



## **Threshold selection for regional peaks-over-threshold data**

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A hurdle in the peaks-over-threshold approach for analyzing extreme values is the selection of the threshold. A method is developed to reduce this obstacle in the presence of multiple, similar data samples. This is for instance the case in many environmental applications. The idea is to combine threshold selection methods into a regional method. Regionalized versions of the threshold stability and the mean excess plot are presented as graphical tools for threshold selection. Moreover, quantitative approaches based on the bootstrap distribution of the spatially averaged Kolmogorov–Smirnov and Anderson–Darling test statistics are introduced. It is demonstrated that the proposed regional method leads to an increased sensitivity for too low thresholds, compared to methods that do not take into account the regional information. The approach can be used for a wide range of univariate threshold selection methods. We test the methods using simulated data and present an application to rainfall data from the Dutch water board Vallei en Veluwe.