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

INTEGRAL
Mission Report

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

No. 232
Week 09

05.03.07

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 24.02.07 until 02.03.07 (both dates inclusive) and covers the revolutions 534 and 535.

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 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 an OMC Flat-Field Calibration, which was a staring observation at attitude (RA 16:51:36.00, DEC -14:24:00.0).

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.

3 slews were missed from TL during the observation period due to problem on link to REDU station and problem on IMCS.

The fuel consumption over the period between 22/02/2007 and 01/03/2007 was 0.0844 Kg. The remaining propellant is in the order of 147.9996 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

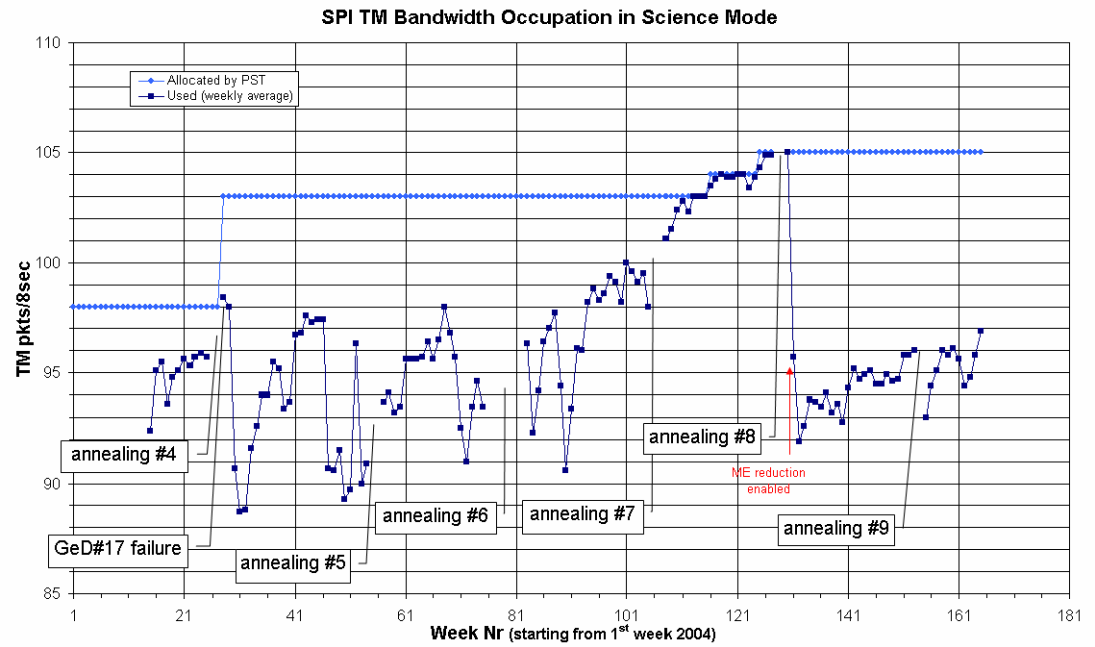
3.2.1 SPI

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, except from 2007-02-27T00:58:45Z to 2007-02-27T04:45:19Z, when the TM allocation was 85 packets/cycle due to an OMC Flat Field Calibration. The average telemetry occupation when the allocation was 105 packets/cycle was 96.9 packets/cycle.

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



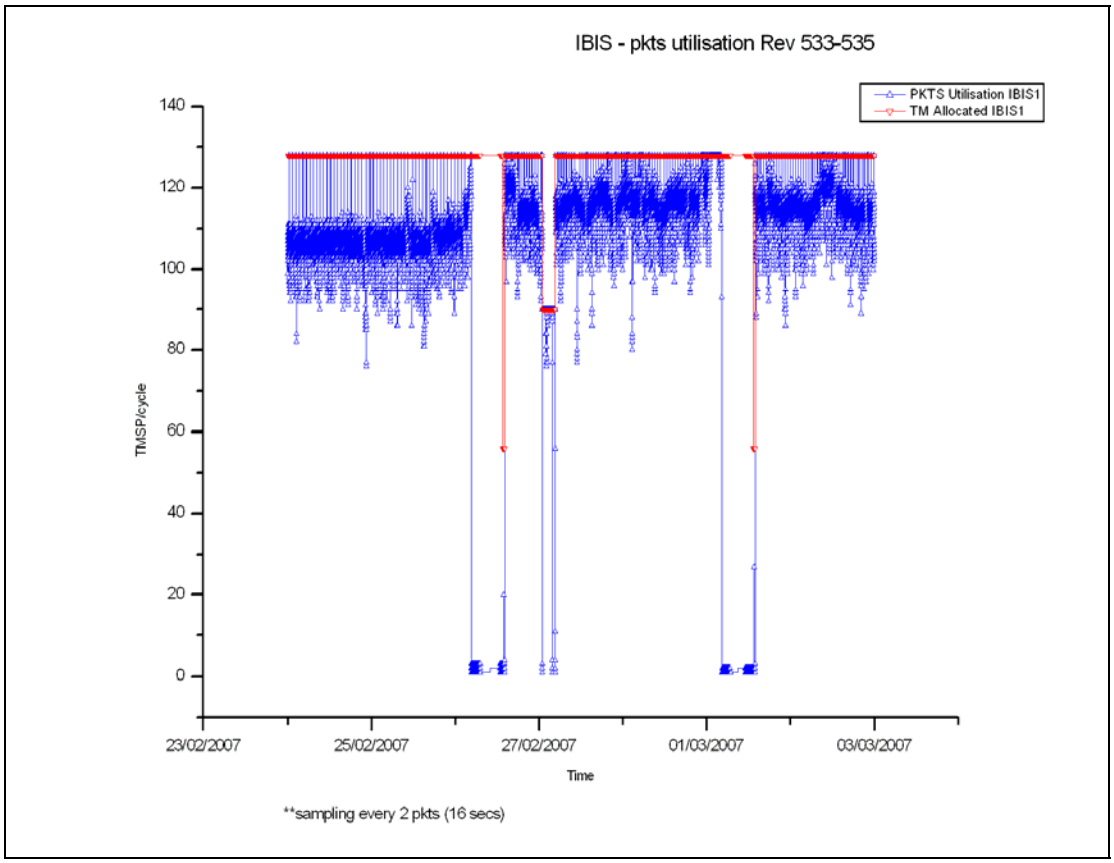
Note: Some more information concerning the SPI operations is provided in the Appendix.

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. However on 2007-02-27 between 00:59:45Z and 04:46:09Z, it was 90 TMPS/cycle due to an OMC Flat Field Calibration. The IBIS mean bandwidth utilisation during the observation period (when IBIS was in Science mode) was 112.44 TMPS/cycle, up 1.6 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, 170 of the 171 planned science pointings for OMC were executed nominally, 1 was lost. In addition a pointing from the Flat Field Calibration exercise was also lost.

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. Two small sunspots were present: 944 and 945. Neither of them posed a threat of strong 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 good this week. One pointing was lost to ground problems. The overall performance was well over the 95% requirement.

4.1 Mission Operations Centre

The performance of the MOC was good this week although it was noticed on one occasion that the wheel speeds were deviating from predictions, it was deemed that no action was necessary. Also the Command Verifier crashed, fortunately without impact. The overall performance was well over the 95% requirement.

4.2 Ground Stations & Network

The performance of the ground stations and Network was good this week. There were, however, 2 occasions of data drops from Redu, one of which led to the loss of a pointing, and another needed a recovery although no pointing was lost, and 1 data drop from DSS-24, without impact. The overall performance was well over the 95% requirement.

4.3 Science Ground Segment

4.3.1 ISOC

1. Mission planning

PSFs are available up to revolution 543. Observations have been planned and files sent up to revolution 540. The planning for Rev 541, which includes the next Crab calibrations is waiting for the finalisation of the definition of these observations.

Work is continuing to coordinate the follow-up observations of the TOO target GX 339-4 with XMM whenever possible.

TSF's up to revolution 537 have been received.

2. Observation status

ECS files have been received and processed up to revolution 528.

3. ISOC Science Data Archive

An ISDA Status Meeting was held 28 Feb. The inclusion of the 3rd ISGRI Source Catalogue has been postponed until ISDA 3.0 July 2007, due to unclear data rights issues.

Some work is still needed on the data distribution system before the next release (Version 2.7), a beta version is slated for 09 March.

The problem in 2nd ISGRI Source Catalogue product timestamps was found to be due to rounding errors

The INGEST task is now sufficiently reliable to be allowed to run fully automatically for the first time.

4. ISOC system

ISOC system V14.4 has been tested successfully and will be installed early next week.

5. Problems

None.

4.3.2 ISDC

Status of ISDC observation processing on 05/03/2007:

- Latest Standard Analysis completed: observation 04200770001 (NGC 4151, Revolution 521-522) on 05/03/2007.

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

- Latest observation products sent to the observer: observation 04200730011 (Galactic disk latitude scans, Revolution 520) on 16/02/2007.

5 Special Events

6 Anomalies

The following problems that impacted operations were reported:

- On DoY 058, at 01:00, a problem with the command verifier task led to the loss of pointing 05340019, the first pointing of the OMC Flat Field Calibration.
- DoY 061, at 14:50, there was a 1 minute TM drop from Redu. A recovery was immediately executed and the Timeline recovered at 15:20. The impact was the loss of pointing 05350037.

There were no new anomaly reports entered into the ARTS system this week:

7 Future Milestones

8 Appendix

The appendix includes various detailed information.

8.1 Overview of Revolutions

Revolution 534

The observations in revolution 534 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 AO-4 KP: l=+6.9 (RA 18:01:12.94, DEC -22:59:28.5), for ~5.9 hours. After this an OMC Flat-Field Calibration was performed, a staring observation at attitude (RA 16:51:36.00, DEC -14:24:00.0), for ~3.4 hours. This was followed by a return to the raster dither of AO-4 KP: l=+6.9 for a further ~25.2 hours. Finally a raster dither of AO-4 KP: l=-6.9 (RA 17:28:08.54, DEC -34:45:18.6), lasting ~18.5 hours was performed up to the end of the revolution.

Revolution 535

The observations in revolution 535 began with a raster dither of AO-4 KP: l=-6.9 (RA 17:28:08.54, DEC -34:45:18.6), lasting ~18.5 hours. This was followed by a hexagonal dither of the Galactic Bulge Region (RA 17:45:36.00, DEC -28:56:00.0), which lasted ~3.5 hours. After this, a raster dither of AO-4 KP: l=+6.9 (RA 18:01:12.94, DEC -22:59:28.5), lasting ~20.0 hours was executed. Finally a return to the raster dither of AO-4 KP: l=-6.9 was performed for a further ~11.1 hours, which lasted 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, except from 2007-02-27T01:00:00Z to 2007-02-27T04:46:34Z during the Flat-Field Calibration, when the allocation was IBIS 90; SPI 85; JEM-X1 8; JEM-X2 0; OMC 63.

8.2 Consumables

8.2.1 Detailed Fuel Book-keeping

```
2007-02-05T17:48:59.000Z     148.3516    F   Automatic TM processing.
2007-02-08T13:11:38.000Z     148.3380    F   Automatic TM processing.
2007-02-08T17:37:54.000Z     148.2920    F   Automatic TM processing.
2007-02-11T13:00:09.000Z     148.2524    F   Automatic TM processing.
2007-02-14T12:47:37.000Z     148.2310    F   Automatic TM processing.
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.

This report was generated  Fri Mar 2 08:00:32 GMT 2007
```

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, 24/02/2007 –02/03/2007

AOCS operations were executed from the Automatic Timeline.

During this period, 86 Open Loop Slews, 98 Closed Loop Slews and 4 Momentum Biases were executed.

3 slews (CSL) were missed from TL during the observation period due to problem on the TM link with REDU and on the IMCS Command Verifier Task.

The OTF was not reached during PID 05340033 due to STR SEU threshold exceeded.

