

ABSTRACT**Seismic Data Processing Including Predicting Multiples
Using A Reverse Time Demigration**

Methods and systems for generating a stable reverse time demigration (RTDM) equation for predicting wave phenomena such as reflections, refractions and multiples are described. A coupling term is added to an RTDM equation and reflectivity associated with the coupling term is replaced with a pseudo-density function derived from a nonlinear equation. The resultant coupled and stabilized RTDM equation is then used to predict the desired wave phenomena based on the applied seismic image.

FIG. 9