GOES-18 ABI L2+ Legacy Ice Concentration and Extent (AICEF) Release
Provisional Data Quality
December 29, 2022
Read-Me for Data Users

The Peer/Stakeholder Product Validation Review (PS-PVR) for the GOES-18 Advanced Baseline Imager (ABI) L2+ Legacy Ice Concentration and Extent (AICEF) products was held on December 29, 2022. The PS-PVR panel chair recommended that the Legacy Ice Concentration and Extent (AICEF) product be declared Provisional Maturity.

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. It also 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. Ice concentration reports the fraction (in percentages) of the ice for those ice-covered pixels. 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. No land applications are included.

A full description and format of the AICEF 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 ice concentration and extent product from GOES-18 ABI observations is described in detail in the "Algorithm Theoretical Basis Document For Ice Surface Temperature, Ice Concentration, and Ice Cover" (https://www.ospo.noaa.gov/Products/Suites/files/atbd/ATBD_IceSurfaceTemperatureIceConcentration_v1.0.pdf).

GOES-18 ABI ice concentration and extent were compared quantitively with the GOES-16, VIIRS (Visible Infrared Imaging Radiometer Suite), and AMSER2 (The Advanced Microwave Scanning Radiometer 2) products, and qualitatively with US National Ice Center (NIC) ice charts as well. The results are reasonably consistent with all those validation data products, and the product meets the mission requirements.

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.

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 Provisional 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.

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

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