

The authors thank the editor for recommendation of publishing our manuscript (ms) in Biogeosciences and the very helpful comments, and below are how we have improved the ms in response to these comments.

Comments: I think the only missing point not properly addressed in your revised manuscript is a bit of rationale on your choice not to consider the dependence of N₂ fixation on iron in your box model as requested by Referee N°2. You detailed this in your response to the referees but I feel it would deserve to appear either in Introduction or model description sections of your revised manuscript.

Response: Please see the new paragraph on Page 4 Lines 4–14 of the revised ms.

Comments: Table 2 page 37: g and h notes: empirical instead of emeprical.

Response: This has been corrected on Page 35 g and h notes of the revised ms.

Comments: Figures 2, 4 and S7: One cannot read the numbers on the purple segments of the colored bars.

Response: Figures 2, 4 and S7 have been improved by changing the color of the purple segments to light blue and the font color to dark blue. We have also changed the color of the dark grey segments to light grey. Figures S1 and S5 have also been modified slightly to improve the figure visibility.

Comments: Figure 4 caption: ... represent the nitrogen fixation rate..

Response: This has been corrected in the ms.

Comments: Figure 5: One cannot read the numbers on the green segments of the colored bars.

Response: This has been improved by changing the color of the green segments to light green and the font color to dark green. We have also changed the color of the dark grey segments to light grey to improve the figure visibility.