

Interactive comment on “Potential future exposure of European land transport infrastructure to rainfall-induced landslides throughout the 21st century” by Matthias Schlögl and Christoph Matulla

Anonymous Referee #1

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This paper displays some useful and interesting results and will be a useful paper to publish. It contributes to the understanding of landside hazards and provides new ideas. There are a number of issues with the methods section, as the results presented are not described by the methods. In order for this paper to be duplicable, the methods section needs to be completely re-written.

Scientific Significance: The paper will potentially offer a contribution to the understanding of landslide hazards and provides some new ideas.

C1

Scientific Quality: The approaches used are confused, and methods are not apparent. The results and discussion section is unclear, and contains datasets and ideas which are not previously presented in either the introduction or methods sections (e.g. the CORINE dataset is first mentioned on p. 9 in the results and discussion section). References are generally appropriate, although there is an overreliance on IPCC publications, and there are a number of recent publications I consider to be missing.

Presentation Quality: The results and discussion are not presented in a clear and concise manner. This is due to the methods section not describing the methods used. Structure is therefore lacking as much of the results and discussion section brings in new ideas and analyses not previously discussed. Language used is not always appropriate and there are grammatical and spelling errors.

Specific comments:

P. 3, L. 23 – The authors select a threshold of 37.3mm and 25.6mm however, references for these are not introduced until p. 4.

P. 4 – The methods section does not describe the results discussed in the results and discussion section. This section needs to be re-written to ensure the duplicability of the study.

P. 4, L. 29 – KLIWAS17 is not introduced at all.

P. 5, L. 5/6 – “While the first row of each figure refers to the near future, the second row displays projection results for the remote future. The three columns represent the quartiles in increasing order respectively” should be in the figure caption, not the text.

P. 5/6 – Figures 1 and 2 are unclear. The authors need to clarify what the data are and how these were calculated.

P. 6/7 – It is unclear whether the authors are talking about landslide events or precipitation events when discussing change between the two reference periods.

C2

P. 8 – I am not sure how the authors use topography and lithology/geology or soil typology in their analysis.

P. 8/9 – Figures 3 and 4 are good, but again, I am not sure how these were calculated; the authors need to clarify this.

P. 9. I am not sure how the authors use erosivity or land cover in their analysis.

In the abstract, the authors state “Results indicate overall increases of landslide occurrences. While flat terrain at low altitudes exhibits increases of about two more landslide events per year until the end of this century, higher elevated regions are more affected and show increases of up to eight additional events”, but do not show how these results are obtained from descriptions provided in the methods section. Furthermore, this “result” is not mentioned in the results and discussion section and also not mentioned in the conclusion; this needs to be clarified.

P. 10 – I am not sure how the mapping for Figures 5 and 6 was carried out. The authors need to be clear when it is their work that is being referenced, or the work of others. Figures must be referenced correctly if data were obtained from other sources. The use of these data must also be described in the methods section as these are first introduced in the results and discussion.

P. 11 – I think that the authors conclusion sums up the findings of the paper, but does not reflect the results and findings described in the abstract and is confusing to read for this reason.

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