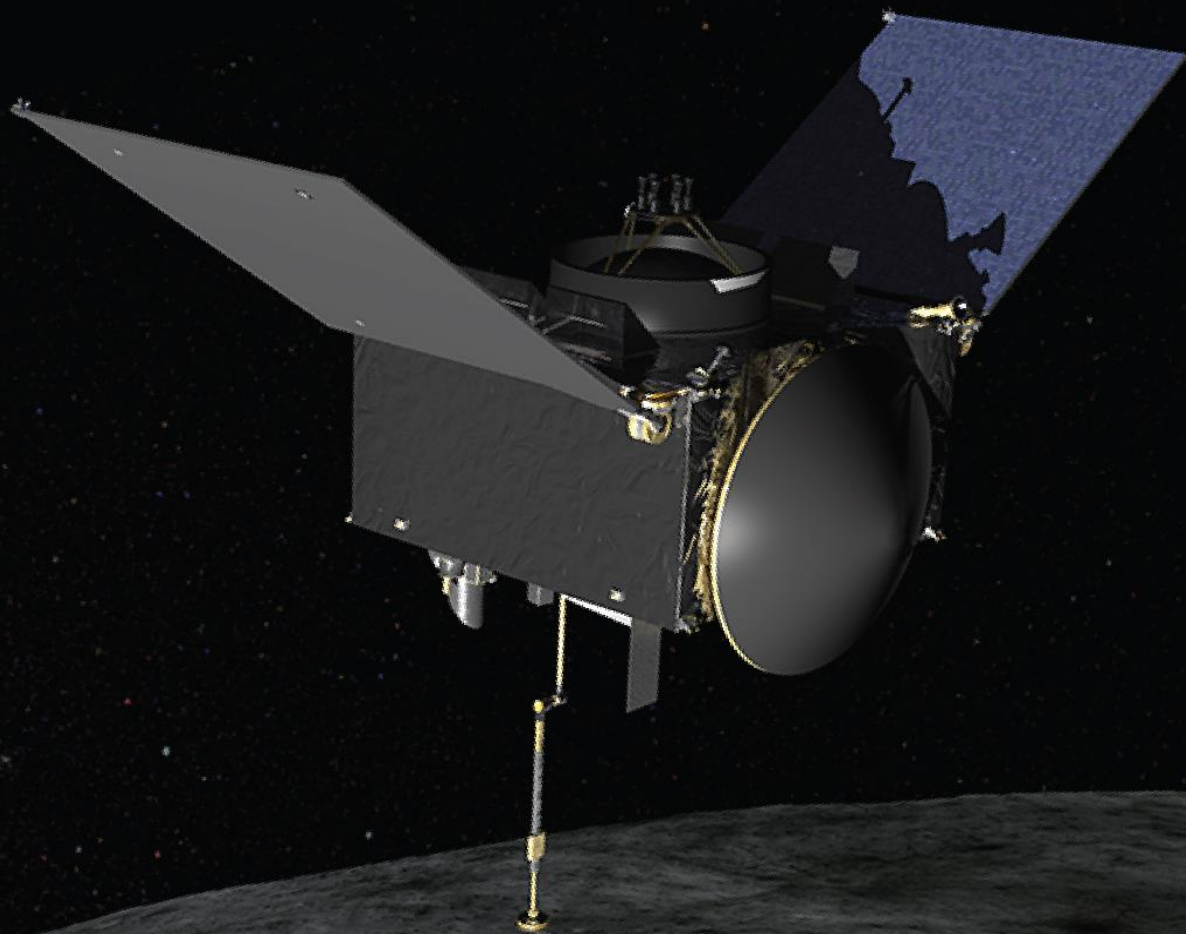




Daily Downlink Tagup

Wednesday, September 26, 2018 (DOY 269)

OSIRIS-REXTM
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 Slides available shortly after each Tagup at:

OSIRIS-REx Bennu Proximity Operations\Science Implementation\Downlink_Daily_Summary

