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On the use of synthetic insurance data in extra-tropical storm loss estimations with high regional resolution

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Extra-tropical wind storms are responsible for insured and public losses in Central Europe, representing thus the major hazard for men, society and private and industrial infrastructures.
Unfortunately, the monitoring of realised damages and losses is not homogeneous and strongly affected by the individual efforts to assess the claim. Additionally, the time period covered by available, as far as possible homogenised, data sets is rather short. Consequently, high-resolution loss records to residential buildings in Germany are available only for a comparatively short term period from 1997-2008. These daily records are available on a fine spatial level of administrative districts. However it would be desirable to obtain loss data for a longer time period. This is achieved by using loss records from a different business line, the motor vehicle own damage insurance. These loss records exist on a daily level since 1984. Considering the overlapping period from 1997 to 2008 the correlation between building losses and motor vehicle losses caused by natural hazards is surprisingly high, especially if one distinguishes summer and winter season. This close relation is used to derive daily losses to residential buildings for the period 1984-2008. The extended time series permits loss estimates in good agreement with building losses with regard to both local and cumulated losses, for example as a consequence of the severe storm series in 1990.
Based on this highly resolved longer period data set, both the relation to meteorological derived damages via a simple loss model and its spatial sensitivities are investigated.