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The NOAA MAPP Climate Prediction Task Force

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The Climate Prediction Task Force is an initiative of NOAA's Modeling Analysis, Predictions, and Projections (MAPP) Program to achieve significant new advances in current capabilities to understand and predict intra-seasonal to inter-annual (ISI) climate variability. The Task Force primarily brings together MAPP-funded scientists from universities, research laboratories, and NOAA operational centers and research laboratories, hence leveraging expertise and investments across multiple institutions. It is envisioned that MAPP Climate Prediction Task Force research objectives, which build on the activities and objectives of individual MAPP research projects, will contribute to efforts to advance NOAA's ISI climate prediction capability and further quantify the limits of predictability. The Task Force includes investigators from the National Multi-Model Ensemble (NMME) Experiment, a NOAA-led interagency/multi-institution research project in the framework of MAPP-NCEP Climate Test Bed activities, as well as other MAPP investigators including research projects to advance ISI predictions based on dynamical/statistical methodologies and develop improved "best practices" for climate prediction. The Task Force plans to work in coordination with other relevant national and international research efforts working on ISI climate prediction (e.g. WCRP/WGSIP activities).

The Climate Prediction Task Force was formed to target most challenging research objectives within the broad realm of ISI climate prediction, those that can best be tackled by a community approach where comparison of methodologies, practices and views, and coordination among efforts are key to making progress. The Task Force research objectives are expected to be beyond the scope of any individual project while building on research from individual funded projects. The Task Force is intended to provide a forum for scientists engaged in climate prediction research to discuss their research and help identify synergies and opportunities for collaborations with other investigators. In this regard, the Task Force represents a working group where research activities and advances are discussed and confronted with operational needs and practices, hence allowing scientists to better refine their research goals and activities, and operational centers to optimally leverage from latest research advances.

The Task Force, with a 3 year lifetime, started its work officially on September 1, 2012 with several teleconferences amongst the leadership team and the members of the task force having already taken place. The leadership team of this Task Force comprises of Ben Kirtman (U. Miami), Scott Weaver (NOAA/CPC), Matt Newman (NOAA/ESRL), and Vasu Misra (FSU). Task Force research projects broadly fall in the following categories:

a. Evaluating/comparing different prediction methodologies
b. Evaluating the role of initial conditions on prediction skill at various timescales
c. Developing/assessing best prediction and post- processing practices
d. Testing and optimizing multi-model ensemble prediction systems for intraseasonal and seasonal predictions
e. Exploring the potential to develop outlooks for extremes (e.g. hurricanes, tornados)

Speaker	Topic
Jon Gottschalck	CPC Forecast Process
Kathy Pegion	A conditional skill mask for improved seasonal predictions
Paco Doblas-Reyes	SPECS: Seasonal-to-decadal climate prediction for the improvement of European climate services
Vasu Misra	The efficacy of two tiered and bias corrected SST forced seasonal hindcasts (with no cheating!)
Matt Newmann	Diagnosing predictability with a linear empirical dynamical model

Table 1. Past Webinars of the Climate Prediction Task Force

Initial discussions regarding Task Force research objectives have highlighted a general interest of the Task Force to initially focus on identifying sources and mechanism of forecast skill, conditional skill and complementary skill among the forecast tools. Towards this end the Task Force calls have featured 5 webinars (Table 1) on this topical interest, so as to help gather information regarding the state-of-the science on this topic, relevant Task Force and external research projects. Among other research objectives that have been discussed as of interest to the group and may be further pursued in some form, are the following:

a. Develop best practices for forecast bias corrections, calibration and skill assessments in the presence of a non-stationary climate.
b. Coordinate the development of "multi-tool" and/or multi-model methodologies for combining empirical and numerical predictions – essentially methodologies for how to make a forecast with multiple imperfect tools and to quantitatively determine the "orthogonal skill" that various prediction systems provide.
c. Develop best practices for quantifying uncertainty in the forecast, including uncertainty due to both initialization and model error. How do we forecast the forecast skill?

During the current preparatory phase, the Task Force plans to continue to gather relevant information and to enable for discussions to further refine and expand its research objectives while work progresses in the context of each individual project. Ultimately, Task Force research objectives and advances are expected to build upon individual MAPP research projects and their progress, while leveraging on the breadth, expertise and interests of the full group. Task Force research activities are expected to help achieve significant new advances in current capabilities to understand and predict intra-seasonal to inter-annual (ISI) climate variability in support of NOAA's prediction capabilities.

For more information regarding the Climate Prediction Task Force please visit:
http://www.cpo.noaa.gov/ClimatePrograms/ModelingAnalysisPredictionsandProjections/MAPPTaskForces/ClimatePredictionTaskForce.aspx.

Upcoming U.S. CLIVAR Events

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