



Korean national QPE technique development: Analysis of current QPE results and future plan

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Korea Meteorological Administration(KMA) has developed a Real-time ADjusted Radar-AWS (Automatic Weather Station) Rainrate (RAD-RAR) system using eleven radars over the South Korea. The procedure of the RAD-RAR system in real time consists of four steps: 1) the quality control of volumetric reflectivity for each radar, 2) the computation of the every 10-min rain gauge rainfall within each radar, 3) the real time (10 min-updated) rainfall estimation by the Z-R relationship minimizing the difference between the 1.5-km constant altitude plan precipitation indicator and rain gauge rainfall based on Window Probability Matching Method(WPMM) and by the real-time bias correction of RAD-RAR conducted at every 10 minutes for each radar by making the bias, and 4) the composition of the 11-radar estimated rainfall data. In addition, a local gauge correction method applies for RAD-RAR system. Therefore, the correlation coefficient of $R^2 = 0.81$ is obtained between the daily accumulated observed and RAD-RAR estimated rainfall in 2012.

We like to develop a new QPE system using the multi-sensor(radar, rain gauge, numerical model output, and lightning) data for newly improving Korean national QPE system. We made the prototype QPE system in 2012 and improve the detail techniques now. In the future, the new high performance QPE system will include a dual polarization radar observation technique for providing more accurate and valuable national QPE data