

## ***Interactive comment on “Criteria for the optimal selection of remote sensing images to map event landslides” by Federica Fiorucci et al.***

**Anonymous Referee #2**

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This paper aims at comparing different geological mapping of the perimeter of an Italian landslide within a temperate area partially covered with forested vegetation. The authors realize that high resolution, various wave length and stereoscopic views helps a lot in order to precise the external geometry of some sections of this landslide (crown-transport and sedimentation areas). Moreover authors quantify the misfit in between those different mappings relative to a benchmark (Field RTK DGPS survey) through a useful error matrix. The differences in the mapping partly derived from the forest cover that hide the exact perimeter of this landslide.

To my point of view the main teaching of this paper is not new as geologists/geomorphologists experts in mapping know since a long time that very high resolution, as well as False color composition (relative to True color) and stereoscopic analyses are major and compulsory keys for a precise and exact geologi-

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cal/geomorphological mapping of any geological/geomorphological objects. Moreover, planimetric differences of mapped objects also are not new see for instance the work on various fractal distances on the measurements of a Britany shoreline that change a lot function of the scale and the resolution (see the basic work of the mathematician benoit Mandelbrot ENSMP Fontainebleau and his team in the 1980's).

The interest of this paper is to illustrate it correctly with a pedagogic example and to recall to any scientists these facts using a specific example. In that sense it is interesting for NHESS to publish it.

Anyway, I propose major revision for this paper and to make some more work in order to optimize the inputs of this paper : 1. Could you differentiate more clearly the 3 sections of this landslide on those various mapping erosionnal part (crown), transport section, and at least the sedimentationnal section (toe). With which image (and why) do we have the best and the more exact geological mapping of this landslide ? 2. Could you precise the inputs and differences through local case examples on a new figure of high resolution DTM, FCC and stereoscopic mapping in order that the reader will be able to get an independant position. 3. Please finally dealing with your experience on that landslide what (and why) is your best and more exact mapping ? please justify it ? 4. What is your best methodological solution to map precisely such Italian landslides ? 5. If you compare the benchmark and the mappings the map E (stereoscopic image seems the best fit... could you comment on that ? 6. Definitely I do not understand the misfit between map A (field DGPS survey) and map B (field landslide mapping), could you comment on the experts landslide mapping discrepancies ?

into details: p4. line92-94: precise ...predominantly photogrammetric... and morphometric... p5. line 108 : an horizontal... page 6, line 162: field page7, line 182: perform an heuristic page 8, l221: this source area was characterized by small cracks (please show on a figure those features. page 9, line 228 to 257 the comments of the table 2 is difficult to follow could you find an easier solution more convenient and easier to understand to present those results ? P.11 , line 282 poor agreement please precise... P.11,

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line 287: good agreement please precise... P.13, line 343 please precise a sentence on the resolution of the NIR datasets used herein and what could be the inputs if the NIR dataset if it would have 3x3cm2 ground resolution... P.14 line 385 ...is comparable... is to my point of view poor... We do need to have precision on the differences in between mapping from stereoscopic and high resolution... You are working on a local case example you should go farther on your reflection and give to the scientific community your choice of the best way to map such kind of landslide. P.14, lines 396-397: and partly independant from the local lighting conditions including the cloud cover... please precise... p.15, l 407 flying P.15, l.412 : large or very large areas... p.16, l 447-448: a better resolution and spectral resolution did not contribute significantly to reducing the mapping errors : ??? please precise... p.16, l461: prove to be very effective P. 17, 8 l 481 acknowledgments the references needs to be carefully checked. Fig.1 to 4: please give comments within the legend that give the key points of the figures. Add a figure with specific details inputs of the landslide and compare it to the different geoloigcal mappings.

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