In this revision, the authors better introduce their ideas, and it is easier to understand the manuscript. I am still not convinced by the discussion as it contains too many speculations and too many subsections to my taste. There are many "most likely", "probably", and "may be" in the discussion which clearly indicates that the authors do not have empirical evidence to make the claim they would like. However, this version has a hypothesis, I did find the answer to that hypothesis in the results and discussion sections, the methods sound good to me, the data supports the conclusion, and the study has a significant importance. Therefore, my taste is simply an opinion and maybe most people will be happy to have all those elements discuss. Much like the other reviewer, I think the manuscript will read better if the authors spend some time cleaning the grammar. For instance, there are too many sentences starting with "this/these" and it is not easy to follow what we are talking about. The text is also quite wordy.

We thank the reviewer again for commenting on and helping to improve our manuscript. In total, we now have replaced or complemented 22 instances of "this/these" that were not clear enough. The manuscript was reread and corrected by a native British English speaker.

Some additional comments:
Line 28: "sedimentological expression" is not clear. The use of "these processes" is also not helping because "these processes" were not introduced before. Or at least they were not introduced as processes, so the reader has to guess what we are talking about. In general, too many sentences in the abstract start by "this/these" and it is not easy to identify the subject of those sentences.
We have rephrased this passage in the abstract. We have replaced "this/these" where the link with previously introduced objects was not clear enough.

Line 371: More concentrated in what? In salt?
We have clarified by specifying that the groundwater's "ionic strength (including DIC concentration) increases" as groundwater flows towards Alchichica.

Line 495-496: That is moving too fast as it sounds like the authors claim that because the lakes are not connected to a river, autochthonous processes dominate. I doubt the authors had such an intention.
Indeed, surface streams and rivers are expected to transport a significant portion of organic carbon inland (Hotchkiss and Hall, 2015; doi: 10.1890/14-0631.1). The absence of such streams should greatly reduce the input of allochthonous OM to the lakes studied, especially POM. We have reorganized the paragraph, referring to the lakes' endorheic nature only at the end. We have also added a reference supporting the same inference for Lake Alchichica (reference added on line 503).

Line 553-555: The authors claim that an increase in POC below the oxycline is indicative of anoxygenic primary production. Other processes, such as sedimentation could also increase the POC below the oxycline. Therefore, the claim made by the authors needs further justification. I take that there is a subsection later on talking about sedimentation. However, the claim is made before such a subsection and I think the authors, not the reader, should make the link between the data and their different interpretation.
We state in the text that the increase of POC with depth in La Alberca "suggests" the possible anoxygenic autotrophy occurring in this lake. In the following lines 558-562, we further justify this suggestion. To reinforce the claim of anoxygenic autotrophy in La Alberca, we have added that the [POC] increase was associated with a distinctive isotopic signature, as seen in figures 4 and 5, arguing against the hypothesis of sedimentation.

Line 566: “at depth”. Is there a number missing here or “at depth” stands for “below the oxycline”?

We have replaced “at depth” by “below the oxycline”.

Figure 3: The figure seems cropped, and we cannot see all the data.

We have modified figure 3 accordingly.