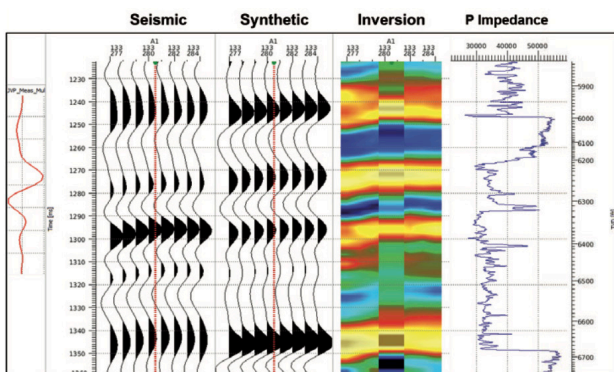


Determination of Wavelets From Pre- and Post-Stack Seismic and Well Logs

Jason® WellTie is a well-to-seismic tie and wavelet estimation application and provides industry-leading capabilities for the integration of well and seismic information. With **WellTie**, seismic interpreters can tie the well tops to the seismic horizons. **WellTie** is the central place where the inversion specialist extracts the best wavelet, insuring that the inverted properties match the well data in the seismic band. The reservoir modeler can also use **WellTie**'s extended capabilities to make sure the reservoir model will match the well properties and tops to the desired sampling.

WellTie combines the Well Editor and the Estimate Wavelets modules in an interactive, embedded manner. Using one or multiple wells in a single session, time/depth curve adjustment and wavelet extraction are performed in an interactive loop, in full stack or AVO/AVA mode. Full waveform synthetics can also be generated. Numerous QCs are available to monitor the amount of stretch and squeeze and assess the quality of the well tie and the extracted wavelet. Backus averaging is available to properly reconcile the fine-scale measurement at the wells with the seismic coarser scale (effective medium).



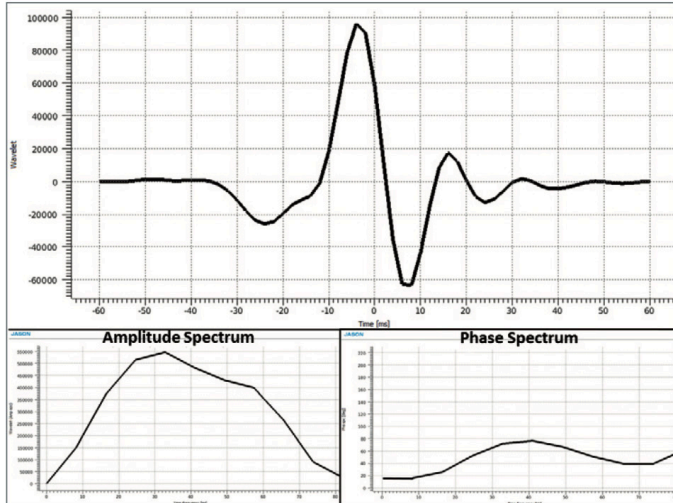
Well Editor comparison of input seismic and synthetics corresponding to the derived wavelet. The third panel is the inversion of the input seismic with the high-cut filtered impedance log superimposed.

Importance of Wavelets

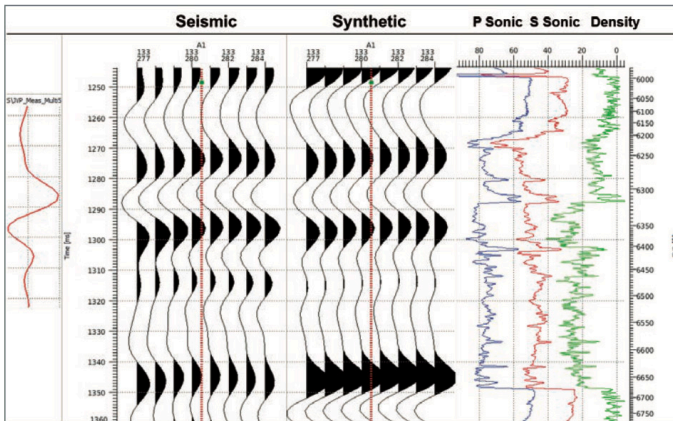
- Wavelets are critical factors in the Quantitative Interpretation of seismic reflection data
- Accurate wavelets result in broader-band inversions resolving thinner beds
- Optimum wavelets lead to more interpretable inversions in variable-acquisition situations
- Built-in QCs provide greater confidence in estimated reservoir properties

Key features

- Simultaneous estimation of AVO wavelets from angle- corrected logs
- Multi-well capability honoring deviated well tracks
- Normal incidence, sub-stack and gather modes
- Input seismic can be angle- or offset-based
- Non-white Earth color corrections
- Time shift and dispersive (stretch/squeeze) corrections
- Model-based and interactive dip compensation
- Backus filtering to account for the effects of fine layering
- Constrained sparse spike inversion QC
- Wavelets are correctly scaled and ready for use in inversions



Wavelet and spectra.



The P Sonic, S Sonic and Density logs have been used to estimate an AVO wavelet corresponding to the input partial stack representing angles from 30 - 50 degrees.

The Jason Advantage

Jason® WellTie supports a variety of wavelet estimation workflows, with tightly integrated quality controls:

- Wavelet amplitude spectrum
- Wavelet constant phase spectrum
- Wavelet amplitude and phase spectra
- Constrained AVO/AVA wavelet
- Wavelet sensitivity analysis
- Multi-stack, multi-well estimation
- Advanced wavelet stabilization options suited to broadband wavelet