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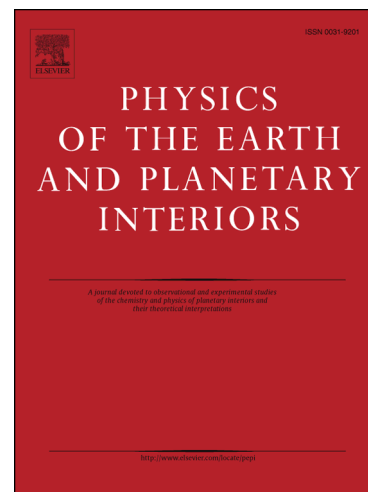
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# Relative role of intrinsic and scattering attenuation beneath the Andaman Islands, India and tectonic implications

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## Abstract

The attenuation characteristics of seismic waves traversing the Andaman Nicobar subduction zone (ANSZ) are investigated using high quality data from a network of broadband stations operational since 2009. We initially studied the Coda wave attenuation ( $Q_c^{-1}$ ) under the assumption of a *single isotropic scattering model*. Subsequently, following the multiple isotropic scattering hypothesis, we isolated the relative contributions of intrinsic ( $Q_i^{-1}$ ) and scattering ( $Q_{sc}^{-1}$ ) attenuation employing the *Multiple Lapse Time Window Analysis (MLTWA)* method within a frequency range 1.5-18 Hz. Results reveal a highly attenuative nature of the crust, with the values of  $Q_c$  being frequency dependent. The intrinsic absorption is mostly found to be predominant compared to scattering attenuation. The dominance of  $Q_i^{-1}$  in the crust may be attributed to the presence of fluids associated with the subducted slab. Our results are consistent with the low velocity zone reported for the region. A comparison of our results with those from other regions of the globe shows that the ANSZ falls under

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