

ICESat-2 PROJECT SCIENCE OFFICE REPORT

Monday, January 13, 2020 thru Sunday, January 19, 2019

RGTs spanned: 265-370

Cycle 6

Items of Note:

All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. The ISF executed CAR477 to reset ATLAS PCE2 to clear an anomalous condition 17 January at 15:58 and 17: 23; the PCEs were out of science mode for approximately 90 minutes between those two contacts.

The “hot fix” to ATL02, to implement automatic detection and correction of swapped fine counts, was implemented, along with additional QA parameters to indicate when the new capability is operating. The daily ATL02 QA Trigger Summary showed the automatic correction operating until PCE 2 was reset on 17 January, then nominal operation thereafter.

NSIDC ICESat-2 Metrics through January 12: 1,507 total users of 10 available data products; 2,856,977 sciences files downloaded. ATL03 is in the lead with 626 unique users of 456,589 files downloaded. ATL08 is in a close second with 593 unique users and 977,619 files downloaded, and ATL06 is in third place with 427 unique users and 1,192,314 files downloaded.

****ELEMENT DETAILS BELOW****

CAMS/POD:

CAMS: Regular CAMS operations: constraint and conjunction monitoring for MW070 and MW071 and mission planning for MW072.

CAMS recommended -5deg slew for HIE event with ISS (25544) for DOY011(MW070).

CAMS recommended Laser Arm for HIE event with 41963 on DOY016 (MW071).

CAMS recommended Laser Arm for HIE event with 4922 for DOY017(MW071).

CAMS recommended Laser Arm for HIE event with 42036 for DOY018(MW071).

CAMS recommended Laser Arm for HIE event with 43906 for DOY018(MW071). Event self-mitigated prior to planning.

CAMS continues to target mooring at 36.0259 lat, -125.105 lon per the science team request.

POD: Regular POD operations continue. Intermediate POD was completed for GPS week 2087. Final POD was completed for GPS week 2085. All results appear nominal.

Final calibrated ANC products covering DoY 250-319 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: 1.213
Laser 2 Temperature Error: -0.16C
SADA in SAILBOAT Mode
Spacecraft orientation: + X

Mission Planning:

MW71 ATS is loaded to the spacecraft and currently operating
MW72 has been delivered, nominal calibrations and, the monthly TEP Stare

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Activities during the past week:

Real-time activities:

Executed CAR477 to reset ATLAS PCE2 to clear an anomalous condition 2020/017 15:58 and 17:23, the PCEs were out of science mode for approx. 90 mins between those two contacts. (note 1)

Executed sCAR249 to update the onboard AMCS XY bias (note 2)

Supported the ICESat Network Migration, commanding from the ISF and BISF.  
Supported recertification of WG1  
Ran sCAR91 to clear routine SBS

ATS activities:

Routine Instrument calibrations, Ocean scans and Vegetation Data collection.

Other Activities:

Planned a split ATS with neg. 5 degree slew: LCA27 25544 (ISS) 11-Jan-2020 14:01:47  
Added a 10 second laser to ARM to the MW71 ATS to mitigate LCA28 41963 (FLOCK 3P 27) 16-Jan-2020 06:53:19

Mini-ATS for LCA29 4922 (COSMOS 394) 17-Jan-2020 21:04:02 laser to ARM

Created a mini-ATS for LCA30 (FLOCK 3P 62), the mini-ATS was not loaded due to the necessity of adding in a RMM001- DMU038 to avoid Lupe1, the ten second laser to ARM for this LCA was included in a split ATS created for RMM001, it executed 18-Jan-2020 21:44:54

The RMM001-DMU038 activity began 2020/018 23:29:54 and continued for 55 minutes

Delivered the ATLAS Db 20.1 to NG via large file transfer

FLATLAS -- tested FSSE STOL proc updates

Near-term activities:

Continuing to work on the ISF tech refresh

Host replacing MacOS host is installed within the SPOCC environment and locally tested.

