

Relationship between Ocean Bottom Pressure Variations and Baroclinic Eddy off Kushiro-Tokachi

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The scope of this study is to explore relationships between ocean bottom pressure variations and oceanic climate changes. We analyzed ocean bottom pressure data at stations PG1 and PG2 obtained from the Long-Term Deep Sea Floor Observatory off Kushiro-Tokachi by JAMSTEC, satellite-observed sea surface height (SSH) data provided by AVISO, and conductivity-temperature-depth (CTD; i.e., temperature and salinity vertical profile) data at a repeated observation line (A-line) from 2004 to 2013. The result shows that ocean bottom pressure variations 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. 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. Probably due to the baroclinic eddy feature, ocean bottom pressure at PG2 is not in phase with the SSH, in contrast to PG1. The present results imply that oceanic temperature and salinity observations like CTD, in addition to SSH, are required to understand the mechanism of ocean bottom pressure changes.

Keywords: ocean bottom pressure variation, oceanic eddy