
Exploration And Mining Geology

Mineral Resources

Prospecting and Exploration of Mineral Deposits

The World of Mineral Deposits

Mineral Exploration

Applied Geochemistry

Mapping and Structural Geology in Mineral
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Applied Mining Geology

Essentials of Mineral Exploration and Evaluation

Innovative Exploration Methods for Minerals, Oil,
Gas, and Groundwater for Sustainable
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Geological Methods in Mineral Exploration and
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NORMAN FAULKNER

Mineral Resources
Springer
Applied Geochemistry:
Advances in Mineral
Exploration Techniques
is a book targeting all
levels of exploration
geologists, geology
students and
geoscientists working
in the mining industry.
This reference book
covers mineral
exploration techniques
from multiple
dimensions, including
the application of
statistics - both
principal component
analysis and factor
analysis - to
multifractal modeling.
The book explains
these approaches step-
by-step and gives their
limitations. In addition

to techniques and
applications in mineral
exploration, Applied
Geochemistry
describes mineral
deposits and the
theories underpinning
their formation through
worldwide case
studies.

Prospecting and
Exploration of Mineral
Deposits John Wiley &
Sons

This book furnishes a
detailed description of
the mineral deposits of
metallic, non-metallic,
solid energy,
gemstones and
industrial minerals in
Nigeria, West Africa
with emphasis on their
location, geological
setting, mode of
occurrence, physical
and chemical
characteristics, ore
reserve estimates and
metallogeny. It also
provides a geoscientific
analysis of the solid

mineral sector, mineral production statistics, mining, and potential targets for mineral exploration. There are twenty chapters in the book, divided into five parts: Part 1 (geological setting), Part 2 (metallic minerals), Part 3 (energy minerals), Part 4 (industrial minerals & gemstones), and Part 5 (metallogeology, mining & exploration). This book is an invaluable source of information, not only for geology and mining students, but also for practicing geoscientists, exploration and mining professionals and administrators in government and private companies who are interested or involved in economic geology, mineral exploration, and mineral resource

development in Nigeria.

The World of Mineral Deposits Elsevier

This special volume offers a snapshot of the latest developments in mineral exploration, in particular, geophysical, geochemical, and computational methods. It reflects the cutting-edge applications of geophysics and geochemistry, as well as novel technologies, such as in artificial intelligence and hyperspectral exploration, methods that have profoundly changed how exploration is conducted. This special volume is a representation of these cutting-edge and pioneering methods to consider and conduct exploration, and should

serve both as a valuable compendium of the most innovative exploration methodologies available and as a foreshadowing of the form of future exploration. As such, this volume is of significant importance and would be useful to any exploration geologist and company

Mineral Exploration

Springer
Mineral Exploration: Principles and Applications, Second Edition, presents an interdisciplinary approach on the full scope of mineral exploration. Everything from grass root discovery, objective base sequential exploration, mining, beneficiation, extraction, economic evaluation, policies and acts, rules and

regulations, sustainability, and environmental impacts is covered. Each topic is presented using theoretical approaches that are followed by specific applications that can be used in the field. This new edition features updated references, changes to rules and regulations, and new sections on oil and gas exploration and classification, air-core drilling, and smelting and refining techniques. This book is a key resource for both academics and professionals, offering both practical and applied knowledge in mineral exploration. Offers important updates to the previous edition, including sections on the cyclical nature of mineral industry, exploration for oil and

gas, CHIM-electro-geochemical survey, air-core drilling, classification of oil and gas resources, smelting, and refining technologies Presents global case studies that allow readers to quickly apply exploration concepts to real-world scenarios Includes 385 illustrations and photographs to aid the reader in understanding key procedures and applications

Applied Geochemistry
Springer Science & Business Media

This book provides a detailed overview of the operational principles of modern mining geology, which are presented as a good mix of theory and practice, allowing use by a broad range of specialists, from

students to lecturers and experienced geologists. The book includes comprehensive descriptions of mining geology techniques, including conventional methods and new approaches. The attributes presented in the book can be used as a reference and as a guide by mining industry specialists developing mining projects and for optimizing mining geology procedures. Applications of the methods are explained using case studies and are facilitated by the computer scripts added to the book as Electronic Supplementary Material.

