

Structural Geology Of Rocks And Regions

2nd Edition

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Applied Subsurface Geological Mapping with Structural Methods - Daniel J. Tearpock 2002-08-16

Applied Subsurface Geological Mapping, With Structural Methods, 2nd Edition is the practical, up-to-the-minute guide to the use of subsurface interpretation, mapping, and structural techniques in the search for oil and gas resources. Two of the industry's leading consultants present systematic coverage of the field's key principles and newest advances, offering guidance that is valuable for both exploration and development activities, as well as for "detailed" projects in maturely developed areas. Fully updated and expanded, this edition combines extensive information from the published literature with significant material never before published. The authors introduce superior techniques for every major petroleum-related tectonic setting in the world. Coverage includes: A systematic, ten-step philosophy for subsurface interpretation and mapping The latest computer-based contouring concepts and applications Advanced manual and computer-based log correlation Integration of geophysical data into subsurface interpretations and mapping Cross-section construction: structural, stratigraphic, and problem-solving Interpretation and generation of valid fault, structure, and isochore maps New coverage of 3D seismic interpretation, from project setup through documentation Compressional and extensional structures: balancing and

interpretation In-depth new coverage of strike-slip faulting and related structures Growth and correlation consistency techniques: expansion indices, Multiple Bischke Plot Analysis, vertical separation versus depth, and more Numerous field examples from around the world Whatever your role in the adventure of finding and developing oil or gas resources—as a geologist, geophysicist, engineer, technologist, manager or investor—the tools presented in this book can make you significantly more effective in your daily technical or decision-oriented activities. [Structural Geology Algorithms](#) - Richard W.

Allmendinger 2011-12-01

State-of-the-art analysis of geological structures has become increasingly quantitative but traditionally, graphical methods are used in teaching. This innovative lab book provides a unified methodology for problem-solving in structural geology using linear algebra and computation. Assuming only limited mathematical training, the book begins with classic orientation problems and progresses to more fundamental topics of stress, strain and error propagation. It introduces linear algebra methods as the foundation for understanding vectors and tensors, and demonstrates the application of geometry and kinematics in geoscience without requiring students to take a supplementary mathematics course. All algorithms are illustrated with a suite of online MATLAB functions, allowing users to modify the code to solve their own structural problems.

Containing 20 worked examples and over 60 exercises, this is the ideal lab book for advanced undergraduates or beginning graduate students. It will also provide professional structural geologists with a valuable reference and refresher for calculations.

Principles of Igneous and Metamorphic

Petrology - Anthony Philpotts 2009-01-29

This textbook provides a basic understanding of the formative processes of igneous and metamorphic rock through quantitative applications of simple physical and chemical principles. The book encourages a deeper comprehension of the subject by explaining the petrologic principles rather than simply presenting the student with petrologic facts and terminology. Assuming knowledge of only introductory college-level courses in physics, chemistry, and calculus, it lucidly outlines mathematical derivations fully and at an elementary level, and is ideal for intermediate and advanced courses in igneous and metamorphic petrology. The end-of-chapter quantitative problem sets facilitate student learning by working through simple applications. They also introduce several widely-used thermodynamic software programs for calculating igneous and metamorphic phase equilibria and image analysis software. With over 350 illustrations, this revised edition contains valuable new material on the structure of the Earth's mantle and core, the properties and behaviour of magmas, recent results from satellite imaging, and more.

Earth Materials - Cornelis Klein 2013

Key concepts in mineralogy and petrology are explained alongside beautiful full-color illustrations, in this concisely written textbook.

