

Geochemistry Of The Ilesha Granite Gneiss In The Basement Complex Of Southwestern Nigeria

[#Ilesha Granite Gneiss geochemistry](#) [#Nigerian Basement Complex geology](#) [#Southwestern Nigeria petrology](#) [#Geochemical analysis granite gneiss](#) [#Nigeria metamorphic rocks](#)

Explore the comprehensive geochemistry of the Ilesha Granite Gneiss, a key component of the Basement Complex in Southwestern Nigeria. This study provides vital insights into the petrogenesis and geological evolution of these ancient metamorphic rocks, crucial for understanding the region's complex geological history and mineral potential.

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Geology and Mineral Resources of West Africa

In this text, attention is focused mainly on those literature is accessible, however, it is to be expected countries in western Africa lying south of the Sahara, that teachers and lecturers will know of it and will be that is, between about SON and 15°N, and westward able to acquaint their students with it, where neces of about 15°E. Parts of the region as far north as sary. about 200N are considered from time to time, for A glossary of terms is provided at the end of the purposes of correlation and cQntinuity. The map on volume, and there is a summary at the beginning of p. xiii indicates the approximate extent of the cover each chapter. age. This book is dedicated to the many colleagues and The principal aim is to provide a broad view of students with whom we have worked in West Africa West African geology as a whole, for undergraduates and who have stimulated and encouraged our teach who are studying for honours degrees in geology and ing and research in various ways. We hope also that it may help the work of international organizations who already have an understanding of basic geologi cal principles. It is increasingly important that such as AGID, CIFEG and UNESCO to encourage the growing trend towards geological co-operation geologists working in this region should see it as made up of geological 'provinces' which transcend and correlation between different countries in West national boundaries. Africa.

Precambrian Geology of Nigeria

We are increasingly faced with environmental problems and required to make important decisions. In many cases an understanding of one or more geologic processes is essential to finding the appropriate solution. Earth and Environmental Sciences are by their very nature a dynamic field in which new issues continue to arise and old ones often evolve. The principal aim of this book is to present the reader with a broad overview of Earth and Environmental Sciences. Hopefully, this recent research will provide the reader with a useful foundation for discussing and evaluating specific environmental issues, as well as for developing ideas for problem solving. The book has been divided into nine sections; Geology, Geochemistry, Seismology, Hydrology, Hydrogeology, Mineralogy, Soil, Remote Sensing and Environmental Sciences.

Earth and Environmental Sciences

Contains details on the geological units of Nigeria and the associated mineral resources. The book is divided into three parts. Part 1 discusses the geology of the crystalline rocks and their regional distribution while the sedimentary basins constitute the subject of Part 2. Part 3 takes the mineral resources of Nigeria one on one, their geological environment, mode of occurrence, localities and where possible the reserves estimation. Thereafter, an account of the previous and current mining policies (including that of petroleum) of the Nigerian government is given and goes ahead to list some specific investment opportunities in the solid minerals sector.

Journal of Mining and Geology

This new edition of the well-established Kearey and Brooks text is fully updated to reflect the important developments in geophysical methods since the production of the previous edition. The broad scope of previous editions is maintained, with even greater clarity of explanations from the revised text and extensively revised figures. Each of the major geophysical methods is treated systematically developing the theory behind the method and detailing the instrumentation, field data acquisition techniques, data processing and interpretation methods. The practical application of each method to such diverse exploration applications as petroleum, groundwater, engineering, environmental and forensic is shown by case histories. The mathematics required in order to understand the text is purposely kept to a minimum, so the book is suitable for courses taken in geophysics by all undergraduate students. It will also be of use to postgraduate students who might wish to include geophysics in their studies and to all professional geologists who wish to discover the breadth of the subject in connection with their own work.

