



Daily Downlink Tagup

Friday, July 13, 2018 (DOY 194)

L+22 Payload File Loads, Checkouts & Calibrations

OSIRIS-REX™
ASTEROID SAMPLE RETURN MISSION



Agenda

- **Logistics**
- **Quicklook Status**
- **DSN Schedule**
- **Observation Timeline**
- **Uplink/Execution/Downlink Summary**
- **Need for Retransmit, need for Replay?**
- **ODOCS Locations**
- **Go-backs / Additional Comments**

Logistics

- **Daily Downlink Tagups will run from 7/12/18 – 7/13/18 and 7/16/18 – 7/20/18 to cover the L+22 activities. There are no planned weekend tagups.**
- **Daily Downlink Slides available shortly after each Tagup at:**
NEW LOCATION: OSIRIS-REx Bennu Proximity Operations\Science Implementation\Downlink_Daily_Summary
- **Instrument Downlink Checklist Templates available at:**
 - \7.4 SPOC\Operations\Downlink (NON-US persons access)\Downlink Checklist Reports\OCAMS\TEMPLATE_Downlink Checklist - OCAMS_CCv0003.docx
 - \7.4 SPOC\Operations\Downlink (NON-US persons access)\Downlink Checklist Reports\OLA\TEMPLATE_Downlink Checklist - OLA_CCv0002.docx
 - \7.4 SPOC\Operations\Downlink (NON-US persons access)\Downlink Checklist Reports\OTES\TEMPLATE_Downlink Checklist - OTES_CCv0002.docx
 - \7.4 SPOC\Operations\Downlink (NON-US persons access)\Downlink Checklist Reports\OVIRS\TEMPLATE_Downlink Checklist - OVIRS_CCv0002.docx
 - \7.4 SPOC\Operations\Downlink (NON-US persons access)\Downlink Checklist Reports\REXIS\TEMPLATE_Downlink Checklist - REXIS_CCv0002.docx
- **Personnel Contact List**
 - **Contact lists for all IS/IE's and SPOC Ops are available on ODOCS.**
Location: 7.0 Mission Operations Systems/SPOC/Operations

Quicklook Status

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

DSN Schedule – WOY 28 - 30

Round-trip Light Time = 00:08:43 (↑)

Current Data Rate: 916 kbps

| | Monday 07/09 | Tuesday 07/10 | Wednesday 07/11 | Thursday 07/12 | Friday 07/13 | Saturday 07/14 | Sunday 07/15 |
|-------|--|--|--|--|--|--|--|
| 64 | 190 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 191 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 192 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 193 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 194 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 195 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 196 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 |
| WEEK | 1645 65 2100 | | 1750 55 2100 | | 1705 65 2110 | | |
| 28 | DDOR N/S H 0320-0420 24 0105-0305 26 | | DDOR N/S 0345 0445 26 | | DDOR N/S 0315 0415 26 | | DDOR N/S 0310 0410 26 |
| | 36 0515-0825 | | 0600 34 0945 | | DDOR N/S 0325 34 0850 | | |
| | DDOR N/S H 0320-0420 34 | | DDOR N/S 0345 0445 34 | | DDOR N/S 0315 0415 36 | | DDOR N/S 0310 0410 34 |
| 64 | 197 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 198 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 199 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 200 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 201 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 202 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 203 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 |
| WEEK | 1625 65 1855 | | 1620 55 2020 | | 1620 54 2030 | | 1615 54 2040 |
| 29 | 34 0215-0530 | | 0430 35 0855 | | DDOR N/S 0245 0345 24 | | DDOR N/S 0250 0350 26 0000 24 0250 |
| xx025 | 0015 25 0320 | | 0430 35 0745 | | DDOR N/S 0250 0350 34 | | 0230 36 0530 |
| | 0300 34 0705 | | DDOR N/S 0245 0345 36 | | 0300 34 0705 | | |
| | 0330 34 0855 | | 0245 0345 36 | | 0330 34 0855 | | |
| 64 | 204 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 205 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 206 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 207 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 208 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 209 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 | 210 0000011111220000011111220000011111220000011111220000011111220000011111220000011111220 |
| WEEK | 1605 55 2045 | | 1745 55 2120 | | 1610 55 2030 | | 1600 54 2000 |
| 30 | 0220 36 0710 | | 2305 25 0305 | | 1600 55 2020 | | |
| | | | | | 1555 54 2115 | | |
| | | | | | 1550-2025 65 | | |