Folding and Fracturing of Rocks - C.E. Bond
2020-01-02

This Special Publication is a celebration of research into the Folding and Fracturing of Rocks to mark the 50th anniversary of the publication of the seminal textbook by J. G. Ramsay. *Folding and Fracturing of Rocks* summarised the key structural geology concepts of the time. Through his numerical and geometric focus John pioneered and provided solutions to understanding the processes leading to the folding and fracturing of rocks. His strong belief that numerical and geometric solutions, to

understanding crustal processes, should be tested against field examples added weight and clarity to his work. The basic ideas and solutions presented in the text are as relevant now as they were 50 years ago, and this collection of papers celebrates John's contribution to structural geology. The papers explore the lasting impact of John and his work, they present case studies and a modern understanding of the process documented in the *Folding and Fracturing of Rocks*.

Rock Fractures and Fluid Flow - National Research Council 1996-08-27

Scientific understanding of fluid flow in rock fractures "a process underlying contemporary earth science problems from the search for petroleum to the controversy over nuclear waste storage" has grown significantly in the past 20 years. This volume presents a comprehensive report on the state of the field, with an interdisciplinary viewpoint, case studies of fracture sites, illustrations, conclusions, and research recommendations. The book addresses these questions: How can fractures that are significant hydraulic conductors be identified, located, and characterized? How do flow and transport occur in fracture systems? How can changes in fracture systems be predicted and controlled? Among other topics, the committee provides a geomechanical understanding of fracture formation, reviews methods for detecting subsurface fractures, and looks at the use of hydraulic and tracer tests to investigate fluid flow. The volume examines the state of conceptual and mathematical modeling, and it provides a useful framework for understanding the complexity of fracture changes that occur during fluid pumping and other engineering practices. With a practical and multidisciplinary outlook, this volume will be welcomed by geologists, petroleum geologists, geoengineers, geophysicists, hydrologists, researchers, educators and students in these fields, and public officials involved in geological projects.

Microtectonics - C.W. Passchier 2013-06-29

Microtectonics is the interpretation of small-scale deformation structures in rocks. They are studied by optical microscope and contain abundant information on the history and type of deformation and metamorphism in a rock and are therefore used by most geologists to obtain

data for large-scale geological interpretations. This advanced textbook contains a large number of photographs and explanatory drawings, special chapters on related techniques, a chapter on microgauges and a simple, non-mathematical treatment of continuum mechanics with practical examples. Special terms are explained in boxes. This textbook is suited for independent use during optical studies on microstructures as a reference manual and as a manual for short courses.

Physical Geology - Steven Earle 2019

"Physical Geology is a comprehensive introductory text on the physical aspects of geology, including rocks and minerals, plate tectonics, earthquakes, volcanoes, glaciation, groundwater, streams, coasts, mass wasting, climate change, planetary geology and much more. It has a strong emphasis on examples from western Canada, especially British Columbia, and also includes a chapter devoted to the geological history of western Canada. The book is a collaboration of faculty from Earth Science departments at Universities and Colleges across British Columbia and elsewhere"--BCcampus website.

Geology Applied to Engineering - Terry R. West 2018-03-19

Geology Applied to Engineering bridges the gap between the two fields through its versatile application of the physical aspects of geology to engineering design and construction. The Second Edition elucidates real-world practices, concerns, and issues for today's engineering geologists and geotechnical engineers. Both undergraduate and graduate students will benefit from the book's thorough coverage, as will professionals involved in assessing sites for engineering projects, evaluating construction materials, developing water resources, and conducting tests using industry standards. West and Shakoor offer expanded coverage of important topics such as slope stability and ground subsidence and significant fields in engineering geology, such as highways, dams, tunnels, and rock blasting. In order to allow for the diverse backgrounds of geologists and engineers, material on the properties of minerals, rocks, and soil provides a working knowledge of applied geology as a springboard to more comprehensive subjects in engineering.

Example problems throughout the text demonstrate the practical applications of soil mechanics, rock weathering and soils, structural geology, groundwater, and geophysics. Thought-provoking and challenging exercises supplement core concepts such as determining shear strength and failure conditions, calculating the depth needed for borings, reading and analyzing maps, and constructing stratigraphic cross sections.

