

The manuscript deals with an interesting case study about the effect of topography on soil wetness measurements collected in situ for early-warning porpoises. The paper is well structured. The obtained results are sufficiently discussed. Even if dealing with a potentially very interesting topic and its general good writing, in the opinion of this reviewer I recommend minor revision. There are only general comments/questions to the authors:

We thank the reviewer for taking the time to review our manuscript. We thank for the generally positive response and the constructive comments to the individual points raised, which are addressed in the responses below.

1. The introduction part needs to be refined, by adding other specific references in a broader context of the international literature.
We will provide a broader review of the literature in the reviewed manuscript.
2. The final conclusion to reflect the essential results of the paper is too thin. Please, try to expand this part to give a wide idea of what you learned from the paper, limitations and recommendations of this research should be highlighted.
We will expand and reformulate the final conclusion part.
3. Authors should discuss also the geographic uncertainty of precipitation data, as both sites receive roughly the same precipitation amounts (but not exactly the same) even at different elevations.
Indeed, there are slight precipitation differences, however they are not systematic. Therefore, we don't think there are significant differences between the sites due to elevation or location (the two sites are at only 250 m horizontal and 100 m vertical distance).
4. Regarding the flat monitoring site powered by a solar panel, are there any problems related to low temperatures and exposition?
We did not experience any problems with powering the flat monitoring site as it receives sufficient radiation throughout the year (the solar panel is south oriented).
5. The data was transmitted via the mobile phone network every hour. My question regards the reception of the data. Did you use a specific internet channel for both sites?
The station is equipped with a data logger and a modem, which is connected to the GSM network. Every hour, the latest data is gathered on the data logger, and it is sent via the GSM network to the institute where it is copied and stored on an FTP server. We can then access it on that FTP server.
6. Try to add a sketch of the installed sensor instruments and a schematic representation of the monitoring stations.
We will add a figure with a schematic representation of the monitoring sites to the revised manuscript.
7. Do you think adding different piezometers regarding the rising of the groundwater table for both sites can add the same information in a landslide early warning?
Rising groundwater tables can be detected by both piezometers and tensiometers as both are capable to measure positive pore water pressures. In comparison to tensiometers however, piezometers may reach larger depths, due to their installation within boreholes. If the borehole is drilled until the soil-bedrock interface, piezometers can be used to detect a temporary groundwater table above the bedrock, which is an indication for hillslope water flow.
Piezometer measurements were previously shown to be helpful to inform regional landslide early warning systems (e.g. Pecoraro and Calvello, 2021). However, the rise and fall of groundwater levels act at longer time scales than the wetting and drying cycles that are measured with the near-surface sensors. Therefore, data from piezometers and near-surface in-situ soil wetness sensors are not directly comparable. However, it would be interesting to

assess the information content for regional landslide early warning of both measurements if available at the same sites.

In this study, piezometers were originally also installed at both sites. However, at the flat site the soil-bedrock interface was not reached during installation and a ground water level increase was never measured. At the sloped site, the piezometer was damaged early into the campaign due to snow pressure on the borehole tube. Therefore, we were not able to perform such an analysis on the data measured in this case study.

References

Pecoraro, G. and Calvello, M.: Integrating local pore water pressure monitoring in territorial early warning systems for weather-induced landslides, *Landslides*, 18(4), 1191–1207, doi:10.1007/s10346-020-01599-w, 2021.