



Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:

Date:

Issue:

FOS Report for week 17, year 2019

from 22 APR 2019 to 29 APR 2019

1.0

1 General Comments

Activities scheduled for this week are those planned for the 17th calendar week of 2019:

22 APR 2019 to 29 APR 2019 (DOYs 112 to 119).

The following routine activities were planned this week (see Gantt chart on next page and CRF 806).

- A routine Orbit Correction Manoeuvre (OCM) was scheduled for 26 APR 2019 at 00:05:58z. The affected time period went from 2019-04-25T23:56:20.767z to 2019-04-26T00:15:51.961z. Science data for that period was flagged with an external APID. No regular X band GS passes conflicted with this OCM.
- One Warm NIR Calibration on 24 APR 2019 (DOY 114) with ETO 16:58:26z (orbit 49796; ASCENDING: thermally UNSTABLE) and with the following expected calibration values:
 - B.T. = 4.51°
 - R.M.S. = 1.45
 - Sun elevation = 2.76°
 - Moon elevation = 36.44°
 - R.A. = 297.58°
 - DEC. = 27.46°
- Two LONG Calibrations on 25 APR 2019 (DOY 115), which encompassed two ascending semi-orbital periods starting at 13:51:00z (orbit 49808) and 15:32:30z (orbit 49809).
- 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 23rd of April the following X-Band passes were lost:

Station	AOS	LOS	Duration
SVAL	2019-04-23T02:45:54	2019-04-23T02:56:20	625
SVAL	2019-04-23T04:26:06	2019-04-23T04:35:39	573
ESAC	2019-04-23T05:56:10	2019-04-23T06:04:24	494
SVAL	2019-04-23T07:48:11	2019-04-23T07:54:58	406
SVAL	2019-04-23T09:30:39	2019-04-23T09:35:07	267
SVAL	2019-04-23T11:12:45	2019-04-23T11:16:16	211



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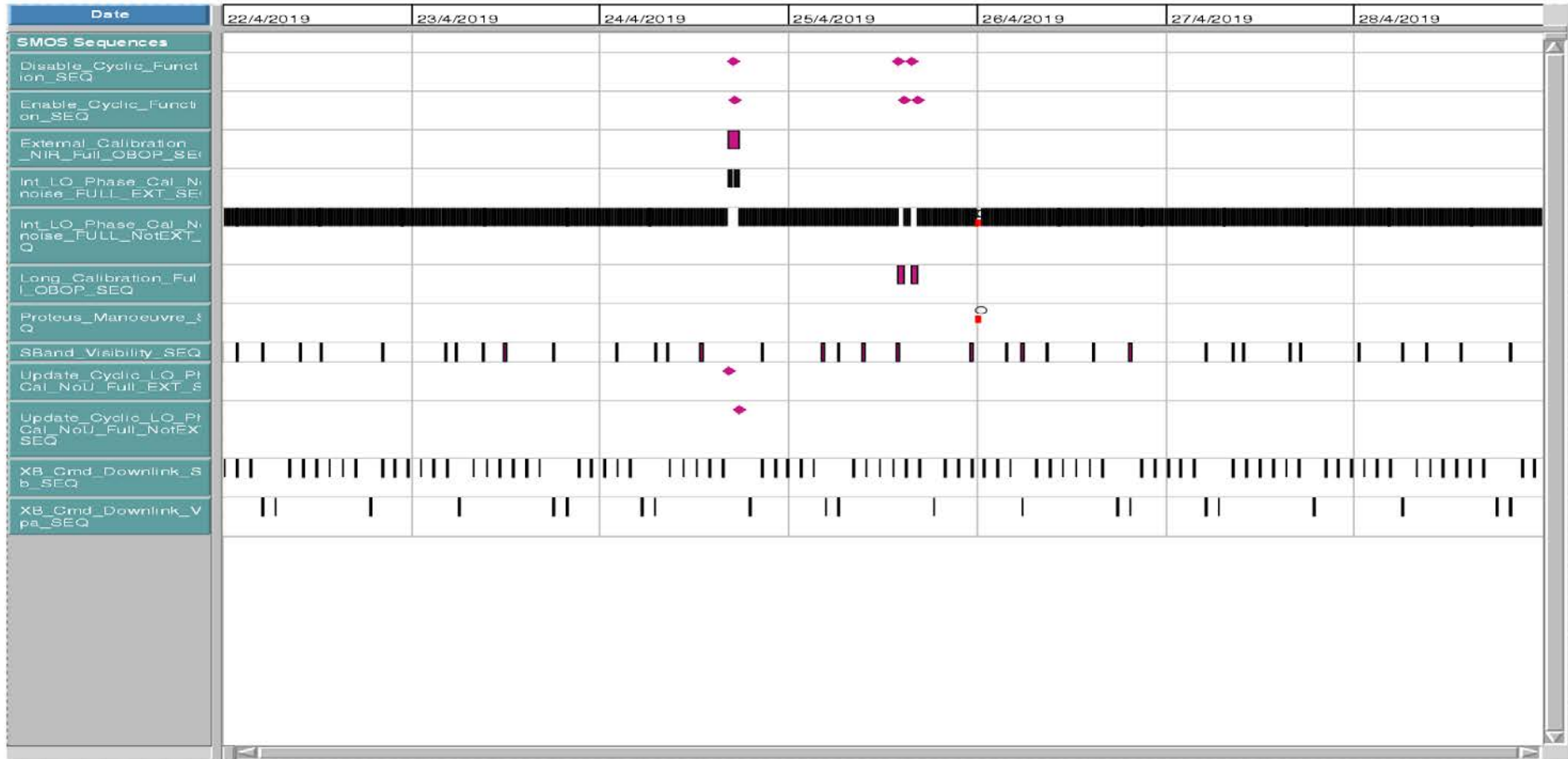
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Schedule Name: 2019_w17_cr ### Display start: 22-04-2019 00:00:00.000 ### Display end: 29-04-2019 00:00:00.000





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3 TC Failures

None.

4 On Board Anomalies

- The MIRAS instrument CMN, unit H3, unlocked on 2019-04-28T22:51:06.523z (DOY 118). This anomaly was geolocated over Krasnoyarsk area (Russia)

Latitude = 56.12°

Longitude = 94.86°

Both parameters, output power SPM13162 and locking status SPM13167, went out of limits in the FOS PLPC system. The anomaly recovered after few seconds.

- The MIRAS instrument CCU reset on 2019-04-23T01:09:52.606z (DOY 113). A first phone call from KSAT to the FOS hotline on 23 APR 2019, at 03:35z, provided a heads up notice after Svalbard X band GS pass 2019-04-23T02:45:36z yielded no signal from the S/C. A second phone call from KSAT to the FOS hotline on 23 APR 2019, at 04:39z, provided further confirmation after Svalbard X band GS pass 2019-04-23T04:25:49z yielded no signal from the S/C. In between warning notes were emailed by the FOS on-call engineer to DPGS and CNES. There was no phone call from CNES. The reset was confirmed on reception by FOS of S band GS pass ASX-22 (AOS = 2019-04-23T04:15:13z). At 05:26z the FOS on-call engineer contacted DPGS and KSAT to advise them that they would receive no further X band GS passes until 2019-04-23T12:53:14z. The reset befell in the middle of Svalbard X band GS pass commencing 2019-04-23T01:06:34z (transponder on). Said GS pass was scheduled for a duration of 604 seconds. The reset occurred 3.32 minutes after AOS, and before the switch off of the X band antenna, scheduled on 2019-04-23T01:16:37z. The last TM packet received before the reset was time stamped at 2019-04-23T01:09:52z. As specified in the instrument Boot Report packet, this reset was triggered by the standard "Task Overrun" error. FOS team re-planned activities for the remainder of week 17 that same day, 23 APR 2019. Included in CRF No. 807, it was uploaded by CNES, following the execution of PRO-CRP-100, during S band GS pass KUX-24 on 2019-04-23T09:03:23z.

As per this re-planning, nominal MIRAS X band GS dumps were resumed on 2019-04-23T12:53:14,920z. Because of this reset, 1920 seconds of science data were lost (from 2019-04-23T00:38:30z to 2019-04-23T01:10:30z).



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

OBT	ID	Severity	Description
2019.113.01.06.34.293	725	NORM	XBand Powered On
2019.113.01.06.58.293	695	ALARM	MM Full Dump Star
2019.113.01.09.52.286	689	ALARM	MM_Error_Counters_Acquisition_Failure
2019.113.01.09.52.306	690	ALARM	MM_Scrub_Frequency_Acquisition_Failure
2019.113.01.09.52.346	684	ALARM	MM_Address_Acquisition_Failure
2019.113.01.09.52.346	682	NORM	MM Dump Ended
2019.113.01.09.52.606	692	ALARM	MM_Science_Write_Failure

Immediately after the reset, the list of Out of Limits included in Appendix-A appeared on the FOS PLPC system. The values of the READ and WRITE pointers at the time of the reset were:

Read = 3824990, MM Partition P8

Write = 79572, MM Partition P0

5 On Board Events Telemetry

The following RAM Single Bit errors befell this week:

Event Description	ID	Severity	Event Time	Parameters
RAM single Bit Error	730	WARN	2019-04-23T01:10:26	20D262C
RAM single Bit Error	730	WARN	2019-04-28T00:09:14	2116CEC

Immediately before the MIRAS CCU reset, the following Alarm packets were issued by the instrument:

Event Description	ID	Severity	Event Time	Parameters
MM_Error_Counters_Acquisition_Failure	689	ALARM	2019-04-23T01:09	
MM_Scrub_Frequency_Acquisition_Failure	690	ALARM	2019-04-23T01:09	
MM_Address_Acquisition_Failure	684	ALARM	2019-04-23T01:09	
MM_Science_Write_Failure	692	ALARM	2019-04-23T01:09	Link

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.



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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

During the OCM, the MIRAS ITL was made disabled temporary, at that time the following OOL was generated on the FOS PLPC system.

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2019-04-26T06:10:46	2019-04-25T23:56:12	NLHK022	ITL Ena State	Disabled	Enabled

As part of the MIRAS CCU recovery procedure, the on-board ITL was disable, at that time the following temporary OOL appeared on the FOS PLPC system.

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2019-04-23T12:21:06	2019-04-23T09:05:34	NLHK022	ITL Ena State	Disabled	Enabled

At the time the MIRAS CCU reset happened, the following temporary OOL appeared on the FOS PLPC system

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2019-04-23T01:10:26	2019-04-23T01:10:26	SPM22167	C3 LO_Locking	UNLOCK	LOCK
2019-04-23T01:10:26	2019-04-23T01:10:26	SPM21167	C2 LO_Locking	UNLOCK	LOCK
2019-04-23T01:10:26	2019-04-23T01:10:26	SPM20167	C1 LO_Locking	UNLOCK	LOCK
2019-04-23T01:10:26	2019-04-23T01:10:26	SPM19167	B3 LO_Locking	UNLOCK	LOCK
2019-04-23T01:10:26	2019-04-23T01:10:26	SPM18167	B2 LO_Locking	UNLOCK	LOCK
2019-04-23T01:10:26	2019-04-23T01:10:26	SPM17167	B1 LO_Locking	UNLOCK	LOCK
2019-04-23T01:10:26	2019-04-23T01:10:26	SPM16167	A3 LO_Locking	UNLOCK	LOCK
2019-04-23T01:10:26	2019-04-23T01:10:26	SPM15167	A2 LO_Locking	UNLOCK	LOCK



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2019-04-23T01:10:26	2019-04-23T01:10:26	SPM14167	A1 LO_Locking	UNLOCK	LOCK
2019-04-23T01:10:26	2019-04-23T01:10:26	SPM13167	H3 LO_Locking	UNLOCK	LOCK
2019-04-23T01:10:26	2019-04-23T01:10:26	SPM12172	H2 LO_locking	UNLOCK	LOCK
2019-04-23T01:10:26	2019-04-23T01:10:26	SPM11167	H1 LO_Locking	UNLOCK	LOCK
2019-04-23T01:10:26	2019-04-23T01:10:26	SPC02106	Instrument_Mode	Inst Init	Any
2019-04-23T01:10:26	2019-04-23T01:10:26	XNIRABST	NIR AB VALID ST	NOT-OK	OK
2019-04-23T01:10:26	2019-04-23T01:10:26	XNIRBCST	NIR BC VALID ST	NOT-OK	OK
2019-04-23T01:10:26	2019-04-23T01:10:26	XNIRCAST	NIR CA VALID ST	NOT-OK	OK