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# Establishing a new user-centered design for ski touring maps

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## Abstract:

The oldest pairs of skis date from 2500 B.C, they were found in a swamp in current Sweden, which were used for transportation, hunting and food gathering (Street, 1992). However, over the years, ski touring has changed from a tool to survive to a sport that is done by many outdoor recreationists. In Austria alone, there are already 700.000 tour skiers. For a sport that is so popular and has been practiced for centuries, very little research has been conducted on ski touring maps. The state-of-the-art ski touring maps vary in quality. Some map styles do not allow tour skiers to orient themselves in alpine terrain and make it difficult for tour skiers to take impromptu decisions on navigation and avalanche risks.

This research created a new user-centered map style for paper ski touring maps using open data, by combining the ongoing research on cartographic techniques and design principles with research on state-of-the-art ski touring maps and interviews with ski touring experts. This is split up into three research objectives. The first objective is to understand the needs and demands of tour skiers for tour skiing maps. The second one is to establish the user-centered map style, solely using open data. At last, the new map design is evaluated and tested by users, in terms of spatial understanding.

The methodology of this research is based on the user-centered design process of Roth, Ross, and MacEachren (2015), called the Three U's of Interface Success.

The novelty of this research is the design of a ski touring maps. This will not only fill the niche market of ski touring maps, but will also be an inspiration for other cartographers with a step-to-step research on user-centered cartographic design.

## References

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