

Interactive comment on “Amalgamation in landslide maps: effects and automatic detection” **by O. Marc and N. Hovius**

Anonymous Referee #2

Received and published: 6 February 2015

The manuscript tackle an interesting subject concerning the quality of inventory maps especially for what concerns the type of mapping and the definition of some morphometrical characteristics to derive some relevant geomorphological parameters. This reviewer considers this an extremely interesting subject considering the use and abuse of inventory maps, and sometimes the reduced attention placed in the collection of the landslide data.

The authors define a method for automatically identify mapped polygons which do not satisfy the main requisite to pertain to a single landslide event.

The manuscript is complete, simple to read and clearly presents the approach.

My main suggestions, which derive from personal experience, concern: - a deeper dis-

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cussion of the acceptable error in the definition of the landslide area/volume. It is a long time now that inventory maps are used to evaluate the erosion in a landscape following major triggering events. Most of the approaches adopt equations for the computation of landslide volumes starting from landslide areas. These relationships are already based on rough volume estimates which can be affected by large errors and/or uncertainty. - this paper demonstrates that the estimates can be or have been affected by relatively large errors. what is the acceptable level in common estimates? When thinking at landslide stabilization works, for example, a wrong volume estimate can be unacceptable even for relatively small values errors in volume estimate by a factor of three could seem enormous, the same change in power law exponent of 50%. so what can we really accept of the past analyses already published in the literature? - the authors suggest the problem of the subdivision of the landslides in subareas/sectors: source, transportation and deposition. In many earthquake induced landslides the transportation zone can be extremely large. So the computation of the total area can introduce a major error in the computation. - The same can be said for coalescent landslides or those that are enlarged by erosion connected to successive rainfall events or for example other ground shakings. The experience of this reviewer suggests these can be extremely important. It would be interesting to add some more comments - It is also frequent that for many automatically detected landslides the mapped phenomena are not landslides at all and this could be said. - what is the influence on the results of using different volume thresholds for different earthquake datasets? - the algorithm for checking the elevation within each branch is unclear - $Sc = 10^\circ$, isn't this a low value? can just comment a little bit more about this threshold or the influence on your model of the use of different threshold values? - please to make easier the reading give between brackets the false neg and false pos definition for your problem

Minor comments: - page 5: I do not think it is simply a problem of bad and incorrect preparation of inventory maps before the use of landslide area-volume relationships. Many recent inventories are clearly affected by this error and many of these inventories and older ones have been used for computing and developing volume - area

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relationships

(end of) page 6: is it like saying that the geological features are not relevant at controlling landslide size, position and density?

- page 9 line 20: amalgamation

- page 10 line 1: 162, respectively 51? there is something wrong

- page 14 - lines 2-4: not fully clear and understandable

- page 15 - lines 21 etc: pixels? better use cells

To conclude this review, I think the manuscript is interesting and by a simple method and some basic observations suggests a reasonable way to improve the analyses of landslide inventories, both old and new, when determined by automatic techniques.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 7651, 2014.