EGUsphere, referee comment RC1
https://doi.org/10.5194/egusphere-2022-772-RC1, 2022
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Comment on egusphere-2022-772

Ali P. Yunus (Referee)

Referee comment on "Hazard assessment modeling and software development of earthquake-triggered landslides in the Sichuan–Yunnan area, China" by Xiaoyi Shao et al., EGUsphere, https://doi.org/10.5194/egusphere-2022-772-RC1, 2022

Hazard assessment modeling and software development of earthquake-triggered landslides in the Sichuan-Yunnan area, China by Shao et al. presents a rapid landslide mapping tool - Mat.LShazard based on logistic regression model, which they successfully applied to six earthquake affected sites in Sichuan-Yunnan region. The manuscript is well written and the toolbox may have wide applicability in future hazard scenarios. However, there are some concerns that need to be addressed.

Firstly, the stage 1, stage 2, and stage 3 as discussed in this paper is subjective. Obtaining remote sensing images within 12 hours after the quake and detailed images 3 days after the event is depends on many factors. At this point, it is better to define them as stage 2 and stage 3 only. May be termed as – stage 1 = immediately after the event, stage 2 = hours to a few days (e.g., Planet), and stage 3 = few days to weeks (e.g., Planet, Sentinel 2, Landsat 8/9).

Description on stage 1: Authors wrote - More detailed theory and calculation procedures can be found in (Xu et al., 2019). Xu et al 2019 is a paper written in Chinese Language. Hence describing more on the procedure of stage 1 is important for global readers. What are the inputs in stage 1?

Difference in stage 2 and stage 3: As far as I understand, the difference between these two stages is incorporation of more accurate training samples of landslides. Is it so? I believe the conditioning factors remains the same. This has to be explained clearly.

How Mat.LShazard model is different from USGS models – Godt 2008 and Nowicki Jessee et al 2018 ?.

Line 387 – How is this random selection achieved? It is not clear that in stage 2, for the final map, whether the study used all the 50 combinations for obtaining the mean probability distribution. If so, the accuracy is obviously close to stage 3. Instead, the study could have used random 6 (or X) combinations and their mean to get the probability distribution map. We could naturally expect high accuracy in third stage as all the landslide are used in training.

Since stage 3 involve mapping all landslides, then the applicability of the model for other study areas is limited. I would like to see how this model works for a validation site.

Line 446 – We chose 4 independent variable…. Why 4 ? what about remaining 9?

What threshold is used for calculating Ap in this study?

Minor comments

Line 28 -29 is confusing- rephrase to get a better reading

Fig 5. Is this the result of stage 1? . if so mention it in the caption.

Same for Fig 8. Is this the result of stage 2 or 3?

Apart from the graphs, there could also been a table for accuracy matrices.