



*A strategic partnership to advance the nation's numerical weather prediction capability and accelerate improvements in forecast skill for the National Weather Service, Air Force and Navy meteorologists, mission planners, and decision makers.*

**NUOPC PARTNERSHIP**

- NOAA, Navy, Air Force strategic partnership to improve the Nation’s environmental prediction capability.
- A National System with a Tri-Agency commitment to address common requirements.
- Use joint ensemble forecasts to:
  - Significantly improve forecast accuracy.
  - Quantify, bound, and reduce forecast uncertainty.
  - Produce most probable forecast, e.g. high impact weather.
  - Provide mission specific ensemble products.
  - Drive high-resolution regional/local predictions.
  - Drive other down stream models.
- Unified development approach
  - Common software architecture for global NWP
  - Multi-component system with interoperable components built on common standards and framework.
  - Aligned technology transition process
- A National global NWP research agenda to accelerate development and transition to operations.

**GOALS**

- Implement a global atmospheric ensemble system, based on existing models, to improve forecast capability;
- Clearly articulate operational requirements and a corresponding National research agenda for global ensemble systems, with initial emphasis on hurricane track/intensity forecasts, joint wind and seas forecasts, and ceiling/visibility forecasts;
- Build a collaborative development and production environment among government agencies;
- Accelerate the transition of new technology to the National operational prediction centers;
- Broaden community participation in addressing the National research needs.

**SCIENTIFIC CHALLENGES**

- Manage ensemble diversity to accurately represent forecast uncertainty.
- Provide probabilistic basis for improved decision-making.
- Develop new ensemble based products and decision aids.
- Improve hurricane forecast track & intensity performance.
- Improve performance for emerging needs in aviation weather.
- Couple to other models to improve performance.



**Vision** - a National operational global multi-model ensemble system, with requisite high performance computing to run latest time dependent environmental analysis and highest resolution prediction models. Each agency will support regional and local environmental prediction systems (land, air, ocean, ice, space, etc. . . ) to meet unique mission needs.

**HISTORY**

- October 2005 goal of Tri-Agency NWP efforts established.
- February 2006 formed team to identify unified operational prediction capability options.
- May 2006 course of action analysis for NUOPC.
- January 2007 recommendation to pursue Coordinated Research & Development with Coordinated Transition and Operations.
- March 2007 initial Concept of Operations, Implementation Plan, and cost analysis developed
- Oct 2007, approval to proceed to Phase I.
- January 2008 NUOPC project introduced to the annual AMS convention.
- January 2009 AMS Town Hall Meeting on NUOPC
- October 2009 Phase II initiated.

**NEXT STEPS**

- Initial Operational Capability for joint multi-model ensemble - Q4 2010.
- National Research and Development Agenda for forecast ensemble operations.
- Common Model Architecture to promote interoperability and shared development.

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<http://www.weather.gov/nuopc/>