Daily Downlink Tagup

Monday, February 25, 2019 (DOY 056)

OSIRIS-REx™

ASTEROID SAMPLE RETURN MISSION

Agenda & Logistics

- **Quicklook & Instrument Weekly Status**
- **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 + Instrument Weekly Status *(see backup slides)*

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

	Health				Safety		Performance			Powered State	GO/NO-GO
OCAMS										**ON**	**GO**
OLA										**OFF**	**GO**
OTES										**ON**	**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***

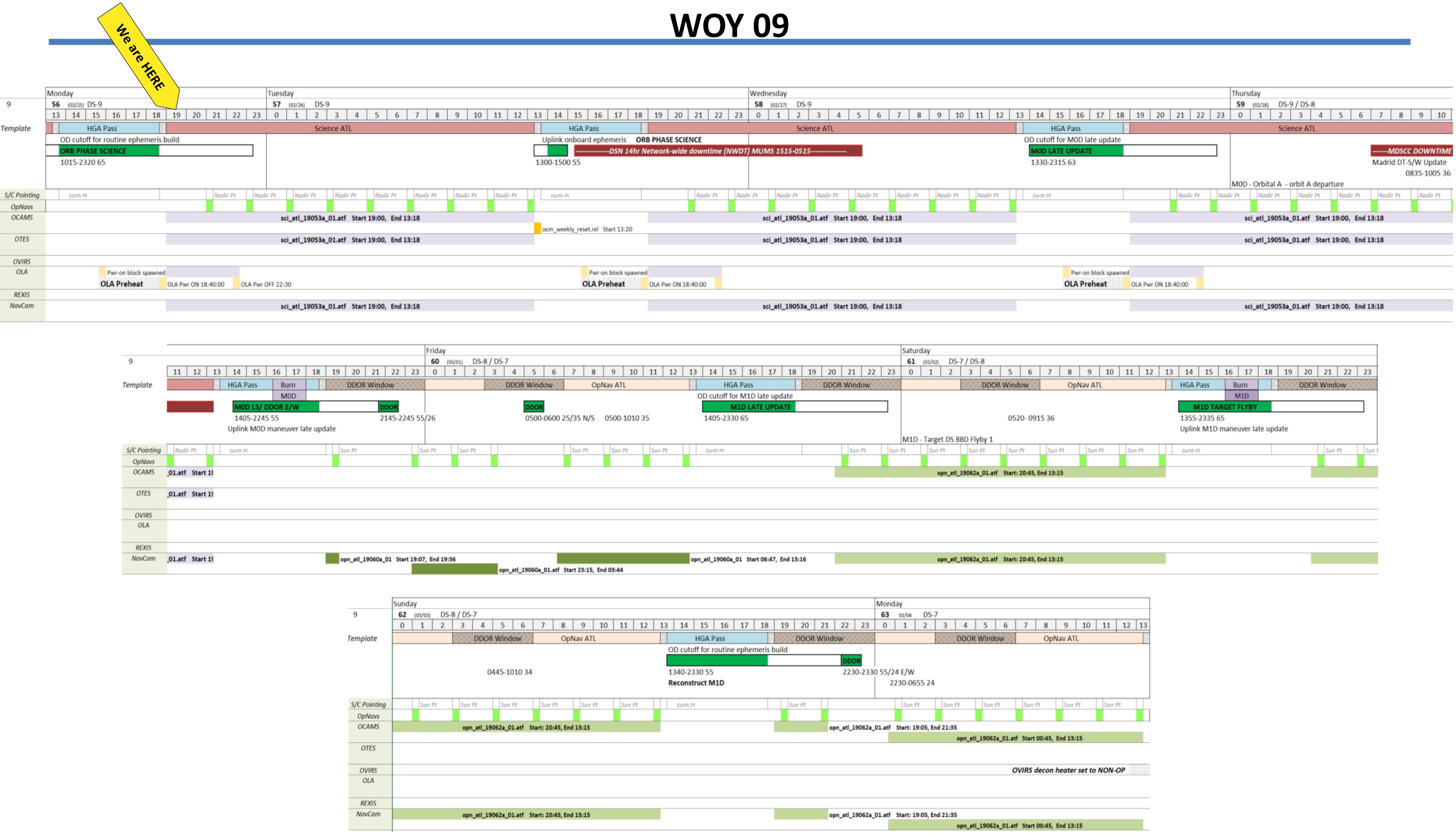
WOY	DOY	Start Date	HGA Start	End Date	HGA End	Duration	Note
08	054	02-23-2019	14:01	02-23-2019	18:35	04:34	*COMPLETE*
08	055	02-24-2019	14:22	02-24-2019	18:35	04:12	*COMPLETE*
09	056	02-25-2019	14:01	02-25-2019	18:35	04:34	*COMPLETE*
09	057	02-26-2019	14:01	02-26-2019	15:00	00:59	
09	058	02-27-2019	14:01	02-27-2019	18:35	04:34	*1.3 Mbps data rate*
09	059	02-28-2019	14:22	02-28-2019	18:35	04:13*	**M0D – Nominal Burn will reduce pass duration by 1 hr, Decomposed Burn will reduce pass duration by 1.5 hr*
09	060	03-01-2019	14:22	03-01-2019	18:35	04:13	
09	061	03-02-2019	14:12	03-02-2019	18:35	04:13*	**M1D – Nominal Burn will reduce pass duration by 1 hr*

