

ICESat-2 PROJECT SCIENCE OFFICE REPORT

Monday, August 12, 2019 thru Sunday, August 18, 2019

RGTs spanned: 687-793

Cycle 4

Items of Note:

All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. The PSO continues to prepare for release 002 of data products, with the ASAS software undergoing acceptance testing at SIPS this week.

NSIDC ICESat-2 Metrics through August 18: 1,123 total users of 10 available data products; 659,394 sciences files downloaded. ATL08 still the winner with 427 users and 312,195 files downloaded! ATL06 is a distant 2nd with 330 users and 209,163 files downloaded, followed by ATL03 with 329 users and 88,781 files downloaded.

****ELEMENT DETAILS BELOW****

CAMS/POD/PPD:

CAMS: Regular CAMS operations continue with constraint and conjunction monitoring for Mission Weeks 48 and 49, and mission planning for Mission Week 50.

CAMS supported multiple ATS loads for Mission Week 48:

- A split ATS was created for an HIE with the ISS on August 13, 2019. The split ATS was not utilized as the event self-mitigated.
- A split ATS was created to include an additional RTWS for post bias upload calibrations.

POD: Regular POD operations continue. Final POD was completed for GPS week 2063. Intermediate POD for GPS week 2065 is on hold while ATL02 data file gaps are filled in. All results appear nominal.

ISF:

All ATLAS housekeeping data is nominal

Laser 2 is firing at energy level 4 and in science mode

WTEM Peak to Edge Ratio: 1.265

Laser 2 Temperature Error: -0.30C

SADA in Airplane Mode

Spacecraft orientation: - X

Mission Planning:

MW49 ATS is loaded to the spacecraft and currently operating, it includes Veg Track off-points

MW50 is being planned, it will include an additional two full orbits of manual mode TEP data

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Activities during the past week:

Real-time activities:

Executed standing CAR91 and CAR102 at 2019/228/22:08 UTC to clear routine SBS and SXP errors

Executed the ISF noop proc as part of the AS ground station recertification testing 2019/228/22:06 UTC

ATS activities:

Routine calibration activities, and 2 consecutive orbits of manual mode TEP data collection

Other Activities:

Split ATS processing for LCA14 to avoid ISS that subsequently self-mitigated with updated ISS ephemeris (HIE #12)

Split ATS processing for an extra RTW post QATLAS2BDY bias upload

Creation of a mini-ATS 10 second laser to ARM sequence to mitigate the upcoming LCA14 8/19/19.

Set the go/nogo ILRS flag around DMU22 (2019/226/01:45 - 03:05 UTC)

Near-term activities:

Continuing to work with ASET and PSO regarding the frequency and location of nominal instrument calibrations

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Notes/Issues:

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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.
- Received the "cal04" ANC03/04/05 files for DOY 124-177 from the POD
  - o Generated intermediate ATL03 products for the 18 days where round-the-world scans were performed.
  - o Distributed the ATL03s to the POD for them to perform calibration solutions.
- SIPS successfully completed the ESDIS Assessment and Authorization (A&A).

### **ASAS:**

Final ASAS acceptance reviews are coming up this week.

ASAS is working on adding Feb 1 to Feb 6 to its functional test data set in order cover the case of backwards orientation.

SDMS acceptance testing found an issue with freeboard when ATLAS is in backward orientation. The developer fixed the issue and the freeboard PGE is being re-delivered to SDMS for continued acceptance testing.

Since freeboard is being redelivered, sea ice is also being redelivered with one small fix to the metadata. This fix will allow NSIDC to display the coverage of ATL07s more accurately.

Work continues on the issues identified as highest priority by the respective ATBD leads.

### **SCF:**

The SCF is operating nominally. Data for releases 001 and R001 are being ingested and distributed. A network and/or database connection issue late Wednesday night disrupted processing for a few hours, but once it was resolved, usual operations resumed automatically. However, some clean-up was required Thursday morning to ensure that nothing was missed or left unprocessed. A file listing the current SCF data holdings is attached.

