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Interactive comment on "An approach to reduce mapping errors in the production of landslide inventory maps" *by* M. Santangelo et al.

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About the first comment, choosing GCPs is an error prone process. That's why we wrote a section (§3.3) on the quality evaluation of the orthorectification. In that paragraph we aim to underline that, despite the orthorectification process (and so also the GCPs selection) introduces errors, the overall RMSE between the aerial photograph orthorectified and the orthophotograph used to choose the GCPs (external orientation), is ~5m. This number is lower than the graphical error due to the finest felt pen available (0.3 mm, that would be 8.4 m on 1:28,000 scale aerial photographs). This means that the error resulting from an inventory produced exploiting the orthorectification (performed with this accuracy) is completely contained in a buffer of 4.2 meters on

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both sides of the landslides border. This is what we mean when we state (line 214-218): "Considering that the graphical error for an AP at 1:28,000 scale is 5.6 m (where the graphical error is 0.2 mm × 28,000), and the (nominal) width of the felt pen used to draw the landslide information on the plastic sheets was 0.3 mm, corresponding to 8.4 m at the scale of the APs, we conclude that the semi-automatic ortho-rectification method is suitable for the production of a LIM, at 1:10,000 scale."

On the other hand, a visual comparison (Figures 7 and 8) between the inventories (point 2 of the first observation on GCPs, posted by the Reviewer) produced adopting the two procedures, shows that the mismatch is far larger than a 4.2m buffer on both sides of the landslides border. In figure 8, using the graphical scale, one can argue that the offset between the landslide borders is (very) often larger than 20-30 m, three-five times the overall co-registration between aerial photographs and the topographic base map used for the visual transfer. Therefore, the "signal" of the mismatch that we observe is to be imputed almost completely to the visual transfer. We maintain that this is not an assumption (as the reviewer states), but the logical consequence of these observations.

The reviewer also says that we should take into account the distortions due to the selection of GCPs when comparing the two inventories. We did not mean to do so, because Section 4 aims to present the results of a comparison between two maps showing shape location and size differences between pairs of landslides, rather than discussing the reasons underlying such differences. Only later, in the discussion section, we state that we consider the mismatch due to errors in the visual transfer (please refer to the paragraph above). About the time of the GCPs selection, it is considered, of course, in the comparison between the two procedures, and it was arguable from the lines quoted by the reviewer himself (350-354) in the first part of his comment.

About the second comment, admittedly, we disagree with this opinion. Despite the paper deals also with a few technical issues, we maintain that it deals with problems having a scientific relevance. We are not writing a paper that presents how orthorecti-

fication works, but analyses whether it is suitable for landslide mapping, and what are the possible impacts of its use in landslide mapping.

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