



Daily Downlink Tagup

Wednesday, October 17, 2018 (DOY 290)

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 Slides available shortly after each Tagup at:

OSIRIS-REx Bennu Proximity Operations\Science Implementation\Downlink_Daily_Summary

Quicklook + Weekly Instrument Status *(see backup for Instrument Status)*

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										OFF	GO
OVIRS										OFF	GO
REXIS										OFF	GO
	Thermal	Power	Command Response	Alarms	Trending	Limited Life & Mechanisms	Data Completeness	Pipeline Status	Science Concurrence		

Downlink Schedule (times in UTC)

- **Current Data Rate: 916 kbps**

WOY	DOY	Start Date	HGA Start	End Date	HGA End	Duration	Note
41	288	2018-10-15	13:55	2018-10-15	16:37	02:40	COMPLETE
41	288	2018-10-15	17:39	2018-10-15	19:51	02:12	COMPLETE
42	289	2018-10-16	16:00	2018-10-16	20:00	04:00	COMPLETE
42	290	2018-10-17	16:00	2018-10-17	20:00	04:00	COMPLETE
42	291	2018-10-18	15:30	2018-10-18	16:45	01:45	
42	292	2018-10-19	13:50	2018-10-19	17:05	03:15	
42	293	2018-10-20	13:50	2018-10-20	19:30	05:40	
42	294	2018-10-21	13:45	2018-10-21	19:30	05:45	

DSN Notes:

SPC/DSS	EQUIPMENT	ETRO
DSS43	HEMT-S1	292/0600z
DSS24	IFS1	292/2300z
DSS25	AWVR	292/2300z
DSS14	REC1	292/2300z
DSS54	ND-S	296/1530z
SPC40	RRT1	299/0500z
SPC10	DCC2	299/2300z
SPC60	VSR	300/1648z

AAM2, potential AAM2-C1, MapCam Phase Function 2, SMM3, TAG Cover Release, SMM4 WOY 42

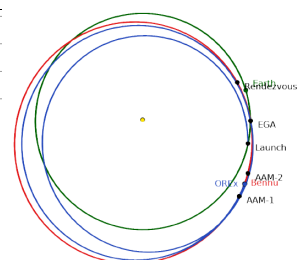
We are HERE

Monday																								Tuesday																								Wednesday																							
288 (10/15) AP5: Maneuver Day, with OpNav and/or Daily Phase Function																								289 (10/16) AP1: Nominal Science Day																								290 (10/17) AP11: Spacecraft Activity with OpNav and/or Daily Phase Function Day																							
Template																								Template																								Template																							
HGA: 5-7 Hr																								DDOR window																								DDOR window																							
Burn																								ATL 6 Hour, includes OpNav																								HGA Pass: 5-7 Hour																							
SMM2																																																SMM3																							
DSN Level 3 Coverage																								DDOR																								DSN L4 Ops Eng/NOPE On-call TAG ARM CVR EKT																							
2100-0040 26																								0125-0225 26/35 N/S 0340-0930 35																								1620-1955 54, Dual receivers																							
1355-2000 65, Dual receivers, c/lital support																								Contingency ephem uplink, OpNav d/l feeds post burn contingency ephem build																								1600-2000 55, Dual receivers																							
OpNav d/l feeds post burn contingency ephem build																																																Contingency ephem uplink, OpNav d/l feeds AAM2e design data cutoff																							
& OCAMS MapCam Full Phase Function Part 2 of 2																																																Pre-Cover standard dual-rotation SMM and TAGSAM Launch Cover Eject																							
S/C Pointing																								Nadir Point																								12 hr cooldown at Sun Pt																							
OCAMS																								ocams_pwr_on/NET 288-2100.00/ML1 289-03:00:00																								SMM3																							
OTES																								scL_eL18289a_01.af Start: 09:42:38 End: 10:18:12 (MapCam OpNav)																								scL_eL18290a_01.af Start: 11:27:40 End: 12:03:10 (MapCam OpNav + MapCam)																							
OVIRS																																																TGM Cover																							
OLA																																																Deploy																							
REXIS																																																																							
NAV CAM																																																																							

Thursday																								Friday																							
291 (10/18) AP11: Spacecraft Activity with OpNav and/or Daily Phase Function Day																								292 (10/19) Template AP4: OpNav and/or Daily Phase Function Day																							
Template																								Template																							
DDOR window																								DDOR window																							
HGA Pass: 5 Hour																								HGA Pass: 5-7 Hour																							
SMM4																																															
0450-1150 36																								DSN NWDI no DSN 1700-2300																							
1530-1645 63																								0235-0355 24/34 N/S 0450-0955 34																							
AAM2 C1 u/l opportunity																								DSN																							
Post-Cover Ejection SMM standard dual-rotation																								1350-1705 55																							
																								AAM-2C1 Elevate to L3 if maneuver needed																							
																								2055-2355 26																							
S/C Pointing																								12 hr cooldown at Sun Pt																							
OCAMS																								scL_eL18291a_01.af Start: 11:27:51 End: 12:03:27 (MapCam OpNav + MapCam Daily Phase Function)																							
OTES																								scL_eL18291a_01.af Start: 08:52:51 End: 09:34:27 (PolyCam OpNav + MapCam Daily Phase Function)																							
OVIRS																																															
OLA																																															
REXIS																																															
NAV CAM																																															

