

STANFORD EXPLORATION PROJECT

Report Number 42

May 1985

*By: K. Al-Yahya, B. Biondi, J. Claerbout, J. Dellinger,
P. Fowler, W. Harlan, S. Levin, Z. Li,
F. Muir, J. Ronen, D. Rothman,
C. Sword, and M. Woodward.*

Copyright © 1985

by the Board of Trustees of the Leland Stanford Junior University

Stanford, California 94305

Copying permitted for all internal purposes of the Sponsors of
the Stanford Exploration Project

SEP-42 --- TABLE OF CONTENTS

Anisotropy

Dellinger, J. and Muir, F. Axisymmetric anisotropy I: Kinematics.....1

Deconvolution

Claerbout, J.F. Simultaneous pre- and post-NMO deconvolution.....25

Claerbout, J.F. L1 regression program45

Decomposition

Sword, C. The partial Fourier transform.....57

Claerbout, J.F. Decomposition by Markov processes.....65

Gain

Levin, S. Newton trace balancing69

Claerbout, J.F. and Li, Z. Definition of time gain power81

Stacking

Fowler, P. Zero-offset prediction by polynomial interpolation83

Woodward, M. Statistical averages for velocity analysis and stack: Median vs. mean97

Inversion, VSP and Tomography

Claerbout, J.F. What is the transpose operation?.....113

Al-Yahya, K. An iterative solution to seismic tomography129

Al-Yahya, K. The generalized inverse approach to seismic tomography151

Harlan, W. Robust inversion of non-linear transformations.....159

Harlan, W. Using non-Gaussianity as an inversion constraint173

Converted Waves

Sword, C. Analysis of a two-component data set177

Statics

<i>Biondi, B. and Levin, S.</i>	Conjugate gradient residual statics	189
<i>Ronen, S. and Claerbout, J.F.</i>	Surface-consistent residual statics estimation.....	203
<i>Rothman, D.</i>	Automatic estimation of very large residual statics	225
<i>Rothman, D.</i>	Residual statics estimation by simulated annealing: Another view	265

Migration Before Stack

<i>Fowler, P.</i>	Velocity space imaging: formalism, methods, and prospects	271
<i>Ronen, S.</i>	Avoiding spatial aliasing in reflection seismology	281
<i>Fowler, P.</i>	Sampling theory for velocity space dip-moveout and migration	331

Migration Techniques

<i>Li, Z.</i>	Data processing of overturned reflections	347
<i>Ronen, J.</i>	3-D migration by matrix processing	357
<i>Li, Z.</i>	Linearly transformed wave equation modeling	363
<i>Levin, S.</i>	Understanding Stolt stretch.....	373
<i>Li, Z.</i>	Dip filtering and migration	375
<i>Dezard, Y.</i>	Wavefield extrapolation: Addendum to SEP-41 article.....	383
<i>Li, Z.</i>	Seismic modeling in medium with linear velocity gradient	395
SEP phone directory		401
Research personnel		402
Sponsors of the SEP, 1984-85		405