Compositional Character

In December, 1987, Project 233 of the International Geological Correlation Program hosted an international conference in Nouakchott, Mauritania. Discussions were focused on the "Tectonothermal Evolution Of The West African Orogens And Circum-Atlantic Terrane Linkages". A wealth of new information was presented during the conference, and it was apparent that the time was appropriate to prepare a systematic volume dealing with the geology of northwest Africa. The present volume is an outgrowth of this conference, but is not merely a compilation of the papers presented in Nouakchott. Instead, it represents a coordinated volume designed to present a balanced, comprehensive view of our present understanding of West African geology and potential correlations in other Circum-Atlantic Paleozoic orogens. We sincerely appreciate the efforts of all the reviewers whose comments have greatly helped to improve the quality of this volume. We also thank the various contributors for their diligence and perseverance in manuscript preparation. The calibre of the present volume is a reflection of their labor. Athens/Marseille, Autumn 1990 R. D. DALLMEYER J. P. LECORCHE Contents Chapter 1 Introduction 3 R. D. DALLMEYER and J. P. LECORCHE Chapter 2 Geophysics and the Crustal structure of West Africa 9 J. ROUSSEL and A. LESQUER Chapter 3 Crystalline Basement of the West African Craton 31 .

Geology and Mineral Resources of Nigeria

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.

Ancient Banded Iron Formations

When some useful information is hidden behind a mass of unwanted information we often resort to information processing used in its broad sense or specifically to signal processing when the useful information is a waveform. In geophysical surveys, in particular in aeromagnetic and gravity surveys, from the measured field it is often difficult to say much about any one specific target unless it is close to the surface and well isolated from the rest. The digital signal processing approach would enable us to bring out the underlying model of the source, that is, the geological structure. Some of the tools of dsp such as digital filtering, spectrum estimation, inversion, etc., have found extensive applications in aeromagnetic and gravity map analysis. There are other emerging applications of dsp in the area of inverse filtering, three dimensional visualization, etc. The purpose of this book is to bring numerous tools of dsp to the geophysical community, in particular, to those who are entering the geophysical profession. Also the practicing geophysicists, involved in the aeromagnetic and gravity data analysis, using the commercially available software packages, will find this book useful in answering their questions on "why and how?". It is hoped that such a background would enable the practising geophysicists to appreciate the prospects and limitations of the dsp in extracting useful information from the potential field maps. The topics covered are: potential field signals and models, digital filtering in two dimensions, spectrum estimation and application, parameter estimation with error bounds.

Geologie en Mijnbouw

Permeability is the primary control on fluid flow in the Earth's crust and is key to a surprisingly wide range of geological processes, because it controls the advection of heat and solutes and the generation of anomalous pore pressures. The practical importance of permeability – and the potential for large, dynamic changes in permeability – is highlighted by ongoing issues associated with hydraulic fracturing for hydrocarbon production ("fracking"), enhanced geothermal systems, and geologic carbon sequestration. Although there are thousands of research papers on crustal permeability, this is the first book-length treatment. This book bridges the historical dichotomy between the hydrogeologic perspective of permeability as a static material property and the perspective of other Earth scientists who have long recognized permeability as a dynamic parameter that changes in response to tectonism, fluid production, and geochemical reactions.

Bibliography and Index of Geology

How large is the natural variation in concentration of the various elements in different media? How do the oft-cited "World average concentrations" in different media compare with actual analytical data? How low a detection limit do I need to attain if I want to analyse for an element in soils, sediments, water or plants? All these questions and many more can be answered by using this unique reference book. It collates data on the most important properties and uses of all naturally occurring chemical elements. It combines these with data obtained from actual analyses of different sample media (soil, stream sediment, stream water, ground water, plants, human body fluids). This combination of facts and actual data makes this book suitable for learning and teaching applied geochemistry as well.

