
Fundamentals Of Geophysics By William Lowrie

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William Lowrie*

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MAYO JUSTICE

An Introduction to Global Geophysics Springer Science & Business Media

This handy pocket-sized book provides practical information and assistance to anyone engaged in small-scale surveys on the ground. The 3rd edition updates the considerable changes in instrumentation, and far-reaching developments in applications that have occurred since 1996. New sections include details on Ground Penetrating Radar, VLF and CSAMT/MT, GPS navigation, electromagnetic methods of conductivity mapping, capacity coupling, and audiomagnetotellurics (AMT).

Pearson

A thoroughly reworked third edition featuring new data acquisition technologies, research developments and computational exercises in Python.

Principles of Seismology Cambridge University Press

Rifts and passive margins are extremely important for the petroleum industry, as they are areas of high sedimentation and can contain significant oil and gas resources. This book provides a comprehensive understanding of rifts and passive margins as a whole. It synthesises in one volume the existing information devoted to specific aspects of these vitally important hydrocarbon habitats. This collection of state-of-the-art information on the topic facilitates the better use of this knowledge to assess the risks of exploring and operating in these settings and the development of systematic and predictive hydrocarbon screening tools. The book will be invaluable for a broad range of readers, from advanced geology students and researchers to exploration geoscientists to exploration managers exploring for and developing hydrocarbon resources in analogous settings.

Improved Engineering of Unconventional Shale Reservoirs Cambridge University Press

Laser Fundamentals provides a clear and comprehensive introduction to the physical and engineering principles of laser operation and design. Simple explanations, based throughout on key underlying concepts, lead the reader logically from the basics of laser action to advanced topics in laser physics and engineering. Much new material has been added to this second edition, especially in the areas of solid-state lasers, semiconductor lasers, and laser cavities. This 2004 edition contains a new chapter on laser operation above threshold, including extensive discussion of laser amplifiers. The clear explanations, worked examples, and many homework problems will make this book invaluable to undergraduate and first-year graduate students in science and engineering taking courses on lasers. The summaries of key types of lasers, the use of many

unique theoretical descriptions, and the extensive bibliography will also make this a valuable reference work for researchers.

A Scholarly Entertainment Oxford University Press

This second edition of Fundamentals of Geophysics has been completely revised and updated, and is the ideal geophysics textbook for undergraduate students of geoscience with an introductory level of knowledge in physics and mathematics. It gives a comprehensive treatment of the fundamental principles of each major branch of geophysics, and presents geophysics within the wider context of plate tectonics, geodynamics and planetary science. Basic principles are explained with the aid of numerous figures and step-by-step mathematical treatments, and important geophysical results are illustrated wi.

A Student's Guide to Geophysical Equations Cambridge University Press

A pioneering single-semester undergraduate textbook that balances descriptive and quantitative analysis of geological structures.

A Workbook John Wiley & Sons

This book is a thorough introduction to climate science and global change. The author is a geologist who has spent much of his life investigating the climate of Earth from a time when it was warm and dinosaurs roamed the land, to today's changing climate. Bill Hay takes you on a journey to understand how the climate system works. He explores how humans are unintentionally conducting a grand uncontrolled experiment which is leading to unanticipated changes. We follow the twisting path of seemingly unrelated discoveries in physics, chemistry, biology, geology, and even mathematics to learn how they led to our present knowledge of how our planet works. He explains why the weather is becoming increasingly chaotic as our planet warms at a rate far faster than at any time in its geologic past. He speculates on possible future outcomes, and suggests that nature itself may make some unexpected course corrections. Although the book is written for the layman with little knowledge of science or mathematics, it includes information from many diverse fields to provide even those actively working in the field of climatology with a broader view of this developing drama. Experimenting on a Small Planet is a must read for anyone having more than a casual interest in global warming and climate change - one of the most important and challenging issues of our time.

Fundamentals of Digital Seismology Cambridge University Press

This second edition of Fundamentals of Geophysics has been completely revised and updated, and is the ideal geophysics textbook for undergraduate students of geoscience with an introductory level of knowledge in physics and mathematics. It gives a comprehensive treatment of the fundamental principles of each major branch of geophysics, and presents geophysics within the wider context of plate tectonics, geodynamics and planetary science. Basic principles are explained with the aid of

numerous figures and step-by-step mathematical treatments, and important geophysical results are illustrated with examples from the scientific literature. Text-boxes are used for auxiliary explanations and to handle topics of interest for more advanced students. This new edition also includes review questions at the end of each chapter to help assess the reader's understanding of the topics covered and quantitative exercises for more thorough evaluation. Solutions to the exercises and electronic copies of the figures are available at www.cambridge.org/9780521859028.

