Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic: **FOS Report for week 48, year 2015**

Date: from 23 NOV 2015 to 30 NOV 2015

Issue: **1.0**

1 General Comments

Activities scheduled for this week are those planned for the 48th calendar week of 2015:

23 NOV 2015 to 30 NOV 2015 (DoYs 327 to 334).

The following routine activities were planned this week (see Gantt chart on next page and CRF 538):

- One Warm NIR Calibration on 25 NOV 2015 (DoY 329) with ETO 16:29:30z (orbit 31867) and with the following expected calibration values:

B.T.	= 3.6920
R.M.S.	= 0.2338
Sun Elevation	= 6.513806 degrees
R.A.	= 115.1555 degrees
DEC.	= -6.6302 degrees

- One PMS Offset on 26 NOV 2015 (DoY 330), including three Short Calibrations at 09:04:00.0z, 09:04:34.8z, and 09:05:09.6z (orbit 31876). **Calibration cancelled due to CCU reset on the 25th of November.**
- Local Oscillator Calibrations every 10 minutes.
- *X* band Passes over ESAC and Svalbard.

2 Mission Planning Deviations

Due to the CCU reset that happened on the 25th of November 2015, MIRAS planning activities were resumed on 2015-11-26T16:36:02z. Due to this reset the following list of passes were not acquired at Ground Station level:

SVAL 2015-11-25T23:50:44 2015-11-26T00:01:01
SVAL 2015-11-26T01:29:29 2015-11-26T01:39:54
SVAL 2015-11-26T03:08:40 2015-11-26T03:19:03
SVAL 2015-11-26T08:11:39 2015-11-26T08:17:52
SVAL 2015-11-26T09:54:10 2015-11-26T09:58:11
SVAL 2015-11-26T11:35:58 2015-11-26T11:39:41
SVAL 2015-11-26T13:16:29 2015-11-26T13:22:09
SVAL 2015-11-26T14:56:24 2015-11-26T15:04:20

Also the PMS Offset observation scheduled on the 26th of November was cancelled.

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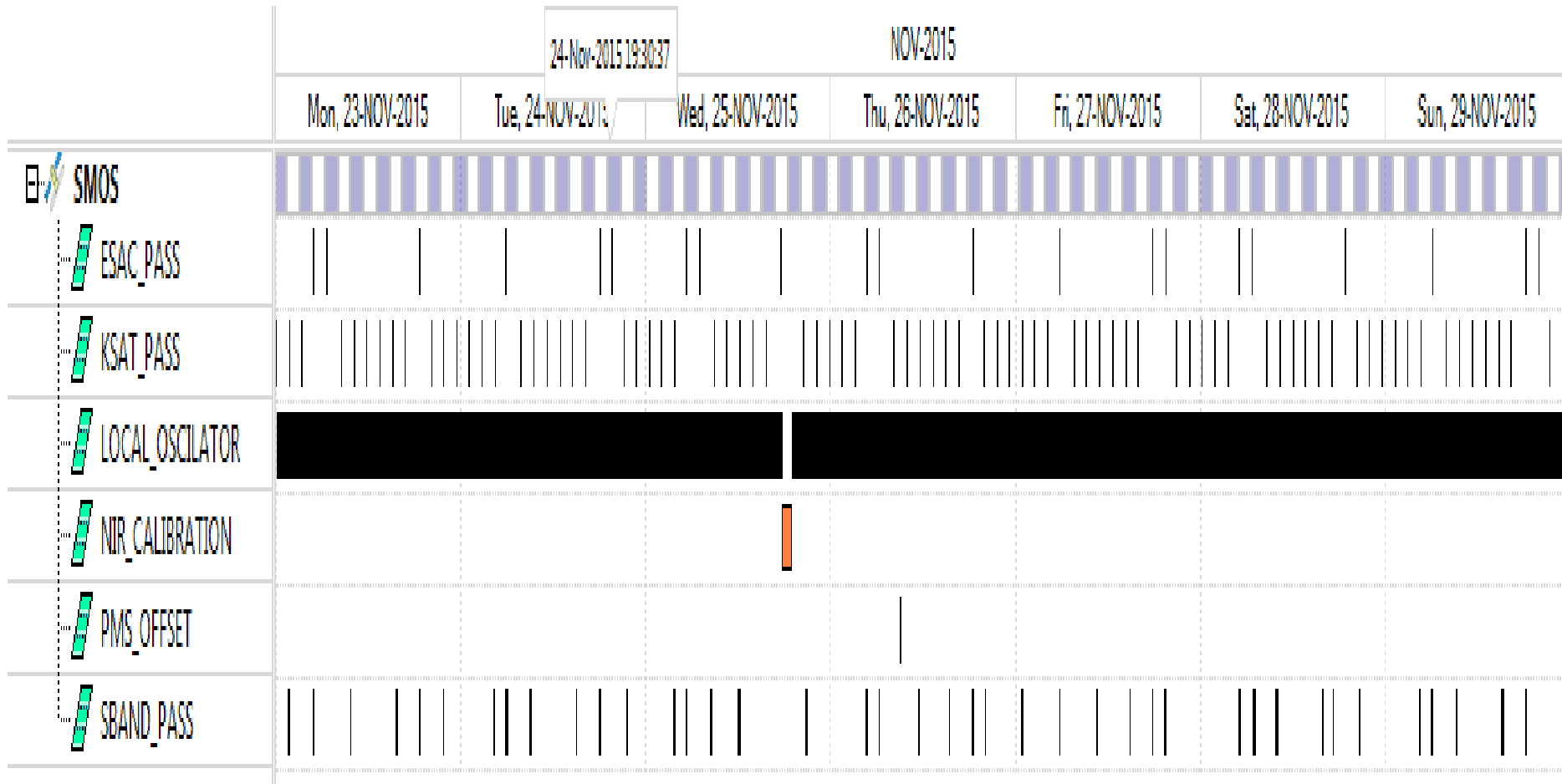
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SMOS

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3 TC Failures

None.

4 Unforeseen Out of Limits (OOLs)

None.

5 On Board Anomalies

The list of PLPC Out of Limit alarms associated to each of the events here below described can be found in Appendix-A of this report.

- Mass Memory Latch up in partition P11 on 2015-11-27T21:33:35.373z. This event was geolocated over SSA with coordinates:

    Longitude=300.608888
    Latitude=-35.286069

    No science data was affected by this event since the latch up happened for a partition not used in operations (spare partition) The recovery took place via CRF No. 542 on 2015-11-30T13:15:00z.

- A double bit memory error on Mass Memory partition P2 happened on day 2015-11-28T21:29:45.802. No data losses happened since at the time of the anomaly the Write pointer was in partition P6 and the Read pointer in partition P5 i.e. the data in the affected partition was previously downloaded to ground. The geolocation of the event was:

    Longitude= 130.353562
    Latitude=-18.226789

- MIRAS suffered a new CCU Reset on 2015-11-25T22:17:15.745z. First indications of a possible CCU reset were initially triggered by a phone call from KSAT to FOS hotline at 2015-11-26T03:13z. At that time the following three XBand passes over Svalbard were not received:

    from 2015-11-25T23:50:44 to 2015-11-26T00:01:01
    from 2015-11-26T01:29:29 to 2015-11-26T01:39:54
    from 2015-11-26T03:08:40 to 2015-11-26T03:19:03

    The reset befell at the end of the Svalbard X Band Pass that started on 2015-11-25T22:12:03z. Said pass was scheduled for duration of 616 s. The reset occurred 04:05 after AoS, and before the switch off of the X Band Antenna, scheduled for 22:22:20.625z. The last TM packet received before the reset was at 22:16:41.477z. The first MIRAS HK TM Packet after the reset was issued at 22:17:15.745z. Re-planning was issued by FOS

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on 2015-11-26 via CRF No. 541 and uploaded by CNES during GS Pass IVK-15 on 2015-11-26T11:27:26z.

The sequence of events prior to the CCU was:
    2015-11-25T22:13:08.196 = X Band Transmitter on
    2015-11-25T22:13:32.196 = Start of MM data

No warning or alarm packets were received before the reset event. At the time of the reset a Boot Report Packet was issued by the instrument with the following cause for the SW Reset:
    SLOT_SCH_TASK_OVERRUN

identical to all previous resets.
The values of the READ and WRITE pointers at the time of the reset were:
    Read = 2610487,
    MM Partition= P5
    Write = 2870284 ,
    MM Partition=P6

The geolocation of the event was over Artic Regions:
    Latitude. = 81.302631
    Longitude. = 10.574308

- Mass Memory Latch up in partition P0 on 2015-11-23T20:42:27.768z. This event was geolocated over Brasil at the following geographical coordinates:
    Longitude= 317.728389
    Latitude=-11.095302
Latch up recovery took place on 2015-11-24T16:24:00 via CRF-539. Due to the fact that the affected partition was P0 the following science data interval between 2015-11-24T16:15:26 and 2015-11-24T16:24:09, got lost (523 seconds in total)

6 On Board Events Telemetry

The following RAM Single Bit Errors befell this week:

Event Description	Severity	Event Time	Parameters
RAM single Bit Error	WARN	2015.333.13.51.04.848	205F9DC
RAM single Bit Error	WARN	2015.329.22.17.16.245	2126D60

7 FOS Systems Status

All FOS Systems behaved nominally during this reporting period.

