

RE: NHESS 2017 416R1

Uzielli et al. Temporal evolution of landslide hazard for a road infrastructure in the Municipality of Nocera Inferiore, southern Italy, under the effect of climate change.

Overview

The authors improved the paper. However, there is a point to be exploited yet. The hazard they estimate, results from a probability calculation. Really, according to the Technical Italian Law, the estimation of hazard is quantitative and is usually obtained after considering three scenarios of different return period. The hazard the authors determine, seems a susceptibility hazard rather than a hazard. Therefore, the authors in the introduction should defining the hazard they are investigating after introducing the other hazard approaches. In this sense for clarity, they should also add that the “quantitative hazard” is determined in different way by using models able to simulate both deposition and entrainment (Deangeli, 2008, Rosatti and Begnudelli, 2013; Frank et al. 2015, Stancanelli et al. 2015, Cuomo et al. 2016, and Gregoretti et al. 2018)

The following are the detailed comments to the unclear sentences.

At page 1 line 20, what does it mean “concentration scenario”?

At page 1 line 25, while (conversely)????? The authors should choose one.

At page 1 line 25 there are two commas

At page 2, lines 21-22 not clear sentence

At page 2 line 27: references missing for the other studies

At page 3 line 7: The meaning of the sentence “Flow-like landslide.....” does not match the manuscript: the reach probability is the second step after the triggering probability for estimating the hazard. It is not an added value, something more as the sentence shows.

At page 3, line 25: what is it ZOB? Please define it.

At page 3 lines 24-27: the difference between channelized and un-channelized is not clear.

At page 4, line 2 “...estimate of hazard and its mapping” is better

At page 4 the sentence “The study area was modelled into the GIS software through a digital terrain model (DTM) having a resolution of 15x15 m.” is rather unclear

Cuomo, S., Pastor, M., Capobianco, V., Cascini, L., (2016). Modelling the space- time bed entrainment for flow-like landslide. *Engineering Geology*. 212, 10-20. doi:10.1016/j.enggeo.2016.07.011

Deangeli, C., (2008). CLaboratory granular flows generated by slope failures. *Rock Mechanics and Rock Engineering*. 41(1), 199-217.

Frank, F., McArdell, B.W., Huggel C., Vieli. A., (2015). The importance of entrainment and bulking on debris flow runout modeling: examples from the Swiss Alps. *Nat. Hazards Earth Syst. Sci.* 15, 2569-2583, doi:10.5194/nhess-15-2569-2015

Gregoretti, C., Degetto, M. Bernard, M. Boreggio M. (2018) The debris flow occurred at Ru Secco Creek, Venetian Dolomites, on 4 August 2015: analysis of the phenomenon, its characteristics and reproduction by models. *Frontier in Earth Sciences*, doi: 10.3389/feart.2018.00080 (accepted for publication)

Rosatti, G., Begnudelli, L., 2013. Two dimensional simulations of debris flows over mobile beds: enhancing the TRENT2D model by using a well-balanced generalized Roe-type solver. *Comput. Fluids* 71, 179–185. <http://dx.doi.org/10.1016/j.compfluid2012.10.006>.

Stancanelli L. M., Foti E., (2015). A comparative assessment of two different debris flows propagation approaches - blind simulation on a real debris flow event. *Natural Hazard Earth System Science*, 15, 375-746. doi:10.5194/nhess-15-375-2015.