



Relationship between Ocean Bottom Pressure Variations and Baroclinic Eddy off Kushiro-Tokachi from 2004 to 2013

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The scope of this study is to explore relationships between ocean bottom pressure (OBP) variations related to ocean plate changes, and oceanic climate changes like El Niño/Southern Oscillation (ENSO). We analyzed OBP data at stations PG1 (41.7040N-144.4375E) and PG2 (42.2365N-144.8454E) obtained from the Long-Term Deep Sea Floor Observatory off Kushiro-Tokachi in the Kuril Trench, gridded daily sea surface height (SSH) data provided by AVISO, and conductivity-temperature-depth (CTD) data at a repeated observation line off Akkeshi (A-line) from 2004 to 2013. In addition, we used Niño-3 index, which is one of the major indices [U+3000] for ENSO and is given by the CPC/NOAA. It is suggested that SSH at PG1 and PG2 similarly vary affected by the Oyashio, the western boundary current of the North Pacific subarctic gyre, and El Niño events in 2006 and 2007 via atmospheric teleconnections. OBP time series at PG1 and PG2 are almost in phase in most of the analysis period, but from the early 2006 to the end of 2007, are quite discrepant in amplitude; at that occasion, OBP at PG1 is much higher than that at PG2. Expecting a peculiar hydrographic feature at the occasion, CTD data along the A-line in January 2007 are analyzed. A lenticular eddy was found to exist in a layer between 1500 and 3000 dbar and to deepen substantially isopycnals of approximately 27.7 sigma-theta around a depth of 2000 dbar. Probably due to the baroclinic eddy feature, OBP is kept low at PG2, while high at PG1. The subthermocline water occupying the deep eddy are considered not to be originated in the North Pacific but to be derived from the Southern Ocean.