

INTEGRAL
Mission Report
INT-MOC-SYS-RP-1001-OPS-OF
No. 132
Week 13
04.04.05
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 26.03.05 until 01.04.05 (both dates inclusive) and covers the revolutions 300 & 301.

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 were the Crab Nebula; a PICSIT empty field (RA 07:30:00.0; DEC -40:00:00.0); the Galactic Plane; the Galactic Bulge region (RA 17:45:36.00; DEC -28:55:60.0) and the Norma Arm. The activities consisted of staring, raster and hexagonal dithering, grid and GPS observations. In addition, special hexagonal dithering and arc observations were implemented for the Crab calibration observations.

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

3 Satellite Status

3.1 Platform

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

3.1.1 AOCS

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

No slews were missed from the Timeline during this period.

The fuel consumption over the period between 24/03/2005 and 01/04/2005 was 0.1714 kg. The remaining propellant is in the order of 162.1202 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 was identified.

3.1.5 RFS

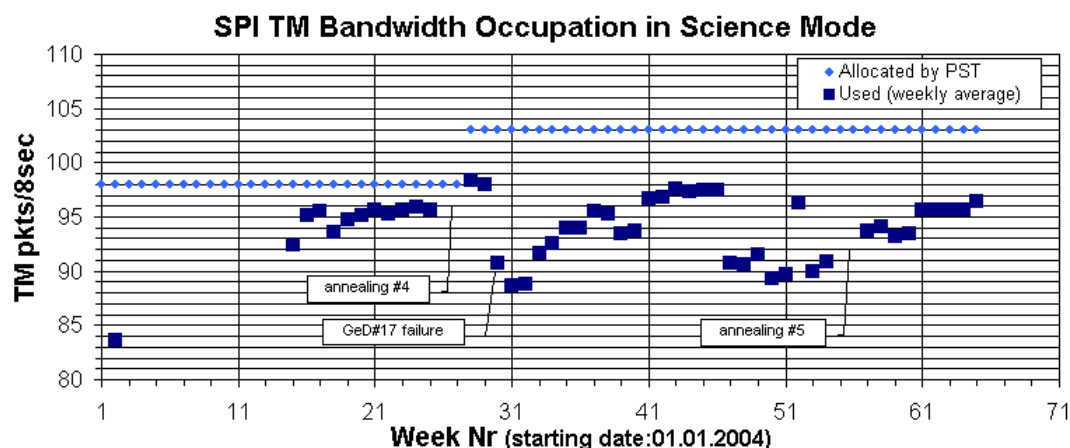
The RF subsystem is working properly. The link margin is sufficient to ensure proper TM reception and execution of commands with the ranging channel enabled.

3.2 Payload

3.2.1 SPI

The overall status of the instrument in this week is nominal.

During the reporting period, the instrument has been kept in photon-by-photon mode, with spectra TM enabled, an assigned TM bandwidth in the science observation windows of 103 pkts/cycle and an actual occupation of 96.4 pkts/cycle average. The Stirling compressors are working well, maintaining the detector cold-plate temperature within 85+/-1K.



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.

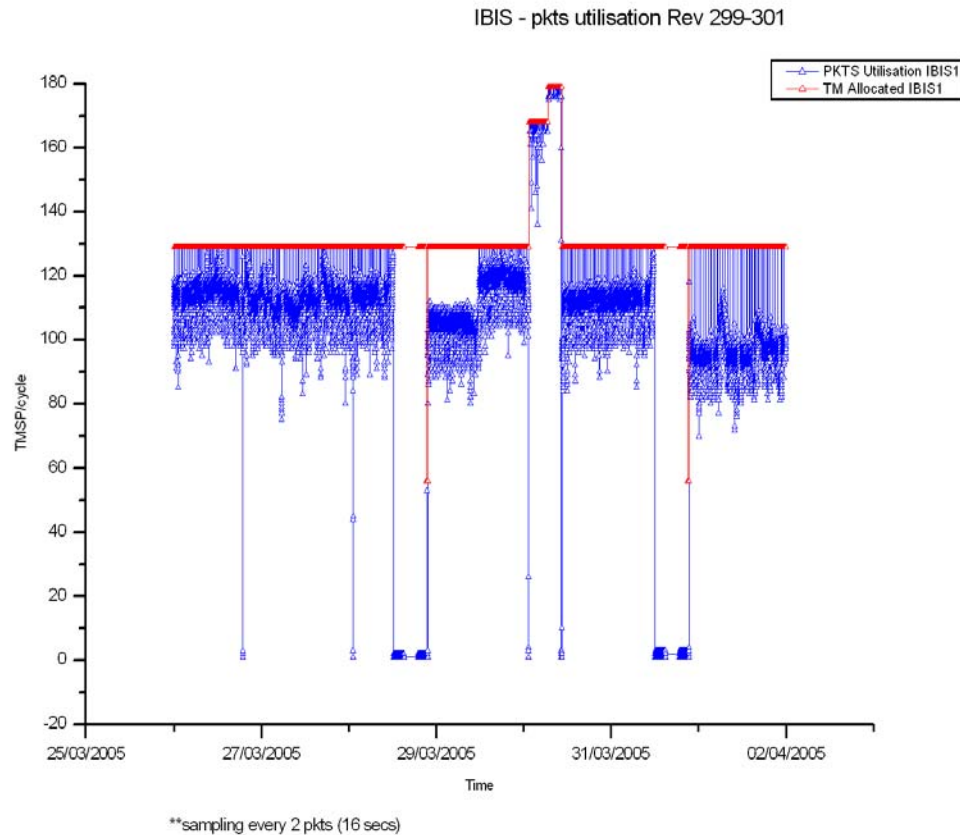
The week was characterised by low solar activity.

During the reporting period the PST allocation to IBIS was most of the time 129 TMPS/cycle.

However as the CRAB calibration took place in revolution 300, the PST allocation was modified. It was changed to 168 on March the 30th at 01:34Z for the special dither pattern around the CRAB where PICsIT was set in PPM mode. Then it was changed to 179 at 06:44Z for the staring observation in empty field where PICsIT was also in PPM mode. It was set back to 129 at 10:33Z when IBIS was back in Standard mode.

The IBIS mean bandwidth utilisation during the observation period was 113.93 TMPS/cycle, up 0.88 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 during science observations, with a TM allocation of 8 packets/cycle, except for during revolution 300 (Crab calibration) in which it had the following TM allocation:

- 2005-03-28T21:47:36Z - 2005-03-30T01:33:22Z: 5 packets/cycle
- 2005-03-30T01:33:22Z - 2005-03-30T06:43:43Z: 15 packets/cycle
- 2005-03-30T06:43:43Z - end of revolution: 5 packets/cycle

JEM-X2 was in Safe mode during revolution 299 with a TM allocation of 1 packet/cycle. In revolution 300, JEM-X2 was in Data Taking mode, with the following planned TM allocation:

- 2005-03-28T21:47:36Z - 2005-03-30T01:33:22Z: 5 packets/cycle
- 2005-03-30T01:33:22Z - 2005-03-30T06:43:43Z: 15 packets/cycle
- 2005-03-30T06:43:43Z - end of revolution: 5 packets/cycle

In line with OCR-193 the JEM-X2 DFEE was switched off on 2005-03-31 at 12:13Z, after radiation belt entry of revolution 300. During revolution 301 JEM-X2 continued in DFEE OFF state with a TM allocation of 1 packet/cycle.

Due to erroneous application of the Operational Request INT_OR_0190 (update PST manually due to SPI TM leakage problem), the PST was reprogrammed manually giving only 1 TM packet/cycle to JEM-X2 at the start of revolution 300. This prevented science TM packets from JEM-X2 from being downlinked. The problem was observed on 2005-03-29 at 04:08:13Z, initially as an Out of Limits received on TM parameter L5135 FIFO FULL LOSS. Following investigations and recovery actions, JEM-X2 was back in Data Taking mode with the planned TM allocation on 2005-03-29 by 07:50:00Z. This is recorded in Anomaly Report INT-2722 (the contents of which are reported in the JEM-X Daily Report, Section 8.3.4.3 below).

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.

During the reporting period OMC operations were performed by the automatic timeline, with the TM allocation to OMC of 5 packets/cycle, except during revolution 300, when the allocation was set to 4 packets/cycle.

There were 214 OMC pointings executed nominally, none were 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.

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

4 Ground Facilities

The performance of the Operational ground facilities was excellent this week, well above the system performance requirements, 214 pointings were executed correctly, none were lost due to ground problems.

4.1 Mission Operations Centre

The performance of the MOC was excellent this week, with no pointings lost.