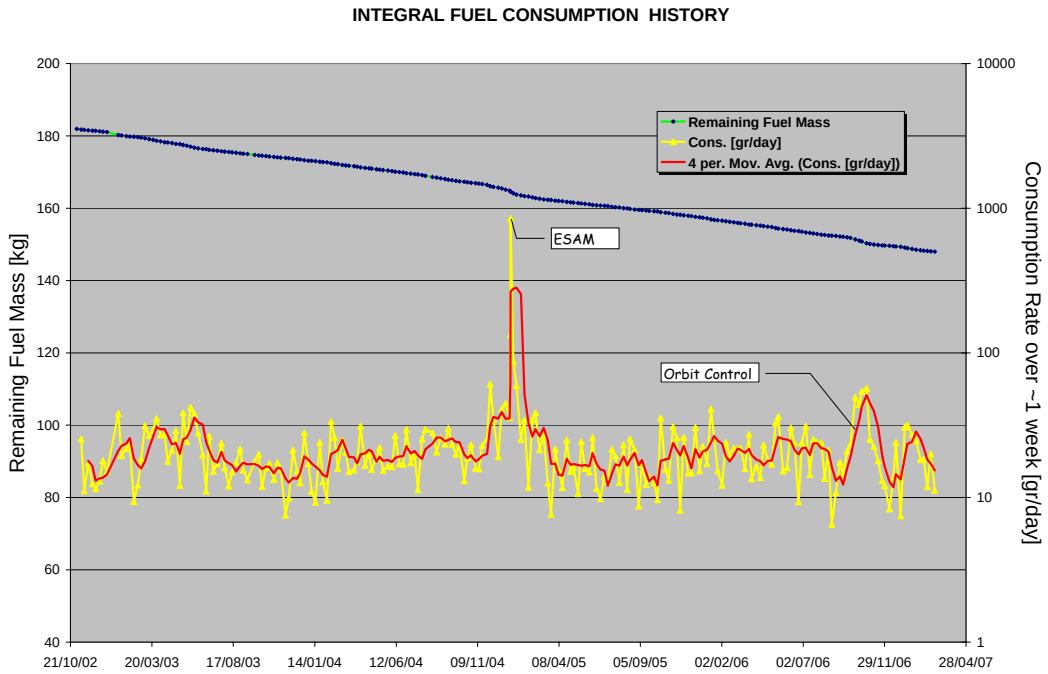
This is equivalent to a ~1.6 % of the total number of slews planned (186).

Orbit Control

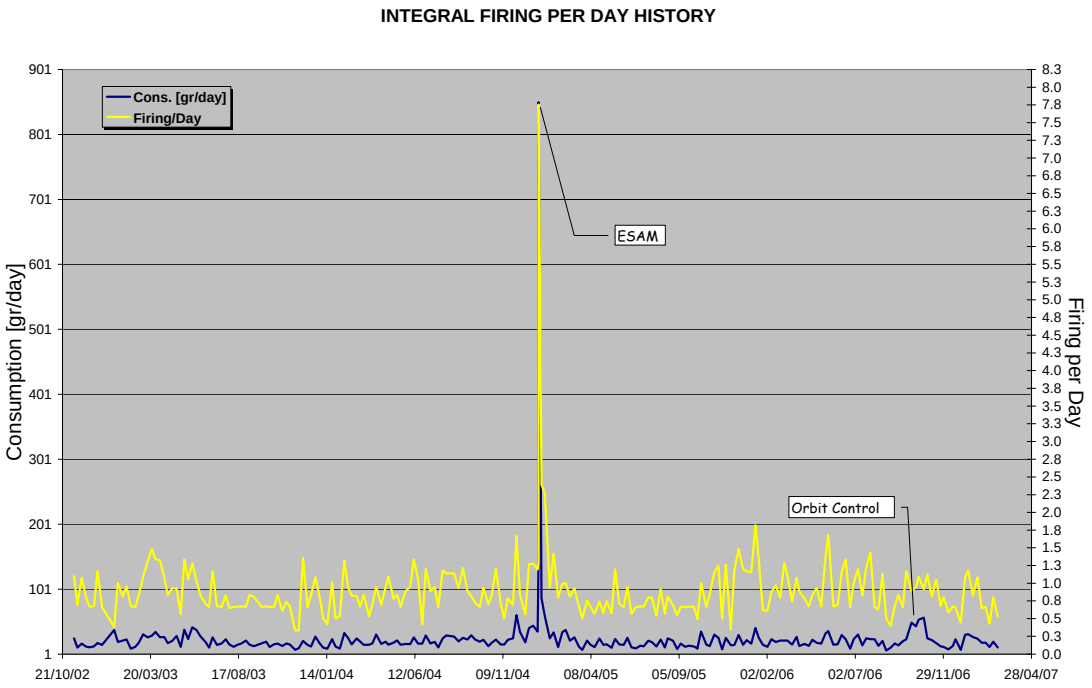
No update.

Fuel consumption

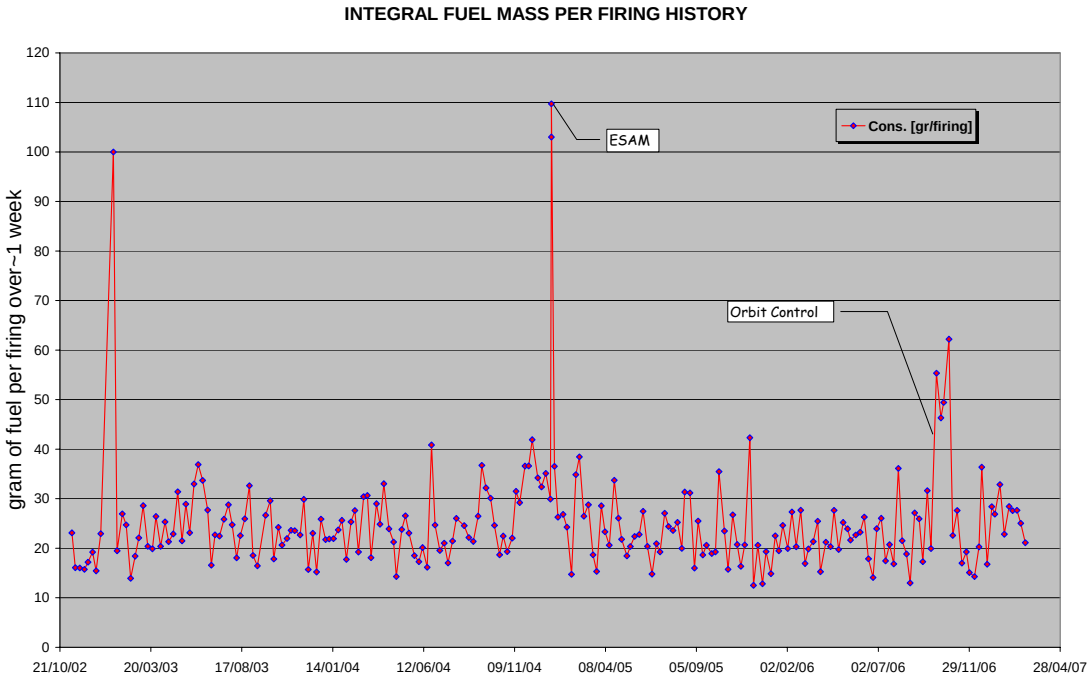
The fuel consumption (total, grams per day) over the period between 01/11/2002 and 02/03/2007 is shown in the plot below.



The firing per day over the period between 01/11/2002 and 02/03/2007 is shown in the plot below.

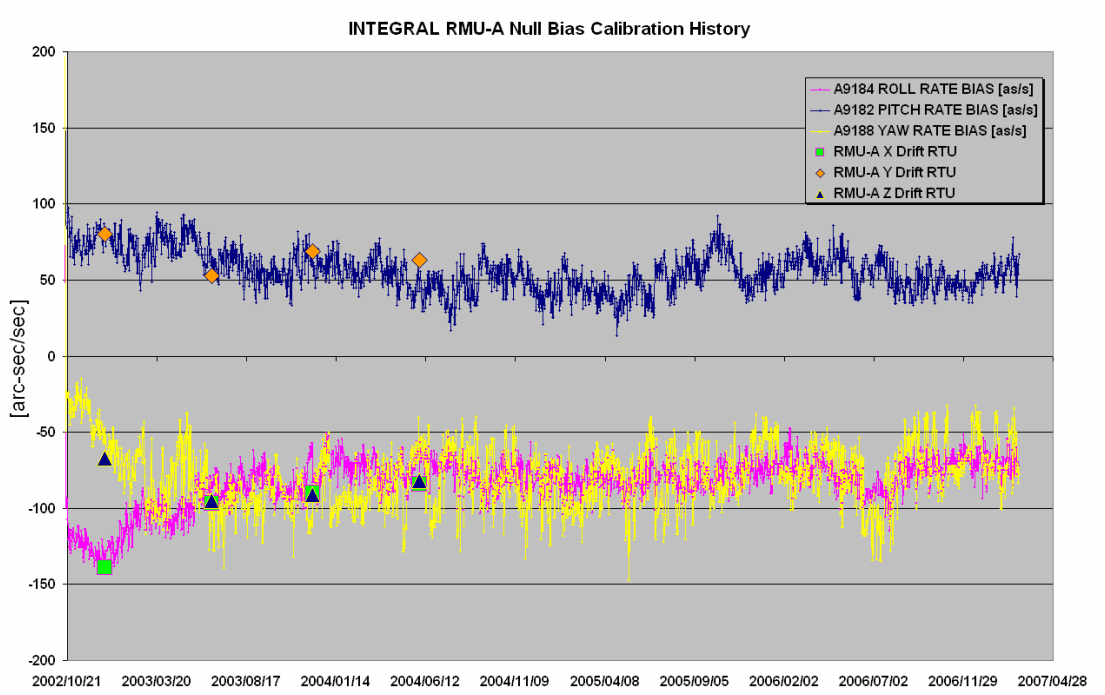


The fuel per firing over the period between 01/11/2002 and 02/03/2007 is shown in the plot below.

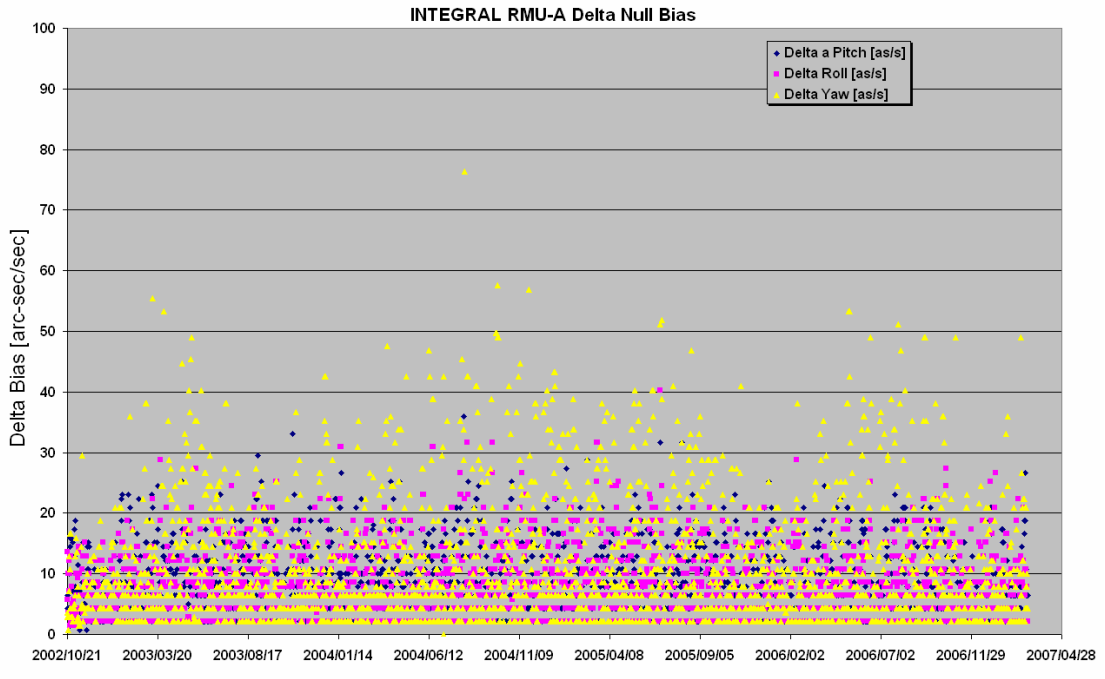


The RMU-A null bias calibration

The RMU-A null bias calibration history, on pitch, roll and yaw channel over the period between 01/11/2002 and 02/03/2007 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 02/03/2007 is reported in the plot below



24/02/2007 (Day of Year 055, Revolution 533)

Nothing to report.

25/02/2007 (Day of Year 056, Revolution 533)

Nothing to report.

