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

INTEGRAL
Mission Report
INT-MOC-SYS-RP-1001-TOS-OF
No. 044
Week 30
28.07.03
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 19.07.03 until 25.07.03 (both dates inclusive) and covers the revolutions 94 & 95.

The summer eclipse season has completed nominally.

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 NGC4388 (RA 12:24:46.70; DEC +12:39:44.0), the OMC Flat Field target (RA 13:01:12.00; DEC +06:48:00.0), the Small Magellanic Cloud (RA 01:00:0.00; DEC -73:00:00.0) and NGC5506 (RA 14:13:14.80; DEC -03:12:27.0). The activities performed consisted of raster dithering and staring observations. In addition, the periodic FSS/STR Alignment Calibration was performed.

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 AOCS operations were performed from the timeline during this period.

A STR/FSS Misalignment Calibration was performed smoothly from the timeline on 22/07/2003. This operation, however, caused generation of false GRB alerts by the IBAS. The reason was that the BCP PID was kept at its last science pointing value throughout all the calibration attitudes. This is an IBAS software/Mission Planning issue that should be clarified for the future.

There was a loss of guide star caused by false events, whose number exceeded the Star Tracker SEU Filter threshold.

One Reaction Wheel Bias was done manually and three slews were missed due to problems with the TC link to the Goldstone ground station.

The fuel consumption over the period between 18/07/2003 and 25/07/2003 was 0.147Kg. The remaining propellant is in the order of 175.797 Kg on the 25th of July.

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 from the arrays is in the order of **2230W**. This means that there is no noticeable degradation of the solar arrays since launch.

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.

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.

During the reporting period the planned annealing of the Germanium detectors was terminated nominally, then the passive cooling phase started followed by the active cooling phase in which the cryo-cooler was re-started successfully.

During the whole period the instrument was in configuration mode with an assigned TM bandwidth in the science windows of 5 pkts/cycle.

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

3.2.2 IBIS

The Status of the unit is Nominal.
The TM bandwidth assigned to IBIS is 134 pkts/8sec.

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 executed from the Automatic Timeline and JEM-X1 was dormant.

JEMX operations was interrupted once during the week, when wrong readings from IREM (IREM SEU anomaly), triggered an instrument SAFE mode.

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

3.2.4 OMC

There was an OMCAS crash on the 25th of July. This is a repetition of a known anomaly, which occasionally happens at the beginning of slews. In this particular case there was no impact on science, since the problem was recovered before the start of the pointing.

During the reporting period, OMC operations were interrupted once due to incorrect IREM output, and another time due to a ground station interruption.

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

3.2.5 IREM

An anomaly (SEU) occurred on DoY 2003.200.14.09Z apart from that the unit is nominal.

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

4 Ground Facilities

The other problems during this week were a few short interruptions in the TM/TC from DSS-24, DSS-16 and Redu.

4.1 Mission Operations Centre

There were no problems concerning the performance of the IMCS reported this week.

4.2 Ground Stations & Network

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

- On DoY 200 at 13:18 to 13:23 there was a TM drop from Redu, and from 13:25 to 13:26 the TC also dropped, there was no impact.
- On DoY 201 at 06:25, the TM from DSS-16 dropped, at 06:27 the TC joined the TM, at 06:32 both links were back after the station rebooted the TCP, there was no impact.
- On DoY 202 at 09:15 the TM from DSS-16 dropped, it returned at 09:17, there was no impact.
- On DoY 204 at 01:57 the NCTRS (A&B) connections to Redu were both down. At 02:00 the TM link was restored, at 02:17 Network tried to reconnect the TC link using RDTC2, and a minute later the TC link was restored. There was no impact.
- Later that morning at 06:28 until 06:39 the TM from DSS-16 was down, there was no impact.
- On DoY 205 at 03:03, the first AOCS command after AOS failed, as the TC link to DSS-24 was not yet up. This caused pointing 00940032 to be lost, with 00940033 being manually updated.
- Later that morning, at 04:01, there was a 10 second drop in VC7 TM, without impact.
- Later again, at 06:12 the TC link to DSS-24 dropped, it returned at 06:26. The impact was slews 00940035 and 00940036 were lost.

Errata: in last week's report it was stated that:

On DoY 198 at 01:06, there was a brief drop in the TLM from Redu. GFCC reported a 'hit on the line', the TLM returned at 10:07, without any impact.

It should of course have read:

On DoY 198 at 01:06, there was a brief drop in the TLM from Redu. GFCC reported a 'hit on the line', the TLM returned at 01:07, without any impact.

4.3 Science Ground Segment

4.3.1 ISOC

No ISOC Input has been provided

4.3.2 ISDC

There were several problems relating to the link between the MOC and ISDC reported this week.

