

5 4**ESTIMATION OF GROUND MOTIONS IN SOUTHERN KOREA USING THE
EMPIRICALLY BASED STOCHASTIC METHOD**

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Since Boore (1983), stochastic simulation method have been widely used for estimating strong ground motions in Eastern and Western North America. There have been some researches on strong ground motions in the Korean Peninsula using stochastic simulation method in recent years. In stochastic simulation method, the Brune stress drop (parameter used to fit the amplitude spectrum to the Brune source model), attenuation model (kappa filter), and the duration model are major input parameters. We estimated the kappa value (based on Anderson and Hough, 1984) using accelerograms obtained from recently installed strong motion recording stations and, as a complement, using the broadband velocity data. Because the available data are not so rich up to now, the kappa model should be renewed as data being accumulated. The Brune stress drop was estimated from broad band velocity seismograms. Snoke (1987) proposed simple and stable method in estimating Brune stress drop. Jo (1999) modified this method by introducing iterative modification of low frequency asymptote of displacement amplitude spectrum. We used this modified Snoke's method and carried out least square inversion to fit the spectrum with Brune source model. In Snoke's method, Brune stress drop was sensitive to the frequency band but not in inversion method. The estimated Brune stress drop by the inversion was about 50 bars. Brune stress drop obtained by the modified Snoke's method was estimated to be a little greater than that by the inversion method and the standard deviation is also greater. Using the estimated value of kappa and Brune stress drop we simulated the strong ground motions for point sources of smaller earthquakes and finite fault models for larger earthquakes including near source effects.