

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC2  
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## **Comment on nhess-2021-301**

Anonymous Referee #2

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Referee comment on "Assessing the effectiveness and the economic impact of evacuation: the case of the island of Vulcano, Italy" by Costanza Bonadonna et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2021-301-RC2>, 2022

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The authors present an agent-based simulation software and the analysis of the effectiveness of an evacuation at Vulcano Island in case of volcanic alarm.

The conclusions are based on the estimate of the potential economic losses, parameterized as the turnover related to the touristic activity in different periods of the year.

The paper is clear and well written.

### Comments

Line 242, line 317: Gas emissions should be also mentioned (see the recent crisis of Vulcano in September-October 2021).

Line 649 and 730-739: Regarding partial evacuation it should be considered that, according to what is reported in lines 194-199, the area of Port hosts some critical infrastructures as the main power plant, ie: not only "touristic infrastructures".

Line 689: The evacuation by foot does not allow transporting heavy baggage or other goods (such as the car). This could be accepted by the people in case of imminent risk for life, but probably not in case of a preventive evacuation. Are you considering the evacuation by foot for simulation purposes (ie: a model approximation), or you consider that this is, in any case, the best solution? Since this could be a critical point for the evacuation model, probably it needs a better description.

Line 711: I think that a partial evacuation of a given area could have also a psychological impact on the tourists and residents living in neighbouring areas, triggering, probably, a spontaneous evacuation of other zones. Did you consider this situation?

Line 691: "people with disabilities are considered in the simulations by using a low walking speed". This seems not very realistic, considering that elderly or disabled people could have serious walking problems. This approximation can be considered for simulation purposes but probably it is not realistic for an evacuation plan.

Line 715: Please, specify here if you are considering only the costs related the activities indicated in Tables 4-6 (which do not consider other possible turnover related to shops, transports, services, etc.)

Lines 713-720: It should be considered that an evacuation during the "low season" could affect or compromise also the "high season", due to the typical maintenance works of the touristic infrastructures performed during the low season and the impact on the activity of hotel booking, etc.

Lines 873-874. Considering the uncertainties, expressing the evacuation times in minutes (with 1 minute resolution) seems not very realistic. Probably reporting times in hours with almost one decimal digit could sound better.

Typos:

Lines 250 and 784: Ricercheof -> "Ricerche of" (insert space)

The citation "Bonadonna et al., 2021" is ambiguous since the References report two papers with this reference. Probably you could resolve the ambiguity by labelling them 2021a and 2021b.