

US National Multi-Model Ensemble (NMME)

The US National Multi-Model Ensemble (NMME) is an experimental multi-model seasonal forecasting system consisting of coupled models from US modeling centers including NOAA/NCEP, NOAA/GFDL, IRI, NCAR, NASA, and potentially Canada's CMC.

The need for the development of NMME operational predictive capability was recommended in recent US National Academies report "Assessment of Intraseasonal to Interannual Climate Prediction and Predictability". Indeed, the national effort is required to meet the specific tailored regional prediction and decision support needs of a large community of climate information users. The multi-model ensemble approach has proven extremely effective at quantifying prediction uncertainty due to uncertainty in model formulation, and has proven to produce better prediction quality (on average) than any single model ensemble. This multi-model approach is the basis for several international collaborative prediction research efforts, an operational European system and there are numerous examples of how this multi-model ensemble approach yields superior forecasts compared to any single model.

Based on two NOAA Climate Test Bed (CTB) NMME workshops (February 18, and April 8, 2011, <http://www.cpc.ncep.noaa.gov/products/ctb/>) a collaborative and coordinated implementation strategy for a NMME prediction system has been developed and is currently delivering real-time seasonal-to-interannual predictions on the NOAA Climate Prediction Center (CPC) operational schedule. The hindcast and real-time prediction data is readily available and in graphical format from CPC. Moreover, the NMME forecast are already currently being used as guidance for operational forecasters.

The Phase-I NMME project in 2011 was funded as a CTB Project by NOAA Climate Program Office Modeling, Analysis, Predictions and Projections (MAPP) Program. The Phase-II NMME project was funded as a 2-year (2012-2013) inter-agency project by NOAA, NSF, DOE and NASA.