ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, August 3, 2020 thru Sunday, August 9, 2020

RGTs spanned: 591 - 697
Cycle 8

SUMMARY:
All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. The PSO has approved the release of the 954a3 functional test data generated by ASAS. It is now available on the SCF for review in /asas/release_954a3. This functional test includes ATL03s with the MERIT DEM, (unfilled) Roll, Pitch, Yaw, the refactored ATL06 code as well as other changes. The data include the saturation reclassification discussed at the last SDT telecon. Please work with your developers to determine what changes for your product were included in this test.

NSIDC ICESat-2 Metrics through August 1: 2,212 total users of 12 available data products; 6,687,838 sciences files downloaded. ATL03 is in the lead with 943 unique users of 857,120 files downloaded. ATL08 is in a close second with 900 unique users and an astounding 3,202,122 files downloaded, and ATL06 is in third place with 600 unique users and 2,090,114 files downloaded.

ELEMENT DETAILS BELOW

CAMS/POD:
CAMS: Regular CAMS operations: constraint and conjunction monitoring for MW099 and MW100 and mission planning for MW101.
CAMS continued working with the project on ARB09 and has delivered supporting documents.
CAMS recommended Laser arm for 42047 (FLOCK 3P 78) on 218/00:46:03 – 218/00:46:13(MW099). Event self-mitigated.

POD: Regular POD operations continue. Intermediate POD was completed for GPS week 2116. Final POD was completed for GPS week 2114.

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: -0.34C
SADA in SAILBOAT Mode
Spacecraft orientation: - X

Mission Planning:
MW100 ATS is loaded to the spacecraft and currently operating (PSO Activity List is attached)

MW101 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
ATS activities:
   MW_100 (currently loaded and executing):
   Routine Instrument calibrations, Ocean scans and Vegetation Data collection, modified RTW, and the monthly two orbit TEP stare

Other Activities:
   DMUDMU056a 2020/219 (6 Aug 2020) 13:24 duration 90 mins
   Team was on-site Aug 7th to receive and install RSA tokens, and completed tasks as expected.
   I2/ATLAS Monthly Performance Status Meeting for July with PSO and ATLASSE teams Aug 7th

Near-term upcoming activities:
   Tech HW refresh:
      Procurement in progress for ISF Tech Refresh Phase 2 to complete during FY20

Facility:
RSA tokens received and installed

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.
     - New SAT tool completed and submitted for team review
     - Update to IOTL tool completed and submitted for team review

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 ATL01 and ATL02 Data products to NSIDC.
   o   Distributed the rapid Science Data products to the SCF.
·   Continued testing of the SDMS V7.0.0/ATLAS V2.0.0 software on the Integration Test System. We will ask for a formal SIPS Build request after successful completion of testing and all necessary documentation.
·   Continued with setup of the Science Data Transfer Protocol (SDTP) software on the Integration Test System. Still trying to get firewall permissions from NASA security to setup a test with NSIDC.

ASAS:
PSO has approved the release of the 954a3 functional test data. It is now available on the SCF for review in /asas/release_954a3. This functional test includes ATL03s with the MERIT DEM, (unfilled) Roll, Pitch, Yaw, the refactored ATL06 code as well as other changes. The data include the saturation reclassification

discussed at the last SDT telecon. Please work with your developers to determine what changes for your product were included in this test.

L1B: Work is underway on the addition of several new parameters to ATL02. These additional parameters, requested by the flight software algorithm team, are extracted from the algorithm science and sxp_ssr APIDs.

L2A_ALT: PSO and ASAS are re-evaluating the saturation reclassification based on negative comments received during the last SDT telecon.

L2/L3 Atmosphere: Work is progressing on blowing snow refinements. Evaluation of the 954a3 ATL04 and ATL09s products is underway.

L3A Ice Sheet: Addressed issues involving invalid values within ref_azimuth and ref_coelev. Added checks for the presence of valid data before processing ATL09 information and residual histograms.

L3A Sea Ice/Freeboard: Work is underway on ATL07 podppd_flag & saturation exclusion, weak-beam atmosphere alignment and freeboard along-track slope.

L3A Land/Veg: Work is beginning on an evaluation of the changes in the 954a3 ATL08s..

L3A Inland Water: Changes related to spectral analysis, free-to-mean conversion updates & photon filtering based on conf. level due to reclassification have been submitted for CCB approval. Work on the addition of anomalous short-segment information to the ATL13 data product is underway.

L3A Ocean: Outstanding L3A ocean work has been submitted for CCB approval..

L3B Land Ice: The team addressed an issue that prevented NSDIC from extracting the default browse images. Work continues on defining the correct geospatial metadata for ATL11.

L3B Atmosphere: Testing of grid size and product template changes is underway.

L3B Freeboard: Improved the ATL20 browse images. Awaiting approval for release.

L3B Ocean: Work has resumed on L3B Ocean.