Potential AAM2-C1
All Payloads Powered Off if Needed

Saturday																								Sunday																								Monday																							
293 (10/20) Template AP4: OpNav and/or Daily Phase Function Day																								294 (10/21) Template AP4: OpNav and/or Daily Phase Function Day																								295 (10/22) AP5: Maneuver Day, with OpNav and/or Daily Phase Function																							
Template																								Template																								Template																							
DDOR window																								DDOR window																								DDOR window																							
HGA Pass: 5-7 Hour																								HGA Pass: 5-7 Hour																								HGA Pass: 5 Hour																							
0400-1115 35																								0050-0825 34																								0130-0230 25/36 N/S 0345-1245 36																							
DSN																								DSN NOPE Inflight/eng awareness notification																								DDOR																							
1350-1930 55																								1345-1930 54																								0600-1200 35																							
1st AAM u/l opportunity																								backup opportunity for burn u/l, nominal ephem u/l																								Contingency ephem uplink, OpNav d/l feeds AAM2e design data cutoff																							
S/C Pointing																																																12 hr cooldown at Sun Pt																							
OCAMS																								scL_eL18291a_01.af Start: 08:52:51 End: 09:34:27 (PolyCam OpNav + MapCam Daily Phase Function)																								scL_eL18291a_01.af Start: 08:52:51 End: 09:34:27 (PolyCam OpNav + MapCam Daily Phase Function)																							
OTES																																																scL_eL18291a_01.af Start: 08:52:51 End: 09:34:27 (PolyCam OpNav + MapCam Daily Phase Function)																							
OVIRS																																																																							
OLA																																																																							
REXIS																																																																							
NAV CAM																																																																							



Statistics as of October 10, 2018, L-762 day

- Days until Arrival: 54 days
- Earth Range = 130,000,000 km (0.87 AU) (↑)
- Sun Range = 167,000,000 km (1.12 AU) (↓)
- Bennu Range = 66,000 km (↓)
- Sun-Probe-Earth Angle = 58.7 deg (↑)
- One Way Light Time = 00:07:13 hh:mm:ss (↑)
- Round Trip Light Time = 00:14:26 hh:mm:ss (↑ increasing, ↓ decreasing)

Uplink Summary

UPLINK

WOY 42 (2018/288 – 2018/295)

- AAM2 config file uplinked 2018-285/15:12
- xm1842 BGSeq and Sci Genies uplinked 2018-285/15:28
- Express command for early Downlink STOP uplinked 2018-285/16:55
- tagsam_cover_eject_lgo.r01 uplinked 2018-290/16:46

Ephemeris Updates

- Ephemeris Update : od049 uplinked 2018-290/16:27

Execution Summary

- **Instrument Status:**
 - OCAMS Powered ON, all other payloads powered OFF

Executed (times in UTC):

- **2018/288 (Monday, Oct 15)**
 - 09:02 Start PolyCam OpNavs with Daily MapCam Phase Function ride-alongs
 - # of images expected/**received**= 18 OpNav + 84 Phase Function = 102 images / **102 images**
 - 11:15 OCAMS Powered Off using ocams_pwr_off with YES_XFER ahead of AAM2
 - AAM2
 - 21:00 OCAMS powered-ON
- **2018/289 (Tuesday, Oct 16)**
 - 04:00 MapCam Full Phase Function part 2
 - # of images expected/**received** = 755 images / **577 images**
 - 09:42 MapCam OpNavs (critical for AAM2 reconstruct)
 - # of images expected/**received** = 18 / **18 images**
- **2018/290 (Wednesday, Oct 17)**
 - 07:00 SMM3
 - 11:27 Start MapCam OpNavs and MapCam Daily Phase Function Ride-along
 - # of images Expected/**received** = 18 OpNav + 69 Phase Function = 87 / **18 OpNav + 0 Phase Function**
 - ~17:10 TAGSAM Cover Deploy (occurred out of S/C contact)

Up Next (times in UTC):

- **2018/291 (Thursday, Oct 18)**
 - 07:00 SMM4
 - 11:27 Start PolyCam OpNavs and MapCam Daily Phase Function Ride-along
 - # of images Expected = 18 OpNav + 69 Phase Function = 87
- **2018/292 (Friday, Oct 19)**
 - 08:52 Start PolyCam OpNavs and MapCam Daily Phase Function Ride-along
 - # of images Expected = 18 OpNav + 69 Phase Function = 87
- **2018/293 (Saturday, Oct 20)**
 - 08:52 Start PolyCam OpNavs and MapCam Daily Phase Function Ride-along
 - # of images Expected = 18 OpNav + 69 Phase Function = 87

Downlink Summary

Current Data Rate: 916 kbps

DOWNLINK

- Partition Status as of 19:00 today:

	Part. Start Vol (MB)	New Data Vol (MB)	New Data Vol (Mb)	Expected Partition Fill (%)	Current End Partition (%)	Comments
<i>OpNav</i>	0.00	40.00	320.00	5.71	0.00	
<i>OTES</i>	0.00	0.00	0.00	0.00	0.00	
<i>REXIS</i>	0.00	0.00	0.00	0.00	0.00	
<i>OLA</i>	0.00	0.00	0.00	0.00	0.00	
<i>OVIRS</i>	0.00	0.00	0.00	0.00	0.00	
<i>OCAMS</i>	0.00	154.00	1232.00	32.11	17.30	
<i>Tagcams/Overflow</i>	0.00	0.00	0.00	0.00	0.00	

Downlink Summary

Looking ahead

- Expected Partition Status going into the next pass, scheduled for DOY 291:

	Part. Start Vol (MB)	New Data Vol (MB)	New Data Vol (Mb)	Expected Partition Fill (%)	Expected End Partition (%)	Comments
<i>OpNav</i>	0.00	40.00	320.00	5.71	0.00	
<i>OTES</i>	0.00	0.00	0.00	0.00	0.00	
<i>REXIS</i>	0.00	0.00	0.00	0.00	0.00	
<i>OLA</i>	0.00	0.00	0.00	0.00	0.00	
<i>OVIRS</i>	0.00	0.00	0.00	0.00	0.00	
<i>OCAMS</i>	638.70	154.00	1232.00	21.47	20.85	
<i>Tagcams/Overflow</i>	0.00	0.00	0.00	0.00	0.00	

Need for Retransmit? Need for Replay?