DSN Notes:

```
RED EQUIPMENT STATUS:

          SPC/DSS         EQUIPMENT              ETRO
          -------         ---------              ----
           SPC60           MCD3-1              066/1428z
           DSS63           MSI                 171/1430z
           SPC60           VSR                 350/1648z
           DSS63           EAC                 355/1621z
```

Orbital Imaging for Detailed Survey, Transition to Detailed Survey, M0D, M1D, WOY 09



Uplink Summary

UPLINK

WOY 09 (2019-056 – 2019-063)

- BG Seq, Sci Genies, Payload Sequences uplinked 2019-053
- Preliminary design of M0D (no burn) trajectory uplinked 2019-053

Ephemeris Updates

- Ephemeris Update: od100 uplinked 2019-051
- Ephemeris Update: od101 uplinked 2019-053

Execution Summary

Instrument Status:

– OCAMS, OTES currently powered ON.

Executed (times in UTC):

- 2019/053 (Friday, Feb 22)
  - **Orbital Imaging (Day 1 of 6) to meet constraints for Northern Hemisphere Imagery from the North, Southern Hemisphere Imagery from the South not expected to be met by DS BBD Flybys**
  - NavCam 2x1 Opnavs every 2 hr,
    - » # of NavCam images expected / **received** : 36 / **36**
  - MapCam/PolyCam BBD Orbital Imaging
    - » # of OCAMS images expected / **received** : 360 / **360**
  - OLA generated 7408 frames
  - OTES generated 2212 frames
- 2019/054 (Saturday, Feb 23)
  - **Orbital Imaging (Day 2 of 6)**
  - NavCam 2x1 Opnavs every 2 hr,
    - » # of NavCam images expected / **received** : 36 / **36**
  - MapCam/PolyCam BBD Orbital Imaging
    - » # of OCAMS images expected / **received** : 360 / **360**
  - OLA generated 7408 frames
  - OTES generated 2212 frames
- 2019/055 (Sunday, Feb 24)
  - **Orbital Imaging (Day 3 of 6)**
  - OLA Powered ON to "SILVER" FSW at ~18:45 UTC for Imaging Ride-along. Scan duration ~ 3 hrs. OLA Powered OFF at ~22:35
  - NavCam 2x1 Opnavs every 2 hr,
    - » # of NavCam images expected / **received** : 36 / **36**
  - MapCam/PolyCam BBD Orbital Imaging
    - » # of OCAMS images expected / **received** : 360 / **360**
  - OLA generated 7408 frames
  - OTES generated 2212 frames

