Japan Geoscience Union Meeting 2014
(28 April - 02 May 2014 at Pacifico YOKOHAMA, Kanagawa, Japan)

SSS31-04 Room:502 Time:April 30 15:00-15:15

Three-dimensional seismic velocity structure around the Neodani fault

NAKAJIMA, Junichi[1*] ; KATO, Aitaro[2] ; IWASAKI, Takaya[2] ; THE JAPANESE UNIVERSITY GROUP OF THE, Joint seismic observations at the are[3]

[1]Graduate School of Sci., Tohoku Univ., [2]ERI, Univ. of Tokyo, [3]The Japanese University Group of the Joint Seismic Observations at the Area of Nobi Earthquake

The joint research project started in 2007 to enhance our knowledge on the deep structure around the Neodani fault, along which the largest crustal earthquake, the Nobi earthquake (M8.0), occurred in 1891. As a part of the project, 73 seismograph stations were installed around the fault, resulting in a dense seismograph network with a spatial separation of ˜10 km.

We performed a travel-time tomography to reveal a detailed 3D velocity structure around the Neodani fault. The tomographic method of Zhao et al. (1992) was applied to arrival-time data of earthquakes (N=3027) that occurred from 2002 to January 2013. The total number of arrival-time data was 248,354 for P waves and 215,034 for S waves. Horizontal grid nodes spaced at intervals of 0.1 degrees were set in the study area and vertical grid nodes were set at intervals of 5?30.

The obtained results show interesting features in terms of heteroegensou structures beneath the source area of the Nobi earthquake.

1. The lower crust beneath the Nobi plain shows low Vp and Vs compared to surrounding areas.
2. A low Vp and Vs area is imaged continuously from the Philippine Sea slab and the mid crust beneath the Nobi earthquake.
3. The lower crust beneath the Neodani fault shows an along-fault variation in seismic velocities, with moderate- to high-velocity crust to the southeast and low-velocity crust to the northwest.