SPECTRAL TAIL PROCESSES OF STATIONARY REGULARLY VARYING MULTIVARIATE TIME SERIES

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A regularly varying time series as introduced in Basrak and Segers [1] is a (multivariate) time series such that all finite-dimensional distributions are multivariate regularly varying. The extremal behavior of such a process can then be described by the index of regular variation and the so-called spectral tail process. As shown in Basrak and Segers [1], the stationarity of the underlying time series implies a certain structure of the spectral tail process, which is sometimes called the “time change formula”. In this talk, we analyze whether in turn also every process which satisfies this property is the spectral tail process of an underlying stationary time series. To this end, we construct suitable max-stable processes in order to act as a proper underlying process for the realization of the spectral tail process. Furthermore, we discuss some statistical applications of our results.

The talk is based on the preprint [2].

References