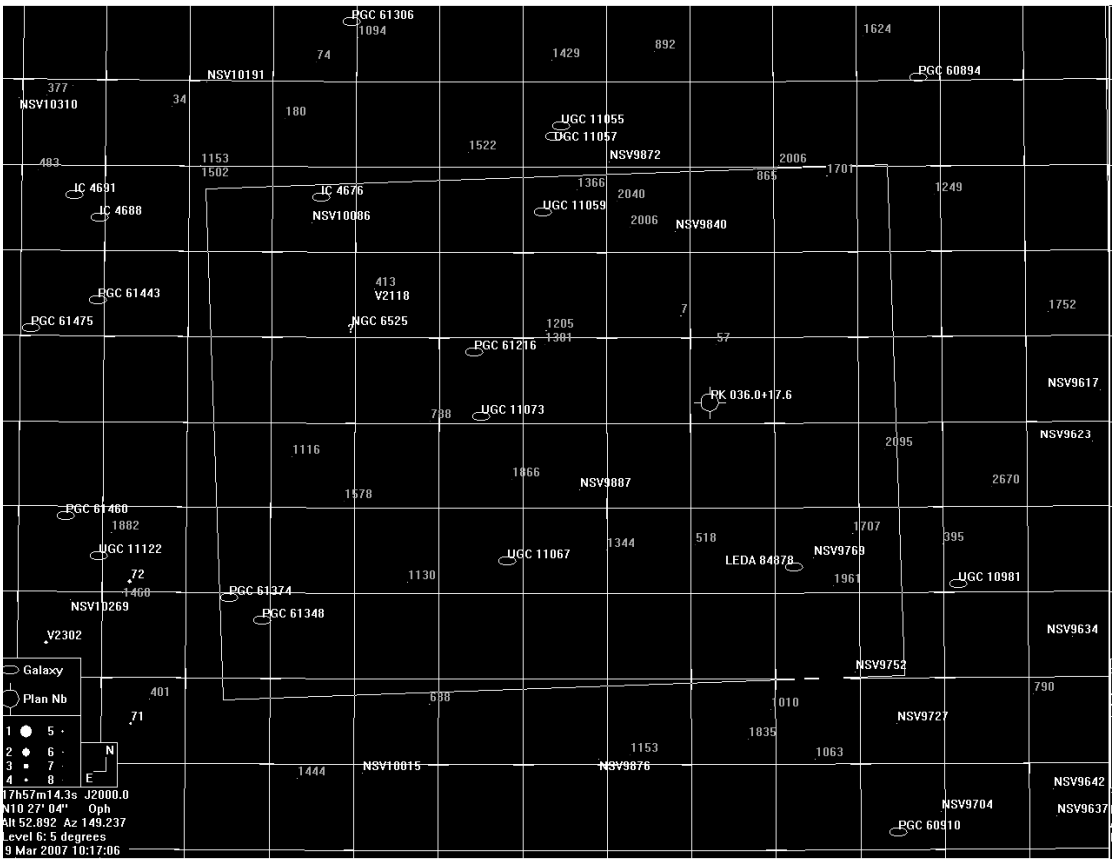
26/02/2007 (Day of Year 057, Revolution 533-534)

STR SEU threshold exceed: at 11:17:46z during the perigee passage the STR SEU threshold was exceeded. As automatic reaction the ACC switched ON the IMU 1 and an automatic mapping was commanded.

The guide star (ID 1012-1116), when the event occurred, was Mi 8.05 @ CCD location [-11285, 7106].

After the automatic mapping a new guide star (ID1012-1130) was picked Mi 7.0 @ CCD location [-4012, -5612].

The reason of the SEU threshold exceeded is likely to be due to the high radiation environment during the belt passage. A plot of the expected STR FOV (Mi limit <8.5) around the selected guide star ID 1012-1116 is shown below:



No impact on TL was reported, except the OTF not reached during the perigee passage (no scientific observation lost)

Problem on links to REDU: at 16:20z due to a problem on TM links to REDU station, the slew ID 05340006 failed release.

.

A manual recovery was then performed to update next slew ID 05340007 and the AOCS enabled in TL at 16:43z.

The following slew was not executed from TL: 05340006 (CSL).

27/02/2007 (Day of Year 058, Revolution 534)

Problem on IMCS: at 01:00z due to a problem on the CMD Verifier task on the IMCS-A chain, the slew ID 05340019 failed release and the AOCS s/s was disabled at 01:19z.

A manual recovery was then performed to update the next slew ID 05340020 and the AOCS s/s enabled at 01:35z in TL.

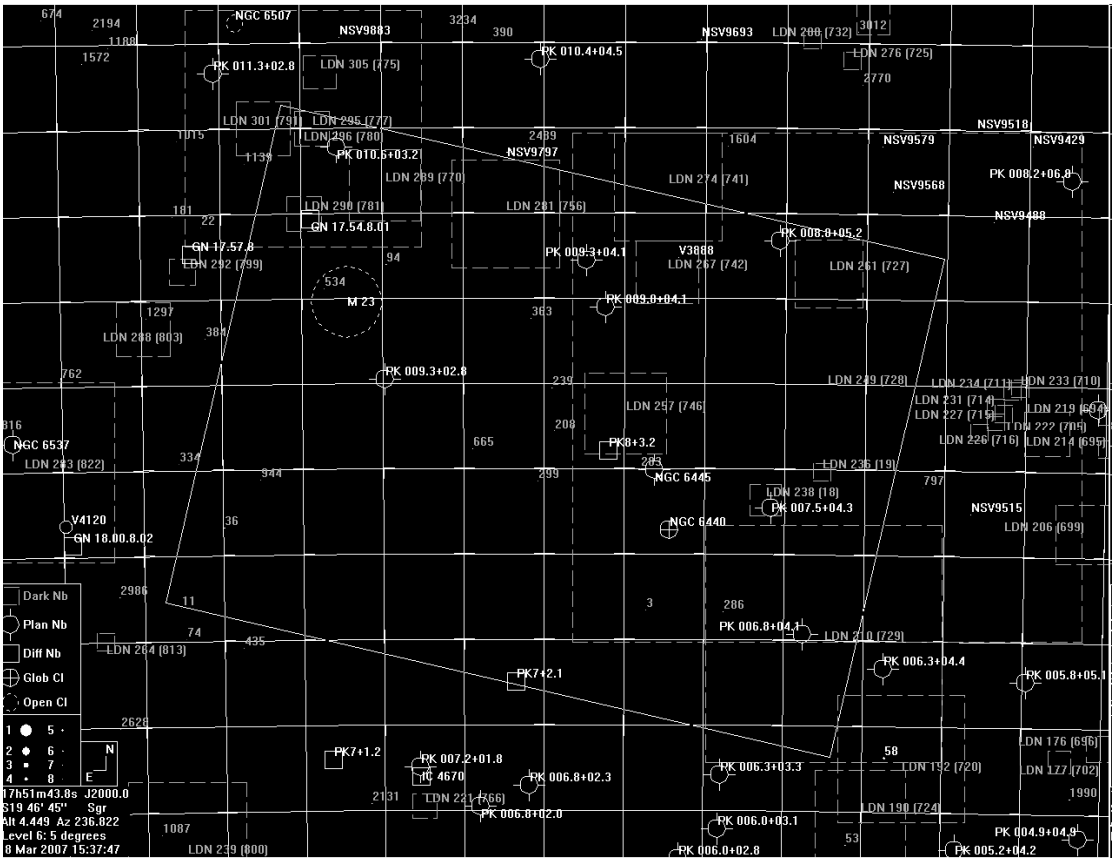
The following slew was lost: 05340019(CSL)

STR SEU threshold exceed: at 13:46:25z the STR SEU threshold was exceeded during PID 05340033. As automatic reaction the ACC switched ON the IMU 1 and an automatic mapping was commanded.

The guide star (ID 6257-208), when the event occurred, was Mi 8.15 @ CCD location [-2258, -9233].

After the automatic mapping a new guide star (ID 6258-363) was picked Mi 7.6 @ CCD location [-3903, 496].

The reason of the lost of guide star is likely due to presence of several extended objects in the expected STR FOV (see plot below, Mi limit <8.5) around the selected guide star ID 6257-208



No impact on TL reported, except the OTF not reached during PID 05340033.

28/02/2007 (Day of Year 059, Revolution 534)

Nothing to report.

01/03/2007 (Day of Year 060, Revolution 534-535)

Nothing to report.

02/03/2007 (Day of Year 061, Revolution 535)

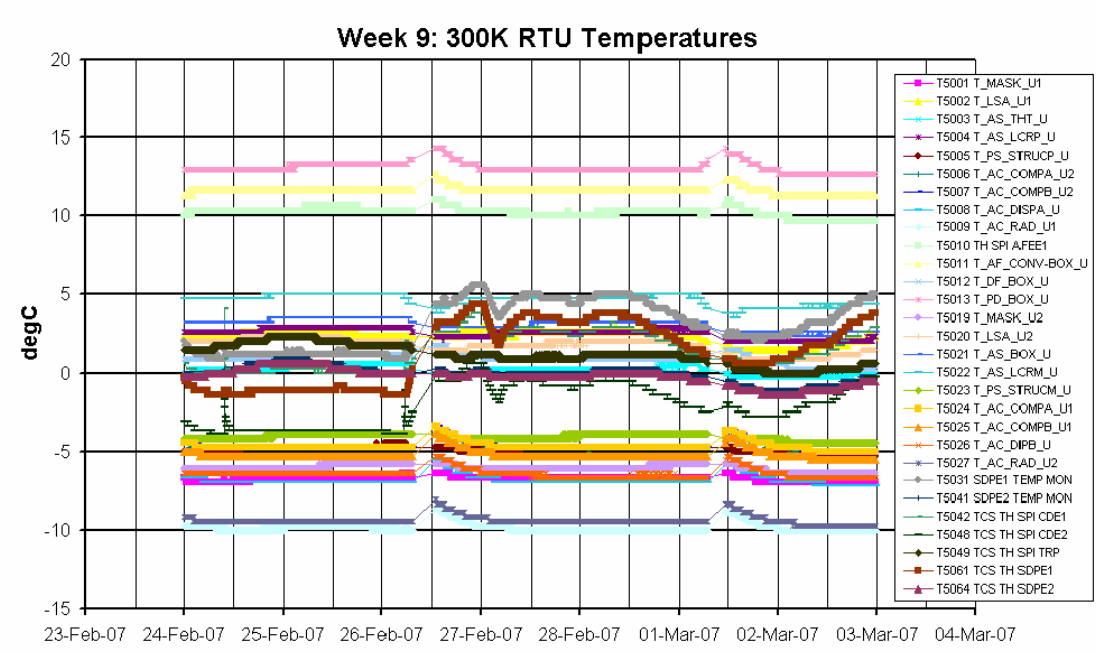
Problem on links to REDU: at 14:50z due to a problem on TM links to REDU station the slew ID 05350037 failed release.

A manual recovery was then performed from attitude of PID 05350036 to the attitude of PID 05350037. The next slew ID 05350038 was manually updated and the AOCS enabled in TL at 15:20z.

The following slew was not executed from TL: 05350037 (CSL).

