

Strategies for Comparison of Modern Probabilistic Seismic Hazard Models and Insights from the Germany and France Border Region

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REPLY TO EDITOR COMMENTS

We submit the revised manuscript following comments made by the editor. Our reply to these comments is found below.

Dear authors,

*I have reviewed your revised manuscript, and am pleased to inform you that the revised version of your manuscript can be accepted for publication subject to a minor revisions in our journal *Natural Hazards and Earth System Sciences (NHES)*. I would like to request a few minor (and some technical) revision before publication.*

We thank the editor for their review and comments on the manuscript. We have endeavored to address the editors comments as best we could in the revised manuscript.

Minor revisions:

(1) I agree with Reviewer 4 that it would be helpful to include a legend for the size of the circles of the top plots in Figure 5. If this clutters the figure, please add it as text to the figure caption, indicating that the minimum magnitude for the earthquakes is Mw 3.0, and that the color scale in the bottom right-hand site plots applies to all three plots (i.e., the branches for FR2020 have the same weight). Similarly, please add a line or two explaining why 5.25 and 6.50 Mw events were chosen for the earthquake scenarios in Figure 9. This can be done in the manuscript text or as part of the figure caption.

A legend for the circle size has now been added to the figure in question. Likewise, a couple of sentences explaining the selection of the scenarios has been added where the comparisons of the ground motion models are first introduced.

(2) Please label the geographical names you use in the text (e.g., Upper/Lower Rhine Graben, The Rhine, Alpine Foreland, Albstadt shear zone) and place names such as Luxembourg, Karlsruhe, Freiburg im Breisgau, and Basel. Not all readers are familiar with these locations and will struggle finding the regions you mention in the text. You could do this on one of the existing maps (figure 4 or 5) or create a separate map to avoid cluttering.

A new figure (now Figure 1) has been added to the introduction section that shows the region in question and labels the major tectonic features and locations mentioned in this article.

(3) Please define 'active faults' and what you mean by 'long-term activity rates for the faults'.

While the seismogenic fault source compilations mentioned in the respective models have not adopted a single standard definition of “active faults”, we include here a definition based on the information and parameterization regarding a fault that would be needed in order for it to be included as a seismogenic source in the PSHA models. The meaning of long-term activity rates has also been clarified.

Editorial comments/General editorial comment.

We have addressed the editorial comments in the revised manuscript.

I look forward to receiving the revised version of your manuscript.

Solmaz Mohadjer

NHESS Editor