ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, November 11, 2019 thru Sunday, November 17, 2019

RGTs spanned: 689-795
Cycle 5

SUMMARY:
All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. Data from "batch 4" (July 26 through September 3) are currently being evaluated by science team members and will likely be released to NSIDC by early next week. Additionally, data from July 9-26 is also being evaluated by the PSO and the science team for scientific viability (this data was impacted by the TAI-GPS timing offset).

(my apologies for omitting Photon Phriday and NSIDC stats last week! complete oversight.)

Photon Phriday this week featured land/vegetation data product lead Amy Neuenschwander discussing how ICESat-2 will help scientists study carbon absorption and storage in semi-arid locations.

NSIDC ICESat-2 Metrics through November 17: 2,193 total users of 10 available data products; 1,884,612 sciences files downloaded. ATL08 is once again in the lead with 807 users and 645,552 files downloaded! ATL03 remains in 2nd place with 796 users of 187,565 files, and ATL06 is in 3rd this week with 568 users and 914,173 files downloaded.

ELEMENT DETAILS BELOW

CAMS/POD:
CAMS: Regular CAMS operations: constraint and conjunction monitoring for MW061 and MW062 and mission planning for MW063.   CAMS recommended Laser ARM for HIE event with 43735 for doy315(MW062).   CAMS continues to target the moorings at 36.0259 lat, -125.105 lon per the Science Team request.

POD: Regular POD operations continue. Intermediate POD was completed for GPS week 2078. Final POD was completed for GPS week 2076. All results appear nominal.

ISF:
All ATLAS housekeeping data is nominal
Laser 2 is firing at energy level 4 and in science mode
WTEM Peak to Edge Ratio: 1.19
Laser 2 Temperature Error: -0.28C
SADA in SAILBOAT Mode
Spacecraft orientation: + X

Mission Planning:

MW62 ATS is loaded to the spacecraft and currently operating.

