

Interactive comment on “CO₂ Flux and its Relationship with Water Parameters and Biological Activity in the Ji-Paraná River (Rondônia State – Western Amazon)” by Thandy Junio da Silva Pinto and Beatriz Machado Gomes

Anonymous Referee #2

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Dear authors,

This study reports the CO₂ flux and other parameters in the Ji-Paraná River basin. The result is organized in a table and three figures. However, the details of measurements are unclear. The statistic method can be largely improved. The discussion and conclusion did not provide quantified number (not just statistic numbers) to bring a new insight.

Major comments:

C1

1. The authors use correlations among the parameters in Table 1. There is at least one better way to deal with the correlations, for example, PCA (Principle component analysis). The PCA can be easily done through free software “R”. The explanation for the result from PCA should be based on the beigeochemical knowledge. There are several high correlations in Fig. 3 to 5. The authors can consider to discuss them systematically instead of individually. In addition to statistics, Discussion should give readers a better insight for Biogeoscience. How strong is biological activity? Primary production and respiration are mentioned but are not quantified. Are these number high or low by comparing to other systems? What is the role of river discharge in addition to biological activity? The correlation between them was still significant.
2. The discussion of AOU, pCO₂ is questionable. The oxygen in river water should be able to exchange with the atmosphere. The temperature of river water can also varied day and night. How theses effects can change DO concentration in the water? Line 174, “pCO₂” is the partial pressure of carbon dioxide, not concentration.
3. The writing is sloppy. The structure should be modified. Section 2 and 3 should be combined. Since the authors only have 3.1 and no 3.2. Please consider to use a better structure to organize them. Details in methods are lacking. Precision for the methods, such as pH, alkalinity, and others, should be provided. How the uncertainty of F is calculated? Line 170- 174, there are 18 references in one sentence. Please select references and merely use them.
4. The conclusion did not provide a new insight. Such a conceptual conclusion has well known.

Minor comments: Line 50 to 60, there are 3 paragraphs in 10 lines. Please modify the structure.

Line 126, “Fewer oxygen concentrations”? Do you mean “lower”?

Line 189, “Acknowledgments”, please check spelling.

C2

All the “2” in CO2 in the references should be modified to LOWER CASE.

Line 232, “exchange1”?

Table 1, the authors use commas for all numbers? I think the authors want to use “.”

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C3