Separability of Simultaneous Source Data Based on Distribution of Firing Times

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Abstract

Simultaneous source acquisition has been recognized as an important way of improving the efficiency and quality of seismic acquisition. Recently, many methods have been developed for separating the blended sources such that data acquired can be used into the conventional processing procedures. The common goal is to take the interferences from closely fired shots under control. In this paper, we study the separability of simultaneous source data based on different distributions of firing time. An inversion method named iterative rank reduction has been applied to estimate the unblended data from the blended acquisition. We also adopt the Monte Carlo test to analyze the relation between the firing time patterns and the signal to noise ratio (SNR) after deblending. Insights can be gained towards an optimal firing scheme for separating the blended sources.

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