

**ICESat-2 PROJECT SCIENCE OFFICE REPORT**  
**Monday, March 18, 2019 thru Sunday, March 24, 2019**

RGTs spanned: 1216-1321  
Cycle 2

**Items of Note:**

All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. CAMS provided another new alignment correction table that was successfully uploaded to the satellite last Friday, with an around-the-world scan occurring on Saturday. In response to requests from the Science Team, some changes to on-board surface-finding settings are being ground-tested for possible on-orbit use.

**\*\*ELEMENT DETAILS BELOW\*\***

**CAMS/POD/PPD:**

**CAMS:** CAMS continues to monitor and screen for laser conjunction events in mission week 28. CAMS is planning for mission week 29.

Daily product creation and delivery continues nominally.

**POD:** Regular POD operations continue. Final POD was completed for GPS week 2042. Intermediate POD was completed for GPS week 2044. All results look nominal.

POD processed data from DoY 075 round-the-world scan and found that pointing biases corrections uploaded to the spacecraft are not incorporated into ATL02 data. Therefore, calibration of rapid ANC05 from CAMS is still required.

POD is currently working on calibration solutions from round-the-world scans beyond January 5th, 2019 (~20 additional scans).

**PPD:** PPD has begun the process of reprocessing the ANC05 product with corrected timing bias and evaluating the results.

**ISF:**

All ATLAS housekeeping data is nominal  
Laser 2 is firing at energy level 4 and in science mode  
WTEM Peak to Edge Ratio: 1.17  
Laser 2 Temperature Error: -0.32C  
SADA in Sailboat Mode  
Spacecraft orientation : - X

Mission Planning:

MW28 ATS is loaded to the spacecraft and currently operating, it includes additional RTW scans for POD/PPD

MW28 is being planned, it will include additional RTW scans for POD/PPD

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Activities during the past week

ATS activities:

All ATLAS and pointing activities were routine and completed as planned

Real-time activities:

Daily / as-need: Executed standing CAR 91 to clear SBC errors. (Note 1)

Mar 18: Successfully updated the LRS Stellar BG Image to v4.3 (Note 2)

Mar 21: Successfully performed bISF proficiency operations at the MOC LTO room at Dulles, VA by supporting two contacts with the bISF: Executed noops and standing CAR 91 to clear SBC errors.

Mar 22: Spacecraft loaded updated ACS ATLAS2BDY parameters [appx 2019-081T17:10 UTC]. (note 3)

From SC Sustaining Engineering (J Skoog):

"We completed the update of the ATLAS to Body alignment parameters on-orbit. We observed the RGT LOS pointing error change in conjunction with the parameter update (anecdotally, the RGT LOS and attitude error plots appeared to indicate a correction in the opposite direction as expected, but obviously the final outcome will come out of the POD/PPD analysis). We returned to RGT mode without issue. Monitoring will continue on the next pass, but everything looks good so far."

Other Activities:

USO frequency deviation was updated in ANC27 and the file was delivered to SIPS.

RIONet Mail server moving to IONet - Completed testing on ITOS-2 with primary mail account; operations using both primary and backup mail accounts on the IONet

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Next week's ATLAS activities:

Routine instrument and pointing calibration scheduled activities are in the MW28 ATS. Extra RTW scans were scheduled for the evaluation of the ATLAS bias values. MW28 and updated MW27 activities (note 4) are attached.

Other Near-term activities:

Acceptance testing of PDB E.0.1 and subsequent release to operations.

Acceptance testing of the splitting of the PMT processing into product based components.

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Notes/Issues:

1. The activity definition for the laser image dump was updated to include commands to clear the SBC errors however we will still get appx. daily random SBC errors to clear.

2. The second uplink of the LRS Stellar BG Image v4.3 was successful. The poke proc was updated with the correct checksums and poke values; these were tested on FLATLAS at the end of last week.

3. The ACS ATLAS2BDY parameters that were loaded last week were found to be correct but in the wrong direction resulting in the pointing being twice as far off the RGT. The SC SE team reviewed the analysis and updated the sign of the parameters and tested. The updates were loaded today and data is to be analyzed.

4. Attaching an updated version of the MW27 activities that include times of the ATLAS2BDY parameter update on last friday (update shows when ICESat-2 was not in Mission RGT mode) and the load of the Stellar BG image to V4.3.

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#### LTO Schedule:

All items remain on schedule except PDB E.0.1 installation in ops to be coordinated with the MOC.

