

An Overview of the 2014 NOAA Hazardous Weather Testbed Spring Forecasting Experiment

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Introduction

The 2014 Spring Forecasting Experiment (SFE2014) was conducted from 5 May – 6 June by the Experimental Forecast Program (EFP) of the NOAA/Hazardous Weather Testbed (HWT). SFE2014 was organized by the Storm Prediction Center (SPC) and National Severe Storms Laboratory (NSSL) with participation from forecasters, researchers, and developers from around the world to test emerging concepts and technologies designed to improve the prediction of hazardous convective weather.

Goals:

- a) Explore the ability to generate 3-h convective outlooks for individual hazards (tornado, wind, and hail)
- b) Explore the feasibility of creating 1-h convective outlooks for total severe
- c) Compare multiple convection-allowing ensembles and identify strengths and weaknesses of the different configurations and initialization strategies
- d) Examine convection-allowing ensembles into Day 2 and assess their guidance in generating outlooks, including individual hazards
- e) Evaluate EMC parallel CAMs (HiResW WRF-ARW, HiResW NMMB, and NAM CONUS Nest) and compare to operational versions
- f) Investigate the use of HAILCAST (hail growth model) incorporated into WRF as a tool for predicting the size of hail
- g) Test the sensitivity of WRF-ARW runs to new "double-moment microphysics schemes: Milbrandt-Yau (M-Y2) and Predicted Particle Properties (P3)
- h) Identify differences in performance between the Met Office Unified Model and WRF-ARW convection-allowing runs
- Explore the utility and feasibility of visualizing 3-D model fields in near real-time for select convection-allowing WRF-ARW runs and compare to radar-observed storm structure

a) 3-h Hazard Outlooks

- Tornado forecasts were subjectively rated higher than hail and especially wind for the three 3-h periods from 18-03 UTC
- However, objective metrics (e.g., CSI, FSS) were lower for 3-h tornado forecasts than for wind and hail, likely owing to the rarity of tornadoes during the five-week period



CSI (5 %): 0.177 CSI (15 %): 0.272 FSS: 0.923





Prediction