

EXTREMES OF MOVING AVERAGES AND MOVING MAXIMA ON A  
REGULAR LATTICE

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*Abstract:* We study the extremal behaviour of spatial moving averages and moving maxima on a regular discrete grid. Our main assumption is that these random fields are stationary and regularly varying with the tail index  $\alpha > 0$ . Using the asymptotic theory for point processes we characterise the limiting behaviour of their extremes over an increasing grid. Our approach builds on the results of Davis and Resnick concerning linear processes.

By analogy to the analysis of time series data, an appropriate Hill estimator of the tail index can be defined. We exhibit a sufficient condition for the consistency of this estimator in a certain class of spatial lattice models. Finally, we show that this condition holds for the models in our title.

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