

## Own topic 022

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Topic title: **Enhancing topographic maps to communicate environmental change and risk in Alpine landscapes**

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This thesis explores how topographic maps can be enhanced to communicate environmental change, landscape fragility, and climate-related risks in Alpine mountain environments (specific region TBD based on data availability and relevance). It addresses the mismatch between dynamic climate processes, such as permafrost degradation, geomorphological instability, and shifting hazard regimes, and the largely static nature of conventional topographic maps used by outdoor users. Based on existing literature on the use of maps to navigate safety and environmental awareness in mountain environments and on the study of cartographic principles and techniques, I will create a prototype which will be tested through user-centred evaluation. The challenge will be to evaluate the significance of adding variables such as change, uncertainty and risk to the map, without overwhelming the user. The objective of this research is to question and redefine the communicative role of topographic maps (digital and analog), with the goal of supporting safer decision-making while fostering environmental awareness and responsibility in changing mountain landscapes.