



Daily Downlink Tagup

Wednesday, July 31, 2019 (DOY 212)

OSIRIS-REX™
ASTEROID SAMPLE RETURN MISSION



Agenda & Logistics

- Quicklook
- DSN Schedule
- Observation Timeline
- Uplink/Execution/Downlink Summary
- Alarms, Watch items, ISAs, PFRs
- Need for Retransmit, need for Replay?
- Science / PI Comments
- Go-backs / Additional Comments

Daily Downlink Summaries available shortly after each Tagup at on the OREx Ops Wiki:
https://orexwiki.lpl.arizona.edu/wiki/Main_Page (LDAP login)

Daily Downlink Slides available shortly after each Tagup at:

OSIRIS-REx Bennu Proximity Operations/Science Implementation/Downlink_Daily_Summary/2019

Quicklook

Team	Status	Comment
Spacecraft	G	No issues
<i>Electrical Power System</i>	G	No issues
<i>Flight Software</i>	G	No issues
<i>Fault Protection</i>	G	No issues
<i>G&NC</i>	G	No issues
<i>Mechanisms</i>	G	No issues
<i>Propulsion</i>	G	No issues
<i>Telecom</i>	G	No issues
<i>Thermal</i>	G	No issues
<i>Payload Interfaces</i>	G	No issues

	Health				Safety		Performance			Powered State	GO/NO-GO
OCAMS										ON	GO
OLA										OFF	GO
OTES										ON	GO
OVIRS										OFF	GO
REXIS										ON	GO
	Thermal	Power	Command Response	Alarms	Trending	Limited Life & Mechanisms	Data Completeness	Pipeline Status	Science Concurrence		

Downlink Schedule (times in UTC)

- **Current Data Rate: 917 Mbps**

WOY	DOY	Start Date	HGA Start	End Date	HGA End	Duration	Note
31	210	2019-07-29	16:05	2019-07-29	20:30	4:25	COMPLETE
31	211	2019-07-30	14:08	2019-07-30	20:40	6:22	COMPLETE
31	212	2019-07-31	14:10	2019-07-31	20:40	6:30	IN PROGRESS
31	213	2019-08-01	14:14	2019-08-01	18:26	4:12	
31	214	2019-08-02	14:10	2019-08-02	19:30	5:20	
31	215	2019-08-03	14:25	2019-08-03	18:40	4:15	
31	216	2019-08-04	14:11	2019-08-04	20:20	6:09	
31	217	2019-08-05	14:11	2019-08-05	20:40	6:29	

SIGNIFICANT EVENTS:

