

ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, April 27, 2020 thru Sunday, May 3, 2020

RGTs spanned: 481-587
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 Release 003 data products for November 16, 2019 – March 06, 2020 for NSIDC pickup.

The first major land ice paper estimating mass change in Greenland and Antarctica by combining data from ICESat and ICESat-2 (2003 to 2019) is now in press at Science: ***Pervasive ice sheet mass loss reflect competing ocean and atmosphere processes (Smith et al., 2020)***. Congratulations team! Check it out [here](#).

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

NSIDC ICESat-2 Metrics through May 3: 1,832 total users of 10 available data products; 4,555,198 sciences files downloaded. ATLO3 is in the lead with 755 unique users of 519,321 files downloaded. ATLO8 is in a close second with 734 unique users and an astounding 2,311,378 files downloaded, and ATLO6 is in third place with 498 unique users and 1,394,046 files downloaded.

****ELEMENT DETAILS BELOW****

CAMS/POD:

CAMS: Regular CAMS operations: constraint and conjunction monitoring for MW085 and MW086 and mission planning for MW087.

CAMS recommended Laser Arm for conjunction with FLOCK 3P 67 (42002) on DOY 120 - 29Apr20 (MW85). Event self-mitigated

CAMS recommended Laser Arm for conjunction with STPSAT (30775) on DOY 121 – 30Apr20 (MW86).

POD: Regular POD operations continue. Intermediate POD was completed for GPS week 2102. Final POD was completed for GPS week 2100.

Final calibration ANC products for DoY 067-095 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: 1.202

Laser 2 Temperature Error: -0.29C

SADA in AIRPLANE Mode

Spacecraft orientation: + X

Mission Planning:

MW86 ATS is loaded to the spacecraft and currently operating (PSO Activity List is attached)

MW87 has been delivered, nominal calibrations

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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

TEP Stare 2020/121T22:15:00

Other Activities:

DMU046a 2020/121 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

**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, ATL04, ATL06, ATL07, ATL08, ATL09, and ATL10 using ANC03/04/05 files from the CAMS.
  - Distributed the rapid Science Data products to the SCF.
- SIPS staged the Release 003 data products for November 16, 2019 – March 06, 2020 for NSIDC pickup.
- SIPS received final ANC03, ANC04, ANC05 files from the POD for March 07-April 04, 2020. The Release 003 ATL03, ATL04, ATL06, ATL07, ATL08, ATL09, ATL10, ATL12, ATL13 as well as the Release 002 ATL16 and ATL17s have been generated and distributed to the PSO.

The Release 003 ATL10s were processed with new overrides for October 14, 2018 – April 04, 2020 and distributed to the PSO for review.

### **ASAS:**

The 954a1 functional testing has been completed except for ATL13. Once ATL13 is complete, the products will be distributed to the ASAS development server for analysis. If anyone would like to look at these early products, please contact your ASAS developer.

An SDMS update was installed on ASAS-PG to improve functional test execution.

For atmosphere, work is proceeding on L2A ATM surface finding. A new L3B ATBD has been received by ASAS and is in evaluation.

ATL11 development/processing is progressing on ADAPT. Release 002 tiles for all cycles have been generated. Work on metadata improvement is progressing.

For land ice, work is underway on a refactor of the code that will more closely match the organization described within the ATBD. One goal for this refactor is to create more modular functions that can be tested independently.

For sea ice, work is progressing on updating ATL20 metadata and adding code to respect spacecraft orientation. The ATL10 freeboard issue was resolved by not creating the group in question on the product (since its values have not been fully sanctified).

For inland water, several custom debug datasets have been created for ATBD lead analysis.

For ocean, work continues on the L3B product and evaluation of difference in L3A uncertainties.

### **SCF:**

The SCF is operating nominally. Ingest and distribution of data for releases 003 and R003 continue. A new batch of data covering March 7 to April 4 are currently arriving, and data from the previous batch (mid-November to early March) are being deleted for most products. All SCF components are checking on possible updates needed to accommodate planned changes to the ATL10 product. A file listing the current SCF data holdings is attached.

\* Data Management -- Problems trending ATL10 continue intermittently and primarily with the rapid data. Test data for ATL10 that should fix the issue have been made available to users for evaluation; the trending code will likely need major changes to work with the revised data product. Work continues to ensure that rSCF-related documentation is up to date.

\* Subsetter -- The Subsetter is performing normally in operations. The code is being checked to see whether planned changes to the ATL10 products will affect subsetting, and if so, how.

