

About this book

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Continental Scientific Drilling

A Decade of Progress, and Challenges for the Future

Harms, Ulrich; Koeberl, Christian; Zoback, Mark D. (Eds.)

2007, X, 366 p. 94 illus., 30 in color.,

Hardcover

ISBN: 978-3-540-68777-1

About this book

The International Continental Scientific Drilling Program (ICDP) was established in 1996 to coordinate research that involves drilling into the continental crust. After 10 years of successful international and multidisciplinary drilling projects, this volume provides a review and synthesizes the accomplishments of the past decade of the International Continental Scientific Drilling Program and, more importantly, defines opportunities for scientific advancement through future drilling projects, addressing a broad range of disciplines in the Earth Sciences. Topics covered include the importance of scientific drilling for: Climate Change and Global Environments, Impact Structures, the Geobiosphere, Volcanic Systems, Active Faults, Hotspot Volcanoes and Large Igneous Provinces, Convergent Plate Boundaries and Collision Zones, and Natural Resources. In addition this book contains a summary of past projects and activities supported by the ICDP.

Written for:

Libraries, institutes; researchers, scientists

Keywords:

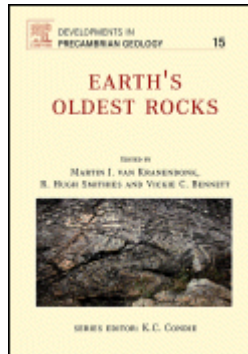
Scientific drilling
drilling engineering
geodynamics
geology
geophysics
logging
stratigraphy
tectonics



CIMMEM

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

EARTH'S OLDEST ROCKS, 15



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Edited By

Martin van Kranendonk, Geological Survey of Western Australia, East Perth and Australian Centre for Astrobiology at Macquarie University, Sydney, Australia

Hugh Smithies, Australian National University, Canberra

Vickie Bennett, Australian National University, Canberra ACT 0200, Australia

Included in series

[Developments in Precambrian Geology](#)

Description

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 Paleoarchean cratons, composition of Archaean 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.

Audience

Researchers and advanced undergraduate and graduate students in geology, Precambrian geology, tectonics, geochemistry and petrology, geochronology, and economic geology.

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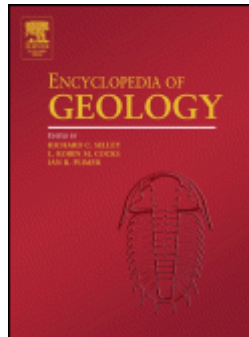
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CIMMEX

INSTITUTO NACIONAL DE MINAS,
METALURGISTAS Y GEÓLOGOS DE

ENCYCLOPEDIA OF GEOLOGY, FIVE VOLUME SET



First Edition

Edited By

Richard Selley, Department of Earth Science & Engineering, Royal School of Mines, Imperial College of Science, Technology & Medicine, London, UK

Robin Cocks, Department of Palaeontology, The Natural History Museum, London, UK

Ian Plimer, School of Earth Sciences, The University of Melbourne, Australia

Description

This unrivalled, five-volume reference work covers all aspects of geology including earth history, earth materials, surface processes, regional geology, economic geology, engineering geology, petroleum geology, geochemical and mineral exploration, and the history of geology. The techniques of remote sensing and other tools of investigation that have advanced rapidly over the last few decades are described in detail. **Encyclopedia of Geology** is divided into 340 articles, each covering one aspect of geology. The concepts and theory are explained at a level that allows undergraduates and educated lay people to understand them. The reference has been planned and structured to provide the user with a comprehensive coverage of the core knowledge in each area. It will become the reference of choice for today's geologists and beyond. Also available on ScienceDirect in 2005. For online version information, please visit http://www.info.sciencedirect.com/reference_works

Audience

Academic libraries servicing earth and environmental sciences departments, as well as industrial, government and public libraries; Practicing geologists, engineers and environmental scientists.

Contents

Preliminary Contents (Main topics are listed and covered by multiple articles): Applied Geology. Earth History. Earth Materials. Earth Processes. Engineering Geology. Environmental Geology. Geological Engineering. Geology: Tools of Investigation. History of Geology. Life on Earth. Metamorphic Rocks. Mining Geology. Petroleum Geology. Regional Geology. Silicates. Surface Processes. The Earth in Space. Vertebrate Palaeontology.

Bibliographic & ordering Information

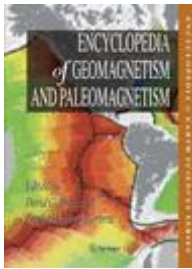
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Imprint: ACADEMIC PRESS





Encyclopedia of Geomagnetism and Paleomagnetism

Series: [Encyclopedia of Earth Sciences Series](#)

Gubbins, David; Herrero-Bervera, Emilio (Eds.)

Version: **print** (book)

2007, XXVI, 1054 p. 718 illus., 50 in color., Hardcover

ISBN: 978-1-4020-3992-8

About this book

- More than 300 entries by some 200 of the foremost experts from all over the world
- Up-to-date and comprehensive. The first single encyclopedia to cover the combined fields of Geomagnetism and Paleomagnetism
- Individual entries range in length from 500 to 12000 words
- Draws together a unique overview of world wide geomagnetic observatories
- Includes numerous illustrations and a 16 page full color section
- Excellent indices, cross-references and extensive bibliographies

Understanding the process underlying the origin of Earth magnetic field is one of the greatest challenges left to classical Physics. Geomagnetism, being the oldest Earth science, studies the Earth's magnetic field in its broadest sense.

