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# On modelling space-time threshold exceedances

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## Résumé

The modeling of spatiotemporal extremes initially relied on asymptotic models (i.e., max-stable or r-Pareto processes) for block maxima or peaks above high thresholds. However, in many cases, empirical evidence suggested that these models were too rigid to capture the situation where more severe events tend to be more spatially and temporally localized. Recently, in order to cope with this situation, the literature has focused on different types of models that can more flexibly capture the so-called "sub-asymptotic" situation. After briefly reviewing these recent advances, we present a space-time model of threshold exceedances that embeds the spatial dependence in a time series formulation with different forms of limiting dependence with increasing threshold. Inference from the observed data is difficult due to a high-dimensional censoring scheme, and we propose an indirect inference procedure for estimation. The proposal is illustrated using a rainfall dataset.

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