#### **SIPS:**

- The SIPS is operating nominally:
  - Ingested and distributed Level 0 data to the ISF.
  - Generated Release 202 L1A and L1B products and distributed ATL02s to the ISF, POD, and SCF.
  - Distributed selected ATL01s to the ISF and SCF by special request.
  - Generating Release 206 (rapids) ATL03, ATL04, ATL09, and ATL06 using ANC03/04/05 files from the CAMS.
  - Distributing ATL03, ATL04, and ATL09 to NSIDC and the SCF.
  - Distributing ATL06 to the SCF.
- Produced and distributed Rel 206 Rapid ATL03s for March 23<sup>rd</sup> to check out the new bias table uploaded to the spacecraft.
- The POD delivered final ANC03/04/05 files for January 6-February 23, 2019.
  - SIPS will start production of Rel 205 ATL03, ATL04, ATL09, and ATL06 products using the ASAS V5.0 PGEs.

#### **ASAS:**

ATL01 - no work

ATL02 - Evaluated new skew corrections. Developed a method to evaluate the effect of skew corrections and report channel differences.

ATL03 - Implemented invalid for ocean tide when no tide coefficients present. Updated default uncertainties values.

ATL04/09 - Moving the cloud folding algorithm from ATL09 to ATL04

ATL06 - Testing the FPB with cases from Ben

ATL07/ATL10 - Continued working on beam-specific gain and sea level pressure.

ATL08 - Working on revised granule organization.

ATL12 - Fixed reporting of a number of parameters that got lost in new ATL12 layout. Fixed a bug related to creating the 10 m bins.

ATL13 - Implementing the new shapefile and body reference id.

ATL16/17 - Continued development of unit test.

**SCF:**

The SCF is operating nominally. Data for releases 202, 205, and 206 are being ingested and distributed. Mailing list issues have been resolved. One bug involving trending has been fixed and the updated code has been put into operations. Our SDMS configuration was updated to reduce the likelihood of stoppages. An SDMS software update that should help prevent occasional start-up issues is available, but not yet in operations; we expect to begin using this next week. A file listing the current SCF data holdings is attached.

\* Data Management -- Formal testing of the next release has been postponed to prioritize the next Visualizer release and Subsetter bug fixes. Due to environment issues with Python 3, the next release is expected to be done using Python 2.

\* Subsetter -- Bug fixes for indexing of ATL03 subsets are currently being tested. We plan to confirm the results and bring the code into operations next week.

\* Visualizer -- The code has been frozen for formal testing of the next release. A few minor bugs have been found and fixed. Relevant documentation is being updated as needed. We expect to make the release available before the Science Team meeting in mid-April.

**ATL02:**

Inspection of Flight 1 laser with the lid off revealed fringes consistent with a slab fracture in Amplifier 1.

The new version of CAL 49 (receiver channel skews) is now being tested.

In response to requests from the Science Team, some changes to on-board surface-finding settings are being ground-tested for possible on-orbit use. These changes would increase the probability of downlinking the time interval that contains the surface under certain marginal conditions.

### **ATL03:**

The ATL03 group has delivered an updated ATBD to support the ASAS v5.1 delivery of the ATL03 PGE which is forthcoming. Highlights are updated text on reference photon selection (now ignores the TEP as potential reference photons), updates on flagging TEP photons (now are confidence level -2), and removing the DAC and ocean tide correction from the photon heights reported on the product (these parameters are still on the product as informational values).

The ATL03 group participated in evaluating the observatory off-pointing angle after the alignment table upload on Friday 3/15, and are standing by to evaluate the next update (uploaded to the observatory on 3/22).

### **ISF ACTIVITIES MISSION WEEK 028:**

\* Not in science mode

^ Could affect science data quality

^ 2019/080:04:01:55.0000 AMCS Cal for 2 minutes over open ocean

^ 2019/080:05:24:30.0000 AMCS Cal for 2 minutes over open ocean

2019/080:06:56:05.0000 OCEANscan (22 minutes)

2019/080:08:22:36.0000 RTWscan (90 minutes)

\* 2019/080:12:02:31.0000 TEP data collection for 3 minutes

\* 2019/080:13:36:49.0000 TEP data collection for 3 minutes

\* 2019/080:15:11:06.0000 TEP data collection for 3 minutes

^ 2019/080:15:22:54.0000 Laser image dump for 6 minutes over Antarctica during day

\* 2019/080:16:45:23.0000 TEP data collection for 3 minutes

\* 2019/080:18:19:41.0000 TEP data collection for 3 minutes

2019/080:18:43:20.0000 OCEANscan (22 minutes)

