

Towards understanding the differences between deterministic and probabilistic flood hazard estimation methods

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Abstract This paper presents the first results of a study on understanding discrepancies between flood estimates from local-scale, process-based deterministic methods and regional-scale probabilistic methods. Runoff processes in 10 pilot catchments in Tyrol were modelled with a continuous distributed rainfall–runoff model using detailed catchment information to assist in selecting the model parameters. Hydrogeologic information from field trips was found to be extremely useful for setting the spatial patterns of the storage capacities in the model. Parameters not identifiable from the field trips were obtained from a multi-step calibration to runoff. It is expected that the model is able to extrapolate more accurately to extreme events than a model based on calibration alone.

Key words flood hazard; design floods; hydrogeology; runoff modelling