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 | | | | | | | | | | 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 |
|-----|-----|------------|-----------|------------|---------|----------|-----------------------|
| 39 | 267 | 2018-09-24 | 15:30 | 2018-09-24 | 18:15 | 02:45 | COMPLETE |
| 39 | 268 | 2018-09-25 | 15:30 | 2018-09-25 | 17:30 | 02:00 | COMPLETE |
| 39 | 269 | 2018-09-26 | 15:30 | 2018-09-27 | 18:35 | 03:05 | COMPLETE |
| 39 | 270 | 2018-09-27 | n/a | 2018-09-27 | n/a | 00:00 | No scheduled DSN Pass |
| 39 | 271 | 2018-09-28 | 15:00 | 2018-09-28 | 20:00 | 05:00 | |
| 39 | 272 | 2018-09-29 | 14:20 | 2018-09-29 | 17:15 | 02:55 | |
| 39 | 273 | 2018-09-30 | 14:25 | 2018-09-30 | 20:00 | 05:35 | |

DSN Notes:

268/1535Z DR M110838 Hardware/UPA1 Entered 268/1715Z 0100

Unable to support uplink activities at the start of the support. Unable to get the uplink predicts to U65. MDSCC TSM and Maintenance personnel we able to clear the problem. Uplink activities initiated at 16:25z. Post pass range calibration will be needed.

- RED EQUIPMENT STATUS: SPC/DSS EQUIPMENT ETRO -----
 - DSS25 AWVR 271/2300z
 - DSS43 S400KW 275/0630z
 - SPC40 DCC1 278/0023z
 - SPC60 VSR 300/1648z

Approach: OpNavs & MapCam Full Phase Function Part 1

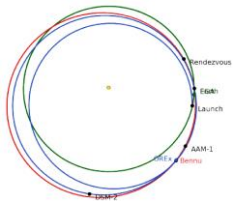
WOY 39

We are HERE

| Monday (09/24) Template AP4: OpNav and/or Daily Phase Function Day | | | | | | | | | | | | | | | | | | | | | | | | Tuesday (09/25) Template AP4: OpNav and/or Daily Phase Function Day | | | | | | | | | | | | | | | | | | | | | | | | Wednesday (09/26) Template AP4: OpNav and/or Daily Phase Function Day | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|-------------|---|----|----|----|----|----|----|------------------------------|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---------------------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| HGA Pass: 5-7 Hour | | | | | | | | DDOR window | | | | | | | | HGA Pass: 5-7 Hour | | | | | | | | DDOR window | | | | | | | | HGA Pass: 5-7 Hour | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DSN 1530-1815 54 | | | | | | | | | | | | | | | | DSN 1530-1730 65 *2hr* | | | | | | | | | | | | | | | | DSN 1530-1835 55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Earth Pt | | | | | | | | | | | | | | | | Earth Pt | | | | | | | | | | | | | | | | Earth Pt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCAMS | | | | | | | | | | | | | | | | | | | | | | | | opn_atl_18269a_01.tif Start:07:10:22 End:07:46:00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OTES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OVIRS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OLA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REXIS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NAVCAM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Thursday (09/27) AP1: Nominal Science Day | | | | | | | | | | | | | | | | | | | | | | | | Friday (09/28) Template AP4: OpNav and/or Daily Phase Function Day | | | | | | | | | | | | | | | | | | | | | | | | Saturday (09/29) Template AP4: OpNav and/or Daily Phase Function Day | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|-----------------------------|---|---|---|----|----|--------------------|----|----|----|----|----|-------------|----|----|----|----|----|--|---|---|---|---|---|---|---|---|---|----|----|---|----|----|----|----|----|----------|----|----|----|----|----|--|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | | | | | | | | | | | | | |
| DDOR window | | | | | | ATL: 6 Hour, includes OpNav | | | | | | HGA Pass: 5-7 Hour | | | | | | DDOR window | | | | | | HGA Pass: 5-7 Hour | | | | | | DDOR window | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NO DSN HGA TIME | | | | | | | | | | | | | | | | | | | | | | | | DDOR 0110-0210 24/36 N/S | | | | | | DSN 1500-2000 65 AAM uplink opportunity | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCAMS MapCam Full Phase Function Part 1 of 2 (736 images - was 621) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Phase Function | | | | | | | | | | | | | | | | | | | | | | | | sci_atl_18270a_01.tif Start 04:01:25 End 09:09:08 | | | | | | | | | | | | opn_atl_18269a_01.tif Start:07:10:22 End:07:46:00 | | | | | | Earth Pt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OTES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OVIRS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OLA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REXIS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NAVCAM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

