

Interactive comment on “Individual and interactive effects of warming and CO₂ on *Pseudo-nitzschia subcurvata* and *Phaeocystis antarctica*, two dominant phytoplankton from the Ross Sea, Antarctica” by Zhi Zhu et al.

Anonymous Referee #2

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Review on “Individual and interactive effects of warming and CO₂ on *Pseudo-nitzschia subcurvata* and *Phaeocystis antarctica*, two dominant phytoplankton from the Ross Sea, Antarctica” by. Zhi Zhu et al.

This manuscript tests the response of two different phytoplankton species (*Pseudo-nitzschia* and *Phaeocystis*) to changes in a larger range of pH and temperature. The findings in the manuscript are interesting and for importance regarding climate change impacts on biogeochemical cycles in the Ross Sea. I think that the experimental setup is tedious, yet also necessary as a first step to understand some response patterns.

C1

Due to the approach taken, one could argue that the authors will not be able to distinguish between CO₂ and pH effect or the effect regarding metal availability under different pH. But personally, I see these kind of studies to be useful for a first understanding.

I have to emphasize the care taken by the authors to keep the cells in a healthy growth phase using multiple dilutions and longer acclimation phases. This care is lacking in a lot of literature. Thanks for the improvement in culture maintenance and acclimation. I see no issues in the experimental setup, data analysis and evaluation as well as discussion! The writing is fine and the manuscript is well structured. I would argue that this study could be published with very minor corrections.

However, while reading through the paper I realized that it is a tiresome. I feel that this study, despite potentially being a useful source of information might not get a lot of attention due to the way it is written. Although scientific writing is dry, that authors could have tried to write the manuscript more exciting. I will leave this to the editor and the other reviewers.

Minor comments: This manuscript seems to be relatively similar in its idea compared to a study by Trimborn et al 2013)- yet significant differences are apparent so I will not hold this against it. Nonetheless, the authors might want to compare some of the data between the mentioned paper in their manuscript.

Please correct the typo in line 222 – the “S” is missing the species name.

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C2