



Q-values for P and S waves in Southern Sinai and Southern Gulf of Suez Region, Egypt

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The quality factor Q has been estimated using spectral amplitudes of P and S waves from earthquakes recorded by the seismic network of the Egyptian National Seismological Network (ENSN) in southern Sinai and southern Gulf of Suez region. The earthquakes recorded at nine stations – DHA, NUB, TR1, TR2, KAT, SH2, GRB, HRG and SFG have been used in this study. The spectral amplitude ratios have been calculated between 2 - 20 Hz and single station spectral ratio method has been applied for this purpose. The results show that the quality factors for both P and S waves (Q_p and Q_s) increase as a function of frequency according to law the $Q = Q_0 f^n$. By averaging the estimated Q - Value obtained at all stations we calculated the average attenuation laws:

$Q_p = (13.15 \pm 0.76) f^{0.95 \pm 0.19}$ and $Q_s = (20.05 \pm 0.79) f^{1.03 \pm 0.04}$ for P and S waves respectively. These relations are useful for the estimation of source parameters of earthquakes and simulation of earthquake strong ground motions.

The Q_s / Q_p ratio for KAT station is less than 1 at lower frequencies, whereas at HRG and SH2 stations Q_s / Q_p ratio is greater than 1.