

**ICESat-2 PROJECT SCIENCE OFFICE REPORT**  
**Monday, March 4, 2019 thru Sunday, March 10, 2019**

RGTs spanned: 1002-1108  
Cycle 2

**Items of Note:**

All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode.

The PSO remains concerned about the observatory pointing status. We are actively working with ESMO and NG to get the observatory pointing to the RGT as soon as possible.

Data product evaluation is ongoing, and all data quality indications to date are positive.

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

**CAMS/POD/PPD:**

**CAMS:** CAMS continues to monitor and screen for laser conjunction events in mission week 26. CAMS is planning for mission week 27. Nominal delivery of daily products continues.

**POD:** POD ingested ATL02 release 202 files for December 11th through present.

Final POD was completed for GPS week 2040. Intermediate POD was completed for GPS weeks 2041 & 2042. SLR tracking at the end of GPS week 2042 was low, this will be monitored going forward. All other results look nominal.

POD processed altimetry data from ocean scans on March 1st & 2nd and more importantly the round-the-world scan on March 4th, verifying that the star tracker configuration fix worked as expected. It also confirmed the further need to correct for the large roll and pitch biases (largely roll). These biases were provided to NG on March 1 for upload. We are currently about ~1250 meters biased from the RGT.... Once the calibration biases are uploaded we should be within mission spec.

Lastly, POD delivered calibrated final ANC products for another 6-week period to SIPS (2018329 - 2019005).

PPD: PPD continues to focus on understanding the LRS stellar side performance characteristics to determine appropriate corrections associated with the chromatic aberration, distortion and the oscillations in star motion and magnitude.

**ISF:**

All ATLAS housekeeping data is nominal  
Laser 2 is firing at energy level 4 and in science mode  
SADA in Sailboat Mode

Spacecraft orientation : - X

Mission Planning:

MW26 ATS is loaded to the spacecraft and currently operating, it includes additional RTW scans for PPD

MW27 is being planned, it will include additional RTW scans for 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:

Executed standing CAR 91 to clear SBC errors.

Other Activities:

Completed the Quarterly security re-scan, the report is pending.

FLATLAS: Tested the stellar background image v4.3 proc; update is to mitigate impact of warm pixels.

Tested PDB E.0.1 on the A and B sides.

Presented February ATLAS performance monitoring and trending results to ATLAS sustaining engineering

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Upcoming activities:

MW26 scheduled activities in the ATS: MW26 Activities are attached

Other Near-term activities:

Trip to MOC @ Dulles for bISF proficiency operations (need to coordinate with the MOC).

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Notes/Issues:

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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:
  - o Ingested and distributed Level 0 data to the ISF.
  - o Generated Release 202 L1A and L1B products and distributed ATL02s to the ISF, POD, and SCF.
  - o Distributed selected ATL01s to the ISF and SCF by special request.
  - o Generating Release 206 (rapids) ATL03, ATL04, ATL09, and ATL06 using ANCO3/04/05 files from the CAMS.
    - § Distributing ATL03, ATL04, and ATL09 to NSIDC and the SCF.
    - § Distributing ATL06 to the SCF.
- Processed and distributed Release 205 (finals) from Oct. 14, 2018 – Jan 05, 2019.
  - o ATL03, ATL04, ATL09, and ATL06 distributed to NSIDC and SCF
  - o ATL07 and ATL10 distributed to the SCF.
- Requested and received Release 207 ESDTs from NSIDC.
- Met with NSIDC team (Steve Tanner, et al) to discuss preparations and testing for a Release 001 delivery. We came up with the following plan:
  - o Get the latest Rel 001 ESDTs for all products from NSIDC.
  - o Ingest these ESDTs on our Acceptance Test system (AccTest) and produce a day of Release 001 products (ATL01, ATL02, ATL03, ATL04, ATL06, and ATL09) using ASAS V5.0 PGEs.
  - o Distribute the Release 001 products via AccTest to NSIDC to verify that NSIDC can ingest and process them successfully.
  - o We will be using ASAS V5.0 and a Rel 205 time period for this test. These products will not be distributed to anyone else as they will be no different from the Rel 205s that we have already produced.

**ASAS:**

ATL02 - Awaiting updated TOF channel skew calibrations.

ATL03 - Improved (even more!) the selection of the reference photon.

ATL04/09 - Working on cloud contamination in surface height removal.

ATL06 - Completed coding of the updated first photon bias algorithm. Algorithm is now in the testing phase.

ATL07/ATL10 - Added code to compress the waveform table. Working on product updates, correction of lead length and filling of the freeboard reference surface.

ATL08 - Working mid-segment lat/lon computations & revised granule organization.

ATL12 - Working on product updates

ATL13 - Working anomaly detection and detrending.

ATL16/17 - Changed the default pink/purple colormap to the Steve Palm colormap. Provided additional examples.

