The National Blend of Models, Version One

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The NWS Regions and the Weather Prediction Center have investigated methods to provide a better starting point for NWS gridded forecasts. For example, NWS Central Region developed a simple consensus mean of raw model output and MOS forecasts, and simple linear regression techniques developed in NWS Western Region helped add value for complex terrain. The Disaster Relief Appropriations Act of 2013 provided support for the NWS to leverage these ideas to implement a national-scale, centrally-produced, model blending approach within the NWS.

Scientists from the NWS Regions, the National Centers for Environmental Prediction, NWS Headquarters Offices, the Meteorological Development Laboratory and the Office of Atmospheric Research, Earth System Research Laboratory have collaborated on this project to define the scope and select candidate datasets and methodologies for use in the development. Given high expectations to have the first version of the National Blend of Models (NBM) running by the end of 2015, the scope of this project during the Sandy Supplemental funding period was limited to focus on calibrated forecast guidance from the global models, with an emphasis on the medium range (days 3 – 8) for the weather elements contained in the National Digital Forecast Database (NDFD).

The first version of this NBM is scheduled to begin running on the production suite of NOAA’s Weather and Climate Operational Supercomputing System in December 2015 to provide reliable availability to the forecasters for evaluation. The first version will have the following statistically calibrated weather elements over the conterminous United States: Temperature, Dewpoint Temperature, Daytime Maximum Temperature, Nighttime Minimum Temperature, Probability of Precipitation, Wind Speed, Wind Direction, Wind Gusts, Sky Cover, Relative Humidity and Apparent Temperature.

The NBM project, when successfully completed, will produce a nationally consistent and skillful suite of calibrated forecast guidance from a blend of both NWS and non-NWS models for use in forecasting at the national centers and local field offices. This development will leverage a common data assimilation analyses for calibration and verification, ensemble guidance which enables the estimation of uncertainty in the forecast, and emerging statistical post processing techniques to calibrate and blend model output and make the forecast guidance more useful.