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Biogeosciences Discussions

Interactive comment on "Along-stream transport and transformation of dissolved organic matter in a large tropical river" *by* Thibault Lambert et al.

Anonymous Referee #1

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The submitted MS presents a detailed analysis of transport and transformation of DOM along the main stem of the Zambesi and its largest tributary. A particular focus is put on the effects of floodplains/wetlands and reservoirs as well as low-flow vs high-flow conditions on the longitudinal patterns in DOM concentration and composition. It is the first study to present such a detailed analysis for a whole, large river system, and in particular for a tropical river other than the Amazon. Thus, the subject of the study will be of interest for the readership of Biogeosciences. Methods and results are presented in a clear, comprehensive way. The discussion features a satisfying review of the literature and compares results of this study to the state of the art in that field. The manuscript is well written and tables and figures are mainly of good quality. I suggest publication of the MS after minor revisions.

Major comment:

In addition to spectral properties, the authors measured delta13C of the DOM. They present the results, but they do not interpret and discuss the values. I suggest that the authors include a short interpretation of these delta13C values based on an isotopic mixing model to estimate the proportions of different terrestrial and autochtonous sources.

General comments

L100: Maybe I am wrong, but wouldn't that rather be a unimodal distribution? Bimodal would mean that there is a second maximum. Is there a second, smaller maximum? If yes, please clarify.

L114-118 & L121-123: Please, give a reference for these values (volumes and surface areas).

L150-151: Please, replace 'most cases' by a number of cases or the percentage. Or report e.g. the 95th percentile of the reproducibility.

Section 2.6: You should start this section with one to two sentences explaining what the aim of this PCA is.

Section 3.1: When you describe the longitudinal and seasonal patterns of all these indices, you should shortly repeat what each of these indices indicates. That would increase the comprehensibility for the broader readership. That is in particular true for the delta13C values. Here, you should maybe cite some typical end-member values.

L350-351: Where do you show the correlation between dominant land cover and DOM gradients?

L355: You should discuss the delta13C values. What does a low delta13C indicate? What are the endmembers?

Figure 3: Overall, the figures are of a very good quality. However, in Figure 3, at least when printed, it is hard to distinguish between the numbers I, II, III.