Use of Multicomponent Seismic Data to Identify the Canol Shales

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Abstract

The elastic properties of Canol shales make it difficult to identify them on the PP waves but not on the PS waves. The response for the Middle Canol has a strong shear wave reflectivity that shows as a strong reflection on PS seismic data. This allows the mapping of the thickness of the Canol interval with confidence.

During 2012-2013, over 560 km of 2D / 3C of seismic data were acquired in the North West Territories (Canada). This paper will show the results of a 2D line and the benefits of using the converted wave (PS) for delineation of the Middle Canol and a better understanding of the complexity of the Lower Canol by using simultaneous inversion.

Forward modeling of well, cross plots and correlation were used before inversion to understand the elastic properties of the different Canol members. Simultaneous inversion (PP only) and Joint inversion (PP and PS) were evaluated to understand the benefits of incorporating the PS wave Gathers into the inversion.