1. Record Nr. UNINA9911006968503321

Autore	Liner Christopher L.
Titolo	Elements of 3D Seismology / / Christopher L. Liner ; Rebecca Latimer, managing editor
Pubbl/distr/stampa	Tulsa, Oklahoma : , : Society of Exploration Geophysicists, , 2016
ISBN	156080338X 1523116080 9781560803386 9781560803379 9780931830464
Edizione	[Third edition.]
Descrizione fisica	1 online resource (xxi, 340 pages) : illustrations
Collana	Investigations in geophysics series ; ; no. 19
Disciplina	551.22
Soggetti	Seismic reflection method Three-dimensional imaging Imaging systems in seismology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	SEG Digital Library"--Website.
Nota di bibliografia	Includes bibliographical references (pages 325-332) and index.
Nota di contenuto	Preface -- Introduction -- part 1. Waves : the foundation of seismology -- 1. General properties of waves -- 2. Waves in fluids -- 3. Understanding seismic events -- 4. Reservoir fluid properties -- 5. Waves in solids -- 6. Waves in porous solids -- part 2. Acquisition : gathering seismic data -- 7. 2D land acquisition -- 8. Financial aspects of 3D seismic -- 9. Survey predesign -- 10. Land shooting geometry -- 11. Land 3D design optimization -- 12. Marine acquisition methods -- 13. Data dimensionality and components -- part 3. Data processing : creating the seismic image -- 14. Processing and binning overview -- 15. Computing -- 16. Creating the CMP stack -- 17. Migration 1 : concepts 185 -- 18. Migration 2 : classification and velocity analysis -- part 4. Interpretation : extracting geologic information from seismic data -- 19. Synthetic seismogram, tuning, and resolution -- 20. Introduction to interpretation -- 21. Data volume -- 22. Structure -- 23. Stratigraphy -- 24. Seismic attributes -- 25. Amplitude in space, time, and offset -- Appendix A. Fourier transform -- Appendix B. Conversion factors -- Appendix C. Practice problems -- Appendix D.

3D seismic survey predesign exercise.

Sommario/riassunto

Elements of 3D Seismology, third edition is a thorough introduction to the acquisition, processing, and interpretation of 3D seismic data. This third edition is a major update of the second edition. Sections dealing with interpretation have been greatly revised in accordance with improved understanding and availability of data and software. Practice exercises have been added, as well as a 3D seismic survey predesign exercise. Discussions include: conceptual and historical foundations of modern reflection seismology; an overview of seismic wave phenomena in acoustic, elastic, and porous media; acquisition principles for land and marine seismic surveys; methods used to create 2D and 3D seismic images from field data; concepts of dip moveout, prestack migration, and depth migration; concepts and limitations of 3D seismic interpretation for structure, stratigraphy, and rock property estimation; and the interpretation role of attributes, impedance estimation, and AVO. This book is intended as a general text on reflection seismology, including wave propagation, data acquisition, processing, and interpretation and will be of interest to entry-level geophysicists, experts in related fields (geology, petroleum engineering), and experienced geophysicists in one subfield wishing to learn about another (e.g., interpreters wanting to learn about seismic waves or data acquisition).