

ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, March 23, 2020 thru Sunday, March 29, 2019

RGTs spanned: 1334 - 0051
Cycle 6 into Cycle 7

Items of Note:

All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. SIPS has completed reprocessing most of the Release 003 L2A and L3A data products from October 2018-November 2019. The ATL12 and ATL13 products are still being processed. These products are being delivered to the NSIDC. SIPS also received final ANC03/04/05 files from the POD for Feb 07-March 06, 2020 on Mar. 27. SIPS has started processing the L2A and L3A data products for this time period.

ASAS v5.3.1, containing atlas_l3a_ld v3.3.1, was approved during the SIPS ORR. Release 3 ATL08 products should be flowing soon.

NSIDC ICESat-2 Metrics through March 29: 1,712 total users of 10 available data products; 3,678,816 sciences files downloaded. ATL03 is in the lead with 711 unique users of 486,816 files downloaded. ATL08 is in a close second with 691 unique users and 1,556,535 files downloaded, and ATL06 is in third place with 471 unique users and 1,336,924 files downloaded.

****ELEMENT DETAILS BELOW****

CAMS/POD:

CAMS: Regular CAMS operations: constraint and conjunction monitoring for MW080 and MW081 and mission planning for MW082.

CAMS recommended a laser arm for a laser conjunction with 43142 (SPACEBEE 1) on 26 Mar 15:26 (MW081). This event self-mitigated

CAMS recommended a laser arm for a laser conjunction with 43204 (NUSAT5) on 30 Mar 16:31 (MW081). This event self-mitigated.

CAMS supported numerous screenings in support of DMU43a and DMU43b maneuver planning.

POD: Regular POD operations continue. Final POD was completed for GPS week 2095. Final calibrated ANC products for DoY 038-066 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: 1.208
Laser 2 Temperature Error: -0.23C
SADA in AIRPLANE Mode
Spacecraft orientation: + X

Mission Planning:

MW81 ATS is loaded to the spacecraft and currently operating

MW82 has been delivered, nominal calibrations including the monthly TEP stare

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Activities during the past week:

Real-time activities:

No realtime commanding was performed due to GSFC Stage 3/4 status

ATS activities:

Routine Instrument calibrations, Ocean scans and Vegetation Data collection

Other Activities:

Supported the creation of a mini-ATS for an LCA which self mitigated to become HIE023.

DMU043a burn waved off but setup steps did take place, 2020/086:15:23 Duration 55 minutes

DMU043b 2020/090:19:58 Duration 55 minutes

Worked with FDS to get additional files for CAMS LCA screenings when DMU may be waved off and we have burn and no-burn scenarios to assess.

Near-term activities:

Tech HW refresh plan Phase 1 released into operations

Tech HW refresh plan Phase 1a:

On hold due to Stage 3/4 status

Facility:

Red Hat OS License re-order

RSA Token re-order

Notes/Issues:

N/A

LTO Schedule:

All items remain on schedule

**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 rapid Science Data products to the SCF.
- SIPS completed processing Release 003 ATL01, ATL02, ATL03, ATL04, ATL09, ATL06, ATL12, ATL13, ATL16, and ATL17 data products for the November 16, 2019 – February 06, 2020 time period. These products have been delivered to the SCF.
- SIPS completed reprocessing of the Release 003 ATL01 and ATL02 data products from October 2018-November 2019. These products are being delivered to the NSIDC.

- SIPS has completed reprocessing most of the Release 003 L2A and L3A data products from October 2018-November 2019. The ATL12 and ATL13 products are still being processed. These products are being delivered to the NSIDC.
- Release 003 ATL07 and ATL08 product generation is pending a patch release of their PGEs.
- An ORR is scheduled for March 30, 2020 for the ATL08 patch release. We will schedule ATL08 data production upon approval of the ORR and transfer to Ops.
- We received final ANC03/04/05 files from the POD for Feb 07-March 06, 2020 on Mar. 27. SIPS has started processing the L2A and L3A data products for this time period.
  - o The data products will be delivered to the SCF for evaluation.

#### **ASAS:**

ASAS v5.3.1, containing atlas\_l3a\_id v3.3.1, was approved during the SIPS ORR. Release 3 ATL08 products should be flowing soon.

ASAS v5.3.2 is currently in functional 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. ASAS expects to deliver the update to SIPS for testing late this week or early next week.

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 work.

L3B Freeboard (ATL20) work involves setting invalid values empty cells and creating new datasets to contain the land masks.