Up Next (times in UTC):

- 2019/056 (Monday, Feb 25)
  - **Orbital Imaging (Day 4 of 6)**
  - OLA Powered ON to "SILVER" FSW at ~18:45 UTC for Imaging Ride-along. Scan duration ~ 3 hrs. OLA Powered OFF at ~22:35
  - NavCam 2x1 Opnavs every 2 hr,
    - » # of NavCam images expected / **received** : 36 / **36**
  - MapCam/PolyCam BBD Orbital Imaging
    - » # of OCAMS images expected / **received** : 360 / **360**
- 2019/057 (Tuesday, Feb 26)
  - **Orbital Imaging (Day 5 of 6)**
  - OLA Powered ON to "SILVER" FSW at ~18:45 UTC for Imaging Ride-along. Scan duration ~ 3 hrs. OLA Powered OFF at ~22:35
  - NavCam 2x1 Opnavs every 2 hr,
    - » # of NavCam images expected / **received** : 36 / **36**
  - MapCam/PolyCam BBD Orbital Imaging
    - » # of OCAMS images expected / **received** : 360 / **360**

Downlink Summary

- ***Current Data Rate: 916 kbps***

Downlink

- Today's Partition Status :

	Part. Start Vol (MB)	New Data Vol (MB)	Partition Fill (MB)	Expected Partition Fill (%)	Current Partition (%)	Comments
OpNav	0.00	379.08	379.08	54.15%	0.00%	
OTES	0.00	93.17	100.35	36.36%	0.00%	
REXIS	0.00	0.00	0.00	0.00%	0.00%	
OLA	0.00	15.52	53.29	5.76%	0.00%	
OVIRS	0.00	0.00	0.00	0.00%	0.00%	
OCAMS	0.00	805.47	812.20	21.99%	0.00%	
Tagcams/Overflow	0.00	3.35	3.35	0.42%	0.00%	

Downlink Summary

- ***Current Data Rate: 916 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
OpNav	0.00	397.50	397.50	56.79%	35.01%	
OTES	0.00	97.70	105.20	38.12%	38.12%	
REXIS	0.00	0.00	0.00	0.00%	0.00%	
OLA	0.00	16.30	39.30	4.24%	4.24%	
OVIRS	0.00	0.00	0.00	0.00%	0.00%	
OCAMS	0.00	844.60	851.60	23.06%	23.06%	
Tagcams/Overflow	0.00	3.50	3.50	0.44%	0.44%	

Need for Retransmit? Need for Replay?

- DOY 055

  SPOC is following up with the MSA on some unexpected gaps appearing in the FRAME_RETRANS_REPORT – we don’t believe these to be real gaps, as we have confirmed that we have all OpNav and OCAMS images and all images appear to be complete