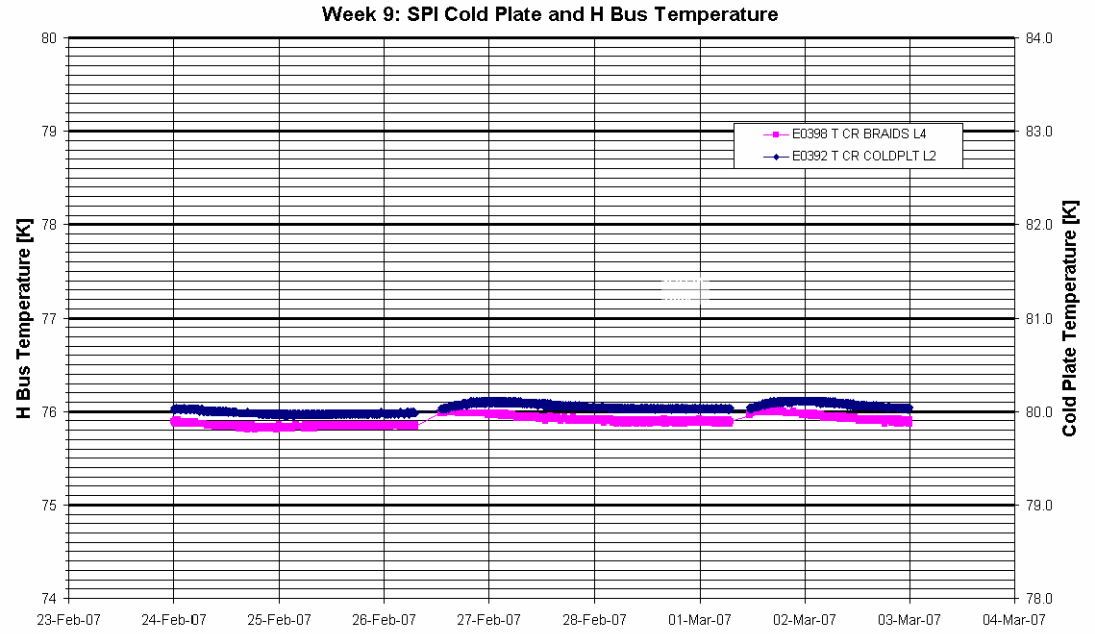
8.3.2 SPI Operations

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

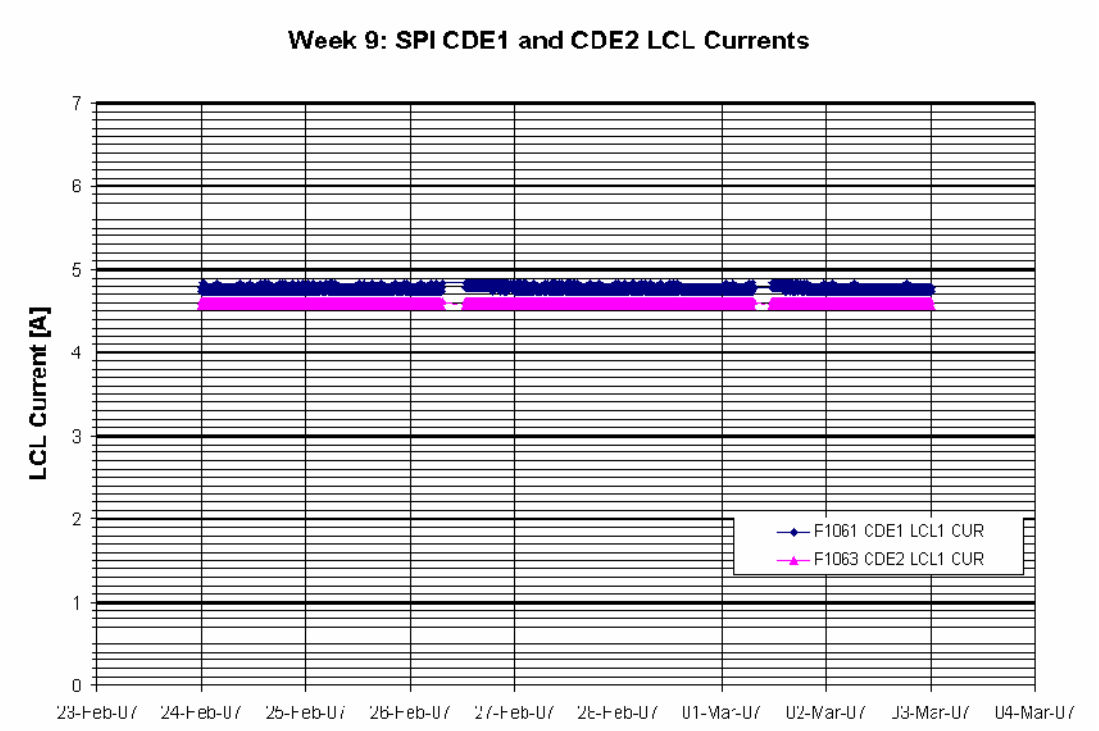


The stroke of all four compressors has been 40 since 03-02-2007 at 13:16Z.

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

- Average CDE1 LCL Current = 4.78A
- Average CDE2 LCL Current = 4.58A

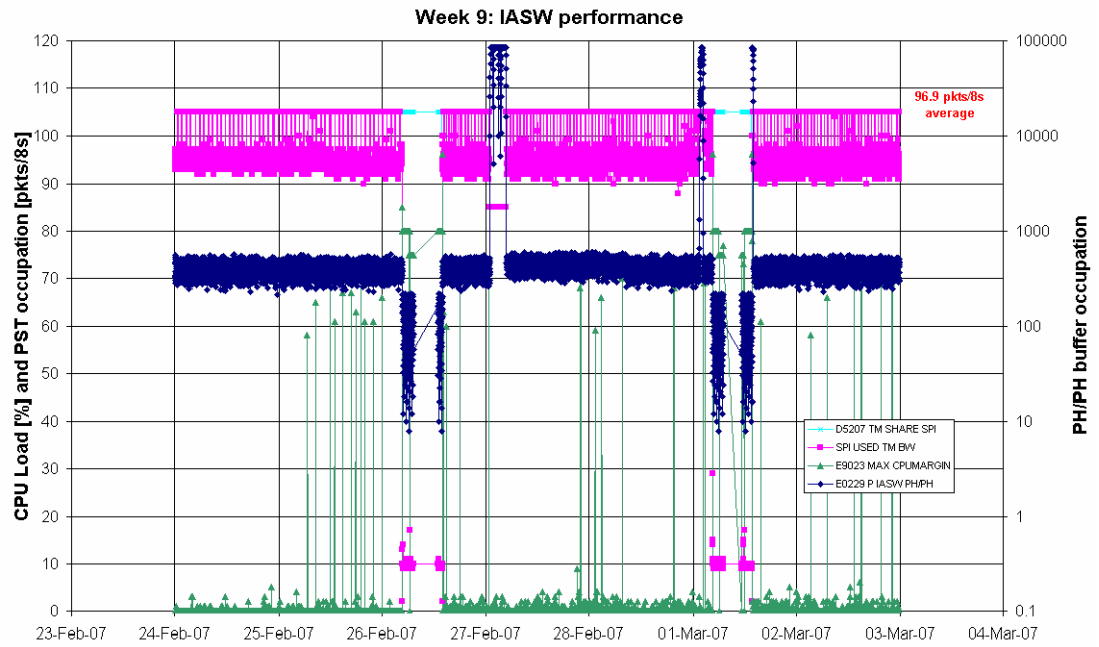
The following plot shows the evolution of the CDE currents during the reporting period.



DPE & IASW: The DPE health and IASW performance is nominal. The IASW version installed was 433, with the new spectra scaling parameter set to 19/19, i.e. no spectra scaling (as with IASW 432), pending the tests and scaling parameter tuning to be performed on 05-03-2007.

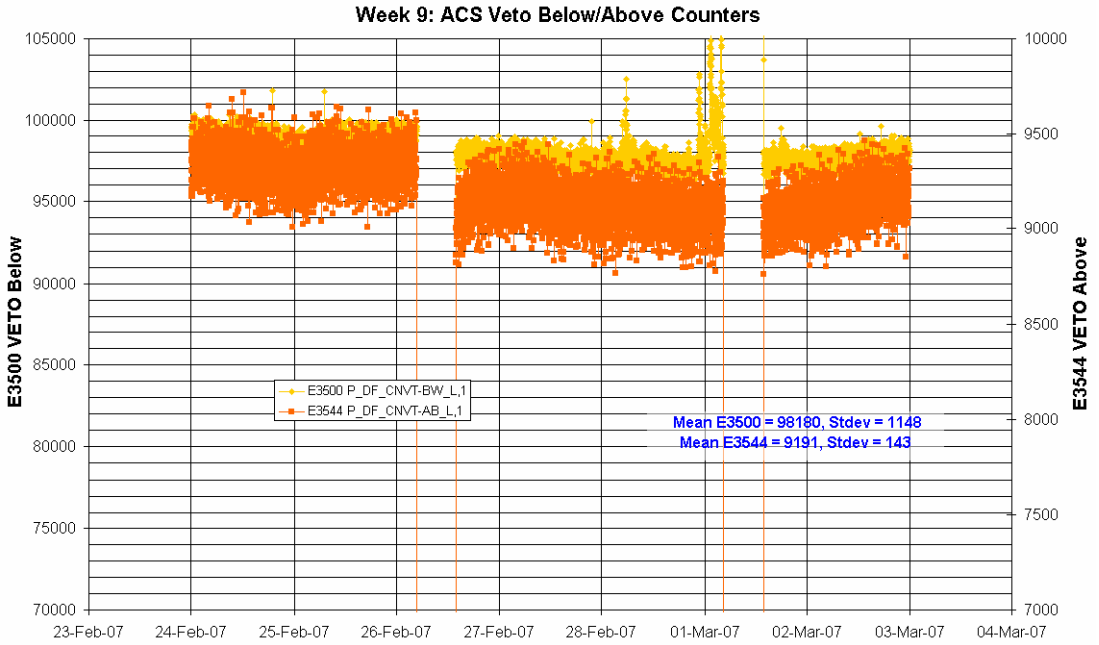
The average TM bandwidth occupation of SPI was 96.9 packets/cycle over the science window, when the TM allocation was 105 packets/cycle. The following plot shows the IASW performance in terms of TM bandwidth, event buffer occupation and DPE CPU load during the reporting period.

Note that between 2007-02-27T00:58:45Z and 2007-02-27T04:45:19Z an OMC flat field calibration was performed and therefore the TM allocation to SPI was 85 packets/cycle.



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).

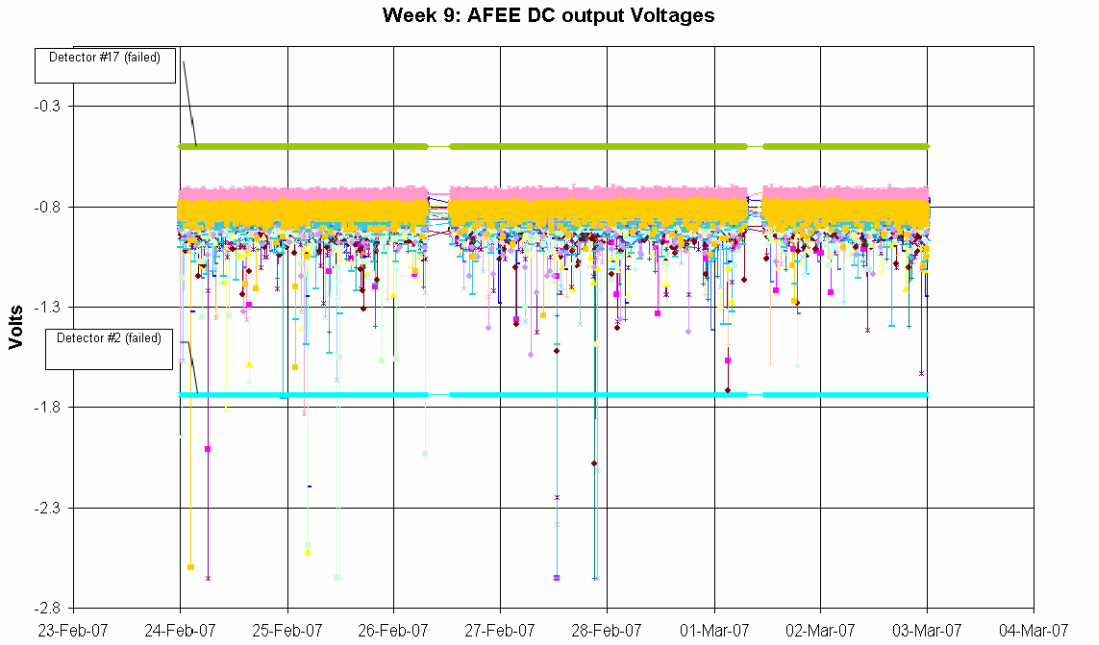
The following plot shows the ACS overall count rate evolution during the reporting period:



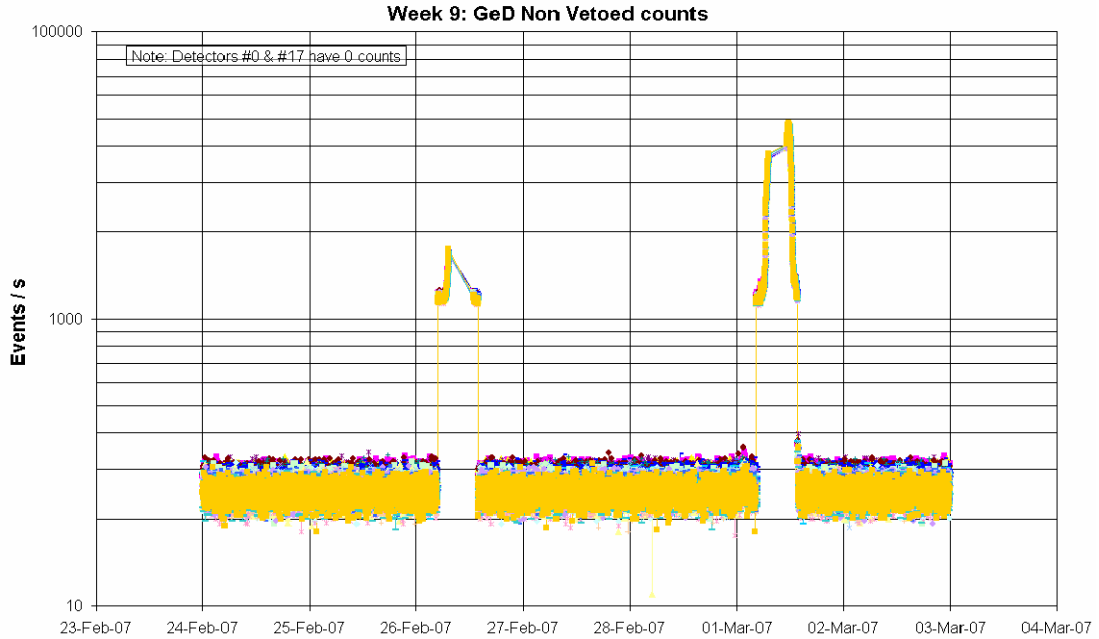
AFEE: The health of the AFEE is nominal. The performance of the AFEE and the detectors is nominal, except for the Ge detector #12 which is showing a slightly degraded energy resolution. The energy resolution of GeD#4 was recovered with the last annealing.

