



## Operations Notes

FOS Team @ ESAC

Reported by:

*J. Fauste/J.M. Castro Cerón*

Topic:

Date:

Issue:

**FOS Report for week 15, year 2018**

from 09 APR 2018 to 16 APR 2018

**1.0**

### 1 General Comments

Activities scheduled for this week are those planned for the 15<sup>th</sup> calendar week of 2018:

09 APR 2018 to 16 APR 2018 (DoYs 099 to 106).

The following routine activities were planned this week (see Gantt chart on next page and CRF 731).

- One PMS Offset on 12 APR 2018 (DoY 102), including three Short Calibrations at 07:38:30.0z, 07:39:04.8z, and 07:39:39.6z (orbit 44365).
- Local Oscillator Calibrations every 10 minutes.
- X band Passes over ESAC and Svalbard.

### 2 Mission Planning Deviations

Because of the CCU reset of 13 APR 2018, the following X band GS passes were not acquired (see Sect. 4):

Station	AoS	LoS	Duration
Xband_ESAC	2018-04-13T19:41:19	2018-04-13T19:47:42	383
Xband_SVAL	2018-04-13T21:08:14	2018-04-13T21:18:36	621
Xband_SVAL	2018-04-13T22:47:00	2018-04-13T22:57:16	615
Xband_SVAL	2018-04-14T00:25:40	2018-04-14T00:36:00	620
Xband_SVAL	2018-04-14T02:04:31	2018-04-14T02:14:58	627
Xband_SVAL	2018-04-14T03:43:57	2018-04-14T03:54:12	615
Xband_ESAC	2018-04-14T06:55:33	2018-04-14T07:00:52	318
Xband_SVAL	2018-04-14T08:47:53	2018-04-14T08:53:17	323
Xband_SVAL	2018-04-14T10:30:19	2018-04-14T10:33:55	215
Xband_SVAL	2018-04-14T12:11:39	2018-04-14T12:15:52	253
Xband_SVAL	2018-04-14T13:51:53	2018-04-14T13:58:22	389
Xband_SVAL	2018-04-14T15:31:41	2018-04-14T15:40:16	514



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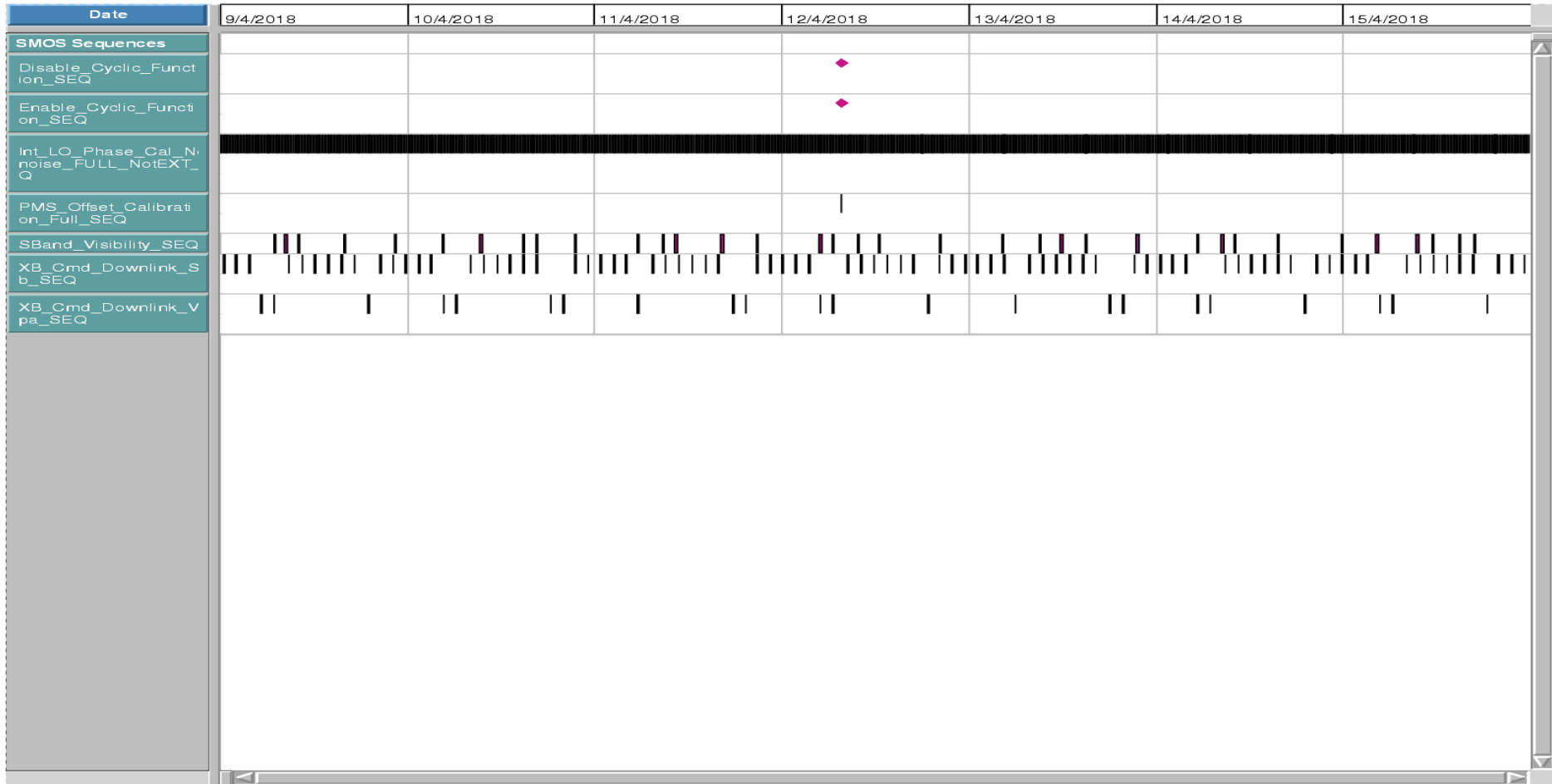
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Schedule Name: 2018\_w15\_cr ### Display start: 09-04-2018 00:00:00.000 ### Display end: 16-04-2018 00:00:00.000





