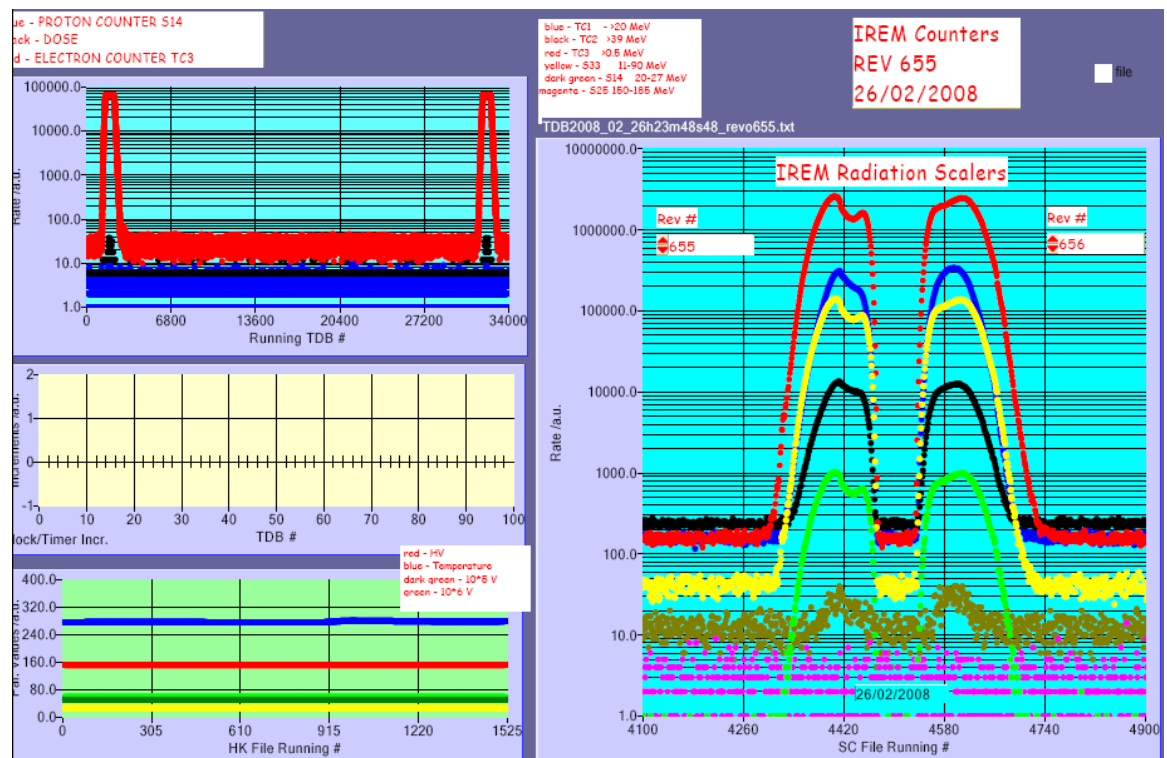
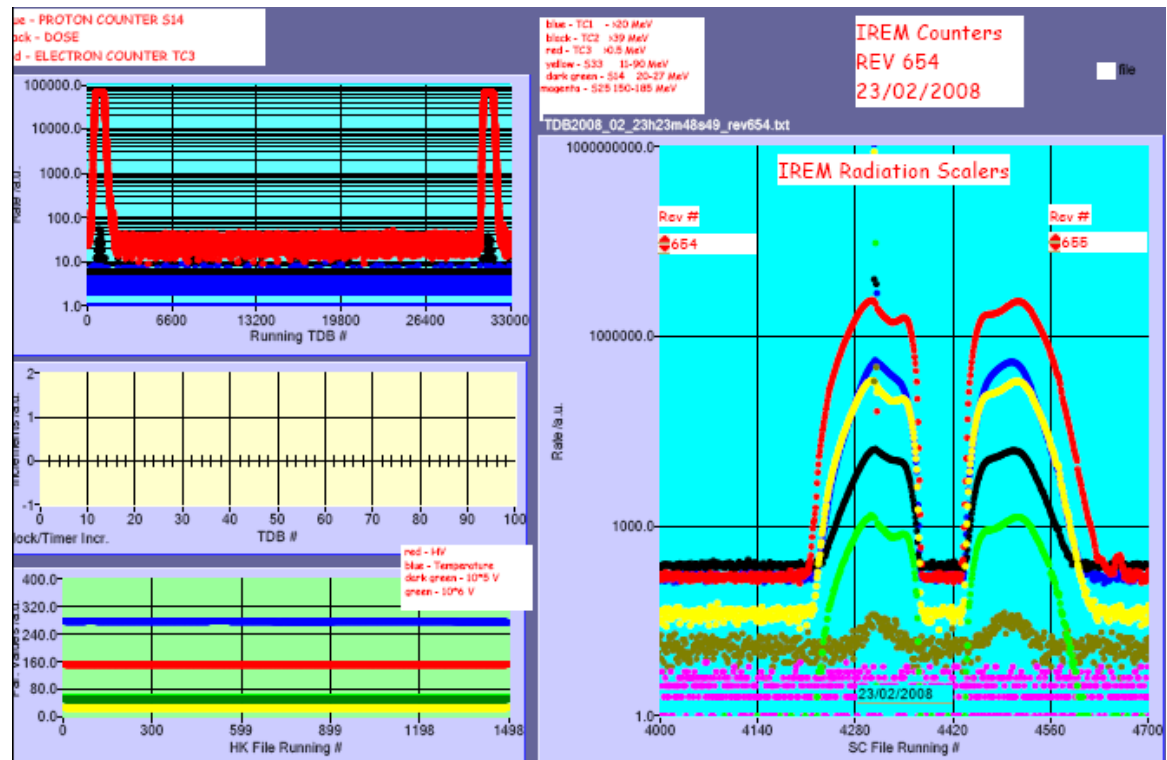
Very small error vs reference (less than 10 minutes)