Sedimentology and Stratigraphy - Gary Nichols 2013-04-30

This fully revised and updated edition introduces the reader to sedimentology and stratigraphic principles, and provides tools for the interpretation of sediments and sedimentary rocks. The processes of formation, transport and deposition of sediment are considered and then applied to develop conceptual models for the full range of sedimentary environments, from deserts to deep seas and reefs to rivers.

Different approaches to using stratigraphic principles to date and correlate strata are also considered, in order to provide a comprehensive introduction to all aspects of sedimentology and stratigraphy. The text and figures are designed to be accessible to anyone completely new to the subject, and all of the illustrative material is provided in an accompanying CD-ROM. High-resolution versions of these images can also be downloaded from the companion website for this book at:

www.wiley.com/go/nicholssedimentology.

Geology and Landscape Evolution - Joseph A. DiPietro 2018-04-16

Geology and Landscape Evolution: General Principles Applied to the United States, Second Edition, is an accessible text that balances interdisciplinary theory and applications within the physical geography, geology, geomorphology and climatology of the United States. The vast diversity of terrain and landscape across the United States makes this an ideal tool for geoscientists worldwide who research the country's geological and landscape evolution. The book provides an explanation of how landscape forms, how it evolves and why it looks the way it does. This new edition is fully updated with greater detail throughout and additional figures, maps, drawings and photographs. Rather than limiting the coverage specifically to

tectonics or to the origin and evolution of rocks with little regard for the actual landscape beyond general desert, river and glacial features, this book concentrates specifically on the origin of the landscape itself, with specific and exhaustive reference to examples from across the United States. The book begins with a discussion of how rock type and rock structure combine with tectonic activity, climate, isostasy and sea level change to produce landscape and then explores predicting how landscape will evolve. The book goes on to apply those concepts to specific examples throughout the United States, making it a valuable resource for understanding theoretical geological concepts through a practical lens. Presents the complexities of physical geography, geology, geomorphology and climatology of the United States through an interdisciplinary, highly accessible approach Offers hundreds of full-color figures, maps and photographs that capture the systematic interaction of land, rock, rivers, glaciers, global wind patterns and climate, including Google Earth images Provides a thorough assessment of the logic, rationale, and tools required to understand how to interpret landscape and the geological history of the Earth Features exercises that conclude each chapter, aiding in the retention of key concepts Updated with greater detail throughout and additional figures, maps, drawings and photographs Includes additional subheadings so that material is easier to find and digest Includes an all-new chapter on glaciation and expanded exercises using Google Earth images to enhance understanding

Practical Rock Mechanics - Steve Hencher
2015-08-28

An Ideal Source for Geologists and Others with Little Background in Engineering or Mechanics Practical Rock Mechanics provides an introduction for graduate students as well as a reference guide for practicing engineering geologists and geotechnical engineers. The book considers fundamental geological processes that give rise to the nature of rock masses and control their mechanical behavior. Stresses in the earth's crust are discussed and methods of measurement and prediction explained. Ways to investigate, describe, test, and characterize rocks in the laboratory and at project scale are

reviewed. The application of rock mechanics principles to the design of engineering structures including tunnels, foundations, and slopes is addressed. The book is illustrated throughout with simple figures and photographs, and important concepts are illustrated by modern case examples. Mathematical equations are kept to the minimum necessary and are explained fully—the book leans towards practice rather than theory. This text: Addresses the principles of rock mechanics as it applies to both structural geology and engineering practice Demonstrates the importance of and methods of geological characterisation to rock engineering Examines the standard methods of rock mechanics testing and measurement as well as interpretation of data in practice Explains connections between main parameters both empirically as well as on the basis of scientific theory Provides examples of the practice of rock mechanics to major engineering projects Practical Rock Mechanics teaches from first principles and aids readers' understanding of the concepts of stress and stress transformation and the practical application of rock mechanics theory. This text can help ensure that ground models and designs are correct, realistic, and produced cost-effectively.

