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Ocean bottom seismic observation off Joetsu, the Niigata-Kobe Tectonic Zone, by using long-term ocean bottom seismometer

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Many large earthquakes occurred within the Niigata-Kobe Tectonic Zone (NKTZ) (Sagiya et al., 2000). To understand the generation mechanism of these earthquakes and a formation of the NKTZ, it is necessary to obtain detailed hypocenter distribution around the NKTZ. Shinbo et al. (2009) estimated station corrections of land seismic stations from residual of travel times using aftershocks of 2007 Niigata-ken Chuetsu-oki earthquake located using Ocean Bottom Seismometers (OBSs) data (Shinohara et al., 2008). They located hypocenters of aftershocks using the data from the marine and land seismic network with the estimated station corrections and showed precise aftershock distribution of Chuetsu-oki earthquake. To study a crustal activities of the NKTZ, it is important to obtain precise hypocenters distribution under offshore regions far the source region of Chuetsu-oki earthquake. On December 9, 2008, we deployed 10 OBSs off Joetsu, Niigata Pref., for location of hypocenters precisely under Japan Sea. After 10 months observation, all OBSs were recovered from October 14 to 15, 2009. Using the OBSs and its surrounding land seismic stations, we can determine precise hypocenters under Japan Sea. In this study, we locate hypocenters using data from OBSs and land stations and obtain focal mechanisms. Furthermore we discuss the crustal activities of the NKTZ using the precise hypocenter distribution and focal mechanisms.