### **SCF:**

The SCF is operating nominally. Data for releases 202, 205, and 206 are being ingested and distributed as they are delivered to the SCF. An update to the SDMS software that should fix an issue where the Scheduler cannot be restarted without clearing the job queue is expected after it has been tested by SIPS. A file listing the current SCF data holdings is attached.

\* Data Management -- Issues with the Python 3 environment were resolved, and formal testing of the Python 3 version of the code base is underway. A few bugs were discovered and fixed. Use of a deprecated feature was also revealed; the necessary update for this is known and will be implemented.

\* Subsetter -- The fix for empty ATL03 geolocation datasets not being correctly identified has been implemented, tested, and placed into operations (Python 2 code base). The fix will also be implemented in the Python 3 version of the code and tested with the data management scripts for future release. Any ATL03 subsets produced after March 5 should have the correct indices.

\* Visualizer -- Completed creation of product data frames for ASAS v950 products. Continued working on allowing colorbars for existing subplots to be changed. Also continued work on installing Anaconda in Windows 10.

### **ATL02/Instrument Science:**

The Instrument Science team has distributed a technical note that explains the behavior of the time-of-flight distribution near the edges of the downlink band.

Refinement of CAL 49 (receiver channel skews) had reduced the residual channel skew in on-orbit data to less than 100 ps, compared to more than 400 ps when using the pre-launch version of CAL 49. A refined version will be included in the next ASAS release.

### **ATL03:**

The ATL03 team and members of the science team continue to evaluate r205 ATL03 granules, as well as r206 rapid granules that continue showing up in our SCF directories. We anticipate approving three more improvements to the data product (TEP flagging in the signal confidence parameter, updated reference photon selection, fixes to the dynamic atmospheric correction parameter) to be included in the next incremental ASAS release. Work continues on parameter refinement and language improvements to the ATBD.

### **ISF ACTIVITIES MISSION WEEK 026:**

\* Not in science mode

^ Could affect science data quality

^ 2019/066:05:06:32.0000 AMCS Cal for 2 minutes over open ocean  
2019/066:06:38:07.0000 OCEANscan (22 minutes)

^ 2019/066:08:15:07.0000 AMCS Cal for 2 minutes over open ocean  
2019/066:09:38:56.0000 RTWscan (90 minutes)

\* 2019/066:11:44:34.0000 TEP data collection for 3 minutes

\* 2019/066:13:18:51.0000 TEP data collection for 3 minutes

\* 2019/066:14:53:08.0000 TEP data collection for 3 minutes

\* 2019/066:16:27:26.0000 TEP data collection for 3 minutes

\* 2019/066:18:01:43.0000 TEP data collection for 3 minutes

2019/066:18:25:23.0000 OCEANscan (22 minutes)

^ 2019/066:19:00:00.0000 Stellar centroid image dump for 90 minutes (no stellar centroids)

\* 2019/066:21:10:18.0000 TEP data collection for 3 minutes

\* 2019/066:22:44:35.0000 TEP data collection for 3 minutes

^ 2019/066:23:59:18.0000 AMCS Cal for 2 minutes over open ocean

^ 2019/067:04:44:00.0000 AMCS Cal for 2 minutes over open ocean  
2019/067:06:12:28.0000 OCEANscan (22 minutes)

^ 2019/067:07:49:27.0000 AMCS Cal for 2 minutes over open ocean  
2019/067:09:13:16.0000 RTWscan (90 minutes)

\* 2019/067:12:53:11.0000 TEP data collection for 3 minutes

\* 2019/067:14:27:29.0000 TEP data collection for 3 minutes

\* 2019/067:16:01:46.0000 TEP data collection for 3 minutes

\* 2019/067:17:36:04.0000 TEP data collection for 3 minutes

2019/067:17:59:43.0000 OCEANscan (22 minutes)

\* 2019/067:19:10:21.0000 TEP data collection for 3 minutes

\* 2019/067:20:44:38.0000 TEP data collection for 3 minutes

\* 2019/067:22:18:56.0000 TEP data collection for 3 minutes

^ 2019/067:23:33:39.0000 AMCS Cal for 2 minutes over open ocean

^ 2019/068:03:00:00.0000 Stellar centroid window dump for 90 minutes (no stellar centroids)

^ 2019/068:04:32:48.0000 AMCS Cal for 2 minutes over open ocean

^ 2019/068:05:49:30.0000 AMCS Cal for 2 minutes over open ocean  
2019/068:07:21:06.0000 OCEANscan (22 minutes)

2019/068:08:47:36.0000 RTWscan (90 minutes)

\* 2019/068:12:27:32.0000 TEP data collection for 3 minutes

\* 2019/068:14:01:49.0000 TEP data collection for 3 minutes

\* 2019/068:15:36:07.0000 TEP data collection for 3 minutes

\* 2019/068:17:10:24.0000 TEP data collection for 3 minutes

\* 2019/068:18:44:41.0000 TEP data collection for 3 minutes

2019/068:19:08:21.0000 OCEANscan (22 minutes)

