



Connecting a large database of debris flow events in Austria with daily precipitation data

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Debris flows represent a severe hazard in Alpine countries. In Austria these flows are mostly triggered by intensive, localized thunderstorm events or long lasting low-pressure systems. For forecasting debris flow hazards and estimation of potential changes due to climate change, identification of meteorological trigger conditions are of particular interest. In this study we connect a large data base of past debris flow events in Austria with daily rainfall and temperature data to investigate trigger conditions and assess temporal variation of frequencies. In total 2412 dated debris flow events and data from 943 meteorological stations, distributed over a region of approximately 80,000 km² and dating back until the year 1900 are available for analysis. For each event we investigate daily rainfall data of all meteorological stations in three pre-set distances from the respective channels (10km, 25km, and 50km). Using a weighted distance method and a Bayesian approach we aim to infer typical trigger conditions in different alpine settings. The results of our study shall contribute to an improved understanding of torrential activity in the Alps.