



Avalanche risk assessment - a temporal approach concerning fatalities

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Snow avalanches pose a threat to settlements and infrastructure in alpine environments. Due to catastrophic events, the public is more aware of this phenomenon. In the past, alpine settlements have always been confronted with natural hazards since they have been populated. Nevertheless, changes in land use and in dealing with avalanches hazards lead to an altering perception of this threat. In this study, a multi-temporal avalanche risk assessment is presented for the municipality of Galtür (Austria). Changes for the individual and collective risk to life of exposed persons between 1950 and 2000 were quantified. The individual risk to people in buildings was calculated on the basis of the probability of an avalanche event, the impact pressures, the vulnerability of the buildings and the number of persons. For the assessment of the collective risk to life the temporal variability of the number of inhabitants and tourists located in the run out areas was analysed. Additionally, analyses of risk to life of persons outside of buildings were carried out. For each avalanche track were calculated different scenarios according to the temporal development of mitigation measures. The decrease of hazard potential is overlain by an increase in buildings and infrastructure as well as the number of persons in endangered areas. This study leads to a better understanding of the development of avalanche risk and the risk influencing factors. It also provides useful data of the actual risk, allowing a comparison between risk situations of different avalanche tracks.