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Three-dimensional waveform modeling of strong motions observed in the Kuno site

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We perform three-dimensional pseudo-spectral waveform modeling of strong motions in the Kuno test site by using the pseudo-spectral method.

The three-dimensional model of the Kuno site was made from the results of our geophysical surveys such as borehole logging at the stations, deep seismic reflection survey, and VSP at one of our stations.

We simulate the strong motions in the frequency range 0.2 to 3 Hz observed at the surface and borehole (GL-300m) of the OA station during the 1996 Eastern Yamanashi earthquake (Mj5.3) and the 1997 East-Off Izu Peninsula earthquake (Mj5.7). The comparisons of the simulated waveforms with the observed ones show that the synthetics are under-estimated at the ground surface, while those at the borehole are over-estimated. The results indicate that the 3-d model should be improved to evaluate the amplification in the surface layers. The condition of input motion should also be reconsidered.