

Understanding earthquake communication to improve preparedness and resilience

Project type	PhD thesis
Author	Michèle Marti, Swiss Seismological Service at ETH Zurich
Supervisor	Michel Stauffacher, TdLab
Co-examiners	Stefan Wiemer, Swiss Seismological Service at ETH Zurich David Johnston, Massey University (NZ)

Study designs and main results

How do induced positive or negative mood and perceived high and low risk affect the impact of gain and loss frames on homeowners' attitudes toward general precautionary measures for earthquakes?

Experimental 2 x 2 x 2 online study with 156 homeowners.

- Specific interactions of mood, perceived risk and frame type significantly affect Swiss homeowners' attitudes towards general precautionary measures for earthquakes.
- These variables affect attitudes only in combination but not on their own.
- The control variables gender, trait anxiety index, and alteration of perceived risk adjust the effect.
- Skillfully designed messages incorporating mood, perceived risk, and frame type are an effective way to influence homeowners' attitudes towards general precautionary measures for earthquakes.

Accepted for publication in Risk Analysis in 2017.

How well understand non-experts in the field seismic hazard information?

Representative online survey with 491 participants from the public and two workshops with architects and engineers not specializing in seismic retrofitting.

- Even when applying best practices in seismic hazard communication, its understanding remains challenging.
- Seismic hazard and statistical information are relatively well understood.
- Handling of different map types to answer a specific question or concern is very demanding.

Accepted for publication in Natural Hazards and Earth System Sciences in 2019.

What can we learn from evaluated earthquake preparedness campaigns?

Comprehensive review of evaluated earthquake preparedness campaigns.

- There is a disturbing lack of empirical evidence supporting the effectiveness of previous and current earthquake preparedness campaigns.
- Deficient transfer of available, sophisticated scientific and technical knowledge into information people can act on.
- Future need to consider and test state of the art recommendations to communicate low-probability, high-impact natural hazards.

Submitted for publication in 2020.