- No outstanding data gaps identified through DOY 287

List of Unexpected Alarms, Watch Items, ISAs, PFRs

Alarms

Watch Items, ISA's and PFR's

- **PFR-31 Ingest ceased working due to insufficient allocated table space room**
 - Date of Incident: Oct 14, 2018
 - Status: NEW
 - Anomaly Type: Ground Minor
- **ISA # 6242 - ASIST issues during AAM-2 OD downlink**
 - Date of Incident: Oct 6, 2018
 - Status: IN PROGRESS
 - Anomaly Type: Ground Minor
- **PFR-30 - Failure to meet 30-minute OpNav Processing Requirement - 10/6/18 AND ISA # 6320 - Delay in data processing at the SPOC**
 - Date of Incident: Oct 6, 2018
 - Status: IN PROGRESS
 - Anomaly Type: Ground Minor



OCAMS DAILY DOWNLINK OCT 17, 2018

OSIRIS-REx™
ASTEROID SAMPLE RETURN MISSION

Bashar Rizk
Christian d'Aubigny
Mike Fitzgibbon
Chuck Fellows



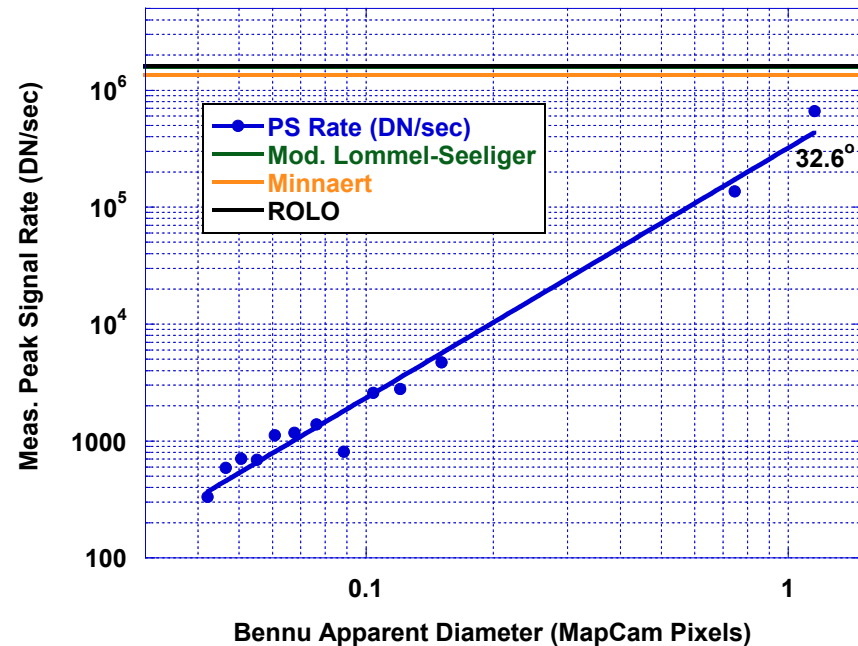
Approach Phase Bennu MapCam Imaging (DOY 275–285)

DO Y	Date	Start/End (UTC hh:mm)		Rng (K km)	B Sol Rng (AU)	Phase Angle (°)	V Mag	MC Pan Mag	Width (MC Pixel)	Pred Peak Sig (DN)	Obs Peak Sig (DN)	Pred Integ Sig (DN)	Obs Integ Sig (DN)	Obs Peak / IS 0.526
275	10/02	7:30	7:40	172.0	1.139	58.5	8.61	8.20	0.042	4183	3322	7948	8114	0.410
276	10/03	7:30	7:40	155.5	1.136	59.2	8.42	8.01	0.047	5000	5883	9500	9809	0.599
277	10/04	8:15	8:25	143.0	1.133	59.8	8.26	7.85	0.051	5775	7032	10973	12613	0.558
278	10/05	7:15	7:25	131.4	1.130	60.4	8.09	7.68	0.055	6692	6919	12715	14051	0.492
279	10/06	7:30	7:40	119.2	1.127	61.0	7.90	7.49	0.061	7974	11181	15152	17752	0.630
280	10/07	7:30	7:40	107.1	1.124	61.6	7.68	7.28	0.068	9691	11734	18413	18680	0.628
281	10/08	7:30	7:40	94.9	1.120	62.1	7.44	7.03	0.076	12097	13797	22986	22835	0.604
282	10/09	9:20	9:30	81.9	1.117	62.5	7.13	6.72	0.088	8017	4050	15233	11595	0.346
283	10/10	9:20	9:30	69.7	1.114	62.8	6.79	6.38	0.104	10902	12897	20714	20922	0.616
284	10/11	4:15	4:25	60.1	1.111	62.8	6.46	6.05	0.120	14667	13892	27869	26427	0.526
285	10/12	4:15	4:25	48.0	1.108	62.7	5.96	5.55	0.151	9217	9400	17513	17333	0.543
288	10/15	9:20	9:30	9.71	1.097	45.4	1.73	-0.19	0.745	10512	6745	19974	19106	0.353

