ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, March 30, 2020 thru Sunday, April 5, 2019

RGTs spanned: 52-158
Cycle 7

Items of Note:
All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. SIPS completed processing Release 003 ATL01, ATL02, ATL03, ATL04, ATL08, ATL09, ATL06, ATL12, and ATL13 for November 16, 2019 – March 06, 2020. SIPS completed reprocessing Release 003 ATL01, ATL02, ATL03, ATL04, ATL08, ATL09, ATL06, ATL12, and ATL13 products for October 14, 2018-November 15, 2019; these products are being delivered to the NSIDC. Additionally, release 002 ATL16 and ATL17 (gridded and monthly atmospheric data products) have been delivered to the SCF for review.

NSIDC ICESat-2 Metrics through April 5: 1,733 total users of 10 available data products; 3,713,304 sciences files downloaded. ATL03 is in the lead with 721 unique users of 488,914 files downloaded. ATL08 is in a close second with 699 unique users and 1,577,580 files downloaded, and ATL06 is in third place with 475 unique users and 1,343,849 files downloaded.

ELEMENT DETAILS BELOW

CAMS/POD:
CAMS: Regular CAMS operations: constraint and conjunction monitoring for MW081 and MW082 and mission planning for MW083.
CAMS recommended laser arm for laser conjunction with FLOCK 3P-15 (42039) 02Apr 17:10 (MW082).
CAMS recommends laser arm for upcoming laser conjunction with FLOCK 3K-3 (43892) on 04Apr 00:36 (MW082).

POD: Regular POD operations continue. Intermediate POD was completed for GPS week 2098. Final POD was completed for GPS week 2096.

ISF:
All ATLAS housekeeping data is nominal
Laser 2 is firing at energy level 4 and in science mode
WTEM Peak to Edge Ratio: 1.221
Laser 2 Temperature Error: -0.23C
SADA in AIRPLANE Mode
Spacecraft orientation: + X

Mission Planning:
MW82 ATS is loaded to the spacecraft and currently operating
MW83 has been delivered, nominal calibrations including the monthly TEP stare
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Activities during the past week:

Real-time activities:
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No realtime commanding was performed due to GSFC Stage 4 status

ATS activities:
Monthly TEP stare: 2020/094:14:15:00 (April 3)
Routine Instrument calibrations, Ocean scans and Vegetation Data collection

Other Activities:
Supported the creation of a mini-ATS for LCA34
Supported the creation of a mini-ATS for LCA35

Near-term activities:

Tech HW refresh:
On hold due to Stage 4 status

Facility:
RSA Token re-order - monitoring delivery of tokens
Critical patching completed via telework

Notes/Issues:
N/A

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, ATL04, ATL06, ATL07, ATL08, ATL09, and ATL10 using ANC03/04/05 files from the CAMS.
  - Distributed the rapid Science Data products to the SCF.
- The ORR for SIPS Build 4.4.1 was held on March 30. The Build was approved for transfer to Ops and Release 003 ATL08 data production.
- SIPS completed processing the following data products for November 16, 2019 – March 06, 2020:
  - Release 003 ATL01, ATL02, ATL03, ATL04, ATL08, ATL09, ATL06, ATL12, and ATL13. The ATL01 and ATL02s were delivered to NSIDC. All the other products were delivered to the SCF.
  - Release 002 ATL16 and ATL17 which have been delivered to the SCF.
- SIPS completed reprocessing the following data products for October 14, 2018-November 15, 2019:
  - Release 003 ATL01, ATL02, ATL03, ATL04, ATL08, ATL09, ATL06, ATL12, and ATL13. These products are being delivered to the NSIDC.
  - Release 002 ATL16 and ATL17. They have been delivered to the SCF for review.
- We are in the process of running integration tests for SIPS Build 4.4.2. This Build contains the ASAS v5.3.2 patch (including atlas_l3a_si V4.3.1) and SDMS V6.18.2/ATLAS V1.16.1.

