



Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:

Date:

Issue:

FOS Report for week 49, year 2021

from 06 DEC 2021 to 20 DEC 2021

1.0

1 General Comments

Activities scheduled for this week are those planned for the 50th calendar week of 2021:

13 DEC 2021 to 20 DEC 2021 (DoYs 347 to 354).

Mission Planning for this week was calculated together with that of week 49, year 2021. The current report contains only the events that occurred during week 50, year 2021. The Gantt chart included in this report is the one containing the two weeks combined.

The following routine activities were planned this week (see Gantt chart on next page and CRF 1015).

- Two LONG Calibrations on 16 DEC 2021 (DoY 350), which encompassed two ascending semi-orbital periods starting at 15:29:30z (orbit 63709) and 17:08:00z (orbit 63710).
- Local Oscillator Calibrations every 10 minutes.
- X band Passes over ESAC and Svalbard.
- A routine Orbit Correction Manoeuvre (OCM) was scheduled for 15 DEC 2021 at 23:22:30z. With an SMA change aimed for 110.13 m, achieved 113.08 m (efficiency 102.70%). The affected time period went from 2021-12-15T23:12:44,795 to 2021-12-15T23:32:55,986z. Science data for that period was flagged with an external APID. No regular X band GS passes conflicted with this OCM.

2 Mission Planning Deviations

As per ESA-CNES management agreement (email 2021-11-26T10:21:20z) —and because of the ESAC holidays in week 49— CRF 1015 spanned —exceptionally— a two-week period.



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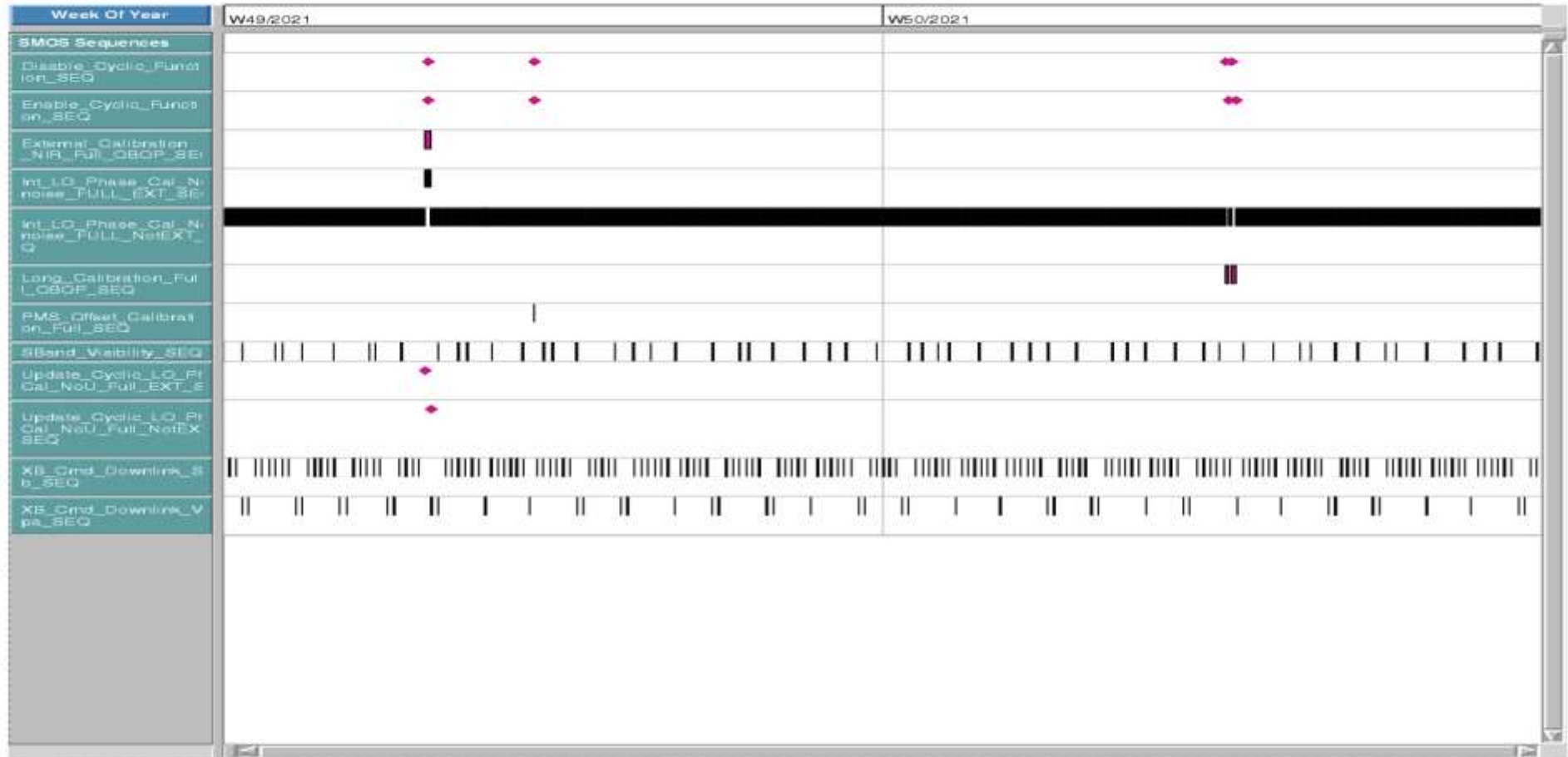
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Schedule Name: 2021_w49_w50_ez ### Display start: 06-12-2021 00:00:00.000 ### Display end: 07-12-2021 09:36:00.000





