

Dear Authors,

Thank you for thoroughly addressing my previous comments.

However, upon reviewing the revised manuscript with track changes enabled, I noticed that lines 135–140 mention the installation of a total of six chambers at the SFF site. This raised a question regarding the sufficiency of this number in capturing the variability in the measured CO₂ fluxes. I would have expected you to establish multiple random replicate plots across different locations at the SFF site and then deploy six chambers within each plot. For instance, if you had implemented four replicate plots, each containing six chambers, this would have resulted in 24 sampling locations, which, in my view, would better account for the expected spatial heterogeneity in CO₂ flux measurements.

Therefore, I request you to provide additional details in the methodology section regarding the rationale for sampling gases at only six locations at the SFF site. Additionally, it would be helpful to specify the spatial arrangement of the chambers (distance between chambers)—whether they were closely or widely spaced. If this sampling design presents a limitation to the study, I encourage you to acknowledge and discuss this aspect in the discussion section.

It is also not clear how many locations within the PFF site were sampled and what was the separating distance between the sampling locations.

Aside from this concern, I am satisfied with the improvements you have made in the revised manuscript.

Dear Reviewer,

Thank you for your additional comments.

We generally agree with your opinion that having more sampling points would have been beneficial for better capturing the spatial heterogeneity at the site. Due to the remote location and the resulting logistical constraints, however, we decided to opt for a rather minimalistic setup. Using, as suggested, 24 chambers would have resulted in 96 vials (4 time points times 6 chambers) per sampling day; and managing such a large number of vials from/to Mbandaka was not feasible from an organizational standpoint (vial supply, vial retrieval). To overcome these restrictions, we selected one representative forest site together with local researchers, considering species composition and flood regime. The chambers were then placed accounting for local microtopography. The chamber distance was kept at about 20m in order to be able to sample the

chambers in parallel rather than in sequence. Regarding the PFF site, we assumed that the flooding water was homogenous, thus keeping the replication at a statistical minimum (three replicates). Site homogeneity is reflected in the very low variability among the replicates within one sampling day.

Additionally, we amended the manuscript as follows :

Line 126 : The SFF site was chosen as a representative site of the surrounding forest. The six chambers were spaced about 20 meters apart, randomly distributed across the site but accounting for variations in local microtopography.