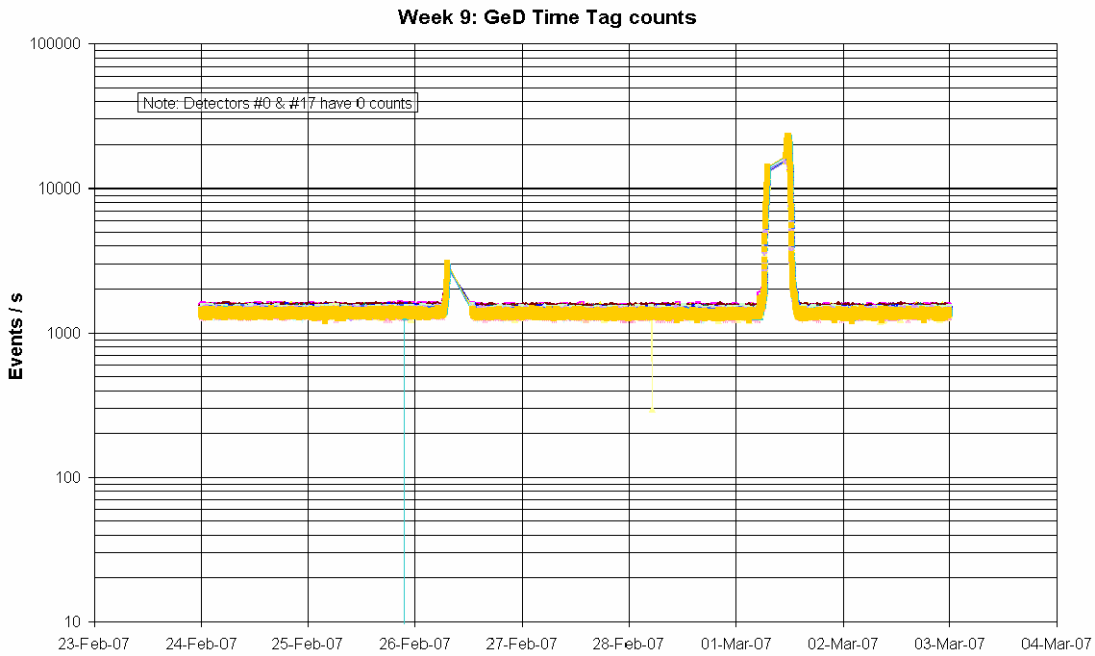
The GeD#12 HV remained at 3.5kV throughout the reporting period.

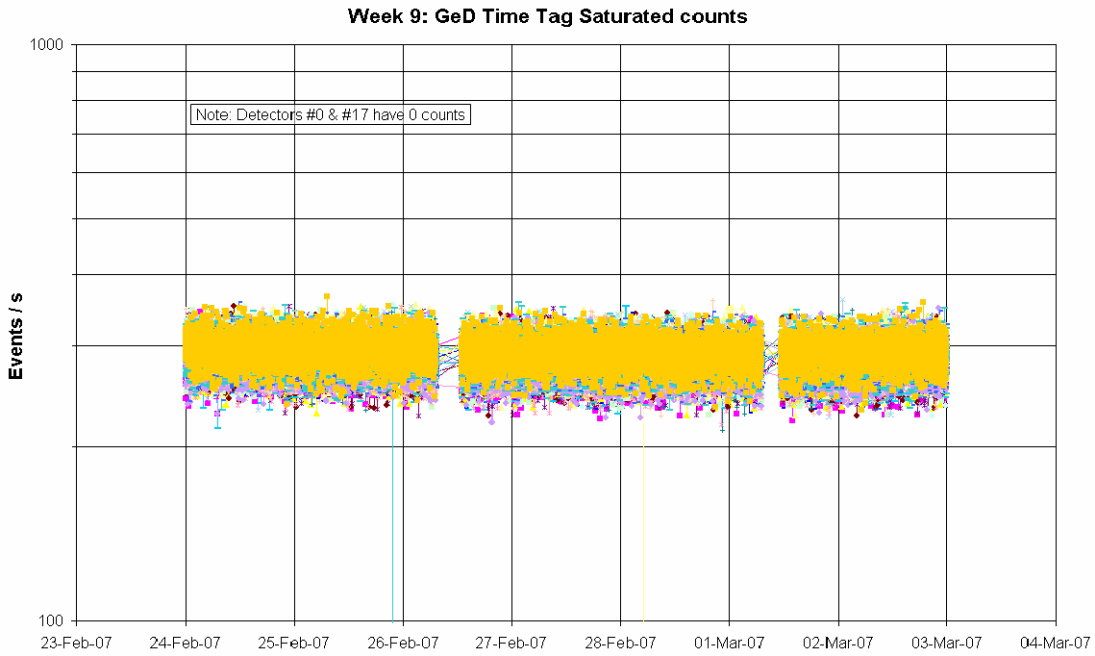
The following plot shows the dc voltage offset of the detector channels during the reporting period. The values are nominal. Detector #2 is failed since 06.12.2003 and detector #17 is failed since 17.07.2004.



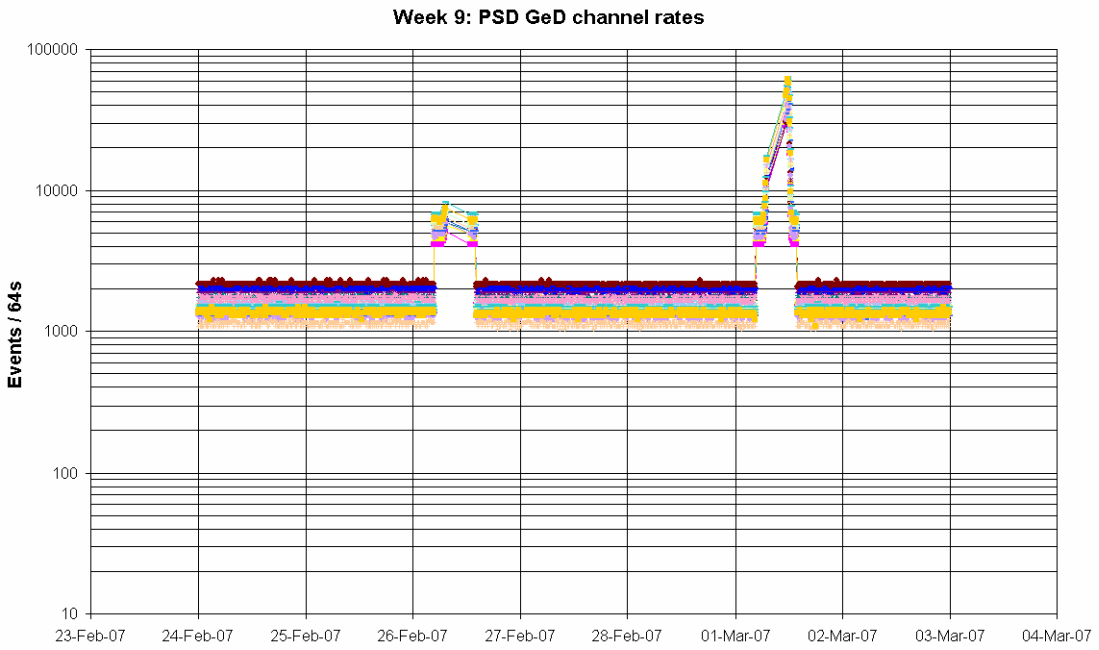
DFEE: The performance of the unit is nominal. The following plots show the Non Vetoed, Time Tag and Time Tag Saturated Event Count Rates during the reporting period.







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 during the reporting period:

- On 2007-02-26 at 20:49:29Z the TM parameter E3825 U PD 5V+ANL L went OOL high (value = 5.2038V). It returned within limits at 20:50:33Z.
- On 2007-02-27 from 04:59:15Z to 05:00:19Z, 17 occurrences of the following pair of OEMs were received:

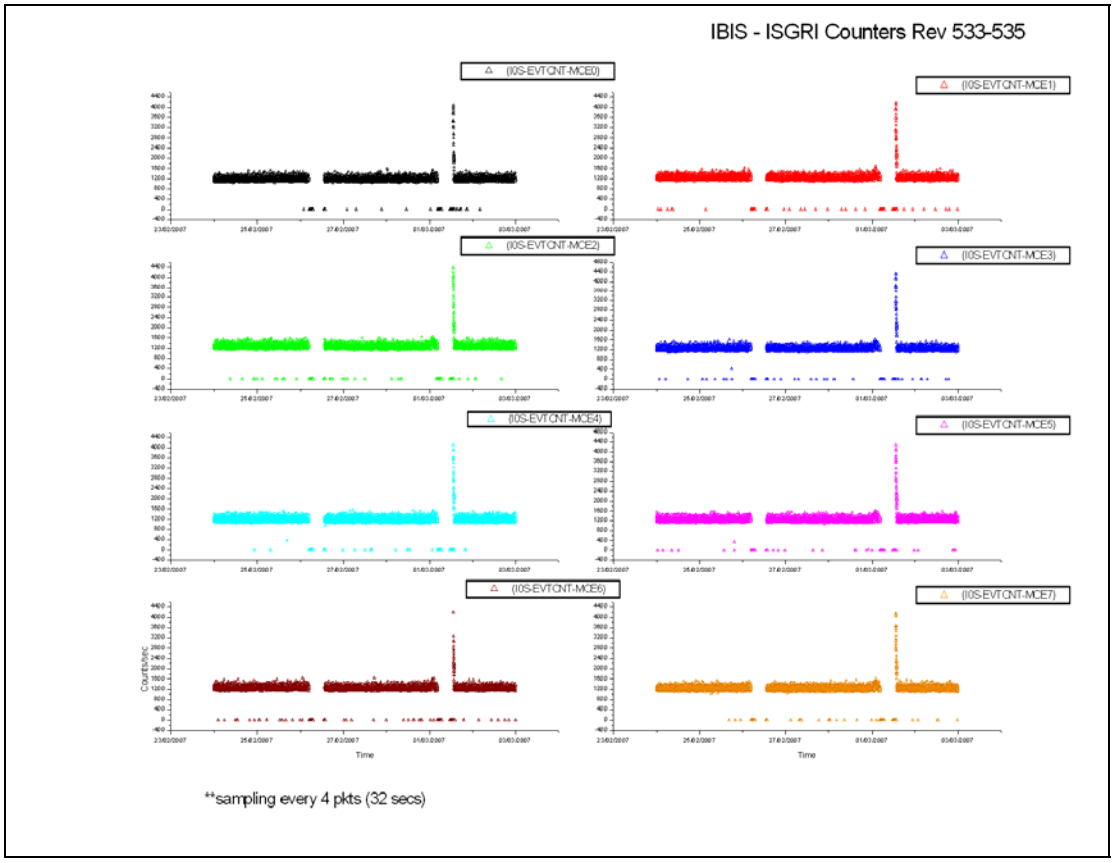
```
    APID 1024    ID    224      EXCEPTION    SPI1 SW ERROR
FIX6
E9079           MESS CLASS                        1
E9080           MESS ID                           224
E9777           FAULTY TASK ID                    3
FIX16                                             0
    APID 1024    ID    7         EXCEPTION    SPI1 CONSTRAINT DPE
CULPR
E9073           TASK ID 6                         IASW
E9079           MESS CLASS                        1
E9080           MESS ID                           7
E9076           OUT RANGE VALUE                   4097
E9067               LOGICAL ADDRESS                           11637
```

  This was in the first pointing after the OMC Flat Field Calibration, ~10 minutes after the TM allocation had been changed from 85 packets/cycle back to 105 packets/cycle. It is usual to get these OEMs in this situation and they stopped of their own accord.
- On 2007-03-01 at 03:46:37Z the TM parameter E3500 P_DF_CNVT-BW_L went OOL High, returning within limits at 03:48:21Z. This was about 45 minutes before radiation belt entry of revolution 534.
- On 2007-03-02 at 15:08:14Z the TM parameter E2214 S AS DG5V L64 (ACS FEE digital status 5 V #64) went OOL Status (value = NO EXIST VAL). It returned within limits when the next packet was received at 15:18:54Z.

