Major points:

1) I would suggest moving the ETAS simulations part from the “Discussion” section to the earlier sections (maybe 3.2?) where you present the results. It looks strange to see additional modelling introduced and presented in a section where results should only be commented.

Reply: Thanks for your suggestion. Considering that Section 3.2 is a relatively independent section, we set a new section titled "5 Comparison with the ETAS Model" before "Discussion" to elaborate the ETAS simulations part.

2) I find the idea of using the “simplETAS” model appropriate. However I think you might not be doing it in the way the authors of the model suggest. Reading through Mancini & Marzocchi (2023, MM23), it appears that they impose a set of parameters fixed to specific values that you are not actually using (e.g., p=1.5 vs. your p=1.06, c=0.005 days vs. your c=0.04, b=1 vs. your b=0.85). Therefore, I believe you should estimate again the two free parameters while fixing the other six parameters from the MM23 table, then simulate again the simplETAS catalogs. Alternatively, you should clarify that you are mimicking the simplETAS approach, but with a different set of parameters (not desirable, though).

Reply: Thanks for your comments. We fixed the six parameters just as Mancini & Marzocchi (2023) did, and the estimated v and A were 23.8394 and 0.0212, respectively, as renewed in Table 4. We then used the new set of parameters to simulate 10000 catalogs for further comparison.

3) I am doubtful of how useful it is to plot all the 10k simulated catalogs in Figure 10, and what could be its take-home message? ETAS just does not divide earthquakes into ‘mainshocks’ and ‘aftershocks’, so maybe it is not surprising to see that the spatial distribution is different from Section 3.2? Also, assuming that the map in Figure 10 reflects the smaller square of Figure 9 (if I understand well), why is the imprint of the backgournd seismicity PDF missing in Figure 10? In other words, I would expect background events to be primarily placed where the bg-probability is larger (e.g., at the bottom-left side of the illustrated region) and then aftershocks to cluster all around,

instead of the mostly homogeneous (with a few exceptions) distribution of earthquakes that is reported here. The difference between the estimated background seismicity spatial PDF presented in Figure 9 and the calculation sites and the potential seismic sources in and around Xichang (Figure 3) make the ETAS and the Omi-R-J model implementations very difficult to compare, even just conceptually. To fix this you might comment on the issue more thoroughly or try and use the calculation sites of Figure 3 as your background PDF to feed the ETAS simulations.

Reply: Thanks for your comments. Due to the strong randomness of single simulated earthquake catalog, we simulated 10,000 sets of earthquake catalogs and stacked them so that we can observe the display of earthquake clusters effectively. In fact, when we enlarge the range of Figure 10, we can see an earthquake cluster at the bottom-left side both from the previous catalog and from the newly simulated catalog after parameter modification (please see the updated Figure 10).

The potential source models we employed to simulate earthquake catalogs in Section 3 comprehensively consider various data, including paleoearthquakes, historical earthquakes, seismogenic structures, stress-strain fields. These data help constrain the locations of earthquakes, especially those of high magnitude. However, it's important to note that the ETAS model is an empirical statistical model, relying on earthquake catalogs as its fundamental data. This distinction makes it challenging to draw direct comparisons between the two models. To address this limitation, it is essential for future research to explore the incorporation of more physics-based models to establish comparative bridges. However, this endeavor goes beyond the scope of the current study. We have included this comment in the revised manuscript.

Additionally, a minor oversight in Table 3 has been fixed.