

Responses to reviewers' comments

Anonymous Referee #1

I commend the authors on their revised manuscript. The study is sound and the paper reads well. The inclusion of the points raised by the anonymous reviewer has certainly strengthened the manuscript. There are however a few minor points that need to be addressed before publication.

Firstly, the authors could consider citing two papers in the current special issue which support their findings. The first by Hancock et al, which shows a decline or loss of *P. antarctica* from population at high pCO₂(line 424). The second is Deppler et al, who measured C:N ratios with pCO₂ (lines 449-455).

Thanks for pointing these new papers out to us. Both of these citations have been added and are now discussed in the text, at lines 425-427 and lines 456-457, respectively.

The authors seem to have confused the discussion on silicification (Lines 460-470). As it reads now the authors contradict themselves. I believe the problem is a mistake in the sentence at 466, which reads "This suggests that future increases in diatom silicification at elevated pCO₂ could partially or wholly offset the decreased silicification and higher dissolution rates of silica observed at warmer temperatures (above)..." Based on the literature arguments and their own data, I believe the authors have mixed up this sentence. Instead, it should be that the increase in silicification with temp could offset the decrease observed with high pCO₂. However, please double check and revise accordingly.

Thanks for catching this error. The reviewer is correct, this text was slightly confused here. It's now been corrected on lines 468-470. It now reads "This suggests that future increases in diatom silicification at elevated temperature could partially or wholly offset the decreased silicification and higher dissolution rates of silica observed at high CO₂ (above)."

Please note also, there is an error in the PDF, where the bottom two lines of each page is missing. Please ensure revised ms has all line numbers included when converted to pdf.

Thanks for pointing this out. We will make sure it's correct this time.

Minor edits:

Line 59: add 'the' before Ross Sea

Line 313: delete the 's' from responses, should read response.

Thanks for pointing this out. Both errors have been corrected now.