ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, November 9, 2020 thru Sunday, November 15, 2020

RGTs spanned: 700 - 806
Cycle 9

SUMMARY:
All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. Investigations of identified TxRx alignment slip cases, particularly in PCE3, continue by the ATL02/03 teams and by ASAS.

ATL20 (daily/monthly gridded freeboard) is now available for download from NSIDC! Next in the queue for L3B products is ATL11, which should be available at NSIDC in the coming weeks.

ELEMENT DETAILS BELOW

CAMS/POD:
CAMS: Regular CAMS operations: constraint and conjunction monitoring for MW113 and MW114 and mission planning for MW115.
CAMS continues working with the project on ARB09.

POD: Regular POD operations continue. Intermediate POD was completed for GPS week 2130. Final POD was completed for GPS week 2128.

ISF:
All ATLAS housekeeping data is nominal
Laser 2 is firing at energy level 4 and in science mode
WTEM Peak to Edge Ratio: 1.21
Laser 2 Temperature Error: -0.34C
SADA in SAILBOAT Mode
Spacecraft orientation: - X

Mission Planning:
MW114 ATS is loaded to the spacecraft and currently operating
MW115 AIP has been delivered, nominal calibrations; CAMS has delivered preliminary products.
CAMS delivered an MCR to MOC/FDS since the IA maneuver generated boresight violations.
CAMS continues to perform daily laser conjunction screening and constraint analysis including screening for ISS visiting vehicles

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Activities during the past week:
Real-time activities:
monitoring via telework
Updated the SHG temperature to optimize the laser energy on Monday 11/9.

ATS activities:
MW_113 (completed nominally - PSO Activity list attached)
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Mini-ATS for LCA65 to mitigate HIE with 25544 (ISS)

MW_114 (currently active):

Routine Instrument calibrations, TOOs, Ocean scans and Vegetation Data collection, Segmented RTW scans

BSM XY Offset updated to 18.8, 10.1 post-DMU063a

Monthly TEP stare started at 2020/318 18:15

Solar Array transition to AIRPLANE mode 2020/321 19:30

Receiver Algorithm V10 Parameter test starts at 2020/322 00:11:44 and executes for two weeks

Other Activities:

PDB E.0.2 Update

TBS - install and testing on playback ISF server (itos2)

Near-term upcoming activities:

Update the USO frequency derivative in ANC27 based on performance trends

Testing of receiver algorithm parameter updates starts November 19 and continues for two weeks.

Facility:

Updating ITOS servers to RedHat 7.0 due to EOL of 6.0 at the end of November

Install on the primary server (itos1) - completed on 11/12

Tech HW refresh:

ISF Tech Refresh Phase 2 hardware moved to B33 Room F325

Phase 1a setup and testing continues (on-hold for RedHat OS update)

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 independent review board.

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.
- Distributed Release 003 ATL03 finals from 9/8/2020 thru 9/30/2020 to NSIDC with PSO holds applied.
- Distributed Release 003 ATL07/10 from 7/17/2020 thru 9/30/2020 to NSIDC with the appropriate holds applied.
- Delivered requested Release 003 ATL01 files to the Dev1 system for Jeff Lee to look into Tx/Rx issue.
- Delivered requested ATL00 APID data packets to the ISF.
- Requested Release 004 ESDTS for the L1, L2, and L3A data products from NSIDC. Also requested ESDTS for the L3B products. NSIDC has delivered the ESDTS.
- Started integration testing of SIPS Build 6.0 using the new ESDTS.

ASAS:

L1A/L1B: Developed custom software to examine Tx/Rx issue. Proven useful with a small sample of ATL01 products. Software is currently processing a significantly larger sample of ATL01s to improve statistical significance of the results.

L2A_ALT: No work.

L2/L3 Atmosphere: Waiting on new overrides to run another test case in ASAS-PG.

L3A Land Ice: No work.

L3B Land Ice: The transfer path of ATL11 via ADAPT->SIPS->NSIDC is in testing.

Sea Ice/Freeboard: Work is underway on ATL21.

L3A Land/Veg: Investigation of issues related to a strong/weak beam crossing is awaiting release 004 ATL03s (which contain roll/pitch/yaw).

Inland Water: Work is underway on ATL22.

Ocean: Work is underway on ATL19.

SCF:

The SCF is operating nominally. Data for releases 003 and R003 are being ingested and distributed. Fulfillment of subscriptions continues for the last batches of 003 data. A rough estimate for completion is 2-3 weeks with full granules expected to finish before subsetting. A file listing the current SCF data holdings is attached.