4.2 Ground Stations & Network

The performance of the ground stations and Network was excellent this week. There were some occasions when some bad TM frames were received from Redu, and the

occasional problem with the links with ISDC, but apart from that nothing. The overall performance was nearly 100%.

4.3 Science Ground Segment

4.3.1 ISOC

1. Mission planning

This week planning up to revolution 306 has been performed and sent to MOC. No replanning or ToO received. In revolution 300 the dedicated calibration campaign has been carried out using the CRAB. See below. PSF's up to rev 306 have been received. TSF for rev 300 and 301 were received.

2. Observation status

The ECS's received last week plus the rev 273 received this week have been successfully processed in ISOC. Hence the corresponding OCS's have been sent to ISDC. ECS from rev 277 is still missing. No extra time credited.

3. ISOC science data archive

Work this week has concentrated on setting up the large disk arrays and getting data ingest to function properly. The set up of the large disk arrays is taking longer than originally planned. However it does not affect the work to prepare the ISDA for public access. The second main activity this week was to get the ingest to work properly. After some initial problems it is now functioning properly.

4. ISOC system

The version 10.8.1 of the ISOC system has been installed this week. It resolved a critical SPR that was detected early in the week.

5. ISOC move

Installation of ISOC applications on the recently received computers has continued. The intention is to move applications currently running on RSSD computers will move to INTEGRAL dedicated computers in ESAC.

6. Problems

The problem reported in recent weeks with unavailable science staff in ISOC is still not yet fully resolved. For one company the finalisation is still pending.

7. The CRAB calibration campaign

This week, during revolution 300, a dedicated instrument calibration has been performed. This operation includes very complicated mixed manual and automatic commanding. The information available at this time indicates that these operations have been successfully performed. The planning using the ISOC software also contained new and critical elements. For the first time it has been possible from ISOC to define pointing any of the instruments or the star tracker to a desired target. In the past the SPI instrument was always pointed to the desired target. First indications from IBIS are that the IBIS instrument was now pointed exactly as desired. From JEM-X it is not known yet if the misalignment for these instruments worked correctly. Further results will follow.

4.3.2 ISDC

Status of ISDC observation processing on 04/04/2005:

- Latest Standard Analysis completed: observation 02297000013 (CAS A, Revolution 261-269) on 20/03/2005
- Latest products archived: observation 02297000013 (CAS A, Revolution 261-269) on 23/03/2005
- Latest observation products sent to the observer: observation 02297000015 (Abell 2256, Revolution 257) on 20/02/2005

5 Special Events

6 Anomalies

There were a number of problems that impacted the operations:

- On DoY 087, at 00:13, the link ISDS-ISDC disconnected, after investigation, and twice stopping and restarting the IFRD and ISDS-A, the link was restored at 00:59, there was no impact.
- On DoY 088, at 16:09, there was a drop in the TM link from Redu for a few seconds, at this time some bad frames were received. There was no impact.
- On DoY 089, at 19:18, 19:38, 20:07, 21:59 and 23:53 there were short TM data drops from Redu. There was no impact.
- On DoY 090, at 00:38, 01:25, 01:43, 03:51, 04:18, 04:46 and 04:50 there were short TM data drops from Redu. At 05:12, Network removed and replaced the ISDN line, which seemed to cure the problem of the unstable link. There was no impact.
- At 08:27, after the firewall was rebooted, there was an error sending data to the ISDC. The ISDS-A was restarted, and at 08:53, the data was again flowing.
- On DoY 091, at 07:00, ISDC informed that no OLF files had been received since ~01:00, these were resent at 07:30, there was no impact.

The following new anomaly reports were entered into the ARTS system.

AR id	Date Created	Subject	Segment	Status
INT_SC-116	30/03/2005	JEM-X2 DFEE CRC Anomaly following DFEE switch-on	Payload	Open
INT-2722	30/03/2005	JEM-X2 Science Data not down-linked due to incorrect PST	IMCS	Open

7 Future Milestones

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Upgrade of the NCTRS (Network Controller and Telemetry Router System) for Integral to release 9.1.4. This will cure some known problems with the current release and is also compatible with TCP IP communications to ESA Stations as well as X25. The upgrade is currently planned to take place in April.

Upgrade of the IMCS, to use S2K release 3.1, a major update of the MCS is currently undergoing acceptance testing. A date for installation on the operational machines has not yet been decided.

Change of communication protocol to ESA Station from X25 to TCP IP, testing of this change will start in April. It will be used operationally only once testing is complete and the operational machines have been upgraded with the latest versions of the NCTRS and MCS.

8 Appendix

The appendix includes various detailed information.

8.1 Overview of Revolutions

Revolution 300

In revolution 300 various Crab calibration observations were performed, as follows:

- Staring observation with the Crab 14.5 degrees offset along the IBIS y-axis (RA 05:39:52.90; DEC +07:34:18.5) lasting ~14 hours. All instruments were in their nominal science modes and the TM allocation was IBIS 129; SPI 103; JEM-X1 5; JEM-X2 5; OMC 4.
- Raster dithering observation centred on the Crab (RA 05:22:10.54; DEC +17:09:27.8) lasting ~13 hours. All instruments were in their nominal science modes and the TM allocation was IBIS 129; SPI 103; JEM-X1 5; JEM-X2 5; OMC 4.
- Special narrow hexagonal dithering observation for JEM-X, centred on the Crab (RA 05:34:31.92; DEC +22:00:50.4) and lasting ~4 hours. For this observation IBIS was in Photon by Photon mode with a special configuration as specified in OCR-194 and SPI was in a special configuration as specified in OCR-192. Both JEM-X units were in their nominal science modes and OMC was in Standby mode. The TM allocation was IBIS 168; SPI 44; JEM-X1 15; JEM-X2 15; OMC 4.
- Staring observation of a PICSIT empty field (RA 07:30:00.0; DEC -40:00:00.0) lasting ~3 hours. For this observation IBIS was in Photon-by-Photon mode with a special configuration as specified in OCR-194 and SPI was in a special configuration as specified in OCR-192. Both JEM-X units and OMC were in their nominal science modes and the TM allocation was IBIS 179; SPI 53; JEM-X1 5; JEM-X2 5; OMC 4.
- Special observation consisting of a series of pointings forming a circle with a 10 degree radius around the Crab, lasting in total ~25 hours. All instruments were in their nominal science modes and the TM allocation was IBIS 129; SPI 103; JEM-X1 5; JEM-X2 5; OMC 4.

Revolution 301

The observations in revolution 301 began with a series of GPS observations lasting in total ~27 hours, followed by a hexagonal dithering observation of the Galactic Bulge region (RA 17:45:36.00; DEC -28:55:60.0) lasting ~3.5 hours. GPS observations were then continued for ~7 hours, after which a grid observation of the Norma Arm of the Galaxy was performed for the remaining ~23 hours of observation time.

Throughout these observations all instruments were in their nominal science modes, except for JEM-X2 for which the DFEE was off, and the TM allocation was IBIS 129; SPI 103; JEM-X1 8; JEM-X2 1; OMC 5.

8.2 Consumables

8.2.1 Detailed Fuel Book-keeping

2005-03-10T21:01:24.000Z 162.4308 F Automatic TM processing.

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2005-03-12T07:19:36.000Z	162.4147	F	Automatic TM processing.
2005-03-13T14:33:39.000Z	162.4016	F	Automatic TM processing.
2005-03-13T20:48:36.000Z	162.3678	F	Automatic TM processing.
2005-03-16T20:35:23.000Z	162.3582	F	Automatic TM processing.
2005-03-18T06:41:35.000Z	162.3375	F	Automatic TM processing.
2005-03-21T06:30:23.000Z	162.3166	F	Automatic TM processing.
2005-03-22T20:06:11.000Z	162.3115	F	Automatic TM processing.
2005-03-24T06:27:42.000Z	162.2916	F	Automatic TM processing.
2005-03-25T19:57:14.000Z	162.2822	F	Automatic TM processing.
2005-03-27T06:19:26.000Z	162.2234	F	Automatic TM processing.
2005-03-28T19:45:23.000Z	162.2112	F	Automatic TM processing.
2005-03-30T05:51:50.000Z	162.1765	F	Automatic TM processing.
2005-03-31T19:27:14.000Z	162.1670	F	Automatic TM processing.
2005-04-01T04:22:03.000Z	162.1202	F	Automatic TM processing.

This report was generated Fri Apr 1 08:00:21 GMT 2005

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 26/03/2005-01/04/2005

AOCS operations were executed from the Automatic Timeline.

