Using the New Capabilities of GOES-R to Improve Blended, Multisensor Water Vapor Products for Forecasters

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Abstract

We pose this question: How can the increased temporal and spatial resolution of GOES-R be used to improve the usefulness of blended water vapor products for forecasters? The GOES-R total precipitable water vapor (TPW) and layer precipitable water (LPW) products will be characterized with respect to other sensors for blended analysis products for forecasters. GOES-R TPW retrievals will be merged into the existing multisensor NOAA operational blended TPW (BTPW) product. The increased spatial and temporal coverage of GOES-R should have a positive impact as compared to the previous GOES Sounder.

The proposed work will have three outcomes, which will be made available to forecasters for evaluation:

1. Invigorated usage of GOES-R in the current NOAA operational blended TPW product. This should especially have an impact over land.

2. A methodology to use model winds to blend polar orbiter TPW retrievals and to fuse them with GOES-R TPW for a new, more useful synoptic BTPW product for forecasters.

3. Cloud-free 6 – 8 µm water vapor imagery created from GOES-R radiance in clear skies with radiances calculated from polar orbiter retrievals in cloudy skies.

Our CIRA team is well-connected with NESDIS OSPO as the creator and developer of the operational blended products (BTPW and blended Rainfall Rate (BRR); available at http://www.ospo.noaa.gov/Products/bTPW/index.html) for the past 10 years. Transition to operations is expected to be straightforward as a result of this project.