



Comparison of rule-based approaches to identify dominant runoff processes in alpine catchments

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Due to their complex geology, strong relief and high altitude, alpine catchments show a great variety of environmental characteristics and hence a great variability in runoff behaviour. The presented project aims at contributing to a better understanding of the discharge characteristics of alpine catchments. The projected components are (1) the comparison of rule-based approaches to the identification of dominant runoff processes in homogeneous subareas, (2) the analysis of varying discharge characteristics due to changing system conditions (e.g. increasing soil moisture) based on field work in test catchments, (3) the creation of a rule-based system for the identification of dominant runoff processes at varying system conditions in alpine catchments and (4) a catchment classification based on the results of the previous steps.

Parallel to the current state of the project, the poster shows first results of step 1, the comparison of rule-based approaches to the identification of dominant runoff processes in homogeneous subareas. Both the identification of areas controlling the discharge within a catchment and the differentiation of their dominant runoff processes, is a very important pre-requisite for the determination of the discharge characteristics of a catchment. Hitherto different authors (e.g. Peschke et al. 1999, Tilch et al. 2002, Uhlenbrook 2003, Waldenmeyer 2003, Scherrer & Naef 2003, Markart et al. 2004, Tilch et al. 2006) have developed rule-based systems for the identification of the dominant runoff process for homogenous catchment subareas using different methods. Within this study some of these rule-based approaches have been transferred to 23 small torrent catchments ($< 15 \text{ km}^2$) in the Bavarian Alps, for which detailed spatial infor-

mation on geology, geomorphology, soil and vegetation was mapped in field by the Bavarian State Office for Water Management (now Bavarian State Office for Environment), and have been tested regarding their practicability in the Northern Limestone Alps. As the published rule-based approaches were developed in catchments of different natural environments, their transfer to other test sites has to be carried out with reasonable care. Having regard to the limits of applicability defined by the authors of the method and taking into account the problems of data availability, a first comparison of the methods can be presented.