

ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, November 19, 2019 thru Sunday, November 26, 2018

RGTs spanned: 785-897
Cycle 1

Items of Note:

All ATLAS housekeeping data is nominal; Laser 2 is firing at energy level 4 and in science mode. The instrument science team continues to revise, test and submit updated calibration products based on on-orbit data, and the ATLO3 team continues the geolocation/spacecraft attitude control analysis efforts to update the spacecraft pointing. Reprocessing of ATLO3 began this week upon the delivery of new ANC03/04/05 products.

****ELEMENT DETAILS BELOW****

CAMS/POD/PPD:

CAMS: CAMS continues to monitor and screen for mission week 010. No conjunction or constraints to report.

CAMS delivered the SAT for mission week 011. The week was screened for constraints, and a single event exist with probability of lasing higher than our defined metric on Nov. 28th. Screening will continue daily to see how the event evolves.

CAMS generated daily rapid ANC products throughout the week.

CAMS received and is using a new optical space asset list.

CAMS and the MOC are finalizing a standard procedure for handling laser conjunction threats with a probability of lasing above a defined metric that are less than 72 hours from occurring.

POD: POD has completed the processing of intermediate products through GPS week 2027 (through DoY 321). POD has completed the processing of final products through GPS week 2025 (through DoY 307). We will provide ANC03/04 and calibrated ANC05 products to SIPS by COB today for DoY 301-321.

POD has also processed the SLR data through GPS week 2027, preliminary results look good.

POD continues to analyze calibration data for the quantification of pointing, ranging and timing biases.

ISF:

All ATLAS housekeeping data is nominal
Laser 2 is firing at energy level 4 and in science mode
Laser 2 Temp Err: -0.14
WTEM Peak to Edge Ratio 1.185

MW11 planning completed and the load will be uplinked today.
MW12 updated AIP delivered to CAMS
MW13 AIP delivered to CAMS

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Activities during the past week:  
ATS activities completed as planned

#### Real-time activities

Nov 20: Executed new standing CAR323 to change the telescope heater setpoints to 15C to maintain stable control of the temperatures rather than allowing the temperatures to be driven by the orbital thermal variations.

Executed standing CAR91 to clear SBS errors.

MW11 scheduled activities in the ATS: Attached

Other Near-term activities:

DMU scheduled for Sunday 11/25 (18-329-15:06:17.000)

Re-run Receiver Algorithm Test 5 (TBpad) - 2 orbits on Tuesday 11/27

Update Stellar Background Image for warm pixels (schedule TBD)

#### **SIPS:**

The SIPS is operating nominally. We are routinely ingesting L0 data from EDOS, distributing it to the ISF and generating ATL01 and ATL02 products. The ATL02s are being distributed to the ISF, PSO, and POD. ATL03, ATL04, and ATL09 products have been produced and distributed through Nov. 17 (Day 321). SIPS has been configured to automatically produce and distribute ATL03/04/09 files upon receipt of ANC03/04/05 files from the POD

#### **ASAS:**

Investigating and tracking issues identified by SIPS operations and science team; Prime issues being addressed by developers.

##### **L1A –ATL01**

Implementing the S/C star tracker VC5 packet additions.

##### **L1B- ATL02**

Working implementation of improved calibrations

##### **L2A-ALT ATL03**

Working on signal classification, TEP reported width issue and TEP flagging.

Investigations of SIPS processing issues led to implementing fix for photons edge cases of geosegment for region , implementing fix to insure proper photons count after non science mode mask applied and reporting issue with precise pointing file.

##### **L2A – ATM ATL04**

Adding information to items ready for CCB to approval.

##### **L3A-ATM ATL09**

QA additions to ATL09 product ready for CCB review

Working removal of the ground surface from being identified as the lowest cloud.

##### **L3B –ATM ATL16/17**

Developing unit test for Grid product PGE.

Test data product provide to ST lead.

##### **L3A- land ice ATL06**

Implemented fix for the identified error in segment time of day

Implementing fix for the residual histogram jumps related to ocean tide

Implemented fix for error in computation of residual histogram background per bin.

### **L3A Sea Ice ATL07/10**

Implementation of first photon bias completed

Implementing proper usage of TEP and reporting TEP used on ATL07

Corrected implementation of variable histogram bin width to allow smaller bin sizes.

### **L3A- Land ATL08**

Ongoing comparisons between ST and ASAS of alternative DRAGANN results led to changes in both code sets to bring improved and close results for canopy and surface detection with inflight data. ATBD clarifications and updates expected match work done.

### **L3A Ocean ATL12**

No work. Developer working Land Ice

Issues with ASAS sea state bias computation are next implementations.

### **L3A Inland Water ATL13**

Switching to inflight data for all testing.

Working on changes to existing QA flags that are described in recent ATBD update.

