

## Aftershock distribution of the 2007 Chuetsu-oki Earthquake and crustal structure by a marine and land seismic network

Masanao Shinohara[1]; # Takashi Shinbo[2]; Tomoaki Yamada[3]; Shin'ichi Sakai[4]; Aitaro Kato[1]; Kazuo Nakahigashi[2]; Naoshi Hirata[1]; Takaya Iwasaki[3]; Toshihiko Kanazawa[5]

[1] ERI, Univ. Tokyo; [2] ERI; [3] ERI, Univ. of Tokyo; [4] E.R.I., Univ. of Tokyo; [5] ERI, Tokyo Univ

The Niigata-Kobe Tectonic Zone (NKTZ) is placed in the eastern margin of the Japan Sea, and many large earthquakes occurred (Sagiya et al., 2000) within the NKTZ. The Chuetsu-oki Earthquake occurred on July 16, 2007. To understand the generation mechanism of the mainshock and to consider a formation of the NKTZ, it is important to obtain a detailed seismic activity and crustal velocity structure around the source region. From July 16, 8 hours after the mainshock, installation of temporally land seismic stations had been started to obtain a detailed aftershock activity (Kato et al., 2008). In addition, 32 Ocean Bottom Seismometers (OBSs) were deployed from July 25 to August 28 in and around the source region of the mainshock (Shinohara et al., 2008). Using the data from the marine and land seismic network, the detailed aftershock distribution was obtained. However, the locations of the mainshock and the aftershock occurred within 9 days from the mainshock were estimated from the land network data only, because no OBS was deployed in this period. A precise estimation of the mainshock location and an aftershock distribution just after the mainshock are essential to understand the characteristics of the mainshock. Recently, double-difference (DD) method (Waldhauser and Ellsworth, 2000) is used to determine hypocenters with high resolution. The DD method using the OBS and land station data enables us to locate the earthquakes before the deployment of the OBSs. The data are also useful to estimate the precise 3-D velocity structure around and in the source region of the mainshock, especially in marine area using tomography method (Zhang and Thurber, 2003).