

# **Implementation of Kirchhoff Depth Migration for Teleseismic Data**

by

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## ABSTRACT

The following is a presentation of the work completed to create, test, and run a migration program for teleseismic data that implements the principles of Kirchhoff migration. The motivation for this research was to develop a seismic migration scheme eventually for use with teleseismic data from the Tien Shan, and determine whether the migration adds new insight to the previous work done with this teleseismic data.

This paper provides a literature review of seismic migration, especially related to the Kirchhoff integral and a manual for using the software written to perform the migration, which includes a discussion of the theory behind the program. The program, *kircmig.f*, implements a Kirchhoff style migration using a model composed of a grid of point scatterers, and computes the travel time for the P-to S-conversion at each node. The amplitude of this conversion from the receiver function is then mapped to that point and all amplitudes stacked. Many studies have confirmed that the Kirchhoff method is a robust form of migration.