

Microfacies Of Carbonate Rocks Analysis Interpretation And Application

Scholarly work on sedimentology. Each article is signed and has a bibliography. Illustrated. Indexed.

This unparalleled reference synthesizes the methods used in microfacies analysis and details the potential of microfacies in evaluating depositional environments and diagenetic history, and, in particular, the application of microfacies data in the study of carbonate hydrocarbon reservoirs and the provenance of archaeological materials. Nearly 230 instructive plates (30 in color) showing thin-section photographs with detailed explanations form a central part of the content. Helpful teaching-learning aids include detailed captions for hundreds of microphotographs, boxed summaries of technical terms, many case studies, guidelines for the determination and evaluation of microfacies criteria, self-testing exercises for recognition and characterization skills, and more

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The Identification, Description and Characterization of Hydrocarbon Reservoirs in Carbonate Rocks

Carbonate Reservoir Characterization

Geologic Analysis of Naturally Fractured Reservoirs

Depositional Environments in Carbonate Rocks

Carbonate Sedimentology

Text

Hardcover plus Foldouts

This book is the first comprehensive documentation and interpretation of modern neritic carbonate sediments on the southern Australian continental margin, the largest cool-water carbonate depositional system on the globe. The approach is classical but the information is new. A brief chapter of introduction is followed by a section that describes the setting of the continental margin in terms of the regional geology, its evolution through time, the climate, and the complex oceanography. The setting is further explored in chapter 3 that outlines the Pleistocene history of sedimentation in this region. This is particularly important since many of the surficial sediments have a partial older history. The following section on the carbonate factory describes in detail the nature of the animals and plants that determine the nature of the sediments and the environmental conditions that control their distribution. The shelf itself cannot be discussed in isolation and thus a short chapter on the marginal marine environment is presented. The core of the book comprises two chapters that document the suite of depositional facies and their composition and then the suite of depositional environments where these sediments are found. The variety of deposits in this vast area is such that three chapters are devoted to the character of the materials on the southwestern shelf the south Australian sea and the southeastern shelf. The diagenesis that affects these sediments is tackled in a chapter after all the attributes are documented because they are intimately linked to different controls. The book finishes with a summary chapter that also addresses the various controls on sedimentation and models the effects to be expected when these are changed outside those present in the current realm. Audience: The book is an invaluable source of information about this vast region and will be a critical reference for researchers, graduate students, and professionals engaged in marine and environmental research. It will be of particular importance for geologists interpreting the ancient rock record.

This volume brings together contributions from an experienced group of archaeologists and geologists whose common objective is to present thorough and current reviews of the diverse ways in which methods from the earth sciences can contribute to archaeological research. Many areas of research are addressed here, including artifact analysis and sourcing, landscape reconstruction and site formation analysis, soil micromorphology and geophysical exploration of buried sites.

Middle and Upper Devonian

Sustainable Geoscience for Natural Gas SubSurface Systems

Carbonate Sedimentology and Sequence Stratigraphy

Geological Core Analysis

Phanerozoic Ironstones

Stratigraphy: A Modern Synthesis

Microbial carbonates (microbialites) are remarkable sedimentary deposits because they have the longest geological range of any type of biogenic

limestones, they form in the greatest range of different sedimentary environments, they oxygenated the Earth's atmosphere, and they produce and store large volumes of hydrocarbons. This Special Publication provides significant contributions at a pivotal time in our understanding of microbial carbonates, when their economic importance has become established and the results of many research programmes are coming to fruition. It is the first book to focus on the economic aspects of microbialites and in particular the giant pre-salt discoveries offshore Brazil. In addition it contains papers on the processes involved in formation of both modern and ancient microbialites and the diversity of style in microbial carbonate buildups, structures and fabrics in both marine and non-marine settings and throughout the geological record.

Advanced textbook outlining the physical, chemical, and biological properties of sedimentary rocks through petrographic microscopy, geochemical techniques, and field study.

