

ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, June 15 2020 thru Sunday, June 21, 2020

RGTs spanned: 1229-1335
Cycle 7

SUMMARY:

All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. SIPS produced and distributed to the SCF Release 003 L2A and L3A data products for April 5, 2020 to May 13, 2020.

****ELEMENT DETAILS BELOW****

CAMS/POD:

CAMS: Regular CAMS operations: constraint and conjunction monitoring for MW092 and MW093 and mission planning for MW094.

CAMS is ensuring that RTW scans are not scheduled over AIS and GIS regions and that the RGT is being tracked per the PSO's request.

CAMS recommended laser arm for 41968 (FLOCK 3P 3) 167/21:27:05 - 167/21:27:15 (MW092).

CAMS recommended laser arm for 42010 (FLOCK 3P 40) 167/08:53:14 - 167/08:53:24 (MW092).

CAMS recommended laser arm for 42020 (FLOCK 3P 69) 167/01:01:16 - 167/01:01:26 (MW092).

CAMS recommended laser arm for 42033 (FLOCK 3P 44) 167/08:53:14 - 167/08:53:24 (MW092).

CAMS recommended laser arm for 45623 (CREW DRAGON) 168/09:19:23 - 168/09:19:33(MW092).

CAMS recommended laser arm for 43197 (GOMX4-A) 170/10:15:39 - 170/10:15:49(MW093).

CAMS recommended laser arm for 42001 (FLOCK 3P 49) 171/03:58:15 - 171/03:58:25 (MW093). Event self-mitigated.

CAMS recommends laser arm for 42039 (FLOCK 3P 15) 172/01:56:34 – 172/01:56:44(MW093).

POD: Regular POD operations continue. Intermediate POD was completed for GPS week 2109. Final POD was completed for GPS week 2107.

ISF:

All ATLAS housekeeping data is nominal

Laser 2 is firing at energy level 4 and in science mode

WTEM Peak to Edge Ratio: 1.179

Laser 2 Temperature Error: -0.32C

SADA in AIRPLANE Mode

Spacecraft orientation: - X

Mission Planning:

MW93 ATS is loaded to the spacecraft and currently operating (PSO Activity List is attached)

MW94 AIP 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:

MW\_92:

Routine Instrument calibrations, Ocean scans and Vegetation Data collection, modified RTW

Included commands from sCARs to reset counters to clear yellow flags

DMU051a

two mini-ATSs: LCA45 to mitigate HIE with 42010 (Laser to ARM 2020/167 08:53:14)

LCA46 to mitigate HIE with 25544 (Laser to ARM 2020/168 09:19:24)

MW\_93:

Routine Instrument calibrations, Ocean scans and Vegetation Data collection, modified RTW

**Included commands for LCA47 to mitigate HIE with 43197 (Laser to ARM 2020/170 10:15:29)**

**(however self-mitigated)**

**mini-ATS: LCA48 to mitigate HIE with 42039 (Laser to ARM 2020/172 01:56:39)**

DMU052a

Other Activities:

Q2 scanning complete - No high findings ; couple mediums for CAMS machines that are being resolved this week but won't take effect until reboots next week.

Near-term activities:

DMU053a on 2020/170 (June 25, 2020)

Tech HW refresh:

On hold due to Stage 4 status

Facility:

RSA Token re-order - notified tokens delivered to GSFC

RSA licenses renewed

Notes/Issues:

**~ CAMS has started using the HIE tool to check HIEs < 2 days out prior to running the full day screening.**

**~ Team to discuss how to respond to HIEs for ISS visiting vehicles**

**~ ISF to review and comment on latest draft of ESMO CM Process Document**

LTO Schedule:

All items remain on schedule. Draft dates for Tech Refresh provided to ESMO scheduler.

**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 ATL01 and ATL02 Data products to NSIDC.
- Distributed the rapid Science Data products to the SCF.