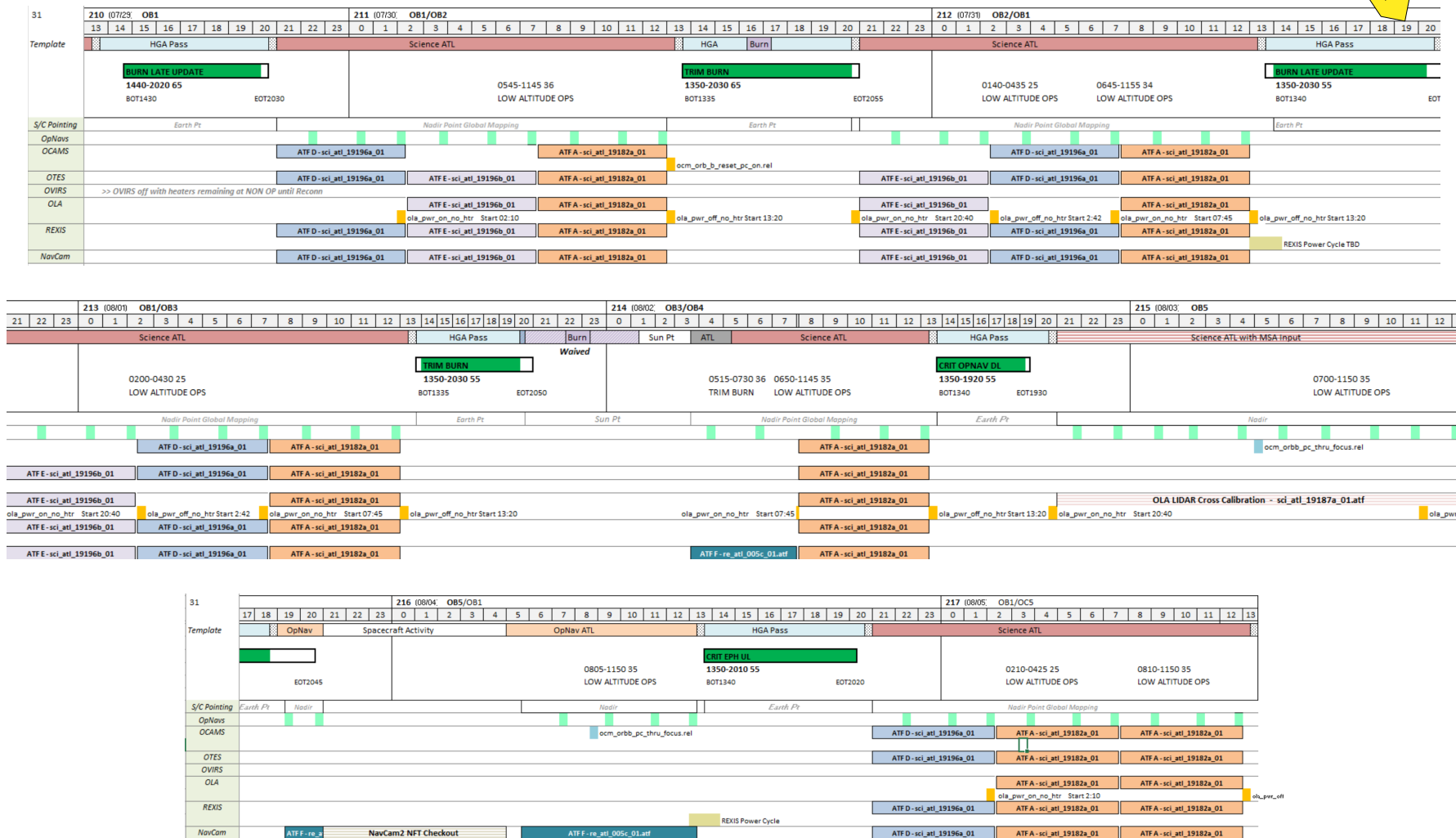
RED EQUIPMENT STATUS:

SPC/DSS	EQUIPMENT	ETRO
-----	-----	----
DSS65	RRT7	212/1500z
SPC10	RSR2	228/2300z
DSS54	NDA	236/1530z
DSS14	X500kw-R	310/2300z
SPC60	VSR	350/1648z
DSS63	EAC	355/1621z

Orbital B Global Mapping, OLA Lidar Cross Cal 2, NavCam2 NFT Checkout, PolyCam Thru Focus Cal (Trim Burns Waived)

WOY 31

We are HERE



Mission stats as of 2019-07-24 (L+1049):

- Earth Range: 1.31 AU (↑)
- Sun Range: 1.35 AU (↑)
- Bennu Range: 0.95 km (in orbit)
- One Way Light-Time: 00:10:56 hh:mm:s (↑)

Orbital B Key

ATF A: OLA, PolyCam, OTES, REXIS, OpNav, and Particle Imaging

ATF B: Polycam, OTES, REXIS, OpNav, and Particle Imaging

ATF C: OTES, REXIS, OpNav, and Particle Imaging

ATF D: MapCam, OTES, REXIS, OpNav, and Particle Imaging

ATF E: OLA, OTES, REXIS, OpNav, and Particle Imaging

ATF F: OpNav + Particle Imaging Only

Uplink Summary

UPLINK

WOY 31 (2019-210 – 2019-217)

- BG Seq, Sci Genies, Payload Sequences [uplinked 2019-207](#)

Ephemeris Updates

- Ephemeris Update: od168 [uplinked 2019-205](#)
- Ephemeris Update: od169 [uplinked 2019-208](#)
- Ephemeris Update: od170 [uplinked 2019-212](#)

Other Files

- TAGCAMS Safing recovery commanding and TAGCAMS test image [uplinked 2019-209](#)
- NavCam1 NFT Checkout 2 Cleanup Commanding [uplinked 2019-210](#)
- OpNav same-pass retransmit [uplinked 2019-210](#)
- OLA same-pass retransmit [uplinked 2019-210](#)
- REXIS / OTES retransmit [uplinked 2019-211](#)

Execution Summary

Executed (times in UTC):

