

ICESat-2 PROJECT SCIENCE OFFICE REPORT

Monday, October 7, 2019 thru Sunday, October 13, 2019

RGTs spanned: 155-261

Cycle 5

Items of Note:

All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. SIPS has completed processing of release 002 data from 14 October 2018 to 26 June 2019, and this data will be released to the public via NSIDC later this upcoming week. ASAS delivered a hotfix (ASAS v5.2.2) to SIPS in order to mitigate an issue with reading the POD Flag from ANC04.

NSIDC ICESat-2 Metrics through October 13: 1,737 total users of 10 available data products; 1,111,063 sciences files downloaded. ATLO3 and ATLO8 are tied for the lead with 612 users each and 115,839 (ATLO3) and 402,716 (ATLO8) files downloaded! ATLO6 is in 2nd this week with 479 users and an astounding 496,749 files downloaded, and ATLO13 in 3rd with 124 users and 15,543 downloads.

Photon Phriday this week featured a neat pass over Denali – check it out [here!](#)

****ELEMENT DETAILS BELOW****

CAMS/POD:

CAMS: Regular CAMS operations: constraint and conjunction monitoring for mission weeks 56 and 57, and mission planning for mission week 58.

As a laser conjunction was identified for DOY285(MW57), CAMS recommended LASER ARM for the HIE event with WISE (36119). The HIE subsequently self-mitigated.

POD: Regular POD operations continue. Intermediate POD was completed for GPS week 2073. Final POD was completed for GPS week 2071. All results appear nominal.

Final calibrated ANC products for DoY 207-249 were delivered to SIPS.

ISF:

All ATLAS housekeeping data is nominal

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

WTEM Peak to Edge Ratio: 1.219

Laser 2 Temperature Error: -0.28C

SADA in Airplane Mode

Spacecraft orientation: + X

Mission Planning:

MW57 ATS is loaded to the spacecraft and currently operating, includes monthly TEP stare
MW58 is being planned, nominal calibration activities.

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Activities during the past week:

Real-time activities:

Executed sCAR91, sCAR102, sCAR248, sCAR380 to clear routine SDI, SBS and SXP errors  
Continued training new ISF operator - Daniel.

ATS activities:

Routine calibration activities.

Other Activities:

Planning started for HIE16 but conjunction self-mitigated

Near-term activities:

Continuing to work on the ISF tech refresh

Notes/Issues:

LTO Schedule:

All items remain on schedule

**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.
- Completed processing Batch 3 (Dec. 01, 2018 – May 03, 2019) Release 002 products
- Received PSO approval for delivery of Batch 1 and 2 L3A products to NSIDC
  - Will start distribution the L3A data products with the appropriate holds supplied by the Science Team members
- Conducted TRR for SIPS Build 4.2.2 (atlas\_l2a\_alt V3.2.1 and geoseg\_util V2.1.1) and it has been approved for Acceptance Testing.

**ASAS:**

ASAS delivered a hotfix (ASAS v5.2.2) to SIPS in order to mitigate an issue with reading the POD Flag from ANC04. This hotfix also provides a resolution for the case where the previous cycle number is present within ANC04 but the associated RGT information is not present.

ASAS developers continue to work the top priority issues as identified by their respective ATBD lead.

ASAS is currently running the first post-release 2.0 functional testing. This functional test is labelled '953a1' and includes all software changes merged since ASAS v5.2 was released. The test includes data from October 2018, November 2018 and February 2019.

The re-worked HDF5 product designer was used to generate all-new product templates for the 953a1 functional testing.

ASAS is providing support towards the analysis of range bias data.

ASAS is providing support in regards to 'fixing' the July data where incorrect leap seconds were uploaded to the SC after the safhold. Current thinking is that ASAS cannot fix this alone, but must fix the time issue in conjunction with POD/PPD.

L2/L3 atmosphere work continues with the development of CAL method 3 and a comparison of DDA results with science team code.

The atmosphere L3B developer is adding code to compute the number of observed points.

The sea ice/freeboard developer has implemented a fix for specular returns and is working on the L3B products.

The Land Ice ATL11 L3B code is being modified to work in a production environment. The developer is currently testing the Python interface to the ICESat-2 surface type mask.

The inland water developer is adding control overrides for body edge handline.

The ocean developer is beginning the redesign of the ocean manager.

#### **SCF:**

The SCF is operating nominally. Data for releases 002 and R002 are being ingested and distributed, and all subscriptions are current. Visualizer testing is nearly finished, and apps will be made and tested next week. A file listing the current SCF data holdings is attached.

