

Ground Roll Noise Attenuation Using the Analytical Mode Decomposition

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Abstract

In this paper we present a new ground roll noise attenuation method in the $(t-x)$ domain, using the analytical mode decomposition (AMD) based on the Hilbert transform of product functions and assisted signal. The method works like an adaptive band-pass filter that allows a complete pass of frequency band between two adjacent bisecting frequencies. The signal is filtered in the spatial direction. This method is effective for data where coherent events can be aligned laterally as NMO (normal move out) corrected CMP (common-midpoint) gathers. This new filtering approach is applied on the synthetic and real seismic data.