- 2019/210 (Monday, July 29)
 - # of NavCam OpNav images expected/received : 9 / 9
 - # of NavCam Particle images expected/received : 18 / 18
 - # of OCAMS images (Map & Poly) expected /received : 72 / 72
 - OTES Data Vol expected/received : 89.6MB / 89.6MB
 - OLA Data Vol expected/received : 1536.4 MB / 1536.4 MB
 - REXIS Data Vol expected/received : 15 / 15 MB
- 2019/211 (Tuesday, July 30)
 - Executing D-E-A
 - # of NavCam OpNav images expected/received : 9 / 9
 - # of NavCam Particle images expected/received : 18
 - # of OCAMS images (Map & Poly) expected /received : 72
 - OTES Data Vol expected/received : 89.6 / **89.6 MB**
 - OLA Data Vol expected/received : 1536.4 / **1536.4 MB**
 - REXIS Data Vol expected/received : 15 / **15 MB**
- 2019/212 (Wednesday, July 31)
 - Executing ATFs E-D-A
 - # of NavCam OpNav images expected/received : 9 / 9
 - # of NavCam Particle images expected/received : 18 / **TBD**
 - # of OCAMS images (Map & Poly) expected /received : 72 / **TBD**
 - OTES Data Vol expected/received : 89.6 / **89.6 MB**
 - OLA Data Vol expected/received : 1536.4 / **1536.4 MB**
 - REXIS Data Vol expected/received : 15 / **15 MB**

Up Next (times In UTC):

- 2019/213 (Thursday, August 01)
 - Executing ATFs E-D-A
 - # of NavCam OpNav images expected/received : 9
 - # of NavCam Particle images expected/received : 18
 - # of OCAMS images (Map & Poly) expected /received : 72
 - OTES Data Vol expected/received : 89.6MB
 - OLA Data Vol expected/received : 1536.4 MB
 - REXIS Data Vol expected/received : 15 MB
- 2019/214 (Friday, August 02)
 - Trim Burn Day, Executing ATFs F-A
 - # of NavCam OpNav images expected/received : 6
 - # of NavCam Particle images expected/received : 12
 - # of OCAMS images (Map & Poly) expected /received : 47
 - OTES Data Vol expected/received : 29.9MB
 - OLA Data Vol expected/received : 768.2 MB
 - REXIS Data Vol expected/received : 8 MB

Downlink Summary

- **Current Data Rate: 917 kbps**
Downlink

- Today's Partition Status :

	Part. Start Vol (MB)	New Data Vol (MB)	Partition Fill (MB)	Expected Partition Fill (%)	Current Partition (%) *	Comments
<i>OpNav</i>	0.00	99.37	99.37	14.20%	0.00%	
<i>OTES</i>	0.00	89.64	97.17	35.21%	0.00%	
<i>REXIS</i>	0.00	45.85	50.01	33.79%	0.00%	
<i>OLA</i>	0.00	857.54	926.00	100.00%	0.00%	
<i>OVIRS</i>	0.00	679.00	679.00	64.91%	0.00%	
<i>OCAMS</i>	0.00	367.67	374.73	10.15%	0.00%	
<i>Tagcams/Overflow</i>	0.00	0.00	0.00	0.00%	0.00%	

* Partition Status as of 20:00 UTC.

Downlink Summary

- **Tomorrow's Data Rate: 917 kbps**

Downlink

- Tomorrow's Expected Partition Status :

	Part. Start Vol (MB)	New Data Vol (MB)	Partition Fill (MB)	Expected Partition Fill (%)	Expected End Partition (%)	Comments
<i>OpNav</i>	0.00	99.37	99.37	14.20%	0.00%	
<i>OTES</i>	0.00	89.64	97.17	35.21%	0.00%	
<i>REXIS</i>	0.00	45.85	50.01	33.79%	0.00%	
<i>OLA</i>	0.00	857.54	926.00	100.00%	0.00%	
<i>OVIRS</i>	0.00	679.00	679.00	64.91%	0.00%	
<i>OCAMS</i>	0.00	367.67	583.01	15.79%	0.00%	
<i>Tagcams/Overflow</i>	0.00	0.00	0.00	0.00%	0.00%	

Need for Retransmit? Need for Replay?