- On DoY 201 at 19:39, an error sending data to the ISDC was reported. Computer rebooted ISDS and IFRD, and at 19:51 data was flowing again.
- On DoY 202 at 03:30 an error sending data to the ISDC was reported. Computer rebooted ISDS and IFRD, and at 03:40 data was flowing again.
- On DoY 203 at 03:41 an error sending data to ISDC was reported, at 04:02, the link was disconnected, at 09:04 OSC reported that further reboots will be delayed due to hardware problems on ISDS-A, at 09:26 ISDS-A reboot was completed, but it was noted that there may be a requirement for a disc replacement.
- On DoY 204 at 01:17 there were more errors sending data to the ISDC, at 01:25 the MADDS-ISDS link was disconnected and ISDS-A & IFRD were rebooted. At 01:57 the link was restored.
- Later, at 07:37 the IFRD was rebooted by OSC, at 11:58 OSC was again requested to re-start IFRD on ISDS-A, and at 12:01 the restart was complete. At 12:18 ISDC reported that no auxiliary files had been received since 01:36 on DoY 204, OSC were requested to start IFTS-0 on ISDS-A, at 12:32 ISDC confirm reception of the auxiliary files.
- On DoY 204 from 12:44 to 13:03, the faulty disc in ISDS-A was replaced, without impact.

5 Special Events

End of SPI annealing.

6 Anomalies

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

On DoY 204 at 01:25, the FD machine crashed, due to the unavailability of the data server on the L-platform. The machine was up-again within 5 minutes, without impact.

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 - 002393	2003/07/23	Autostack crash on sun128	Ground	IMCS	Pending
INT - 002399	2003/07/25	IFRD: the CSM-IFRD task crashed on isdsa after new IMCS SW release (8.8).	Ground	IMCS	Pending

7 Future Milestones

8 Appendix

The appendix includes various detailed information.

8.1 Overview of Revolutions

Revolution 94

The observations in revolution 94 consisted of the following:

- A staring observation of NGC4388 (RA 12:24:46.70; DEC +12:39:44.0), performed for ~14 hours;
- FSS/STR Alignment Calibration lasting ~12 hours (between 2003-07-22T06:58:08Z and 2003-07-22T18:58:08Z);
- Continuation of the staring observation of NGC4388 for a further 14 hours;
- Staring observation at the OMC Flat Field target (RA 13:01:12.00; DEC +06:48:00.0) lasting ~4 hours, during which the OMC Flat Field and Dark Current Calibrations were performed;
- A raster dithering observation of the Small Magellanic Cloud (RA 01:00:0.00; DEC -73:00:00.0), performed for the remaining ~14 hours of observation time.

Throughout these observations, SPI was in Configuration mode and was undergoing annealing (annealing operations performed manually). IBIS and JEM-X2 were in their normal science modes and JEM-X1 remained in Safe mode. OMC was put in Standby (manually) during the FSS/STR Alignment Calibration and was in FFC/DCC mode for the Flat Field/Dark Current Calibrations, but otherwise was in normal science mode.

The TM allocation during the OMC FF/DC Calibration observation was 172 IBIS, 5 SPI, 1 JEM-X1, 8 JEM-X2, 60 OMC. For all other observations in this revolution, the TM allocation was 134 IBIS, 5 SPI, 1 JEM-X1, 8 JEM-X2, 5 OMC.

Revolution 95

The observations in revolution 95 consisted of a staring observation of NGC5506 (RA 14:13:14.80; DEC -03:12:27.0), performed for ~28 hours, followed by a raster dithering observation of the Small Magellanic Cloud (RA 01:00:0.00; DEC -73:00:00.0), performed for the remaining ~32 hours of observation time.

Throughout these observations, SPI was in Configuration mode and was undergoing annealing (annealing operations performed manually). The other instruments were in their nominal science modes, except for JEM-X1 which remained in Safe mode, and the TM allocation was 134 IBIS, 5 SPI, 1 JEM-X1, 8 JEM-X2, 5 OMC.

8.2 Consumables

8.2.1 Detailed Fuel Book-keeping

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2003-07-06T08:08:47.000Z	176.1257	F	Automatic TM processing.
2003-07-06T16:05:44.000Z	176.1101	F	Automatic TM processing.
2003-07-09T15:52:55.000Z	176.0947	F	Automatic TM processing.
2003-07-10T11:22:33.000Z	176.0757	F	Automatic TM processing.
2003-07-11T02:09:30.000Z	176.0582	F	Automatic TM processing.
2003-07-12T15:37:18.000Z	176.0318	F	Automatic TM processing.
2003-07-15T15:20:54.000Z	175.9901	F	Automatic TM processing.
2003-07-16T00:47:11.000Z	175.9590	F	Automatic TM processing.
2003-07-17T01:26:57.000Z	175.9438	F	Automatic TM processing.
2003-07-18T15:03:26.000Z	175.9290	F	Automatic TM processing.
2003-07-20T00:58:01.000Z	175.9240	F	Automatic TM processing.
2003-07-21T14:26:45.000Z	175.8879	F	Automatic TM processing.
2003-07-23T13:58:10.000Z	175.8573	F	Automatic TM processing.
2003-07-24T06:36:03.000Z	175.8060	F	Automatic TM processing.
2003-07-24T14:20:44.000Z	175.7966	F	Automatic TM processing.

