

meeting date	2 nd March, 2003	ref./réf.	page/page	1
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meeting place	ISDC	chairman	D. Texier	
minute's date	4 th March, 2003	participants	A. Parmar, M. Schmidt, L. Hansson, R. Walter, S. Brand, D. Texier	
subject/ objet	Co-ordination meeting # 7	copy/copie	All participants + PIs + M. Kessler + S. Scaglioni	
description				

1. Approval of agenda

The agenda sent before the meeting was approved.

2. Review of actions

Status of the actions of the last co-ordination meeting :

CO/06_01 : *M. Schmidt to send a note describing the reason for the gaps seen just before the meeting.* Closed, note sent.

CO/06_02 : *A. Parmar to decide if ISDC should go ahead with the processing of rev 81 & 84 using the available consolidated data .* Closed, revolutions 81 & 84 processed.

CO/06_03 : *A. Parmar to propose a new value for the requirement on TM reception at ISDC.* Closed, no change needed as the situation is back within the specifications.

CO/06_04 : *R. Walter & M. Schmidt to devise how to make statistics on the received telemetry at an accuracy compatible with the new requirement (from previous action).* Still open. ISDC will look at the MOC description.

CO/06_05 : *M. Schmidt to distribute the note written by MOC on the IREM crashes since launch .* Closed, note distributed on 12/09/2003.

CO/06_06 : *M. Schmidt to give the time required to re-activate IREM .* Closed, answer is time < 3 h.

CO/06_07 : *All Instruments Operations Managers to provide their recommendations on the various alternatives for limiting the impact of an IREM crash .* Closed. There was only one crash since the summer so the action is considered superseded.

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CO/06_08 : *N. Lund to confirm that it is OK to switch on JEM-X in data taking at the start of a revolution and to leave it in data taking until the exposure when it will be used*. Closed, confirmed by JEM-X PI.

CO/06_09 : *G. la Rosa to review the algorithm of the alert (when the PICsIT histograms have stopped)*. Closed, inputs provided to MOC.

CO/06_10 : *E. de Miguel to raise a GS-CR for the OMC on-board S/W updates*. Closed, GS-CR raised.

CO/06_11 : *C. Larigauderie to indicate if the FEE57 has to be switched off*. Still open

CO/06_12 : *G. la Rosa to confirm that what is done at ISDC for IA-014 is OK*. Still open.

CO/06_13 : *G. la Rosa to get some feedback from Tuebingen w.r.t. IA-017*. Closed. Tuebingen is working on it.

CO/06_14 : *N. Lund to send a technical note describing the details of what JEM-X would like (diagnostic mode data during slews)*. Still open

3. Status of operations

3.1. Last eclipse season

The last eclipse season was nominal, the dod (depth of discharge) of the batteries and their delivered power was nominal.

It has been decided to perform a battery re-conditioning before the next eclipse in April. It will last ~ 10 days per battery and will have no impact on the payload operations.

The temperatures excursions due to the eclipses were within the operational limits.

3.2. Recent On-Board Software updates

The following on-board software updates have been performed since the last co-ordination meeting :

- OMC v2.9 uploaded on 05/11/2003
- SPIDPE1 v4.3.0 uploaded on 20/11/2003
- IBIS veto v3.1 uploaded on 21/11/2003
- IBIS veto v3.2 uploaded on 12/02/2004
- JEM-X1 v5.3.1 uploaded on 25/02/2004

The patch on JEM-X2 v5.3.0 will be uploaded after the Crab calibration observation.

3.3. Consequences of the high solar activity of last Autumn

A decrease of 4 to 5 % of the power array in the first year of operation has been confirmed, out of which 3 % is due to the high solar activity.

This decrease being small, there is no need to change the 40 deg constraint on the Solar Aspect Angle .

The rule applied by ISOC was to re-schedule all the observations for which the solar activity was so high that SPI or IBIS had to be switched off.

3.4. Status of the spacecraft “consumables”

There is currently 172.3 kg of hydrazine available with an average usage of ~ 600 g per month (since the RWB are used for active orbit control), compared to ~ 700 g/month earlier.

The power provided by the solar array and the IMU usage are of no concern today.

3.5. Start of AO2 scheduling

All the A grade observations (except the ToO) accepted for AO1 were kept while all the B and C grade observations were removed from the proposal database.

The AO2 observations started on 17/12.

A long-term plan covering the whole AO3 (until 15/02/2005, i.e. for 14 months) is now available on the ISOC web.

3.6. Schedule for AO3

A detailed schedule of the AO3 activities was shown. The main deadlines are :

- Documentation inputs from ISDC and PI teams on 07/06/2004, with final inputs on 12/07/2004.
- Opening of AO3 on 13/09/2004, until 29/10/2004.
- End of TAC selection on 10/12/2004.

