

UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Multichannel Seismic-Reflection Profiles Collected in
1976 Off of the Washington-Oregon Coast

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Open-File Report 87-607

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1987

MULTICHANNEL SEISMIC-REFLECTION PROFILES COLLECTED IN

1976 OFF OF THE WASHINGTON-OREGON COAST

By

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In June of 1976 the U.S. Geological Survey (USGS) collected approximately 1004 km of 24-channel seismic-reflection data in the northeastern Pacific Ocean off of the Washington and Oregon coast (Plate 1). The data were collected on the USGS Research Vessel S. P. LEE (cruise identifier L3-76-WO) using a sound source of five airguns totalling 1326 cubic inches of air compressed to approximately 1900 psi. The recording system consisted of a 24-group streamer, 2400 meters long, and a GUS (Global Universal Science) model 4200 digital recording instrument. Shots were fired every 50 meters, and records were sampled in the field at a 2-millisecond rate, but resampled to a 4-millisecond rate prior to processing. Record lengths vary from 6 to 13 seconds, depending on water depth, in order to obtain 6 to 7 seconds of data below the seafloor. Navigational control for the survey was by a Marconi integrated satellite-doppler sonar navigation system.

Processing was done in the following sequence: editing-demultiplexing, automatic gain control, deconvolution-filtering, velocity analysis and normal-moveout correction, trace-balancing, bandpass-filtering, muting, normalized stacking, and finally plotting on an electrostatic plotter. In areas of shallow seafloor, early arrivals on far-offset traces were muted to remove refracted energy and the direct-arrival of the outgoing pulse. In deeper water, the near-offset traces were muted at and below approximately twice the water-bottom time to suppress the water-bottom multiples on the stacked traces.

The processing was conducted at the USGS Marine Geology Seismic Processing Center in Menlo Park, California.

The data are available in three formats:

1. Electrostatically plotted data which have been processed using velocities derived from velocity analyses, and deconvolved and frequency-filtered before stacking. Copies of the profiles may be purchased through:

National Geophysical Data Center
National Oceanic and Atmospheric Administration
Boulder, Colorado 80302

2. Digital magnetic tapes of the stacked data. Copies of these tapes and a description of the tape format can be obtained at the requester's expense by contacting:

Data Curator
Branch of Pacific Marine Geology
U.S. Geological Survey
345 Middlefield Road, MS-999
Menlo Park, California 94025

3. Digital magnetic tape of the demultiplex 24-fold shot data. These tapes have been edited for missed shots and blanking times. Copies of the demultiplexed tapes and a description of the tape format can be obtained at the requester's expense by contacting the USGS at the above address.