

INTEGRAL
Mission Report
INT-MOC-SYS-RP-1001-TOS-OF
No. 036
Week 22
02.06.03
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.

It addresses the activities from 24.05.03 until 30.05.03 (both dates inclusive) and covers the revolutions 75 and 76.

2 Summary of Activities

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

The targets of the observations included NGC 4151 (RA 12:10:32.58; DEC +39:24:20.6), the galactic plane and 1E1145.1-6141 (RA 11:47:28.60; DEC -61:57:14.0). The activities consisted of staring, GPS and raster dithering 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 unexpected behaviour / malfunction was identified.

3.1.1 AOCS

The main events of this week were two occurrences of the STR 1750 Processor Fault. In both cases the fault happened during mappings, which were commanded after a Close Loop Slew, and when processing the ESW with Guide Star. Each time an automatic mapping was performed after the reset and a new guide star was found.

During this period we also had two cases of release of Guide Star when the ACC threshold of the STR SEU Filter was exceeded. The first case happened during a perigee passage and the second case happened during a high radiation level period when two of the instruments were also in SAFE mode due to this high radiation level.

A few slews were missed due to problems at the Goldstone ground station.

The fuel consumption over the period between 21/05/2003 and 28/05/2003 was 0.112 Kg. The remaining propellant is in the order of 177.26 Kg on the 28th of May.

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

3.1.2 Power

The power subsystem is working as specified. The available power is in the order of 2380 W as since the beginning of the mission, i.e. no degradation has been identified so far.

Note:

The satellite has been exposed to some high radiation for a couple of days. A detailed analysis of a possible degradation is still to be performed.

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 identified.

The ratio of VC0 and VC7 CLCW data has changed after the load of the S/W patch regarding the TM data rate increase. The implication is that the VC7 command chain cannot be used for the execution of the Timeline.

3.1.5 RF

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 status is nominal.

The instrument is operating in photon-by-photon mode with Spectra telemetry disabled. The TM bandwidth assigned to SPI has changed from 74 to 91 pkts/cycle in rev.73 (21st May). The Cryo-cooler is working nominally maintaining 85K temperature in the detector cold plate.

No reaction on SPI to the high radiation counts rates reported during revolution 76: the IREM automatism was disabled (as requested by SPI PIs) and no further action has been taken.

3.2.2 IBIS

The status is nominal. The TM bandwidth assigned to IBIS was changed from 107 to 130 pkts/cycle during revolution 73. The new PST, to be used in the High Bit Rate mode was loaded on 21st May. During revolution 76 high radiation count rates for electron and proton counters were reported: the new thresholds set for the IBIS were not exceeded.

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

3.2.3 JEM-X

During the reporting period, JEM-X2 operations were performed as planned in the timeline and JEM-X1 was dormant.

On 29th of May, high radiation levels (as seen by IREM), which were caused by high solar activities, caused JEM-X2 to go to SAFE mode. Each time, the unit was recovered after the radiation levels had settled within their nominal values.

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

3.2.4 OMC

During the reporting period, OMC operations were interrupted a few times due to different problems. High solar activity and increased radiation levels caused OMC to go to SAFE mode and remain in that mode for about 8 hours on 29th of May. 12 OMC pointings were missed during this time. Problems at Goldstone ground station also caused the loss of 3 more OMC pointings on the 30th.

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

3.2.5 IREM

The status of the unit after the patch is nominal, performed CR 140 to re-synchronize the generation of SCI files. Reported during revolution 76 high radiation count rates that forced payloads transition to Safe Mode.

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

4 Ground Facilities

The overall performance of the ground segment was relatively good this week.

The performance of the ground segment regarding the increased data rate is currently being assessed. Two areas of concern have been identified:

- The performance of the control system regarding the archiving of data and the generation of the CD ROMs became marginal. Various methods to increase the performance are currently being analysed.
- The ratio of VC0 and VC7 CLCW information provided by the satellite has changed significantly after the S/W change regarding the increased data rate. It is currently not possible to execute the nominal Timeline using VC 7 commands because there is a high risk that the Timeline is aborted due to a time-out of the command verification.

4.1 Mission Operations Centre

The performance of the IMCS was good this week, with only a couple of minor effects.

- On DoY 146 at 03:17 the IMCS claimed that a duplicate packet was received at the end of a block, which was not stored.
- On DoY 148 at 05:16, the message: Process Real-time packet; packet not stored on Sun122 was issued by the IMCS.

4.2 Ground Stations & Network

During this week, there were the following problems related to the ground stations:

- On DoY 144 at 08:28 there was a late station handover from Redu to DSS-16, no impact.
- On DoY 147 at 07:03, there were momentary Reed Solomon errors from Redu. This occurred shortly before LOS, and there was no impact.
- Late that day at 13:42:35, there was a 4 second drop in the NCTRS-A, no impact.
- On DoY 150 at 07:08 to 07:09 there were continuous bad TM frames from Redu. This was shortly before handover, and may be due to masking.
- At 07:59 there were problems with the DSS16 TCP at Goldstone, and the timeline was stopped. Pointing 00760032 had to be manually performed, so science data for this attitude was lost.
- At 12:00 TLM was briefly lost from DSS-16 due to an expected weakness of signal as the antenna was switched to program track. At 12:24 the TLM was

lost altogether, and was not recovered until 13:55 when the handover to Redu was brought forward. Slews 00760038 and 00760039 were lost, with 00760040 being manually performed.