Note that the AO3 documentation needs to be updated in order to reflect the in-orbit characteristics (e.g. sensitivities ...).

3.7. Telemetry reception at ISDC

The statistics made by ISDC on the real-time telemetry received since December 2003 can be summarized by the following figures :

- The short gaps (i.e. a few frames only) seen in the telemetry amount to 0.6 % of the telemetry in average. They are mainly due to RFI or Reed Solomon errors.
- The long gaps seen (30 min to 16 h) account for 2.6 % once averaged over the revolutions.
- The origin of these long gaps is either the MOC (for 1.8 %) or the Ground Stations (for 0.8 %).

3.8. Telemetry consolidation at ISDC for revolutions 81 & 84

In these two revolutions up to 10 % of the telemetry was lost on CD-ROMs (because of the MOC hardware upgrade).

ISDC has merged the data received in the Real-Time stream with the data received in the CD-ROM, processed the observations and delivered the products.

4. Conclusions and fallout from the Munich Workshop

The adequacy of the current dither pattern was discussed during the Munich workshop and a “Dither pattern working group” created involving the Instrument Teams, the MOC and ISOC.

5. Radiation monitoring

5.1. ISDC monitoring of the belts entry & exit

Following the same trend as is the first year of operations, an increase in the altitude for electron belt entry is being observed in the last revolutions. It was decided to increase the altitude where the JEM-X HV is switched off to 70000 km (while all the other instruments stop observation at 60000 km). This is being closely monitored in order to further increase this height if needed.

5.2. Radiation belts modelling

The model running at MOC gives prediction matching the overall trend of the IREM data. But the short-term dynamics can induce fluctuations from one revolution to the next of up to 2-3 h, which makes difficult the usage of such a model in operations.

6. IREM crashes : Status and actions

The 8th IREM crash occurred on 26/12/2003. Since there was only one IREM crash in the past 6 months it was decided to put on hold the investigations on how to limit the impact of the IREM crashes on the payload, waiting for the results of the IREM radiation test to be performed at ESTEC/Leuven.

7. New strategy for orbit control using RWB

Since revolution ~ 110, an active orbit control using the RWB (Reaction Wheel Bias) has been used in order to improve the Ground Station coverage and the overlap between the Ground Stations. From revolution ~ 140 this was further improved by having the RWB at the end of the revolution in order to reverse the trend of increasing height of the GS loss of contact. The simulations predict that the trend will continue until revolution 180 where the GS contact will be lost at ~ 40000 km before improving again. This is closely monitored by MOC.

8. Statistics to monitor the mission performance

In the monthly & quarterly reports made by MOC for D/TOS management the following figures are quoted :

- In average, 98.32 % of the scheduled slews are performed
- In average, 99.2 % of the real-time telemetry is received at the MOC.

The statistics made by ISDC show the following time breakdown for an average revolution :

- 12.3 % in the belts
- 78.0 % in science pointings
- 3.7 % in scheduled slews
- 3.4 % in dither slews
- 2.6 % in operational overheads

9. Risk management process in Integral

In order to make sure that the up-to-date status is reported to the management, it was decided to have a review process taking place 3 to 2 weeks before the risk management reports are issued (understood to be quarterly, the next one being on 31/03/2004).

10. Hacker protection of PI workstations at ESOC

Following the usage of the PI workstations at ESOC by hackers (the SPI, IREM & IBIS workstations), a protection has been installed and no problem has been seen since.

The JEM-X workstation at ISDC was also attacked and its connection to the outside stopped in order to solve the problem.

11. Re-delivery of corrupted CD-ROMs to ISDC

So far in the mission, two CD-ROMs received at ISDC were found not readable. And in these two cases the re-generated CD-ROMs by MOC were also corrupted.

MOC has taken measures to avoid the re-occurrence of the first case where the CD-ROM was in fact empty.

The second case was due to a corruption of the data. This was solved by having ISDC using the real-time data for data processing.

12. Telemetry archive at MOC

The current scheme for telemetry archive at ESOC was explained. There is no back up because the files are kept open until complete i.e. until the end of the data consolidation (the play-back from the Ground Station takes usually a week or more).

The long-term archive at MOC is made by the CD-ROM copies.

For normal revolutions (i.e. without long gaps) this process of data consolidation takes usually 2 to 3 revolutions, for a limited recovery of data (0.2 % ?).

Action CO/07_01 : MOC to provide detailed statistics on what is recovered during the consolidation of a normal revolution, i.e. without big gaps (Due date 12/03/2004).

13. Changes in JEM-X operations

13.1. Swap of JEM-X1 and 2

In revolution 170 both JEM-X instruments will be used during the Crab calibration observation and in revolution 171 onwards only JEM-X 1 will be used while JEM-X2 will be in dormant mode.