DOY 210

- *Due to the HGA pass start being ~1 hr later than what was scripted in the WOY 31 BG Sequence due to precoordinated DSN scheduling for Huyabusa*
- *As a result, S/C transmitted but DSN did not receive data for first ~1 hr of the HGA Pass.*
- *OpNavs were retransmitted via same-pass retransmit*
- OTES, OLA and REXIS have confirmed they have received all of their data from this period

List of Unexpected Alarms, Watch Items, ISAs, PFRs

Unexpected Alarms - None

New or Updated Watch Items, ISA's and PFR's

- **ISA # 10854 – TAGCAMS DOY 2019-208 Bad Image SP Header**
 - ISA Status: In Progress
 - ISA Type: Spacecraft minor
 - ISA Criticality: 3 – minimal impact
- **ISA # 10751 – TAGCAMS DOY 2019-202/203 Images Not Transferred**
 - ISA Status: In Progress
 - ISA Type: Spacecraft Minor
 - ISA Criticality: 3 – Minimal impact
- **ISA # 10702 – ORX MSA Flight Machines Frozen on 2019-197**
 - ISA Status: NEW
 - ISA Type: Ground Major
 - ISA Criticality: 2 - Significant Impact
- **ISA # 10665 – REXIS background counts higher than expected**
 - ISA Status: NEW
 - ISA Type: Spacecraft minor
 - ISA Criticality: 3 - Minimal Impact
- **ISA # 10600 – Madrid antenna in Stow Position and not responding to Goldstone control for 2nd half of a split track**
 - ISA Status: NEW
 - ISA Type: Ground minor
 - ISA Criticality: 3 - Minimal Impact
- **ISA # 10466 – TAGCAMS DOY 2019-175 Uncorrectable errors, rejected commands and images not transferred**
 - ISA Status: New
 - ISA Type: Spacecraft minor
 - ISA Criticality: 3 – minimal impact
- **ISA #10004 - 1923 ote_spacecal_002 missing from payload bundle and weeklong softsim**
 - ISA Status: In Progress
 - ISA Type: Ground Minor
 - ISA Criticality: 3 – minimal impact
- **ISA # 8767 - Re-occurrence: STL intermittent downlink issues during setup**
 - ISA Status: In Progress
 - ISA Type: Ground minor
 - ISA Criticality: 3 – minimal impact

Instrument Presentations

Science Status and/or PI Status

Looking Ahead

31							32							33							34						
210	211	212	213	214	###	###	217	218	219	220	221	###	###	224	225	226	227	228	###	###	231	232	233	234	235	###	###
7/29	7/30	7/31	8/1	8/2	8/3	8/4	8/5	8/6	8/7	8/8	8/9	###	###	8/12	8/13	8/14	8/15	8/16	###	###	8/19	8/20	8/21	8/22	8/23	###	###
M	T	W	R	F	Sa	Su	M	T	W	R	F	Sa	Su	M	T	W	R	F	Sa	Su	M	T	W	R	F	Sa	Su
Traj #2, 3, 4 Delivered																											
							xm1939 - DS Flyby 2 Redux							xm1940 - High FB1 - EX07							xm1941 - High FB2 - DL06						
														xm1939 - DS Flyby 2 Redux							xm1940 - High FB1 - EX07						
xm1936 - Orbit C (Opnav, Particle Img Only)							xm1937 - TBD - Transition to Recon A							xm1938 - Transition to Recon A							xm1939 - DS Flyby 2 Redux						
xm1935 - Orbit C (Opnav, Part Img)							xm1936 - Orbit C (Opnav, Particle Img Only)							xm1937 - TBD - Transition to Recon A							xm1938 - Transition to Recon A						
xm1934 - Orbit C (Opnav, Particle Img Only)							xm1935 - Orbit C (Opnav, Part Img)							xm1936 - Orbit C (Opnav, Particle Img Only)							xm1937 - TBD - Transition to Recon A						
xm1933 - Orbit C (Opnav, Particle Img Only)							xm1934 - Orbit C (Opnav, Particle Img Only)							xm1935 - Orbit C (Opnav, Part Img)							xm1936 - Orbit C (Opnav, Particle Img Only)						
xm1932 - Orbit C (Opnav, Particle Img Only)							xm1933 - Orbit C (Opnav, Particle Img Only)							xm1934 - Orbit C (Opnav, Particle Img Only)							xm1935 - Orbit C (Opnav, Part Img)						
xm1931 - Orbit B Global Week 5							xm1932 - Orbit C (Opnav, Particle Img Only)							xm1933 - Orbit C (Opnav, Particle Img Only)							xm1934 - Orbit C (Opnav, Particle Img Only)						