Downlink Schedule

| Start Date | WOY | DOY | DL START (UTC) | DL END (UTC) | DL START (MST) | DL END (MST) | TOTAL DOWNLINK | AVAILABLE SCIENCE DURATION |
|------------|-----|-----|----------------|--------------|----------------|--------------|----------------|----------------------------|
| 2018-07-09 | 28 | 190 | 16:40:16 | 21:00:05 | 09:40:16 | 14:00:05 | 03:43:20 | 03:13:20 |
| 2018-07-11 | 28 | 192 | 17:45:22 | 21:00:00 | 10:45:22 | 14:00:00 | 02:38:09 | 02:08:09 |
| 2018-07-13 | 28 | 194 | 17:00:27 | 21:09:55 | 10:00:27 | 14:09:55 | 03:32:59 | 03:02:59 |
| 2018-07-16 | 29 | 197 | 16:20:27 | 18:56:23 | 09:20:27 | 11:56:23 | 01:59:27 | 01:29:27 |
| 2018-07-17 | 29 | 198 | 16:15:30 | 20:21:21 | 09:15:30 | 13:21:21 | 03:29:22 | 02:59:22 |
| 2018-07-18 | 29 | 199 | 16:15:33 | 20:31:18 | 09:15:33 | 13:31:18 | 03:39:16 | 03:09:16 |
| 2018-07-19 | 29 | 200 | 16:10:35 | 20:41:15 | 09:10:35 | 13:41:15 | 03:54:11 | 03:24:11 |
| 2018-07-20 | 29 | 201 | 16:15:38 | 20:21:13 | 09:15:38 | 13:21:13 | 03:29:06 | 02:59:06 |
| 2018-07-21 | 29 | 202 | 00:10:39 | 07:06:12 | 17:10:39 (201) | 00:06:12 | 06:19:04 | 05:49:04 |
| 2018-07-22 | 29 | 203 | 01:33:37 | 08:56:09 | 18:33:37 (202) | 01:56:09 | 06:46:03 | 06:16:03 |

Launch+22 mo Checkout and Cal Timeline

WOY 28

| WOY | 28 | | | | | | | | | | | | | | | | | | | | | | | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|------------------|---|------|---|---|---|---|----------------|---|---|----|--|----|--------------|----|----|----|----|----|----|----|----|----|--|---|---|------|---|---|---|---|----------------|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|--|
| Date | 11-Jul-18 | | | | | | | | | | | | | | | | | | | | | | | 12-Jul-18 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DOY | 192 | | | | | | | | | | | | | | | | | | | | | | | 193 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hour (UTC) | 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 | | |
| Template | | | DDOR | | | | | ATL: max 5 hrs | | | | | | HGA: 3-5 hrs | | | | | | | | | | | | | DDOR | | | | | ATL: max 5 hrs | | | | | | | | | | | | | | | | | | |
| S/C Pointing | Solar Opposition | | | | | | | | | | | Earth Pt | | | | | | | | | | | | Sun Pt | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCAMS | | | | | | | | | | | | ocams_pwr_on within ocm_i22_lut_load_n_test | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | ocm_i22_lut_load_n_test Start: 09:00:00, Dur: 03:17:00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | ocams_pwr_off with "YES_XFER" within ocm_i22_lut_load_n_test | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OVIRS | | | | | | | | | | | | ovirs_pwr_on within ovr_bpm_lut_i22 sequence | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | ovr_bpm_lut_i22 Start: 09:00:00, Dur: 01:23:00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | hlfp_spm_safe_ovirs within ovr_bpm_lut_i22 sequence | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OTES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OLA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REXIS | | | | | | | | | | | | | | | | | | | | | | | | Call rexis_pwr_on within Internal Cal sequence rex_intcal_8 hrs Start: 13:00:00, 1hr warmup. Dura | | | | | | | | | | | | | | | | | | | | | | | | | | |

We are HERE

| 28 | 28 | | | | | | | | | | | | | | | | | | | | | | | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|-----------|------|---|---|---|---|---|----------------|---|----|----------|----|----|--------------|----|----|----|----|----|----|----|----|---|-----------|---|---|------|---|---|---|---|----------------|---|----|----|----|----|----|----|----|----|----|----|----|----|---|----|---|---|---|---|---|------|---|---|---|---|----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|--|--|--|--|--|--|
| 13-Jul-18 | 14-Jul-18 | | | | | | | | | | | | | | | | | | | | | | | 15-Jul-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 194 | 195 | | | | | | | | | | | | | | | | | | | | | | | 196 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 | | | | | | |
| | | DDOR | | | | | | ATL: max 5 hrs | | | | | | HGA: 3-5 hrs | | | | | | | | | | | | | DDOR | | | | | ATL: max 5 hrs | | | | | | | | | | | | | | | | | | | | | DDOR | | | | | ATL: max 5 hrs | | | | | | | | | | | | | | | | | | | |
| Sun Pt | | | | | | | | | | | Earth Pt | | | | | | | | | | | | Sun Pt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 72 hr Decon Heater Cooldown reached at 10:25:00 DOY 195 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| with 1hr warmup | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Call rexis_pwr_off within Internal Cal sequence | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| tion: 82:18:00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | REXIS Internal Cal End at -23:00:00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Launch+22 mo Checkout and Cal Timeline