Structural Geology - Donal M. Ragan 2009-09-03

This combination of text and lab book presents an entirely different approach to structural geology. Designed for undergraduate laboratory classes, it provides a step-by-step guide for solving geometric problems arising from structural field observations. The book discusses both traditional methods and cutting-edge approaches, with emphasis given to graphical methods and visualization techniques that support students in tackling challenging two- and three-dimensional problems. Numerous exercises encourage practice in using the techniques, and demonstrate how field observations can be converted into useful information about geological structures and the processes responsible for creating them. This updated fourth edition incorporates new material on stress, deformation, strain and flow, and the underlying mathematics of the subject. With stereonet plots and solutions to the exercises available online at www.cambridge.org/ragan, this book is a key

resource for undergraduates, advanced students and researchers wanting to improve their practical skills in structural geology.

Structural Geology of Rocks and Regions -

George Herbert Davis 1984

When author George Davis conceptualized the cover illustration for the first edition of Structural Geology of Rocks and Regions, he wanted to emphasize that the human adventure of learning comes from doing; and that new insight springs from careful, detailed examination of field relationships, viewed at all scales from rocks to regions. He asked illustrator David Fisher to combine four photos into the single painting, you see here. The geologist is enveloped by challenging structural relationships of folded rocks in outcrop; the curvature of back and neck, torqued as eyes and brain move closer and closer to clipboard, is the classic language of geologic mapping. When George Davis and new co-author Steve Reynolds contemplated the cover illustration for the second edition of Structural Geology of Rocks and Regions, they asked: "Who else is in the picture?" Stepping back, and handing David Fisher a couple of additional photos, the scene suddenly changed. The original geologist who had been sitting on the outcrop recording data is now up and walking around, gathering new data. A second geologist has moved into the new foreground, mapping and sketching a system of small-scale imbricate faults. Again, the head is torqued to handle the requirements of fine description and careful mapping. Like so many structural geologists, she seems to thrive on visualization of three-dimensional relationships.

Essentials of Igneous and Metamorphic Petrology - B. Ronald Frost 2019-10-10

A concise introduction to the mineralogy and petrology of igneous and metamorphic rocks for all Earth Science students.

Structural Geology of Rocks and Regions -

George H. Davis 1996-02-02

When author George Davis conceptualized the cover illustration for the first edition of Structural Geology of Rocks and Regions, he wanted to emphasize that the human adventure of learning comes from doing; and that new insight springs from careful, detailed examination of field relationships, viewed at all scales from rocks to regions. He asked

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Quantitative Structural Geology - David D. Pollard 2020-07-23

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

From Rodinia to Pangea - Richard P. Tollo 2010

"The Appalachians constitute one of Earth's major tectonic features and have served as a springboard for innovative geologic thought for more than 170 years. This volume contains 36 original papers reporting the results of research performed throughout nearly the entire length and breadth of the Appalachian region, including all major provinces and geographical areas. Memoir 206 was designed to commemorate the (near-)fortieth anniversary of the publication of the classic Studies of Appalachian Geology volumes that appeared just prior to the application of plate tectonic concepts to the region. Contributions concerning structural evolution, sedimentation, stratigraphy, magmatic processes, metamorphism, tectonics, and terrane accretion illustrate the wide range of ongoing research in the area and collectively serve to mark the considerable progress in scientific thought that has occurred during the past four decades."--pub. desc.

Geologic Fracture Mechanics - Richard A.

Schultz 2019-08-08

Introduction to geologic fracture mechanics covering geologic structural discontinuities from theoretical and field-based perspectives.

