ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, February 3, 2020 thru Sunday, February 9, 2019

RGTs spanned: 585-691
Cycle 6

Items of Note:
All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. SIPS began gearing up for the next SIPS Build (Build 4.4) which will generate Release 003 data products using ASAS V5.3 and SDMS V6.18+Atlas V1.16. ASAS delivered a candidate v5.3 release to SIPS. In the meantime, issues involving atlas_l1b, atlas_l3a_is and atlas_l3a_ld have been discovered and addressed. These three PGEs will be repackaged and redelivered to complete the ASAS v5.3 delivery.

NSIDC ICESat-2 Metrics through February 9: 1,572 total users of 10 available data products; 3,018,411 sciences files downloaded. ATL03 is in the lead with 642 unique users of 446,761 files downloaded. ATL08 is in a close second with 631 unique users and 1,059,376 files downloaded, and ATL06 is in third place with 437 unique users and 1,235,100 files downloaded.

ELEMENT DETAILS BELOW

CAMS/POD:
CAMS: Regular CAMS operations: constraint and conjunction monitoring for MW073 and MW074 and mission planning for MW075.

POD: Regular POD operations continue. Intermediate POD was completed for GPS week 2090. Final POD was completed for GPS week 2088. All results appear nominal.

3rd iteration of the 1°x1° GPS antenna phase center variation map was estimated and implemented in the GPS precise positioning processing.

Final calibrated ANC products covering DoY 353-016 were delivered to SIPS.

ISF:
All ATLAS housekeeping data is nominal
Laser 2 is firing at energy level 4 and in science mode
WTEM Peak to Edge Ratio: 1.193
Laser 2 Temperature Error: -0.27C
SADA in SAILBOAT Mode
Spacecraft orientation: + X

Mission Planning:
MW74 ATS is loaded to the spacecraft and currently operating
MW75 has been delivered, nominal calibrations

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Activities during the past week:

Real-time activities:

Ran sCAR166 to optimize the VBG temperature setpoint 2020/037:15:16:00
Ran sCAR249 to update the AMCS XY bias 2020/038:16:18:00
Executed sCAR91 and sCAR102 to clear routine flags

ATS activities:
Routine Instrument calibrations, Ocean scans and Vegetation Data collection.

Other Activities:

DMU39 2020/037:17:28:36 Duration 55 minutes

Held our January I2/ATLAS Monthly Performance Status Meeting with ATLAS and the PSO,
topics included an analysis of the manual mode TEP data collection grids, and the need for an
update to the onboard AMCS XY bias.

MacOS replacement host acceptance testing commenced Jan 21 as per the schedule outlined
below.

FLATLAS -- tested FSSE STOL proc updates

Near-term activities:

Continuing to work on the ISF tech refresh:
Host replacing MacOS host is installed within the SPOCC environment and locally tested.
    Acceptance Testing continues, all processes are running without errors
    ORR: Early Feb
    Release into Ops: Mid Feb

Notes/Issues:
N/A

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 rapid Science Data products to the SCF.
- · Started gearing up for the next SIPS Build (Build 4.4) which will generate Release 003 data products using ASAS V5.3 and SDMS V6.18+Atlas V1.16.
- · We requested and received ESDTs from NSIDC for all the Release 003 Science data products.
- · Delivered Release 002 ATL03, ATL06, ATL07, ATL08, and ATL10 products from September 7 through November 15, 2019 to NSIDC.

ASAS:
ASAS delivered a candidate v5.3 release to SIPS.

In the meantime, issues involving atlas_l1b, atlas_l3a_is and atlas_l3a_ld have been discovered and addressed. These three PGEs will be repackaged and redelivered to complete the ASAS v5.3 delivery.

ASAS created an example ANC20 (Arctic) file and delivered same to the Sea Ice team for evaluation. The team has requested an ANC20 for Antarctica. Initial work has begun on a browse product for ANC20.

The characterization of blunders in the Arctic32 DEM is proving to be interesting. ASAS currently has LOTS of results and is evaluating methods of summarizing/presenting those results.

The Sea Ice PGE passed acceptance review and other reviews are scheduled in the next few week.

Atmosphere work for the next release begins with addressing an issue in low-rate blowing snow.

L1B work has involved developing the additional coarse count fix for those times when PCE2 has swapped the fine counts. This fix will go into the repackaged V5.3 delivery.

L2A_ALT work involves fixing a sub-sampling error that causes repeated time in the low-rate data on ANC39.

Land Ice work involved using h_mean instead of h_li to center the residual histograms. This fix will go into the repackaged V5.3 delivery.

Land/Veg work involved fixing a dimension scale issue reported by SCF. This fix will go into the repackaged V5.3 delivery.

Inland Water work involves completing unit testing.

Ocean work is proceeding with the determination of harmonic coefficients.