4.3 Science Ground Segment

4.3.1 ISOC

No ISOC Input has been provided

4.3.2 ISDC

On DoY 150 at 13:58 to 15:00 the link to ISDC was lost, it was recovered when the ISDS & IFRD were restarted.

5 Special Events

The performance of the overall system is currently being assessed regarding the increased TM data rate.

6 Anomalies

The problems related to the ground segments are already mentioned in chapter 4.

A list of the pending anomalies since Launch is presented in the Appendix. New anomalies raised during the past week are listed below:

ARid	Date Occurrence	Subject	Segment	Element	Status
INT - 002329	2003/05/24	Late handover to DSS-16. DR: G102803	Ground	NASA Sta.	Pending
INT - 002327	2003/05/26	CLCW: change in ratio of the number of VC-0 / VC-7 CLCWs in VC-0 TM Frames	Space	Platform	Pending
INT - 002328	2003/05/27	TDRS queries for some SPI parameters fail before DOY 2003.034	Ground	IMCS	Pending
INT - 002330	2003/05/27	NCTRS CPU goes to 85% for a problem related with tracking data	Ground	NCTRS	Pending
INT - 002331	2003/05/27	Monitoring Task ASCII Printout, not in ASCII format	Ground	IMCS	Pending
INT - 002332	2003/05/30	Problems with tracking receiver at REDU	Ground	ESA Sta.	Pending

7 Future Milestones

The next Eclipse Season will start on 24 June.

It is currently planned to operationally apply the increased TM data rate from mid June.

8 Appendix

The appendix includes various detailed information.

8.1 Overview of Revolutions

Revolution 75

In revolution 75 an amalgamated staring observation at (RA 12:10:32.58; DEC +39:24:20.6) of the galaxies NGC 4151, NGC 4258 and NGC 4395 was performed for the full duration of observation time (~63 hours). This was a continuation of the observation, which started at the end of revolution 74.

All instruments were in their nominal science modes, except for JEM-X1, which was in Safe mode. The TM allocation commanded by the Timeline (and reported in the BCP) was 74 SPI, 107 IBIS, 1 JEM-X1, 8 JEM-X2, 5 OMC. However, a PST with a TM allocation of 91 SPI, 130 IBIS, 10 JEM-X1, 10 JEM-X2, 5 OMC was loaded manually.

Revolution 76

The observations in revolution 76 began with a continuation of the amalgamated staring observation at (RA 12:10:32.58; DEC +39:24:20.6) of the galaxies NGC 4151, NGC 4258 and NGC 4395 for ~15 hours. Following this, 13 pointings of a GPS were performed for ~9 hours and then a raster dithering observation of the binary pulsar 1E1145.1-6141 (RA 11:47:28.60; DEC -61:57:14.0) was performed for the remaining ~34 hours of observation time.

Throughout these observations, all instruments were in their nominal science modes, except for JEM-X1, which was in Safe mode. The TM allocation commanded by the Timeline (and reported in the BCP) was 74 SPI, 107 IBIS, 1 JEM-X1, 8 JEM-X2, 5 OMC. However, a PST with a TM allocation of 98 SPI, 134 IBIS, 1 JEM-X1, 8 JEM-X2, 5 OMC was loaded manually.

8.2 Consumables

8.2.1 Detailed Fuel Book-keeping

2003-05-13T12:37:32.000Z	177.6005	F	Automatic TM processing.
2003-05-13T19:53:33.000Z	177.5590	F	Automatic TM processing.
2003-05-14T04:59:58.000Z	177.5331	F	Automatic TM processing.
2003-05-14T06:47:34.000Z	177.5019	F	Automatic TM processing.
2003-05-16T12:55:15.000Z	177.4809	F	Automatic TM processing.
2003-05-16T19:29:08.000Z	177.4628	F	Automatic TM processing.
2003-05-18T06:09:03.000Z	177.4231	F	Automatic TM processing.
2003-05-19T19:13:55.000Z	177.3963	F	Automatic TM processing.
2003-05-21T05:32:39.000Z	177.3764	F	Automatic TM processing.
2003-05-22T12:44:50.000Z	177.3580	F	Automatic TM processing.
2003-05-22T18:58:50.000Z	177.3369	F	Automatic TM processing.
2003-05-23T04:11:07.000Z	177.3191	F	Automatic TM processing.
2003-05-23T06:39:32.000Z	177.2956	F	Automatic TM processing.
2003-05-25T12:31:45.000Z	177.2748	F	Automatic TM processing.
2003-05-25T18:45:30.000Z	177.2647	F	Automatic TM processing.

This report was generated Wed May 28 08:00:14 GMT 2003

8.3 Detailed Satellite Information

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

8.3.1 AOCS Operations

AOCS operations were executed from the Automatic Timeline.

During this period, 33 Open Loop Slews, 32 Closed Loop Slews and 8 Momentum Bias were executed. 4 slews were lost or executed manually. This is equivalent to a 6%.