Structural Geology - Haakon Fossen 2016-03-03

This market-leading textbook has been fully updated in response to extensive user feedback. It includes a new chapter on joints and veins, additional examples from around the world, stunning new field photos, and extended online resources with new animations and exercises. The book's practical emphasis, hugely popular in the first edition, features applications in the upper crust, including petroleum and groundwater geology, highlighting the importance of structural geology in exploration and exploitation of petroleum and water resources. Carefully designed full-colour illustrations work closely with the text to support student learning, and are supplemented with high-quality photos from around the world. Examples and parallels drawn from practical everyday situations engage students, and end-of chapter review questions help them to check their understanding. Updated e-learning modules are available online (www.cambridge.org/fossen2e) and further reinforce key topics using summaries, innovative animations to bring concepts to life, and additional examples and figures.

Structural Analysis and Synthesis - Stephen M. Rowland 2013-05-06

This widely used, highly readable introduction to structural analysis is specifically designed to support the laboratory work of undergraduates in structural geology courses. The new third edition includes: New and amended exercises and redrafted figures to improve clarity A single fold-out map of the Bree Creek Quadrangle - a mythical site used to help students analyze various aspects of the geologic structures exposed within this quadrangle and ultimately to develop a grand synthesis A user-friendly spiral binding ideal for work in the lab or out in the field An Instructor manual CD-ROM for this title is available. Please contact our Higher Education team at HigherEducation@wiley.com for more information.

Atlas of Structural Geology - Soumyajit Mukherjee 2015-04-28

Atlas of Structural Geology features a broad and

inclusive range of high-quality meso- and micro-scale full-color photographs, descriptions, and captions related to the deformation of rocks and geologic structures. It is a multi-contributed, comprehensive reference that includes submissions from many of the world's leading structural geologists, making it the most thorough and comprehensive reference available to the scientific community. All types of structures are featured, including structures related to ductile and brittle shear zones, sigma- and delta-structures, mineral fish, duplexes and trapezoids, shear related folds, and flanking structures in meso- and micro-scales. A stunning collection of the world's most beautiful and arresting geologic structures, the Atlas of Structural Geology is the ideal aid in the retention of key concepts in geology. Presents more than 250 top-quality, full-color photographs contributed by the world's most respected structural geologists Features a broad range of morphological variations of geologic structures, making it the most up-to-date and inclusive reference of its kind Edited by a structural geologist with 14 years of experience in related research and instruction Aids researchers in developing mathematical and analogue models on the peculiarity and uniqueness of the world's most iconic structures

Encyclopedia of Geology - 2020-12-16

Encyclopedia of Geology, Second Edition presents in six volumes state-of-the-art reviews on the various aspects of geologic research, all of which have moved on considerably since the writing of the first edition. New areas of discussion include extinctions, origins of life, plate tectonics and its influence on faunal provinces, new types of mineral and hydrocarbon deposits, new methods of dating rocks, and geological processes. Users will find this to be a fundamental resource for teachers and students of geology, as well as researchers and non-geology professionals seeking up-to-date reviews of geologic research. Provides a comprehensive and accessible one-stop shop for information on the subject of geology, explaining methodologies and technical jargon used in the field Highlights connections between geology and other physical and biological sciences, tackling research problems that span multiple fields Fills a critical gap of information in a field

that has seen significant progress in past years
Presents an ideal reference for a wide range of
scientists in earth and environmental areas of
study

Earth Structures - Stephen Marshak 2010-06-04

The Second Edition also benefits from new
artwork that clearly illustrates complex
concepts. New to the Second Edition: New
Chapter: 15, "Geophysical Imaging," by
Frederick Cook Within Chapters 21 and 22, four
new essays on "Regional Perspectives" discuss
the European Alps, the Altai, the
Appalachians, and the Cascadia Wedge. New
and updated art for more informative illustration
of concepts. The Second Edition now has 570
black & white figures.