ASAS:

ASAS v5.3.2 has been released to SIPS for testing. This patch addresses the length scale issue discovered in ATL07, an issue with the ATL07 plotting code and a fix for a rare exception that occurs when atlas_l1b attempts to read an invalid ATL01 granule.

The atlas_l3a_atm code is being updated to improve low-rate blowing snow.

ASAS generating ATL11 per-cycle tiles on the ADAPT cluster. Issues regarding extremely slow I/O are being investigated on the ADAPT side.

For Land/Veg, the code to handle truncated geolocation segments is in testing.

L3B Freeboard (ATL20) work involves adjusting the grid coordinates for Antarctica.

L3A Sea Ice work is focused on surface classification.

L3A Inland Water is completed for recovering photons lost at the end of a 100-photon segment. Next item is saturation fraction.

L3A Ocean work is progressing on the calculation of the uncertainties. Current awaiting a ATBD update to fix an issue is one of the equations.

L3B Ocean works is beginning on the ATL19 product.

SCF:

The SCF is operating nominally. Data for releases 003 and R003 are being ingested and distributed. An issue with ATL16 and ATL17 release 002 data (their newest release) missing at the SCF has been resolved. Visualizer bug fixes are being tested in a new internal version of the software. A file listing the current SCF data holdings is attached.

* Data Management -- Release 002 data for ATL16/17 that should have been at the SCF were found to be missing, but they were listed in the database and QA and browse files were available. The cause of this is currently unknown, but the issue was resolved by having SIPS restage the data. Date checking of files in SIPS production reports is currently being run manually with newly written code outside of operations; adding this check as an option to the operational code is being considered.

* Subsetter -- A minor issue was found where the code was not storing filter masks in certain cases, causing them to be recreated if needed again, resulting in a small increase in processing time. This has been fixed, but since it will not change Subsetter output, the modification is being held until the next update of the code in operations is needed.

* Visualizer -- The software has been updated internally to version 7.10. Major changes are reinstating an atmosphere custom plot, fixes to the separate figure feature, and some other bug fixes. Further testing of the separate figure code modifications is underway.

ATL02/Instrument Science:

Work continues on:

- Range bias analysis – reanalysis of zero-range test complete for the moment, with an uncertainty about 3 mm in the zero-range distance for the test configuration. Reanalysis of the thermal-vacuum data has begun, to extend the result to the current configuration and conditions.

- Analysis of TEP time of flight during full-orbit TEP stares

- Modeling the behavior of the ATLAS receiver during extreme saturation events.

- Extending the QA screening process beyond ATL01 and ATL02.

- 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.

ATL03:
An investigation is underway involving the reference DEM used for land (currently using ArcticDEM and GMTED; looking for ways to potentially improve). Work continues on investigating instances where the TEP is still identified as high confidence signal in low-noise cases.

Calibration/Validation:
All 2019-2020 88S Traverse GPS data are processed and evaluated; this dataset has also been evaluated relative to other 2 seasons. In light of the overall data quality, and an assessment that 88S is a relatively stable surface (on at least 2-year time lines), we are not planning on conducting a 2020-2021 Antarctic Traverse.

ISF ACTIVITIES MISSION WEEK 082:

* Not in science mode
^ Could affect science data quality

2020/093:00:06:01.0000 OCEANscan Duration 22 minutes
2020/093:02:05:00.0000 Stellar window dump Duration 90 minutes
* 2020/093:04:05:40.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/093:04:14:35.0000 TEP data collection Grid 195 Duration 3 minutes
* 2020/093:05:39:57.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/093:05:53:25.0000 TEP data collection Grid 121 Duration 3 minutes
* 2020/093:09:05:17.0000 TEP data collection Grid 80 Duration 3 minutes
* 2020/093:10:21:31.0000 AMCS Cal over open ocean Duration 2 minutes
2020/093:11:53:07.0000 OCEANscan Duration 22 minutes
* 2020/093:13:30:06.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/093:16:51:31.0000 TEP data collection Grid 176 Duration 3 minutes

