

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

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Thank you for your comments and remarks. M_{maxC} refers to the maximum magnitude value that can be recorded in the catalog completely. This means that the catalog may contain events with higher magnitude value, but due to the long recurrence of these events, it can not be assured that the period of records covered by the catalog includes several recurrence periods of these events to make it possible to derive an (statistically) meaningful recurrence period value. The M_{maxC} value is used to constraint the distribution of seismic potential between faults and zones, but not to estimate seismic hazard. The maximum expected magnitudes for each source are

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included in seismic hazard assessment. For fault sources, the maximum magnitude is obtained from the length of the fault plane. For zones (that contain the seismicity related to blind faults) it is more difficult to establish the maximum magnitude value, as it depends on the study area. In the application shown in this work, it is considered $M_{maxzone}=M_{maxC}+0.5$. For our study area this implies a $M_{maxzone}$ value of up to 6.5. This is considered sufficient due to the short record of events with that magnitude in the catalog. The term M_{max} is changed, distinguishing the different M_{max} used for zones and faults: $M_{max}(zone)$ and $M_{max}(fault)$. We only show the seismic hazard maps expressed in terms of PGA. The hazard maps for different spectral ordinates are not shown to reduce the length of the paper and because they do not display significant differences. Nevertheless, we include the response spectra for selected locations in figure 10. The case of Almeria and Granada, high acceleration values obtained with the HM are associated with documented faults, nearby these cities. The M_{max} value for these faults is derived from the fault length. In the CM, the maximum magnitudes for each zone are modelled using a magnitude distribution that considers the maximum recorded magnitudes in the catalog and the maximum magnitudes expected in the faults (see details in Gaspar-Escribano et al., 2015). We make an effort to clarify these points in the text. We also include a new figure with the UHS spectra obtained for different cities (Granada, Almeria and Murcia) with both methods to show the impact of the source model in different spectral accelerations. Several references are included (including one to QAFI).

Please also note the supplement to this comment:

<https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2018-28/nhess-2018-28-AC1-supplement.pdf>

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