

Thank you for your responses and edits based on my comments. I appreciate the authors' effort in revising the manuscript. However, I remain concerned about the excessive number of figures, which could obscure the storyline. Also, I did not observe any highlighted new findings. Furthermore, the new title does not seem appropriate as the focus extends beyond microbial carbon dynamics alone. I believe the manuscript could be suitable for publication with revisions to the title, a reduction in the number of figures (especially the ones that they didn't even discuss in the manuscript), and a clearer highlighting of their new findings.

Response: We appreciate your constructive feedback on our revised manuscript and have considered your suggestions for further enhancement. Below are our detailed responses:

Firstly, we've refined the title to "Modeling microbial carbon fluxes and stocks in global soils from 1901 to 2016", better aligning it with our core emphasis on microbial variables and more accurately reflecting our key contributions.

Secondly, we have streamlined our presentation of findings by consolidating figures – reducing the original 16 to 9 – and reallocating content to either the main text or supplementary materials accordingly. This restructuring places a clear focus on the description of microbial carbon fluxes and pools in the main text, in line with our narrative. Additionally, Table 2, detailing soil, vegetation, and litter carbon pools, has been relocated to the supplementary section to maintain narrative coherence. All referenced figures and tables within both the main text and supplementary sections have been duly revised.

Thirdly, we have meticulously reviewed the manuscript to ensure accurate citation of figure and tables. We have also performed a comprehensive grammar and spelling check to eliminate typographical errors and improve sentence structure.