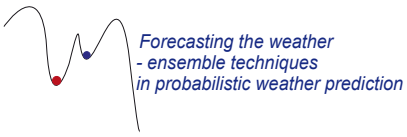
EMS Annual Meeting Abstracts
Vol. 8, EMS2011-773, 2011
11th EMS / 10th ECAM



NWP Verification with Shape-matching Algorithms: Hydrologic Applications and Extension to Ensembles

B. Brown (1), E. Tollerud (2), W. Clark (2), and T. Jensen (1)

(1) NCAR, RAL, Boulder, Colorado, United States (bgb@ucar.edu), (2) NOAA/ESRL/GSD Boulder, Colorado, United States

In meteorological scenarios with high spatial and temporal variability, standard verification procedures utilizing paired comparisons can be ambiguous and unfairly punitive. Examples include high-resolution convective forecasts of extreme precipitation or high radar reflectivity. Recent innovations in verification methodology have employed spatial verification algorithms to partially compensate for the shortcomings of traditional scores. The Model Evaluation Tools (MET) verification software package now includes several such options (e.g., MODE – Method for Object-based Diagnostic Evaluation), and efforts are underway to expand these into the probabilistic realm using ensemble–based verification procedures. Several of these tools have been applied to projects spearheaded by NOAA-based experimental testbeds like the Hydrometeorology Testbed (HMT), focused on heavy precipitation forecasting, and the Hazardous Weather Testbed (HWT), focused on severe convective forecasts. During winter HMT exercises in the California Sierra Nevada mountains, forecast and observed MODE objects have been compared. These objects have been defined by precipitation analyses, and in the case of Atmospheric Rivers that usually perpetrate significant precipitation events, by Integrated Water Vapor and moisture flux computations. For HWT spring exercises, objects based on radar reflectivity and quantitative precipitation estimate fields have been used to verify model-based synthetic reflectivity and precipitation forecasts, respectively. In this talk, we discuss choices and characteristics related to the use of MODE for these evaluations and illustrate their use in the HMT and HWT experiments. We also suggest possible methods whereby objects forecast by ensemble systems can be verified in probabilistic terms.