SCF:
The SCF is operating nominally. Data for releases 002, R002, and 953 are being ingested (done for 953) and distributed. Planning for how to manage release 003 data is underway. A file listing the current SCF data holdings is attached.

* Data Management -- After checking with ASAS and pulling remaining files from them, all release 953 data are now available at the SCF. SDMS resources are being adjusted as needed to try to help improve processing of subscriptions, which are still actively running to distribute data. Disk space is being monitored, and more space may need to be freed up soon.

* Subsetter -- An update to the code to handle the changed template issue with some release 953 data is being tested. Since a relatively small number of files have had problems, we plan to put this code change into operations after some additional testing and before release 003.

* Visualizer -- Completed option to allow plotting color-coded on map masked data using the range of the unmasked data. Updates to handle ASAS v5.3 data are in progress. Open JIRA issues were reviewed, and some priorities adjusted; future work will focus on fixing bugs and addressing only high-priority issues.

ATL02/Instrument Science:
Examination of ATL01, ATL02, and ANC41 data before and after the PCE 2 anomalies, combined with simulation of the effect of "slips" and "swaps" in the start timing data, have made it clear that the PCE 2 Leading Lower and Trailing Upper coarse counts, as well as the fine counts, were swapped. The coarse count swap does not affect the accuracy of surface return times of flight, but it does affect TEP times of flight. Release 003 of ATL02 will correct for the coarse count swap; the correction for the fine count swap was already introduced as a "hot fix" for Release 002. The instrument science team's improved understanding of the inner workings of the PCEs makes it not surprising that the coarse counts and fine counts are swapped together.

In addition, work continues on:

- Refining the algorithm for extracting time-of-flight bias from the TEP data.

- Investigating the mechanism of "jumps" in the TEP TOF

- A new method for analyzing the results of on-orbit AMCS calibrations. The current method does not separate return from background, and is usable only for AMCS calibrations done over the night side of the earth. The new method will allow AMCS calibrations to be done usefully over the day side as well.

- Development of an algorithm for estimation of OFM transmittance peak shift from 2-step VBG sweep data.

ISF ACTIVITIES MISSION WEEK 074:

* Not in science mode
^ Could affect science data quality

  2020/037:02:05:00.0000 Stellar window dump Duration 90 minutes
  2020/037:03:36:57.0000 OCEANscan Duration 22 minutes
* 2020/037:05:55:33.0000 TEP data collection Grid 413 Duration 3 minutes
* 2020/037:06:02:17.0000 TEP data collection Grid 305 Duration 3 minutes
* 2020/037:06:06:00.0000 TEP data collection Grid 268 Duration 3 minutes
* 2020/037:06:16:26.0000 TEP data collection Grid 124 Duration 3 minutes
* 2020/037:06:21:40.0000 TEP data collection Grid 52 Duration 3 minutes
* 2020/037:07:32:27.0000 TEP data collection Grid 374 Duration 3 minutes
* 2020/037:07:36:35.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/037:08:46:46.0000 TEP data collection Grid 426 Duration 3 minutes
* 2020/037:09:06:45.0000 TEP data collection Grid 372 Duration 3 minutes
* 2020/037:09:25:00.0000 TEP data collection Grid 119 Duration 3 minutes
* 2020/037:10:44:10.0000 TEP data collection Grid 333 Duration 3 minutes
* 2020/037:10:51:29.0000 TEP data collection Grid 225 Duration 3 minutes
* 2020/037:11:07:28.0000 TEP data collection Grid 8 Duration 3 minutes
* 2020/037:12:25:46.0000 TEP data collection Grid 223 Duration 3 minutes
* 2020/037:12:35:07.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/037:13:52:26.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/037:15:24:01.0000 OCEANscan Duration 22 minutes
* 2020/037:15:49:54.0000 TEP data collection Grid 1 Duration 3 minutes
* 2020/037:17:03:25.0000 TEP data collection Grid 324 Duration 3 minutes
* 2020/037:17:13:27.0000 TEP data collection Grid 180 Duration 3 minutes
* 2020/037:17:19:04.0000 TEP data collection Grid 107 Duration 3 minutes
^ 2020/037:17:28:36.0000 DMU39 Duration 55 minutes
* 2020/037:18:45:31.0000 TEP data collection Grid 213 Duration 3 minutes
* 2020/037:18:50:44.0000 TEP data collection Grid 141 Duration 3 minutes
* 2020/037:18:58:31.0000 TEP data collection Grid 33 Duration 3 minutes
* 2020/037:20:25:02.0000 TEP data collection Grid 139 Duration 3 minutes
* 2020/037:21:21:10.0000 TEP data collection Grid 407 Duration 3 minutes
* 2020/037:23:25:47.0000 TEP data collection Grid 242 Duration 3 minutes
* 2020/037:23:31:00.0000 TEP data collection Grid 170 Duration 3 minutes
* 2020/038:00:57:29.0000 TEP data collection Grid 276 Duration 3 minutes
  2020/038:03:11:17.0000 OCEANscan Duration 22 minutes
* 2020/038:03:38:22.0000 TEP data collection Grid 398 Duration 3 minutes
* 2020/038:04:13:52.0000 TEP data collection Grid 163 Duration 3 minutes