MapCam lagging PolyCam in Entering Extended-Object Regime

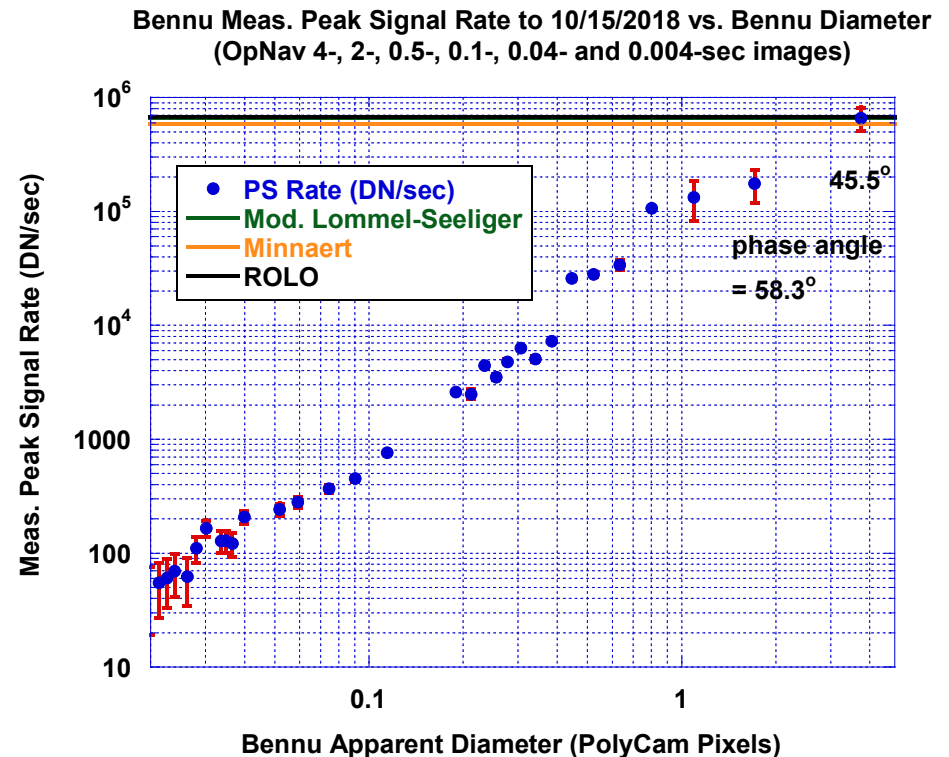
- **Peak Signal Rates still considerably undershooting predicting radiances when asteroid disk fills the field of a single pixel**

Bennu Meas. MapCam Peak Signal Rate to 10/16/2018 vs. Bennu Diameter
(Daily Ph Fctn. 10-, 5-, 2-, 0.05- and 0.003 sec images)



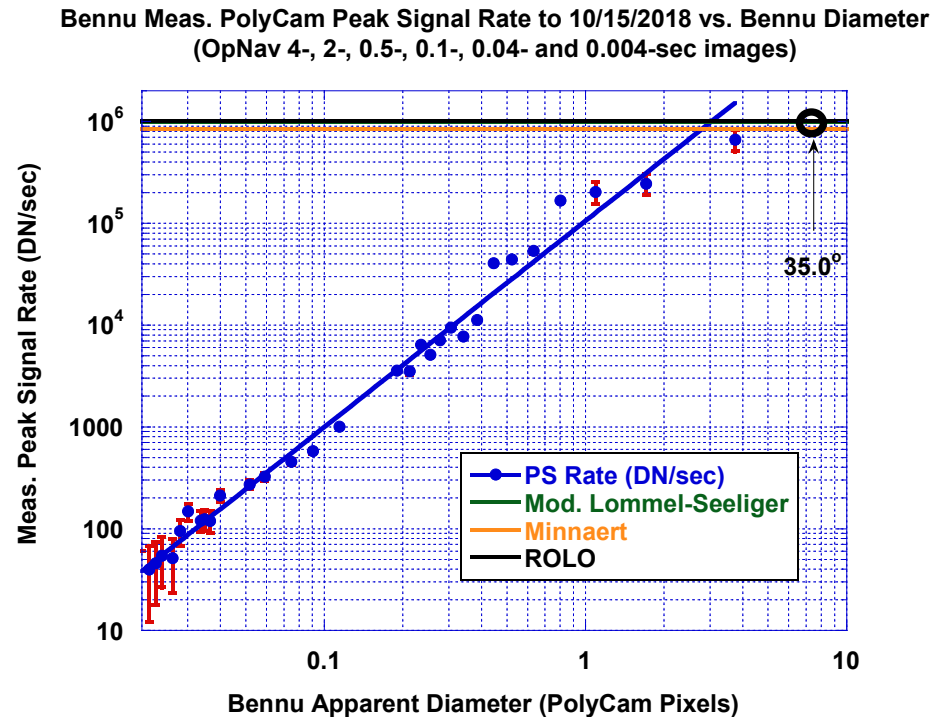
Bennu Transitioning from Point Source to Extended Object in PolyCam

- Peak Signal Rate plotted against Bennu apparent diameter in Pixels reached predicted signal for extended object on Monday
- Result for Monday exactly matched predictions
 - Measured: 662,000 DN/sec
 - Mod. Lommel-Seeliger: 665,000 DN/sec (Default)
 - Mod. Minnaert: 589,000
 - ROLO: 669,000 DN/sec



Friday's point should hopefully plot close to the spot indicated by the arrow

- **Bennu will subtend 7.5 pixels in Friday's OpNav images**
 - Expect a Signal Rate between 850000 and 1 million DN/sec at a phase angle of 35°



Bennu Width for the next few Days

Date	Width in PolyCam (Pixels)	Date	Width in MapCam (Pixels)
10/12	0.80	10/12	0.151
10/13	1.09	10/15	0.746
10/14	1.71	10/16	1.17
10/15	3.75	10/22	2.09
10/19	7.56	10/27	6.0

