



# Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:

FOS Report for week 38, year 2023

Date:

from 18 SEP 2023 to 25 SEP 2023

Issue:

1.0

## 1 General Comments

Activities scheduled for this week are those planned for the 38<sup>th</sup> calendar week of 2023:

18 SEP 2023 to 25 SEP 2023 (DoYs 261 to 268).

The following routine activities were planned this week (see Gantt chart on next page and CRF n° 1148).

- One Warm NIR Calibration on 20 SEP 2023 (DoY 263) with ETO 15:28:23z (orbit 72961; ASCENDING: thermally UNSTABLE) and with the following expected calibration values:
 

B.T.	=	3.89°
R.M.S.	=	0.59
Sun elevation	=	6.13°
Moon elevation	=	-19.51°
R.A.	=	95.56°
DEC.	=	-38.09°
- One PMS Offset on 21 SEP 2023 (DoY 264), including three Short Calibrations at 06:13:00.0z, 06:13:34.8z, and 06:14:09.6z (orbit 72970).
- Local Oscillator Calibrations every 10 minutes.
- X band Passes over ESAC and Svalbard.

## 2 Mission Planning Deviations

Because of the MIRAS CCU reset on 22 SEP 2023 the following X band GS passes were not acquired (see Sect. 4):

Station	AoS	LoS	Duration
Xband_SVAL	2023-09-22T14:45:21	2023-09-22T14:53:03	461
Xband_SVAL	2023-09-22T16:25:01	2023-09-22T16:34:25	563
Xband_ESAC	2023-09-22T19:56:23	2023-09-22T20:00:57	274
Xband_SVAL	2023-09-22T21:22:41	2023-09-22T21:33:02	620
Xband_SVAL	2023-09-22T23:01:25	2023-09-22T23:11:41	615
Xband_SVAL	2023-09-23T00:40:06	2023-09-23T00:50:27	621
Xband_SVAL	2023-09-23T02:19:01	2023-09-23T02:29:28	627
Xband_SVAL	2023-09-23T03:58:37	2023-09-23T04:08:44	606
Xband_ESAC	2023-09-23T07:11:13	2023-09-23T07:14:26	192
Xband_SVAL	2023-09-23T09:02:53	2023-09-23T09:07:56	302
Xband_SVAL	2023-09-23T10:45:14	2023-09-23T10:48:44	210



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Xband_SVAL	2023-09-23T12:26:21	2023-09-23T12:30:52	270
Xband_SVAL	2023-09-23T14:06:30	2023-09-23T14:13:20	410
Xband_SVAL	2023-09-23T15:46:15	2023-09-23T15:55:05	529

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

<b>Station</b>	<b>AoS</b>	<b>LoS</b>	<b>Duration</b>
Xband_ESAC	2023-09-22T18:16:25	2023-09-22T18:24:21	475
Xband_ESAC	2023-09-23T05:29:26	2023-09-23T05:37:37	490



