

Spatial variation in regional wave propagation in Japan (1) : Lg wave

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We used data from the J array network to evaluate the Lg wave propagation character in Japanese mainland. We firstly estimated attenuation in discrete frequency bands by measuring the decay of amplitude as a function of distance from the source assuming a common $R^{-0.83}$ relationship. The results shows abnormally low Q Lg value of $Q(f)=211 f^{0.98}$ and $Q(f)=134 f^{0.76}$ for northeastern and southwestern region, respectively, which indicate strong lateral variation in crustal structure compared with stable continental region. We therefore produced a heterogeneity map derived by back projection of Lg propagation/elimination path which gives an indication of the strength of horizontal gradients in seismic properties such as crustal thinning and coverage of thick sediments.