SCF:
The SCF is operating nominally. Data for releases 003 and R003 are being ingested and distributed. We expect the next batch of 003 data from SIPS, covering mid-May to mid-July, within about a week. ASAS release 954a3 test data have been transferred to the SCF, but their release to users is pending PSO approval. A file listing the current SCF data holdings is attached.

* Data Management -- Improving the creation of stand-alone executable versions of the rSCF data pull scripts is under discussion. Two new JIRA issues have been logged: one for the SCF distributing fewer ATL01 files to users than were received from SIPS, and the other for some hardcoding in the database module. Neither is causing problems in operations, but both may need to be addressed in the future.

* Subsetter -- Operations continue normally with no failed jobs. An initial look at ASAS release 954a2 data indicates that the Subsetter should not need much, if any, modification to handle these data products.

* Visualizer -- An initial look at ASAS special test data for ATL20 suggests there should be no major problems updating the Visualizer for this product.

ATL02/Instrument Science:
Examination of data from the July 8-16 anomaly period indicates that there appears to have been a slippage as well as a swap of the start pulse fine counts during a period of a few hours on July 15. Work continues to confirm this, and to understand the implications.

A revised version of CAL 08, Range Bias, has been produced and is under evaluation. An updated, detailed description of the process by which CAL 08 is produced and used is also being reviewed.

In addition, work continues on:

- 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.

ISF ACTIVITIES MISSION WEEK 100

2020/219:01:48:35.0000 TOO TOOid 1628 RGT 637 offpoint 4.68deg Duration 2 minutes
* 2020/219:02:27:13.0000 TEP data collection Grid 8 Duration 3 minutes
* 2020/219:03:32:18.0000 TEP data collection Grid 403 Duration 3 minutes
* 2020/219:03:54:43.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/219:04:18:11.0000 TEP data collection Grid 24 Duration 3 minutes
* 2020/219:05:06:35.0000 TEP data collection Grid 401 Duration 3 minutes
* 2020/219:05:12:01.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/219:05:52:28.0000 TEP data collection Grid 22 Duration 3 minutes
  2020/219:06:43:37.0000 OCEANscan Duration 22 minutes

* 2020/219:08:28:13.0000 TEP data collection Grid 252 Duration 3 minutes
* 2020/219:08:43:55.0000 TEP data collection Grid 35 Duration 3 minutes
  2020/219:08:52:54.0000 TOO TOOid 1635 RGT 641 offpoint 4.57deg Duration 2 minutes
* 2020/219:09:49:27.0000 TEP data collection Grid 430 Duration 3 minutes
* 2020/219:11:34:12.0000 TEP data collection Grid 283 Duration 3 minutes
* 2020/219:11:42:00.0000 TEP data collection Grid 175 Duration 3 minutes
* 2020/219:13:14:49.0000 TEP data collection Grid 208 Duration 3 minutes
^ 2020/219:13:24:20.0000 DMU056a Duration 75 minutes
* 2020/219:14:50:35.0000 TEP data collection Grid 170 Duration 3 minutes
* 2020/219:16:06:00.0000 TEP data collection Grid 421 Duration 3 minutes
* 2020/219:16:29:23.0000 TEP data collection Grid 96 Duration 3 minutes
* 2020/219:17:48:45.0000 TEP data collection Grid 310 Duration 3 minutes
* 2020/219:17:56:34.0000 TEP data collection Grid 201 Duration 3 minutes
* 2020/219:18:01:47.0000 TEP data collection Grid 129 Duration 3 minutes
  2020/219:18:30:52.0000 OCEANscan Duration 22 minutes
* 2020/219:19:17:49.0000 TEP data collection Grid 380 Duration 3 minutes
* 2020/219:20:59:56.0000 TEP data collection Grid 269 Duration 3 minutes
* 2020/219:22:26:23.0000 TEP data collection Grid 375 Duration 3 minutes
* 2020/219:22:30:31.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/220:00:08:31.0000 TEP data collection Grid 264 Duration 3 minutes
  2020/220:02:10:04.0000 TOO TOOid 1636 RGT 652 offpoint 4.53deg Duration 2 minutes
* 2020/220:04:46:22.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/220:06:05:50.0000 TOO TOOid 1629 RGT 655 offpoint 4.71deg Duration 2 minutes
  2020/220:06:17:58.0000 OCEANscan Duration 22 minutes
* 2020/220:07:54:57.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/220:09:36:51.0000 TEP data collection Grid 250 Duration 3 minutes
* 2020/220:09:42:04.0000 TEP data collection Grid 178 Duration 3 minutes
* 2020/220:09:46:47.0000 TEP data collection Grid 106 Duration 3 minutes
  2020/220:18:05:13.0000 OCEANscan Duration 22 minutes
* 2020/220:19:00:00.0000 TEP data collection Grid 272 Duration 3 minutes
* 2020/220:19:09:12.0000 TEP data collection Grid 128 Duration 3 minutes
* 2020/220:20:26:27.0000 TEP data collection Grid 378 Duration 3 minutes
* 2020/220:22:04:52.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/220:22:11:11.0000 TEP data collection Grid 231 Duration 3 minutes
* 2020/220:22:16:23.0000 TEP data collection Grid 159 Duration 3 minutes
* 2020/220:23:39:09.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/220:23:48:04.0000 TEP data collection Grid 193 Duration 3 minutes
  2020/221:01:05:00.0000 Laser window dump Duration 2 minutes
  2020/221:02:31:35.0000 TOO TOOid 1630 RGT 668 offpoint 4.65deg Duration 2 minutes
* 2020/221:02:40:41.0000 TEP data collection Grid 405 Duration 3 minutes
* 2020/221:04:20:43.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/221:05:52:19.0000 OCEANscan Duration 22 minutes
* 2020/221:07:29:18.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/221:09:03:23.0000 TEP data collection Grid 359 Duration 3 minutes
* 2020/221:09:10:35.0000 TEP data collection Grid 251 Duration 3 minutes
* 2020/221:10:55:56.0000 TEP data collection Grid 104 Duration 3 minutes