## 3 TC Failures

None.

## 4 On Board Anomalies

- The MIRAS instrument MM, partition P1, latched up on 2018-04-12T20:06:12.734z (OBT; DoY 102).

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

<i>2018.102.20.06.12,734z</i>	<i>DMASME11</i>	<i>LU Switch P1</i>
<i>2018.102.20.06.12,734z</i>	<i>DMASME37</i>	<i>SDD LU Detected</i>

This anomaly was geolocated over the arctic coast of Yakutia (Russia):

<i>LAT.</i>	<i>=</i>	<i>71.46°</i>
<i>LONG.</i>	<i>=</i>	<i>122.61°</i>

There were no science data losses associated with this anomaly because it affected partition P1, while the Read and Write pointers were both on partition P0.

Recovery took place on 13 APR 2018, at 20:45:00z (CRF 733).

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

<i>READ</i>	<i>=</i>	<i>164385</i>	<i>(partition P0)</i>
<i>WRITE</i>	<i>=</i>	<i>381468</i>	<i>(partition P0)</i>

- The MIRAS instrument CCU reset on 2018-04-13T18:05:53z (OBT; DoY 103). A phone call from CNES to the FOS hotline on 14 APR 2018, at 00:15, alerted about this anomaly. The reset had been confirmed on reception of S band GS pass KUX-22 (AoS = 2018-04-13T21:28:13z). At 00:34 the FOS on-call engineer contacted KSAT to advise them that they would receive no further X band GS passes until 2018-04-14T17:11:20z.

The reset befell in the middle of a Svalbard X band GS pass commencing on 2018-04-13T18:02:11z (transponder on). Said GS pass was scheduled for a duration of 449 seconds. The reset occurred 3.69 minutes after AoS, and before the switch off of the X band antenna, scheduled on 2018-04-13T18:09:34z. The last TM packet received before the reset was time stamped at 2018-04-13T18:05:53z (OBT). This reset was triggered by the standard «Task Overrun» error (Boot Report).

The FOS team had produced, in advance, a suitable re-planning for this contingency. Included in CRF No. 732, it was uploaded by CNES, following the execution of PRO-CRP-100, during S band GS pass KUX-23 on 2018-04-14T08:23:39z.

As per this re-planning, nominal MIRAS X band GS dumps resumed on 2018-04-14T17:11:20z.

Because of this reset, 238 seconds of science data were lost (from 2018-04-13T18:02:32z to 2018-04-13T18:06:30z).



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The sequence of events leading to/following the CCU reset was as follows:

2018.103.18.02.11	725	NORM	XBand Powered On
2018.103.18.02:35	695	NORM	MM Full Dump Star
2018.103.18.06:28	740	NORM	GS_Detection_Visible
2018.103.18.06:29	432	NORM	Event Action Released
2018.103.18.06.29	725	NORM	XBand Powered On
2018.103.18.06.36	835	NORM	Thermal_Init_Complete
2018.103.18.06.53	695	NORM	MM Full Dump Start
2018.103.18.06.55	682	NORM	MM Dump Ended
2018.103.18.07.17	724	NORM	XBand Powered Off
2018.103.18.10.19	741	NORM	GS_Detection_NOT_Visible
2018.103.18.10.20	432	NORM	Event Action Released
2018.103.18.01.20	697	WARN	MM No Dump Aborted

No alarms were issued prior to the reset. It should be noted that, coming out of the reset, MIRAS detected the ESAC GS and resumed the X band dump.

