

Basin Analysis Principles And Applications To Petroleum

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NMR Logging Principles and Applications George R. Coates 1999 Dick Cheney, former Halliburton CEO, writes in the foreword: "NMR logging represents a new revolution in formation evaluation with wireline logging, and this book gives

a comprehensive treatment of this new technology...Besides explaining basic NMR principles and applications, this book provides an understanding of these latest achievements in NMR logging." When NUMAR introduced its MRIL logging

service in 1992, it caused a revolution in the petroleum industry by making possible the systematic estimation of permeability, previously an impossibility. Permeability, however, was not the only petrophysical benefit provided by this new technology. Mineral-independent total porosity, water, gas and oil saturation, and oil viscosity have all been found achievable through the use of this revolutionary new logging technology. Introduces revolutionary new well logging technology Developed by Halliburton, one of the premier well servicing companies in the world Shows how to incorporate this new technology into other well logging principles

Unconventional Petroleum Geology Caineng Zou
2012-12-31 Unconventional Petroleum Geology is the first book of its kind to collectively identify, catalog, and assess the exploration and recovery potential of

the Earth's unconventional hydrocarbons. Advances in hydrocarbon technology and petroleum development systems have recently made the exploration of unconventional hydrocarbons—such as shale gas, tight sandstone oil and gas, heavy oil, tar sand, and coalbed methane—the hottest trend in the petroleum industry. Detailed case studies act as real-world application templates, making the book's concepts immediately practical and useful by exploration geologists. The logical and intuitive three-part approach of systematically identifying an unconventional hydrocarbon, cataloguing its accumulation features, and assessing its exploration and recovery potential can be immediately implemented in the field—anywhere in the world. Provides a detailed assessment of the exploration and recovery potential of the full range of unconventional

hydrocarbons More than 300 illustrations—many in full color—capture the detailed intricacies and associated technological advances in unconventional hydrocarbon exploration More than 20 case studies and examples from around the world conclude each chapter and aid in the application of key exploration and recovery techniques

Petroleum

Sedimentology Winfried Zimmerle 1995-04-30 Knowledge of the principles and methods of petroleum sedimentology is essential for oil and gas exploration and exploitation. This book is designed as an introductory text for students in petroleum geology and applied sedimentology as well as a useful companion for advanced technicians, explorationists, geophysicists and petroleum engineers. Source rock, lithology and type of trap define the quality of a hydrocarbon accumulation.

This interrelationship is exemplified by seven case histories worldwide (NW Europe, Saudi Arabia, U.S.A., Mexico, CIS, China). Moreover, successful exploitation and enhanced oil recovery often depend on an adequate knowledge of the sedimentology of a reservoir. Photographs illustrate macroscopic and microscopic aspects of source rocks as well as reservoir sandstones and limestones that are most important for hydrocarbon exploration. A comprehensive list of references encourages further study.

Inorganic Geochemistry A. G. Robinson 2009-07-10 Petroleum is not as easy to find as it used to be. In order to locate and develop reserves efficiently, it's vital that geologists and geophysicists understand the geological processes that affect a reservoir rock and the oil that is trapped within it. This book is about how and to what extent,

these processes may be understood. The theme of the book is the characterization of fluids in sedimentary basins, understanding their interaction with each other and with rocks, and the application of this information to finding, developing and producing oil and gas. The first part of the book describes the techniques, and the second part relates real-life case histories covering a wide range of applications. Petroleum geology, particularly exploration, involves making the best of incomplete results. It is essentially an optimistic exercise. This book will remove some of the guesswork. Brings together the most important geochemical methods in a single volume. Authored by two well-respected researchers in the oil industry. Real-life, international case histories.

Principles of Elemental Chemostratigraphy Neil

Craigie 2018-01-11 This book provides the reader with a comprehensive understanding of the applications of chemostratigraphy. The first chapter of the book offers an introduction to the technique. This is followed by a chapter detailing sample preparation and analytical techniques. Chapter 3 focuses on the techniques utilised to establish the mineralogical affinities of elements, while the general principles of how to build a chemostratigraphic scheme are covered in Chapter 4. Chapters 5, 6 and 7 provide information on the applications of chemostratigraphy to clastic, carbonate and unconventional reservoirs respectively, and various case studies are presented. Wellsite applications, a discussion and conclusion section form the latter part of the book. The book will appeal to graduate and post graduate students of

geology and professionals working in the hydrocarbon sector as a key reference text in chemostratigraphy. The Geology of Fluvial Deposits Andrew D. Miall 2013-12-20 Fluvial deposits represent the preserved record of one of the major nonmarine environments. They accumulate in large and small intermontane valleys, in the broad valleys of trunk rivers, in the wedges of alluvial fans flanking areas of uplift, in the outwash plains fronting melting glaciers, and in coastal plains. The nature of alluvial assemblages - their lithofacies composition, vertical stratigraphic record, and architecture - reflect an inter play of many processes, from the wandering of individual channels across a floodplain, to the long-term effects of uplift and subsidence. Fluvial deposits are a sensitive indicator of tectonic processes, and also carry subtle signatures of the climate at the time of

