

Estimation of the scattering coefficient and the intrinsic attenuation based on a seismogram envelope inversion

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To investigate the characteristics of the scattering and the intrinsic attenuation of high-frequency seismic waves in southern California, we analyzed seismogram envelopes of an aftershock of the 1992 Landers earthquake. By using an inversion technique for seismogram envelopes, we have obtained the following results for the scattering and the intrinsic attenuation of high-frequency seismic waves in southern California. (1) Assuming a nonisotropic scattering, temporal variation of the amplitude of seismogram envelopes is well modeled by our Monte Carlo simulation. (2) Scattering coefficient of the crust is roughly one order larger than that of the uppermost mantle. (3) Quality factor for the intrinsic attenuation in the crust and uppermost mantle is 1100.