An Introduction to Geophysical Exploration

This extensive revision deals with the minerals talc, pyrophyllite, chlorite, serpentine, stilpnomelane, zussmanite, prehnite and apophyllite. The text has been completely rewritten and very much expanded to take account of the many advances that have been made in all aspects of the Earth sciences, not least mineralogy. Each chapter is headed by a brief tabulation of mineral data and ends with full references. Crystal structures are described and illustrated, followed by discussion of structural information gained from spectroscopic as well as X-ray and electron-optic methods. Chemical sections

include many analyses and structural formulae, phase relations, igneous, metamorphic and sedimentary geochemistry, alteration and weathering. Examples are given of a range of mineral parageneses. Correlation between the various aspects of mineralogy are emphasized in order to provide a scientific understanding of minerals as well as their description and identification. So great has been the expansion of research on layered silicates that a separate volume (3A, 2003) was devoted entirely to micas and another (3C), entirely for clay minerals will also be published. Rock-Forming Minerals is an essential reference work for professionals, researchers and postgraduate students in Earth science and related fields in chemistry, physics, engineering, environmental and soil sciences.

Geochemistry and Stratigraphic Relations of Middle Proterozoic Rocks of the New Jersey Highlands

With new chapters on volcanism, new appendices & sharper photos, together with extensive updating of the whole text, this new edition builds on the strengths of its predecessor.

Proterozoic Lithospheric Evolution

Methods in Geochemistry and Geophysics 11: Geochemical Facies Analysis summarizes research regarding geochemical analysis of sedimentary facies. It demonstrates the extent to which geochemical criteria can be used to interpret sedimentary facies and considers the physicochemical criteria that affect the sediments deposited, including salinity, temperature, and redox potential. It also examines element or isotope variations in sedimentary rocks that are associated with variations in the depositional environment. Organized into seven chapters, this volume begins by defining the facies. It also presents the prerequisites of geochemical facies analysis. This includes the permanence of the composition of the oceans through long periods of the Earth's history, along with climatic, tectonic, and biological influences. The book then discusses methodological prerequisites for the determination of geochemical facies. It provides the results of geochemical facies analyses, including those for hydrofacies, lithofacies, and biofacies. In addition, it explains the non-chemical methods of facies analysis. The book concludes by looking at practical applications and future importance of geochemical facies analysis. This is an invaluable source book for students, geochemists, and geophysicists.

Journal of African Earth Sciences

The first edition of our Handbook was written in 1983. In the preface to the first edition we noted the rapid development of inductively coupled plasma atomic emission spectrometry and its considerable potential for elemental analysis. The intervening five years have seen a substantial growth in ICP applications; much has happened and this is an appropriate time to present a revised edition. The basic approach of the book remains the same. This is a handbook, addressed to the user of the technique who seeks direct, practical advice. A concise summary of the technique is attempted. Detailed, theoretical treatment of the background to the method is not covered. We have, however, thoroughly revised much of the text, and new chapters have been added. These reflect the changes and progress in recent years. We are grateful to Mr Stephen Walton, Dr Gwendy Hall and London and Scandinavian Metallurgical Co. Ltd for their contributions. Chapter 3 (Instrumentation) has been rewritten by Mr Walton, the new Chapter on ICP-mass spectrometry has been written by Dr Hall, and London and Scandinavian provided much of the information for the chapter on metals analysis by ICP-AES. These chapters have been integrated into the book, and a conscious effort has been made to retain the unity of style within the book. New material has been added elsewhere in the book, archaeological materials are considered, pre concentration methods and chemometrics covered more fully.

The West African Orogens and Circum-Atlantic Correlatives

Rare Earth Elements (REE) as well as tantalum and niobium are of tremendous importance because of their specific high-technology applications. The contributions gathered in this volume give an up-to-date survey on the mineralogy, primary ore deposits, prospecting, processing and applications of REE, Ta, and Nd, making this volume a useful handbook for practitioners and students. Finally, the comprehensive coverage of the fundamental aspects, especially as regards REE as tracers of geological phenomena, will prove extremely helpful.

Geophysics for the Mineral Exploration Geoscientist

This handbook focuses on residential radon exposure from a public health point of view and provides detailed recommendations on reducing health risks from radon and sound policy options for preventing

and mitigating radon exposure. The material in the handbook reflects the epidemiological evidence that indoor radon exposure is responsible for a substantial number of lung cancers in the general population. Information is provided on the selection of devices to measure radon levels and on procedures for the reliable measurement of these levels. Discussed also are control options for radon in new dwellings, radon reduction in existing dwellings as well as assessment of the costs and benefits of different radon prevention and remedial actions. Also covered are radon risk communication strategies and organization of national radon programs.--Publisher's description.

