Geophysical Research Abstracts, Vol. 7, 05648, 2005
SRef-ID: 1607-7962/gra/EGU05-A-05648

Magnitude and frequency of sediment transporting events in Swiss torrents

D. Rickenmann (1,2)

(1)BOKU University Vienna, Austria, (2)Swiss Federal Research Institute WSL, Switzerland

Sediment loads were measured in six Swiss mountain torrents by means of retention basins or sediment traps. These torrent catchments have areas between 0.5 km2 and 1.7 km2, channel gradients at the measuring sites vary between 5 % and 17 %, and peak discharges up to 12 m3/s have been recorded. The observations also include discharge measurements. The analysed periods vary from 51 years to 15 years. In most streams, only yearly sediment loads were observed. These loads are assigned to individual flood events using empirical relations between yearly loads and flood parameters. In one stream, additional geophone sensors allow to check the method for distributing sediment loads to individual flood events. For the six torrents, a flood frequency analysis is performed along with a frequency analysis of the sediment loads. Flood frequencies and frequencies of sediment loads are compared for each catchment as well as among the catchments. The analysis considers both yearly peak values and partial series.