

Interactive comment on “A Taylor’s power law in the Wenchuan earthquake sequence with fluctuation scaling” by Peijian Shi et al.

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We thank the reviewers for their comments. Answers are given below in red. Changes in the revised version of the paper are also in red.

Anonymous Referee #1 Interactive comment on “A Taylor’s power law in the Wenchuan earthquake sequence with fluctuation scaling” by Peijian Shi et al. Received and published: 26 December 2018

Ms. No.: nhess-2018-315 Title: A Taylor’s power law in the Wenchuan earthquake sequence with fluctuation scaling General: This manuscript applied Taylor’s power law (TPL) into the released energy of earthquakes in the Wenchuan aftershocks. It confirms the existence of TPL in earthquake sequence, i.e. the variance is shown as a

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power law function of the mean. TPL holds for different time spans, although the intercept values of the linear regressions increase with the increase of time spans. I think this is a good paper that is well written and scientifically interesting. I applaud the general approach and central research question of the paper. I did not find any major problem. Here I listed my suggestions which may help in improving the manuscript.

1. I suggested incorporating section ‘2 Taylor’s power law’ into ‘Introduction’, and adding a new section ‘Data source and processing method’ (or similar subhead) which includes section ‘1 Wenchuan earthquake sequence’ and part of section ‘3 Data processing method and results’. Finally I would expect four sections in the main text: ‘Introduction’, ‘Data source and processing method’, ‘Results’, and ‘Discussion and conclusions’. It is done as the reviewer has suggested but with a little difference. Changed Sections are in red in the revised version of the paper.

2. I think lines 181-182 can be deleted as they are duplicated with lines 178-179. It is done.

3. It is not clear for me why the authors placed Figures 5 and 6 into Discussion but not Results. Would it be better to move them into Results? We have put Figures 5 and Figure 6 and corresponding words into Section results. We also add some words in red into the revised version of the paper.

4. It is interesting that the authors showed the positive relationship between the intercept and the interval (Figure 6). Inspired by them, I drew the relationship between the slope and the interval (see attached figure, panel a). Furthermore, the interval shows strong negative relationship with the slope (panel b). This is interesting and I have no idea to explain them. I understand this may be out of the scope of the current manuscript, so the authors do not need to discuss them here. This may be helpful in their future work. We thank the reviewer for the interesting work and figures! Yes, it is important to do further investigation on this topic in the near future.

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Please also note the supplement to this comment:
<https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2018-315/nhess-2018-315-AC3-supplement.pdf>

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2018-315>, 2018.