

Qs value in the Osaka basin

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Three-dimensional basin models for numerical simulation of strong ground motions were constructed in the Osaka basin. Verification and improvement of these models are conducted.

However, comparing later arrivals between simulated and observed earthquake motions, later arrival of simulated motions are smaller. One reason for this is that the S wave velocity and the interfaces between layers are not modeled well. The other reason is impertinent Qs value is used for simulation because this value is difficult to measure. Numerical simulation showed that the Qs value contributes to generation of basin-induced surface waves.

In the Osaka basin, earthquake observation is conducted at two depth levels in borehole by Kik-net observation network. Using earthquake motion data at these two points, we inferred S wave velocity and Qs values

We obtained two results:

1) Time history of SH waves; vertical- and vertical- component SV waves are in good agreement between simulated and observed earthquake motions at deep observation points.

2) Qs values nearby surface are smaller compared with initial values.