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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Exposure-based risk assessment and emergency management associated with the fallout of large clasts" *by* Sara Osman et al.

Anonymous Referee #2

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Dear Editor, thanks for allowing me to read and review the manuscript titled "Exposure-based risk assessment and emergency management associated with the fallout of large clasts" by Sara Osman et al.

The manuscript discusses and tackles the hazard due to large clasts (>5cm in diameter) that can be released during explosive eruption and impact areas up to 10 km from the vent. A probabilistic study is proposed based on a new numerical model suitable for describing the dynamics of such clasts that for dimension and density do not detouch from the main plume as a pure ballistic, but remain partly coupled with the flow. Mt. Etna is taken as a case to validate the hazard study and to identify the risk

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Discussion paper

due to such events as they have occurred several times in the past. Infrastructures, like buildings and roads and hiking paths, have been considered to evaluate the risk posed by the fallout of such large clasts (for the purpose of the study clasts with diameter = 5 cm have been considered). The manuscript is well-written and well-structured. It is easy to read it and the main results are well-presented. A lot of material (appendices and supplementary material) are availale to the reader. It sounds to be a preliminary study to identify the basis for more detailed investigation. The topic is original and a manuscript on this topic is necessary. My general evaluation is that the paper needs minor revisions as suggested below. However, it is important to mention what the other anonymous reviewer has raised, and I agree with it, i.e. the new model developed by Rossi et al. is not currently published. Despite the current manuscript approaches the modelling aspect by investigating the sensitivity of the model results to different input parameter, it is hard to defend a paper fully exploiting a numerical model for which the are no references that can be cited. It might be in the meantime Rossi‘s paper has been accepted and published in case I‘d encourage the authors to quickly review this manuscript and have it published. But if Rossi‘s paper is not accepted for publication we cannot accept this current manuscript for immediate publication. I trust the Editor to take the final decision for this submitted manuscript. My minor comments are: 1. the title: I‘d suggest to specify in the paper that the study is an application to Mt. Etna 2. Par 10: fCioni, please correct it 3. the authors report an estimate of tourists from 2010, there is not a more recent number to include in this paper? 4. when the authors talk about kinetic energy: is the kinetic energy calculated by Rossi‘d model? Explain 5. In the pedestrian evacuation analysis: could the authors please comment more on the reason why they choose the thresholds of 1% to define the hazard area? 6. in the emergency management section it would be interesting to know if any exercise has been practiced so far to evaluate the evacuation plan/time...

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