

## ***Interactive comment on “A halocarbon survey from a seagrass dominated subtropical lagoon, Ria Formosa (Portugal): flux pattern and isotopic composition” by I. Weinberg***

**I. Weinberg**

enno.bahlmann@zmaw.de

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We are grateful to the anonymous Reviewer #1 for the helpful comments on our manuscript. The suggestions made will surely improve the paper. In some cases there are overlaps with the comments of other reviewer's which is accordingly stated in our answers.

In preparing a revised paper, the authors should include citation to, and data from, the recent relevant publication in Biogeosciences Discussion by Rhew et al. (Large methyl halide emissions from south Texas salt marshes, Biogeosciences Discuss., 11, 9451-9470, 2014) which provides additional data on methyl halide emissions from salt-

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marshes for the current authors' section on comparing emissions from coastal regions globally. In particular, the recent Rhew et al. work provides further evidence for different magnitudes of methyl halide emissions between temperate and tropical salt marshes.

We fully agree with this suggestion. At the time we prepared our manuscript the latest Rhew et al. study (2014) concerning halocarbon emissions from salt marshes was not available. We now cite the new findings of Rhew et al. in the final manuscript.

Section 2:2. Please provide the dimensions of the chambers, particularly the cross-sectional area of the base, and the volume of the enclosure.

The dimensions of the chamber are provided in the revised manuscript. The flux chamber (quartz glass) has a surface area of 0.1 m<sup>2</sup> (7 L enclosure volume). The submersible flux chamber has a surface area of 0.037 m<sup>2</sup> (8 L enclosure volume).

P10612, L18: It is not clear what is meant by the phrasing “We observed only occasional blanks for . . .”. What is meant by observing a blank? Is what is meant that values above LOD were only occasionally observed for blank samples? Please rewrite to make clear.

The sentence is clarified in the final manuscript. It is now: “The occasionally detected blanks of CH<sub>3</sub>Cl and CH<sub>3</sub>Br from these determinations were ≤3% to the “real” samples taken from the seagrass meadows during sampling campaigns.”

P10613, L15: Equation (2) does not appear to be consistent with the units given for its variables within the text. If the gas exchange velocity used is in units of cm h<sup>-1</sup> then there is a factor 100 discrepancy with obtaining a flux, F, value in nmol m<sup>-2</sup> h<sup>-1</sup>.

We are thankful for this comment. The unit is m h<sup>-1</sup>. This will be corrected in the manuscript.

Section 3.2, and corresponding tables of data: Are 3 significant figures justified for single flux values that demarcate the lower or upper end of a range of individual measure-

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ments? Is the precision in a single measurement that good; I doubt it. (An additional significant figure for calculated summary mean or median values is justifiable.)

Thank you for this advice. We adopted the suggestion and revised the data concerning the significant figures in the mentioned sections. The analytical precision was in the range of  $\pm 3\%$  to  $\pm 6\%$ . We thus provide 2 significant digits in the revised manuscript.

Section 4.2(iii) seasonal trends: The authors should be cautious about statements of seasonal trends given that they have measurements for only a few days in one spring and a few days in one summer.

We agree with this opinion and are more conservative with our statements concerning the seasonal dependence in the final manuscript. (P10624, lines 18-20) "Overall, these differences observed in periods of air exposure between spring and summer might suggest a certain seasonality in seagrass meadows." Accordingly, we already stated at the end of the section (P10624, lines 20-22): "However, further studies covering the entire season are necessary to unravel the annual halocarbon emissions from seagrass meadows."

Technical:

P10607, L8: Replace "were" with "have been". done

P10607, L12: Replace "out-weighted" with "unbalanced," (note the addition of a comma also).

done

P10607, L24: Replace "being vital" with "as being important". done

P10608, L2-3: The whole sentence starting "They cover. . ." does not make sense and needs rephrasing. There should be a noun after "intertidal and subtidal". Also it is not clear what the current phrasing "as well in. . .as in" is comparing what to what.

The sentence is accordingly rephrased. It is now: "With a net primary production of

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~1200 g C m<sup>-2</sup> yr<sup>-1</sup> seagrass meadows are one of the most productive ecosystems with a similar global abundance as mangroves and salt marshes (Duarte et al., 2005). They cover huge areas of the intertidal and subtidal zone in temperate and subtropical/tropical regions."