WOY 29

| WOY | 29 | | | | | | | | | | | | | | | | | | | | | | | 29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|--|---|----------------|---|---------|---|--------|---|----------|---|------|----|----------------|----|--------|----|----------|----|------|----|----------------|----|--------|--|----------|---|------|---|----------------|---|--------|---|----------|---|----|----|----|----|----|----|----|----|----|----|----|----|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Date | 16-Jul-18 | | | | | | | | | | | | | | | | | | | | | | | 17-Jul-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DOY | 197 | | | | | | | | | | | | | | | | | | | | | | | 198 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hour (UTC) | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Template | DDOR | | ATL: max 5 hrs | | Sol. Op | | Sun Pt | | Earth Pt | | DDOR | | ATL: max 5 hrs | | Sun Pt | | Earth Pt | | DDOR | | ATL: max 5 hrs | | Sun Pt | | Earth Pt | | DDOR | | ATL: max 5 hrs | | Sun Pt | | Earth Pt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S/C Pointing | Sol. Op | | | | | | | | | | | | | | | | | | | | | | | Sun Pt | | | | | | | | | | | | | | | | | | | | | | | Sun Pt | | | | | | | | | | | | | | | | | | | | | | | Earth Pt | | | | | | | | | | | | | | | | | | | | | | |
| OCAMS | ocm_health_chk Start:06:15:00, Dur:01:26:00 | | | | | | | | | | | | | | | | | | | | | | | ocm_rts Start:09:00:00, Duration:01:43:00 | | | | | | | | | | | | | | | | | | | | | | | ocm_std_cal Start:08:05:00, Dur:01:19:00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OVIRS | | | | | | | | | | | | | | | | | | | | | | | | Call ovirs_pwr_on with 1hr warmup Start:08:00:00 | | | | | | | | | | | | | | | | | | | | | | | ovr_22mo_cal_sp2 Start:09:00:00 Dur:02:35:00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OTES | Call otes_pwr_on 05:00:00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | OTES powered-on, 3 hr warmup | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ote_health_chk Start:09:00:00, Dur:00:31:00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Call hlfp_spm_safe_otes Start:09:40:00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OLA | Call ola_pwr_on in ola_22mo_checkout | | | | | | | | | | | | | | | | | | | | | | | Call ola_pwr_on in ola_22mo_part2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ola_22mo_checkout Start:09:00:00, Dur:05:22:00 | | | | | | | | | | | | | | | | | | | | | | | ola_22mo_part2 Start:09:00:00, Dur:04:04:00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ola powered off -14:22:00 | | | | | | | | | | | | | | | | | | | | | | | ola powered off -13:05:00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| REXIS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| WOY | 29 | | | | | | | | | | | | | | | | | | | | | | | 29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------|--|---|----------------|---|--------|---|-------------|---|----------|---|------|----|----------------|----|--------|----|-------------------------|----|--------|----|----------|----|------|---|----------------|---|--------|---|----------|---|------|---|----------------|---|--------|----|----------|----|----|----|----|----|----|----|----|----|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Date | 18-Jul-18 | | | | | | | | | | | | | | | | | | | | | | | 19-Jul-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DOY | 199 | | | | | | | | | | | | | | | | | | | | | | | 200 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hour (UTC) | 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 | | | | | | | | | | | | | | | | | | | | | |
| Template | DDOR | | ATL: max 5 hrs | | Sun Pt | | Sun Cal Att | | Earth Pt | | DDOR | | ATL: max 5 hrs | | Sun Pt | | Inertial/Sun/Sol. Oppos | | Sun Pt | | Earth Pt | | DDOR | | ATL: max 5 hrs | | Sun Pt | | Earth Pt | | DDOR | | ATL: max 5 hrs | | Sun Pt | | Earth Pt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ocams_pwr_on 07:30:00 | | | | | | | | | | | | | | | | | | | | | | | Solar Analog (sci_atl_18200a_01atf) Start:08:01:26, Dur:01:38 | | | | | | | | | | | | | | | | | | | | | | | MapCam Aliasing Colors Start:10:20:00, Dur:02:10 | | | | | | | | | | | | | | | | | | | | | | |
| | ovr_18mo_chk on SP=8 Start:06:15:00 Dur:02:15:00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ovr_22mo_cal_sp8 Start:08:40:00 Dur:02:00:00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Call hlfp_spm_safe_ovirs within ovr_22mo_cal_sp8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Set OVR decon heater to Op Set Pt | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Launch+22 mo Checkout and Cal Timeline

WOY 29

| 29 | | | | | | | | | | | | | | | | | | | | | | | | 29 | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|----------------|---|---|---|----|----|---|----|----|----|----|----|----|----|----|----|----|----|---------------|---|---|---|---|---|----------------|---|---|---|----|----|---|----|----|----|----|----|----|----|----|----|----|----|
| 20-Jul-18 | | | | | | | | | | | | | | | | | | | | | | | | 21-Jul-18 | | | | | | | | | | | | | | | | | | | | | | | |
| 201 | | | | | | | | | | | | 202 | | | | | | | | | | | | 201 | | | | | | | | | | | | 202 | | | | | | | | | | | |
| 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 |
| DDOR | | | | | | ATL: max 5 hrs | | | | | | HGA: 3-5 hrs | | | | | | | | | | | | DDOR | | | | | | ATL: max 5 hrs | | | | | | | | | | | | | | | | | |
| <i>Sun Pt</i> | | | | | | | | | | | | <i>Earth Pt</i> | | | | | | | | | | | | <i>Sun Pt</i> | | | | | | | | | | | | <i>Sun Pt</i> | | | | | | | | | | | |
| :00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17:58 (ocams powered off at end of sequence with "YES_XFER") | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | rex_health_chk Start: 09:00:00, Dur: 02:52:11 | | | | | | | | | | | | | | | | | | | | | | | | rex_i22_part2 Start: 09:00:00 Dur: 05:54:00 | | | | | | | | | | | |
| *Waiving 1hr warmup in Cal Part | | | | | | | | | | | | rex_i22_part1 Start: 11:54:00, Dur: 03:05:00 | | | | | | | | | | | | | | | | | | | | | | | | Call rexis_pwr_off from rex_i22_part2 | | | | | | | | | | | |

