



Bedload Transport Modelling for practical Hazard Assessment in alpine Catchments - the Model PROMAB^{GIS}

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In western parts of Austria erosion of river channels and adjacent embankments as well as bedload deposition in inundated areas have caused considerable damage during flooding in summer 2005. Similar events are conceivable to occur in other populated areas in alpine regions. Therefore sediment hazard potential assessment is crucial for developing appropriate protection strategies and safety measures.

The model PROMAB^{GIS} (PROcess orientated MAAss Balances) is being developed for estimating runoff and bedload transport in ungauged catchments of small to moderate size and alpine character. Flooding in these catchments is normally triggered by short but intense rainfall events and considerably influenced by the natural setting of the drainage basin. Deliberately the model concept is kept simple to limit time and effort in data surveying and model parameterisation and so to enable model application for practical use.

The focus of this contribution is upon the bedload transport module, outlining its modelling concept and the relevance of considering the findings recently gained in research. Model performance is validated using data of heavy rainfall events of Swiss

torrents. The quality of the model results is assessed using statistical methods for comparison of measured and simulated sediment yields and hydro-sedigraphs.

Present status of model testing reveals first indices of the potential of a semi-empirical model like PROMAB^{GIS} for applied sediment hazard assessment. Likewise limitations remain as far as detailed reproduction of process complexity is concerned.