

## ***Interactive comment on “On the stability interpretation of Extended Column Test results” by Frank Techel et al.***

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### **General comments**

This manuscript presents a novel method for interpreting snowpack tests for evaluating snow avalanche hazard and is appropriate for the NHESS. Overall, the quality of the manuscript is good to excellent. The presentation of a 4-class stability interpretation scheme is beneficial beyond academic purposes, as some avalanche practitioners assess an avalanche problem’s sensitivity on a 4-class scale (Statham et al., 2018). Below I proved minor comments for the authors and editor and recommend publication of the manuscript.

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As the NHESD audience includes readers beyond snow avalanche hazard, I suggest a title that communicates the relevant natural hazard, for example, “On the snowpack stability interpretation of extended column test results.”

### Specific comments

Line 105 – Regarding the minimal depth criteria, Techel and Pielmeier (2014) appear to use a 15 cm. What is the benefit of distinguishing between a weak layer 6-10 cm and 5cm or less? Why not classify all tests class 4 if the weak layer less than 10cm?

Line 146 – For the dataset sampling to cluster stability classes, were any precautions taken to avoid the algorithm producing results that were overfitted to the sampled data, i.e. how was a 90-10 ratio selected?

Figure 3 – The reader may benefit from the proportion values included in the figure. I believe this would allow the reader to better interpret the results section.

### Technical corrections

Line 168 – There appears to be a formatting issue with the list, (i) (ii).

### References

Statham, G., Haegeli, P., Greene, E., Birkeland, K., Israelson, C., Tremper, B., Stethem, C., McMahon, B., White, B., Kelly, J. (2018). A conceptual model of avalanche hazard. *Natural Hazards*, 90(2), 663–691. <https://doi.org/10.1007/s11069-017-3070-5>

Techel, F. and Pielmeier, C.: Automatic classification of manual snow profiles by snow structure, *Nat. Hazards Earth Syst. Sci.*, 14, 779–787, <https://doi.org/10.5194/nhess-14-779-2014>, 2014.

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Interactive comment on *Nat. Hazards Earth Syst. Sci. Discuss.*, <https://doi.org/10.5194/nhess-2020-50>, 2020.

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