

# 南極定着氷スラッシュ層のブロモホルム濃度について

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## Bromoform concentration in slush layer in Antarctic fast ice

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Bromoform is one of the volatile organic compounds emitted from the ocean surface to the atmosphere, and it was believed to affect the ozone depletion in the atmosphere through the photochemical reaction. Although estimations of air-sea flux of bromoform were well examined in the open ocean area, there has rarely been measured in the ice-covered sea. In this study, we evaluated the bromoform concentrations in water of slush layer widely developed at the snow-sea ice interface and under-ice water during the seasonal warming condition in the Lützow-Holm Bay, eastern Antarctica. Average bromoform concentration in slush layer was  $4.8 \pm 2.3 \text{ pmol L}^{-1}$ , which was lower than those of under-ice water ( $10.4 \pm 3.6 \text{ pmol L}^{-1}$ ). Temporal decrease of bromoform concentrations and salinity in slush water with high correlation suggest that the bromoform concentrations in slush water were diluted by the meltwater input from the upper surface of sea ice in accordance with the increase of the slush temperature. Compared with the slush water, bromoform concentrations in under-ice water increased during the period, tracking the increase of chlorophyll *a* concentrations, while the salinity of under-ice water decreased. We speculated that the effect of *in situ* production of bromoform in under-ice water by a phytoplankton might have mainly contributed to the increase the bromoform concentration in under-ice water.