Applied Geophysics John Wiley & Sons

A fully updated third edition of this classic textbook, containing two new chapters on numerical modelling supported by online MATLAB codes.

An Introduction to Applied and Environmental Geophysics Cambridge University Press

David A. Freedman presents a definitive synthesis of his approach to statistical modeling and causal inference in the social sciences.

Near-surface Geophysics John Wiley & Sons

Microseismic Imaging of Hydraulic Fracturing: Improved Engineering of Unconventional Shale Reservoirs (SEG Distinguished Instructor Series No. 17) covers the use of microseismic data to enhance engineering design of hydraulic fracturing and well completion. The book, which accompanies the 2014 SEG Distinguished Instructor Short Course, describes the design, acquisition, processing, and interpretation of an effective microseismic project. The text includes a tutorial of the basics of hydraulic fracturing, including the geologic and geomechanical factors that control fracture growth. In addition to practical issues associated with collecting and interpreting microseismic data, potential pitfalls and quality-control steps are discussed. Actual case studies are used to demonstrate engineering benefits and improved production through the use of microseismic monitoring. Providing a practical user guide for survey design, quality control, interpretation, and application of microseismic hydraulic fracture monitoring, this book will be of interest to geoscientists and engineers involved in development of unconventional reservoirs.

Laser Fundamentals SEG Books

This combination of textbook and reference manual provides a comprehensive account of gravity and magnetic methods for exploring the subsurface using surface, marine, airborne and satellite measurements. It describes key current topics and techniques, physical properties of rocks and other earth materials, and digital data analysis methods used to process and interpret anomalies for subsurface information. Each chapter starts with an overview and concludes by listing key concepts to consolidate new learning. An accompanying website presents problem sets and interactive computer-based exercises, providing hands-on experience of processing, modeling and interpreting data. A comprehensive online suite of full-color case histories illustrates the practical utility of modern gravity and magnetic surveys. This is an ideal text for advanced undergraduate and graduate courses and reference text for research academics and professional geophysicists. It is a valuable resource for all those interested in petroleum, engineering, mineral, environmental, geological and archeological exploration of the lithosphere.

Introduction to Seismology Cambridge University Press

The second edition of Principles of Seismology has been extensively revised and updated to present a modern approach to observation seismology and the theory behind digital seismograms. It includes: a new chapter on Earthquakes, Earth's structure and dynamics; a considerably revised chapter on instrumentation, with new material on processing of modern digital seismograms and a list of website hosting data and

seismological software; and 100 end-of-chapter problems. The fundamental physical concepts on which seismic theory is based are explained in full detail with step-by-step development of the mathematical derivations, demonstrating the relationship between motions recorded in digital seismograms and the mechanics of deformable bodies. With chapter introductions and summaries, numerous examples, newly drafted illustrations and new color figures, and an updated bibliography and reference list, this intermediate-level textbook is designed to help students develop the skills to tackle real research problems.

Of Poles and Zeros Elsevier

Gastrointestinal endoscopy is now mainstream and the focus is now changing from developing new techniques to enhancing the efficiency and quality of fundamental techniques. There are three elements to this agenda: initial training, continuous quality improvement and patient empowerment. For the first time, the book is accompanied by two CD-ROMs - featuring video and animation of how to perform the techniques. The first CD-ROM covers the upper GI tract and consists of two sections: (1) the background to instruments and how to get set up, and (2) how to perform diagnostic techniques. The second CD-ROM covers diagnostic and therapeutic procedures in colonoscopy. Cotton and Williams' book has evolved with each new edition to reflect developments in the field of endoscopy over the last 20 years. This fifth edition draws on the vast experience of the authors and heralds current changes in both endoscopy and publishing. The emerging 'back to basics' attitude of endoscopy opinion formers with regard to the teaching of endoscopy has resulted in a more focused table of contents specifically targeted at newcomers to this specialty.

Geodynamics Cambridge University Press

This book provides a comprehensive introduction to the field of geochemistry. The book first lays out the 'geochemical toolbox': the basic principles and techniques of modern geochemistry, beginning with a review of thermodynamics and kinetics as they apply to the Earth and its environs. These basic concepts are then applied to understanding processes in aqueous systems and the behavior of trace elements in magmatic systems. Subsequent chapters introduce radiogenic and stable isotope geochemistry and illustrate their application to such diverse topics as determining geologic time, ancient climates, and the diets of prehistoric peoples. The focus then broadens to the formation of the solar system, the Earth, and the elements themselves. Then the composition of the Earth itself becomes the topic, examining the composition of the core, the mantle, and the crust and exploring how this structure originated. A final chapter covers organic chemistry, including the origin of fossil fuels and the carbon cycle's role in controlling Earth's climate, both in the geologic past and the rapidly changing present. Geochemistry is essential reading for all earth science students, as well as for researchers and applied scientists who require an introduction to the essential theory of geochemistry, and a survey of its applications in the earth and environmental sciences. Additional resources can be found at:

