GOES-16 ABI L2+ Aerosol Detection (ADP) Release, Beta Data Quality
June 16, 2017
Read-Me for Data Users

The GOES-R Peer/Stakeholder Product Validation Review (PS-PVR) for Advanced Baseline Imager (ABI) L2+ Aerosol Detection (ADP) Beta Maturity was held on May 24, 2017. As a result of this review, the PS-PVR panel recommended that the ABI ADP product be declared Beta. This was accomplished at 2030 UTC on May 24, 2017.

The ABI L2+ ADP includes the flags describing the presence of aerosol (including smoke/dust) in the atmosphere over land and over ocean. The ADP is produced during the daytime over clear-sky and snow-free regions; with view and solar zenith angles are less than 87 degrees. Data coverage over the Full Disk (FD) of the Earth is available every 15 minutes and within the Continental United States (CONUS) region every 15 minutes in operational mode 3, and also in mode 4. ADP is produced in the Mesoscale domain every 15 minutes. Data are available in fixed grid at 2 km resolution.

Full description and format of the ADP product is 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 ADP from GOES-16 ABI observations is described in the "GOES-R Advanced Baseline Imager (ABI) Algorithm Theoretical Basis Document for Aerosol Detection Product" (http://www.goes-r.gov/products/ATBDs/baseline/AAA_AIP_v2.0_no_color.pdf).

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. Users desiring to use the GOES-16 ABI Beta maturity ADP 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. These products are sensitive to upstream processing, such as the quality of the calibration, navigation, snow/ice mask and cloud mask.

Known issues being resolved include:

1. The Aerosol Detection Product is exhibiting false positives in the sunglint region and for high satellite and solar zenith angles (> 60 degrees), i.e., at early morning and afternoon, or regions around terminators. There are flags designed for these angle conditions, but, currently outputted to IP data files, which are not available to the user. Code updates are being

implemented to include these flags in the main output file so users can screen out these artifacts

2. The thresholds for various tests in the algorithm are to be adjusted for ABI channels. They are currently based on MODIS.

3. There is spurious smoke detection, especially over land which we expect to minimize after adjusting thresholds.

4. Some ABI visible bands have striping that can carry the signature to derived products. The calibration team is looking into a resolution of this issue.

5. Time to time Image Navigation errors can occur that can carry the signature to derived products.

6. In inspecting the quality flags, the aerosol team noticed that most of the ADP quality flags are set to "High" and very few or no flags set to "Medium or Low". This is under investigation.