**XMM-Newton and INTEGRAL weekly
Mission Operations Report**

XMM-INT-WOPS-24_13-14

Issue 1

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1. Weekly report

	XMM	Integral
Main activities	- Nominal Operations - Validation test passes on TOH - Lela tests on S7 - Manual spacecraft recovery without propellant procedures - CDMU recovery automation - Automation of Replenishment	- Routine science operations - Deployment of ODB 3.1_0091 - Eclipse season 31st March to 8th May (16 eclipses). Including moon eclipse 8th April.
Status and performance of S/C	Nominal for platform and all instruments	Manual transponder swaps following RF switch anomaly
Status and performance of Ground segment	Nominal apart from some issues with Tolhuin/KSAT general support.	Nominal
S/C Anomalies	None	None
G/S Anomalies	- XMM-1551 Tolhuin/KSAT General Support Issues - XMM-1558 MOIS system crash - XMM-1562 Frequency offset prediction file not available due to FD server (orbit directory) outage - XMM-1564 Low signal level during YAT passes, TM/TC unstable or no TM/TC	- INT-3940 Solar Flare Interrupts Science Operations - INT-3941 ISDC unable to process cons data since Rev 2745
Future activities planned	- NSM via MOIS - Cebreros migration - Webserver and NRT Analysis/Monitoring migration	- FOP Release 5.0 - Automation of Transponder swap operations - Automation of ground station operations (EVFM)

2. Detailed weekly operational events

note: all times are Zulu (in brackets DOY)

2.1. XMM

- 20/03/2024 (080) 07:25:00 Automation System 3.4 deployment according to OI-4677
- 22/03/2024 (082) 00:48:18 XMCSA:TCOserver:"TEDV_SET_OVERFLOW". Re-started
- 22/03/2024 (082) 06:51:15 Restarted MOIS (MOIS executor process RAM utilisation at ~4.5GB; see *AR XMM-1558*)
- 23/03/2024 (083) 04:50:10 G/S handover from KRU to TOH. Complete loss of TM and TC from TOH. After 30m+ of sweep attempts a full GS reconfiguration was requested.
  - o 05:59:38 It is decided to move to YAT; AOS YAT at 06:15.
  - o 06:17:18 Very poor signal (also see *AR XMM-1564*). TC via YAT, TM via TOH
  - o 07:16:42 Instrument recovery finished
  - o 15:03:18 Es/No @ YAT +2.3dB. Swapped TM links to YAT
- 25/03/2024 (085) 01:27:42 Restarted MOIS since crashed (see *AR XMM-1558*).
- 25/03/2024 (085) 04:39:09 G/S handover from KOU to TOH: TM ok. No carrier at expected time due to U/L amplifier issue; commanding successful at 05:28; instrument recovery until 06:23:20 (see *AR XMM-1551*)
- 25/03/2024 (085) 11:45:41 Warning message from FD system stating upcoming OSL cannot be allowed due to the wheel speeds; reason: problems with job scheduler. Restart by FD needed. Slew from timeline as is.
- 25/03/2024 (085) 15:04:43 G/S handover from TOH to YTH. YAT low Eb/No (also see *AR XMM-1564*). No TM but good TC. Pass moved to TOH at 16:22
  - o 16:22:05 AOS G/S TOH
  - o 16:33:59 Complete loss of TM and TC from TOH (see *AR XMM-1551*)
  - o 18:05:50 YTH configured for downlink only.
- 27/03/2024 (087) 08:14:46 No TC from 08:23 - 08:40 due to issues with ORATOS server: it was not possible for ESTRACK to find the doppler frequency offset information and to provide it to the station (webpage down; see *AR XMM-1562*)
- 30/03/2024 (090) 11:15:47 MOIS crashed. "Error during screen refresh'. Restarted (*AR XMM-1558*)
- 31/03/2024 (091) 04:14:40 G/S handover from KRU to TOH by MOIS
  - o 04:16:14 MOIS handover ended with errors twice
  - o 04:17:00 Not able to manually disconnect TC link to KRU
  - o 04:19:00 XMM_XMC_0002 Swap from operational to backup NIS
- 03/04/2024 (094) 10:40:00 MOIS popup window errors: failed refresh. Scheduler restarted.
- 03/04/2024 (094) 11:03:50 MOIS restarted twice due to uncertain behaviour reported by previous spacon (also see *AR XMM-1558*).
  - o Impact: 03/04/2024 (094) 11:16:50 MOIS delete TT's procedure was not be executed
  - o Recovery: 11:43:07 SOE CRP_SYS_5005 & 11:54:00 CRP_EPN_0000
- 04/04/2024 (095) 13:59:00 SOE executed OI 4685 Re-synchronization of Instrument RBI Clock
- 05/04/2024 (096) 21:29:49 Repeating EvL Message: TCOServer, XMCSA, WARNING, ' "TDEV_SET_OVERFLOW" 4 "PusSrcSeqCnt" '. Task "TCO Server" restarted on XMCSA.

