ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, July 27, 2020 thru Sunday, August 2, 2020

RGTs spanned: 484 - 586
Cycle 8

SUMMARY:
All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. ASAS has completed functional test 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 are being transferred to SCF and will be released upon approval of PSO.

ELEMENT DETAILS BELOW

CAMS/POD:
CAMS: Regular CAMS operations: constraint and conjunction monitoring for MW098 and MW099 and mission planning for MW100.
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 2115. Final POD was completed for GPS week 2113.

GPS receiver carrier phase observable drift issue has been resolved. RINEX files covering the full mission will be reproduced around the new year, once the new release of ATL02 files are available.

ISF:
All ATLAS housekeeping data is nominal
Laser 2 is firing at energy level 4 and in science mode
WTEM Peak to Edge Ratio: 1.172
Laser 2 Temperature Error: -0.30C
SADA in SAILBOAT Mode
Spacecraft orientation: - X

Mission Planning:
MW99 ATS is loaded to the spacecraft and currently operating (PSO Activity List is attached)

MW100 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_99 (currently loaded and executing):
      Routine Instrument calibrations, Ocean scans and Vegetation Data collection, modified RTW

Other Activities:
   no DMUs since spacecraft was predicted to drift back into the 800 meter box
   Team was on-site to receive Phase 1a hardware and completed tasks as expected.
   Updated ANC27 files with BSM XY Offsets resets was sent to SIPS.

Near-term upcoming activities:
   Tech HW refresh:
      On-site on July 30 to setup and test new network drops with the SEN Network Engineer
      Procurement in progress for ISF Tech Refresh Phase 2 to complete during FY20

Facility:
RSA Token re-order - Tokens located at B35 receiving

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 in progress

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.
· Participated in discussions with ESDIS and NSIDC personnel on replacement of GridFTP with a transfer mechanism using HTTPS. NASA security has mandated the move and we have a waiver in place until February 2021. We have been asked to try the under-development (in-house) Science Data Transfer Protocol (SDTP). The Facilities lead has downloaded the software and is in the process of reviewing it.
· Distributed via special request ATL01 data that overlaps the APID 1057s to the ISF for selected time periods.

ASAS:
ASAS has completed functional test 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 are being transferred to SCF and will be released upon approval of PSO. 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 evaluating any remaining issues with the saturation reclassification code and preparing for a fix to improve the detection of impulse response effects during saturation conditions.

L2/L3 Atmosphere: Work is progressing on the mitigation of errors due to bad NOAA snow/ice ancillary data. The 954a3 ATL04 and ATL09s were created with a multitude of override values. The atmosphere team will be evaluating the effects of those overrides.

L3A Ice Sheet: The refactored code has been used to create the 954a3 ATL06s. Let the bug hunt begin!

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: Work is focused on spectral width analysis and an investigation into why some beams are missing for specific water bodies.

L3A Ocean: Work is underway on percent cloud cover and lat/lon for the 10m bins.

L3B Land Ice: The team is awaiting feedback from NSIDC and working on optimizing chunk sizes for small retrievals.

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

L3B Freeboard: An acceptance review of the LB3 PGE is scheduled for this week.

SCF:
The SCF is operating nominally. Data for releases 003 and R003 are being ingested and distributed, and deletion of older data has finished. The next batch of finals is expected to arrive in a week or so. A file listing the current SCF data holdings is attached.

* Data Management -- Work continues on creating stand-alone executable versions of the rSCF data pull scripts with the intention of offering these to users instead of or in addition to the Python source code. ASAS material was deleted from its original location after it was copied into the new ASAS-dedicated storage location, freeing up additional space for new data.

* Subsetter -- Subsetting continues normally without any failed jobs. This suggests that the configuration change made last week has resolved our issue with multiple jobs accessing the same file, but we will continue to monitor the situation. Also, running the test suite shows no significant change in processing speed/time under the new configuration.

ATL02/Instrument Science:

Continued analysis of possible ATLAS returns from Starlink spacecraft indicates that while a worst-case back-reflection in a single conjunction would give an ATLAS detector a significant fraction of its total annual exposure, the probability of such an event is very low. Work continues to quantify the probability. The extra exposure from sun glint from a single conjunction appears to make a negligible contribution to total exposure.

Examination of ATL01 data from the 8 July PCE2 data swap event continues.

In addition, work continues on:

- Investigating and modeling the properties of saturated returns.

- Evaluating the latest analysis of ATLAS range bias.

- 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.

