



Building a simplified model for windstorm losses in Europe

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We have developed a simplified windstorm loss model for Europe, with the aim of providing a tool for academic use for quantifying these losses. The model is constructed without the added complexities or resolution of a full catastrophe model. Loss curves are built from a selection of historical event market losses. The PERILS Industry Exposure database of 2011 is utilised for the construction of CRESTA-level damage ratios. The model covers 12 countries across northern and western Europe, concentrating on those most at risk from windstorm damage, and losses are calculated on a regional basis for each of those countries. Losses can be generated using either atmospheric re-analysis or climate model data as an input, hence allowing us to evaluate the impacts of both historical and synthetic storms.

We provide comparisons of losses from historical windstorm events produced by our model both to observed losses (PERILS) and also those modelled losses from a full catastrophe model. With this aim, losses were generated using ERA-Interim as our input, therefore losses are provided at a resolution of approximately 80km. Our modelled losses are comparable to those observed in a number of cases, prior to model calibration. We have also performed some calculations using 900 years of HiGEM climate model data as an input, with the aim of assessing the ability of the model to produce accurate losses at the 200-year return period. Results show that the uncalibrated model is able to produce losses that are representative of the historical climatology, however seasonal losses are underestimated for seasons at all return periods.