

## **ICESat-2 PROJECT SCIENCE OFFICE REPORT**

**Monday, September 2, 2019 thru Sunday, September 8, 2019**

RGTs spanned: 1007-1113

Cycle 4

### **Items of Note:**

All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. The onboard receiver algorithms were updated from v6 to v8 on Sept 3 per the requests of the science team (including range window size updates and padding the telemetry band, among other changes).

**NSIDC ICESat-2 Metrics through September 8:** 1,342 total users of 10 available data products; 777,410 sciences files downloaded. ATL08 is in the lead with 502 users and 327,451 files downloaded! ATL03 is 2<sup>nd</sup> with 419 users and 96,798 files downloaded, followed by ATL06 with 396 users and 282,799 files downloaded.

[Photon Phriday](#) featured deputy project scientist Nathan Kurtz discussing sea ice in the Nares Strait!

**LAST CALL** – we hope to see you all at ICESat-2's first birthday celebration this upcoming Thursday, September 12 at 4pm in the Barney & Bea Recreation Center here at GSFC! Please RSVP to Kaitlin if you are planning on attending and have not let her know yet. Thanks!

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

### **CAMS/POD:**

**CAMS:** Regular CAMS operations continue with constraint and conjunction monitoring for Mission Weeks 51 and 52, and mission planning for Mission Week 53.

CAMS supported mini-ATS for MW051:

- Mitigated an AEROCUBE10PRB(VENTURI) (44516) HIE (0.093 PI, laser miss < 2.47 km) with laser to arm

CAMS supported split-ATS for MW052:

- Created a SAT to incorporate a new TOO request from the Science Team

**POD:** Regular POD operations continue. Intermediate POD was completed for GPS week 2068. Final POD was completed for GPS week 2066. 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: 1.205  
Laser 2 Temperature Error: -0.27C  
SADA in Airplane Mode  
Spacecraft orientation: - X

Mission Planning:  
MW52 ATS is loaded to the spacecraft and currently operating  
MW53 is being planned, nominal calibration activities, randomized TEP locations  
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Activities during the past week:

Real-time activities:

Assisted the MOC with station recertification tests for SG2:  
2019/247/10:46, 2019/247/15:28, 2019/248/13:28, 2019/248/15:01, 2019/249/13:03,  
2019/249/17:43  
Executed standing CAR91 and CAR102 to clear routine SBS and SXP errors

ATS activities:  
Routine calibration activities, one TOO

Other Activities:  
Split ATS created for LCA15 with 44516 2019/247/01:47:50  
Set the NOGO/GO ILRS flags around DMU24 2019/248.

Near-term activities:  
YawFlip002 to + X 2019/250/01:03  
Continuing to work with ASET and PSO regarding the frequency and location of nominal instrument calibrations  
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Notes/Issues:  
1: The PCEs were initialized to use the receiver onboard algorithms v8 parameters  
2019/246/13:30  
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LTO Schedule:  
All items remain on schedule  
RSA maintenance agreements are being renewed

**SIPS:**

- The SIPS is operating nominally:
  - Ingested and distributed Level 0 data to the ISF.
  - Generated L1A and L1B products and distributed ATL02s to the ISF, POD, and SCF.
  - Distributed selected ATL01s to the ISF and SCF by special request.
  - Generated rapids ATL03 using ANC03/04/05 files from the CAMS.
  - Distributed ATL03 (rapids) to the SCF.
- ORR was conducted for SIPS Build 4.2 on September 4.
  - Build 4.2 has been approved to be installed on OPS
  - We are coordinating with the SCF to make this Build operational.

### **ASAS:**

ASAS developers are working on the top priority issues as identified by their respective ATBD lead.

For L1A, work has been completed on a more extensive check of APID packet sizes. Within Ops, one ATL01 failed processing because of a corrupt APID packet. It took a long time to determine that the root cause was a packet with an invalid data length. In prior ASAS code, the data length was checked for the first packet in the APID just to make sure the correct APID type was being processed. We have modified the code to verify the data length of each (fixed size) input APID record. In all of our testing, we have only found one instance of this corruption.

Work on L1B focuses on determining if the buffering of the useflag is coded correctly. When setting the useflag within ATL02 (for use with ATL03), a 1 second buffer is added at the beginning and end of a state transition in order to account for instrument settling time when transitioning between states. There is some concern that this buffer is not applied correctly. At worse case, this may mean an extra second of data is lots when ATLAS transitions between science modes and AMCS calibrations.

