

## RC 2 Feedback

The paper presents an interesting work on the use of InSAR data for monitoring deep landslides and defining the minimum number of observations useful for ensuring a valid model of landslide evolution. Once data have been correlated with field measurements, the Authors focused on how they can be used to quantify the overall uncertainty in planning borehole placement and implementing in-situ monitoring.

The case study analyzed, located in the Andorran Pyrenees, is significant both in terms of geomorphological evolution and natural hazard, thus well suited for the purpose of the work. In the introduction section, the work is well presented and contextualized in the available literature; the purpose and scientific validity of the work are adequately pointed out. The methods and methodological flow are clear and well-explained. In my opinion, results are valid but should be better discussed to highlight the strengths of the work. In detail, the following points are suggested to be developed for publication.

1. **Although it is not the main focus of the paper, I believe that additional morphological and geological data of the study area should be provided.** If available, the Authors should state in more detail the geological framework and the material involved in the landslide process, the geometry of the body, and the type of activity (e.g., periods of greatest acceleration). Additionally, if possible, it would be interesting to see the temporal evolution of some of the monitored data (e.g., displacements or piezometric level) and perhaps relate them to external factors such as rainfall. I think that providing a more extensive characterization of the landslide would allow an easier understanding of the data presented in the subsequent paragraphs, as well as the choices made; also, it will improve the quality of the paper. If the Authors do not consider it necessary, they may still better mention previous works carried out on the landslide body exploring these issues.

The reason we had a brief description of the site is because characteristics of the landslide have been published extensively. However, we understand the importance of including a more detailed description of the landslide for the purposes of serving as a stand-alone work. We are happy to include this in a revised version.

2. In Section 3.2, I would suggest a **better discussion of the choice of using a 6-month time interval to compare in situ observations and InSAR data.** What are the reasons for this choice that do not allow for the analysis of annual trends? It could be the presence of snow cover or lack of monitoring data, either way, it needs to be specified and discussed in the text.

We chose to use a 6-month time interval to compare in situ observations and InSAR data because of snow cover, and we will be sure to note that more explicitly in a revised version.

3. Reading the paper, I found the **lack of a general discussion highlighting the significance of the work, especially in terms of the use and applicability of the method. I think a "discussion section" could help to better emphasize the validity** of the results obtained as well as the achievement of the goals. In my opinion, some scientific issues and questions that could be addressed in this section would be: What are the main advantages and limitations over other landslide monitoring methods? Can this method be applied in remote areas where there are no active monitoring systems? How can the method be improved and applied to implement an in situ monitoring network?

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5. Figures should be better developed to help reading and understanding of the work. I would like to suggest these modifications to the Authors:
  - Figure 1: The orientation of the satellite images is not very clear; it would be better to point the north arrow upward to maintain the same visual angle in all the sketches presented. I find placing the EGMS point in this figure to be not very intuitive; I would move it to other subsequent figures and insert here the location of the 12 boreholes mentioned in the text. Also, a small legend with the meaning of the red and blue lines and geographic framing should be given. If there are any significant points such as villages or mountain peaks, I would suggest highlighting them in this introductory figure and use them as reference points in subsequent plots.
  - Figure 2: unclear. I think it would be necessary to add reference points and represent the same observation area to have a better qualitative comparison of the two methods. If possible, I would implement the quality of the legend of the velocity values. Also, it is not clear what the blue line in Figure 2b means; a small legend would be needed. Are the red and green lines in Figure 2a the same as the blue and red lines in Figure 1? If so, maybe better to keep the same colors. What do the dots in Figure 2a represent?
  - Figure 5: for clarity of representation, I would suggest always keeping the north arrow upward (same as Figures 1 and 2); if possible, add reference points (e.g., location of villages) and the graphical scale of representation (even just in the first plot in the upper left corner). The legend has no units and does not indicate what kind of values are plotted.

We will make suggested edits to the figures mentioned above.