

Geological Methods In Mineral Exploration And Mining

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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 Providing a balance between principles and practice, this state-of-the-art overview of geophysical methods takes readers from the basic physical phenomena, through the acquisition and processing of data, to the creation of geological models of the subsurface and data interpretation to find hidden mineral deposits. Detailed descriptions of all the commonly used geophysical methods are given, including gravity, magnetic, radiometric, electrical, electromagnetic and seismic methods. Each technique is described in a consistent way and without complex mathematics. Emphasising extraction of maximum geological information from geophysical data, the book also explains petrophysics, data modelling and common interpretation pitfalls. Packed with full-colour figures, also available online, the text is supported by selected examples from around the world, including all the major deposit types. Designed for advanced undergraduate and graduate courses in minerals geoscience, this is also a valuable reference for professionals in the mining industry wishing to make greater use of geophysical methods. In 2015, Dentith and Mudge won the ASEG Lindsay Ingall Memorial Award for their combined effort in promoting geophysics to the wider community with the publication of this title. This Special Issue contains ten papers which focus on emerging geophysical techniques for mineral exploration, novel modeling, and interpretation methods, including joint inversions of multi physics data, and challenging case studies. The papers cover a wide range of mineral deposits, including banded iron formations, epithermal gold-silver-copper-iron-molybdenum deposits, iron-oxide-copper-gold deposits, and prospecting for groundwater resources.

Applied Geochemistry

Marine Mineral Exploration

Geological Methods

From Exploration to Sustainability Assessment

An Integrated Approach

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.

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. REEDMAN v

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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

The Office of Industrial Technologies (OIT) of the U. S. Department of Energy commissioned the National Research Council (NRC) to undertake a study on required technologies for the Mining Industries of the Future Program to complement information provided to the program by the National Mining Association. Subsequently, the National Institute for Occupational Safety and Health also became a sponsor of this study, and the Statement of Task was expanded to include health and safety. The overall objectives of this study are: (a) to review available information on the U.S. mining industry; (b) to identify critical research and development needs related to the exploration, mining, and processing of coal, minerals, and metals; and (c) to examine the federal contribution to research and development in mining processes.

Prospecting and Exploration of Mineral Deposits

Novel Methods and Applications for Mineral Exploration

Geophysics for Mineral Exploration

Exploration and Mining Geology

Techniques in Mineral Exploration

Discovery of Oyu Tolgoi: A Case Study of Mineral and Geological Exploration provides a detailed account of the exploration for copper deposits that took place in Mongolia in the mid-1990s, an exploration that was first started by Magma Copper and then continued by BHP Billiton World Exploration Inc., and which subsequently led to the discovery of Oyu Tolgoi, a major metal mine. This book commemorates the 20-year anniversary for the global mining industry, including details on exploration methods, the tools applied throughout the discovery, and how the applied models evolved over the course of the execution of the exploration program. In addition, the book presents how the knowledge of the team evolved as they further understood the regional geology and the necessary geological conditions for a significant porphyry discovery. Includes a detailed description of the geology of the Oyu Tolgoi mine discovery, a major copper-gold porphyry deposit. Offers practical lessons for exploration companies through coverage of the critical factors that lead to the success of the discovery, along with the institutional factors that hindered discovery. Features nearly 70 never-before-seen full-color illustrations and photos of Oyu Tolgoi.

GEOLOGICAL FIELD TECHNIQUES The understanding of Earth processes and environments over geological time is highly dependent upon both the experience that can only be gained through doing fieldwork, and the collection of reliable data and appropriate samples in the field. This textbook explains the main data gathering techniques used by geologists in the field and the reasons for these, with emphasis throughout on how to make effective field observations and record these in suitable formats. Equal weight is given to assembling field observations from igneous, metamorphic and sedimentary rock types. There are also substantial chapters on producing a field notebook, collecting structural information, recording fossil data and constructing geological maps. Geological Field Techniques is designed for students, amateur enthusiasts and professionals who have a background in geology and wish to collect field data on rocks and geological features. Teaching aspects of this textbook include: step-by-step guides to essential practical skills such as using a compass-clinometer, making a geological map and drawing a field sketch; tricks of the trade, checklists, flow charts and short worked examples; over 200 illustrations of a wide range of field notes, maps and geological features; appendices with the commonly used rock description and classification diagrams; a supporting website hosted by Wiley-Blackwell is available at www.wiley.com/go/coe/geology

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. 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.

