A Study on ground motion and fault rupture due to subsurface faults

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We examined the difference in ground motions and fault rupture characteristics between subsurface fault events and surface rupture events. Ground motion caused by subsurface rupture is dominant in the period range around one second. On the other hand, ground motion from surface rupture fault is weaker in the same period range. Surface fault rupture events have large slip shallower than several km, and slip on subsurface rupture events is predominantly deeper than 5 km. A study of the surface deformation due to fault rupture models of several earthquakes, we propose a standard subsurface source model with seismic moment of 7.5x10^18Nm(Mw6.5). The calculated strong ground motion in near fault region has velocity response around 100 cm/s in period range between 0.2 and 1 seconds.