During this period, 103 Open Loop Slews, 144 Closed Loop Slews and 5 Momentum Bias were executed. No slews were missed.

26/03/05 (Day of Year 085, Revolution 299)

Nothing to report

27/03/05 (Day of Year 086, Revolution 299)

Nothing to report

28/03/05 (Day of Year 087, Revolution 299-300)

Nothing to report

29/03/05 (Day of Year 088, Revolution 300)

Nothing to report

30/03/05 (Day of Year 089, Revolution 300)

Nothing to report.

31/03/05 (Day of Year 090, Revolution 300-301)

Nothing to report

01/04/05 (Day of Year 091, Revolution 301)

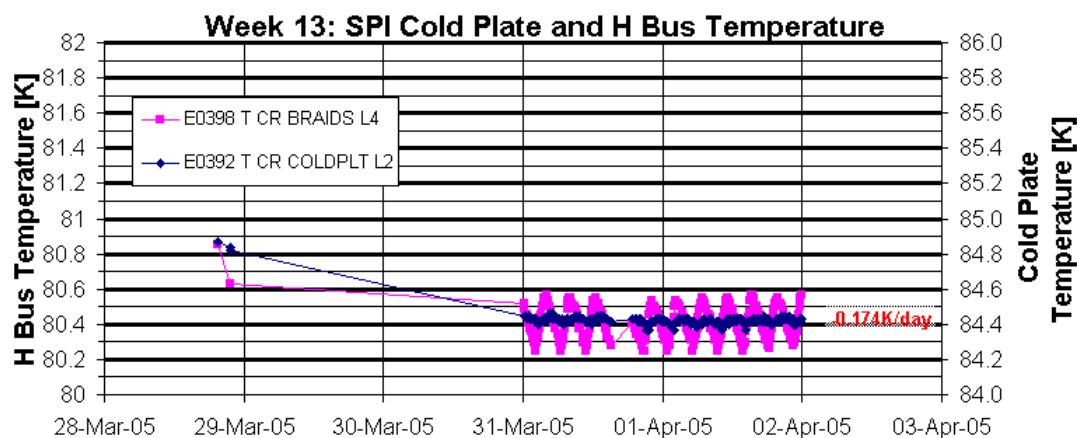
Nothing to report.

8.3.2 SPI Operations

Stirling compressors and Cryostat:

The performance of the compressors is nominal. The cold plate temperature was maintained at 85K $\pm$ 1K over the reporting period. Due to the accumulated effects of the temperature drift, the stroke had to be adjusted from 4x37dec raw to 4x38 dec raw on 27th March at 18:45z.

The following plot shows the evolution of the cold-plate and H bus temperatures during the reporting period (NOTE: due to problems in the data retrieval system the plot is affected by large gaps).

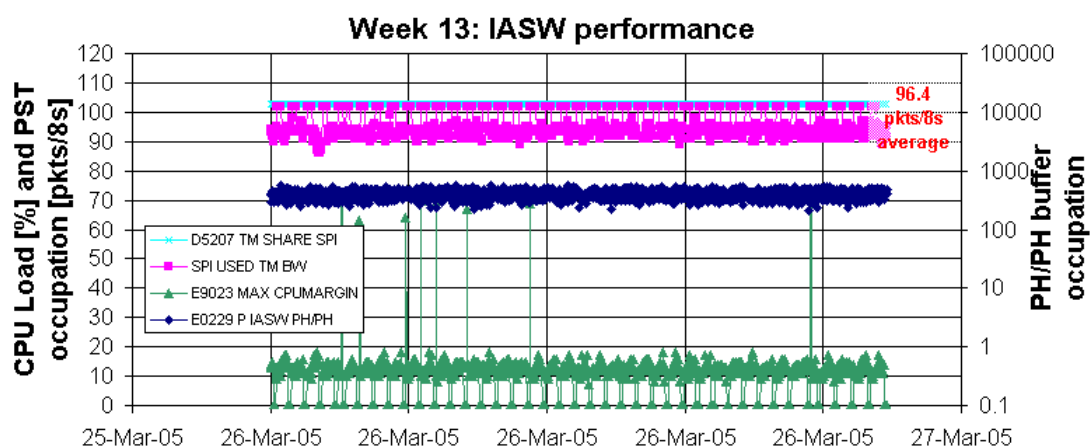


DPE & IASW:

The IASW performance is nominal. The PST TM bandwidth allocation was 103 pkts/cycle in the science windows; the actual TM bandwidth usage is: 103 pkts/cycle peak (96 since 28th March see explanation here after); 96.4 pkts/cycle average in science mode.

The temporary workaround (OR INT_OR_0190) to the TM leakage anomaly (AR INT_SC-107) has been suspended on 28th March due to operational problems in implementing it every rev. Since that date, the effective allocated pkts is therefore 96 (due to the anomaly). This affects the accumulation/downlink of the TM spectra data, which is now reduced to a few minutes per pointing (during hex dithering pointings). A software patch is in preparation to fix both the TM leakage malfunction and the missed ACS HV switch off at belts entry malfunction (INT_SC-115).

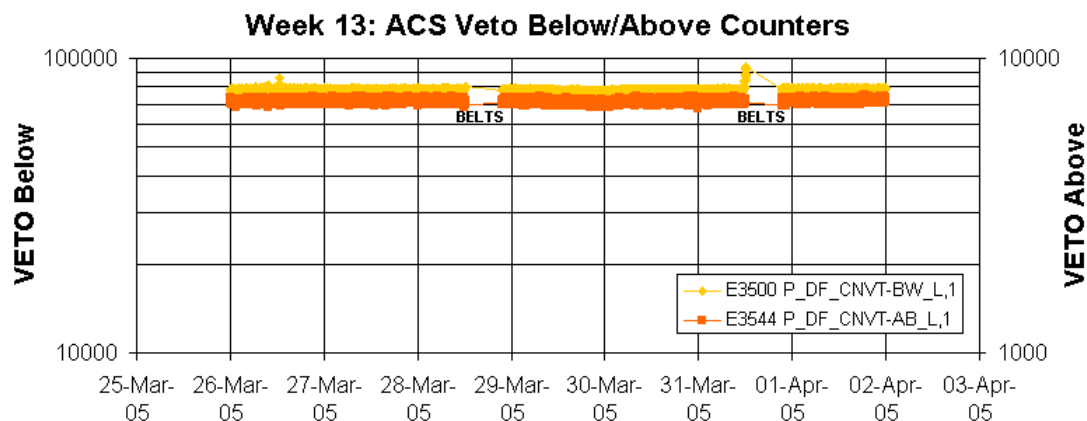
The following plot shows the IASW performance in terms of TM bandwidth, event buffer occupation and DPE CPU load during the reporting period (NOTE: due to problems in the data retrieval system the plot is relevant only to day 26th March).



ACS:

The performance of the ACS is nominal.

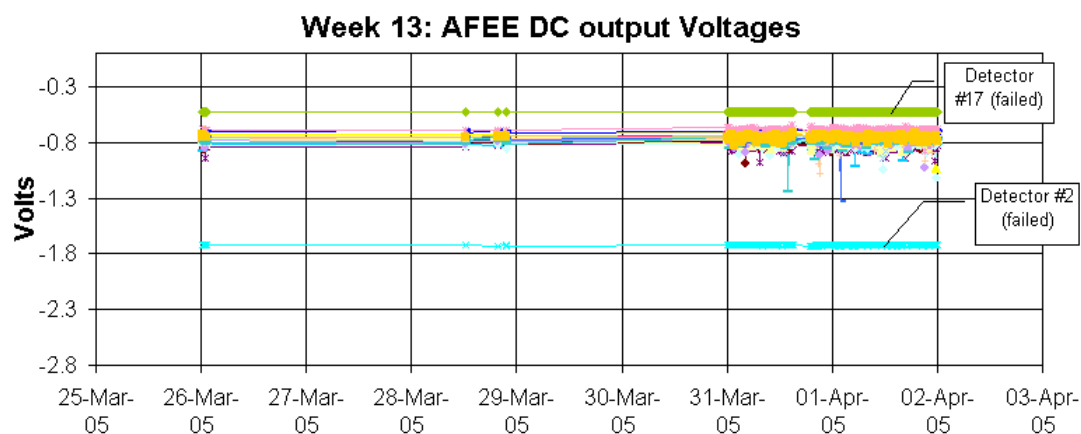
The following plot shows the ACS overall count rate evolution during the reporting period.



AFEE and Germanium Detectors:

The performance of the detectors is nominal except for the detector #2, failed since 06.12.2003, and detector #17, failed since 17.07.2004.