* 2020/093:17:09:52.0000 Put laser in ARM mode for LCA34 42039 (FLOCK 3P 15) 02-Apr-2020 17:10:07 Duration 1 minute
* 2020/093:18:08:13.0000 TEP data collection Grid 426 Duration 3 minutes
* 2020/093:19:52:17.0000 TEP data collection Grid 280 Duration 3 minutes
* 2020/093:19:56:09.0000 TEP data collection Grid 243 Duration 3 minutes
  2020/093:20:19:36.0000 TOO TOOid 1388 RGT 111 offpoint 4.58deg Duration 2 minutes
  2020/093:21:53:52.0000 TOO TOOid 1390 RGT 112 offpoint 4.54deg Duration 2 minutes
* 2020/093:23:13:54.0000 TEP data collection Grid 94 Duration 3 minutes
* 2020/094:00:48:12.0000 TEP data collection Grid 92 Duration 3 minutes
* 2020/094:02:22:29.0000 TEP data collection Grid 90 Duration 3 minutes
* 2020/094:02:27:45.0000 TEP data collection Grid 17 Duration 3 minutes
* 2020/094:05:14:19.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/094:08:37:02.0000 TEP data collection Grid 116 Duration 3 minutes
* 2020/094:09:59:40.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/094:11:27:28.0000 OCEANscan Duration 22 minutes
* 2020/094:13:04:28.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/094:14:15:00.0000 TEP Stare 2 orbits of TEP calibration Duration 190 minutes
* 2020/094:19:43:38.0000 TEP data collection Grid 28 Duration 3 minutes
* 2020/094:21:00:56.0000 TEP data collection Grid 278 Duration 3 minutes
  2020/094:23:02:31.0000 TOO TOOid 1394 RGT 128 offpoint 4.57deg Duration 2 minutes
  2020/094:23:14:44.0000 OCEANscan Duration 22 minutes
  2020/095:00:49:01.0000 OCEANscan Duration 22 minutes
* 2020/095:01:43:48.0000 TEP data collection Grid 271 Duration 3 minutes
  2020/095:02:11:05.0000 TOO TOOid 1387 RGT 130 offpoint 4.58deg Duration 2 minutes
* 2020/095:04:48:40.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/095:08:14:00.0000 TEP data collection Grid 81 Duration 3 minutes
* 2020/095:09:48:22.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/095:11:04:31.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/095:12:36:07.0000 OCEANscan Duration 22 minutes
  2020/095:14:02:38.0000 RTWscan Duration 90 minutes
* 2020/095:17:16:15.0000 TEP data collection Grid 428 Duration 3 minutes
  2020/095:19:28:12.0000 TOO TOOid 1389 RGT 141 offpoint 4.83deg Duration 2 minutes
* 2020/095:20:48:19.0000 TEP data collection Grid 98 Duration 3 minutes
* 2020/095:22:22:27.0000 TEP data collection Grid 96 Duration 3 minutes
  2020/096:00:23:22.0000 OCEANscan Duration 22 minutes
* 2020/096:01:36:07.0000 TEP data collection Grid 19 Duration 3 minutes
* 2020/096:04:23:01.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/096:10:38:53.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/096:12:10:28.0000 OCEANscan Duration 22 minutes
* 2020/096:13:47:27.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/096:15:39:48.0000 TEP data collection Grid 106 Duration 3 minutes
* 2020/096:18:31:40.0000 TEP data collection Grid 318 Duration 3 minutes
* 2020/096:18:40:33.0000 TEP data collection Grid 209 Duration 3 minutes
  2020/096:19:02:33.0000 TOO TOOid 1393 RGT 156 offpoint 4.80deg Duration 2 minutes
* 2020/096:19:59:46.0000 TEP data collection Grid 423 Duration 3 minutes
* 2020/096:20:04:25.0000 TEP data collection Grid 351 Duration 3 minutes
  2020/096:20:36:54.0000 TOO TOOid 1392 RGT 157 offpoint 4.57deg Duration 2 minutes
* 2020/096:23:12:15.0000 TEP data collection Grid 347 Duration 3 minutes

