

Mesoscale Weather Extremes: Theory, Spatial Modeling and Prediction (WEX-MOP) (additional support for Europe)

Initiative: Modellierung und Simulation komplexer Systeme (beendet)

Ausschreibung: Extremereignisse: Modellierung, Analyse und Vorhersage

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The standard situation in extreme value statistics is the estimation of the probability of rare events, e.g. that the river stage at a certain location will exceed a given high threshold within the next 100 years. However, for dealing with daily predictions of extreme weather conditions, the standard approaches have to be modified. Daily spatial rain fall or wind speed data, or a transformation of them, are considered to be realizations of a stochastic process which lies in the domain of attraction of a stationary max-stable process. Peaks-over-threshold methods seem to be appropriate. But -- despite the continuous measurement of weather data -- only hourly averages and maxima are available. Hence, a mixture between block maxima and peaks-over-threshold methods is needed. The interplay between these two methods is investigated for extreme wind gusts and extreme daily rainfall. Furthermore, the semi-parametric estimation of a spatially varying scale parameter is generalized. This subproject aims to develop and to apply estimators for wind speed observations und to derive the asymptotic behavior of these estimators. This grant integrates Professor Ana Ferreira, University of Lisbon, in an ongoing project under the call 'Extreme Events: Modeling, Analysis, and Prediction'.

Projektbeteiligte

Prof. Dr. Martin Schlather

Universität Mannheim
Institut für Mathematik
Mannheim

Prof. Dr. Ana Ferreira

Universidade de Lisboa
Departamento de Matematica
Instituto Superior de Agronomia
Lisboa
Portugal