List of Unexpected Alarms, Watch Items, ISAs, PFRs

Unexpected Alarms

- None

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

- None

Science Status and/or PI Status

Looking Ahead

<table>
<tr><td></td><td colspan="28">2019</td></tr>
<tr><td></td><td colspan="7">8</td><td colspan="7">9</td><td colspan="7">10</td><td colspan="7">11</td></tr>
<tr><td></td><td>49</td><td>50</td><td>51</td><td>52</td><td>53</td><td>54</td><td>55</td><td>56</td><td>57</td><td>58</td><td>59</td><td>60</td><td>61</td><td>62</td><td>63</td><td>64</td><td>65</td><td>66</td><td>67</td><td>68</td><td>69</td><td>70</td><td>71</td><td>72</td><td>73</td><td>74</td><td>75</td><td>76</td></tr>
<tr><td></td><td>2/18</td><td>2/19</td><td>2/20</td><td>2/21</td><td>2/22</td><td>###</td><td>###</td><td>2/25</td><td>2/26</td><td>2/27</td><td>2/28</td><td>3/1</td><td>3/2</td><td>3/3</td><td>3/4</td><td>3/5</td><td>3/6</td><td>3/7</td><td>3/8</td><td>3/9</td><td>###</td><td>3/11</td><td>3/12</td><td>3/13</td><td>3/14</td><td>3/15</td><td>###</td><td>###</td></tr>
<tr><td></td><td>M</td><td>T</td><td>W</td><td>R</td><td>F</td><td>Sa</td><td>Su</td><td>M</td><td>T</td><td>W</td><td>R</td><td>F</td><td>Sa</td><td>Su</td><td>M</td><td>T</td><td>W</td><td>R</td><td>F</td><td>Sa</td><td>Su</td><td>M</td><td>T</td><td>W</td><td>R</td><td>F</td><td>Sa</td><td>Su</td></tr>
<tr><td>Week 8 - Tactical kickoff</td><td colspan="7">xm1916 - 12:30 Station - Flyby 7</td><td colspan="7">xm1917 - DS - EQ Start - 3:00pm / 45° station</td><td colspan="7">xm1918 - 3:20am / 230° station</td><td colspan="7">xm1919 - 12:30pm / 0° station</td></tr>
<tr><td>Week 7 - SOS</td><td colspan="7">xm1915 - 12:30 Station - Flyby 6</td><td colspan="7">xm1916 - 12:30 Station - Flyby 7</td><td colspan="7">xm1917 - DS - EQ Start - 3:00pm / 45° station</td><td colspan="7">xm1918 - 3:20am / 230° station</td></tr>
<tr><td>Week 6 - J-A 1</td><td colspan="7">xm1914 - 12:30 Station - Flyby 5</td><td colspan="7">xm1915 - 12:30 Station - Flyby 6</td><td colspan="7">xm1916 - 12:30 Station - Flyby 7</td><td colspan="7">xm1917 - DS - EQ Start - 3:00pm / 45° station</td></tr>
<tr><td>Week 5 - J-A 2</td><td colspan="7">xm1913 - 10 AM Station - Flyby 4</td><td colspan="7">xm1914 - 12:30 Station - Flyby 5</td><td colspan="7">xm1915 - 12:30 Station - Flyby 6</td><td colspan="7">xm1916 - 12:30 Station - Flyby 7</td></tr>
<tr><td>Week 4 - TCR approval, Handshake</td><td colspan="7">xm1912 - 10 AM Station - Flyby 3</td><td colspan="7">xm1913 - 10 AM Station - Flyby 4</td><td colspan="7">xm1914 - 12:30 Station - Flyby 5</td><td colspan="7">xm1915 - 12:30 Station - Flyby 6</td></tr>
<tr><td>Week 3 - FA Kickoff</td><td colspan="7">xm1911 - 12:30 Station - Flyby 2</td><td colspan="7">xm1912 - 10 AM Station - Flyby 3</td><td colspan="7">xm1913 - 10 AM Station - Flyby 4</td><td colspan="7">xm1914 - 12:30 Station - Flyby 5</td></tr>
<tr><td>Week 2 - Final Build/Delivery/Test</td><td colspan="7">xm1910 - 12:30 Station - Flyby 1</td><td colspan="7">xm1911 - 12:30 Station - Flyby 2</td><td colspan="7">xm1912 - 10 AM Station - Flyby 3</td><td colspan="7">xm1913 - 10 AM Station - Flyby 4</td></tr>
<tr><td>Week 1 - Review/Uplink</td><td colspan="7">xm1909 - BBD Orbital, Transition to BBD</td><td colspan="7">xm1910 - 12:30 Station - Flyby 1</td><td colspan="7">xm1911 - 12:30 Station - Flyby 2</td><td colspan="7">xm1912 - 10 AM Station - Flyby 3</td></tr>
<tr><td>Week 0 - Execution</td><td colspan="7">xm1908 - BBD Orbital</td><td colspan="7">xm1909 - BBD Orbital, Transition to BBD</td><td colspan="7">xm1910 - 12:30 Station - Flyby 1</td><td colspan="7">xm1911 - 12:30 Station - Flyby 2</td></tr>
</table>