The magnetic record left in rocks is studied in Paleomagnetism. Both fields have applications, pure and applied: in navigation, in the search for minerals and hydrocarbons, in dating rock sequences, and in unraveling past geologic movements such as plate motions they have contributed to a better understanding of the Earth.

Consisting of more than 300 articles written by ca 200 leading experts, this authoritative reference encompasses the entire fields of Geomagnetism and Paleomagnetism in a single volume. It describes in fine detail at an assessable level the state of the current knowledge and provides an up-to-date synthesis of the most basic concepts. As such, it will be an indispensable working tool not only for geophysicists and geophysics students but also for geologists, physicists, atmospheric and environmental scientists, and engineers.

The Editors

David Gubbins is Research Professor of Earth Sciences in the School of Earth & Environment, University of Leeds, UK. He did his PhD on geomagnetic dynamos in Cambridge, supervised by Sir Edward Bullard (q.v.) and has worked in the USA and in Cambridge before moving to Leeds in 1989. His work has included dynamo theory and its connection with the Earth's thermal history, modeling the Earth's magnetic field from historical measurements, and recently the interpretation of paleomagnetic data. He is a Fellow of the Royal Society and has been awarded the Gold Medal of the Royal Astronomical Society and the John Adam Fleming (q.v.) Medal of the American Geophysical Union for original research and leadership in geomagnetism.

Emilio Herrero-Bervera is Research Professor of Geophysics at the School of Ocean Earth Science and Technology (SOEST) within the Hawaii Institute of Geophysics and Planetology (HIGP) of the University of Hawaii at Manoa, where he is the head of the Paleomagnetism and Petrofabrics Laboratory. During his career he has published over 90 papers in professional journals including Nature, JGR, EPSL, and JVGR. He has worked in such diverse fields as volcanology, sedimentology, and plate tectonics and has done fieldwork on 5 continents.

Written for:

Faculty and students in geophysics, geology, physics, atmospheric science, environmental science, engineering, mathematics, and biology

Keywords:

Biomagnetism
Dynamo Theory
Electromagnetic Induction
Environmental magnetics
Geomagnetism
KLTcatalog
Paleomagnetism
Rock magnetism



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METALURGIA Y CIENCIAS DE LOS MATERIALES
MEXICANA 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

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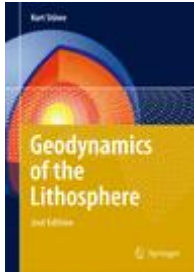
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COLEGIO DE INGENIEROS Y METALURGISTAS Y GEÓLOGOS DE MÉXICO A.C.



Geodynamics of the Lithosphere

An Introduction

Stüwe, Kurt

2nd ed., 2007, XIV, 493 p. 270 illus., 16 in

color., Hardcover

ISBN: 978-3-540-71236-7

About this textbook

About this textbook

This second edition of the important introductory text for earth scientists has been thoroughly revised and extended. It is thus completely updated to include the most recent research.

It is required reading for all those interested in learning about the quantitative description of geological problems.

The book contains chapters on heat flow, sedimentary basin modeling, the mechanics of continental deformation, PT path modeling, geomorphology, mass transfer and more.

It is aimed at the field oriented geologist who wants to begin by learning about the quantitative description of problems. Graduate students and scientists, meanwhile, will find the book a good starting point for a quantitative treatment of their data.

The new edition features yet more illustrations and maps as well as almost 100 corrections of scientific problems. You will also find an improved geomorphology section, as well as sensitive editing of several sections that have been judged too technically complex, for example the section on pressure.

There is also an updated reference section.

Written for:

Graduate students, lecturers, scientists

Keywords:

Lithosphere

Lithosphäre

Rheologie

Rheology

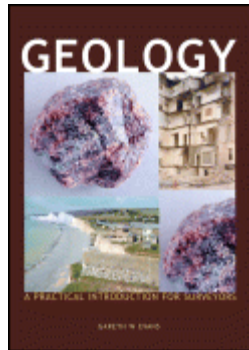
mechanical modelling

mechanische Modellierung

thermal modelling

thermische Modellierung

GEOLOGY



A Practical Introduction for Surveyors

By

Gareth Evans, Chartered Surveyor, Partner at J Green Associates.

Description

Every surveyor carrying out inspections must know something about subsidence, but why does subsidence occur? And there are other factors that threaten the stability of the property, such as tunnels, cliff retreat, flooding or landslip risk? Are engineering reports incomprehensible? With professional indemnity premiums at the current high levels, can the surveyor afford not to be fully informed? This book, written by Gareth Evans, practising surveyor who is also a geologist, provides a convenient and readable overview of the wide range of geological and other natural environmental risks that can affect property, starting with a concise introduction to the science. For those who already have the local geological map to hand, inaccuracy and interpretation problems are discussed. Further reading and resources are listed and there is a detailed glossary, with strong emphasis on mining terms. The text is supported by numerous photographs and useful diagrams

Audience

Chartered Surveyors, architects and all other construction professionals. Solicitors may also find this book useful in some property cases.

