GOES-19 ABI L2+ Derived Motion Winds Release
Beta Data Quality
October 25, 2024
Read-Me for Data Users

The GOES-19 Advanced Baseline Imager (ABI) L2+ Derived Motion Winds (DMW) product was 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 GOES-R series ABI DMW product is generated from a sequence of images and provides an estimate of atmospheric motion (Speed, Direction, Height) for a set of targeted tracers (cloud edges or moisture gradients in clear air conditions) viewed in selected spectral bands. Winds are retrieved separately from ABI bands 2 (0.64um), 7 (3.9um), 8 (6.2um), 9 (6.9um), 10 (7.3um), and 14 (11.2um). Collectively, the winds retrieved from all of these bands make up the DMW product. The DMW product is generated once an hour for every ABI Full Disk (FD) of the Earth, every 15 minutes over the contiguous United States (CONUS) region, and every 5 minutes over the Mesoscale (MESO) regions.

A full description and format of the DMW product 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 Enterprise algorithm used to derive the DMW product from ABI observations is described in detail in the "Enterprise Algorithm Theoretical Basis Document for Derived Motion Winds", located on STAR's GOES-R ATBD webpage: https://www.star.nesdis.noaa.gov/goesr/documentation_ATBDs.php.

Beta maturity, by definition, means that:

- 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-19 ABI Beta maturity DMW products for any reason, including but not limited to scientific and technical investigations, are encouraged to consult the NOAA algorithm working group (AWG) scientists for feasibility of the planned applications.

The DMW product is dependent on the L1b product and a number of L2+ products (e.g., cloud mask, cloud phase, and cloud-top pressure). The quality of the DMW product, therefore, is sensitive to the quality of these predecessor products.

Status of GOES-19 DMW products (as of October 18, 2024):

1. A qualitative visual inspection of the GOES-19 winds (derived from ABI bands 2, 7, 8, 9, 10, and 14) over FD, CONUS, and Meso sectors, shows that their quality and geographic coverage is comparable to the operational GOES-16 wind products.
2. Quantitative comparisons of the GOES-19 winds to spatially and temporally collocated GFS analysis winds over the period October 1-18, 2024 show that their quality is comparable to the GOES-16 winds.
3. Some degradation in GOES-19 upper level winds is possible as a result of a reported issue with the upstream cloud phase product which can impact the upstream cloud height products which are used by the winds algorithm to assign heights to the retrieved motion.

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

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