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SPATIAL RISK MEASURES FOR ECONOMIC IMPACTS DUE TO EXTREME CLIMATIC EVENTS

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en salle de conférences Joël Noilhan

Abstract :

The risk of extreme climatic events is of great importance for both the authorities and the insurance industry. This paper concerns risk measures in a spatial setting, in order to introduce in the measure of the risk the spatial features damages stemming from climatic events. We develop a new concept of spatial risk measure, based on the spatially aggregated loss over the region of interest, and propose an adapted set of axioms for these spatial risk measures.

These axioms quantify the sensitivity of the risk measure with respect to the space and are especially linked to spatial diversification. In order to model the loss underlying our definition of spatial risk measure, we apply a damage function to the climatic variable considered. The latter is assumed to follow a max-stable process, very well suited for the modeling of extreme spatial events. Two damage functions are considered, respectively adapted to temperatures and wind speeds. The theoretical properties of the resulting examples of spatial risk measures are studied and some interpretations in terms of insurance are provided.

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