

Recent NWS/Eastern Region Participation in the GOES-R Proving Ground



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NWS/Eastern Region Weather Forecast Offices (WFO) are active participants in the GOES-R Proving Ground. WFOs assist in the evaluation of new satellite products, visualization techniques and algorithms for potential transfer to forecast operations. Current Eastern Region participants, collaborators (Figure 1) and selected examples that address regional forecasting challenges are depicted below.

1. UW/CIMSS Fog-Low Stratus (FLC)

NWS forecast offices in Mt. Holly, NJ (PHI) and Greer, SC (GSP) evaluated MVFR, IFR, Cloud Thickness and the Cloud Type algorithms (Figure 2) from February - August 2012. WFO PHI evaluated the products as part of GOES-R COMET project with Kean University (NJ) investigating the occurrence, coverage and intensity of cool season fog along the east coast. Forecaster surveys were conducted to gauge product use in forecast operations (Figure 3).

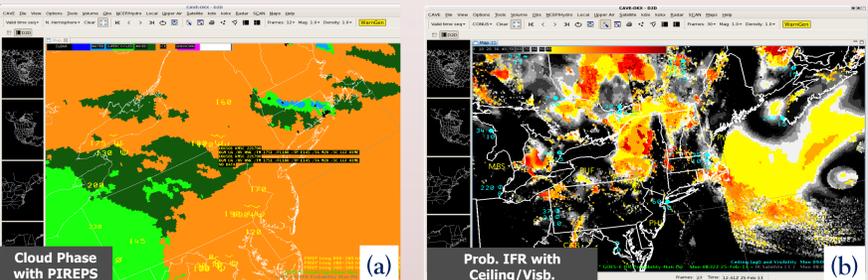


Figure 2. (a) CIMSS cloud phase product and (b) IFR probability from CAVE (AWIPS 2).

a. A series of evaluation questions was developed to obtain operational feedback:

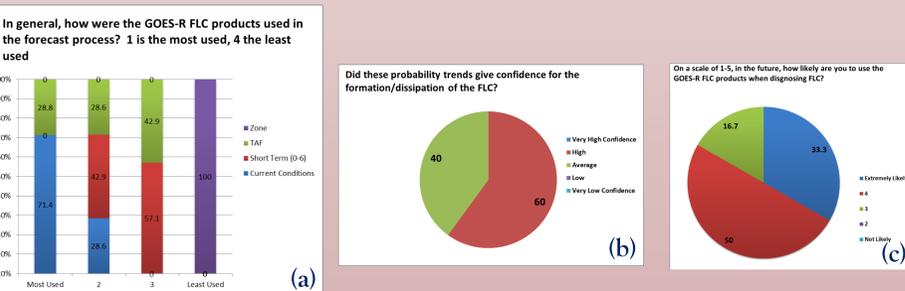


Figure 3. Example product survey questions and responses for (a) use in NWS products (b) forecaster confidence in fog formation/dissipation and (c) future product use.

b. WFO GSP created a Graphical Forecast Editor (GFE) tool that uses the IFR and MVFR probabilities to help produce TAFs from the gridded forecast database.

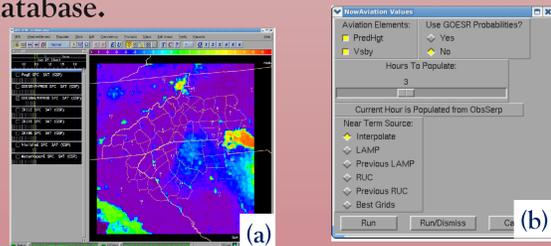


Figure 4. (a) Example GOES-R Probability of MVFR in GFE, and (b) the GOES-R option for forecasters to use within the GFE window.



Figure 1. NWS/ER offices participating in the evaluation of new satellite products, visualizations and algorithms as of April 2013.

4. CIRA WRF Simulated ABI

WFOs Charleston, SC (CHS), Pittsburgh, PA (PBZ) and Charleston, WV (RLX) are collaborating with CIRA to evaluate the simulated ABI imagery output from the WRF. Channels included are 6.95µm water vapor, 7.34 µm water vapor, 10.35µm IR and 3.9µm legacy IR.