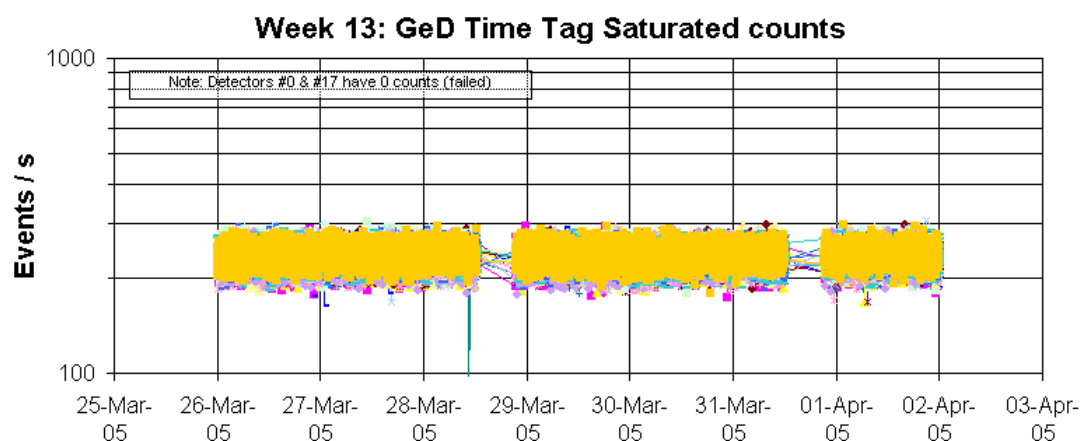
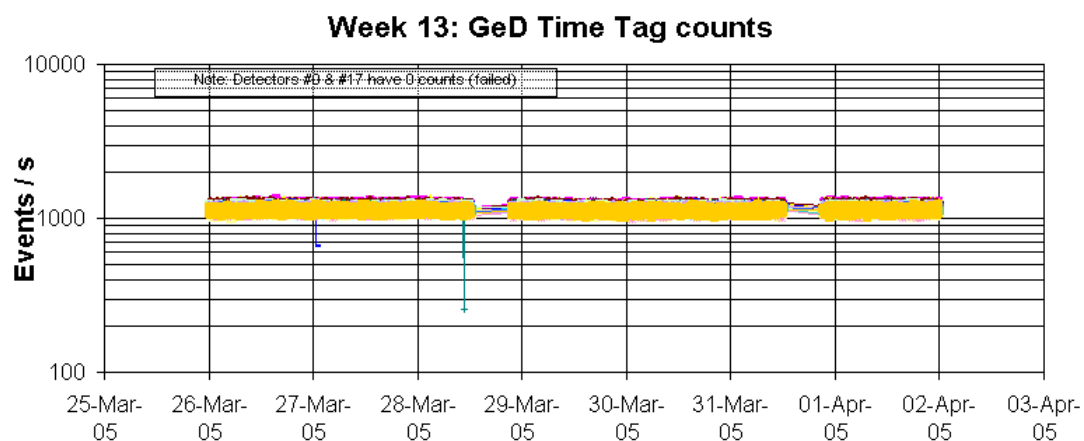
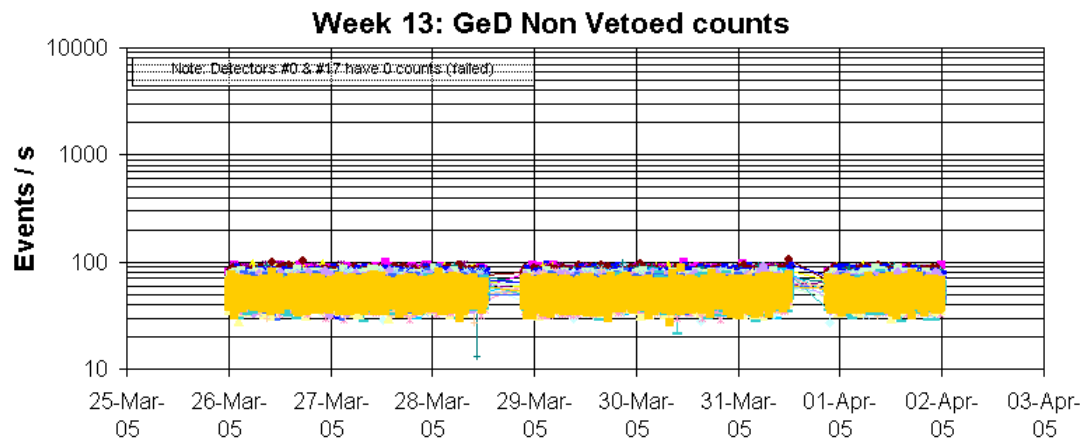
The following plot shows the AFEE dc output signals during the reporting period (NOTE: due to problems in the data retrieval system the plot is affected by large gaps).



DFEE:

The performance of the unit is nominal.

The following plot shows the Non Vetoeed event rates, processed by the DFEE during the reporting period. The count rate of each detector is within the expected range, except for the failed detector #2 and #17.

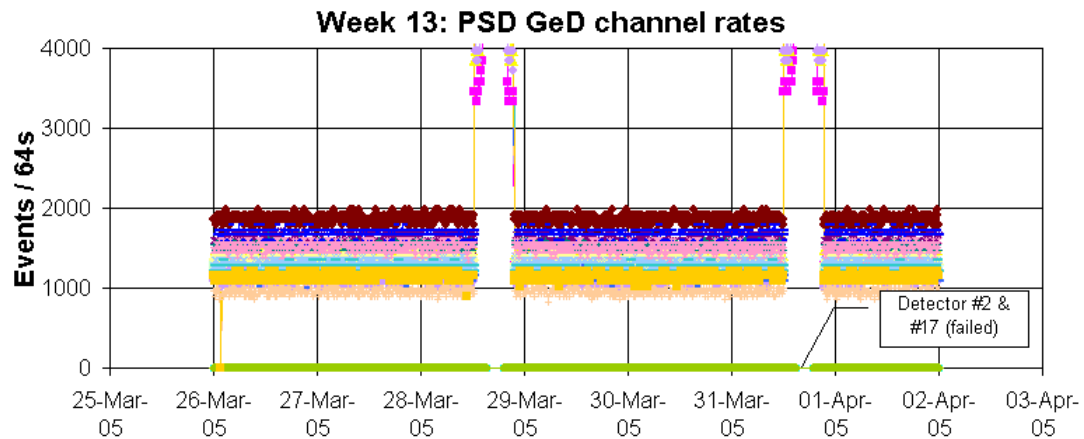


PSD:

The performance of the unit is nominal.

Following the execution of OCR#191 (PSD input channels #2 and #17 disable), executed at belts entry of rev.290), the channel rates blocking malfunction did not appear again. It was therefore decided to keep this setting.

The following plot shows the PSD channel rates during the reporting period.



SPI DAILY EVENTS

NOTE: The events log is extracted from the revolution pass summary.

DOY Time	Event
085 - 19:03	Man. PST update, INT OR 0190
086 - 15:05	TM: E0392 OOL, back in limits @ 15:16
086 - 18:38	TM: E0392 OOL, back in limits @ 19:00
086 - 18:45	SPI stroke increase to 38, INT OR 0116
087 - 01:24	Man. PST update, INT_OR_0190 - Should have not be uplinked!
087 - 21:52	Man. PST update, INT_OR_0190 - correct one (SPI has only 96 pkts/cycle effective allocation, from now on)
088 - 18:32	TM P2016 OOL, back in limits @ 18:32
089 - 16:41	TM E1296 OOL, back in limits @ 16:41

