

Contents

1	Introduction	1
2	Overview of Geophysical Techniques	7
	Introduction	7
	Summary and Discussion	15
3	Seismic Fundamentals	17
	Basic Concepts	17
	Summary and Discussion	27
	Exercises	27
	Bibliography	29
4	Data Acquisition	31
	Introduction	31
	Permitting	32
	Acquisition Requirements	32
	Acquisition Methodology	58
	Summary and Discussion	77
	Exercises	79
	Bibliography	82
5	Seismic Data Processing	85
	Introduction	85
	Mathematical Theory and Concepts	85
	Processing Data Flow	95
	Processing 3-D Data	139
	Summary and Discussion	143
	Exercises	145
	Bibliography	147

6	Seismic Interpretation	149
	Introduction	149
	Modeling	149
	Tomography	167
	Amplitude Versus Offset Analysis	183
	VSP Data Interpretation	196
	Exploration Applications	196
	Subsurface Maps	207
	Summary and Discussion	215
	Bibliography	218
7	4-D (Time Lapse 3-D) Seismic Surveys	223
	Introduction	223
	Enhanced Oil Recovery (EOR)	224
	Bibliography	226
8	Future Trends	227
A	Appendix A	229
	Depth Domain Migration	229
B	Appendix B	231
	Design of Maximum Offset (Horizontal Reflector Case)	231
	Design of Maximum Offset (Dipping Reflector Case)	232
C	Appendix C	235
	Answers to Odd-Numbered Exercises	235
	Glossary	241
	Bibliography	256
	Index	257

Exploration Geophysics

Gadallah, M.R.; Fisher, R.

2009, XXII, 266 p. 110 illus., 10 illus. in color., Hardcover

ISBN: 978-3-540-85159-2