Site effects due to soft soil layers: some comments regarding estimation and modeling

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Abstract

We often separate the factors that contribute to earthquake ground motion in three groups: earth, path, and site effects. Site effects, the amplification of ground motion generated by the soft soil layers close to the surface, are frequently a major factor determining the distribution of damages during earthquakes. Together with path effects, they are predictable in a sense that earthquake occurrence, or the factors controlling seismic radiation from an extended source, are not. In this talk, I will mention some problems associated to the estimation of site effects using earthquake data. I will also discuss the problems related to modeling site effects, which have shifted from the ground motion simulation method to the determination of the subsoil structure of the target. The study of site effects may contribute significantly to decreasing seismic risk. However, this requires understanding the relation between an irregular subsoil structure and observed ground motion.