

Common Offset Versus Common Midpoint Seismic Imaging

Cliff Nolan, University of Limerick

We look at two very common acquisition geometries that are used in seismic subsurface imaging. These are the Common Offset (CO) and Common Midpoint (CMP) geometries. In CO, a single seismic source is used to generate acoustic waves which scatter from subsurface heterogeneities and these scattered waves are then recorded by an array of geophones back on the earth's surface. In CMP, pairs of sources and receivers are positioned to have a common midpoint and similar scattered waves are recorded. These data are "backprojected" to form an image of the acoustic properties of the earth's subsurface. We explain why CO is can produce a better image than CMP from the point of view of avoiding certain artifacts that can arise in such backprojected images.