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On clusters of high extremes of Gaussian stationary processes with ϵ-separation. (English)

Zbl 1226.60082
Electron. J. Probab. 15, Paper No. 59, 1825-1862 (2010).

Summary: The clustering of extreme values of a stationary Gaussian process $X(t)$, $t \in [0, T]$ is considered, where at least two time points of extreme values above a high threshold are separated by at least a small positive value ϵ. Under certain assumptions on the correlation function of the process, the asymptotic behavior of the probability of such a pattern of clusters of exceedances is derived exactly, where the level n to be exceeded by the extreme values tends to ∞. The excursion behaviour of the paths in such an event is almost deterministic and does not depend on the high level u. We discuss the pattern and the asymptotic probabilities of such clusters of exceedances.

MSC:

60G70 Extreme value theory; extremal stochastic processes
60G15 Gaussian processes
60G10 Stationary stochastic processes

Full Text: EMIS