

Interactive comment on “Long-term volcanic hazard assessment on El Hierro (Canary Islands)” by L. Becerril et al.

L. Becerril et al.

laurabcar@gmail.com

Received and published: 21 May 2014

Authors are thankful to the reviewer. Her comments will definitely help to improve the quality of the manuscript.

General comments

1. The use of “susceptibility” map requires further explanation as this is not a common name for maps in volcanology. An explanation of what information was used to determine the zones on the susceptibility map would be helpful; it would also be interesting to see some structures on the susceptibility map, such as faults and rift axes. I acknowledge that the authors do cite Becerril et al. (2013) for this information, but at least a brief explanation should be presented here.

C779

The term “susceptibility” was introduced by Felpeto et al. (2007), that means spatial probability to host new future eruptions. These authors followed the criteria used in other geological risks such as landslides, rockfalls, where the same term “susceptibility” is used. Since this work the term has been used widely by other authors in the volcanic field. See: Cappello et al., 2009; Martí and Felpeto., 2010; Cappello et al., 2011; Vicari et al., 2011; Cappello et al., 2012; Alcorn et al., 2013; Bartolini et al., 2013; Becerril et al., 2013. We consider that a figure with structures on the susceptibility map is not necessary for this work due to it is included in the work of Becerril et al., 2013. Nevertheless a brief explanation of what information was used to construct the susceptibility map has been included in the text (section 3.2 Where: Spatial analysis).

2. The Malpaso Member adds interesting complexity to the hazard analysis, and is appropriately addressed in the body text, but could be mentioned again the discussion’s reference to the completeness of the catalogue of eruptions on El Hierro.

We have included in the discussion section a brief mention about Malpaso Member.

3. Some potential questions that could be addressed regard the temporal analysis dataset and the visual complexity of the resulting qualitative map. The authors use the historical dataset for the whole of the Canary Islands. What are the implications of this choice?

We have based the study of temporal probability on 25 eruptions documented from the last 158 ka on El Hierro. 14 more eruptions from historical dataset of the whole Canary Islands are taken into account in our temporal analysis in order to assign data weights for each node considering similar eruptive characteristics in the whole Islands. This choice reinforces the results obtained in the Event Tree.

The qualitative map is very complex with many small discrete hazard zones – how would this affect how the map is used in emergency management?

The small discrete zones are the result of the hazards overlapping. We have distin-

guished from very low hazard to high hazard. This map could be useful to define “Red Zone” (Ricci et al., 2013) which is the area exposed to maximum expected hazard from overlapped scenarios. For example, this map could be helpful to determine which roads could be more affected and then to take decisions over which are the useful roads in case of evacuation.

Please also note the supplement to this comment:

<http://www.nat-hazards-earth-syst-sci-discuss.net/2/C779/2014/nhessd-2-C779-2014-supplement.pdf>

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 1799, 2014.