



Statistics Seminar Series

Session 2, 2007



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Inference for spatial extremes

Much work has been done in the context of spatial analysis for multivariate extremes (MEs). Often, the objective is to quantify and characterize the extremal behavior of environmental events like rainfall-levels, over a spatial domain. We look at the issue of spatially occurring rainfall extremes, which has become an important topic due to concerns over climate change. A suitable class of models is provided by max-stable processes (MSPs) as a continuous space extension of ME value models. Statistical inference procedures based on MSPs have been proposed (e.g. Coles, 1993), leading to a class of models that might be appropriate for extremal aspects of spatial rainfall processes. We focus on models for temporal series of componentwise annual maxima of precipitation recorded at a number of sites within a contiguous region. Likelihood methods for such models are complicated by the intractability of density functions in all but the most trivial cases. In families where pairwise densities are available, we examine the suitability of inference based on composite likelihood. We apply then the pairwise likelihood method to analyze precipitations level over a central-est region of USA.

References

Coles, S. G. (1993). Regional modelling of extreme storms via Max-Stable process. *Journal of the Royal Statistical Society B* 55, 797-816.

About the speaker: Simone Padoan is a PhD student visiting the Department of Statistics at UNSW from the University of Padoa, Italy. He is supervised at UNSW by Dr Scott Sisson.

Time: 4pm, Friday, 27th July

Location: Room 4082, Red Centre

Please join us after the seminar for wine and cheese in the staffroom.

Seminar co-ordinator: Sally Galbraith
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