This report was generated Fri Jul 25 08:00:18 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, 21 Open Loop Slews, 38 Closed Loop Slews and 6 Momentum Bias were executed. 3 slews were missed or executed manually. This is equivalent to a 5%. However, only one of the missed slews resulted in missing of a science pointing. The other two were outside science window.

19/07/03 (Day of Year 200, Revolution 93)

Nothing to report.

20/07/03 (Day of Year 201, Revolution 93)

Nothing to report.

21/07/03 (Day of Year 202, Revolution 93-94)

Nothing to Report.

22/07/03 (Day of Year 203, Revolution 94)

Execution of STR-FSS Misalignment Calibration: A STR-FSS Misalignment Calibration was performed successfully and without any interruptions from the automatic timeline. The Satellite Engineering Window for this operation opened at 06:58:08 and closed at 18:58:08. The only problem, which was caused by this operation, was the generation of several false GRB alerts by the IBAS. The

calibration consists of a number of attitude measurements being made at different attitudes, which have certain angular separations in the FSS alpha and beta. The BCP PID that was used during the science observation prior to the calibration was kept throughout all the different attitudes. This caused mismatches between the IBAS expected pointing, which is specified by the BCP PID, and the actual satellite pointing. Apparently this mismatch results in false recognition of “unknown” sources in the IBAS expected field of view and therefore generation of false GRB alerts. At the end, IBAS was disabled for the period of the calibration to prevent further generation of false alarms. A strategy of setting the BCP PID for these special operations should be agreed between MOC, ISOC and ISDC to prevent this problem in the future (if no solution can be found at IBAS software level).

23/07/03 (Day of Year 204, Revolution 94)

Nothing to Report.

24/07/03 (Day of Year 205, Revolution 94-95)

Slew lost due to late TC link establishment after station handover: Due to late establishment of the TC link at station handover from Redu to Goldstone (DSS-24), slew 00940032 was missed. After establishment of the link at 03:06, the timeline recovery tool was used to manually slew to the attitude of pointing 00940032 and then to update the parameters for slew 00940033 in the automatic timeline.

RWB and Slews lost due to loss of TC link from Goldstone (DSS-24): At 06:12 the TC link from Goldstone G/S was lost due to a transmitter failure (DR G103071) and was not re-established until 06:26. The Reaction Wheel Bias that was originally planned at 06:21:02 had to be performed manually, starting at 06:28. This delay in the AOCS operations resulted in the missing of slew 00940035. After completion of the RWB, a manual slew was performed to the target attitude of slew 00940035. The corrective Open Loop Slew 00940036 was cancelled and then the parameters of Close Loop Slew 00940037 were updated in the timeline. The last exposure before descending below 60000 km had ended at 06:06:41. Therefore, this anomaly did not impact science.

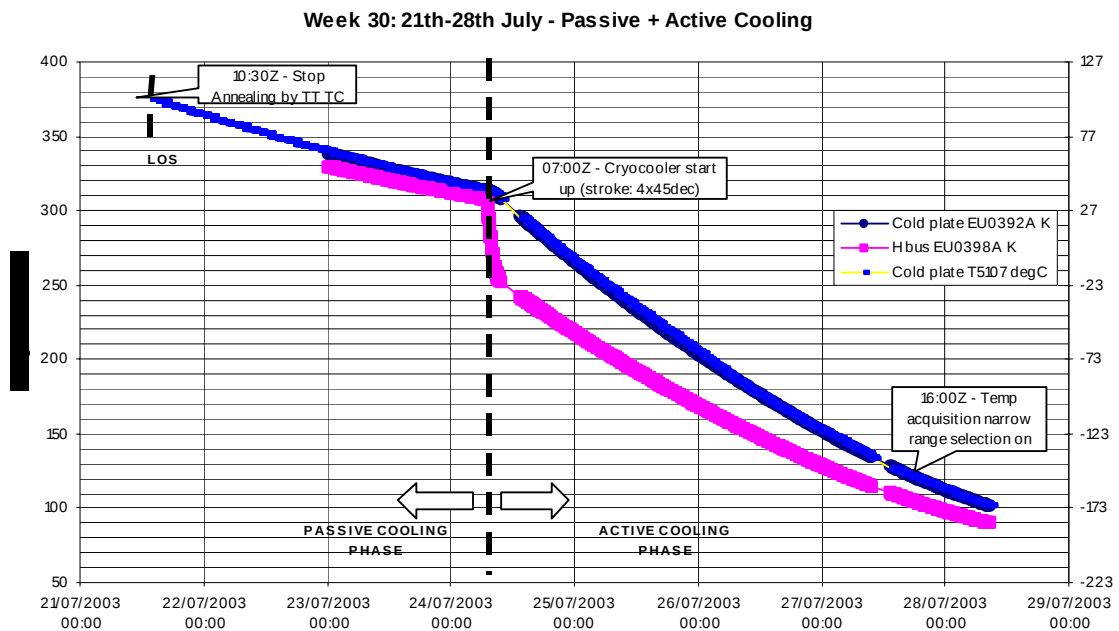
25/07/03 (Day of Year 206, Revolution 95)

Loss of Guide Star due to STR SEU Filter: At 23:41:29 the guide star was released when the SEU Filter threshold of the Star Tracker was exceeded. The guide star was of magnitude 8.35 and had CCD coordinates (-17873, -14476) at the time of its release. This guide star had been picked by the FDS for Close Loop Slew 00950009. The OTF went low and remained “NOT REACHED” for the remaining part of pointing 00950009. The altitude was 152250 km.

