

ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, April 20, 2020 thru Sunday, April 26, 2020

RGTs spanned: 374-480
Cycle 7

Items of Note:

All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. SIPS staged the remaining Release 003 data products for October 14, 2018-November 15, 2019 for NSIDC pickup. Additionally, SIPS reprocessing of Rel 003 ATL10 is on hold until new operational overrides are approved. SIPS reprocessed some Rel 003 ATL10s on the AccTest cluster for review by the PSO and ST. SIPS will start staging Release 003 data products for November 16, 2019-March 06, 2020 for NSIDC pickup as soon as the pending data is picked up.

Operations continued nominally, in our sixth week of telework, with no major disruptions.

NSIDC ICESat-2 Metrics through April 26: 1,783 total users of 10 available data products; 4,492,343 sciences files downloaded. ATL03 is in the lead with 738 unique users of 500,623 files downloaded. ATL08 is in a close second with 717 unique users and an astounding 2,295,259 files downloaded, and ATL06 is in third place with 489 unique users and 1,372,019 files downloaded.

****ELEMENT DETAILS BELOW****

CAMS/POD:

CAMS: Regular CAMS operations: constraint and conjunction monitoring for MW084 and MW085 and mission planning for MW086.

POD: Regular POD operations continue. Intermediate POD was completed for GPS week 2101. Final POD was completed for GPS week 2099.

ISF:

All ATLAS housekeeping data is nominal
Laser 2 is firing at energy level 4 and in science mode
WTEM Peak to Edge Ratio: 1.226
Laser 2 Temperature Error: -0.25C
SADA in AIRPLANE Mode
Spacecraft orientation: + X

Mission Planning:

MW85 ATS is loaded to the spacecraft and currently operating (PSO Activity List is attached)
MW86 has been delivered, nominal calibrations including TEP Stare 2020/121T22:15:00 (April 30)

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Activities during the past week:

**Real-time activities:**

No realtime commanding was performed due to GSFC Stage 4 status

**ATS activities:**

Routine Instrument calibrations, Ocean scans and Vegetation Data collection, modified RTW scans to avoid scan over the poles

Added commands in MW85 ATS to reset stats in order to clear routine flags

**Other Activities:**

IA006 (inclination adjustment) 2020/109. ISF set ILRS NOGO/GO flags around the activities.

**Near-term activities:**

**Tech HW refresh:**

On hold due to Stage 4 status

**Facility:**

RSA Token re-order - notified tokens delivered to GSFC

Critical patching completed via telework

Q2 patch and scan planned for June

**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.
- SIPS staged the remaining Release 003 data products for October 14, 2018-November 15, 2019 for NSIDC pickup.
- Reprocessing of Rel 003 ATL10 is on hold until we get new overrides. SIPS reprocessed some Rel 003 ATL10s on the AccTest cluster for review by the PSO.
- SIPS will start staging Release 003 data products for November 16, 2019-March 06, 2020 for NSIDC pickup as soon as the pending data is picked up.

**ASAS:**

The 954a1 functional testing is currently underway. This test re-creates the 953 product sets with the in-work ASAS v5.4 updated software.

The ASAS Python codebase has been revamped. This revision addresses memory usage issues and removes a significant amount of Fortran-like coding present during early Python development.

For atmosphere, the blowing snow modifications are on hold. This has allowed work to proceed on ATL09 DDA surface finding.

Performance issues are still a problem with ATL11 pre-processing on ADAPT. ASAS contributed metadata and orbit\_info code to the ATL11 repository.

For land/veg, a test is underway to determine the effect of ignoring the Landsat canopy flag during execution.

For land ice, work is underway on a refactor of the code that will more closely match the organization described within the ATBD.

For sea ice, SCF reported an issue with the ATL10 multi-beam group during trending. Analysis of the issue is underway. The likely scenario is that the multibeam group will not be filled for Release 003. Issues regarding beam-levelling currently reduce the usefulness of this group. Work is continuing on unit and integration tests for the L3B products.

For inland water, the code to default the ice flag has been completed.

For ocean, work continues on the L3B product.

#### **SCF:**

The SCF is operating nominally. Data for releases 003 and R003 are being ingested and distributed. Test files for reprocessed ATL10 data were copied from SIPS and made available for evaluation. A problem creating trending plots for ATL10 was reported to ASAS for investigation as a possible data issue. A file listing the current SCF data holdings is attached.

\* Data Management -- Creation of trending plots for ATL10 fails intermittently when a certain parameter has no valid data in the range being plotted. ASAS is aware of this, and the code developers are looking into it. Improvements to the trending code to prevent crashes in this case are also being considered. rSCF-related documentation continues to be reviewed and updated in preparation for the on-boarding of new Science Team members.

