

ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, June 17, 2019 thru Sunday, June 23, 2019

RGTs spanned: 1218-1324
Cycle 3

SUMMARY:

All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. SIPS made preparations for receipt of final ANC03/04/05 files from the POD for DOY 055-122 expected the week of June 24; this will aid in the production of the next large batch of data delivery to NSIDC. ASAS has completed generating the 952v1 functional test products, and the team is currently interfacing with SCF to determine how to make these preliminary products available to the Science team.

Check out last week's [Photon Phriday!](#)

NSIDC ICESat-2 Metrics through June 11: 308 total users of 10 available data products; 228,048 sciences files downloaded. ATLO8 still the winner with 143 users and 114,422 files downloaded! ATLO3 is a distant 2nd with 88 users and 35,201 files downloaded, followed by ATLO6 with 71 users and 70,501 files downloaded.

****ELEMENT DETAILS BELOW****

CAMS/POD/PPD:

CAMS: Regular CAMS operations continue with constraint and conjunction monitoring for mission weeks 40 and 41, and mission planning for mission week 42.

CAMS continued to monitor throughout the week an event with the ISS on June 23, 2019. CAMS recommended preparation of two ATS loads, one with a -5 deg slew and another with a Laser Arm for 10 seconds around TCA, to mitigate the event. CAMS is awaiting an updated ISS predicted ephemeris file in order to do one more screening to determine which ATS should be used.

POD: Nominal POD operations continue. Intermediate POD was completed for GPS week 2057. Final POD was completed for GPS week 2055. All results appear nominal.

Pointing bias calibration solutions were computed for dates with round-the-world scans from DoY 055-123. These results will be used to determine optimal pointing bias solutions over specific time periods, with time-varying mean roll/pitch biases and orbital variation included. Final calibrated ANC products for DoY 055-123 will be delivered to SIPS early next week.

Analysis of data from DoY 155 round-the-world scan was performed to assess the impact of the spacecraft ACS switch-flip. SIPS created test ATLO3 files from both rapid and final calibrated

ANC products that were used for the analyses, which includes RGT tracking performance assessment and pointing bias calibration solutions.

ISF:

All ATLAS housekeeping data is nominal
Laser 2 is firing at energy level 4 and in science mode
WTEM Peak to Edge Ratio: 1.195
Laser 2 Temperature Error: -0.31C
SADA in Sailboat Mode
Spacecraft orientation: - X

Mission Planning:
MW41 ATS is loaded to the spacecraft and currently operating
MW42 is being planned.

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Activities during the past week:

ATS activities:  
All ATLAS and pointing activities were routine and completed as planned.

Real-time activities:  
Daily/as-need: Executed standing CAR 91 and 102 (routine error cleanup)  
Executed CAR 393 to dump diagnostic packets. 2019/172 (6/21/19) (note 1)

Other Activities:

PDB E.0.1 Released into ops 2019/168 (6/17/19) (note 2)  
Team planned for laser conjunction avoidance #10, 2019/174: 00:42:17 (6/23/19) (note 3)  
Team continues to plan and schedule the upcoming tech refresh  
Team continues to review the MCR and Laser Conjunction processes.  
Team continues to investigate the slow transfer of data from the T&C servers to the ops servers (RIONet to SEN).

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Next week's ATLAS activities:
Routine instrument and pointing calibration scheduled activities are in the MW41 ATS. (see attached)

Other Near-term activities:
The spacecraft will change the orientation of the SADA from the current sailboat configuration to airplane, 2019/177 (6/26/19).

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Notes/Issues:

1. FSSE requested diagnostic data to investigate 'HS logger dropped messages' event on PCE1 and to clear the resultant error counts.
2. After promoting E.0.1 to ops the regression tests were successful. ITOS2 was able to process playback files successfully and ITOS1 was able to command with ATLAS during a real-time contact where the ISF sent all of the ATLAS NOOP's to the instrument.
3. LCA#10 will be mitigated by a 10 second laser to ARM, which for the first time will be run from the mini-ATS.

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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 ATLO2s to the ISF, POD, and SCF.
 - Distributed selected ATLO1s to the ISF and SCF by special request.
 - Generated rapids ATLO3 using ANC03/04/05 files from the CAMS.
 - Distributed ATLO3 (rapids) to the SCF.
- Delivered all the remaining ATLO2s to NSIDC through current time.
- Made preparations for receipt of final ANC03/04/05 files from the POD for DOY 055-122 expected the week of June 24.
 - Generate Rel 001 ATLO3, ATLO4, ATLO6, ATLO7, ATLO8, ATLO9, ATL10, ATL12, and ATL13 upon receipt of above data and distribute to the SCF.

