

GOES-18 ABI L2+ Downward Shortwave Radiation: Surface (DSR)
and Reflected Shortwave Radiation: TOA (RSR) Release
Beta Data Quality
May 23, 2022
Read-Me for Data Users

The GOES-18 Advanced Baseline Imager (ABI) L2+ Downward Shortwave Radiation: Surface (DSR) and Reflected Shortwave Radiation: TOA (RSR) products were 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 L2+ DSR and RSR products include the downwelling shortwave radiation at the surface (DSR) and the shortwave radiation reflected at the top of the atmosphere (RSR). The DSR and RSR retrievals are produced during daytime with view and solar zenith angles less than 90 degrees. Data over the Full Disk (FD) of the Earth is available in an equal angle latitude-longitude grid of 0.50 degrees for DSR and 0.25 degrees for RSR. Over the Continental United States (CONUS) spatial resolutions are 0.25 degrees for both DSR and RSR. For mesoscale (MESO), only DSR is produced at 0.05 degrees. The products are generated once per hour.

Full description and format of the DSR and RSR products are 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 DSR and RSR from GOES-18 ABI observations is described in the "GOES-R Advanced Baseline Imager (ABI) Algorithm Theoretical Basis Document for Downward Shortwave Radiation (Surface), and Reflected Shortwave Radiation (TOA)" (https://www.star.nesdis.noaa.gov/goesr/documents/ATBDs/Baseline/ATBD_GOES-R_Shortwave%20Radiation_3.1_Nov2018.pdf).

GOES-18 ABI DSR and RSR were compared to corresponding GOES-16 and GOES-17 products, which showed reasonable consistency with GOES-16 and GOES-17 in the overlap regions.

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.

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 DSR and RSR 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 DSR and RSR products are sensitive to upstream processing, such as the quality of calibration, navigation and cloud mask.

Known product issues (as of May 23, 2022):

1. The retrieval algorithm uses coefficients for converting narrowband reflectances to broadband albedos that have been derived for GOES-16 not for GOES-18.
2. DQF attributes 'percent_good_retrieval_qf' and 'percent_bad_retrieval_qf' may have incorrect values.
3. Occasionally bands of missing data may be present in the product files.

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

Contacts for specific information on the ABI L2+ DSR & RSR data:

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