

**Meteorological aspects of ensemble prediction** (Ken Mylne, Tom Hamill, Chiara Marsigli, Ernesto Caetano, Victor Magana, Noel Dacruz Evora, Daniel Schertzer, Jin Huang, Eric Wood, Piero Chessa, Gilbert Brunet, Chuck Howard, Zoltan Toth, and Ken Mylne)

Revised HEPEX goal:

Cooperatively research and develop a coupled weather/climate and hydrologic ensemble forecast system, and demonstrate the extent to which such a system can produce usable hydrologic ensemble forecasts across a variety of time scales. Test whether these forecasts lead to improved decision making in sectors such as public health, safety emergency and water resource managers.

**1. Develop a set of test beds, a collection of meteorological ensemble forecasts, associated rainfall observations, and hydrologic information. This will permit the development of systems and techniques to meet HEPEX goals.**

- Support testing over a variety of important timescales (nowcasting, short, medium, and extended/seasonal).
- Various providers of meteorological forecasts will deposit forecasts in common format on freely accessible computer.
- Also archive precipitation observations (amount and type), land-surface analyses (temp, freezing height, potential evaporation, radiation fluxes, winds, humidity, pressure, LW/SW energy).

*Quantification of uncertainties helpful!*

- Possible drawback: issues of sufficient sample size for longer-lead forecasts.
- We ought to evaluate end-user benefits as well as hydrologic aspects.

- Scientific and data issues:
  - What are the relative sensitivities to weather forecast uncertainty vs. land/snow/hydro uncertainties ?
  - Best to provide raw ensemble forecast data (perhaps w. retrospective forecasts), bias and spread-corrected ensemble forecasts, or both?
  - Post-processing by weather services, hydrologists, or jointly?

**2. Actively advocate improved data sharing (e.g., better access to rainfall observations throughout Europe).**

**3. Develop a plan for outreach and education of the users, resource managers, and decision makers.**