Looking Ahead – Science Observation Forecast

Science Observation completion forecast dates:						
Source Phase	WG	Task Name	Related DP #	MRD	Baseline Finish	WOY BL Finish
		Orbital A Science Observations				
		MapCam Observations				
Orbital_A	Obs_MapCam	SOCR-143 MapCam for Particle Event Source: MapCam images (PRI.)	SOCR-143 Summ. Rept	ISA 7704	2/18/2019	2019-8
Orbital_A	Obs_MapCam	SOCR-143 MapCam for Particle Event Source: MapCam images (PRI.)	SOCR-143 Summ. Rept	ISA 7704	2/19/2019	2019-8
Orbital_A	Obs_MapCam	SOCR-143 MapCam for Particle Event Source: MapCam images (PRI.)	SOCR-143 Summ. Rept	ISA 7704	2/20/2019	2019-8
Orbital_A	Obs_MapCam	SOCR-143 MapCam for Particle Event Source: MapCam images (PRI.)	SOCR-143 Summ. Rept	ISA 7704	2/21/2019	2019-8
		Detailed Survey Science Observations				
		Baseball Diamond				
		MapCam Observations				
Det_Surv	Obs_MapCam	MapCam for SPC: MapCam images (PRI.)	35cm Shape model	687a	2/22/2019	2019-8
Det_Surv	Obs_MapCam	MapCam for SPC: MapCam images (PRI.)	35cm Shape model	687a	2/23/2019	2019-8
Det_Surv	Obs_MapCam	MapCam for SPC: MapCam images (PRI.)	35cm Shape model	687a	2/24/2019	2019-8
Det_Surv	Obs_MapCam	MapCam for SPC: MapCam images (PRI.)	35cm Shape model	687a	2/25/2019	2019-9
Det_Surv	Obs_MapCam	MapCam for SPC: MapCam images (PRI.)	35cm Shape model	687a	2/26/2019	2019-9
Det_Surv	Obs_MapCam	MapCam for SPC: MapCam images (PRI.)	35cm Shape model	687a	2/27/2019	2019-9
		PolyCam Observations				
Det_Surv	Obs_PolyCam	SOCR-125 PolyCam images	RIDE ALONG	183c	2/22/2019	2019-8
Det_Surv	Obs_PolyCam	SOCR-125 PolyCam images	RIDE ALONG	183c	2/23/2019	2019-8
Det_Surv	Obs_PolyCam	SOCR-125 PolyCam images	RIDE ALONG	183c	2/24/2019	2019-8
Det_Surv	Obs_PolyCam	SOCR-125 PolyCam images	RIDE ALONG	183c	2/25/2019	2019-9
Det_Surv	Obs_PolyCam	SOCR-125 PolyCam images	RIDE ALONG	183c	2/26/2019	2019-9
Det_Surv	Obs_PolyCam	SOCR-125 PolyCam images	RIDE ALONG	183c	2/27/2019	2019-9
Det_Surv	Obs_PolyCam	FlyBy 1 - 12:30 PM 5 km PolyCam Images (PRI.)	35cm Shape model	687a, 728	3/7/2019	2019-10
		OLA Observations				
Det_Surv	Obs_OLA	SOCR-139 OLA images	RIDE ALONG	183c	2/22/2019	2019-8
Det_Surv	Obs_OLA	SOCR-139 OLA images	RIDE ALONG	183c	2/23/2019	2019-8
Det_Surv	Obs_OLA	SOCR-139 OLA images	RIDE ALONG	183c	2/24/2019	2019-8
Det_Surv	Obs_OLA	SOCR-139 OLA images	RIDE ALONG	183c	2/25/2019	2019-9
Det_Surv	Obs_OLA	SOCR-139 OLA images	RIDE ALONG	183c	2/26/2019	2019-9
Det_Surv	Obs_OLA	SOCR-139 OLA images	RIDE ALONG	183c	2/27/2019	2019-9
		OTES Observations				
Det_Surv	Obs_OTES	OTES Spectra	RIDE ALONG	540	2/22/2019	2019-8
Det_Surv	Obs_OTES	OTES Spectra	RIDE ALONG	540	2/23/2019	2019-8
Det_Surv	Obs_OTES	OTES Spectra	RIDE ALONG	540	2/24/2019	2019-8
Det_Surv	Obs_OTES	OTES Spectra	RIDE ALONG	540	2/25/2019	2019-9
Det_Surv	Obs_OTES	OTES Spectra	RIDE ALONG	540	2/26/2019	2019-9
Det_Surv	Obs_OTES	OTES Spectra	RIDE ALONG	540	2/27/2019	2019-9
Det_Surv	Obs_OTES	Equator, 12:30 PM, 5 km OTES Spectra	TA-007, SA-28, SA-32, SA-43	687a, 728	3/7/2019	2019-10

