Integral Ops. Coordination Group Meeting 03

ESOC **23 Feb 2010**

Attendants

Christoph Winkler	ESA, ESTEC	CW
Richard Southworth	ESA, ESOC	RS
Salma Fahmy	ESA, ESOC	SF
Marcus Kirsch	ESA, ESOC	MK
Nikolai von Krusenstiern	ESA, ESOC	NvK
Carmen Lozano	ESA, ESOC	CL
Mike Walker	ESA, ESOC	MW
Stefano De Padova	ESA, ESOC	SDP
Peter Kretschmar	ESA, ESAC	PK
Erik Kuulkers	ESA, ESAC	EK
Carlo Ferrigno	ISDC	CF
Pietro Ubertini	IASF Roma	PU
Angela Bazzano	IASF Roma	AB
Giovanni La Rosa	IASF Palermo	GLR
Lorenzo Natalucci	IASF Roma	LN
Volker Beckmann	APC Paris	VB
Jean-Pierre Roques	CESR Toulouse	JPR
Elizabeth Jourdain	CESR Toulouse	EJ
Federico Cordero	SPI, VEGA	FC
Søren Brandt	DTU Space	SB
Albert Domingo	LAEFF, CAB	AD

1 Welcome & Agenda — PK

The Agenda was accepted modified to move some items earlier, but otherwise unchanged.

2 Actions & Open Issues — PK

IOCG/01-01	Closed by visit aorund this meeting
IOCG/01-05	Closed, no problems found so far
IOCG/02-01	Closed, no longer required
Co/11-07	ongoing, to be presented at this meeting
Co/08-03	Closed with IOCG/01-01.

3   Mission Status & Open Anomaly Reports — MOC

INT_SC-254	CDE1 switch not working	open
INT_SC-225	Empty block	open, no impact on operations, a feature
INT_SC-218	fixed with IASW 4.3.5	closed
INT_SC-194	PSD channel rates malfunction	close, nothing to be done
INT_SC-277	Spurious Switch off	closed
INT_SC-263	IBIS Veto HV breakdown	repeating issue, open for tracking
INT_SC-260	PICsIT PDM1 Latch Up	repeating issue, open for tracking
INT_SC-257	SEU causing switch off to MCEs 5-8	ongoing, procedures are being improved
INT_SC-185	VETO reduced count rates	hasn't re-occurred, closed
INT_SC-268	JEM-X 1 DFEE CRC Anomaly. Happened at various times.	Software patch to DPE might help.

Action IOCG/03–01 on SB, MW	Due: end March
Devise procedure to handle DFEE anomaly with less impact.	

4   Operations Status

4.1   Spacecraft, ESOC operations — RS

Summarized team status and MOC status (see vgs). Interfaces in GS stable. Technical status was summarized. Control room will be upgraded, leading to a temporary move.

Summarized status of spacecraft health (see vgs).

Due to lower perigee, will start to break ITU regulations and will be forced to switch off transmitter close to perigee. Probably no issue as outside GS coverage anyway.

Showed fuel usage, power supply status and perigee evolution.

Just starting to touch proton belts. Will go really into these belts around revolution 1000.

Belts/Entry exit being adapted (see vgs). JEM-X saw high countrates at end of recent revolutions.

MOC has maintained, possibly improved, the performance while having reduced manpower by factor of $\sim$2 since launch. Main effect of reduced FCT size are slower anomaly recovery times and change implementation.

4.2   SPI — SF

Summarized status of SPI and some anomalies (see vgs).

Some discussion around compression of SPI data. ISDC would prefer to keep current lossless compression for Archive consistency. JPR notes that missing parameters could be artificially filled. To be discussed further.

The cryostat has a degraded performance since CDE2 LCL trip-off on 4 Nov 2009. To avoid annealing during the eclipse season, the temperature will be allowed to drift

out of nominal range. Next annealing planned for end March with slightly changed procedure (see vgs). The cryostat status was presented in some detail.

The case of the non-moving the CDE1 relay has been studied (see vg). Will try to move CDE2 relay in next annealing.

JPR believes that the main cause of the problem is the marginal design between RTU and relay. Tests in ESOC with 2 EM relays however indicated that there was good margin in terms of both pulse length and voltage.

4.3   SPI — JPR

Solar cycle has begun again, telemetry usage *might* be decreasing. IASW 4.3.5 has been updated. Compression with reduction has been been tested on 5 Nov 2009. Best answer to "bright event" action. Reduction by suppression of some on-board parameters created by PSD. These were found to be not effective for background reduction and are not being used in analysis. Library is not valid. In decompression algorithm given to ISDC, these values are replaced by fake values.

Action IOCG/03–02 on ISDC	**Due: mid March**
Describe possible problems in implementing lossy compression in detail.	

Reported on SPI annealing #14 including the cryostat problem (see vgs) and the temperature evolution. Problem with LCL was contained this time, but could have been much worse. JPR strongly recommends to try again to switch to backup configuration.

Reported on Crab timing results on on calibration efforts for Rev 839 (wide 5×5)

4.4   IBIS — GLR

TM usage rather stable not saturating frequently. Patch to remove some alerts in qualification. Further patch to avoid transition to safe in case of IREM crash under development. Also looking at use of buffer for short periods of TM saturation to avoid loss of packets.

Some dicussion between JPR, GLR and FC on TM saturation.

