Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:
Date:
Issue:

FOS Report for week 40, year 2020
from 28 SEP 2020 to 05 OCT 2020

1.0

1 General Comments

Activities scheduled for this week are those planned for the 40th calendar week of 2020:

    28 SEP 2020 to 05 OCT 2020 (DOYs 272 to 279).

The following routine activities were planned this week (see Gantt chart on next page and CRF 916).

- One Warm NIR Calibration on 30 SEP 2020 (DOY 274) with ETO 16:02:41z (orbit 57349; ASCENDING: thermally STABLE) and with the following expected calibration values:

      B.T.   =   3.95°
      R.M.S.   =   0.75
      Sun elevation   =   9.90°
      Moon elevation =   -11.64°
      R.A.   =   107.19°
      DEC.   =   -41.47°

- One PMS Offset on 01 OCT 2020 (DOY 275), including three Short Calibrations at 06:48:00.0z, 06:48:34.8z, and 06:49:09.6z (orbit 57358).
- 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 28th of September the following list of X-Band passes were not acquired on ground:

Station	AOS	LOS	Duration
Xband_ESAC	2020-09-28T19:46:54	2020-09-28T19:52:53	359
Xband_SVAL	2020-09-28T21:13:40	2020-09-28T21:24:01	621
Xband_SVAL	2020-09-28T22:52:25	2020-09-28T23:02:41	615
Xband_SVAL	2020-09-29T00:31:05	2020-09-29T00:41:26	620
Xband_SVAL	2020-09-29T02:09:58	2020-09-29T02:20:25	627
Xband_SVAL	2020-09-29T03:49:26	2020-09-29T03:59:40	613
Xband_ESAC	2020-09-29T07:01:22	2020-09-29T07:06:02	280
Xband_SVAL	2020-09-29T08:53:31	2020-09-29T08:58:47	315
Xband_SVAL	2020-09-29T10:35:55	2020-09-29T10:39:29	213

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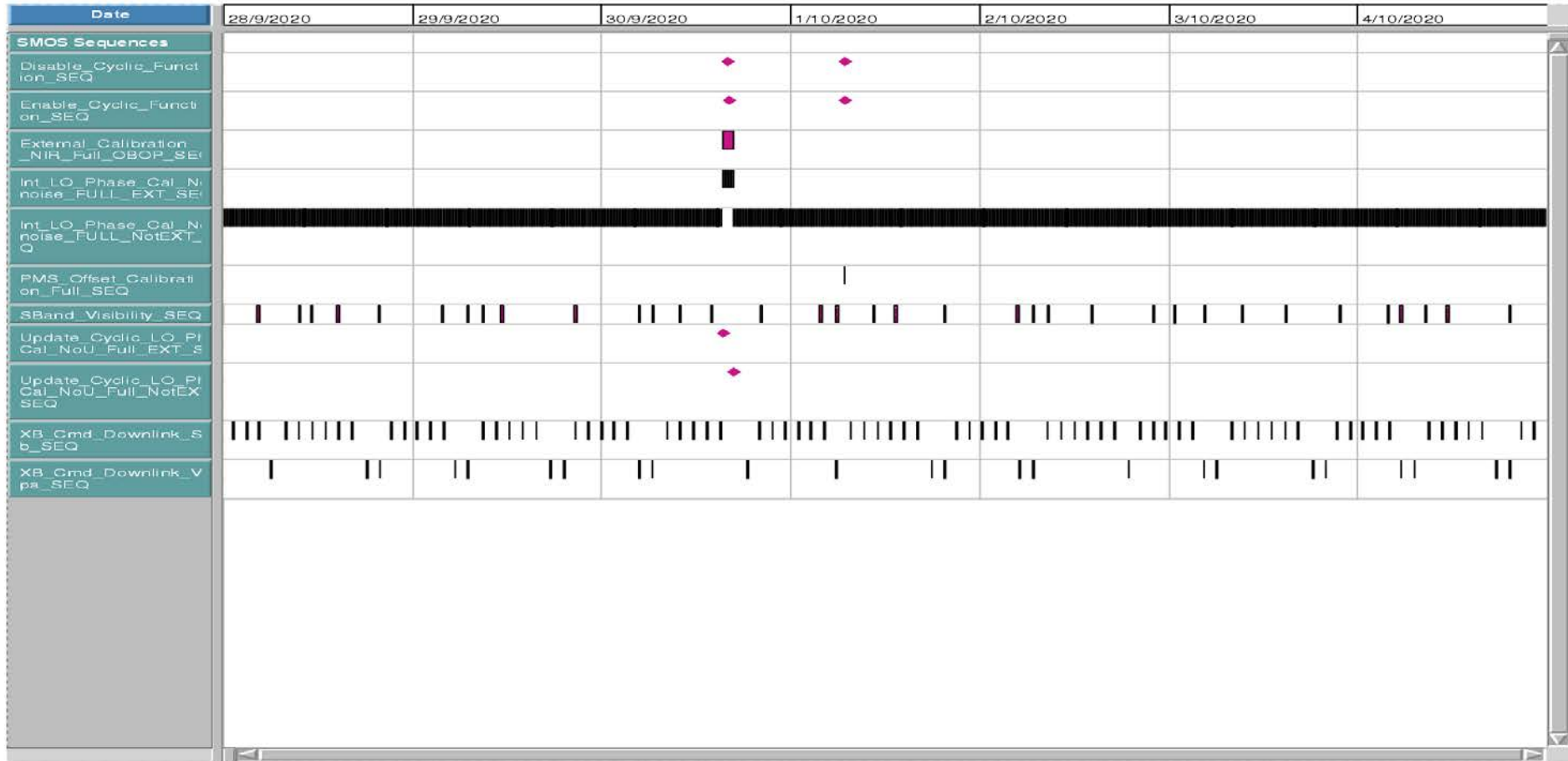*J. Fauste/J.M. Castro Cerón*

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Schedule Name: 2020_w40_cr   ###   Display start: 28-09-2020 00:00:00.000   ###   Display end: 05-10-2020 00:00:00.000

Date	28/9/2020	29/9/2020	30/9/2020	1/10/2020	2/10/2020	3/10/2020	4/10/2020

SMOS Sequences

- Disable_Cyclic_Function_SEQ
- Enable_Cyclic_Function_SEQ
- External_Calibration_NIR_Full_OBOP_SEQ
- Int_LO_Phase_Cal_Noise_FULL_EXT_SEQ
- Int_LO_Phase_Cal_Noise_FULL_NotEXT_Q
- PMS_Offset_Calibration_Full_SEQ
- SBand_Visibility_SEQ
- Update_Cyclic_LO_Ph_Cal_NoU_Full_EXT_S
- Update_Cyclic_LO_Ph_Cal_NoU_Full_NotEX_SEQ
- XB_Cmd_Downlink_Sb_SEQ
- XB_Cmd_Downlink_Vpa_SEQ

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3 TC Failures

None.

4 On Board Anomalies

- A new MIRAS CCU reset happened on the 28th of September at 18:11:04z, at the end of the ESAC X-Band pass with AOS at 18:11:04z. The reset was notified by the CNES on call team upon reception of S-Band pass STC-8 with AOS at 19:42:17z and with a phone call to FOS at 20:09z.

  Immediately after the reset and while the spacecraft was still flying over ESAC, the on-board auto-downlink function triggered the switch on of the X-Band transmitter at 18:11:40z and downloading data for just two seconds from 18:12:04 to 18:12:06z

  Recovery took place on the 29th of September according to CRF-918 that was uploaded by CNES during S-Band pass IVK-23 with AOS at 08:51:26z. Resume of XBand activities took place 29th of September at 12:17:10z.

  The list of on-board events packets received immediately before the reset was as follows:

Onboard Time	Severity	TM Packet event
2020.272.18.07.21.920	NORM	XBand Powered On
2020.272.18.07.45.920	NORM	MM Full Dump Start
2020.272.18.11.03.923	ALARM	MM_Error_Counters_Acquisition_Failure
2020.272.18.11.03.943	ALARM	MM_Scrub_Frequency_Acquisition_Failu
2020.272.18.11.03.983	ALARM	MM_Address_Acquistion_Failure
2020.272.18.11.03.983	NORM	MM Dump Ended
2020.272.18.11.04.033	ALARM	MM_Science_Write_Failure
2020.272.18.11.04.133	ALARM	MM_Science_Write_Failure
2020.272.18.11.04.233	ALARM	MM_Science_Write_Failure

  intermediately after, the instrument reset. As reported in the instrument Boot report packet, the reason for the reset was the usual "Task Overrun error".

  ESAC X-Band pass scheduled at

Xband_ESAC	2020-09-29T05:20:32	2020-09-29T05:28:32	479

  was executed through the on-board auto-downlink function.

  At the time of the anomaly, the position of the MM write and read pointers ware located as follows:

  > *Write Pointer= 176658, P0*
  > *Read Pointer= 3888725, P8*

  The anomaly took place around the following geographical coordinates:

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SMOS	*FOS Team @ ESAC*	Date:	from 28 SEP 2020 to 05 OCT 2020
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Latitude = 41.18°
Longitude = 5.06°

5 On Board Events Telemetry

The following alarm packets were received immediately before the MIRAS CCU reset on the 28th of September:

Event Description	Packet ID	Severity	Event Time	Param
MM_Error_Counters_Acquisition_Failure	689	ALARM	2020-09-28T18:11:03	No
MM_Scrub_Frequency_Acquisition_Failure	690	ALARM	2020-09-28T18:11:03	No
MM_Address_Acquistion_Failure	684	ALARM	2020-09-28T18:11:03	No
MM_Science_Write_Failure	692	ALARM	2020-09-28T18:11:04	Link
MM_Science_Write_Failure	692	ALARM	2020-09-28T18:11:04	Link
MM_Science_Write_Failure	692	ALARM	2020-09-28T18:11:04	Link

The following RAM Single Bit errors befell this week:

Event Description	Packet ID	Severity	Event Time	Parameters
RAM single Bit Error	730	WARN	2020-10-04T22:03:31	2096C08
RAM single Bit Error	730	WARN	2020-10-04T11:15:50	225A360
RAM single Bit Error	730	WARN	2020-10-04T09:44:46	2339CF4
RAM single Bit Error	730	WARN	2020-10-02T10:05:08	210CBF0
RAM single Bit Error	730	WARN	2020-10-01T20:45:03	2194A14

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

None.

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10 AOB

None.

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APPENDIX A: OOLs

During the execution of the MIRAS CCU reset the following TM parameter went temporary out of limits on the PLPC system.

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2020-09-29T11:36:11	2020-09-29T08:53:46	NTLHK022	ITL Ena State	Disabled	Enabled

The following TM parameters went temporary out of limits on the FOS PLPC system at the time of the CCU reset on the 28th of September.

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2020-09-28T20:15:45	2020-09-28T18:11:37	SPM22167	C3 LO_Locking	UNLOCK	LOCK
2020-09-28T20:15:45	2020-09-28T18:11:37	SPM21167	C2 LO_Locking	UNLOCK	LOCK
2020-09-28T20:15:45	2020-09-28T18:11:37	SPM20167	C1 LO_Locking	UNLOCK	LOCK
2020-09-28T20:15:45	2020-09-28T18:11:37	SPM19167	B3 LO_Locking	UNLOCK	LOCK
2020-09-28T20:15:45	2020-09-28T18:11:37	SPM18167	B2 LO_Locking	UNLOCK	LOCK
2020-09-28T20:15:45	2020-09-28T18:11:37	SPM17167	B1 LO_Locking	UNLOCK	LOCK
2020-09-28T20:15:45	2020-09-28T18:11:37	SPM16167	A3 LO_Locking	UNLOCK	LOCK
2020-09-28T20:15:45	2020-09-28T18:11:37	SPM15167	A2 LO_Locking	UNLOCK	LOCK
2020-09-28T20:15:45	2020-09-28T18:11:37	SPM14167	A1 LO_Locking	UNLOCK	LOCK
2020-09-28T20:15:45	2020-09-28T18:11:37	SPM13167	H3 LO_Locking	UNLOCK	LOCK
2020-09-28T20:15:45	2020-09-28T18:11:37	SPM12172	H2 LO_locking	UNLOCK	LOCK
2020-09-28T20:15:45	2020-09-28T18:11:37	SPM11167	H1 LO_Locking	UNLOCK	LOCK

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2020-09-28T20:15:45	2020-09-28T18:11:37	SPC02106	Instrument_Mode	Inst Init	Any
2020-09-28T20:15:45	2020-09-28T18:11:37	XNIRABST	NIR AB VALID ST	NOT-OK	OK
2020-09-28T20:15:45	2020-09-28T18:11:37	XNIRBCST	NIR BC VALID ST	NOT-OK	OK
2020-09-28T20:15:45	2020-09-28T18:11:37	XNIRCAST	NIR CA VALID ST	NOT-OK	OK