



Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:

Date:

Issue:

FOS Report for week 13, year 2023

from 27 MAR 2023 to 03 APR 2023

1.0

1 General Comments

Activities scheduled for this week are those planned for the 13th calendar week of 2023:

27 MAR 2023 to 03 APR 2023 (DoYs 086 to 093).

The following routine activities were planned this week (see Gantt chart on next page and CRF n° 1110).

- One Warm NIR Calibration on 29 MAR 2023 (DoY 088) with ETO 03:28:40z (orbit 70436; DESCENDING: thermally UNSTABLE) and with the following expected calibration values:

$$B.T. = 3.86^\circ$$

$$R.M.S. = 0.59$$

$$Sun\ elevation = 3.33^\circ$$

$$Moon\ elevation = 32.62^\circ$$

$$R.A. = 91.26^\circ$$

$$DEC. = -28.09^\circ$$

- One PMS Offset on 30 MAR 2023 (DoY 089), including three Short Calibrations at 06:25:00.0z, 06:25:34.8z, and 06:26:09.6z (orbit 70452).
- Local Oscillator Calibrations every 10 minutes.
- X band Passes over ESAC and Svalbard.

2 Mission Planning Deviations

Because of the CCU reset 31 MAR 2023 the following X band GS passes were not acquired (see Sect. 4):

| Station | AoS | LoS | Duration |
|------------|---------------------|---------------------|----------|
| Xband_SVAL | 2023-03-31T03:09:45 | 2023-03-31T03:20:08 | 622 |
| Xband_ESAC | 2023-03-31T04:42:57 | 2023-03-31T04:48:29 | 332 |
| Xband_SVAL | 2023-03-31T08:12:43 | 2023-03-31T08:18:56 | 372 |
| Xband_SVAL | 2023-03-31T09:55:14 | 2023-03-31T09:59:16 | 241 |
| Xband_SVAL | 2023-03-31T11:37:02 | 2023-03-31T11:40:45 | 222 |
| Xband_SVAL | 2023-03-31T13:17:34 | 2023-03-31T13:23:14 | 340 |
| Xband_SVAL | 2023-03-31T14:57:28 | 2023-03-31T15:05:25 | 476 |

The following X band GS passes were acquired with the autodownlink function:



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| Station | AoS | LoS | Duration |
|----------------|---------------------|---------------------|-----------------|
| Xband_ESAC | 2023-03-31T06:20:14 | 2023-03-31T06:27:53 | 459 |



