

# Improving Seismic Acquisition through Seismic Inversion

Carmen C. Dumitrescu  
Terra-IQ Ltd.

## Summary

The process of seismic acquisition design is intricate and requires a comprehensive evaluation to ensure the best subsurface imaging under the most favorable environmental conditions while also minimizing costs and acquisition time. Seismic inversion can be used to guide optimal acquisition design by providing insights not only into the required spatial and temporal sampling necessary to obtain reliable inversion results but also on the best acquisition geometry. Seismic inversion is the process that uses mathematical algorithms to convert seismic data into subsurface elastic properties such as P- and S-wave velocity and density.

Modern acquisition and processing of land data, make testing of different acquisition geometries possible. For this study we analyzed the effect of different acquisition geometries on two key ingredients for seismic inversion: the angle gathers and the wavelets.

