

## ABSTRACT – AUG 2014 Workshop

Topic : Storm Forecasting Tools – Probabilistic forecasting

Title : A Forecaster's Initial Impressions of the Hydrologic Ensemble Forecast System (HEFS) at the California-Nevada River Forecast Center (CNRFC)

During the 2013-2014 water year, the California Nevada River Forecast Center (CNRFC) began real-time operations of a national probabilistic forecasting system called HEFS. The CNRFC was one of the first River Forecast Centers in the country to fully implement the HEFS into their operations.

Output from the HEFS is created through several preprocessing steps. Model forcings (precipitation (MAP) and temperature (MAT)) are merged from two primary sources: 1) the model output of the 15-day Global Ensemble Forecast System (GEFS); and, 2) 60 years of historical MAP's and MAT's used in the calibration of CNRFC hydrology models. The future precipitation forecast is also enhanced in the first three days with the CNRFC quantitative precipitation forecast (QPF) generated by the CNRFC Hydrometeorological Analysis and Support (HAS) forecasting team.

HEFS and probabilistic forecasting has presented a new paradigm for CNRFC forecasters. One challenge has been weighing the computation time of ensemble runs against timely forecast issuance. Another challenge has been the incorporation or exclusion of run-time modifications used in deterministic forecasting. Operational implementations will be presented.

One need cited for the development of hydrologic ensembles is the inclusion of forecast guidance on the short-term flood forecasting time scale, both for flood forecasters and for external users. Different iterations of display templates will be presented and analyzed for their advantages and disadvantages. One storm in February 2014 will serve as a case study of short-term probabilistic flood forecast displays.

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#### BIOGRAPHICAL SKETCH

Growing up in the Central Valley of California, Pete Fickenscher developed an interest in water resources during the 1976-1977 drought. He received his B.S. degree in Civil Engineering and M.S. degree in Water Resources Engineering from Stanford University. Since 1998, Pete has served as a hydrologist at the California Nevada River Forecast Center (CNRFC). His focus has been calibrating and implementing hydrologic models for real-time flood prediction and water supply forecasting. Pete also serves as the focal point for the implementation of the Community Hydrologic Prediction System (CHPS) for the CNRFC.