

Numerical simulation of long-period microtremor H/V spectra in the Osaka sedimentary basin model

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In the estimation of the irregular subsurface structures, the H/V spectra of long-period microtremors is more effective(Uebayashi,BSSA,2004). This phenomenon suggests that the H/V spectra in a sedimentary basin surrounded by mountains are affected by the 3-D wave-fields. Therefore, in the clarification of the application limit of the identification technique of the irregular subsurface structure based on 1-D subsurface structural models, comparison of the H/V spectra between the 3-D simulation of long-period microtremors and observation records on sedimentary basin is necessary.

We calculated long-period microtremors in Osaka sedimentation Basin model using 3-D finite difference method. As a result, we were able to find that in the predominant frequency of the H/V spectra, there is it to 0.15-0.2Hz on the plains Western than Uemachi fault and it to 0.25-0.35Hz on the peripheral region of Osaka plain and the neighborhood of Uemachi fault. Furthermore, the H/V spectra of the strongly irregular region of the basement structure have broad peaks. These phenomena accord with an observation record of the past.

