

ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, July 29, 2019 thru Sunday, August 4, 2019

RGTs spanned: 473-579
Cycle 4

Items of Note:

All ATLAS housekeeping data is nominal; laser 2 is firing in science mode and at energy level 4. ASAS developers, ATBD leads and PSO members are preparing for the acceptance reviews and the ASAS developers are beginning to work on issues for the next version of ASAS.

ICESat-2 began vegetation off-pointing on August 1, with RGT #518 at roughly 01:21 UTC.

We celebrated our 10th Photon Phriday on 8/2 with a video featuring ICESat-2 science team member Alex Gardner. [Check it out!](#)

****ELEMENT DETAILS BELOW****

CAMS/POD/PPD:

CAMS: Regular CAMS operations continue with constraint and conjunction monitoring for Mission Weeks 46 and 47, and mission planning for Mission Week 48.

CAMS supported two ATS split loads for MW046:

- Created an SAT on July 27, 2019 to change the 1 deg scans back to 5 degree scans and add RTWS in for both Tuesday and Wednesday (July 30-31)
- Mitigated an ISS HIE (30+% PI, laser miss < 1 km) with laser to arm; Laser to arm was used because of the increased uncertainty in ISS prediction due to recent docking/un-docking event

POD: Regular POD operations continue. Intermediate POD was completed for GPS week 2063. Final POD was completed for GPS week 2061. All results appear nominal.

POD also processed round-the-world scan data from DoY 208, the first since the spacecraft UTC-TAI offset fix. These results showed significant improvement, as there were a much larger number of data points collected during the scan maneuvers and the roll/pitch pointing bias solutions came out as expected.

ISF:

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

WTEM Peak to Edge Ratio: 1.259
Laser 2 Temperature Error: -0.30C

SADA in Airplane Mode
Spacecraft orientation: - X

Mission Planning:

MW47 ATS is loaded to the spacecraft and currently operating, it includes Veg Track off-points

MW48 is being planned, it will include two full orbits of manual mode TEP data
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Activities during the past week:

Real-time activities:

Executed standing CAR405 at 2019/213/15:25 (note 1)

Executed standing CAR248 at 2019/204/15:25 (note 2)

Executed standing CAR91 and CAR102 at 2019/214/15:25 to clear routine SBC and SXP errors

ATS activities:

LCA12, laser to ARM 2019/212/17:25:12 (note 3)

Routine calibration activities

Other Activities:

ISF planned two Split ATS updated adding two additional 5 degree RTW scans to MW046 and a laser to ARM sequence to mitigate LCA12

ATLAS\_CCR\_007, Release PMT Tool updates to Ops

Third quarter scanning completed July 19 - no vulnerabilities were flagged

Met with ESMO to review ATLAS SOARS items

Near-term activities:

The Rx Algorithm V8 parameters load testing will take place at FLATLAS next week.

Met with ASET and PSO to review the frequency and location of instrument calibrations, continuing to work with them to update the nominal cal planning and execution

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Notes/Issues:

1. sCAR405 investigates and clears ATLAS PCE computer logging errors, we had cleared PCE1 in the past, this instance we were clearing PCE2.

2. sCAR248 cleared a known and harmless SMT HK error which can occur on the spacewire router.

3. LCA12 was mitigated via a one minute laser to ARM sequence due to uncertainties in the position knowledge of the ISS following a large ISS maneuver.

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LTO Schedule:

All items remain on schedule

RSA maintenance agreements are being renewed

**SIPS:**

- The SIPS is operating nominally:
  - o Ingested and distributed Level 0 data to the ISF.
  - o Generated 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 Generated rapids ATL03 using ANC03/04/05 files from the CAMS.
  - o Distributed ATL03 (rapids) to the SCF.
- SIPS started staging the Release 001 upper-level products (ATL04, 06, 07, 08, 09, 10, 12, 13) for DOY 055-122 to NSIDC.
- Revised ASAS 5.2 has been delivered to the SIPS and is currently undergoing SIPS Integration testing with SDMS V6.16.0.
- SIPS participated in the ESDIS Assessment and Authorization (A&A) on July 31.
  - o There were no major issues.

**ASAS:**

ASAS developers are preparing for the acceptance reviews and beginning to work on issues for the next version of ASAS. This work is subject to change based on priorities defined during the acceptance review.

