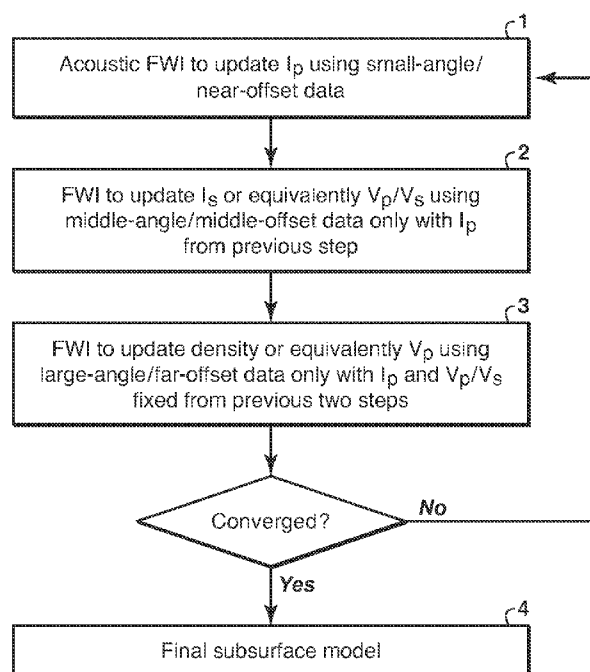




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- (54)
- Title:**
- MULTI-PARAMETER INVERSION THROUGH OFFSET DEPENDENT ELASTIC FWI

**FIG. 1**

(57) **Abstract:** Method for multi-parameter inversion using elastic inversion. This method decomposes data into offset/angle groups and performs inversion on them in sequential order. This method can significantly speed up convergence of the iterative inversion process, and is therefore most advantageous when used for full waveform inversion (FWI). The present inventive approach draws upon relationships between reflection energy and reflection angle, or equivalently, offset dependence in elastic FWI. The invention uses recognition that the amplitudes of small angle (near offset) reflections are largely determined by acoustic impedance alone (1), independent for the most part of V_p/V_s . Large angle (middle and far offset) reflections are affected by I_p , V_p/V_s (2) and other earth parameters such as density (3) and anisotropy. Therefore, the present inventive method decomposes data into angle or offset groups in performing multi-parameter FWI to reduce crosstalk between the different model parameters being determined in the inversion.



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