

Rapid and persistent freshening of Antarctic Bottom Water in the Australian-Antarctic Basin

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Summer hydrographic data obtained along 110°E meridional transect are used to document multi-decadal change in abyssal hydrographic condition south of 60°S. Data are obtained every year after 2011 and it is clarified that freshening observed at beginning of 2000s (e.g., Aoki et al., 2005) is still persistent in the recent years. The observed freshening is clearly intensified to the bottom, and thus, likely induced by increased fresh water discharge near the formation regions of Antarctic Bottom Water. Also, observed freshening implies rise in sea level. Haline component of sea level rise (against 1995) in the recent years (~13.5 mm) is quadrupled after 2005 and is comparable to that of thermal component (~11.0 mm). Thus it is concerned that haline component can be the main contributor to sea level rise in the Southern Ocean in near future.

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