

Integration of Seismic and Real-time Well Data to Reduce Drilling Risk and Cost

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ABSTRACT

There is always uncertainty involved in drilling a well, arising from incomplete knowledge of the subsurface. Before drilling starts, an earth model in the vicinity of the well is normally produced using available information. Based on the earth model, a drilling plan is made, including the well's trajectory, casing points, and other specifications. The model is often quite uncertain, however, because there is a lack of information in the vicinity of the well.

A recent development that can reduce drilling uncertainty combines surface seismic data with LWD log information to produce a more reliable picture of geology and pressure distribution ahead of the drill bit. Tests of this method indicate that it is effective in reducing uncertainty about subsurface structure (e.g. fault location uncertainty) and providing better estimates of pore pressure.

This talk showcases this method that can reduce drilling costs related to earth model uncertainty.