No work on L2A\_ALT. Some interesting anomalies have been identified by PSO that ASAS is planning to investigate. With regards to the possible error in accounting for beam angle in the atmosphere delay correction, POD/PPD characterized this error to be in the range of a few millimeters.

L2/L3 atmosphere work involves the comparison of DDA results with science team code.

The atmosphere L3B developer is reviewing the updated L3B atmosphere ATBD and is providing feedback to the ATBD lead.

The Sea Ice/Freeboard L3B products are in development.

The Land Ice ATL11 L3B code is being modified to work in a production environment.

Inland water work is focused on anomaly detection using Lake Ontario as a test case.

### **SCF:**

The SCF is operating nominally. Data for releases 001 and R001 are being ingested and distributed. The next major release of the data management scripts and Subsetter, using the Python 3 code base and including handling of ATL16 and ATL17 data products, has been created. Once the necessary Python 3 environment is installed on the operational server, the code used in operations will be transitioned to the new release; this is expected to be completed early next week. A file listing the current SCF data holdings is attached.

\* Data Management -- A plan for deleting old data to make room for new release 002 data is in place. Test release 002 data for ATL09 used to produce ATL16 and ATL17 is being transferred to the scientist in charge of the products for examination. Use of a second server to improve processing is still planned, but it will not be ready before release 002 begins.

\* Subsetter -- The next release has been made, together with the data management scripts, using Python 3 code. The transition to this code in operations is planned for next week.

\* Visualizer -- Work continues on moving the code to Python 3. Test ATL16 and ATL17 files received indicate that a new plot type will need to be added to handle image data available in these products.

### **ATL03:**

Work began on developing better schema for data product QA/QC and nailing down the root cause of why some granules seem to be anomalous.

