

ICESat-2 PROJECT SCIENCE OFFICE REPORT

Monday, February 10, 2020 thru Sunday, February 16, 2019

RGTs spanned: 692-798

Cycle 6

Items of Note:

All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. SIPS delivered all remaining Release 002 data products (ATL04, ATL09, ATL12, and ATL13) products from September 7 through November 15, 2019 to NSIDC; the entire data record for all 10 released data products at NSIDC now goes from 14 October 2018 through 15 November 2019. ASAS delivered an updated v5.3 release to SIPS to address issues discovered after the initial release of v5.3.

Members of the PSO and associated elements gathered on Thursday, 2/13 to discuss status of lower-level data product development and assessment (namely ATL02 and ATL03), as well as operational considerations and concerns as we begin to schedule and develop the next build and release of science data products (release 004).

NSIDC ICESat-2 Metrics through February 16: 1,584 total users of 10 available data products; 3,031,069 sciences files downloaded. ATL03 is in the lead with 647 unique users of 449,236 files downloaded. ATL08 is in a close second with 636 unique users and 1,062,170 files downloaded, and ATL06 is in third place with 440 unique users and 1,240,053 files downloaded.

****ELEMENT DETAILS BELOW****

CAMS/POD:

CAMS: Regular CAMS operations: constraint and conjunction monitoring for MW074 and MW075 and mission planning for MW076.

CAMS recommended LASER ARM to mitigate laser conjunction with 42987 on 2020043.

POD: Regular POD operations continue. Intermediate POD was completed for GPS week 2089. Final POD was completed for GPS week 2091.

ISF:

All ATLAS housekeeping data is nominal

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

WTEM Peak to Edge Ratio: 1.20

Laser 2 Temperature Error: -0.26C

SADA in SAILBOAT Mode

Spacecraft orientation: + X

Mission Planning:

MW75 ATS is loaded to the spacecraft and currently operating
MW76 has been delivered, nominal calibrations

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Activities during the past week:

Real-time activities:

Executed sCAR91 and sCAR102 to clear routine flags

ATS activities:

Routine Instrument calibrations, Ocean scans and Vegetation Data collection.

SAT generated for mini-ATS containing LCA31 to mitigate HIE with 42987 (SKYSAT C11), the laser in ARM mode for 10 seconds 2020/043:15:44:48

Other Activities:

DMU040 2020/044:13:41:48.00 with a duration of 60 minutes. ISF set the ILRS NOGO/GO flags around the activity.

2020 Q1 scan - Feb 13 : scan completed with no medium or high vulnerabilities detected

Attended the PSO ATL02/03 Summit 2/13

Near-term activities:

Tech HW refresh plan Phase 1:

Acceptance testing: ongoing

ORR: TBD

Release into Ops: By end of February

Tech HW refresh plan Phase 2:

Procurement started

Facility:

Red Hat OS License re-order

RSA Token re-order

Notes/Issues:

N/A

LTO Schedule:

All items remain on schedule

**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, ATL04, ATL06, ATL07, ATL08, ATL09, and ATL10 using ANC03/04/05 files from the CAMS.
- o Distributed the rapid Science Data products to the SCF.
- Delivered remaining Release 002 data products (ATL04, ATL09, ATL12, and ATL13) products from September 7 through November 15, 2019 to NSIDC.
- Continued with setup of the new hardware to augment the SIPS clusters.
- Started delivery of ANC13 and ANC27 files to the POD as requested during the PSO summit on February 13.
- Coordinated with Sungkoo Bae (PPD) to pick-up and transfer ANC05's for the WSMR test days (271, 285, 304) to the Playground cluster. This will also include all ATL02s and associated ancillary files to produce test ATL03s.

**ASAS:**

ASAS delivered an updated v5.3 release to SIPS to address issues discovered after the initial release of v5.3.

ASAS has created example ANC20s for both the Arctic and Antarctic file and delivered same to the Sea Ice team for evaluation and is working on sample browse images.

The characterization of blunders in the Arctic32 DEM is proving to be interesting. ASAS currently has LOTS of results and is evaluating methods of summarizing/presenting those results.

The Land Ice and Land/Veg PGEs passed acceptance review and remaining reviews are scheduled for the next few week.

Atmosphere continues addressing an issue in low-rate blowing snow. A fix for repeated times in ANC39 during periods of missing data has been developed.

The L1B additional coarse count fix for those times when PCE2 has swapped the fine counts was delivered in the updated V5.3 release.

The Land issue involving using h\_mean instead of h\_li to center the residual histograms was delivered in the updated V5.3 release.

The Land/Veg issue involving a dimension scale issue reported by SCF was delivered in the updated V5.3 release..

Inland Water work involves completing unit testing.

Ocean work is proceeding with the determination of harmonic coefficients.