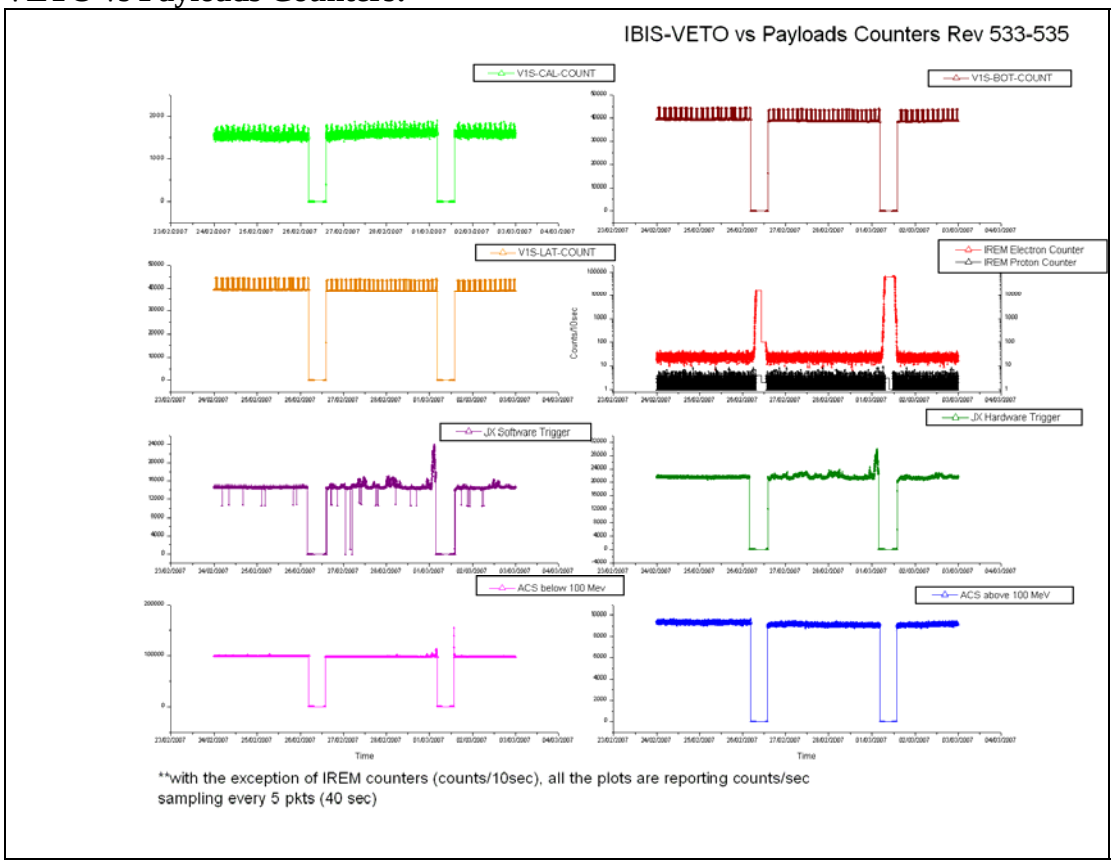
8.3.3 IBIS Operations

IBIS Event Counters Plots.

ISGRI Counters:

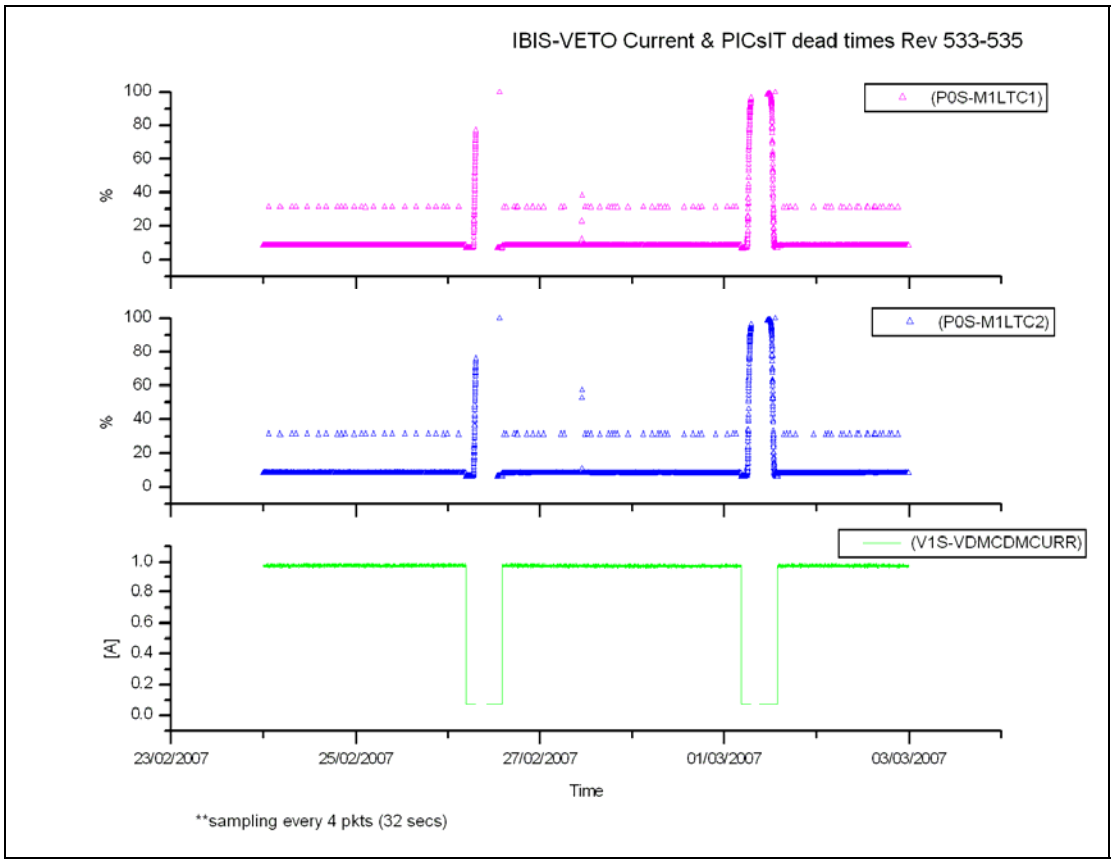


VETO vs Payloads Counters:

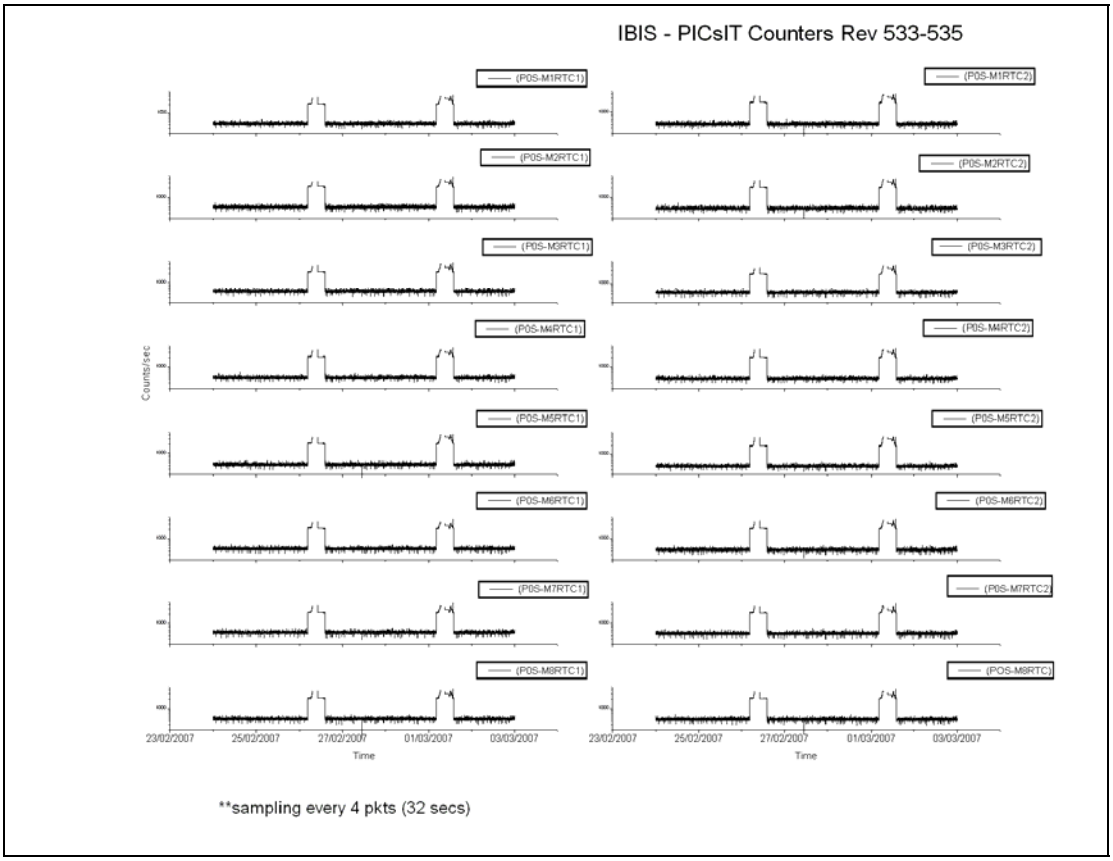


The week was characterised by low radiation.

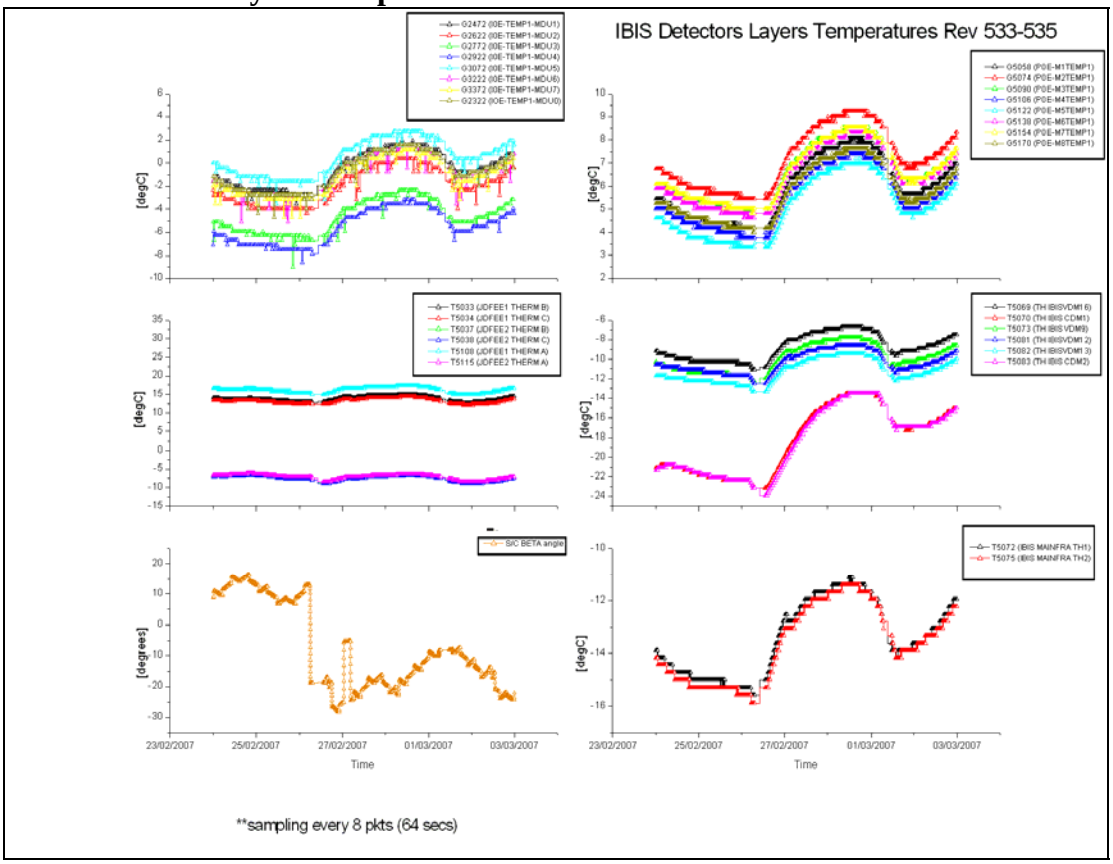
VETO Current:



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 2007.058 (27/02/2007):

At 10:57Z TM families G5068 and G5072 (P0S-MiF1 and 2 ERRF) were reported failing the SCC. They came back to nominal values in the next cycle hence no action was taken according to the FDIR.

