

## ***Interactive comment on “Ground-penetrating radar observations for estimating the vertical displacement of rotational landslides” by C. Lissak et al.***

**Anonymous Referee #1**

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This paper does an excellent job of presenting a practical use for GPR. Having the preexisting roadway and the layers from subsequent repair provides a great benchmark for the analysis. I think the introduction could benefit from a little bit of extra information on the landslides - are they seasonal? The article mentions periods of accelerated retrogression, is it tied to increased precipitation or any other factors? Lastly, one of the figure captions mentions information gathered from a witness - maybe this information could be in the introduction too. Overall though I think this study is a valuable addition to research on landslides and GPR - using a pre-existing road is something that could be replicated in other areas.

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In addition, my understanding is that the primary measurements of movement in the landslide zone were of subsidence - i.e. vertical changes. Are there any horizontal changes? Fissures in the road surface are mentioned, are there any measurements of widening? At the beginning of section 2.1 there's mention of low elevation - are there any slope measurements to add?

Regarding the GPR - time-depth conversion was mentioned, but not the dielectric constant. I think that would be helpful to add.

Here I have a couple of notes on the text - sentences that were unclear or minor spelling/grammatical errors. Page 7490 line 15 - induced many damages is awkward sounding. Page 7494 line 10 reflectors till depth - until? confusing because till is a geological unit. Page 7494 line 15 - landslides needs to be landslides' I believe. Page 7496 line 7 failure - needs to be a plural 7496 line 16 - complimented is a better word? 7496 line 22 - vertical or horizontal displacement? also decimeters? 7496 lines 26-27 awkward sentence Figure 1 - rotational is misspelled

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