

Thin-Bed Reflectivity Inversion and Seismic Interpretation

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Abstract/Excerpt

Enhancing the bandwidth of surface seismic data has always been a desirable goal for geoscientists. Conventional wisdom dictates that in the presence of noise and consequent broadening of the seismic wavelet during its subsurface journey, the resolution limit is a quarter of the dominant wavelength of the data. This limit follows from the Widess model, which is essentially a special case of a realistic model. Based on an analytical analysis of a realistic model, it is found that the seismic amplitude and frequency vary continuously far below the conventional view of the limit of seismic resolution and it is possible to infer thickness below the seismic sample rate. This implies that frequency beyond the seismic data bandwidth can be recovered.