

ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, August 17, 2020 thru Sunday, August 23, 2020

RGTs spanned: 805 - 910
Cycle 8

SUMMARY:

All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. SIPS received the final ANC03, ANC04, ANC05 files for May 14-July 16, 2020 from the POD on August 18. The Release 003 ATL03, ATL04, ATL06, ATL07, ATL08, ATL09, ATL10, ATL12 and ATL13 have been processed and distributed to the SCF for review. ASAS delivered ASAS v5.3.4 to SIPS. This release contains atlas_l3b_si, the PGE for creating ATL20.

For an updated listing of SCF data holdings, please check the SCF website later today.

****ELEMENT DETAILS BELOW****

CAMS/POD:

CAMS: Regular CAMS operations: constraint and conjunction monitoring for MW101 and MW102 and mission planning for MW103.

CAMS continues working with the project on ARB09.

CAMS recommended laser arm for 41606 (FLOCK 2P 6) on 233/09:16:22 - 233/09:16:32(MW102). Event self-mitigated.

POD: Regular POD operations continue. Intermediate POD was completed for GPS week 2118. Final POD was completed for GPS week 2116

Final calibrated ANC products for DoY 135-198 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: 1.196

Laser 2 Temperature Error: -0.25C

SADA in SAILBOAT Mode

Spacecraft orientation: - X

Mission Planning:

MW102 ATS is loaded to the spacecraft and currently operating (PSO Activity List is attached)

MW103 AIP has been delivered, nominal calibrations; CAMS/ISF planning complete and SAT submitted to MOC

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Activities during the past week:

Real-time activities: monitoring via telework; **VBG Temperature Update to 63.05C on 2020/233 17:45**

ATS activities:

MW\_102 (currently loaded and executing):

Routine Instrument calibrations, TOOs, Ocean scans and Vegetation Data collection, modified RTW, **VBG setpoint update on 2020/233 01:00**

**Mini-ATS for LCA57 (Laser to ARM) for event with ISS at 2020/237 12:49:26 UTC / 08/24/2020 08:49 EDT**

DMU057a 2020/233 13:42 (ILRS lasing flag set to NOGO)

Other Activities:

New ANC13 file with the recent VBG temperature updates was delivered to SIPS

Near-term upcoming activities:

PDB E.0.2 testing and deployment

Facility:

Tech HW refresh:

Procurement in progress for ISF Tech Refresh Phase 2 to complete during FY20

Phase 1a setup and testing continues

Notes/Issues:

1. ARB09: RMM02 Anomaly - the team continues to analyze events and determine process (automated and manual) updates to mitigate the chance of a recurrence. The team has implemented changes to the manual processes for verification of planning products. The team is providing inputs for root cause analysis and corrective action.

LTO Schedule:

Schedule updates 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.
- Completed SIPS Build 5.0 Acceptance Testing and all documents have been completed for the ORR. This build consists of SDMS V7.0.0/ATLAS V2.0.0 and there are no new ASAS PGEs. The ORR is planned for August 24.
- SIPS received the final ANC03, ANC04, ANC05 files for May 14-July 16, 2020 from the POD on August 18. The Release 003 ATL03, ATL04, ATL06, ATL07, ATL08, ATL09, ATL10, ATL12 and ATL13 have been processed and distributed to the SCF for review.

#### **ASAS:**

ASAS delivered ASAS v5.3.4 to SIPS. This release contains atlas\_l3b\_si, the PGE for creating ATL20.

ASAS worked with PSO to mitigate concerns regarding saturation declassification and devised a method of identifying saturated photons that does not change the Release 003 signal classifications.

L1B: An example ATL02 with requested SXP\_SSR data was delivered to the requester for analysis.

L2A\_ALT: Added an additional flag to ATL03 at the photon rate (quality\_ph) that identifies photons affected by saturation. This mitigates the issue of modifying signal\_conf\_ph to identify those photons. Work continues on the improvements to the saturation detection algorithm itself. Added additional ATL03 parameters to ANC39 for possible use by ATL04.

L2/L3 Atmosphere: L2A work on calibration method 3 adjustments for the South Atlantic Anomaly has been approved. For L3A, work regarding the replacement algorithm for cloud/aerosol discrimination and blowing snow refinement has been approved.

