

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

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**XMM-INT-WOPS-24\_05-06**

**Issue 1**

**Date: 19 February 2024**

Marcus Kirsch  
OPS-OAX

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## **1. Weekly report**

	<b>XMM</b>	<b>Integral</b>
<b>Main activities</b>	<ul style="list-style-type: none"> <li>▪ Nominal Operations</li> <li>▪ Lunar eclipse 9th February</li> <li>▪ XMM New Safe Mode Patch 1 - Extended Memory Test</li> <li>▪ Blemish Pixel Survey</li> <li>▪ Batt1 reconditioning</li> <li>▪ DABYS D/B implementation kick off Feb. 7</li> <li>▪ Lela roll out on S7</li> <li>▪ Manual spacecraft recovery without propellant procedures</li> <li>▪ CDMU recovery automation</li> <li>▪ NSM on board</li> <li>▪ Automation of Replenishment</li> <li>▪ F/D automation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Routine science operations</li> <li>▪ Battery 1 Reconditioning since 7<sup>th</sup> February</li> </ul>
<b>Status and performance of S/C</b>	<ul style="list-style-type: none"> <li>▪ Nominal for platform and all instruments</li> </ul>	<ul style="list-style-type: none"> <li>▪ Manual transponder swaps following RF switch anomaly</li> </ul>
<b>Status and performance of Ground segment</b>	<ul style="list-style-type: none"> <li>▪ Nominal, apart from some issues with TOL and AGO currently red due to degraded performance of the SSPA</li> </ul>	<ul style="list-style-type: none"> <li>▪ Nominal</li> </ul>
<b>S/C Anomalies</b>	<ul style="list-style-type: none"> <li>▪ None</li> </ul>	<ul style="list-style-type: none"> <li>▪ None</li> </ul>
<b>G/S Anomalies</b>	<ul style="list-style-type: none"> <li>▪ XMM_CCR-2427 X_GS_HANDOVER fails to remove UNBOUND links</li> <li>▪ XMM_CCR-2415 X_FCP_DHS_2001 missed packet</li> </ul>	<ul style="list-style-type: none"> <li>▪ INT-3932 VC7 offline data could not be retrieved from KIR Cortex 1 or 2, only from IFMS</li> <li>▪ INT-3933 Incorrect DEBPG100 ECL Exit Parameter Triggers Payload to ECL Passage Mode</li> <li>▪ INT-3934 High radiation affecting Integral science operations (OMC, JEM-X)</li> <li>▪ INT-3935 High radiation affecting Integral science operations (OMC, JEM-X, IBIS)</li> </ul>
<b>Future activities planned</b>	<ul style="list-style-type: none"> <li>▪ PDR on NSM patch 15th February</li> <li>▪ NSM via MOIS</li> <li>▪ Webserver and NRT Analysis/Monitoring migration</li> </ul>	<ul style="list-style-type: none"> <li>▪ Automation of Transponder swap operations</li> <li>▪ Automation of ground station operations (EVFM)</li> </ul>

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## **2. Detailed weekly operational events**

note: all times are Zulu (in brackets DOY)

