



Physical and economic vulnerability considering alpine hazards

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The obvious increase in natural disasters in the last decades, evoked by different circumstances, emphasises the necessity of dealing with these natural hazards and correlated risks. Independent of the scientific discipline, vulnerability assessment is thereby seen as a central part within risk assessment. However, the ways in which vulnerability is understood, are manifold. Based on a theoretical framework developed within the MOVE-project (Methods for the Improvement of Vulnerability Assessment in Europe), vulnerability comprises of three factors: exposure, susceptibility or fragility, and lack of resilience. To follow a multidisciplinary approach, different dimensions of susceptibility and fragility such as the physical, the social and the ecological dimensions (among others) should be considered in vulnerability assessment. Comprehensive methods and corresponding indicators (qualitative as well as quantitative) have not yet been fully developed. The aim of the MOVE-project is to close this gap, dealing with a wide range of natural hazards. The individual partner institutions within this project work in different scientific fields, dealing with different natural hazards and different vulnerability factors. The present study has its focus on alpine hazards, using data from several test sites in South Tyrol, Italy. Alpine hazards such as avalanches, landslides as well as permafrost hazards are covered. Different methods and indicators related to exposure and the physical and economic dimensions of susceptibility were studied and enhanced. Applied GIS data were improved through field studies and tools such as simulation models and data mining methods. The aim of this study was to develop vulnerability curves on a local scale and vulnerability maps on a regional scale with a high utility value for possible end users. First results, methods and indicators as well as their application will critically be discussed.