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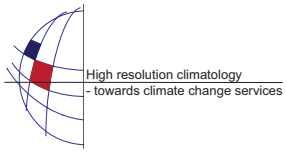

Extreme Precipitation over Europe: Comparison of threshold selection methods

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Quantification of the extreme precipitation is of high economic and social importance. The most important limit in the study of extremes is the choice of the threshold value. The aim of the study is the comparison of parametric and non-parametric statistical methods for detecting objective thresholds of extreme precipitation in Europe. Daily precipitation data of meteorological stations distributed over Europe belonging to different climates are used. The parametric statistical method used is the Peaks Over Threshold (POT) method, comprising by the Mean Residual Life plot and the Generalized Pareto distribution, while the non-parametric methods are the percentile extreme precipitation indices for different percentage.

The main results of the study show that stations located over the 45o latitude present threshold of extreme precipitation equal to 15-30mm, with an exception of the stations located in the Alps region. For the Mediterranean stations, the selection of extreme precipitation thresholds is complex and varies from region to region. It is worth noting that the results show that in many cases, the selected precipitation indices characterize the heavy rainfall events and not the extreme episodes which are better represented by the parametric statistical methodology.