L3A Ice Sheet: Continued evaluation of ATL06 products created by the refactored PGE.

L3A Sea Ice/Freeboard: Several clean-up items were approved. Work continues on along-track slope. Updated the atl07 template to include ssh\_proc\_interval in the ancillary data. This controllable parameter was recently introduced to compute sea ice surface types at the given interval (instead of chunk size). Finished initial coding of the ATL10 along-track slope and submitted results for review. Investigating a possible error in freeboard swath length.

L3A Land/Veg: New work awaits ATBD updates.

L3A Inland Water: Work is wrapping up on missing groundtracks over the Salton Sea and changes related to handling long segments with insufficient photons. The addition of anomalous short segment information to ATL13 is underway.

L3A Ocean: Outstanding L3A ocean work has been approved by the ASAS CCB.

L3B Land Ice: The team is investigating an alternate method for specifying ATL11 geospatial information within the metadata. Developed wrapper script to track errors, log results individually for each ATL11 execution. Report errors, skip atlas\_meta, browse, QA when initial algorithm fails to produce output. Currently testing failure modes, introducing possible new failures, making adjustments

L3B Atmosphere: Improvements to fix incorrect observation counts were completed and the ATL16/17 templates were updated.

L3B Freeboard: Delivered to SIPS for testing. Work is underway on the addition of ATL21.

L3B Ocean: Work continues on L3B Ocean with the implementation of a 2-pass filter on DOT and adjustments to grid spacing.

#### **SCF:**

The SCF is operating nominally. Data for releases 003 and R003 are being ingested and distributed, including the latest batch of 003 finals covering mid-May to mid-July. ASAS transferred three weeks of data for testing the improved range bias and geolocation to the SCF. A file listing the current SCF data holdings is available on the SCF website.

+ Data Management -- The data management pipeline is operating nominally. SDMS stopped at 5:20 am on Fri, Aug 14, 2020 and was restarted at 7:35 am. SDMS lost connection to the SCF database at 7:30 pm on Wed, Aug 19, 2020 and regained connection at 10:00 pm.

+ Subsetter -- Operations continue normally with no failed jobs. A user found that the Subsetter crashes when subsetting ATL12 files obtained from EarthData Search. This crash happens when copying data from an ATL12 file into a new HDF5 file, and can be reproduced outside the Subsetter. We have reported this to EarthData.

+ Visualizer -- Updated the Visualizer documents for version 8.0.

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

Work continues on:

- Examination of data from the July 8-16 anomaly period.
- Quantifying the expected annual number of back reflections from solar arrays on other spacecraft (e.g. Starlink)
- Investigating and modeling the properties of saturated returns.
- 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 improvements to the proposed -3 and -4 saturation reclassification for the signal\_conf\_ph parameter, specifically the proposal of a new quality\_ph parameter that would capture instrument effects instead of classifying them as part of the signal confidence determination. Discussions with ATBD leads regarding this proposed change are ongoing. Additionally, ATBD updates to the reference DEM and geophysical correction sections are underway to put the document current for what is planned for release 004.

### **ISF ACTIVITIES MISSION WEEK 102**

2020/233:00:32:19.0000 TOO TOOid 1679 RGT 850 offpoint 4.65deg Duration 2 minutes  
^ 2020/233:01:00:00.0000 Adjust the VBG Setpoint to 62.99 to optimize the laser wavelength Duration 1 minute  
\* 2020/233:02:21:15.0000 TEP data collection Grid 332 Duration 3 minutes  
\* 2020/233:02:39:31.0000 TEP data collection Grid 79 Duration 3 minutes  
\* 2020/233:03:55:44.0000 AMCS Cal over open ocean Duration 2 minutes