\* 2019/080:19:53:58.0000 TEP data collection for 3 minutes

\* 2019/080:21:28:15.0000 TEP data collection for 3 minutes

^ 2019/080:22:42:59.0000 AMCS Cal for 2 minutes over open ocean

\* 2019/080:23:02:33.0000 TEP data collection for 3 minutes

^ 2019/081:04:58:50.0000 AMCS Cal for 2 minutes over open ocean

2019/081:06:30:25.0000 OCEANscan (22 minutes)

2019/081:07:56:56.0000 RTWscan (90 minutes)

\* 2019/081:11:36:52.0000 TEP data collection for 3 minutes

\* 2019/081:13:11:09.0000 TEP data collection for 3 minutes

\* 2019/081:14:45:26.0000 TEP data collection for 3 minutes

\* 2019/081:16:19:44.0000 TEP data collection for 3 minutes

\* 2019/081:17:10:02.0000 Spacecraft team updating ACS ATLAS2BDY parameters includes SC to Earth Point and back to Mission RGT point for 6 minutes

\* 2019/081:17:54:01.0000 TEP data collection for 3 minutes

2019/081:18:17:40.0000 OCEANscan (22 minutes)

\* 2019/081:19:28:19.0000 TEP data collection for 3 minutes

\* 2019/081:21:02:36.0000 TEP data collection for 3 minutes

^ 2019/081:22:17:19.0000 AMCS Cal for 2 minutes over open ocean  
\* 2019/081:22:36:53.0000 TEP data collection for 3 minutes  
^ 2019/081:23:51:36.0000 AMCS Cal for 2 minutes over open ocean  
^ 2019/082:02:00:00.0000 Stellar centroid image dump for 90 minutes (no stellar centroids)  
^ 2019/082:04:33:10.0000 AMCS Cal for 2 minutes over open ocean  
2019/082:06:04:46.0000 OCEANscan (22 minutes)  
^ 2019/082:07:41:45.0000 AMCS Cal for 2 minutes over open ocean  
2019/082:09:05:34.0000 RTWscan (90 minutes)  
\* 2019/082:11:11:12.0000 TEP data collection for 3 minutes  
\* 2019/082:12:45:29.0000 TEP data collection for 3 minutes  
\* 2019/082:14:19:47.0000 TEP data collection for 3 minutes  
\* 2019/082:15:54:04.0000 TEP data collection for 3 minutes  
\* 2019/082:17:28:22.0000 TEP data collection for 3 minutes  
2019/082:17:52:01.0000 OCEANscan (22 minutes)  
\* 2019/082:19:02:39.0000 TEP data collection for 3 minutes  
\* 2019/082:20:36:56.0000 TEP data collection for 3 minutes  
\* 2019/082:22:11:14.0000 TEP data collection for 3 minutes  
^ 2019/082:23:25:57.0000 AMCS Cal for 2 minutes over open ocean  
^ 2019/083:04:07:31.0000 AMCS Cal for 2 minutes over open ocean  
2019/083:05:39:06.0000 OCEANscan (22 minutes)  
^ 2019/083:07:16:05.0000 AMCS Cal for 2 minutes over open ocean  
2019/083:07:29:50.0000 Use Receiver Algorithms Alternate Knobs  
2019/083:07:30:08.0000 TOOcenter (TOOid=885) for 2 minutes  
2019/083:07:32:10.0000 Use Receiver Algorithms Primary Knobs  
^ 2019/083:07:33:28.0000 AMCS Cal for 2 minutes over open ocean  
2019/083:08:39:54.0000 RTWscan (90 minutes)  
\* 2019/083:10:46:03.0000 TEP data collection for 3 minutes  
\* 2019/083:12:19:50.0000 TEP data collection for 3 minutes  
\* 2019/083:13:54:07.0000 TEP data collection for 3 minutes  
\* 2019/083:15:28:25.0000 TEP data collection for 3 minutes  
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^ 2019/083:23:00:17.0000 AMCS Cal for 2 minutes over open ocean  
^ 2019/084:03:51:32.0000 AMCS Cal for 2 minutes over open ocean  
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\* 2019/084:22:54:11.0000 TEP data collection for 3 minutes  
^ 2019/085:04:50:29.0000 AMCS Cal for 2 minutes over open ocean  
2019/085:06:22:04.0000 OCEANscan (22 minutes)  
2019/085:07:48:35.0000 RTWscan (90 minutes)  
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