



Impact of a hailstorm on a building portfolio. Analysis of Cost structure and modeling of hail event consequences

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Switzerland was hit by a severe hailstorm on 26th May 2009 which caused 43 million dollars of damage to buildings in Thurgau County. The meteorological phenomenon was characterized by a strong intensity. The maximal hailstone size was approximately 6 centimeters.

After the event, a financial analysis of claims based on georeferenced insurance data was conducted to better understand the spatial distribution of damage costs. A first objective of the study was to provide a better understanding of hail damage costs and the cost structure. For that, a sample of claim data was selected and analyzed. A second objective was to characterize the meteorological event to establish a predictive model for a study area.

A simple model of hail events, based on a spatial stochastic process, has been developed. The model allows to simulate a random distribution of hail intensity over the studied area. Several parameters, such as the mean number, mean duration and mean radius of hail cells, have to be tuned in order to generate realizations with the desired stochastic characteristics. An example that describes how to assess these parameters using an aggregated radar image of a hail event and geostatistical tools is presented; data from the hailstorm of 2009 have been used. This model of hail events coupled to a model of risk assessment enables to evaluate the potential damages.

The perspectives of this study could allow to better focus the damage prevention for insurance companies for example. It also opens new perspectives to model consequences of an extreme hail event.