



Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:

Date:

Issue:

FOS Report for week 03, year 2018

from 15 JAN 2018 to 22 JAN 2018

1.0

1 General Comments

Activities scheduled for this week are those planned for the 3rd calendar week of 2018:

15 JAN 2018 to 22 JAN 2018 (DOYs 015 to 022).

The following routine activities were planned this week (see Gantt chart on next page and CRF 709).

- One PMS Offset on 18 JAN 2018 (DOY 018), including three Short Calibrations at 08:48:00.0z, 08:48:34.8z, and 08:49:09.6z (orbit 43157).
- Local Oscillator Calibrations every 10 minutes.
- X band Passes over ESAC and Svalbard.

2 Mission Planning Deviations

Due to the MIRAS CCU reset that happened on the 19th of January, the following X-Band passes were not acquired on that day:

Station	AOS	LOS	Duration
Xband_SVAL	2018-01-19T08:56:47	2018-01-19T09:01:58	311
Xband_SVAL	2018-01-19T10:39:10	2018-01-19T10:42:42	212
Xband_SVAL	2018-01-19T12:20:22	2018-01-19T12:24:46	263
Xband_SVAL	2018-01-19T14:00:33	2018-01-19T14:07:15	401
Xband_SVAL	2018-01-19T15:40:20	2018-01-19T15:49:03	523



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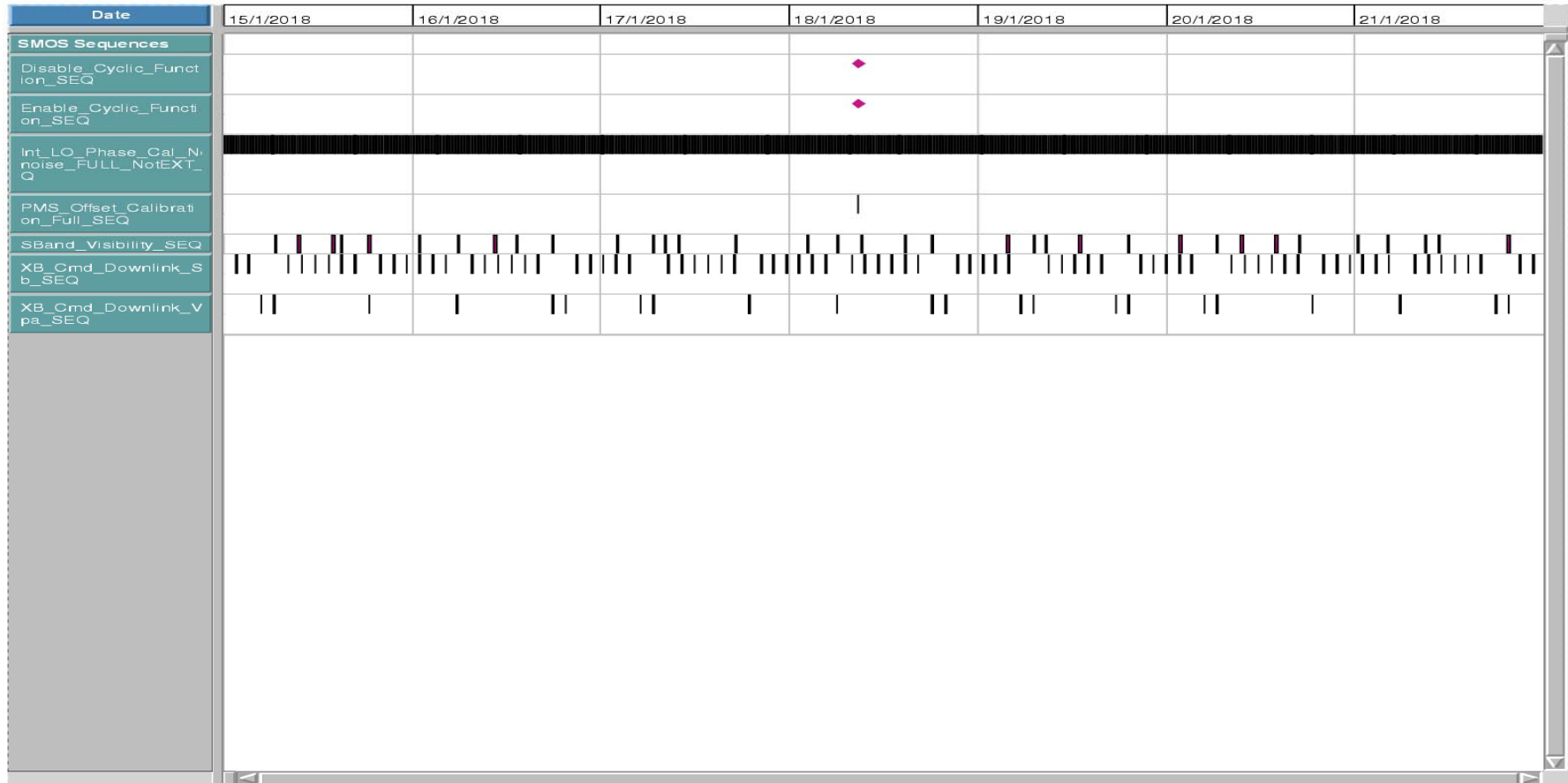
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Schedule Name: 2018_w03_cr ### Display start: 15-01-2018 00:00:00.000 ### Display end: 22-01-2018 00:00:00.000





