

About this textbook

3-D Structural Geology

A Practical Guide to Quantitative Surface and Subsurface Map Interpretation

Groshong Jr., Richard H.

2nd ed., 2006, XVI, 400 p. 453 illus.,

Hardcover

ISBN: 978-3-540-31054-9

[Table of contents](#)

About this textbook

A CD-ROM accompanies this handbook of practical techniques for interpreting geological structures at map scale from surface to subsurface maps. The CD-ROM has color graphs and models, and 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.

Written for:

Students and professional geologists in structural geology, sedimentology, petroleum geology and engineering geology

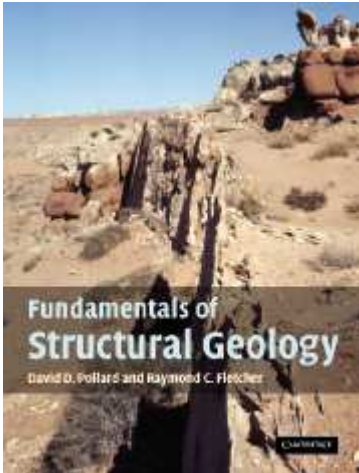
Keywords:

Structural geology
faults
folds
mapping
structural validation



CIMM

INGENIEROS DE MINAS,
METALURGISTAS Y GEÓLOGOS DE
MÉXICO A.C.



Fundamentals of Structural Geology

David D. Pollard
Stanford University, California

Raymond C. Fletcher
Pennsylvania State University

Hardback

(ISBN-13: 9780521839273 | ISBN-10: 0521839270)

Published September 2005

Lecturers can [request examination copies](#) for course consideration.

Fundamentals of Structural Geology provides a new framework for the investigation of geological structures by integrating field mapping and mechanical analysis. Assuming a basic knowledge of physical geology, introductory calculus and physics, it emphasizes the observational data, modern mapping technology, principles of continuum mechanics, and the mathematical and computational skills, necessary to quantitatively map, describe, model, and explain deformation in Earth's lithosphere. By starting from the fundamental conservation laws of mass and momentum, the constitutive laws of material behavior, and the kinematic relationships for strain and rate of deformation, the authors demonstrate the relevance of solid and fluid mechanics to structural geology. This book offers a modern quantitative approach to structural geology for advanced students and researchers in structural geology and tectonics. It is supported by a website hosting images from the book, additional colour images, student exercises and MATLAB scripts. Solutions to the exercises are available to instructors.

Contents

1. Motivations and opportunities; 2. Structural mapping techniques and tools; 3. Characterizing structures using differential geometry; 4. Physical quantities, fields, dimensions and scaling; 5. Deformation and flow; 6. Force, traction and stress; 7. Conservation of mass and momentum; 8. Elastic deformation; 9. Brittle behavior; 10. Viscous flow; 11. Rheological behavior; 12. Model development and methodology; Index.



COLEGIO DE INGENIEROS DE MINAS,
METALES Y GEOLOGOS DE
MEXICO A.C.

ENGINEERING GEOLOGY



Second Edition

By
F G Bell, Formerly University of Natal, South Africa

Description

Every engineering structure, whether it's a building, bridge or road, is affected by the ground on which it is built. Geology is of fundamental importance when deciding on the location and design of all engineering works, and it is essential that engineers have a basic knowledge of the subject. Engineering Geology introduces the fundamentals of the discipline and ensures that engineers have a clear understanding of the processes at work, and how they will impact on what is to be built. Core areas such as stratigraphy, rock types, structures and geological processes are explained, and put in context. The basics of soil mechanics and the links between groundwater conditions and underlying geology are introduced. As well as the theoretical knowledge necessary, Professor Bell introduces the techniques that engineers will need to learn about and understand the geological conditions in which they intend to build. Site investigation techniques are detailed, and the risks and risk avoidance methods for dealing with different conditions are explained.

Audience

Civil engineering, structural engineering, mining, water engineering students at undergraduate and post-graduate level. Professionals in the same disciplines.