P10608, L5: Insert "yet" before "sufficiently" and delete the ", yet" from the end of this sentence. done

P10608, L18: Replace "in" with "into". done

P10609, L10: Insert a noun after "intertidal", e.g. "area"? done

P10609, L12: Insert commas after "Further" and "abundant". done

P10609, L14: Again, insert a noun after "subtidal", e.g. "areas"? done

P10609, L18: Capital "M" for "Marine". done

P10610, L16: Delete the comma after "both". done

P10610, L19: Replace "was" with "were". done

P10611, L3: Insert a noun after "intertidal"; e.g. "area" or "region"? done

P10612, L2: Capital "P" for "Peltier". done

P10613, L4: Delete "commonly", it is not clear what this word is intended to convey here, and is surely superfluous anyway. done

P10613, L11: Insert "of" after "calculation". done

P10613, L14: Delete "common". done

P10613, L24: Replace "were" with "where". done

P10613, L24: Replace "further" with "additionally". done

P10613, L25: Delete the comma after "thus". done

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P10615, L5: The word "Punctual" is not the correct word to use here. However, it is not clear what meaning the authors do want to convey here. They should check again with a dictionary and/or thesaurus. Punctual was replaced by "discrete"

P10615, L7-L13: There are a number of instances in this block of text where the value given for the lower or upper end of a flux range is discrepant with the corresponding value given in Table 1. For example, in L7 a value of 158 pmol L<sup>-1</sup> is quoted in the text for the lower end of the range whilst the entry in Table 1 specifies this value to be 123 pmol L<sup>-1</sup>. The authors should recheck all quoted values and amend as required.

All quoted values are rechecked and corrected in the manuscript.

P10615, L11: Insert "=" before "0.20". As suggested by Reviewer#2, we decided to skip the results from the correlation analysis (water samples) due to the small sample size.

P10616, L15: Insert "=" before "0.55". As suggested by Reviewer#2, we decided to skip the results from the correlation analysis (water samples) due to the small sample size.

P10616, L27: Delete the comma after "both". done

P10617, L23: Rewrite word as "occasionally". done.

P10617, L24: Insert "the" before "summer". done

P10619, L1: Replace "if" with "when". done

P10619, L5: Add a comma after "were" and another comma after the second numerical value quoted. Also, add the part per thousand 'unit' after each of the values quoted. done

P10620, L8: Delete "Accordingly," and start the sentence at "The area. . ." done

P10620, L10: Insert "be" after "to" done

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P10620, L19: Replace "like" with "same". done

P10620, L22: Replace "were" with "where". done

P10621, L2: Replace "influence on" with "association with" (a correlation demonstrates association, not causation). done

P10621, L22: Insert "of CH<sub>3</sub>I" after "correlations". done

P10621, L27: This sentence does not make clear that the subject is emissions of methyl halide fluxes. Rephrase the latter part of the sentence something along the lines of ". . .the main environmental association in salt marsh emissions of CH<sub>3</sub>Cl and CH<sub>3</sub>Br was with ambient temperature rather than light." We have rephrased the sentence. It is now: "Blei et al. (2010) reported that the main environmental association in salt marsh emissions of CH<sub>3</sub>Cl and CH<sub>3</sub>Br was with ambient temperature rather than light".

P10622, L3: Insert "a" before "sink". done

P10622, L6: Insert commas after "while" and "general". done

P10622, L23: Delete comma after "Obviously". done

P10623, L2: Delete "an". done

P10623, L15: Replace "as during" with "compared with". done

P10623, L15: Replace "inevitable prove" with "proof". done

P10623, L24: Replace "went along" with "was in parallel". The whole sentence was removed, because we skipped the correlation analysis of halocarbons from water samples (as mentioned above)

P10623, L29: Replace "seasoning of" with "seasonal trend in". done

P10624, L18: Delete comma after "thus". done

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P10625, L24: Delete “are”. done

P10625, L24; Replace “as” with “compared with”. done

P10625, L29: Replace “accompanied” with “accompanying”. done

P10626, L17: Replace “as” with “compared with”. done

P10626, L21: Insert “to” after “extent”. done

P10626, L26: Replace “demanding” with “difficult” and delete “yet” from the end of this sentence. done

P10627, L20: Replace “as” with “than”. done

P10629, L20: Lower case “s” on “southern”. done

P10630, L3: Remove hyphen from “species dependent”. done

P10630, L6: Insert comma after “sediments”. done

P10630, L7: Delete comma after “both” and replace “to act” with “of acting”. done

P10639, L1 of caption of Table 1: Replace “General overview” with “Summary”. done

P10641, caption of Table 3: State in the caption what is represented by use of bold font for some of the values in the table. done

P10643, caption of Table 5: State in the caption what is represented by use of bold font for some of the values in the table. done

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Interactive comment on Biogeosciences Discuss., 11, 10605, 2014.