

GOES-19 ABI L2+ Legacy Ice Concentration and Extent (AICEF) Release
Beta Data Quality
October 1, 2024
Read-Me for Data Users

The GOES-19 Advanced Baseline Imager (ABI) L2+ Legacy Ice Concentration and Extent (AICEF) products were declared Beta maturity on October 1, 2024. No formal review was conducted because the algorithms are identical to the ones running with GOES-16 and GOES-18, so the Beta declaration of the ABI L1b and CMI flows down to the ABI L2+ products.

The ABI L2+ Ice Concentration and Extent (AICEF) product identifies pixels covered with ice over water surfaces under clear-sky conditions and estimates ice concentration and ice surface temperature. No land applications are included. It includes associated data quality flags, mean, maximum, minimum, and standard deviation. Ice cover is the location of ice over inland lakes, rivers, and ocean waters; and ice concentration reports the fraction (in percentages) of the ice for those ice-covered pixels; and ice surface temperature reports the skin temperature of those ice-covered pixels. The ice cover mask is generated for each pixel over a water surface, and ice concentration and ice surface temperature are calculated for each pixel covered with ice. All products are for pixels under clear-sky conditions only.

A full description and format of the AICEF products can be found in the Product Definition and User's Guide (PUG) Volume 5: Level 2+ Products, located on OSPO's GOES-R documents webpage: <https://www.ospo.noaa.gov/Organization/Documents/goes-r.html>. The algorithm used to derive the ice concentration and extent product from GOES-R ABI observations is described in detail in the "Algorithm Theoretical Basis Document For Ice Surface Temperature, Ice Concentration, and Ice Cover", available at https://www.star.nesdis.noaa.gov/goesr/documentation_ATBDs.php.

GOES-19 ABI ice concentration and extent were initially compared to the GOES-16 and GOES-18 products in the overlap regions visually. The results are reasonably consistent with GOES-16 and GOES-18, with differences much smaller than product requirements with visual comparisons.

Beta maturity, by definition, means that:

- Initial calibration applied in L1b product;
- Rapid changes in product input tables / algorithms can be expected;
- Product quick looks and initial comparisons with ground truth data are 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-19 ABI Beta-maturity ice concentration and extent 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. Any calibration, registration, and missing data issues in the up-stream product precedence chain can affect the ice concentration and extent product, especially cloud mask product.

There are no specific known issues at this time.

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

Contacts for specific information on the ABI ice concentration and extent data:

Yinghui Liu: yinghui.liu@noaa.gov

Feng He: fenghe@wisc.edu