

Relative importance of bottom water originating from the Vincennes Bay Polynya on AABW in the Australia-Antarctic Basin

*Yujiro Kitade¹, Keishi Shimada¹, Yu Shirai¹, Sigeru Aoki², Takeshi Tamura³, Yasushi Fukamachi², Kay I. Ohshima²

1.Tokyo University of Marine Science and Technology, 2.Institute of Low Temperature Science, Hokkaido University, 3.National Institute of Polar Research

Antarctic Bottom Water (AABW) is the densest water in the ocean and globally significant. Historically there have been three well-known source regions in the Weddell and Ross Seas, and off Adélie Land. One-year moorings in 2013-14 at 3200m and 3400m depths on the eastern slope of ridge at the north of Vincennes Bay reveal the property of the AABW originating from the Vincennes Bay Polynya (hereinafter VBBW). The VBBW had a thickness of 300m at least and reached at the bottom of 3400m depth. Observational result obtained from 2011 to 2016 have shown that the water property of AABW off Vincennes Bay was mainly influenced by Australian-Antarctic Basin AABW (AA-AABW), which is the mixed water of Ross Sea Bottom Water (RSBW) and Adélie Land Bottom Water (ADLBW), and the VBBW were distributed over them. Long-term water mass changes during 1994-2015 have been examined and significant freshening trends of AA-AABW were detected along 110E. This change of water property was considered to increase relative impact of the VBBW on the AABW in the Australian-Antarctic Basin.

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