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MMM SEMINAR *NCAR*

The Mesoscale Predictability Experiment (MPEX): Overview and Results from a Realtime Ensemble-Based Forecast System

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The Mesoscale Predictability Experiment (MPEX) was conducted from 15 May to 15 June 2013 within the central United States. MPEX was motivated by the basic question of whether experimental, sub-synoptic observations can extend convective-scale predictability and otherwise enhance skill in short-term regional numerical weather prediction. Observational tools for MPEX included the NCAR GV, which featured the Airborne Vertical Atmospheric Profiling System mini-dropsonde system and the JPL Microwave Temperature Profiling (MTP) system, as well as several ground-based mobile upsonde systems. Basic operations involved two missions a day: an early morning mission with the GV, well upstream of anticipated convective storms, and an afternoon and early evening mission with the mobile sounding units, to sample the initiation and upscale growth of the convection.

A total of 18 IOPs were completed during the field phase, representing a wide spectrum of synoptic regimes and convective events, including several major severe weather and/or tornado outbreak days (including both the Moore and El Reno OK tornado outbreaks). The novel observational strategy employed during MPEX and the range of cases obtained will be summarized, as will results from a realtime high-resolution (3 km) 30-member ensemble forecast system. This unique NCAR forecast system was initialized from analyses generated in-house with ensemble-based data assimilation, with forecasts run twice daily (00 and 12 UTC) out to 48 h to guide the field efforts. These forecasts also provided input to realtime ensemble sensitivity analysis providing key guidance for deployment strategies. These forecasts were found to be surprisingly accurate, especially for the higher impact days, and clearly demonstrated the value of such high-resolution ensemble guidance over the single, deterministic forecasts.

This seminar will be webcast live at:
http://www.fin.ucar.edu/it/mms/fl-live.htm

Recorded seminar link can be viewed here:
https://www.mmm.ucar.edu/events/seminars

Thursday 22 January 2015, 3:30 PM
Refreshments served at 3:15 PM
NCAR-Foothills Laboratory
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