

GOES-17 ABI Level 1b (L1b) and Cloud and Moisture Imagery (CMI) Data Release
Beta Data Quality
August 27, 2018
Read-Me for Data Users

The GOES-R Peer/Stakeholder Product Validation Review (PS-PVR) for ABI L1b and CMI Beta Maturity was held on August 27, 2018. As a result of this review the PS-PVR panel chair declared Beta validation maturity for the ABI L1b and CMI data, which qualifies the L1b data for addition to the GRB stream beginning at 1530 UTC on August 28, 2018.

The ABI L1b and CMI data products are calibrated and geo-located radiances of the 16 ABI bands over the Full Disk (FD) of the Earth, the Continental United States (CONUS) region, the Mesoscale (MESO) regions, and certain instrument calibration and engineer data. Beta maturity, by definition, means that:

- Initial calibration applied (L1b);
- Rapid changes in product input tables / algorithms can be expected;
- Product quick looks and initial comparisons with ground truth data not adequate to determine product quality;
- Anomalies may be found in the product and the resolution strategy may not exist;
- Product is made available to users to gain familiarity with data formats and parameters (via GRB);
- Product has been minimally validated and may still contain significant errors; and
- Product is not optimized for operational use.

Beta users bear all responsibility for inspecting the data prior to use and for the manner in which the data are utilized. Persons desiring to use the GOES-17 ABI Beta-maturity L1b products for any reason, including but not limited to scientific and technical investigations, are encouraged to consult the NOAA ABI calibration scientists for feasibility of the planned applications.

Known issues being investigated include the following:

1. An anomaly with the ABI Loop Heat Pipe (LHP) prevents the instrument cooling system from maintaining sufficiently cool temperatures during certain parts of the day and year. Data quality will fluctuate seasonally depending on the amount of solar radiation absorbed by the instrument. During the instrument's "cool" seasons (near the summer and winter solstice), all channels are expected to be nominal 24 hours per day. During the instrument's "warm" seasons (before and after the vernal and autumnal equinox), experts estimate 7 channels (Bands 1-7) will be of nominal quality 24 hours per day and the other 9 channels (Bands 8-16) will be degraded and images will be of reduced quality or unusable 2-6 hours per night. These estimates are preliminary and are still being refined. The warmest part of the season is coming up in early September and performance estimates will need to be confirmed through observation during that time.

For more technical information regarding the LHP issue, please visit: <https://www.goes-r.gov/users/transitionToOperations17.html>

2. Significant stray light exists for VNIR channels approximately one hour before and after satellite local midnight for approximately forty days during the eclipse season before the vernal (spring) equinox and after the autumnal (fall) equinox, and may exist in other days of the year.
3. Stray light exists for Band 7 approximately one hour before and after satellite local midnight for approximately forty days during the eclipse season before the vernal (spring) equinox and after the autumnal (fall) equinox. The intensity of the stray light is less than the requirements, but may affect certain applications.
4. Band 1 radiances may be brighter on the west end than on the east end by 1% or more.
5. Band 4 radiances are about 7% darker, and Band 5 radiances are about 7% brighter than commonly accepted values from comparable satellites products. These may be due to error in the gains of these channels so the bias is larger for brighter scenes.
6. Band 2 is brighter than commonly accepted values by up to 10%.
7. There are periodic infrared calibration anomalies (PICA) present in the data that can be seen as regular and repeating pulses in infrared brightness temperatures. The infrared calibration may produce an error with a periodicity depending on timeline.
8. Image navigation for Bands 12-16 places landmarks about 6 km to the south of where they should be.
9. Image striping may occur across all 16 channels.

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