\* Subsetter -- Working as expected in operations. A package supplied by the HDF Group for copying HDF5 files was tested to see if it would increase the Subsetter's speed. The current code was significantly faster though, so no change will be made here.

\* Visualizer -- The granule location map now has a "change projection" feature and the ability to select resolutions for geopolitical features. Work began on enabling the top x-axis for certain x-y subplots.

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

Work continues on:

- Updated range bias calibration
- Variation of range bias on orbital and seasonal time scales
- Modeling the behavior of the ATLAS receiver during extreme saturation events.
- Refining the QA screening process

- Improving the process for calibrating transmitter-receiver alignment

**ATL03:**

Work continues on release 004 updates, including preventing afterpulses in saturated conditions from being classified as H/M/L confidence signal. Work also continues on a users' guide for comparing ICESat-2 data to other altimetry data sets.

**ISF ACTIVITIES MISSION WEEK 085:**

- \* 2020/114:03:01:36.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2020/114:03:12:35.0000 TEP data collection Grid 123 Duration 3 minutes
- \* 2020/114:03:17:50.0000 TEP data collection Grid 51 Duration 3 minutes
- \* 2020/114:04:32:45.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2020/114:06:16:53.0000 TEP data collection Grid 190 Duration 3 minutes
- \* 2020/114:07:37:12.0000 TEP data collection Grid 369 Duration 3 minutes
- \* 2020/114:09:14:18.0000 AMCS Cal over open ocean Duration 2 minutes
- 2020/114:10:45:54.0000 OCEANscan Duration 22 minutes
- \* 2020/114:12:22:53.0000 AMCS Cal over open ocean Duration 2 minutes
- \* 2020/114:14:13:21.0000 TEP data collection Grid 142 Duration 3 minutes
- \* 2020/114:14:17:51.0000 TEP data collection Grid 70 Duration 3 minutes
- \* 2020/114:15:49:31.0000 TEP data collection Grid 104 Duration 3 minutes
- \* 2020/114:18:52:33.0000 TEP data collection Grid 172 Duration 3 minutes
- \* 2020/114:21:43:11.0000 TEP data collection Grid 420 Duration 3 minutes
- 2020/114:22:33:09.0000 OCEANscan Duration 22 minutes
- \* 2020/114:23:46:14.0000 TEP data collection Grid 20 Duration 3 minutes
- \* 2020/115:01:12:38.0000 TEP data collection Grid 126 Duration 3 minutes
- \* 2020/115:04:07:05.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2020/115:04:29:06.0000 TEP data collection Grid 13 Duration 3 minutes
- \* 2020/115:05:52:54.0000 TEP data collection Grid 155 Duration 3 minutes
- \* 2020/115:08:56:59.0000 AMCS Cal over open ocean Duration 2 minutes
- 2020/115:10:20:14.0000 OCEANscan Duration 22 minutes
- \* 2020/115:11:57:14.0000 AMCS Cal over open ocean Duration 2 minutes
- 2020/115:13:21:03.0000 Segmented RTW Part 1 Duration 37 minutes
- 2020/115:14:10:20.0000 Segmented RTW Part 2 Duration 35 minutes
- 2020/115:14:50:58.0000 Segmented RTW Part 3 Duration 15 minutes
- \* 2020/115:15:21:15.0000 TEP data collection Grid 141 Duration 3 minutes
- 2020/115:23:25:00.0000 Laser window dump Duration 2 minutes
- 2020/115:23:41:47.0000 OCEANscan Duration 22 minutes
- \* 2020/116:02:05:38.0000 TEP data collection Grid 341 Duration 3 minutes
- \* 2020/116:03:34:41.0000 TEP data collection Grid 411 Duration 3 minutes
- \* 2020/116:03:41:26.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- 2020/116:05:46:46.0000 TOO TOOid 1417 RGT 453 offpoint 0.19deg Duration 2 minutes
- \* 2020/116:06:53:07.0000 TEP data collection Grid 262 Duration 3 minutes
- \* 2020/116:07:09:23.0000 TEP data collection Grid 45 Duration 3 minutes
- \* 2020/116:08:30:37.0000 TEP data collection Grid 223 Duration 3 minutes
- \* 2020/116:09:57:17.0000 AMCS Cal over open ocean Duration 2 minutes
- 2020/116:11:28:52.0000 OCEANscan Duration 22 minutes

\* 2020/116:17:42:22.0000 TEP data collection Grid 426 Duration 3 minutes  
\* 2020/116:22:34:00.0000 TEP data collection Grid 310 Duration 3 minutes  
2020/116:23:16:07.0000 OCEANscan Duration 22 minutes  
\* 2020/117:00:05:41.0000 TEP data collection Grid 344 Duration 3 minutes  
\* 2020/117:01:53:00.0000 TEP data collection Grid 161 Duration 3 minutes  
\* 2020/117:03:15:46.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/117:03:26:35.0000 TEP data collection Grid 159 Duration 3 minutes  
\* 2020/117:04:50:03.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/117:06:30:40.0000 TEP data collection Grid 226 Duration 3 minutes  
\* 2020/117:09:31:37.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/117:10:03:50.0000 TOO TOOid 1418 RGT 471 offpoint 0.07deg Duration 2 minutes  
2020/117:11:03:12.0000 OCEANscan Duration 22 minutes  
\* 2020/117:12:40:12.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/117:14:27:19.0000 TEP data collection Grid 178 Duration 3 minutes  
\* 2020/117:15:45:57.0000 TEP data collection Grid 392 Duration 3 minutes  
\* 2020/117:15:51:11.0000 TEP data collection Grid 320 Duration 3 minutes  
\* 2020/117:15:56:24.0000 TEP data collection Grid 248 Duration 3 minutes  
\* 2020/117:17:30:41.0000 TEP data collection Grid 245 Duration 3 minutes  
\* 2020/117:17:46:23.0000 TEP data collection Grid 29 Duration 3 minutes  
\* 2020/117:19:07:35.0000 TEP data collection Grid 207 Duration 3 minutes  
\* 2020/117:19:17:42.0000 TEP data collection Grid 63 Duration 3 minutes  
\* 2020/117:20:26:12.0000 TEP data collection Grid 421 Duration 3 minutes  
\* 2020/117:20:45:19.0000 TEP data collection Grid 168 Duration 3 minutes  
2020/117:22:50:28.0000 OCEANscan Duration 22 minutes  
\* 2020/117:23:37:28.0000 TEP data collection Grid 380 Duration 3 minutes  
\* 2020/118:02:48:36.0000 TEP data collection Grid 340 Duration 3 minutes  
\* 2020/118:02:52:06.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/118:04:24:23.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/118:05:59:47.0000 TEP data collection Grid 299 Duration 3 minutes  
\* 2020/118:07:30:49.0000 TEP data collection Grid 333 Duration 3 minutes  
\* 2020/118:09:05:57.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/118:10:37:33.0000 OCEANscan Duration 22 minutes  
\* 2020/118:12:14:32.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/118:18:39:19.0000 TEP data collection Grid 244 Duration 3 minutes  
\* 2020/118:20:21:25.0000 TEP data collection Grid 133 Duration 3 minutes  
\* 2020/118:21:53:06.0000 TEP data collection Grid 167 Duration 3 minutes  
\* 2020/118:21:57:45.0000 TEP data collection Grid 95 Duration 3 minutes  
2020/118:22:12:33.0000 TOO TOOid 1419 RGT 494 offpoint 4.53deg Duration 2 minutes  
2020/118:22:24:48.0000 OCEANscan Duration 22 minutes  
\* 2020/119:01:01:40.0000 TEP data collection Grid 162 Duration 3 minutes  
\* 2020/119:03:58:44.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/119:05:28:50.0000 TEP data collection Grid 372 Duration 3 minutes  
\* 2020/119:07:18:50.0000 TEP data collection Grid 153 Duration 3 minutes  
\* 2020/119:08:46:38.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/119:10:11:53.0000 OCEANscan Duration 22 minutes  
\* 2020/119:11:48:52.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/119:13:12:41.0000 Segmented RTW Part 1 Duration 37 minutes  
2020/119:14:01:56.0000 Segmented RTW Part 2 Duration 35 minutes

2020/119:14:42:31.0000 Segmented RTW Part 3 Duration 14 minutes  
2020/119:17:03:59.0000 TOO TOOid 1420 RGT 506 offpoint 4.60deg Duration 2 minutes  
\* 2020/119:18:28:52.0000 TEP data collection Grid 28 Duration 3 minutes  
\* 2020/119:21:24:49.0000 TEP data collection Grid 203 Duration 3 minutes  
2020/119:23:33:25.0000 OCEANscan Duration 22 minutes  
2020/120:00:15:00.0000 Stellar window dump Duration 90 minutes  
\* 2020/120:03:33:03.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/120:08:33:55.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/120:09:48:55.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/120:11:20:30.0000 OCEANscan Duration 22 minutes  
\* 2020/120:12:57:17.0000 TEP data collection Grid 360 Duration 3 minutes  
2020/120:23:07:45.0000 OCEANscan Duration 22 minutes