Mineral Exploration

Statistical Evaluations in Exploration for Mineral Deposits

MINERAL EXPLORATION AND MINING

Remote-sensing Applications for Mineral Exploration

Geophysics for the Mineral Exploration Geoscientist

Developments in Economic Geology, 7: Nuclear Methods in Mineral Exploration and Production elaborates on the status of applicable nuclear techniques used in mineral exploration and production. The selection first offers information on radiometric methods and X-ray analysis in mineral exploration. Discussions focus on gamma-ray spectrometry, radon detection, autoradiography of uranium and thorium, X-ray diffraction, and application of X-ray analysis. The text then examines X-ray fluorescence geochemical analysis on the surface of Mars and radioactivation methods, as well as nuclear geochemical measurements of planetary surface; radioactivation methods for mineral exploration; and radioactivation sources. The publication takes a look at nuclear well logging for petroleum and the potential of plowshare for resource development. Topics include natural radiation, induced logs, description of potential applications related to energy resources, and obstacles to the development of a commercial plowshare program in the U.S. The selection is a dependable source of data for readers interested in the use of nuclear techniques in mineral production and exploration.

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.

This is the completely revised edition of a book which was published in 1978 and, such was its popularity, was sold out within two years. It was described as 'An excellent compilation and condensation of a vast field of literature and experience in economic geology. Clear illustrations, charts and tables punctuate the text material very nicely... Valuable for all economic geologists and resource developers.' (Choice). The material is illustrated by 215 text figures and 76 tables, and is presented in two parts. The first part covers the geological background of the genesis of mineral deposits as a clue to new discoveries, and the methods of geological, geochemical and geophysical prospecting. The second part concerns sampling, documentation and computation of ore reserves and economic assessment of mineral deposits. This new edition has been very extensively revised and brought up to date. This holds true particularly for the chapters on geochemical and geophysical methods, the use of photo-geology and satellite imagery, oil and gas prospecting, exploration of underwater minerals, the application of the principles of global tectonics in prospecting for deposits, and the evaluation of reserves. These new or thoroughly revised chapters comprise almost half of the entire text. The past 20 years have seen extensive marine exploration work by the major industrialized countries. Studies have, in part, been concentrated on Pacific manganese nodule occurrences and on massive sulfides on mid-oceanic ridges. An international jurisdictional framework of the sea-bed mineral resources was negotiated by the United Nations Conference on the Law of the Sea (UNCLOS III). A most important outcome of this conference was the establishment of an Exclusive Economic Zone (EEZ) of at least 200 nautical miles for all coastal states and the recognition of a deep-sea regime. Mineral deposits in EEZ areas are fairly unknown; many areas need detailed mapping and mineral exploration, and the majority of coastal or island states with large EEZ areas have little experience in exploration for marine hard minerals. This book describes the systematic steps in marine mineral exploration. Such exploration requires knowledge of mineral deposits and models of their formation, of geophysical and geochemical exploration methods, and of data evaluation and interpretation methods. These topics are described in detail by an international group of authors. A short description is also given of marine research vessels, evaluation of marine exploration examples; and an overview is provided of the jurisdictional situation after UNCLOS III.

Economic Geology

A Case Study of Mineral and Geological Exploration

Quantitative Mineral Resource Assessments

Applications of Palaeontology

Geophysical Practice in Mineral Exploration and Mapping

Using the concepts and practices of applied geology as its central theme, here is a balanced and comprehensive treatment of the geological, geochemical, geophysical, and economic elements of exploration and mining. Offers an overview of the methods and aims in mineral exploration and production and gives coverage of the geologic principles of ore deposits and the geomorphic environment. Deals with "hard" minerals and the nonfluid sources of materials and energy in the continental masses and in ocean basins. This edition has been expanded to include recent advances in applications of satellite imagery, litho-geochemical surveys, isotope geochemistry, and other developments in the field. Also covers current uses of computers in mineral exploration programs. Features case histories, a current references section, and financial data.

This book is written as a practical field manual to effective. Each geologist has to develop his/her own techniques and will ultimately be judged on results. It is also hoped that it will serve as a text for students in Applied Geology where the 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 geologist 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 searches well and which are generally accepted in industry as good exploration practice. The chapters of the book approximately follow the steps which a typical exploration professional would go through. In Chapter 1, the author defines economic mineralization. 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\1illcs April 1985 Glossary Adit A horizontal, or

near horizontal, passage from the surface into a mine.

The latest knowledge on mineral ore genesis and the exploration of ore deposits Global demand for metals has risen considerably over the past decade. Geologists are developing new approaches for studying ore deposits and discovering new sources. Ore Deposits: Origin, Exploration, and Exploitation is a compilation of diverse case studies on new prospects in ore deposit geology including atypical examples of mineral deposits and new methods for ore exploration. Volume highlights include: Presentation of the latest research on a range of ore deposit types Application of ore deposits to multiple areas of geology and geophysical exploration Emphasis on diverse methods and tools for the study of ore deposits Useful case studies for geologists in both academia and industry Ore Deposits: Origin, Exploration, and Exploitation is a valuable resource for economic geologists, mineralogists, petrologists, geochemists, mining engineers, research professionals, and advanced students in relevant areas of academic study.

