ABSTRACT

METHODS AND SYSTEMS FOR EXTRAPOLATING WAVEFIELDS

Methods and Systems for extrapolating wavefields while avoiding disruptions due to spatial aliasing are disclosed. Pressure wavefields measured with pressure sensors and vertical and horizontal velocity wavefields measured with three-axial motions sensors may be spatially aliased in at least one horizontal direction. The pressure wavefield and/or the vertical velocity wavefield are decomposed into one of an up-going wavefield and a down-going wavefield. The up-going or down-going wavefield is extrapolated using an extrapolator that depends on components of a slowness vector. In order to avoid disruptions in the extrapolated wavefield due to spatial aliasing, the components of the slowness vector are calculated from the measured pressure wavefield and the two horizontal velocity wavefields.

FIG. 13A



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