



Responses and actions on referee comments on the manuscript egusphere-2023-684, Enhanced net CO₂ exchange of a semi-deciduous forest in the southern Amazon due to diffuse radiation from biomass burning, by Simone Rodrigues et al., 2023.

Date: December 19, 2023

Referee Comments #1

General comments:

I would like to thank the authors for thoroughly addressing my previous comments and suggestions, and for implementing the new analyses to mitigate the potentially confounding factors on productivity. I think the current version of the manuscript is nearly ready for acceptance, but I identified a few very minor points that I describe below that the authors may want to revise. Line numbers refer to the version of the revised manuscript with tracked changes.

AC: On behalf of all coauthors, I want to express my gratitude to the editor and referees for their valuable feedback, which helped improve our paper significantly. We have accepted and corrected all the minor issues pointed out. Our responses are below (see track changes highlighted in green).

Minor points - RC#1

1. L2-L3. Perhaps simplify the sentence to something like “Few studies have hitherto investigated or measured the radiative effects of aerosols on the Amazon and Cerrado biomes”.

AC: We agree and replaced the sentence as suggested (L2-L3).

2. L56-57. I think the authors can drop the last sentence. Instead, the authors can mention the novelty at the last paragraph of the introduction, where they describe their research objectives.

AC: It’s a great suggestion. We’ve done (L76-L77).

3. Figure 1. The caption should describe all the panels. Specifically, the authors could describe the AOD map (data source, date or average window) and the land cover map source.

AC: We agree and have rewritten it as follows: “Figure 1. (a) shows the average regional distribution of AOD at 550 nm extracted from Terra(Aqua) - MOD(MYD)04-3K platforms between 2000-2020 at the studied area; (b) map of South America, highlighting the political limits of the studied region (magenta); (c) localization map micrometeorological tower in the Cláudia municipality, 50 km northeast of Sinop, Mato Grosso (white point). Changes in land use and land cover are also shown by TerraBrasilis” (see caption).

4. L107. I suggest replacing “produce new” with “produce new leaves”

AC: We have replaced (L106).

5. L179. The correct name is “Kelvin” (instead of “degrees Kelvin”), because K is an absolute temperature scale.

AC: Thanks a lot. We have corrected (L179).

6. Figure 4. Using vertical bars to describe the standard deviation is ambiguous. I suggest describing what the box height means (presumably interquartile range) and refer to the standard deviation range as “whiskers”. Also, is the central line the median or the mean?

AC: Thank you for the suggestion. We have inserted all the info as follows: “Figure 4. NEE average hourly cycle between June/2005 and July/2008, during the rainy (a) and dry (b) seasons for the semideciduous NEE forest at the Claudia municipality. No filters are applied. The NEE is presented for any sky conditions during the year. We used the box plot NEE to represent the distribution of CO₂ flux data. The vertical bars are the maximum and minimum values. The lower and upper limits of the boxes represent, respectively, the 25th and 75th percentiles, whereas the horizontal blue and red lines represent the median of the CO₂ flux data” (**caption**).

7. L507 and throughout the edited text. I think the reasons for not analysing GPP directly are defensible, but I wonder if the correct statement should be that “we assumed that the temporal variability of GPP is similar to the temporal variability of NEE”.

AC: We agree and replaced the sentence as suggested (L507).

8. L545. Consider rewriting to “we noticed that the Tair variability is wider/broader than the LCT variability”.

AC: We’ve replaced the sentence as suggested (L544-L545).