Mapping and Structural Geology in Mineral Exploration Prescott

books
Presents effective methods for using Lotus 1-2-3 techniques to solve problems in exploration and mining geology. 1-2-3 programmes are provided in conjunction with named worksheets or templates, together with brief explanatory text. Problem solving is based on a well-established and maintained software package. A floppy diskette is supplied enabling users, following brief instructions, to solve problems immediately. Applied Mining Geology Elsevier
Why another book about Ore Deposits? There are a number of factors which motivated us to write this text and which may provide an answer

to this question. Firstly our colleagues are predominantly mining engineers and minerals processing technologists, which provides us with a different perspective of ore deposits from many academic geologists. Secondly we have found that most existing texts are either highly theoretical or merely descriptive: we have attempted to examine the practical implications of the geological setting and genetic models of particular ore deposit types. We have written the text primarily for undergraduates who are taking options in Economic Geology towards the end of a Degree Course in Geology. However, we hope that the text will also prove valuable to

geologists working in the mining industry. The text is to a large extent based on a review of the existing literature up to the end of 1984. However, we have visited most of the mining districts cited in the text and have also corresponded extensively with geologists to extend our knowledge beyond the published literature. Nonetheless writing a text-book on Ore Deposits is a demanding task and it is inevitable that sins of both omission and commission have been committed. We would therefore welcome comments from readers which can be incorporated in future editions. RICHARD EDWARDS KEITH ATKINSON
Cmnhome School (~n\illcs April

1985 Glossary Adit A horizontal, or near horizontal, passage from the surface into a mine.

Essentials of Mineral Exploration and Evaluation Elsevier
Handbook of Exploration Geochemistry, Volume 3: Rock Geochemistry in Mineral Exploration focuses on the application of rock geochemistry in mineral exploration, including deposits of plutonic association, volcanic and sedimentary association, and sequence of geochemical exploration. The publication first elaborates on geochemistry in the exploration sequence, crustal abundance, geochemical behavior of elements, and

problems of sampling and recognition of geochemical anomalies. Discussions focus on population partition, spatial distribution of data, abundance of elements, classification and geochemical behavior of elements, principles underlying geochemical exploration, sequence of geochemical exploration, and main types of geochemical surveys. The text then takes a look at regional scale exploration for deposits of plutonic association; regional scale exploration for vein and replacement deposits; and regional scale exploration for stratiform deposits of volcanic and sedimentary association. The book ponders on the synthesis of

geochemical responses and operational conclusions, local and mine scale exploration for stratiform deposits of volcanic and sedimentary association in Cyprus, Turkey, and Oceania, New Brunswick deposits, and Precambrian, Proterozoic, and Kuroko deposits. The text is a valuable reference for researchers interested in the application of rock geochemistry in mineral exploration. [Innovative Exploration Methods for Minerals, Oil, Gas, and Groundwater for Sustainable Development](#) Springer Nature
This comprehensive textbook covers all major topics related to the utilization of mineral resources for

human activities. It begins with general concepts like definitions of mineral resources, mineral resources and humans, recycling mineral resources, distribution of minerals resources across Earth, and international standards in mining, among others. Then it turns to a classification of mineral resources, covering the main types from a geological standpoint. The exploration of mineral resources is also treated, including geophysical methods of exploration, borehole geophysical logging, geochemical methods, drilling methods, and mineral deposit models in exploration. Further, the book addresses the evaluation of mineral resources, from

sampling techniques to the economic evaluation of mining projects (i.e. types and density of sampling, mean grade definition and calculation, Sichel's estimator, evaluation methods – classical and geostatistical, economic evaluation – NPV, IRR, and PP, estimation of risk, and software for evaluating mineral resources). It subsequently describes key mineral resource exploitation methods (open pit and underground mining) and the mineral processing required to obtain saleable products (crushing, grinding, sizing, ore separation, and concentrate dewatering, also with some text devoted to tailings dams). Lastly, the book discusses the

environmental impact of mining, covering all the aspects of this very important topic, from the description of diverse impacts to the environmental impact assessment (EIA), which is essential in modern mining projects.

Mineral Exploration

John Wiley & Sons

This book is intended primarily for exploration geologists and post graduate students attending specialist courses in mineral exploration. Exploration geologists are engaged not only in the search for new mineral deposits, but also in the extension and re-assessment of existing ones. To succeed in these tasks, the exploration geologist is required to be a "generalist" of the Earth sciences rather

than a specialist. The exploration geologist needs to be familiar with most aspects of the geology of ore deposits, and detailed knowledge as well as experience play an all important role in the successful exploration for mineral commodities. In order to achieve this, it is essential that the exploration geologist be up to date with the latest developments in the evolution of concepts and ideas in the Earth sciences. This is no easy task, as thousands of publications appear every year in an ever increasing number of journals, periodicals and books. For this reason it is also difficult, at times, to locate appropriate references on a particular mineral

deposit type, although this problem is alleviated by the existence of large bibliographic data bases of geological records, abstracts and papers on computers. During my teaching to explorationists and, indeed, during my years of work as an explorationist, the necessity of having a text dealing with the fundamental aspects of hydrothermal mineral deposits has always been compelling. Metallic mineral deposits can be categorised into three great families, namely: (1) magmatic; (2) sedimentary and residual; (3) hydrothermal.