Geology For Dummies - Alecia M. Spooner
2011-07-26

Get a rock-solid grasp on geology Geology is the
study of the earth's history as well as the
physical and chemical processes that continue to
shape the earth today. Jobs in the geosciences
are expected to increase over the next decade,
which will increase geology-related jobs well
above average projection for all occupations in
the coming years. Geology For Dummies is the
most accessible book on the market for anyone
who needs to get a handle on the subject,
whether you're looking to supplement classroom
learning or are simply interested in earth
sciences. Presented in a straightforward, trusted
format, it features a thorough introduction to the
study of the earth, its materials, and its
processes. Tracks to a typical college-level
introductory geology course An 8-page color
insert includes photos of rocks, minerals, and
geologic marvels Covers geological processes;
rock records and geologic times; matter,
minerals, and rock; and more Geology For
Dummies is an excellent classroom supplement
for all students who enroll in introductory
geology courses, from geology majors to those
who choose earth science courses as electives.

Structural Geology - Robert J. Twiss
1992-04-15

For advanced undergraduate structural geology
courses.

A Practical Guide to Rock Microstructure - Ron
H. Vernon 2004-10-07

Rock microstructures provide clues for the
interpretation of rock history. A good

understanding of the physical or structural
relationships of minerals and rocks is essential
for making the most of more detailed chemical
and isotopic analyses of minerals. Ron Vernon
discusses the basic processes responsible for the
wide variety of microstructures in igneous,
sedimentary, metamorphic and deformed rocks,
using high-quality colour illustrations. He
discusses potential complications of
interpretation, emphasizing pitfalls, and
focussing on the latest techniques and
approaches. Opaque minerals (sulphides and
oxides) are referred to where appropriate. The
comprehensive list of relevant references will be
useful for advanced students wishing to delve
more deeply into problems of rock
microstructure. Senior undergraduate and
graduate students of mineralogy, petrology and
structural geology will find this book essential
reading, and it will also be of interest to students
of materials science.

*Problems and Solutions in Structural Geology
and Tectonics* - 2019-02-26

Problems and Solutions in Structural Geology
and Tectonics, Volume 5, in the series
Developments in Structural Geology and
Tectonics, presents students, researchers and
practitioners with an all-new set of problems and
solutions that structural geologists and tectonics
researchers commonly face. Topics covered
include ductile deformation (such as strain
analyses), brittle deformation (such as rock
fracturing), brittle-ductile deformation,
collisional and shortening tectonics, thrust-
related exercises, rift and extensional tectonics,
strike slip tectonics, and cross-section balancing
exercises. The book provides a how-to guide for
students of structural geology and geologists
working in the oil, gas and mining industries.
Provides practical solutions to industry-related
issues, such as well bore stability Allows for self-
study and includes background information and
explanation of research and industry jargon
Includes full color diagrams to explain 3D issues
Structural Analysis and Synthesis - Stephen M.
Rowland 1994-03

Geology - Aurèle Parriaux 2018-10-31

Geology - Basics for Engineers (second edition)
presents the physical and chemical
characteristics of the Earth, the nature and the

properties of rocks and unconsolidated deposits/sediments, the action of water, how the Earth is transformed by various phenomena at different scales of time and space. The book shows the engineer how to take geological conditions into account in their projects, and how to exploit a wide range of natural resources in an intelligent way, reduce geological hazards, and manage subsurface pollution. This second edition has been fully revised and updated. Through a problem-based learning approach, this instructional text imparts knowledge and practical experience to engineering students (undergraduate and graduate level), as well as to experts in the fields of civil engineering, environmental engineering, earth sciences, architecture, land and urban planning. Free digital supplements to the book, found on the book page, contain solutions to the problems and animations that show additional facets of the living Earth. The original French edition of the book (2007) won the prestigious Roberval Prize, an international contest organized by the University of Technology of Compiègne in collaboration with the General Council of Oise, France. Geology, Basics for Engineers was selected out of a total of 110 candidates. The jury praised the book as a "very well conceived teaching textbook" and underscored its highly didactic nature, as well as the excellent quality of its illustrations. Features: Offers an exhaustive outline of the methods and techniques used in geology, with a study of the nature and properties of the principal soils and rocks Helps students understand how geological conditions should be taken into account by the engineer by taking a problem-solving approach Contains extensive figures and examples, solutions to problems, and illustrative animations Presents a highly didactic and synthetic work intended for engineering students as well as experts in civil engineering, environmental engineering, the earth sciences, and architecture