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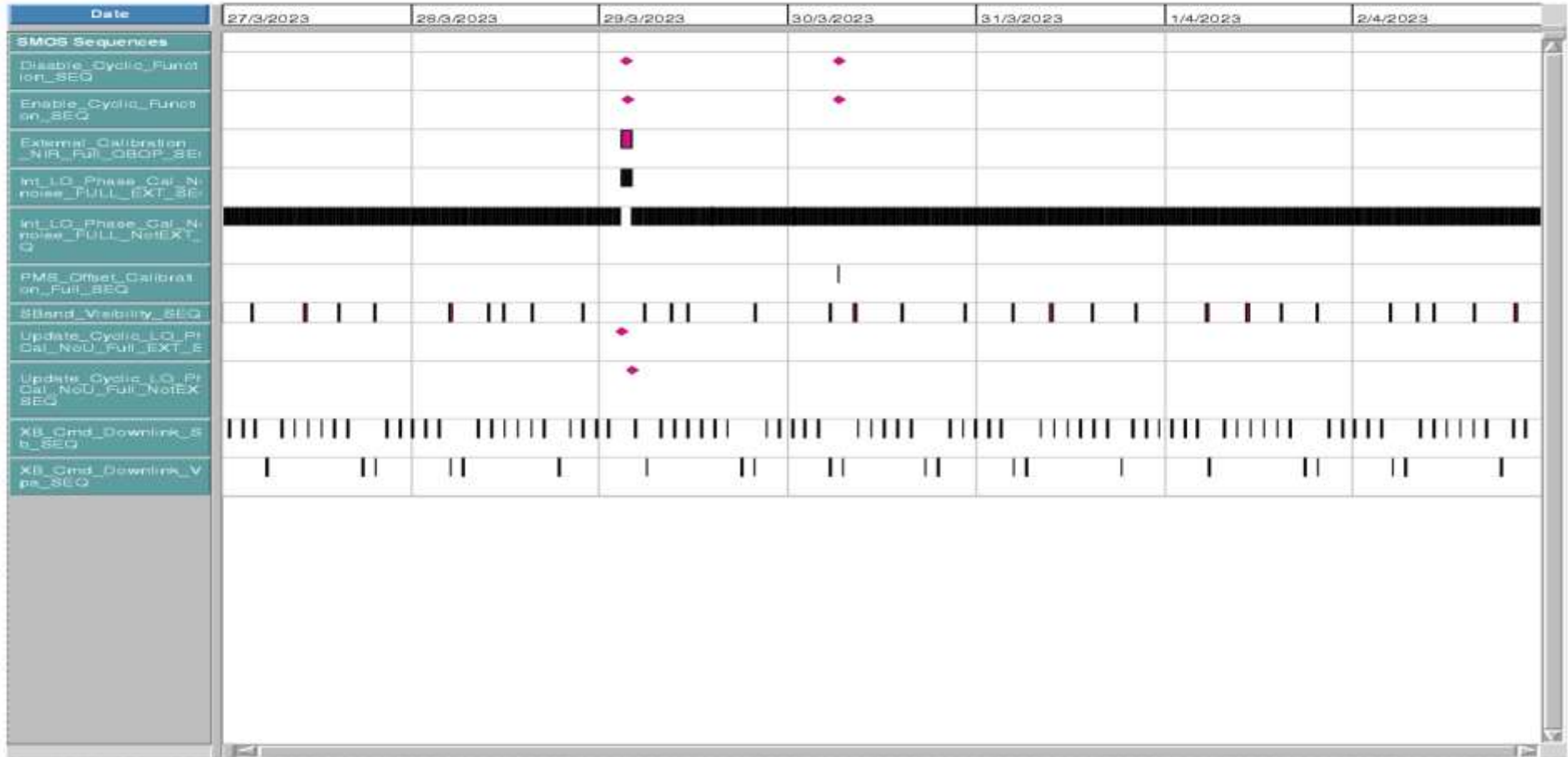
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Schedule Name: 2023_w13_es ### Display start: 27-03-2023 00:00:00.000 ### Display end: 03-04-2023 00:00:00.000





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3 TC Failures

None.

4 On Board Anomalies

- Control Unit reset 2023-03-31T01:34:19z (DoY 090), at the end of ESAC X band GS pass 2023-03-31T01:30:33z. Anomaly was detected by CNES upon reception of S band GS pass ASX-28 (AoS = 2023-03-31T04:38:42z). Recovery was agreed for S band GS pass KUX-36 (AoS = 2023-03-31T09:27:15z; CRF No. 1112).

Last MIRAS TM packet received before reset was time stamped 2023-03-31T01:34:19z. Reset was triggered by the standard OBSW error Task Overrun (information included in the Boot Report packet).

Anomaly was preceded by the following set of alarm TM packets:

2023.090.01.34.18 MM_Science_Write_Failure

2023.090.01.34.18 MM_Science_Write_Failure

2023.090.01.34.18 MM_Science_Write_Failure

2023.090.01.34.18 MM_Address_Acquisition_Failure

2023.090.01.34.18 MM_Scrub_Frequency_Acquisition_Failure

2023.090.01.34.18 MM_Error_Counters_Acquisition_Failure

Nominal MIRAS X band GS dumps resumed 2023-03-31T16:37:16z over Svalbard.

The values of the READ and WRITE pointers at the time of the reset were:

READ = 226558 (Partition P0)

WRITE = 486150 (Partition P1)

The anomaly was geolocated over the Artic Ocean, due north of Finland:

LAT. = 74.87

LONG. = 34.00

This reset caused 231 s of science data losses.