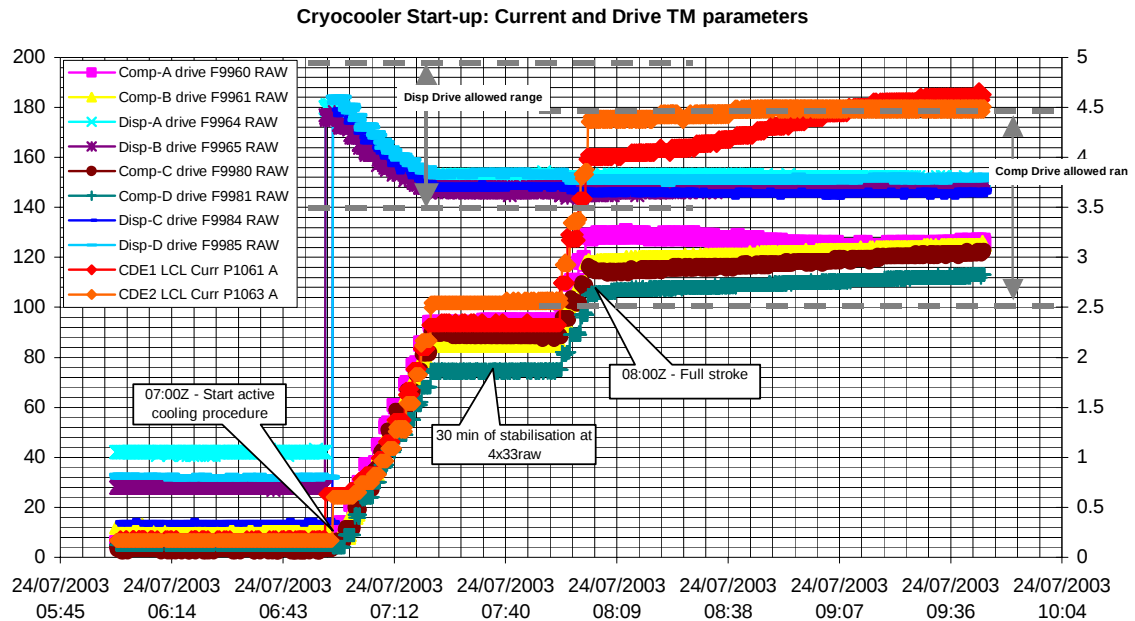
8.3.2 SPI Operations

Cryocooler / Cold box assembly:

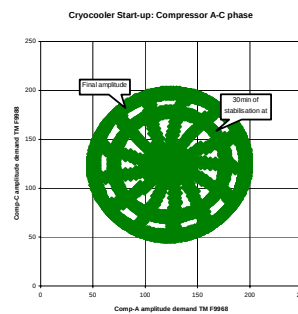
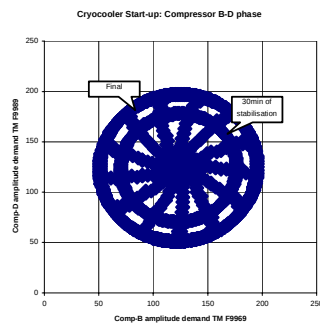
On 21st July 2003 at 10:20Z, during a LOS period, the procedure to reconfigure the heaters to stop the Ge detector annealing was executed. This marked the end of the annealing phase and the start of the passive cooling which lasted for the next 3 days. On 24th July at 07:00 the conditions to start the active cooling were also reached and the 4 compressors were therefore re-started up to the full stroke of 45dec raw. The cryo-cooler is currently running at this stroke to reach the target temperature of 85K, after which the stroke will be reduced and the fine-tuning procedure started.



The following plot shows a few cryo-cooler parameters during the start-up: current, power, temperatures and phase, they were all nominal.



The following two Lissajous diagrams, show the phase of the stroke demand signal of the 4 compressors, during the ramp-up of the strokes, to 45dec: The phase between the compressors of CDE1 (Compressor Drive Electronics) and CDE2 is at the nominal value of 90deg.