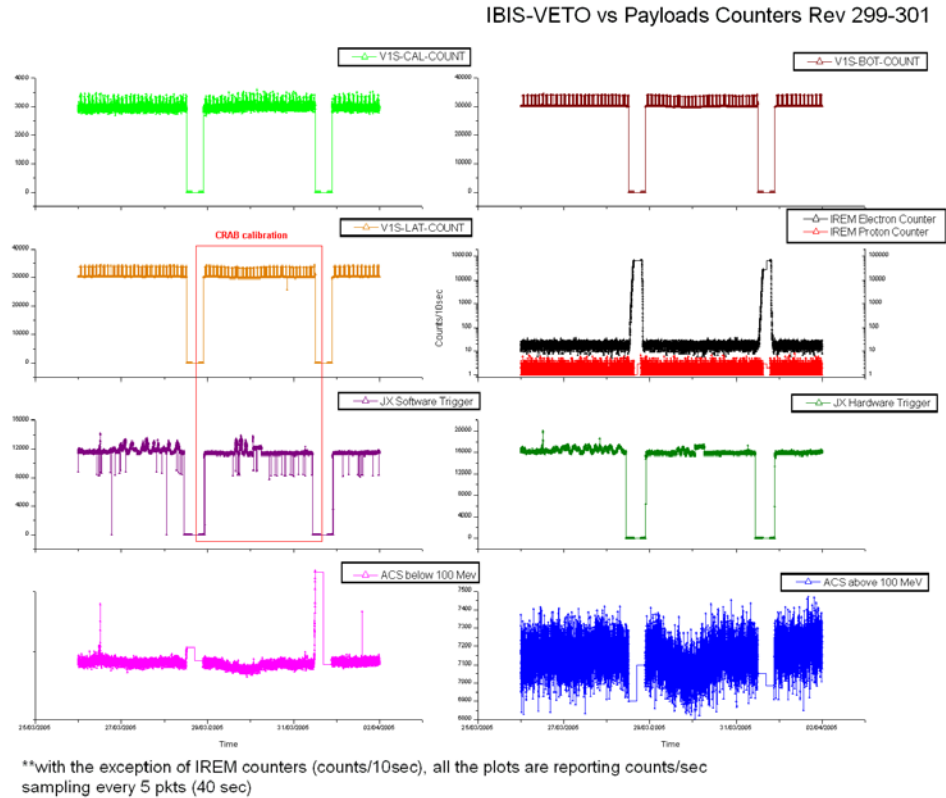
8.3.3 IBIS Operations

IBIS Events Counters Plots.

ISGRI Counters:

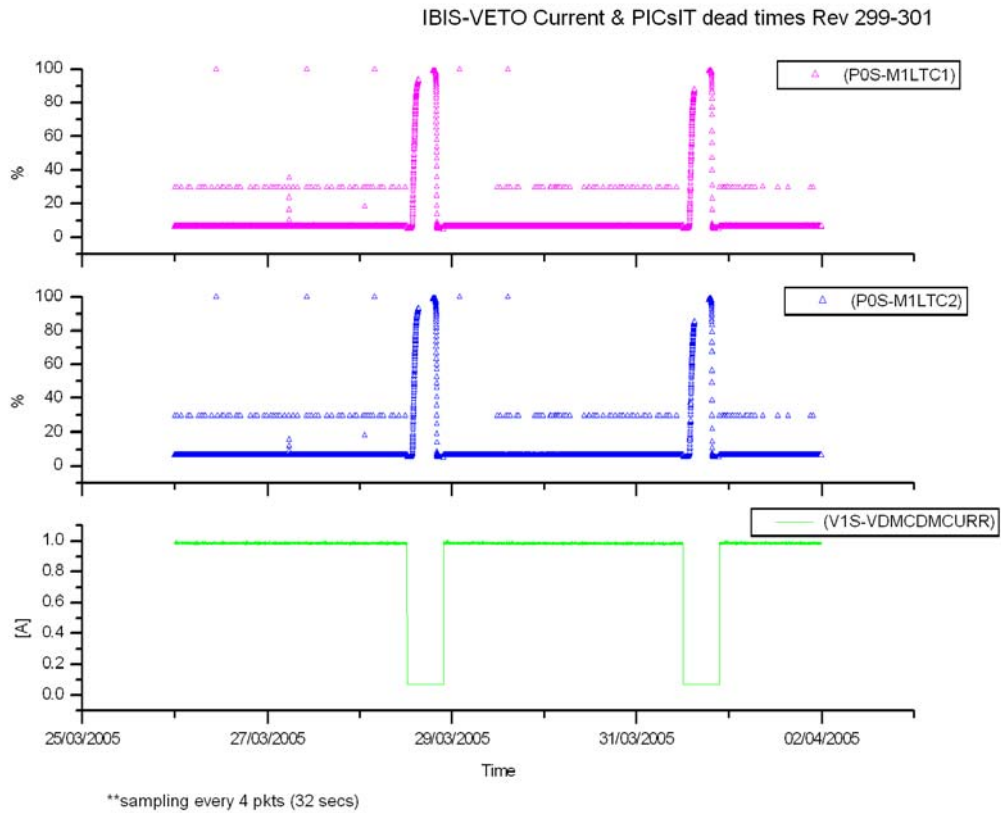


VETO vs Payloads Counters:

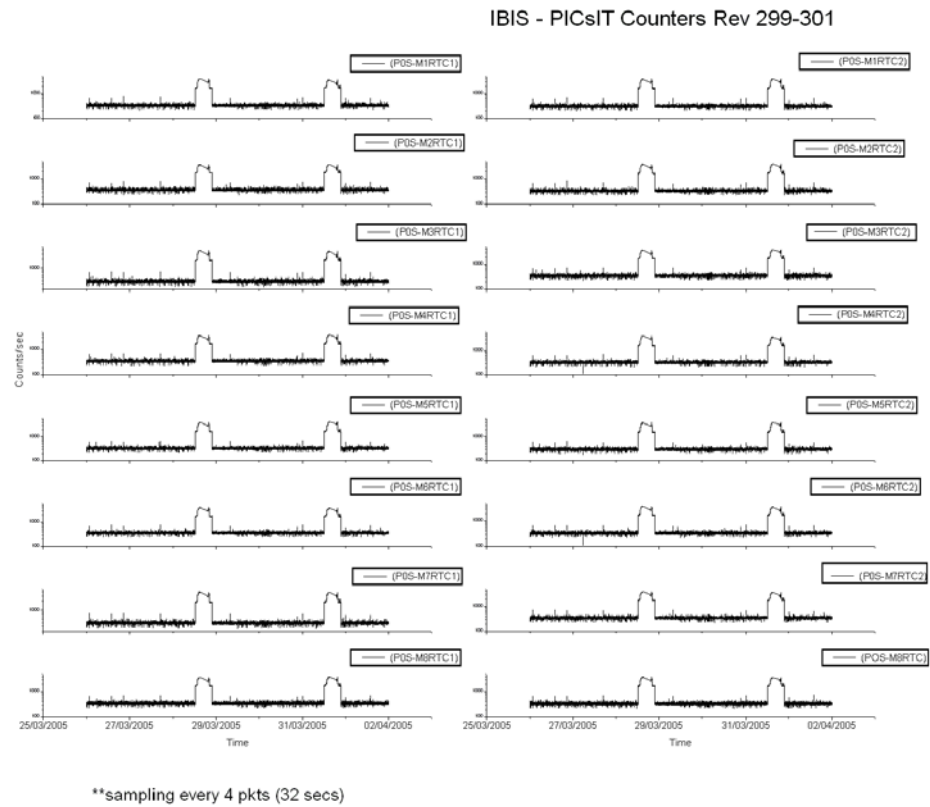


The week was characterised by low solar activity. The high count-rates reported by some payloads are due to the on-going CRAB calibration.

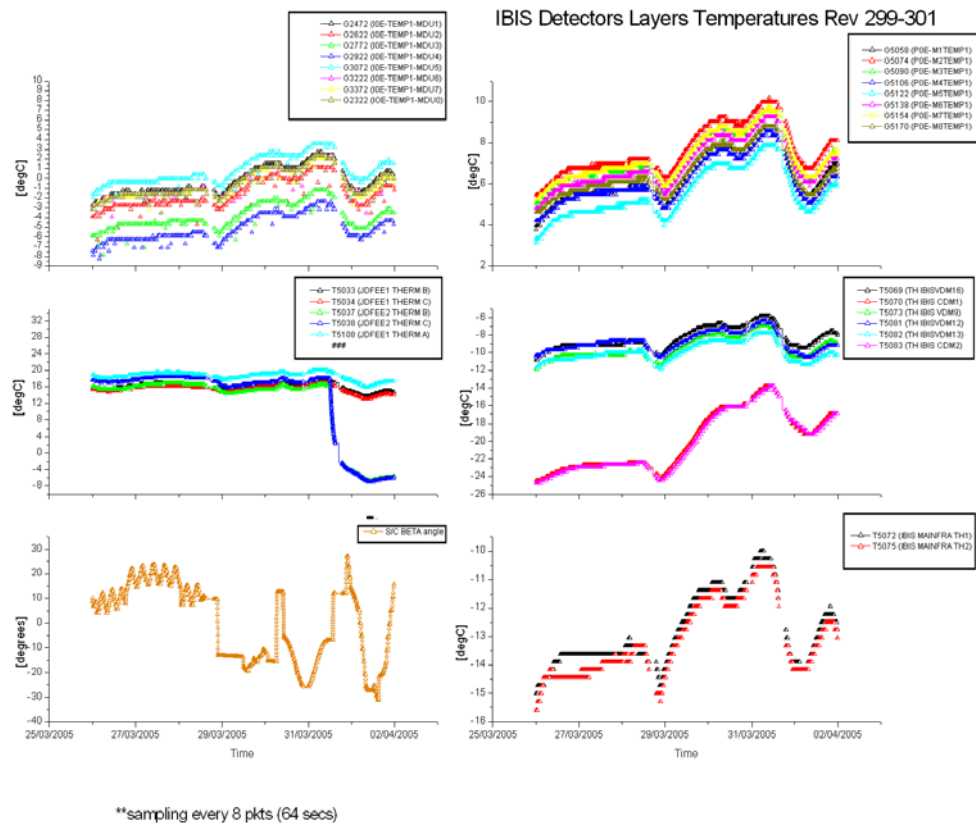
VETO Current:



PICsIT Counters:



IBIS Detectors Layers Temperatures:



It can be noted that T5038 (JDFEE 2 thermistor C) features a drop on the 31st. Actually this is because JEM-X2 DFEE was ON from March 24th to 31st for the CRAB calibration.

