

## ***Interactive comment on “CCAF-DB: The Caribbean and Central American Active Fault Database” by Richard Styron et al.***

**Julian Garcia-Mayordomo (Referee)**

julian.garcia@igme.es

Received and published: 17 September 2019

It is a very interesting paper describing an active faults database created in the frame of the GEM foundation for the assessment of seismic risk in the Caribbean and Central America. Particularly interesting are the comprehensive descriptions of the active faulting represented along the borders of the plate, missing only the South American border of the Caribbean plate (Venezuela-Colombia) - which I think belongs to a different GEM project called SARA. The first part of the paper describes very clearly the structure and fields of the database and the criteria used to populate it. The database is accessible as complementary material. The second part of the paper describes the main active faults for areas to a good detail –considering the scale of the work, and very useful information is provided for seismic hazard modellers. Particularly interesting

C1

are the discussion on certain slip rate values or even about the Quaternary activity of specific faults, which can provide useful guidance to analysts in an attempt to capture epistemic uncertainty in PSHA. I think this paper would definitely become a reference for seismic hazard and risk studies in this region.

The paper deserves publication in the journal, although I have few minor concerns that I think could potentially improve even further the quality of the paper, these are:

- A figure illustrating the distribution of some key data in the database would be very much appreciated by the reader. Histograms, for example, showing the distribution of faults vs. slip rate, kinematics, or activity confidence, or exposure quality, . . . will provide a good overall idea of the contents database in just one look. - I believe there is a minimum fault length cut off in the database. If that is right and positive, please, provide the figure in the paper. - The paper does not talk at all about fault seismic parameters (eg,  $M_w$ , recurrence, . . .). I believe it would be good to clarify at some point in the manuscript (in the Introduction section for example) that the estimation of these parameters (very much needed in PSHA) are not treated in the paper, and that these values depend actually on the analyst/modeller's decision about the fault-hazard model to be used in the probabilistic calculations (an issue that is out of the paper's scope). - A figure showing a seismicity map of the whole working area would be very illustrative. This figure could be part A of current figure 1 (and that one figure B, for instance). - Figure 2, cite properly the source Global Centroid Moment Tensor catalog. - Figure 2, it would be desirable to add an additional scale in the figure showing the size of the earthquakes ( $M_w$ ) against the radii of the “beach balls”. As it looks now it is impossible to know the  $M_w$  of the earthquakes represented on the map, farther than their relative size.

TYPOS FOUND AND SUGGESTIONS FOR IMPROVING THE FIGURES - Page 2, Line 4: .. for use as fault sources for PSHA. . . I'm not sure this statement is completely right as a fault source in PSHA needs certainly more data than the one showed in the database (for example, maximum magnitude). You could say . . . for incorporating

C2

fault data in the seismogenic source model of the are.. - Page 2, Line 19: I think the final of the phrase is missing. - Page 3, line 15: Something is missing in the phrase ... All the faults should be considered interpretation of both structures. . . (Which both structures?) - Page 4, line 24: change catalog for earthquake catalog - Page 9, line 24. Correct distributed - Page 15, line 32. Cite properly INETER catalog. - Page 16, line 33: I don't see the point of the phrase: It is unclear what the maximum size. . . It seems to me out of context or misplaced. - page 17, line 23: There is something wrong here, I think the "though minor . . ." should not be after the ; - page 25, line 14. I think the phrase misses "input" right at the end of it. - Spanish words: please, make sure that all the Spanish words are correctly accentuated across the paper, particularly in the Conclusions section (Panamá, San José, . . .). Check the correct accentuation of Cofradía across the paper. El Salvador is misspelled in the Conclusions section. Correct Costeña in figure's 6 foot. - Capital letter in figure's 5 foot. Correct Cofradía. FIGURES - I think the fault traces would stand out clearer in the figures (maps) if the DTMs were gray/shadows, instead of colour scaled. The same for the "urban areas", they would appear much clearer if the DTM is grey. A coast line would look good as well.

---

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2019-46>, 2019.