

Application of hybrid uncertainty assessment approaches to data on extremely damaging torrent events in the European Alps

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In general, the inclusion of uncertainty information can be further improved upon. The Numerical Unit Spread Assessment Pedigree (NUSAP) approach was previously proposed to provide a holistic framework to express both aleatoric and epistemic uncertainties in disaster loss data. Additionally, a workflow has been recently proposed to identify inconsistencies in volunteered geographic information (VGI). The approaches, if found to be feasible, provide a viable alternative for studies where it is not possible to conduct absolute validation.

The application of both aforementioned approaches will be conducted as an integral part of a three year study on quantifying the vulnerability of built structures in the European Alps. Firstly, an extended database of loss data associated with extreme torrent events in Switzerland and Austria will be collected and standardized. Recommendations will then be made based on the application of the aforementioned approaches to minimize the uncertainties associated with each stage of the study. This is accomplished by identifying, quantifying, and ranking the contributing sources of uncertainty. Results from the assessment focus research efforts on the most problematic or weakest project components. By providing a detailed and comprehensive overview of the sources and nature of the uncertainties with the application of the combined methods, participants (i.e. scientists, stakeholders, policy and decision makers) can become more aware of their interaction with the data at different stages, thereby supporting a more transparent and extended peer review process.