Memprediksi Ketebalan Lapisan Tipis Dengan Metode Dekomposisi cepstral

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Abstrak

Abstract Spectral decomposition is an established technique for stratigraphic analysis from seismic reflection data. Interpretation is usually purely qualitative, but in some circumstances the technique can also provide quantitative information about bed thickness, especially near or below seismic resolution. This thesis describes a novel extension of the spectral decomposition technique that improves the accuracy of bed thickness estimation. Thin beds produce periodic notches in the spectrum of the seismic trace. The spacing of these notches, which is inversely proportional to bed thickness, can be accurately measured by calculating the Fourier transform of the spectrum. This so-called cepstrum has local maxima corresponding to the thickness of the thin bed or beds. Since the technique does not rely on picking a single frequency, but instead detects tuning effects from the entire spectrum, it copes better with noise and is also able to resolve overlapping and interfering thin-bed effects. In this thesis, I present examples from two-dimensional synthetic seismic traces, three-dimensional synthetic seismic models and three-dimensional synthetic real data. The result show that in two-dimensional synthetic seismic traces that using this technique can separate reflector better than classic data processing. in three-dimensional seismic traces this technique also work well to show channel possibility and predict their thickness. Cepstral peaks are also a better predictor of thickness than the time difference between the top and base interpreted from the seismic trace. Key Word: Spectral decomposition; bed thickness; cepstrum; spectrum (xii+62) hlm; gbr; lamp; Daftar Acuan : 20 (1963-2006)