Geological Methods in Mineral Exploration and Mining Springer Science & Business Media

This practical step-by-step guide describes the key geological field techniques needed by today's exploration geologists involved in the search for metallic deposits. The techniques described are fundamental to the collection, storage and presentation of geological data and their use to locate ore. This book explains the various tasks which the exploration geologist is asked to perform in the sequence in which they might be employed in an actual exploration project. Hints and tips are given. The steps are illustrated with numerous examples drawn from real projects on which the author has worked. The book emphasizes traditional skills and shows how they can be combined effectively

with modern technological approaches.

Geological Methods in Mineral Exploration and Mining Cambridge

University Press
Designed for geologists and engineers engaged specifically in the search for gold deposits of all types and as a reference for academics in higher schools of learning, Handbook of gold exploration and evaluation provides principles and detailed explanations that underpin the correct interpretation of day-to-day experience in the field. Problems are addressed with regard to the analysis, interpretation and understanding of the general framework within which both primary and secondary

gold resources are explored, developed and exploited. Handbook of gold exploration and evaluation covers a comprehensive range of topics including the nature and history of gold, geology of gold ore deposits, gold deposition in the weathering environment, sedimentation and detrital gold, gold exploration, lateritic and placer gold sampling, mine planning and practise for shallow deposits, metallurgical processes and design, and evaluation, risk and feasibility. - Covers the nature and history of gold - Addresses problems with regard to the framework in which gold resources are explored, developed and

exploited - Discusses topics including the geology of gold ore deposits, metallurgical processes and design, evaluation, risk and feasibility

Geological Methods in Mineral Exploration and Mining Elsevier

This book discusses potential mineral belts in various geotectonic regions around the globe, with a particular focus on concealed deposits, in order to highlight new areas for geochemical exploration and modelling. In recent years, the application of statistical methods using qualitative and, wherever possible, quantitative earth science data has become increasingly common for the evaluation of both offshore and terrestrial mineral resources. The

book examines these approaches and provides examples from India, which are also applicable to deposits around the world, particularly those in South and South East Asia. The main objective of geochemical exploration and modelling is to present the geometry of the deposit in three dimensions. As such, the book describes the various conventional and non-conventional techniques of exploration geochemistry, especially in the context of concealed terrestrial and offshore mineral deposits. It serves as a guide for field geologists, geochemists, students, research scholars and scientists interested in earth science for the

exploration of concealed mineral deposits and evaluation of their resources.

Applications and Experiences of Quality Control

Elsevier

For some years I have felt there was a need for a single, comprehensive, reference book on exploration geology. Numerous textbooks are available on subjects such as geophysical prospecting, exploration geochemistry, mining geology, photogeology and general economic geology, but, for the geologist working in mineral exploration, who does not require a specialist's knowledge, a general book on exploration techniques is needed. Many

undergraduate university courses tend to neglect economic geology and few deal with the more practical aspects in any detail. Graduate geologists embarking on a career in economic geology or mineral exploration are therefore often poorly equipped and have to learn a considerable amount 'on the job'. By providing a book that includes material which can be found in some of the standard texts together with a number of practical aspects not to be found elsewhere, I hope that both recent graduates and more experienced exploration geologists will find it a useful reference work and manual. In addition, students of economic geology and personnel working in related

fields in the mining and mineral extraction industries will find it informative. J. H.

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Advanced Algorithms for Mineral and Hydrocarbon

Exploration Using Synthetic Aperture

Radar Springer

This book is written as a practical field manual

to effective. Each geologist has to develop his/her be used by geologists engaged in mineral exploration techniques and will ultimately be judged on results. It is also hoped that it will serve as a text, not the process by which these results and reference for students in Applied Geology were reached. In mineral exploration, the only courses of universities and colleges. The book 'right' way of doing anything is the way that aims to outline some of the practical skills that locates ore in the quickest and most cost-effective turn the graduate geologist into an exploration manner. It is preferable, however, for an individualist. It is intended as a

practical 'how to' manual to develop his/her own method of operation book, rather than as a text on geological or ore after having tried, and become aware of, those deposit theory. procedures which experience has shown to work An explorationist is a professional who search well and which are generally accepted in industry as good exploration practice. especially for ore bodies in a scientific and structured way. Although an awkward and artificial term, The chapters of the book approximately follow this is the only available word to describe the low the steps which a typical exploration project totality of the skills which are needed to locate a programme would go through. In Chapter