L3A Sea Ice work is focused on surface classification.

L3A Inland Water is progressing on recovering photons lost at the end of a 100-photon segment.

The Ocean work is progressing on the calculation of uncertainties and the calculation of SNR for the harmonic fits to the ocean surface.

#### **SCF:**

The SCF is operating nominally. Data for releases 003 and R003 for most products and release 002 data for ATL16 and ATL17 are being ingested and distributed. Deletion of most ASAS release 953 has begun, since final release 003 data are being produced. A file listing the current SCF data holdings is attached.

\* Data Management -- Automatic reconciliation of SIPS production reports has been complicated by the SCF not receiving all data produced and included in the report. Code has been written to perform additional checks and is run manually as needed. If deemed appropriate, modifications to the operational code to perform these checks will be considered.

\* Subsetter -- No issues with the operational code, which continues to perform as expected on the second server.

\* Visualizer -- Work continues on fixing bugs related to the separate figure feature. One such bug that involved the table plot type has been fixed.

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

With a full set of Release 003 data now available, analysis of differences in ATLAS return sensitivity between Release 002 and Release 003 has revealed patterns as expected given the corrections that were made in calculation of misalignment effects for Release 003. Due to tight control of alignment, the magnitude of the change was less than 1%.

In addition, work continues on:

- Range bias analysis
- 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.

### **ISF ACTIVITIES MISSION WEEK 081:**

\* Not in science mode

^ Could affect science data quality

\* 2020/086:02:44:09.0000 TEP data collection Grid 18 Duration 3 minutes

\* 2020/086:04:08:11.0000 TEP data collection Grid 160 Duration 3 minutes

\* 2020/086:05:30:57.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

\* 2020/086:07:01:07.0000 TEP data collection Grid 372 Duration 3 minutes

2020/086:10:09:47.0000 TOO TOOid 1381 RGT 1385 offpoint 1.57deg Duration 2 minutes

