



EMPIRICAL CORRECTION OF GROUND MOTION PREDICTION EQUATIONS OF RESPONSE SPECTRA AT ROCK SITES FOR NEAR-FIELD EARTHQUAKES CONSIDERING AMPLIFICATION EFFECT WITHIN DEEP SUBSURFACE STRUCTURE

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ABSTRACT: We propose empirical correction methods for an existing ground motion prediction equation of inland crustal earthquakes at rock sites in combination with numerical simulation of ground motion amplification and analysis of observed records, which introduces a correction term considering sediment amplification effects. Proposed methods utilize either sediment depth or average S-wave velocity of deep subsurface structure as an explanatory variable. Empirical prediction method of these explanatory variables from dispersion curve of Rayleigh wave phase velocity is also proposed.

Key Words: Response Spectrum, Ground Motion Prediction Equation, Crustal Earthquake, Deep Subsurface Structure, Rayleigh Wave Phase Velocity, Average S-Wave Velocity