

Thank you for preparing this revision, which I will recommend for publication. I am happy to see this treasure of data to be published!

There are a few minor technical corrections which I ask you to take care of. Note that I refer to line numbers in the pdf with tracked changes.

**Reply:** We very warmly thank the Associate Editor for the additional suggestions for improvement. Text was changed accordingly.

218: Delete statement about observed clustering of points, seems like a Result.

**Reply:** The statement was deleted accordingly.

223-235: The order of statements and equations seems unfortunate here. Please rearrange to allow your reader faster understanding: equ 7 to after equ 8 and after the statement about how equ 8 was used for prediction.

**Reply:** The sequence of equations and related equations were rearranged accordingly.

237-248: I suggest to make a clearer distinction between objectives (1) and (2). First describe comparing ponds using factors, second explain the regression approach with continuous predictors. Separate paragraphs would help. Currently, you write about objectives one a bit like 1-2-1-2-1.

**Reply:** Text was re-arranged accordingly.

Also, lines 245-248 should be reworded, the syntax is hard to understand, better write “the impact of X on Y” and not “the impact on X of Y”.

**Reply:** This sentence was reworded accordingly, and now reads L 244 : “This analysis aimed at investigating (1) the impact of photosynthesis-respiration on CO<sub>2</sub> concentrations and emissions based the relationships with Chl-a, DIN, SRP; (2) the impact of the response of methanogenesis to warming on CH<sub>4</sub> concentrations and diffusive and ebullitive emissions based on the relationships to T<sub>w</sub>; (3) the impact on DIN availability and T<sub>w</sub> on N<sub>2</sub>O concentrations and diffusive emissions.”

344-346: You did not describe analysis of CH<sub>4</sub>-content anywhere in the data analysis of Methods section. Please add these missing information to Methods. Also applies to Fig 4.

**Reply:** This information was added to the Methods section, text now reads L 212: “The CH<sub>4</sub> content in bubbles expressed in % of total gas (%CH<sub>4</sub>) was fitted with a linear regression model dependent on T<sub>w</sub> in the Silex pond. The correlation of %CH<sub>4</sub> with  $F_{bubble}$  was tested on the merged data of all the four ponds.”

Fig 2: I see no need for a regression line and model to be presented here and it makes statistically little sense. Correlation is ok. If you are convinced about using regression, then I would argue it’s rather temperature influencing precipitation.

**Reply:** We have removed the linear regression line from the plot. The Pearson  $r$  is mentioned in the figure legend and appears on the plot. The same changes were applied to Fig. S3.