\* 2020/086:10:20:13.0000 AMCS Cal over open ocean Duration 2 minutes

2020/086:11:44:06.0000 OCEANscan Duration 22 minutes

\* 2020/086:13:21:05.0000 AMCS Cal over open ocean Duration 2 minutes

\* 2020/086:14:49:57.0000 TEP data collection Grid 432 Duration 3 minutes

\* 2020/086:14:59:15.0000 TEP data collection Grid 288 Duration 3 minutes

^ 2020/086:15:22:57.0000 DMU043a burn waved off but setup Duration 55 minutes

\* 2020/086:16:32:05.0000 TEP data collection Grid 321 Duration 3 minutes

\* 2020/086:18:27:17.0000 TEP data collection Grid 30 Duration 3 minutes

\* 2020/086:19:43:16.0000 TEP data collection Grid 280 Duration 3 minutes

\* 2020/086:22:46:38.0000 TEP data collection Grid 348 Duration 3 minutes  
2020/086:23:31:22.0000 OCEANscan Duration 22 minutes  
\* 2020/087:00:21:39.0000 TEP data collection Grid 345 Duration 3 minutes  
\* 2020/087:00:26:09.0000 TEP data collection Grid 273 Duration 3 minutes  
\* 2020/087:00:33:57.0000 TEP data collection Grid 165 Duration 3 minutes  
2020/087:01:05:39.0000 OCEANscan Duration 22 minutes  
\* 2020/087:03:26:53.0000 TEP data collection Grid 377 Duration 3 minutes  
\* 2020/087:05:05:18.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/087:08:09:46.0000 TEP data collection Grid 370 Duration 3 minutes  
\* 2020/087:09:57:06.0000 TEP data collection Grid 187 Duration 3 minutes  
\* 2020/087:11:21:09.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/087:12:52:45.0000 OCEANscan Duration 22 minutes  
2020/087:14:19:16.0000 RTWscan Duration 90 minutes  
\* 2020/087:16:13:11.0000 TEP data collection Grid 214 Duration 3 minutes  
2020/087:23:05:00.0000 Laser window dump Duration 2 minutes  
\* 2020/087:23:57:54.0000 TEP data collection Grid 310 Duration 3 minutes  
2020/088:00:40:01.0000 OCEANscan Duration 22 minutes  
\* 2020/088:01:26:57.0000 TEP data collection Grid 380 Duration 3 minutes  
\* 2020/088:02:58:38.0000 TEP data collection Grid 414 Duration 3 minutes  
\* 2020/088:04:39:39.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/088:06:13:57.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
2020/088:08:19:08.0000 TOO TOOid 1383 RGT 27 offpoint 0.08deg Duration 2 minutes  
2020/088:09:21:19.0000 TOO TOOid 1382 RGT 28 offpoint 2.17deg Duration 2 minutes  
\* 2020/088:10:55:31.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/088:12:27:07.0000 OCEANscan Duration 22 minutes  
\* 2020/088:14:04:06.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/088:14:14:19.0000 TEP data collection Grid 216 Duration 3 minutes  
\* 2020/088:15:37:04.0000 TEP data collection Grid 359 Duration 3 minutes  
\* 2020/088:17:15:05.0000 TEP data collection Grid 320 Duration 3 minutes  
2020/089:00:14:22.0000 OCEANscan Duration 22 minutes  
\* 2020/089:04:15:25.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/089:05:48:18.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/089:10:29:52.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/089:12:01:28.0000 OCEANscan Duration 22 minutes  
\* 2020/089:13:35:08.0000 TEP data collection Grid 362 Duration 3 minutes  
\* 2020/089:13:38:27.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/089:15:20:22.0000 TEP data collection Grid 251 Duration 3 minutes  
\* 2020/089:16:54:39.0000 TEP data collection Grid 248 Duration 3 minutes  
\* 2020/089:18:15:53.0000 TEP data collection Grid 427 Duration 3 minutes  
\* 2020/089:18:40:46.0000 TEP data collection Grid 66 Duration 3 minutes  
2020/089:23:48:43.0000 OCEANscan Duration 22 minutes  
\* 2020/090:00:47:15.0000 TEP data collection Grid 236 Duration 3 minutes  
\* 2020/090:04:05:07.0000 TEP data collection Grid 87 Duration 3 minutes  
\* 2020/090:05:18:32.0000 TEP data collection Grid 374 Duration 3 minutes  
\* 2020/090:05:22:40.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/090:05:39:25.0000 TEP data collection Grid 85 Duration 3 minutes  
\* 2020/090:06:55:27.0000 TEP data collection Grid 335 Duration 3 minutes  
\* 2020/090:07:13:42.0000 TEP data collection Grid 83 Duration 3 minutes

\* 2020/090:08:27:07.0000 TEP data collection Grid 369 Duration 3 minutes  
\* 2020/090:10:09:55.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/090:11:35:49.0000 OCEANscan Duration 22 minutes  
\* 2020/090:13:12:48.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/090:14:36:37.0000 RTWscan Duration 90 minutes  
\* 2020/090:16:34:13.0000 TEP data collection Grid 177 Duration 3 minutes  
\* 2020/090:17:58:05.0000 TEP data collection Grid 319 Duration 3 minutes  
^ 2020/090:19:57:28.0000 DMU043b Duration 55 minutes  
2020/090:21:05:00.0000 Stellar window dump Duration 90 minutes  
\* 2020/090:22:35:44.0000 TEP data collection Grid 384 Duration 3 minutes  
\* 2020/091:00:30:54.0000 TEP data collection Grid 93 Duration 3 minutes  
2020/091:00:57:22.0000 OCEANscan Duration 22 minutes  
\* 2020/091:03:39:28.0000 TEP data collection Grid 88 Duration 3 minutes  
\* 2020/091:04:57:01.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/091:09:46:12.0000 TEP data collection Grid 223 Duration 3 minutes  
\* 2020/091:09:57:35.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/091:11:12:52.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/091:12:44:28.0000 OCEANscan Duration 22 minutes  
\* 2020/091:14:29:04.0000 TEP data collection Grid 252 Duration 3 minutes  
\* 2020/091:15:50:18.0000 TEP data collection Grid 430 Duration 3 minutes  
\* 2020/091:15:55:32.0000 TEP data collection Grid 358 Duration 3 minutes  
\* 2020/091:16:16:25.0000 TEP data collection Grid 69 Duration 3 minutes  
2020/092:00:31:43.0000 OCEANscan Duration 22 minutes  
\* 2020/092:04:31:22.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/092:06:04:48.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/092:10:47:13.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/092:12:18:49.0000 OCEANscan Duration 22 minutes  
\* 2020/092:13:55:48.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/092:17:09:24.0000 TEP data collection Grid 284 Duration 3 minutes  
\* 2020/092:17:14:36.0000 TEP data collection Grid 212 Duration 3 minutes  
\* 2020/092:23:36:59.0000 TEP data collection Grid 130 Duration 3 minutes