



Application of the vulnerability concept to torrent events in Austria

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Vulnerability factors describe the relationship between the impact of a specific natural process and the consequences for affected objects. Thus, vulnerability factors determine the extent of damage for a defined object and are therefore essential within the risk management framework.

Damage due to 4,894 torrent events in Austria has been monetarily assessed for the period 1972-2004, using an ex-post approach.

The methodology of damage assessment was carried out on an object level and is based on replacement costs for affected elements. Object-specific vulnerability factors had been assessed with respect to different approaches, and had been applied with respect to the intensity of the event and the process type. The calculated monetary damage was temporarily and spatially analysed. Damage patterns for torrent processes were detected on a regional level, and were compared to case studies on the vulnerability of buildings to debris flows and hyperconcentrated flows carried out on the local level of catchment areas. Thus, a better understanding of the concept of vulnerability within the risk management framework resulted.