Contents

Introduction; The Earth and its History; Minerals; Rock Types; Structure; Earthquake Hazard; Fossils; Stratigraphy of the British Isles; Landslides and mass movements; Economic geology; Worked and mined ground; Natural voids and related problems; Flood risk and coastal recession; Reading the Map;

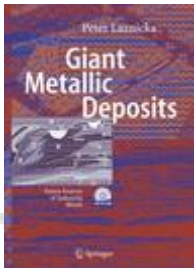
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INSTITUTO MEXICANO DE PROFESIONALES DE LA MINAS,
INSTITUTO MEXICANO DE PROFESIONALES DE LA MINAS,
MEXICO A.C.



Giant Metallic Deposits
Future Sources of Industrial Metals
Laznicka, Peter
2006, XIV, 732 p. 458 illus., Hardcover
ISBN: 978-3-540-33091-2

[About this book](#)

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[System requirements](#)

About this book

Metals in the earth's crust are very unevenly distributed and, traditionally, a small number of ore deposits, districts or countries have dominated the world supply and have influenced commodity prices. The importance of exceptionally large, or rich, deposits has greatly increased in the age of globalization when a small number of international corporations dominate the metals market, based on few very large ore deposits, practically anywhere in the world. Search for giant orebodies thus drives the exploration industry: not only the in-house teams of large internationals, but also hundreds of junior companies hoping to sell their significant discoveries to the "big boys".

Geological characteristics of giant metallic deposits and their setting and the politico-economic constraints of access to and exploitation in prospective areas have been a "hot topic" in the past fifteen years, but the knowledge generated and published has been one-sided, scattered and fragmented. This is the first comprehensive book on the subject that provides body of solid facts rather than rapidly changing theories, written by author of the Empirical Metallogeny book series and founder of the Data Metallogenica visual knowledge system on mineral deposits of the world, who has had an almost 40 years long international academic and industrial experience. The book will provide abundant material for comparative research in metallogeny, practical information for the explorationists as to where to look for the "elephants", and some inspiration for commodity investors.

Written for:

Institutes, libraries, scientists, researchers, exploration companies

Keywords:

Economic geology
global metals resources
metallogeny
mineral economics
ore deposits



Glossary of Geology

Neuendorf, Klaus K.E.; Mehl, James P. Jr;
Jackson, Julia A. (Eds.)
5th revised and enlarged ed., 2005, XIII, 779
p., Hardcover
ISBN: 978-3-540-27951-8

About this dictionary

[Distribution rights](#)

About this dictionary

The Glossary has expanded coverage particularly in such active fields as carbonate sedimentology, environmental geology and geophysics, GIS, GPS, hydrology and hydraulics, marine and coastal geology, organic geochemistry, paleoecology, seismology, stratigraphic nomenclature, speleology and karst, and structural geology and tectonics. Many definitions provide a syllabification guide and background information. Thus a reader will learn the difference between look-alike pairs, such as sylvanite (a mineral) and sylvinite (a rock); the origin of terms; the meaning of abbreviations and acronyms common in the geosciences vocabulary; the dates many terms were first used; the meaning of certain prefixes; and the preferred term of two or more synonyms. The authority of this edition, like that of its predecessors, rests on the expertise of geoscientists from many specialties, who have reviewed definitions, added new terms, and cited references. Their contributions make the Glossary an essential reference work for all in the geosciences community.

Written for:

Students and researchers

Keywords:

Hydrogeology

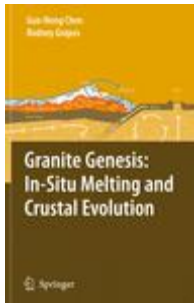
Remote Sensing

Sedimentology



CIMME

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



Granite Genesis: In-Situ Melting and Crustal Evolution

Chen, Guo-Neng, Grapes, Rodney
2007, XI, 278 p. 218 illus., 1 in color.,
Hardcover
ISBN: 978-1-4020-5890-5

About this book

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About this book

Granitic rocks are a major component of the continental crust and the many and complex problems of their origin that have challenged geologists over some 200 years still are presenting challenges today. Current ideas of granite formation involve lower crustal melting, segregation, ascent (as dykes or diapirs) and emplacement in the upper crust.

In this book we suggest an alternative model for the origin of granite in terms of in-situ melting intracrustal convection that physically determines the process from partial melting of mid-upper crustal rocks to formation of a convecting magma layer. We illustrate the model using the geological, geochemical and geophysical studies from Australia, North and South America, Europe and China, and conclude that heat convection within a crustal partial melting layer is essential for formation of granite magma and that without convection, partial melting of rocks produces migmatites rather than granites. Granite is layer-like within the crust, and shape and size of granite bodies reflect the geometric relationship between an irregular upper surface of the crystallised magma layer and erosion surface. Repeated melting of the crust generates downward-younging granite sequences. Chemical and isotopic compositions of granites indicate differentiation within the magma rather than different deep sources. Of a number of proposed heat sources that can cause mid-upper crustal anatexis, large-scale crustal melting and formation of a granite magma layer is considered to be primarily related to plate convergence. A dynamic model with examples from the western Pacific continental margin in SE China and Tethys-Tibet is proposed to explain the relationship between plate convergence, granite and compressive deformation of the continental crust. Mineralisation related to granite formation, fault-block basins, formation of continental red beds and volcanism with examples from SE China, are also discussed in terms of the new model. In a final section, we suggest a new rock cycling model of the continental crust and the concept of Geochemical Fields of Elements, illustrating the unity between the microcosm and macrocosm of the natural world.