IBIS daily report:

DoY 2005.085 (26/03/2005)

Nothing to report.

DoY 2005.086 (27/03/2005)

At 05:35Z, G5068 family (POS_MiF1ERRF) and G5072 family (POS-MiF2ERRF) failed status consistency check. They went back into limits very fast, so no action was taken.

DoY 2005.087 (28/03/2005)

Nothing to report.

DoY 2005.088 (29/03/2005)

Nothing to report.

DoY 2005.089 (30/03/2005)

The CRAB calibration took place in revolution 300 (from 2005.087 to 2005.090). In order to complete the information for a future implementation of an algorithm for PICsIT removal of high-energy tracks in the low energy channels, an IBIS special configuration in PPM (Photon by Photon Mode) was requested, by IBIS PIs, along the Crab Calibration, for the following observations:

- 1) Narrow dither centered on the Crab;
- 2) PICsIT staring empty field.

The Special settings implemented, were:

- S2, S3 and S5 packets disabled;
- S1 data production reduced via the ISGRI Rise Time upper threshold;
- specific energy selected for PICsIT PPM;
- specific TM priority set for S1 and S4 packets.

Following INT_OR_0202 (CRAB calibration OR), on March 30th at 01:15Z IBIS s/s was disabled in the timeline, and the sequence IBIS_CRAB300305_PPM_CONFIG.sun121 was uplinked to the spacecraft. This sequence mainly consists of setting IBIS into Stand-by mode, discarding all histograms, setting the PPM table and switching IBIS into PPM mode.

At 10:15Z IBIS was enabled and the interlock was reset. At 10:27Z, the sequence IBIS_CRAB_300305_PPM_EXIT_CONFIG.sun121 was uplinked. TC G0817 failed release, but was immediately resent and accepted. This sequence put back IBIS in Standard mode with ISGRI Rise Time upper threshold, PICsIT PPM energy thresholds and TM priority back to nominal. It can be noticed that the PPM table was not set back to nominal but left in the new configuration set up for this CRAB calibration.

IBIS was put back in Science mode by the event designator GESTAN02 at 10:31Z.

DoY 2005.090 (31/03/2005)

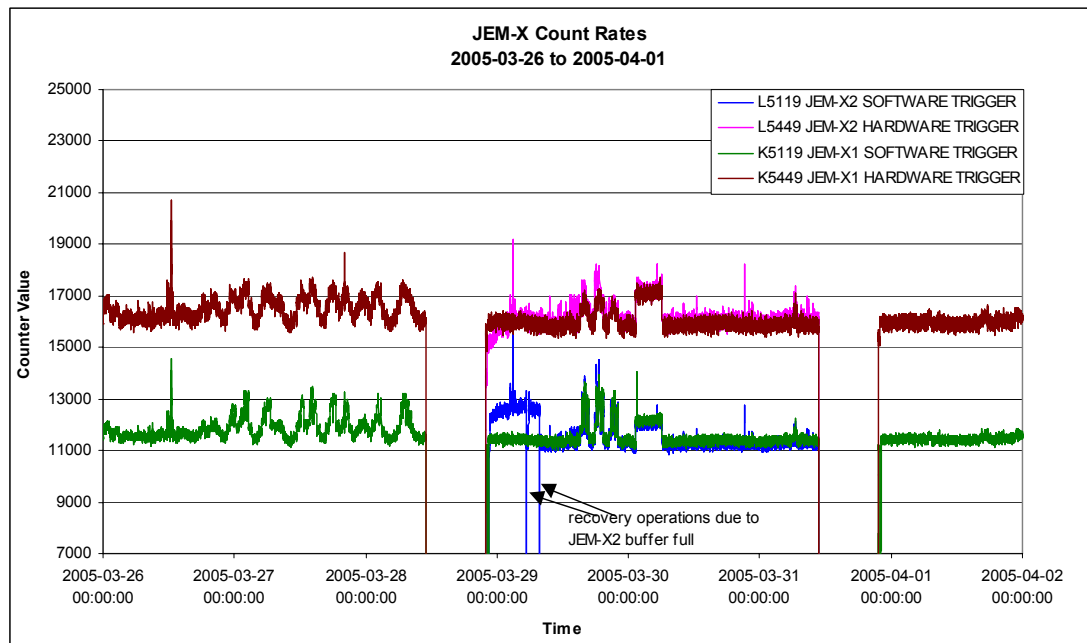
Nothing to report.

8.3.4 JEM-X Operations

8.3.4.1 JEM-X Count Rates

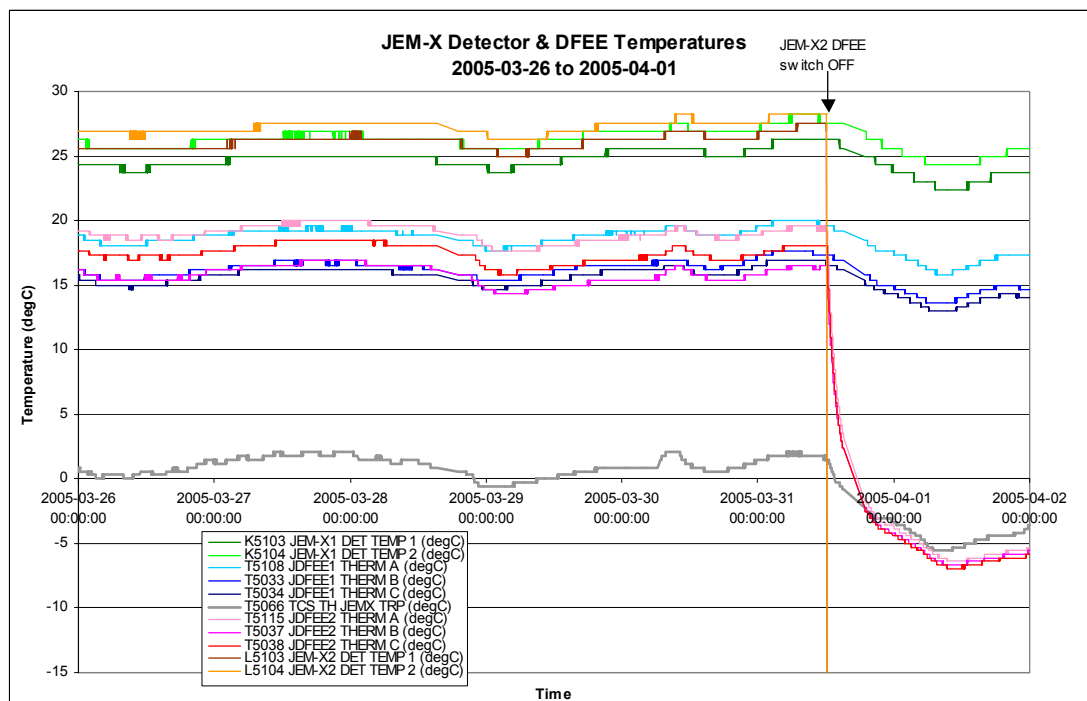
JEM-X count rates over the reporting period are displayed in the following graph¹.

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



8.3.4.2 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.