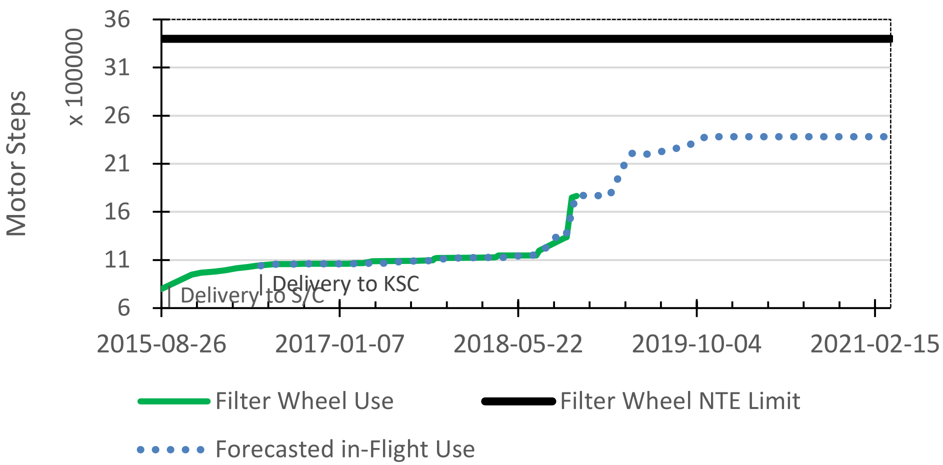
Go Backs / Additional Comments

Weekly Instrument Status

- **OCAMS**
- **OTES**
- **OVIRS**
- **OLA**
- **REXIS**

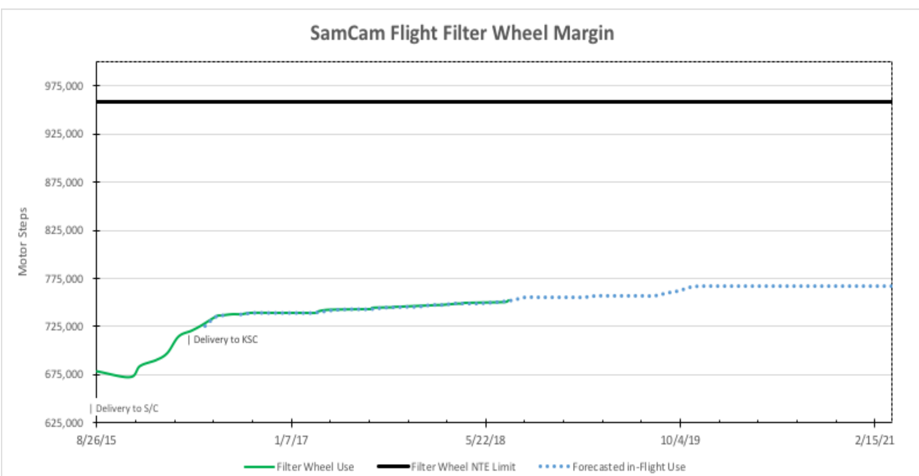
OCAMS Mechanism Life Tracking

MapCam Flight Filter Wheel Margin

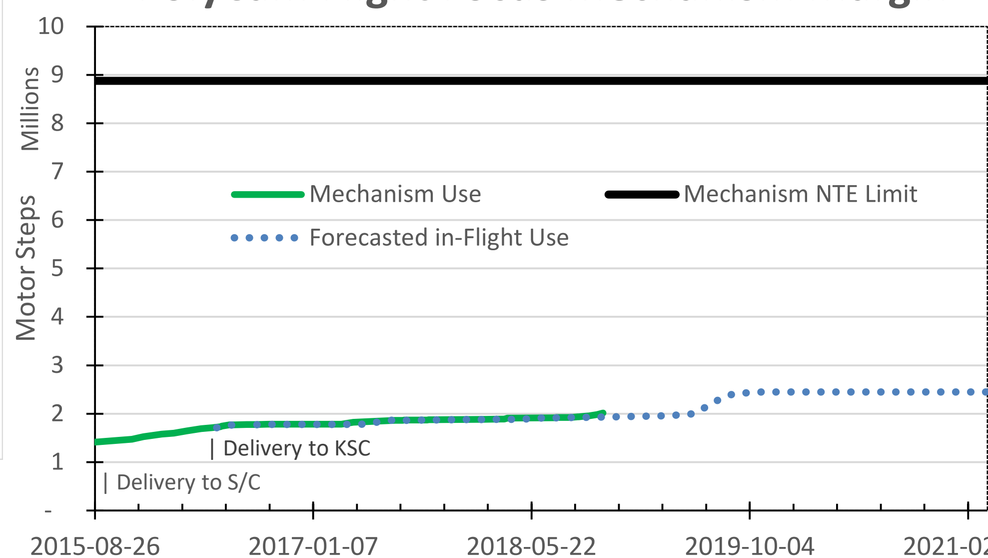


Status as of Feb 1, 2019

	Launch (steps)	Flight (steps)	NTE (steps)
MapCam	1057475	772545	3400320
SamCam	738110	15246	958384
PolyCam	1775496	305594	8876160



