Natural Hazards
and Earth System
Sciences

Discussions

Interactive comment on "Soil erosion in an avalanche release site (Valle d'Aosta: Italy): towards a winter factor for RUSLE in the Alps" *by* S. Stanchi et al.

Anonymous Referee #1

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The paper discusses soil erosion caused by avalanches in steep alpine terrain. This is an important topic because only few studies have addressed winter soil erosion yet, but the importance and amount of erosion in winter may be significant.

Presentation of data

I had difficulties to follow the presentation and discussion of the individual sample points. I think the results could be presented in a clearer way. For instance much text is used to describe and discuss the individual data points, but for instance a scatterplot is missing that shows the correlation of modelled and measured data. Furthermore,

the caption of table 1 does not explain the meaning of the sample IDs. Hence it is difficult to read the table. I have several suggestions to clarify the text. Show a scatterplot with measured and modelled values so that the reader can see the strength of the relationship (or the lack thereof). Label the individual data points in the figure so that the reader can understand, which data points strengthen and which weaken the relationship.

Improve fig. 3. E.g. add a topographic map, which would help to interpret the different LS values. Also improve the figure caption.

Improve the readability of the tables.

If the results are presented this way, it should be possible to shorten the result section and to talk more about the overall finding and less about the individual data points. Right now, I find it difficult to follow the lengthy discussion of individual data points.

Clarity of writing

I got the impression that much of the writing throughout the paper could be improved. Below I give a number of examples, but I think it would be helpful if the authors worked carefully through the entire paper to improve the clarity of the text. The text also contains a number of typos that I cannot all mention here.

Abstract: The abstract could be written in a clearer way. E.g. it is not explained what RUSLE is, hence the text cannot be understood by a wider readership.

Intro:

The introduction should be clearer. For instance, the Alpine factor W is not explained in a satisfactory way. It is simply mentioned that W was implemented. A clear introduction should better explain what W actually is and in which way exactly it improves the model. l 81. I find the last sentence not very informative. We should be informed what was learned by the study of Leitinger and why this knowledge is helpful for the outline of this study.

l 89. Similar to the previous point: as measured and Caesium-derived values were compared, we should be informed what the outcome was because this is an important justification for this study.

l 95. I don't find the term snow bridge ideal because with this term I picture a snow bridge over a river, but here snow supporting structure from steal are meant. I suggest to find a different term.

Methods:

l 125. It is unclear what an avalanche shed is

Results and discussion:

l 302: rather: feedback than chain?

l 311: rather marginally significant

Figure 4: I think the quality of the figure could be improved. Labels could be larger and clearer, and color is not necessary.

Conclusions: l 382ff. "three subareas were considered..." This information is rather method-style and does not help the conclusions much. I suggest to rewrite the conclusion in order to clarify the main findings and implications of this study.