Natural Hazards
and Earth System
Sciences

Discussions

Interactive comment on "Automated reconstruction of rainfall events responsible for shallow landslides" *by* G. Vessia et al.

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Specific Comments: 1.Introduction page 2870 line 24 – What about vegetation effect? We change the text to consider vegetation.

2.Introduction page 2871 line 6 – Location is also obtained from aerial photography, and increasingly from satellite imagery. The text was changed.

3.Introduction page 2871 line 24 – for clarity should say ": : :.. a sample of 100 rainfall events that initiated 100 single landslides: : :: : :" This is the same phrase as in the first sentence of the Discussion, and avoids confusion with the statement about 100 landslides in the Abstract. Done

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4. Section 5 page 2880 line 1 - As background for the reader, what was the range of geological/morphological settings for the 100 landslides? Additional information is now provided in Table 1 and Figure 5.

5.Section 5 page 2880 line 1 –Presumably each of the 100 rainfall events caused numerous landslides? If so, then is the single landslide referred to in each event, chosen because it was the one for which the time of initiation was best known? What about the many other landslides that occurred during each event? Presumably many occurred at different times during the event (due to varying site conditions), and they likely had different rainfall thresholds. Is it likely the six possible rainfall events (thresholds) calculated by the automated reconstruction method identify some of these? Can the authors comment on potential of the method to identify thresholds for multiple landslides within a rainfall event? The reviewer is correct. Because information on landslide occurrence is taken chiefly from newspapers, that typically focus on events that have occurred in urban areas and their immediate surroundings, the catalogue of landslides events underestimates the total number of shallow landslides that have actually occurred, and that remains unknown. For rainfall threshold definition we use the first known onset landslide time among the ones we know. Nonetheless, the automated method tries to consider six combinations that likely trigger the first known landslide. For this reason, we use the automated method with different combinations of time windows and intervals. Nonetheless, it is worth noticing that we consider the rainfall measured at a representative rain-gauge. Thus, at each point in a radius of 10 km, we hypothesize that the rainfall was the same as the one measured at the rain gauge. We acknowledge that this was a simplification.

6.Section 5 page 2880 line 20 – Further discussion is needed following this sentence. Is the difference significant? We provide additional information.

Technical Corrections:

1.Section 4.2 page 2877 line 25 – Figure 3a, d and f should be Figure 3a, c and e. 2.

Done Figure 5 page 2889 – The plot labelled 5a is in fact plot 5c, and 5c is 5a. And 5d is 5f and 5f is 5d. (Refer to the Figure 5 caption for correct labeling). Done

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