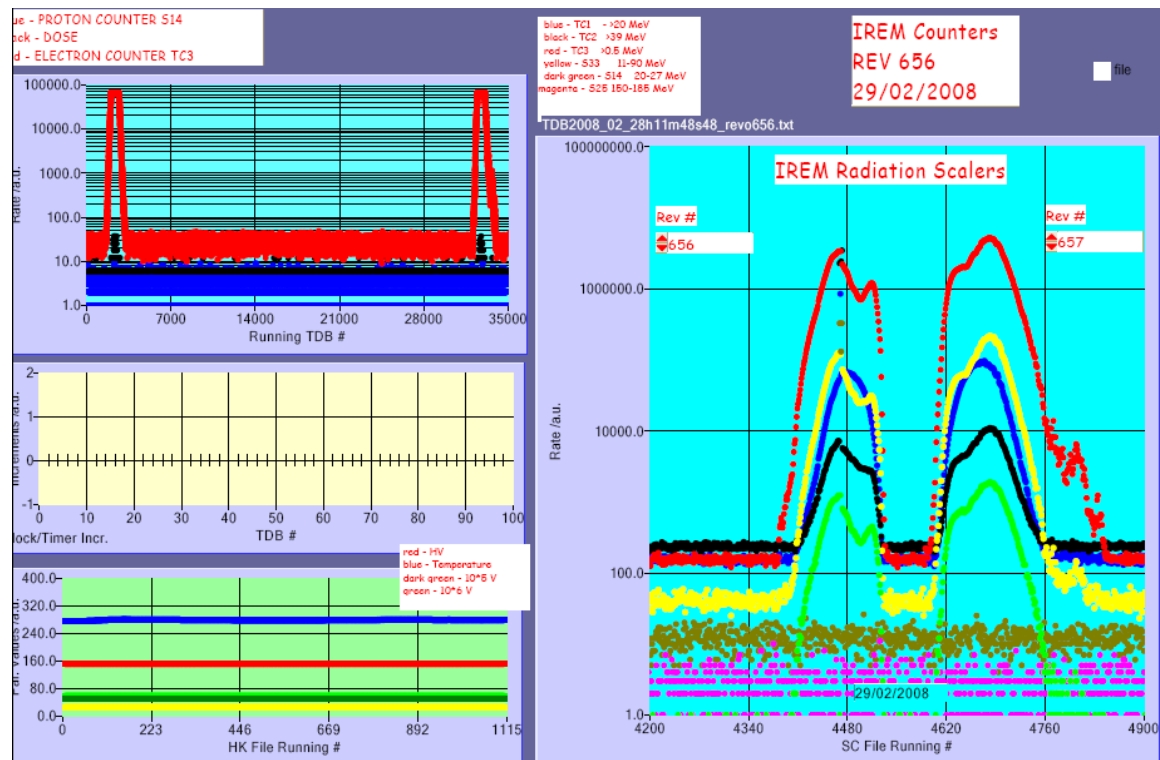
Small error vs reference (between 10 and 30 minutes)

