

GOES-18 ABI L2+ Clear Sky Mask (CSM) Release  
Beta Data Quality  
May 24, 2022  
Read-Me for Data Users

The GOES-18 Advanced Baseline Imager (ABI) L2+ Clear Sky Mask product was declared Beta maturity on May 11, 2022. No formal review was conducted because the algorithms are identical to the ones running with GOES-16 and GOES-17, so the Beta declaration of the ABI L1b and CMI flows down to the ABI L2+ products.

The ABI Clear Sky Mask products provide a binary cloud presence decision over the Full Disk (FD) of the Earth, the Continental United States (CONUS) region, and the Mesoscale (MESO) regions. In addition, there are three other variables within the file:

- 4-Level Mask - The Clear Sky Mask (CSM) combines spectral and spatial tests to produce a 4-level classification of cloudiness at each pixel location. The 4 levels are:
  - 0 = Clear
  - 1 = Probably Clear
  - 2 = Probably Cloudy
  - 3 = Cloudy
- Cloud Probability - Likelihood of a cloud at a given pixel location (range: 0.0 - 1.0)
- Data Quality Flag
  - 0 - Good quality cloud mask
  - 1 - Bad quality
  - 2 - Invalid pixel due to space view
  - 3 - Not used
  - 4 - Not used
  - 5 - Not used
  - 6 - Degraded due to out of range focal plane temperature (FPT) or missing channel

A full description and format of the CSM 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 Enterprise version of Cloud Mask from GOES-R ABI observations is described in detail in the "GOES-R Advanced Baseline Imager (ABI) Algorithm Theoretical Basis Document for A Naïve Bayesian Cloud Mask Delivered to NOAA Enterprise". ATBDs are available at [https://www.star.nesdis.noaa.gov/goesr/documentation\\_ATBDs.php](https://www.star.nesdis.noaa.gov/goesr/documentation_ATBDs.php).

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 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.

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-18 ABI Beta-maturity Clear Sky Mask 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.

There are no specific known issues under investigation at this time.

Contact for further information: OSPO User Services at [SPSD.UserServices@noaa.gov](mailto:SPSD.UserServices@noaa.gov)

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

Jaime Daniels [jaime.daniels@noaa.gov](mailto:jaime.daniels@noaa.gov)

Mark Kulie [mark.kulie@noaa.gov](mailto:mark.kulie@noaa.gov)