### **2.1. XMM**

- 30/01/2024 (030) 15:51:28 OI#4646 *XMM New Safe Mode Patch 1 - Extended Memory Test* executed successfully.
  - o 15:51Z XMM NSM Patch 1 Test
  - o 16:00Z MSP station as back-up for the CDMU Test
  - o 16:24Z FCP\_DHS\_9211 (X1,0) & \_9212 (X1,0) Extend Memory was tested for NSM
  - o 17:52Z FCP\_DHS\_9201 (X1,1) Performance Measurement pre-NSM was good
  - o 18:40:00 End of OI#4646
- 02/02/2024 (033) 13:42:00 until 15:45Z Bad frames & frames out of sequence from G/S YAT.
- 04/02/2024 (035) 23:12:32 MOIS G/S handover job failed with errors. The TM links for YAT remained bound and the link closure throw event failed. Manually closed YAT links & disabled NIS throw events in TC spacon (**see XMM\_CCR-2427 X\_GS\_HANOVER fails to remove UNBOUND links**)
- 05/02/2024 (036) 06:24:16 OI#4649 *IMU drift calibration for lunar eclipse & STR Blemish pixel survey*
- 05/02/2024 (036) 12:50:00 until 14:21Z OI#4650 *CDMU Performance Measurement* (FCP\_DHS\_9201 Steps 1 to 4). Completed successfully.
- 05/02/2024 (036) 16:14:05 OI#4655 *DSN SLE gateway test on NIS-A*. Completed successfully.
- 06/02/2024 (037) 07:50:55 Arrival of Spring-2024 XMM IMU Calibration IPFs
- 06/02/2024 (037) 13:00:55 When switching to PST2 during MOS2 recovery, X\_CRP\_ERM\_0027 was triggered. The Spacon was not able to abort the execution of the procedure on the MOIS interface but via the PANIC button in TC-Spacon.
- 06/02/2024 (037) 15:03:52 OI#4656 *Update of IMU drift parameters* using FCP\_AOC\_0400
- 08/02/2024 (039) 08:05:00 OI#4654 *Preparation for Lunar Eclipse*
  - o Executed FCP\_EPS\_0151 (X1,0) "Check Power S/S prior to Eclipse" - all checks confirmed
  - o 08:15:00 Executed X\_FCP\_DHS\_2001 (v1) "Loading of Monitoring Table, eclipse" - Step 10 failed as MOIS did not trap packet 85ZZ.DS8 (reception confirmed manually). Last TC of the procedure (D3491 ENA MONITOR) sent manually (**see XMM\_CCR-2415 X\_FCP\_DHS\_2001 missed packet**)
- 08/02/2024 (039) 21:17:00 Connectivity test with G/S KRU. Not able to bind links. NOC later confirmed that they had misconfigured the station (configured for offline links), a successful bind was made at 22:00.
- 09/02/2024 (040) 07:35:40 Repeating EvL Message: TCOServer, XMCSA, WARNING, "TDEV\_SET\_OVERFLOW" 4 "PusSrcSeqCnt" '. Task "TCO Server" restarted on XMCSA.
- 09/02/2024 OI#4654 *Lunar eclipse 9th February*; eclipse forced via TT TCs
- 09/02/2024 (040) 13:58:00 Post lunar eclipse: End of revolution Instrument Safety Time Tagged commands were deleted manually and MOIS plan 4426, containing the TTAG deletion procedures, was closed.
- 10/02/2024 (041) 00:03:04 START of procedure X\_CRP\_SYS\_5100; due to previous RM crash MOIS was not able to detect that radiation is high and took no action; Manually disabled S/S 3, 4, 5, 7 and 8 in T/L (**see XMM\_CCR-2428 X\_CRP\_SYS\_5100 with failed RM**)
- 10/02/2024 (041) 00:16:16 OI#4654 *Lunar eclipse 9th February*; X\_FCP\_DHS\_2002 (v1) "Loading of Monitoring Table, none Eclipse"
- 12/02/2024 (043) 07:45:41 OI#4659 *Batt1 reconditioning*
- 12/02/2024 (043) 08:37:57 OI#4660 *Blemish Pixel Survey – February 2024*

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### **2.2. INTEGRAL**

29/01/2024 (029)

06:02:53 OOL. M5024. CCD OFF. Followed by MD0033D. OMC\_SAFEOUTBELT at 06:05:57

Disabled OMC s/s in t/l. **See AR-3934**

13:52:06 OOL - H/H K/L5317 'Rad Monitor 3' (value= 88) informed onCall-SOE (L. T. )

13:54:40 FCP\_JEM1/2\_0040 - JEMX1/2 TRANSITION TO SAFE

30/01/2024 (030)

10:53:06 IREM Crash: U9913,U9912,U9910,U9909,U9904 OOL

15:26:43 CRP\_SYS\_2570 - Payloads Recovery after IREM Anomaly(SEU)

18:29:39 TC: M1511 'SAFE OFF' uplinked --> S/S OMC enabled on the A/S

01/02/2024 (032)

08:32:31 FD system failed to generate update for OSL 27380052. As per OI2442, condions have been met to permit the slew without updates. However, noticed the FD terminal log has continual timestap and file creation errors which may also impact further slew updates. Informed FD on-call

02/02/2024 (033)

13:30:00 Offline Retrieval for missing V7 TM from DOY005-006 at Kiruna fails on both Cortex1&2. No data found GOE investiagtes and find the data files are actually available, seems to be a problem with the V7 offline retrieval SI (doesn't work for other day ranges either). TMTCS1 Offline SI however can retrieve the data and are bound. **See AR-3932**

05/02/2024 (036)

07:58:47 OI-2457 GDM + AT commanding. Preperation for battery reconditioning

08:10:00 Start of the Batterie 1 reconditioning with the discharge kick-off. Used a stack based on the steps described in FCP\_EPS\_1280.