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.

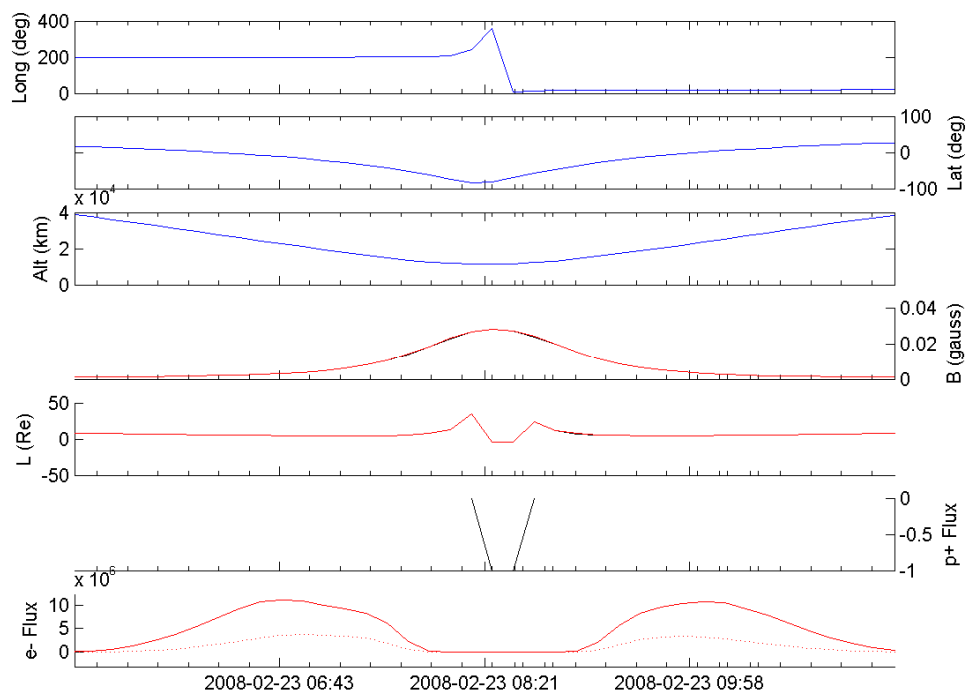
IREM radiation counters:



