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Principles, Concepts, and Problems Geological Society of London
Detailed mapping and analysis of the structural features of rocks enable the 3D geometry of their structures to be reconstructed. The resulting evidence of the stresses and movement patterns which rocks have undergone indicates the processes by which they were formed, and allows evaluation of past deformations of the earth’s crust. Written to show how one actually describes, measures and records rock structures such as folds and faults with the emphasis on accuracy, detail and on-going interpretation throughout, this handbook gives students and enthusiasts the practical information and guidance which allows their fieldwork to become vastly more rewarding. "...the author is to be congratulated on producing such an excellent text. The whole range of mapping techniques that an undergraduate student will require are described and the book will still be immense help to post-graduates setting out on their research work. The book represents extremely good value and is thoroughly recommended." —C.R.L. Friend, Mineralogical Magazine
Folding and Fracturing of Rocks Macmillan Publishing Company
This bibliography represents work done jointly by Ruth Reece King, Virginia M. Jussen, Elisabeth S. Loud, Georgianna D. Conant, Mildred Challman, and Eleanor H. de Chaden è des. Principles, Techniques and Integration John Wiley & Sons
Folding and Fracturing of Rocks was first published in 1967. It was one of the first major publications aimed at developing for geologists the basic theory of stress and strain in mathematical terms and explaining how this theory could be used to solve practical problems in structural geology and tectonics. Although out-of-print for many years, it is still one of the most frequently cited and quoted texts in modern research publications in structural geology. Although texts discussing the basic theory of stress and strain had been long available in engineering, metallurgic and materials science, very few of these texts made any reference to the application of these principles to the study of rock strain, fracturing and folding processes commonly arising in geology. Folding and Fracturing of Rocks developed the theory of both small and large finite strain with particular emphasis on progressive deformation and its geological implications for the development of the structures actually observed in naturally deformed rocks. It was one of the first textbooks to discuss the practical methods for evaluating the states of finite strain in two and three dimensions and the implications of these methods to further our understanding of structural geometry. The book set out the concepts of displacement and finite strain and showed how strain states could be represented in diagrammatic forms as originally devised by Otto Mohr for states of stress. Many of the developments were novel at the time of publication and have had major applications in subsequent research. The discussions and methods of strain analysis set out in Folding and Fracturing of Ricks have stood the test of time and many of the subsequent research developments in structural geology have their origins in this book. The reasons for the relevance of this book to current research are first, the book is based on sound mathematical principles that have not become dated and second, the discussions of deformation theory are illustrated with many photographs of the structures seen in naturally deformed rocks. The author has always been of the opinion that the structures actually observed in naturally formed rocks form the key to our understanding of tectonic processes and that the development of mechanical models for the origin of these structures must always be compared with natural systems if they are to be truly relevant. John Ramsay was born in London in 1931. He did his doctoral research in the Scottish Highlands working on the deformation patterns seen in complexly folded rocks of the Moine Series and the relationships seen in folded basement and cover rocks obtaining his Ph.D. in 1954. After undertaking his military service in the Corps of the Royal Engineers (as Violoncellist and Tenor drummer) he was appointed to the teaching staff of Imperial College in 1957. Subsequently he held Professorships at London University and Leeds University. In 1977, he was appointed to a Professorship of Geology at the Eidgen ssische Technische Hochschule and University of Z rich, Switzerland. John Ramsay has been author and co-author of four books and many papers in structural geology. His work in advancing structural geology has been recognized by the awards of the Bigsby and Wollaston medals of the Geological Society, the Prestwich Medal of the Soci t G ologique de France, the Holmes Medal of the European Union of Geosciences, the Tranenster Medal of the University of Li ge, and in 1992 he was appointed to the Order of Commander of the British Empire in the Queen’s Honours list.
Structural Analysis and Synthesis Springer
Structural geology has developed at a very rapid pace in recent years. Evolution of Geological Structures in Micro- to Macro-Scales, covering a wide spectrum of current research in structural geology from the grain scale to the scale of orogenic belts and from the brittle to the ductile field, provides an overview of newly emerging concepts in a single volume. The book covers a wide range of advances in such broad fields as hydraulic factures, normal faults, overthrusts, ductile shear zones, rock fabrics, folds, superposed folds and basement structures.
Report of Investigations Springer Science & Business Media
A modern quantitative approach to structural geology and tectonics for advanced students and researchers.
Geological Structures and Maps Routledge
Tackling structural geology problems today requires a quantitative understanding of the underlying physical principles, and the ability to apply mathematical models to deformation processes within the Earth. Accessible yet rigorous, this unique textbook demonstrates how to approach structural geology quantitatively using calculus and mechanics, and prepares

