

GOES-18 (G18) ABI L2+ Cloud Optical Properties Release
Provisional Data Quality
December 6, 2022
Read-Me for Data Users

The GOES-18 Advanced Baseline Imager (ABI) L2+ Cloud Optical Properties (optical depth and particle size; COMP) products were declared Provisional maturity on November 21, 2022. As a result of this review, the panel chair declared that this product meets the criteria for Provisional Maturity.

The ABI Cloud Optical Properties for both Daytime (DCOMP) and Nighttime (NCOMP) 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 COMP 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 DCOMP and NCOMP products from GOES-18 ABI observations is described in detail in the "GOES-R Advanced Baseline Imager (ABI) Algorithm Theoretical Basis Document (ATBD) for Daytime Cloud Optical and Microphysical Properties (DCOMP)" and the "GOES-R Advanced Baseline Imager (ABI) ATBD for Nighttime Cloud Optical Depths, Cloud Particle Size, Cloud Ice Water Path, and Cloud Liquid Water Path". ATBDs are available at: https://www.star.nesdis.noaa.gov/goesr/documentation_ATBDs.php.

By definition, Provisional maturity means that:

- Validation activities are ongoing and the general research community is now encouraged to participate.
- Severe algorithm anomalies are identified and under analysis. Solutions to anomalies are in development and testing.
- Incremental product improvements may still be occurring.
- Product performance has been demonstrated through analysis of a small number of independent measurements.
- Product analysis is sufficient to communicate to users.
- Documentation of product performance exists.
- Testing has been fully documented.
- Product is ready for operational use and for use in comprehensive calibration/validation activities and product optimization.

Persons desiring to use the GOES-18 ABI Provisional maturity COMP 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.

Status of the current COMP products and any remaining known issues still seeking resolution are as follows:

1. All issues discussed in the cloud mask, cloud phase, and cloud height READMEs may impact the COMP products.
2. Mode 4 Level 1b data drop outs from the PDA not evident in the GRB.
3. COMP products could be affected by striping in the GOES-18 3.9 radiances, although no striping issues were observed in the data analyzed for the provisional maturity review.
4. Wrong cloud phase input will cause COMP errors of up to 50%, particularly for CPS.
5. DCOMP produces more thick clouds with COD greater than 80. Information depth is low due to radiation saturation.

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Contacts for specific information on the ABI L2 COMP products:

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