

# ***Interactive comment on* “Difficulties in explaining complex issues with maps. Evaluating seismic hazard communication — the Swiss case” by Michèle Marti et al.**

**Michèle Marti et al.**

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Received and published: 30 July 2019

Dear anonymous referee,

We very much appreciate your comprehensive acknowledgement of our paper and your helpful comments.

Your first critic focuses on the large amount of maps presented and the associated excessive demands on participants. We fully agree that especially for the workshop participants, the amount of maps accessible to solve the usability tasks was probably overwhelming as stated in the conclusion section. Nevertheless, we would like to

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clarify that neither the public nor the architects or engineers not specializing in seismic retrofitting were confronted with all 45 maps. In the online survey, only a selection of four different maps was presented: the seismic hazard map for a return period of 475 years and three different magnitude or effect maps. We have now specified this aspect in section 4.2. The architects and engineers had in principle access to all 45 maps. However, the seismic hazard map for a return period of 475 years is the pre-selected option in the interactive web tool not demanding for any further selection. In contrast, to solve the other usability tasks, different magnitudes or effect maps had to be considered. As most of the reported results are based on the online survey, we do not think that the amount of maps presented critically biases their understanding or interpretation.

Another important point you are bringing up is to reflect in more detail if the maps are meeting user requirements. In its report about the updated seismic hazard model, the SED explains that the introduction of the magnitude and effect maps was owed to the fact that users are commonly not interested in ground acceleration values. They rather want to know how often they have to expect a certain magnitude or a damaging event in a specific area. Our results now show that these maps are less well interpreted and understood compared to the seismic hazard map. We attribute this one hand to the poor implementation of best practices and on the other on the deficient understanding of intensity. Despite the assumed value of magnitude and effect maps for a better understanding of the strength and the impact an earthquake might have, they are less requested and almost never picked-up by the media. Of course, habit could also be part of the explanation. Previously, only hazard maps were published and people might just refer to what they are more familiar with without reflecting that another product could be of more value. We have further elaborated this issue in section 3.1 and 7.

With respect to your specific comments, we made the following clarifications:

(1) Of course, respecting seismic building codes is not only important for new constructions, but also when renovating older facilities. We have added this information, thank

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you.

We agree that the phrasing “principle source of information” is more adequate and changed it accordingly.

(2) We added “for non-experts” as requested.

(3) You suggest to discuss if magnitude and effect maps would be better understood if a magnitude or intensity value would be provided for a specific return period. Currently, in the interactive web tool people can choose between three different return periods for magnitude and effect maps: one year, 50 years, and 100 years. For our study, we have chosen to only vary the magnitude and intensity values and left the return periods constant at 100 years. It would be an interesting research question to also study if different return periods affect people’s understanding and interpretation of the maps.

We rewrote the sentence in section 3.2.

We specified what we mean by “therefore controlled”. Because of their assumed influence all the factors previously mentioned are controlled.

(4) The meaning of the different terms was explained in the legends included in every map depicted. We missed to mention this previously and have now added this information. In addition, a definition of every map type was provided in the selection of answers to question 12.

(5) You are completely right; we have not explained well enough on which sample the reported results are based on. We have now specified this.

Thank you for spotting that we have not indicated the meanings of M and SD at first appearance.

We revised the misleading sentence in the last supplement.

Kind regards,

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Michèle Marti (on behalf of the co-authors)

Please also note the supplement to this comment:

<https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2019-112/nhess-2019-112-AC2-supplement.pdf>

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2019-112>, 2019.

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