Looking Ahead – Science Observation Forecast (1 of 2)

https://orexwiki.lpl.arizona.edu/wiki/Orbital_B | Science Data Production

UID	Source Phase	WG	Task Name	Related DP #	MRD	Observation Start	WOY
	Orbital_B		Orbital B Science Observations				
	Orbital_B		Global Mapping Observations				
	Orbital_B		OLA Observations				
1045	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	7/15/2019	2019-29
1047	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	7/16/2019	2019-29
1049	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	7/17/2019	2019-29
1051	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	7/18/2019	2019-29
1868	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	7/19/2019	2019-29
1870	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	7/21/2019	2019-29
1871	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	7/22/2019	2019-30
1872	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	7/23/2019	2019-30
1873	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	7/24/2019	2019-30
1041	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	7/25/2019	2019-30
1869	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	7/26/2019	2019-30
2107	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	7/28/2019	2019-30
2108	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	7/29/2019	2019-31
2109	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	7/30/2019	2019-31
2110	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	7/31/2019	2019-31
2111	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	8/1/2019	2019-31
2112	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	8/2/2019	2019-31
2113	Orbital_B	Obs_OLA	Shape & Tilt: OLA Scans (PRI.)	ALT-18, 5cm OLA shape model	115b	8/4/2019	2019-31
	Orbital_B		PolyCam Observations				
1084	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	7/15/2019	2019-29
1086	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	7/16/2019	2019-29
1088	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	7/17/2019	2019-29
1090	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	7/18/2019	2019-29
1101	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	7/19/2019	2019-29
1900	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	7/21/2019	2019-29
1899	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	7/22/2019	2019-30
1898	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	7/23/2019	2019-30
1897	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	7/24/2019	2019-30
2091	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	7/25/2019	2019-30

Looking Ahead – Science Observation Forecast (2 of 2)

https://orexwiki.lpl.arizona.edu/wiki/Orbital_B | Science Data Production

UID	Source Phase	WG	Task Name	Related DP #	MRD	Observation Start	WOY
	Orbital_B		Orbital B Science Observations				
	Orbital_B		Global Mapping Observations				
	Orbital_B		PolyCam Observations				
2092	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	7/26/2019	2019-30
2093	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	7/28/2019	2019-30
2094	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	7/29/2019	2019-31
2095	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	7/30/2019	2019-31
2096	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	7/31/2019	2019-31
2097	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	8/1/2019	2019-31
2098	Orbital_B	Obs_PolyCam	Sampleability imagery: PolyCam Images (PRI.)	RD-3	183c2	8/4/2019	2019-31
	Orbital_B		OTES Observations				
1183	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/15/2019	2019-29
1185	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/16/2019	2019-29
1187	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/17/2019	2019-29
1189	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/18/2019	2019-29
1191	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/19/2019	2019-29
1915	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/20/2019	2019-29
1916	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/21/2019	2019-29
1917	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/22/2019	2019-30
1918	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/23/2019	2019-30
1919	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/24/2019	2019-30
1164	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/25/2019	2019-30
2121	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/26/2019	2019-30
2122	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/27/2019	2019-30
2123	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/28/2019	2019-30
2124	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/29/2019	2019-31
2125	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/30/2019	2019-31
2126	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	7/31/2019	2019-31
2127	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	8/1/2019	2019-31
2128	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	8/3/2019	2019-31
2129	Orbital_B	Obs_OTES	Local Thermal Inertia: OTES Spectra (PRI.)	SA-10	540	8/4/2019	2019-31

Go Backs?

Backup

TAGCAMS Safing Status DOY 210

- TAGCAMS was safed by the Spacecraft on DOY 208 at ~13:11
- At the time we were near the end of executing ATF E
- First error was noted in high speed at ~13:11, when a particle image reported out an invalid header. All subsequent images (1 OpNav and 2 Particle Images) continued to fail. After a persistence of 3, the instrument was marked as failed and Safed by fault protection.
- ORX Red alarms were reported at the start of the HGA pass on DOY 208
- Due to a short HGA pass on DOY 208 (shortly after TAGCAMS was safed) team could not complete anomaly assessment and recover TAGCAMS before the end of pass.
- As a result, TAGCAMS remained in a safe state and no images were taken during the planned NavCam1 NFT Checkout on DOY 208-209, as were no Opnav images taken
 - MSA to assess the impact of losing the NavCam1 NFT Checkout data. 2 other NavCam1 NFT Checkouts were successfully completed (in WOY 28 and 29).
- MSA was able to complete assessment on DOY 208 and determine that it would be safe to recover TAGCAMS and take a test image the following day
- TAGCAMS was recovered during the HGA pass on DOY 209 and a test image was taken.
- MSA completed a same-pass retransmit today (DOY 210) to bring down down all OpNav images including the Test Image during Monday's HGA pass
- The three images that failed integrity checks on DOY 208 will come down later this week (estimating DOY 212 or 213).
- An ISA has been opened to track this anomaly (**#10854**)

