

GOES-16 ABI Level 2 Cloud Optical Properties Parameters, Beta Data Quality

July 18, 2017

Read-Me for Data Users

The GOES-R Peer/Stakeholder Product Validation Review (PS-PVR) for ABI L2 Cloud Optical Properties (optical depth and particle size) Beta Maturity was held on June 8, 2017. As a result of this review, the PS-PVR panel recommended that the ABI Cloud Optical Properties for both Daytime (DCOMP) and Nighttime (NCOMP) data be declared Beta.

The ABI COMP Level 2 products provide cloud optical depth (COD) and cloud particle size (CPS) over the Full Disk (FD) of the GOES-ABI domain, COD and CPS over the Continental United States (CONUS) region, and CPS over both Mesoscale (MESO) regions. They also include the processing information flags, parameter quality indicators and error estimates in the intermediate product (IP) files.

A full description and format of the DCOMP and NCOMP 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 algorithms used to derive the DCOMP and NCOMP products from GOES-16 ABI observations is described in detail in the "GOES-R Advanced Baseline Imager (ABI) Algorithm Theoretical Basis Document for Daytime Cloud Optical and Microphysical Properties (DCOMP)" (http://www.goes-r.gov/products/ATBDs/baseline/Cloud_DCOMP_v2.0_no_color.pdf) and "GOES-R Advanced Baseline Imager (ABI) Algorithm Theoretical Basis Document for Nighttime Cloud Optical Depth, Cloud Particle Size, Cloud Ice Water Path, and Cloud Liquid Water Path" (http://www.goes-r.gov/products/ATBDs/baseline/Cloud_NCOMP_2%200_no_color.pdf).

Beta maturity, by definition, means that:

- Initial calibration applied (L1b);
- Ensure consistency across all sectors and domains;
- 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 (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-16 ABI Beta-maturity COMP for any reason, including but not limited to scientific and technical investigations, are encouraged to consult the NOAA ABI scientists for feasibility of the planned applications.

Known issues being resolved include:

1. All issues discussed in the cloud mask, cloud phase, and cloud height READMEs may have impacts on the COMP.
2. M4 Level 1b data drop outs from the PDA not evident in the GRB.

3. Striping in the 3.9-radiances causes striping in COMP products.
4. LUTs will be updated to for GOES-16 flight SRFs.
5. Wrong cloud phase input will cause COMP errors from up to 50%, particular for CPS.
6. DCOMP shows an increased number of thick clouds with COD greater than 80. Information depth is low due to radiation saturation.