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Simultaneous Simulation of Dispersion Curves and H/V Spectra

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Subsurface modelling beneath an earthquake observation station is necessary to study incident waves from observed earthquake records. Unless we have a vertical array, we have to rely on either observed records on the ground or micro-tremor observation. We can deduce surface wave dispersion curves by micro-tremor array observation and simulate them for subsurface models and we can use H/V spectra to obtain rough image of subsurface model such as base rock depth; however, simultaneous use of them has been scarcely reported. In this paper, we will demonstrate an advantage of simultaneous simulation where array size is only valid for higher frequencies; shallower part of the subsurface model is evaluated by stable surface wave dispersion curves and deeper part of the model is constrained by less informative peak and trough frequencies of H/V spectra.

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