SEMIPARAMETRIC ESTIMATION OF SPACE–TIME EXTREMES

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Max-stable space–time processes have been developed to study extremal dependence in space–time data. We propose a semiparametric estimation procedure based on a closed form expression of the extremogram to estimate the parameters in a max-stable space–time process. We establish the asymptotic properties of the resulting parameter estimates based on a CLT for the empirical extremogram. We also propose subsampling procedures to obtain asymptotically correct confidence intervals. 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 talk is based on joint work with Sven Buhl, Richard Davis, and Christina Steinkohl.

References