

VSP and Seismic Integration: Enhancing Reservoir Characterization

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Surface seismic data has been the primary source of information on which geophysicists base their decision to drill or not to drill a well. Delineation of reservoirs, stratigraphic and structural traps is dependent on the information made available by the quality of the interpreted seismic data. Poor resolution, residual multiples, gaps and low frequency content are common limitations inherent in surface seismic as consequential to the limitations associated with mode of acquisition or data processing. The accuracy of interpretations and the decisions taken are usually subject to the ability to reduce the effect of these limitations to a great extent as possible. The easiest and as well the as the most common therefore is seismic information acquired with a configuration and processing mode that eliminate these limitations (Borehole Seismic).

Borehole seismic data are recorded with a down hole geophone and external source in contrast with the configuration of surface sources and receivers for the surface seismic. This unique quality of borehole seismic data has made it an effective tool in solving most if not all of these limitations often associated with the surface seismic. There, however, appear to be a missing link between a borehole geophysicist in our processing centers and the reservoir geophysicist at the operator's site on the use of his final products. The development of Petrel® platform however, has made it easier to integrate these two sources of information with relative ease.

In this paper we look at various scenarios in which borehole seismic is integrated with surface seismic data.