



Study on the overlap between apparent similarity and functional similarity

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Catchment similarity can be defined as apparent similarity as well as functional similarity. Apparent similarity is defined on the basis of observable catchment descriptors, while functional similarity could be formulated by using dependence measures of discharge series or judged through the utilization of hydrological models. Regionalization approaches are usually based on the assumption that model parameters can be linked to catchment properties. Unfortunately these procedures are very diverse. The objective of this study is to increase our knowledge about the overlap between apparent similarity and functional similarity.

Firstly, the functional similarity of a large set of catchments is identified by model parameters. The water balance and the dynamic behavior are separated, and the simultaneous calibration is performed for a number of catchments. Result shows that catchments form several different groups - with common dynamic parameters for all members of the same group. Based on these, the fuzzy rule-based algorithm and depth function methodology will be applied to investigate the extent to which physiographic catchment properties or what kind combination of them significantly represents catchment hydrological behavior.