<http://www.wiley.com/go/white/geochemistry> www.wiley.com/go/white/geochemistry/a

Geological Carbon Storage Cambridge University Press

For a thorough comprehension of the field of geophysics, we need to understand its origins. Basic Geophysics by Enders Robinson and Dean Clark takes us on a journey that demonstrates how the achievements of our predecessors have paved the way for our modern science. From the ancient Greeks through the Enlightenment to the greats of the contemporary age, the reasoning behind basic principles is explored and clarified. With that foundation, several advanced topics are

examined, including: the 3D wave equation; ray tracing and seismic modeling; reflection, refraction, and diffraction; and WKB migration. The successful integration of the historical narrative alongside practical analysis of relevant principles makes this book an excellent resource for both novices and professionals, and all readers will gain insight and appreciation for the seismic theory that underlies modern exploration seismology.

High-resolution Seismic Exploration Fundamentals of Geophysics Providing a balance between principles and practice, this state-of-the-art overview of geophysical methods takes readers from the basic physical phenomena, through the acquisition and processing of data, to the creation of geological models of the subsurface and data interpretation to find hidden mineral deposits. Detailed descriptions of all the commonly used geophysical methods are given, including gravity, magnetic, radiometric, electrical, electromagnetic and seismic methods. Each technique is described in a consistent way and without complex mathematics. Emphasising extraction of maximum geological information from geophysical data, the book also explains petrophysics, data modelling and common interpretation pitfalls. Packed with full-colour figures, also available online, the text is supported by selected examples from around the world, including all the major deposit types. Designed for advanced undergraduate and graduate courses in minerals geoscience, this is also a valuable reference for professionals in the mining industry wishing to make greater use of geophysical methods. In 2015, Dentith and Mudge won the ASEG Lindsay Ingall Memorial Award for their combined effort in promoting geophysics to the wider community with the publication of this title.

Development Geology Reference Manual Springer Science & Business Media

An Introduction to Applied and Environmental Geophysics, 2nd Edition, describes the rapidly developing field of near-surface geophysics. The book covers a range of applications including mineral, hydrocarbon and groundwater exploration, and emphasises the use of geophysics in civil engineering and in environmental investigations. Following on from the international popularity of the first edition, this new, revised, and much expanded edition contains additional case histories, and descriptions of geophysical techniques not previously included in such textbooks. The level of mathematics and physics is deliberately kept to a minimum but is described qualitatively within the text. Relevant mathematical expressions are separated into boxes to supplement the text. The book is profusely illustrated with many figures, photographs and line drawings,

many never previously published. Key source literature is provided in an extensive reference section; a list of web addresses for key organisations is also given in an appendix as a valuable additional resource. Covers new techniques such as Magnetic Resonance Sounding, Controlled- Source EM, shear-wave seismic refraction, and airborne gravity and EM techniques. Now includes radioactivity surveying and more discussions of down-hole geophysical methods; hydrographic and Sub-Bottom Profiling surveying; and UneXploded Ordnance detection. Expanded to include more forensic, archaeological, glaciological, agricultural and bio-geophysical applications. Includes more information on physio-chemical properties of geological, engineering and environmental materials. Takes a fully global approach. Companion website with additional resources available at www.wiley.com/go/reynolds/introduction2e. Accessible core textbook for undergraduates as well as an ideal reference for industry professionals. The second edition is ideal for students wanting a broad introduction to the subject and is also designed for practising civil and geotechnical engineers, geologists, archaeologists and environmental scientists who need an overview of modern geophysical methods relevant to their discipline. While the first edition was the first textbook to provide such a comprehensive coverage of environmental geophysics, the second edition is even more far ranging in terms of techniques, applications and case histories.

A Dialogue with the Social Sciences SEG Books

Magnetism is important in environmental studies for several reasons, the two most fundamental being that most substances exhibit some form of magnetic behavior, and that iron is one of the most common elements in the Earth's crust. Once sequestered in a suitable material, magnetic particles constitute a natural archive of conditions existing in former times. Magnetism provides a tracer of paleo-climatic and paleo-environmental conditions and processes. Environmental Magnetism details the occurrence and uses of magnetic materials in the natural environment. The first half of the volume describes the basic principles. The second half discusses the applications of magnetic measurements in various environmental settings on land, in lakes, in the ocean, and even various biological organisms. * Material is broadly applicable to environmental studies * Case histories illustrate key points * Extensive bibliography makes further research quick and easy

Practical Gastrointestinal Endoscopy Cambridge University Press

A second edition of this classic textbook on fundamental principles of geophysics for geoscience undergraduates.