



Lateral variations of crustal seismic attenuation across the Thailand region

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Lg-attenuation refers to the reduction of amplitudes of Lg waves as they proceed through the earth surface. attenuation is quantified by a dimensionless parameter called the quality or attenuation factor(Q). Lg-Q map of a region at broadband and individual frequencies provide new insights into the crustal attenuation of the region and its relationship to geological structures and past tectonic activity in the area. In order to understand the lateral variations of Lg Q and its frequency dependence(η) in the Thailand region, Regional seismograms were collected. These Fourier spectra of crustal guided Lg waves are used to calculate the Q-values by using the two-station method. the data include five events(earthquake) with magnitude > 5.5 and maximum depth 50Km, recorded by 18 stations during the period 2009-2018. The data from these stations have three components with sampling rates of $20 s^{-1}$ or more or higher. We have used only vertical component only. Lg waveforms, which are Fourier transformed with a 20 % Cosine taper window with the two corners set at a group velocities of 3.0 and 3.5 km/s. and the instrument response is removed to get ground displacement spectra. To stabilize the spectral ratio, we applied a 15-point moving average to smooth the raw Lg spectra before forming the spectral ratios. Interstation Q values are calculated from the selected pair of two stations and then these measurements are used to map the lateral variations of Lg Qo using a back projection method. The resulting calculation indicates that Lg Q, at a frequency of 1 Hz, varies between 100 and 500 and most η values are between -0.2 and 2 with mean 1.1. Where northern Thailand has low Q-values(around 200) which corresponds to high attenuation, and on further, Q-values increases as we go southward which indicates low attenuation in southern Thailand.