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Solid Earth Discussions

Interactive comment on "Seismicity characterization of oceanic earthquakes in the Mexican territory" *by* Quetzalcoatl Rodríguez-Pérez et al.

Anonymous Referee #1

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Seismicity characterization of oceanic earthquakes in the Mexican territory Quetzalcoatl Rodríguez-Pérez, Víctor H. Márquez-Ramírez, and F. Ramón Zúñiga The paper deals with the investigation of oceanic earthquakes in the Pacific oceanic zone, Mexico, exhaustively by including seismicity analysis, stress field properties, and statistics by providing computations of certain parameters and the related interpretation, all the above making it important. The importance is connected with the study area per se, the exploitation of a high-quality earthquake catalog for the identification of seismicity certain characteristics and the use of a rich catalog of fault plane solutions for a thor-

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Discussion paper

ough stress field analysis. There are, however, certain points in the manuscript that need additional work and corrections. Specific comments are reported, which I hope will contribute to the improvement of its revised version.

MAJOR COMMENTS 1. Page 6, lines 18 – 21. "We estimate ..." – What for? It would be contributive of you will present the scope for this calculation at this point in the manuscript. Same as all models that you apply. It helps the reader when each one is concluded with the scope and the interrelation with the other models. 2. Page 10, 2nd paragraph: Reorganization of this paragraph seems necessary. Description, comparison, interpretation of the obtained results are expected here. The calculated parameters must be shown in a Table. 3. Page 11, lines 4 – 13: This paragraph is hardly followed by the reader, and in particular because a full seismotectonic description and the scope of showing these parameters are missing. It is suggested for the manuscript to be modified accordingly. 4. Page 11, lines 19 – 20: Putting together so many and different faulting directions is hardly conceivable and does not add value in the seismotectonic analysis. Would you like to discuss the differentiation, possible rotation and interplay of the dominant stress axes, and in general a description of this faulting pattern? 5. Page 11, lines 15 – 24: A more analytic presentation of the results for each region is necessary. Explanation of the obtained values, comparison with the known stress regime (discussion in connection with published results) and interpretation is expected. Emphasis should be given to the new – bringing elements of the analysis 6. Discussion: "Loose" connection between the paragraphs, which does not enunciate the integration of the different approaches to the premier scope: to fully describe the oceanic seismogenesis.

SPECIFIC COMMENTS 1. Page 1, line 22: "... long ruptures ... to produce large oceanic earthquakes ..." – in fact cannot be characterized "long" producing "large" earthquakes, since this expression is rather appropriate for subduction earthquakes. The aspect ratio, length to width, is large because they are strike-slip earthquakes, which in turn are not so "large" if we will strictly keep this expression for the "stronger"

subduction earthquakes. I will leave to the authors the final decision about this task. 2. Page 2, line 3: "... slow slip ruptures ...": since it concerns mainly subduction earthquakes, could you please be more specific for the reader's ease? 3. Page 2, line 9: "... oceanic earthquakes also occur as intraplate ...": a very interesting issue and for this reason, some more additional descriptions along with relevant references would be welcome. 4. Page 2, lines 22–24: In my opinion, there is no necessity to mention peculiarities in other authors' results. Moreover, the "basics" of coupling (e.g. 0<x<1 and x=1 means full coupling) might also be avoided, unless they will be embodied in phrases commenting on the degree of coupling. 5. Page 3, lines 1–4: very short sentences that might be combined. 6. Page 2, lines 8 – 24: It is not necessary to write continuously at the end of each sentence the "(Fig. 1)" 7. Page 5, lines 1 – 6: All this info to be inserted in a Table, which then must be commented at this point. 8. Page 5, line 13: "... superficial ..." – better say "surface magnitude". 9. Page 5, lines 18 – 19: "... a catalog is made of ... in the following interval ...", better "... catalog includes ... between 2.7 – 6.9" 10. Page 6, line 3: "... occurrence ... magnitude", better "earthquake magnitude distribution" 11. Page 6, lines 7 – 8: Make one sentence because they start with exactly the same words "the b – value" – connect both with an "and" 12. Page 13, lines 10 – 11: Incomplete sentence. 13. Page 16, lines 1 – 15: Each sentence finishes with the same references. It appears 6 times in 15 lines. Reorganization of the text will help to avoid this repetition at the same time to express the co

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