

## **ICESat-2 PROJECT SCIENCE OFFICE REPORT**

**Monday, March 11, 2019 thru Sunday, March 17, 2019**

RGTs spanned: 1109-1215

Cycle 2

### **Items of Note:**

All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. CAMS provided a new alignment correction table that was successfully uploaded to the satellite last Friday, with an around-the-world scan occurring on Saturday. Currently, SIPS is working on generating rapid ATL03s for these days to evaluate the fix that should get us closer to pointing at the reference ground track.

**\*\*ELEMENT DETAILS BELOW\*\***

### **CAMS/POD/PPD:**

**CAMS:** Regular CAMS operations continue with constraint and conjunction monitoring for mission week 27, and mission planning for mission week 28. Inspection of SIPS RGT binning algorithm over a single day provides confidence that the upcoming pointing calibrations will provide onboard RGT pointing control to within 10s of meters of RGT.

**POD:** Regular operations continue. Final POD was completed for GPS week 2041. Intermediate POD was completed for GPS week 2043. Low volume of SLR tracking of ICESat-2 is being investigated. All other results are nominal.

**PPD:** PPD has been focusing on the LRS stellar side studies for characterization, primarily distortion, which is impacted by issues with chromatic aberration, focal length and the optical center determination. Analysis of the Stellar window data is underway to determine the source of star motion and adaptations in the color coefficient estimation algorithm are being evaluated to improve star identification/correction.

### **ISF:**

All ATLAS housekeeping data is nominal  
Laser 2 is firing at energy level 4 and in science mode  
SADA in Sailboat Mode  
Spacecraft orientation : - X

Mission Planning:

MW27 ATS is loaded to the spacecraft and currently operating, it includes additional RTW scans for PPD

MW28 is being planned, it will include additional RTW scans for PPD

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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:

Mar 11: Changed the ILRS go/nogo flag around the DMU (2019/071:01:56-02:46) (note 1)

Mar 13: AMCS X/Y bias updated 2019-072-17:56:18.506 UTC via standing CAR249 (note 2)

Mar 13: The attempt to update the LRS Stellar BG Image v4.3 was unsuccessful (note 3)

Executed standing CAR 91 to clear SBC errors.

From the SC ACS Group:

The ATLAS Pointing Calibration was successfully uploaded during the 17:00 pass today. The procedure executed nominally and the spacecraft response was as expected.

Attitude errors returned to normal by the end of the pass (17:09) following the ACS Mode Command to MSN\_RGT, which was sent at ~17:04.

Other Activities:

Updated activity definitions for ARM2FIRE and Laser dark image dump were approved for installation into ops.

USO frequency deviation update in review by ASET, ISF will update ANC27.

RIONet Mail server moving to IONet - Testing with ITOS-2

FLATLAS:

Re-tested the stellar background image v4.3 proc; update is to mitigate impact of warm pixels.

PDB E.0.1 - additional ATLAS limit updates to be incorporated into the delivery - testing is in progress

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Upcoming activities:

MW27 scheduled activities in the ATS: MW27 and updated MW26 activities are attached

Other Near-term activities:

Trip to MOC @ Dulles for bISF proficiency operations (need to coordinate with the MOC).

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Notes/Issues:

1. Attaching an updated version of the MS26 activities that include times of the DMU and the AMCS X/Y bias update.
2. ISF trended the most recent AMCS Cal results and recommended updating the on-board XY bias to (19.8,8.5), ASET concurred and the bias was updated at 2019-072-17:56:18.506 UTC. The ANC27 file with the update delivered to SIPS
3. The uplink of the LRS Stellar BG Image v4.3 was not successful. The checksum was incorrect and further investigation found that incorrect values were being poked. The update is being re-worked with the assistance of ASET and tested at FLATLAS.

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LTO Schedule:

All items remain on schedule except

PDB E.0.1 installation in ops to be coordinated with the MOC.

**SIPS:**

- The SIPS is operating nominally:
  - o Ingested and distributed Level 0 data to the ISF.
  - o Generated Release 202 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 Generating Release 206 (rapids) ATL03, ATL04, ATL09, and ATL06 using ANC03/04/05 files from the CAMS.
  - o Distributing ATL03, ATL04, and ATL09 to NSIDC and the SCF.
  - o Distributing ATL06 to the SCF.
- Produced Rel 001 ATL01, ATL02, ATL03, ATL04, ATL09, and ATL06 products for Jan 1-2, 2019 on our Acceptance Test system for testing with NSIDC.
  - o Products were successfully delivered and ingested by NSIDC.
  - o Used ASAS V5.0 and NSIDC supplied Rel 001 ESDTs.

**ASAS:**

ATL01 - fixed the datatype for LRS Laser/Stellar vdot\_avg and hdot\_avg

ATL02 - Performed EU conversion on vdot\_avg and hdot\_avg. Awaiting updated TOF channel skew calibrations. Test of one updated CAL49 went well.

ATL03 - Removed the DAC correction from ATL03 heights. Update hspanmin for Ocean signal classification.

