

Interactive comment on “Emergency management of the 2010 Mt. Rotolon landslide by means of a local scale GB-InSAR monitoring system” by William Frodella et al.

William Frodella et al.

veronica.pazzi@unifi.it

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Dear Referee,

We would like to thank you for your encouraging comments, which we largely agree upon. We are sure that the manuscript will greatly benefit from your suggestions. Hereafter the list of your comments is reported, followed by our response. We will also provide a version of the manuscript with the tracked revisions.

Referee #1 comments: in the Introduction section, when the Authors speaking about the use of innovative technologies for the characterization and monitoring of landslide-

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affected areas (see from line 32 to line 38), including remote sensing techniques and radar interferometry (both terrestrial and satellite), in according to scientific literature, the authors should include some other references such as: Gullà et al., 2017; Peduto et al., 2017a; Tofani et al., 2014.

Authors: the proposed references were included.

Referee #1 - in the section 3, at the line 131, the Authors speak in general about of a millimeter accuracy of the acquired data by GB-InSAR. Give more detail about the real accuracy (range values). A comparison with conventional ground monitoring techniques, was carried out? What are the differences on the accuracy also compared with the InSAR data provided by satellite sensors? It might be useful to provide a comparison whit the values included in the works of Nicodemo et al., 2016; Peduto 2017b; Casu et al., 2006) about the accuracy on the average velocities or displacements data derived by satellite radar sensors processed by InSAR or DInSAR techniques.

Authors: More details about the range value accuracy were given in the text (including the suggested works). References were also given in the discussion section about an automated total station working in the landslide area in during our research (see the manuscript revised version).

Referee #1 - in the section 5 as well as in the figures 7,9 and 10, the Authors refer to incremental cumulative displacement (ICD) or monthly cumulated displacement (MCD) evaluated along the LOS direction. Why not along the real movement direction? Could be performed a data projection? Please, provide further details about this.

Authors: It is well known that a GB-InSAR system is able to measure only the component of the movement parallel to the LOS of the instrument. Thus the real displacement vector of the observed object can be calculated only if its direction is a priori known. This is one of the major limits of the technique. This is why usually the instrument is set with the view direction as parallel as possible to the expected deformations. The current paper was centered on the application of a monitoring system applied to a par-

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ticular case study (a debris-flow affected slope in a mountainous inhabited area), which results could be shared with the involved technical personnel. Therefore we focused on easy interpretable data, while the data projection on the slope in order to obtain of the real movement direction will be the objective of a future work.

Referee #1 - for a better understanding, an improvement of the Figures 3 and 11 is necessary. In particular, a visible legend should be provided.

Authors: The legend of Figure 3 and 11 were improved.

Please also note the supplement to this comment:

<https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2017-207/nhess-2017-207-AC1-supplement.pdf>

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2017-207>, 2017.