Audience: This book will be of interest to scientists, researchers and students in geology, geophysics, geochemistry and economic geology

Written for:

Scientists and researchers in earth sciences

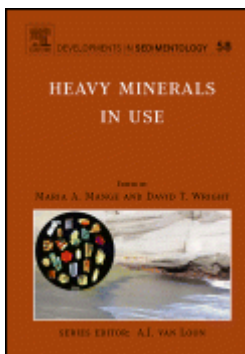
Keywords:

Granite origin

SE China

in-situ melting

HEAVY MINERALS IN USE, 58



Edited By

Maria Mange, University of California, Davis, USA

David Wright, University of Leicester, UK

Included in series

[Developments in Sedimentology](#)

Description

The book is structured thematically, encompassing principles, processes and products, practice and applications. Discussion of processes that control heavy mineral assemblages throughout the rock cycle are presented by leading experts, whose key-note works are followed by specialist case studies. Each work also provides details on the geology of the study area, techniques and data treatment. The high number of contributions represent the collective experience and wisdom of generations of geologists, and provide an invaluable source of references to works carried out in many parts of the world.

Audience

Researchers and practitioners in geology, sedimentology, geochemistry, petrology, and coastal engineering as well as major oil companies, drilling programs, and the libraries that serve them.

Contents

Foreword Part I: Heavy Minerals in the Study of Siliciclastic Sediments: Principles, Processes, and Products. Part II: Academic Research: Provenance, Transport, Deposition, Exhumation. Part III: Integrated and Interdisciplinary Heavy Mineral Applications. Part IV: Industrial Applications Concluding remarks

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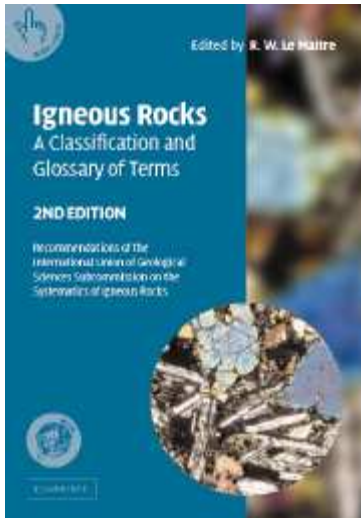
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Imprint: ELSEVIER



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



Igneous Rocks: A Classification and Glossary of Terms

Recommendations of the International Union of Geological Sciences Subcommission on the Systematics of Igneous Rocks

2nd Edition

Edited by R. W. Le Maitre

University of Tasmania

A. Streckeisen

B. Zanettin

M. J. Le Bas

B. Bonin

P. Bateman

Paperback

Published January 2005

Decades of field and microscope studies, and more recent quantitative geochemical analyses have resulted in a vast, and sometimes overwhelming, array of nomenclature and terminology associated with igneous rocks. This book presents a complete classification of igneous rocks based on all the recommendations of the International Union of Geological Sciences (IUGS) Subcommission on the Systematics of Igneous Rocks. The glossary of igneous terms has been fully updated since the first edition and includes 1637 entries, of which 316 are recommended by the Subcommission.

Incorporating a comprehensive bibliography of source references for all the terms in the glossary, this book is an indispensable reference guide for all geologists studying igneous rocks, either in the field or the laboratory. It presents a standardised and accepted naming scheme that will allow geologists to interpret terminology in the literature and provide formal names for rock samples based on petrographic analysis. It is also supported by a website with downloadable code for chemical classifications. Contents

Figures; Tables; Albert Streckeisen; Foreword to 1st edition; Chairman's Preface; Preface; 1. Introduction; 2. Classification and nomenclature; 3. Glossary of terms; Bibliography of terms; Appendices.



COLECCIÓN DE MINERÍA Y METALURGIA
METALURGIA Y GEOLOGÍA



Mantle Plumes

A Multidisciplinary Approach

Ritter, Joachim R. R.; Christensen, Ulrich R.
(Eds.)

2007, VIII, 502 p. 157 illus., 31 in color.,
Hardcover

ISBN: 978-3-540-68045-1



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About this book

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About this book

The concept of mantle plumes, hot buoyant rock masses that rise in the mantle, is a key to understand intraplate volcanism in the framework of modern plate tectonics. Recent progress in instrumental, analytical and satellite technology enables scientists to verify the plume hypothesis with seismic tomography, isotope geochemistry and other sophisticated techniques. A group of experts review these advances in plume research, and present a general overview on recent plume studies.

Written for:

Academic libraries, scientists, researchers, lecturers, professionals, graduates

Keywords:

Geochemistry

Geodynamics

Plate tectonics

Volcanism

COLEGIO DE INGENIEROS DE MINAS,
METALURGIA Y FUNDICIÓN DE
MÉXICO A.C.



MATLAB® Recipes for Earth Sciences

Trauth, Martin H.