ATL04/09 - Moving the cloud folding algorithm from ATL09 to ATL04

ATL06 - Delivered a sample product with the updated first photon bias algorithm to the ATD lead.

ATL07/ATL10 - Working on beam-specific gain and sea level pressure.

ATL08 - Working mid-segment lat/lon computations & revised granule organization.

ATL12 - No work this week (vacation)

ATL13 - Evaluating new shapefiles.

ATL16/17 - Continued to address issues and provide sample data to the ATBD lead.

### **SCF:**

The SCF is operating nominally. Ingest and distribution of releases 202, 205, and 206 continues. After March 8, some SCF-internal e-mail notifications were sent but not delivered. This is being examined, with potential causes being mail server configuration or changes to mailing lists as part of NASA's migration to Office 365. Adjustments to when some jobs are run plus added manual checks have minimized the impact of the undelivered e-mails. Some possible bugs with QA trending have been noticed and are being investigated. A file listing the current SCF data holdings is attached.

\* Data Management -- New issues arose with the Python 3 environment, and not all environment settings are passing through to the SDMS Scheduler correctly. This is being worked but may take some time to complete. The Python 2 code, which has been kept updated, may need to be used for the next planned release instead.

\* Subsetter -- Work continues to ensure the Python 3 version of the code is fully updated and tested.

\* Visualizer -- Completed work to allow changing colorbars on existing subplots. Created apps that include the new land ice custom plot and distributed them to the land ice team. Fixed some bugs in modifying subplots. Began preparations for code freeze so testing of the next release can begin.

### **ATL02:**

### **ATL03:**

The ATL03 team and members of the science team continue to evaluate r205 ATL03 granules, as well as r206 rapid granules that continue showing up in our SCF directories. Work continues on parameter refinement and language improvements to the ATBD; we anticipate the next delivery of the ATBD to ASAS no later than 1 April 2019.

### **ISF ACTIVITIES MISSION WEEK 027:**

\* Not in science mode

^ Could affect science data quality

^ 2019/073:03:00:00.0000 Stellar centroid window dump for 90 minutes (no stellar centroids)

^ 2019/073:05:15:30.0000 AMCS Cal for 2 minutes over open ocean

2019/073:06:47:06.0000 OCEANscan (22 minutes)

^ 2019/073:08:24:05.0000 AMCS Cal for 2 minutes over open ocean

\* 2019/073:11:53:32.0000 TEP data collection for 3 minutes

\* 2019/073:13:27:49.0000 TEP data collection for 3 minutes

\* 2019/073:15:02:07.0000 TEP data collection for 3 minutes

\* 2019/073:16:36:24.0000 TEP data collection for 3 minutes

\* 2019/073:18:10:42.0000 TEP data collection for 3 minutes

2019/073:18:34:21.0000 OCEANscan (22 minutes)

\* 2019/073:19:44:59.0000 TEP data collection for 3 minutes

\* 2019/073:21:19:16.0000 TEP data collection for 3 minutes

^ 2019/073:22:34:00.0000 AMCS Cal for 2 minutes over open ocean

\* 2019/073:22:53:34.0000 TEP data collection for 3 minutes

^ 2019/074:00:08:17.0000 AMCS Cal for 2 minutes over open ocean

^ 2019/074:04:49:51.0000 AMCS Cal for 2 minutes over open ocean

2019/074:06:21:26.0000 OCEANscan (22 minutes)

^ 2019/074:07:58:26.0000 AMCS Cal for 2 minutes over open ocean

2019/074:09:22:15.0000 RTWscan (90 minutes)

\* 2019/074:11:27:53.0000 TEP data collection for 3 minutes

\* 2019/074:13:02:10.0000 TEP data collection for 3 minutes

\* 2019/074:14:36:27.0000 TEP data collection for 3 minutes

\* 2019/074:16:10:45.0000 TEP data collection for 3 minutes

\* 2019/074:17:03:02.0000 Spacecraft team updating ACS ATLAS2BDY parameters includes SC to Earth Point and back to Mission RGT point for 6 minutes

\* 2019/074:17:45:02.0000 TEP data collection for 3 minutes

2019/074:18:08:42.0000 OCEANscan (22 minutes)

\* 2019/074:19:19:20.0000 TEP data collection for 3 minutes

\* 2019/074:20:53:37.0000 TEP data collection for 3 minutes

\* 2019/074:22:27:54.0000 TEP data collection for 3 minutes

\* 2019/074:23:31:45.0000 VBG sweep with TEP data collection for 7 minutes

^ 2019/074:23:42:38.0000 AMCS Cal for 2 minutes over open ocean

^ 2019/075:04:24:12.0000 AMCS Cal for 2 minutes over open ocean

2019/075:05:55:47.0000 OCEANscan (22 minutes)

^ 2019/075:07:32:46.0000 AMCS Cal for 2 minutes over open ocean

2019/075:08:56:35.0000 RTWscan (90 minutes)

