Development of the ONR 24801: Design of structural mitigation measures

J. Huebl (1), D. Proske (1)

(1) Institute of Mountain Risk Engineering, BOKU-Vienna

The Eurocode 1 provides a general basis for the design of structures. This code can and should also be applied to the design of structural mitigation measures against debris flow, for example built of reinforced concrete. Current works in the adaptation of this code to such natural hazards include the formulation of the Poisson-process as well as the choice of the characteristic value, i.e. the return period. The Poisson process is preferred since it requires only one statistical value for the distribution of peak events based on the exponential distribution. Whereas in the Eurocode 1 accidental loads are considered with a return period of 10 000 years, structural mitigation measures against debris flows are mainly designed for such accidental events and therefore the return period should be lower. The same procedure can be found in earthquake engineering. Furthermore the Austrian code will include some formulas for the computation of the impact forces by debris flow. The formulas (Holzinger & Huebl) have to be chosen and then have to be integrated in the safety concept yielding finally to design impact forces and partial safety factors for such loads. Besides the considerations about the safety concept some recommendation for the load application (distribution angle) and load figure will also be included in the developed Austrian code.