

## ***Interactive comment on “Approach for combining faults and area sources in seismic hazard assessment: Application in southeastern Spain” by Alicia Rivas-Medina et al.***

### **Anonymous Referee #5**

Received and published: 22 April 2018

The Manuscript by Rivas-Medina et al. “Approach for combining faults and area sources in seismic hazard assessment: Application in southeastern Spain” addresses an important methodological question of how to incorporate individual faults and fault systems into the PSHA. This problem is even more actual for the PTHA (tsunami) studies due to the even larger impact of different faulting styles stimulating researchers to treat as much individual faults as possible. In particular, Authors suggest not using some constant accepted magnitude for distributing seismic potential between faults and background seismicity but employing more flexible criterion for the threshold magnitude based on completeness analysis.

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As present Manuscript pretends to become an important methodological paper, I think it has to be significantly improved to meet the quality expected for such kind of paper, and propose major revision.

General comments:

References: The manuscript suffers from clear lack of proper referencing. It is, actually, unique in this sense. Especially, introduction lacks at least minimal comprehensive historical review with proper citations. One single statement at 2.22 (without citations) is definitely not enough.

Figures: Please provide proper explanatory captions. Figures should be self-explaining. In current state too much concise. Also give explanations to each abbreviation.

Language: please check with native speaker. Some sentences are hard to understand (e.g., the two last sentences of the abstract).

I suggest to decouple Discussion and Conclusions for more clarity.

Few concrete suggestions and comments below:

2.12 – “source” vs “source zone” possible misunderstanding 2.6 – unbiased estimates 3.11 - CP(m) or PC(m)? 3.12 – higher? 3.16 – rephrase

From the three equations 8-9-10 it is not clear how to update the b-values for individual faults, please explain in a better way.

In Table 3 caption and also through the manuscript: b-values mixed with beta-values.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2018-28>, 2018.

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