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Biogeosciences Discussions

Interactive comment on "Effect of elevated pCO_2 on trace gas production during an ocean acidification mesocosm experiment" *by* Sheng-Hui Zhang et al.

Anonymous Referee #2

Received and published: 18 June 2018

Title: Effect of elevated pCO2 on trace gas production during an ocean acidification mesocosm experiment Author(s): Sheng-Hui Zhang et al. MS No.: bg-2018-148

General Comments

The study examines production of volatile sulfur and halocarbon compounds in mesocosms of seawater with different dissolved carbon concentrations. The premise is to examine the impact of ocean acidification on gas production.

This is an okay idea. One major concern, however, is that the study was only five-weeks long, and there was no pretreatment of the phytoplankton. Thus, it is not really a global change test, but rather it is a test of acid shock on phytoplankton. I suppose

this is interesting.

Also, it appears to me that some of the data on temporal changes in chemistry and biology in the mesocosms have been published previously by Liu et al. (2017). Figure 1 is identical to Figure 1 and Figure 2 in Liu et al. (2107) and, at least, two panels in Figure 2 are in Figure 3 in Liu et al. (2017).

Thus, only the data in Figure 3 are new. Unfortunately, you cannot publish the same data twice. Elsevier, the publisher of Marine Environmental Research, owns the copyright to those figures.

Specific Comments

1) The abstract reads well.

2) The introduction is okay. However, it ends a bit abruptly. As written it is mostly a review of literature ending in an objective to do more research. Although a research objective is good, research should be question driven and present a testable, falsifiable hypothesis. In this case, what do you hope to learn in a 5-week study? (This seems short term to me.)

3) The methods seem appropriate, to me.

4) The results are okay. However, the discussion about the role of bacteria in DMSP dynamics, on page 10 and 11, seems like speculation to me. Where are the data on bacteria in the mesocosms? Speculation is okay, but data is better.

5) Than many correlations in the text could go in a table. This would make the text more readable.

6) Much of the discussion on page 13 is literature rather than interpretation. Rather than merely list other studies, compare results quantitatively. Did the other studies have CH3I production rates that were similar to yours?

Technical Comments

1) Line 31 & 36: report the percentages as whole integers. It is nearly impossible to measure accurately to 0.1%.

2) Line 48: ‘human activity’ and ‘anthropogenic’ are the same. You do not need both in the sentence.

3) Line 69: delete the sentence ‘several studies have already, etc.’ in the following sentence, replace ‘majority’ with ‘several studies have shown a negative impact, etc.’

4) Line 78: perhaps start a new paragraph with ‘halocarbons’

5) Line 189 to 192: delete. This is not an appropriate topic sentence, and it is from the introduction. No need to repeat here.

6) Line 192: delete the sentence and put (Fig. 3) in the following sentence.

7) Line 209: round ’29.2%’ to the ‘29%’.

8) Line 228: why Yu et al., unpublished data? Why not include the data here?

9) Line 258: the sentence does not make sense. Do you mean ‘attributed to biology’ rather than ‘involve’. Also delete the quotes around ‘biogenic’. Why use quotes for an adjective?

Sorry but I cannot overlook the attempt to publish the same data in two papers. I realize that data from one paper can be used in another, but this needs to acknowledge the first paper and copywrite.

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