- Produced and distributed to the SCF Release 003 L2A and L3A data products for April 5, 2020 to May 13, 202.
- Received CCB approval on June 15 to add additional overrides for the rapid ATL10 data production.
  - Real-time rapid ATL10 processing using the new overrides started on June 15.
  - Reprocessed and distributed to the SCF and Cooler one month of rapid Release R003 ATL10s (from May 14, 2020) as requested by the PSO.

### **ASAS:**

ASAS has completed the processing for functional test (954a2). This functional test creates ATL02s with improved GPSR IMT precision, ATL03s with the new free-to-mean tide values and the re-classification of saturated photons, and the derivative upper-level products. ATL04 and ATL09 distribution was prioritized and those products are on SCF now. ASAS is working with SCF to determine the best method for distributing the other products..

For atmosphere, the L2A surface signal algorithm results from functional testing are under evaluation, as well as the L3A low-rate blowing snow.

The L3B atmosphere work is focused on template and grid size changes.

The ATL11 team is working on error checking and exception handling.

The software for interpolating roll/pitch/yaw for ATL03 is in development. New ANC04s that include the roll/pitch/yaw datasets have been used within SIPS without any discernable negative impact.

The Land/Veg developer is evaluating ATL08s from 954a2 functional testing.

For the land ice refactor, a comparison of ATL06s produced by the refactored code with Release 003 ATL06s and ATBD lead-provided D2/D3 test files is looking very good.

Work is nearing completion on structural changes to ATL20, based on NSIDC provided suggestions, that would make ATL20 more standards-compliant and significantly more usable with earth science-related tools. These changes include a reorganization of the dimension scales and the addition of start and end delta\_time values. There is also an experiment underway to swap the dimensions of the grids and determine that effect on the use of 3rd party tools.

For inland water, debug datasets regarding spectral analysis have been delivered to the ATBD lead. However, the primary focus is on the ATL22 L3B inland water product. The developer has delivered an example product template to the ATBD lead for review.

For ocean, the L3A product work is focused on the layer flag. Initial sample L3B ocean products have been generated and are being evaluated. Work is underway for filling the ATL19 grids.

NSIDC has requested that projection information be added to the L3B products. ASAS is investigating the standards-compliant methods that can be used to add this information. Preliminary analysis indicates the best path is to add EPSG codes (which uniquely identify standard projections) to the product metadata.

### **SCF:**

The SCF is operating nominally. Data for releases 003 and R003 are being ingested and distributed. All new data for April 5 through May 13 are now available, and subscriptions for them are being fulfilled. We have begun talking with ASAS about handling release 954a2 data. A file listing the current SCF data holdings is attached.

\* Data Management -- Work on ATL10 trending continues, and the most recent results appear to be correct in testing. We are checking them to confirm this and may also want to test with some of the recently reprocessed rapid ATL10s to ensure things are working as expected before putting the update into operations.

\* Subsetter -- Options for handling the failure case involving a bad data file (failed automatic QA) that turned up last week are being considered. The issue appears to be more with how the data management scripts handle return codes from the Subsetter; the Subsetter is handling the case correctly.

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

While investigating saturated returns from specular reflections, we have discovered that Beam 4 (center weak) is sometimes closer to nadir than was recommended before launch. We are now reassessing what we consider to be the most desirable condition, prior to recommending any change in pointing.

In addition, work continues on:

- Investigating and modeling the properties of saturated returns.
- Evaluating the latest analysis of ATLAS range bias.
- Writing up the results of the study of variation of range bias on orbital and seasonal time scales.
- Re-examining the temperature dependence of the ATLAS transmitted beam divergence.
- Investigating and explaining “interesting” behavior revealed by the expanded ATLAS QA screening process.
- Improving the process for calibrating transmitter-receiver alignment.

### **ATL03:**

Continuing to explore long-term data including radiometry performance over ice sheets, beam incidence angles, and saturation fractions.