



Complete application of the SCHADEX method on an Austrian catchment: extreme flood estimation on the Kamp river

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The SCHADEX (Climatic-Hydrological Simulation of Extreme Floods) method is a probabilistic method for estimating extreme flood quantiles in a given catchment. It combines an extreme rainfall estimation based on weather pattern with a lumped conceptual rainfall-runoff model, embedded in a stochastic framework. The definition of weather pattern and the use of a rainfall-runoff model provide a physical base for the extreme flood probability estimation. This method has already been applied to more than 80 catchments in the mountainous regions of France. The main objective of this study was to apply the complete modelling chain, from weather pattern definition to stochastic simulation of river discharge to an Austrian catchment: the Kamp river at Zwettl. Located in the North of Austria, this catchment drains a surface of around 600 km² and was particularly studied after the August 2002 extraordinary floods which happened in this region. In order to apply the complete SCHADEX approach on the Kamp catchment, an Austrian weather pattern classification was built and the rainfall-runoff model was calibrated using hydroclimatic data sets of this catchment. The results of the extreme flood estimations obtained converge to the results previously obtained on the Kamp catchment. That confirm the interest of the application of the SCHADEX method as a physically based approach for extreme flood occurrence estimation.