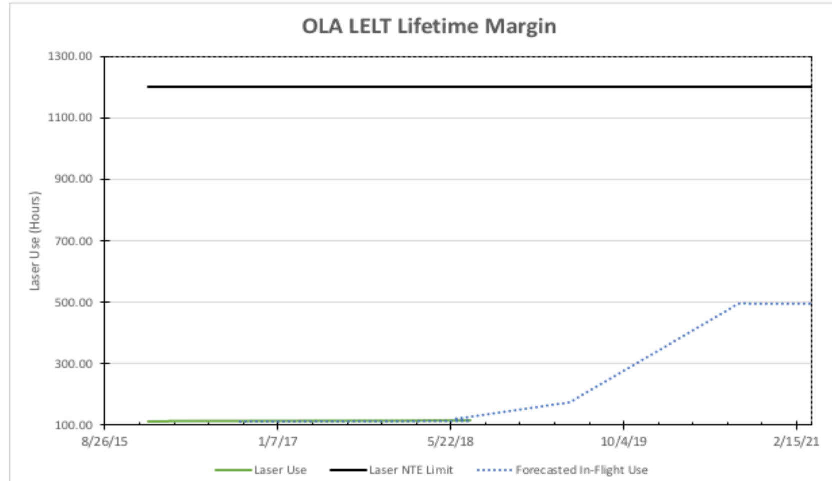
PolyCam Flight Focus Mechanism Margin

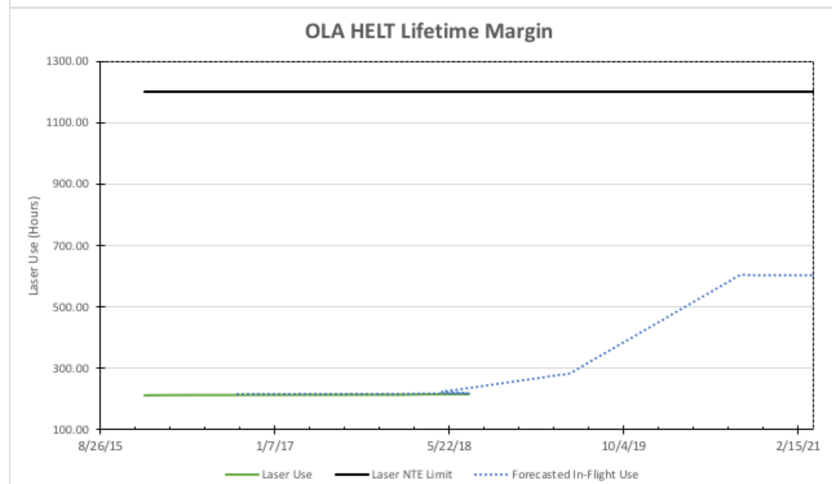


OLA Limited Life Laser Tracking

	Launch (hours)	Flight (hours)	NTE Margin (hours)
LELT	110.70	4.29	1,085.01
HELT	212.50	15.12	983.80

Status as of Feb 1, 2019





SPOC Watch Item List

Todays Date:	02/22/2019	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	9/30/16		Item1	REXIS	CCD Hot Pixels	Some hot pixels were noted on the CCD array.	Hardware Performance	875		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	325		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	170		Watch	Will monitor for future occurances across all of the OCAMS cameras and assess if any action is warranted.

Anomaly Response & Status

ISA #	Date Created	Type	Priority	Title	Detailed Description - Action Plan	Notes	Status	Resolved Date	Need Date
8252	2/15/19	Ground minor	Normal	REXIS L+30 LGO Products not ready for uplink	The REXIS L+30 checkout consisted of a combination of ATL-driven sequences, a checkout load-n-go, and a contingency power-off product that were due to be executed as part of Week 7 science. The ATL and checkout lgo were delivered as part of the Week 7 science deliveries. The ATL sequences were built into flight products but the checkout lgo was missed at the MSA. As a result, the test was run without that sequence, and the package was taken to command conference and approved without it as well. This was noticed when the uplink products were being coordinated for the Saturday morning uplink and it was recognized that there was no approved flight product for the L+30 checkout lgo.		New	TBD	TBD
