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Natural Hazards and Earth System Sciences
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Discussions

Interactive comment on "Comparison of event landslide inventories: the Pogliaschina catchment test case, Italy" *by* A. C. Mondini et al.

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This paper describes a quite innovative approach for the preparation of landslide inventory maps triggered by a specific event. Methods and procedure adopted are well detailed. The paper, mainly for the relevance of the topic and the novelty of the approach, is interesting and should be recommended for publication, even if it requires minor revisions. The good level of written English is appreciated. Surprisingly, many lacks and/or mismatches are present in citations and reference paragraph. Benefits of the used methods are appropriately discussed while the analysis of costs is limited. In fact the time required for the preparation of the two inventories is described in the conclusions, while no description is available about the costs. For example, the purchase

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of satellite images is often a big issue that could motivate the selection of different methods. Some few consideration about it in the conclusions would be of interest.

We thank Reviewer I for the positive comments and we apologise for our poor attention to citations and references.

General remark on costs: Costs are certainly important in the choice of the technique to map landslides, mainly if not in emergency situations. The cost of a 100 km2 monoscopic satellite MS VHR scene which is the minimum purchasable plot at commercial providers, and four times the extension of our study area, is more or less standard and around now 2 K€U̇nfortunately we do not know the cost for the production of the orthophotos we obtained. In general orthophotos prices are more variable and depending on many parameters but we expect to be more expensive than a satellite acquisition. For this reason, we are not able to compare the two techniques from this point of view. We then added a final remark into the discussion: "The unavailability of the costs to produce the orthophotos does not allow a comparison between the two techniques from the economical sight"

Other requested corrections and comments are listed hereafter in order of appearance in the manuscript.

Pg. 3 line 42. "Ercanoglu and Gokceoglu, 2004" is not present in references.

The reference was added to the list of references.

Pg. 3 line 61. "Brardinoni et al., 2002" in references is Brardinoni et al., 2003".

"Brardinoni et al., 2002" was changed to "Brardinoni et al., 2003".

Pg. 4 line 84. "Raggi, 1985" is not present in references.

The reference was added to the list of references.

Pg. 4 line 91. "ISPRA, 2013," is not present in references.

The reference was added to the list of references.

Pg. 5 line107/108. “Analysis of weather radar.......... in the catchment”: this sentence should be supported by some references or, at least, a citation of a project / institution that have carried out the analysis (maybe the author themselves).

We have added the following reference: Marchi, L., Boni, G., Cavalli, M., Comiti, F., Crema, S., Lucía Vela, A., Marra, F. and Zoccatelli, D.: The flash flood of October 2011 in the Magra River basin (Italy): rainstorm characterization and flood response analysis, Geophysical Research Abstracts, 15, EGU2013-11125, 2013.

Pg. 6 line 139/141. The ancillary data/thematic maps listed (i.e. geologic map, land cover map, DEM and so on) should be characterized by the author and/or project and/or origin.

We obtained the orthophotographs and the ancillary cartographic data from the Liguria Region geo-portal at the address: http://www.cartografia.regione.liguria.it. The information is now added in the text.

Pg. 7 line 171/172. Some few words to detail the field surveys would be appreciated (how many, which dates, types of investigated landslides,. . .).

We added further details on how field surveys were carried out. The new text reads:

“Visual interpretation of the aerial and the satellite imagery was aided by field surveys aimed at making the interpreters familiar with the landslides and the landscape where the slope failures occurred, and to resolve local ambiguities and visual classification problems. Field surveys lasted about two weeks and where carried out during the weeks after the event and one year later, in the period between October 2012 and January 2013. With a maximum depth of two meters, all landslides were classified as shallow and grouped into four classes: (1) translational slides, (2) earth flows, (3) soil slips, and (4) rotational slides. Field surveys allowed recognizing the different types of landslides, and to collect soil samples to characterize residual soils in the landslide

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scarps. In the study area, translational and rotational slides are located mainly at the foot of slopes along main and secondary streams. Earth flows exhibit elongated shapes, are frequently channeled along secondary streams, and exhibit longer run out distances than the translational and the rotational slides. Lastly, soil slips are the first evolutionary stage of the other landslide types, and exhibit wide and irregular surfaces that are covered locally by grass and shrubs. Soil slips are abundant in terraced slopes, in low gradient areas where vegetation is scarce, in cultivated areas, and in abandoned cultivated areas. This finding is in agreement the observations of other authors (Canuti et al., 2004; Conti and Fagarazzi, 2004; Tarolli et al., 2014) on the relevance of processes associated to agricultural land abandonment, including lack of maintenance of dry-stone walls in terraced areas and the clogging of minor drainage channels, on soil degradation and the initiation of shallow slope instability."

