

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC1
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Comment on nhess-2022-189

Anonymous Referee #1

Referee comment on "Semi-automatic mapping of shallow landslides using free Sentinel-2 images and Google Earth Engine" by Davide Notti et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2022-189-RC1>, 2022

This manuscript presents a practical procedure for using free data of Sentinel-2 and Google Earth Engine to create an inventory of shallow landslides. The procedure was applied to two landslide areas and the results were compared with the manual landslides. Overall, the methodology is well presented and the data analysis is performed in detail. The methodology shows the potential to create inventories of landslides that are fundamental to landslide research. I have some minor comments for the authors to consider:

(1) Figs. 1 and 2 included the rock formation of the studied sites. What is the role of geological information in the creation of landslide inventories?

(2) Line 190, Eq.1, could the authors elaborate how the eq. 1 is applied to determine the NDVI value of the studied area? What is the 'pixel' size (the calculation area) for each of single NDVI?

(3) The authors should detail how a polygon of PLs is formed?

(4) Reference to Eq. 2 and Eq. 3 should be provided. The definitions of Eq. 2 and Eq. 3 seem to be different from other studies.

(5) Figs. 4 and 8 C, could the authors remove the PL data to clearly show the color map of NDVI?

(6) Fig. 13, there is no 'C' in the caption. Also, comment on how C is created. From A and B, it seems that the kernel density points/locations are slightly different.

(7) The methodology still needs to be improved to capture the landslide inventory accurately. Could the authors comment on the limitations and the area for improvement?

(8) Instead of having operators change the mapping parameters and visually compare the ML and PL, are there any qualitative ways (e.g. machine learning, optimization methods...) to get the most appropriate parameters to have the highest degree of match between ML and PL?