Acceptance testing: January 21 @ noon

ORR: January 30 @ 3pm

Release into Ops: Feb 6

Notes/Issues:

1) CAR477 resets PCE2 to resolve a recurrence of the ATLAS ARB-001, PCE2 Upper Threshold Crossing Anomaly. Analysis of telemetry after the reset shows the condition cleared successfully.

2) ATLAS warmed in the weeks prior to the holidays, ISF had updated VBG setpoints to keep WTEM peak to edge at 1.2,

Notified PSO that the AMCS Cal bias had a slow drift also tied to the warming

Verified we'd seen similar behavior in 18/19 during similar SC config/beta angle

Updated Telescope primary and secondary temp set points to control the temp better

Computed the AMCS XY bias position following the telescope setpoint change and uploaded the new XY bias to ATLAS.

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.
- Installed SIPS Build 4.3.1 (with L1B hotfix to handle the PCE2 anomalous Tx fine counts bytes out-of-order) on the Ops system on January 15.
  - o Started producing the "fixed" ATL02s from the January 15 01:53:42.
- Produced Release 002 final L2A and L3A products for Sept. 6 – Nov. 6 from the final ANC03/04/05 files from the POD.
  - o Distributed the ATL03, ATL04, ATL06, ATL07, ATL08, ATL09, ATL10, ATL12, and ATL13 products to the SCF.
- Reprocessed the Rel 002 L1B and ANC41 products for Nov.6 – Nov. 25 using the updated L1B ASAS hotfix
  - o Produced Release 002 L2A and L3A products for Nov 7 – Nov. 15 from the final ANC03/04/05 files from the POD.

- o Distributed the ATL03, ATL04, ATL06, ATL07, ATL08, ATL09, ATL10, ATL12, and ATL13 products to the SCF.
- SIPS will start reprocessing the ATL02s and ANC41s for Dec. 26-Jan. 15 next week.

#### **ASAS:**

ASAS is under code freeze and working towards the delivery of ASAS v5.3 to SIPS for testing.

#### **SCF:**

The SCF is operating nominally. Data for releases 002 and R002, including a new batch of finals (from about Sep. 7 to Nov. 6), are being ingested and distributed. Ingest of this new batch of data is expected to complete next week, but fulfillment of subscriptions will likely take longer to finish. New bug fixes for the Subsetter were placed into operations, and work continues on updating the Visualizer. A file listing the current SCF data holdings is attached.

\* Data Management -- Older data are being deleted to ensure there is sufficient disk space for the new data. Since a hotfix was applied at SIPS, one day of test data made using this fix was obtained and provided to the ATL02 team lead for evaluation before full production of new data began. Also, a small test run was done to ensure changes to the ATL02 product from this fix did not affect the SCF (they did not). We are monitoring the current ingest to ensure it runs smoothly.

\* Subsetter -- Updates were made to correct two errors in the algorithm that identifies empty output files. After testing that the fixes worked as expected, they were placed into operations. A fix for subsetting ATL12 by surface types has been developed but needs further testing before it is ready for operations.

\* Visualizer -- The code has been updated internally to v7.6. Apart from bug fixes, an option to allow saving product lineage to a file has been added and improvements were made to simultaneous paging. Work on a new feature to link x-axes across subplots is in progress.

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

The "hot fix" to ATL02, to implement automatic detection and correction of swapped fine counts, was implemented, along with additional QA parameters to indicate when the new capability is operating. The daily ATL02 QA Trigger Summary showed the automatic correction operating until PCE 2 was reset on 17 January, then nominal operation thereafter.

In addition, work continues on:

- Simulating the effect of "slips" and "swaps" in the timing data
- Investigating the mechanism of "jumps" in the TEP TOF
- Reprocessing I&T data using the latest EMG fit method.

- 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.

### **ATL03:**

Work continues on approving ASAS changes for rel003, including QA parameters related to the reference DEM and improving the signal finding algorithm to omit clouds from the signal finding approach.

