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1964 年新潟地震震源域における浅部速度構造
P-wave velocity structure model in a shallow part around the source area of the 1964 Niigata earthquake

町田 祐弥 [1*], 真保 敬 [1], 篠原 雅尚 [1], 望月 公廣 [1], 山田 知朗 [1], 金沢 敏彦 [2]
MACHIDA, Yuya[1*], SHINBO, Takashi[1], SHINOHARA, Masanao[1], MOCHIZUKI, Kimihiro[1], YAMADA, Tomoaki[1], KANAZAWA, Toshihiko[2]

[1] 東京大学地震研究所, [2] 防災科学技術研究所
[1]ERI, Univ. Tokyo, [2]NIED

At the eastern margin of the Japan Sea, large earthquakes have been occurred (e.g., 1964 Niigata earthquake, the 1983 Japan Sea earthquake, the 2004 Chuetsu earthquake and the 2007 Chuetsu-oki earthquake) along the Niigata-Kobe Tectonic Zone (NKTZ). The NKTZ is recognized as a region of large strain rate along the Japan Sea coast and in the northern Chubu and Kinki distinct. Among these events, the 2004 Chuetsu earthquake and the 2007 Chuetsu-oki earthquake is triggered by reactivation of pre-existing faults within ancient rift systems by stress loading through a ductile creeping of the weak lower crust (Kato et al., 2008). Because the tectonic zone is thought to be spread in offshore region, it is difficult to understand a precise activity of the tectonic zone from only land-base observations. To compare the seismic activity with the crustal structure in the region is indispensable to understand the stress field in the tectonic zone and the tectonics in the eastern margin of the Japan Sea. In order to understand precise seismic activities in the NKTZ, especially in offshore region, we installed Ocean Bottom Cabled Seismometers (OBCSs) in the source region of the 1964 Niigata earthquake in 2010 (Shinohara et al., 2010). The OBCS system has a length of 25 km and 4 OBCSs were developed with 5 km interval. The OBCSs have three accelerometers as seismic sensor. In 2011, a seismic survey using airguna and OBCSs was carried out to obtain a seismic velocity model. To understand a precise crustal structure is necessary for precise earthquake locations. The precise seismic activities may contribute to understand a current state of the source region of the 1964 Niigata earthquake. In this study, we construct a P-wave velocity model below each OBCS using the tau-p mapping and the tau-sum inversion method (Stoffa et al., 1981; Shinohara et al., 1994). Then we estimate proper station corrections each OBCS for earthquake location.

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