



Extreme rainfall events over eastern Mediterranean: Application of the Generalized Extreme Value (GEV) distribution and Pareto distribution

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It is evident that the frequency and the indemnity of the extreme events have a large impact in the environment and socioeconomic human activities. Especially the occurrence of extreme weather events all over Europe during the first years of the 21st century creates a growing demand of more reliable scenarios of the extremes. The main characteristics of these events, particularly in the case of precipitation, are difficult to be identified and studied using common statistical methods explaining and describing only the mean and the variability.

Climate extremes can be analysed by using both parametric and non-parametric methods. One common way in parametric methods is the fitting of the distribution. In this study the Generalized Extreme Value (GEV) distribution and the Pareto distribution are used to evaluate the General Circulation Model (HadAM3P-Hadley Center) and the corresponding Regional Circulation Model (RCM). The capability of the two models to reproduce the extreme precipitation parameters, as they derived by the fitting of their raw data, is investigated comparing these results to the corresponding results obtained from the observed precipitation data of prominent stations over the eastern Mediterranean region. The results of the analyses concern a threshold selection as well as the return period of extreme rainfall events in the study area.

After the evaluation of the models skill in generating the characteristics of extreme events, their scenario data will be employed to analyse the predictions of their future changes according to the models.

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