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Biogeosciences Discussions

Interactive comment on "Hydrologically transported dissolved organic carbon influences soil respiration in a tropical rainforest" *by* W.-J. Zhou et al.

Anonymous Referee #1

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This manuscript into the effects of soil organic carbon on soil respiration represents an interesting work, and overall, it was nice to read. It showed some interesting results, in that the authors found out, that in their tropical sites, DOC fluxes in the soil water was one the most important factors explaining the variability in soil respiration, when looking at calculated sensitivity indices. Nonetheless, also soil temperature and soil moisture were of great importance, when looking at the regressions themselves.

However, there were several issues, affecting on the quality of this manuscript: The most important issue was the statistical testing: the use of one-way Anova seems to be not really appropriate for this kind of time-series data. I would suggest using a linear mixed model with repeated measures. Missing or unbalanced data are usually

no problem for this kind of analyses. The second point is that, although the authors made some statistical testing, it hardly was shown anywhere. Please show the results, either in a table or incorporated into the text. The third issue was that I was missing data on soil temperature and moisture. For example, it could be easily incorporated into Figure 2, as such. Finally, it was not clear to me who the authors calculated all the sensitivity indices.

More detailed comments: lines 24–28: this sentence is not easy to understand for the reader line 24: "role" could be changed to "effect" line 25: "in" could be changed to "on" line 27: what processes do you mean? line 28: what do you mean by "surface soil"? lines 52 and 54: first you state that laboratory studies have shown, later you write: however, most studies have been performed in the laboratory... line 66: do you mean both in terms of absolute and relative numbers? line 118: do you have any additional tree data, like age or tree density? line 137: how ling were the tubes? line 156: you removed the roots? line 198: how often they occurred during the dry season? line 221: how this was calculated? Weekly divided by 7? lines 221–224:from this sentence it is not entirely clear, what was compared to what line 259: is this annual average? lines 256–269: how about putting interception values into a table for better comparison? lines 272–287: somehow I could not follow all these differences from Table 1 line 292: this is already discussion, please move it there lines 304–308: it was not clear to me how you calculated the sensitivity indices Tables and figures: please add results of statistical tests Fig.S1: what about a possible dilution effect, resulting in lower DOC with more water?

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