\* Data Management -- Testing of the Python 3 code continues, and any bugs found are being fixed. Minor modifications are needed to the code that parses ISF activity reports to generate a list of files affected, since ISF is updating the format of their reports. Discussion and testing with ISF resulted in a successful solution that we plan to implement next week.

\* Subsetter -- Testing of the Python 3 code is nearly complete. No issues have arisen, so pending some final checks, the code should be ready for the next release.

\* Visualizer -- Work continues on the conversion to Python 3, with a recent focus on ensuring background maps work correctly. Product data frames for ASAS v5.2 product have also been completed, and the v6.1 of the code updated to accommodate these products.

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

Analysis of a two-orbit period of staring at the Transmitter Echo yielded no clear indication of any variation in the time of flight over an orbital time scale, consistent with similar observations during commissioning. Further analysis is planned to see if a weak orbital signal can be pulled out of the noise. An additional TEP stare is scheduled for this week, followed by more at 1-month intervals.

In addition, 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 at longer-than-orbital time scales.
- 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

### **ATL03:**

ATBD updates continue following a successful ASAS v5.2 PGE review.

### **ISF ACTIVITIES MISSION WEEK 049:**

\* Not in science mode

^ Could affect science data quality

^ 2019/227:01:50:03.0000 DMU22 for 70 minutes

\* 2019/227:03:17:36.0000 AMCS Cal for 2 minutes over open ocean

2019/227:03:39:52.0000 RTWscan (90 minutes)

\* 2019/227:06:20:00.0000 2 orbits of TEP data collection for 181 minutes

\* 2019/227:09:30:01.0000 AMCS Cal for 2 minutes over open ocean

2019/227:10:52:02.0000 OCEANscan (22 minutes)

\* 2019/227:12:29:00.0000 AMCS Cal for 2 minutes over open ocean

\* 2019/227:17:06:36.0000 TEP data collection for 3 minutes

\* 2019/227:18:40:54.0000 TEP data collection for 3 minutes

\* 2019/227:20:15:11.0000 TEP data collection for 3 minutes

\* 2019/227:21:49:29.0000 TEP data collection for 3 minutes  
2019/227:22:39:07.0000 OCEANscan (22 minutes)  
\* 2019/227:23:23:46.0000 TEP data collection for 3 minutes  
^ 2019/228:00:02:00.0000 Stellar centroid window dump with no stellar centroids for 90 minutes  
2019/228:01:39:56.0000 RTWscan (90 minutes)  
\* 2019/228:04:06:38.0000 TEP data collection for 3 minutes  
\* 2019/228:04:26:15.0000 AMCS Cal for 2 minutes over open ocean  
\* 2019/228:09:00:27.0000 AMCS Cal for 2 minutes over open ocean  
2019/228:10:26:23.0000 OCEANscan (22 minutes)  
\* 2019/228:12:03:21.0000 AMCS Cal for 2 minutes over open ocean  
\* 2019/228:16:40:57.0000 TEP data collection for 3 minutes  
\* 2019/228:18:15:15.0000 TEP data collection for 3 minutes  
\* 2019/228:19:49:32.0000 TEP data collection for 3 minutes  
\* 2019/228:21:23:50.0000 TEP data collection for 3 minutes  
2019/228:22:13:28.0000 OCEANscan (22 minutes)  
\* 2019/228:22:58:07.0000 TEP data collection for 3 minutes  
2019/228:23:40:00.0000 RTWscan (90 minutes)  
\* 2019/229:02:06:42.0000 TEP data collection for 3 minutes  
2019/229:02:45:00.0000 Laser Window dump for 2 minutes  
\* 2019/229:03:40:59.0000 TEP data collection for 3 minutes  
\* 2019/229:04:00:36.0000 AMCS Cal for 2 minutes over open ocean  
\* 2019/229:08:48:22.0000 AMCS Cal for 2 minutes over open ocean  
\* 2019/229:10:03:25.0000 AMCS Cal for 2 minutes over open ocean  
2019/229:11:35:02.0000 OCEANscan (22 minutes)  
\* 2019/229:16:15:18.0000 TEP data collection for 3 minutes  
\* 2019/229:17:49:36.0000 TEP data collection for 3 minutes  
\* 2019/229:19:23:53.0000 TEP data collection for 3 minutes  
\* 2019/229:20:58:11.0000 TEP data collection for 3 minutes  
\* 2019/229:22:32:28.0000 TEP data collection for 3 minutes  
2019/229:23:22:07.0000 OCEANscan (22 minutes)  
\* 2019/230:00:06:46.0000 TEP data collection for 3 minutes  
2019/230:00:48:38.0000 RTWscan (90 minutes)  
\* 2019/230:03:15:20.0000 TEP data collection for 3 minutes  
\* 2019/230:03:34:57.0000 AMCS Cal for 2 minutes over open ocean  
\* 2019/230:09:37:46.0000 AMCS Cal for 2 minutes over open ocean  
2019/230:11:09:23.0000 OCEANscan (22 minutes)  
\* 2019/230:12:46:21.0000 AMCS Cal for 2 minutes over open ocean  
\* 2019/230:17:23:57.0000 TEP data collection for 3 minutes  
\* 2019/230:18:58:15.0000 TEP data collection for 3 minutes  
\* 2019/230:20:32:32.0000 TEP data collection for 3 minutes  
\* 2019/230:22:06:50.0000 TEP data collection for 3 minutes  
2019/230:22:56:28.0000 OCEANscan (22 minutes)  
\* 2019/230:23:41:07.0000 TEP data collection for 3 minutes