Uplink Summary

UPLINK

- **Payload Library r40 Uplinked 2018/183 (2018-7-2)**
- **WOY 28 Products Uplinked 2018/183 (2018-7-2)**
 - This bundle included the OVIRS LUT Load for SP=2 and SP=8, SP Checkout, OCAMS LUT Load, Checkout and Pseudo-Library, and REXIS Internal Cal
- **WOY 29 Products Uplinked 2018/190 (2018-7-9)**

This bundle included

 - Checkout OLA, OTES, REXIS, OCAMS and OVIRS
 - OTES, REXIS and OVIRS Checkouts are repeats from L+18
 - OCAMS RTS (repeat from L+18), OLA Part 2 Checkout, OVIRS SP=2 Cal and SP=8 Cal + Solar Cal, REXIS Cal Part 1 and 2, and TAGCAMS Checkout
 - ATF and sequences for OCAMS Solar Analog and sequence for MapCam Aliasing

Execution Summary

- **Instrument Status:**
 - REXIS currently powered on and gathering internal cal data
 - All other payloads powered off
 - OVIRS Decon Heater cooling to Non-Ops Set points
- **DOY 192 *COMPLETE***
 - Power-on OCAMS
 - OCAMS LUT Test on Side 1 using ver 1 LUTs, then load ver 2 LUTs and repeat LUT Test on Side 1
 - OCAMS swap to Side 2
 - OCAMS LUT Test on Side 2 using ver 1 LUTs, then load ver 2 LUTs and repeat LUT Test on Side 2
 - Power-off OCAMS using OCAMS power-off block

 - In parallel to OCAMS activity, Power-on OVIRS to Side 1
 - OVIRS SP=2 BPM and LUT ROI load
 - Power cycle OVIRS and perform SP=2 Checkout
 - OVIRS SP=8 BPM and LUT ROI load
 - Power cycle OVIRS and perform SP=8 Checkout
 - Power-off OVIRS using safing block, which will kickoff Decon Heater Cooldown
- **DOY 193 *COMPLETE***
 - REXIS Internal Cal sequence start at 14:00 UTC
 - Will run continuously for ~82 hours, including while S/C slews to Earth pt for HGA pass on DOY 194
- **DOY 194-196 *IN PROGRESS***
 - Continue REXIS Internal cal. Ends 2018/196 at ~23:15:00 UTC
 - Continue OVIRS cooldown

Up Next:

- **2018/197 (Monday, July 16)**
 - ocm_health_chk , ocm_std_cal , ote_health_chk , and ola_22mo_checkout
 - Continue OVIRS Cooldown

Downlink Summary for DOY 194

Current Data Rate: 916 kbps

DOWNLINK

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

| | Expected Data Vol (MB) | Expected Data Vol (Mb) | Expected Partition Fill (%) | Current Partition Fill (%) |
|---------|------------------------|------------------------|-----------------------------|----------------------------|
| OpNav | 0.0 | 0 | 0 | 0 |
| OCAMS | 0.0 | 0 | 0 | 0 |
| OLA | 0.0 | 0 | 0 | 0 |
| OTES | 0.0 | 0 | 0 | 0 |
| OVIRS | 0.0 | 0 | 0 | 0 |
| REXIS | 32.4 | 259 | 21.86 | 0 |
| TAGCAMS | 0.0 | 0 | 0 | 0 |

List of Unexpected Alarms, Watch Items, ISAs

- **OVR_LIVE_MAX Red High (one OVR_LIVE_MAX event expected, two received)**
 - OVIRS missed two aliveness checks during the second OVR reset. Only one was missed aliveness check was expected after OVR reset.
 - This same issue occurred in the STL, but was missed
 - SPOC/OVIRS will be opening an ISA issue
- **Missing OCAMS Command during DOY 192 activity**
 - A command was not issued to turn lamps off before Dark imaging. This is a Ground error.
 - SPOC will be opening a PFR on this issue

Need for Retransmit? Need for Replay?

