

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.

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Received and published: 6 October 2015

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.

“CH₂O” -> “CH₂Cl”

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

C6242