DoY 2007.060 (01/03/2007):

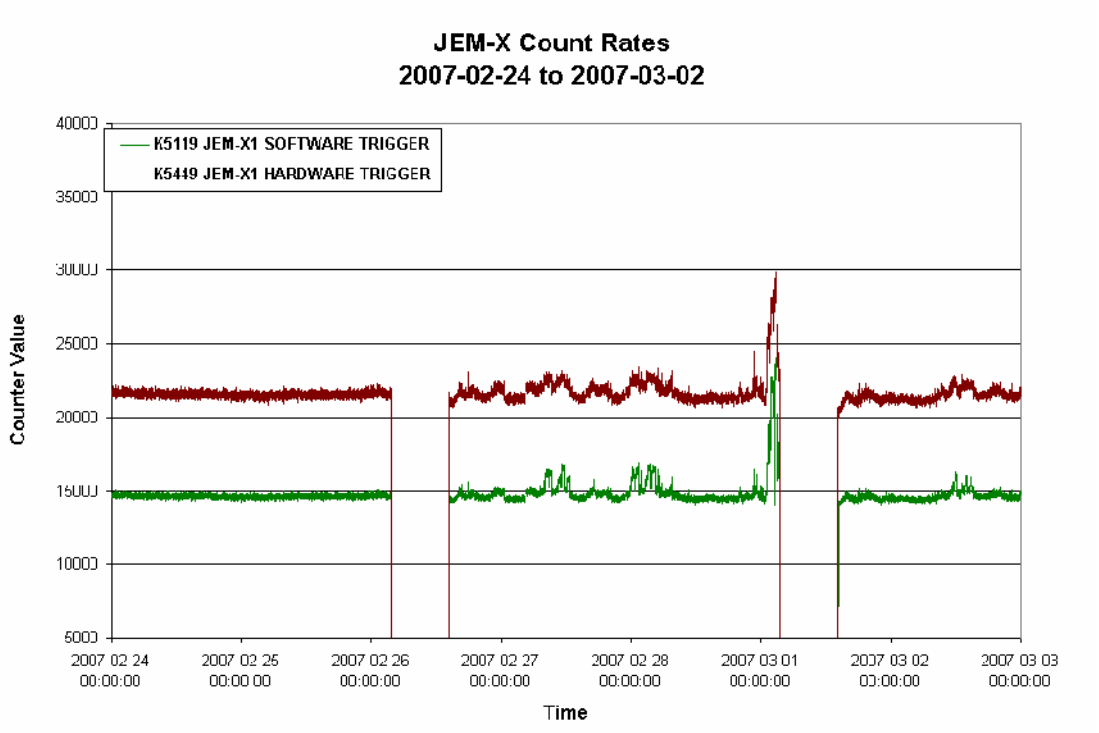
At 13:18Z the ISGRI calibration started (ED GEISCL03 in the timeline) in a high radiation environment. In fact IREM count rates reported values exceeding the IBIS thresholds until 13:45Z as the spacecraft was still within the Radiation Belts.
At 13:23Z TM family G2013 (I0S-EVTCNT_MCEi) was reported OOL High, and at 13:42Z TM families G5002 and G5003 (P0S-MiRTC1 and P0S-MiRTC2) were reported OOL High.
Because the critical ascending altitude was reached only at 13:43Z, IBIS was in Stand-By mode (with VETO OFF) during this high radiation period and no automatic reaction was triggered.
No action was taken as the radiation level dropped below the thresholds in a short period.

8.3.4 JEM-X Operations

JEM-X Count Rates

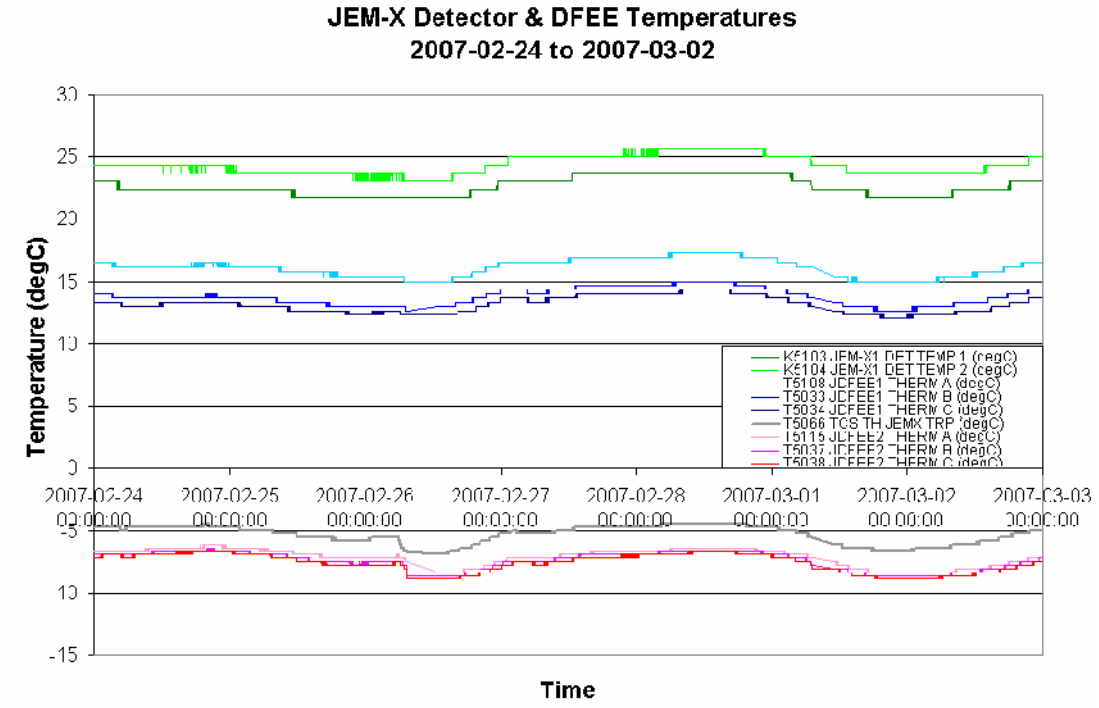
JEM-X count rates over the reporting period are displayed in the following graph[1].

[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].



JEM-X Daily Report

[2] Data sampled (1 frame in 8)

2007-02-24 (DOY 055, Rev 533) to 2007-02-28 (DOY 059, Rev 534)

JEM-X1 operations executed nominally.

2007-03-01 (DOY 060, Rev 534-535)

At 02:25:12Z TM parameter K5136 BUFFER LOSS went OOL high (value = 155) but returned within limits at 02:26:32Z. This was just at the start of pointing ID 05340080, about 1 hour before JEM-X1 was planned to be commanded to Safe mode before radiation belt entry of revolution 534.

JEM-X1 operations continued nominally.

2007-03-02 (DOY 061, Rev 535)

JEM-X1 operations executed nominally.

8.3.5 OMC Operations

2007-02-24 (DoY 055, Rev 533) to 2007-02-26 (DoY 057, Rev 534)

Nothing to Report

2007-02-27 (DoY 058, Rev 534)

From 01:00 to 03:51, an OMC Flat Field calibration was scheduled. However, at 01:00, a problem with the command verifier task led to the loss of the first pointing: 05340019, the subsequent pointings were conducted nominally A Dark Current calibration followed from 03:51 to 04:23, which was completed nominally.

2007-02-28 (DoY 059, Rev 534) to 2007-03-01 (DoY 060, Rev 535)

Nothing to Report

2007-03-02 (DoY 061, Rev 535)

At 14:50, there was a 1 minute TM drop from Redu. A recovery was immediately executed and the Timeline recovered at 15:20. The impact was the loss of pointing 05350037. It was at this time the following commands were rejected:

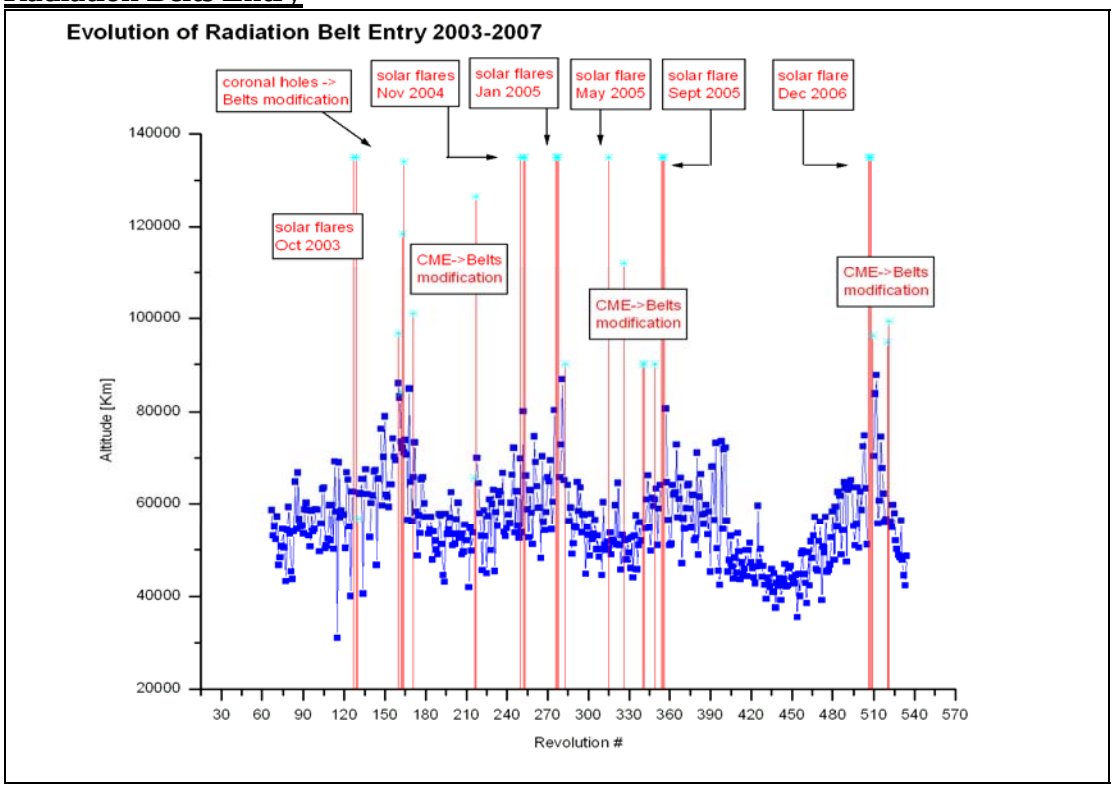
```
2007.061.14.54.13.293   2007.061.14.54.20.458   1792   RealTime   131     TC REJECT
REJECTED TC1                                          0       0    65535   PR    N
E   E
2007.061.14.54.19.043   2007.061.14.54.29.609   1792   RealTime   131     TC REJECT
REJECTED TC1                                          0       0    65535   PR    N
E   E
```

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

On DoY 057 at 04:39:46 and DoY 060 at 04:27:54 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



IREM daily report

DoY 2007.060 (01/03/2007):

At 11:44Z, TC U4920 (GND LINK ON) failed completion due to a late update of the TM display. The operator checked that TM U9903 (GND LINK Status) = ON in AND U0001, meaning that the command was successfully completed and no further action was taken.