Carbonate Sedimentology and Sequence Stratigraphy - Sedimentology and stratigraphy are neighbors yet distinctly separate entities within the earth sciences. Sedimentology searches for the common traits of sedimentary rocks regardless of age as it reconstructs environments and processes of deposition and erosion from the sediment record. Stratigraphy, by contrast, concentrates on changes with time, on measuring time and correlating coeval events. Sequence stratigraphy straddles the boundary between the two fields. This book, dedicated to carbonate rocks, approaches sequence stratigraphy from its sedimentologic background. This book attempts to communicate by combining different specialities and different lines of reasoning, and by searching for principles underlying the bewildering diversity of carbonate rocks. It provides enough general background, in introductory chapters and appendices, to be easily digestible for sedimentologists and stratigraphers as well as earth scientists at large

Proceedings of the International Field Exploration and Development Conference 2017

Shortcourse in Microfacies Analysis of Carbonate Rocks with Special Emphasis on the Upper Paleozoic Succession of Spitzbergen and Bjørnøya

Harstad, Norway 9-12 December 1986

Southern Australia

Industry series. Land subdividers and developers, except cemeteries, industry 6552

Encyclopedia of Sedimentology

Carbonate reservoirs contain an increasingly important percentage of the world's hydrocarbon reserves. This volume presents key recent advances in carbonate exploration and reservoir analysis. This book offers a compact guide to geological core analysis, covering both theoretical and practical aspects of geological studies of reservoir cores. It equips the reader with the knowledge needed to analyse cores. The book begins by providing a description of a coring plan, coring, and core sampling and continues with a sample preparation for geological analysis. It then goes on to explain how cores are classified and integrated in order to understand the geological properties that dictate reservoir characteristics. Subsequently, porosity and permeability data derived from routine experiments are used to evaluate geological rock types and reduce reservoir heterogeneity. Sequence stratigraphy is introduced for reservoir zonation. Core log preparation is also covered, allowing reservoirs to be analysed even when a direct study of core samples is the only way to accurately gauge reservoir properties, this book provides a useful guide for all geologists and engineers working with subsurface samples.

An accessible resource, covering the fundamentals of carbonate reservoir engineering Includes discussions on how, where and why carbonate are formed, plus reviews of basic sedimentological and stratigraphic relationships Offers a new, genetic classification of carbonate porosity that is especially useful in predicting spatial distribution of pore spaces

Microfacies Analysis of Limestones

Geology of Carbonate Reservoirs

Earth Sciences and Archaeology

The Biology and Geology of Deep-Sea Coral Habitats

Combined Microfacies-Log-Analysis of Cambrian and Ordovician Carbonate Rocks (Upper Cambrian, Western Hills, Beijing; TZ-162 Well, Tarim Basin, Western China)

Sequence Stratigraphy of the Lower Miocene Moghra Formation in the Qattara Depression, North Western Desert, Egypt

Carbonate rocks (limestones and dolomites) constitute a major part of the geological column and contain not only 60% of the world's known hydrocarbons but also host extensive mineral deposits. This book represents the first major review of carbonate sedimentology since the mid 1970's. It is aimed at the advanced undergraduate -postgraduate level and will also be of major interest to geologists working in the oil industry. Carbonate Sedimentology is designed to take the reader from the basic aspects of limestone recognition and classification through to an appreciation of the most recent developments such as large scale facies modelling and isotope geochemistry. Novel aspects of the book include a detailed review of carbonate mineralogy, non-marine carbonate depositional environments and an in-depth look at carbonate deposition and diagenesis through geologic time. In addition, the reviews of individual depositional systems stress a process-based approach rather than one centered on simple comparative sedimentology. The unique quality of this book is that it contains integrated reviews of carbonate sedimentology and diagenesis, within one volume.

Highly illustrated synthesis of research on cold-water corals worldwide.

This book provides a comprehensive overview of the parameters and factors that cause heterogeneity in carbonate reservoirs, and examines how they interact with one another. It

explores the various scales of heterogeneity, how they are caused, and how they can be minimized, as well as how the scales affect each other, providing practical examples in each chapter. The book concludes by discussing the effect of heterogeneity on petrophysical evaluations. As reducing heterogeneity is the only way to obtain accurate carbonate reservoir characteristics at the regional scale, the book offers an important reference guide for all geologists, engineers, and modelers working with subsurface data.

