



Frequency analysis of daily rainfall in France

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Extreme Rainfall knowledge is crucial for the hydro-meteorological analysis of flood risk. In particular, the project of dam spillway and the organization of flood control by reservoirs and dams can be done by hydro-meteorological modelling. Moreover, the knowledge of spatial behaviour of extreme rainfall can upgrade the precision of project estimation and at the same time can help to validate frequency analysis techniques. In this framework, the frequency analysis of a wide database of daily rainfall series located in the mountainous part of France has been newly completed in a collaboration work between EDF DTG and R&D. We focus here on the results obtained on the spatial distribution of extreme rainfall via two different statistical approaches. Firstly we fit an exponential distribution on meteorologically homogeneous sub-sample of daily rainfall, then we fit a Generalized Pareto Distribution on the whole daily rainfall series. The two different statistical approaches give coherent spatial patterns even though some discrepancies in quantiles intensity remain.