

Report  
**NMME-HIWPP Sub-Project**

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**Introduction:** The goal of the NMME-HIWPP project is to evaluate and establish the prediction capabilities of high impacts weather extremes out to several months by leveraging and enhancing the existing NMME (North American Multi-Model Ensemble) system and data. The project received only 1 year funding from the HIWPP fund.

The **project progress** is reported in three task areas:

- 1) Evaluate and produce NMME-based hurricane outlooks for weeks 1-4
  - a. Developed a hybrid statistical-dynamical prediction system of tropical storm activity for weeks 1-4 over the Atlantic and Pacific basins using the CFSv2 45-day hindcast suite for the 1999-2014 period.
  - b. Performed skill evaluations of the hybrid prediction system for the 1999-2014 period.
  - c. Real-time testing will commence during the 2016 hurricane season and the operational implementation is planned for the 2017 season.
  
- 2) Assess severe weather environmental factors using NMME data
  - a. Diagnosed CAPE climatology in observational estimates and NMME retrospective forecast experiments
  - b. Identified coupled SST-convective precipitation variability that has potential predictability. Comparison of these coupled modes in nature and the NCAR/CCSM4 retrospective forecasts show substantive spatial similarities.
  
- 3) Enhance the current NMME Phase-II data
  - a. The HIWPP funding accelerated and enhanced the NMME-Phase II data archive, which contains nearly 9000 datasets and 0.86 million files.
  - b. Average monthly downloads are at ~12TB (based on past 3 month average). Over 70 downloading organizations are represented (primarily US university and federal agencies).
  - c. The NMME data archive can be found at  
<https://www.earthsystemgrid.org/search.html?Project=Nmme>