DOY 192 – *All data received*

DOY 193 – *TBD*

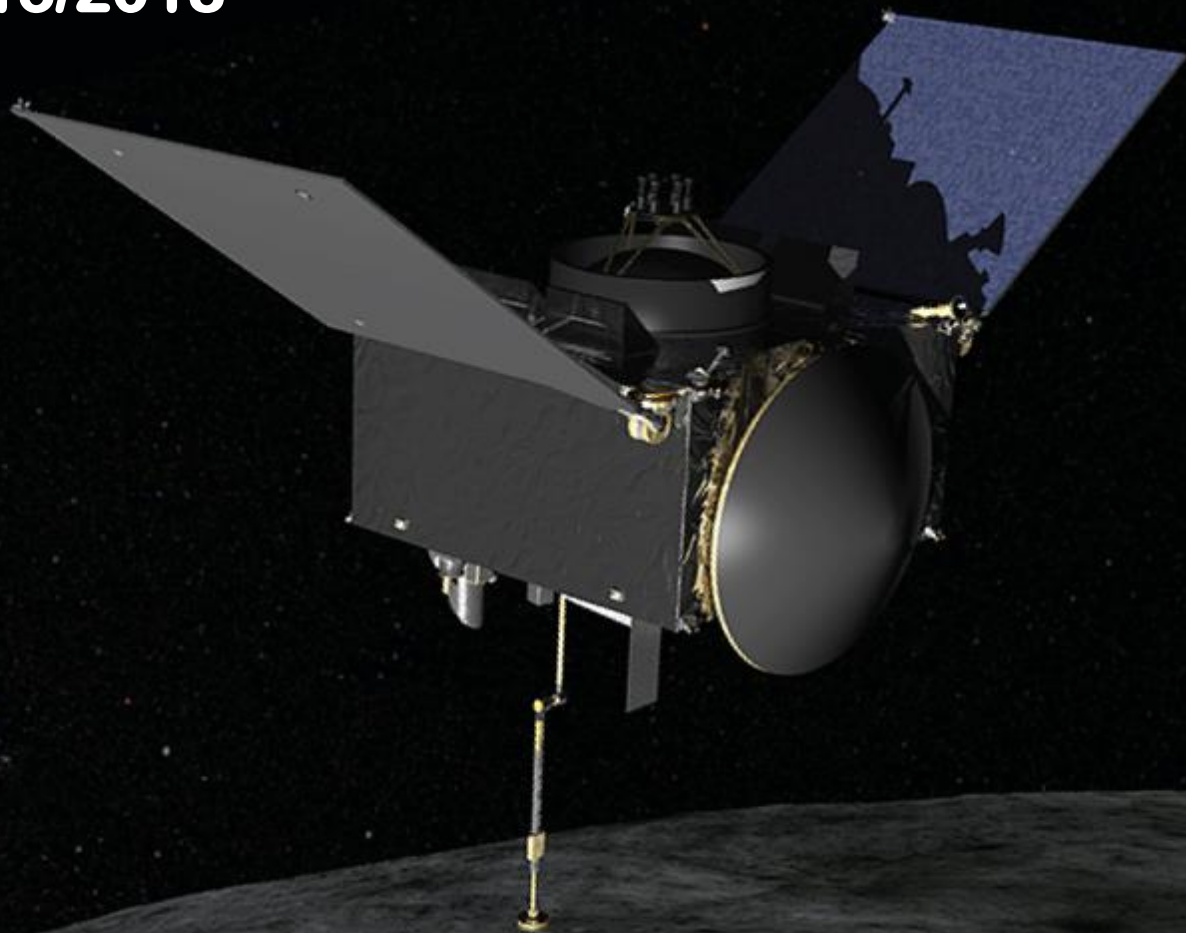
DOY 194 - *TBD*



REXIS Internal Calibration Daily Downlink Status

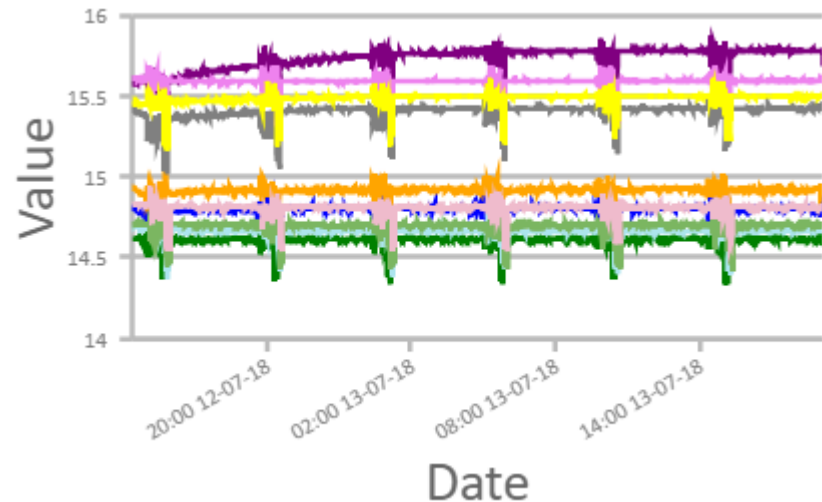
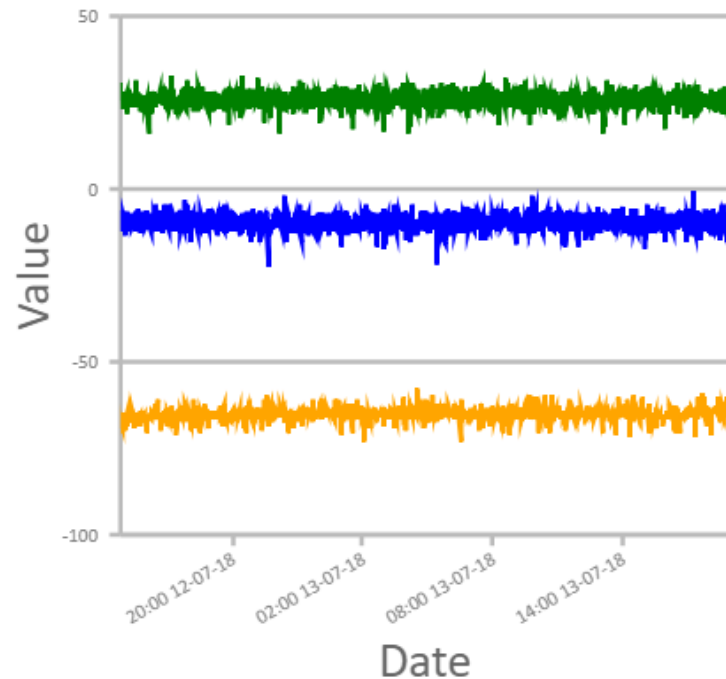
07/13/2018

