Interactive comment on "Distribution and degradation of terrestrial organic matter in the sediments of peat-draining rivers, Sarawak, Malaysian Borneo" *by* Ying Wu et al.

Anonymous Referee #1

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Wu et al. presented a large dataset of organic carbon and lignin in the peat-draining river systems in Malaysian Borneo. Bulk properties and lignin phenols were used to elucidate the sources and degradation degree of organic matter in those systems. In my opinion, the dataset is valuable, and the manuscript is overall well-written. I only have some minor comments, hope this can help to further improve this manuscript.

1. Study region and sample collection: I suggest the authors add more background introduction and more sampling details. e.g., how the water discharge changes in those rivers monthly, and what were the discharges like during different sampling campaigns of each river? This may help to give the readers an overall impression of different

hydrological conditions; soils: were they all surface samples or depth profiles? How were they collected? How representable were they? 2. Chemical analysis: what is the deviation of lignin analysis? This is important, as it can help to understand whether the variation of lignin indices were its natural variation or analytical error. 3. Line 160: Please add reference for this equation. 4. Please add the information of what parameters were used in PCA and cluster analysis. 5. Lines 194-195: The highest values of . . . (30%-49%), this sentence reads odd, please revise. 6. Line 200: delete which before exhibited 7. Line 216: When describe correlations, the authors often use "good", however, it is not clear, what kind of relationship is "good", please define "good" (e.g., correlation coefficient R^2 higher than 0.7), or use other words, e.g., significant or simply show R^2 8. Line 238: do you mean which reflects the very low "P" value? 9. Line 254: I am a little confused here, do you mean that factor 2 showed close correlations with $\Sigma 8$ and OC%, and factor 1 showed close correlations with (Ad/Al)v and grain size? 10. Lines 265-267: Could you please explain more how higher values of $\Lambda 8$ is caused by human activities? 11. Line 272-275: I think this sentence could go to the conclusion 12. Line 278: The average $\delta 13C$ of vegetation samples seems lower than -28.5‰ please double-check this value. 13. Line 288-289: Do you mean close relationship between OC% and scores on factor 2, $\Sigma 8$ and scores on factors 2? 14. Line 296: I suggest the authors add the loading of the main parameters on the two components (factors). 15. Lines 315-318: Here the authors attributed the higher P/V ratio to the non-woody input for the additional lignin? Could you please explain more what is additional lignin? 16. Line 321: change "estimate" to "evaluate" 17. Lines 331-338: the (Ad/Al)v and $\Lambda 8$ relationship, in Rajang river, the authors used each single data point, but in the small rivers, the authors used average value? What if you do it the similar way, do you still see the correlation between (Ad/Al)v and $\Lambda 8$ or (Ad/Al)v and grain size in small rivers? The variation of (Ad/Al)v were much smaller in small rivers as compared to the Rajang river. In my opinion, grain size may not be the most important factor for (Ad/Al)v in small rivers as it also showed smaller variation. 18. Lines 339-345: again for the correlation between S/V and (Ad/Al)v in small rivers, what

if you use individual data point instead of average value? In Fig. 5b, it seems that the whole relation is because of Mal-2017.09, in other words, it seems that there was no significant relation between S/V and (Ad/Al)v in other two rivers. 19. Fig. 6b: for Rajang, there were only three points, this kind of relationship is artificial, in my opinion. Why not using single data point instead of average value? 20. Table 3: Please be careful with the effective number, e.g., C/N. 21. Table 3: The font of last line is different to others, please revise.

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