



Global Hail Model

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Hail risk models are rare for the insurance industry. This is opposed to the fact that average annual hail losses can be large and hail dominates losses for many motor portfolios worldwide. Insufficient observational data, high spatio-temporal variability and data inhomogeneity have hindered creation of credible models so far.

In January 2012, a selected group of hail experts met at Willis in London in order to discuss ways to model hail risk at various scales. Discussions aimed at improving our understanding of hail occurrence and severity, and covered recent progress in the understanding of microphysical processes and climatological behaviour and hail vulnerability. The final outcome of the meeting was the formation of a global hail risk model initiative and the launch of a realistic global hail model in order to assess hail loss occurrence and severities for the globe.

The following projects will be tackled:

Microphysics of Hail and hail severity measures: Understand the physical drivers of hail and hailstone size development in different regions on the globe. Proposed factors include updraft and supercooled liquid water content in the troposphere. What are the thresholds drivers of hail formation around the globe?

Hail Climatology: Consider ways to build a realistic global climatological set of hail events based on physical parameters including spatial variations in total availability of moisture, aerosols, among others, and using neural networks.

Vulnerability, Exposure, and financial model: Use historical losses and event footprints available in the insurance market to approximate fragility distributions and damage potential for various hail sizes for property, motor, and agricultural business. Propagate uncertainty distributions and consider effects of policy conditions along with aggregating and disaggregating exposure and losses.

This presentation provides an overview of ideas and tasks that lead towards a comprehensive global understanding of hail risk for the insurance sector.