- MIRAS instrument MM, partition P4, latched up 2023-04-02T06:57:22.627z (DOY 092).

The following parameters went out of limits in the PLPC system:

2023.092.06.57.22,627z DMASME37 SDD LU Detected



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2023.092.06.57.22,627z DMASME08 LU Switch P4

This anomaly was geolocated over Greenland:

LAT. = 76.79

LONG. = 306.95

There were no science data losses associated with this anomaly because it affected partition P4, while the Read and Write pointers were both in partition P0.

Recovery took place Monday 03 APR 2023 at 15:00:00z (CRF No. 1113).

At the time of the anomaly the position of the MM pointers were as follows:

READ = 83807 (partition P0)

WRITE = 119322 (partition P0)

5 On Board Events Telemetry

The following RAM Single Bit errors befell this week:

| Event Description | Packet ID | Severity | Event Time | Parameters |
|----------------------|-----------|----------|-----------------------|------------|
| RAM Single Bit Error | 730 | WARNING | 2023.87.23.45.57.973 | 225F240 |
| RAM Single Bit Error | 730 | WARNING | 2023.090.01.34.52.786 | 225F240 |
| RAM Single Bit Error | 730 | WARNING | 2023.091.07.35.14.711 | 21CF4AC |
| RAM Single Bit Error | 730 | WARNING | 2023.092.22.01.55.081 | 2100800 |

6 FOS Systems Status

All FOS systems nominal, with the exception of PXMF (see section 8).

7 Data Reception from CNES

All S band passes were correctly received from CNES and successfully processed by the FOS PLPC system.

8 X Band Data Reception in PXMF

None, all S band passes successfully received and processed. Nonetheless, PXMF stopped processing TLM from X-Band passes due to the Latch-up on 2023-04-02. File Last_packet_time was modified to a right date in the past, task PUS-HKTM was restarted and X-band passes started to be properly processed.



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9 Exceptional Activities

None.

10 AOB

None.



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APPENDIX A: OOLs

| GS_TIME | OB_TIME | PARAMETER | DESCRIPTION | OOl Value | Check Value |
|---------------------|---------------------|-----------|-----------------|-----------|---------------------------------------|
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | SPM22167 | C3 LO_Locking | UNLOCK | LOCK |
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | SPM21167 | C2 LO_Locking | UNLOCK | LOCK |
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | SPM20167 | C1 LO_Locking | UNLOCK | LOCK |
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | SPM19167 | B3 LO_Locking | UNLOCK | LOCK |
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | SPM18167 | B2 LO_Locking | UNLOCK | LOCK |
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | SPM17167 | B1 LO_Locking | UNLOCK | LOCK |
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | SPM16167 | A3 LO_Locking | UNLOCK | LOCK |
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | SPM15167 | A2 LO_Locking | UNLOCK | LOCK |
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | SPM14167 | A1 LO_Locking | UNLOCK | LOCK |
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | SPM13167 | H3 LO_Locking | UNLOCK | LOCK |
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | SPM12172 | H2 LO_locking | UNLOCK | LOCK |
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | SPM11167 | H1 LO_Locking | UNLOCK | LOCK |
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | SPC02106 | Instrument_Mode | Inst Init | Dual Pol; Full Pol; Calibration; Test |
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | XNIRABST | NIR AB VALID ST | NOT-OK | OK |
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | XNIRBCST | NIR BC VALID ST | NOT-OK | OK |



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| | | | | | |
|---------------------|---------------------|----------|-----------------|----------|---------|
| 2023-03-31T05:06:16 | 2023-03-31T01:34:52 | XNIRCAST | NIR CA VALID ST | NOT-OK | OK |
| 2023-03-31T15:08:27 | 2023-03-31T09:29:23 | NTLHK022 | ITL Ena State | Disabled | Enabled |
| 2023-04-02T08:35:14 | 2023-04-02T06:57:22 | DMASME37 | SDD LU Detected | FALSE | TRUE |
| 2023-04-02T08:35:14 | 2023-04-02T06:57:22 | DMASME08 | LU Switch P4 | OFF | ON |