OSIRIS-REX™
ASTEROID SAMPLE RETURN MISSION



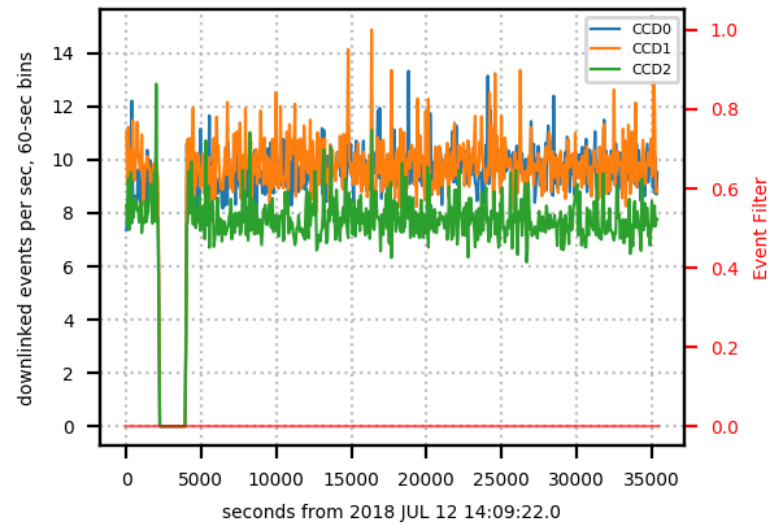
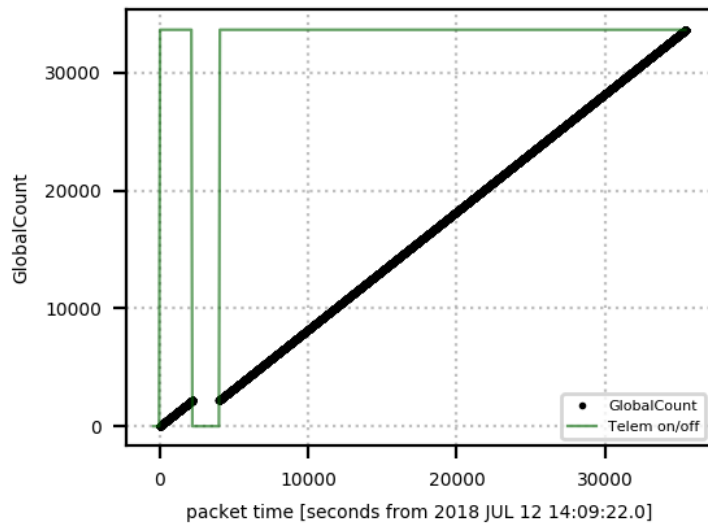
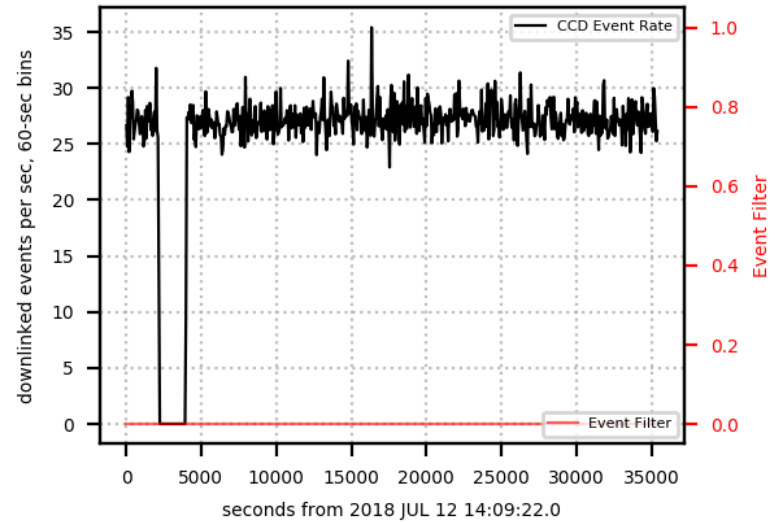
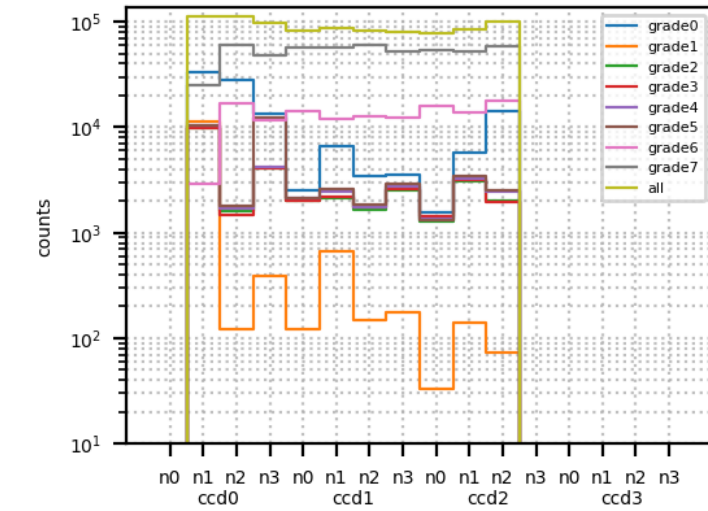
Engineering Summary

