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Reply on RC2

Belizario A. Zárate Torres et al.

Author comment on "GNSS and RPAS integration techniques for studying landslide dynamics: Application to the areas of Victoria and Colinas Lojanas, (Loja, Ecuador)" by Belizario A. Zárate Torres et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2021-32-AC2>, 2021

This study describes the use of GNSS and RPAS for studying two landslides and their dynamics. It is a well written and structured manuscript. Even if the level of innovation is limited, it is a nice application of existing technologies which – in my opinion – is fine for a paper. However, there are a few things I recommend to adapt. First, the descriptions of the displacements, etc., with all the numbers that are provided both in the tables and text, are a bit lengthy. As a reader, I tend to go through these sections very quickly. However, I understand that a detailed description of the results is worth it, but maybe it could be a bit condensed and some redundancies could be checked. Second, while technical details and results are described in detail, I am missing any descriptions of the practical implications of this study. Providing more information on that would add much more value to the manuscript. For example, how do the landslides affect the infrastructure, in particular the buildings in the Victoria study site and the large road in the Colinas Lojanas study site, what can be expected in future in terms of displacement, are there intentions to implement measures to counteract the movement, etc. Currently, the discussion focuses mainly on technological aspects, but I think a separate section should focus on the practical aspects and impacts of the.

Firstly, we would like to sincerely appreciate your comments and suggestions. This an advance of the response we are preparing after the closure of the open discussion.

We are rewriting the abstract and the whole text, and restructuring the sections to make the paper more easily for reading and understanding. We also simplify some tables as you suggest.

Please find a few detailed comments in the following:

Line 24-25: I doubt that the given year (1994) for the reference "Malet et al., 1994" is correct. Please check.

Answer: The reference has been checked and the error was detected

Line 79: How was the landslide area identified/delineated? I am wondering if it is possible to provide the area with up to a single m² accuracy and to delineate the boundary that accurately?

Answer: The delimited area of the landslide was established based on field recognition where the presence or absence of surface geomorphic changes was evidenced. The area was determined with the ArcGIS Area tool.

Line 89: See the previous comment. I doubt that it is possible to give such an accurate number. When looking at the rather coarse delineation in Figure 3 it becomes obvious that this is hardly possible to exactly delineate the landslide (assuming that the area matches with the dashed black line shown there). I suggest using a rounded number.

Answer: Suggested setting has been made

Figure 5: The green GNSS network dots are hardly visible. Better use another colour and increase the size.

Figure 6: See the previous comment. Also, the currently used tone of green for the GNSS network is different from Figure 5.

Figure 7 and 8: Also here the visibility of the symbols could be increased.

Answer: Suggested setting has been made and will be show in the new text.

Line 346: Please check for redundancies in this section in comparison to the previous sections. Some descriptions might be shortened in this section.

Answer: The reduction of certain parts of the manuscript will be reviewed

Line 437-438: Only here a very short note on the affected road is given. More details on the practical implications of the findings and potential risks for the infrastructure should be provided.

Answer: In fact, details of the effects of the results obtained in the existing infrastructure in the two study areas have been inserted.

Technical corrections

All technical corrections will be made according to the suggestions given.