

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC2
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Comment on nhess-2022-186

Julian Garcia-Mayordomo (Referee)

Referee comment on "Seismogenic potential and tsunami threat of the strike-slip Carboneras fault in the western Mediterranean from physics-based earthquake simulations" by José A. Álvarez-Gómez et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2022-186-RC2>, 2022

It is a very interesting and novel research on the use of an artificial catalogue of earthquake ruptures after the simulator code RSQSim for tsunami maximum wave calculations on the coast of the Alboran Sea considering a major strike-slip fault as a tsunami source.

The manuscript is practically ready for publication, provided very minor corrections are firstly done:

- A proper cite of the earthquake catalogue used in figure 1 (apart from IGN-UPM (2013)) is missing. You should also cite the paper of Cabañas et al., 2015 in which the homogenization process to M_w is explained. Additionally, it is important to know that the catalogue you are using in fig 1, apart from being homogenized in size to M_w , was also declustered (IGN-UPM, 2013).

Cabañas L, Rivas-Medina A, Martínez-Solares J M, Gaspar-Escribano JM, Benito B, Antón R, Ruiz-Barajas S (2015) Relationships between M_w and other earthquake size parameters in the Spanish IGN seismic catalog. Pure Appl Geophys 172:2397–2410.

- Could you extend a bit more on explaining the earthquake ruptures simulation method? I know that a proper understanding would require the reader to go to the original source, but it would be good to show an equation (for example) in which the parameters are shown (a, b,...). If it is possible.

- I assume you are using the rate and state parameters provided in Herrero-Barbero et al

(2022) after a testing process that was done in that paper, is that right? If so, could you make it explicit in the manuscript; otherwise it seems that the testing process was performed in the frame of this paper.

- I see that references cited in the body of the manuscript are ordered alphabetically. The authors should check if that is correct according to the journal format; as references are usually ordered in increasing year of publication.

- I have made few more comments and suggestions for improving clarity in some parts of the text and figures right on the pdf attached. Please, in case you cannot read them (done with the adobe acrobat tool) get me back and I will pass them to you in a different format.

- I found some typos in the manuscript, also marked in the attached pdf.

Please also note the supplement to this comment:

<https://nhess.copernicus.org/preprints/nhess-2022-186/nhess-2022-186-RC2-supplement.pdf>