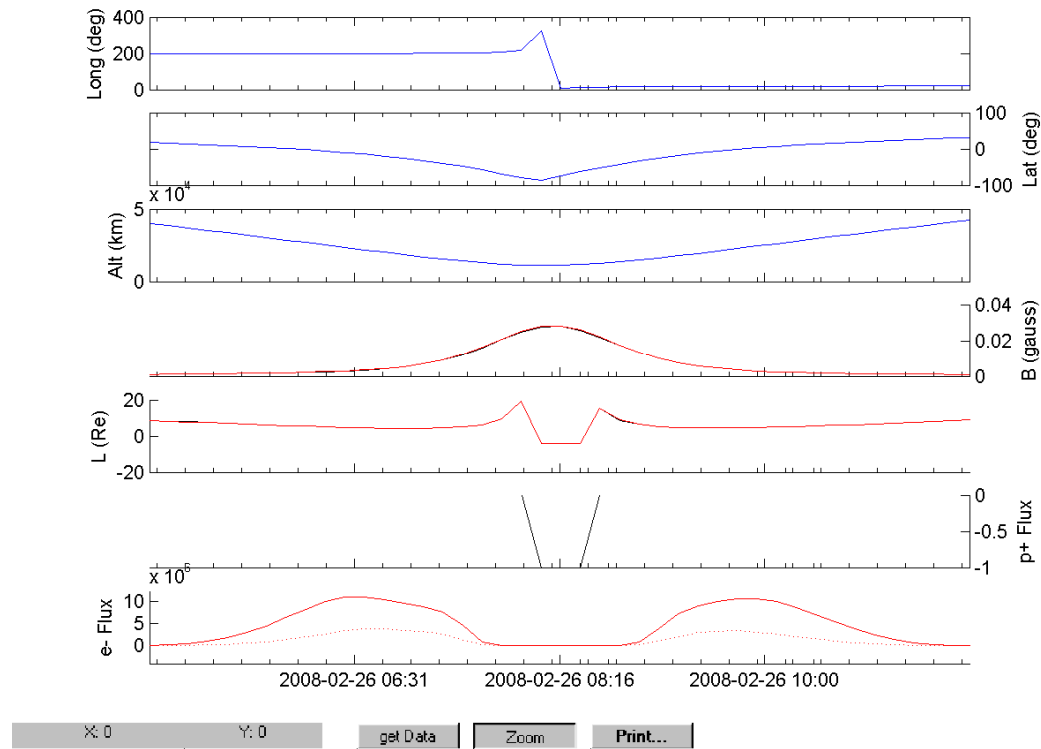


IREM Predicted Radiation Belt Passages

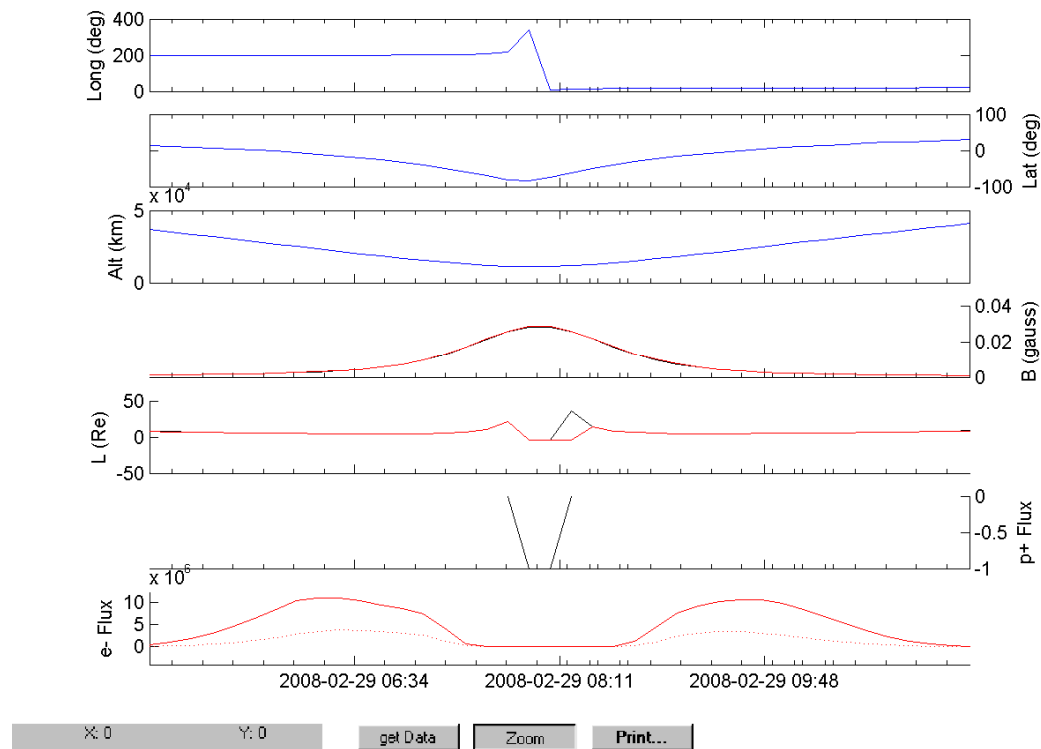
Rev 654



Rev 655



Rev 656



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Date : 03/03/08

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

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