

Attenuation structure of the Kanto region derived with MeSO-net data

Shutaro Sekine[1]; Kazushige Obara[1]; Shin'ichi Sakai[2]; Shigeki Nakagawa[3]; Keiji Kasahara[4]; Naoshi Hirata[5]; Toshikazu Tanada[6]

[1] NIED; [2] E.R.I., Univ. of Tokyo; [3] ERI, the Univ. of Tokyo; [4] ERI; [5] ERI, Univ. Tokyo; [6] HSRI, Kanagawa Pref.

In Kanto region, the Pacific (PAC) plate subducts from the east, and the Philippine Sea (PHS) plate subducts from the south. The shape of the subducted these boundaries are complex, and fine velocity structure is estimated (e.g. Matsubara et al., 2005). So we need to reveal fine Q structure to explain geometry of the slab and the seismotectonics. In this region, Sekiguchi (1991) estimated large scale Qp structure by using the spectral ration of seismic waves, and Sekine et al. (2005) estimated Qp and Qs structure using NIED Hi-net maximum velocity amplitude data. MeSO-net is the fine scale seismic network, which is constructing in the metropolitan area. The data are acceleration waveform data. So we need to estimate the attenuation structure. The velocity and attenuation structure are needed as critical data of the seismic intensity in the metropolitan area. In this study, we use the amplitude data of the MeSO-net data, and we compare with structure of the Hi-net Q structure.

The MeSO-net observation station by this research is 46 points arranged from the Tsukuba city, Ibaraki pref. to Yokohama City, Kanagawa pref. and the average interval is about 2km.

We selected 2856 P- and S-wave MeSO-net UD-component amplitudes data from 291 earthquakes in Kanto region.

We set the study area between latitudes of 34.5 - 36.5N degree and longitudes of 138 - 142E degree. We then made the grid with an interval of 0.1 degree and apply it to the study area at depths of 5km and 10km up to 300 km in the region. And the velocity structure used the result of Matsubara et al. (2005).

The Low-Q area exists in about 30km of a Tokyo, Chiba, and Saitama prefectural boundary. This region is a region according to 3D velocity structure obtained with Matsubara et al. (2005) where low-V and the high Vp/Vs ratio are shown, and the one to suggest the existence of mantle. In addition, a more detailed attenuation structure is expected for the existence of the Low-Q area to have been confirmed by Sekine et al. (2005). For the earthquake data to increase the observation point maintenance of MeSO-net it advancing, and to be going to be clarified in the future also in a quite different data set in the analysis of the attenuation structure.