



Propagation of uncertainty from rainfall to runoff: A case study with a stochastic rainfall generator

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Abstract.

We explore the impact of uncertainties in the spatial–temporal distribution of rainfall on the prediction of peak discharge in a typical mountain basin. To this end, we use a stochastic generator previously developed for rainfall downscaling, and we estimate the basin response by adopting a semi-distributed hydrological model. The results of the analysis provide information on the minimum rainfall resolution needed for operational flood forecasting, and confirm the sensitivity of peak discharge estimates to errors in the determination of the power spectrum of the precipitation field.