Analysis of Geophysical Potential Fields

The Second Edition also benefits from new artwork that clearly illustrates complex concepts. New to the Second Edition: New Chapter: 15, "Geophysical Imaging," by Frederick Cook Within Chapters 21 and 22, four new essays on "Regional Perspectives" discuss the European Alps, the Altai, the Appalachians, and the Cascadia Wedge. New and updated art for more informative illustration of concepts. The Second Edition now has 570 black & white figures.

Crustal Permeability

"Classifications of ore deposits provide essential frameworks for designing exploration strategies, evaluating prospects, and performing resource assessments of selected areas. This paper proposes a geological classification of lode gold deposits, based largely on the nature of the ore and on the geological settings of the deposits. Sixteen common types of bedrock gold deposits are distinguished and their main geological attributes summarized. They do not correspond to an equal number of genetic types: many of these deposit types represent different components of larger hydrothermal systems and are genetically related. An important emerging point is that the majority of lode gold deposit types identified here are represented by at least one large example (>100 t Au); the search for large gold deposits must therefore rely on a multiplicity of models."--Abstract.

Chemical Elements in the Environment

Trace Elements in Coal focuses on the compositions, reactions, and properties of trace elements in coal. The book first discusses the origin of trace elements in coal. The formation of peat; geological and geochemical aspects of coal seams; geology of Australian coals; constitution of coal; history of trace elements in coal; and coal mining in Australia are discussed. The text also clarifies the mode of occurrence of trace elements in coal. The identification of minerals in coal; silicon-rich minerals; carbonate minerals; sulfide minerals; lignites and brown coals; and phosphates are discussed. The book then underscores the methods of analysis. Inductively coupled plasma atomic emission spectrometry; atomic absorption spectrometry; spark source mass spectrometry; and neutron activation analysis are described. The text also focuses on the contents of trace elements in coal; comparisons of coal with shale and soil; relationship of radioactivity and coal; and relevance of trace elements in coal. The book is a good source of data for readers wanting to study the trace elements in coal.

Crossword Lists

This book is the result of the work of the first international congress of the ArabGU (Arabian Geosciences Union) which took place in Algiers (Algeria) in February 2016. It presents research articles and review papers on geology of the North Africa and Arabian Middle East . It provides information to the public on various fields of earth sciences and encourages further research in this field in order to attract an international audience.

Terranes in the Circum-Atlantic Paleozoic Orogens

Geochemical Anomaly and Mineral Prospectivity Mapping in GIS documents and explains, in three parts, geochemical anomaly and mineral prospectivity mapping by using a geographic information system (GIS). Part I reviews and couples the concepts of (a) mapping geochemical anomalies and mineral prospectivity and (b) spatial data models, management and operations in a GIS. Part II demonstrates GIS-aided and GIS-based techniques for analysis of robust thresholds in mapping of geochemical anomalies. Part III explains GIS-aided and GIS-based techniques for spatial data analysis and geo-information synthesis for conceptual and predictive modeling of mineral prospectivity. Because methods of geochemical anomaly mapping and mineral potential mapping are highly specialized yet diverse, the book explains only methods in which GIS plays an important role. The book avoids

using language and functional organization of particular commercial GIS software, but explains, where necessary, GIS functionality and spatial data structures appropriate to problems in geochemical anomaly mapping and mineral potential mapping. Because GIS-based methods of spatial data analysis and spatial data integration are quantitative, which can be complicated to non-numerate readers, the book simplifies explanations of mathematical concepts and their applications so that the methods demonstrated would be useful to professional geoscientists, to mineral explorationists and to research students in fields that involve analysis and integration of maps or spatial datasets. The book provides adequate illustrations for more thorough explanation of the various concepts. Explains GIS functionality and spatial data structures appropriate regardless of the particular GIS software in use Simplifies explanation of mathematical concepts and application Illustrated for more thorough explanation of concepts

Introduction to Exploration Geochemistry

Rock Forming Minerals