
MMM **SEMINAR** *NCAR*

***MPEX Real-time Targeting Approach and Dropsonde
Impact on Retrospective Forecasts***

Glen Romine

NCAR/NESL/MMM

Boulder, Colorado

High impact weather events remain a considerable forecast challenge. Advances in models and data assimilation methods have led to steady improvement in forecast skill. Over the central Great Plains, mid to upper tropospheric weather disturbances often modulate severe storm development. These disturbances frequently pass over the Intermountain West region of the United States (US) during the early morning hours preceding severe weather events. This region has comparatively limited observations of the atmospheric state compared with other areas of the US, contributing toward greater potential uncertainty in forecast initial conditions. Assimilation of supplemental observations could reduce this uncertainty, and may lead to improved convective forecasts.

During spring of 2013, the Mesoscale Predictability Experiment (MPEX) used ensemble-based targeting methods to identify regions for enhanced observations expected to reduce forecast uncertainty of intense convective weather events. In particular, observations were obtained from dropsondes released from the NSF/NCAR Gulfstream-5 aircraft during the early morning hours preceding 15 severe weather events during MPEX. Retrospective data denial experiments are used to test the value of the targeted observations in reducing uncertainty in convection-permitting ensemble forecasts. Results show considerable variation in forecast impact from assimilating dropsonde observations, with an overall positive improvement, similar to prior targeted observation studies.

The seminar will provide a brief review of former observation targeting projects, examples of the method employed during MPEX, a description of the analysis and forecast system used in this study, summary performance statistics and a review of select cases to investigate case-by-case variability in dropsonde observation impact.

This seminar will be webcast live at:

<http://www.fin.ucar.edu/it/mms/fl2-live.htm>

Recorded seminar link can be viewed here:

<https://www.mmm.ucar.edu/events/seminars>

Thursday 29 January 2015, 3:30 PM

Refreshments served at 3:15 PM

NCAR-Foothills Laboratory

3450 Mitchell Lane

Bldg 2 Small Seminar Room 1001

MMM SEMINAR COORDINATORS

Rich Rotunno, 303.497.8904, rotunno@ucar.edu

Chris Snyder, 303.497.8966, chriss@ucar.edu

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