

Interactive comment on “A model study on the sensitivity of surface ocean CO₂ pressure with respect to the CO₂ gas exchange rate” by P. Landschützer et al.

Anonymous Referee #2

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General comments: I think the paper is well written and clearly structured. However, I feel that in the current state of the manuscript, it does not present any unexpected/new results that could be relevant for the addressed topic. The paper would be much stronger if the authors present results based on changing the winds and hence including the changes in ocean circulation. Right now, they are basically presenting results using a different gas transfer parameterization. In my opinion, the presented sensitivity studies do not improve our current understanding of the uncertainties in future climate projections.

Does the paper address relevant scientific questions within the scope of BG? Yes 1.

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Does the paper present novel concepts, ideas, tools, or data? No 2. Are substantial conclusions reached? No 3. Are the scientific methods and assumptions valid and clearly outlined? Yes 4. Are the results sufficient to support the interpretations and conclusions? No 5. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? Yes 6. Do the authors give proper credit to related work and clearly indicate their own new/original contribution? No. I am missing any citations of publications that have presented results using different gas transfer parameterizations. 7. Does the title clearly reflect the contents of the paper? Yes, to a certain extend. 8. Does the abstract provide a concise and complete summary?

Yes, to a certain extend. 9. Is the overall presentation well structured and clear? Yes 10. Is the language fluent and precise? Yes 11. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? Yes 12. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated?

At the current state of the manuscript, I think it lacks enough new insights to be presented as a scientific paper.

13. Are the number and quality of references appropriate? No, please see no. 6 14. Is the amount and quality of supplementary material appropriate? n/a

Specific comments: As already mentioned in the general comments, in my opinion the current state of the manuscript does not present sufficient new insight to our current knowledge in this topic. If they want to investigate the impact of increasing/changing winds on the CO₂ air-sea gas exchange, the changes in ocean circulation due to the winds have to be included in the simulations.

Interactive comment on Biogeosciences Discuss., 8, 10797, 2011.

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