Numerical simulation of the acoustic wave equation by the method of reverse time migration

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The paper deals with seismic method of studying the structure of the earth crust namely reverse time migration (RTM) [1]. Migration is described by a conventional wave equation and is performed by propagating the data down through the acoustic pressure to the ground and it is constrained where the structure and acoustic pressure field generate more complex arrivals, such as turn waves and prisms. Since the wave pressure is variable in the earth interior, this wave equation has different coefficients [2]. Also, this paper discusses the existence and uniqueness of solutions of partial differential equations using Fourier transform [3]. Linearization is used for finding approximate solutions, which is direct problem. This model is used in the migration method to construct an image of reflecting boundaries. In addition, in this paper we study the solution of inverse problems of the wave equation allowing the study of the characteristics of the earth underground medium.

Keywords: Acoustic wave equation, Full waveform inversion, Reverse time migration, Fourier transformation

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