2020/233:05:27:20.0000 OCEANscan Duration 22 minutes  
\* 2020/233:07:04:19.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/233:07:25:00.0000 TEP data collection Grid 72 Duration 3 minutes  
\* 2020/233:10:10:05.0000 TEP data collection Grid 392 Duration 3 minutes  
\* 2020/233:11:54:44.0000 TEP data collection Grid 246 Duration 3 minutes  
\* 2020/233:13:36:55.0000 TEP data collection Grid 135 Duration 3 minutes  
^ 2020/233:13:42:24.0000 DMU057a Duration 74 minutes  
\* 2020/233:15:00:47.0000 TEP data collection Grid 277 Duration 3 minutes  
\* 2020/233:15:08:36.0000 TEP data collection Grid 169 Duration 3 minutes  
\* 2020/233:16:27:14.0000 TEP data collection Grid 383 Duration 3 minutes  
\* 2020/233:16:53:23.0000 TEP data collection Grid 22 Duration 3 minutes  
2020/233:17:14:36.0000 OCEANscan Duration 22 minutes  
^ 2020/233:17:43:27.5930 Adjust the VBG Setpoint to 63.02 to optimize the laser wavelength Duration 1 minute  
^ 2020/233:17:45:25.1740 Adjust the VBG Setpoint to 63.05 to optimize the laser wavelength Duration 1 minute  
\* 2020/233:18:06:46.0000 TEP data collection Grid 308 Duration 3 minutes  
\* 2020/233:18:22:24.0000 TEP data collection Grid 92 Duration 3 minutes  
\* 2020/233:19:33:12.0000 TEP data collection Grid 414 Duration 3 minutes  
\* 2020/233:19:43:39.0000 TEP data collection Grid 270 Duration 3 minutes  
\* 2020/233:20:01:57.0000 TEP data collection Grid 17 Duration 3 minutes  
\* 2020/233:21:17:43.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/233:21:23:09.0000 TEP data collection Grid 195 Duration 3 minutes  
\* 2020/233:22:48:31.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/233:23:00:03.0000 TEP data collection Grid 157 Duration 3 minutes  
\* 2020/234:00:26:31.0000 TEP data collection Grid 263 Duration 3 minutes  
\* 2020/234:00:42:11.0000 TEP data collection Grid 46 Duration 3 minutes  
2020/234:01:05:00.0000 Laser window dump Duration 2 minutes  
\* 2020/234:01:55:36.0000 TEP data collection Grid 333 Duration 3 minutes  
\* 2020/234:02:11:14.0000 TEP data collection Grid 116 Duration 3 minutes  
\* 2020/234:03:30:05.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/234:05:01:41.0000 OCEANscan Duration 22 minutes  
\* 2020/234:05:44:56.0000 TEP data collection Grid 21 Duration 3 minutes  
\* 2020/234:06:38:40.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/234:08:17:58.0000 TEP data collection Grid 287 Duration 3 minutes  
\* 2020/234:08:28:09.0000 TEP data collection Grid 143 Duration 3 minutes  
\* 2020/234:09:52:16.0000 TEP data collection Grid 285 Duration 3 minutes  
2020/234:12:41:00.0000 TOO TOOid 1680 RGT 873 offpoint 4.68deg Duration 2 minutes  
\* 2020/234:13:08:39.0000 TEP data collection Grid 172 Duration 3 minutes  
\* 2020/234:15:58:58.0000 TEP data collection Grid 420 Duration 3 minutes  
\* 2020/234:16:22:28.0000 TEP data collection Grid 95 Duration 3 minutes  
2020/234:16:48:56.0000 OCEANscan Duration 22 minutes  
\* 2020/234:20:57:30.0000 TEP data collection Grid 196 Duration 3 minutes  
\* 2020/234:22:22:52.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/234:23:50:25.0000 TEP data collection Grid 408 Duration 3 minutes  
\* 2020/235:00:08:41.0000 TEP data collection Grid 155 Duration 3 minutes  
\* 2020/235:00:13:54.0000 TEP data collection Grid 83 Duration 3 minutes  
2020/235:03:01:40.0000 TOO TOOid 1673 RGT 882 offpoint 0.83deg Duration 2 minutes