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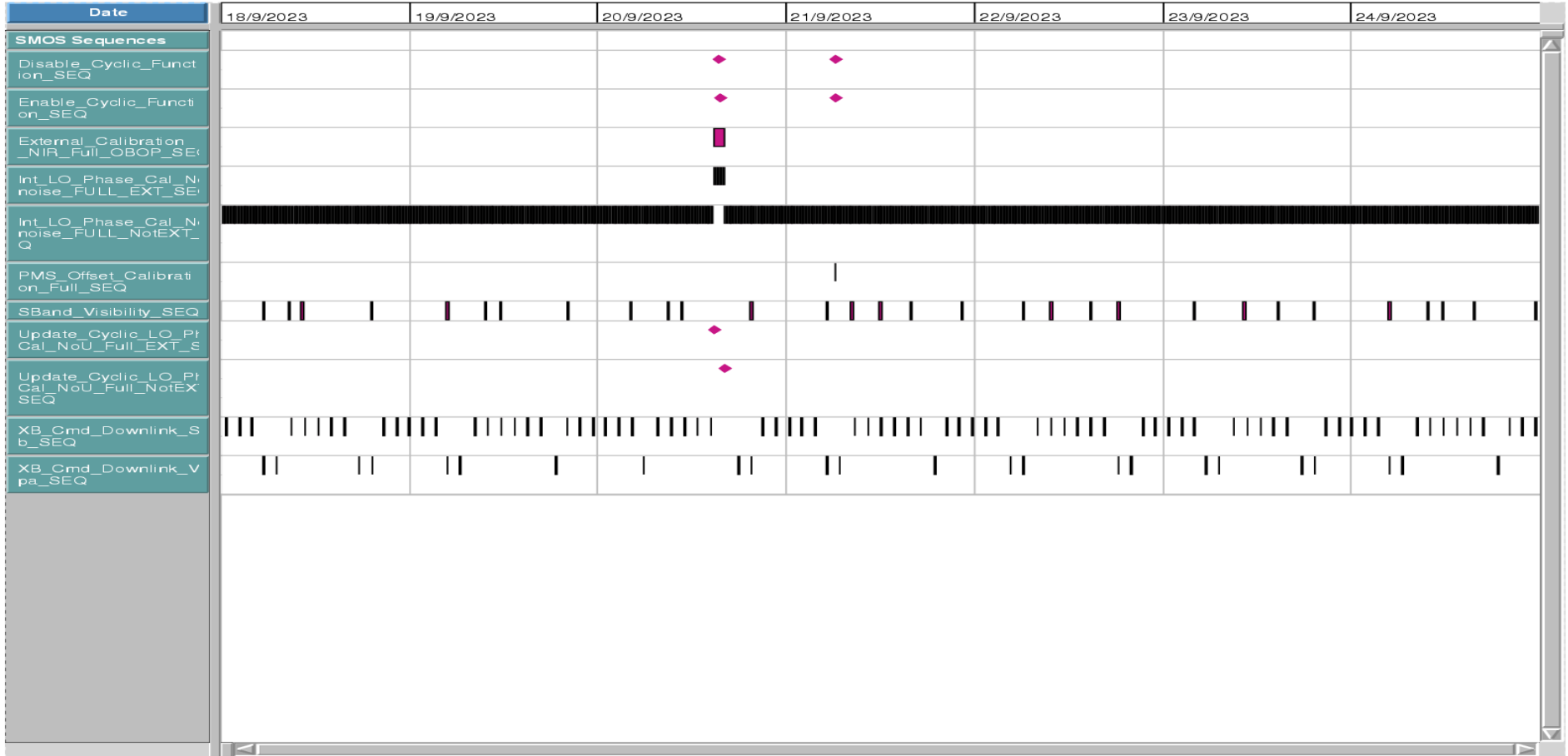
Issue:

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Schedule Name: 2023\_w38\_cr ### Display start: 18-09-2023 00:00:00.000 ### Display end: 25-09-2023 00:00:00.000





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### 3 TC Failures

None.

### 4 On Board Anomalies

- MIRAS Correlator and Control Unit reset Friday 2023-09-22T13:09:29.142 (DOY 265), at the end of Svalbard X band GS pass with AOS at 2023-09-22T13:05:24z. Anomaly was detected by CNES upon reception of S band GS pass KRX-10 (AOS = 2023-09-22T14:46:21z. Recovery was agreed next day, Saturday, for S band GS pass KUX-26 (AOS = 2023-09-23T10:16:25z; CRF No. 1150), with S band GS pass HBX-06 (AOS = 2023-09-23T14:34:58z) as back-up.

Last MIRAS TM packet received before reset was time stamped 2023-09-22T13:09:29.142z. 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:

Onboard time	Event Description	Severity	Packet ID
2023.265.13.09.29.142	MM_Science_Write_Failure	ALARM	692
2023.265.13.09.28.892	MM_Address_Acquisition_Failure	ALARM	684
2023.265.13.09.28.852	MM_Scrub_Frequency_Acquisition_Failure	ALARM	690
2023.265.13.09.28.832	MM_Error_Counters_Acquisition_Failure	ALARM	689

Nominal MIRAS X band GS dumps resumed Saturday evening over ESAC on 2023-09-23T17:39:35z

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

*Write Pointer: 1519746*

*Read Pointer: 1158013*

The anomaly was geolocated over Artic regions::

*Latitude= 75.88*

*Longitude= 108.86*

- The MIRAS CMN, unit H1, unlocked 2023-09-23T08:35:25.352z (DOY 266).

This anomaly was geolocated over the south atlantic ocean, due southeast of Brazil:



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*Latitude = -24.31  
Longitude = 325.25*

Both parameters, output power SPM11162 and locking status SPM11167, went out of limits in the FOS PLPC system. The anomaly recovered by itself in few seconds.

