



An analysis of potential relationships between extreme events in the Euro-Mediterranean region and the large-scale circulation

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As Europe is warming up, extreme weather conditions became every time more frequent and the intensity of those extremes increase. The main objective of our study is to explore the possible links between the occurrence of extreme climatic conditions over the Euro-Mediterranean region and the characteristics of the large-scale circulation. As a first step, we focus our analysis on the study of heat waves. We adopt the method of exceeding thresholds computed from percentiles, and without assuming any a priori statistical distribution (non-parametric approach). This method is particularly useful because allows a comparison between different regions and elevations. Starting from daily temperature series, we build monthly series of frequency of occurrence of anomalies exceeding the score of the 90th percentile. Those series are the indices of extreme months, and the starting point to explore the potential links between regional extreme conditions and large-scale anomalies. Moreover, we separately study maximum temperature (T_{max}) and minimum temperature (T_{min} ,) extremes, because extremes in diurnal warming and nocturnal cooling are not necessarily related to the same processes.