Geosci. Model Dev. Discuss.,
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Geoscientific Model Development Discussions
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Interactive comment on "TREMOL: A stochastic rupture earthquake code based on the fiber bundle model. Application to Mexican subduction earthquakes" *by* Marisol Monterrubio-Velasco et al.

Anonymous Referee #1

Received and published: 5 March 2019

I think this is an interesting paper that introduces a new model to simulate the rupture process of asperities using a relatively low number number of parameters. The model is currently at an initial stage of development and the authors are working on improvements/extensions. This is ackwoneledged by the authors in the final sections of the paper.

My specific comments and/or observations about the paper are the following:

My major concern is the degree of uncertainties introduced by the initial choice of pa-

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Discussion paper

rameters, the fault parameters and whether this range of parameters holds to different tectonic settings . Fault length and width calculations are not trivial. I am not sure about the simplicity of the model, it seems to be dependent on studies for fault dimensions and for the model to be used it for another region, if my understanding is correct, the whole procedure (including the sensitivity analysis etc) has to be repeated.

In page 5 line 5 instead of the parenthesis could you give some examples?

In page 5 line 26 why uniform?

In page 6 line , how do you assign γref ? Would different values give you significantly different results in your final output?

In page 7 Why 0.98 and 0.02? Is there a reference? What criteria are used for this choice?

Are the range of values found in the sensitivity analysis unique to the examples in Mexico?

It would be interesting to see how your estimations compare with empirical relationships like Wells and Coppersmith (1994)

Some typos/syntax errors observed throughout the paper Eg. Page 1 line 15 should be earthquake magnitudes, Long sentence page 2 line 20 to 25 Page 5 line 11 should be: are computed in the... Figures are very far from the page they are referenced especially towards the end of the paper eg page 26 There is more than one section named Model validation

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