ISF ACTIVITIES MISSION WEEK 099

* 2020/212:01:59:39.0000 TEP data collection Grid 262 Duration 3 minutes
* 2020/212:02:04:42.0000 TEP data collection Grid 190 Duration 3 minutes
  2020/212:03:28:51.0000 TOO TOOid 1607 RGT 531 offpoint 2.89deg Duration 2 minutes
* 2020/212:03:41:36.0000 TEP data collection Grid 151 Duration 3 minutes
  2020/212:04:48:14.0000 TOO TOOid 1609 RGT 532 offpoint 4.72deg Duration 2 minutes
* 2020/212:05:03:04.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/212:05:25:31.0000 TEP data collection Grid 5 Duration 3 minutes
  2020/212:06:34:39.0000 OCEANscan Duration 22 minutes
* 2020/212:08:11:38.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/212:09:40:29.0000 TEP data collection Grid 431 Duration 3 minutes
* 2020/212:09:56:09.0000 TEP data collection Grid 214 Duration 3 minutes
* 2020/212:11:35:39.0000 TEP data collection Grid 139 Duration 3 minutes
* 2020/212:12:49:04.0000 TEP data collection Grid 426 Duration 3 minutes
* 2020/212:13:02:08.0000 TEP data collection Grid 245 Duration 3 minutes
* 2020/212:16:00:16.0000 TEP data collection Grid 385 Duration 3 minutes
* 2020/212:16:13:10.0000 TEP data collection Grid 205 Duration 3 minutes
* 2020/212:18:01:56.0000 TEP data collection Grid 21 Duration 3 minutes
  2020/212:18:21:54.0000 OCEANscan Duration 22 minutes
* 2020/212:19:21:53.0000 TEP data collection Grid 200 Duration 3 minutes
* 2020/212:19:27:06.0000 TEP data collection Grid 128 Duration 3 minutes
* 2020/212:21:01:23.0000 TEP data collection Grid 125 Duration 3 minutes

2020/212:21:18:15.0000 TOO TOOid 1616 RGT 542 offpoint 4.58deg Duration 2 minutes
* 2020/212:22:21:45.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/212:22:27:52.0000 TEP data collection Grid 231 Duration 3 minutes
* 2020/212:22:40:55.0000 TEP data collection Grid 51 Duration 3 minutes
* 2020/212:22:44:10.0000 TEP data collection Grid 14 Duration 3 minutes
* 2020/212:23:55:50.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/213:01:28:37.0000 TEP data collection Grid 335 Duration 3 minutes
  2020/213:02:48:13.0000 TOO TOOid 1610 RGT 546 offpoint 4.86deg Duration 2 minutes
* 2020/213:04:37:24.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/213:06:08:59.0000 OCEANscan Duration 22 minutes
* 2020/213:06:35:00.0000 TEP data collection Grid 3 Duration 3 minutes
* 2020/213:07:45:59.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/213:10:51:44.0000 TEP data collection Grid 393 Duration 3 minutes
* 2020/213:12:36:28.0000 TEP data collection Grid 246 Duration 3 minutes
* 2020/213:12:44:17.0000 TEP data collection Grid 138 Duration 3 minutes
  2020/213:13:01:08.0000 TOO TOOid 1617 RGT 552 offpoint 4.57deg Duration 2 minutes
  2020/213:15:09:37.0000 TOO TOOid 1623 RGT 554 offpoint 0.70deg Duration 2 minutes
* 2020/213:15:50:15.0000 TEP data collection Grid 169 Duration 3 minutes
  2020/213:17:56:15.0000 OCEANscan Duration 22 minutes
* 2020/213:19:04:04.0000 TEP data collection Grid 92 Duration 3 minutes
* 2020/213:23:30:11.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/213:23:52:11.0000 TEP data collection Grid 13 Duration 3 minutes
* 2020/214:01:13:23.0000 TEP data collection Grid 191 Duration 3 minutes
* 2020/214:01:23:08.0000 TEP data collection Grid 47 Duration 3 minutes
* 2020/214:02:39:52.0000 TEP data collection Grid 297 Duration 3 minutes
* 2020/214:04:16:09.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/214:04:35:03.0000 TEP data collection Grid 6 Duration 3 minutes
  2020/214:05:43:20.0000 OCEANscan Duration 22 minutes
* 2020/214:07:20:19.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/214:07:43:38.0000 TEP data collection Grid 1 Duration 3 minutes
  2020/214:08:39:47.0000 TOO TOOid 1611 RGT 565 offpoint 4.76deg Duration 2 minutes
  2020/214:08:44:08.0000 Segmented RTWscan Part 1 Duration 37 minutes
  2020/214:09:33:22.0000 Segmented RTWscan Part 2 Duration 35 minutes
  2020/214:10:13:58.0000 Segmented RTWscan Part 3 Duration 14 minutes
* 2020/214:10:45:42.0000 TEP data collection Grid 105 Duration 3 minutes
* 2020/214:12:02:59.0000 TEP data collection Grid 355 Duration 3 minutes
* 2020/214:12:10:13.0000 TEP data collection Grid 247 Duration 3 minutes
* 2020/214:12:21:14.0000 TEP data collection Grid 102 Duration 3 minutes
* 2020/214:12:26:30.0000 TEP data collection Grid 30 Duration 3 minutes
  2020/214:15:44:04.0000 TOO TOOid 1618 RGT 569 offpoint 4.55deg Duration 2 minutes
  2020/214:19:04:53.0000 OCEANscan Duration 22 minutes
* 2020/214:23:04:31.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/214:23:16:02.0000 TEP data collection Grid 158 Duration 3 minutes
* 2020/214:23:23:54.0000 TEP data collection Grid 49 Duration 3 minutes
* 2020/215:04:04:31.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/215:05:20:22.0000 AMCS Cal over open ocean Duration 2 minutes

* 2020/215:05:43:41.0000 TEP data collection Grid 4 Duration 3 minutes
  2020/215:05:52:40.0000 TOO TOOid 1619 RGT 578 offpoint 4.56deg Duration 2 minutes
  2020/215:06:51:58.0000 OCEANscan Duration 22 minutes
* 2020/215:08:44:58.0000 TEP data collection Grid 143 Duration 3 minutes
  2020/215:08:51:00.0000 Stellar window dump Duration 90 minutes
* 2020/215:11:59:10.0000 TEP data collection Grid 66 Duration 3 minutes
  2020/215:16:05:33.0000 TOO TOOid 1612 RGT 585 offpoint 4.67deg Duration 2 minutes
  2020/215:18:39:13.0000 OCEANscan Duration 22 minutes
* 2020/215:21:16:06.0000 TEP data collection Grid 161 Duration 3 minutes
* 2020/215:22:38:52.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/216:00:24:40.0000 TEP data collection Grid 156 Duration 3 minutes
* 2020/216:04:54:43.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/216:06:26:18.0000 OCEANscan Duration 22 minutes
* 2020/216:08:03:17.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/216:15:39:54.0000 TOO TOOid 1613 RGT 600 offpoint 4.66deg Duration 2 minutes
  2020/216:18:01:20.0000 TOO TOOid 1620 RGT 601 offpoint 4.54deg Duration 2 minutes
  2020/216:18:13:33.0000 OCEANscan Duration 22 minutes
* 2020/216:22:13:12.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
  2020/216:23:15:00.0000 Laser window dump Duration 2 minutes
* 2020/216:23:47:29.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
  2020/217:01:05:37.0000 TOO TOOid 1614 RGT 606 offpoint 4.67deg Duration 2 minutes
* 2020/217:04:29:03.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/217:06:00:39.0000 OCEANscan Duration 22 minutes
* 2020/217:07:37:38.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/217:11:18:31.0000 TOO TOOid 1621 RGT 612 offpoint 4.55deg Duration 2 minutes
  2020/217:17:47:54.0000 OCEANscan Duration 22 minutes
  2020/217:21:31:24.0000 TOO TOOid 1615 RGT 619 offpoint 4.73deg Duration 2 minutes
* 2020/217:23:21:50.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
  2020/218:04:02:13.0000 TOO TOOid 1627 RGT 623 offpoint 2.62deg Duration 2 minutes
* 2020/218:04:05:57.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/218:05:34:59.0000 OCEANscan Duration 22 minutes
* 2020/218:07:11:58.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/218:08:35:47.0000 Segmented RTWscan Part 1 Duration 37 minutes
  2020/218:09:25:00.0000 Segmented RTWscan Part 2 Duration 34 minutes
  2020/218:10:05:25.0000 Segmented RTWscan Part 3 Duration 14 minutes
  2020/218:17:22:14.0000 OCEANscan Duration 22 minutes
  2020/218:20:18:33.0000 TOO TOOid 1622 RGT 633 offpoint 4.64deg Duration 2 minutes
* 2020/218:22:56:10.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes