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Use of natural catastrophe models in the insurance industry: Application to flood hazard in Central Europe

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The increasing value of insured losses to flood in Europe during recent years has become a matter of growing concern for the insurance industry. Record losses in events such as the Odra 1997 and August 2002 Central European floods have demonstrated the requirement for flood hazard models to facilitate management of exposures in Central Europe.

The requirements of insurers and reinsurers place a wide variety of demands on models developed to assess flood risk. These include:

- Development of a multi-territory probabilistic flood event set that permits exposures to be assessed across multiple countries and river basins.
- A means to link flood intensity to damage and hence insured loss, and quantification of the uncertainties associated with such estimates.
- The flexibility to cope with a wide range of input data qualities, from detailed site-by-site information to aggregate portfolio data.
- Ability to calculate the effect of various financial terms on insured losses.
- A user-friendly interface that allows users inexperienced in hydrological modelling to obtain the required results in a simple and efficient manner.

The need to combine advanced scientific modelling methodologies with the needs of insurers provides a challenging environment in which to model flood hazard. We

examine some of the business requirements of the insurance industry for flood models in Continental Europe, and provide examples of the way in which some of these have been addressed during the development of the DACH flood model in Central Europe.