

Interactive comment on “Two multi-temporal datasets to track the enhanced landsliding after the 2008 Wenchuan earthquake” by Xuanmei Fan et al.

Anonymous Referee #2

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The authors describe two datasets of post-earthquake geohazard events that were collected after the 2008 Wenchuan earthquake. One is a multi-temporal landslide inventory of the area along the Minyang river near the epicenter, and the other is a database of debris flow watersheds and debris flow events. The authors have published this data and made it freely available to other researchers, which is a very important step towards an improved understanding of post-earthquake geohazards. Initiatives for collecting coseismic landslide inventories have been recently undertaken by Tanyas et al (2017) and Schmidt et al. (2017) who established a web-based repository of landslide inventories (<https://pubs.usgs.gov/ds/1064/ds1064.pdf>) and <https://www.sciencebase.gov/catalog/item/583f4114e4b04fc80e3c4a1a>. The cur-

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rent inventory could also have been submitted to this platform so that also post-earthquake inventories can be shared. Nevertheless, the sharing of this inventory is important. It is another issue, however, whether this merits a publication which is mostly descriptive, and repetitive. The description of the data set for post-earthquake landslide and analysis results were presented in an earlier paper of the authors in *Landslides* (doi: 10.1007/s10346-018-1054-5, 2018a). and the debris flow dataset was also presented in Tang and Van Westen (2018) (Tang, C., & van Westen, C. J. (2018). *Atlas of Wenchuan-Earthquake Geohazards: Analysis of co-seismic and post-seismic Geohazards in the area affected by the 2008 Wenchuan Earthquake*. Science Press). Why was the dataset not attached to the earlier publication in *Landslides*? This paper contains relevant limited new information. Methodologically, the analysis of the post-earthquake landslides is based on an earlier paper by Tang et al. 2016 (<https://doi.org/10.5194/nhess-16-2641-2016>). Also because they mapped almost the same area. The existing study has extended this area a bit but followed basically the same approach and classification method. If the paper is about the dataset, then it would be better to focus more on a quantitative analysis of the dataset. For instance by quantitatively analyzing the completeness and accuracy, and by comparing the data set with other data sets for the same area (e.g. there are several co-seismic and post-seismic landslide inventories made for this area). The debris flow watershed database should also contain information on when and what was carried out in the watershed in terms of mitigation measures. A real analysis of debris flow occurrence, rainfall, and treatment of the watersheds is basically missing. What is the relationship between the two datasets? Are the events mapped as debris flows in the landslide dataset the same as in the debris flow dataset? The paper has a bit too many references for not being a review paper. In my view the number of references could be reduced a bit, only using the really relevant ones. Specific comments: 1/16: event should be events 2/23-24: landslide inventories are important for more reasons than indicated here. This could be further elaborated 2/26-27: “several” seems it of an understatement. This work contains over 44 inventories. 2/33: examples of references are also

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from other earthquakes, like Kashmir (Saba et al). 4/10: how realistic are these empirical area-volume relationships when you compare them for your study area. This would be interesting in terms of the dataset, and the resulting conclusions that can be drawn from them. If you take the data from Parker et al (2011) and your own dataset and compare the area-volume relationships, they might show large differences. 6/1-6: Why did you not use different DEMs before and after the earthquake, given that the earthquake produced large differences in elevation? 6/7: Why did you use two pre-earthquake scenes if the aim was to map post-earthquake changes? And one of these was a Landsat image with very coarser resolution than the others (See table 1) 6/9-10: Why did you delineate the co-seismic landslides? This has been done by at least 4 other researchers? 6/12 and Figure 4: How good can you separate debris flows from channel deposits? Debris flows end up in the river channels in such a steep environment. Table 1: Country should be county Figure 3: A comparison with Tang et al. (2016) who did the same would be relevant in the analysis section. Figure 4 and 5: these are also very similar to the ones in Tang et al. (2016) 12: Uncertainties. Did you only map one small watershed by all mappers? This test area seems to be rather straightforward? It would have been good to show more on the background of the mappers, in terms of experience and background knowledge, and how the results were for all mappers individually. Also, comparison with other inventories generated by others would have been relevant. Table 3: consider rounding off the values. Figure 7: provide more description and conclusion on the results of the area-frequency analysis. 15/18 : Describe more how the multiple dates of occurrence for so many watersheds were collected. How many surveyors? How often did they visit the areas? Etc. 16/1-2: for how many of the debris flow watersheds was it possible to get rainfall data within 5 km? 16/12-14: describe the method in more detail and give reference to other work. Table 4: how was the volume of the deposits determined? Figure 8: Is this not already published?

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