MW63 is being planned, nominal calibration activities including TEP Stare, 3 RTW scans post-OIB campaign, and Solar Array transition to sailboat mode.

~~~~~~

Activities during the past week:

Real-time activities:

CAR438 Step 3 to clear out the V9 parameter test files.

CAR91 and CAR102 to clear routine SBS and SXP errors

ATS activities:

Routine Instrument calibrations, Ocean scans and Vegetation Data collection; No RTW scans during OIB campaign

DMU32 : 2019/314:14:14:4 (2019/11/10)

TEP stare for 2 orbits: 2019/319:13:54:00 to 2019/319:17:07:00

SADA transition to SAILBOAT mode: 2019/320:18:28:07 (2019/11/16)

Other Activities:

Prepared and loaded a mini ATS to execute LCA21 43735 (FLOCK 3R 16) with Laser to ARM mode

Prepared and loaded a mini ATS to mitigate HIE17 43556 (Aerocube 12A) with Laser to ARM mode. The HIE self-mitigated and the mini ATS was deleted.

Near-term activities:

DMU33 : 2019/325:15:49 (2019/11/21)

mini VBG sweep (2019/11/25)

Continuing to work on the ISF tech refresh - schedule dates for testing to be provided.

Perform TCS failover contingency operations (i.e., fail over to backup server practice)

DVESTO A&A Audit (Debrief scheduled for November 18)

Notes/Issues:

1. ATS (file) loading issue update: Station recertification with the work-around continues.
PTP vendor trouble-shooting found a bug with the latest software update in the PTP. SG1 has previous version and has no file uplink issues. Work-around is being implemented and tested with SG2, AS1, AS2, and AS3, early results are promising.

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.
- ·   Completed processing and distribution of Release 002 L2A and L3A data products from July 9-25 to the SCF and Cooler.
- ·   Distributed the Batch #4 Release 002 ATL10s from July 26–Sept 03 (Summer Arctic) to NSIDC.

ASAS:
ASAS developers continue to work the top priority issues as identified by their respective ATBD lead.

ASAS is providing support in investigating periods where the ATLAS is receiving higher photon return rates then ATLAS design specification..

The L2A Altimeter QA changes have address identified issues in the QA parameters.

The L3A atmosphere code is being worked to correct issue with calibration interpolation and start/end values.
The L3B atmosphere grid product code work continues. Changes to product template made and working towards separation of clouds and aerosol layers.

Testing continued with a version of the L2A_ALT code modified to support pre-filtering of signal classification inputs.

Sea ice code was updated to not consider TEP photons and work continued on developing sea ice/freeboard L3B products.

The Land Ice ATL11 L3B code continues to be modified for a production environment with an eye towards the ADAPT cluster. The use of the ATL03 surface type mask is now in use within the ATL11 L3B code.

The ocean developer continues the redesign of the ocean manager.

Inland water code is still being review of better performance and working with ATBD lead to clarify next code implementation

SCF:
The SCF is operating nominally. Data for releases 002 and R002 are being ingested and distributed. Batch 5 data covering July 9-25 have been ingested from SIPS; subscriptions are currently running on them, but these will likely finish soon. A few data files and requests had issues with subsetting, which appears to be resolvable by rerunning them. A file listing the current SCF data holdings is attached.

* Data Management -- Some additional code edits to ensure hold requests on non-existent file names are handled properly were made and tested and appear to be working as expected. Other JIRA issues have also been examined.

* Subsetter -- About five files/requests failed during subsetting. The cause seems to be multiple jobs accessing the same data file at the same time. A rerun of one such failed special request, after batch 5 data ingest and most subscriptions finished running, was successful. The other files that failed are set to rerun in the next subsetting job, which should resolve the issue for now. Ways to catch and/or avoid this error are being investigated. A modification to the compression level, to allow slightly larger file size in exchange for faster processing, has been placed in operations; the above failures are unrelated to this change.

* Visualizer -- Some minor updates were made to the User Guide and posted to the SCF web site as v7.0.1. Updates to the testing document are in progress, and JIRA issues are being reviewed and reprioritized where applicable.

ATL02/Instrument Science:
Investigation into the frequency and circumstances of "Did not finish" events, in which the data from a 200-shot major frame is truncated due to a data "traffic jam" within ATLAS, has yielded a correlation between number of DNFs and number of photon detection events in a granule. Further examination of the data should reveal whether the correlation is more with the total number or the density of detection events. Specific high-DNF granules are being examined more closely.

In addition, work continues on:

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

- Further characterization of "afterpulses" and their sources

- Reprocessing I&T data using the latest EMG fit method.

- 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.

- Correcting and optimizing ATL02 QA parameters.

ATL03:
Analysis continues of data collected between July 9 and July 26 to assess its scientific viability (TAI-GPS timing offset), specifically with respect to the height bias analysis being performed at with ATL03 data and GPS data at 88S. Additionally, work continues on how best to modify the signal finding algorithm to omit subsurface photons from saturation that are considered part of the surface return due to signal confidence rating.

ISF ACTIVITIES MISSION WEEK 062:

* Not in science mode
^ Could affect science data quality

* 2019/318:03:26:13.0000 TEP data collection Grid 80 Duration 3 minutes
* 2019/318:03:46:43.0000 TEP data collection Grid 368 Duration 3 minutes
* 2019/318:05:00:21.0000 AMCS Cal over open ocean Duration 2 minutes
  2019/318:06:31:57.0000 OCEANscan Duration 22 minutes
* 2019/318:08:08:55.0000 AMCS Cal over open ocean Duration 2 minutes
