

Response to referee comments (Minor Revisions)

Suggestions for revision or reasons for rejection

The manuscript acknowledges the limitations of the UVic model, specifically its coarse resolution and the lack of consideration for coastal processes. Adding a brief discussion, perhaps a couple of sentences, on how these limitations might impact the results would enhance the rigor of the manuscript.

Thank you very much for this comment. We now have expanded the section “Discussion and limitations” and added more details on the limitations of our model and how they might impact the results of our study (Line 400-412).

Additionally, it would be beneficial to discuss the potential impact of other feedback mechanisms not included (phytoplankton stoichiometry, changes in ocean acidification, and iron deposition) in the current model.

Thank you for this remark. Indeed, in the last version we just mentioned other feedbacks, without explaining their potential impact. We have now elaborated more on the possible influence of phytoplankton stoichiometry and iron deposition. The role of ocean acidification, although very relevant for the modern ocean’s biogeochemistry, is not directly linked to our current research question. Therefore, we finally decided to leave it out (Line 415-425).

Please review the manuscript comprehensively to correct any minor grammatical errors and enhance overall clarity and readability. Here are a couple of examples from the abstract.

L3: Internal feedbacks regulate ...

Feedback of what?

L8 ... addition of bio-available phosphorus alone or together with nitrogen affects ...

Addition to what?

We now have reviewed the manuscript and corrected grammatical errors and typos, like those you mentioned for the abstract.