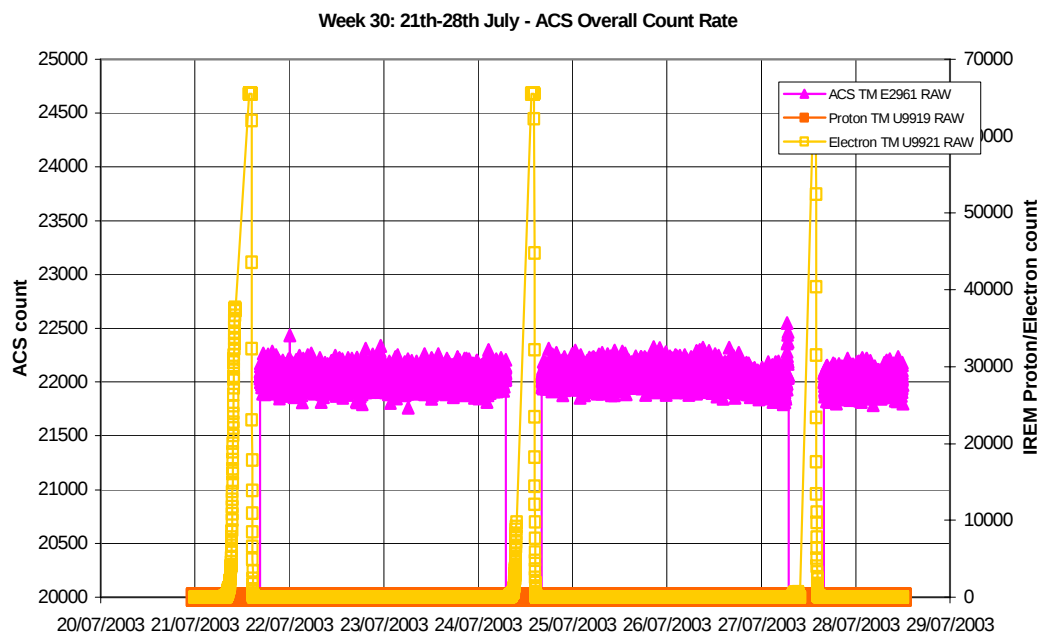
IASW/DPE:

Duplicated packets in VC7 TM : As reported last week, an AR has been opened (see INT-002390). The problem is likely to be a ground station problem. MOC is still waiting for information about additional occurrences of the problem for further investigations.

IASW behaviour with wrong BCP eclipse times: As reported last week, during rev.92 eclipse passage, due to an error in setting the BCP eclipse/exit times by the automatic timeline (see AR INT-002392), the IASW had some problems in re-establishing the communication with the SPI subassemblies, after the eclipse switch-on. The communication and subsequent restoration of the S/A configuration had to be performed manually. Investigations have been performed by CNES to understand the behaviour: the result is that it has to be considered nominal. An additional out-of-limit check has been however, recognized to be necessary in the Mission Control System, to signal the IASW automatism intervention, which disables the auto-reconfiguration capability of the instrument following a communication problem with the subassembly. The automatism intervention went in fact unnoticed for some time.

ACS:

Count rate: The overall ACS count rate during the reporting period is shown below (sampling at 1/80s) together with the IREM proton/electron count.



AFEE :

Due to the on-going annealing operations, the high voltage sections of the subassembly and of the Germanium detectors were turned off. Only the Pre-Amplifiers low voltages were left on (PA).

DFEE : Nothing to report.

PSD :

At annealing start, the threshold was increased to avoid too many software errors due to the high number of events being processed, which was caused by the noise at high temperature. This threshold was maintained until the cold plate temperature was again below 127K, during the active cooling phase, and then returned to the nominal value.

8.3.3 IBIS Operations

There were a few reports during Belt passage 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 2003.200 (19/07)** at 14.09Z an autonomous transition to Stand-By was reported together with the deactivation of all the peripherals High Voltages (VETO and ISGRI). This automatic transition was due to an anomaly that occurred on the IREM unit that triggered an automatic reaction of the IASW (for detail of the anomaly see IREM report). The configuration of the payloads was recovered at 16.01Z.

On **DOY 2003.202 (21/07)** at 07.20Z the OEM ID 180 Class 2 <<IBIS1 VETO COUNTER LATERAL EXCEEDS ALERT VALUE>> was reported. This was due to the incoming Radiation Belt Entry.

At 7.40Z the OR-87 was executed to dump the peripheral context tables (VETO, PICsIT, LUT1, LUT2, HEPI). The following procedures were executed by the OBSM engineer: FCP_IBIS1_9860-9870-9880-9890-9900. The dumped tables are stored in the OBSM system and held under configuration Control. This activity will be repeated every month to store on ground the last updated Context Tables for the IBIS peripherals. The dumps did not include the ISGTI CTXs because a dump is automatically requested at every revolution after the ISGRI Calibration.

On **DOY 2003.203 (22/07)** at 19.52Z the OEM ID 183 Class 2 <<IBIS1 VETO +5V VECU VOLTAGE OUT OF RANGE>> was reported. The relevant TM_para G6106 showed a value inside limits and therefore the problem was disregarded, as suggested by the nominal reaction to this OEM.

8.3.4 JEM-X Operations

19/07/2003, DOY 200, Revolution 93

At 14:09 JEM-X went to SAFE mode, triggered by an erroneous reading from IREM. At 15:28 the contingency recovery procedure CRP-JEM2_5120 was executed to bring the instrument back from SAFE mode to DATA TAKING.