8.3.4.3 JEM-X Daily Report

² Data sampled (1 frame in 8)

2005-03-26 (DOY 085, Rev 299) to 2005-03-28 (DOY 087, Rev 299-300)

Nothing to report

2005-03-29 (DOY 088, Rev 300)

At 04:08:13Z the TM parameter L5135 FIFO FULL LOSS went out of limits high (value = 398), indicating that the JEM-X2 FIFO Buffer was full and thus events were being rejected. As this out of limits persisted for a considerable time (> 30 minutes) it was decided in consultation with the JEM-X PI to command the transition to Setup mode and back to Data Taking as an initial recovery action to clear the JEM-X2 buffers. Thus the ED LEDATA01 was uplinked at 05:21:54Z.

Following this, the TM parameter L5135 returned within limits. However, monitoring of JEM-X2 indicated that the DPE buffer was filling up again rapidly (TM parameter L5371 AMOUNT OF EVENTS) and the grey filter (TM parameter L5402 COM GREY FILTER) was 0, i.e. maximum filtering out of events, by 05:55:41Z. In addition, ISDC reported that no science data was being received.

Further investigation revealed that this was due to the fact that JEM-X2 only had 1 TM slot allocated in the Polling Sequence Table, instead of 5 TM slots as had been planned in the Timeline, thus JEM-X2 did not have sufficient TM allocation to downlink the science TM. This was because the PST had been reprogrammed manually via the erroneous execution of INT_OR_0190 (update PST manually due to SPI TM leakage problem).

At 07:46:24Z the PST ED from the Timeline was re-uplinked, setting the TM allocation to that planned in the Timeline for the ongoing observation (5 TM packets/cycle to JEM-X2) and at 07:50:00Z the ED LEDATA01 was re-uplinked, in order to commence Data Taking mode afresh (clearing the JEM-X2 buffers and resetting the grey filter to 31).

JEM-X2 operations then continued nominally, with nominal filling levels of the DPE buffer.

2005-03-30 (DOY 089, Rev 300)

Nothing to report

2005-03-31 (DOY 090, Rev 300-301)

In line with OCR-193, the JEM-X2 DFEE was switched off after radiation belt entry of revolution 300. The activities were performed according to INT_OR_0201, as follows:

- 12:09Z Procedure FCP_JEM2_9010 JEM-X2 DFEE SWITCH OFF started. As this switch-off was done inside the radiation belts, the first step in the procedure was to execute procedure FCP_JEM2_0120 to disable JEM-X2 reactions to the Broadcast Packet radiation belt entry/exit times.
- 12:13Z JEM-X2 DFEE switched off.

- 12:18Z Procedure FCP_JEM2_9010 JEM-X2 DFEE SWITCH OFF completed, with JEM-X2 reactions to Broadcast Packet radiation belt entry/exit times re-enabled via FCP_JEM2_0120.

2005-04-01 (DOY 091, Rev 301)

Nothing to report

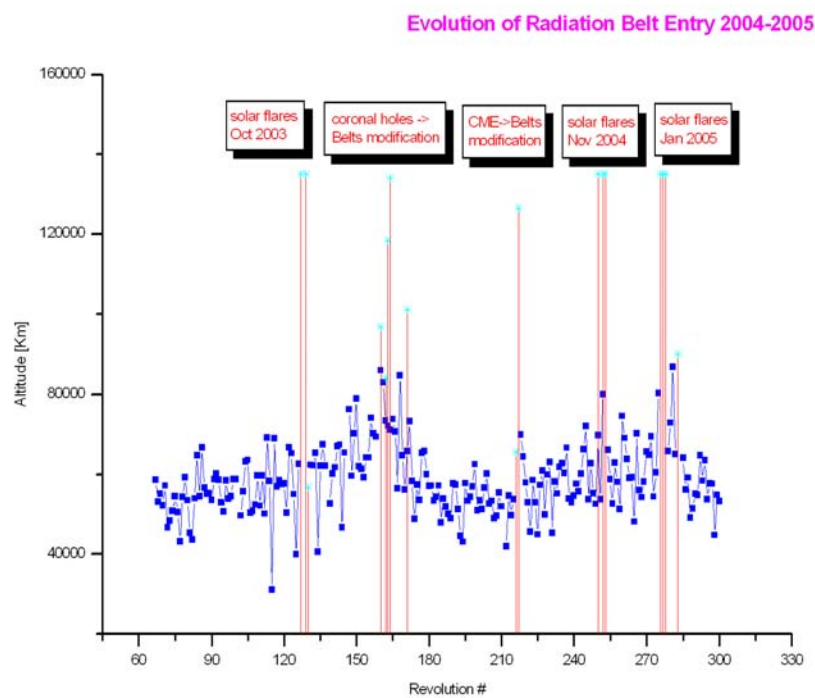
8.3.5 OMC Operations

Nothing to report

On DoY 087 at 12:20:22 and DoY 090 at 12:05:59, OMC was switched by the Timeline to SAFE mode, at the nominal time.

8.3.6 IREM Operations

Radiation Belts Entry



IREM daily report

DoY 2005.087 (28/03/2005)

At 19:39Z the IREM TC U4920 (INT GND LINK ON) failed completion. However, the execution of the TC was verified against the relevant TM parameter (U9903) using the monitoring task, 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]
299	RAD_ENTR R 2005-03-28T12:20:00Z	2005-03-28 13:00:46	54878.4	2005-03-28 13:06:19	53550
300	RAD_EXIT R 2005-03-28T21:30:55Z	2005-03-28 20:12:22	>24877.0	2005-03-28 20:16:19	28459
300	RAD_ENTR R 2005-03-31T12:05:40Z	2005-03-31 13:00:54	<53277.5	2005-03-31 12:22:43	51700
301	RAD_EXIT R 2005-03-31T21:16:41Z	2005-03-31 20:02:06	>>24877.1	2005-03-31 19:22:43	28860

Reference

Very small error vs reference (less than 10 minutes)

Small error vs reference (between 10 and 30 minutes)