Science Status and/or PI Status

Looking Ahead

	42								43						44						45										
	288	289	290	291	292	293	294		295	296	297	298	299	300	301		302	303	304	305	306	307	308		309	310	311	312	313	314	315
	10/15	10/16	10/17	10/18	10/19	###	###		10/22	10/23	10/24	10/25	10/26	###	###		10/29	10/30	10/31	11/1	11/2	###	###		11/5	11/6	11/7	11/8	11/9	###	###
	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
Week 8 - Tactical kickoff	xm1850 - Pre Surv Wk 2								xm1851 - Pre Surv Wk 3						xm1852 - Trans to Orbital A						xm1901 - Orbital A										
Week 7 - SOS	xm1849 - Pre Surv Wk 1								xm1850 - Pre Surv Wk 2						xm1851 - Pre Surv Wk 3						xm1852 - Trans to Orbital A										
Week 6 - J-A 1	xm1848								xm1849 - Pre Surv Wk 1						xm1850 - Pre Surv Wk 2						xm1851 - Pre Surv Wk 3										
Week 5 - J-A 2	xm1847								xm1848						xm1849 - Pre Surv Wk 1						xm1850 - Pre Surv Wk 2										
Week 4 - TCR approval, Handshake	xm1846								xm1847						xm1848						xm1849 - Pre Surv Wk 1										
Week 3 - FA Kickoff	xm1845								xm1846						xm1847						xm1848										
Week 2 - Final Build/Delivery/Test	xm1844								xm1845						xm1846						xm1847										
Week 1 - Review/Uplink	xm1843								xm1844						xm1845						xm1846										
Week 0 - Execution	xm1842								xm1843						xm1844						xm1845										

Observation completion forecast dates:

Source Phase	WG	Task Name	Related DP #	MRD	Forecast Finish	WOY 2018 Finish
Approach	Obs_MapCam	Phase Function: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/16/2018	42
Approach	Obs_MapCam	Daily Phase Function: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/17/2018	42
Approach	Obs_MapCam	Daily Phase Function: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/18/2018	42
Approach	Obs_MapCam	Daily Phase Function: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/19/2018	42
Approach	Obs_MapCam	Daily Phase Function: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/20/2018	42
Approach	Obs_MapCam	Daily Phase Function: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/21/2018	42
Approach	Obs_MapCam	Daily Phase Function: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/22/2018	43
Approach	Obs_MapCam	Daily Phase Fcn & Nat. Sat. Search: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/23/2018	43
Approach	Obs_MapCam	Daily Phase Fcn & Nat. Sat. Search: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/24/2018	43
Approach	Obs_MapCam	Daily Phase Fcn & Nat. Sat. Search: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/25/2018	43
Approach	Obs_MapCam	Daily Phase Function: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/26/2018	43
Approach	Obs_MapCam	Daily Phase Fcn & Nat. Sat. Search: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/27/2018	43
Approach	Obs_MapCam	Daily Phase Fcn & Nat. Sat. Search: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/28/2018	43
Approach	Obs_MapCam	Daily Phase Function: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/29/2018	44
Approach	Obs_MapCam	Daily Phase Fcn & Nat. Sat. Search: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/30/2018	44
Approach	Obs_MapCam	Daily Phase Fcn & Nat. Sat. Search: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/31/2018	44
Approach	Obs_MapCam	Daily Phase Function: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	11/1/2018	44
Approach	Obs_MapCam	Daily Phase Function: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	11/2/2018	44
Approach	Obs_MapCam	Daily Phase Function: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	11/2/2018	44
Approach	Obs_MapCam	Daily Phase Function: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	11/3/2018	44
Approach	Obs_MapCam	Daily Phase Function: MapCam Images	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	11/4/2018	44
Approach	Obs_PolyCam	Daily Phase Function: PolyCam Images	AP-8, AP-9, AP-11, AP-14, AP-15, AP-19	144, 148, 158	10/23/2018	43
Approach	Obs_PolyCam	Daily Phase Function: PolyCam Images	AP-8, AP-9, AP-11, AP-14, AP-15, AP-19	144, 148, 158	10/30/2018	44
Approach	Obs_PolyCam	Daily Phase Function: PolyCam Images	AP-8, AP-9, AP-11, AP-14, AP-15, AP-19	144, 148, 158	10/31/2018	44
Approach	Obs_PolyCam	Nat Sat Search: PolyCam Images	AP-8, AP-9, AP-11	144, 148	10/24/2018	43
Approach	Obs_PolyCam	Nat Sat Search: PolyCam Images	AP-8, AP-9, AP-11	144, 148	10/25/2018	43
Approach	Obs_PolyCam	Nat Sat Search: PolyCam Images	AP-8, AP-9, AP-11	144, 148	10/27/2018	43
Approach	Obs_PolyCam	Nat Sat Search: PolyCam Images	AP-8, AP-9, AP-11	144, 148	10/28/2018	43
Approach	Obs_PolyCam	PolyCam Shape Model: PolyCam Images	Pre-Rel 75cm Shape model	678a	11/2/2018	44
Approach	Obs_PolyCam	PolyCam Shape Model: PolyCam Images	Pre-Rel 75cm Shape model	678a	11/3/2018	44
Approach	Obs_OTES	OTES Spectra (Optimized for OVIRS)	SA-10, SA-11, TA-008	159, 544	11/2/2018	44
Approach	Obs_OTES	OVIRS Full Disk Spectra: OTRS Spectra (Optimized for OVIRS)	SA-10, SA-11, TA-008	159, 544	11/3/2018	44
Approach	Obs_OVIRS	OVIRS Full disk spectra: OVIRS Spectra (Optimized for OVIRS)	SA-25	159	11/2/2018	44
Approach	Obs_OVIRS	OVIRS Full disk spectra: OVIRS Spectra (Optimized for OVIRS)	SA-25	159	11/3/2018	44

