

## **Developing Frequency Attributes to Generate High Quality 3D Data to have Better Geologic Interpretation**

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Seismic attributes are measurements derived from seismic data, based on the time, amplitude, frequency and/or attenuation details. These frequency based measurements are related with stratigraphy and reservoir characterization. The 3D nature of seismic data involves both the vertical (temporal) and horizontal (spatial) resolution. The temporal resolution here is a function of frequency content of our signal. Therefore the resolving power of a seismic data set depends on the frequency content present in them. Seismic data is band-limited and its band-width narrows as the signal propagates deeper through the earth. Attenuation is one of the cause and effect of such wave propagation. Due to such attenuation effects the higher frequency content of the signal decreases with time, creating difficulty in resolving features at reservoir depths. So the main aim of our work is to broaden the bandwidth of the signal at the reservoir levels keeping in mind not to boost the noise in this process. We are trying to achieve that by following ways:-

1. By applying different type of summation equations on the CWT signal and trying to create different frequency attributes which highlight the impedance contrast in the signal.
2. Developing a different way of convolution, using Hermite polynomial wavelets.

There are classically many ways of converting a time series signal into frequency domain. We convert the signal to its various frequency components using CWT with morlet wavelet being our mother wavelet. Finally I need to test the algorithm using a synthetic case.