

RokDoc[®]-Anisotropy



Fast and efficient AVO and synthetics generation to model your seismic response in anisotropic conditions

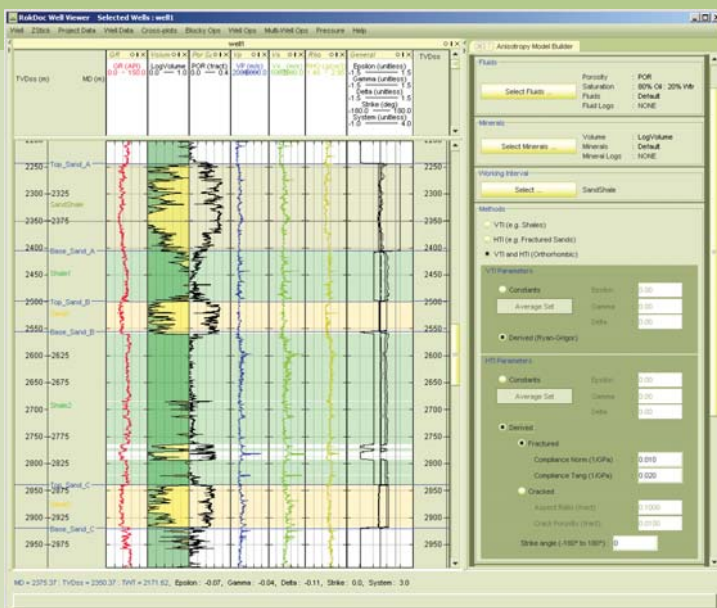
- Investigate amplitude behaviour for variations in offset and azimuth in anisotropic conditions.
- Set up interfaces between VTI and HTI anisotropies.
- Consider both PP and PS reflectivities (PS includes PSv, PSh, PS1 and PS2 components).
- Independently change fracture strike and observation offsets and azimuths.
- Contains published and proprietary methods for calculating anisotropic parameters, such as from crack or fracture measurements.
- Includes a database of published Thomsen parameters. Users can add and save their own entries.
- A proven workflow improves the accuracy of well ties by building an anisotropic model and removing errors introduced by the assumption that the seismic velocities in the direction of the well trajectory are the same as the vertical.



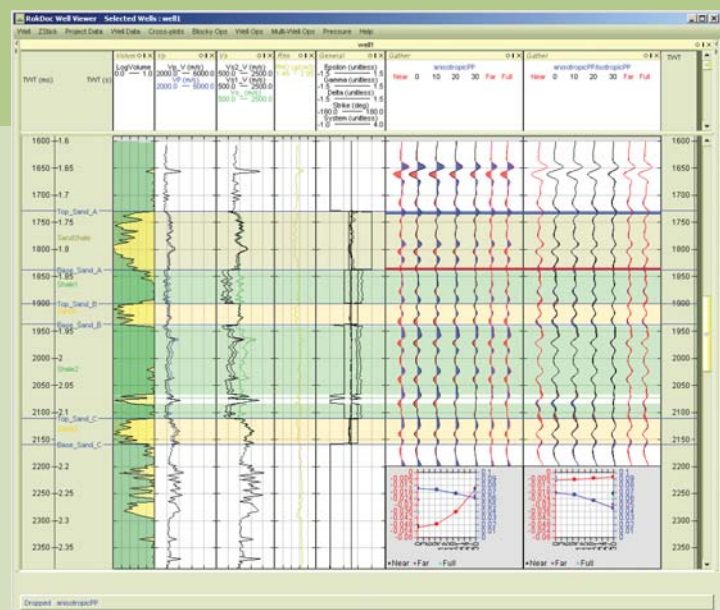
RokDoc Anisotropy – Modelling the seismic response of a fractured sand (HTI) with a strike of 15° over a shale (VTI). PS AVO at an observation azimuth of 60° for PSh and PSv waves (left) and azimuthal variations in reflectivity (right).

Model Builder

- The Log Anisotropy Model Builder computes anisotropic parameter logs which can be used to generate anisotropic synthetics and to model amplitude responses.
- Extends the VTI and HTI anisotropies to include orthorhombic materials such as a fractured shale/sand mixture.
- Corrections are made for velocities measured in deviated wells.
- Independently change fracture strike and observation offsets and azimuths.
- During model building, new verticalised Vp and Vs curves are computed.
- Anisotropy and velocity curves used in the synthetics computations; particularly beneficial in improving well ties.
- Available for 1D and 2D modelling.



Model Building – Computation of an anisotropic log set containing curves with Thomsen parameters and fracture strike.



Synthetic Gathers - Anisotropic (left) and the isotropic synthetics (right), with the isotropic synthetics shaded to show amplitude differences between isotropic and anisotropic modelling. The velocity logs give log Vp (blue) and log Vs measurements (green), with the corrected vertical velocities plotted alongside in black