Most of last week was spent tracing an issue affecting Sea Ice. The root cause was a library routine that checked for the presence of tide\_eq on ATL03. Unfortunately, it only checked the first ATL03 in the set of inputs. When weak beam data were not present in the first ATL03 (due to weak beams being off over oceans), the routine determined that there were no tide\_eq data on ANY of the ATL03s. This made the Sea Ice PGE set heights to INVALID and cause the disappearance of all the weak beam data from ATL07. The fix was to replace one subroutine call with another. After the fix was made, all of the 952 ATL07s and ATL10s were reprocessed and sent to SCF. All of the release notes were updated with new MD5 checksums and the entire ASAS v5.2 package was re-delivered to SIPS.

Additionally, a variant of the atlas\_l1b PGE was developed to process TEP returns for all spots. This PGE is being delivered to the ATLAS Sustaining Engineering team for use in their analysis efforts.

### **SCF:**

The SCF is operating nominally. Data for releases 001 and R001 are being ingested and distributed, with subsetting subscriptions still being fulfilled. ASAS release 952 data for ATL07 and ATL10 were replaced with new versions after ASAS found and fixed an issue with the initial products. Integration testing of the Python 3 version of the data management scripts and the Subsetter continues. A file listing the current SCF data holdings is attached.

\* Data Management -- Testing the Python 3 version of the code continues. As part of this, we are noting where the code sends SIPS e-mails, because SIPS has expressed a desire to move from e-mail to file uploads (as we did with data status requests). Testing is progressing well so far.

\* Subsetter -- Testing the Python 3 version of the code continues and revealed that for release 952 of ATL08, RGT values in the /orbit\_info group do not match the values in the /gtx/land\_segments group. This discrepancy was reported to ASAS and is under investigation. It does not appear to be affecting test results so far, though specific cases will be rerun if needed, and testing is progressing well overall.

\* Visualizer -- Work continued on converting the code to Python 3, and user-supplied background images now work in the granule location map.

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

New efforts begun:

- Investigation of apparent change in Spot 3 TEP strength after the late June/early July safehold
- Estimation of OFM transmittance peak shift from 2-step VBG sweep data

Work continues on:

- Re-analysis of TEP and MA/AT return times of flight during instrument thermal/vacuum testing, using the latest TOF computation methods
- A new method for analyzing the results of on-orbit AMCS calibrations. The current method does not separate return from background, and is usable only for AMCS calibrations done over the night side of the earth. The new method will allow AMCS calibrations to be done usefully over the day side as well.
- Analysis of the time variations of the TEP time of flight, particularly on the orbital time scale.

## **ISF ACTIVITIES MISSION WEEK 047:**

\* Not in science mode

^ Could affect science data quality

2019/213:00:21:03.0000 OCEANscan (22 minutes)

\* 2019/213:02:39:59.0000 TEP data collection for 3 minutes

\* 2019/213:04:14:16.0000 TEP data collection for 3 minutes

^ 2019/213:04:33:54.0000 AMCS Cal for 2 minutes over open ocean

^ 2019/213:10:36:42.0000 AMCS Cal for 2 minutes over open ocean

2019/213:12:08:19.0000 OCEANscan (22 minutes)

^ 2019/213:13:44:34.0000 AMCS Cal for 2 minutes over open ocean

\* 2019/213:16:50:26.0000 TEP data collection for 3 minutes

\* 2019/213:18:22:53.0000 TEP data collection for 3 minutes

\* 2019/213:19:57:11.0000 TEP data collection for 3 minutes

\* 2019/213:21:31:28.0000 TEP data collection for 3 minutes

\* 2019/213:23:05:45.0000 TEP data collection for 3 minutes

2019/213:23:55:24.0000 OCEANscan (22 minutes)

\* 2019/214:00:40:03.0000 TEP data collection for 3 minutes

\* 2019/214:02:14:20.0000 TEP data collection for 3 minutes

\* 2019/214:03:48:37.0000 TEP data collection for 3 minutes

^ 2019/214:04:08:15.0000 AMCS Cal for 2 minutes over open ocean

^ 2019/214:10:11:03.0000 AMCS Cal for 2 minutes over open ocean

2019/214:11:42:40.0000 OCEANscan (22 minutes)

