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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Regional physically based landslide early warning modelling: soil parameterisation and validation of the results" *by* Teresa Salvatici et al.

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RC: The paper corresponds to the journal scope. In a general point of view: the paper is not very well structured, it is difficult for the reader to understand the message of the authors and to follow the text. The text lacks of consistency and some improvements are requested in order to publish the paper. Some recent references has to include and some sentences should be simplified. More precisely and point by point. AC: Dear Referee, Thanks for your detailed revision. We agree that the manuscript needs a general reorganization of the structure, with special reference to the methodology and discussion of the results. We are currently working in this direction and we are completely

reorganization the contents of the introduction, methodology and discussion.

RC: The abstract and the introduction have to be rewritten. For instance, the problematic is not visible. The authors have to put the problem(s), the solution in general (with a state of the art) and after the contribution of their research. Clarify the introduction please. AC: We thank he referee for the comment. We are rewriting the Introduction, trying to highlight better our key research questions and which are the main objectives of the research work. Our aim is to test the application of an already developed, physically based model to forecast the occurrence of shallow landslides in a selected case study in Italy. Furthermore the work wants to highlight some model improvements related to the soil parameters characterization and contribution of vegetation to slope stability.

RC: The geographical description has to be modified. The description is not straightforward. In general you can start by the geological context with the lithology and the structure and after the landscape and the geomorphology of the area. After you follow by the weather and if you have information by landuse. AC: We agree, we are modifying this part according to the referee comment.

RC: The methodology is not very well described, please revised it with a part about the HIRESS model, and after HIRESS data. The problem of root reinforcement can be put in the introduction or if you want absolutely speak about this topic, make a part called " background". Moreover, the part about data is few explained. Improve it please. AC: We agree, we are revisiting this part. The methodology will start with the description of the HIRESSS model and then the input data. The problem of root reinforcement will be treated in the Introduction and then we will describe in the methodology how we have taken into account this parameter in our model.

RC: I think there is some lack of description about the root influence in your model and the way to obtain these information. AC: The problem of root reinforcement will be treated in the Introduction and then we will describe in the methodology how we have

taken into account this parameter in our model.

RC: I think the monte carlo approach coupled with uncertainty is not new for landslide susceptibility assessment with PBM, there are some references to include in your text as Mergili et al., 2014 or Thiery et al., 2017 with r. slope. stability or ALICE tool used this approach to integrate the uncertainty of environmeent (geotechnical values). You have to mention these references in your text. doi:10.1016/j.geomorph.2013.10.008 or Thiery et al. : Thiery, Y., Vandromme, R., Maquaire, O., Berneradie, S., 2017. HYPERLINK http://link.springer.com/chapter/10.1007/978-3-319-53498-5_104" Landslide susceptibility assessment by EPBM (Expert physically based model): strategy of calibration in complex environment. In: MikosÌŇ, M., Tiwari, B., Yin, Y., Sassa, K. (Eds) Advancing Culture of Living with Landslides. Proceedings, Vol. 2: Advances in Landslide Science, Springer, 4th World Landslide Forum in Ljubljana, pp.917-926. https://doi.org/10.1007/978-3-319-53498-5_104. You can mention the last paper with TRIGRS :https://doi.org/10.1007/s10346-017-0931-7 6. AC: We thank the referee and we will include these references in the text.

RC: Finally, the discussion is not a discussion. In a scientific paper the discussion emphasize the results, the advantages of the method but also the drawbacks, the comparison with another approaches. In your text, there are any comments like that. We suggest another structure of the text as follow: 1. Study sites 2. Background (if you choose this way) 3. Model: description, improvement and the strategy used (calibration, etc) 4. Data used or created for your study 5. Results 6. Discussion 7. Conclusion. AC: We thank the referee for the fruitful comment. We are completely reorganizing the text and consequently the structure of the manuscript.

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