24/05/03 (Day of Year 144, Revolution 74)

Nothing to Report.

25/05/03 (Day of Year 145, Revolution 74-75)

Guide Star released during perigee passage due to SEU Filter: At 18:04:05 the Guide Star was released when the ACC SEU STR Filter was exceeded. This happened during the perigee passage. At LOS the guide star had magnitude 6.15 and CCD coordinates (-9988, 11920). An autonomous mapping was performed and the ACC found a new guide star. AT AOS the guide star had magnitude 6.30 and CCD coordinates (-7122, 1132).

26/05/03 (Day of Year 146, Revolution 75)

Nothing to report.

27/05/03 (Day of Year 147, Revolution 75)

Nothing to Report.

28/05/03 (Day of Year 148, Revolution 75-76)

Nothing to Report.

29/05/03 (Day of Year 149, Revolution 76)

Guide Star released due to SEU Filter: At 18:50:35 the Guide Star was released when the threshold of the ACC STR SEU Filter was exceeded. The guide star which was picked by the ACC after an Open Loop Slew, was of magnitude 8.45 and had CCD coordinates (-27613, -933). The ACC issued an automatic mapping and a new guide star was picked: magnitude 5.55, CCD (-8012, -10142). The S/C was at an altitude of 144000 km. This was during a period of high radiation levels due to high solar activity. The OTF went down and remained NOT REACHED for the remaining of pointing 00760015.

30/05/03 (Day of Year 150, Revolution 76)

Star Tracker 1750 Fault: A Star Tracker 1750 processor fault caused the mapping, which had been commanded after a Close Loop Slew, to end prematurely. This mapping started at 04:06:02.814 and stopped at 04:06:28.798. The following out of limits appeared at this time:

H/C FLAG (A5089) = INVALID, 1750 FAULT (A5091) = FAULT
And STR mode went to Standby.

The guide star was a relatively bright star of magnitude 3.45 with CCD coordinates (1703, -17439), which falls into Elementary Search Window 18. The STR data showed that the last processed ESW was number 17. No suspect object that could have caused the problem could be found in ESW 17. According to the mission star catalogue an extended celestial object with magnitude 7.8 was in the STR filed-of-view at CDD coordinates (-3172, 4958). This falls into ESW 3. Moreover, according to the catalogue, two other bright stars with magnitudes 2.07 and 1.77 were on the edge of the STR FOV at coordinates (-4534, 23057) and (-4546, 23047) respectively. These objects with a combined magnitude of 1.15 would be on the outer edge of ESW 29. ESWs 17, 3 and 29 are all in the same ESW column.

The attitude at this time was:

RA: 12:25:06.16, DEC: -61:30:22.9, POS: 252:48:47.7
And the altitude was 152800 km.

Slew missed due to Ground Station problem (Goldstone DSS-16): After station handover to Goldstone DSS-16, we lost TC capability due to a problem with the TCP and loss of command modulation. The timeline was stopped at 07:57 and slew 760032 was missed. After the TCP was restarted and the TC link was re-established,

the recovery tool was used to manually slew to the attitude of pointing 00760032 and to update the parameters for slew 00760033.

Slews missed due weak signal at Ground Station (Goldstone DSS-16): Around 12:00, we started losing TM packets from Goldstone DSS-16. The packet losses continued until 12:24 when we completely lost TM. The station reported weak signal level at the front end and no hardware problems. The timeline was stopped and slews 00760038 and 00760039 were missed. At 13:55 an early handover to Redu ground station was made and we started receiving TM without any problem or complaints about the weakness of signal. At 14:25, the TC link to Redu was established and the timeline recovery tool was used to slew to the attitude of pointing 00760040 and to manually update the parameters for slew 00760041.

Star Tracker 1750 Fault: Another STR 1750 fault interrupted a mapping, which was commanded after a Close Loop Slew. The mapping started at 23:25:42.303 and stopped at 23:25:58.787. This time the fault was not seen in TM. The guide star had magnitude 5.55 and CCD coordinates (9139, 11886), located in ESW 11. The data from the STR tracker showed that the last ESW processed during the mapping was ESW 10. According to the mission star catalogue, an extended celestial object with magnitude 4.6 and CCD coordinates (6575, 8281) was in the field of view, located in ESW11. This ESW contained a region of sky with a cluster of several close by (in terms of angular separation) objects. The attitude was:

RA: 11:32:29.23 DEC: -61:03:23.3 POS: 267:00:10.5

And the altitude was 122460 km.

After the fault, an automatic mapping was done and a new guide star was found: magnitude 7.95, CCD coordinates (8933, -4270). This event caused the OTF to go down at the beginning of pointing 00760051 and remain NOT REACHED for the rest of this pointing.

8.3.2 SPI Operations

Nothing to Report

8.3.3 IBIS Operations

There were a few reports during the Belt passage of the OEM ID 167 Class 2<<IBIS1 PICsIT NOISY SEMIMODULE>> due to the PICsIT detectors being ON without the VETO anticoincidence system, as required by PIs.

On DoY 2003. 145 at 20:41 Z during the execution of ED GEBENT02, the ODQD reported the message << tried to insert entry to comparer for APID 1281 when already in queue>>.

To solve the problem, a refreshed TT ground model, was uplinked TC D3301 (TT OR SUM). No further problems have been noticed.

On DoY 2003. 146 at 09.21Z-18.12Z the OEM ID 179 Class 2 <<IBIS1 VETO COUNTER BOTTOM EXCEEDS ALERT VALUE>> was reported. The relevant TM_para G6062 showed values inside limits after few TM cycles and therefore the problem was disregarded, as suggested by the nominal reaction to this OEM.

Later, on the same day at 11:14Z, the OEM ID 180 Class 2 <<IBIS1 VETO COUNTER LATERAL EXCEEDS ALERT VALUE>> was reported. The relevant TM_para G6063 showed a value inside limits and therefore the problem was disregarded, as suggested by the nominal reaction to this OEM.

On DoY 2003. 147 at 06.04Z, the OEM ID 180 Class 2 <<IBIS1 VETO COUNTER LATERAL EXCEEDS ALERT VALUE>> was reported. The relevant TM_para G6063 showed a value inside limits and therefore the problem was disregarded, as suggested by the nominal reaction to this OEM.

Later, on the same day at 06.06Z-07.38Z, the OEM ID 179 Class 2 <<IBIS1 VETO COUNTER BOTTOM EXCEEDS ALERT VALUE>> was reported. The relevant TM_para G6062 showed values inside limits after few TM cycles and therefore the problem was disregarded, as suggested by the nominal reaction to this OEM.

At 10.00Z on that day, the IBIS Histogram production reported an anomaly. The problem was probably related to the GSH executed at 8.30Z during a long staring observation. The IBIS Histograms (Calibration & Standard) flags were OFF and no downloading performed by the HBR-B interface; no Calibration Histogram was produced during the anomaly. The reconfiguration has been performed by manual commanding using :

- 1) TC G0125 Transition to Stand-By;
- 2) TC G0824 Download Last Histogram;
- 3) TC G0129 Transition to Standard Mode.

At 10:19 Z the reconfiguration was successfully executed with the instrument back to SCI mode.

On DoY 2003. 148 at 08.54Z anomaly in the IBIS Histogram production was reported. The problem was probably related to the GSH executed at 14.35Z of DOY 147 during a long staring observation: during the handover the PDUR was set to ~80000 sec and at the moment of the handover about ~30000 secs had elapsed from the beginning of the observation, which had a duration of 110000 secs. In the logic of the IASW this meant ~50000 sec still remaining until the end of the observation. Adding the time of handover execution (14.32Z) to the remaining integration time, as calculated above (14 hrs), we got the time for the Histogram production stopping, as reported later by ISDC. During the anomaly the toggle buffer 1 had both the integration flags On, the Histogram production flag was ON and as well the Calibration production flag (i.e. Calibration Histogram produced nominally) with a data rate on the HBR-B interface different from zero (indicating downloading): i.e. the problem was slightly different from that which had occurred on DOY 147. At 9.21 Z the CCCF was re-enabled and the instrument restarted the generation and downloading of the Histograms.

Later, the same day at 20.56Z, the OEM ID 180 Class 2 <<IBIS1 VETO COUNTER LATERAL EXCEEDS ALERT VALUE>> was reported. The relevant TM_para G6063 showed a value inside limits and therefore the problem was disregarded, as suggested by the nominal reaction to this OEM.

Later still, at 21.14Z the OEM ID 179 Class 2 <<IBIS1 VETO COUNTER BOTTOM EXCEEDS ALERT VALUE>> was reported. The relevant TM_para G6062 showed values inside limits after few TM cycles and therefore the problem was disregarded, as suggested by the nominal reaction to this OEM.

On DoY 2003. 149 at 08.18Z, the OEM ID 179 Class 2 <<IBIS1 VETO COUNTER BOTTOM EXCEEDS ALERT VALUE>> was reported. The relevant TM_para G6062 showed values inside limits after few TM cycles and therefore the problem was disregarded, as suggested by the nominal reaction to this OEM.

Later, at 18.00Z-18-08Z, the following TM_paras G6062-6063 were OOL for few secs. No action has been taken.

On DoY 2003. 150 at 06.29Z-08.25Z-08.28Z-09.20Z, the OEM ID 180 Class 2 <<IBIS1 VETO COUNTER LATERAL EXCEEDS ALERT VALUE>> was reported. The relevant TM_para G6063 showed a value inside limits and therefore the problem was disregarded, as suggested by the nominal reaction to this OEM.

Later, at 08.30Z-0836Z, the OEM ID 179 Class 2 <<IBIS1 VETO COUNTER BOTTOM EXCEEDS ALERT VALUE>> was reported. The relevant TM_para G6062 showed values inside limits after few TM cycles and therefore the problem was disregarded, as suggested by the nominal reaction to this OEM.

Reported during revolution 76, IREM high radiation count rates for electron and proton counters. IBIS thresholds were not exceeded and the unit continued in SCI Standard Mode.

