

Interactive comment on “Natural events of anoxia and low respiration index in oligotrophic lakes of the Atlantic Tropical Forest” by H. Marotta et al.

Anonymous Referee #2

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This is an interesting paper and shows, for tropical lakes, what we already know about other lakes, that they generate CO₂ when they become anoxic. There is a negative correlation between O₂ and CO₂ which is unsurprising and part of the general limnological literature already. The principal strength of this work is that it extends what we already knew about lakes to a set of lakes that are not studied very much. Is there some way you could highlight the novelty of the manuscript. As presented, it seems substantially confirmatory. Most of my other suggestions are minor and are listed below.

Minor comments

I would suggest consistent use of either molar or mass units. Here around line 25, P is molar and C in mass.

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p. 4228, around line 6, reference needed for Koppen classification.

Timing of sampling (4229, lines 17-23) makes me wonder what happens at night. One might expect very low O₂ and high CO₂ but we have done diurnal sampling in highly productive lakes and have not always found this. I am wondering whether you have any measurements between 6 pm and 6 am. It would be useful to indicate to the reader what might be happening during that period.

Page 4230, paragraph 2. Did you make any direct measurements of CO₂? My feeling has long been that Stumm and Morgan calculations must be correct but some of the parallel analyses we have run suggest otherwise. By this I am not casting doubt on your conclusions but it might be useful to reassure the reader that direct measurements yield results that are similar to the calculated numbers.

p 4231, paragraph 2. Could you do some overall analysis showing that gas fluxes differed significantly between stratified and unstratified periods? I know your statistical suggest this graphically, but it would be interesting to see a more powerful global analysis.

Page 4232, line 4. Can't you get a negative number in a spreadsheet calculation either by low oxygen or low CO₂? So doesn't this become difficult to interpret?

p 4233. line 3- Are the emission rates of CO₂ large or small with respect to other aquatic and terrestrial systems? Some comparative analysis would be interesting here.

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