

Review of «On the correlation between a sub-level qualifier refining the danger level with observations and models relating to the contributing factors of avalanche danger» by Techel et al.

<https://nhess.copernicus.org/preprints/nhess-2022-54/>

The manuscript contributes to scientific progress in the field of avalanche hazards, with respect to the process of avalanche forecasting and how contributing factors may be used to improve the resolution the danger level in forecasts. The applied methods are valid, and the results are presented and discussed in a clear and balanced manner. The manuscript is well written, presenting the study in a structured and complete way. The scope of the study, its results, and the quality of the manuscript make it well suited for publication in NHESS.

I recommend it for publication in NHESS, after technical corrections / minor revision.

In the following, I draw attention to the following minor issues (referred to by line, figure, or table numbers) that could be addressed before publication:

Line 1 I suggest adding “and manual” before “decision-making” to point out that the process is currently not done by a machine.

Line 14 Improve the “and in which part of” part of the sentence

Line 22 Please describe briefly what is meant by “increased predictive value”

Line 34 Explain the acronym CMAH when first used

Figure 1 The boxes in (b) have different dimensions. I suggest adding “and boxes” between “curve” and “(b)” in the legend

Line 79 Improve the part of the sentence which reads “and to data”

Line 85 Replace “research” with “research questions (RQs)”

Line 107 / Figure 2: The white polygons referred to in line #107 are white or grey outlines rather than white polygons and are difficult to see in Figure 2b. The colours used in 2b are very difficult to separate. I recommend improving the map and text.

Line 120 It would be of value if you explain how this was (internally) analysed, and why there is a difference between wet and dry avalanche situations.

Table 1 Add “and” before “(x)” in the third line of the caption

Line 145-147 Could you improve readability of this sentence, and add a short explanation of why this was done?

Figure 3 Why not reduce the number of rows for full ECTP to one? Why have an “*” after “only” in the caption?

Line 196 Please explain what you mean by avalanche terrain in this context. Release areas only or release areas and runout zones?

Line 226-228 I recommend improving this very long sentence

Line 258 I recommend improving this sentence.

Line 355 You would like to write “human-triggered”

Figure 7 In the first line in the caption, consider if “surface area” should probably be replaced by e.g. “area of PRA”. Consider using $\times 10^3$ (by thousand) rather than $\times 10^4$ on the vertical axis of the top row diagrams

Figure 8 The shaded areas in the diagrams c and d are difficult to see, consider improving legibility of the shading

Table 4 This is probably a matter of preference, but I suggest using “,” instead of “/” in the table as these are pairs of sublevels

Line 443 I suggest replacing “main” with “second”

Line 453 I suggest using another word than “tendency”, as tendency is often used to describe a temporal trend

Line 472 I presume you would like to say that there is a need for enough (not only relevant) data. I suggest improving the sentence. If possible, could you describe what criteria should be met (in terms of amount and relevance)?

Line 528 I suggest adding “enough” before “relevant” and removing “if” after “(2)

Yours sincerely,

Rune Verpe Engeset, Oslo, 28 March 2022