### **SCF:**

The SCF has processed everything SIPS has sent us. For ANC39, ATL03, ATL04 and ATL09 we have 10/13-11/17 of release 201. For ANC41, and ATL02 we have 10/13 -11/26 10 hrs for release 201. We temporarily ran out of space on the disk holding ATL09 delaying the ingest. Subsets for ATL09 are currently running and should finish this afternoon. We ran out of Space on the cooler raid system resulting in some files of 0 size. The system administrator is working the issue and as soon as more space is provided the transfer to cooler will continue.

### **ATL02:**

In a holiday-shortened week, work continued on updating CAL 47 and CAL 49.

Investigation continues on:

- Possible afterpulsing evident under very strong return conditions
- Signature of radiation hits
- Downlink band selection
- Power drop in Flight 1 laser (in laboratory life test)

ATLAS beam intensity data as a function of range was given to the Mission Systems team to support a study of potential star tracker damage in the event of another satellite being illuminated.

AMCS calibrations to date were reviewed, with an action given to identify correlation between surface characteristics and quality of the calibration.

### **ATL03:**

The ATL03 group continues analysis for the r201 data products. To date, the verification analysis has turned up no major issues. ATL03 processing restarted early in the week, and granules began appearing in end users' outboxes on the SCF and in the cooler on Thanksgiving. The group has been supporting the geolocation/spacecraft attitude control analysis efforts to update the spacecraft pointing. The group delivered a red-lined version of the ATBD that incorporates a number of corrections, and after changes are accepted by ASAS, a number of these updates will go into the next software release.

### **Post-Launch Validation:**

-The crossover code is working with QA being performed on results; most crossovers are now being found.

-The bias code is working well. Analysis of ASAS 4.4 data shows about ~50 cm bias along 88S, for the 10/14 to 10/27 data available at the SCF.

-A preliminary version of code to identify corner cube retroreflector data is working with minor tweaks still being made.

-88S: NTR

-Summit: A successful survey was conducted under ICESat-2 RGT 879 on 11/25; I am currently working to download the data from the FTP site (which has been down over the holiday).

### **ISF ACTIVITIES MISSION WEEK 011**

\*\*2018/326:00:03:45.0000 TEP data collection for 3 minutes

\*\*2018/326:00:12:59.0000 Laser image dump for 6 minutes (no laser centroids)

2018/326:00:27:24.0000 OCEANscan (22 minutes)

\*\*2018/326:01:38:02.0000 TEP data collection for 3 minutes

\*\*2018/326:03:12:20.0000 TEP data collection for 3 minutes

\*\*2018/326:04:46:37.0000 TEP data collection for 3 minutes

\*\*2018/326:11:01:29.0000 AMCS Cal for 2 minutes

2018/326:12:14:29.0000 OCEANscan (22 minutes)

\*\*2018/326:12:43:19.0000 VBG Sweep 6 minutes

\*\*2018/326:17:20:55.0000 TEP data collection for 3 minutes

\*\*2018/326:18:55:12.0000 TEP data collection for 3 minutes

\*\*2018/326:20:29:30.0000 TEP data collection for 3 minutes

\*\*2018/326:22:03:47.0000 TEP data collection for 3 minutes

\*\*2018/326:23:38:04.0000 TEP data collection for 3 minutes

\*\*2018/327:01:12:21.0000 TEP data collection for 3 minutes

\*\*2018/327:02:46:39.0000 TEP data collection for 3 minutes

\*\*2018/327:04:20:56.0000 TEP data collection for 3 minutes

2018/327:10:14:31.0000 OCEANscan (22 minutes)

\*\*2018/327:11:51:30.0000 AMCS Cal for 2 minutes

\*\*2018/327:12:17:38.0000 VBG Sweep 6 minutes

\*\*2018/327:13:35:59.0000 AMCS Cal for 2 minutes

\*\*2018/327:16:55:14.0000 TEP data collection for 3 minutes

2018/327:17:05:00.0000 Stellar centroid window dump for 90 minutes

\*\*2018/327:18:29:31.0000 TEP data collection for 3 minutes

\*\*2018/327:20:03:49.0000 TEP data collection for 3 minutes

\*\*2018/327:21:38:06.0000 TEP data collection for 3 minutes

\*\*2018/327:23:12:23.0000 TEP data collection for 3 minutes

2018/327:23:36:02.0000 OCEANscan (22 minutes)

