



## **Process information in operational flood regionalisation**

**R. Merz** and G. Blöschl

Institute of Hydraulic and Water Resources Engineering, Vienna University of Technology,  
Austria

Approaches to estimate flood values at ungauged sites are developed to optimise the statistical behaviour by minimizing the overall estimation uncertainty. However, not all the local singularities of catchment behaviour can be captured by regionalisation approaches and thus flood values at particular catchments can be extremely under- or overestimated. We argue that the local estimation uncertainty can not be significantly decreased by the improvement of the statistical regionalisation methods. There is a need to analyse the local flood processes.

A possible approach to incorporate local process information in operational regional flood estimation is illustrated on a study of national flood plain mapping in Austria, where flood quantiles of over 10000 catchments have to be estimated. In this study a combination of statistical regionalisation methods and manual assessment of the flood processes is used. In a first step flood estimations are proposed by one or a combination of several statistical regionalisation approaches. In a second step the proposed values are manually modified based expert judgement. The manual modification allows us to capture subtleties of interactions of flood processes which not easily incorporated in automatic regionalisation approaches.

The manual assessment is based on information of about 50000 runoff coefficients of runoff events in 300 Austrian catchments, a classification of flood process types of about 11000 flood events in Austria, seasonality analyses of Austrian regimes, information of catchment attributes such as geology and information on anthropogenic impacts such as reservoirs.