Natural Hazards
and Earth System
Sciences

Open Access

Discussions

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

## Anonymous Referee #2

Received and published: 24 December 2014

Overall Impressions

I read the Brief Communication "Tonini et al., The effect of submerged vents on probabilistic hazard assessment for tephra fallout" with interest considering that is a new research focused on the quantification of the effect of submerged vents on probabilistic volcanic hazard assessment for tephra fallout. I think that is a new aspect for scientific investigations within the NHESS scope.

This Brief Communication shows a strategy to quantify the effect of submerged vents on probabilistic volcanic hazard assessment for tephra fallout, based on a simplified

empirical model where the efficiency of tephra production decreases as a function of the water depth above the eruptive vent. The method is presented through an application to Campi Flegrei caldera, comparing its results to those of two reference end-member models and their statistical mixing.

The Introduction is well structured, but I think that it is too large (also sentences too long – P7183/L8-15) and some information can be moved in the other sections.

However, I think that in "Application to CFc case study: PVHA input" Section it would be useful to have more details about input parameters of simulations.

I think in the "Results and Discussion" Section it is not very clear the conclusion about the similarity between CF3 and CF4 to estimate the effect of the sea on the final PVHA. How would it change assigning different weights in the statistical mixing (CF3)?

Some specific comments

P7189/L23 – "Fig. 1", I will change in "Fig. 1, bottom panel"

P7189/L27 – In the text, you refer to residual probability of the results "between CF1 and CF2, CF1 and CF3, and CF1 and CF4 respectively, all divided by CF1". But in Figure 3, CF1 and CF3 is not included. Why?

P7190/L8 - It could be useful to refer at Figure 3 to show the result obtained for the percentage variation between CF4 and CF3.

Figure 3 – "bottom lef panelt" → "bottom left panel"

Figure 2 and Figure 3 - I will extend the area of CFc to improve the visualization of the PVHA for tephra.

It could be better to organize figures using subfigure names (a, b, i, ii, . . ...) to make easier the reading of this brief communication.

In general, revise english/american words (e.g. modelling/modeling)

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 7181, 2014.