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Interactive comment on "Radar coherence and NDVI ratios as landslide early warning indicators" *by* Mylène Jacquemart and Kristy Tiampo

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Comments for "Radar coherence and NDVI ratios as landslide early warning indicators" by Mylène Jacquemart and Kristy Tiampo.

This work used optical and SAR images to detect possible precursors before the Mud Creek landslide in 2017. It is a good try to integrate different methods to monitor slope deformation before landslides occur.

1. The abstract part should be re-write. 1) No physical connections can be found between the optical and SAR method, and you may say "a hybrid method" instead of "a novel approach. . ." (line 4). 2) You should also mention the method that is used to derive displacement, as this is also an important part of your work. 3) I cannot follow the

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sentence in lines 9-10 “In contrast, the landslide accelerated during the rainy seasons of 2015 and 2016, but neither of those accelerations resulted in a drop of the radar coherence ratio”. This sentence seems to say that the proposed coherence method is not reliable at all.

2. It seems that you only showed three different results within a plot. There is a lack of quantitative integration of these three results.

3. The NDVI part is not described in detail. It seems that you used the mean NDVI on the moving slope and calculated the ratio with surrounding stable slopes. If the mean NDVI ratio dropped so dramatically, the spatial pattern of NDVI ratios could be used to indicate the spatial pattern of the landslide, or at least the disturbed vegetation should clearly be discernable. Therefore, it may be more suitable to use the spatial pattern of the NDVI ratio to indicate the morphology of this imminent landslide.

4. Coherence between two SAR images may also be influenced by their temporal interval. Longer intervals may lead to image incoherence. How to eliminate the influence of time on the derived SAR coherence?

Minors:

1. Line 79, page 3. Typo: change “us” to “use” 2. Repetition between line 98 and line 100, page 4. 3. Page 8, “3.3 Precipitation data”. Please describe the temporal resolution of the data and any processing procedures. 4. Line 187, page 10. Citation format error. 5. Page 7. Can you indicate the dates of images used to calculate Figure 3, as shown in Figure 4?

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