In order to implement this swap a number of activities had to be performed by ISOC in order to update the Proposal database. To avoid mixing-up the observations in case of a re-scheduling it was decided to wait until the very last moment to use the updated Proposal database for operations.

The Proposal database switch-over is planned for 03/03/2004, to be followed in the same day by the generation and export to MOC of the POS for revolution 171.

New calibration files for JEM-X1 will have to be delivered to ISDC.

Action CO/07_02 : JEM-X to indicate when the new JEM-X1 calibration files will be provided to ISDC (Due date 12/03/2004).

13.2. Switch on of JEM-X2 for checks

During the last ISWT it was decided to have JEM-X2 switched back on after 2 weeks, 2 months and 6 months in order to see how JEM-X2 will recover when it is "dormant".

Action CO/07_03 : JEM-X to provide the details for the observations of these JEM-X2 switch backs (Due date 12/03/2004 for the first one).

13.3. JEM-X telemetry allocation

Following discussions with the JEM-X team, MOC has defined and implemented a new PST (Polling Sequence Table), allocating to both JEM-X instruments a minimum of one packet.

14. OMC pointing software installation

ISOC would like to modify the installation script of the OMC pointing software and will contact the OMC team in order to discuss this update.

15. Future instruments On-Board Software updates

No On-Board Software updates are currently pending for JEM-X & OMC.
No inputs from the other instruments (SPI & IBIS).

16. Documentation

16.1. Status of the Instrument User Manuals

As indicated during the last co-ordination meeting, an update of the OMC Instrument User Manual has been sent out.

The JEM-X Instrument User Manual has also been updated and is expected to be released very soon.

No inputs from the other instruments (SPI & IBIS).

16.2. Status of the ICD updates

Two ICDs have been updated since the last coordination meeting : the OLF ICD and the ISOC-ISDC ICD.

The only updates pending concern the PSF ICD and the POS-ICP ICD (Planned to be updated in ~ 2 months after the next software update).

17. Anomaly reports

17.1. MOC anomaly reports

INT_SC-55 (SPI Spikes in GeD count rates after HV switch on) : Still open, waiting for the result of SPI investigations.

INT_SC-66 (IBIS Histogram production stopped) : To be closed, same as # 52.

INT_SC-70 (SPI wrong On Request Report Generation by IASW 4.2.0) : Still open, waiting for the result of SPI investigations.

INT_SC-71 (SPI task overrun problems with IASW 4.3.0) : Still open, waiting for the result of SPI investigations.

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INT_SC-72 (SPI : GeD # 2, anomaly on the offset of the pre-amplifier) : Still open, waiting for the result of the SPI tests in Toulouse.

INT_SC-73 (IBIS : Veto VDM 15 High voltage breakdown) : Still open, waiting for the result of IBIS investigations.

INT_SC-75 (IREM anomaly : SEU # 8) : Anomaly report to be closed.

INT_SC-77 (Survival Cat. Bed Heaters LCL switch off) : Anomaly report to be closed.

15.2. ISDC anomaly reports

IA-006 (IBIS UM context description for PICsIT) : Still open, waiting for the update of the IBIS Instrument User Manual.

IA-008 (Occasional time shift of 250ms in SPI ACS_RATE data) : Still open, waiting for the results of SPI investigations.

IA-009 (ACS_RATE out of order) : Still open, waiting for the results of SPI investigations.

IA-012 (Packets with header time zero on start-up) : The problem is understood (a bug in the DPE software). Since it has only a minor impact it is not worth a software update. To be closed.

IA-014 (Corrupted packet when IBIS reSync) : Still open. Known HEPI deficiencies. The action from the last coordination meeting (Action CO/06_12 : G. la Rosa to confirm that what is done at ISDC to recover the data is OK) is still open

IA-016 (Count rate burst in SPI camera – instrumental effect or real ?) : Still open, waiting for the results of SPI investigations.

IA-017 (Time of first event (s1) not increasing) : Still open, waiting for the delivery of the algorithm to correct it at ISDC (expected in ~ 2 weeks).

IA-019 (Drop of the PICsIT count rate during one pointing) : Still open. A teleconference is planned tomorrow to see how to flag the histograms to be rejected.

IA-021 (time stase in PICsIT SPTI data) : Still open. Problem confirmed by the IBIS Operations Manager.

IA-022 (gap in telemetry not signalled by a restart processing) : Still open.

Action CO/07_04 : D. Texier to contact the IBIS Operations Manager to get a confirmation of the anomaly (Due date 12/03/2004).

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18. A.O.B.**18.1. New sources in the OMC catalogue**

The last delivered OMC catalogue does not contain all the IGR sources found.

Action CO/07_05 : D. Texier to contact OMC to find a suitable scheme by which all the IGR sources are put in the OMC catalogue (Due date 31/03/2004).

18.4. Next meeting

The next meeting is proposed for Tuesday 21/09/2004, in IAS Rome.