20/07/2003, DOY 201, Revolution 93

Nothing to report

21/07/2003, DOY 202, Revolution 93-94

Nothing to report

22/07/2003, DOY 203, Revolution 94

Nothing to report

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23/07/2003, DOY 204, Revolution 94

Nothing to report

24/07/2003, DOY 205, Revolution 94-95

Nothing to report

25/07/2003, DOY 206, Revolution 95

Nothing to report

8.3.5 OMC Operations

During this period 23 OMC images were acquired with 2 missed.

19/07/2003, DOY 200, Revolution 93

At 14:09 OMC entered SAFE mode, this was caused by an erroneous IREM output. It was eventually put back into SCIENCE mode at 16:03. The impact was that pointing 00930008 was lost.

20/07/2003, DOY 201, Revolution 93

Nothing to report

21/07/2003, DOY 202, Revolution 93-94

Nothing to report

22/07/2003, DOY 203, Revolution 94

At 08:07, OMC was put into Stand-by mode during the FSS calibration activity, as there was a large number of OEM's indicating the science window had been rejected. No imaging had been planned for this time period, and no science data was lost.

```
2003.203.08.06.51.593 2003.203.08.06.41.203 1792 Real Time Event 171 SCI
WINDOW REJECTED
FIX2=0 M5010=6,NORMAL M9079=0 M9080=171 FIX10=1 M5621=23 FIX10=0 M5621=0
2003.203.08.07.08.108 2003.203.08.07.02.828 1792 Real Time Event 150 MODE
TRANS
FIX2=0 M5010=1,STAND BY M9079=0 M9080=150 M5003=1,STANDBY FIX24=0
```

23/07/2003, DOY 204, Revolution 94

Nothing to report

24/07/2003, DOY 205, Revolution 94-95

At 03:08 two tele-commands were rejected, this was caused when pointing 00940032 was missed due to ground station problems.

25/07/2003, DOY 206, Revolution 95

At 20:56, the OMC mode showed 'None', an indication that the OMCAS had crashed. At 21:00 the OMC was disabled on the Autostack, while the instrument was re-booted. At 21:44 the unit was running again. There was no impact on the science return, as there were no OMC imaging commands for pointings 00950004 through 00950008.

```
2003.206.21.20.52.052 2003.206.21.20.40.611 1792 Real Time Event 0 OMC
CAUSE OF CPU
```

M9072=2,RBI COLD RES M9079=0 M9080=0 FIX16=0 FIX16=0

8.3.6 IREM Operations

An anomaly (SEU) occurred on DoY 2003.200, a description of what happened follows:

A local reset of the IREM CSCI S/W occurred at 14.09Z, as in the past (see anomalies on 16/12/2002 ,01/01/2003, 03/06/03 and 11/07/03) the status of the unit was nominal

- 1) temperatures nominal;
- 2) LCL current nominal;
- 3) last HK before the anomaly reported HV , 5V, 6V voltages inside limits;
- 4) the radiation counters reported the following values (few seconds before the anomaly):

U9919 (proton counter)=2
U9920 (dose counter) =6
U9921 (electron counter) = 14

- 4) the anomaly occurred at 14.09Z (during pointing 00930008) and the unit performed an automatic transition to Standard Mode (i.e. no block counter increasing, all the TM words= FFFF hex);

Dumping the checksum failure counter in the register bank (position # 3), it showed an increment of 1 unit (the past value was 4 due to the previous 4 SEUs).

The IREM automatic transition to Standard Mode (reset of the CSCI S/W) affected the instruments status via BCP: at the same time of the IREM anomaly, OMC, JEM-X2 and IBIS went in "safe mode" activated by internal automatism (due to the values 'FFFF' of the counters). SPI was not reacting, as the internal automatism is not enabled, as requested by SPI Pis and no impact was reported for the detectors annealing.

The cause of this S/W reset is probably due to a SEU, but a more deep investigation it is on-going at PIs side . An external single ionising radiation (probably an heavy ion/cosmic radiation) produced a burst of hole-electron pair large enough to cause a bit status change in the IREM memory. This event was detected by the checksum control logic that triggered the reset of the CSCI S/W.

The recovery of IREM started around 17.37Z including the uplink of the IREM patch (counters rescaling factor). The DRMC flag was disabled and the patch successfully uplinked; a dump of the memory patch was executed and sent to the PIs. The reconfiguration of the unit was completed at 20.40Z.