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3 TC Failures

None.

4 On Board Anomalies

- The MIRAS instrument CCU unit, reset on 2018-01-19T07:06:39.820 (DOY 019). First suspicious of the reset were noticed by the FOS on call Engineer that verified that the number of TM packets received on the second ESAC pass of the morning were significantly less than the ones expected for that pass. Due to the fact that 19th of January was public holiday at CNES, FOS on call Engineer decided to call CNES on call manager to alert in advance on the possible reset but also to agree on the recovery strategy. At the time of the reset only one S-Band pass was still available to recover the instrument but CNES gently offer the possibility to book an extra S-Band pass during the morning and in that way recover the reset on the same day. The CCU reset was finally confirmed by CNES upon the reception of the next S-band pass (KUX-28, AOS=08:31:59zz, LOS=08:45:04z) and the extra S-Band pass also booked if needed be for the recovery procedure.

The last MIRAS TM packet received before the reset was time stamped at 2018-01-19T07:06:39.820z. As detailed on the instrument boot report packet, issued immediately after the reset, the cause of the anomaly was, as in all previous cases, a Task Overrun error.

After the usual onboard events at the start of the X-Band pass:

```
2018.019.07.04.53.908 725 NORM XBand Powered On
2018.019.07.05.17.908 695 NORM MM Full Dump Start
```

The following Alarm packets were then issued by the instrument:

```
2018.019.07.06.39.510 MM_Error_Counters_Acquisition_Failure
2018.019.07.06.39.530MM_Scrub_Frequency_Acquisition_Failure
2018.019.07.06.39.570 MM_Address_Acquisition
2018.019.07.06.39.620 MM_Science_Write_
2018.019.07.06.39.720 MM_Science_Write_
2018.019.07.06.39.820 MM_Science_Write_Failure
```

and then immediately the reset took place. At the time of the reset a bunch of MIRAS TM parameters went Out of Limits on PLPC system (see details on Appendix-A)



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MIRAS re-planning was prepared by FOS in the morning of the 19 of January and included as part of CRF No. 713. That replanning together with the CCU recovery procedure, was uploaded by CNES during S-Band pass (KER-12, AOS=12:52:47z, LOS=13:07:36z). Due to this reset 6182 seconds of science data got lost from 2018-01-19T 05:24:09z to 2018-01-19T 07:07:11z.

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

WRITE = 489620, MM Partition P1

READ = 228696, MM Partition P0

- The MIRAS instrument MM, partition P9, latched up on 2018-01-16T21:30:55.088z (DOY 016). The following parameters went out of limits in the PLPC system (see Appendix-A for further details):
 - 2018.016.21.30.55.088z DMASME03 LU Switch P9*
 - 2018.016.21.30.55.088z DMASME37 SDD LU Detected*

This anomaly was geolocated over north part of Argentina:

Latitude = -26.68°

Longitude = 303.29°

There were no science data losses associated with this anomaly because it affected spare partition P9. Recovery took place on 17 JAN 2018, at 18:00:00z (CRF No. 711)

