

ABSTRACT

METHODS AND SYSTEMS TO REMOVE PARTICLE-MOTION-SENSOR NOISE FROM VERTICAL-VELOCITY DATA

Methods and systems that remove particle-sensor noise from measured vertical-velocity wavefield are presented. A approximate vertical-velocity data is computed from pressure data and vertical-velocity data at receiver coordinates of a seismic data acquisition system. The pressure data is composed of a pressure signal component and pressure-sensor noise and the vertical-velocity data is composed of a vertical-velocity signal component and particle-motion-sensor noise. A filter that gives a minimum difference between the vertical-velocity data and the approximate vertical-velocity data at each receiver coordinate is computed. Vertical-velocity data composed of the vertical-velocity signal component and approximate particle-motion-sensor noise based on the pressure-sensor noise is convolved with the filter at each receiver coordinate.

FIG. 18