Clustered Models for Gaussian Extremes

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Abstract

Extremes of observations made through time often occur in clusters, but standard asymptotic arguments applied to Gaussian time series models do not lead to clustering of extremes (Leadbetter (1983), Hsing, Husler, Leadbetter (1988), Berman (1964)). Thus, though Gaussian models are extensively used in Statistics they fail to capture the clustering aspects of extremes of dependent random variables. Recently however Hsing, Husler, Reiss (1996) have shown that extremes of Gaussian triangular arrays may exhibit clustering. The present talk will describe a development of their approach motivated by the wish to construct models suitable for fitting to data on extremes of Gaussian variables. It will examine the joint limiting distribution of values in a triangular array following a high observation. The parameters in these distributions are subject to certain indirect constraints, and a sufficient condition will be given for these constraints to be satisfied. The talk will also describe the problem of fitting these distributions to data, and using them for extrapolation.

References

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