3 TC Failures

None.

4 On Board Anomalies

- The MIRAS instrument CMN, unit H1, unlocked 2021-12-13T20:44:10,615z (DoY 347). This anomaly was geolocated off the coast of the Estado do Rio Grande do Sul (Brazil):

LAT. = -29.42°

LONG. = 314.50°

Both parameters, output power SPM11162 and locking status SPM11167, went out of limits in the FOS PLPC system. The anomaly recovered by itself in 3 epochs.

- MIRAS instrument MM, partition P0, latched up 2021-12-18T03:37:11,476z (DoY 352).

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

2021.352.03:37:11,476z *DMASME12* *LU Switch P0*

2021.352.03:37:11,476z *DMASME37* *SDD LU Detected*

This anomaly was geolocated over the region of Qikiqtaaluk (Nunavut) Canada:

LAT. = 80.03°

LONG. = 273.26°

Data losses were expected during recovery as it was P0 that latched up.

Recovery was scheduled 21 DEC 2021, at 13:22:21z (CRF 1018).

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

READ = 3900663 (*partition P8*)

WRITE = 3924490 (*partition P8*)

- MIRAS instrument MM, partition P1, latched up 2021-12-19T19:48:28,796z (DoY 353).

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

2021.353.19:48:28,796z *DMASME11* *LU Switch P1*

2021.353.19.52.40,796z *DMASME37* *SDD LU Detected*

This anomaly was geolocated over the southwestern area of the Irish Sea:

LAT. = 49.809°

LONG. = 343.29°

There were science data losses associated with this anomaly because the anomaly occurred in the middle of ESAC X band pass (AOS=2021-12-19T19:46:53z; LOS=2021-12-19T19:52:53z). A data



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gap was created 19 DEC 2021 from 19:48:26z to 19:52:40z, with duration 00:04:14.

Recovery was scheduled 21 DEC 2021, at 13:22:21z (CRF 1018).

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

READ = 2057349 (partition P4)

WRITE = 1801319 (partition P4)

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	2021.347.18.08.18,202	2253D48
RAM Single Bit Error	730	WARNING	2021.349.09.58.12,728	212EFE4
RAM Single Bit Error	730	WARNING	2021.351.10.01.06,406	235A5CC
RAM Single Bit Error	730	WARNING	2021.353.23.36.30,657	22391A0

6 FOS Systems Status

- Workstations FOEXT2 and FOEXT3 were migrated into the new FOS Security Zone ESAC-I-PSN-SMOS_FOS-01.
- On 2021-12-18T15:26:56z FOS MUST DB table *BITPARAMVALUES* reached size=2 TB (hard limit for file system type EXT3) and TM ingestion ceased. Mitigation actions (commenced to ingest a limited set of parameters) were taken 20 DEC 2021 while a long-term solution is on the works.

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: OOL s

The following OOL befell at the time the MIRAS instrument CMN, unit H1, unlocked 2021-12-13T20.44.10,615z (DoY 347):

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2021.348.00.59.15,380	2021.347.20.44.10,615	SPM11162	H1 LO_Out_Power	NOT-OK	OK
2021.348.00.59.15,380	2021.347.20.44.10,615	SPM11167	H1 LO_Locking	UNLOCK	LOCK

The following OOLs befell at the time the MIRAS instrument MM, partition P0, latched up 2021-12-18T03:37:11,476z (DoY 352):

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2021.352.08.35.10,713	2021.352.03.37.11,476	DMASME12	LU Switch P0	OFF	ON
2021.352.08.35.10,711	2021.352.03.37.11,476	DMASME37	SDD LU Detected	FALSE	TRUE

The following OOLs befell at the time the MIRAS instrument MM, partition P1, latched up 2021-12-19T19:48:28,796z (DoY 353):

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2021.353.23.31.19,004	2021.353.19.48.28,796	DMASME11	LU Switch P1	OFF	ON
2021.353.23.31.31,320	2021.353.19.52.40,796	DMASME37	SDD LU Detected	FALSE	TRUE