\* 2019/068:20:18:59.0000 TEP data collection for 3 minutes

\* 2019/068:21:53:16.0000 TEP data collection for 3 minutes

^ 2019/068:23:07:59.0000 AMCS Cal for 2 minutes over open ocean

\* 2019/068:23:27:33.0000 TEP data collection for 3 minutes  
^ 2019/069:05:23:50.0000 AMCS Cal for 2 minutes over open ocean  
2019/069:06:55:26.0000 OCEANscan (22 minutes)  
^ 2019/069:08:32:25.0000 AMCS Cal for 2 minutes over open ocean  
\* 2019/069:12:01:52.0000 TEP data collection for 3 minutes  
\* 2019/069:13:36:09.0000 TEP data collection for 3 minutes  
\* 2019/069:15:10:27.0000 TEP data collection for 3 minutes  
\* 2019/069:16:44:44.0000 TEP data collection for 3 minutes  
\* 2019/069:18:19:02.0000 TEP data collection for 3 minutes  
2019/069:18:42:41.0000 OCEANscan (22 minutes)  
\* 2019/069:19:53:19.0000 TEP data collection for 3 minutes  
\* 2019/069:21:27:36.0000 TEP data collection for 3 minutes  
^ 2019/069:22:42:20.0000 AMCS Cal for 2 minutes over open ocean  
\* 2019/069:23:01:54.0000 TEP data collection for 3 minutes  
^ 2019/070:00:16:37.0000 AMCS Cal for 2 minutes over open ocean  
^ 2019/070:04:58:11.0000 AMCS Cal for 2 minutes over open ocean  
2019/070:06:29:46.0000 OCEANscan (22 minutes)  
^ 2019/070:08:06:45.0000 AMCS Cal for 2 minutes over open ocean  
2019/070:09:30:34.0000 RTWscan (90 minutes)  
\* 2019/070:11:36:12.0000 TEP data collection for 3 minutes  
\* 2019/070:13:10:30.0000 TEP data collection for 3 minutes  
\* 2019/070:14:44:47.0000 TEP data collection for 3 minutes  
\* 2019/070:16:19:05.0000 TEP data collection for 3 minutes  
\* 2019/070:17:53:22.0000 TEP data collection for 3 minutes  
2019/070:18:17:01.0000 OCEANscan (22 minutes)  
\* 2019/070:19:27:39.0000 TEP data collection for 3 minutes  
\* 2019/070:21:01:57.0000 TEP data collection for 3 minutes  
\* 2019/070:22:36:14.0000 TEP data collection for 3 minutes  
^ 2019/070:23:50:57.0000 AMCS Cal for 2 minutes over open ocean  
^ 2019/071:01:45:10.0000 DMU012 for 71 minutes  
^ 2019/071:04:33:52.0000 AMCS Cal for 2 minutes over open ocean  
2019/071:06:04:07.0000 OCEANscan (22 minutes)  
^ 2019/071:07:41:06.0000 AMCS Cal for 2 minutes over open ocean  
2019/071:09:04:55.0000 RTWscan (90 minutes)  
\* 2019/071:11:14:04.0000 TEP data collection for 3 minutes  
\* 2019/071:12:44:50.0000 TEP data collection for 3 minutes  
\* 2019/071:14:19:08.0000 TEP data collection for 3 minutes  
\* 2019/071:15:53:25.0000 TEP data collection for 3 minutes  
^ 2019/071:16:04:26.0000 Laser image dump for 6 minutes over Antarctica during day  
\* 2019/071:17:27:43.0000 TEP data collection for 3 minutes  
2019/071:17:51:22.0000 OCEANscan (22 minutes)  
\* 2019/071:19:02:00.0000 TEP data collection for 3 minutes  
\* 2019/071:20:36:17.0000 TEP data collection for 3 minutes  
\* 2019/071:22:10:35.0000 TEP data collection for 3 minutes

^ 2019/071:23:25:18.0000 AMCS Cal for 2 minutes over open ocean  
^ 2019/072:04:22:34.0000 AMCS Cal for 2 minutes over open ocean  
^ 2019/072:05:41:09.0000 AMCS Cal for 2 minutes over open ocean  
2019/072:07:12:45.0000 OCEANscan (22 minutes)  
2019/072:08:39:16.0000 RTWscan (90 minutes)  
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\* 2019/072:13:53:28.0000 TEP data collection for 3 minutes  
\* 2019/072:15:27:46.0000 TEP data collection for 3 minutes  
\* 2019/072:17:02:03.0000 TEP data collection for 3 minutes  
\* 2019/072:18:36:21.0000 TEP data collection for 3 minutes  
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\* 2019/072:21:44:55.0000 TEP data collection for 3 minutes  
^ 2019/072:22:59:39.0000 AMCS Cal for 2 minutes over open ocean  
\* 2019/072:23:19:13.0000 TEP data collection for 3 minutes