

Interactive comment on “Analysing post-earthquake landslide activity using multi-temporal landslide inventories near the epicentral area of the 2008 Wenchuan earthquake” by C. Tang et al.

Anonymous Referee #1

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Review of Analyzing post-earthquake landslide activity using multi-temporal landslide inventories near the epicentral area of the 2008 Wenchuan earthquake By Chenxiao Tang et al. 2016 (ID: nhes-2016-193)

The paper aims to present the long term monitoring of post-earthquake landslide activities in the Mw. 7.9 Wenchuan earthquake struck region (the area between Yingxiu and Longchi towns) through the use of multi-temporal remote sensing images. Although a very good dataset is produced by the manuscript, unfortunately the same is not valid at all for its writing and organization. In addition, the dataset produced by the

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manuscript was not sufficiently analyzed and there is no detailed discussion about the results. It is appropriate to publish the current manuscript without handling these major deficiencies. These major points are explained briefly below:

Introduction section of the manuscript is not only disorganized but also does not include sufficiently the previous literature and the other studies carried in the study area after the earthquake. In this regards, the manuscript is not fluent and far from having a particular focus. In the Introduction section, it is needed to better explain the needs for this type of studies and main objective of the study. The Introduction also skipped some important studies in the literature, even though most of these studies would support this manuscript. The findings and a synthesis of the results of the below studies would make important contributions to the manuscript: Fan et al., 2012 (doi:10.1016/j.geomorph.2012.05.003); Lu et al., 2012 (DOI: 10.1007/s11284-012-0976-y); Liu et al., 2010 (DOI: 10.1007/s11069-010-9511-z); Wang et al., 2014 (DOI:10.1109/JSTARS.2014.2327794).

Another major issue related to the manuscript is the accuracy of the data that was produced especially for different period. It is not clear how the authors combined different resolutions images (i.e. SPOT 5 (2.5m), aerial photos (1 m), Pleiades (0.5 m) etc.) and removed the effects of using different scale data in determining the minimum area with landslide. What is the degree of the errors caused from the orientation angle in the images of different periods, as the study area is highly mountainous? “Completeness of the landslide inventory” is mentioned in the Methods section and in many other parts of the manuscript. What is meant by that? Completeness related to what? Because the authors mention here Dai et al., (2010) and Gorum et al., (2011) for considering as the baseline, but the resolutions of those studies are very coarse compared to this study. Therefore, the roll-over of the frequency-area distribution curves that was mentioned by the authors mainly results from the scale. Moreover, the fact that the Pre-earthquake DEM with relatively much coarser resolution than the images was combined with other images to establish artificial stereo pairs can cause considerable errors in the mapping

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of the landslides. It is needed to comprehensively discuss and present magnitudes of these errors.

The results of the landslides that occurred after the Wenchuan earthquake and triggered via intense rainfalls are presented in tables in the manuscript. I think it would be better to convert some of these tables (i.e. Table 6 and 7) into graphs for allowing a better comparison. Besides, it would be better to replace the word “situation” in “situation after the rainy season of 2008” with “state of activity” here. The comparison of the rainfall intensity threshold values related to the landslides that were developed after the earthquake with the threshold value prior to the earthquake would contribute to understanding the changes in the response of the hillslope after the earthquake. Finally, the post-earthquake rainfall events that are mentioned in Controlling Factor in line 377 are actually “triggering factor” and it is better not to evaluate them under “Controlling Factor”. In this respect, it would be better to change the heading of the Sub-section.

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