ASAS:

ASAS has completed generating the 952v1 functional test products. Currently interfacing with SCF to determine how to make these preliminary products available to the Science team.

The L1B PGE was updated with two related fixes - the first was that the CAL47 product names recorded on ATLO2 were not the same as used to compute receiver sensitivity (in some cases). The second was that a bad CAL47 file was causing receiver sensitivity to be calculated incorrectly for spot 2 (in some cases).

L2A_ALT PGE was updated to parse the degrade flags from ANC04/05 and assign a composite POD/PPD flag to each geolocation segment. A flag of value 0 means there was no degradation of geolocation results; whereas any other value indicates possible degraded geolocation solutions.

The vertical alignment correction was verified for ATL04/ATL09. The ATM developer is working on ATL09 DDM surface detection. Preliminary results from functional test data show that data in the locations of gaps in the prior DEM are now reporting correct values on ATL09 (due to incorporation of the new Antarctic DEM)

For L3B Atmosphere, a new ATL17 was distributed to the ATBD lead for analysis. Work continues on unit test development.

The Land/Veg developer is working on smoothing window size analysis and to add additional quality checks for DRAGGAN-detected signal.

The Sea Ice developer is beginning to look at the L3B Sea Ice product and working an issue regarding the correct beam assignment for ASR.

The inland water developer is working on sub-surface detection. Fixes were made to the point-in-polygon routine that now better identify locations within polygons of a shapefile.

The singular algorithm for Land Ice number of pulses was implemented and integrated. Test results look as expected, but one issue regarding the summation of the number of pulses in the residual histograms is being worked.

The ocean developer is working on trimming the ocean histogram and resolving an infinite loop at orbit crossings.

SCF:

The SCF is operating nominally. Data for releases 001 and R001 are being ingested and distributed, with full granule subscriptions caught up and subsetting subscriptions still running. A new batch of release 001 data is expected to begin arriving from SIPS next week, and plans for freeing up disk space for this have been made and announced. Work continues on developing a Python 3 environment suitable for our code base. A file listing the current SCF data holdings is attached.

* Data Management -- JIRA issues were reviewed, resolved, and/or closed where appropriate, and help was provided to users as needed. Ways to improve operations with SDMS, particularly for running subscriptions, are being examined. Limiting the number of subscriptions per SDMS job is one possibility and code edits for this have been tested; using another SCF server to allow SDMS to distribute its load across multiple machines is a new one we have just begun to look into.

* Subsetter -- Continued testing the Python 3 version of the code and the Python 3 environment, which also needs to work with the data management scripts.

* Visualizer -- Work on converting the code from Python 2 to Python 3 is underway. Testing of the Python 3 environment indicates it may be necessary for the Visualizer to have its own, different from the Subsetter and data management scripts.

ATL02/Instrument Science:

NTR.

ATL03:

Work continues on updating TEP QA threshold statistics, implementing a new inland water mask to assist ATL13 development, and updating certain uncertainty/geolocation parameters prior to the 15 July code freeze. ATBD updates ongoing as well to capture these product changes.

ISF ACTIVITIES MISSION WEEK 041:

* Not in science mode

^ Could affect science data quality

* 2019/171:01:46:03.0000 TEP data collection for 3 minutes

2019/171:02:35:41.0000 OCEANscan (22 minutes)

* 2019/171:03:20:20.0000 TEP data collection for 3 minutes

2019/171:04:02:12.0000 RTWscan (90 minutes)

* 2019/171:06:28:55.0000 TEP data collection for 3 minutes

^ 2019/171:06:48:31.0000 AMCS Cal for 2 minutes

* 2019/171:07:45:14.0000 TEP data collection for 3 minutes

* 2019/171:09:19:32.0000 TEP data collection for 3 minutes

* 2019/171:10:53:50.0000 TEP data collection for 3 minutes

^ 2019/171:11:35:44.0000 AMCS Cal for 2 minutes

* 2019/171:12:28:08.0000 TEP data collection for 3 minutes

^ 2019/171:12:51:20.0000 AMCS Cal for 2 minutes

* 2019/171:14:02:25.0000 TEP data collection for 3 minutes

2019/171:14:22:56.0000 OCEANscan (22 minutes)

