

GOES-19 ABI L2+ Cloud Cover Layers

Provisional Data Quality

6 March 2025

Read-Me for Data Users

The Provisional Peer/Stakeholder Product Validation Review (PS-PVR) for the GOES-19 Advanced Baseline Imager (ABI) L2+ Cloud Cover Layers (CCL) product was held on 5 March 2025. The GOES-19 ABI CCL algorithm was elevated to the Provisional Maturity level after this review.

The ABI L2+ Cloud Cover Layers product derives a cloud fraction at a predefined spatial resolution and between specified cloud layers. It also retrieves total cloud fraction from surface to the top of the atmosphere at the same resolution. It mainly utilizes cloud mask and cloud top products from upstream cloud mask and height algorithms to derive CCL information. CCL products include 6 cloud fractions: total fraction and 5 cloud layer fractions at predefined flight levels (SFC-FL050, FL050-FL100, FL100-FL180, FL180-FL240, and FL240-TOA). The horizontal resolutions for those fractions are 10 km for Full Disk (FD) and Contiguous United States (CONUS), and 4 km for mesoscale (Meso). The CCL products are generated for every FD, CONUS, and Meso sector.

The algorithm used to derive the Cloud Cover Layers product from GOES-19 ABI observations is described in detail in the Algorithm Theoretical Basis Documents (ATBD): “AWG Cloud Cover Layer Algorithm”. ATBDs are available at:

https://www.star.nesdis.noaa.gov/goesr/documentation_ATBDs.php.

Provisional maturity, by definition, means that:

- Validation and quality assurance 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 obtained from select locations, periods, and associated ground truth or field campaign efforts.
- Product analysis is sufficient to communicate product performance to users relative to expectations (Performance Baseline).
- Documentation of product performance exists that includes recommended remediation strategies for all anomalies and weaknesses. Any algorithm changes associated with severe anomalies have been documented, implemented, tested, and shared with the user community.
- 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-19 ABI Provisional Validation Maturity CCL 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.

Known issues at the Provisional Maturity Validation stage include:

1. Occasional missing blocks of data noted over some Full Disk sectors that are not related to issues with upstream products or ancillary datasets. These issues cannot be replicated in non-operational processing environments. The team will continue monitoring operational products created by the Ground System and will help to resolve this issue if it occurs on a regular basis.

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

Contacts for specific information on the ABI L2+ CCL product:

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