Imaging complex structures with semi-recursive Kirchhoff migration*

Dimitri Bevc

Formerly Stanford Exploration Project, Stanford University, Stanford, CA 94305; Presently 3DGeo Development Inc., 465 Fairchild Drive, Suite 226, Mountain View, CA 94043.

(May 28, 1996)

ABSTRACT

I present a new semi-recursive Kirchhoff migration algorithm which is capable of obtaining accurate images of complex structures by combining wave-equation datuming and Kirchhoff migration. The method is successful because breaking up the complex velocity structure into small depth regions allows traveltimes to be calculated in regions where the computation is well behaved and where the computation corresponds to energetic arrivals. The traveltimes computed in such a region are used first for imaging, and second for downward continuation of the entire survey (shots and receivers) to the boundary of the next region. This process results in images comparable to those obtained by