Preliminary Modeling Software

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Research Analysis Modeling

We developed PC modeling programs to facilitate the calibration and interpretation of seismic field data and physical modeling results. These programs are available to UH students, UH researchers and RQL sponsors for the implementation of new ideas and algorithms. At UH, we are expanding the numerical modeling with respect to our research in frequency-dependent reflection, transmission and attenuation. These programs form the basis for implementing the theoretical results from the national laboratory, LLBL, and the University of California.

We developed the software using a windows-based Fortran compiler from Absoft. With the current speed and memory capabilities of today's PC, we are examining dynamic interfaces that allow real-time evaluation of AVO responses to changes in bed thickness, water saturation, velocity and density, etc.

AVO Modeling

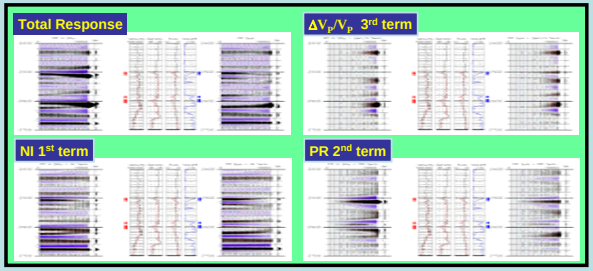
- PP Isotropic
- PS Isotropic
- PPAnisotropic

Spectral Decomposition

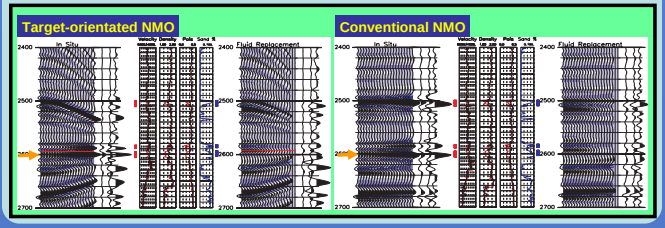
- Single Trace Analysis
- 2D or 3D Application

Examples of Software Application

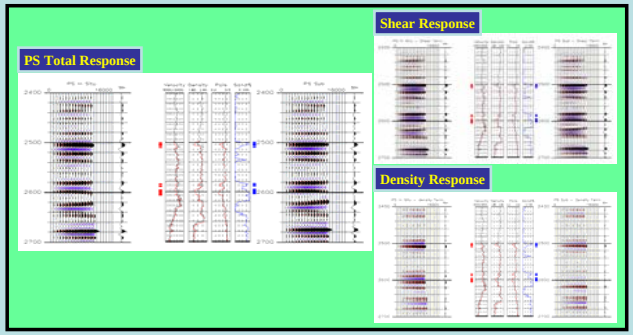
1A. PP Isotropic with Shuey Components



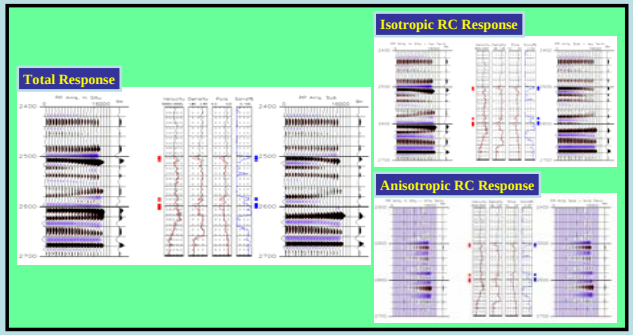
1B. PP Isotropic with Block Shift NMO →Constant Spectra with Offset



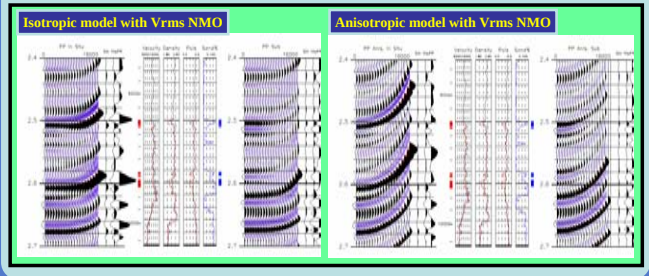
2. PS Isotropic with Bortfeld Components



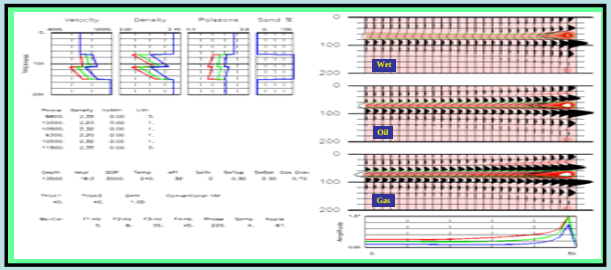
3. PP Anisotropic Components



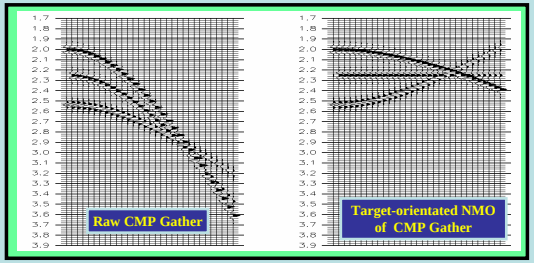
4. Isotropic vs Anisotropic with VRMS NMO



5A. AVO "Quick-look" User-Defined Model



5B. AVO Kinematic Modeling Post-Critical



6. Spectral Decomposition Analyses