1 General Comments

Activities scheduled for this week are those planned for the 35th calendar week of 2019:

```
26 AUG 2019 to 02 SEP 2019 (DoYs 238 to 245).
```

The following routine activities were planned this week (see Gantt chart on next page and CRF 829).

- One Warm NIR Calibration on 28 AUG 2019 (DoY 240) with ETO 16:55:00z (orbit 51609; ASCENDING: thermally UNSTABLE) and with the following expected calibration values:

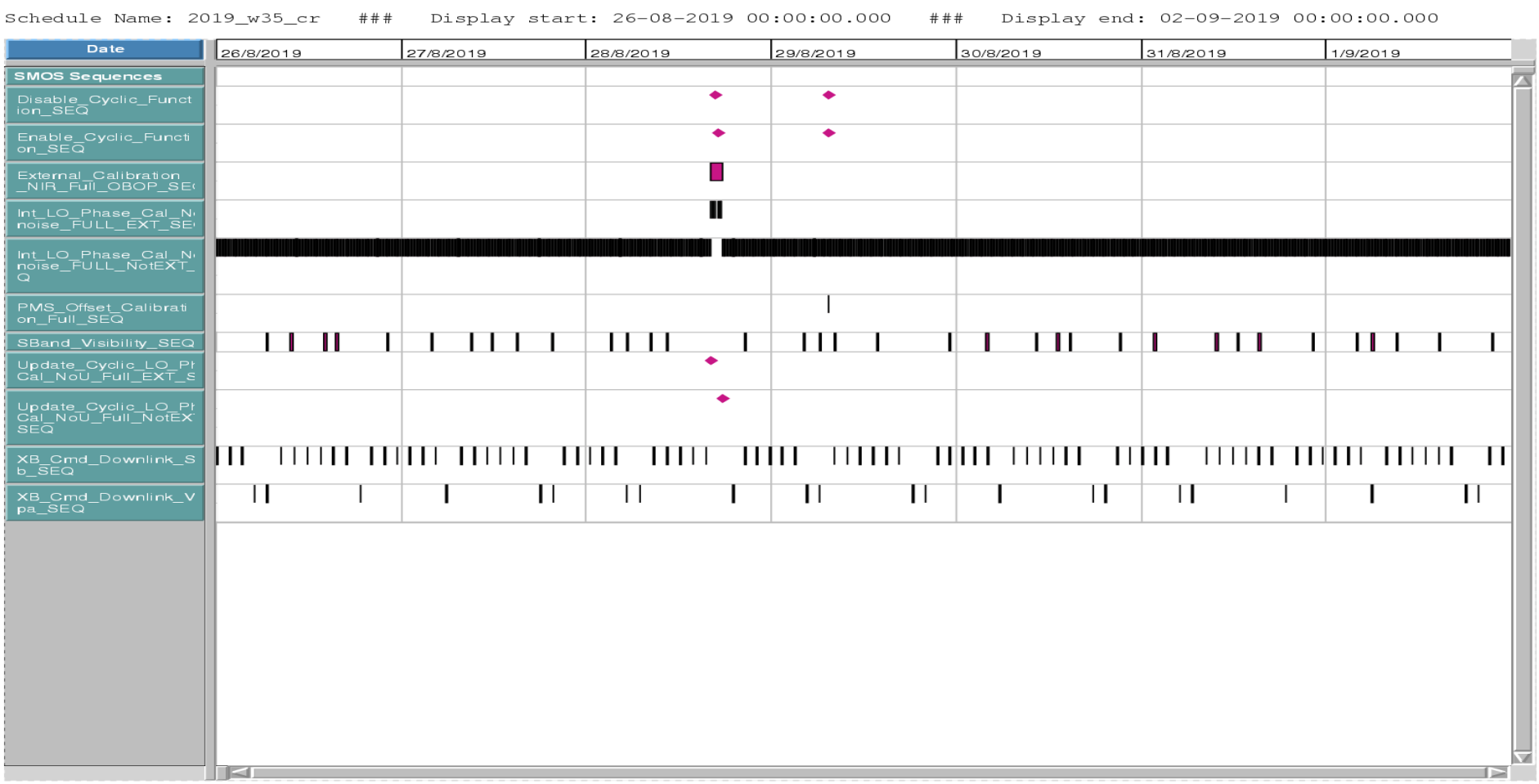
```
B.T.            =     3.98°
R.M.S.          =     0.51
Sun elevation   =     0.64°
Moon elevation  =    24.17°
R.A.            =    60.53°
DEC.            =    31.81°
```

- One PMS Offset on 29 AUG 2019 (DoY 241), including three Short Calibrations at 07:19:30.0z, 07:20:04.8z, and 07:20:39.6z (orbit 51617).
- Local Oscillator Calibrations every 10 minutes.
- *X* band Passes over ESAC and Svalbard.

