

ABSTRACT

METHODS AND SYSTEMS THAT DETERMINE A VELOCITY WAVEFIELD FROM A MEASURED PRESSURE WAVEFIELD

Methods and systems that compute an approximate vertical-velocity wavefield based on a measured pressure wavefield and knowledge of the free-surface shape when the pressure wavefield was measured are described. The measured pressure wavefield is used to compute an approximate frozen free-surface profile of the free surface. The approximate frozen free-surface profile and the measured pressure wavefield are then used to compute an approximate vertical-velocity wavefield that does not include low-frequency streamer vibrational noise. The approximate vertical-velocity wavefield and measured pressure wavefield may be used to separate the pressure wavefield into up-going and down-going pressure wavefields.

FIG. 22