2nd ed., 2007, XII, 288 p. 95 illus., 15 in color., Hardcover

ISBN: 978-3-540-72748-4

About this book

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[Sample pages](#)

[System requirements](#)

About this book

MATLAB® is used in a wide range of applications in geosciences, such as image processing in remote sensing, generation and processing of digital elevation models and the analysis of time series. This book introduces methods of data analysis in geosciences using MATLAB such as basic statistics for univariate, bivariate and multivariate datasets, jackknife and bootstrap resampling schemes, processing of digital elevation models, gridding and contouring, geostatistics and kriging, processing and georeferencing of satellite images, digitizing from the screen, linear and nonlinear time-series analysis and the application of linear time-invariant and adaptive filters. The revised and updated Second Edition includes new subchapters on windowed Blackman-Tukey, Lomb-Scargle and Wavelet powerspectral analysis, statistical analysis of point distributions and digital elevation models, and a full new chapter on the statistical analysis of directional data. The text includes a brief description of each method and numerous examples demonstrating how MATLAB can be used on data sets from earth sciences. All MATLAB recipes can be easily modified in order to analyse the reader's own data sets. The book comes with a CD containing exemplary data sets and a digital version of the MATLAB recipes.

Written for:

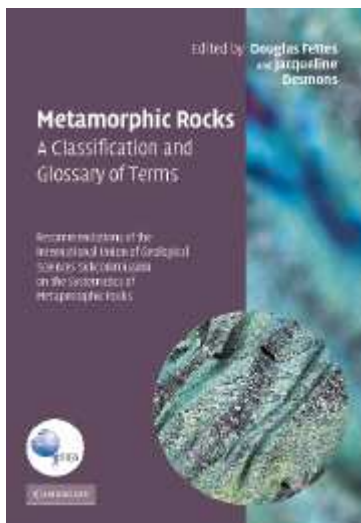
Graduates, undergraduates, scientists, researchers, professionals

Keywords:

Data analysis

Geosciences

MATLAB



Metamorphic Rocks: A Classification and Glossary of Terms

Recommendations of the International Union of Geological Sciences Subcommittee on the Systematics of Metamorphic Rocks

Edited by Douglas Fettes
British Geological Survey

Jacqueline Desmons

Centre National de la Recherche Scientifique, Nancy

Many common terms in metamorphic petrology vary in their usage and meaning between countries. The International Union of Geological Sciences (IUGS) Subcommittee on the Systematics of Metamorphic Rocks (SCMR) has aimed to resolve this, and to present systematic terminology and rock definitions that can be used worldwide. This book is the result of discussion and consultation lasting 20 years and involving hundreds of geoscientists worldwide. It presents a complete nomenclature of metamorphic rocks, with a comprehensive glossary of definitions, sources and etymology of over 1200 terms, and a list of mineral abbreviations. Twelve multi-authored sections explain how to derive the correct names for metamorphic rocks and processes, and discuss the rationale behind the more important terms. These sections deal with rocks from high- to low- and very-low-grade. This book will form a key reference and international standard for all geoscientists studying metamorphic rocks.

Contents

Preface; 1. Introduction D. Fettes and J. Desmons; 2. Classification and nomenclature scheme R. Schmid, D. Fettes, B. Harte, E. Davis, J. Desmons, W. Smulikowski, F. Sassi, K. Brodie, P. Arkai, W. Wimmenauer, I. Bryhni, O. Rosen, J. Coutinho, H. Kräutner, S. Sen, V. Zharikov, N. Pertsev, V. Rusinov, E. Callegari, D. Stöfler, R. Grieve and J. Siivola; 3. Glossary; 4. References; Appendices. Contributors

D. Fettes, J. Desmons, R. Schmid, B. Harte, E. Davis, W. Smulikowski, F. Sassi, K. Brodie, P. Arkai, W. Wimmenauer, I. Bryhni, O. Rosen, J. Coutinho, H. Kräutner, S. Sen, V. Zharikov, N. Pertsev, V. Rusinov, E. Callegari, D. Stöfler, R. Grieve, J. Siivola



COLECCIÓN DE INGENIEROS DE MINAS,
METALURGIA Y GEOLOGOS DE
MEXICO A.C.



Mineral Deposit Research: Meeting the Global Challenge

Proceedings of the Eighth Biennial SGA Meeting, Beijing, China, 18 - 21 August 2005

Mao, Jingwen; Bierlein, Frank P. (Eds.)

2005, XX, 1580 p. 800 illus., Hardcover

ISBN: 978-3-540-27945-7

About this book

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[System requirements](#)

About this book

The proceedings volume (incl. CD-ROM) is a compilation of approximately 400 extended abstracts (up to 4 pages long) of presentations given at the 8th Biennial SGA Meeting. The papers are grouped according to the thematic sessions within which they were presented, including Tectonics, lithospheric, and deep mantle controls on global metallogenic provinces and giant ore deposits; Base and precious metal mineralization in sediments during basin evolution; Metallogeny and exploration of uranium deposits; Magmas and base-metal ore deposits; Epigenetic gold systems; Submarine ore systems and ancient analogues; Understanding ore systems through precise geochronology, isotope tracing and microgeochemistry; Geology and economics of non-metallic resources; Conceptual targeting of mineral deposits. Due to the meeting being held in Beijing, the conference and proceedings volume also feature thematic sessions that focus on specific regions throughout Asia, such as Mesozoic to recent geodynamics and metallogeny of eastern Asia; Metallogeny of the Tethys-Himalayan Orogen; Geodynamics and metallogeny of the Altaid Orogen; and Exploration, Discovery, and Mine Developments in China. As such, the volume represents a comprehensive summary of cutting-edge developments across a wide range of subject matters that are of extreme relevance to the global research, mining and exploration community.

