Stochastic simulation of hydrological timeseries for data scarce regions - Case study at the Municipality of Western Mani

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West Mani, an attractive place in western Peloponnese, Greece, faces water shortage. The problem lies not only in the quantity but also in the quality of the available water. Investigating the options for the sustainable management of water resources, utilizing surface water seems to be the optimal solution. However, the complex geomorphology and geology of the study area, and its particular its karstic structure, when combined with the scarcity of hydrological data, makes the estimation of surface water availability challenging. As a result, it is considered necessary to take hydrological uncertainty into account using stochastic analysis. To this aim, we generate synthetic rainfall and streamflow timeseries based on available meteorological data from basins near the area of interest. We then appropriately adjust them so that they represent the magnitude and the variability of the rainfall and streamflow of the study area. For the timeseries generation algorithm, we employ a stochastic model following the Hurst-Kolmogorov dynamics by reproducing marginal distribution, seasonality and persistence.