

Interactive
Comment

Interactive comment on “Concentration maxima of volatile organic iodine compounds in the bottom layer water and the cold, dense water over the Chukchi Sea in the western Arctic Ocean: a possibility of production related to degradation of organic matter” by A. Ooki et al.

A. Ooki et al.

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Referee’s comments were very helpful and we have revised the manuscript according to the comments.

Response to specific comment 1 (P6, L8): We have revised accordingly.

“65 mL L⁻¹” -> “65 mL min⁻¹”

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Response to specific comment 2 (P15, L10): We found low concentrations of CH₃Br (1.3 – 1.4 pmol L⁻¹) and CH₃Cl (59 – 66 pmol L⁻¹) in the bottom layer water over the Chukchi Sea Shelf (St. 76) with respect to the concentrations in the surface mixed layer (CH₃Br: 2.5 – 2.8 pmol L⁻¹, CH₃Cl: 104 – 110 pmol L⁻¹), where the high concentrations of NH₄⁺ and VOIs were found in the bottom layer water. Low concentrations CH₃Br and CH₃Cl in bottom layer water were found in some stations over the Chukchi Sea shelf. We speculate that bacterial degradations of CH₃Br and CH₃Cl prevailed against biological productions of these compounds in the shallow bottom layer water of the Arctic (perhaps in cool-type Arctic and sub-Arctic waters). We have found the under-saturation levels of CH₃Br and CH₃Cl in the surface mixed layer water of the sub-Arctic North Pacific (Ooki et al., JGR, 2010). The sub-Arctic and Arctic oceans would be sink for CH₃Br and CH₃Cl, perhaps, attributable to their bacterial degradations. We will study on the degradations of mono-halo methane compounds as well as the VOIs in future work.

Response to specific comment 2 (P18, L20): We have revised accordingly.

“CH₂Cl” -> “CH₂ClI”

Interactive comment on Biogeosciences Discuss., 12, 11245, 2015.

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