

ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, June 8 2020 thru Sunday, June 14, 2020

RGTs spanned: 1123-1228
Cycle 7

SUMMARY:

All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. SIPS received final ANC03, ANC04, and ANC05 files for April 5, 2020 to May 13, 202 (39 days) on June 20. As a result, a new batch of 003 data for April 5 through May 13 are currently being ingested from SIPS and distributed to SCF users according to their subscriptions.

****ELEMENT DETAILS BELOW****

CAMS/POD:

CAMS: Regular CAMS operations: constraint and conjunction monitoring for MW091 and MW092 and mission planning for MW093.

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 42029 (FLOCK 3P 50) 162/07:56:16 - 162/07:56:26 (MW91). Event Self-mitigated.

CAMS recommended laser arm for 42030 (FLOCK 3P 52) 162/23:38:48 - 162/23:38:58 (MW91).

POD: Regular POD operations continue. Intermediate POD was completed for GPS week 2108. Final POD was completed for GPS week 2106.

Final calibrated ANC products for DoY 2020096-2020134 were delivered to SIPS. The ANC04 format has been updated to include roll, pitch and yaw datasets. The POD Facility ICD has been updated to include the format modifications.

ISF:

All ATLAS housekeeping data is nominal
Laser 2 is firing at energy level 4 and in science mode
WTEM Peak to Edge Ratio: 1.181
Laser 2 Temperature Error: -0.30C
SADA in AIRPLANE Mode
Spacecraft orientation: - X

Mission Planning:

MW92 ATS is loaded to the spacecraft and currently operating (PSO Activity List is attached)

MW93 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\_91 (updated PSO list attached):

**split ATS for LCA44 to mitigate HIE with 42020 (Laser to ARM 2020/162 23:38:38)**

MW\_92:

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

**Includes 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)**

Since cams is now screening visiting spacecraft to the ISS LCA46 mitigated 5 additional events for spacecraft docked to the ISS.

Other Activities:

System patching on-site on June 11, 2020; Jordan returned to SPOCC because the RAID did not power up after reboot

bMOC test command test on June 11, 2020 was successful

Near-term activities:

DMU052a on 2020/170 (June 18, 2020)

Q2 scan on June 18

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

Notes/Issues:

~ none to report

LTO Schedule:

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

**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 ATL01 and ATL02 Data products to NSIDC.
  - o Distributed the rapid Science Data products to the SCF.
- Received final ANC03, ANC04, and ANC05 files for April 5, 2020 to May 13, 202 (39 days) on June 20.

- SIPS has started production of Release 003 L2A and L3A data products for the above dates. The products are being distributed to the SCF/Cooler.
- SIPS is in the process of adding additional overrides for the rapid ATL10 data products.

#### **ASAS:**

ASAS is re-running functional test (954a2). There was an issue in ATL03 (which did not show up in unit testing) which caused a significant number of ATL03s to fail QA. The issue was addressed and all of the ATL03s have completed re-processing. The upper-level products are expected to finish by COB today. 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. The ATL04 and ATL09 products have been re-run with newly-requested control file overrides. ASAS will work with SCF to begin distribution of these products in the next few days.

For atmosphere, work continues on the L2A surface signal algorithm and the L3A low-rate blowing snow. Results from the functional testing should prove useful in determining the effectiveness of these changes.

The L3B ATM work on templates and grid size changes is in unit testing.

The ATL11 team has developed a wrapper script that executes `atlas_meta`, `atl11_qa_util` and `atlas_brw` in series with the ATL11 PGE on ADAPT. Next phase of work is 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 working on relative photon heights. Changes for saturation, canopy percentiles and Landsat-bypass are awaiting approval.

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 progressing 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. Work also continues on the ATL20 browse products.

For inland water, the focus is on the ATL22 L3B inland water product. Progress includes fleshing out the product template file and initially populating coordinate and time fields..

For ocean, initial sample L3B ocean products have been generated and are being evaluated.

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. A new batch of 003 data for April 5 through May 13 are currently being ingested from SIPS and distributed to SCF users according to their subscriptions. Rapid (R003) files overlapping these data are being deleted along with some older data no longer needed. A file listing the current SCF data holdings is attached.

\* Data Management -- Updates to the rSCF-related documentation have been completed, and the files are now available on the SCF web site. Work continues to debug the new version of the ATL10 trending code. In testing, plots are now being generated, but they need to be confirmed correct before we can update the code in operations and reenabling trending for ATL10.