\* Data Management -- Overall running smoothly. A recent request for data products the SCF does not subscribe to or have product definitions for failed. There is evidence that such requests worked in the past, but at present it is unclear how. Ensuring the SCF ingests more product definitions from SIPS may resolve the issue, but code changes might also be required. Further investigation is needed, and this is expected to happen after the next Visualizer release.

\* Subsetter -- Working as expected; nothing new to report.

\* Visualizer -- Testing has continued, with test cases and documentation being updated as needed, and is now almost done. We plan to create stand-alone apps early next week and test them later in the week. We are still on track to release the new version of the software about one week before the next Science Team meeting.

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

Examination of photon TOF data from the First Photon Bias Test in 2016, and comparison with on-orbit data, yields additional clarity in interpreting the pre-launch data and some preliminary observations regarding parts of the instrument impulse response that occur after the main pulse:

- Two short pulses, of about the same width as the main pulse but 2 to 3 orders of magnitude weaker, that occur shortly after the main pulse, appear to originate in the ATLAS transmitter, most likely in the laser itself.
- A much wider pulse, an additional order of magnitude weaker, that occurs after the short pulses, appears to originate in the ATLAS receiver.

In addition, work continues on:

- Refining the algorithm for pulse position from photon TOF data
- Investigation of jumps in the TEP TOF
- 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.
- Development of an algorithm for estimation of OFM transmittance peak shift from 2-step VBG sweep data.
- Correcting and optimizing ATL02 QA parameters.

### **ISF ACTIVITIES MISSION WEEK 057**

\* Not in science mode

^ Could affect science data quality

\* 2019/283:01:28:37.0000 TEP data collection Grid 374 Duration 3 minutes

^ 2019/283 01:34:11.0000 DMU28 Duration 53 minutes

- \* 2019/283:02:46:04.0000 TEP data collection Grid 156 Duration 3 minutes
- \* 2019/283:02:55:38.0000 TEP data collection Grid 300 Duration 3 minutes
- \* 2019/283:03:14:00.0000 TEP stare with fixed BSM Position Duration 195 minutes
- \* 2019/283:07:23:54.0000 AMCS Cal over open ocean Duration 2 minutes
- 2019/283:08:55:31.0000 OCEANscan Duration 22 minutes
- \* 2019/283:10:42:44.0000 TEP data collection Grid 252 Duration 3 minutes
- \* 2019/283:13:40:52.0000 TEP data collection Grid 104 Duration 3 minutes
- \* 2019/283:13:59:08.0000 TEP data collection Grid 355 Duration 3 minutes
- \* 2019/283:15:10:29.0000 TEP data collection Grid 29 Duration 3 minutes
- \* 2019/283:15:20:23.0000 TEP data collection Grid 173 Duration 3 minutes
- \* 2019/283:16:57:03.0000 TEP data collection Grid 207 Duration 3 minutes
- \* 2019/283:17:02:30.0000 TEP data collection Grid 278 Duration 3 minutes
- \* 2019/283:18:18:30.0000 TEP data collection Grid 25 Duration 3 minutes
- 2019/283:20:42:37.0000 OCEANscan Duration 22 minutes
- \* 2019/283:21:53:12.0000 TEP data collection Grid 379 Duration 3 minutes
- \* 2019/283:23:04:56.0000 TEP data collection Grid 53 Duration 3 minutes
- \* 2019/284:00:35:39.0000 TEP data collection Grid 15 Duration 3 minutes
- \* 2019/284:00:55:27.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2019/284:01:04:24.0000 TEP data collection Grid 410 Duration 3 minutes
- \* 2019/284:04:02:32.0000 TEP data collection Grid 262 Duration 3 minutes
- \* 2019/284:05:44:39.0000 TEP data collection Grid 367 Duration 3 minutes
- \* 2019/284:06:58:16.0000 AMCS Cal over open ocean Duration 2 minutes
- \* 2019/284:08:26:30.0000 TEP data collection Grid 4 Duration 3 minutes
- 2019/284:08:29:52.0000 OCEANscan Duration 22 minutes
- \* 2019/284:10:06:51.0000 AMCS Cal over open ocean Duration 2 minutes
- \* 2019/284:12:03:43.0000 TEP data collection Grid 430 Duration 3 minutes
- \* 2019/284:13:20:27.0000 TEP data collection Grid 176 Duration 3 minutes
- \* 2019/284:14:57:32.0000 TEP data collection Grid 209 Duration 3 minutes
- \* 2019/284:16:42:04.0000 TEP data collection Grid 351 Duration 3 minutes
- \* 2019/284:18:03:20.0000 TEP data collection Grid 169 Duration 3 minutes
- \* 2019/284:19:29:46.0000 TEP data collection Grid 59 Duration 3 minutes
- 2019/284:20:16:58.0000 OCEANscan Duration 22 minutes
- \* 2019/284:22:48:48.0000 TEP data collection Grid 198 Duration 3 minutes
- \* 2019/285:00:10:00.0000 TEP data collection Grid 16 Duration 3 minutes
- \* 2019/285:00:29:48.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2019/285:00:36:08.0000 TEP data collection Grid 375 Duration 3 minutes
- \* 2019/285:02:04:06.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2019/285:03:31:40.0000 TEP data collection Grid 191 Duration 3 minutes
- \* 2019/285:03:47:20.0000 TEP data collection Grid 406 Duration 3 minutes
- \* 2019/285:04:55:31.0000 TEP data collection Grid 45 Duration 3 minutes
- \* 2019/285:05:11:11.0000 TEP data collection Grid 260 Duration 3 minutes
- 2019/285:05:15:20.0000 TOO (TOOid=1175) Duration 3 minutes
- \* 2019/285:06:32:37.0000 AMCS Cal over open ocean Duration 2 minutes
- 2019/285:08:04:14.0000 OCEANscan Duration 22 minutes