* 2020/038:05:58:37.0000 TEP data collection Grid 16 Duration 3 minutes
* 2020/038:07:06:48.0000 TEP data collection Grid 375 Duration 3 minutes
* 2020/038:07:10:55.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/038:07:32:55.0000 TEP data collection Grid 14 Duration 3 minutes
* 2020/038:10:18:00.0000 TEP data collection Grid 334 Duration 3 minutes
* 2020/038:10:25:49.0000 TEP data collection Grid 226 Duration 3 minutes
* 2020/038:11:47:03.0000 TEP data collection Grid 404 Duration 3 minutes
* 2020/038:11:52:17.0000 TEP data collection Grid 332 Duration 3 minutes
* 2020/038:13:26:47.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/038:14:58:22.0000 OCEANscan Duration 22 minutes
^ 2020/038:16:17:51.0000 Updated BSM X Y Offsets to X 14 and Y 8 Duation 1 minute
* 2020/038:16:35:21.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/038:16:40:23.0000 TEP data collection Grid 288 Duration 3 minutes
* 2020/038:19:56:46.0000 TEP data collection Grid 175 Duration 3 minutes
* 2020/039:02:11:19.0000 TEP data collection Grid 202 Duration 3 minutes
  2020/039:02:45:38.0000 OCEANscan Duration 22 minutes
* 2020/039:03:50:54.0000 TEP data collection Grid 127 Duration 3 minutes
* 2020/039:06:45:16.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/039:08:19:34.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/039:11:29:15.0000 TEP data collection Grid 296 Duration 3 minutes
* 2020/039:13:01:08.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/039:14:32:43.0000 OCEANscan Duration 22 minutes
* 2020/039:16:09:42.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/039:17:33:32.0000 RTWscan Duration 90 minutes
* 2020/039:21:05:24.0000 TEP data collection Grid 174 Duration 3 minutes
* 2020/039:22:24:03.0000 TEP data collection Grid 388 Duration 3 minutes
* 2020/039:22:47:33.0000 TEP data collection Grid 63 Duration 3 minutes
  2020/039:23:31:22.0000 TOO TOOid 1307 RGT 676 offpoint 1.76deg Duration 2 minutes
  2020/040:02:19:59.0000 OCEANscan Duration 22 minutes
* 2020/040:03:30:25.0000 TEP data collection Grid 56 Duration 3 minutes
* 2020/040:07:53:54.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/040:09:31:55.0000 TEP data collection Grid 263 Duration 3 minutes
* 2020/040:12:36:15.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/040:14:07:04.0000 OCEANscan Duration 22 minutes
* 2020/040:15:44:03.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/040:17:07:52.0000 RTWscan Duration 90 minutes
* 2020/040:22:01:01.0000 TEP data collection Grid 352 Duration 3 minutes
* 2020/040:23:40:31.0000 TEP data collection Grid 278 Duration 3 minutes
  2020/041:00:40:49.0000 TOO TOOid 1306 RGT 692 offpoint 2.40deg Duration 2 minutes
  2020/041:01:54:19.0000 OCEANscan Duration 22 minutes
* 2020/041:07:28:15.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2020/041:12:24:52.0000 AMCS Cal over open ocean Duration 2 minutes
* 2020/041:13:44:06.0000 AMCS Cal over open ocean Duration 2 minutes
  2020/041:15:15:42.0000 OCEANscan Duration 22 minutes

2020/042:01:28:40.0000 OCEANscan Duration 22 minutes

2020/042:03:20:00.0000 Laser window dump Duration 2 minutes

* 2020/042:07:02:36.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

2020/042:09:07:58.0000 TOO TOOid 1309 RGT 712 offpoint 0.01deg Duration 2 minutes

* 2020/042:13:18:27.0000 AMCS Cal over open ocean Duration 2 minutes

2020/042:14:50:03.0000 OCEANscan Duration 22 minutes

* 2020/042:16:26:39.0000 AMCS Cal over open ocean Duration 2 minutes

2020/043:02:37:18.0000 OCEANscan Duration 22 minutes

* 2020/043:06:36:57.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

* 2020/043:08:11:14.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes

* 2020/043:12:52:48.0000 AMCS Cal over open ocean Duration 2 minutes

2020/043:14:24:23.0000 OCEANscan Duration 22 minutes

* 2020/043:15:44:48.0000 Put laser in ARM mode for LCA31 42987 (SKYSAT C11) 12-Feb-2020 15:45:13 Duration 1 minutes

* 2020/043:16:01:23.0000 AMCS Cal over open ocean Duration 2 minutes

* 2020/043:17:32:51.0000 TEP data collection Grid 395 Duration 3 minutes