8.3.4 JEM-X Operations

24/05/2003, DOY 144, Revolution 74
Nothing to report

25/05/2003, DOY 145, Revolution 74-75
Nothing to report

26/05/2003, DOY 146, Revolution 75
Nothing to report

27/05/2003, DOY 147, Revolution 75
Nothing to Report

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28/05/2003, DOY 148, Revolution 75-76
Nothing to report

29/05/2003, DOY 149, Revolution 76

JEM-X2 to SAFE mode due to high radiation level: At 02:08 JEM-X2 went to SAFE mode when the RMC3 from IREM reached the JEM-X SAFE threshold of 64. JEM-X2 was recovered after the radiation levels dropped back to the nominal levels. JEM-X was commanded back to DATA TAKING at 03:36.

JEM-X2 to SAFE mode due to high radiation level: At 13:35 JEM-X2 went to SAFE mode for the second time. This time both the RMC1 and RMC2 counters from IREM exceeded the JEM-X thresholds for transition to SAFE mode. The radiation levels remained high for the following few hours. At 21:44, when IREM counters had dropped back and remained within their nominal range for more than two hours, JEM-X2 recovery started. The unit was commanded to DATA TAKING at 23:10.

On 28/05/03 we had received a “Potential Satellite Anomaly Alert” for the period from 28 to 31 May due to high solar activity. The RMCRs from IREM plotted for the time span 29th to 31st of May is presented in the OMC report. Further details can also be found in the IREM report.

30/05/2003, DOY 1150, Revolution 76

8.3.5 OMC Operations

During this period 15 out of the 51 originally planned OMC image acquisitions were missed.

24/05/2003, DOY 144, Revolution 74
Nothing to report

25/05/2003, DOY 145, Revolution 74-75
Nothing to report

26/05/2003, DOY 146, Revolution 75
Nothing to report

27/05/2003, DOY 147, Revolution 75
Nothing to Report

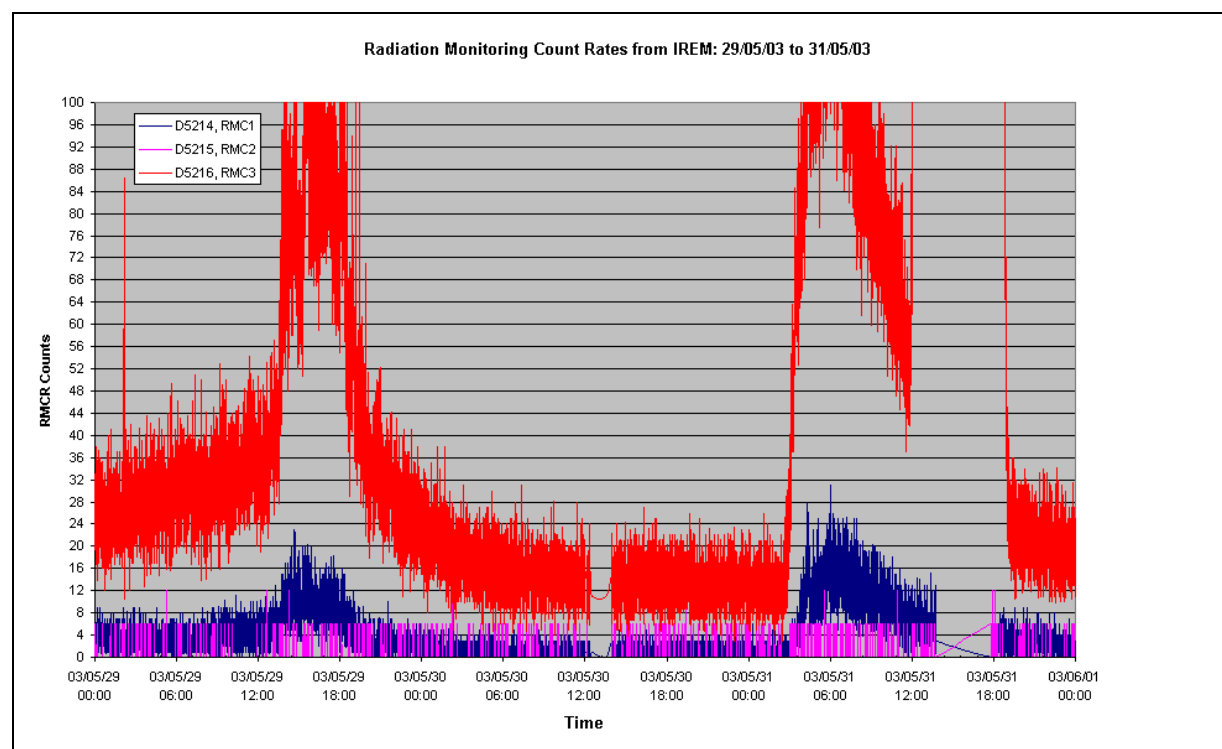
28/05/2003, DOY 148, Revolution 75-76

Reset of OMC imaging due to CCCF: In order to restart the generation of IBIS Histograms, the CCCF with start time 09:20:06 was enabled. This CCCF contained also OMC imaging command and its execution caused OMC transition to standby at 09:20:53, reset and reload of the imaging parameters and restart of image acquisition at 09:22:21.

