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Interactive comment on "From mapped faults to earthquake magnitude: A test on Italy with methodological implications" *by* Fabio Trippetta et al.

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In general, I have found the work presented in the manuscript to be very clearly described. I also like the style of writing of the authors as they have stated the caveats of the study very clearly. However, I fail to appreciate the novelty of the work presented in this paper. I am wondering if it is the compilation of the comprehensive fault catalog using the existing databases or the estimation of the PEMMs. If it is the former, I would suggest that the authors stress it more in the manuscript and show what were the hurdles that they had to overcome when compiling the comprehensive fault database. If it is the latter then, I feel that the authors have oversimplified the task of estimation

of PEMMs. I the following I outline some of my main comments that have led me to the concerns raised in the previous paragraph. 1. What are the main challenges in compiling the comprehensive fault database from existing fault databases? How is this task difficult? 2. How do the authors identify and remove the duplicate faults in the regions where the two databases overlap? 3. How sensitive are the results of the authors to the assumptions described in section 4.2? For instance, would the results dramatically change if one considers a different grid resolution? Same applies for the other assumptions. I think authors should do more effort than just outlining their assumptions. A sensitivity analysis is a minimum they should strive for. 4. The authors claim that the calculated PEMMs are consistent with the largest observed earthquakes at least for the geologically well-constrained fault. First of all, it is obvious that this consistency is strongly dependent on the grid resolution that the authors will choose. Secondly, what is the reference level for consistency? What I mean to say is any prediction and observation can be deemed consistent if allow for enough uncertainty. To account for this, one needs to come up with a reasonable null hypothesis and compare the new predictions to the predictions of the null hypothesis. In this case, a reasonable null hypothesis could be an untruncated Gutenberg Richter law, with a given b-value. The authors could pose their model as the GR law with the same b-value but with the truncation at the PEMMs estimated using their approach. They can then estimate the likelihood of the largest earthquakes (M>M_threshold) and compare the two likelihoods using standard statistical tests. In this manner, the authors would have reference level that would allow them to objectively assess the quality of their prediction.