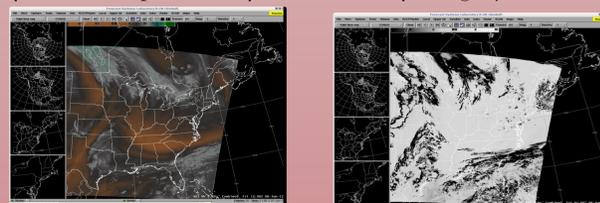


Figure 7. CIRA WRF ABI (a) 6.95 WV and (b) 10.35µm IR and 3.9µm combined.

2. UW/CIMSS Convective Toolkit

Several WFOs in Eastern Region are evaluating the UW/CIMSS Convective Initiation (UW-CI) toolkit, which includes cloud top cooling (CTC) and overshooting top (OT) products. Forecasters found the CTC product "a little" or "somewhat" useful compared to legacy GOES imagery. CTC was beneficial mainly for pulse-type convection, particularly sub-severe pulse convection. In addition, most forecaster training was conducted locally at the WFO, or via VISIT teletraining sessions.

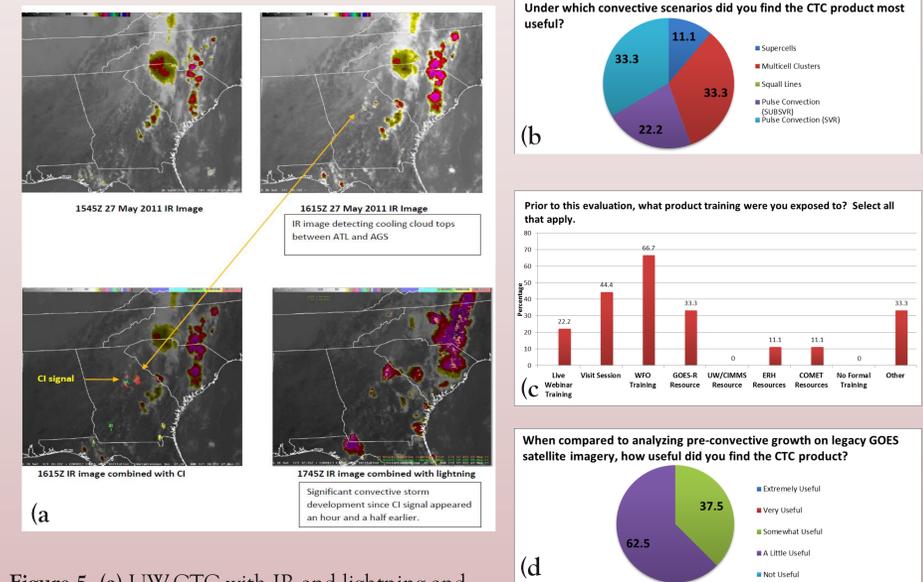


Figure 5. (a) UW-CTC with IR and lightning and GOES visible satellite imagery from May 2011. (b) Forecaster evaluation summary for product use during various convective modes, (c) training exposure, and product usefulness compared to legacy products.

3. NASA/SPoRT RGB Products

WFO Raleigh, NC (RAH) has partnered with NASA/SPoRT to evaluate several RGB products, including Air Mass, Nighttime Microphysics, Dust, and True/False color for snow.

The RGB products help forecasters discriminate fog and snow, and identify dry air intrusions on synoptic scale systems.

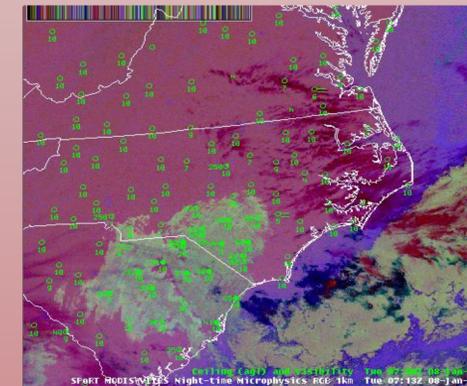


Figure 6. SPoRT nighttime microphysics products from WFO RAH at 0700 UTC 08 January 2013.