* Data Management -- As requested by users, some subscriptions are being deactivated to reduce the data distribution load. We expect this to provide some reduction in fulfillment time, but it may not be significant; the number of files to process seems to be a bigger factor. Initial tests to create new ATL10 trending plots appeared to be successful, but some additional checking and testing are being done before scientists are asked to review the results. Recent hold requests with blank lines were processed successfully, but the jobs failed in SDMS due to warnings generated. To avoid this, a code update to ignore blank lines in such requests has been made and tested successfully on the dev server; it will likely be put into operations next week.

* Subsetter -- Testing with v5.4 products continues to go well. Updates are being made to fix some messages, mainly with verbose output, that were not reporting the right information. Note that the subsetted data being produced are correct; the issue is only with messages, not data.

ATL02/Instrument Science:

Expected frequency of back reflection of an ATLAS laser into an ATLAS field of view from a Starlink solar array appears to be low enough that, given the available margin in detector lifetime, no action needs to be taken.

Analysis using a wider range of star trackers than just Starlink indicates a possibility of minor damage to a star tracker if the star tracker is pointed at ATLAS and passes within less than 50 cm of the center of an ATLAS beam at a range less than 70 km. The increased range (versus 35 km for Starlink) is due to higher-end star trackers having a higher ratio of entrance pupil size to spot size.

In addition, work continues on:

- Updating ATL02 documents for Release 004
- Transmit/receive data slips
- Investigating and modeling the properties of saturated returns.

ATL03:
Continuing investigation of TxRx alignment slip cases, particularly in PCE3.

ISF ACTIVITIES MISSION WEEK 113

* Not in science mode
^ Could affect science data quality

* 2020/310:00:15:57.0000 TEP data collection Grid 239 Duration 3 minutes
* 2020/310:00:20:12.0000 TEP data collection Grid 311 Duration 3 minutes
* 2020/310:00:25:25.0000 TEP data collection Grid 383 Duration 3 minutes
* 2020/310:01:41:44.0000 TEP data collection Grid 129 Duration 3 minutes
  2020/310:02:23:25.0000 OCEANscan Duration 22 minutes
* 2020/310:03:20:58.0000 TEP data collection Grid 199 Duration 3 minutes
* 2020/310:04:57:51.0000 TEP data collection Grid 232 Duration 3 minutes
* 2020/310:05:08:17.0000 TEP data collection Grid 376 Duration 3 minutes
* 2020/310:06:36:15.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/310:08:11:06.0000 TEP data collection Grid 300 Duration 3 minutes
* 2020/310:09:25:05.0000 TEP data collection Grid 10 Duration 3 minutes
* 2020/310:09:30:17.0000 TEP data collection Grid 82 Duration 3 minutes
* 2020/310:09:43:19.0000 TEP data collection Grid 261 Duration 3 minutes
* 2020/310:09:53:46.0000 TEP data collection Grid 405 Duration 3 minutes
* 2020/310:11:02:08.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
^ 2020/310:11:25:26.0000 DMU62a for RGT excursion Duration 75 minutes
* 2020/310:12:43:28.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
* 2020/310:12:57:07.0000 TEP data collection Grid 328 Duration 3 minutes
  2020/310:14:10:40.0000 OCEANscan Duration 22 minutes
* 2020/310:15:43:47.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
* 2020/310:16:05:42.0000 TEP data collection Grid 360 Duration 3 minutes
* 2020/310:16:28:15.0000 TEP data collection Grid 413 Duration 3 minutes
* 2020/310:17:32:05.0000 TEP data collection Grid 250 Duration 3 minutes