Overcoming the Challenges

Microbial Carbonates in Space and Time:

Carbonate Rock Depositional Models

Origin of Carbonate Sedimentary Rocks

Karst Bauxites

Neritic Carbonate Sediments in a Temperate Realm

Geologists, engineers, and petrophysicists concerned with hydrocarbon production from naturally fractured reservoirs will find this book a valuable tool for obtaining pertinent rock data to evaluate reserves and optimize well location and performance. Nelson emphasizes geological, petrophysical, and rock mechanics to complement other studies of the subject that use well logging and classical engineering approaches. This well organized, updated edition contains a wealth of field and laboratory data, case histories, and practical advice. A great how-to-guide for anyone working with fractured or highly anisotropic reservoirs Provides real-life illustrations through case histories and field and laboratory data

Microfacies of Carbonate Rocks Analysis, Interpretation and Application Springer Science & Business Media

This textbook provides an overview of the origin and preservation of carbonate sedimentary rocks. The focus is on limestones and dolostones and the sediments from which they are derived. The approach is general and universal and draws heavily on fundamental discoveries, arresting interpretations, and keystone syntheses that have been developed over the last five decades. The book is designed as a teaching tool for upper level undergraduate classes, a fundamental reference for graduate and research students, and a scholarly source of information for practicing professionals whose expertise lies outside this specialty. The approach is rigorous, with every chapter being designed as a separate lecture on a specific topic that is encased within a larger scheme. The text is profusely illustrated with all colour diagrams and images of rocks, subsurface cores, thin sections, modern sediments, and underwater seascapes. Additional resources for this book can be found at: www.wiley.com/go/james/carbonaterocks

Carbonate Depositional Environments

Advances in Carbonate Exploration and Reservoir Analysis

Cathodoluminescence in Geosciences

AAPG Memoir 81

1987 Census of Construction Industries

Carbonate Reservoir Heterogeneity

F. Jerry Lucia, working in America's main oil-rich state, has produced a work that goes after one of the holy grails of oil prospecting. One main target in petroleum recovery is the description of the three-dimensional distribution of petrophysical properties on the interwell scale in carbonate reservoirs. Doing so would improve performance predictions by means of fluid-flow computer simulations. Lucia's book focuses on the improvement of geological, petrophysical, and geostatistical methods, describes the basic petrophysical properties, important geology parameters, and rock fabrics from cores, and discusses their spatial distribution. A closing chapter deals with reservoir models as an input into flow simulators.

Diagenesis of carbonates and clastic sediments encompasses the biochemical, mechanical, and chemical changes that occur in sediments subsequent to deposition and prior to low-grade metamorphism. These parameters which, to a large extent, control diagenesis in carbonates and clastic sediments include primary composition of the sediments, depositional facies, pore water chemistry, burial-thermal and tectonic evolution of the basin, and paleo-climatic conditions. Diagenetic processes involve widespread chemical, mineralogical, and isotopic modifications affected by the original mineralogy of carbonate and clastic sediments. These diagenetic alterations will impose a major control on porosity and permeability and hence on hydrocarbon reservoirs, water aquifers, and the presence of other important economic minerals. In this Special Issue, we have submissions focusing on understanding the interplay between the mineralogical and chemical changes in carbonates and clastic sediments and the diagenetic processes, fluid flow, tectonics, and mineral reactions at variable scales and environments from a verity of sedimentary basins. Quantitative analyses of diagenetic reactions in these sediments using a variety of techniques are essential for understanding the pathways of these reactions in different diagenetic environments.

Sustainable Geoscience for Natural Gas SubSurface Systems delivers many of the scientific fundamentals needed in the natural gas

industry, including coal-seam gas reservoir characterization and fracture analysis modeling for shale and tight gas reservoirs. Advanced research includes machine learning applications for well log and facies analysis, 3D gas property geological modeling, and X-ray CT scanning to reduce environmental hazards. Supported by corporate and academic contributors, along with two well-distinguished editors, the book gives today's natural gas engineers both fundamentals and advances in a convenient resource, with a zero-carbon future in mind. Includes structured case studies to illustrate how new principles can be applied in practical situations Helps readers understand advanced topics, including machine learning applications to optimize predictions, controls and improve knowledge-based applications Provides tactics to accelerate emission reductions Teaches gas fracturing mechanics aimed at reducing environmental impacts, along with enhanced oil recovery technologies that capture carbon dioxide

Carbonate Sequence Stratigraphy

Sand and Sandstone

Microfacies of Carbonate Rocks

Analysis, Interpretation and Application

AAPG Memoir 33

Application to Reservoir Characterization

The Qattara Depression is part of the Northwestern Desert in Egypt and is home to the second lowest point in Africa at -133 meters below sea level.

Therefore, before any projects can be carried out in this area, we must first understand the geology of the land. The present study deals with the high-resolution sequence stratigraphic analysis of the Lower Miocene Moghra Formation outcrops in the Qattara Depression Region. The literature on the sedimentology and sequence stratigraphy of the Moghra Formation has been sparse to date, despite some excellent work over the years by academic and petroleum workers. Moreover, the area studied is within what was once a front-line of World War II, where mine fields and war relics are scattered and cover wide reaches. This has resulted in limited geologic mapping in the past. Thus, great attention is paid in this study to establishing a robust sedimentology and high-resolution sequence stratigraphic framework for the Lower Miocene Moghra Formation. Included are works based on outcrops and, most importantly, new sedimentological and chronostratigraphic information not previously available.

