Verification of precipitation forecasts from the high resolution ensemble forecast system in KMA

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The resolution of numerical weather prediction system has been increased to represent realistic characteristics of local weather, especially for quantitative precipitation forecasts (QPFs). When evaluating the precipitation forecasts, radar data are generally used but they are distributed more sparsely compared to model grid points. Thus, evaluating forecast performance by traditional methods that use the forecast and observation information at each grid point is not appropriate to obtain accurate scores of QPF. Instead of the traditional methods, a neighborhood technique (e.g. Fractions Skill Score (FSS)) is necessary to verify the high resolution forecasts. The basic concept of the neighborhood technique is the spatial window surrounding the forecast and observation points. The forecast skill varies depending on the spatial scale (i.e. neighborhood size), therefore it is important to determine the spatial scale depending on the characteristics of forecasts we like to evaluate.

This study will show preliminary results of FSS verification of high resolution ensemble forecasts during the summer in 2012 using the KMA ensemble prediction system. The model domain covers the Korean Peninsula. To evaluate the precipitation forecasts, three different horizontal resolutions (1km, 1.5km, 3km) and ensemble members (8, 12, 16) are used. These experimental sets enable to identify which combination of the spatial resolution and ensemble member is most skillful. In addition, more comprehensive results for using other neighborhood-based methods as well as the FSS will be presented in the meeting.