Written for:

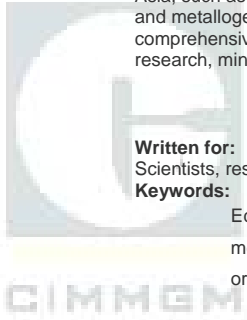
Scientists, researchers, libraries, professionals, lecturers

Keywords:

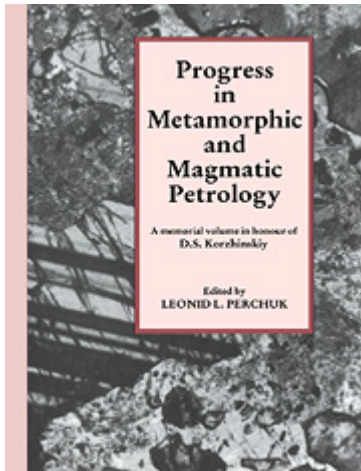
Economic geology

metallogenic processes

ore deposits research and exploration



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



Page extent: 519 pages
Size: 247 x 190 mm
Weight: 0.934 kg



Progress in Metamorphic and Magmatic Petrology
A Memorial Volume in Honour of D. S. Korzhinskiy

Edited by L. L. Perchuk
Institute of Experimental Mineralogy, Moscow

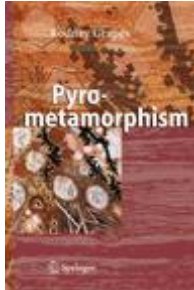
Progress in Metamorphic and Magmatic Petrology comprises a collection of review articles summarising recent scientific achievements in the theory of petrology. The contributors include many prominent specialists in the field, such as A. Boettcher, A. Marakushev, I. Kushiro, B. Mysen, W. Schreyer, W. Ernst, E. Grew, P. Wyllie and E-an Zen. Their papers discuss developments in experimental work as well as in field geology. The book is divided into three main sections: section 1 covers general thermodynamics and mineral equilibria, section 2 covers metamorphic and metasomatic processes, and the final section covers the mantle and magmatic processes. The subjects covered include the general thermodynamics of geological processes, the thermodynamics of solid solutions, geothermometry and geobarometry, P-T-time paths, experimental and theoretical modelling of metasomatic processes, the genesis of anorthosites, island arc magmatic rocks and kimberlites, and the thermal areas around intrusive bodies. The book is dedicated to the memory of Professor D. S. Korzhinskiy, a founder of the theory of open systems with perfectly mobile components.

Contents

Part I. Mineral Thermodynamics and Equilibria for Geothermobarometry: an introduction L. L. Perchuk; 1. Thermodynamic systems and factors of petrogenesis A. A. Marakushev; 2. A new hydrous, high-pressure phase with a pumpellyite structure in the system MgO W. Schreyer, W. V. Maresch and T. Baller; 3. Two-pyroxene thermometry, a critical evaluation V. I. Fonarev and A. A. Graphchikov; 4. Derivation of a thermodynamically consistent set of geothermometers for metamorphic and magmatic rocks L. L. Perchuk; 5. Vector representation of lithium and other mica composites D. M. Burt; 6. Thermodynamics of some framework silicates and their equilibria: application to geothermobarometry L. L. Perchuk, K. K. Podlesskii and L. Ya. Aranovich; Part II. Macrokinetic Model of Origin and Development of a Monomineralic Bimetasomatic Zone V. N. Balashov and M. I. Lebedeva; 7. Experimental modelling of wall rock metasomatism V. A. Zhrikov and G. P. Zارايسكii; 8. The paragenesis of serendibite at Johnsburg, New York, USA: an example of boron enrichment in the granulite facies E. S. Grew, M. G. Yates, G. H. Swihard, P. B. Moore and N. Marquez.

Contributors

L. L. Perchuk, A. A. Marakushev, W. Schreyer, W. V. Maresch, T. Baller, V. I. Fonarev, A. A. Graphchikov, D. M. Burt, K. K. Podlesskii, L. Ya. Aranovich, V. N. Balashov, M. I. Lebedeva, V. A. Zhrikov, G. P. Zارايسكii, E. S. Grew, M. G. Yates, G. H. Swihard, P. B. Moore, N. Marquez



Pyrometamorphism

Grapes, Rodney

2006, X, 276 p. 192 illus., Hardcover

ISBN: 978-3-540-29453-5

About this book

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About this book

Pyrometamorphism occurs at very high temperatures (800 - > 1000 °C) and low pressures (< 2 kb) and typically results in the formation of "burnt" and fused rocks termed buchites, paralavas, clinkers and fulgarites. It is typically associated with shallow basaltic intrusions (contact aureoles, xenoliths,) combustion of carbonaceous matter, lightning strikes, and is also found in meteorites. During pyrometamorphism, the sequence of heating and cooling is greatly condensed favouring the preservation of a variety of stranded reaction microstructures that reflect disequilibrium reaction kinetics with metastable and mineral crystallisation.