Looking Ahead

Validated Data available forecast dates (includes 1 weekday for Downlink)						
Source Phase	WG	Task Name	Related DP #	MRD	Forecast Finish	WOY 2018 Finish
Approach	Val-from-MapCam	Daily Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/15/2018	42
Approach	Val-from-MapCam	Daily Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/15/2018	42
Approach	Val-from-MapCam	Daily Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/15/2018	42
Approach	Val-from-MapCam	Daily Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/17/2018	42
Approach	Val-from-MapCam	Daily Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/17/2018	42
Approach	Val-from-MapCam	Light Curve: MapCam Images validated	AP-4, AP-12, AP-13, IP-13	146, 148, 149a, 149b, 149c, 158	10/22/2018	43
Approach	Val-from-MapCam	Light Curve: MapCam Images validated	AP-4, AP-12, AP-13, IP-13	146, 148, 149a, 149b, 149c, 158	10/22/2018	43
Approach	Val-from-MapCam	Daily Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/22/2018	43
Approach	Val-from-MapCam	Daily Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/22/2018	43
Approach	Val-from-MapCam	Daily Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/22/2018	43
Approach	Val-from-MapCam	Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/23/2018	43
Approach	Val-from-MapCam	Daily Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/24/2018	43
Approach	Val-from-MapCam	Daily Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/25/2018	43
Approach	Val-from-MapCam	Daily Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/26/2018	43
Approach	Val-from-MapCam	Daily Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/29/2018	44
Approach	Val-from-MapCam	Daily Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/29/2018	44
Approach	Val-from-MapCam	Daily Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/29/2018	44
Approach	Val-from-MapCam	Daily Phase Fcn & Nat. Sat. Search: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/30/2018	44
Approach	Val-from-MapCam	Daily Phase Fcn & Nat. Sat. Search: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	10/31/2018	44
Approach	Val-from-MapCam	Daily Phase Fcn & Nat. Sat. Search: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	11/1/2018	44
Approach	Val-from-MapCam	Daily Phase Function: MapCam Images validated	AP-14, AP-15, AP-19, IP-13	149a, 149b, 149c, 158	11/2/2018	44
Approach	Val-from-PolyCam	Daily Phase Function: PolyCam Images validated	AP-18, AP-19	144, 148, 158	10/30/2018	44
Approach	Val-from-PolyCam	Nat Sat Search: PolyCam Images validated	AP-8, AP-9, AP-11	144, 148	10/31/2018	44
Approach	Val-from-PolyCam	Nat Sat Search: PolyCam Images validated	AP-8, AP-9, AP-11	144, 148	11/1/2018	44
Science Data Product completion forecast dates:						
Source Phas	WG	Task Name	DP #	MRD	Forecast Finish	WOY 2018 Finish
Approach	APWG	Bennu Photometry (AP-4)	AP-4	157	10/26/2018	43
Approach	APWG	Temporal and Phased Light Curve Photometry (AP-12)	AP-12	146, 157	10/26/2018	43
Approach	APWG	Light Curve Parameters (AP-13)	AP-13	146, 157	10/26/2018	43