\* Subsetter -- A subsetting job failed on an ATL07 file that failed automatic science QA (due to insufficient output data produced), but the job appears to have run to completion. This seems to be a rare event, and we are looking into how best to handle it.

\* Visualizer -- With the recent v8.0 release, we have moved into maintenance mode. Nothing new to report this period.

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

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:**

Work continues on saturation signal editing in preparation for release 004. Additionally, changes/updates to several parameters (mean tide/tide-free geophysical corrections, saturation declassification issues) are being proposed and discussed for release 004.

### **ISF ACTIVITIES MISSION WEEK 092:**

- \* 2020/163:02:27:04.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
- \* 2020/163:03:57:14.0000 TEP data collection Grid 371 Duration 3 minutes
- \* 2020/163:04:05:04.0000 TEP data collection Grid 262 Duration 3 minutes
- \* 2020/163:05:31:31.0000 TEP data collection Grid 368 Duration 3 minutes
- \* 2020/163:07:08:38.0000 AMCS Cal over open ocean Duration 2 minutes
- 2020/163:08:40:13.0000 OCEANscan Duration 22 minutes

\* 2020/163:10:17:12.0000 AMCS Cal over open ocean Duration 2 minutes  
^ 2020/163:11:30:28.0000 DMU051a Duration 61 minutes  
\* 2020/163:13:23:56.0000 TEP data collection Grid 392 Duration 3 minutes  
\* 2020/163:15:10:18.0000 TEP data collection Grid 210 Duration 3 minutes  
2020/163:20:15:15.0000 TOO TOOid 1491 RGT 1180 offpoint 4.50deg Duration 2 minutes  
2020/163:20:27:29.0000 OCEANscan Duration 22 minutes  
\* 2020/163:21:18:49.0000 TEP data collection Grid 309 Duration 3 minutes  
\* 2020/163:21:24:52.0000 TEP data collection Grid 236 Duration 3 minutes  
\* 2020/163:23:10:13.0000 TEP data collection Grid 89 Duration 3 minutes  
\* 2020/164:00:46:30.0000 TEP data collection Grid 51 Duration 3 minutes  
\* 2020/164:02:01:25.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
2020/164:04:04:00.0000 Laser window dump Duration 2 minutes  
\* 2020/164:06:42:59.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/164:08:14:34.0000 OCEANscan Duration 22 minutes  
\* 2020/164:09:51:33.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/164:11:15:22.0000 Segmented RTWscan Part Duration 37 minutes  
2020/164:12:04:31.0000 Segmented RTWscan Part Duration 35 minutes  
2020/164:12:45:00.0000 Segmented RTWscan Part Duration 14 minutes  
\* 2020/164:13:07:45.0000 TEP data collection Grid 249 Duration 3 minutes  
\* 2020/164:14:57:45.0000 TEP data collection Grid 30 Duration 3 minutes  
2020/164:20:01:50.0000 OCEANscan Duration 22 minutes  
\* 2020/164:21:06:54.0000 TEP data collection Grid 129 Duration 3 minutes  
\* 2020/164:22:49:12.0000 TEP data collection Grid 18 Duration 3 minutes  
2020/165:00:32:28.0000 TOO TOOid 1492 RGT 1198 offpoint 4.53deg Duration 2 minutes  
\* 2020/165:01:35:45.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/165:05:03:02.0000 TEP data collection Grid 45 Duration 3 minutes  
\* 2020/165:06:31:04.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/165:06:40:39.0000 TEP data collection Grid 6 Duration 3 minutes  
\* 2020/165:07:46:11.0000 TEP data collection Grid 401 Duration 3 minutes  
\* 2020/165:07:51:37.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/165:09:23:12.0000 OCEANscan Duration 22 minutes  
\* 2020/165:14:13:47.0000 TEP data collection Grid 283 Duration 3 minutes  
2020/165:14:41:03.0000 TOO TOOid 1493 RGT 1207 offpoint 4.53deg Duration 2 minutes  
\* 2020/165:18:54:03.0000 TEP data collection Grid 312 Duration 3 minutes  
\* 2020/165:20:30:35.0000 TEP data collection Grid 274 Duration 3 minutes  
2020/165:21:10:28.0000 OCEANscan Duration 22 minutes  
\* 2020/165:23:44:44.0000 TEP data collection Grid 197 Duration 3 minutes  
\* 2020/166:01:10:06.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/166:01:32:07.0000 TEP data collection Grid 14 Duration 3 minutes  
2020/166:03:15:25.0000 TOO TOOid 1494 RGT 1215 offpoint 4.53deg Duration 2 minutes  
\* 2020/166:06:12:22.0000 TEP data collection Grid 43 Duration 3 minutes  
\* 2020/166:07:25:58.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/166:08:57:33.0000 OCEANscan Duration 22 minutes  
\* 2020/166:10:33:34.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/166:10:36:57.0000 TEP data collection Grid 324 Duration 3 minutes  
\* 2020/166:10:44:46.0000 TEP data collection Grid 216 Duration 3 minutes  
\* 2020/166:12:21:40.0000 TEP data collection Grid 178 Duration 3 minutes  
\* 2020/166:14:06:26.0000 TEP data collection Grid 31 Duration 3 minutes