### **ISF ACTIVITIES MISSION WEEK 071:**

\* Not in science mode

^ Could affect science data quality

2020/016:03:09:58.0000 OCEANscan Duration 22 minutes

\* 2020/016:03:35:57.0000 TEP data collection Grid 399 Duration 3 minutes

\* 2020/016:05:02:26.0000 AMCS Cal over open ocean Duration 2 minutes

\* 2020/016:05:28:35.0000 TEP data collection Grid 415 Duration 3 minutes

\* 2020/016:05:33:49.0000 TEP data collection Grid 343 Duration 3 minutes

\* 2020/016:05:44:15.0000 TEP data collection Grid 198 Duration 3 minutes

\* 2020/016:06:53:04.0000 Put laser in ARM mode for LCA28 41963 (FLOCK 3P 27) 16-Jan-2020  
06:53:19 Duration 1 minute

\* 2020/016:07:21:08.0000 TEP data collection Grid 160 Duration 3 minutes

\* 2020/016:08:10:58.0000 TEP data collection Grid 321 Duration 3 minutes

\* 2020/016:08:16:11.0000 TEP data collection Grid 392 Duration 3 minutes

\* 2020/016:08:46:17.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

\* 2020/016:08:54:55.0000 TEP data collection Grid 158 Duration 3 minutes

\* 2020/016:11:18:14.0000 TEP data collection Grid 280 Duration 3 minutes

\* 2020/016:11:48:23.0000 TEP data collection Grid 369 Duration 3 minutes

\* 2020/016:11:53:35.0000 TEP data collection Grid 297 Duration 3 minutes

\* 2020/016:13:22:39.0000 TEP data collection Grid 367 Duration 3 minutes

\* 2020/016:13:37:51.0000 AMCS Cal over open ocean Duration 2 minutes

\* 2020/016:14:54:19.0000 TEP data collection Grid 401 Duration 3 minutes

\* 2020/016:14:59:45.0000 AMCS Cal over open ocean Duration 2 minutes

\* 2020/016:16:08:39.0000 TEP data collection Grid 380 Duration 3 minutes

2020/016:16:31:21.0000 OCEANscan Duration 22 minutes

\* 2020/016:17:36:47.0000 TEP data collection Grid 306 Duration 3 minutes

2020/016:17:57:52.0000 RTWscan Duration 90 minutes

\* 2020/016:19:50:15.0000 TEP data collection Grid 249 Duration 3 minutes

\* 2020/016:19:55:27.0000 TEP data collection Grid 177 Duration 3 minutes

\* 2020/016:20:46:34.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/016:22:19:42.0000 TEP data collection Grid 299 Duration 3 minutes  
\* 2020/016:22:51:00.0000 TEP data collection Grid 353 Duration 3 minutes  
\* 2020/017:00:01:36.0000 TEP data collection Grid 405 Duration 3 minutes  
\* 2020/017:01:31:25.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/017:03:03:00.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/017:03:31:15.0000 TEP data collection Grid 382 Duration 3 minutes  
2020/017:04:18:36.0000 OCEANscan Duration 22 minutes  
\* 2020/017:05:05:44.0000 TEP data collection Grid 379 Duration 3 minutes  
\* 2020/017:06:45:04.0000 TEP data collection Grid 305 Duration 3 minutes  
\* 2020/017:08:20:37.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/017:08:31:31.0000 TEP data collection Grid 122 Duration 3 minutes  
\* 2020/017:10:01:27.0000 TEP data collection Grid 192 Duration 3 minutes  
\* 2020/017:12:54:22.0000 TEP data collection Grid 404 Duration 3 minutes  
2020/017:13:32:12.0000 TOO TOOid 1280 RGT 333 offpoint 0.00deg Duration 2 minutes  
\* 2020/017:14:34:06.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/017:15:58:06.0000 PCE2 reboot CAR477 all PCEs in standby mode Duration 90 minutes  
2020/017:16:05:41.0000 OCEANscan Duration 22 minutes  
\* 2020/017:17:39:45.0000 TEP data collection Grid 361 Duration 3 minutes  
\* 2020/017:17:47:42.0000 TEP data collection Grid 288 Duration 3 minutes  
\* 2020/017:17:57:22.0000 TEP data collection Grid 144 Duration 3 minutes  
\* 2020/017:20:20:54.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/017:21:03:47.0000 Put laser in ARM mode for LCA29 4922 (COSMOS 394) 17-Jan-2020  
21:04:02 Duration 1 minute  
