APEX

To Interpreters Who Want to "See" the Rest of Their Data

Re: **ADM – An Enhanced Way to Interpret Seismic Data**   July 14, 2020

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Seismic data is more than one wavelet per volume and layers, seismic data is one wavelet *per sample and geology*. Importantly, geology includes permeability ("perm").

Perm causes velocity *dispersion* (i.e. progressively lower frequencies travel at lower velocities), and this causes *time domain stretch* on the reflected wave. Hence, time domain stretch can be a perm indicator.

A reservoir's perm can be broken into three parts: intrinsic perm, Relative Perm and reservoir thickness ("bulk volume perm"). In consolidated clastic hydrocarbon reservoirs, the high Relative Perm of hydrocarbons often causes anomalous dispersion **making time domain stretch a direct hydrocarbon indicator.**

With a trained eye, time domain stretch can readily be observed to be associated with hydrocarbon reservoirs in pre-stack time migrated data unless it has been processed out with algorithms such as spiking deconvolution, short gap deconvolution, amplitude Q compensation, or excessive broadband boosting.

Apex Dispersion Modelling ("ADM") models dispersion, the resulting time domain wavelet stretch and it's equivalent frequency domain wavelet compression. In effect, by modeling dispersion, ADM models bulk volume perm. Advantages offered by ADM include:

❖ Developing an improved understanding of time domain stretch and the related implications as to the presence or absence of commercial hydrocarbons.

❖ Developing insight into the bulk volume perm distribution of a hydrocarbon reservoir.

❖ Improving one's skill at recognizing time domain stretch associated with hydrocarbons.

❖ Improving one's understanding of the rock properties and fluid type effects that cause dispersion.

❖ Determining whether your play would benefit from dispersion imaging, a service we offer.

If you would like a free trial copy of ADM, please contact us.

Kind regards,

Scott W. Peters
President