## 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	WARN	2023.261.23.00.10	22FE578

Event Description	Packet ID	Severity	Event Time	Parameters
MM_Error_Counters_Acquisition_Failure	689	ALARM	22/09/2023 13:09	No
MM_Scrub_Frequency_Acquisition_Failure	690	ALARM	22/09/2023 13:09	No
MM_Address_Acquisition_Failure	684	ALARM	22/09/2023 13:09	No
MM_Science_Write_Failure	692	ALARM	22/09/2023 13:09	Link
RAM single Bit Error	730	WARN	22/09/2023 13:10	22FE578

## 6 FOS Systems Status

All FOS systems nominal.

## 7 Data Reception from CNES

All S band passes were correctly received from CNES and successfully processed by the FOS PLPC system, with the following exceptions:

- S band GS pass:

STATION	PASS	AoS	LoS
KUX	19	2023.261.08.32.27	2023.261.08.45.33

The following PUS TM gap was detected in the PLPC system:

*from 2023-09-18T08:08:16,233z to 2023-09-18T08:09:09,034z;  
89 packets lost.*



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To achieve completion MIRAS PUS HKTM was recovered from the X band PXMF system and ingested into the MUST-SMTA system on 18 SEP 2023.

The corresponding E\_HKTM was lost:

*from 2023-09-18T08:27:14 z to 2023-09-18T08:28:18z.*

### **8 X Band Data Reception in PXMF**

- To achieve completion MIRAS PUS TM was recovered from the X band PXMF system and ingested into the MUST-SMTA system 18 SEP 2023. The corresponding E HKTM was lost.

### **9 Exceptional Activities**

None.

### **10 AOB**

None.



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## APPENDIX A: OOLs

### CCU Reset

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOl Value	Check Value
2023-09-22T15:11:57	2023-09-22T13:10:02	SPM22167	C3 LO_Locking	UNLOCK	LOCK
2023-09-22T15:11:57	2023-09-22T13:10:02	SPM21167	C2 LO_Locking	UNLOCK	LOCK
2023-09-22T15:11:57	2023-09-22T13:10:02	SPM20167	C1 LO_Locking	UNLOCK	LOCK
2023-09-22T15:11:57	2023-09-22T13:10:02	SPM19167	B3 LO_Locking	UNLOCK	LOCK
2023-09-22T15:11:57	2023-09-22T13:10:02	SPM18167	B2 LO_Locking	UNLOCK	LOCK
2023-09-22T15:11:57	2023-09-22T13:10:02	SPM17167	B1 LO_Locking	UNLOCK	LOCK
2023-09-22T15:11:57	2023-09-22T13:10:02	SPM16167	A3 LO_Locking	UNLOCK	LOCK
2023-09-22T15:11:57	2023-09-22T13:10:02	SPM15167	A2 LO_Locking	UNLOCK	LOCK
2023-09-22T15:11:57	2023-09-22T13:10:02	SPM14167	A1 LO_Locking	UNLOCK	LOCK
2023-09-22T15:11:57	2023-09-22T13:10:02	SPM13167	H3 LO_Locking	UNLOCK	LOCK
2023-09-22T15:11:57	2023-09-22T13:10:02	SPM12172	H2 LO_locking	UNLOCK	LOCK
2023-09-22T15:11:57	2023-09-22T13:10:02	SPM11167	H1 LO_Locking	UNLOCK	LOCK
2023-09-22T15:11:57	2023-09-22T13:10:02	SPC02106	Instrument_Mode	Inst Init	Any mode
2023-09-22T15:11:57	2023-09-22T13:10:02	XNIRABST	NIR AB VALID ST	NOT-OK	OK
2023-09-22T15:11:57	2023-09-22T13:10:02	XNIRBCST	NIR BC VALID ST	NOT-OK	OK
2023-09-22T15:11:57	2023-09-22T13:10:02	XNIRCAST	NIR CA VALID ST	NOT-OK	OK



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### CMN Unlock

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2023-09-23T10:43:20	2023-09-23T08:35:25	SPM11162	H1 LO_Out_Power	NOT-OK	OK
2023-09-23T10:43:20	2023-09-23T08:35:26	SPM11167	H1 LO_Locking	UNLOCK	LOCK

### CCU Recovery

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2023-09-23T14:54:41	2023-09-23T10:18:45	NTLHK022	ITL Ena State	Disabled	Enabled