- **Commanding**
 - 16/16 commands processed
 - No rejected or dropped commands
 - Instrument performed all functions nominally
- **Downlink**
 - No missing packets identified yet
 - No alarms triggered
- **Power**
 - Power draw as expected
 - Voltages regulated as expected
- **Thermal**
 - All temperatures within operating limits
 - Radiation Cover and Frangibolt Housing heater circuit operating nominally
 - Radiation Cover: ~ 20C
 - Frangibolt Housing: ~ -17C
 - Detectors: ~ -71C
 - SXM: ~ -72C
 - $\pm 5C$ noise on PRTs was seen as expected
- **Current status:**
 - Science mode, telemetry on



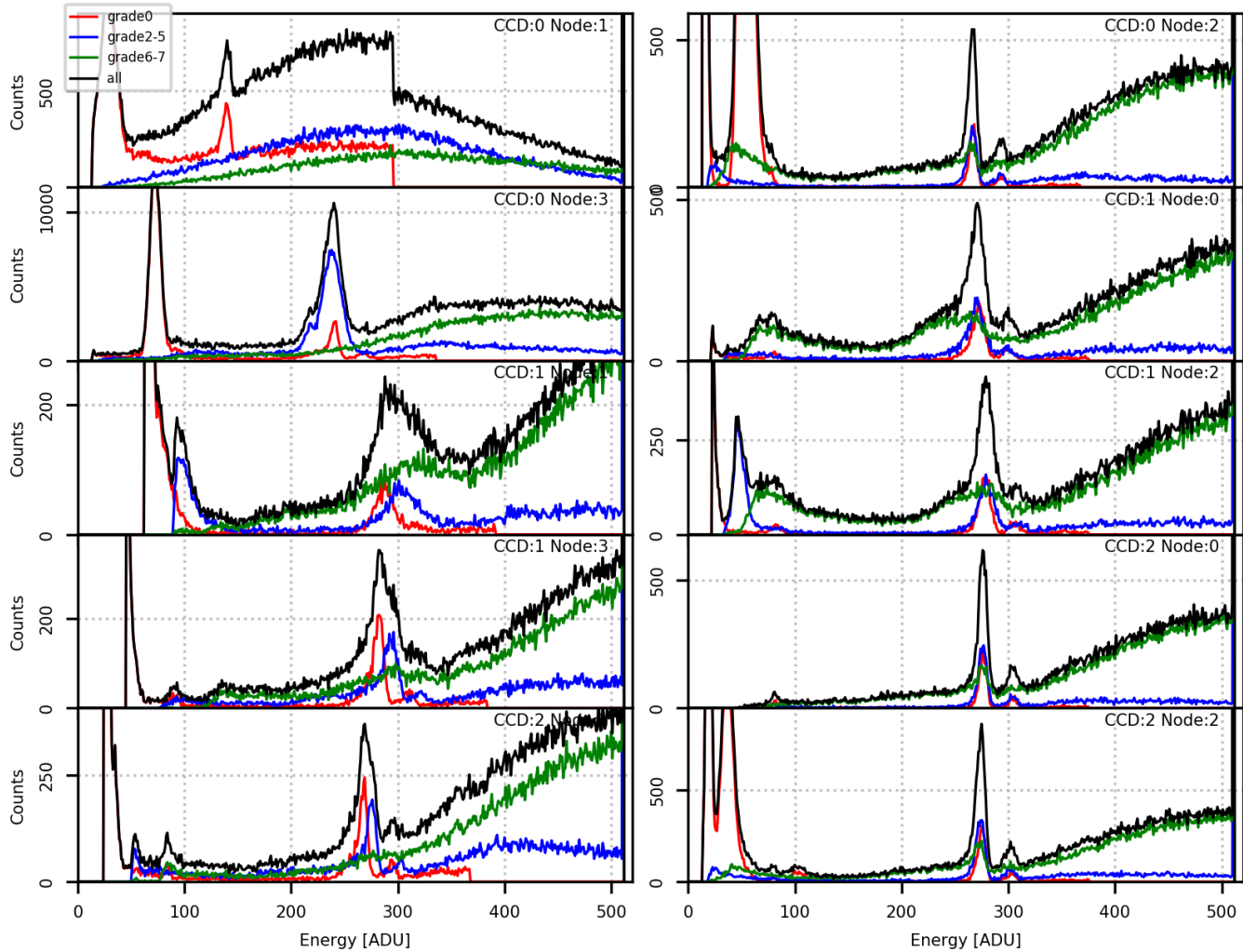
CCD Count Rate

REXIS CCD events: 33628 seconds of data from 2018 JUL 12 14:09:22.0

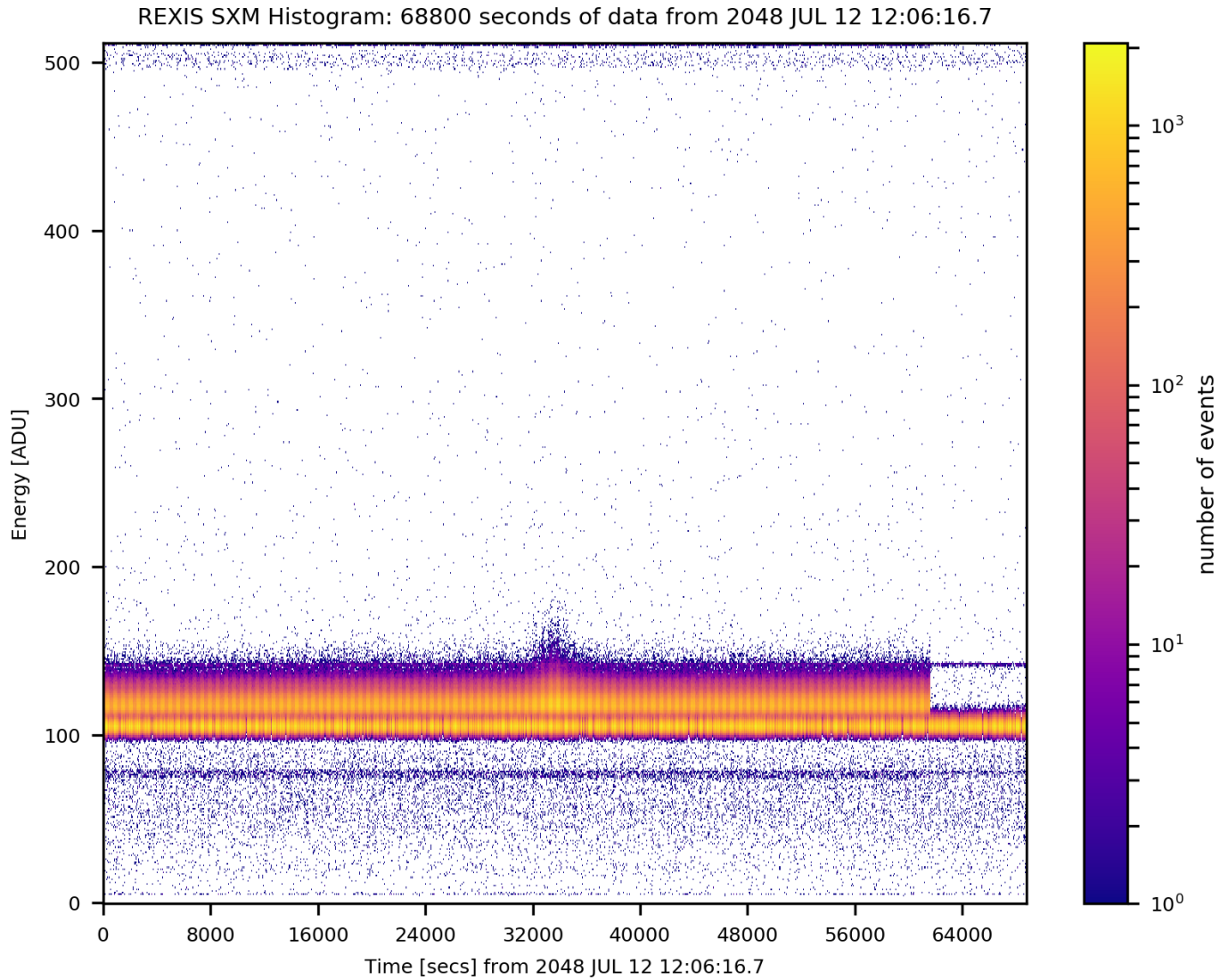


CCD Spectra

REXIS CCD events: 68716 seconds of data from 2018 JUL 13 00:00:03.5



Raw SXM Spectra





OSIRIS-REx™
ASTEROID SAMPLE RETURN MISSION

OCAMS LUT UPLOAD STATUS FROM DOY 192 ACTIVITIES

- Bashar Rizk**
- Christian d'Aubigny**
- Mike Fitzgibbon**
- Chuck Fellows**
- Dave Hamara**



