



Assessment of the dependence structure of the annual rainfall using a large data set

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Natural processes are considered to be influenced by long-term persistence, the so-called Hurst effect. A variety of studies have been conducted to identify the Hurst behaviour in different data sets and different scientific disciplines ranging from geophysics to economics and to social sciences. In this study we try to test the hypothesis of the existence of long-range dependence in annual rainfall by applying the aggregated variance method in a large set of annual rainfall time series from more than a thousand stations worldwide. In addition, we figure out a simple statistical test in order to assess the hypothesis that the dependence structure of annual rainfall is Markovian.