2 Mission Planning Deviations

Because of the CCU reset of 31 AUG 2019, and the failure of the auto-downlink function that ensued, the following *X* band GS passes were not acquired (see Sect. 4):

Station	AoS	LoS	Duration
Xband_SVAL	2019-08-31T01:46:03,295	2019-08-31T01:56:29,932	626
Xband_SVAL	2019-08-31T03:25:21,103	2019-08-31T03:35:41,054	619
Xband_ESAC	2019-08-31T04:57:15,791	2019-08-31T05:04:20,132	424
Xband_ESAC	2019-08-31T06:36:11,789	2019-08-31T06:43:04,427	412
Xband_SVAL	2019-08-31T08:28:46,114	2019-08-31T08:34:36,502	350
Xband_SVAL	2019-08-31T10:11:16,101	2019-08-31T10:15:03,699	227
Xband_SVAL	2019-08-31T11:52:51,473	2019-08-31T11:56:46,109	234


Schedule Name: 2019_w35_cr ### Display start: 26-08-2019 00:00:00.000 ### Display end: 02-09-2019 00:00:00.000
Date
26/8/2019
27/8/2019
28/8/2019
29/8/2019
30/8/2019
31/8/2019
1/9/2019
SMOS Sequences
Disable_Cyclic_Function_SEQ
Enable_Cyclic_Function_SEQ
External_Calibration_NIR_Full_OBOP_SE
Int_LO_Phase_Cal_Noise_FULL_EXT_SE
Int_LO_Phase_Cal_Noise_FULL_NotEXT_Q
PMS_Offset_Calibration_Full_SEQ
SBand_Visibility_SEQ
Update_Cyclic_LO_PhCal_NoU_Full_EXT_S
Update_Cyclic_LO_PhCal_NoU_Full_NotEXSEQ
XB_Cmd_Downlink_Sb_SEQ
XB_Cmd_Downlink_Vpa_SEQ

3 TC Failures

None.

4 On Board Anomalies

- The MIRAS instrument CMN, unit C3, unlocked 2019-08-29T22:03:20,434z (DoY 241). This anomaly was geolocated over the Departamento de Tarija (Bolivia):

  LAT. = -21.82°
  LONG. = 296.10°

  Only locking status parameter SPM22167, went out of limits in the FOS PLPC system. The anomaly recovered in 13 epochs.

- The MIRAS instrument CCU reset 2019-08-31T01:12:47,880z (DoY 243). KSAT phoned the FOS hotline on 31 AUG 2019, at 03:45z, reporting two consecutive Svalbard *X* band GS passes with no signal from the S/C. Following local verifications, FOS on-call engineer phoned the CNES hotline. CNES on-call was already aware of the reset and confirmed it. Warning notes were subsequently emailed by FOS on-call to DPGS/KSAT (reset confirmation and notification of resumption = 2019-08-31T13:33:22,239z) and the extended ground segment (early info). Reset was confirmed on reception of *S* band GS pass KRX-23 (AoS = 2019-08-31T01:41:59z).

  The reset befell in between two Svalbard *X* band GS passes. Last TM packet received before the reset was time stamped 2019-08-31T01:12:47,880z. This reset was triggered by the standard «Task Overrun» error (Boot Report).

  FOS had produced, in advance, a suitable re-planning for this contingency. Included in CRF No. 830, it was uploaded by CNES, following the execution of PRO-CRP-100, during *S* band GS pass KUX-40 on 2019-08-31T09:42:56z. As per this re-planning, nominal MIRAS *X* band GS dumps resumed 2019-08-31T13:33:22,239z (Svalbard).

  Science data for 8613 seconds were lost (from 2019-08-31T00:07:46z to 2019-08-31T02:31:19z), and several *X* band GS passes were not acquired (see Sect. 2). This gap was longer than expected because:

  a. The CCU reset took place in between two *X* band GS passes, instead of at the end of a pass.
  b. The first *X* band GS pass following the reset was (serendipitously) affected by acquisition problems at Svalbard.
  c. Currently ESAC auto-downlink is not functional.

  Time assessment from the DPGS Team:

a. 3937 seconds due to CCU proper (from 2019-08-31T00:07:46z to 2019-08-31T01:13:23z).
b. 4676 seconds due to acquisition problems at Svalbard (from 2019-08-31T01:13:23z to 2019-08-31T02:31:19z).

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

2019.243.01.12.56,370	*33233*	*NORM*	*LO Cal NoUN FULL NoEXT OBOP 29 Started*
2019.243.01.12.00,020	*826*	*NORM*	*Mode Change To Full Polarisation*
2019.433.01.12.01,210	*826*	*NORM*	*Mode Change To Full Polarisation*
2019.433.01.12.02,370	*33234*	*NORM*	*LO Cal NoUN FULL NoEXT OBOP 29 Completed*

No alarms were issued prior to the reset.