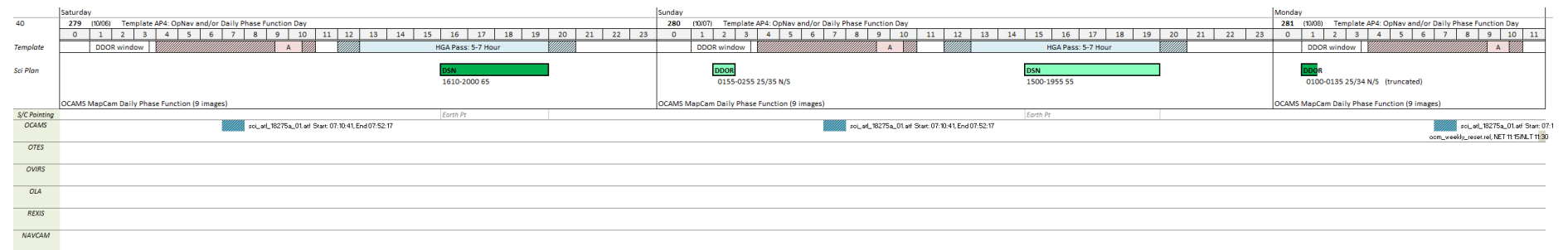
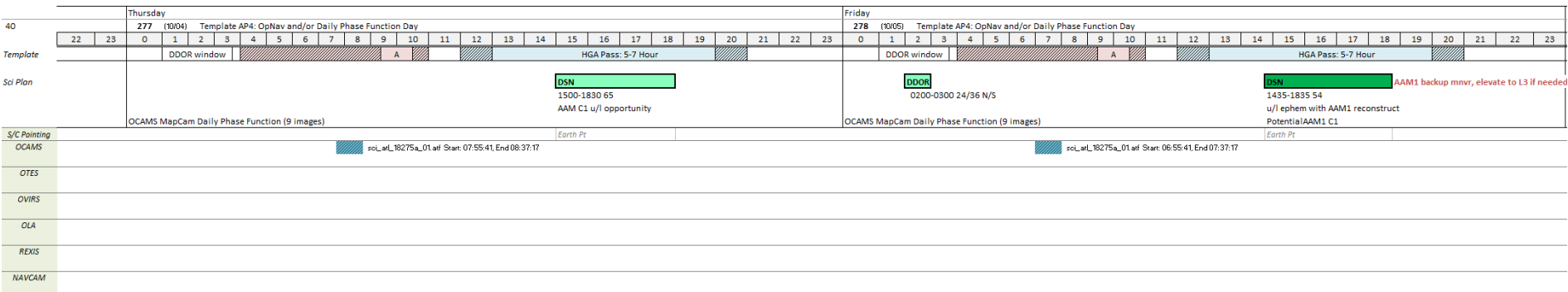
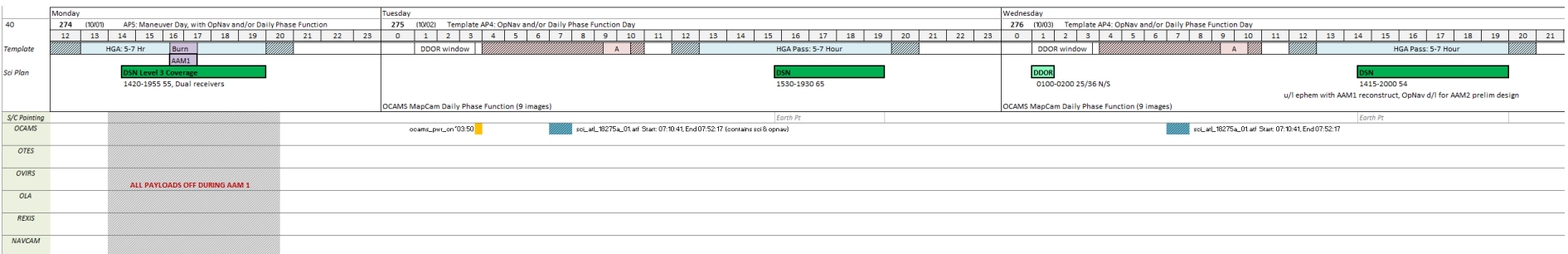
| Saturday (09/30) | | | | | | | | | | | | | | | | | | | | | | | | Sunday (09/30) Template AP4: OpNav and/or Daily Phase Function Day | | | | | | | | | | | | | | | | | | | | | | | | Monday (10/01) APS: Maneuver Day, with OpNav and/or Daily Phase Function | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|---|---|---|---|---|---|---|---|---|----|----|-----------------------------|----|----|----|----|----|---------------------|----|----|----|----|----|--|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|----|----|--|--|--|--|--|--|--|--|--|--|--|--|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | | | | | | | | | | | | |
| A | | | | | | HGA Pass: 5-7 Hour | | | | | | DDOR window | | | | | | HGA Pass: 5-7 Hour | | | | | | DDOR window | | | | | | A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | DSN 1420-1715 65 AAM uplink opportunity | | | | | | DDOR 0115-0215 14/34 N/S | | | | | | DSN 1425-2000 54 | | | | | | DDOR 0100-0200 24/34 N/S | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Earth Pt | | | | | | | | | | | | Earth Pt | | | | | | | | | | | | Earth Pt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCAMS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | opn_atl_18269a_01.tif Start:06:55:00 End:07:31:00 Call ocams_pwr_off_iv_xfer_ep02_ocams+YES;XFER NET 11:30 | | | | | | | | | | | | | | | | | | | | | | | |
| OTES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OVIRS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OLA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REXIS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NAVCAM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Statistics as of September 19, 2018, L+741 days