29/05/2003, DOY 149, Revolution 76

OMC to SAFE mode because of high radiation: At 14:00, OMC went to SAFE mode when the RMC#1 from IREM reached the OMC SAFE threshold. The radiation levels remained high for the following few hours and no attempt was made to recover the instrument. At 21:44, when IREM counters had remained within their nominal range for more than two hours, OMC was commanded out of the SAFE mode. At 22:28:53 with the start of pointing 00760020, the unit was set to Science mode by the timeline. In total, OMC was in SAFE mode throughout pointings 00760008 to 00760019.

On 28/05/03 we had received “Potential Satellite Anomaly Alert” for the period from 28 to 31 May due to high solar activity. The following plot shows the IREM readings during 29th to 31st of May. For more details please refer to the IREM report.



30/05/2003, DOY 150, Revolution 76

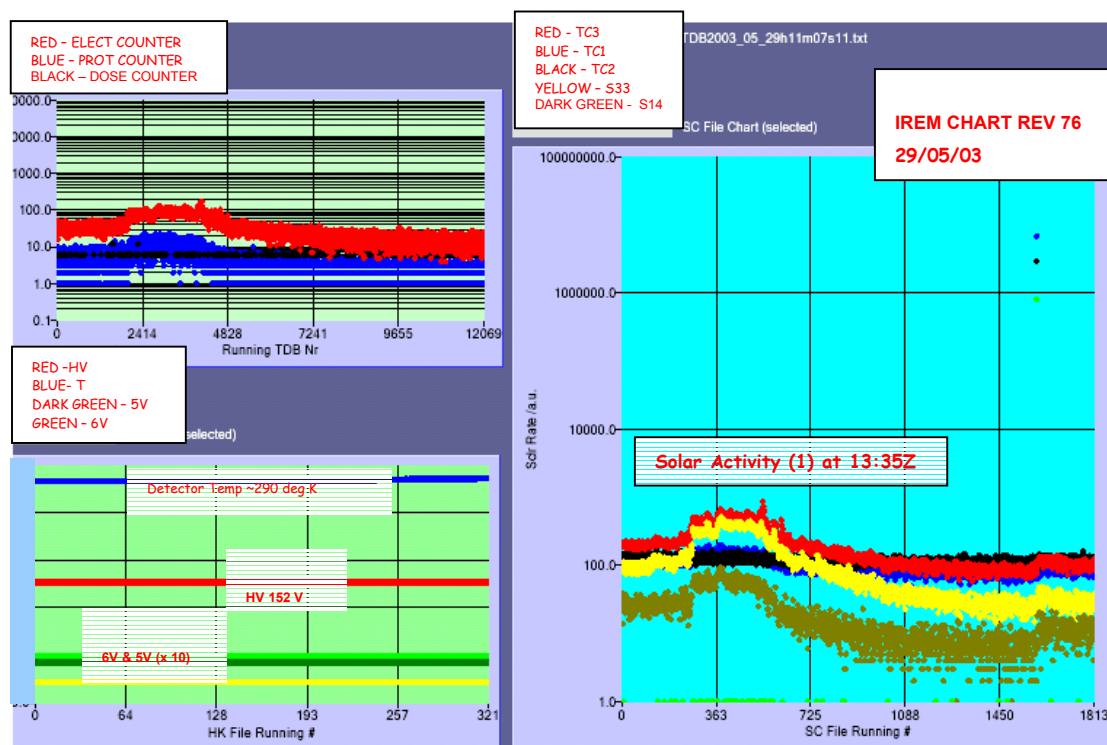
Missing of pointing 00760032: After station handover to Goldstone (DSS16) a problem at the station (problem with the TCP and loss of command modulation) caused loss of TC capability. At 07:57 the timeline was stopped and slew 00760032 was missed. After the problem was fixed, manual slew was done to the attitude of pointing 00760032. The next slew was performed from the timeline and OMC operations resumed from pointing 00760033.

Loss of pointings 00760038 to 00760040: At 12:00, we lost telemetry from Goldstone DSS16. The link could not be established for the rest of Goldstone coverage and we only got TM back at 13:55 after handover to REDU. Slews 00760038 and 00760039 were missed. After establishment of TM and TC link, manual slew was performed to the attitude of pointing 00760040 and from the next pointing OMC normal operations restarted.

8.3.6 IREM Operations

On DoY 2003. 146, the CR 140 was performed. Due to a long Ground Link OFF period, the HK data block overflowed, causing a delay in the scientific data download (out of synchronisation), this caused problems with data processing in the ISDC.. The TC U4916 has been sent with the following setting (Accumulation time for SCI files =60 sec, HK files production= every 5 accumulated SCI files). The problem affected only the accumulated files and not the Transfer Data Block distributed via the BCP.

On DoY 2003. 149 at 02.08 Z and 13.35 Z high radiation count rates were reported. The values reached were out of the new thresholds set for JEM-X and OMC (maximum value reached by electron counter ~ 200 counts/10 sec). The high radiation environment consisted mainly of electrons with a moderate presence of protons. No effects of this radiation on the IREM unit were noticed. The plots of the IREM counters plus the accumulated SCI files are shown below.



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An effect of the high count rates JEM-X (twice) and OMC were forced into Safe Mode. The reaction to the counters distributed via BCP must be considered as a validation of the IREM patch recently executed.

