

#12 Developmental Testbed Center (DTC) Activities in Support of Transition of Research to the Operational Hurricane WRF model

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The NOAA Environmental Modeling Center (EMC) Hurricane Weather Research and Forecasting (HWRF) model is an important component of the operational numerical guidance used at the National Hurricane Center, making it critical that the HWRF model be continuously improved. Given the complexity of the HWRF model, which consists of the WRF atmospheric model coupled to the Princeton Ocean Model for Tropical Cyclones (POM-TC), a sophisticated initialization package including a data assimilation system, and a set of postprocessing and vortex tracking tools, EMC has partnered with the Developmental Testbed Center (DTC) to help accelerate the infusion of the new technologies onto the model.

The DTC's approach follows two strategies. First, the DTC recognizes that the use of a single code base between research and operations facilitates seamless exchange between the two groups. In 2008 and 2009, the DTC worked with EMC to merge the components of the operational HWRF onto community codes. Since March 2010, the DTC has been providing code management and user support for the community HWRF. There are currently over 700 registered HWRF users from around the globe, who benefit from a web portal for code downloads, access to documentation and datasets, online tutorial, and a helpdesk.

The second strategy is to conduct testing and evaluation to assess new research that has potential for transition to operations. Over the last three years, the DTC has conducted numerous diagnostic activities, as well as evaluated several cumulus parameterizations, an alternate configuration for quantifying atmosphere-ocean fluxes, and an experimental physics suite with an alternate microphysics and radiation parameterization. In addition, an investigation has been conducted on the comparative benefits of using regional versus global ensembles in the hybrid ensemble-variational data assimilation procedure. In this conference we will provide an overview of the work the DTC has done in the hurricane area in the last five years, with a focus on the results of recent tests.

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