* 2020/221:12:17:11.0000 TEP data collection Grid 282 Duration 3 minutes
  2020/221:14:50:58.0000 TOO TOOid 1642 RGT 676 offpoint 1.72deg Duration 2 minutes
* 2020/221:15:33:35.0000 TEP data collection Grid 169 Duration 3 minutes
  2020/221:17:39:34.0000 OCEANscan Duration 22 minutes
  2020/221:22:10:17.0000 TOO TOOid 1637 RGT 680 offpoint 4.84deg Duration 2 minutes
* 2020/221:23:13:30.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/222:02:14:00.0000 TEP Stare 2 orbits of TEP calibration Duration 192 minutes
  2020/222:05:26:39.0000 OCEANscan Duration 22 minutes
* 2020/222:07:03:39.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/222:08:27:28.0000 Segmented RTWscan Part 1 Duration 37 minutes
  2020/222:09:16:38.0000 Segmented RTWscan Part 2 Duration 35 minutes
  2020/222:09:57:02.0000 Segmented RTWscan Part 3 Duration 14 minutes
* 2020/222:12:04:34.0000 TEP data collection Grid 102 Duration 3 minutes
* 2020/222:13:40:16.0000 TEP data collection Grid 64 Duration 3 minutes
  2020/222:17:01:42.0000 TOO TOOid 1638 RGT 692 offpoint 4.54deg Duration 2 minutes
  2020/222:17:13:55.0000 OCEANscan Duration 22 minutes
* 2020/222:19:58:39.0000 TEP data collection Grid 54 Duration 3 minutes
  2020/222:22:31:41.0000 TOO TOOid 1631 RGT 696 offpoint 4.72deg Duration 2 minutes
* 2020/222:22:47:51.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
  2020/223:02:04:00.0000 Stellar window dump Duration 90 minutes
* 2020/223:03:44:28.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/223:05:03:42.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/223:06:35:18.0000 OCEANscan Duration 22 minutes
  2020/223:08:01:49.0000 Segmented RTWscan Part 1 Duration 38 minutes
  2020/223:08:51:19.0000 Segmented RTWscan Part 2 Duration 35 minutes
  2020/223:09:31:46.0000 Segmented RTWscan Part 3 Duration 13 minutes
  2020/223:10:18:53.0000 TOO TOOid 1639 RGT 703 offpoint 4.57deg Duration 2 minutes
  2020/223:14:14:37.0000 TOO TOOid 1632 RGT 706 offpoint 4.68deg Duration 2 minutes
  2020/223:18:22:33.0000 OCEANscan Duration 22 minutes
* 2020/223:22:22:12.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/224:04:38:03.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/224:06:09:39.0000 OCEANscan Duration 22 minutes
* 2020/224:07:46:15.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/224:08:18:56.0000 TOO TOOid 1640 RGT 717 offpoint 4.57deg Duration 2 minutes
  2020/224:10:40:22.0000 TOO TOOid 1633 RGT 719 offpoint 4.70deg Duration 2 minutes
  2020/224:17:56:54.0000 OCEANscan Duration 22 minutes
* 2020/224:21:56:33.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/224:23:30:50.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/225:04:12:24.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/225:05:44:00.0000 OCEANscan Duration 22 minutes
  2020/225:07:06:07.0000 TOO TOOid 1634 RGT 732 offpoint 4.72deg Duration 2 minutes
* 2020/225:07:20:59.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/225:17:31:15.0000 OCEANscan Duration 22 minutes
  2020/225:18:53:19.0000 TOO TOOid 1641 RGT 739 offpoint 4.56deg Duration 2 minutes
* 2020/225:23:05:11.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes