ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, July 13, 2020 thru Sunday, July 19, 2020

RGTs spanned: 270 - 376
Cycle 8

SUMMARY:
All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. The spacecraft's solar array assembly transitioned successfully from Airplane to Sailboat on Friday, July 17 at 12:17 EDT (2020/199 16:17 UTC).

ASAS is wrapping up code changes for the next round of functional testing, scheduled to begin next week. This functional test will feature ATL03s with the MERIT DEM, (unfilled) Roll, Pitch, Yaw, the refactored ATL06 code as well as other changes. **ATBD leads à please work with your developers to make sure changes you wish to evaluate are included in this test.**

ELEMENT DETAILS BELOW

CAMS/POD:
CAMS: Regular CAMS operations: constraint and conjunction monitoring for MW096 and MW097 and mission planning for MW098.
CAMS recommended laser arm for 42051 (FLOCK 3P 72) on 197/21:35:07 - 197/21:35:17 (MW096).
CAMS recommends laser arm for 45249 (XJS-C) on 200/22:49:04 - 200/22:49:14 (MW097).
CAMS recommends laser arm for 45250 (XJS-D) on 200/19:40:35 - 200:19:40:45 (MW097).
CAMS continued working with the project on ARB09 and has delivered supporting documents.

POD: Regular POD operations continue. Intermediate POD was completed for GPS week 2113. Final POD was completed for GPS week 2111.

ISF:
All ATLAS housekeeping data is nominal
Laser 2 is firing at energy level 4 and in science mode
WTEM Peak to Edge Ratio: 1.189
Laser 2 Temperature Error: -0.32C
SADA in SAILBOAT Mode (transition from Airplane to Sailboat occurred on Friday, July 17 at 12:17 EDT (2020/199 16:17 UTC)
Spacecraft orientation: - X

Mission Planning:
MW97 ATS is loaded to the spacecraft and currently operating (PSO Activity List is attached)

MW98 AIP has been delivered, nominal calibrations

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Activities during the past week:

Real-time activities:

monitoring via telework; monitored real-time contact via telework post-PCE2 reboot; all PCEs were in science mode and telemetry data was nominal during and after the reboot (see Note 2)
ATS activities:
 MW_97 (currently loaded and executing):
  Routine Instrument calibrations, Ocean scans and Vegetation Data collection, modified RTW
  SAM006a to SAILBOAT mode on **2020/199 16:17 UTC (July 17, 2020)**

A review of telemetry data shows an incorrect MW097 mini-ATS was loaded Friday 7/17. Two LCAs were executed on Saturday instead of the desired single LCA at 22:49:09 :

Laser in ARM mode for LCA54 45250 18-Jul-2020 19:40:38 Duration 1 minute (this HIE had self-mitigated)
Laser in ARM mode for LCA55 45249 (XJS C) 18-Jul-2020 22:49:09 Duration 1 minute

Execution of this mini-ATS also reset the AMCS XY offsets to their values prior to the XY offset update on 17-Jul 2020 16:15:00.

Commands have been added to the MW098 load to update the AMCS XY offsets back to the desired (19.6, 10,5) values.

The PSO_MW097 file has been updated to reflect these events.

Other Past Activities:
  nothing significant

Near-term upcoming activities:
    DMU056a on 2020/205 (July 23, 2020)
    Tech HW refresh:
        On-site to receive Phase 1a hardware and bing initial setup.
        Procurement in progress for ISF Tech Refresh Phase 2 to complete during FY20

Facility:
RSA Token re-order - notified tokens delivered to GSFC
RSA licenses renewed

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.
2. PCE2 is in the stuck bit condition. PCE2 was rebooted and re-initialized out of the ATS for MW097. The time out of science mode was 4 minutes 20 seconds.

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.
- · Distributed Release 003 ATL04, ATL07, ATL09, ATL10, and ATL13 data products for Apr 5-May 13, 2020 to NSIDC. ST requested holds were implemented.

ASAS:
ASAS is wrapping up code changes for the next round of functional testing, scheduled to begin next week. This functional test will feature ATL03s with the MERIT DEM, (unfilled) Roll, Pitch, Yaw, the refactored ATL06 code as well as other changes. Please work with your developers to make sure changes you wish to evaluate are included in this test.

