

下部マントルにおける内部減衰・散乱減衰の相対的重要性

Relative Importance of Intrinsic and Scattering Attenuation in the Lower Mantle

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It is well known that the lower mantle has significant attenuation, but cause for the attenuation (i.e., relative importance of intrinsic and scattering attenuations) has not been well resolved. To address this problem, we conducted detailed analysis of seismogram envelopes.

Seismogram envelopes contain rich information to resolve intrinsic and scattering attenuations. Indeed, Lee et al. (2003, GRL) analyzed S and ScS envelopes of regional earthquakes in the Hindu Kush region and concluded the predominance of scattering attenuation in the lower mantle. They measured decay of coda envelopes for lapse time as long as 2000s and analyzed the data under the assumption of isotropic scattering. In this study, we analyze envelopes observed by a dense broadband array, F-net, and confirm that similar decay is observed in the envelopes of these modern data. We also try to better resolve the attenuation structure by analyzing envelopes for longer lapse time (7000s) without using the assumption of isotropic scattering. We apply our inversion method that systematically conducts waveform inversion of seismogram envelopes for various initial models. At the time of the presentation, we plan to show our models together with trade-offs among various unknown parameters.