Comment on nhess-2021-148

Anonymous Referee #2

Referee comment on "Integrating empirical models and satellite radar can improve landslide detection for emergency response" by Katy Burrows et al., Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2021-148-RC2, 2021

General comments
This work explores the combined approach derived from empirical susceptibility maps and landslide indicators derived from SAR data. The result shows improvement in model performance adding the PALSAR-2 InSAR coherence features. The study performed is certainly of interest and well-presented and I recommend its publication after some points have been addressed.

Specific comments
My main suggestion is to provide more information on the influence of wavelength (L-band) on the accuracy of the results. The difference between sentinel-1 and PALSAR-2 is not only the wavelength but also the resolution, polarization, and incidence angle. In particular, incidence angle or local incidence angle are important for landslide detection. I think that authors should consider these as well.

Furthermore, I have a question in assessing model performance. Authors use ROC analysis based on the Burrows et al. (2020). However, ROC analysis requires the creation of binary landslide images. The binarization of landslide areal density (LAD) only degrades the image. I think R^2 is fair for assessing the LAD prediction. Authors should describe the effectiveness of ROC analysis.

Technical corrections
698 - 699 I think that Masato is given name. Please correct it.