

Report on Hydrologic Ensemble Post-Processing Workshop of HEPEX (Hydrologic Ensemble Prediction Experiment).

The purpose of the workshop was to begin to identify opportunities to develop international scientific collaboration to improve hydrologic ensemble forecasts through statistical post-processing of the output from hydrologic ensemble forecast models.

The workshop was hosted by Deltares (formerly WL Delft Hydraulics) in Delft, June 23-25, 2008. This workshop was by invitation only and was focused on establishing direction and sharing promising preliminary results. Approximately 25 individuals from the U.S. and across Europe participated.

Several presenters at the workshop identified innovative techniques for assessment and for post-processing. Post-processing techniques are needed to account for sources of uncertainty that are currently impractical to estimate directly. They also allow us to produce ensembles and ensemble products that can be used with greater confidence.

The first day was principally devoted to identifying forecast system requirements, experiences, and development activities. The day concluded with break-out groups that helped define requirements and scoping.

The second day was more theoretical with discussion of predictive uncertainty in real-time flood forecasting, model and parameter uncertainty, and a variety of post-processing applications and experiences.

The third day was focused on how we could move forward as a community to address the technology requirements identified through the previous two days. Time was also spent discussing how the workshop would report back to the larger HEPEX community to ensure effective collaboration.

Outcomes from this workshop will be in three documents. The first will be a workshop report (this report). The second will be a “science plan” for future work of a Post-Processing and Hydrologic Uncertainty test-bed project. This plan will identify key science questions as well as the efforts workshop participants agreed to share as a part of HEPEX. This document should be complete in draft form by the end of August 2008 and available for broad distribution by October 1, 2008. The third will be a condensation of this science plan for publication in a European journal related to flood management.

We also discussed and agreed-upon at least one concrete goal. That is, to develop and validate post-processing techniques that can be used to demonstrate the value of reliable and skillful hydrologic ensembles to *customers* within two years. This will allow HEPEX to consider a customer workshop, possibly in Sacramento, CA, roughly three years from now. It was also agreed that another sub-workshop would be needed to vet results and clarify the way forward in the summer of 2010.