

A new seismic processing technique to LIFT noise and multiples

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ABSTRACT

*LIFT Technology** is a new proprietary seismic processing technique from Core Lab to attenuate noise and better preserve the amplitude integrity of primary reflections. *LIFT* is a significantly different approach to the problem of noise attenuation than what has been done traditionally. An improvement from traditional True Amplitude processing schemes, *LIFT* provides an authentic amplitude-honoring way to suppress noise.

LIFT is already being used to attenuate noise from gathers in an AVO-friendly way prior to pre-stack migration, effectively attenuate marine multiple energy in complex water bottoms and shelf breaks in marine surveys, and address source-generated noise specific to land seismic data.

LIFT is a new process for lifting noise while re-constructing signal to its original form. *LIFT* uses a Projection Technique for various noise problems. The basic *LIFT* strategy is to capture either the signal or noise patterns within recorded seismic data volumes. This can be done using both standard processing techniques and more advanced modeling, inverse scattering or wave equation datuming approaches. Once the patterns are derived, systematic pattern rejection or enhancement can be applied to suppress noise from the original data in an adaptive nonlinear fashion.

Several real data examples will be shown in this paper, illustrating cases where *LIFT* has attenuated noise that other methods such as Radon de-multiple, FK spatial filters, and FX Deconvolution methods could not. This paper presents a new technique to attenuate noise and preserve the amplitude integrity of primary reflections.