\* Visualizer -- Internally, the software has been updated to v7.16. Recent changes involve the granule location map and include options to change its projection and to select the resolution for geopolitical features. Planned changes to ATL10 will likely lead to the creation of a new dataframe for this product.

### **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 086:**

- \* 2020/121:03:07:24.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2020/121:03:21:31.0000 TEP data collection Grid 122 Duration 3 minutes
- \* 2020/121:04:41:09.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2020/121:04:55:05.0000 Put laser in ARM mode for LCA36 30775 (STPSAT 1) 30-Apr-2020 04:55:20  
Duration 1 minute
- \* 2020/121:06:22:17.0000 TEP data collection Grid 226 Duration 3 minutes
- \* 2020/121:06:30:06.0000 TEP data collection Grid 118 Duration 3 minutes
- 2020/121:06:46:51.0000 TOO TOOid 1435 RGT 530 offpoint 0.07deg Duration 2 minutes
- 2020/121:07:49:02.0000 TOO TOOid 1433 RGT 531 offpoint 2.81deg Duration 2 minutes
- \* 2020/121:08:07:01.0000 TEP data collection Grid 79 Duration 3 minutes
- \* 2020/121:09:23:15.0000 AMCS Cal over open ocean Duration 2 minutes
- 2020/121:09:55:27.0000 TOO TOOid 1434 RGT 532 offpoint 0.03deg Duration 2 minutes
- 2020/121:10:54:50.0000 OCEANscan Duration 22 minutes
- \* 2020/121:12:31:49.0000 AMCS Cal over open ocean Duration 2 minutes
- ^ 2020-121-13:46:27.0000 DMU046a Duration 55 minutes
- \* 2020/121:18:45:00.0000 TEP data collection Grid 388 Duration 3 minutes
- \* 2020/121:20:33:21.0000 TEP data collection Grid 205 Duration 3 minutes
- 2020/121:21:07:48.0000 OCEANscan Duration 22 minutes
- \* 2020/121:22:14:00.0000 TEP Stare 2 orbits of TEP calibration Duration 191 minutes
- \* 2020/122:02:41:57.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2020/122:04:16:02.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2020/122:04:27:33.0000 TEP data collection Grid 157 Duration 3 minutes
- \* 2020/122:07:38:45.0000 TEP data collection Grid 116 Duration 3 minutes
- \* 2020/122:08:57:36.0000 AMCS Cal over open ocean Duration 2 minutes
- 2020/122:10:29:11.0000 OCEANscan Duration 22 minutes
- \* 2020/122:12:06:11.0000 AMCS Cal over open ocean Duration 2 minutes
- 2020/122:12:15:00.0000 Stellar window dump Duration 90 minutes

\* 2020/122:13:45:29.0000 TEP data collection Grid 287 Duration 3 minutes  
\* 2020/122:13:58:31.0000 TEP data collection Grid 106 Duration 3 minutes  
\* 2020/122:15:38:04.0000 TEP data collection Grid 32 Duration 3 minutes  
\* 2020/122:16:43:10.0000 TEP data collection Grid 427 Duration 3 minutes  
2020/122:22:16:27.0000 OCEANscan Duration 22 minutes  
\* 2020/122:23:13:00.0000 TEP data collection Grid 237 Duration 3 minutes  
2020/122:23:38:30.0000 TOO TOOid 1430 RGT 556 offpoint 4.53deg Duration 2 minutes  
\* 2020/123:03:50:23.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/123:07:05:17.0000 TEP data collection Grid 225 Duration 3 minutes  
\* 2020/123:08:36:22.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/123:10:03:33.0000 OCEANscan Duration 22 minutes  
\* 2020/123:11:40:32.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/123:13:04:21.0000 Segmented RTW Part 1 Duration 37 minutes  
2020/123:13:53:34.0000 Segmented RTW Part 2 Duration 35 minutes  
2020/123:14:34:11.0000 Segmented RTW Part 3 Duration 15 minutes  
\* 2020/123:14:56:44.0000 TEP data collection Grid 249 Duration 3 minutes  
2020/123:15:21:25.0000 TOO TOOid 1431 RGT 566 offpoint 4.55deg Duration 2 minutes  
\* 2020/123:19:46:28.0000 TEP data collection Grid 134 Duration 3 minutes  
2020/123:23:25:06.0000 OCEANscan Duration 22 minutes  
\* 2020/124:02:04:35.0000 TEP data collection Grid 124 Duration 3 minutes  
\* 2020/124:02:09:50.0000 TEP data collection Grid 52 Duration 3 minutes  
\* 2020/124:03:24:44.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/124:03:36:16.0000 TEP data collection Grid 158 Duration 3 minutes  
\* 2020/124:05:00:08.0000 TEP data collection Grid 300 Duration 3 minutes  
\* 2020/124:06:47:27.0000 TEP data collection Grid 117 Duration 3 minutes  
\* 2020/124:08:01:22.0000 TEP data collection Grid 403 Duration 3 minutes  
\* 2020/124:08:13:56.0000 TEP data collection Grid 223 Duration 3 minutes  
\* 2020/124:08:24:44.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/124:09:40:36.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/124:11:12:11.0000 OCEANscan Duration 22 minutes  
\* 2020/124:14:23:16.0000 TEP data collection Grid 358 Duration 3 minutes  
\* 2020/124:14:29:37.0000 TEP data collection Grid 285 Duration 3 minutes  
\* 2020/124:19:29:39.0000 TEP data collection Grid 26 Duration 3 minutes  
2020/124:19:38:39.0000 TOO TOOid 1432 RGT 584 offpoint 4.52deg Duration 2 minutes  
\* 2020/124:22:30:21.0000 TEP data collection Grid 129 Duration 3 minutes  
2020/124:22:59:27.0000 OCEANscan Duration 22 minutes  
\* 2020/125:01:28:31.0000 TEP data collection Grid 269 Duration 3 minutes  
\* 2020/125:01:36:20.0000 TEP data collection Grid 161 Duration 3 minutes  
2020/125:02:25:00.0000 Laser window dump Duration 2 minutes  
\* 2020/125:02:59:06.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
2020/125:05:04:20.0000 TOO TOOid 1436 RGT 590 offpoint 4.58deg Duration 2 minutes  
\* 2020/125:07:40:28.0000 TEP data collection Grid 332 Duration 3 minutes  
\* 2020/125:09:14:57.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/125:10:46:32.0000 OCEANscan Duration 22 minutes  
\* 2020/125:12:18:06.0000 TEP data collection Grid 397 Duration 3 minutes  
\* 2020/125:12:23:32.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/125:13:53:54.0000 TEP data collection Grid 395 Duration 3 minutes  
\* 2020/125:20:38:18.0000 TEP data collection Grid 24 Duration 3 minutes

\* 2020/125:21:48:36.0000 TEP data collection Grid 347 Duration 3 minutes  
2020/125:22:33:48.0000 OCEANscan Duration 22 minutes

\* 2020/126:01:00:16.0000 TEP data collection Grid 306 Duration 3 minutes

\* 2020/126:02:33:27.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

\* 2020/126:02:42:22.0000 TEP data collection Grid 195 Duration 3 minutes

\* 2020/126:04:07:44.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

\* 2020/126:05:58:46.0000 TEP data collection Grid 82 Duration 3 minutes

\* 2020/126:07:25:14.0000 TEP data collection Grid 188 Duration 3 minutes

\* 2020/126:08:49:18.0000 AMCS Cal over open ocean Duration 2 minutes

2020/126:09:21:38.0000 TOO TOOid 1437 RGT 608 offpoint 4.61deg Duration 2 minutes

2020/126:10:20:54.0000 OCEANscan Duration 22 minutes

\* 2020/126:11:57:53.0000 AMCS Cal over open ocean Duration 2 minutes

\* 2020/126:15:21:54.0000 TEP data collection Grid 140 Duration 3 minutes

2020/126:22:08:09.0000 OCEANscan Duration 22 minutes

\* 2020/126:23:02:23.0000 TEP data collection Grid 273 Duration 3 minutes

\* 2020/126:23:15:58.0000 TEP data collection Grid 92 Duration 3 minutes

\* 2020/127:00:47:38.0000 TEP data collection Grid 126 Duration 3 minutes

\* 2020/127:00:52:14.0000 TEP data collection Grid 54 Duration 3 minutes

\* 2020/127:03:42:05.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

\* 2020/127:08:26:11.0000 AMCS Cal over open ocean Duration 2 minutes

2020/127:09:55:15.0000 OCEANscan Duration 22 minutes

\* 2020/127:11:32:14.0000 AMCS Cal over open ocean Duration 2 minutes

2020/127:12:56:03.0000 Segmented RTW Part 1 Duration 37 minutes

2020/127:13:45:15.0000 Segmented RTW Part 2 Duration 35 minutes

2020/127:14:25:41.0000 Segmented RTW Part 3 Duration 14 minutes

2020/127:21:42:30.0000 OCEANscan Duration 22 minutes