Structural Geology: Fundamentals and Modern Developments - S.K. Ghosh 2013-10-24

Presents a comprehensive and up-to-date account of the fundamental aspects of structural geology, emphasising both classical concepts and modern developments. A detailed account of the techniques of geometrical analysis is

provided, giving a sound background to principles of geological deformation and in-depth analysis of mechanisms of formation of geological structures. Many new features are included such as detailed discussions on rotation of rigid inclusions and passive markers, boudinage (including chocolate tablet boudins, foliation boudins and shear fracture boudins), structural implications of basement-cover relations and time-relation between crystallation and deformation. The book presents the methods of structural analysis from microscopic to map scale, describes modern techniques used in field and laboratory and offers a balanced picture of modern structural geology as it emerges from combined field, experimental and theoretical studies. Hardback edition (0 080 41879 1) also available £50.00

Special Papers - 1976

Foundations of Structural Geology - R. Graham Park 1997

Since the first edition was published in 1983, this highly-regarded introductory textbook has been used by many generations of students worldwide. It is specifically tailored to the requirements of first or second year geology undergraduates. The third edition has been extensively revised and updated to include many new sections and over 50 new or redrawn illustrations. There are now over 220 illustrations, many incorporating a second colour to highlight essential features. The format has been changed to enhance the visual attractiveness of the book. The tripartite organization of the first and second editions has been modified by combining the purely descriptive or factual aspects of fault and fold structure in the earlier chapters with a simple treatment of mechanisms, leaving the more geometrically complex treatment until after the relevant sections on stress and strain, as before. Some subjects are introduced for the first time, e.g. inversion and orogen collapse, and others have been extensively modified, e.g. the chapter on gravity controlled structures now emphasises modern work on salt tectonics. The last third of the book is devoted to the wider context of geological structures and how they relate to plate tectonics. The final two chapters have been considerably expanded and give examples of

various types of geological structures in their plate tectonic settings in both modern and ancient orogenic belts.

Basic Methods of Structural Geology - 2018

Earth's Oldest Rocks - Martin J. van Kranendonk
2007-10-26

Earth's Oldest Rocks provides a comprehensive overview of all aspects of early Earth, from planetary accretion through to development of protocratons with depleted lithospheric keels by c. 3.2 Ga, in a series of papers written by over 50 of the world's leading experts. The book is divided into two chapters on early Earth history, ten chapters on the geology of specific cratons, and two chapters on early Earth analogues and the tectonic framework of early Earth. Individual contributions address topics that range from planetary accretion, a review of Earth meteorites, significance and composition of Hadean protocrust, composition of Archaean mantle and deep crust, all aspects of the geology of Paleoproterozoic cratons, composition of Archean oceans and hydrothermal environments, evidence and geological settings of early life, early Earth analogues from Venus and New Zealand, and a tectonic framework for early Earth. * Contains comprehensive reviews of areas of ancient lithosphere on Earth, of planetary accretion processes, and of meteorites * Focuses on specific aspects of early Earth, including oldest putative life forms, evidence of the composition of the ancient atmosphere-hydrosphere, and the oldest evidence for subduction-accretion * Presents an overview of geological processes and model of the tectonic framework on early Earth