- Days until Arrival: 75 days
- Earth Range = 124,000,000 km (0.83 AU) (↑)
- Sun Range = 177,000,000 km (1.18 AU) (↓)
- Bennu Range = 729,000 km (↓)
- Sun-Probe-Earth Angle = 56.7 deg (↑)
- One Way Light Time = 00:06:52 hh:mm:ss (↑)
- Round Trip Light Time = 00:13:45 hh:mm:ss (↑)
- (↑ increasing, ↓ decreasing)

Approach: AAM1, potential AAM1 C1, Daily Phase Function WOY 40



Uplink Summary

UPLINK

WOY 39 (2018/267 – 2018/274)

- xm1839 BGSeq and Sci Genies [uplinked 2018-264/14:49](#)

WOY 40 (2018/267 – 2018/274)

- xm1840 BGSeq and Sci Genies to be uplinked NET [2018-271](#)

Execution Summary

- **Instrument Status:**

- OCAMS is powered-on
- All other payloads remain powered off

Executed (times in UTC):

- **2018/267 (Monday, Sept 24)**
 - 10 PolyCam opnav images (**# of images expected=10 / # of images received= 10**)
 - 11:15 ocams_weekly_reset
 - Transition to xm1839
- **2018/268 (Tuesday, Sept 25)**
 - No scheduled activities
- **2018/269 (Wednesday, Sept 26)**
 - 18 PolyCam opnav images (**# of images expected=18 / # of images received=18**)

Up Next (times in UTC):

- **2018/270 (Thursday, Sept 27)**
 - Full Phase Function
 - Cycling through the Pan & Color filters for 4.5 hours
 - 735 MapCam Images
- **2018/271 (Friday, Sept 28)**
 - 18 PolyCam opnav images

Downlink Summary

Current Data Rate: 916 kbps

DOWNLINK

Reminder that there is no scheduled pass tomorrow, DOY 270 (9/27/18)

- **Partition Status as of 19:00 UTC:**

| | Part. Start Vol (MB) | New Data Vol (MB) | New Data Vol (Mb) | Expected Partition Fill (%) | Current Partition Fill (%) | Comments |
|-------------------------|-------------------------|----------------------|----------------------|-----------------------------------|----------------------------------|----------|
| <i>OpNav</i> | 0.00 | 40.32 | 322.56 | 5.76 | 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 | 6.70 | 53.60 | 0.18 | 0.00 | |
| <i>Tagcams/Overflow</i> | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |

- **Expected Partition Fill going into next scheduled pass (DOY 271)**

| | Part. Start Vol (MB) | New Data Vol (MB) | New Data Vol (Mb) | Expected Partition Fill (%) | Current Partition Fill (%) | Comments |
|-------------------------|-------------------------|----------------------|----------------------|-----------------------------------|----------------------------------|---|
| <i>OpNav</i> | 0.00 | 40.32 | 322.56 | 5.76 | 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 | 1740.00 | 13920.00 | 0.47 | 0.00 | We expect that this data should be down by end of pass 9/29 |
| <i>Tagcams/Overflow</i> | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |

List of Unexpected Alarms, Watch Items, ISAs, PFRs

Alarms

Watch Items, ISA's and PFR's

- **PFR-27:**
 - Title: OpNav Image Processing Failure
 - Description: The DOY 267 OpNav images that were expected to be received were not immediately processed by Ingest. When Ingest attempted to insert an OCAMS Image Header line, the relevant database index failed, causing all of the image header packets to be marked in the ERROR state.
 - Status: In Work

Need for Retransmit? Need for Replay?

