



Hydraulic optimisation of the transition reach between a sediment retention area and a narrow channel using a physical scale model

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In the course of major mitigation works to protect the village Vorderberg in Carinthia, Austria, from torrential hazards like floods and intensive bedload transport, a sediment retention area upstream of the settlement as well as a successive artificial channel through the village are going to be modified. The objective of this study is to optimise the transition reach from the very wide retention area into the narrow artificial channel and to evaluate the effect of bedload deposition within this reach.

At the *Institute of Mountain Risk Engineering* at the BOKU University in Vienna, a physical model of this transition reach has been developed at a scale of 1:30. The model roughness based on the Froude similarity criterion has been calibrated to fit to numerical simulations of the flow pattern for clear water. Different geometries of the inlet into the channel have been tested. We present results from experiments based on the discharge and associated bedload transport of flood events with a return period of 30, 100, and 150 years.