08/02/2024 (039)

09:08:38 IREM Crash: U9913,U9912,U9910,U9909,U9904 OOL -> Begin with procedure

CRP\_SYS\_2570 **See AR-3933**

09:18:57 S/S 6 (RM), 8 (IBIS) & 11 (OMC) disabled on the A/S

09:22:09 DRMC flag set to DISREGARD w/ Problem Reason for the problem: By trying to put DRMC flag to DISREGARD with the seq DEBPG100, the Eclipse Exit time was entered with a wrong year, 2014 instead of 2024 -> All instruments switched OFF due to the Eclipse signal. Spacon realised the wrong Eclipse Exit Time after sending the seq by checking the AND and sended the seq with the correct times again, but the Exlipse signal has triggered the instruments already.

09:30:22 FCP\_OMC\_0041 initiated

09:32:33 FCP\_IBIS1\_0803 initiated

09:46:57 Seq GS0803 failed at command number 9 -> called on-call

11:29:47 GECLEX02: Recovery of IBIS1 after "spurious software ECL" (No Eclipse Signal, "just" a wrong ECL Exit time. See 08/02/2024 (039) 09:22:09) Due to "intermediate" Status JH, TF and NvK removed the Heater CMDs 4.1 to 4.5

11:43:28 E0555 from EECLEX02 Recovery of SPI after spurious "Software ECL". (No Eclipse Signal, "just" a wrong ECL Exit time. See 08/02/2024 (039) 09:22:09)

12:04:38 Send GECLEX02 (Picsit part only) Transition to nominal mode via sequence did not work due to hybrid configuration (TC G0501 to standby CTX load failed release). Send rest of the Picsit commands and then TC G0503 to set picsit to Nominal mode

12:28:58 Send VETO part of GECLEX02 Send FCP\_IBIS1\_0803 at 12:36 (skipping the TCs setting a voltage of 70V)

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12:51:33 GESTAN02 uplinked - IBIS to Scien. Standard (supervisor T. F. ) S/S IBIS enabled on the A/S

12:54:06 Send KEHVAC01 Send LEHVAC01 at 12:57:17

13:12:55 K/LEDATA02 uplinked - JEM\_X1/2 to DATA TAKING S/S JEM\_X1/2 enabled on the A/S

13:32:17 CRP\_SYS\_2570 - Payloads Recovery after IREM Anomaly(SEU)

14:39:55 S/S RM enabled on the A/S

14:45:26 OOL M5024 STATUS - CCD OFF OMC went to SAFE. **See AR-3935**

15:44:15 FCP\_JEM1/2\_0040 JEMX1/2 TRANSITION TO SAFE - confirmed with onCall-SOE(J. M. ) S/S JEM-X1/2 disabled on the A/S

16:54:00 OOL: GD9921D BIS RAD TH ELEC, High High - toggles in 'n' out FALSE ALARM Wrong TM G8498 'S1E-RAD THR1' used for electron count comparison. Corrected by SOE(T. F. ) to G8387 in OL script

23:18:22 OOL: GD9921D 'IBIS RAD TH ELEC' IBIS to stand-by

10/02/2024 (041)

08:21:16 Under supervision of on-call (JM): CRP\_JEM1\_5060 carried out to put JEM-X1 to SETUP, failed at step 6 due to still high radiation

15:15:44 Conditions to recover IBIS met. Executed CRP\_IBIS1\_5120 with guidance of on-call SOE. Then sent Seq GESTAN02 with most recent values. Re-enabled IBIS in T/L

11/02/2024 (042)

08:28:59 TC for OMC failed, instrument is back to safe, S/S 11 (OMC) disabled on the A/S, called on-call (JM)

17:05:05 Executed FCP\_OMC\_0041 on request of on-call SOE. OMC Exit from safe mode. Next exposure should begin at ~17:15 (re-enabled OMC in T/L)

19:27:58 IREM Crash: U9913,U9912,U9910,U9909,U9904 OOL S/S IBIS, OMC + RM disabled on the A/S

19:45:36 FCP\_OMC\_0041 - OMC EXIT FROM SAFE MODE S/S OMC enabled on the A/S

20:05:18 FCP\_IBIS1\_0803 - IBIS EXIT FROM SAFE MODE

21:28:07 S/S RM enabled on the A/S

12/02/2024 (043)

07:00:22 KD0033D JEMX1\_SafeOutOfBelt, status LD0033D JEMX2\_SafeOutOfBelt, status space radiation still high Jemx1,2 left in safe - oncall will assess later

07:28:38 spike in (space radiation) causes: E3500 High High P\_DF\_CNVT-BW\_L,1, 133318 (limit125000)

08:33:50 M5024 CCD OFF MD0033D OMC SafeOutOfBelt (high Space Weather)