2.2. INTEGRAL

- 22/03/2024 (082) 09:41:47 OI #2474- Performed chain swap A => B AD Service established, D3831 Link Test CMD successful. IODB 3.1.0091 is now running on the B-chain

- o 11:04:10 During chain swap, the following OOL appeared on the B chain MCS client OOL panel, with OOL time at 081:16:06:50 OOL DD5203D. BPKT BLT EX VAL. Value = Failure. Limit = OK OOL Time Could not find OOL in SVM or AOCS x-ref. AI found an ARTS entry (INT_DCR/547) BPKT belt times onboard (D5201 & D5202) are correct according to current EPOS.
- 23/03/2024 (083) 09:19:06 OOL M5024 STATUS - CCD OFF at 09:14 Followed by MD0033D. OMC_SAFEOUTBELT at 09:17 OMC went to SAFE OMC S/S disabled in timeline *(see also AR INT-3940)*
  - o 11:41:02 OOL E3500. P_DF_CNVT-BW_L,1. HIGH/HIGH. Value = 130825. Upper limit = 125000 X-ref acgtion; In case of alarm high: 1) It could happen in case of high radiation environment conditions (to be verified via IREM count rates, i.e., TM parameters U9919, U9920, U9921), induced by strong solar flares or outside the belts but close to BCP belts entry/exit times within +/- 2hrs when ACS HV is supposed to be ON. If this is the case then just take note and disregard the alarm. TM paras U9919 = 20 U9920 = 0 U9921 = 61 Informed on-call SOE Note 1: Belt Entry time 083:14:10:28 Note 2: As mentioned in prior log entry ongoing space weather event shows 10Mev count at 119 with an increasing trend.
  - o 12:32:01 OOLs K /L 5315. RAD MONITOR 1 (JEMX 1 & 2) HIGH/HIGH. Val = 26. Upper Limit = 19 X-ref action; - Record and inform on-call SOE - N.B. JEM-X1 currently has no reactions to IREM count rates (TM paras K5315, K5316 & K5317). Therefore, if these parameters are OOL, JEM-X1 will not go to Safe autonomously. If these parameters stay OOL for a long time (730 mins), call SOE as we may have to command JEM-X1 to Safe mode manually (FCP_JEM1_0040). Notes: Belt entry time 083:14:10:28 OOL expected due to ongoing space weather event.
- 24/03/2024 (084) 00:46:08 Several OOLS for IBIS since more than 20 min: G2055, G2041, G2013, G2083, , G2027 Status HIGH G2111, G2069 & G2097 Status HIGH HIGH Oncall informed timeline *(see also AR INT-3940)*
  - o 06:02:57 OOL GD9921D. IBIS RAD TH ELEC. Val. Hard HIGH. As per X-ref. No action as instrument already in Standby.
  - o 20:43:05 Executing procedure "FCP_IBIS1_0803" to recover IBIS
  - o 20:59:38 IBIS is back in science standard
- 25/03/2024 (085) 07:03:36 CRP_OMC_5120 OMC RECOVERY FROM HIGH RADIATION
  - o 07:04:35 FCP_OMC_0041 OMC EXIT FROM SAFE MODE
  - o 09:35:00 FCP_MCS_0011 Operations Swap IMCB to IMCA IIODB 3.1.0091 is also now installed on the A chain. NIS-A is also restarted at this time.
- 27/03/2024 (087) 13:00:00 Uploaded TPF 2759_0001_M.DRA (OI_2472) post IMU calibration - Procedure FCP_AOC_1622::UPDATE ACC IMU DRIFT TPF 2759_0001_M.DRD to update FDE IMU drift were not uploaded because on-board values already equal to the ones in the TPF, i.e. on-board values are already the correct ones, hence there is no need to update them (see attached file).
- 31/03/2024 (091) 17:26:29 Eclipse START
  - o 17:56:58 Eclipse END
  - o 20:32:52 OOL L5583 "CPU MODE". Value = 8MHZ. I_CRP_JEM2_5011 started.
  - o 20:46:01 I_CRP_JEM2_5011 complete. S/S JEMX-2 re-enabled.
- 03/04/2024 (094) 09:12:36 Eclipse START
  - o 09:54:03 Eclipse END
- 06/04/2024 (097) 01:01:00 Eclipse START
  - o 01:48:43 Eclipse END