

Biogeosciences Discuss., referee comment RC1 https://doi.org/10.5194/bg-2022-154-RC1, 2022 © Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.

Comment on bg-2022-154

Anonymous Referee #1

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.,

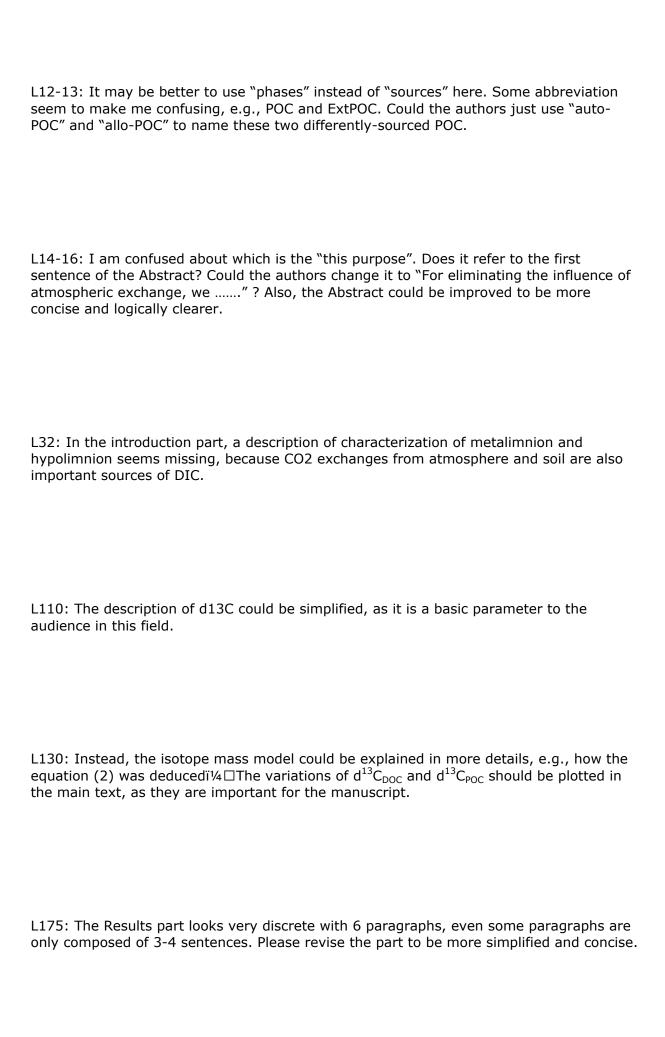
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Review of Dordoni et al. "Mineralization of autochthonous particulate organic carbon is a fast channel of organic matter turnover in Germany's largest drinking water reservoir"

Synopsis

The central focus of this manuscript is to investigate the preferential turnover of different carbon phases into DIC in the Rappbode Reservoir in Germany. For this aim, the authors analyzed 13C and concentration of DOC, autochthonous and allochthonous POC, sedimentary OC and DIC in different seasons. Based on variations in ^{13}C and concentration among different carbon phases, the authors used an isotope mass balance to calculate potential C-contribution of OM to DIC pool and compared it to DIC concentration changes to determine most plausible source of OM turnover in metalimnion and hypolimnion. The authors found that autochthonous POC is main contributor to DIC increases and further calculated its turnover rate to be 0.01 to 1.3 $\mu\text{mol}\ \text{L}^{-1}\ \text{d}^{-1}$, within the range for oligotrophic water bodies.

Overall, this is well-organized and clearly written manuscript. The data, discussion and conclusion are intuitive for the most part. That said, I do have some minor to moderate comments and suggestions that I think will improve the manuscript. I outline these below, with line numbers where appropriate. Once these changes have been made, I fully support publication of the manuscript in *Biogeosciences*.



L231: Please add several sub-titles to discussion part to make it more readable.