
High Resolution Processing: From Data Preparation to Imaging and Velocity Models to Inversion

Jaime Stein, John Weigant, Gary Perry, John Tinnin, and Tom Langston. Geotrace Technologies, 1011 Hwy 6, Houston, TX 77077, phone: 281-497-8440, jstein@geotrace.com

The need to resolve the reservoirs better has triggered a flurry of activity in the High Resolution (HighRes) Arena, from acquisition to processing. There is a good amount of newly acquired HighRes Data and Geotrace has answered the challenge by developing methods capable of handling these data and delivering HighRes Products. These methods have also been successful at injecting new life into old prospects by reprocessing existing data. They also provide more accurate evaluations of reserves, drilling prospects and can resurrect prospects and bring them back to life.

Geotrace has fully embraced the HighRes Revolution by developing methods that extract more information from the data. These work by mining the existing bandwidth or extending the original spectra to recuperate higher and higher frequencies. This has been done while ensuring the preservation of the correct amplitude and phase, as well as the low frequency components critical in setting trends and regional information.

We will present several examples of these techniques at work. Firstly in the context of Prestack Depth Migration and Velocity Model Building, where our Multi-Scale High Resolution Tomography has allowed us to build high resolution velocity models. Secondly, an example will be presented of High Frequency Imaging (HFI) and its application to Impedance Inversion.