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]
533	RAD_ENTR R 2007-02-26T04:39:42Z	2007-02-26 06:17:21	42356.8	2007-02-26 05:42:26	47032
534	RAD_EXIT R 2007-02-26T13:56:58Z	2007-02-26 12:57:53	>>29764.2	2007-02-26 13:32:26	41793
534	RAD_ENTR R 2007-03-01T04:27:48Z	2007-03-01 05:23:45	48696.5	2007-03-01 05:27:31	47696
535	RAD_EXIT R 2007-03-01T13:44:59Z	2007-03-01 13:31:37	43181.9	2007-03-01 13:17:31	41098

Reference

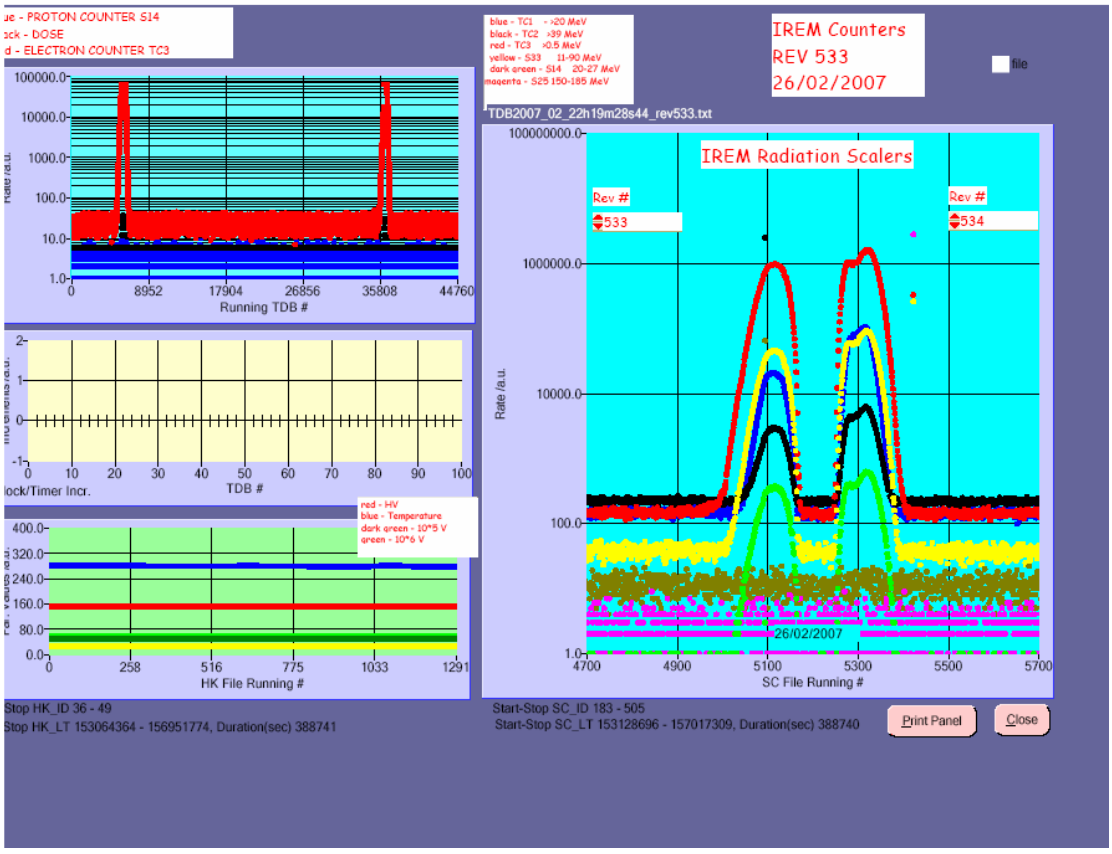
Very small error vs reference (less than 10 minutes)

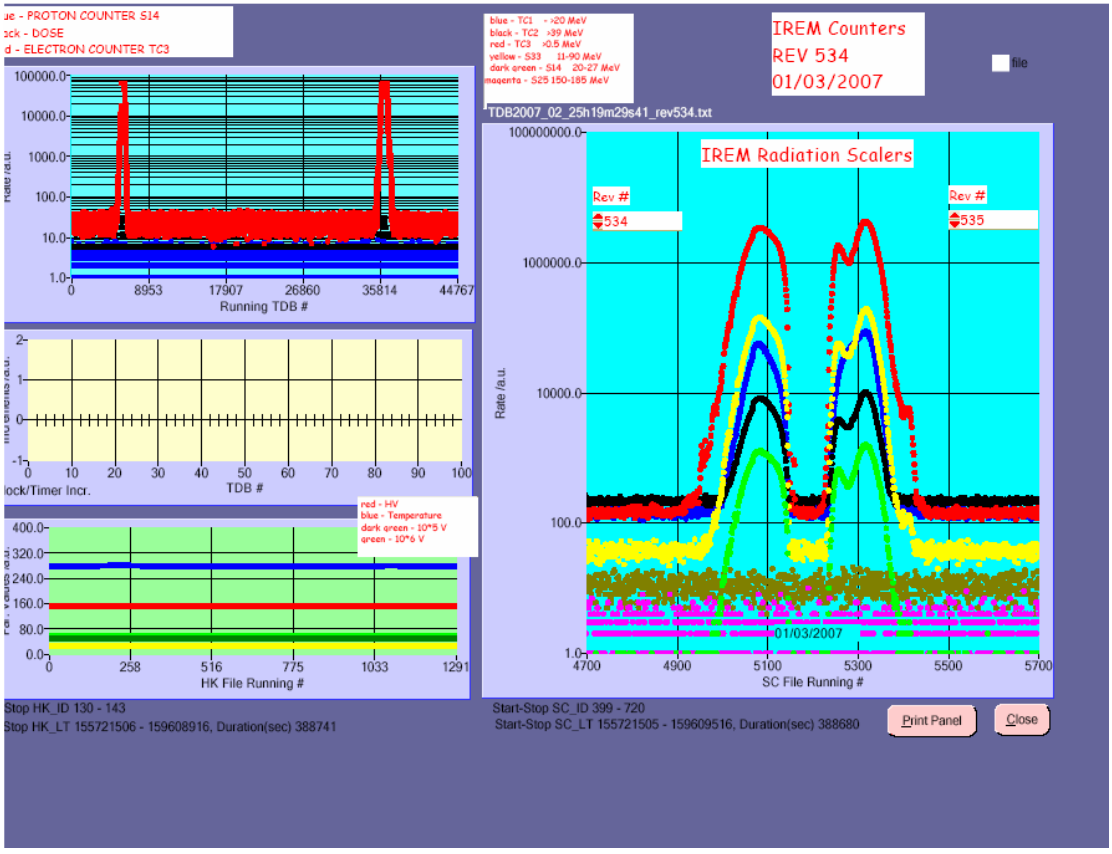
Small error vs reference (between 10 and 30 minutes)

Large error vs reference (more than 30 minutes)

Radiation Spike

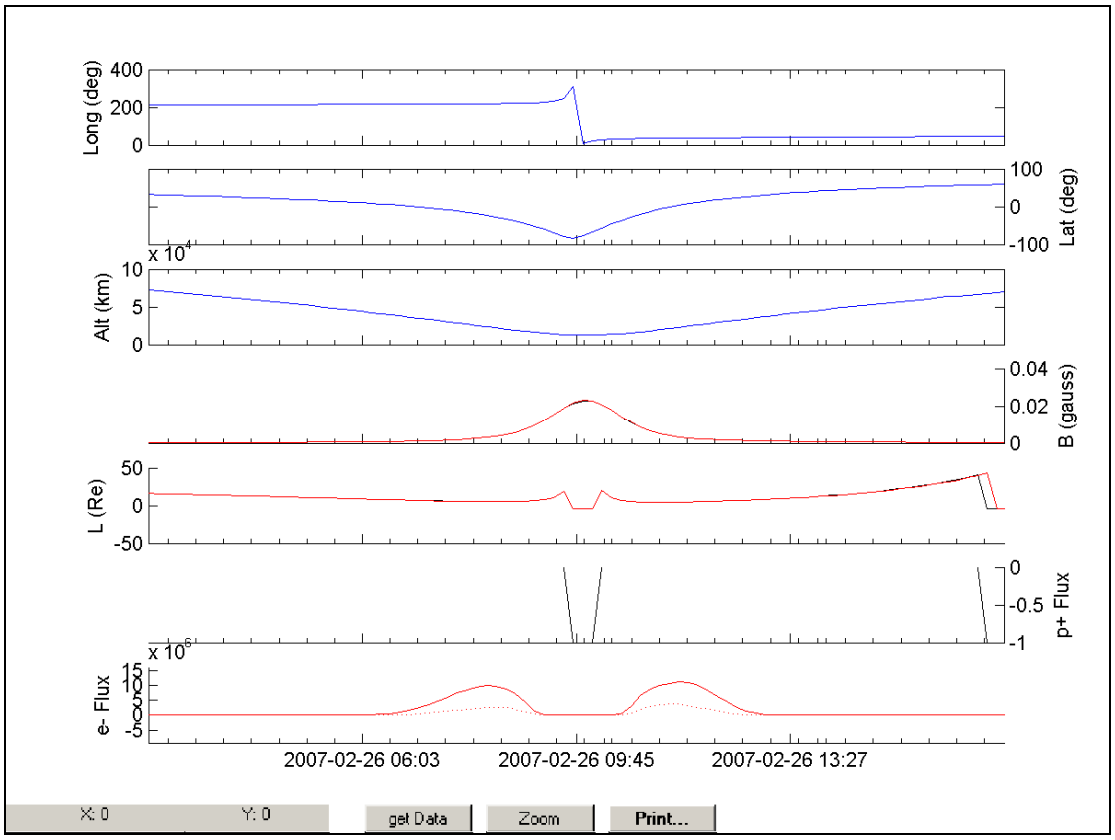
IREM radiation counters:



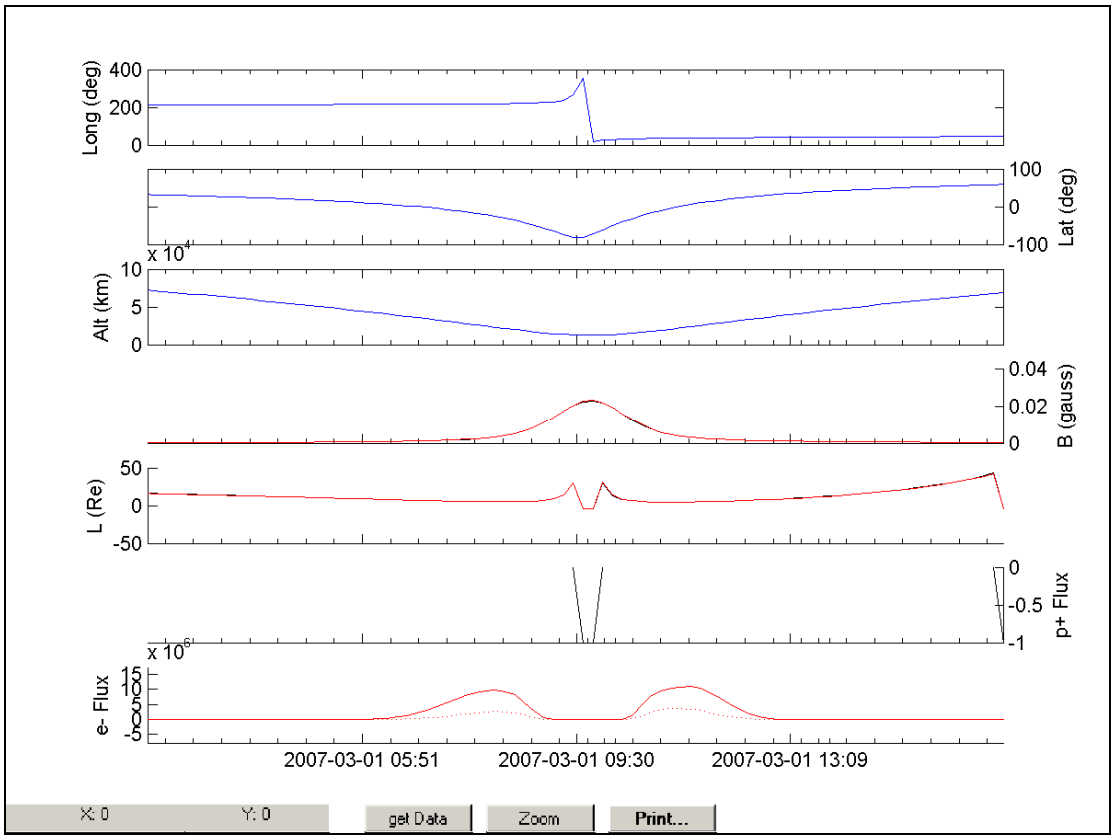


IREM Predicted Radiation Belt Passages

Rev 533



Rev 534



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

No plot is available this week. But the background was essentially low.