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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Avalanche risk in backcountry terrain based on usage frequency and accident data" *by* F. Techel et al.

Anonymous Referee #2

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General comments: The paper has 3 self defined aims: (1) compare accident and backcountry ski touring activity patterns (2) detect relevant factors and their combinations for high risk of avalanche accidents; and (3) investigate regional patterns of usage and avalanche accidents. These are very interesting topics and it is very important to publish such findings and great work has been done by the authors in this paper, however I think a scientific journal is not the right medium. Data from webpages is used, where people communicate that like to communicate, so it would be better to also publish the work in media those people read (certainly not a scientific journal, rather a magazin such as "Berg und Steigen" or the used webpages). From a scientific point of view many problems arrise using such data as reviewer 1 already mentionend. Using data that is actually not created for a scientific purpose (ski touring reports) is

interesting but difficult, because it is very hard to be precise in the methodolgy. And this is what limits the paper, I have the same opinion as reviewer 1, the paper is not well structured. While reading it, it is hard to follow, what was actually done. For example some assumptions were done regarding the test group (people that post their ski touring report), those assumptions are not wrong (in my opinion) but several other factors contribute to why somebody posts on such a webpage, so it is scientificly quite vague (while it still has a lot of meaning for the community). Or another example is that you use the "route difficulty" as a parameter. I checked what it means at the source you gave and that is quite subjective. Slope angle, route width and so on can be measured as well, it would be much more scientific to extract for example the average slope angle (or max. slope angle) from DEMs, than using mixed ratings of an alpine club. I have also a problem with publishing well known conclusions just using data that was not used before. You state that "Free time and weather conditions are the most important factors defining the number of backcountry recreationists (hence highest on weekends and during holiday periods with fine weather)" and table 4. Well, if you ask any ski patroller he will tell you the same and I can remember a talk by Thomas Wiesinger that was formally working in your group from10 years ago where he showed statistics about that. As I am totally aware that publishing in scientific journals is mandatory for some positions, I still hope the authors consider to publish their work in more public media. That would help the back country skiing community in Switzerland much more and you do not need to do more work on the paper. A view detailed comments (Reviewer 1 did already many so I am not repeating them): 5115, 12-14: I think that sentence is a bit misleading: slope angle is an important factor of triggering an avalanche, in the work you cited, it means that when comparing different factors (and you are usually skiing in slope angles above 30°) the slope angle is not such an important predictor as others because everybody is skiing in a dangerous range of slope angles. You also use this factor within "route difficulty" as a parameter. 5120, 8-18: This is a very vague discussion, except for (1) which is certainly true this paragraph is based on assumptions and unpublished data, so it is hard to evaluate. From my experience in my country

(2) and (3) are not true, and what about human factors (who is doing decision making on a back country tour, not necessarily the victim!) Maybe go more in detail with the conclusion paragraph, right now it presents more the obvious things that are known already, there is more to find in your data, as the sum of the snowpack variables relate quite well to the accident data as you mentioned (but to short, in my opinion) Check numbers of table 3: 46% male at Lamprecht? Bergportal age (median) 60%? Figure 2a: Scale the shades of grey. Figure 2d: Check the colour coding, in my opinion it does not make sense always. Figure 3b. "Route difficulty“ is not scientific, you might use another parameter as already mentioned above. Figure 4d, great figure, if you add another figure where you add the accidents (figure 2c) to figure 4d that would be interesting (or you correlate figure 2 d)

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 5113, 2014.