2020/017:23:05:00.0000 Laser window dump Duration 2 minutes  
2020/018:01:07:18.0000 TOO TOOid 1283 RGT 341 offpoint 2.78deg Duration 2 minutes  
\* 2020/018:02:37:54.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/018:03:18:38.0000 TEP data collection Grid 202 Duration 3 minutes  
2020/018:03:52:56.0000 OCEANscan Duration 22 minutes  
\* 2020/018:05:53:12.0000 TEP data collection Grid 432 Duration 3 minutes  
\* 2020/018:06:31:50.0000 TEP data collection Grid 125 Duration 3 minutes  
\* 2020/018:07:54:58.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/018:14:08:26.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/018:15:40:02.0000 OCEANscan Duration 22 minutes  
\* 2020/018:17:17:01.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/018:19:55:22.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/018:21:44:39.0000 Put laser in ARM mode for LCA30 42036 (FLOCK 3P 62) 18-Jan-2020  
21:44:54 Duration 1 minute  
^ 2020/018:23:29:55.0000 DMU38 and RMM01 Duration 55 minutes  
\* 2020/019:01:21:18.0000 TEP data collection Grid 169 Duration 3 minutes  
\* 2020/019:02:12:47.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/019:03:27:17.0000 OCEANscan Duration 22 minutes  
\* 2020/019:05:21:27.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/019:09:01:13.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

\* 2020/019:13:42:47.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/019:15:14:22.0000 OCEANscan Duration 22 minutes

\* 2020/019:16:51:21.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/019:17:05:02.0000 TOO TOOid 1282 RGT 366 offpoint 0.57deg Duration 2 minutes

\* 2020/019:18:38:29.0000 TEP data collection Grid 179 Duration 3 minutes

\* 2020/019:19:29:59.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

\* 2020/019:21:44:27.0000 TEP data collection Grid 210 Duration 3 minutes

\* 2020/020:01:47:40.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/020:03:01:37.0000 OCEANscan Duration 22 minutes

\* 2020/020:04:56:19.0000 AMCS Cal over open ocean Duration 2 minutes

\* 2020/020:08:35:33.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

\* 2020/020:11:47:51.0000 TEP data collection Grid 261 Duration 3 minutes  
2020/020:13:14:15.0000 TOO TOOid 1284 RGT 379 offpoint 0.48deg Duration 2 minutes

\* 2020/020:13:27:30.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/020:14:48:43.0000 OCEANscan Duration 22 minutes  
2020/020:17:49:31.0000 RTWscan Duration 90 minutes

\* 2020/020:20:38:54.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

\* 2020/021:01:22:29.0000 AMCS Cal over open ocean Duration 2 minutes

\* 2020/021:02:56:47.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/021:04:10:15.0000 OCEANscan Duration 22 minutes

\* 2020/021:08:09:54.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

\* 2020/021:14:25:45.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/021:15:57:21.0000 OCEANscan Duration 22 minutes

\* 2020/021:20:13:31.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
2020/022:00:58:49.0000 TOO TOOid 1285 RGT 402 offpoint 1.05deg Duration 2 minutes

\* 2020/022:02:31:24.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/022:03:44:36.0000 OCEANscan Duration 22 minutes

\* 2020/022:07:44:15.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

\* 2020/022:09:20:55.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
2020/022:11:23:44.0000 TOO TOOid 1281 RGT 408 offpoint 0.06deg Duration 2 minutes

\* 2020/022:14:00:06.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/022:15:31:42.0000 OCEANscan Duration 22 minutes

\* 2020/022:17:08:41.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/022:20:05:00.0000 Stellar window dump Duration 90 minutes