Instrument Weekly Status

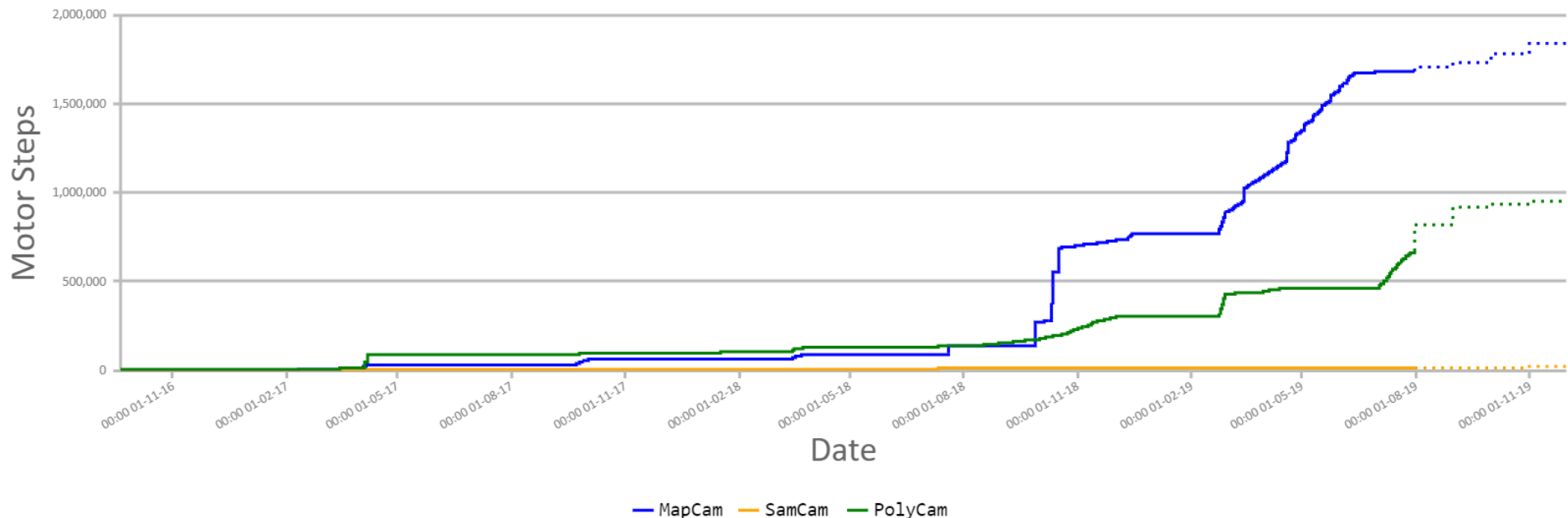
- **OCAMS (Bashar) – On and nominal**
 - Continued nominal performance for Polycam and Mapcam
 - 2672 OCAMS images between 07/01 – 07/27
 - Polycam focus continues to focus in line with the OLA ranges
- **OLA (Jason) – OLA is nominal.**
- **OTES (Vicky) – We are nominal.**
- **OVIRS (Rick) – Off and nominal.**
- **REXIS (Maddy) – Nominal**
 - All commands processed, nothing rejected or dropped
 - Power cycle seems to have recovered the event rates and spectra

OCAMS Mechanism Life Tracking

	Launch (steps)	Flight (steps)	NTE (steps)
MapCam	1057475	1688326	3400320
SamCam	738110	15246	958384
PolyCam	1775496	671821	8876160