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8.4 List of Anomalies since Launch

The following table presents the list of all identified anomalies that have been registered since Launch and that are still pending. Though these Anomaly Reports still have a pending status most of the problems have been analysed and solutions or at least workarounds are already in place.

ARid	Date Occurrence	Subject	Segment	Element	Status
INT - 002010	2002/10/22	Time correlation not applied correctly to time parameters in TM type 8 reports.	Ground	IMCS	Pending
INT - 002024	2002/10/28	OEM: SPI1 Fixed print overflow	Space	SPI	Pending
INT - 002061	2002/11/12	TM Desktop performance collapses when de-selecting super-commutated processing.	Ground	IMCS	Pending
INT - 002066	2002/11/13	Data routing to ISDS	Ground	I/F to SGS	Pending
INT - 002082	2002/11/13	TM packet production lower than allocation.	Space	SPI	Pending
INT - 002070	2002/11/14	TDRS: data Retrievals cancelled	Ground	IMCS	Pending
INT - 002092	2002/11/19	Load-Dump comparison uses also non-released load commands	Ground	IMCS	Pending
INT - 002094	2002/11/19	TDRS does not work with super-commutated parameters	Ground	IMCS	Pending
INT - 002142	2002/12/11	TDRS Time Interval Setting	Ground	IMCS	Pending
INT - 002145	2002/12/15	Commands failing PTV for no reason	Ground	IMCS	Pending
INT - 002199	2003/01/17	Incorrect handling of CLCW wrap-around in CLTU mode	Ground	ESA Sta.	Pending
INT - 002212	2003/01/29	TDRS Interval-by-Interval TM Retrieval Problem	Ground	IMCS	Pending
INT - 002213	2003/01/29	SCOS 2000 Interval-by-Interval TM Retrieval Problem	Ground	IMCS	Pending
INT - 002214	2003/01/29	Drop in telemetry from REDU	Ground	ESA Sta.	Pending
INT - 002217	2003/02/06	TC link drop	Ground	NASA Sta.	Pending
INT - 002219	2003/02/10	IBIS: PICsIT PDMs counters SET to 0 (twice) during nominal operation	Space	IBIS	Pending
INT - 002220	2003/02/10	Wrong Scrolling Display definitions on IMCS following Import	Ground	IMCS	Pending
INT - 002221	2003/02/10	IBIS: SCI sub-mode table loaded only if forcing the sub-mode	Space	IBIS	Pending
INT - 002233	2003/02/24	Time Calibration not Coherent among Ground Stations	Ground		Pending

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ARid	Date Occurrence	Subject	Segment	Element	Status
INT - 002234	2003/02/24	S2K unable to access READ ONLY disk in IDDA.	Ground	IMCS	Pending
INT - 002235	2003/02/25	Too narrow window for RMU cal in PSF of rev 49	Ground	I/F to SGS	Pending
INT - 002242	2003/03/02	TM &TC Drop on DSS 16	Ground	NASA Sta.	Pending
INT - 002243	2003/03/04	CDS Failed to Lock at Redu - H/O Postponed	Ground	ESA Sta.	Pending
INT - 002246	2003/03/05	Loss of Telemetry from DSS16	Ground	NASA Sta.	Pending
INT - 002245	2003/03/06	TDRS: Retrieval of packet 60602 or contained parameters does not work	Ground	IMCS	Pending
INT - 002252	2003/03/10	CDS out of Lock at Redu - TM&TC Loss	Ground	ESA Sta.	Pending
INT - 002253	2003/03/10	RX1 and RX2 Locked at the same time	Ground	NASA Sta.	Pending
INT - 002255	2003/03/10	Late AOS at DSS-24	Ground	NASA Sta.	Pending
INT - 002256	2003/03/14	Late AOS at DSS-16	Ground	NASA Sta.	Pending
INT - 002257	2003/03/17	Late AOS at DSS-24	Ground	NASA Sta.	Pending
INT - 002258	2003/03/20	IBIS: stop downloading HIST during GCDE	Space	IBIS	Pending
INT - 002259	2003/03/21	TDRS: Retrieval log is Meaningless.	Ground	IMCS	Pending
INT - 002260	2003/03/21	Monitoring task Printout, sample time	Ground	IMCS	Pending
INT - 002262	2003/03/21	TDRS: FEN Retrievals containing status parameters always fail.	Ground	IMCS	Pending
INT - 002265	2003/03/24	Loss of TC & TM Link	Ground	ESA Sta.	Pending
INT - 002267	2003/03/25	Drop in link from ISDS to ISDC	Ground	I/F to SGS	Pending
INT - 002268	2003/03/25	No bit lock via DSS-16	Ground	NASA Sta.	Pending
INT - 002270	2003/03/26	Late uplink via DSS-16	Ground	NASA Sta.	Pending
INT - 002271	2003/03/26	Drops in telemetry from DSS-16	Ground	NASA Sta.	Pending
INT - 002272	2003/03/26	TC link via DSS-16 lost	Ground	NASA Sta.	Pending
INT - 002273	2003/03/27	Drop in VC7 via REDU	Ground	ESA Sta.	Pending
INT - 002274	2003/03/28	IFTS MCS instance not working	Ground	IMCS	Pending
INT - 002279	2003/03/29	Telemetry lost from DSS-16. DR N109197	Ground	NASA Sta.	Pending
INT - 002280	2003/03/30	Telemetry lost from REDU	Ground	ESA Sta.	Pending
INT - 002281	2003/03/31	TC outage via REDU	Ground	ESA Sta.	Pending
INT - 002283	2003/04/01	ISDS-A and IDDA services stopped	Ground	IMCS	Pending
INT - 002284	2003/04/01	Reed Solomon alarms from REDU	Ground	ESA Sta.	Pending