1, the author defines economic mineralization. Introduction to Mineral Exploration Wiley-Blackwell Innovative Exploration Methods for Mineral, Oil, Gas, and Groundwater for Sustainable Development provides an integrated approach to exploration encompassing geology, geophysics, mining, and mineral processing. In addition, groundwater exploration is included, as it is central to the development of earth resources. As the demand for coal, minerals, oil and gas, and water continues to grow globally, researchers must prioritize sustainable exploration methods. Old technologies are being replaced

speedily and exploration work has become fast, focused, meaningful, and readily reproducible keeping in pace with the changing global scenario. The themes of exploration of energy resources, exploration of minerals, groundwater exploration and processing and mineral engineering are separated out into sections and chapters included in these sections include case studies focusing on tools and techniques for exploration. Innovative Exploration Methods for Mineral, Oil, Gas, and Groundwater for Sustainable Development gives insight to modern concepts of exploration for those working in the various fields of

energy, mineral, and groundwater exploration. - Presents innovative research that will both challenge and complement the traditional concepts of exploration - Covers a wide range of instruments and their applications, as well as the tools and processes that need to be followed for modern exploration work - Includes research on groundwater exploration with a focus on conservation and sustainable exploration and development

Geological Methods in Mineral Exploration and Mining Springer Science & Business Media

This book is written as a practical field manual to effective. Each geologist has to

develop his/her be used by geologists engaged in mineral exploration techniques and will ultimately be judged on merit. It is also hoped that it will serve as a text, not the process by which these results and reference for students in Applied Geology were reached. In mineral exploration, the only courses of universities and colleges. The book 'right' way of doing anything is the way that aims to outline some of the practical skills that locates ore in the quickest and most cost-effective manner. It is preferable, however, for an individual to develop his/her own

method of operation book, rather than as a text on geological or ore after having tried, and become aware of, those deposit theory. procedures which experience has shown to work. An explorationist is a professional who search well and which are generally accepted in industry as good exploration practice. It is for ore bodies in a scientific and structured way. Although an awkward and artificial term, The chapters of the book approximately follow this is the only available word to describe the low the steps which a typical exploration professional would go through. In Chapter 1, the author defines economic

mineralization.

Ore Deposit Geology

Elsevier

A global exploration of coal geology, from production and use to chemical properties and coal petrology Coal Geology, 3rd Edition, offers a revised and updated edition of this popular book which provides a comprehensive overview of the field of coal geology including coal geophysics, hydrogeology and mining. Also covered in this volume are fully revised coverage of resource and reserve definitions, equipment and recording techniques together with the use of coal as an alternative energy source as well as environmental implications. This third edition provides a textbook ideally suited

to anyone studying, researching or working in the field of coal geology, geotechnical engineering and environmental science. Fills the gap between academic aspects of coal geology and the practical role of geology in the coal industry Examines sedimentological and stratigraphical geology, together with mining, geophysics, hydrogeology, environmental issues and coal marketing Defines global coal resource classifications and methods of calculation Addresses the alternative uses of coal as a source of energy Covers a global approach to coal producers and consumers
Exploration Geochemistry Springer Science & Business

Media

Globally, mineral exploration has grown significantly in recent years, driven by the rapid acceleration in prices for gold and diamonds since 2004 and the emergence of a middle class in both China and India- aggressively increased demand. Despite this resurgence, no single book has been published that takes an interdisciplinary approach in addressing the full scope of mineral exploration- from mining and extraction to economic evaluation, policies, sustainability, and environmental impacts. Mineral Exploration: Principles and Applications accomplishes this by presenting each topic with theoretical approaches first

followed by specific applications that can be immediately implemented in the field. Presents 16 case studies that allow readers to quickly apply exploration concepts to real-life scenarios in the field Includes more than 200 illustrations and full-color photographs that aid the reader in retaining key procedures and applications Each chapter is structured so that its topic is discussed theoretically first followed by specific applications Combines both theory and application in a multidisciplinary reference that thoroughly addresses the full scope of mineral exploration Authored by an instructor with more than 30 years of

experience in the field and a decade as a consultant for commercial mining companies

Ore Deposit Geology and its Influence on Mineral Exploration

National Academies Press

Methods and Applications in Petroleum and Mineral Exploration and Engineering Geology is an interdisciplinary book bridging the fields of earth sciences and engineering. It covers topics on natural resources exploration as well as the application of geological exploration methods and techniques to engineering problems. Each topic is presented through theoretical approaches that are illustrated by case

studies from around the globe. Methods and Applications in Petroleum and Mineral Exploration and Engineering Geology is a key resource for both academics and professionals, offering both practical and applied knowledge in resources exploration and engineering geology. - Features new exploration technologies including seismic, satellite images, basin studies, geochemical modeling and analysis - Presents cases studies from different countries such as the Hoggar area (Algeria), Urals and Siberia (Russia), North of Chile (II and III regions), and North of Italy (Trentino Alto adige) - Includes applications of the novel methods discussed

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