See Appendix A for a list of OOLs displayed in the FOS PLPC system immediately after the reset. Parameters were time stamped «*Ground Reception Time*» because the instrument had not yet synchronised with the platform. The following two error packets were issued:

2019.243.02.24.19,105	*652*	*ERROR*	*Time_Correlator_Unexpected_UTC*
2019.243.02.24.19,106	*653*	*ERROR*	*Time_Correlator_Unexpected_PPS*

The values of the READ and WRITE pointers at the time of the reset were:

```
Read      = 2494476,  MM Partition P5
Write     = 2659903,  MM Partition P6
```

The anomaly was geolocated off the coast of Antarctica, due south-west of Australia:

```
LAT.      = -55.81°
LONG.     =  84.69°
```

- A MM double bit error impacted partition P5 2019-09-01T13:52:12,755z (DoY 244). The following parameters went out of limits in the PLPC system:

```
2019.244.13.52.12,755 DMASME44  DB Err In P5
```

This anomaly was geolocated over the southern Pacific Ocean, off the coast of Antarctica:

```
LAT.      = -63.44°
LONG.     = 259.46°
```

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

```
READ      = 1418936    (partition P3)
WRITE     = 1565073    (partition P3)
```

There were no science data losses associated with this anomaly because it affected P5 while both, Read and Write, pointers were on P3 (i.e. the data in the affected partition had already been downloaded to ground during an earlier X band GS pass and not yet rewritten).

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	2019.240. 21:16:19,963	228E44C
RAM Single Bit Error	730	WARNING	2019.243. 02:24:19,196	228E44C

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.

10 AOB

None.

APPENDIX A: OOLs

The following OOL befell at the time the MIRAS instrument CMN, unit C3, unlocked 2019-08-29T22:03:20,434z (DoY 241):

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2019.241.23.58.31,898	2019.241.22.03.20,434	SPM22167	C3 LO_Locking	UNLOCK	LOCK

The following OOLs befell at the time the MIRAS instrument CCU reset on 2019-08-31T01:12:47,880z (DOY 243):

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2019.243.01.13.23,339	2019.243.01.13.23,339	TCO_FLAG	TCO Restart flag	NOT-OK	OK
2019.243.02.24.19,196	2019.243.02.24.19,196	XNIRABST	NIR AB VALID ST	NOT-OK	OK
2019.243.02.24.19,196	2019.243.02.24.19,196	XNIRBCST	NIR BC VALID ST	NOT-OK	OK
2019.243.02.24.19,196	2019.243.02.24.19,196	XNIRCAST	NIR CA VALID ST	NOT-OK	OK
2019.243.02.24.19,196	2019.243.02.24.19,196	SPC02106	Instrument_Mode	Inst Init	Any Mode
2019.243.02.24.19,196	2019.243.02.24.19,196	SPC10107	PPS_ERROR_FLAG	Unexpe PPS	Valid
2019.243.02.24.19,196	2019.243.02.24.19,196	SPM11167	H1 LO_Locking	UNLOCK	LOCK
2019.243.02.24.19,196	2019.243.02.24.19,196	SPM12172	H2 LO_locking	UNLOCK	LOCK
2019.243.02.24.19,196	2019.243.02.24.19,196	SPM13167	H3 LO_Locking	UNLOCK	LOCK
2019.243.02.24.19,196	2019.243.02.24.19,196	SPM14167	A1 LO_Locking	UNLOCK	LOCK
2019.243.02.24.19,196	2019.243.02.24.19,196	SPM15167	A2 LO_Locking	UNLOCK	LOCK
2019.243.02.24.19,196	2019.243.02.24.19,196	SPM16167	A3 LO_Locking	UNLOCK	LOCK
2019.243.02.24.19,196	2019.243.02.24.19,196	SPM17167	B1 LO_Locking	UNLOCK	LOCK

2019.243.02.24.19,196	2019.243.02.24.19,196	SPM18167	B2 LO_Locking	UNLOCK	LOCK
2019.243.02.24.19,196	2019.243.02.24.19,196	SPM19167	B3 LO_Locking	UNLOCK	LOCK
2019.243.02.24.19,196	2019.243.02.24.19,196	SPM20167	C1 LO_Locking	UNLOCK	LOCK
2019.243.02.24.19,196	2019.243.02.24.19,196	SPM21167	C2 LO_Locking	UNLOCK	LOCK
2019.243.02.24.19,196	2019.243.02.24.19,196	SPM22167	C3 LO_Locking	UNLOCK	LOCK
2019.243.09.45.06,876	2019.243.09.45.06,876	NTLHK022	ITL Ena State	Disabled	Enabled

The following OOLs befell at the time the MIRAS instrument MM, partition P5, was impacted by a double bit error 2019-09-01T13:52:12,755z (DoY 244):

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2019.244.15.14.41,990	2019.244.13.52.12,755	DMASME44	DB Err In P5	FALSE	TRUE