- **DOY 268**
 - There was an issue with DSS-65, causing a brief drop in some S/C and OCAMS H/k telemetry.
 - Total number of OCAMS frames missing (8 frames)
 - This is less than the threshold that the project has put in place for requesting retransmit (20 Frames) so the decision was made not to request retransmit
 - OCAMS has indicated that this resulted in a 00:01:40.0 gap in OCAMS HK and that retransmit would not be needed

Science Status and/or PI Status

- No Science Weekly tomorrow

Looking Ahead

| | 2018 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------|------|-----------|----------------|-----------|-----|-----|-----------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|--|--|------------------------|------------------------|---------------------------------|---------------------------------|---------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----|-----|
| | 39 | | | | | | | 40 | | | | | | | 41 | | | | | | | 42 | | | | | | |
| | 267 | 268 | 269 | 270 | 271 | 272 | 273 | 274 | 275 | 276 | 277 | 278 | 279 | 280 | 281 | 282 | 283 | 284 | 285 | 286 | 287 | 288 | 289 | 290 | 291 | 292 | 293 | 294 |
| | 9/24 | 9/25 | 9/26 | 9/27 | 9/28 | ### | ### | 10/1 | 10/2 | 10/3 | 10/4 | 10/5 | ### | ### | 10/8 | 10/9 | 10/10 | 10/11 | 10/12 | ### | ### | 10/15 | 10/16 | 10/17 | 10/18 | 10/19 | ### | ### |
| 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 | xm1847 | | | | | | | xm1848 | | | | | | | xm1849 - Pre Surv Wk 1 | | | | | | | xm1850 - Pre Surv Wk 2 | | | | | | |
| Week 7 - SOS | xm1846 | | | | | | | xm1847 | | | | | | | xm1848 | | | | | | | xm1849 - Pre Surv Wk 1 | | | | | | |
| Week 6 - J-A 1 | xm1845 | | | | | | | xm1846 | | | | | | | xm1847 | | | | | | | xm1848 | | | | | | |
| Week 5 - J-A 2 | xm1844 | | | | | | | xm1845 | | | | | | | xm1846 | | | | | | | xm1847 | | | | | | |
| Week 4 - TCR approval, Handshake | xm1843 | | | | | | | xm1844 | | | | | | | xm1845 | | | | | | | xm1846 | | | | | | |
| Week 3 - FA Kickoff | xm1842 | | | | | | | xm1843 | | | | | | | xm1844 | | | | | | | xm1845 | | | | | | |
| Week 2 - Final Build/Delivery/Test | xm1841 | | | | | | | xm1842 | | | | | | | xm1843 | | | | | | | xm1844 | | | | | | |
| Week 1 - Review/Uplink | xm1840 | | | | | | | xm1841 | | | | | | | xm1842 | | | | | | | xm1843 | | | | | | |
| Week 0 - Execution | xm1839 | | | | | | | xm1840 | | | | | | | xm1841 | | | | | | | xm1842 | | | | | | |
| Activities Currently Executing | Pol OpNav | | Pol OpNav | Phase Function | Pol OpNav | | | Pol OpNav | Pol OpNav, Daily Phase Function | Pol OpNav, Daily Phase Function | Pol OpNav, Daily Phase Function | Pol OpNav, Daily Phase Function | Pol OpNav, Daily Phase Function | Pol OpNav, Daily Phase Function | Pol OpNav, Daily Phase Function, REX CXB Cal | Pol OpNav, Daily Phase Function, REX CXB Cal | Pol OpNav, Light Curve | Pol OpNav, Light Curve | Pol OpNav, Daily Phase Function | Pol OpNav, Daily Phase Function | Msp OpNav, Phase Function | Msp OpNav, Daily Phase Function | Pol OpNav, Daily Phase Function | Pol OpNav, Daily Phase Function | Pol OpNav, Daily Phase Function | Pol OpNav, Daily Phase Function | | |