### **ISF ACTIVITIES MISSION WEEK 052:**

// Initial Rev # = 1052.66

\* Not in science mode

^ Could affect science data quality

\* 2019/248:00:32:01.0000 TEP data collection Duration 3 minutes

\* 2019/248:00:36:19.0000 TEP data collection Duration 3 minutes

^ 2019/248-00:43:02.0000 DMU024 Duration 70 minutes

\* 2019/248:02:10:20.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

\* 2019/248:03:44:37.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

\* 2019/248:05:20:05.0000 TEP data collection Duration 3 minutes

\* 2019/248:05:27:56.0000 TEP data collection Duration 3 minutes

\* 2019/248:06:49:10.0000 TEP data collection Duration 3 minutes

\* 2019/248:08:13:09.0000 AMCS Cal over open ocean Duration 2 minutes

2019/248:09:44:46.0000 OCEANscan Duration 22 minutes

\* 2019/248:11:21:44.0000 AMCS Cal over open ocean Duration 2 minutes

\* 2019/248:13:06:20.0000 TEP data collection Duration 3 minutes

\* 2019/248:14:30:11.0000 TEP data collection Duration 3 minutes

\* 2019/248:14:35:25.0000 TEP data collection Duration 3 minutes

\* 2019/248:22:16:23.0000 TEP data collection Duration 3 minutes  
\* 2019/248:22:42:31.0000 TEP data collection Duration 3 minutes  
\* 2019/248:23:53:18.0000 TEP data collection Duration 3 minutes  
\* 2019/249:00:08:58.0000 TEP data collection Duration 3 minutes  
2019/249:01:02:00.0000 Stellar window dump Duration 90 minutes  
\* 2019/249:03:18:59.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2019/249:07:57:51.0000 AMCS Cal over open ocean Duration 2 minutes  
2019/249:09:19:07.0000 OCEANscan Duration 22 minutes  
\* 2019/249:09:44:26.0000 TEP data collection Duration 3 minutes  
\* 2019/249:10:56:05.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2019/249:12:27:38.0000 TEP data collection Duration 3 minutes  
\* 2019/249:12:43:18.0000 TEP data collection Duration 3 minutes  
\* 2019/249:12:53:45.0000 TEP data collection Duration 3 minutes  
\* 2019/249:14:01:41.0000 TEP data collection Duration 3 minutes  
\* 2019/249:15:51:40.0000 TEP data collection Duration 3 minutes  
\* 2019/249:17:15:44.0000 TEP data collection Duration 3 minutes  
\* 2019/249:20:26:56.0000 TEP data collection Duration 3 minutes  
\* 2019/249:20:45:12.0000 TEP data collection Duration 3 minutes  
\* 2019/249:21:53:22.0000 TEP data collection Duration 3 minutes  
\* 2019/250:00:59:19.0000 TEP data collection Duration 3 minutes  
^ 2019/250-01:03:50.0000 YawFlip to +X flying direction Duration 22 minutes  
2019/250:01:30:00.0000 Update LRS for +X flying direction Duration 2 seconds  
\* 2019/250:02:53:20.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2019/250:04:06:47.0000 TEP data collection Duration 3 minutes  
\* 2019/250:05:50:04.0000 TEP data collection Duration 3 minutes  
\* 2019/250:06:08:19.0000 TEP data collection Duration 3 minutes  
\* 2019/250:07:43:57.0000 TEP data collection Duration 3 minutes  
\* 2019/250:08:56:09.0000 AMCS Cal over open ocean Duration 2 minutes  
2019/250:10:27:45.0000 OCEANscan Duration 22 minutes  
\* 2019/250:12:02:25.0000 TEP data collection Duration 3 minutes  
\* 2019/250:13:44:07.0000 TEP data collection Duration 3 minutes  
\* 2019/250:14:02:23.0000 TEP data collection Duration 3 minutes  
\* 2019/250:15:34:04.0000 TEP data collection Duration 3 minutes  
\* 2019/250:17:00:31.0000 TEP data collection Duration 3 minutes  
\* 2019/250:18:24:23.0000 TEP data collection Duration 3 minutes  
\* 2019/250:20:14:19.0000 TEP data collection Duration 3 minutes  
\* 2019/250:20:20:24.0000 TEP data collection Duration 3 minutes  
\* 2019/250:21:25:26.0000 TEP data collection Duration 3 minutes  
2019/250:22:00:00.0000 Laser window dump Duration 2 minutes  
2019/250:22:21:51.0000 OCEANscan Duration 22 minutes  
^ 2019/251:00:00:00.0000 VBG sweep in Manual TEP mode Duration 164 minutes  
\* 2019/251:05:42:05.0000 TEP data collection Duration 3 minutes  
\* 2019/251:08:30:30.0000 AMCS Cal over open ocean Duration 2 minutes  
2019/251:10:02:07.0000 OCEANscan Duration 22 minutes  
\* 2019/251:11:39:05.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2019/251:16:32:16.0000 TEP data collection Duration 3 minutes

2019/251:21:49:12.0000 OCEANscan Duration 22 minutes  
\* 2019/251:22:49:26.0000 TEP data collection Duration 3 minutes  
\* 2019/252:00:13:17.0000 TEP data collection Duration 3 minutes  
\* 2019/252:01:44:57.0000 TEP data collection Duration 3 minutes  
\* 2019/252:02:02:02.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2019/252:03:36:20.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
2019/252:06:47:52.0000 TOO (TOOid=1145) Duration 3 minutes  
\* 2019/252:08:04:51.0000 AMCS Cal over open ocean Duration 2 minutes  
2019/252:09:36:28.0000 OCEANscan Duration 22 minutes  
\* 2019/252:11:13:26.0000 AMCS Cal over open ocean Duration 2 minutes  
2019/252:21:23:33.0000 OCEANscan Duration 22 minutes  
\* 2019/252:22:36:50.0000 TEP data collection Duration 3 minutes  
\* 2019/253:03:10:41.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
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2019/253:09:10:49.0000 OCEANscan Duration 22 minutes  
\* 2019/253:09:35:29.0000 TEP data collection Duration 3 minutes  
\* 2019/253:10:47:47.0000 AMCS Cal over open ocean Duration 2 minutes  
2019/253:22:32:12.0000 OCEANscan Duration 22 minutes  
\* 2019/254:01:01:30.0000 TEP data collection Duration 3 minutes  
\* 2019/254:01:04:35.0000 TEP data collection Duration 3 minutes  
\* 2019/254:02:45:02.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2019/254:07:34:55.0000 TEP data collection Duration 3 minutes  
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2019/254:22:06:33.0000 OCEANscan Duration 22 minutes