



NOAA's Environmental Modeling Center Update: Transitioning to Unified Forecast System Applications for Operations

Ivanka Stajner, Brian Gross, Vijay Tallapragada, Jason Levit, Raffaele Montuoro, Avichal Mehra, Daryl Kleist, and Fanglin Yang

NOAA/NWS, College Park, Maryland, United States of America (ivanka.stajner@noaa.gov)

National Oceanic and Atmospheric Administration's (NOAA's) Environmental Modeling Center (EMC) is a lead developer of operational Numerical Weather Prediction (NWP) systems at the National Weather Service (NWS), which are used for the protection of life and property and the enhancement of the economy. EMC transitions to operations and maintains more than 20 numerical prediction systems that are used by NWS, NOAA, other United States (U.S.) federal agencies, and various other stakeholders. These systems are developed through a close collaboration with academic, federal and commercial sector partners. EMC maintains, enhances and transitions-to-operations numerical forecast systems for weather, ocean, climate, land surface and hydrology, hurricanes, and air quality for the U.S. and global domains.

NOAA's operational predictions are transitioning to the Unified Forecast System (UFS) framework in order to simplify the operational prediction suite of modeling systems. The UFS is being designed as a community-based, comprehensive atmosphere-ocean-sea-ice-wave-aerosol-land coupled Earth modeling system with coupled data assimilation and ensemble capabilities, organized around applications spanning from local to global domains and predictive time scales ranging from sub-hourly analyses to seasonal predictions. Disparate legacy operational applications that have been developed and maintained by EMC in support of various stakeholder requirements are being transitioned to the UFS framework. The transition started several years ago and is planned to continue over the next few years. Fewer resulting applications will consolidate NCEP's Production Suite that shares a set of common scientific components and technical infrastructure. This streamlined suite is expected to accelerate the transition of research into operations and simplify maintenance of operational systems.

This talk describes major development and operational implementation projects at EMC over the last couple of years including for example a new UFS-based hurricane application, recent advances in the use of satellite data and a new verification system. We will present EMC plans for the next few years, within the overall NOAA strategy, and how planned efforts link with other modeling efforts within NOAA, in the broader U.S. and international community.