Written for:

Of interest to all geologists, in particular petrologists and mineralogists; advanced level researchers and scientists in these fields

Keywords:

Disequilibrium mineral reactions

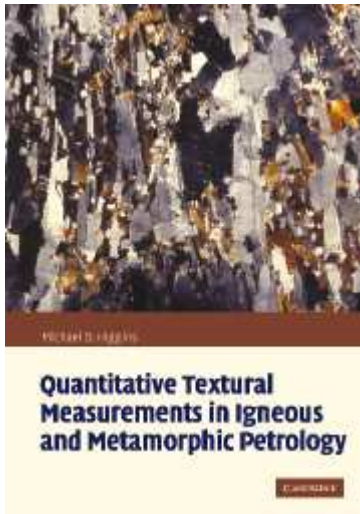
Melting

Pyrometamorphism



CIMMGM

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



Page extent: 276 pages
Size: 247 x 174 mm
Weight: 0.715 kg

Quantitative Textural Measurements in Igneous and Metamorphic Petrology

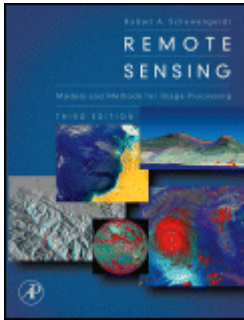
Michael Denis Higgins

Processes involved in the development of igneous and metamorphic rocks involve some combination of crystal growth, solution, movement and deformation, which is expressed as changes in texture (microstructure). Recent advances in the quantification of aspects of crystalline rock textures, such as crystal size, shape, orientation and position, have opened new avenues of research that extend and complement the more dominant chemical and isotopic studies. This book discusses the aspects of petrological theory necessary to understand the development of crystalline rock texture. It develops the methodological basis of quantitative textural measurements and shows how much can be achieved with limited resources. Typical applications to petrological problems are discussed for each type of measurement. The book has an associated web page with up-to-date information on textural analysis software, both commercial and free. This book will be of great interest to all researchers and graduate students in petrology.

Contents

Acknowledgements; 1. Introduction; 1.1. Petrological methods; 1.2. Qualitative versus quantitative data; 1.3. What do I mean by texture?; 1.4. Information density and data sources; 1.5. Structure of this book; 1.6. Software applications for quantitative textural studies; 2. General analytical methods; 2.1. Introduction; 2.2. Complete three dimensional analytical methods; 2.3. Extraction of grain parameters from data volumes; 2.4. Destructive partial analytical methods; 2.5. Surface and section analytical methods; 2.6. Extraction of textural parameters from images; 2.7. Calculation of three dimensional data from two dimensional observations; 2.8. Verification of theoretical parameter distributions; 2.9. Summary; 3. Grain and crystal sizes; 3.1. Introduction; 3.2. Review of theory; 3.3. Analytical methods; 3.4. Typical applications; 4. Grain shape; 4.1. Introduction; 4.2. Brief review of theory; 4.3. Methodology; 4.4. Typical applications; 5. Grain orientations - rock fabric; 5.1. Introduction; 5.2. Brief review of theory; 5.3. Introduction to fabric methodology; 5.4. Determination of shape preferred orientations; 5.5. Determination of lattice preferred orientations; 5.6. 3D bulk fabric methods - combined SPO and LPO; 5.7. Extraction of grain orientation data and parameters; 5.8. Typical applications; 6. Grain spatial distributions and relations; 6.1. Introduction; 6.2. Brief review of theory; 6.3. Methodology; 6.4. Typical applications; 7. Textures of fluid-filled pores; 7.1. Introduction; 7.2. Brief review of theory; 7.3. Methodology; 7.4. Parameter values and display; 7.5. Typical applications; 8. Appendix - Computer programs for use in quantitative textural analysis - freeware, shareware and commercial; 8.1. Abbreviations; 8.2. General analytical methods; 8.3. Grain and crystal sizes; 8.4. Grain shape; 8.5. Grain orientations - rock fabric; 8.6. Grain spatial distributions and relations; Figure captions; References.

REMOTE SENSING



Models and Methods for Image Processing

Third Edition

By

Robert Schowengerdt, University of Arizona, Dept. of Electrical and Computer Engineering

Description

Remote sensing is a technology that engages electromagnetic sensors to measure and monitor changes in the earth's surface and atmosphere. Normally this is accomplished through the use of a satellite or aircraft. This book, in its 3rd edition, seamlessly connects the art and science of earth remote sensing with the latest interpretative tools and techniques of computer-aided image processing. Newly expanded and updated, this edition delivers more of the applied scientific theory and practical results that helped the previous editions earn wide acclaim and become classroom and industry standards. Dr. Schowengerdt presents an advanced unified framework and rationale that uniquely empowers the reader with the latest critical thinking skills and prerequisite knowledge needed to successfully design, develop and incorporate maintainable remote sensing solutions for real-world application. Advanced remote sensing image processing techniques such as hyperspectral image analysis, fusion of multisensor images and digital elevation model extraction from stereo imagery are discussed theoretically in terms of spectral, spatial, and geometric models. An expanded exercise section is also included at the end of each chapter allowing for the greatest level of mastery ever.

