

## Inversion of inter-station attenuation from ambient seismic noise records on a linear array

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We study inter-station attenuation from ambient noise cross-correlation functions on linear arrays, with inter-station distances larger than the data wavelength. Based on previous and new derivations on the amplitude decay of cross-correlation due to attenuation, we separate amplitude information and phase information from cross-correlation functions. We form linear least-square inversions for inter-station Q values applied to linear array of three stations. With this method, the background attenuation can be effectively canceled. Synthetic tests are performed to evaluate the effectiveness of the inversion formula. Synthetic noise cross-correlation data are generated by a ray-theory-based simulation program with heterogeneous attenuation and homogenous velocity structure. Inter-station attenuation and phase velocity dispersion curves are inverted from synthetic data with good precision. Applying this method to linear arrays in the San Andreas and San Jacinto Fault zones, we find systematic variations of attenuation across the faults.