

Coordinating the Giant: The Earth Prediction Innovation Center (EPIC)

**William M. Lapenta
and
DaNa Carlis**

**Office of Weather and Air Quality
NOAA Oceanic and Atmospheric Research**

The Weather Research and Forecasting Innovation Act of 2017 (WRFIA) instructs NOAA to prioritize improving weather data, modeling, computing, forecasting and warnings for the protection of life and property and for the enhancement of the national economy. The National Integrated Drought Information System Reauthorization Act of 2018 (NIDISRA) instructs NOAA to establish the Earth Prediction Innovation Center (EPIC) to accelerate community-developed scientific and technological enhancements into the operational applications for numerical weather prediction (NWP). Specifically, Section 4 of NIDISRA articulates Congress' vision for the EPIC program with the following responsibilities:

Advancing NWP skill and improving the transition of research into operations by:

- A. Leveraging the weather enterprise to provide expertise on removing barriers to improving numerical weather prediction;
- B. Enabling scientists and engineers to effectively collaborate in areas important for improving operational global NWP skill, including model development, data assimilation techniques, systems architecture integration, and computational efficiencies;
- C. Strengthening NOAA's ability to undertake research projects in pursuit of substantial advancements in weather forecast skill;
- D. Utilizing and leverage existing resources across NOAA's enterprise;
- E. Creating a community global weather research modeling system that is; 1) Accessible by the public; 2) Meets basic end-user requirements for running on public computers and networks located outside of secure NOAA information and technology systems; and; 3) Utilizes, whenever appropriate and cost-effective, innovative strategies and methods, including cloud-based computing capabilities, for hosting and management of part or all of the system described in this subsection

A fundamental question is how EPIC will accelerate the rate of transitioning innovative research and development into NOAA NWP operational applications. There are several important cultural, organizational and technological developments that have been established in the past several years within and external to NOAA that position EPIC to be successful in the near term and in the long term. The paper will highlight these recent advances and discuss the early program formulation activities associated with EPIC.