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Interactive comment on "Modeling active fault systems and seismic events by using a Fiber Bundle model. Example case: Northridge aftershock sequence" *by* Marisol Monterrubio-Velasco et al.

Anonymous Referee #1

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This is an interest paper which is aiming to link the physical processes governing earthquake occurrence with the statistical. Overall the model seems to be able to reproduce several statistical laws that are observed in nature. However, in my opinion, needs major changes before being ready for publication in a journal such as EGU Solid Earth.

1. The paper is generally hard to read. The authors frequently go from one topic to another without explaining the underlying theme that brings the paper together in the end. That is also clear in the abstract, which is very technical and the aim of the paper it's not mentioned at all. The aim is mentioned at the end of the introduction in line 14.

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Discussion paper

2. I understand the distinction between πfrac and πbcg however I don't think this is fault geometry. Fault geometry usually implies information such as dip which is not taken into account here. It is more like topographic location on a map.

3. In large earthquakes such as Northridge, it is shown that the aftershock sequence is incomplete. This is a phenomenon termed as Short Term Aftershock Incompleteness (STAI). Since missing earthquakes have a direct impact on the fitting GR law , b value. . . how is this model affected by this?

4. Line 16 : define negligible magnitude , based on what criteria is negligible ?

5. Line 26, the seismic moment is Mo

6. In section 5.1.2 , line 13, approaches what? I think the whole section is unclear. Explain what are the theoretical values and non conservative properties.

7. Since the model is dependent on the minimum magnitude, missing events could affect your model parameters.

8. Some typos, missing references (appearing as ?) and very long sentences throughout.

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