Some Ideas on the Way Forward

Cliff Mass

Elements of a future direction

Computational Issues

- NCEP's computational infrastructure must be substantially enhanced.
  - Disk storage increased from a few hundred to a few thousand terabytes
  - Processors increased from 2048 to 20K or more.
  - Greater use of commodity hardware.
  - Costs are modest. Roughly 1 million dollar per 5000 processors.
  - Five to ten million dollars will do the job.

Computational Issues

- NCEP's system for transferring code from development to operations is woefully slow and inefficient. This must be changed
  - Example: new SREF sitting on the shelf
- We need a plan and rationale for these new resources and the community should lobby heavily to make it happen.
- NCEP should consider other grid/domain structures that could potentially save computer resources.

Community Input

- This meeting reflects the interest, enthusiasm, technical depth and energy of the community on this issue.

- Effective progress requires the continuous and active engagement of this community with operational development and application.

- To do so, a <u>Probabilistic Prediction Advisory Committee</u> should be established with representation from private sector, academia, government entities and others.

Community Input

- Such a group should meet at least annually, perhaps associated with a workshop on probabilistic prediction.

- The committee should work with NOAA to produce a document that makes the case for a new system, outline the necessary resources, and key scientific issues that need to be answered.

- The community might be highly effective lobbying for new resources from the outside.

Research Funding

- Still many key scientific/technical questions that need to be answered.
- Will require the academic community and NOAA lab personnel.
- Where will the funding come from?
- NOAA funds? Can we interest NSF?

We need a big compelling vision

- A major jump in capability, not incremental.

- Jump from 32 km to 4 km (better if possibile).

- But we should strive for unification and simplicity (e.g., ensemble prediction and data assimilation should be combined)