

## ***Interactive comment on “Correlation between the fractal of aftershock spatial distribution and active fault on Sumatra” by Bahary Setyawan and Benyamin Sapiie***

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dear Anonymous Referee,

Firstly I appreciate your comments and your time to read my manuscript. It also enlightens me to more comprehend what I am studying. The references Thelier (1990) gives more insight into the limitation of the method used. last, I give the responses below:

1. Too few data (especially in the aftershock spatial distribution) Author's Response: yes, it is because of the completeness of the catalog used.

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2. Too small estimation of errors, because simply deduced from the linear regression in the log-log plot. If we estimate a more realistic error with an average of around three times that given, it is evident that many estimations can be considered almost the same within the (new) given error, so vanishing any possible inter-correlation and/or classification. Author's Response: yes, it is also the limitation of the method used in this study.

3. The two methods tend to behave differently within the range of the fractal dimension variation: for example, the box-counting often tends to saturate when increasing the fractal dimension providing an under-estimation (please also look at Liang et al. 2012). Author's Response: I used two different methods because of the two-point correlation integral, in my opinion, more accurate to estimate point (epicenter) distribution. But, the correlation integral can't estimate line (fault). So to calculate the fault I use box-counting.

In addition to the above points that concern the way the methods are applied, I would like to add that there is some confusion when introducing some concepts like fractals, SOC and critical point, without state the most important differences among them. Among the minor points, I do not understand the units of figure 2 (by the way, there is  $\log r_0$  at the x-axis that I do not understand, too), that, strange enough, is given as an example, but it is one of the two outliers of the overall analysis. Author's Response: I'll correct the example and add the differences among fractals, SOC and critical point.

warm regard

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