Discovery of Oyu Tolgoi

Wealth Creation in the Minerals Industry

Mineral Exploration and Mining Essentials

Introduction to Mineral Exploration

Ore Deposits

Humanity's ever-increasing hunger for mineral raw materials, caused by a growing global population and ever increasing standards of living, has resulted in economic geology becoming a subject of urgent importance. This book provides a broad panorama of mineral deposits, covering their origin and geological characteristics, the principles of the search for ores and minerals, and the investigation of newly found deposits. Practical and environmental issues that arise during the life cycle of a mine and after its closure are addressed, with an emphasis on sustainable and "green" mining. The central scientific theme of the book is to place the extraordinary variability of mineral deposits in the frame of fundamental geological processes. The book is written for earth science students and practicing geologists worldwide. Professionals in administration, resource development, mining, mine reclamation, metallurgy, and mineral economics will also find the text valuable. Economic Geology is a fully revised translation of the fifth edition of the German language text Mineralische und Energie-Rohstoffe.

Additional resources for this book can be found at: www.wiley.com/go/pohl/geology. The author's website can be found at: <http://www.walter-pohl.com>.

Foreseeable energy and mineral resource problems. Gap between raw remote-sensor data and resources and environmental information. Summary of LANDSAT application and results. remote-sensing applications for mineral resources. Earth observations from remote-sensing platforms: outlook. Exploration for fossil and nuclear fuels from orbital altitudes. The role of remote sensing for energy development. Digital enhancement of LANDSAT MSS data for mineral exploration. LANDSAT applications in the less-developed areas. Analysis of geological structures based on LANDSAT-1 images. The geological application of LANDSAT imagery in Brazil. Studies utilizing orbital imagery of India for geology and land use. Environmental monitoring of mineral-related industries. Index.

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.

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

Innovative Exploration Methods for Minerals, Oil, Gas, and Groundwater for Sustainable Development

Geochemical Exploration Methods for Mineral Deposits

Principles, Integrated Exploration and Plate Tectonics

Gravity and Magnetic Methods for Geological Studies

Principles and Applications

Essentials of Mineral Exploration and Evaluation offers a thorough overview of methods used in mineral exploration campaigns, evaluation, reporting and economic assessment processes. Fully illustrated to cover the state-of-the-art exploration techniques and evaluation of mineral assets being practiced globally, this up-to-date reference offers balanced coverage of the latest knowledge and current global trends in successful mineral exploration and evaluation. From mineral deposits, to remote sensing, to sampling and analysis, *Essentials of Mineral Exploration and Evaluation* offers an extensive look at this rapidly changing field. Covers the complete spectrum of all aspects of ore deposits and mining them, providing a "one-stop shop" for experts and students. Presents the most up-to-date information on developments and methods in all areas of mineral exploration. Includes chapters on application of GIS, statistics, and geostatistics in mineral exploration and evaluation. Includes case studies to enhance practical application of concepts.

Gravity and magnetic methods can be directly related to physical properties of rocks, i.e. the density and the susceptibility, and are very useful to field geologists and geophysicists in the mapping and identification of various rock types. They are also used for the detection of minerals with large contrast in density and susceptibility compared to country rock. This reference volume consists of two parts: The first part describes the basic principles and methodology of the gravity and the magnetic methods of geophysical exploration with global examples. It deals with geological studies and gravity & magnetic methods; geodynamic studies (plate tectonics, crustal structures, plume tectonics); resource exploration (geological mapping, hydrocarbon, mineral and groundwater exploration); environmental studies (seismotectonics, engineering sites, climate changes, mining geophysics, volcanoes and volcanic activity, landslides, impact craters) and different modes of surveying. The second part is dedicated to the Indian Continent and deals with the application of geological data, integrated with other geophysical and geological information. It discusses geodynamics and seismotectonics with respect to the Indian Plate zone, including the Indian Ocean, Himalaya, Tibet and Archean-Proterozoic Cratons and Mobile Belts. It also presents ways for integrated exploration for hydrocarbons, minerals, groundwater and a number of environmental issues relevant in engineering and archaeology. The accessible style of this unique work will benefit researchers, professionals, advanced students and interested readers in Geophysics, Geology, Economic Geology, Geological Engineering, Geography, Mineralogy and related disciplines.