^ 2019/214:13:19:38.0000 AMCS Cal for 2 minutes over open ocean

\* 2019/214:17:57:14.0000 TEP data collection for 3 minutes

\* 2019/214:19:31:31.0000 TEP data collection for 3 minutes

\* 2019/214:21:05:49.0000 TEP data collection for 3 minutes

\* 2019/214:22:40:06.0000 TEP data collection for 3 minutes

^ 2019/215:00:02:00.0000 Stellar centroid window dump for 90 minutes (no stellar centroids)

\* 2019/215:01:48:41.0000 TEP data collection for 3 minutes

\* 2019/215:03:22:58.0000 TEP data collection for 3 minutes

^ 2019/215:03:42:36.0000 AMCS Cal for 2 minutes over open ocean

\* 2019/215:04:57:16.0000 TEP data collection for 3 minutes

^ 2019/215:05:16:53.0000 AMCS Cal for 2 minutes over open ocean

^ 2019/215:09:45:24.0000 AMCS Cal for 2 minutes over open ocean

2019/215:11:17:01.0000 OCEANscan (22 minutes)

^ 2019/215:12:53:59.0000 AMCS Cal for 2 minutes over open ocean

\* 2019/215:17:31:35.0000 TEP data collection for 3 minutes

\* 2019/215:19:05:52.0000 TEP data collection for 3 minutes

\* 2019/215:20:40:10.0000 TEP data collection for 3 minutes

\* 2019/215:22:14:27.0000 TEP data collection for 3 minutes

2019/215:23:04:06.0000 OCEANscan (22 minutes)

\* 2019/215:23:48:45.0000 TEP data collection for 3 minutes  
2019/216:00:38:23.0000 OCEANscan (22 minutes)  
\* 2019/216:01:23:02.0000 TEP data collection for 3 minutes  
2019/216:02:04:55.0000 RTWscan (90 minutes)  
\* 2019/216:04:31:37.0000 TEP data collection for 3 minutes  
^ 2019/216:04:51:14.0000 AMCS Cal for 2 minutes over open ocean  
^ 2019/216:09:31:26.0000 AMCS Cal for 2 minutes over open ocean  
2019/216:12:25:39.0000 OCEANscan (22 minutes)  
\* 2019/216:17:05:56.0000 TEP data collection for 3 minutes  
\* 2019/216:18:40:13.0000 TEP data collection for 3 minutes  
\* 2019/216:20:14:31.0000 TEP data collection for 3 minutes  
\* 2019/216:21:48:48.0000 TEP data collection for 3 minutes  
\* 2019/216:23:23:06.0000 TEP data collection for 3 minutes  
2019/217:00:12:44.0000 OCEANscan (22 minutes)  
\* 2019/217:00:57:23.0000 TEP data collection for 3 minutes  
2019/217:01:39:15.0000 RTWscan (90 minutes)  
\* 2019/217:04:05:57.0000 TEP data collection for 3 minutes  
^ 2019/217:04:25:35.0000 AMCS Cal for 2 minutes over open ocean  
^ 2019/217:10:28:23.0000 AMCS Cal for 2 minutes over open ocean  
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\* 2019/217:16:40:56.0000 TEP data collection for 3 minutes  
\* 2019/217:18:14:34.0000 TEP data collection for 3 minutes  
\* 2019/217:19:48:51.0000 TEP data collection for 3 minutes  
^ 2019/217:21:00:00.0000 Laser Window dump for 5 minutes  
\* 2019/217:21:23:09.0000 TEP data collection for 3 minutes  
\* 2019/217:22:57:26.0000 TEP data collection for 3 minutes  
\* 2019/218:00:31:44.0000 TEP data collection for 3 minutes  
\* 2019/218:02:06:01.0000 TEP data collection for 3 minutes  
\* 2019/218:03:40:18.0000 TEP data collection for 3 minutes  
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\* 2019/218:22:31:47.0000 TEP data collection for 3 minutes  
2019/218:23:21:26.0000 OCEANscan (22 minutes)  
\* 2019/219:00:06:04.0000 TEP data collection for 3 minutes  
\* 2019/219:01:40:22.0000 TEP data collection for 3 minutes  
\* 2019/219:03:14:39.0000 TEP data collection for 3 minutes  
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2019/219:22:55:46.0000 OCEANscan (22 minutes)  
\* 2019/219:23:40:25.0000 TEP data collection for 3 minutes