

Ber. Inst. Erdwiss. K.-F.-Univ. Graz	ISSN 1608-8166	Band 20/1	Graz 2014
PANGEO AUSTRIA 2014	Graz, 14. September 2014 – 19. September 2014		

## **Influence of relict rock glaciers on the discharge behavior of alpine catchments - example of the Niedere Tauern Range (Austria)**

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In alpine catchments relict rock glaciers (i.e. containing no permafrost at present) or debris accumulations in general seem to be important storage components of groundwater and therefore influence the discharge dynamics according to their proportional contribution to the total stream catchment.

The aim of this work is to characterize the differences in the hydrodynamic behaviour of alpine catchments with various degrees of rock glacier influenced areas. The investigations are conducted in the Styrian part of the Niedere Tauern Range (Austria) using particularly a lumped-parameter rainfall-runoff model on daily and monthly time-scales. Various catchments will be compared based on the parameter sets necessary to calibrate the rainfall-runoff model in order to investigate how the rock glaciers (or debris accumulations in general) affect the runoff response. The approach is based on the areal extend of the landforms and is intended to provide a general idea if and how much these landforms might act as storage components and/or buffers during the transformation process of precipitation to runoff. First results show that the storage component of such landforms is of importance regarding flood peak and drought reduction being consistent with field experience, especially considering the Schöneben Rock Glacier spring in the Seckauer Tauern which is monitored and investigated in detail. However, microclimatic heterogeneity in alpine catchments, uncertainties related to the correlation between areal extend and actual volume of the debris bodies (e.g. overdeepened valleys), heterogeneity of the weathering zone in the different catchments in addition to measurement and mapping uncertainties and model limitations complicate the analysis.