Statistical and Geostatistical analysis of interannual rainfall data in the island of Crete

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Abstract
Hydrological modeling requires spatially distributed precipitation data of high accuracy. However, precipitation is usually measured at a limited number of locations. In particular, in areas of complex terrain, where the topography plays a key role in the precipitation process, rainfall stations are usually sparse. Spatial interpolation techniques can be applied both to interpolate rainfall data and to combine them with secondary information that may improve the results. Regression Kriging (RK) is an interpolation methodology that combines a regression approach with a geostatistical approach. RK along with Ordinary Kriging (OK) are applied to represent the rainfall spatial distribution on the island of Crete, Greece. A period of 30 years is examined, and the statistical analysis of rainfall data is performed to identify key hydrological years and to analyze the interannual behavior of the rainfall. Then, geostatistical analysis is conducted to present the average spatial distribution of rainfall on the island of Crete.