

Interactive comment on “A comparative assessment of two different debris flow propagation approaches – blind simulations on a real debris flow event” by L. M. Stancanelli and E. Foti

Anonymous Referee #1

Received and published: 15 December 2014

The manuscript describes the application and comparison of two different approaches for the modelling of debris flow propagation, namely FLO-2D and TRENT-2D, to the catastrophic event of 1 October 2009 in Sicily. The manuscript doesn't provide any innovative approach related to the issue, but the application of well-known models such as FLO-2D and TRENT-2D is interesting. Furthermore the manuscript looks well organized and the results are valuable and well described. Anyway, the manuscript shows some limitations mainly concerning the introduction section and the data referring to simulations section. The introduction section misses literature concerning the mod-

C2729

elling of propagation of debris flows and in particular some references on the application of the models used (FLO-2D and TRENT-2D) to other case studies in Italy and all over the world. I think it is important to know how these models have been previously applied, how they have worked and with which results. This is important to adjust and to tune the application to the selected case study. Here below some selected papers which can help you to extend your references:

Armento MC, Genevois R, Tecca PR (2008) Comparison of numerical models of two debris flows in the Cortina d'Ampezzo area, Dolomites, Italy. *Landslides* 5:143–150

Revellino P, Hungr O, Guadagno FM, Evans SG (2004) Velocity and runout simulation of destructive debris flows and debris avalanches in pyroclastic deposits, Campania region, Italy. *Environ Geol* 45:295–311

M. Nocentini, V. Tofani, G. Gigli, F. Fidolini, N. Casagli (2014) Modeling debris flows in volcanic terrains for hazard mapping: the case study of Ischia Island (Italy). *Landslides* (on line first).

Concerning the “Data referring to simulations” section I would suggest you to change the title to Input data for modelling. Furthermore I would suggest you to better describe how the input data have been derived, measured or simply taken from literature. For example: how the DTM has been derived? what do you mean for a detailed on site survey? The rheological parameters for the TRENT-2D model have been measured in laboratory or simply derived from literature values? Please explain better. I would suggest you to provide a table with the rheological parameters used in your analysis for both models.

Some specific comments on figures and tables follow: Table 1: could you please explain in the table caption the meaning of the abbreviations in the table. Figure 3 and 4 are very small, I would suggest you to enlarge them in order to increase the readability of the results. The legends of figures are not readable at all.

C2730

Eventually I would like to suggest a throughout revision of the English language. I'm not a native English speaker but I have found several syntax and grammar errors.

I hope that the above comments can help you in improving the manuscript.

Best regards

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 7089, 2014.

C2731