Additional storage, dedicated to ASAS, is being installed on scf1. This will allow ASAS to transfer test data to the science team in a timelier fashion with minimal impact to SCF operations.

For the ATL02 GPSR IMT fix, ASAS has delivered updated ATL02s for 11/11/2018 05:00-09:00:00 to POD. Initial evaluation of these data shows precision loss at the nanosecond scale. ASAS will update ATL02 to store the full 64-bit integer counts on ATL02, therefore guaranteeing the IMT data delivered on ATL02 is unaltered from the value created by the GPSR instrument.

L1B: Updates to the ATL02 GPSR IMT fix have been made and new ATL02s are planned for delivery to POD.

L2A_ALT: Code to interpolate roll/pitch/yaw from ANC04 and populate ATL03 has been completed.

L2/L3 Atmosphere: Additional constants have been added to ATL04 and ATL09. Cloud/Aerosol discrimination is in work.

L3A Ice Sheet: The refactored code has been entered into the ASAS change control system and is ready for use during the next functional test.

L3A Sea Ice/Freeboard: Default constants have been updated to the Release 3.0 override values. ASAS is participating in the discussion regarding mean/free tide systems.

L3A Land/Veg: Changed the default radius for the KDTREE to 100m.

L3A Inland Water: Work is focused on spectral width analysis. podppd_flag exclusion and fixed for free/mean tide have been implemented.

L3A Ocean: Initial coding for the layer flag switch and podppd_flag exclusion is in testing.

L3B Land Ice: Work continues on improved ATL11 QA and netCDF-compliance. ASAS is working with ADAPT to set up a production environment for ATL11 that is isolated from development.

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

SCF:
The SCF is operating nominally. Data for releases 003 and R003 are being ingested and distributed, and all subscriptions are current. The next batch of 003 finals (5/14 to 7/17) is expected to be ready by the end of July. Planned deletions are expected to begin a few days before data begin arriving from SIPS. A file listing the current SCF data holdings is attached.

  * Data Management -- ANC browse images were cleaned up on the server, and the updated code to skip extraction of browse images from ANC is working as expected. The possible logic error in the ATL10 trending code was fixed and the code updated in operations; it appears to be working as expected. Upon further checking, the one day with unexpected results seems to be correct given the data.

  * Subsetter -- All operations proceeded as expected. A possible cause for occasional subset failures, due to multiple jobs simultaneously accessing the same file, has been identified. Next week, we plan to make a configuration change to the SCF servers to address this that will also improve the settings for use of SDMS in general.

ATL03:
Evaluation of rel954a2 ATL03 granules continues, specifically for the signal confidence modification for saturated conditions. Identifying high-priority items in the works for release 004 continues, including a new DEM for land surface type (MERIT), implementation of the free-to-mean tide conversion equations for EGM2008 and solid earth (crustal) tides, roll/pitch/yaw being provided at the geolocation segment rate, and modifications for geophysical corrections to be tide-free. Continuing to explore long-term data including radiometry performance over ice sheets, beam incidence angles, and saturation fractions.

ISF ACTIVITIES MISSION WEEK 097

* 2020/198:03:21:00.0000 TEP data collection Grid 189 Duration 3 minutes
* 2020/198:04:57:26.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/198:06:19:22.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/198:07:38:48.0000 TOO TOOid 1582 RGT 320 offpoint 4.76deg Duration 2 minutes
  2020/198:07:50:57.0000 OCEANscan Duration 22 minutes
  2020/198:09:17:28.0000 Segmented RTWscan Part 1 Duration 37 minutes
  2020/198:10:06:56.0000 Segmented RTWscan Part 2 Duration 35 minutes
  2020/198:10:47:25.0000 Segmented RTWscan Part 3 Duration 11 minutes
* 2020/198:11:15:04.0000 TEP data collection Grid 177 Duration 3 minutes
* 2020/198:12:31:06.0000 TEP data collection Grid 427 Duration 3 minutes
* 2020/198:12:44:08.0000 TEP data collection Grid 247 Duration 3 minutes
  2020/198:13:08:50.0000 TOO TOOid 1575 RGT 323 offpoint 4.60deg Duration 2 minutes
* 2020/198:13:15:42.0000 Reboot PCE2 to clear Stuck Bit Out of SCIENCE mode Duration 5 minutes
* 2020/198:14:05:22.0000 TEP data collection Grid 425 Duration 3 minutes
* 2020/198:15:47:31.0000 TEP data collection Grid 314 Duration 3 minutes
* 2020/198:17:19:11.0000 TEP data collection Grid 348 Duration 3 minutes

* 2020/198:17:27:01.0000 TEP data collection Grid 240 Duration 3 minutes
* 2020/198:17:31:55.0000 TEP data collection Grid 168 Duration 3 minutes
* 2020/198:18:48:15.0000 TEP data collection Grid 418 Duration 3 minutes
  2020/198:19:38:12.0000 OCEANscan Duration 22 minutes
* 2020/198:20:43:24.0000 TEP data collection Grid 127 Duration 3 minutes
* 2020/198:23:37:51.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/199:01:28:15.0000 TEP data collection Grid 84 Duration 3 minutes
* 2020/199:04:29:39.0000 TEP data collection Grid 187 Duration 3 minutes
* 2020/199:05:53:43.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/199:07:25:18.0000 OCEANscan Duration 22 minutes
* 2020/199:09:24:14.0000 TEP data collection Grid 71 Duration 3 minutes
* 2020/199:10:38:59.0000 TEP data collection Grid 322 Duration 3 minutes
* 2020/199:16:15:00.0000 Update BSM XY Offsets X 19.6 Y 10.5 Duration 1 minute
* 2020/199:16:17:00.0000 SAM006a SADA Mode to SAILBOAT Duration 1 minute
* 2020/199:16:55:35.0000 TEP data collection Grid 313 Duration 3 minutes
* 2020/199:18:35:39.0000 TEP data collection Grid 238 Duration 3 minutes
  2020/199:19:12:33.0000 OCEANscan Duration 22 minutes
  2020/199:22:08:54.0000 TOO TOOid 1576 RGT 344 offpoint 4.60deg Duration 2 minutes
* 2020/199:23:04:25.0000 TEP data collection Grid 412 Duration 3 minutes
* 2020/199:23:12:12.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/200:00:46:29.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/200:02:37:32.0000 TEP data collection Grid 82 Duration 3 minutes
* 2020/200:05:28:03.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/200:06:00:20.0000 TOO TOOid 1577 RGT 349 offpoint 4.60deg Duration 2 minutes
  2020/200:06:59:39.0000 OCEANscan Duration 22 minutes
* 2020/200:08:36:38.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/200:11:58:03.0000 TEP data collection Grid 176 Duration 3 minutes
* 2020/200:12:03:02.0000 TEP data collection Grid 104 Duration 3 minutes
  2020/200:16:13:14.0000 TOO TOOid 1584 RGT 356 offpoint 4.70deg Duration 2 minutes
  2020/200:18:46:54.0000 OCEANscan Duration 22 minutes
* 2020/200:19:40:13.0000 Put laser in ARM mode for LCA54 45250 18-Jul-2020 19:40:38 Duration 1 minute
* 2020/200:19:41:000000 Update BSM XY Offsets X 19.0 Y 11.5 Duration 1 minute
* 2020/200:21:23:47.0000 TEP data collection Grid 162 Duration 3 minutes
* 2020/200:22:48:54.0000 Put laser in ARM mode for LCA55 45249 (XJS C) 18-Jul-2020 22:49:09 Duration 1 minute
* 2020/200:23:05:55.0000 TEP data collection Grid 51 Duration 3 minutes
  2020/200:23:15:00.0000 Laser window dump Duration 2 minutes
* 2020/201:00:20:50.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/201:05:02:24.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/201:06:34:00.0000 OCEANscan Duration 22 minutes
* 2020/201:08:10:59.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/201:09:30:25.0000 TOO TOOid 1585 RGT 367 offpoint 4.76deg Duration 2 minutes
* 2020/201:09:39:04.0000 TEP data collection Grid 432 Duration 3 minutes
* 2020/201:11:26:54.0000 TEP data collection Grid 249 Duration 3 minutes
* 2020/201:14:30:33.0000 TEP data collection Grid 316 Duration 3 minutes

* 2020/201:17:33:29.0000 TEP data collection Grid 384 Duration 3 minutes
  2020/201:18:21:15.0000 OCEANscan Duration 22 minutes
* 2020/201:19:21:14.0000 TEP data collection Grid 201 Duration 3 minutes
  2020/201:19:43:19.0000 TOO TOOid 1578 RGT 373 offpoint 4.60deg Duration 2 minutes
* 2020/201:20:49:08.0000 TEP data collection Grid 271 Duration 3 minutes
* 2020/201:20:55:32.0000 TEP data collection Grid 198 Duration 3 minutes
* 2020/201:23:55:11.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/202:01:46:13.0000 TEP data collection Grid 83 Duration 3 minutes
* 2020/202:04:33:56.0000 TEP data collection Grid 367 Duration 3 minutes
* 2020/202:04:47:06.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/202:06:08:20.0000 OCEANscan Duration 22 minutes
* 2020/202:07:45:20.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/202:09:09:09.0000 Segmented RTWscan Part 1 Duration 37 minutes
  2020/202:09:58:34.0000 Segmented RTWscan Part 2 Duration 35 minutes
  2020/202:10:39:05.0000 Segmented RTWscan Part 3 Duration 13 minutes
  2020/202:11:26:12.0000 TOO TOOid 1579 RGT 383 offpoint 4.60deg Duration 2 minutes
* 2020/202:15:32:54.0000 TEP data collection Grid 387 Duration 3 minutes
* 2020/202:15:49:36.0000 TEP data collection Grid 170 Duration 3 minutes
  2020/202:19:29:53.0000 OCEANscan Duration 22 minutes
  2020/202:21:39:06.0000 TOO TOOid 1586 RGT 390 offpoint 4.75deg Duration 2 minutes
* 2020/202:21:58:57.0000 TEP data collection Grid 269 Duration 3 minutes
* 2020/202:23:29:32.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/202:23:43:40.0000 TEP data collection Grid 122 Duration 3 minutes
* 2020/202:23:48:54.0000 TEP data collection Grid 50 Duration 3 minutes
  2020/203:01:34:47.0000 TOO TOOid 1580 RGT 392 offpoint 4.59deg Duration 2 minutes
* 2020/203:02:57:29.0000 TEP data collection Grid 45 Duration 3 minutes
* 2020/203:04:23:56.0000 TEP data collection Grid 151 Duration 3 minutes
* 2020/203:05:45:23.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/203:07:16:59.0000 OCEANscan Duration 22 minutes
* 2020/203:08:50:16.0000 TEP data collection Grid 361 Duration 3 minutes
* 2020/203:08:58:59.0000 TEP data collection Grid 288 Duration 3 minutes
* 2020/203:10:35:52.0000 TEP data collection Grid 250 Duration 3 minutes
* 2020/203:10:51:34.0000 TEP data collection Grid 33 Duration 3 minutes
  2020/203:19:04:14.0000 OCEANscan Duration 22 minutes
* 2020/203:19:56:24.0000 TEP data collection Grid 308 Duration 3 minutes
* 2020/203:23:03:53.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/203:23:15:24.0000 TEP data collection Grid 159 Duration 3 minutes
* 2020/204:00:38:10.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/204:05:19:44.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/204:06:51:19.0000 OCEANscan Duration 22 minutes
* 2020/204:08:28:19.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/204:09:00:36.0000 TOO TOOid 1581 RGT 412 offpoint 4.59deg Duration 2 minutes
  2020/204:16:04:56.0000 TOO TOOid 1588 RGT 417 offpoint 4.71deg Duration 2 minutes
  2020/204:18:38:35.0000 OCEANscan Duration 22 minutes
* 2020/204:22:41:22.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/204:22:54:58.0000 TEP data collection Grid 87 Duration 3 minutes