This new, up dated edition of *Introduction to Mineral Exploration* provides a comprehensive overview of all aspects of mineral exploration. Covers not only the nature of mineral exploration but also considers other factors essential to successful exploration, from target evaluation to feasibility studies for extraction and production. Includes six detailed case studies, selected for the range of different problems and considerations they present to the mineral explorationist. Features new chapters on handling mineral exploration data and a new case study on the exploration for diamonds. Essential reading for upper level undergraduates studying ore geology, mineral exploration, mining geology, coal exploration, and industrial minerals, as well as professional geologists. Artwork from the book is available to instructors online at www.blackwellpublishing.com/moon.

Statistical evaluations of exploration data are the basis for decisions to be made at various stages of an exploration project. In contrast to other geostatistical books, *Statistical Evaluations in Exploration for Mineral Deposits* focuses not only on theory, but examples are also given, frequently originating from experience in mineral exploration by the author who worked worldwide for a mining company. Together with its companion volume, *Economic Evaluations in Exploration*, the book illustrates methods used in exploration campaigns and mining activities. It is intended as a vademecum for geologists who are forced to make quick decisions regarding an exploration project. It also addresses scientists and students involved in teaching or in mineral economic evaluations, recommendations or decisions.

Ore Deposit Geology and its Influence on Mineral Exploration

Principles of Geochemical Prospecting

Origin, Exploration, and Exploitation

Principles and Practice

Nuclear Methods in Mineral Exploration and Production

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. Includes both conventional and nonconventional techniques for mineral exploration, including litho-geochemical methods. Highlights the importance and applications of multifractal models, 3D - mineral prospectivity modeling. Features case studies from mines and mineral exploration ventures around the world.

"Informed decisions concerning undiscovered mineral resources cannot be made without an understanding of the technological, environmental, or economic difficulties that might be encountered. Quantitative Mineral Resource Assessments: An Integrated Approach offers a modern quantitative assessment that explicates the diverse factors that affect mineral-related decisions, so that potential consequences can be more easily assessed, uncertainty and risk reduced, and courses of action determined without bias. The integrated approach focuses on three assessment parts and the models that support them and is designed so that consequences of alternative courses of action can be examined with respect to land use, exploration, or mineral-resource development. Drawing upon newly developed deposit density models, frequency distributions, and previously unpublished experiments, the book provides an essential and practical approach for making critical decisions." "Written for governmental and industrial policy makers, managers of exploration, planners of regional development, and similar decision makers, the book brings together for the first time the widely scattered literature on the subject. It also captures the necessary ingredients of the diverse disciplines of economic geology, statistics, mineral economics, and geology that are an integral part of quantitative mineral resource assessments. With this wealth of information, the book will serve not only as a guide for professionals but also as a comprehensive reference for those studying or researching mineral resources."--BOOK JACKET.

Geochemical methods of prospecting for and evaluation of minerals are applied widely today at all stages of geological exploration. However, geochemical methods of prospecting for many classes of non-metallic minerals have not been elaborated. This book is a completely revised, updated and expanded edition of the publication by the same authors, which was published in 1987. The contains a collection the latest data on geochemical prospecting for non-metals, which is valuable in view of the anticipated increase of consumption and utilization of non-metallic minerals in the future. The information on various types of raw material is presented in the following sequence: 1) general data (genetic types, conditions of formation, geological prospecting indications); 2) indicator minerals and elements; 3) geochemical methods of prospecting along dispersion trains and haloes, plus hydrogeochemical and geobotanical methods; 4) primary endogenic haloes; 5) vertical geochemical zonation; 6) methods, stages and sequence of work.

Palaeontology, the scientific study of fossils, has developed from a descriptive science to an analytical science used to interpret relationships between earth and life history. This book provides a comprehensive and thematic treatment of applied palaeontology, covering the use of fossils in the ordering of rocks in time and in space, in biostratigraphy, palaeobiology and sequence stratigraphy. Robert Wynn Jones presents a practical workflow for applied palaeontology, including sample acquisition, preparation and analysis, and interpretation and integration. He then presents numerous case studies that demonstrate the applicability and value of the subject to areas such as petroleum, mineral and coal exploration and exploitation, engineering geology and environmental science. Specialist applications outside of the geosciences (including archaeology, forensic science, medical palynology, entomopalynology and melissopalynology) are also addressed. Abundantly illustrated and referenced, Applications of Palaeontology provides a user-friendly reference for academic researchers and professionals across a range of disciplines and industry settings.

Essentials of Mineral Exploration and Evaluation

**Methods and Applications in Petroleum and Mineral Exploration and Engineering Geology
Mineral Resources**

Geochemical Methods of Prospecting for Non-Metallic Minerals