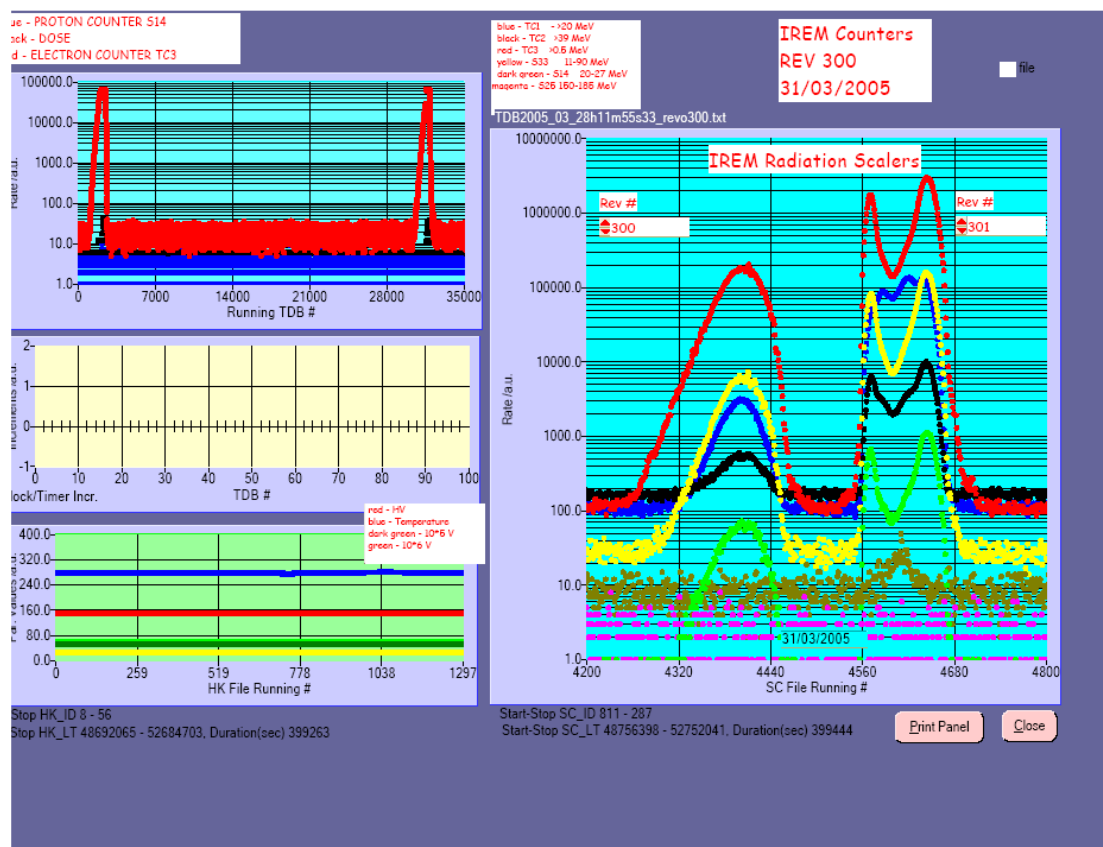
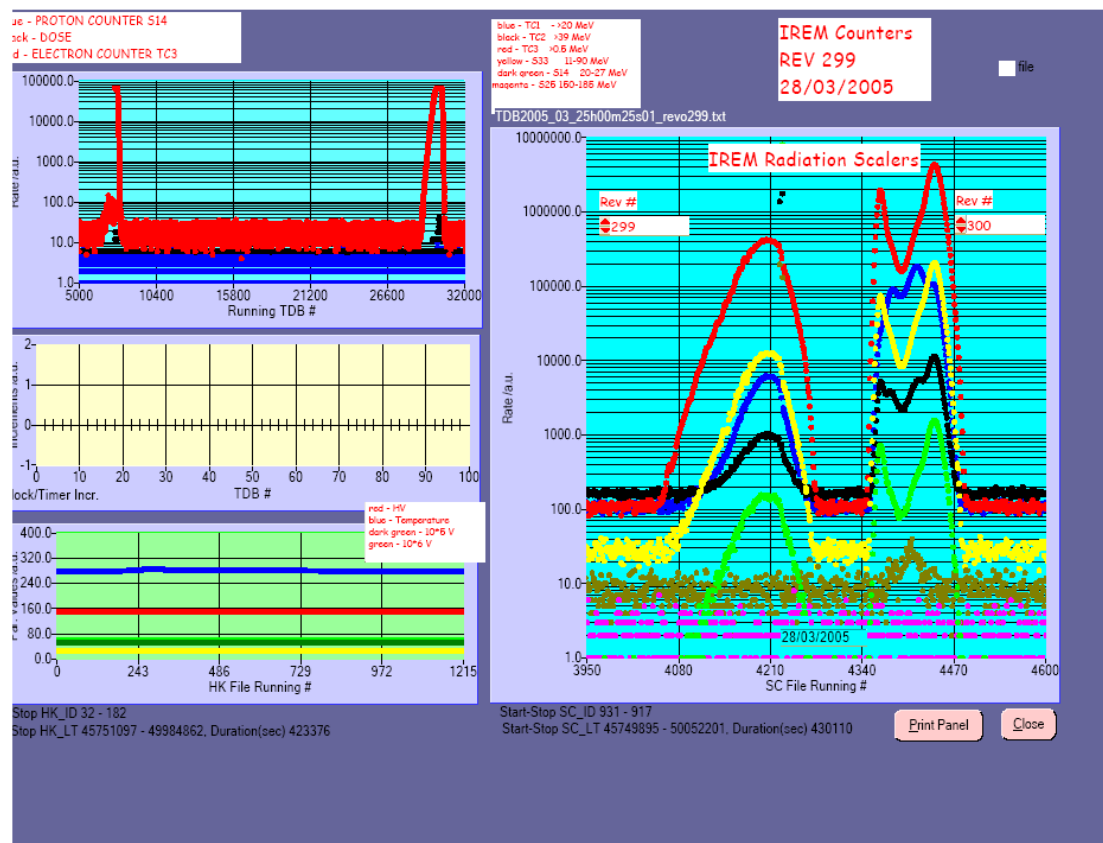
Large error vs reference (more than 30 minutes)

Radiation Spike

Proton Belts

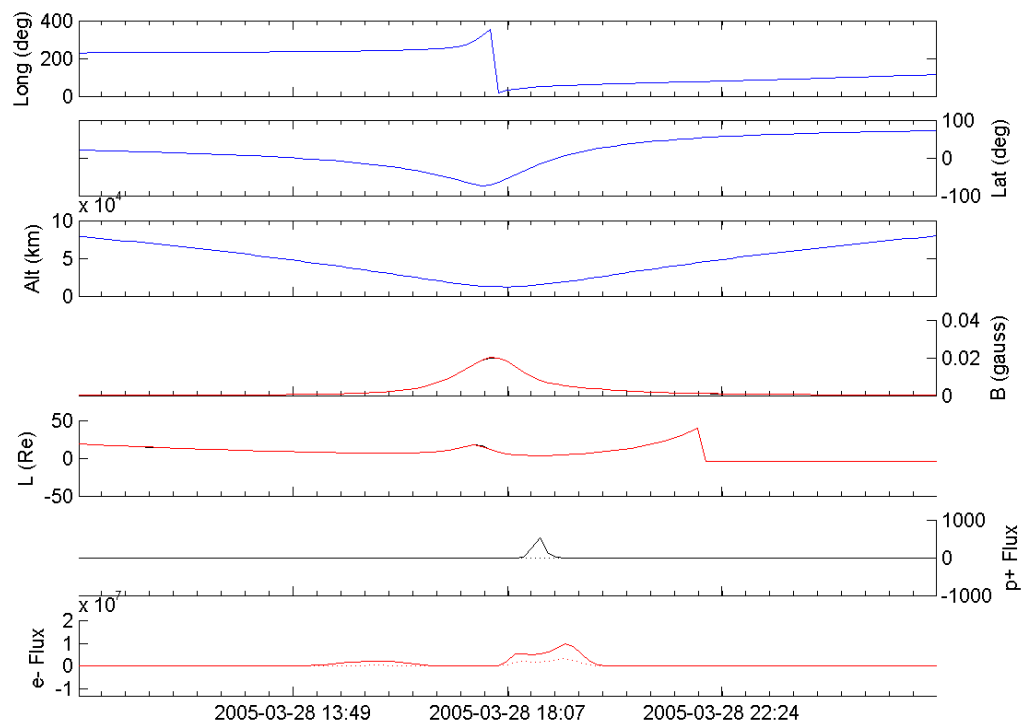
The flux of protons >8MEV computed by RadMon, did not exceed the threshold. Therefore, no predicted proton cut-off is provided for this week.

IREM radiation counters



IREM Predicted Radiation Belt Passages.

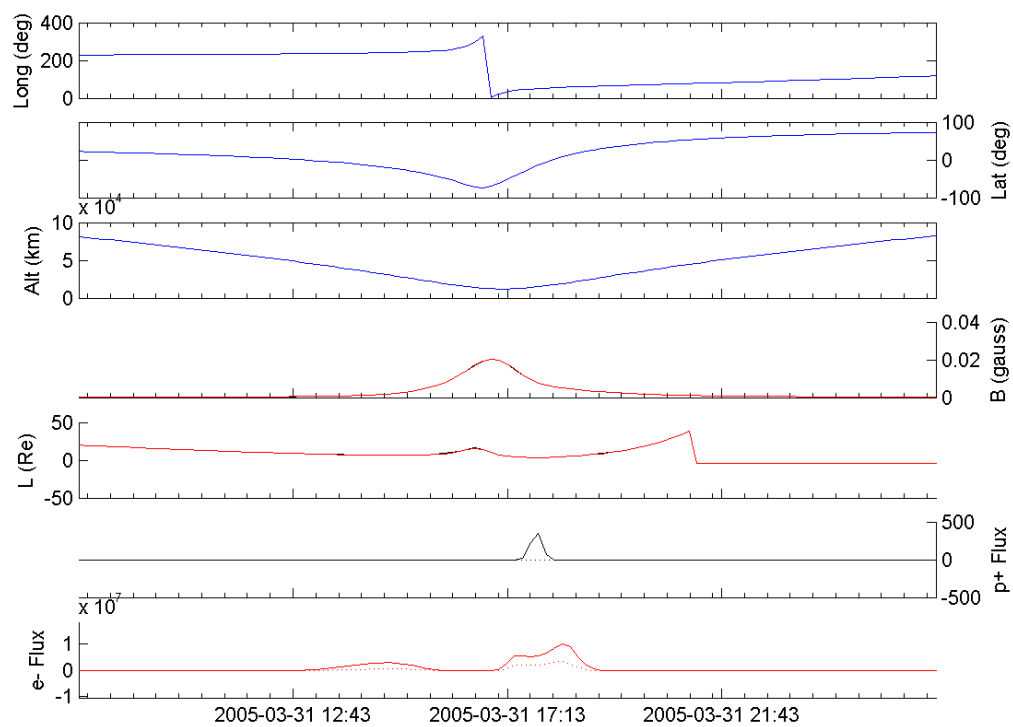
Rev 299



efil.m

7 KB

Rev 300



X: 0

Y: 0

get Data

Zoom

Print...

SEC-GOES Observed Particles Fluxes.

