

Heterogeneities near the core-mantle boundary inferred from short-period precursors to PKPdf waves

Yoko Tono[1], Ichiro Nakanishi[2]

[1] Dept. Geophysics, Kyoto Univ, [2] Dept. Geophys., Kyoto Univ.

Precursors to PKPdf recorded in Japan show the predominant frequencies of 0.5-2Hz, and the precursor onsets are observed at epicentral distances longer than about 137deg. The precursors are suggested to be scattered waves from the heterogeneities near the CMB. We calculate the average power amplitudes of scattered waves generated from the heterogeneities within a layer 200km thick. The calculated amplitudes are concentrated within an angle of 10deg around the direction of primary-wave propagation. The observed times and distances of the precursors are consistent with theoretical ones for the waves within a scattering angle of 10deg. Observed precursor amplitudes are explained by the layer with the heterogeneities of scale lengths of 10-30km and rms velocity perturbations of a few percent.