### **SCF:**

The SCF is operating nominally. Data for releases 002 and R002 are being ingested and distributed. Distribution of release 953 is ongoing. Full granule subscriptions have caught up and are current. Subsetting subscriptions are still running but should finish within a week. The most recent release 002 data that have been delivered to NSIDC (2019-09-01 to 2019-11-15) are being deleted from the SCF to ensure sufficient disk space is available for the upcoming release 003 data. A file listing the current SCF data holdings is attached.

\* Data Management -- We expect that a second server on which we can run SDMS will be available in the coming weeks. Once set up and configured, processing should speed up, since more jobs will be able to run at once. A minor update was made to the code that verifies subscriptions ran, to provide more details in the logs.

\* Subsetter -- Issues found with the 953 data during subsetting have been reported to ASAS and will be fixed for release 003. Modifications have been made to handle the current 953 data, and all products run correctly in testing now; confirmation that the resulting subsetted files contain the correct data is in progress.

\* Visualizer -- Work continues on updates to handle ASAS v5.3 data.

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

Analysis of the “afterpulses” due to reflections within the ATLAS receiver shows that the temporal spacing and amplitude ratios of the “afterpulses” relative to the “main” pulses appear to be stable to within measurement uncertainty. This is a promising indication for the use of afterpulses to estimate the location and amplitude of extremely strong return pulses that are heavily distorted by dead-time effects.

In addition, work continues on:

- Refining the algorithm for extracting time-of-flight bias from the TEP data to optimize its stability.
- Investigating the mechanism 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.

## **ISF ACTIVITIES MISSION WEEK 075:**

\* Not in science mode

^ Could affect science data quality

2020/044:02:11:39.0000 OCEANscan Duration 22 minutes

\* 2020/044:04:54:05.0000 TEP data collection Grid 89 Duration 3 minutes

\* 2020/044:07:45:34.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

\* 2020/044:09:15:44.0000 TEP data collection Grid 371 Duration 3 minutes

\* 2020/044:09:28:47.0000 TEP data collection Grid 191 Duration 3 minutes

2020/044:10:53:37.0000 TOO TOOid 1323 RGT 744 offpoint 1.86deg Duration 2 minutes

\* 2020/044:11:13:32.0000 TEP data collection Grid 44 Duration 3 minutes

2020/044:12:25:33.0000 TOO TOOid 1318 RGT 745 offpoint 2.44deg Duration 2 minutes

\* 2020/044:12:28:53.0000 AMCS Cal over open ocean Duration 2 minutes

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2020/044:15:33:01.0000 OCEANscan Duration 22 minutes

