

Estimation of Seismogenic layer in Wakasa bay area(1)

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For the earthquake motion analysis of Wakasa Bay area, we estimated depth of seismogenic layer.

According to the The Headquarters for Earthquake Research Promotion, an earthquake occurs at 18km from 3km deep in Lake Biwa perimeter. According to the The Annual Seismological Bulletin of Japan For 2004, an earthquake occurs at 20km from 5km deep in Wakasa Bay area.

From this data D10% and D90% by Ito and Nakamura(1998) are estimated 7km and 15km respectively. So lower limit of seismogenic layer is estimated 18km.

We carried out an array measurements of microtremors and seismic motions to examine velocity structure of ground. Phase velocity of microtremors from 0.3sec to 6sec is observed. The S-wave structure estimated by array measurements of microtremors is agreed with the refraction.

Love wave phase velocity from 2sec to 20sec is observed and Rayleigh wave phase velocity from 2sec to 9sec is observed by array measurements of seismic motions. Rayleigh wave phase velocity by the array measurements of seismic motions is correspond to the phase velocity by the array measurements of microtremors. And calculated Love wave phase velocity by the S-wave velocity structure estimated by microtremors array measurements is correspond to the observed Love wave velocity by the he array measurements of seismic motions.

By both array measurements, we estimated basement depth is 4km and basement S-wave velocity is 3.6km/s.