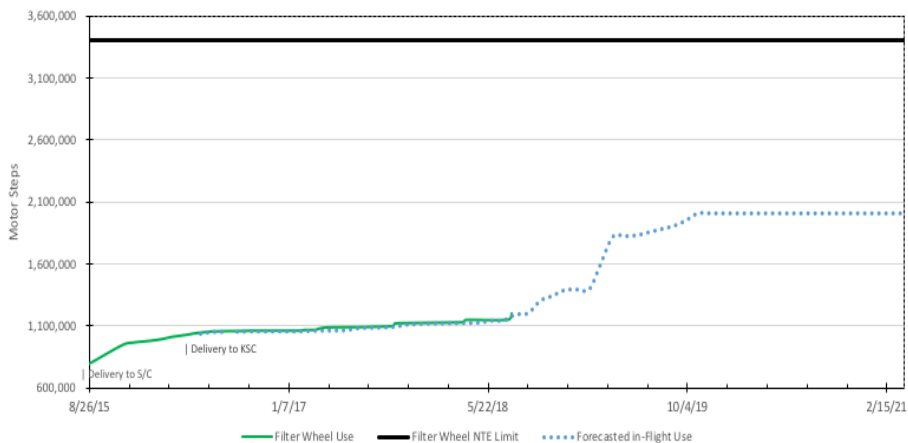
Go Backs / Additional Comments

Backup

OCAMS Mechanism Life Tracking

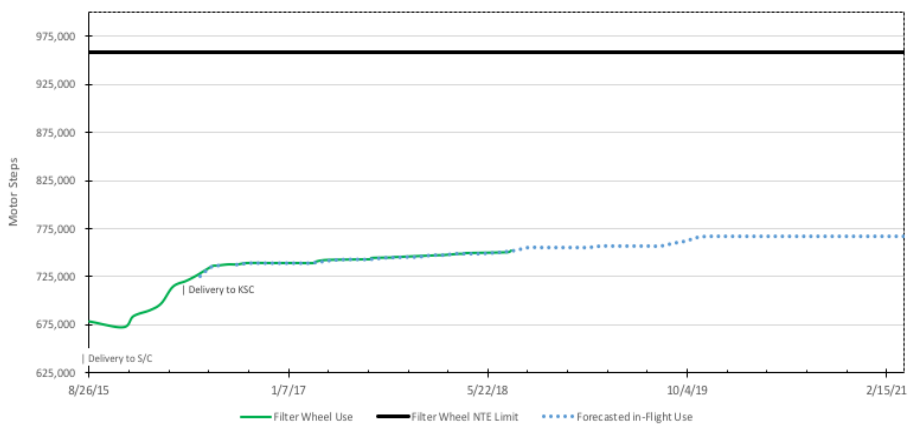
Status as of October 12, 2018

MapCam Flight Filter Wheel Margin

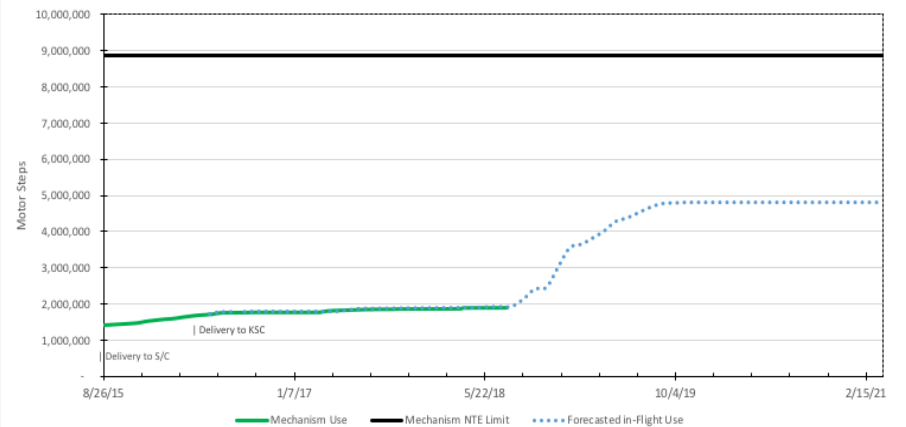


	Launch (steps)	Flight (steps)	NTE (steps)
MapCam	1057475	344577	3400320
SamCam	738110	14525	958384
PolyCam	1775496	193811	8876160

SamCam Flight Filter Wheel Margin



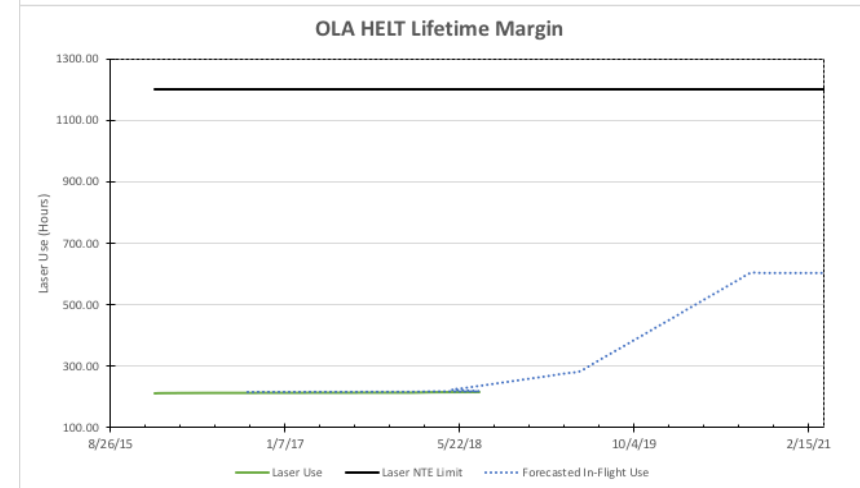
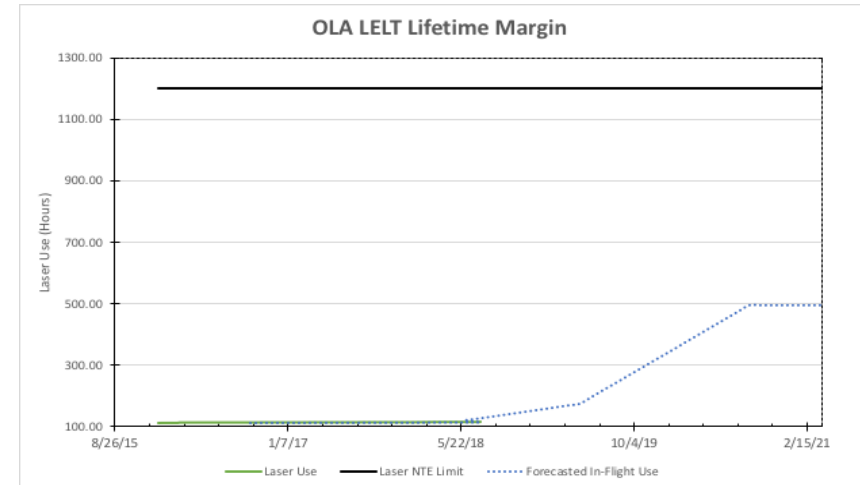
PolyCam Flight Focus Mechanism Margin



OLA Limited Life Laser Tracking

	Launch (hours)	Flight (hours)	NTE Margin (hours)
LELT	110.70	4.29	1,085.01
HELT	212.50	3.70	983.80

