Natural Hazards and Earth System Sciences Discussions

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC1
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Comment on nhess-2022-34

Anonymous Referee #1

Referee comment on "Landslides caught on seismic networks and satellite radars" by Andrea Manconi and Alessandro C. Mondini, Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2022-34-RC1, 2022

The paper "Landslides caught on seismic networks and satellite radars" discusses the possibility to apply an integrated approach which combines broadband seismic data and satellite images for detecting landslides over large areas. To this aim, the approach was tested with a rock avalanche event occurred in Central Alps on 23rd August 2017.

GENERAL COMMENTS

I really appreciated the content of this paper, which is also fairly well-written. Although the proposed approach can be roughly summarized as a combination of two already-existing methodologies (i.e., Manconi et al., 2016 for seismic data processing and Mondini, 2017 for satellite imagery analysis), the manuscript presents several innovative elements which certainly fit with the aim of the Journal. However, before the article can be accepted for publication on NHESS, several aspects of the work must be improved to clarify the obtained results and substantiate the novelty of the proposed approach.

SPECIFIC COMMENTS

1) Structure of the work: the authors should better distinguish the "Materials and methods" section and the "results" section. In the current form of the manuscript, there is a bit overlap between the sections (e.g., Table 1 should be included in Results)
2) Seismic data processing: the authors should better clarify "the step forward" of their approach with respect to the method employed by Swiss Seismological Service (SED) for detecting landslide phenomena. It seems that the identification of the candidate area is strongly related to an arbitrary constrained temporal window which, in turn, depends on the outcome of SED approach
3) Analysis of the obtained results: the authors should perform a more in-depth analysis of the obtained results. At present, the "results" section is a bit lacking and several aspects are not investigated at all. Just two examples:
• six landquakes have been introduced in the first part of the work but, in practice, only LQ2 is considered (LQ5 and LQ6 are just partially addressed). Are the predicted volumes consistent with real ones?
• Are there other areas which show surface changes after satellite imagery analysis? If so, it would be important to investigate this point for better understanding the reliability of the proposed approach.

In my opinion, the authors should rely on the material included in the supplementary files for improving the analysis of the obtained results
4) I suggest to slightly modify the "Discussions" section in order to clarify strong points and shortcomings of the proposed approach. In my opinion, a table which summarizes these aspects would help in this regard

TECHNICAL CORRECTIONS
Caption Table 1: "have ML/MD" is repeated twice
Figure 2: please add on the map the location of Piz Cengalo