Geophysical Research Abstracts, Vol. 8, 09600, 2006
SRef-ID: 1607-7962/gra/EGU06-A-09600

Hydrologic Ensemble Prediction: Challenges and Opportunities

J. Schaake

Consultant, U.S. NOAA National Weather Service, Office of Hydrologic Development (John.Schaake@noaa.gov)

Ensemble forecast techniques are beginning to be used for hydrological prediction by operational hydrological services throughout the world. These techniques are attractive because they allow effects of a wide range of sources of uncertainty on hydrological forecasts to be accounted for. Not only does ensemble prediction in hydrology offer a general approach to probabilistic prediction, it offers a significant new approach to improve hydrological forecast accuracy as well. But, there are many scientific challenges that must be overcome to provide users with high quality hydrologic ensemble forecasts.

A new international project the Hydrologic Ensemble Prediction Experiment (HEPEX) was started last year to organize the scientific community to meet these challenges. Its main objective is to bring the international hydrological community together with the meteorological community to demonstrate how to produce reliable hydrological ensembles for decisions for the benefit of public health and safety, the economy and the environment. Topics that will be addressed by the HEPEX scientific community include techniques for using weather and climate information in hydrologic prediction systems, new methods in hydrologic prediction, data assimilation issues in hydrology and hydrometeorology, verification and correction of ensemble weather and hydrologic forecasts, and better quantification of uncertainty in hydrological prediction. As a pathway for addressing these topics, HEPEX will set up demonstration test bed projects and compile data sets for the intercomparison of coupled systems for atmospheric and hydrologic forecasting, and their assessment for meeting end users' needs for decision-making. Test bed projects have been proposed in North and South America, Europe, and Asia, and have a focus ranging from short-range flood forecasting to seasonal predictions for water supply. For example, within the

United States, ongoing activities in seasonal prediction as part of the Global Energy and Water Supply Experiment (GEWEX) Americas Prediction Project (GAPP) will contribute to the HEPEX effort. This presentation reports on the outcomes from the second international HEPEX workshop at the U.S. National Center for Atmospheric Research (NCAR) in July, 2005, as well as planned future activities.