Status as of July 31, 2019

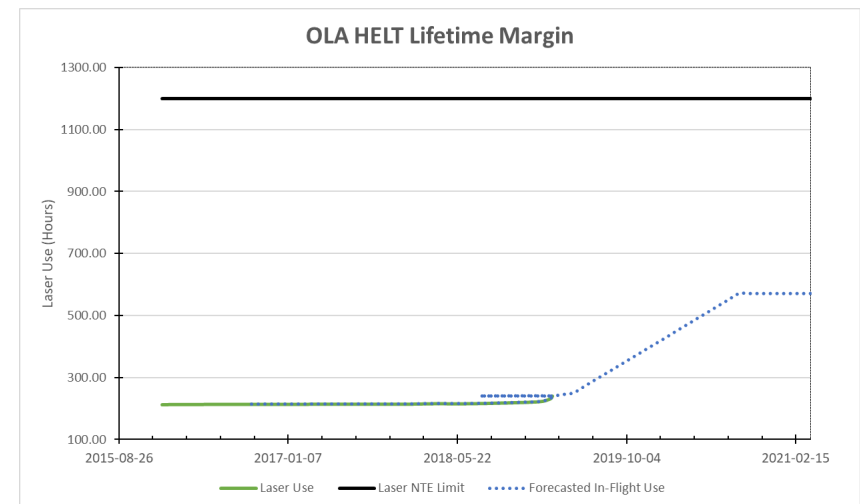
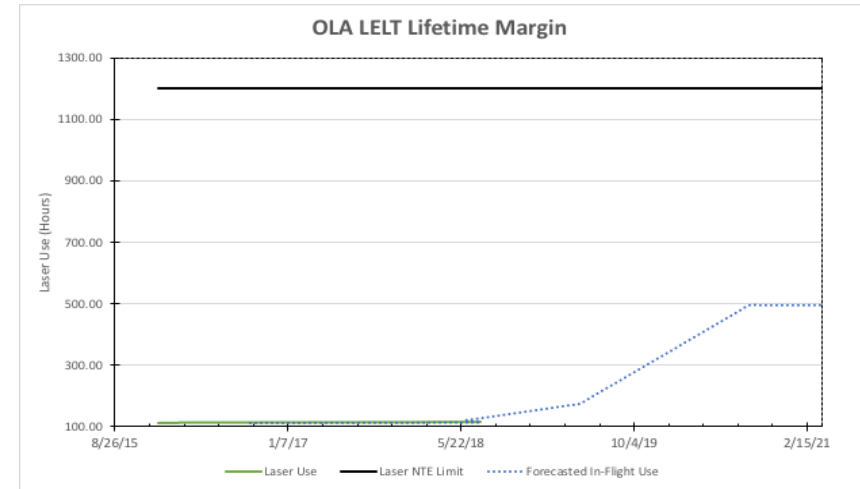
OCAMS Limited Life Items



OLA Limited Life Laser Tracking

	Launch (hours)	Flight (hours)	NTE Margin (hours)
LELT	110.70	82.81	1,085.01
HELT	212.50	108.43	983.80

Status as of July 31, 2019





SPOC Watch Item List

Todays Date: 07/19/2019		SPOC Watch Item List									
Status	Date Added	Date Removed	Item ID	Instrument	Title	Watch Item Description	Impact Type	Watch Item Age	ISA # or TCR #	Watch Item Action	Watch Item Action Plan
Open	4/3/18		Item10	OLA	OLA T0 Intensity	L+10 day, L+6 mo, and L+10 mo On-orbit checkouts showed that OLA's T0 signal intensity (Return Intensity) is an order of magnitude lower than expected as compared with pre-launch spacecraft and stand-alone test data. The L+18 calibrations revealed that the T0 intensity is at pre-launch levels on both the Gold and Silver sides of OLA. SPOC has opted to close ISA 2257 and continue to monitor T0 intensity as a watch item.	Instrument Performance	472		Watch	Monitor the T0 Intensity at the L+22 and L+30 OLA checkouts Update 08/06/2018: Based on results from L+18 and L+22, OLA has not been able to discern a temperature dependency with t0 Intensity value. We will continue to watch, but may never fully understand the cause. OLA can still operate as expected despite the inconsistency seen in the t0 value. Update 5/9/2019: The OLA Team continues to monitor the T0 intensity. Since it was first detected, the behavior of the HELT laser has remained constant through Orbital A and Detailed Survey. At this time, our recommendation is to maintain this item on the watch list through (at least) Orbital-B so as to observe behavior of the second laser (LELT).
Open	9/5/18		Item11	OCAMS	OCAMS Error on Polyacam Startup	During power on of the OCAMS cameras there is the possibility of a 4 byte packet being created due to line noise. SPOCFLIGHT is unsure what to do with this packet, so flags it as an error. So far this has only occurred twice during flight, both times with Polycam but it is possible this could occur with any of the OCAMS cameras. As OCAMS has only been used sparingly during Cruise, it is not certain how frequently this error will occur.	Instrument Performance	317		Watch	Will monitor for future occurrences across all of the OCAMS cameras and assess if any action is warranted. Update 5/7/2019: We are continuing to monitor this behavior. We have seen this issue crop up all when powering on PolyCam.

