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Discussions

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

Anonymous Referee #6

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The paper shows interesting results regarding the use of several approaches for the identification of pre-failure indicators, such as displacement time series, coherence ratio, intensity ratio, and NDVI ratio. I think the authors should change the general statement of the paper. Within the manuscript, authors underline several times the potentiality of coherence ratio approach and NVDI ratio approach for theis application at large scale to detect landslides. BUT: I don't see a global proposed method to be applied nor at large scale nor in other cases of study, I see case-specific approaches related to separated techniques where the results are explained and compared. There is not a proposal of a general method to be used in order to use and integrate the techniques of NVDI and coherence ratios. Here we are still looking at a back-analysis result of a specific case of study. Several aspects of the used approach are strictly

related to the specific study in fact there are not a priori answer to questions like: how to decide a threshold? How to decide the landslide area and the surrounding one? I see in this paper an interesting study on the behaviour of several indexes in a specific case of study. I would focus more the paper on one hand on the explanation of the behaviour and of the characteristics of each technique, on the other hand I would answer to questions like: how the combination of the several approaches can be exploited? When? Why? Which are the advantages of one rather than another and in which cases? Which the limitations? ——— All of these aspects should be taken into account within a revision of the WHOLE manuscript (with a main effort in the introduction, discussion and conclusions): 1. I would focus on the pros and contras of each technique. Explaining better the basic theory behind each one and the factors that can affect them. 2. In the discussion of the results I would at least make hypothesis in order to explain globally the results considering the behaviour, and thus information given from all the methods. 3. Enphasise that, as it is proposed, the approach does not detect landslides, since the spatial distribution is not given by the ratios. On the contrary, in order to calculate the ratios, it is necessary to know the landslide, at least the location and the extension. It detects changes in the activity of already known landslides. 4. I propose this title: "Radar coherence and NDVI ratios as indicators of landslide activity changes. The case study of Mud Creek landslide in California." Which better represents your work. I would TOTALLY avoid to use the worlds "early warning" in the text. I would better say pre-alert useful to focus the attention and make deeper analysis and studies also complementing with other techniques. 5. Propose the future studies that you think will be useful to fill the gaps and the uncertainties. For example, what is it necessary to use these ratios as detection method? And what is necessary to use these ratios at a large scale? - - - -