

MULTIPLE ATTENUATION AND IMAGING PROCESSES FOR RECORDED SEISMIC DATA

ABSTRACT

A method for multiple attenuation in seismic data associated with a subsurface includes receiving (900) seismic data D for a plurality of shots and a plurality of receivers, where the seismic data D include multiples M associated with a free surface; obtaining (902) a multiple generator (722), which is located within the subsurface and is responsible for generating the multiples M ; calculating (904) a source-side multiple model M_S based on the seismic data D and the multiple generator (722); estimating (906) an image r of the multiple generator (722) based on a multiple periodicity method applied to the seismic data D ; calculating (908) a receiver-side multiple model M_R ; generating (910) demultiple data DD by subtracting from the seismic data D the source-side multiple model M_S and the receiver-side multiple model M_R ; and generating (912) a final image of a geological formation based on the demultiple data DD .

Fig. 9