GOES-17 ABI L2+ Cloud Top Parameters (CTP) Release

Beta Data Quality

November 28, 2018

Read-Me for Data Users

The GOES-17 Advanced Baseline Imager (ABI) L2+ Cloud Top Parameters (CTP), including Height, Temperature, and Pressure, was declared Beta maturity on August 27, 2018. No formal review was conducted because the algorithms are identical to the ones running with GOES-16, so the Beta declaration of the ABI L1b and CMI flows down to the ABI L2+ products.

The GOES-17 ABI CTP product generates the cloud-top height, cloud-top temperature and cloud-top pressure products from the 11 um, 12 um and 13.3 um infrared observations. The GOES-R Series Level I Requirements (L1RD) states the Cloud Top Height shall be produced every 60 minutes for CONUS and Full Disk, and 5 minutes for Mesoscale. The Cloud Top Pressure will be produced every 60 minutes for CONUS and Full Disk. The Cloud Top Temperature will be produced every 15 minutes for Full Disk, and every 5 minutes for Mesoscale. However, in current normal Mode 3 operations, the CTP product is generated every 15 minutes for Full Disk, every 5 minutes over the CONUS region, and every 1 minute over the Mesoscale regions.

A full description and format of the CTP products can be found in the Product Definition and User's Guide (PUG) document (http://www.goes-r.gov/products/docs/PUG-L2+-vol5.pdf). The algorithm used to derive the CTP products from GOES-16 ABI observations is described in detail in the "GOES-R Advanced Baseline Imager (ABI) Algorithm Theoretical Basis Document for ABI Cloud Height" (https://www.goes-r.gov/products/ATBDs/baseline/Cloud_CldHeight_v2.0_no_color.pdf).

Beta maturity, by definition, means that:
- Rapid changes in product input tables / algorithms can be expected;
- Product quick looks and initial comparisons with ground truth data were 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;
- Product has been minimally validated and may still contain significant errors; and
- Product is not optimized for operational use.

Persons desiring to use the GOES-17 ABI Beta maturity CTP products for any reason, including but not limited to scientific and technical investigations, are encouraged to consult the NOAA/NESDIS/STAR Algorithm Working Group (AWG) scientists for feasibility of the planned applications. The CTP product is sensitive to upstream processing that includes the quality of the calibration, navigation, cloud mask, and cloud type/phase.

Status of the current CTP products and any remaining known issues that are being resolved:

1. During the post-launch testing of the GOES-17 ABI instrument, an issue with the cooling system was discovered. Because of this, some of the infrared channels on the ABI are not adequately cooled during night time, leading to imagery loss.
2. The CTP products mainly use the 11, 12, and 13 µm infrared channels (ABI Bands 14, 15, and 16). Channel 14 will be available 24 hours although there is still increased noise during the warm detector period, Channel 15, 21 hours, and Channel 16, 18-20 hours each day. Upstream products such as the Binary Cloud Mask, and Cloud Phase will be affected as well, which in turn adds to the CTP issues. Aside from potential mitigation strategies, the CTP products may well be corrupted beyond use, or missing altogether.
3. Mitigation strategies, including using different channel combinations for CTP are currently being tested through the Enterprise Pilot Coordination project. This project will attempt to wrap the cloud height science software into the Ground System.

Contact for further information: OSPO User Services at SPSD.UserServices@noaa.gov

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