Understanding and Reducing Landslide Disaster Risk - Vít Vilímek 2020-12-21

This book is a part of ICL new book series "ICL Contribution to Landslide Disaster Risk Reduction" founded in 2019. Peer-reviewed papers submitted to the Fifth World Landslide Forum were published in six volumes of this book series. This book contains the followings: Part I with topics is mainly about landslides and earthquakes; landslide dams and outburst floods; catastrophic large-scale landslides in mountainous regions. Part II with topics is mainly about impact of climate change; loess landslides; mapping, monitoring and modeling of

landslides; stabilization and mitigation; application of new technology in landslide studies. Prof. Vít Vilímek is the vice-president of the International Consortium on Landslides (ICL) and a member of the evaluation committee, Editor-in-Chief of the university journal AUC Geographica and Associate Editor-in-Chief of the international journal Geoenvironmental Disasters. He is a Professor of Physical Geography at Charles University, Prague, Czech Republic. Prof. Fawu Wang is the President of the International Consortium on Geo-disaster Reduction (ICGdR) and the Editor-in-Chief of the international journal Geoenvironmental Disasters. He is a Professor at the School of Civil Engineering, Tongji University, China. Dr. Alexander Strom is a chief expert at the Geodynamics Research Center LLC, Moscow, Russia. He is also an Adjunct Professor at Chang'an University, Xi'an, China, Visiting Professor at SKLGP, Chengdu, China, and an alternative representative of the JSC "Hydroproject Institute" in ICL. Prof. Kyoji Sassa is the Founding President and the Secretary-General of the International Consortium on Landslides (ICL). He has been the Editor-in-Chief of International Journal Landslides since its foundation in 2004. Prof. Peter Bobrowsky is the President of the International Consortium on Landslides. He is a Senior Scientist of Geological Survey of Canada, Ottawa, Canada. Prof. Kaoru Takara is the Executive Director of the International Consortium on Landslides. He is a Professor and Dean of Graduate School of Advanced Integrated Studies (GSAIS) in Human Survivability (Shishu-Kan), Kyoto University.

Structural Geology of Rocks and Regions - George H. Davis 2011-12-06

Relates the physical and geometric elegance of geologic structures within the Earth's crust and the ways in which these structures reflect the nature and origin of crystal deformation through time. The main thrust is on applications in regional tectonics, exploration geology, active tectonics and geohydrology. Techniques, experiments, and calculations are described in detail, with the purpose of offering active participation and discovery through laboratory and field work.

The Techniques of Modern Structural Geology: Strain analysis - John G. Ramsay 1983

In the case of nearly all branches of science a great advance was made when accurate quantitative methods were used of more qualitative. One great advantage of this is that it necessitates more accurate thought, points out what remains to be learned, and sometimes small residual quantities, which otherwise would escape attention, indicate important facts.

Structural Geology - Bruce E. Hobbs
2014-11-21

Structural Geology is a groundbreaking reference that introduces you to the concepts of nonlinear solid mechanics and non-equilibrium thermodynamics in metamorphic geology, offering a fresh perspective on rock structure and its potential for new interpretations of geological evolution. This book stands alone in unifying deformation and metamorphism and the development of the mineralogical fabrics and the structures that we see in the field. This reflects the thermodynamics of systems not at equilibrium within the framework of modern nonlinear solid mechanics. The thermodynamic approach enables the various mechanical, thermal, hydrological and chemical processes to be rigorously coupled through the second law of thermodynamics, invariably leading to nonlinear

behavior. The book also differs from others in emphasizing the implications of this nonlinear behavior with respect to the development of the diverse, complex, even fractal, range of structures in deformed metamorphic rocks. Building on the fundamentals of structural geology by discussing the nonlinear processes that operate during the deformation and metamorphism of rocks in the Earth's crust, the book's concepts help geoscientists and graduate-level students understand how these processes control or influence the structures and metamorphic fabrics—providing applications in hydrocarbon exploration, ore mineral exploration, and architectural engineering. Authored by two of the world's foremost experts in structural geology, representing more than 70 years of experience in research and instruction. Nearly 300 figures, illustrations, working examples, and photographs reinforce key concepts and underscore major advances in structural geology.

Fundamentals of Structural Geology - David D. Pollard 2005-09

A modern quantitative approach to structural geology and tectonics for advanced students and researchers.