7704	1/10/19	Spacceraft 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		In Progress	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

Anomaly Response & Status

ISA #	Date Created	Type	Priority	Title	Detailed Description - Action Plan	Notes	Status	Resolved Date	Need Date
6242	10/8/18	Ground Minor	Normal	ASIST issues during AAM-2 OD downlink	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-orx 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-orx 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-orx 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		Monitor	TBD	TBD
5708	8/22/18	GroundMinor	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.		Monitor	TBD	TBD

Current ISA Status

#	Status	Priority	Subject	Assignee	Updated
7994	In Progress	Normal	ACSTBT Overburn	Ryan Olds	2/18/19 12:19
7936	Monitor	Normal	Single Bit Errors around observed particle events	Andy Calloway	2/8/19 9:01
7704	In Progress	Normal	Potential particles detected in NavCam images while in Bennu Orbit-A Phase	Ron Mink	2/1/19 8:22
7518	In Progress	High	CenturyLink National Outage	Andy Calloway	2/7/19 18:32
7246	In Progress	High	FOB connection down	Paul Falkenstern	1/18/19 10:32
6242	Monitor	Normal	ASIST issues during AAM-2 OD downlink	Paul Falkenstern	1/18/19 11:55
5708	Monitor	Normal	FEDS not reconstructing packets that encounter a frame counter rollover	Mark Fisher	2/14/19 11:39