

Multicomponent Seismic on Land: Improved P-wave Data, Plus Shear Information

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This presentation provides an overview of today's multicomponent exploration techniques including data acquisition, processing, and data analysis.

The advantage of multicomponent data for improved P-wave images is shown, with the use of single sensor digital MEMs to provide higher resolution images. This is enabled by applying adaptive polarization filters to suppress surface wave noise on the single sensor data.

Multicomponent seismic recording also allows the analysis of shear-wave data which gives an additional seismic image - or in some cases two. The shear-wave images are typically of lower resolution, but can provide valuable information such as: fracture characterization via "shear-wave splitting", density estimation using joint AVO, distinguishing fluid and lithology effects, and in some cases better interpretability.

Various examples illustrate the application of multicomponent technology.