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Empirical Attenuation Characteristics and Seismic Source Parameters through Spectral Inversion for Northeastern Italy

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Understanding earthquake source properties, such as the seismic moment (M□), is vital in seismology due to its direct correlation with fault dimensions and slip. The objective of the study which focuses on Northeastern Italy is to define an empirical relation between seismic moment and S-wave peak displacement specific to the region's attenuation characteristics. The seismic moment is being obtained by fitting the omega-squared Brune source model to the low-frequency part of the source spectrum which is achievable by applying a spectral decomposition approach known as the Generalized Inversion Technique (GIT), in which an overdetermined linear system of equations is being solved for the displacement spectrum of seismic data. Finally, the region's attenuation parameters will be determined by making an empirical relation between the seismic moment and maximum displacement amplitude of the S-wave.