

Sources of uncertainties

1) Definition of uncertainty

- ❑ There is a need for a general definition of what is a good (e.g., statistically optimal) ensemble forecast, e.g.:
 1. Must be Unbiased and Reliable
 2. Should be as Sharp as possible
 3. Should have the highest resolution & discrimination possible perhaps (since this is more difficult):
 1. for 1-3 above, should be true for each part of the distribution
 2. for 1-3 above, should be true for significantly different system states, e.g., El Nino, La Nina, NAO states, etc.

Overall, this is a statement of our goal for handling uncertainty correctly.

- ❑ We need clear description of approaches for measuring those forecast characteristics, and hydrologically-focused examples (e.g., a tutorial)
- ❑ Many of us are interested in identifying the components of ensemble forecasting for which the uncertainty is not well described.

2) Users oriented considerations

- ☐ HEPEX should recommend reasonable models and/or forecasts to the user community as well as an intelligent way of combining them to build ensemble forecasts.

- ☐ The issued forecast should take into account the specific needs of the users for whom it was produced

- ☐ Users objectives
- ☐ Location, climate
- ☐ Temporal and spatial requirements
- ☐ Etc.

Question: does the definition of an optimal forecast differ for different user sectors? Or can it be general, with specific implementation?

- ☐ There is a demand from the users for a bibliography containing documents on the topics of uncertainties and ensemble forecasts (as discussed previously).
- ☐ There should be more data / code / models / examples made available to the users in order for them to experiment.