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SEMPARAMETRIC ESTIMATION FOR MAX-STABLE SPACE-TIME PROCESSES

Abstract: We propose a semiparametric estimation procedure based on a closed form expression of the extremogram (cf. [2], [3]) to estimate the model parameters in a max-stable space-time process. We establish the asymptotic properties of the resulting parameter estimates. A simulation study shows that the proposed procedure works well for moderate sample sizes. Finally, we apply this estimation procedure to fitting a max-stable model to radar rainfall measurements in a region in Florida. This modeling procedure helps to quantify the extremal properties of the space-time observations.

This talk is based on a joint work with Richard Davis, Claudia Klüppelberg and Christina Steinkohl.

References:

- [1] S. Buhl, R. A. Davis, C. Klüppelberg and C. Steinkohl (2016). Semiparametric estimation for max-stable space-time processes. *In preparation*.
- [2] Y. Cho, R. A. Davis and S. Ghosh (2016). Asymptotic Properties of the Empirical Spatial Extremogram. *Scandinavian Journal of Statistics*.
- [3] R. A. Davis and T. Mikosch (2009). The extremogram: A correlogram for extreme events. *Bernoulli* **15**(4):977-1009.