Pg. 8 from line 210. The description of the image classification is limited. How many and what classes did you classified? I assume: water, forest, urban areas and landslides. It is not clear. A supervised classification map would help a lot, maybe together with the NDVI map.

We modified the paragraph in:

"We classified the non-shadowed part of the image (Fig. 5) using a supervised maximum likelihood classifier. For the landslide land cover class, we trained the classifier using seven regions of interest (ROIs) located in identified landslide areas. These ROIs were selected where the soil was bare or the vegetation was sparse, assuming that landslides had removed the dense and uniform vegetation that covered the slopes before the event. We selected twelve supplementary ROIs to represent three additional land cover classes: vegetation (forest, six ROIs), water (one ROI), and urban areas (five ROIs)."

We initially made a try to insert both the result of the Maximum Likelihood classification and the NDVI map in the original version of the manuscript. We decided to do not include them because the graphical quality of the maps at 300 dpi and 7.5 cm large (journal specifications for one column map) was not good. We include in Fig.1 an example (ML).

Pg. 17 line 505. “Roth. . .. .” is not cited in the text.

Citation was removed from text.

Pg. 17 line 511. “Wald. . .. .” is not cited in the text.

Citation was added in the text, in section 5.2

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 1093, 2014.

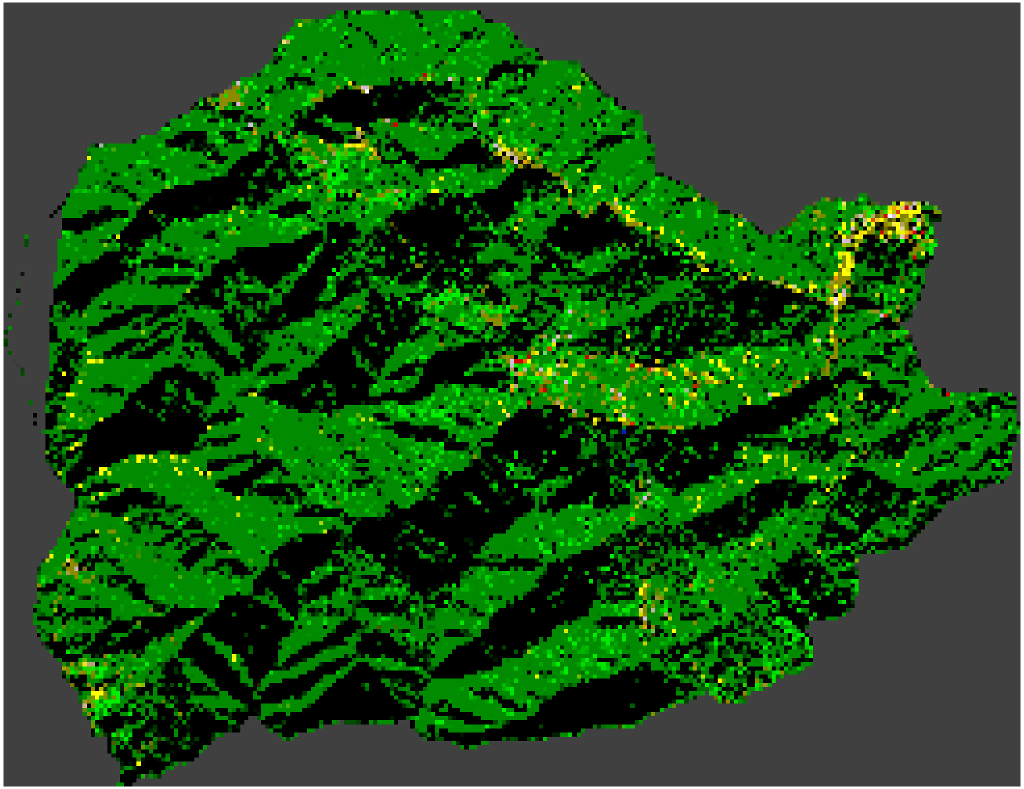

Fig. 1.

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