Geophysical Research Abstracts
Vol. 18, EGU2016-1893-2, 2016
EGU General Assembly 2016

Ocean bottom pressure variation associated with path variations of the Kuroshio south of Japan

Akira Nagano, Takuya Hasegawa, Hiroyuki Matsumoto, and Keisuke Ariyoshi
Japan Agency for Marine-Earth Science and Technology, Japan (nagano@jamstec.go.jp)

The Kuroshio south of Japan takes a stable southward meandering path, called the large meander (LM), on interannual to decadal timescales. During the non-LM period, mesoscale disturbances of the Kuroshio path, called small meanders, occasionally occur in the region southeast of Kyushu and propagate eastward. Some of them develop to the LM, possibly associated with deep eddies. In order to reveal the relationship between the development of path disturbances and bottom current (or hydrostatic pressure), we examined variations of ocean bottom pressure obtained by pressure sensors deployed in the region off Shikoku (capes Ashizuri and Muroto). Bottom pressure on the continental slope is found to increase abruptly lagging a few months behind an elevation of sea surface height (SSH) due to the formation of the LM in July 2014. Geopotential distance from the sea surface to 2000 dbar based on hydrographic data at the Affiliated Surveys of the Kuroshio off Cape Ashizuri (ASUKA) line abruptly increases from early to late July. The reduction of density stratification, i.e. the weakened baroclinicity, causes the temporal delay of the increase of bottom pressure relative to the elevation of SSH associated with the formation of the LM.