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Spatial scale characteristics of precipitation using high resolution precipitation reanalysis data in Korean Peninsula

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The purpose of this study is to investigate the spatial characteristics of precipitation over the Korean Peninsula for the summertime from May to September using the spatial-temporal high resolution precipitation reanalysis data (1hr accumulated precipitation, 5 km horizontal resolution) which produced based on observation data for analysis of precipitation characteristics. For the spatial scales analysis of hourly precipitation, the e-folding threshold approach was used to cut off the correlation coefficient in terms of distance (km) and the correlation coefficient of the spatial difference between the two grids represents the general size of the precipitation. For the entire summertime period, the distance range of average e-folding values spread from 44 km to 142 km. July and August precipitation tends to be localized, with a distance of about 50 km, compared to the other months. And the greater the rainfall intensity, the correlation coefficient decrease more rapidly with distance and local tendencies become stronger. Local size appears to be declining from the variability of the size of precipitation over the past 13 years. The size of the precipitation with lightning is small and the monthly difference is small (15.8 $\sim$ 18 km), whereas the precipitation without lightning is large in spatial scale and monthly variability is large (47.2 $\sim$ 165 km).