

Estimation of Subsurface Structure from Microtremor and Strong Ground Motion Evaluation of the 1943 Tottori Earthquake

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September 10, 1943. The Tottori earthquake occurred in the east of Tottori prefecture, and gave serious damage to Tottori city. In this study, subsurface structures at damaged site were estimated for evaluating strong ground motion of the Tottori earthquake in Tottori city. Single site 3-components observation and array observation were carried out at the school points. Predominant period of H/V spectrum was obtained from 3-components observation records. The predominant period were not have related with natural period of school building. S-wave velocity structures were obtained from array observation records. Thickness of S-wave velocity 100m/s~200m/s layer was estimated 30m at observation sites. We calculated engineering bedrock waveforms using Stochastic Green's function method and surface waveforms using equivalent linearization method. It was found that large damage schools tended to high response value in periodic band of 1.0 second.

Keywords: Microtremor observation, Tottori Earthquake, S-wave velocity structure, H/V