Status as of October 12, 2018



Anomaly Response & Status

ISA #	Date Created	Type	Priority	Title	Detailed Description - Action Plan	Notes	Status	Resolved Date	Need Date
6292	10/9/18	Ground Minor	Normal	Issues accessing OREx Redmine via RAMP	There have been a number of issues accessing Redmine via RAMP (direct access without having to go the Citrix). Problems such as certain actions on a particular issue number being persistently blocked for a user by the firewall. This is a running ISA to report and log individual instances:		New	TBD	TBD
6291	10/9/18	Ground Minor	Normal	Issues accessing OREx Redmine via Citrix Receiver	There have been a number of issues accessing Redmine via the Citrix Receiver. Mostly the problems occur when opening Citrix. This is a running ISA to report and log individual instances: ASIST hung twice on the RTO machine, causing a few issues were seen over the past weekend that should be corrected. 1 - When the RTO machine was rebooted after the first hung ASIST instance, it was brought up under a FSW account. It turns out that there are some processes that are tied to a Sys account so they did not run (ie, mid-pass queries, etc). 2 - ASIST hung a second time between Friday & Saturday, so did not kick off auto-ork in time for Saturday's HGA pass. This required GDS to come in to fix the machine, restart ASIST, and manually run a playback and the post-pass queries. The alert process is tied to auto-ork so GDS was not notified. Two resolutions need to be worked. - The RTO machine is due for a refresh and the continued hanging of ASIST may be resolved by this. - Monitoring tools should be set up on a separate machine to ensure that the key components of auto-ork run as expected: -- station binding occurs and data flows -- mid-pass query executes and posts to the FOB -- post-pass queries execute and post to the FOB		New	TBD	TBD
6242	10/8/18	Ground Minor	Normal	ASIST issues during AAM-2 OD downlink	There was an EVR seen in the 1841 STL test due to an attempt to load an OCAMS sequence while the previous sequence is still running in the same engine. This overlap did not occur in SS or OLVM. It appears that, in the STL, a delay is being introduced each time the ocm_map_filter_alt_other block cycles. This delay is only ~100ms each time, but the block runs hundreds of times throughout the ATL, so the total delay is ~27 seconds by the time the next OCAMS sequence tries to load. From preliminary investigation, it appears to be related to spacecraft time being used in a delay.		New	TBD	TBD
6163	9/29/18	Spacecraft Minor	Normal	Delay in execution of OCAMS block	The OCAMS performance specific to early Approach at low DN values warranted updates to previously delivered exposure settings in several OpNav Requests that was not necessarily expected or anticipated. This is relatively easily accommodated but is being captured more as a 'surprise' in the ISA then an anomaly or a problem, and as a place to capture the changes, the rationale for the changes, and any other implications or analyses that go with the exposure setting updates for posterity.		New	TBD	TBD
5855	9/5/18	Spacecraft Minor	Normal	OCAMS settings for OpNavs in Approach			In Progress	TBD	TBD

Anomaly Response & Status

ISA #	Date Created	Type	Priority	Title	Detailed Description - Action Plan	Notes	Status	Resolved Date	Need Date
5854	9/5/18	Spacecraft Minor	Normal	Previously known OCAMS 'finger regions' implications on Nav solutions	Although this is not an issue for science because nominal observations are planned with pointing to avoid the finger regions when targeting or it's N/A due to the nature of the target and the scene entropy, there could be low probability but non-zero situations where the dispersion following a maneuver places Bennu in one of these less desirable locations overlapping a finger region causing bright blooming issues which can affect the center-finding algorithms. The project will likely document an acceptance of this low probability risk but the ISA is a logical place to capture any extra work, analysis, or implications this phenomenon can cause with other elements, particularly navigation.		In Progress	TBD	TBD
5708	8/22/18	GroundMino	Normal	FEDS not reconstructing packets that encounter a frame counter rollover	SPOC noticed a missing image line for one image. The image line had a packet in it which one of the frames within rolled over the frame counter. The packet was not reassembled and was not available from the FEDS at both LM and the SPOC.		In Progress	TBD	TBD
5380	7/20/18	Ground Minor	Normal	SCLK SCET file error in rev 31	<p>The SCLK SCET file released on July 10 (rev 31) has an error in it that results in a 5 second offset due to an incorrect incorporation of the DUT.</p> <p>Rev 32 is in work to replace this file and remove the incorrect entry from the sclk-scet interpolation history.</p> <p>On Friday, 7/20 the SPOC was notified that the SCLKSCET kernel delivered on July 10, 2018 (FILENAME: ORX_SCLKSCET.00031), did not have the inclusion of Leap Seconds, therefore resulting in an ~5 second shortage in timing. This kernel had been applied to all the L+22 data up until notification late Friday afternoon.</p> <p>A new SCLKSCET has been released as of this morning 07/23/18 (FILENAME: ORX_SCLKSCET.00032) with this issue corrected. Please Note: SPOC will be kicking off reprocessing of all L+22 data using ORX_SCLKSCET.00032 after the conclusion of today's DSN pass (at ~21:00 UTC) 07/23/18.</p>		In Progress	TBD	TBD

Current ISA Status

#	Status	Priority	Subject	Assignee	Updated
6320	In Progress	Normal	Delay in data processing at the SPOC	Karl Harshman	10/12/18 7:46
6292	Monitor	Normal	Issues accessing OREx Redmine via RAMP - Multiple Instances	OSIRIS-REx Mission Management	10/12/18 12:51
6291	Monitor	Normal	Issues accessing OREx Redmine via Citrix Receiver - Multiple Instances	OSIRIS-REx Mission Management	10/12/18 7:45
6242	In Progress	Normal	ASIST issues during AAM-2 OD downlink	Paul Falkenstern	10/12/18 7:48
6163	In Progress	Normal	Delay in execution of OCAMS block	Andy Calloway	10/12/18 7:47
5854	In Progress	Normal	Previously known OCAMS 'finger regions' implications on Nav solutions	Brent Bos	10/12/18 10:01
5708	In Progress	Normal	FEDS not reconstructing packets that encounter a frame counter rollover	Mark Fisher	8/23/18 12:31
5701	In Progress	Normal	Missing Downlink Table during Station 55 pass on 18229	Andy Calloway	8/23/18 12:54
4868	In Progress	Normal	Dropped data during STL run	Mike Skeen	5/25/18 9:45
4762	Monitor	Normal	JAsteroid and ATARPS FOV disagreement	Sandy Freund	10/12/18 13:01

SPOC Watch Item List

Todays Date: 10/15/2018		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	9/30/16		Item1	REXIS	CCD Hot Pixels	Some hot pixels were noted on the CCD array.	Hardware Performance	745		Watch	None as of now. If this item trends up, an assessment of masking pixels will need to be made. Update 08/06/2018: REXIS team reports that no additional hot pixels have been noted since the opening of this item, but they will continue to monitor.
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	195		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.
Open	9/5/18		Item11	OCAMS	OCAMS Error on Polycam 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	40		Watch	Will monitor for future occurrences across all of the OCAMS cameras and assess if any action is warranted.