



## **Advances in precipitation forecast verification: The Forecast Quality Index and a case study in assessing WRF model performance**

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The problem of developing metrics for high-resolution forecast verification which are capable of capturing the essential multiscale space-time structure of observed and modeled fields and can also provide constructive feedback to model developers, has gained renewed interest in the atmospheric and hydrometeorology communities as they have realized that current indices are inadequate. Recently, we proposed a novel measure called Forecast Quality Index (FQI) for QPF verification, based on the classical Hausdorff distance, the Universal Image Quality Index (an image similarity measure recently introduced in the image processing literature) and the concept of “surrogate” image. Comparing with the traditional measures on several simulated test images and real precipitation datasets (from the Storm and Mesoscale Ensemble Experiment - SAMEX'98) we demonstrated the potential of this newly proposed measure. In this presentation, we will elaborate on the performance of FQI in the Spatial Verification Methods Inter-comparison Project (organized by the Research Applications Laboratory, NCAR). As part of this inter-comparison project, several cases from the 2005 SPC/NSSL Spring Experiment were selected. NCEP Stage II hourly precipitation analyses and several high-resolution Weather Research and Forecasting (WRF) model forecasts were used as observation-forecast pairs. The results will be placed in the context of other competing metrics.