Short-Range QPF for Flash Flood Prediction and Small Basin Forecasts

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{We'd prefer oral presentation; there seems to be a time slot dedicated to the talk.}

Abstract

A major anticipated benefit of theWSR-88D network and the new availability of digital radar data in the 1990's was the potential for improvements in hydrologic prediction and flash flood detection. The deployment of the Flash Flood Monitoring and Prediction (FFMP) system, for automated accumulation of radar rainfall over individual basins, was completed around the year 2000. Both of these advances in technology and software were accompanied by intensive training of forecasters, with all three elements combining to result in substantial improvement in flash flood detection and lead time for warnings.

Further improvement in warning lead time is now possible through the implementation of short-range rainfall forecasting algorithms based on extrapolation of radar reflectivity fields. We will present recent results for 0-1-hour extrapolation forecasts of the High-Resolution Precipitation Nowcaster (HPN) algorithm, based on events in 2009 and early 2010, with a focus on probability of detection and false alarm ratios for locally-heavy rainfall amounts.

Extension of precipitation forecasts to the 0-6-hour timeframe is possible by statistically combining extrapolation forecasts with output from the Rapid Update Cycle numerical model. Initial results from an analysis of this approach, applicable to larger basins prone to short-duration flooding, will also be presented.