

Effect of Fault Depth on Near-Fault Peak Ground Velocity

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Abstract : Fault depth is an important parameter to be determined in ground motion simulation, and peak ground velocity (PGV) demonstrates good application prospect. Using numerical simulation method, the variations of distribution and peak value of near-fault PGV with different fault depth were studied in detail, and the reason of some phenomena were discussed. The simulation results show that the distribution characteristics of PGV of fault-parallel (FP) component and fault-normal (FN) component are distinctly different; the value of PGV FN component is much larger than that of FP component. With the increase of fault depth, the distribution region of the FN component strong PGV moves forward along the rupture direction, while the strong PGV zone of FP component becomes gradually far away from the fault trace along the direction perpendicular to the strike. However, no matter FN component or FP component, the strong PGV distribution area and its value are both quickly reduced with increased fault depth. The results above suggest that the fault depth have significant effect on both FN component and FP component of near-fault PGV.

Keywords : fault depth, near-fault, PGV, numerical simulation

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