- \* 2019/285:09:41:12.0000 AMCS Cal over open ocean Duration 2 minutes
- \* 2019/285:12:57:25.0000 TEP data collection Grid 212 Duration 3 minutes
- \* 2019/285:14:34:19.0000 TEP data collection Grid 246 Duration 3 minutes
- \* 2019/285:14:39:31.0000 TEP data collection Grid 318 Duration 3 minutes
- \* 2019/285:14:44:01.0000 TEP data collection Grid 390 Duration 3 minutes
- 2019/285:17:02:00.0000 Stellar window dump Duration 90 minutes
- \* 2019/285:19:01:11.0000 TEP data collection Grid 24 Duration 3 minutes
- 2019/285:19:51:19.0000 OCEANscan Duration 22 minutes
- \* 2019/285:21:04:32.0000 TEP data collection Grid 416 Duration 3 minutes
- \* 2019/285:22:38:24.0000 TEP data collection Grid 414 Duration 3 minutes
- 2019/285:22:52:08.0000 RTWscan Duration 90 minutes
- \* 2019/286:01:38:27.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2019/286:04:32:29.0000 TEP data collection Grid 81 Duration 3 minutes
- \* 2019/286:06:13:57.0000 AMCS Cal over open ocean Duration 2 minutes
- 2019/286:07:38:35.0000 OCEANscan Duration 22 minutes
- \* 2019/286:09:15:33.0000 AMCS Cal over open ocean Duration 2 minutes
- \* 2019/286:14:00:50.0000 TEP data collection Grid 139 Duration 3 minutes
- \* 2019/286:17:30:18.0000 TEP data collection Grid 421 Duration 3 minutes
- 2019/286:20:59:58.0000 OCEANscan Duration 22 minutes
- 2019/286:22:26:29.0000 RTWscan Duration 90 minutes
- \* 2019/287:01:12:48.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2019/287:07:15:37.0000 AMCS Cal over open ocean Duration 2 minutes
- 2019/287:08:47:13.0000 OCEANscan Duration 22 minutes
- 2019/287:20:34:19.0000 OCEANscan Duration 22 minutes
- \* 2019/288:00:47:09.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2019/288:06:49:58.0000 AMCS Cal over open ocean Duration 2 minutes
- 2019/288:08:21:34.0000 OCEANscan Duration 22 minutes
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- \* 2019/288:17:57:38.0000 TEP data collection Grid 205 Duration 3 minutes
- 2019/288:20:08:40.0000 OCEANscan Duration 22 minutes
- \* 2019/289:00:04:20.0000 TEP data collection Grid 52 Duration 3 minutes
- \* 2019/289:00:21:30.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2019/289:01:55:47.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- 2019/289:03:00:00.0000 Laser window dump Duration 2 minutes
- \* 2019/289:06:24:18.0000 AMCS Cal over open ocean Duration 2 minutes
- 2019/289:07:55:55.0000 OCEANscan Duration 22 minutes
- \* 2019/289:09:32:53.0000 AMCS Cal over open ocean Duration 2 minutes
- \* 2019/289:17:39:47.0000 TEP data collection Grid 313 Duration 3 minutes
- 2019/289:19:43:01.0000 OCEANscan Duration 22 minutes
- \* 2019/289:23:51:44.0000 TEP data collection Grid 232 Duration 3 minutes