Observation completion forecast dates:

| Task Name | DP# | MRD | Start | Finish | WOY 2018 Finish | Completed? |
|-----------------------------------|----------------------------|-------------|-------|-----------|-----------------|------------------------------|
| Dust Plume Search: PolyCam Images | AP-18 | 142a | | 9/11/2018 | 37 | Yes - All 93 images received |
| Dust Plume Search: MapCam Images | AP-18 | 142a | | 9/12/2018 | 37 | Yes - All 93 images received |
| Phase Function: MapCam Images | AP-14, AP-15, AP-19, IP-13 | 149abc, 158 | | 9/27/2018 | 39 | |

Validated L2 Data available forecast dates (includes 1 weekday for Downlink)

| Task Name | DP# | MRD | Start | Finish | WOY 2018 Finish | Completed? |
|---|-----|------|-----------|-----------|-----------------|-------------|
| Dust Plume Search: PolyCam Images validated | | 142a | 9/11/2018 | 9/18/2018 | 38 | In Progress |
| Dust Plume Search: MapCam Images validated | | 142a | 9/12/2018 | 9/19/2018 | 38 | In Progress |

Science Data Product completion forecast dates:

| Task Name | DP# | MRD | Start | Finish | WOY 2018 Finish | Completed? |
|--------------------------|-------|------|-----------|-----------|-----------------|------------|
| Dust Plume Image (AP-18) | AP-18 | 142a | 9/19/2018 | 9/20/2018 | 38 | |

*AP-14, AP-15, AP-19 scheduled to complete 11/22/18

*IP-13 scheduled to complete in Orbital B 6/28/19

Go Backs / Additional Comments

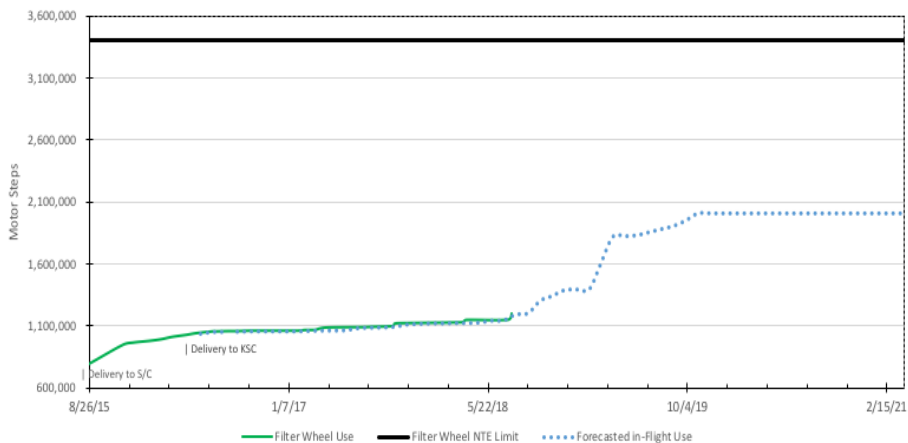
- **Next Daily Downlink Tagup is tomorrow (9/27) at 19:30 UTC.**
- **OSIRIS-REx Redmine will be down for ~30 minutes between 17:00 and 19:00 UTC on Thursday, September 27th. Please plan your work accordingly.**

