



A European Probabilistic Severe Thunderstorm Model for the Insurance Industry

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Results from the development of a European probabilistic severe thunderstorm model for risk assessment in the insurance industry will be presented. Creating a comprehensive view of European severe thunderstorm risk is challenging due to the relatively short and incomplete historical records. To obtain a probabilistic view of the risk, we combine the information from several datasets in a hybrid physical-statistical approach.

A logistic regression considering physical parameters from atmospheric re-analysis data determine the initial probability of severe weather. The impact of individual parameters is weighted and calibrated using bias corrected historical severe weather observations from the European Severe Weather Database ESWD. Furthermore we use statistics from an automated cell tracking algorithm on the European-wide OPERA radar data set for this.

The derivation of historic probability surfaces for different sub-perils allows to sample new individual wind or hail swaths and thus to generate previously unobserved events while at the same time considering the historic risk.