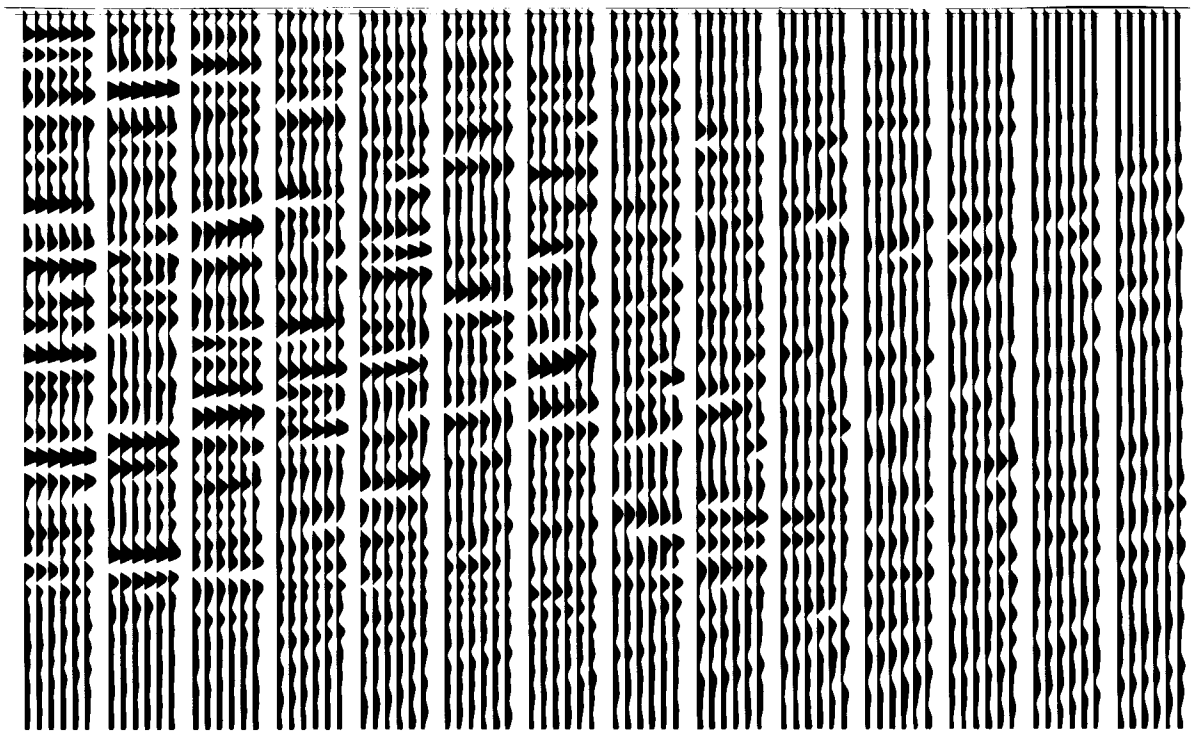

Exploration Geophysics Progress Report 2

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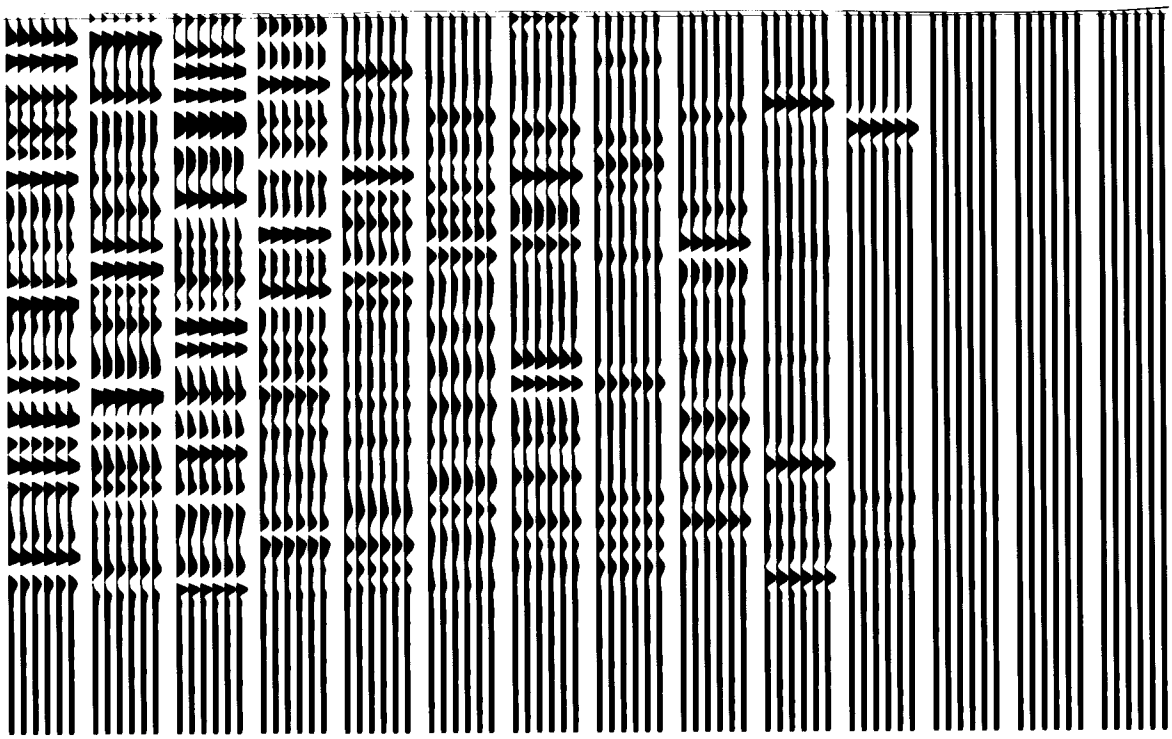
Stanford, California September 1974



