

Univariate Stochastic Modeling of Rainfall Extremes in Montpellier

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Flood risk is particularly high in urban areas due to soil impermeability, which prevents water absorption. Flooding can occur after periods of intense rainfall or during prolonged episodes of moderate rain. This is especially true in Montpellier, where heavy precipitation events frequently result in urban flooding. Modeling heavy rainfall and dry periods is essential to prevent urban flooding. In this study, we use rainfall data recorded at a one-minute resolution, which provides a much finer temporal scale than typically available in similar studies. While most approaches rely on continuous distributions, our study focuses on discrete data, motivating the use of a discrete distribution. For now, we assume temporal independence of the rainfall observations. The objective of this work is to develop a stochastic rainfall generator capable of modeling precipitation at a high temporal resolution.

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