\* 2020/235:03:13:27.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/235:04:36:02.0000 OCEANscan Duration 22 minutes  
2020/235:05:58:09.0000 TOO TOOid 1681 RGT 884 offpoint 4.70deg Duration 2 minutes  
\* 2020/235:06:13:01.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/235:07:36:50.0000 Segmented RTWscan Part 1 Duration 37 minutes  
2020/235:08:26:08.0000 Segmented RTWscan Part 2 Duration 35 minutes  
2020/235:09:06:46.0000 Segmented RTWscan Part 3 Duration 14 minutes  
\* 2020/235:09:37:02.0000 TEP data collection Grid 141 Duration 3 minutes  
\* 2020/235:11:00:54.0000 TEP data collection Grid 283 Duration 3 minutes  
\* 2020/235:12:48:14.0000 TEP data collection Grid 100 Duration 3 minutes  
\* 2020/235:15:38:33.0000 TEP data collection Grid 348 Duration 3 minutes  
\* 2020/235:15:46:22.0000 TEP data collection Grid 240 Duration 3 minutes  
\* 2020/235:17:07:36.0000 TEP data collection Grid 418 Duration 3 minutes  
2020/235:17:57:35.0000 OCEANscan Duration 22 minutes  
\* 2020/235:21:57:13.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/236:01:01:40.0000 TEP data collection Grid 370 Duration 3 minutes  
\* 2020/236:01:22:33.0000 TEP data collection Grid 81 Duration 3 minutes  
\* 2020/236:02:46:24.0000 TEP data collection Grid 223 Duration 3 minutes  
2020/236:03:58:12.0000 TOO TOOid 1682 RGT 898 offpoint 4.69deg Duration 2 minutes  
\* 2020/236:04:07:38.0000 TEP data collection Grid 401 Duration 3 minutes  
\* 2020/236:04:13:04.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/236:05:44:40.0000 OCEANscan Duration 22 minutes  
\* 2020/236:07:21:27.0000 TEP data collection Grid 360 Duration 3 minutes  
\* 2020/236:09:14:00.0000 TEP data collection Grid 105 Duration 3 minutes  
\* 2020/236:10:24:48.0000 TEP data collection Grid 428 Duration 3 minutes  
2020/236:13:00:00.0000 Stellar window dump Duration 90 minutes  
2020/236:14:45:57.0000 TOO TOOid 1674 RGT 905 offpoint 0.88deg Duration 2 minutes  
2020/236:17:31:55.0000 OCEANscan Duration 22 minutes  
\* 2020/236:21:31:34.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/236:23:05:51.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/237:03:47:25.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/237:05:19:01.0000 OCEANscan Duration 22 minutes  
\* 2020/237:06:56:00.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/237:08:15:27.0000 TOO TOOid 1683 RGT 916 offpoint 4.72deg Duration 2 minutes  
\* 2020/237:12:49:11.5000 Laser in ARM mode for LCA57 25544 (ISS) 24-Aug-2020 12:49:26 Duration 1  
minute  
2020/237:17:06:16.0000 OCEANscan Duration 22 minutes  
\* 2020/237:21:08:25.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/237:22:40:12.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
\* 2020/238:03:21:46.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/238:04:53:21.0000 OCEANscan Duration 22 minutes  
\* 2020/238:06:30:21.0000 AMCS Cal over open ocean Duration 2 minutes  
\* 2020/238:08:17:28.0000 TEP data collection Grid 179 Duration 3 minutes  
2020/238:16:40:37.0000 OCEANscan Duration 22 minutes  
2020/238:18:49:50.0000 TOO TOOid 1684 RGT 938 offpoint 4.73deg Duration 2 minutes  
\* 2020/238:22:14:33.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes  
2020/239:02:53:34.0000 TOO TOOid 1675 RGT 943 offpoint 1.07deg Duration 2 minutes  
\* 2020/239:03:03:07.0000 AMCS Cal over open ocean Duration 2 minutes

2020/239:04:27:42.0000 OCEANscan Duration 22 minutes  
\* 2020/239:06:04:41.0000 AMCS Cal over open ocean Duration 2 minutes  
2020/239:07:28:31.0000 Segmented RTWscan Part 1 Duration 37 minutes  
2020/239:08:17:45.0000 Segmented RTWscan Part 2 Duration 35 minutes  
2020/239:08:58:26.0000 Segmented RTWscan Part 3 Duration 13 minutes  
2020/239:16:49:53.0000 TOO TOOid 1685 RGT 952 offpoint 4.70deg Duration 2 minutes  
2020/239:17:49:15.0000 OCEANscan Duration 22 minutes  
\* 2020/239:21:48:53.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes