ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, June 3, 2019 thru Sunday, June 9, 2019

RGTs spanned: 1005-1110
Cycle 3

SUMMARY:
All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. CAMS suffered a significant loss of both their primary and backup DELL servers. STK, which resides on these servers, is used extensively in the various CAMS' processes. Due to the dedicated efforts of the CAMS and ISF team, CAMS was able to recover from this catastrophic failure in < 48 hours by using the warm spare Dell server from the GEDI Mission. The Constraint and conjunction screening, Mission Planning and all other operations resumed on June 7, 2019.

NSIDC Metrics Through June 4: 211 total users of 9 available data products; 163,368 sciences files downloaded. ATL08 still the winner with 118 users and 95,254 files downloaded! ATL03 is a distant 2nd with 56 users and 12,043 files downloaded, followed by ATL06 with 38 users and 53,170 files downloaded.

ELEMENT DETAILS BELOW

CAMS/POD/PPD:
CAMS: Regular CAMS operations continue with constraint and conjunction monitoring for Mission Weeks 38 and 39, and mission planning for Mission Week 40.

CAMS suffered a significant loss of both their primary and backup DELL servers. STK, which resides on these servers, is used extensively in the various CAMS' processes. CAMS processing could not be performed from 11:00 am on June 5, 2019 until 10:00 pm on June 6, 2019. CAMS was unable to perform any constraint and conjunction screening on June 6, 2019. Due to the dedicated efforts of the CAMS and ISF team, CAMS was able to recover from this catastrophic failure in < 48 hours by using the warm spare Dell server from the GEDI Mission. The Constraint and conjunction screening, Mission Planning and all other operations resumed on June 7, 2019.

POD: Regular POD continues nominally. Intermediate POD for GPS weeks 2053 & 2054 were completed this week.

POD completed the creation of the intermediate calibrated ANC products for DoY 055-123, with the baseline pointing bias corrections applied and delivered these products to SIPS. The next step is to receive the ATL03 files to do final time-varying bias calibrations.

ISF:
All ATLAS housekeeping data is nominal
Laser 2 is firing at energy level 4 and in science mode
WTEM Peak to Edge Ratio: 1.197

Laser 2 Temperature Error: -0.28C
SADA in Sailboat Mode
Spacecraft orientation: - X

Mission Planning:
MW39 ATS is loaded to the spacecraft and currently operating
MW40 is being planned.
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Activities during the past week:

ATS activities:
All ATLAS and pointing activities were routine and completed as planned

Real-time activities:
Daily/as-need: Executed standing CAR 91 and 102 (routine error cleanup)

Executed standing CAR 166 to update the VBG setpoint 2019/155 11:17 (6/4/19)

Supported an unsuccessful attempt to flow telemetry to the ISF from the bMOC (note 1).

Other Activities:

Laser conjunction avoidance #8, 10 sec laser to ARM. 2019/154 23:00 (6/3/19)

DMU #17 2019/154 23:41 (6/3/19) (65 minute activity)

Team continues to investigate the slow transfer of data from the T&C servers to the ops servers (RIONet to SEN).

Met with ASET, PSO, and POD/PPD to discuss the performance trending and monitoring activities for May,
including working discussions on VBG sweeps, AMCS Cal bias updates, LRS stellar and laser side analysis efforts, laser conjunction mitigation considerations, and other trending studies.

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Next week's ATLAS activities:
Routine instrument and pointing calibration scheduled activities are in the MW39 ATS. (see attached)

Other Near-term activities:

ATLAS SE has asked us to adjust the SHG temperature setpoint. This will entail executing standing CAR 192 multiple times 6/11-6/13 to find the optimum value for the SGH setpoint.

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Notes/Issues:

1. The bMOC is unable to send telemetry to the ISF. ISF and the MOC/bMOC continue to investigate the issue. 6/7/19 the team conducted a series of tests, connecting to the ISF and bISF from the bMOC. The ISF and bISF did not receive telemetry in any of the configurations. The ISF and MOC are reviewing the tcpdumps collected at the ISF, bISF, and bMOC along with one-way data collected by GCC.

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LTO Schedule:

All items remain on schedule

ATLASCCR002 PDB E.0.1 - FOT CCB approved for release in ops (schedule TBD)

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 using ANC03/04/05 files from the CAMS.
  - Distributed ATL03 (rapids) to the SCF.
- Modified SDMS code to implement a minimum file size option in distributions. This will be released as SDMS V6.15.1 next week.
- The POD delivered ANC03/04/05 files (with “cal04” products) for DOY 055-123. SIPS produced Release F205 ATL03s for the 39 days that contained RTW scans and distributed them to the POD. The POD will use these ATL03s to produce final ANC03/04/05 files ("cal05" products).

ASAS:

L1B developer starting to work on ATL02 QA counters.

L3A Atmosphere completed the layer density confidence flag and is waiting on approval. Also updated the description of the layer confidence flag and working a bug in surface height density.
L3B Atmosphere is working on unit test cases. A sample ATL17 was provided to NSIDC for review and discussion.
Land/Veg developer is working on improving ground/canopy classifications and writing software to display results.

Sea Ice developer has fixed the infinite loop issue and has submitted results for weighted freeboard height/sigma to the ATBD lead.
Inland Water developer is working on filtering inland water bodies and handling breaks in those bodies. ASAS is working with John Robbins to identify and correct some issues caused by multi-polygon shapes.
Ocean developer is has completed the addition of GEBCO bathymetry to ATL12 processing and is now working on sorting photons.

Work is on-going for replacement of GIMP/CrysoSat-2 DEMs with 100m ArcticDEM and 32m REMA. An issue with unfilled values in the ArcticDEM is currently being addressed.

Another set of functional test products will be generated starting on June 17.

SCF:
The SCF is operating nominally. Data for releases 001 and R001 are being ingested as they arrive. Full granule subscriptions are caught up and current, but subsetting subscriptions are still being run and distributed. Trending plots for ATL07 and ATL10 are not currently being produced, but the cause is known, and a fix is being developed. A file listing the current SCF data holdings is attached.

* Data Management -- ATL07 and ATL10 trending plots are not being produced because they are now single orbit instead of multi-orbit and the trending calculations need to be updated accordingly; this is currently being worked. Code changes were made in operations to allow hold/publish requests on individual files, up to 14 per request; this is expected to make things simpler for users and reduce the total number of such requests that need to be handled. Testing a limit on the number of subscriptions run in a single SDMS job continues and appears to be working correctly; we hope to put this into operations before the next batch of 001 data arrives. Code changes to send hold/publish and review time requests to SIPS via SCP rather than e-mail have been made but need confirmation and testing before they can be put into operations.

* Visualizer -- Version 5.1 of the software is now available on the SCF web site. Changes to the ATL08 product from multi-orbit to single orbit necessitated a fix to vegetation custom plots that slightly delayed the release from last week to this week.

ATL02/Instrument Science:
Review of the range bias measurement and correction process continues. Data from the zero-range test and other activities during I&T are being reprocessed using the latest time-of-flight software, and peak locations are being evaluated using a new exponentially-modified Gaussian algorithm as well as centroiding. The expected result will be an update to CAL 08.

ATL03:
No significant issues reported following public release of ATL03. Work is ongoing to identify issues to tackle this summer, including updating the inland water mask, including some ATLAS

housekeeping parameters from ATL02 on the ATL03 product, and potentially using a DEM to assist in the declassification of clouds as high-confidence signal.

ISF ACTIVITIES MISSION WEEK 039:

* Not in science mode
^ Could affect science data quality

* 2019/157:01:30:29.0000 TEP data collection for 3 minutes
  2019/157:02:17:41.0000 OCEANscan (22 minutes)
* 2019/157:03:04:47.0000 TEP data collection for 3 minutes
* 2019/157:04:39:04.0000 TEP data collection for 3 minutes
* 2019/157:06:13:21.0000 TEP data collection for 3 minutes
^ 2019/157:06:30:31.0000 AMCS Cal for 2 minutes over open ocean
^ 2019/157:06:44:39.0000 Laser image dump over Greenland during day for 7 minutes
* 2019/157:07:46:25.0000 TEP data collection for 3 minutes
^ 2019/157:08:04:49.0000 AMCS Cal for 2 minutes over open ocean
* 2019/157:09:00:52.0000 TEP data collection for 3 minutes
* 2019/157:10:35:09.0000 TEP data collection for 3 minutes
* 2019/157:12:09:27.0000 TEP data collection for 3 minutes
^ 2019/157:12:33:20.0000 AMCS Cal for 2 minutes over open ocean
* 2019/157:13:43:44.0000 TEP data collection for 3 minutes
  2019/157:14:04:57.0000 OCEANscan (22 minutes)
* 2019/157:15:18:01.0000 TEP data collection for 3 minutes
^ 2019/157:15:41:55.0000 AMCS Cal for 2 minutes over open ocean
* 2019/157:16:52:19.0000 TEP data collection for 3 minutes
* 2019/157:18:26:36.0000 TEP data collection for 3 minutes
* 2019/157:20:21:58.0000 TEP data collection for 3 minutes
* 2019/157:21:56:15.0000 TEP data collection for 3 minutes
* 2019/157:23:30:33.0000 TEP data collection for 3 minutes
* 2019/158:01:04:50.0000 TEP data collection for 3 minutes
  2019/158:01:52:02.0000 OCEANscan (22 minutes)
* 2019/158:02:39:07.0000 TEP data collection for 3 minutes
* 2019/158:04:13:25.0000 TEP data collection for 3 minutes
  2019/158:04:52:50.0000 RTWscan (90 minutes)
* 2019/158:07:19:33.0000 TEP data collection for 3 minutes
^ 2019/158:07:39:09.0000 AMCS Cal for 2 minutes over open ocean
* 2019/158:08:34:37.0000 TEP data collection for 3 minutes
* 2019/158:10:08:55.0000 TEP data collection for 3 minutes
* 2019/158:11:43:13.0000 TEP data collection for 3 minutes
^ 2019/158:12:18:01.0000 AMCS Cal for 2 minutes over open ocean
* 2019/158:13:17:31.0000 TEP data collection for 3 minutes
  2019/158:13:39:17.0000 OCEANscan (22 minutes)
* 2019/158:14:51:49.0000 TEP data collection for 3 minutes

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* 2019/158:18:00:25.0000 TEP data collection for 3 minutes
* 2019/158:19:53:52.0000 TEP data collection for 3 minutes
* 2019/158:21:28:09.0000 TEP data collection for 3 minutes
* 2019/158:23:02:26.0000 TEP data collection for 3 minutes
* 2019/159:00:36:44.0000 TEP data collection for 3 minutes
* 2019/159:02:11:01.0000 TEP data collection for 3 minutes
2019/159:03:00:40.0000 OCEANscan (22 minutes)
* 2019/159:03:45:19.0000 TEP data collection for 3 minutes
* 2019/159:05:19:36.0000 TEP data collection for 3 minutes
* 2019/159:06:53:53.0000 TEP data collection for 3 minutes
^ 2019/159:07:13:30.0000 AMCS Cal for 2 minutes over open ocean
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2019/159:14:47:55.0000 OCEANscan (22 minutes)
* 2019/159:16:00:38.0000 TEP data collection for 3 minutes
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* 2019/159:19:09:14.0000 TEP data collection for 3 minutes
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* 2019/160:10:52:14.0000 TEP data collection for 3 minutes
* 2019/160:12:26:32.0000 TEP data collection for 3 minutes
^ 2019/160:12:50:39.0000 AMCS Cal for 2 minutes over open ocean
* 2019/160:14:00:50.0000 TEP data collection for 3 minutes
2019/160:14:22:16.0000 OCEANscan (22 minutes)
* 2019/160:15:35:08.0000 TEP data collection for 3 minutes
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^ 2019/161:07:56:29.0000 AMCS Cal for 2 minutes over open ocean
* 2019/161:08:52:26.0000 TEP data collection for 3 minutes
* 2019/161:10:26:44.0000 TEP data collection for 3 minutes
2019/161:11:07:50.0000 TOO (TOOid=1101) for 3 minutes
* 2019/161:12:01:03.0000 TEP data collection for 3 minutes
^ 2019/161:12:25:00.0000 AMCS Cal for 2 minutes over open ocean
* 2019/161:13:35:21.0000 TEP data collection for 3 minutes
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* 2019/162:16:18:23.0000 TEP data collection for 3 minutes
^ 2019/162:17:14:24.0000 Update SHG Temperature to 50.05 to optimize transmit energy for 1 minute
* 2019/162:17:52:41.0000 TEP data collection for 3 minutes

* 2019/162:19:45:32.0000 TEP data collection for 3 minutes
^ 2019/162:20:22:32.0000 Update SHG Temperature to 50.02 to optimize transmit energy for 1 minute
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^ 2019/163:15:12:16.0000 Update SHG Temperature to 49.96 to optimize transmit energy for 1 minute
* 2019/163:15:52:48.0000 TEP data collection for 3 minutes
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* 2019/163:19:19:52.0000 TEP data collection for 3 minutes
^ 2019/163:20:00:27.0000 Update SHG Temperature to 49.93 to optimize transmit energy for 1 minute
* 2019/163:20:54:09.0000 TEP data collection for 3 minutes
* 2019/163:22:28:27.0000 TEP data collection for 3 minutes