

Interactive comment on “Brief Communication: The effect of submerged vents on probabilistic hazard assessment for tephra fallout” by R. Tonini et al.

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I have found the Brief Communication by Tonini et al. “The effect of submerged vents on probabilistic hazard assessment for tephra fallout” very interesting as it explores different approaches to take into account the effect of possible submerged events in the assessment of the tephra fallout hazard. I think that this paper is of potential interest to the readers of NHESS, and within the scope of the journal.

I hope the authors find my comments and suggestions useful.

MAJOR COMMENTS

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The communication is in general well-structured, well-written and concise. Nevertheless, there are some points that, in my opinion, need further explanation or discussion

-One of the most interesting points of this brief communication is the comparison between the results obtained in CFc for the different approaches proposed. However, I was surprised to see that there is no comparison between CF2 and CF3 either in the text or in figure 3. I would appreciate the inclusion in figure 3 of a map showing the comparison between CF2 and CF3, and a short comment in the text.

-On the results and discussion section the authors state that, due to the similarity of the results for CF3 and CF4, both approaches can be used to estimate the PVHA to CFc (p.7190, lin.11-12). However, on the results section (p.7191, lin. 6-9) they propose that a comparison of PHVA based on H3 and H4 could be a good strategy to quantify the effect of submerged vents on tephra fallout. I wonder if the authors propose that this conclusion is valid for every active volcanic area or only in the case of CFc. If the conclusion is general, I think that this application to CFc is not enough to support it, mainly due to the peculiar factors of CFc described in page 7189 lin 15-18 and 20-24. If the above mentioned conclusion is only applicable to CFc, I would like to know the influence of the chosen weights (0.5 and 0.5) in CF3. Maybe a simple sensitivity analysis like the one performed for Dmax value in CF4 (p.7189, lin.11-18) would be enough to have a clearer picture on the usability of H3 in CFc and even in other volcanic areas

MINOR COMMENTS

P.7182, lin16: among the many others -> among many others

P.7183, lin.4: all of studies -> in all of the studies

Fig.2 I find the maps rather small. Maybe deletion of repeated scales could help to enlarge the maps. Although the meaning of columns and rows is clearly explained in the caption, addition of a short title to each column and row would increase the

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readiness of the figure.

Fig. 3 I also find the maps too small. I would appreciate using the same scale for the four maps, autoscaling each map makes the comparison between them difficult. There is an obvious mistyping error in the caption, as it says that both the top right panel and bottom left panel correspond to variation between CF1 and CF4. I suppose that bottom left panel corresponds to variation between CF1 and CF3. There is another mistyping error in the caption: lef panelt -> left panel

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