Velocity Anisotropy from Core Measurements, VSP and Sonic Logs Analysis in a Single Well Study in NE Alberta

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Abstract

The presence of fractures and textures of the subsurface rocks can cause imaging problems in the conventional seismic processing routine because of seismic anisotropy. Problems arise from the directional dependence of wave propagation that was unaccounted for in the original isotropic velocity model. To quantify the degree of seismic anisotropy in the subsurface, one method is by estimating the anisotropic parameters from laboratory measurements performed on a core sample. However, with the limited cores available from our borehole of interest in NE Alberta, additional field measurements of the walk-away vertical seismic profile (VSP) and sonic scanner were performed to obtain anisotropy measurements for the rest of the borehole. This case study examines the result of seismic anisotropy from three different types of data, which indicates the presence of intrinsic anisotropy at various depth intervals.

References Cited


