

Interactive comment on “Impact of ocean acidification on Arctic phytoplankton blooms and dimethylsulfide production under simulated ice-free and under-ice conditions” by Rachel Hussherr et al.

Anonymous Referee #2

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The manuscript provides a good account of the potential effects on OA of Baffin Bay seawater in the Arctic Ocean and its affect on various variables such as Chl a, pH, nutrients, DMSPt and DMS etc., The manuscript is well presented and figures and tables are very clearly produced. Significant changes have been highlighted in the 10 day incubation experiment. Whilst the authors state that the rapid change in pH investigated over 10 days is not representative of the gradual OA that is taking place their study does reflect potential extreme responses. However, some further acknowledgement of this should be made in the discussion and in particular acknowledge that organisms do adapt to changes which may well affect the validity of some of the discussion and

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conclusions.

The abstract should contain more of the important findings mentioned in the text. Go through and highlight these changes in discussion and make sure they are included in the abstract.

The introduction is well stated although there should be some attempt perhaps in the discussion to state why different authors find different affects of OA on phytoplankton response.

Methods. Are the expts 9 days or 10 days-it is not clear. As the authors removed the large grazers could microzooplankton affected the results? Why was alkalinity kept constant? Surely in the natural environment and in particular a bloom event alkalinity would change as well as the concentration and ion activities of some of the constituents measured?

Results: See the sticky notes added to the manuscript and please attend to them. Can you say what species were mainly reflected in the nannoplankton. Were any calcareous?

Discussion and Conclusion: see the sticky notes. These parts need to be carefully gone over and some sentences modified.

Overall I would recommend publication with attention paid to the minor comments. Also the authors should end their discussion with what future studies should concentrate on wrt. Baffin Bay to extend the field and make these expts more relevant to actual conditions in the field..

Please also note the supplement to this comment:

<http://www.biogeosciences-discuss.net/bg-2016-501/bg-2016-501-RC2-supplement.pdf>

Interactive comment on Biogeosciences Discuss., doi:10.5194/bg-2016-501, 2016.

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