* 2020/310:18:57:50.0000 TEP data collection Grid 140 Duration 3 minutes
* 2020/310:19:09:04.0000 TEP data collection Grid 283 Duration 3 minutes
* 2020/310:20:45:57.0000 TEP data collection Grid 317 Duration 3 minutes
* 2020/310:22:25:28.0000 TEP data collection Grid 386 Duration 3 minutes
* 2020/310:22:45:18.0000 TEP data collection Grid 404 Duration 3 minutes
* 2020/310:23:51:56.0000 TEP data collection Grid 276 Duration 3 minutes
2020/311:01:57:45.0000 OCEANscan Duration 22 minutes
* 2020/311:02:54:17.0000 TEP data collection Grid 200 Duration 3 minutes
* 2020/311:03:28:10.0000 TEP data collection Grid 397 Duration 3 minutes
* 2020/311:06:03:53.0000 TEP data collection Grid 195 Duration 3 minutes
* 2020/311:06:10:36.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/311:07:27:43.0000 TEP data collection Grid 49 Duration 3 minutes
* 2020/311:09:07:14.0000 TEP data collection Grid 118 Duration 3 minutes
* 2020/311:09:22:53.0000 TEP data collection Grid 334 Duration 3 minutes
* 2020/311:10:40:00.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
* 2020/311:12:10:47.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
2020/311:13:45:01.0000 OCEANscan Duration 22 minutes
* 2020/311:15:19:21.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
* 2020/311:17:03:55.0000 TEP data collection Grid 214 Duration 3 minutes
* 2020/311:17:09:07.0000 TEP data collection Grid 286 Duration 3 minutes
* 2020/311:18:45:55.0000 TEP data collection Grid 320 Duration 3 minutes
* 2020/311:18:54:15.0000 Put laser in ARM mode for LCA65 25544 (ISS) 06-Nov-2020 18:54:30 Duration 1 minute
* 2020/311:20:07:16.0000 TEP data collection Grid 138 Duration 3 minutes
* 2020/311:21:54:36.0000 TEP data collection Grid 315 Duration 3 minutes
* 2020/311:21:59:49.0000 TEP data collection Grid 387 Duration 3 minutes
* 2020/311:23:26:17.0000 TEP data collection Grid 277 Duration 3 minutes
2020/312:01:32:07.0000 OCEANscan Duration 22 minutes
* 2020/312:02:32:16.0000 TEP data collection Grid 236 Duration 3 minutes
* 2020/312:02:42:02.0000 TEP data collection Grid 380 Duration 3 minutes
* 2020/312:03:58:43.0000 TEP data collection Grid 126 Duration 3 minutes
* 2020/312:05:27:47.0000 TEP data collection Grid 52 Duration 3 minutes
* 2020/312:05:44:57.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/312:08:48:42.0000 TEP data collection Grid 227 Duration 3 minutes
* 2020/312:10:14:31.0000 TEP data collection Grid 80 Duration 3 minutes
* 2020/312:10:18:30.0000 TEP data collection Grid 152 Duration 3 minutes
2020/312:10:30:43.0000 TOO TOOid 1765 RGT 676 offpoint 2.11deg Duration 2 minutes
* 2020/312:11:45:08.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
2020/312:13:19:22.0000 OCEANscan Duration 22 minutes
* 2020/312:14:53:42.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
* 2020/312:15:11:47.0000 TEP data collection Grid 289 Duration 3 minutes
* 2020/312:19:54:39.0000 TEP data collection Grid 318 Duration 3 minutes
* 2020/312:21:21:08.0000 TEP data collection Grid 208 Duration 3 minutes
* 2020/312:21:31:33.0000 TEP data collection Grid 351 Duration 3 minutes
* 2020/312:22:50:05.0000 TEP data collection Grid 134 Duration 3 minutes
2020/313:01:06:28.0000 OCEANscan Duration 22 minutes

* 2020/313:03:35:41.0000 TEP data collection Grid 162 Duration 3 minutes
  2020/313:04:07:16.0000 Segmented RTWscan Part 1 Duration 37 minutes
  2020/313:04:56:26.0000 Segmented RTWscan Part 2 Duration 35 minutes
  2020/313:05:36:50.0000 Segmented RTWscan Part 3 Duration 14 minutes
* 2020/313:06:53:35.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/313:11:19:29.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
  2020/313:12:53:43.0000 OCEANscan Duration 22 minutes
* 2020/313:14:28:03.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
  2020/313:15:55:00.0000 Stellar window dump Duration 90 minutes
* 2020/313:22:29:46.0000 TEP data collection Grid 206 Duration 3 minutes
  2020/314:02:15:06.0000 OCEANscan Duration 22 minutes
  2020/314:03:41:37.0000 Segmented RTWscan Part 1 Duration 37 minutes
  2020/314:04:31:07.0000 Segmented RTWscan Part 2 Duration 35 minutes
  2020/314:05:11:34.0000 Segmented RTWscan Part 3 Duration 14 minutes
* 2020/314:06:27:56.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/314:10:53:49.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
* 2020/314:12:28:07.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
  2020/314:14:02:21.0000 OCEANscan Duration 22 minutes
  2020/314:16:14:45.0000 Load Rx Alg V10 parameter files to RAM0 Duration 1 minutes
  2020/314:16:17:04.0000 Update SHG Temperature to 49.93C sCAR192 Duration 1 minutes
  2020/315:01:30:00.0000 Laser window dump Duration 2 minutes
  2020/315:01:49:27.0000 OCEANscan Duration 22 minutes
* 2020/315:06:02:17.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/315:10:30:03.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
* 2020/315:12:02:28.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
  2020/315:13:36:42.0000 OCEANscan Duration 22 minutes
* 2020/315:15:11:02.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
  2020/316:01:23:48.0000 OCEANscan Duration 22 minutes
* 2020/316:05:36:38.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/316:11:36:49.0000 AMCS Cal over open Pacific ocean Duration 2 minutes
  2020/316:13:11:03.0000 OCEANscan Duration 22 minutes
* 2020/316:14:45:23.0000 AMCS Cal over open Pacific ocean Duration 2 minutes