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8 Data Reception from CNES

All *S* Band Passes were correctly received from CNES and successfully processed by the FOS PLPC System.

9 *X* Band Data Reception in PXMF

None, all *S* Band Passes successfully received and processed.

10 Exceptional Activities

None.

11 AOB

None.

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APPENDIX A: OOLs

At the time of the Mass Memory partition P2 double bit error that happened on day 2015-11-28T21:29:45.802 the following OOL was received on FOS PLPC system.

GS_TIME	OBTIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2015.333.04.53.40.251	2015.332.21.29.45.802	DMASME41	DB Err In P2	False	True

The two following alarms were received on PLPC system at the time of the Mass Memory Latch up in partition P11 on 2015-11-27.

GS_TIME	OBTIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2015.332.05.36.45.906	2015.331.21.33.35.373	DMASME37	SDD LU Detected	False	True
2015.332.05.36.45.936	2015.331.21.33.35.373	DMASME01	LU Switch P11	OFF	ON

During the execution of the CCU Recovery procedure on 2015-11-26, the following OOL was received at the time the ITL was disabled. This is a nominal OOL.

GS_TIME	OBTIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2015.330.12.13.05.176	2015.330.11.29.37.795	NTLHK022	ITL Ena State	Disabled	Enable

At the time of the CCU Reset on 2015-11-25, the following hard limits were temporary violated:

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GS_TIME	OBTIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2015.330.05.12.06.086	2015.329.22.17.15.745	XNIRCAST	NIR CA VALID ST	NOT-OK	O.K
2015.330.05.12.06.085	2015.329.22.17.15.745	XNIRBCST	NIR BC VALID ST	NOT-OK	O.K
2015.330.05.12.06.085	2015.329.22.17.15.745	XNIRABST	NIR AB VALID ST	NOT-OK	O.K
2015.330.05.12.06.082	2015.329.22.17.15.745	SPM12172	H2 LO_locking	Unlock	Lock
2015.330.05.12.06.082	2015.329.22.17.15.745	SPM11167	H1 LO_Locking	Unlock	Lock
2015.330.05.12.06.082	2015.329.22.17.15.745	SPC02106	Instrument_Mode	Inst Init	Full Pol
2015.330.05.12.06.081	2015.329.22.17.15.745	SPM16167	A3 LO_Locking	Unlock	Lock
2015.330.05.12.06.081	2015.329.22.17.15.745	SPM15167	A2 LO_Locking	Unlock	Lock
2015.330.05.12.06.081	2015.329.22.17.15.745	SPM14167	A1 LO_Locking	Unlock	Lock
2015.330.05.12.06.081	2015.329.22.17.15.745	SPM13167	H3 LO_Locking	Unlock	Lock
2015.330.05.12.06.080	2015.329.22.17.15.745	SPM20167	C1 LO_Locking	Unlock	Lock
2015.330.05.12.06.080	2015.329.22.17.15.745	SPM19167	B3 LO_Locking	Unlock	Lock
2015.330.05.12.06.080	2015.329.22.17.15.745	SPM18167	B2 LO_Locking	Unlock	Lock
2015.330.05.12.06.080	2015.329.22.17.15.745	SPM17167	B1 LO_Locking	Unlock	Lock
2015.330.05.12.06.079	2015.329.22.17.15.745	SPM22167	C3 LO_Locking	Unlock	Lock
2015.330.05.12.06.079	2015.329.22.17.15.745	SPM21167	C2 LO_Locking	Unlock	Lock

The following two limits were violated at the time of the Mass Memory Latch up of partition P0 on 2015-11-23T20:42:27.768z

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GS_TIME	OBTIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2015.327.22.23.40.313	2015.327.20.42.27.768	DMASME12	LU Switch P0	OFF	ON
2015.327.22.23.40.287	2015.327.20.42.27.768	DMASME37	SDD LU Detected	False	True