students to interface with professional geophysicists and engineers who appreciate and utilize the same tools and computational methods to solve multidisciplinary problems. Clearly explained methods are used throughout the book to quantify field data, set up mathematical models for the formation of structures, and compare model results to field observations. An extensive online package of coordinated laboratory exercises enables students to consolidate their learning and put it into practice by analyzing structural data and building insightful models. Designed for single-semester undergraduate courses, this pioneering text prepares students for graduates studies and careers as professional geoscientists.
Geologic Fracture Mechanics Springer Science & Business Media
For advanced undergraduate structural geology courses.
3-D Structural Geology Pergamon
A straightforward introduction to stereographic projection techniques for students of geology and civil engineering.
Structural Geology of Rocks and Regions Elsevier
A knowledge of structural geology is fundamental to understanding the processes by which the earth’s crust has evolved. It is a subject of fundamental importance to students of geology, experienced field geologists and academic researchers as well as to petroleum and mining engineers. In contrast to many structural textbooks which dwell upon geometrical descriptions of geological structures, this book emphasises mechanical principles and the way in which they can be used to understand how and why a wide range of geological structures develop. Structures on all scales are considered but the emphasis of the book is on those that can be seen on the scale of hand specimen or outcrop. Drawing on their considerable teaching experience the authors present a coherent and lucid analysis of geological structures which will be welcomed by a wide variety of earth scientists.
Physical Geology Wiley
"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.
Stereographic Projection Techniques for Geologists and Civil Engineers Geological Society of London
Introduction to geologic fracture mechanics covering geologic structural discontinuities from theoretical and field-based perspectives.
The Mapping of Geological Structures Cambridge University Press
Current Topics in Structural Geology is a collection of invited papers on particular topics of interest in structural geology, from field-based problems on the scale of terranes to microstructures in nature and experiment. Contributors also explore earthquake faulting; S-C mylonites; tectonics and hydrogeology of accretionary prisms; deformation mechanisms; transparent polycrystals; shape and lattice preferred orientations; and mushroom-shaped diapirs. This text is comprised of 13 chapters; the first of which introduces the reader to shallow crustal earthquakes and the structural geology of fault zones. The first chapter also emphasizes the seismogenic regime, strike-slip earthquake rupture processes, structural questions posed by seismology, and mesothermal gold-quartz lodes hosted in steeply inclined shear zones of mixed 'brittle-ductile' character. Discussion then turns to normal faulting in the upper continental crust, along with the application of a method based primarily on fault slip data analysis to determine paleostress in terms of orientation and magnitude. The mechanical behavior and deformation textures of simulated halite shear zones are considered, with special regard to the internal structures of S-C mylonites and their mechanical implications. The remaining chapters examine the role of decollement zone in the tectonics and hydrogeology of accretionary prisms; synkinematic microscopy of transparent polycrystals; and the origin of metamorphic core complexes and detachment faults formed during Tertiary continental extension in the northern Colorado River region. This book is intended primarily for students and practitioners of structural geology.
Tectonics and Structural Geology: Indian Context Cambridge University Press
STRUCTURAL ANALYSIS & SYNTHESIS STRUCTURAL ANALYSIS & SYNTHESIS A LABORATORY COURSE IN STRUCTURAL GEOLOGY
Structural Analysis and Synthesis is the best-selling laboratory manual of its kind. Specifically designed to support the laboratory work of undergraduates in structural geology courses, the book helps students analyze the various aspects of geological structures, and to combine their analyses into an overarching synthesis. This book is intended for use in the laboratory portion of a first course in structural geology. As is explicit in the book ’ s title, it is concerned with both the analysis and synthesis of structural features. In this fourth edition, the has been broadened to include a range of new content and features, including: Video content that demonstrates how to perform some of the more challenging structural geology techniques An acknowledgment of the increasing importance of environmental applications of structural geology – vital to students who may go on to pursue careers in the environmental sphere An increased emphasis on quantitative techniques, complete with descriptions of computer program applications Contingent with this quantitative emphasis, the book also outlines the limitations of such techniques, helping students to appropriately apply the techniques and evaluate their trustworthiness
Structural Analysis and Synthesis is a renowned and widely recognized aid to students in grasping and mastering the techniques required in structural geology, and will find a home wherever the principles and practices of

structural geology are taught.

Principles of Structural Geology Springer

This instructive, engaging, highly readable manual is intended for the laboratory portion of an undergraduate course in structural geology. Guided by students' and instructors' suggestions, Dr Stephen Rowland and his new co-author, Dr Ernest Duebendorfer, have refined various exercises for the second edition, and have added discussions of numerous topics, including axial planar foliations and the dip isogon methods of fold classification. There are also three new chapters on: balanced cross sections; deformation mechanisms, fault kinematics and microstructures; and plate tectonics.

50 Years of Research since the Seminal Text Book of J. G. Ramsay Elsevier

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.

Atlas of Structural Geology Prentice Hall

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.

3-D Structural Geology Cambridge University Press

The book includes new material, in particular examples of 3-D models and techniques for using kinematic models to predict fault and ramp-anticline geometry. The book is geared toward the professional user concerned about the accuracy of an interpretation and the speed with which it can be obtained from incomplete data. Numerous analytical solutions are given that can be easily implemented with a pocket calculator or a spreadsheet.

Earth Structures Springer Science & Business Media

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 Altaiids, 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.

Foundation of Structural Geology Cambridge University Press

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 Cambridge University Press

This edited book discusses various challenges in teaching structural geology and tectonics and how they have been overcome by eminent instructors, who employed effective and innovative means to do so. All of the chapters were written by prominent and active academics and geoscientists fully engaged in teaching Structural Geology and Tectonics. New instructors will find this book indispensable in framing their teaching strategy. Effective teaching of Structural Geology and Tectonics constitutes the backbone of geoscience education. Teaching takes place not only in classrooms, but also in labs and in the field. The content and teaching methodologies for these two fields have changed over time, shaped by the responsibilities that present-day geoscientists are expected to fulfill.