Anomaly Response & Status

ISA #	Date Created	Type	Priority	Title	Detailed Description - Action Plan	Notes	Status	Resolved Date	Need Date
10568	7/3/19	Spacecraft Minor	High	OLA was safed on DOY 183 2019 during Orbit-B Phase	OLA was safed at 183/01:54:47 due to FP reacting to failed Aliveness checking. There is a 2 second period which the S/C does the checking and if not data was received from OLA during that time it is safed.		In Progress	TBD	TBD
10004	5/24/19	Ground minor	Normal	1923 ote_spacecal_002 missing from payload bundle and weeklong softsim	The 1923 SS test revealed ote_spacecal_002 was missing from our uplink product set for the week. As we started digging, we noticed it was not explicitly included in the UPBL under "Previously delivered sequences". This has been true for the past couple of weeks, and somehow the engineers added it without the explicit call out in the UPBL. Unfortunately, this time it did not get included in the payload bundle for the week.		In Progress	TBD	TBD
9628	5/4/19	Ground minor	Normal	Red alarm notifications were not received by MSA personnel for the TAGCAMS safing event	Red alarm text messages and/or e-mails were not received for any of the red alarms that occurred on board due to the TAGCAMS safing event on DOY 124.		In Progress	TBD	TBD
7704	1/10/19	Spacecraft Major	Normal	Potential particles detected in NavCam images while in Bennu Orbit-A Phase	Investigation and detailed image analysis are underway to determine if particles detected in a pair of NavCam images taken on 01/06/19 may have originated from Bennu (or from other causes such as cold traps on the spacecraft, cosmic rays, etc.) MPB convened to determine if it was safe for the spacecraft to remain in orbit and agreed to remain in orbit but to collect more data for the remaining weeks of the orbit phase as a precaution. The details of the additional and more efficient and targeted observations are being worked.		In Progress	TBD	TBD
7518	1/4/19	Ground Major	High	CenturyLink National Outage	A nationwide CenturyLink outage did not allow normal ground activities for OSIRIS-REx including uplink, downlink, and moving data between elements. Outage Start December 27, 2018 08:40 GMT Outage Stop December 29, 2018 10:12 GMT Approximately 50 hours		Monitor	TBD	TBD
7246	12/6/18	Ground Minor	High	FOB connection down	A FOB connectivity issue was discovered when team members were looking for the 12/06/18 downlink of OpNav images (criticality 3) on the FOB. The OpNav images were obtained via SpocFlight. Investigation ongoing.		In Progress	TBD	TBD

Current ISA Status

#	Status	Priority	Subject	Assignee	Updated
10702	New	Normal	ORX MSA Flight Machines Frozen on 2019-197	Paul Falkenstern	7/16/19 14:47
10665	New	Normal	REXIS background counts higher than expected	Karl Harshman	7/19/19 9:35
10600	In Progress	Normal	Madrid antenna in Stow Position and not responding to Goldstone control for 2nd half of a split track (2nd occurrence)	Andy Calloway	7/10/19 8:03
10466	In Progress	Normal	TAGCAMS DoY 2019-175 Uncorrectable errors, rejected commands, and images not transferred	Brent Bos	7/15/19 9:36
10004	In Progress	Normal	1923 ote_spacecal_002 missing from payload bundle and weeklong softsim	OSIRIS-REx Operations	7/3/19 17:14
9931	Resolved	Normal	TAGCAMS Safed on DOY 142 (2019)	Brent Bos	6/18/19 12:22
8767	In Progress	Normal	Re-occurrence: STL intermittent downlink issues during setup	Mike Skeen	3/29/19 14:44
8672	In Progress	Normal	JPL Firewall Config Changed without LM Notification - affected Matlab license access/use and Maneuver Automation	Andy Calloway	5/24/19 9:56
8542	In Progress	Normal	Uplink Products Could not be Radiated due to SEQ Configuration Change	Mark Fisher	5/24/19 10:03
7994	Monitor	Normal	ACSTBT Overburn	Ryan Olds	5/10/19 9:45
7704	In Progress	Normal	Potential particles detected in NavCam images while in Bennu Orbit-A Phase	Ron Mink	3/28/19 12:37
7518	Monitor	High	CenturyLink National Outages	Andy Calloway	7/10/19 15:14
7246	In Progress	High	FOB connection down	Paul Falkenstern	5/21/19 14:27