Backup

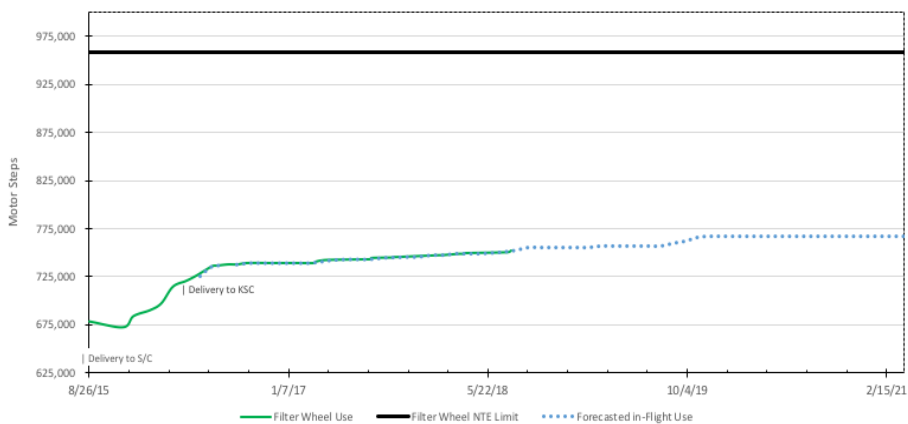
OCAMS Mechanism Life Tracking

Status as of September 21, 2018

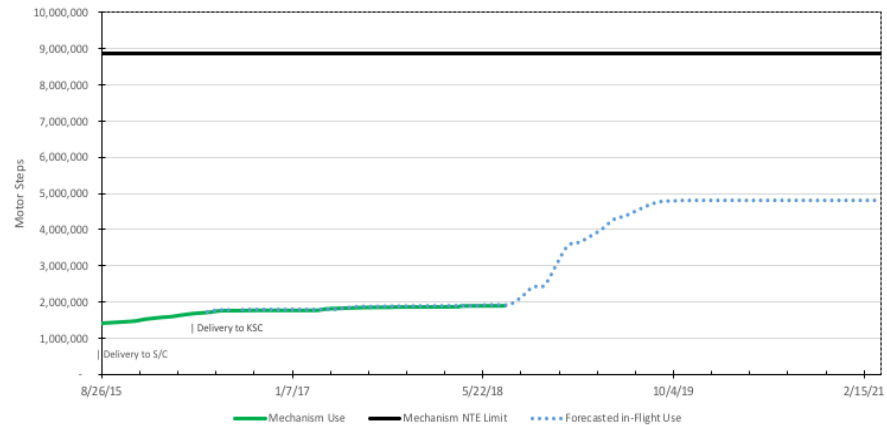
MapCam Flight Filter Wheel Margin



SamCam Flight Filter Wheel Margin



PolyCam Flight Focus Mechanism Margin

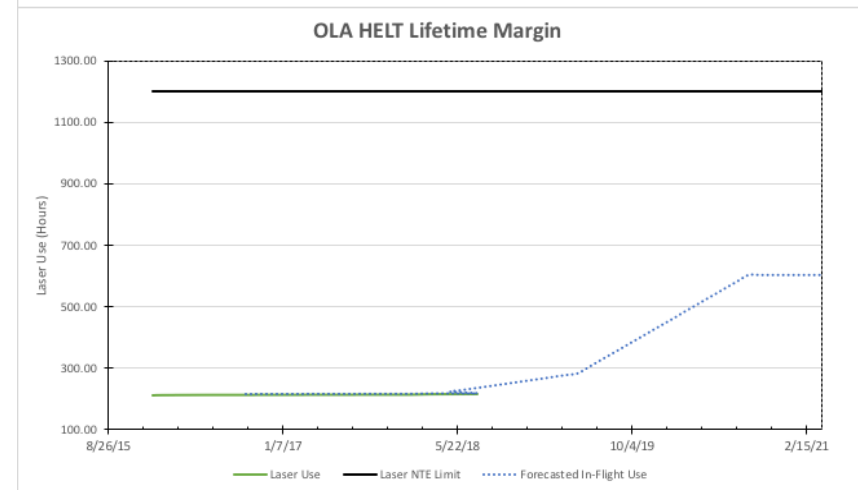
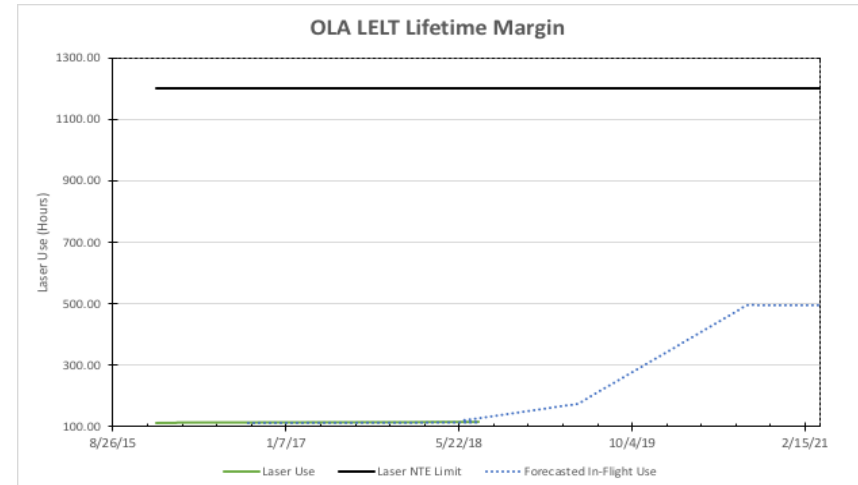


| | Launch (steps) | Flight (steps) | NTE Margin (steps) |
|---------|----------------|----------------|--------------------|
| MapCam | 1,057,475 | 139,099 | 2,464,384 |
| SamCam | 738,110 | 14,525 | 265,526 |
| PolyCam | 1,775,496 | 172,723 | 6,977,497 |

