Estimation of frequency dependent coda wave attenuation structure at the vicinity of Cairo Metropolitan Area

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A b s t r a c t

Estimation of seismic wave attenuation in the shallow crust in terms of coda wave Q structure previously investigated in the vicinity of Cairo Metropolitan Area was improved using seismograms of local earthquakes recorded by the Egyptian National Seismic Network. The seismic wave attenuation was measured from the time decay of coda wave amplitudes on narrow bandpass filtered seismograms based on the single scattering theory. The frequency bands of interest are from 1.5 to 18 Hz. In general, the values obtained for various events recorded at El-Fayoum and Wadi Hagul stations are very similar for all frequency bands. A regional attenuation law $Q_c = 85.66\, f^{0.79}$ was obtained.

Key words: seismic wave attenuation, coda wave frequency dependent attenuation, Cairo, seismic wave.