

Inverse scattering of reflection seismic data in the reverse-time approach

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Abstract

We discuss the inverse scattering of seismic reflection data based on the wave equation. We follow an approach known in the seismic literature as reverse-time migration. We derive pseudodifferential operators within such an approach to arrive at a microlocal reconstruction of reflectivity, both for common-source and maximal source-receiver acquisition geometries. The pseudodifferential operators appear to perform two tasks: adapting reverse-time migration or imaging to inverse scattering, and removing certain artifacts. Furthermore, we show some examples with doubly scattered waves.