OCAMS Flight Software Turn-Off Sequence

- **Turn OFF all heaters**
 - Step through every heater and turn OFF; record heater state and count
- **Turn OFF all illumination LEDs (Lamps)**
 - Send OFF to LED Special Function Register
- **Turn OFF Cameras**
 - Send OFF to CCD using State Machine
- **Sun-safe: Move Filter Wheels/Focus Mechanism to Blocking Positions**
 - Move all Motors to a Safe Position
- **Report Back to Operator**

Science Status and/or PI Status

Go-backs / Additional Comments

Backup

Downlink Summary for DOY 192

Current Data Rate: 916 kbps

DOWNLINK

- **Partition Status as of 17:00 UTC:**

| | Expected Data Vol (MB) | Expected Data Vol (Mb) | Expected Partition Fill (%) | Current Partition Fill (%) |
|---------|------------------------|------------------------|-----------------------------|----------------------------|
| OpNav | 0.0 | 0 | 0 | 0 |
| OCAMS | 802.5 | 6416 | 22 | 0 |
| OLA | 0.0 | 0 | 0 | 0 |
| OTES | 0.0 | 0 | 0 | 0 |
| OVIRS | 20.85 | 166 | 2 | 0 |
| REXIS | 0.0 | 0 | 0 | 0 |
| TAGCAMS | 0.0 | 0 | 0 | 0 |