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(54) Title: METHODS FOR SUBSURFACE PARAMETER ESTIMATION IN FULL WAVEFIELD INVERSION AND REVERSE-TIME MIGRATION

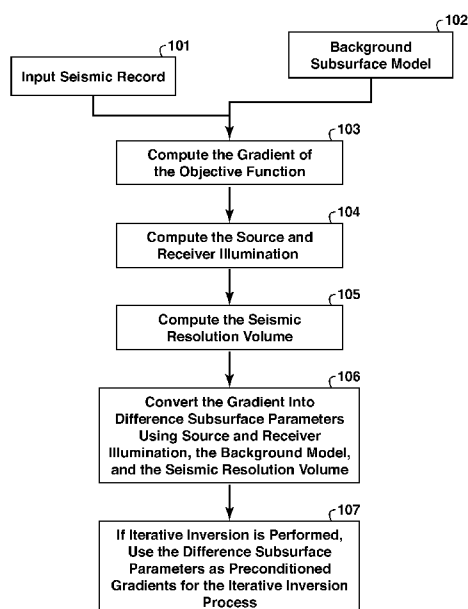


FIG. 1

(57) Abstract: Method for converting seismic data to obtain a subsurface model of, for example, bulk modulus or density. The gradient of an objective function is computed (103) using the seismic data (101) and a background subsurface medium model (102). The source and receiver illuminations are computed in the background model (104). The seismic resolution volume is computed using the velocities of the background model (105). The gradient is converted into the difference subsurface model parameters (106) using the source and receiver illumination, seismic resolution volume, and the background subsurface model. These same factors may be used to compensate seismic data migrated by reverse time migration, which can then be related to a subsurface bulk modulus model. For iterative inversion, the difference subsurface model parameters (106) are used as preconditioned gradients (107).



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