\* 2019/075:11:05:08.0000 TEP data collection for 3 minutes

\* 2019/075:12:36:31.0000 TEP data collection for 3 minutes

\* 2019/075:14:10:48.0000 TEP data collection for 3 minutes

\* 2019/075:15:45:05.0000 TEP data collection for 3 minutes

\* 2019/075:17:19:23.0000 TEP data collection for 3 minutes  
2019/075:17:43:02.0000 OCEANscan (22 minutes)  
\* 2019/075:18:53:40.0000 TEP data collection for 3 minutes  
\* 2019/075:20:27:58.0000 TEP data collection for 3 minutes  
\* 2019/075:22:02:15.0000 TEP data collection for 3 minutes  
\* 2019/075:23:06:00.0000 VBG sweep with TEP data collection for 7 minutes  
^ 2019/075:23:16:58.0000 AMCS Cal for 2 minutes over open ocean  
^ 2019/076:04:12:15.0000 AMCS Cal for 2 minutes over open ocean  
^ 2019/076:05:32:49.0000 AMCS Cal for 2 minutes over open ocean  
2019/076:07:04:25.0000 OCEANscan (22 minutes)  
2019/076:08:30:56.0000 RTWscan (90 minutes)  
\* 2019/076:12:10:51.0000 TEP data collection for 3 minutes  
\* 2019/076:13:45:09.0000 TEP data collection for 3 minutes  
\* 2019/076:15:19:26.0000 TEP data collection for 3 minutes  
\* 2019/076:16:53:43.0000 TEP data collection for 3 minutes  
\* 2019/076:18:28:01.0000 TEP data collection for 3 minutes  
2019/076:18:51:40.0000 OCEANscan (22 minutes)  
\* 2019/076:20:02:18.0000 TEP data collection for 3 minutes  
\* 2019/076:21:36:35.0000 TEP data collection for 3 minutes  
^ 2019/076:22:51:19.0000 AMCS Cal for 2 minutes over open ocean  
\* 2019/076:23:10:53.0000 TEP data collection for 3 minutes  
^ 2019/077:05:07:10.0000 AMCS Cal for 2 minutes over open ocean  
2019/077:06:38:45.0000 OCEANscan (22 minutes)  
2019/077:08:05:16.0000 RTWscan (90 minutes)  
\* 2019/077:11:45:12.0000 TEP data collection for 3 minutes  
\* 2019/077:13:19:29.0000 TEP data collection for 3 minutes  
\* 2019/077:14:53:47.0000 TEP data collection for 3 minutes  
\* 2019/077:16:28:04.0000 TEP data collection for 3 minutes  
2019/077:17:23:00.0000 Complete Stellar BG Image update to V4.3  
^ 2019/077:17:24:44.0000 Start Stellar Centroid Window Dumps post-Stellar BG Image update to V4.3 for 90 minutes (no stellar centroids)  
\* 2019/077:18:02:21.0000 TEP data collection for 3 minutes  
2019/077:18:26:01.0000 OCEANscan (22 minutes)  
\* 2019/077:19:36:39.0000 TEP data collection for 3 minutes  
\* 2019/077:21:10:56.0000 TEP data collection for 3 minutes  
^ 2019/077:22:25:39.0000 AMCS Cal for 2 minutes over open ocean  
\* 2019/077:22:45:13.0000 TEP data collection for 3 minutes  
^ 2019/077:23:59:57.0000 AMCS Cal for 2 minutes over open ocean  
^ 2019/078:04:41:31.0000 AMCS Cal for 2 minutes over open ocean  
2019/078:06:13:06.0000 OCEANscan (22 minutes)  
^ 2019/078:07:50:05.0000 AMCS Cal for 2 minutes over open ocean  
2019/078:09:13:54.0000 RTWscan (90 minutes)  
\* 2019/078:11:19:32.0000 TEP data collection for 3 minutes  
\* 2019/078:12:53:50.0000 TEP data collection for 3 minutes

- \* 2019/078:14:28:07.0000 TEP data collection for 3 minutes
- \* 2019/078:16:02:25.0000 TEP data collection for 3 minutes
- \* 2019/078:17:36:42.0000 TEP data collection for 3 minutes
- 2019/078:18:00:21.0000 OCEANscan (22 minutes)
- ^ 2019/078:19:00:00.0000 Stellar centroid image dump for 90 minutes (no stellar centroids)
- \* 2019/078:20:45:17.0000 TEP data collection for 3 minutes
- \* 2019/078:22:19:34.0000 TEP data collection for 3 minutes
- ^ 2019/078:23:34:17.0000 AMCS Cal for 2 minutes over open ocean
- ^ 2019/079:03:14:05.0000 Laser image dump for 6 minutes over Antarctica during day
- ^ 2019/079:04:15:51.0000 AMCS Cal for 2 minutes over open ocean
- 2019/079:05:47:27.0000 OCEANscan (22 minutes)
- ^ 2019/079:07:24:26.0000 AMCS Cal for 2 minutes over open ocean
- 2019/079:08:48:15.0000 RTWscan (90 minutes)
- \* 2019/079:10:55:54.0000 TEP data collection for 3 minutes
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