Operations Notes

FOS Team @ ESAC

SMOS

Topic:

Date:

Issue:

FOS Report for week 18

from the 28/04/14 to the 05/05/14

1.0

1 General Comments

The activities scheduled for this week are those planned for calendar week 18 of year 2014, from 28/04/2014 to 05/05/2014 (DOYs 118 to 125).

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

- X-band passes over ESAC and Svalbard.
- One PMS offset including three Short Calibrations on day 01/05/2014 (orbit 23620) at 16:51:00.000z, 16:51:34.800z and 16:52:09.600z
- Local oscillator calibration every 10 minutes.
- OCM planned on day 29/04/2014 at 23:18z (orbit 23596). The data will be flagged as external APID from 23:02z to 23:40z

2 Mission Planning Deviation

No deviations from the nominal planning happened during this week.

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	APR-2014					MAY-2014	
	Mon, 28-APR-2014	Tue, 29-APR-2014	Wed, 30-APR-2014	Thu, 01-MAY-2014	Fri, 02-MAY-2014	Sat, 03-MAY-2014	Sun, 04-MAY-2014
Int_LO_Phase_Cal_NoUnoise_FULL_NotEXT_SEQ							
XB_Cmd_Downlink_Svalb_SEQ							
SBand_Visibility_SEQ							
XB_Cmd_Downlink_Vilspa_SEQ							
Proteus_Manoeuvre_SEQ							
Disable_Cyclic_Function_SEQ							
PMS_Offset_Calibration_Full_SEQ							
Enable_Cyclic_Function_SEQ							

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3 TC Failures

None.

4 Unforeseen Out of Limits (OOLs)

The list of out limits received during this week can be seen in Appendix-A.

5 On Board Anomalies

- The recovery of the Mass Memory latch up that happened on previous week, day 26/04/2014, was done on day 28/04/2014 at 20:35z
- A new Mass Memory latch up for partition P6 occurred on 29/04/2014 at 19:42:24z. At the time of this latch up, MM Write and Read pointers were located in partitions P1 and P0 respectively. No data loss happened during either the anomaly or its nominal recovery. The recovery of this anomaly took place on day 30/04/2014 at 21:30z. The geolocation of the event was:

  Longitude= 161.957 deg
  Latitude= -41.673 deg

  At the time of the recovery, the two other partitions linked to the FPGA that powers partition P6 i.e. partitions P7 and P8, were also latched up for a few seconds. In particular partition P8 went Out of Limits at 21:30:03z, partition P7 at 21:30:04z. These two latch ups appeared just after the disable of the memory scrubbing at 21:30:02z. The partitions were again recovered at 21:30:23z for P6, 21:30:26z for P7 and at 21:30:27z for P8. The scrubbing was again enable at 21:31:21z. At the time of the recovery both MM pointers, Write and Read were located over partition P1. The geolocation of the event was on the north of Australia outside usual high radiation areas:

  Longitude= 129.761234
  Latitude= -14.935657

6 Telemetry On Board Events in the period.

No Ram single bit errors happened during this week.

7 FOS System Status

All FOS systems behave nominal during this period.

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8 Data Reception from CNES

All SBand passes have been nominally acquired and processed by FOS.

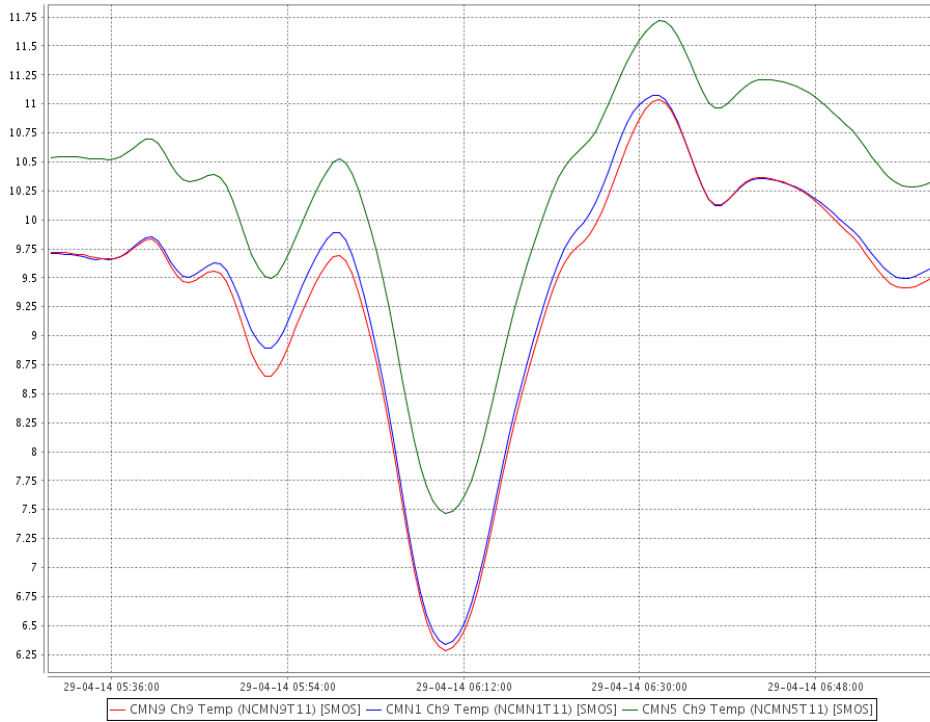# 9 X-Band Data Reception in PXMF

Not used during the present reporting period.

10 Exceptional Activities

- Recovery of MM Latchup for P7 on 28/04/14 and time tagged at 20:35z this anomaly took place on day 26/04/2014 at 10:02:44z (CRF-418)

- Recovery of MM Latchup for P6 on 30/04/14 and time tagged at 21:30z this anomaly took place on day 29/04/2014 at 19:42:24z (CRF-420)

- SMOS Orbit Correction Manoeuvre (OCM) on 29/04/2014 at 23:18z. The affected time period for the manoeuvre went from 23:02:00z to 23:40:00z and the data during that period flagged with an external APID. This manoeuvre period did not conflict with any X band transmission to ground.

11 AOB

- An annular eclipse over Antarctica happened on 29/04/2014 being its central phase at 06:10z. By pure chance SMOS was over that area at the time of the central part of the eclipse was swapping the Earth and in fact some thermal effects were seen by the MIRAS instrument. In particular the three TP7 external sensors, detected a significant decrease of the temperature as it is possible to see in the picture below.

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APPENDIX A: OOL's

The following Out of Limits occurred during the present reporting week.

Out of limit on parameter NTLHK022 was triggered due to the OCM and the fact that the MIRAS ITL has to be disabled during the execution of the manoeuvre.

The two OOL happening for parameters DMASME04 and DMASME05 appeared for just few seconds at the time of the Latch up recovery. In principle these two anomalies were unexpected although similar behaviour has been seen in the past with no impact in the instrument.

OBT	TM Parameter	Alarm Value	Check Value	Message
2014.120.01.16.01.002	DMASME37	FALSE	TRUE	Status limit is out of nominal range
2014.120.01.16.01.004	DMASME06	OFF State	On State	Status limit is out of nominal range
2014.120.01.22.04.480	NTLHK022	Disable	Enable	Status limit is out of nominal range
2014.121.02.31.16.883	DMASME37	FALSE	TRUE	Status limit is out of nominal range
2014.121.02.31.16.885	DMASME04	OFF State	On State	Status limit is out of nominal range
2014.121.02.31.16.940	DMASME05	OFF State	On State	Status limit is out of nominal range