



## **Verification of WRC-KMA nowcasting systems during summer: precipitation forecasting skill**

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Radar based nowcasting systems widely perform for short-term precipitation forecasting for 1-6 hours by using extrapolation. In this time period, it is possible to forecast of high-impact weather events such as flood-producing precipitation, hail, and snow with reasonable accuracy. For this purpose, Weather Radar Center (WRC) of the Korea Meteorological Administration (KMA) has performed three different nowcasting systems. These systems are McGill Algorithm for Precipitation Nowcasting Using Semi-Lagrangian Extrapolation (MAPLE; Germann and Zawadzki, 2002), Very Short Range Forecast of precipitation (VSRF; JMA) merging with numerical weather prediction (NWP), and KOrea NOWcasting System (KONOS; Jin et al. 2011) which was based on the MAPLE advection scheme.

The primary focus of this study is the evaluation of the skill in predicting heavy rainfall events during two year warm season precipitation. The WRC-KMA nowcasting systems verified using a variety of statistical techniques. Observational data was obtained from radar reflectivity (11 sites) and a network of rain gauge (694 points). Three nowcasting systems successfully predicted the frequency of precipitation throughout the forecast period, although most of predicted rainfall amount had underestimated. MAPLE and KONOS predicted better performance for advection field up to 2 hours. However, the skill of predicted precipitation decreased very quickly into the forecast period. MAPLE and KONOS could not predict the precise location of heavy rainfall after 3 hours. VSRF blending with NWP tended to be more skillful than only extrapolation after 3 hours. This is because NWP could provide a convective initiation and growth.