

Interactive comment on “Halocarbon emissions and sources in the equatorial Atlantic Cold Tongue” by H. Hepach et al.

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We thank Anonymous Referee #2 for the very valuable input. We agree that especially the very recent findings of Liu et al. (2015) are helpful to interpret field data. Unfortunately, this paper was not yet published when we submitted our study. We incorporate the discussion regarding DOM as potential substrate into the discussion section 5.1. We added to section 5.1.1:

“It has been suggested that CHBr₃ is not produced directly from phytoplankton, but rather from dissolved organic matter (DOM) present in sea water (Lin and Manley, 2012). This was more closely investigated in laboratory experiments by Liu et al. (2015), who suggested that the weak in-situ correlations of bromocarbons with Chl a are a result of this indirect production pathway. The correlation with certain phytoplankton groups may then be caused by the production of phytoplankton-specific DOM.”

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As we stated in the answer to Anonymous referee #1, we now clearer emphasize the uncertainties associated with correlations in our manuscript. Changes in the manuscript according to Anonymous Referee #1 are highlighted in red, while changes according to Anonymous Referee #2 are marked blue. Additional changes are flagged in green.

Specific Items: Page 5570, first paragraph. There is additional Atlantic data not reported here. See Liu et al, 2013.

Thank you for making us aware of these data. It is correct, Liu et al. (2013) is missing here. We will add the comparison with their data for the tropical region of the Atlantic around the equator in section 4.1.1. We added:

“Values of up to 10 pmol L⁻¹ (CHBr₃) and 3 pmol L⁻¹ (CH₂Br₂) near the equator were reported by Liu et al. (2013b). The latter study covers the region during October and November, indicating that the equatorial Atlantic seems to be a larger source for bromocarbons during the intense cooling in the summer months.”

Page 5572, line 6 - what is meant by the parenthetical expression '(in both cases profile 4)?

To make the point clearer, we deleted the sentence and wrote instead:

“The highest deep maximum concentrations of both CHBr₃ (up to 19.2 pmol L⁻¹) and CH₂Br₂ (up to 10.6 pmol L⁻¹) were observed in profile 4.”

Page 5582, line 8 - 'Only' should not be capitalized.

We corrected this.

References added: Lin, C. Y., and Manley, S. L.: Bromoform production from seawater treated with bromoperoxidase, *Limnol. Oceanogr.*, 57, 1857-1866, 10.4319/lo.2012.57.06.1857, 2012. Liu, Y. N., Yvon-Lewis, S. A., Thornton, D. C.

O., Butler, J. H., Bianchi, T. S., Cambell, L., Hu, L., and Smith, R. W.: Spatial and temporal distributions of bromoform and dibromomethane in the atlantic ocean and their relationship with photosynthetic biomass, *J. Geophys. Res.-Oceans*, 118, 3950-3965, 10.1002/jgrc.20299, 2013b. Liu, Y. N., Thornton, D. C. O., Bianchi, T. S., Arnold, W. A., Shields, M. R., Chen, J., and Yvon-Lewis, S. A.: Dissolved organic matter composition driven the marine production of brominated very short-lived substances, *Environ. Sci. Technol.*, 49, 3366-3374, 10.1021/es505464k, 2015.

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