

Reply to Referee #3

In this work, authors explore the impact of land use change in landslides activity. To this end, they consider the influence of forest cover dynamic (assessed as gains and losses), roads (looking at old and recent roads) and mining activity on landslides occurrence.

The paper is quite complex since, to achieve their main goal, authors had to: (i) compile an exhaustive and accurate landslides inventory; (ii) assess the susceptibility of the area to shallow landslides and to old deep-seated landslides; (iii) assess the influence of geo-topographic and anthropogenic variables (i.e. forest loss, distance to roads and permanent anthropogenic environment) on landslides occurrence.

The paper focuses on an interesting topic, which is undoubtedly highly relevant in the field of landslides assessment. The overall manuscript is well structured, methods are appropriate, results are complete, accurate and reproducible. For all these reasons, in my opinion, it deserves publication on NHESS, with minor revisions.

*The authors thank the reviewer for his/her evaluation of the manuscript and for showing the scientific relevance of the work.*

As the paper is quite complex, it results too long. Therefore I suggest streamlining the content avoiding repetitions. Even if globally it is well written, sentences are quite long and need to be elaborated in a more succinct way.

*We thank you for these remarks and we will work on improving the manuscript by making it shorter.*

Although the elaboration of a susceptibility maps is not the main objective of this research (indeed the authors applied to this end a classical and intuitive model both for susceptibility – i.e. logistic regression – and for the ranking of the importance of the predictors – i.e. frequency ratio –), other methods existing in literature to this end should be mentioned and cited and your choice for the selected method justified.

*Our choices will be better explained as requested also by Referee #1 and #2.*

Line 225 – The analysis was performed at the scale of one point per landslides, namely the centroid. Other authors use to extract randomly a certain percentage of points per events, or they consider the slope unit, or the highest pixel of each landslides (where the scarp is generally located). Please elaborate more this to justify your choice and its limits.

*We do not use the centroid of the entire landslide but a point that is manually placed at the center of the source/trigger area (line 225: we specify “trigger area”). We will elaborate more on this point.*

Line 252 - OpenStreetMap (OSM) is a digital map database of the world built through crowdsourced volunteered geographic information (VGI). Therefore, there is no systematic quality check performed on the data, and the detail, precision and accuracy varies across space. Can you be sure that no major changes in the network have occurred over the last 60 years or maybe they could have not been detected?

*We can confirm that there have been no major changes in the road network. Good knowledge of the study area and the analysis of very high-resolution Google Earth images allowed us to verify the road network proposed by OpenStreetMap.*

Legend of Fig.2: I propose to change “Landslide events” with “Landslides clustered events” or “Shallow landslides clusters”.

*Thanks for the comment. We will change it.*