



EGUsphere, referee comment RC1
<https://doi.org/10.5194/egusphere-2023-23-RC1>, 2023
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Comment on egusphere-2023-23

Anonymous Referee #1

Referee comment on "The hidden role of dissolved organic carbon in the biogeochemical cycle of carbon in modern redox-stratified lakes" by Robin Havas et al., EGUsphere,
<https://doi.org/10.5194/egusphere-2023-23-RC1>, 2023

Publisher's note: this comment was edited on 15 March 2023. The following text is not identical to the original comment, but the adjustments were minor without effect on the scientific meaning.

The manuscript by Havas et al., entitled "The hidden role of dissolved organic carbon in the biogeochemical cycle of carbon in modern redox-stratified lakes" presents data from four endorheic, alkaline lakes in Mexico. This manuscript is the result of a split of a much larger previous one into two parts. The other part was also submitted to Biogeosciences and deals with the carbon isotopes of these lakes.

Overall, this manuscript contains interesting and high-quality data that justify publication in Biogeosciences. However, in its present state the manuscript is not ready for publication. There is a general imbalance in the manuscript regarding the lengths of the different parts. The manuscript relies strongly on the other manuscript (Havas et al., submitted) from the split of the larger one, which is currently also under consideration in Biogeosciences. While it is OK to keep things succinct, every manuscript has to stand on its own and should be understandable without any additional literature. This is clearly not the case here.

The introduction is extremely short, and lacks a clear statement of the motivation for this study. Moreover, there are parts scattered throughout the manuscript that should rather go into the introduction, e.g. lines 250-254.

The Results section is also extremely short and does not present all data. Still, I really liked the description of the results from each of the lakes, as it summed up the major findings in a single paragraph. However, I think this section would improve by providing a clear take-home message for each lake. The current manuscript stops half-way in that respect and still gets lost sometimes by describing too much detail in the text. Figure 4 is not mentioned once in the Results, but only in the discussion, why is that? This figure clearly presents results.

The discussion is excessive and I have a hard time following the author's claims about the Neoproterozoic and Phanerozoic carbon perturbation events. In my opinion the authors massively over-extrapolate their data, and I would recommend to cut these parts out and

simply focus on the modern lakes. There are enough good data to make this a nice round story without overselling.

Overall, this is a very solid dataset, but the manuscript needs a major revision prior to publication.