\*\*2018/328:00:46:40.0000 TEP data collection for 3 minutes

\*\*2018/328:02:20:58.0000 TEP data collection for 3 minutes

\*\*2018/328:03:55:15.0000 TEP data collection for 3 minutes

\*\*2018/328:09:51:32.0000 AMCS Cal for 2 minutes

2018/328:10:00:00.0000 Stellar centroid image dump for 90 minutes

\*\*2018/328:11:44:24.0000 AMCS Cal for 2 minutes

2018/328:12:57:24.0000 OCEANscan (22 minutes)  
2018/328:14:23:55.0000 RTWscan (90 minutes)  
\*\*2018/328:16:29:33.0000 TEP data collection for 3 minutes  
\*\*2018/328:18:03:50.0000 TEP data collection for 3 minutes  
\*\*2018/328:19:38:07.0000 TEP data collection for 3 minutes  
\*\*2018/328:21:12:25.0000 TEP data collection for 3 minutes  
\*\*2018/328:22:46:42.0000 TEP data collection for 3 minutes  
2018/328:23:10:21.0000 OCEANscan (22 minutes)  
\*\*2018/329:00:20:59.0000 TEP data collection for 3 minutes  
\*\*2018/329:01:55:16.0000 TEP data collection for 3 minutes  
\*\*2018/329:03:29:34.0000 TEP data collection for 3 minutes  
\*\*2018/329:09:34:52.0000 AMCS Cal for 2 minutes  
2018/329:10:57:26.0000 OCEANscan (22 minutes)  
\*\*2018/329:12:53:00.0000 AMCS Cal for 2 minutes  
\*\*2018/329:14:36:12.0000 DMU activities for 54 minutes  
2018/329:15:32:00.0000 ACT VegTkExit (PID=ISF12, FRAMEPTCHOFF=0.0000000,  
EPYAWOFF=-0.0364993); // reset EP reference frame offsets  
\*\*2018/329:17:38:09.0000 TEP data collection for 3 minutes  
\*\*2018/329:19:12:27.0000 TEP data collection for 3 minutes  
\*\*2018/329:20:46:44.0000 TEP data collection for 3 minutes  
\*\*2018/329:22:21:02.0000 TEP data collection for 3 minutes  
2018/329:22:44:41.0000 OCEANscan (22 minutes)  
\*\*2018/329:23:55:19.0000 TEP data collection for 3 minutes  
2018/330:00:18:58.0000 OCEANscan (22 minutes)  
\*\*2018/330:01:29:36.0000 TEP data collection for 3 minutes  
\*\*2018/330:03:03:54.0000 TEP data collection for 3 minutes  
\*\*2018/330:04:38:11.0000 TEP data collection for 3 minutes  
\*\*2018/330:10:34:28.0000 AMCS Cal for 2 minutes  
\*\*2018/330:10:53:04.0000 AMCS Cal for 2 minutes  
2018/330:12:06:04.0000 OCEANscan (22 minutes)  
\*\*2018/330:17:12:30.0000 TEP data collection for 3 minutes  
\*\*2018/330:18:46:48.0000 TEP data collection for 3 minutes  
\*\*2018/330:20:21:05.0000 TEP data collection for 3 minutes  
\*\*2018/330:21:55:23.0000 TEP data collection for 3 minutes  
\*\*2018/330:23:29:40.0000 TEP data collection for 3 minutes  
\*\*2018/331:01:03:57.0000 TEP data collection for 3 minutes  
\*\*2018/331:02:38:15.0000 TEP data collection for 3 minutes  
\*\*2018/331:04:12:32.0000 TEP data collection for 3 minutes  
\*\*2018/331:10:08:50.0000 AMCS Cal for 2 minutes  
2018/331:11:40:25.0000 OCEANscan (22 minutes)  
\*\*2018/331:13:25:37.0000 AMCS Cal for 2 minutes  
\*\*2018/331/19:03:50.0000 Re-run Receiver Alg Test 5 for 200 minutes (TBpad)  
\*\*2018/331:23:04:01.0000 TEP data collection for 3 minutes  
2018/331:23:27:41.0000 OCEANscan (22 minutes)  
\*\*2018/332:00:38:19.0000 TEP data collection for 3 minutes  
\*\*2018/332:02:12:36.0000 TEP data collection for 3 minutes

\*\*2018/332:03:46:53.0000 TEP data collection for 3 minutes  
\*\*2018/332:09:43:11.0000 AMCS Cal for 2 minutes  
2018/332:11:14:46.0000 OCEANscan (22 minutes)  
\*\*2018/332:12:51:45.0000 AMCS Cal for 2 minutes  
\*\*2018/332:16:21:12.0000 TEP data collection for 3 minutes  
\*\*2018/332:17:55:30.0000 TEP data collection for 3 minutes  
\*\*2018/332:19:29:47.0000 TEP data collection for 3 minutes  
\*\*2018/332:21:04:05.0000 TEP data collection for 3 minutes  
\*\*2018/332:22:38:22.0000 TEP data collection for 3 minutes  
2018/332:23:02:02.0000 OCEANscan (22 minutes)