Contents

Rock types & stratigraphy; Geological structures; Surface processes; Groundwater conditions & supply; Description, properties & behaviours of soils & rocks; Geological materials used in construction; Site investigation; Geology, planning & development; Geology & construction

Bibliographic & ordering Information

Paperback, 592 pages, publication date: DEC-2006

ISBN-13: 978-0-7506-8077-6

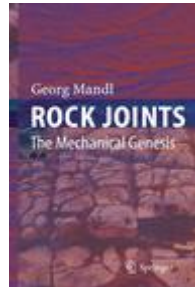
ISBN-10: 0-7506-8077-6

Imprint: BUTTERWORTH HEINEMANN



CIMMGM

COLEGIO DE INGENIEROS DE MINAS,
METALURGISTAS Y GEÓLOGOS DE



Rock Joints
The Mechanical Genesis
Mandl, Georg
2005, VIII, 222 p. 153 illus., Hardcover
ISBN: 978-3-540-24553-7

About this book

|

[Table of contents](#)

About this book

Rock Joints deals exclusively with the mechanical genesis of joints in rocks. It is aimed at a coherent, critical and comprehensible presentation of the underlying mechanical processes of various types of joints and joint systems. Special care is taken to elucidate and quantify the role of high fluid pressures in the formation of joints. The background is an offshoot of the author's courses on "Genesis of Rock Joints" in the Department of Rock Mechanics and Tunneling at the Technical University of Graz, Austria.

Written for:

Engineers and geologists specialized in rock mechanics, rock engineering and engineering geology

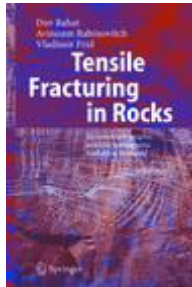
Keywords:

Hydraulic Intrusion
Tectonophysics
Tension Fractures



CIMMEM

COLEGIO DE INGENIEROS DE MINAS,
METALURGISTAS Y GEÓLOGOS DE
MÉXICO A.C.



Tensile Fracturing in Rocks

Tectonofractographic and Electromagnetic Radiation Methods

Bahat, Dov, Rabinovitch, Avinoam, Frid, Vladimir

2005, XIV, 570 p. 302 illus., Hardcover
ISBN: 978-3-540-21456-4

About this book

[Sample pages](#)

About this book

Understanding tensile fracture in rocks provides an important key for the interpretation of many problems in structural geology. This book presents a multidisciplinary approach to tensile fracture in rocks (faulting is briefly addressed), starting with an introduction to fracture physics and progressing through tectonofractographic features, characterized both in experimental settings and in geological outcrops. Four examples of sedimentary rocks and two of granites have been chosen to demonstrate the principles and problems in fracture geology. Principles of fracture mechanics and rock mechanics are applied throughout the book, which also explores current understanding about electromagnetic radiation induced by fractures and how such radiation can be used to monitor and predict earthquakes and hazardous collapses in mines. The monograph serves not only as a manual on how to handle specific problems and their solutions in fractal geology but also as a starting point for researchers and graduate students interested in the field of rock fracturing.

Written for:

Graduate students and researchers

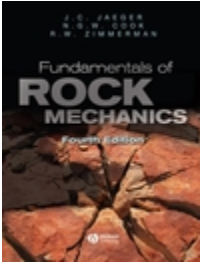
Keywords:

Electromagnetic radiation
Fracture geology
Fracture physics
Joint fracture provinces
Rock fractures
Sedimentary rocks
Tectonofractography



CIMMGM

COLECCIÓN DE MINAS,
META... OS DE
MÉXICO A.C.



Fundamentals of Rock Mechanics, 4th Edition

John Conrad Jaeger, Neville G. W. Cook, Robert Zimmerman

ISBN: 978-0-632-05759-7

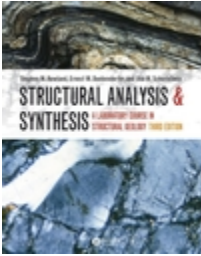
Hardcover

488 pages

May 2007, Wiley-Blackwell

Widely regarded as the most authoritative and comprehensive book in its field, the fourth edition of *Fundamentals of Rock Mechanics* includes new and substantially updated chapters to this highly praised text.

- Extensively updated throughout, this new edition contains substantially expanded chapters on poroelasticity, wave propagation, and subsurface stresses
- Features entirely new chapters on rock fractures and micromechanical models of rock behaviour
- Discusses fundamental concepts such as stress and strain
- Offers a thorough introduction to the subject before expertly delving into a fundamental, self-contained discussion of specific topics
- Unavailable for many years, now back by popular demand.



Structural Analysis and Synthesis: A Laboratory Course in Structural Geology, 3rd Edition

Stephen M. Rowland, Ernest M. Duebendorfer, Ilsa M. Schiefelbein

ISBN: 978-1-4051-1652-7

Binders, 3- or 5-ring

320 pages

January 2007, Wiley-Blackwell

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's Resource CD-Rom available on request including answers to problems, artwork and other teaching suggestions - artwork from the book is also available to instructors online at www.blackwellpublishing.com/rowland