



Probabilistic, multi-variate flood damage modelling using random forests and Bayesian networks

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Decisions on flood risk management and adaptation are increasingly based on risk analyses. Such analyses are associated with considerable uncertainty, even more if changes in risk due to global change are expected. Although uncertainty analysis and probabilistic approaches have received increased attention recently, they are hardly applied in flood damage assessments. Most of the damage models usually applied in standard practice have in common that complex damaging processes are described by simple, deterministic approaches like stage-damage functions.

This presentation will show approaches for probabilistic, multi-variate flood damage modelling on the micro- and meso-scale and discuss their potential and limitations.

Reference:

Merz, B.; Kreibich, H.; Lall, U. (2013): Multi-variate flood damage assessment: a tree-based data-mining approach. *NHESS*, 13(1), 53-64.

Schröter, K., Kreibich, H., Vogel, K., Riggelsen, C., Scherbaum, F., Merz, B. (2014): How useful are complex flood damage models? - *Water Resources Research*, 50, 4, p. 3378-3395.