Audience

Working engineers in forestry, geology, geography, geophysics, cartography, climatology; researchers at government agencies and in academia

Contents

Contents CHAPTER 1 The Nature of Remote Sensing CHAPTER 2 Optical Radiation Models CHAPTER 3 Sensor Models CHAPTER 4 Data Models CHAPTER 5 Spectral Transforms CHAPTER 6 Spatial Transforms CHAPTER 7 Correction and Calibration CHAPTER 8 Image Registration and Fusion CHAPTER 9 Thematic Classification Appendix A Sensor Acronyms Appendix B Function Definitions References 483 Index 517

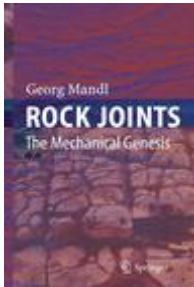
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ISBN-10: 0-12-369407-8

Imprint: ACADEMIC PRESS



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

About this book

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About this book

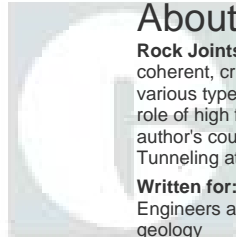
Rock Joints deals exclusively with the mechanical genesis of joints in rocks. It is aimed at a coherent, critical and comprehensible presentation of the underlying mechanical processes of various types of joints and joint systems. Special care is taken to elucidate and quantify the role of high fluid 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

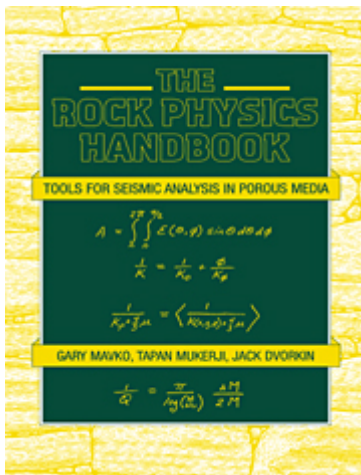
Keywords:

Hydraulic Intrusion
Tectonophysics
Tension Fractures



CIMMEN

COLEGIO DE INGENIEROS DE MINAS,
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MÉXICO A.C.



The Rock Physics Handbook

Tools for Seismic Analysis of Porous Media

Gary Mavko

Stanford University, California

Tapan Mukerji

Stanford University, California

Jack Dvorkin

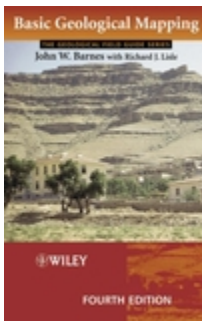
Stanford University, California

(ISBN-13: 9780521543446 | ISBN-10: 0521543444)

The Rock Physics Handbook conveniently brings together the theoretical and empirical relations that form the foundations of rock physics, with particular emphasis on seismic properties. It also includes commonly used models and relations for electrical and dielectric rock properties. Seventy-six articles concisely summarize a wide range of topics, including wave propagation, AVO-AVOZ, effective media, poroelasticity, pore fluid flow and diffusion. The book contains overviews of dispersion mechanisms, fluid substitution, and V_p - V_s relations. Useful empirical results on reservoir rocks and sediments, granular media, tables of mineral data, and an atlas of reservoir rock properties complete the text. This distillation of an otherwise scattered and eclectic mass of knowledge is presented in a form that can be immediately applied to solve real problems. Geophysics professionals, researchers and students as well as petroleum engineers, well log analysts, and environmental geoscientists will value The Rock Physics Handbook as a unique resource.

Contents

Preface; 1. Basic tools; 2. Elasticity and Hooke's law; 3. Seismic wave propagation; 4. Effective media; 5. Granular media; 6. Fluid effects on wave propagation; 7. Empirical relations; 8. Flow and diffusion; 9. Electrical properties; Appendices



Basic Geological Mapping, 4th Edition

John W. Barnes, Richard J. Lisle

ISBN: 978-0-470-84986-6

Paperback

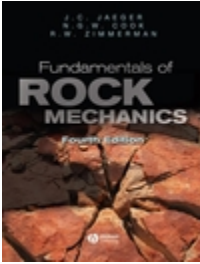
196 pages

January 2004

Designed to be carried in the field, this pocket-sized how-to book is a practical guide to basic techniques in mapping geological structures. In addition to including the latest computerised developments, the author provides succinct information on drawing cross-sections and preparing and presenting 'fair copy' maps and geological diagrams. Contains a brief chapter on the essentials of report writing and discusses how to keep adequate field notebooks. A checklist of equipment needed in the field can be found in the appendices.

Quote from 3rd edition

"provides a wealth of good advice on how to measure, record and write reports of geological field observations" *The Naturalist*



Fundamentals of Rock Mechanics, 4th Edition

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

ISBN: 978-0-632-05759-7

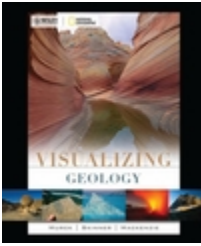
Hardcover

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.



Visualizing Geology

Barbara W. Murck, Brian J. Skinner, Dana Mackenzie

ISBN: 978-0-471-74727-7

Paperback

560 pages

February 2007

Offering a visually engaging approach, this book helps readers become "geologically literate" with a sound understanding of basic geologic processes and the environmental ramifications of Earth's systems. It introduces plate tectonics early and incorporates numerous illustrations and photos to make the difficult concepts easier to comprehend. Readers will also benefit from the structured and effective format and accessible writing style.