



Analysis of historical series of hourly pluviometric data in Central Italy

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An analysis has been conducted on the hourly data of three different pluviometric stations in the central part of Italy, for the period 1948-2005. The number of rainfall events (daily rainfall amount higher than 0.2 mm) is analysed for each station, revealing an increasing of intensity while a frequency's decrease is observed throughout the time series. For each station, the evolution of the hourly pluviometric regime with particular regard with extreme rainfall events is investigated. The attention is focussed on the overcomes of the higher percentiles' values (90th and 99th) both for summer and winter periods. An increasing number of extreme rainfall events is observed. Furthermore the data are detrended and decycling, and the two-parameter General Pareto Distribution (GPD) is used to study the frequency of all the rainfall events over a chosen threshold (peaks over threshold). We evaluate the ad-hoc values for the shape and scale parameters, in order to correctly represent the distribution and the variability of these events.