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 September 21, 2018



SPOC Watch Item List

| Todays Date: 9/07/2018 | | 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 | 707 | | 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 | 157 | | 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 | 2 | | Watch | Will monitor for future occurrences 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 |
|-------|--------------|------------------|----------|---|--|-------|-------------|---------------|-----------|
| 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. | | In Progress | TBD | TBD |
| 5855 | 9/5/18 | Spacecraft Minor | Normal | OCAMS settings for OpNavs in Approach | 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. | | Draft | TBD | TBD |
| 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. | | Draft | 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 |
| 5285 | 6/11/18 | Ground Minor | Normal | OVIRS encountered two missed aliveness checks after a RESET | During the OVIRS L+22 BPM and LUT loads and checkouts OVIRS experience two instances of two missed Aliveness Checks. Three would have safed the instrument. This occurred after the RESET post loading of the BPM and LUT files. It did not occur after the first RESET prior to loading the files. It was consistent for both the Super Pixel 2 and 8 loads. | | In Progress | TBD | 9/7/18 |

Anomaly Response & Status

| ISA # | Date Created | Type | Priority | Title | Detailed Description - Action Plan | Notes | Status | Resolved Date | Need Date |
|-------|--------------|--------------|----------|--|--|--|-------------|---------------|-----------|
| 4861 | 5/12/18 | Ground Minor | Normal | Planning Complications with Early ATL Stop | <p>During ORT 4/5, we ran into a previously unrecognized complication of stopping a re-usable ATL early.</p> <p>As it processes the ATL, the FSW will load each next target at the end of the current target. The result is that if an ATL is stopped before the end of the full target list, there will be one more target loaded that will execute after the stop. (The original design of the ATL was based on absolute times so there was no plan to stop a running ATL outside of Safe Mode.)</p> <p>If we want to be able to stop an ATL early, the MSA needs to send the ATL Stop command in the window between the load of the last desired target (4 seconds before the target time of the penultimate target) and the load of the next target (4 seconds before the target time of the last target). This time cannot be calculated by the MSA until the MSA has received the ATF and UPBL so the load times can be resolved. Alternatively, the relative ATL could be truncated at the appropriate times to avoid this.</p> | 7/19/18: MSA has identified all needed apps, they will require implementation to close this ISA. | In Progress | TBD | TBD |
| 4762 | 5/3/18 | Ground Minor | Normal | JAsteroid and ATARPS FOV disagreement | JAsteroid did not show that Bennu was in the star tracker field of view but ATARPS did, even when using the same initial conditions. There is concern that this may also extend past just the ST FOV. This needs further investigation. | 6/15/18: All data has been provided to MSA for analysis | In Progress | TBD | TBD |

Current ISA Status

| # | Status | Priority | Subject | Assignee | Updated |
|------|-------------|----------|---|----------------|---------------|
| 5855 | Draft | Normal | OCAMS settings for OpNavs in Approach | | 9/5/18 22:07 |
| 5854 | Draft | Normal | Previously known OCAMS 'finger regions' implications on Nav solutions | | 9/5/18 21:55 |
| 5786 | In Progress | High | Corruption of local disk and OS on NavMSA iMac workstations | Michael Moreau | 9/5/18 21:44 |
| 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 |
| 5506 | In Progress | Normal | TAGSAM Convoluted Tube (flex hose) | Beau Bierhaus | 8/9/18 7:15 |
| 5380 | In Progress | Normal | SCLK SCET file error in rev 31 | Mark Fisher | 7/23/18 9:48 |
| 5285 | In Progress | Normal | OVIRS encountered two missed aliveness checks after a RESET | Allen Lunsford | 7/19/18 9:48 |
| 4868 | In Progress | Normal | Dropped data during STL run | Mike Skeen | 5/25/18 9:45 |
| 4861 | In Progress | Normal | Planning Complications with Early ATL Stop | Olivia Billett | 8/3/18 14:40 |
| 4762 | In Progress | Normal | JAsteroid and ATARPS FOV disagreement | Sandy Freund | 9/5/18 21:42 |