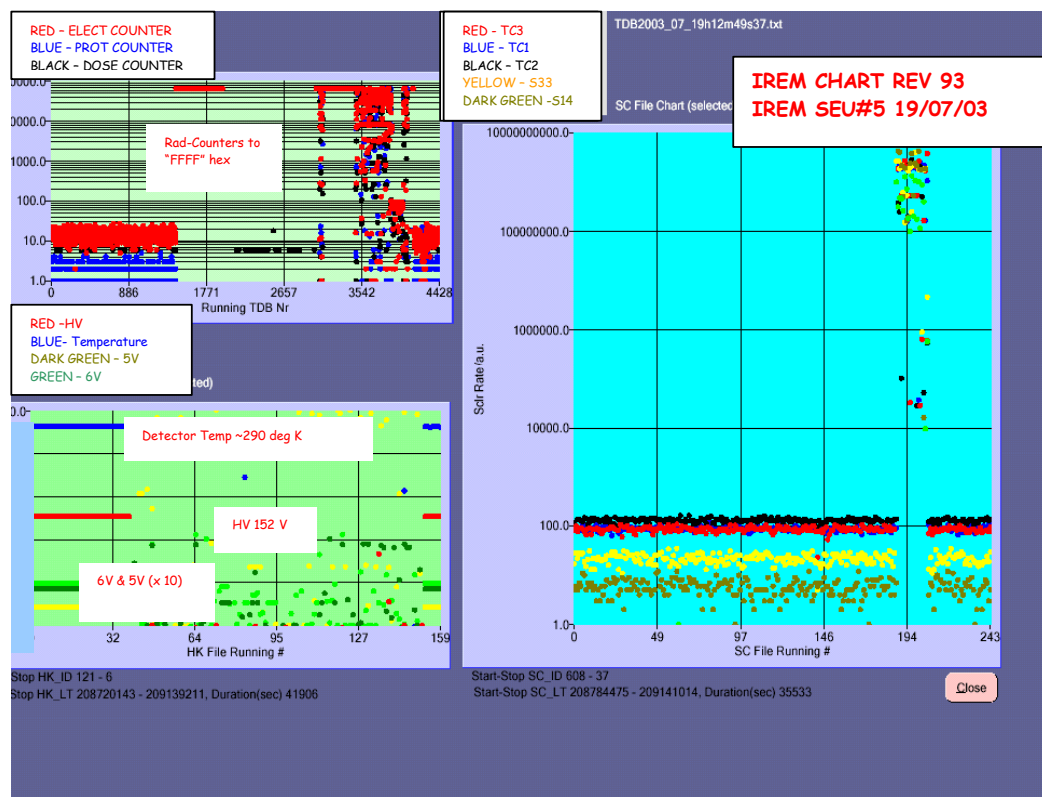
The reconfiguration of the instruments was completed at 16.01Z still during pointing 00930008. The observation time used for the reconfiguration of the payloads was < 2 hours.

After the patch, IREM was verified with different scalers and with the Ground Link ON/OFF function. The final setting of the unit were:

- accumulation time 60 sec
- HK files every 5 SCI files
- TC3 scaler for the electron counter
- S14 scaler for the proton counter

After the re-configuration the status of the unit is Nominal.

The following plots of the IREM count rates in the event of SEU #5.



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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 - 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 - 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 - 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 - 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 - 002233	2003/02/24	Time Calibration not Coherent among Ground Stations	Ground		Pending
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 - 002246	2003/03/05	Loss of Telemetry from DSS16	Ground	NASA 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 - 002259	2003/03/21	TDRS: Retrieval log is Meaningless.	Ground	IMCS	Pending

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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 - 002267	2003/03/25	Drop in link from ISDS to ISDC	Ground	I/F to SGS	Pending
INT - 002273	2003/03/27	Drop in VC7 via REDU	Ground	ESA Sta.	Pending
INT - 002279	2003/03/29	Telemetry lost from DSS-16. DR N109197	Ground	NASA Sta.	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 - 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 GI02720	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 - 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 - 002318	2003/05/09	SUN workstation 128 rebooted itself.	Ground	IMCS	Pending
INT - 002314	2003/05/12	Wrong file displayed for Timeline Summary File	Ground	IMCS	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 - 002326	2003/05/21	Hardware failure at DSS-16 during handover DR: GI02772	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 - 002334	2003/05/30	Bad telemetry from Goldstone - DSS-16	Ground	NASA Sta.	Pending
INT - 002336	2003/06/02	VC-0 telemetry not being received from Goldstone	Ground	NASA Sta.	Pending

