

NOAA's Next Generation Global Prediction System

Ivanka Stajner (1), Frederick Toepfer (1), Vijay Tallapragada (2), Steve Warren (1), and Hendrik Tolman (1)

(1) NOAA/NWS, Silver Spring, Maryland, United States (ivanka.stajner@noaa.gov), (2) NOAA/NWS, College Park, Maryland, United States

National Oceanic and Atmospheric Administration (NOAA) is developing an advanced Next Generation Global Prediction System (NGGPS) to provide more reliable forecast guidance and meet increasing service demands. NGGPS goals are:

- Extending forecast skill beyond 8 to 10 days and support development of products for weeks 3 and 4 to extend weather forecasting to 30 days,
- Improving hurricane track and intensity forecasts.

In its full configuration, NGGPS Coupled Model will include a single atmospheric dynamical core, a suite of atmospheric physics, representation of other Earth-system components including ocean, wave, sea ice, land surface, and aerosol and atmospheric composition. These components will be coupled with a comprehensive data assimilation capability to provide ensemble-based prediction and employ advanced post-processing techniques on NOAA's high performance computing. All system components for prediction and verification will be community codes. Broader scientific community is involved in planning and development teams to determine the state of the science, identify gaps and opportunities, and leverage other ongoing programs and projects. Some of the development is being done at the Global Modeling Testbed (GMTB)/Developmental Testbed Center (DTC) and at the Joint Center for Satellite Data Assimilation (JCSDA). NGGPS development fits within a strategic effort that aims to organize operational models within the National Weather Service (NWS) into a Unified Forecast System and to streamline the workflow.

Following the NWS selection of the new finite volume (FV3) dynamic core for NGGPS, efforts have been focused on integration, testing and evaluation of the numerical weather prediction system comprising of the FV3 dycore, improved atmospheric physics and data assimilation. Operational implementation of this first version of NGGPS is planned for year 2019. We will report on the status of NGGPS development and progress towards this operational implementation goal.