

# Impact of variability and anisotropy in the correlation decay distance for precipitation spatial interpolation in China

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The correlation decay distance (CDD) plays a key role in the angular-distance weighting (ADW) interpolation technique, being used as the searching radius to select correlated neighbors and to calculate the relative weights. The CDD of daily precipitation in China varies spatially and seasonally, and it presents anisotropic behavior, as a result of topography and the predominant atmospheric circulation. In general, CDD is largest in winter and smallest in summer, except for limited regions such as the Tibetan plateau. From a cross validation analysis, it is found that taking account of spatial and seasonal variations in CDD generally improves the ADW interpolation. Utilization of anisotropic CDDs increases the interpolation skill scores in regions with a dense monitoring network, significant elevation variation (southwestern China) or strongly anisotropic CDDs (Tibetan plateau).

Keywords: daily precipitation, correlation decay distance, ADW interpolation