Carbonate Sediments and Their Diagenesis

This book presents selected papers from the 7th International Field Exploration and Development Conference (IFEDC 2017), which focus on upstream technologies used in oil & gas development, the principles of the process, and various design technologies. The conference not only provides a platform for exchanging lessons learned, but also promotes the development of scientific research in oil & gas exploration and production. The book will benefit a broad readership, including industry experts, researchers, educators, senior engineers and managers.

Cold-Water Corals

Carbonate Sediments and Their Diagenesis

Implications for Global Exploration and Production

Facies Models

Recent Developments and Applications, AAPG Memoir 57

An Integrated Approach

This book is the outgrowth of a week-long conference on sandstone organized by the authors, first held at Banff, Alberta, in 1964 under the auspices of the Alberta Association of Petroleum Geologists and the University of Alberta, and again, in 1965, at Bloomington, Indiana, under the sponsorship of the Indiana Geological Survey and the Department of Geology, Indiana University. A 2- page syllabus was prepared for the second conference and published by the Indiana Geological Survey. Continuing interest in and demand for the syllabus prompted us to update and expand its contents. The result is this book. We hope this work will be useful as a text or supplementary text for advanced undergraduate and graduate courses in sedimentation, sedimentary petrology, or general petrology and perhaps will be helpful to the teachers of such courses. Though we have focussed on sandstones we have necessarily included much of interest to students of all sediments. We hope also that it will be a useful reference work for the professional geologist, especially those concerned with petroleum, ground-water, and economic geology either in industry or government. Because the subject is so closely tied to surface processes it may also be of interest to geo morphologists and engineers who deal with beaches and rivers where sand is in transit.

An up-to-date overview of cathodoluminescence microscopy and spectroscopy in the field of geosciences, including new important data on

cathodoluminescence spectroscopy, physical parameters and systematic spectral analysis of doped minerals. Each chapter, written by a well-known specialist, covers classic and new fields of application such as carbonate diagenesis, silicates, brittle deformation in sandstones, gemstone recognition, biomineralization, economic geology or geochronology. Useful to all scientists, graduates and professional engineers throughout the geosciences community.

Karst Bauxites: Bauxite Deposits on Carbonate Rocks presents a comparison of bauxite regions using mathematical statistics methods. This book is divided into eight chapters that highlight the quantitative processing and assessment of the information available for bauxites. The opening chapters present observational and analytical evidence concerning karst bauxite, with particular emphasis on Hungarian bauxite deposits. The typical features of bauxites are analyzed from a variety of aspects and results from different bauxite regions are compared. Other chapters consider the feature of metamorphosed karst bauxites. The remaining chapters discuss the conditions of formation of karst bauxites and with the factors controlling their geographic and stratigraphic distribution. This book will prove useful to geologists, mineralogists, and researchers.

Seismic Imaging of Carbonate Reservoirs and Systems

Chemical, Mineralogical and Isotopic Studies of Diagenesis of Carbonate and Clastic Sediments

Petrology of Sedimentary Rocks

A Microfacies Approach

Accompanying CD-ROM contains ... "an alphabetical list of about 14,000 references on carbonate rocks ... and visual comparison charts for percentage estimation." -- p. vi.

A Comprehensive review of modern stratigraphic methods. The stratigraphic record is the major repository of information about the geological history of Earth, a record stretching back for nearly 4 billion years. Stratigraphic studies fill out our planet's plate-tectonic history with the details of paleogeography, past climates, and the record of evolution, and stratigraphy is at the heart of the effort to find and exploit fossil fuel resources. Modern stratigraphic methods are now able to provide insights into past geological events and processes on time scales with unprecedented accuracy and precision, and have added much to our understanding of global tectonic and climatic processes. It has taken 200 years and a modern revolution to bring all the necessary developments together to create the modern, dynamic science that this book sets out to describe. Stratigraphy now consists of a suite of integrated concepts and methods, several of which have considerable predictive and interpretive power. The new, integrated, dynamic science that Stratigraphy has become is now inseparable from what were its component parts, including sedimentology, chronostratigraphy, and the broader aspects of basin analysis.