4.5   IBIS — VB for FL

Summarized team status (see vg). Solar cycle effects clearly seen. Spectral drift to be discussed in OSA discussion.

4.6   JEM-X — SB

DFEE CRC anomaly happened several times. Effect could be mitigated (avoid power cycle) by procedure comparing CRC dump.

To possibly run both JEM-X units would require 6 packets more.

JEM-X2 is default unit since Rev 856. Both units to be used for Crab calibrations and during SPI annealings. Gain evolution in JEM-X2 follows same pattern as in JEM-X1.

Anode loss ~1% per year, one lost in JEM-X2.

Explained idea for upcoming Crab calibration (see vgs).

For very bright sources grey filter introduces artificial structure in timing, manuals & known issues should be updated.

Deep mosaics can show systematic structure around sources. This can be avoided if source detection is forced for known sources.

Action IOCG/03–03 on SB+ISDC	**Due: for OSA9**
Update Known Issues and manuals.	

4.7   OMC — AD

Operations and instrument running smoothly. Photometric accuracy is improving, as contamination has stabilized. Number of hot pixels is increasing slowly and monotonically with time. Dark current increasing slowly (see vgs).

4.8   ISOC — PK

See vgs. AO-8 preparations on track. New LTP tool to be operational by summer. Data Archive still very significant work, rather increasing than decreasing.

4.9   ISDC — CF

Presented team status (see vg) and recent changes at ISDC.

Summarized archive usage ($\sim$500 visitors downloading $\sim$1.5 Tb per month).

Rev 3 archive to be released in March with OSA 9.

Delay in distribution driven by CD & pipelines. This was discussed in some details.

RS proposes to just ftp CD image as done for ISOC. (note that the CDs can still be generated if required but the time delay created by burning and forwarding CDs can be eliminated). JPR can provide software tool to automatically generate CDs from transmitted files.

Action IOCG/03–04 on ISDC+MOC	**Due: end Mar**
Provide more detailed statistics on data distribution delays, i.e., breakdown of delays due to CD production, CD shipping, pipelines, archive & distribution.	

5   Background, TM allocation and TM usage

SB has already shown his vgs.

SF presented the results of a study she did on the long-term evolution of detector countrates across all instruments (see vgs). All instruments show the rise, but not by the same amount, apparently.

JPR notes that deadtime corrections need to be applied. Went on two explain different components, prompt and other.

SB noted that JEM-X background is directly linked to proton flux.

Need to study this further.

6 Bright sources — SF and others

SF summarized the main points from the available TN draft (see vgs). As open work, mainly new EDs need to be defined (14 for IBIS, 2 for JEM-X). Not all of these EDs can be planned by ISOC as they are part of the EDs supplied by Flight Dynamics. Thus the proposed mechanism is to raise an Operations Request (directly to the SPACON, not to be mixed with the OCRs). The OR should be approved by the PS, similar to a TOO, and by the SOM for technical feasibility.

Several specific questions were raised, some need further work.

JPR asked about implementing a larger buffer for IBIS instead of the required margin. According to the IBIS team this would not be sufficient.

Action IOCG/03–05 on IBIS team	**Due: end March**
Settle question on NPHS parameters	

Action IOCG/03–06 on JEM-X team	**Due: end March**
Define sequence of anode disabling.	

SB points out that if JEM-X has gone to Safe already then the anode reconfiguration must be done before reactivating and the activation sequence should be changed accordingly.

7 Calibration status

SPI status has been shown in SPI presentation.

VB presented the case for the IBIS mask calibration (see vgs). Private observation on Cyg X-1 field plus special pattern during upcoming Crab calibrations.

LN reported on the preparation of new ARFs (see vgs). Last ARF produced was based on data from revolution 541(!). New ARFs are expected mid March. Also the point source location accuracy has been checked again (last done by Gros et al. 2003). Accuracy found to be improved significantly.

PK asked if ARF generation would become more regular.

8 OSA9 Status & projects

VB summarized status

Questionable result by Wang et al. (2009), caused by data at large off-axis angles.

Action IOCG/03–07 on ISGRI team & ISDC	**Due: for OSA9 release**
Improve documentation on limitations for ISGRI analysis	

CF reported on calibration studies done at ISDC (see vgs). Drift in energies found by CF may be a software issue – to be followed up between ISDC and Saclay.

9 Time correlation issues — CF & RS

CF reported in time correlation Updated time correlation data up to Rev 890 has been supplied by MOC and will be made available to the users.

MOC can provide time correlation data also in NRT once requested.

RS gave more details on the existing time correlation issues and software improvements (sse vgs). Oscillators on-board are not temperature-controlled. There is a correlation between temperature and the error value slope. There is also a long term evolution of the Oscillator frequency.

Question from JPR: when available? CF: in March.

10 Problems with consolidated data – CF, RS

For Rev 800 a problem was found and fixed at MOC. Problem reported for Rev 795 (less data) traced back after a long search to missing attitude snapshot data. ISDC should be more explicit when reporting missing data.

11 IBIS OBSM facility + proposed patches – RS & NvK

See vgs. OEM and IREM crash in the work. Need qualification. Expected time frame couple of months.

12 PI workstation security – RS

Break-in attempt from China to ESOC computers. NvK now implementing firewall allowing access only from specific IP addresses. Details are sorted out between PI teams and MOC.

13 AOB

Next IOCG Meeting to be held close to revolution 1000 (just before Christmas). Proposed sites: Paris, ESOC, Redu.