

Biogeosciences Discuss., referee comment RC2
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Comment on bg-2022-154

Anonymous Referee #2

Referee comment on "Mineralization of autochthonous particulate organic carbon is a fast channel of organic matter turnover in Germany's largest drinking water reservoir" by Marlene Dordoni et al., Biogeosciences Discuss.,
<https://doi.org/10.5194/bg-2022-154-RC2>, 2022

I think while this study is interesting the paper could do with restructure. The results are almost like bulletpoints and could be merged with the discussion to give it logic and context. I also am not convinced by the mass balance end-members. ^{13}C isotopes vary so widely in freshwater that they overlap with terrestrial values. While the data show that there is differences between POC and DOC, there is enough overlap to reduce the conclusions that the authors state. I don't know if the endmembers the authors used for the calculations are right, and therefore, I'm not sure that the interpretation is correct. If the end-member is correct (the authors should justify this) and the description of the isotope methods was made clearer the paper could be accepted with minor revisions. If not, calculations should be revised and reconsidered after major revisions.

I would prefer if the isotopes were plotted on their own with permil axis rather than the way they are plotted - it is hard to see the real scatter/overlap

I also think that the terms that the authors use should be explained as they are not used in all countries. I have made comments in the attached pdf and hopefully these will help. Overall, I think the premise is good but I'm not convinced that the data shows what the authors conclude. some parts should be simplified and others should be explained properly. I think that the tables in the supp. information should actually be in the main article or isotopes plotted by their own.

Please also note the supplement to this comment:

<https://bg.copernicus.org/preprints/bg-2022-154/bg-2022-154-RC2-supplement.pdf>