

## **Verification of hydrologic ensemble forecasts in the National Weather Service: progress and plans**

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In the National Oceanic and Atmospheric Administration (NOAA)'s National Weather Service (NWS), the River Forecast Centers (RFCs) produce hydrologic forecasts for a variety of applications. These include generation of flood watches and warnings, water supply forecasting, streamflow regulation, recreation planning, and environmental impact assessment. RFC forecasts are issued for a wide range of space-time scales, from hours for flash flood forecasts at local scale, to months for water supply forecasts at regional scale. In order to account for the atmospheric, hydrologic and anthropogenic uncertainties associated with these forecasts, an experimental ensemble forecasting system is being developed. It will allow the RFCs to quantify and communicate forecast uncertainties and assist in prioritizing future research and development necessary to reduce and to account for more accurately these uncertainties.

Hydrologic ensemble forecasts are used to make critical risk-based decisions, so verification is needed to evaluate their quality for real-time decision making. Verification is essential also to monitor forecast quality over time, to analyze the different sources of uncertainty and skill across the forecast process, and to compare the quality of forecasts from different methodologies. In this poster, we report progress at NOAA/NWS/OHD on the development of metrics and software for verifying ensemble forecasts of atmospheric and hydrologic variables. In particular, we describe the Ensemble Verification System (EVS) and plans for enhancement. Developed recently at OHD, EVS is an ensemble verification tool for use in both research and operations. We also discuss challenges in hydrologic ensemble verification and needs for improved collaboration between the atmospheric and hydrologic communities and between the research and operational communities to address them effectively.