\* 2020/166:15:32:51.0000 TEP data collection Grid 137 Duration 3 minutes  
2020/166:20:44:49.0000 OCEANscan Duration 22 minutes  
\* 2020/166:23:16:29.0000 TEP data collection Grid 233 Duration 3 minutes  
\* 2020/167:00:44:27.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/167:00:55:59.0000 TEP data collection Grid 159 Duration 3 minutes  
\* 2020/167:01:01:43.0000 TEP data collection Grid 86 Duration 3 minutes  
\* 2020/167:02:18:45.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/167:02:38:07.0000 TEP data collection Grid 48 Duration 3 minutes  
\* 2020/167:04:09:47.0000 TEP data collection Grid 82 Duration 3 minutes  
\* 2020/167:05:19:19.0000 TEP data collection Grid 405 Duration 3 minutes  
\* 2020/167:05:33:39.0000 TEP data collection Grid 224 Duration 3 minutes  
\* 2020/167:07:00:19.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/167:08:31:54.0000 OCEANscan Duration 22 minutes  
\* 2020/167:08:53:04.0000 Put laser in ARM mode for LCA45 42010\* 15-Jun-2020 08:53:19 Duration 1  
minute  
2020/167:09:06:54.0000 TOO TOOid 1495 RGT 1234 offpoint 4.53deg Duration 2 minutes  
\* 2020/167:10:08:53.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/167:13:13:34.0000 TEP data collection Grid 393 Duration 3 minutes  
\* 2020/167:13:30:18.0000 TEP data collection Grid 176 Duration 3 minutes  
\* 2020/167:13:35:31.0000 TEP data collection Grid 104 Duration 3 minutes  
2020/167:20:19:10.0000 OCEANscan Duration 22 minutes  
\* 2020/167:21:03:29.0000 TEP data collection Grid 417 Duration 3 minutes  
\* 2020/167:22:58:23.0000 TEP data collection Grid 126 Duration 3 minutes  
\* 2020/168:01:53:05.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/168:02:04:37.0000 TEP data collection Grid 157 Duration 3 minutes  
\* 2020/168:06:29:13.0000 TEP data collection Grid 403 Duration 3 minutes  
\* 2020/168:06:34:39.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/168:08:06:15.0000 OCEANscan Duration 22 minutes  
\* 2020/168:09:19:14.0000 Put laser in ARM mode for LCA46 25544 (ISS) 16-Jun-2020 09:19:29 Duration  
1 minute  
\* 2020/168:09:43:14.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/168:11:32:58.0000 TEP data collection Grid 143 Duration 3 minutes  
2020/168:13:24:09.0000 TOO TOOid 1496 RGT 1252 offpoint 4.59deg Duration 2 minutes  
2020/168:17:45:00.0000 Stellar window dump Duration 90 minutes  
2020/168:19:53:30.0000 OCEANscan Duration 22 minutes  
\* 2020/169:01:27:26.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
2020/169:05:07:00.0000 TOO TOOid 1497 RGT 1262 offpoint 4.50deg Duration 2 minutes  
\* 2020/169:06:20:43.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/169:07:43:17.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/169:09:14:53.0000 OCEANscan Duration 22 minutes  
2020/169:10:41:24.0000 Segmented RTWscan Part Duration 37 minutes  
2020/169:11:30:50.0000 Segmented RTWscan Part Duration 35 minutes  
2020/169:12:11:21.0000 Segmented RTWscan Part Duration 14 minutes  
\* 2020/169:17:19:15.0000 TEP data collection Grid 206 Duration 3 minutes  
2020/169:21:02:08.0000 OCEANscan Duration 22 minutes