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INT - 002285	2003/04/02	Redu Antenna Uplink switch goes off bus	Ground	ESA Sta.	Pending
INT - 002286	2003/04/02	Reboot of ESOC Firewall	Ground	I/F to SGS	Pending
INT - 002288	2003/04/03	TM/TC lost via REDU	Ground	ESA Sta.	Pending
INT - 002290	2003/04/03	Bad frames and TLM drop from DSS-16. Possible RFI	Ground	NASA Sta.	Pending
INT - 002291	2003/04/08	Archiving lost on A chain	Ground	IMCS	Pending
INT - 002292	2003/04/09	Telemetry Drops from Goldstone (DR 6102621)	Ground	NASA Sta.	Pending
INT - 002293	2003/04/13	Science data CDs produced with no TM inside.	Ground	IMCS	Pending
INT - 002295	2003/04/15	Telemetry Drops from Goldstone	Ground	NASA Sta.	Pending
INT - 002298	2003/04/20	ISDS - ISDC link outage	Ground	I/F to SGS	Pending
INT - 002299	2003/04/21	Telemetry loss from DSS-24	Ground	NASA Sta.	Pending
INT - 002300	2003/04/23	ISDC not receiving ASF files.	Ground	IMCS	Pending
INT - 002301	2003/04/23	Link between NCTRS-A and IMCS-A down for 10 seconds	Ground	NCTRS	Pending
INT - 002302	2003/04/24	Telemetry loss via DSS-16 due to RFI	Ground	NASA Sta.	Pending
INT - 002304	2003/04/26	IFTS MCS instance not working	Ground	IMCS	Pending
INT - 002305	2003/05/04	Telemetry Drops from Goldstone. DR G102720	Ground	NASA Sta.	Pending
INT - 002308	2003/05/05	Loss of TM/TC link due to hit on line	Ground	COMMS	Pending
INT - 002307	2003/05/06	Wrong sign applied in the S/C delay in the correlator.	Ground	IMCS	Pending
INT - 002309	2003/05/06	Command release delayed	Ground	ESA Sta.	Pending
INT - 002310	2003/05/06	TC-1 dropped off line at REDU	Ground	ESA Sta.	Pending
INT - 002311	2003/05/06	Drop in TM on MADDS-ISDSA link	Ground	ESA Sta.	Pending
INT - 002312	2003/05/06	Static PTV in "No Go" State for command A3189	Ground	IMCS	Pending
INT - 002315	2003/05/09	Late handover to DSS-16, DR G102733	Ground	NASA Sta.	Pending
INT - 002316	2003/05/09	Loss of TM and TC link via DSS-16. DR G102735	Ground	NASA Sta.	Pending
INT - 002317	2003/05/09	Late handover to REDU	Ground	ESA Sta.	Pending
INT - 002318	2003/05/09	SUN workstation 128 rebooted itself.	Ground	IMCS	Pending
INT - 002319	2003/05/10	TM drop via DSS-16 DR number: G102736	Ground	NASA Sta.	Pending
INT - 002314	2003/05/12	Wrong file displayed for Timeline Summary File	Ground	IMCS	Pending
INT - 002320	2003/05/15	Lost TC link to Goldstone. DR G102748	Ground	NASA Sta.	Pending

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INT - 002321	2003/05/18	Drop in telemetry from REDU	Ground	ESA Sta.	Pending
INT - 002323	2003/05/19	Telemetry Drops from Goldstone (DR 109346)	Ground	NASA Sta.	Pending
INT - 002324	2003/05/19	Command A3084 not verified	Ground	IMCS	Pending
INT - 002325	2003/05/21	Telemetry drop from Redu	Ground	ESA Sta.	Pending
INT - 002326	2003/05/21	Hardware failure at DSS-16 during handover DR: G102772	Ground	NASA Sta.	Pending
INT - 002329	2003/05/24	Late handover to DSS-16. DR: G102803	Ground	NASA Sta.	Pending
INT - 002327	2003/05/26	CLCW: change in ratio of the number of VC-0 / VC-7 CLCWs in VC-0 TM Frames	Space	Platform	Pending
INT - 002328	2003/05/27	TDRS queries for some SPI parameters fail before DOY 2003.034	Ground	IMCS	Pending
INT - 002330	2003/05/27	NCTRS CPU goes to 85% for a problem related with tracking data	Ground	NCTRS	Pending
INT - 002331	2003/05/27	Monitoring Task ASCII Printout, not in ASCII format	Ground	IMCS	Pending
INT - 002332	2003/05/30	Problems with tracking receiver at REDU	Ground	ESA Sta.	Pending