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When are extreme events the better predictable, the more extreme they are?

S. Hallerberg, H. Kantz

Max Planck Institute for the Physics of Complex Systems, Dresden
(sarah@mpipks-dresden.mpg.de)

For many processes in nature, the quality of predictions increases with increasing event size, e.g., in precipitation forecasts, in earthquake predictions and in wind gust prediction. In this contribution we address the question, whether the quality of a prediction depends on the event size, by investigating precursors and predictions of extreme events in time series. The analytical results which we obtain for the prediction of increments in exponential, gaussian or power-law distributed stochastic processes show that the dependence on the event size is influenced mainly by the probability distribution function of the data and the choice of the precursor. These results comply well to a numerical study of the prediction of increments in freejet data. In both cases the success of predictions is evaluated via creating receiver operator characteristics (ROC-plots).