

Attenuation of Seismic Waves in Gheshm Area, Southeast Iran

An important parameter which directly affects the propagation of seismic waves either in earthquakes or explosions is attenuation coefficient, quality factor of an area. Quality factor of seismic waves, Q , in the lithosphere at high frequencies (1 to 20 Hz) is one of the most useful parameters to explain attenuation of seismic waves as an important property for the study of earth structure which contains meaningful information even in short distances. Having such a parameter for an area helps us to guess the decreasing of the amplitude of a vibration and could be even useful while monitoring explosions. Many methods have been innovated measuring Q factor using natural and artificial data. In this research we determined Q factor for Gheshm region using Sato method. IIEES broadband network data were used for doing this study. A network comprising 13 seismographs were installed in the area and 112 recorded events over three months after 2005 Gheshm earthquake were used to calculate the parameter. After processing we proposed a relation for Q in Gheshm region as $Q=77f^{0.83}$, where f is frequency and the relation confirms that Q values are frequency dependent (increasing with frequency) in the media through which it propagates.

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