



The 2019 NOAA/Hazardous Weather Testbed Spring Forecasting Experiment

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Each year, Spring Forecasting Experiments in NOAA's Hazardous Weather Testbed bring together researchers, model developers, and forecasters from across the world to test cutting-edge high-resolution forecast models and novel postprocessing techniques. This talk will summarize the experimental guidance products and state-of-the-science model evaluations conducted during the 2019 Spring Forecasting Experiment (SFE), which ran from 29 April – 31 May 2019. Preliminary results from noteworthy severe convective weather events will also be discussed. One highlight of the 2019 SFE was the fourth iteration of the Community Leveraged Unified Ensemble (CLUE), a carefully designed convection-allowing model (CAM) ensemble with ninety-six members coordinated between and contributed by the National Severe Storms Laboratory, the University of Oklahoma (OU) Center for Analysis and Prediction of Storms, the OU Multi-scale data Assimilation and Predictability Lab, the Environmental Modelling Center, the National Center for Atmospheric Research, the Earth System Research Laboratory, the Geophysical Fluid Dynamics Laboratory, and the United Kingdom Met Office. The coordination between these agencies' contributions provides controlled experiments between CAM ensemble subsets. For example, CAM ensemble subsets within the CLUE provide comparisons between the Weather Research and Forecasting model (WRF), Finite-Volume Cubed (FV3) and Unified Model (UM) cores. Other comparisons examined in SFE 2019 include two CAM ensembles provided by the United Kingdom's Met Office, hazard guidance evaluations including three hail forecasting methods, and an analysis evaluation that encompasses five mesoscale analyses and two storm-scale analyses. In addition to the subjective verification provided by participants and facilitated by these comparisons, the real-time implementation of a CAM scorecard verification technique simultaneously visualized multiple fields and objective metrics key to forecasting severe convective weather.

Along with model guidance comparisons, the 2019 SFE tested new experimental forecast techniques that distinguish severe weather coverage from severe weather intensity and experimental timing products for Day 1 and Day 2 forecasts. New this year was a set of activities focused on the output from the Warn-on Forecast System, which took place from 11:30 AM CDT – 8:00 PM CDT. These activities included issuing experimental severe weather outlooks for very short lead times and evaluating multiple iterations of the Warn-on Forecast System, which provided 6-h forecasts at the top of each hour from 2:00 PM CDT – 7:00 PM CDT.