The Science Behind Multi-model Precipitation in the National Blend of Models

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Via the nascent NWS National Blend of Models Project, the NWS expects to populate the NDFD databases in the future with post-processed guidance from multi-model ensembles. The hope and expectation is that this data will be of high-enough quality to make forecaster modification of the fields less necessary, freeing their time for other decision-support roles.

In this talk we will discuss the development of first-generation National Blend techniques that are expected to be used for probability of precipitation. Because not every potential model may have a long, stable training data set of past forecasts (i.e., reforecasts), the initial methodology is intended to produce results that are as good as possible with a short training data set. The technique that is now undergoing real-time evaluation is a multi-model blended product that includes statistical downscaling, bias correction via "quantile mapping" and spatial smoothing with a Savitzky-Golay smoother that preserves amplitudes of features better than Boxcar smoothing.

We'll go over the impact of each of these techniques and discuss the possible future evolution of precipitation-related products under the National Blend.