Introduction

This is the second progress report of the Stanford Exploration Project. While many projects are incomplete, others are beginning to generate some clear conclusions. Many geophysicists regard migration as a final process before display. We are now establishing its value (more precisely, the value of downward continuation) as a preprocessor to velocity analysis, statics analysis and multiple removal. The diffracted multiples project of Don C. Riley is virtually completed and sponsors should receive a copy of his PhD thesis at about the same time as they receive this report.

Another clear conclusion is that much seismic data is now being recorded in such a fashion that it is undersampled in space. In other words we can't recover the continuum very accurately from the field data. This prevents accurate prediction of multiples. Clearly the engineering care which has gone into anti-aliasing in the time domain and accurate true amplitude recovery has not been applied to the space sampling problem. We recommend a group interval of 5 meters for marine data with about 16 times as many recording channels.

For the past seven years I have been writing a book on geophysical data processing. The last two chapters, which are practically completed, have been included in this report, since they provide introductory material which is not otherwise available.

J.F.C. 23 September 1974

Table of Contents

Page No.		
	Seismic Velocities	
2	Migration as a Tool in Velocity Estimation	Doherty
8	Migration of Common Offset Sections	Doherty
17	Preliminary Results on Downward Continuation of Multi-Offset Sections and Velocity Estimation	Doherty
26	Seismic Velocities in Porous and Fissured Rocks	Nur et al
	Coordinate Frames for Downward Continuation of Wide Offset Data	
38	Slanted Beam Coupling	Estevez
44	Shifting Frames	Claerbout
48	A Data Oriented Shifting Frame	Claerbout
54	A Revertible Shifting Frame	Claerbout
56	A Wide Offset Migration Equation	Claerbout
62	The Emergent Angle Frame	Claerbout
67	An Expanding Time Scale	Claerbout
69	The Emergent Angle Frame for Sections	Doherty
73	A Shot Offset Frame for Velocity Estimation	Claerbout
78	Two Stratified Media Frames	Claerbout
82	An Offset Squared Transformation	Claerbou
85	Migration Equation Coefficients for An Emergent Angle Frame in Stratified Media	Estevez
	Computational Techniques for Downward Continuation	
101	The Balanced Two Way Merge Algorithm	Dunbar
109	An Explicit Scheme	Claerbout
114	An Explicit Scheme for the Equation $Q_{ttz} - c^2 \times Q_{xxz} = c(\beta-\alpha\gamma)Q_{xxt}$	Starius
119	Migration Equations for Inhomogeneous Media	Starius
127	X-Outer Migration	Dunbar

Page No.

Non-Seismic Prospecting Methods

141 Final Report on Magnetotelluric Field Extrapolation — Brune

160 Different Approximations to Vertical Derivative Operators in Potential Problems — Courtillot

166 The Downward Continuation of Sources and Receivers in Resistivity Surveying: Trying to Pose the Problem — Courtillot

184 Terrain Noise Suppression Filter for Magnetic Profiles — Dunbar

Variational Methods for Waves in 2 Dimensions

196 The General Variational Approach — Burg

205 An Example in which Consistency is Equivalent to Positive Definiteness of the 2-D Correlation Matrix — Burg

211 Multichannel Maximum Entropy Spectral Analysis — Burg

217 Two Dimensional Maximum Entropy Spectral Analysis — Burg

225 Estimation of a Two Dimensional Correlation Matrix (An Example) — Burg

236 A Proposal for Wave Theory Analysis of Statics Corrections — Schultz

240 Computer Program for Diffracted Multiple Reflections — Riley

265 Introductory Material - Claerbout, Last Two Chapters of Book

327 Research Personnel (not listed in last report)