

Modeling the Distribution of Intensity and Duration of Rainfall Data with a Polynomial Copula

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In hydrology it is often necessary to model the dependence relation between two or more variables. In the case of a precipitation event in most cases both intensity and duration determine its effect on the receiving watershed. For the evaluation of these effects in terms of flood risk or availability of water for irrigation or other uses it can be beneficial to have a model of the joint distribution of intensity and duration. In this paper we fit distributions to the marginal distribution data and combine these using a polynomial copula. This results in a model of a joint distribution of rainfall intensity and duration for the given experimental data. We evaluate the match between copula and data.

Key Words: Hydrology, bi-variate distribution