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INT - 002337	2003/06/03	Late handover to DSS-16 due to uplink bind problem	Ground	NCTRS	Pending
INT - 002338	2003/06/03	Error sending data to consolidator (VC-7)	Ground	IMCS	Pending
INT - 002339	2003/06/05	IREM anomaly: SEU (#3)	Space	IREM	Pending
INT - 002340	2003/06/05	IBIS anomaly: Histogram production stopped due to coincidence of GSHF=1 with the start of S5 process	Space	IBIS	Pending
INT - 002341	2003/06/05	IBIS anomaly: Histogram production stopped due to the combination of PDUR setting with IASW observation duration calculation during long staring	Space	IBIS	Pending
INT - 002342	2003/06/05	Telemetry Drops from Goldstone DR: AR109393	Ground	NASA Sta.	Pending
INT - 002343	2003/06/07	Error sending data to ISDC	Ground	IMCS	Pending
INT - 002344	2003/06/08	Telemetry drops from REDU	Ground	ESA Sta.	Pending
INT - 002345	2003/06/09	Telemetry drop from Redu	Ground	ESA Sta.	Pending
INT - 002350	2003/06/12	Telemetry Drop from Goldstone DR: G102867	Ground	NASA Sta.	Pending
INT - 002351	2003/06/12	Telemetry drop from Redu	Ground	ESA Sta.	Pending
INT - 002352	2003/06/14	Late handover to DSS-16, DR G102878 and G102879	Ground	NASA Sta.	Pending
INT - 002353	2003/06/14	Telemetry drop from Redu	Ground	ESA Sta.	Pending
INT - 002355	2003/06/17	VC7 Frames received with a wrong order by ISDC	Ground	ESA Sta.	Pending
INT - 002356	2003/06/19	Telemetry drop from Redu	Ground	ESA Sta.	Pending
INT - 002357	2003/06/20	Error sending data to ISDS	Ground	IMCS	Pending
INT - 002358	2003/06/22	Error sending data to ISDC	Ground	IMCS	Pending
INT - 002359	2003/06/22	NCTRSA application restart	Ground	NCTRS	Pending
INT - 002360	2003/06/22	Loss of telemetry due to NCTRSA and IMCSA errors	Ground	NCTRS	Pending
INT - 002361	2003/06/23	Late handover to DSS-16, DR pending	Ground	NASA Sta.	Pending
INT - 002362	2003/06/23	NCTRSA application restart	Ground	NCTRS	Pending
INT - 002363	2003/06/23	Error sending data to ISDC	Ground	IMCS	Pending
INT - 002364	2003/06/24	NCTRSA application restart	Ground	NCTRS	Pending
INT - 002365	2003/06/24	Telemetry Drops from Goldstone. DR GI02942	Ground	NASA Sta.	Pending
INT - 002367	2003/06/25	SPI: Spikes in GeD count rates after HV switch on following 1st annealing	Space	SPI	Pending
INT - 002368	2003/06/25	IFTS Transfer on IMCS-A Failed	Ground	IMCS	Pending
INT - 002369	2003/06/26	Problems to establish VC0 and VC7 links on NCTRS-A	Ground	NCTRS	Pending

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INT - 002370	2003/07/01	Static PTV conditions handled incorrectly.	Ground	IMCS	Pending
INT - 002373	2003/07/01	IFMS Hung up at REDU	Ground	ESA Sta.	Pending
INT - 002374	2003/07/01	Telemetry drop from Redu	Ground	ESA Sta.	Pending
INT - 002371	2003/07/02	PSS data mixed with S/C telemetry on DOY 2003.090.17.26.01	Ground	Procedure	Pending
INT - 002375	2003/07/02	Error sending data to ISDS	Ground	IMCS	Pending
INT - 002376	2003/07/03	Unexpected behaviour of IMCA	Ground	IMCS	Pending
INT - 002377	2003/07/03	Telemetry drop from Redu	Ground	ESA Sta.	Pending
INT - 002378	2003/07/03	VC0 drop when adding bad-frames on NCTRS-A	Ground	NCTRS	Pending
INT - 002379	2003/07/03	ISDS to ISDC link drop messages	Ground	IMCS	Pending
INT - 002381	2003/07/04	All TLM links on NCTRS-A dropped out	Ground	NCTRS	Pending
INT - 002382	2003/07/05	Telemetry Drops from Goldstone DR:G102997	Ground	NASA Sta.	Pending
INT - 002383	2003/07/09	Antenna stopped at REDU	Ground	ESA Sta.	Pending
INT - 002384	2003/07/10	AD terminated on TC link	Ground	ESA Sta.	Pending
INT - 002385	2003/07/12	Telemetry lost from DSS-16 due to RFI	Ground	NASA Sta.	Pending
INT - 002386	2003/07/14	Telemetry Drop from Goldstone DR: G103032	Ground	NASA Sta.	Pending
INT - 002387	2003/07/16	IREM anomaly: SEU (#4)	Space	IREM	Pending
INT - 002388	2003/07/16	FDS failed to create TPF	Ground	FDS	Pending
INT - 002389	2003/07/16	IBIS: PICsIT PDMs counters SET to 0 during nominal operation (#3-4)	Space	IBIS	Pending
INT - 002390	2003/07/17	Goldstone station: re-play of previous pass VC7 TM at the beginning of a new pass	Ground	NASA Sta.	Pending
INT - 002391	2003/07/18	TC problems following the TMP swap on DOY 197	Ground	ESA Sta.	Pending
INT - 002392	2003/07/18	Broadcast Packet Eclipse Entry/Exit Times Incorrect	Ground	FDS	Pending
INT - 002393	2003/07/23	Auto-stack crash on sun128	Ground	IMCS	Pending
INT - 002399	2003/07/25	IFRD: the CSM-IFRD task crashed on isdsa after new IMCS SW release (8.8).	Ground	IMCS	Pending