Because of the length of the reset, MIRAS was unsynchronised with PROTEUS for a few seconds. As a result, the following two error packets were issued:

2018.103.22.10.48	652	ERROR	Time_Correlator_Unexpected_UTC
2018.103.22.10.48	653	ERROR	Time_Correlator_Unexpected_PPS

Immediately after the reset, various Out of Limits displayed in the FOS PLPC system with Reception time stamps due to the lack of syncing yet (see Appendix).

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

*Read* = 3443812, *MM Partition P7*  
*Write* = 3735833, *MM Partition P8*

The anomaly was geolocated over ESAC (Villanueva de la Cañada):

*LAT.* = 38.98°  
*LONG.* = 05.67°

## 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	2018.103.07.33.40,041	21EBAAC

## 6 FOS Systems Status

All FOS systems nominal.



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### **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**

None.

### **10 AOB**

None.



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## APPENDIX A: OOLs

The following OOLs befall at the time the MIRAS instrument MM, partition P1, latched up 2018-04-12T20:06:12,734z (OBT; DoY 102):

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2018.102.21.01.43,891	2018.102. 20.06.12,734	DMASME37	SDD LU Detected	FALSE	TRUE
2018.102.21.01.43,891	2018.102. 20.06.12,734	DMASME11	LU Switch P01	OFF	ON

The following OOLs befall at the time the MIRAS instrument CCU reset on 2018-04-13T18:05:53z (OBT; DoY 103):

XNIRCAST	NIR CA VALID ST	2018.103.22.10.48	STATUS	NOT-OK
XNIRBCST	NIR BC VALID ST	2018.103.22.10.48	STATUS	NOT-OK
XNIRABST	NIR AB VALID ST	2018.103.22.10.48	STATUS	NOT-OK
SPC02106	Instrument_Mode	2018.103.22.10.48	STATUS	Inst Init
SPC10107	PPS_ERROR_FLAG	2018.103.22.10.48	STATUS	Unexpect PPS
SPM11167	H1 LO_Locking	2018.103.22.10.48	STATUS	UNLOCK
SPM12172	H2 LO_locking	2018.103.22.10.48	STATUS	UNLOCK
SPM13167	H3 LO_Locking	2018.103.22.10.48	STATUS	UNLOCK
SPM14167	A1 LO_Locking	2018.103.22.10.48	STATUS	UNLOCK
SPM15167	A2 LO_Locking	2018.103.22.10.48	STATUS	UNLOCK
SPM16167	A3 LO_Locking	2018.103.22.10.48	STATUS	UNLOCK
SPM17167	B1 LO_Locking	2018.103.22.10.48	STATUS	UNLOCK
SPM18167	B2 LO_Locking	2018.103.22.10.48	STATUS	UNLOCK
SPM19167	B3 LO_Locking	2018.103.22.10.48	STATUS	UNLOCK



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SPM20167	C1 LO_Locking	2018.103.22.10.48	STATUS	UNLOCK
SPM21167	C2 LO_Locking	2018.103.22.10.48	STATUS	UNLOCK
SPM22167	C3 LO_Locking	2018.103.22.10.48	STATUS	UNLOCK
SPM13202	CMN H3 ERR FLAG	2018.103.22.10.48	HIGH	128
SPM10212	CMN C3 ERR FLAG	2018.103.22.10.48	HIGH	128
SPM10211	CMN C2 ERR FLAG	2018.103.22.10.48	HIGH	128
SPM10210	CMN C1 ERR FLAG	2018.103.22.10.48	HIGH	128
SPM10209	CMN B3 ERR FLAG	2018.103.22.10.48	HIGH	128
SPM10208	CMN B2 ERR FLAG	2018.103.22.10.48	HIGH	128
SPM10207	CMN B1 ERR FLAG	2018.103.22.10.48	HIGH	128
SPM10206	CMN A3 ERR FLAG	2018.103.22.10.48	HIGH	128
SPM10205	CMN A2 ERR FLAG	2018.103.22.10.48	HIGH	128
SPM10204	CMN A1 ERR FLAG	2018.103.22.10.48	HIGH	128
SPM10200	CMN H2 ERR FLAG	2018.103.22.10.48	HIGH	128
SPM10108	CMN H1 ERR FLAG	2018.103.22.10.48	HIGH	128