\* 2019/231:01:15:24.0000 TEP data collection for 3 minutes  
2019/231:01:57:17.0000 RTWscan (90 minutes)  
\* 2019/231:04:43:36.0000 AMCS Cal for 2 minutes over open ocean  
\* 2019/231:09:12:07.0000 AMCS Cal for 2 minutes over open ocean  
2019/231:10:43:44.0000 OCEANscan (22 minutes)  
\* 2019/231:12:20:42.0000 AMCS Cal for 2 minutes over open ocean  
^ 2019/231:16:07:57.0000 Laser image dump over Greenland during day for 7 minutes  
\* 2019/231:16:58:18.0000 TEP data collection for 3 minutes  
\* 2019/231:18:32:36.0000 TEP data collection for 3 minutes  
\* 2019/231:20:06:53.0000 TEP data collection for 3 minutes  
\* 2019/231:21:41:11.0000 TEP data collection for 3 minutes  
2019/231:22:30:49.0000 OCEANscan (22 minutes)  
\* 2019/231:23:15:28.0000 TEP data collection for 3 minutes  
\* 2019/232:00:49:45.0000 TEP data collection for 3 minutes  
2019/232:01:31:38.0000 RTWscan (90 minutes)  
\* 2019/232:03:58:20.0000 TEP data collection for 3 minutes  
\* 2019/232:04:17:57.0000 AMCS Cal for 2 minutes over open ocean  
\* 2019/232:08:50:13.0000 AMCS Cal for 2 minutes over open ocean  
2019/232:10:18:05.0000 OCEANscan (22 minutes)  
\* 2019/232:11:55:03.0000 AMCS Cal for 2 minutes over open ocean  
\* 2019/232:16:32:39.0000 TEP data collection for 3 minutes  
\* 2019/232:18:06:57.0000 TEP data collection for 3 minutes  
\* 2019/232:19:41:14.0000 TEP data collection for 3 minutes  
\* 2019/232:21:15:32.0000 TEP data collection for 3 minutes  
2019/232:22:05:10.0000 OCEANscan (22 minutes)  
\* 2019/232:22:49:49.0000 TEP data collection for 3 minutes  
\* 2019/233:00:24:06.0000 TEP data collection for 3 minutes  
\* 2019/233:03:32:41.0000 TEP data collection for 3 minutes  
\* 2019/233:03:52:18.0000 AMCS Cal for 2 minutes over open ocean  
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2019/233:23:13:48.0000 OCEANscan (22 minutes)