

ABSTRACT

WAVEFIELD SEPARATION BASED ON A MATCHING OPERATOR BETWEEN SENSOR RESPONSES IN MULTI-COMPONENT STREAMERS

This disclosure is directed to systems and methods of wavefield separation based on matching operators that represents the relationship between co-located pressure and particle motions sensors. A pressure wavefield and a particle motion wavefield emitted from a subterranean formation are measured using co-located pressure and particle motion sensors located along one or more streamers of a seismic data acquisition system. A matching operator that relates pressure sensor and particle motion sensor responses for co-located pressure and particle motion sensors is computed based on depth of the co-located pressure and particle motion sensors and on the measured pressure and particle motion wavefields. The matching operator and the measured pressure and particle motion wavefields may then be used to compute up-going and down-going wavefields.

FIG. 16