* 2019/171:15:36:43.0000 TEP data collection for 3 minutes

* 2019/171:17:11:01.0000 TEP data collection for 3 minutes

* 2019/171:18:45:05.0000 TEP data collection for 3 minutes

* 2019/171:19:03:13.0000 TEP data collection for 3 minutes

* 2019/171:20:37:31.0000 TEP data collection for 3 minutes

* 2019/171:22:11:48.0000 TEP data collection for 3 minutes

* 2019/171:23:46:06.0000 TEP data collection for 3 minutes

* 2019/172:01:20:23.0000 TEP data collection for 3 minutes

2019/172:02:10:02.0000 OCEANscan (22 minutes)

* 2019/172:02:55:12.0000 TEP data collection for 3 minutes
* 2019/172:04:30:18.0000 TEP data collection for 3 minutes
* 2019/172:06:05:24.0000 TEP data collection for 3 minutes
^ 2019/172:06:22:52.0000 AMCS Cal for 2 minutes
* 2019/172:07:19:39.0000 TEP data collection for 3 minutes
* 2019/172:08:53:56.0000 TEP data collection for 3 minutes
* 2019/172:10:28:14.0000 TEP data collection for 3 minutes
* 2019/172:12:02:32.0000 TEP data collection for 3 minutes
^ 2019/172:12:25:40.0000 AMCS Cal for 2 minutes
* 2019/172:13:36:50.0000 TEP data collection for 3 minutes
2019/172:13:57:17.0000 OCEANscan (22 minutes)
* 2019/172:15:11:07.0000 TEP data collection for 3 minutes
^ 2019/172:15:34:15.0000 AMCS Cal for 2 minutes
* 2019/172:16:45:25.0000 TEP data collection for 3 minutes
* 2019/172:18:19:42.0000 TEP data collection for 3 minutes
* 2019/172:20:14:18.0000 TEP data collection for 3 minutes
* 2019/172:21:48:35.0000 TEP data collection for 3 minutes
* 2019/172:23:22:53.0000 TEP data collection for 3 minutes
2019/173:00:10:05.0000 OCEANscan (22 minutes)
* 2019/173:00:57:10.0000 TEP data collection for 3 minutes
^ 2019/173:02:00:00.0000 Stellar centroid image dump for 90 minutes
* 2019/173:04:03:18.0000 TEP data collection for 3 minutes
* 2019/173:05:37:35.0000 TEP data collection for 3 minutes
^ 2019/173:05:57:12.0000 AMCS Cal for 2 minutes
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* 2019/173:17:54:06.0000 TEP data collection for 3 minutes
* 2019/173:19:46:12.0000 TEP data collection for 3 minutes
* 2019/173:21:20:29.0000 TEP data collection for 3 minutes
* 2019/173:22:54:47.0000 TEP data collection for 3 minutes
* 2019/174:00:29:04.0000 TEP data collection for 3 minutes
2019/174:01:18:43.0000 OCEANscan (22 minutes)
* 2019/174:02:03:21.0000 TEP data collection for 3 minutes
2019/174:03:09:30.0000 TOO (TOOid=1022) for 3 minutes
* 2019/174:03:37:39.0000 TEP data collection for 3 minutes

* 2019/174:05:11:56.0000 TEP data collection for 3 minutes
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* 2019/175:12:20:02.0000 TEP data collection for 3 minutes
^ 2019/175:12:42:59.0000 AMCS Cal for 2 minutes
* 2019/175:13:54:19.0000 TEP data collection for 3 minutes
^ 2019/175:14:00:00.0000 Laser Window dump for 2 minutes
2019/175:14:14:36.0000 OCEANscan (22 minutes)
* 2019/175:15:28:37.0000 TEP data collection for 3 minutes
* 2019/175:17:02:55.0000 TEP data collection for 3 minutes
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^ 2019/177:15:00:14.0000 AMCS Cal for 2 minutes
* 2019/177:16:11:43.0000 TEP data collection for 3 minutes
* 2019/177:17:46:00.0000 TEP data collection for 3 minutes
^ 2019/177:18:12:00.0000 Transition to Solar Array Mode=AIRPLANE and entry to Safe Mode