* 2019/318:11:22:32.0000 TEP data collection Grid 176 Duration 3 minutes
* 2019/318:11:30:21.0000 TEP data collection Grid 284 Duration 3 minutes
* 2019/318:11:38:10.0000 TEP data collection Grid 392 Duration 3 minutes
* 2019/318:12:46:19.0000 TEP data collection Grid 31 Duration 3 minutes
* 2019/318:13:02:02.0000 TEP data collection Grid 246 Duration 3 minutes
* 2019/318:14:31:07.0000 TEP data collection Grid 172 Duration 3 minutes
  2019/318:15:11:50.0000 TOO TOOid=1217 Duration 3 minutes
* 2019/318:16:13:13.0000 TEP data collection Grid 277 Duration 3 minutes
* 2019/318:16:23:29.0000 TEP data collection Grid 421 Duration 3 minutes
* 2019/318:17:51:50.0000 TEP data collection Grid 347 Duration 3 minutes
* 2019/318:17:57:58.0000 TEP data collection Grid 418 Duration 3 minutes
  2019/318:18:19:03.0000 OCEANscan Duration 22 minutes
* 2019/318:19:08:45.0000 TEP data collection Grid 93 Duration 3 minutes
* 2019/318:19:16:24.0000 TEP data collection Grid 201 Duration 3 minutes
* 2019/318:19:21:48.0000 TEP data collection Grid 272 Duration 3 minutes
* 2019/318:20:45:40.0000 TEP data collection Grid 126 Duration 3 minutes
* 2019/318:22:12:05.0000 TEP data collection Grid 16 Duration 3 minutes
* 2019/318:22:19:57.0000 TEP data collection Grid 124 Duration 3 minutes
* 2019/318:22:34:27.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2019/318:23:59:28.0000 TEP data collection Grid 193 Duration 3 minutes
* 2019/319:00:06:10.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2019/319:01:28:32.0000 TEP data collection Grid 119 Duration 3 minutes
* 2019/319:01:38:57.0000 TEP data collection Grid 263 Duration 3 minutes
* 2019/319:04:34:30.0000 TEP data collection Grid 79 Duration 3 minutes
* 2019/319:04:40:21.0000 AMCS Cal over open ocean Duration 2 minutes
  2019/319:06:06:18.0000 OCEANscan Duration 22 minutes

* 2019/319:07:43:16.0000 AMCS Cal over open ocean Duration 2 minutes
* 2019/319:11:07:18.0000 TEP data collection Grid 321 Duration 3 minutes
* 2019/319:13:43:40.0000 Put laser in ARM mode for LCA21 43735 (FLOCK 3R 16) 15-Nov-2019 13:43:55 Duration 1 minutes
* 2019/319:13:54:00.0000 TEP stare for 2 orbits with AMCS disalble and BSM in center postion Duration 190 minutes
* 2019/319:18:56:09.0000 TEP data collection Grid 273 Duration 3 minutes
  2019/319:19:27:41.0000 OCEANscan Duration 22 minutes
* 2019/319:21:57:22.0000 TEP data collection Grid 160 Duration 3 minutes
* 2019/319:23:20:43.0000 TEP data collection Grid 15 Duration 3 minutes
* 2019/319:23:40:31.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2019/320:01:00:15.0000 TEP data collection Grid 84 Duration 3 minutes
* 2019/320:01:15:54.0000 TEP data collection Grid 299 Duration 3 minutes
* 2019/320:02:29:18.0000 TEP data collection Grid 10 Duration 3 minutes
* 2019/320:02:55:25.0000 TEP data collection Grid 369 Duration 3 minutes
* 2019/320:04:28:02.0000 AMCS Cal over open ocean Duration 2 minutes
* 2019/320:05:43:20.0000 AMCS Cal over open ocean Duration 2 minutes
  2019/320:07:14:56.0000 OCEANscan Duration 22 minutes
* 2019/320:07:40:23.0000 TEP data collection Grid 398 Duration 3 minutes
* 2019/320:08:45:23.0000 TEP data collection Grid 1 Duration 3 minutes
  2019/320:09:00:00.0000 Laser window dump Duration 2 minutes
* 2019/320:10:33:01.0000 TEP data collection Grid 214 Duration 3 minutes
* 2019/320:10:44:15.0000 TEP data collection Grid 357 Duration 3 minutes
  2019/320:13:25:50.0000 TOO TOOid=1218 Duration 3 minutes
* 2019/320:13:45:01.0000 TEP data collection Grid 245 Duration 3 minutes
* 2019/320:15:03:37.0000 TEP data collection Grid 27 Duration 3 minutes
* 2019/320:15:19:18.0000 TEP data collection Grid 242 Duration 3 minutes
* 2019/320:15:27:07.0000 TEP data collection Grid 350 Duration 3 minutes
* 2019/320:16:53:36.0000 TEP data collection Grid 240 Duration 3 minutes
* 2019/320:17:03:20.0000 TEP data collection Grid 384 Duration 3 minutes
^ 2019/320:18:28:07.0000 SADA mode transition to SAILBOAT Duration 24 minutes
  2019/320:19:02:01.0000 OCEANscan Duration 22 minutes
* 2019/320:22:57:41.0000 TEP data collection Grid 51 Duration 3 minutes
* 2019/320:23:14:52.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2019/321:00:57:42.0000 TEP data collection Grid 408 Duration 3 minutes
* 2019/321:05:17:40.0000 AMCS Cal over open ocean Duration 2 minutes
  2019/321:06:49:17.0000 OCEANscan Duration 22 minutes
* 2019/321:08:26:15.0000 AMCS Cal over open ocean Duration 2 minutes
* 2019/321:08:36:30.0000 TEP data collection Grid 252 Duration 3 minutes
* 2019/321:16:17:30.0000 TEP data collection Grid 97 Duration 3 minutes
* 2019/321:16:35:45.0000 TEP data collection Grid 348 Duration 3 minutes
* 2019/321:18:07:26.0000 TEP data collection Grid 310 Duration 3 minutes
  2019/321:18:36:22.0000 OCEANscan Duration 22 minutes
* 2019/321:21:00:22.0000 TEP data collection Grid 90 Duration 3 minutes

* 2019/321:22:49:12.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2019/322:00:23:20.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2019/322:04:52:01.0000 AMCS Cal over open ocean Duration 2 minutes
  2019/322:06:23:37.0000 OCEANscan Duration 22 minutes
* 2019/322:08:00:36.0000 AMCS Cal over open ocean Duration 2 minutes
  2019/322:18:10:43.0000 OCEANscan Duration 22 minutes
* 2019/322:22:24:22.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2019/322:23:57:50.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
* 2019/323:04:30:06.0000 AMCS Cal over open ocean Duration 2 minutes
  2019/323:05:57:58.0000 OCEANscan Duration 22 minutes
* 2019/323:07:34:56.0000 AMCS Cal over open ocean Duration 2 minutes
  2019/323:17:45:03.0000 OCEANscan Duration 22 minutes
* 2019/323:18:50:25.0000 TEP data collection Grid 309 Duration 3 minutes
* 2019/323:23:32:11.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes
  2019/324:02:44:40.0000 TOO TOOid=1217 Duration 3 minutes
* 2019/324:04:18:49.0000 AMCS Cal over open ocean Duration 2 minutes
* 2019/324:05:34:59.0000 AMCS Cal over open ocean Duration 2 minutes
  2019/324:07:06:36.0000 OCEANscan Duration 22 minutes
  2019/324:10:02:00.0000 Stellar window dump Duration 90 minutes
  2019/324:13:17:30.0000 TOO TOOid=1218 Duration 3 minutes
  2019/324:18:53:41.0000 OCEANscan Duration 22 minutes
* 2019/324:23:06:31.0000 AMCS Cal over open Atlantic ocean Duration 2 minutes