2020/096:23:57:43.0000 OCEANscan Duration 22 minutes
* 2020/097:00:36:21.0000 Put laser in ARM mode for LCA35 43892 (FLOCK 3K 3) 06-Apr-2020 00:36:36 Duration 1 minute
* 2020/097:01:02:20.0000 TEP data collection Grid 128 Duration 3 minutes
* 2020/097:02:26:47.0000 TEP data collection Grid 270 Duration 3 minutes
* 2020/097:02:39:50.0000 TEP data collection Grid 89 Duration 3 minutes
* 2020/097:03:57:22.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/097:05:31:40.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/097:05:51:02.0000 TEP data collection Grid 48 Duration 3 minutes
* 2020/097:07:17:29.0000 TEP data collection Grid 154 Duration 3 minutes
* 2020/097:10:13:14.0000 AMCS Cal over open ocean Duration 2 minutes
2020/097:11:44:49.0000 OCEANscan Duration 22 minutes
* 2020/097:13:15:48.0000 TEP data collection Grid 398 Duration 3 minutes
* 2020/097:13:21:48.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/097:16:51:04.0000 TEP data collection Grid 68 Duration 3 minutes
* 2020/097:18:19:45.0000 TEP data collection Grid 138 Duration 3 minutes
* 2020/097:19:38:46.0000 TEP data collection Grid 352 Duration 3 minutes
* 2020/097:20:02:17.0000 TEP data collection Grid 27 Duration 3 minutes
2020/097:20:43:29.0000 TOO TOOid 1386 RGT 173 offpoint 3.59deg Duration 2 minutes
* 2020/097:22:55:10.0000 TEP data collection Grid 239 Duration 3 minutes
* 2020/098:00:19:01.0000 TEP data collection Grid 381 Duration 3 minutes
* 2020/098:02:06:21.0000 TEP data collection Grid 198 Duration 3 minutes
* 2020/098:02:11:34.0000 TEP data collection Grid 126 Duration 3 minutes
* 2020/098:02:15:55.0000 TEP data collection Grid 54 Duration 3 minutes
* 2020/098:03:35:26.0000 TEP data collection Grid 268 Duration 3 minutes
* 2020/098:05:06:01.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
2020/098:08:45:00.0000 Laser window dump Duration 2 minutes
* 2020/098:09:49:31.0000 AMCS Cal over open ocean Duration 2 minutes
2020/098:11:19:10.0000 OCEANscan Duration 22 minutes
* 2020/098:12:56:09.0000 AMCS Cal over open ocean Duration 2 minutes
2020/098:14:19:58.0000 RTWscan Duration 90 minutes
* 2020/098:22:19:04.0000 TEP data collection Grid 384 Duration 3 minutes
2020/098:23:06:25.0000 OCEANscan Duration 22 minutes
2020/099:00:40:43.0000 OCEANscan Duration 22 minutes
* 2020/099:01:39:56.0000 TEP data collection Grid 199 Duration 3 minutes
* 2020/099:04:40:21.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/099:09:34:45.0000 TEP data collection Grid 151 Duration 3 minutes
* 2020/099:09:38:16.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/099:10:56:13.0000 AMCS Cal over open ocean Duration 2 minutes
2020/099:12:27:48.0000 OCEANscan Duration 22 minutes
* 2020/099:15:57:08.0000 TEP data collection Grid 105 Duration 3 minutes
2020/099:17:45:41.0000 TOO TOOid 1391 RGT 201 offpoint 4.62deg Duration 2 minutes