The use of fraction skill score to assess the relationship between ensemble QPF spread and skill

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Five convective events producing heavy local rainfalls were studied with the help of numerical weather prediction model LM COSMO in ensemble approach. The model was run with a horizontal resolution of 2.8 km. An ensemble of 13 forecasts was created by modifying initial and boundary conditions. Uncertainty in the quantitative precipitation forecast (QPF) was evaluated with fraction skill score (FSS) which was applied to quantify the ensemble spread and ensemble skill. The spread represented differences between the control forecast and forecasts provided by each ensemble member and the skill evaluated a difference between the precipitation forecast and gauge adjusted radar-based rainfalls. The analyses show how the forecast lead time, space scale, precipitation accumulation time period, and precipitation threshold values influence the spread and skill values. Despite the different area structures of precipitation fields, the relationships between spread and skill appear to be similar at all events. The resulting spread-skill relationships will be summarized and discussed.