2020/044:16:59:32.0000 RTWscan Duration 90 minutes

\* 2020/044:18:57:08.0000 TEP data collection Grid 176 Duration 3 minutes

\* 2020/044:20:18:23.0000 TEP data collection Grid 355 Duration 3 minutes

\* 2020/044:20:28:49.0000 TEP data collection Grid 210 Duration 3 minutes

\* 2020/044:20:36:38.0000 TEP data collection Grid 102 Duration 3 minutes

\* 2020/044:22:11:29.0000 TEP data collection Grid 99 Duration 3 minutes

\* 2020/044:22:16:11.0000 TEP data collection Grid 27 Duration 3 minutes

\* 2020/044:23:50:29.0000 TEP data collection Grid 25 Duration 3 minutes

2020/045:01:45:59.0000 OCEANscan Duration 22 minutes

\* 2020/045:04:07:13.0000 TEP data collection Grid 379 Duration 3 minutes

\* 2020/045:06:02:23.0000 TEP data collection Grid 88 Duration 3 minutes

\* 2020/045:07:19:55.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

\* 2020/045:10:50:30.0000 TEP data collection Grid 8 Duration 3 minutes

\* 2020/045:12:14:33.0000 AMCS Cal over open ocean Duration 2 minutes

\* 2020/045:13:30:20.0000 TEP data collection Grid 401 Duration 3 minutes

\* 2020/045:13:35:46.0000 AMCS Cal over open ocean Duration 2 minutes

2020/045:15:07:22.0000 OCEANscan Duration 22 minutes

\* 2020/045:16:38:55.0000 TEP data collection Grid 432 Duration 3 minutes

\* 2020/045:16:49:22.0000 TEP data collection Grid 288 Duration 3 minutes

\* 2020/045:16:54:47.0000 TEP data collection Grid 215 Duration 3 minutes

2020/045:17:45:00.0000 Laser window dump Duration 2 minutes

\* 2020/045:18:18:02.0000 TEP data collection Grid 358 Duration 3 minutes

\* 2020/045:19:55:20.0000 TEP data collection Grid 319 Duration 3 minutes

\* 2020/045:20:03:09.0000 TEP data collection Grid 211 Duration 3 minutes

\* 2020/045:21:27:01.0000 TEP data collection Grid 353 Duration 3 minutes

\* 2020/045:21:45:16.0000 TEP data collection Grid 100 Duration 3 minutes

\* 2020/045:22:56:04.0000 TEP data collection Grid 423 Duration 3 minutes

- \* 2020/045:23:19:34.0000 TEP data collection Grid 98 Duration 3 minutes
- \* 2020/045:23:23:32.0000 TEP data collection Grid 26 Duration 3 minutes
- 2020/046:00:07:42.0000 TOO TOOid 1319 RGT 768 offpoint 1.20deg Duration 2 minutes
- \* 2020/046:00:40:49.0000 TEP data collection Grid 276 Duration 3 minutes
- \* 2020/046:02:33:24.0000 TEP data collection Grid 21 Duration 3 minutes
- 2020/046:02:54:37.0000 OCEANscan Duration 22 minutes
- \* 2020/046:03:44:10.0000 TEP data collection Grid 343 Duration 3 minutes
- \* 2020/046:03:54:36.0000 TEP data collection Grid 199 Duration 3 minutes
- \* 2020/046:05:23:41.0000 TEP data collection Grid 269 Duration 3 minutes
- \* 2020/046:06:54:15.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2020/046:07:11:00.0000 TEP data collection Grid 86 Duration 3 minutes
- \* 2020/046:07:16:16.0000 TEP data collection Grid 14 Duration 3 minutes
- \* 2020/046:08:21:29.0000 TEP data collection Grid 409 Duration 3 minutes
- \* 2020/046:08:42:41.0000 TEP data collection Grid 120 Duration 3 minutes
- 2020/046:08:59:38.0000 TOO TOOid 1325 RGT 773 offpoint 0.04deg Duration 2 minutes
- \* 2020/046:10:06:33.0000 TEP data collection Grid 262 Duration 3 minutes
- \* 2020/046:11:53:53.0000 TEP data collection Grid 79 Duration 3 minutes
- \* 2020/046:13:10:07.0000 AMCS Cal over open ocean Duration 2 minutes
- 2020/046:14:41:42.0000 OCEANscan Duration 22 minutes
- \* 2020/046:16:17:27.0000 AMCS Cal over open ocean Duration 2 minutes
- \* 2020/046:16:36:45.0000 TEP data collection Grid 108 Duration 3 minutes
- \* 2020/046:21:03:58.0000 TEP data collection Grid 317 Duration 3 minutes
- \* 2020/046:22:47:53.0000 TEP data collection Grid 171 Duration 3 minutes
- \* 2020/047:00:04:42.0000 TEP data collection Grid 421 Duration 3 minutes
- 2020/047:02:28:58.0000 OCEANscan Duration 22 minutes
- \* 2020/047:03:18:31.0000 TEP data collection Grid 344 Duration 3 minutes
- \* 2020/047:06:28:36.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2020/047:08:02:53.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2020/047:09:38:17.0000 TEP data collection Grid 298 Duration 3 minutes
- \* 2020/047:12:44:27.0000 AMCS Cal over open ocean Duration 2 minutes
- 2020/047:14:16:03.0000 OCEANscan Duration 22 minutes
- \* 2020/047:15:53:02.0000 AMCS Cal over open ocean Duration 2 minutes
- \* 2020/047:17:45:23.0000 TEP data collection Grid 106 Duration 3 minutes
- \* 2020/047:19:11:50.0000 TEP data collection Grid 212 Duration 3 minutes
- \* 2020/047:22:25:38.0000 TEP data collection Grid 135 Duration 3 minutes
- \* 2020/048:01:15:57.0000 TEP data collection Grid 383 Duration 3 minutes
- 2020/048:02:03:18.0000 OCEANscan Duration 22 minutes
- \* 2020/048:07:37:14.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2020/048:12:18:48.0000 AMCS Cal over open ocean Duration 2 minutes
- 2020/048:13:50:23.0000 OCEANscan Duration 22 minutes
- \* 2020/048:15:27:22.0000 AMCS Cal over open ocean Duration 2 minutes
- 2020/049:01:37:39.0000 OCEANscan Duration 22 minutes
- \* 2020/049:07:11:34.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2020/049:12:04:12.0000 AMCS Cal over open ocean Duration 2 minutes

2020/049:13:24:44.0000 OCEANscan Duration 22 minutes  
\* 2020/049:15:01:43.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/049:16:25:32.0000 RTWscan Duration 90 minutes  
2020/049:20:05:00.0000 Stellar window dump Duration 90 minutes  
2020/050:02:46:16.0000 OCEANscan Duration 22 minutes  
\* 2020/050:06:45:54.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/050:13:01:46.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/050:14:33:21.0000 OCEANscan Duration 22 minutes  
\* 2020/050:16:08:13.0000 TEP data collection Grid 396 Duration 3 minutes