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

READ = 3613823 (partition P8)

WRITE = 3704270 (partition P9)

5 On Board Events Telemetry

The following ALARM packets were received immediately before the CCU reset on the 19th of January:

Event Description	Packet ID	Severity	Event Time
MM_Error_Counters_Acquisition_Failure	689	ALARM	2018-01-19T07:06:39
MM_Scrub_Frequency_Acquisition_Failure	690	ALARM	2018-01-19T07:06:39
MM_Address_Acquisition_Failure	684	ALARM	2018-01-19T07:06:39
MM_Science_Write_Failure	692	ALARM	2018-01-19T07:06:39
MM_Science_Write_Failure	692	ALARM	2018-01-19T07:06:39



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MM_Science_Write_Failure	692	ALARM	2018-01-19T07:06:39
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The following RAM Single Bit errors befell this week:

Event Description	Packet ID	Severity	Event Time	Parameters
RAM single Bit Error	730	WARN	2018-01-19T07:07:13	2379DE4
RAM single Bit Error	730	WARN	2018-01-19T21:28:46	219434C

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.

8 X Band Data Reception in PXMF

None, all S band passes successfully received and processed.

9 Exceptional Activities

The ones related with the recovery of the MIRAS CCU reset on the 19th of January and detailed in section 4 of this report.

10 AOB

None.



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APPENDIX A: OOLs

During the recovery of the CCU reset, the following expected OOL was received indicating that the MIRAS ITL was temporary disabled:

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOl Value	Check Value
2018-01-19T19:34:08	2018-01-19T12:55:13	NTLHK022	ITL Ena State	Disabled	Enabled

At the time of the CCU reset, the following MIRAS TM parameters went OOL on PLPC system:

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOl Value	Check Value
2018-01-19T09:01:29	2018-01-19T07:07:13	SPM22167	C3 LO_Locking	UNLOCK	LOCK
2018-01-19T09:01:29	2018-01-19T07:07:13	SPM21167	C2 LO_Locking	UNLOCK	LOCK
2018-01-19T09:01:29	2018-01-19T07:07:13	SPM20167	C1 LO_Locking	UNLOCK	LOCK
2018-01-19T09:01:29	2018-01-19T07:07:13	SPM19167	B3 LO_Locking	UNLOCK	LOCK
2018-01-19T09:01:29	2018-01-19T07:07:13	SPM18167	B2 LO_Locking	UNLOCK	LOCK
2018-01-19T09:01:29	2018-01-19T07:07:13	SPM17167	B1 LO_Locking	UNLOCK	LOCK
2018-01-19T09:01:29	2018-01-19T07:07:13	SPM16167	A3 LO_Locking	UNLOCK	LOCK
2018-01-19T09:01:29	2018-01-19T07:07:13	SPM15167	A2 LO_Locking	UNLOCK	LOCK
2018-01-19T09:01:29	2018-01-19T07:07:13	SPM14167	A1 LO_Locking	UNLOCK	LOCK
2018-01-19T09:01:29	2018-01-19T07:07:13	SPM13167	H3 LO_Locking	UNLOCK	LOCK
2018-01-19T09:01:29	2018-01-19T07:07:13	SPM12172	H2 LO_locking	UNLOCK	LOCK



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2018-01-19T09:01:29	2018-01-19T07:07:13	SPM11167	H1 LO_Locking	UNLOCK	LOCK
2018-01-19T09:01:29	2018-01-19T07:07:13	SPC02106	Instrument_Mode	Inst Init	Any Mode
2018-01-19T09:01:29	2018-01-19T07:07:13	XNIRABST	NIR AB VALID ST	NOT-OK	OK
2018-01-19T09:01:29	2018-01-19T07:07:13	XNIRBCST	NIR BC VALID ST	NOT-OK	OK
2018-01-19T09:01:29	2018-01-19T07:07:13	XNIRCAST	NIR CA VALID ST	NOT-OK	OK

The Mass Memory Latch-up of partition P9, generated the following OOL on PLPC system:

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2018-01-17T02:39:10	2018-01-16T21:30:55	DMASME37	SDD LU Detected	FALSE	TRUE
2018-01-17T02:39:10	2018-01-16T21:30:55	DMASME03	LU Switch P9	OFF	ON