deposition. They are the hosts for many petroleum and mineral deposits. This book is about all these subjects. The first part of the book, following a historical introduction, constructs the stratigraphic framework of fluvial deposits, step by step, starting with lithofacies, combining these into architectural elements and other facies associations, and then showing how these, in turn, combine to represent distinctive fluvial styles. Next, the discussion turns to problems of correlation and the building of large-scale stratigraphic frameworks. These basin-scale constructions form the basis for a discussion of causes and processes, including autogenic processes of channel shifting and cyclicity, and the larger questions of allogenic (tectonic, eustatic, and climatic) sedimentary controls and the development of our ideas about nonmarine sequence

stratigraphy.
Principles of Sedimentary Basin Analysis Andrew Miall
2013-04-17 This book is intended as a practical handbook for those engaged in the task of analyzing the paleogeographic evolution of ancient sedimentary basins. The science of stratigraphy and sedimentology is central to such endeavors, but although several excellent textbooks on sedimentology have appeared in recent years little has been written about modern stratigraphic methods. Sedimentology textbooks tend to take a theoretical approach, building from physical and chemical theory and studies of modern environments. It is commonly difficult to apply this information to practical problems in ancient rocks, and very little guidance is given on methods of observation, mapping and interpretation. In this book theory is downplayed and the emphasis is on what a

geologist can actually see in outcrops, well records, and cores, and what can be obtained using geophysical techniques. A new approach is taken to stratigraphy, which attempts to explain the genesis of lithostratigraphic units and to de-emphasize the importance of formal description and naming. There are also sections explaining principles of facies analysis, basin mapping methods, depositional systems, and the study of basin thermal history, so important to the genesis of fuels and minerals. Lastly, an attempt is made to tie everything together by considering basins in the context of plate tectonics and eustatic sea level changes.

New Perspectives in Basin Analysis Karen L. Kleinspehn 2012-12-06 In the extensive field of earth sciences, with its many subdisciplines, the transfer of knowledge is primarily established via personal

communication, during meetings, by reading journal articles, or by consulting books. Because more information is available than can be assimilated, it is necessary for the individual to search selectively. Books take more time from the inception of an idea until publication than any of the other means of communication mentioned. As a consequence, their function is somewhat different. Many good books are a compilation of up to date knowledge and serve as reference or instruction manuals. Some books are a collection of previously published papers dealing with a certain topic, while others may basically provide large sets of data or examples. The *Frontiers in Sedimentary Geology* series was established both for students and practicing earth scientists who wish to either stay abreast of the most recent ideas or developments or to become familiar with an important

topic in the field of sedimentary geology. The series attempts to deal with subjects that are in the forefront of both scientific and economic interest. The treatment of a subject in an individual volume should be a combination of topical, regional, and interdisciplinary approaches. Although these three terms can be defined separately, in reality they should flow into each other. A topical treatment should relate to a major category of sedimentary geology. *Petroleum Geoscience* Jon Gluyas 2013-04-25 *Petroleum Geoscience* is a comprehensive introduction to the application of geology and geophysics to the search for and production of oil and gas. Uniquely, this book is structured to reflect the sequential and cyclical processes of exploration, appraisal, development and production. Chapters dedicated to each of these aspects are further illustrated by case

histories drawn from the authors' experiences. Petroleum Geoscience has a global and 'geo-temporal' backdrop, drawing examples and case histories from around the world and from petroleum systems ranging in age from late-Pre-Cambrian to Pliocene. In order to show how geoscience is integrated at all levels within the industry, the authors stress throughout the links between geology and geophysics on the one hand, and drilling, reservoir engineering, petrophysics, petroleum engineering, facilities design, and health, safety and the environment on the other. Petroleum Geoscience is designed as a practical guide, with the basic theory augmented by case studies from a wide spread of geographical locations. Covers all the key aspects of the origin of petroleum, exploration, and production. It takes account

of the modern emphasis on the efficient utilisation of reserves, on new methods in exploration (such as 3-D seismics). Book takes 'value-chain' approach to Petroleum Geoscience. First new text on petroleum geology for geology undergraduate to be published in the last ten years. Packed full of real-life case studies from Petroleum industry. *Seismic Stratigraphy, Basin Analysis and Reservoir Characterisation* P.C.H. Veeken 2006-11-13 The interest in seismic stratigraphic techniques to interpret reflection datasets is well established. The advent of sophisticated subsurface reservoir studies and 4D monitoring, for optimising the hydrocarbon production in existing fields, does demonstrate the importance of the 3D seismic methodology. The added value of reflection seismics to the petroleum industry has clearly been proven over the last

decades. Seismic profiles and 3D cubes form a vast and robust data source to unravel the structure of the subsurface. It gets nowadays exploited in ever greater detail. Larger offsets and velocity anisotropy effects give for instance access to more details on reservoir flow properties like fracture density, porosity and permeability distribution, Elastic inversion and modelling may tell something about the change in petrophysical parameters. Seismic investigations provide a vital tool for the delineation of subtle hydrocarbon traps. They are the basis for understanding the regional basin framework and the stratigraphic subdivision. Seismic stratigraphy combines two very different scales of observation: the seismic and well-control. The systematic approach applied in seismic stratigraphy explains why many workers are using the principles to evaluate their

seismic observations. The here presented modern geophysical techniques allow more accurate prediction of the changes in subsurface geology. Dynamics of sedimentary environments are discussed with its relation to global controlling factors and a link is made to high-resolution sequence stratigraphy. 'Seismic Stratigraphy Basin Analysis and Reservoir Characterisation' summarizes basic seismic interpretation techniques and demonstrates the benefits of intergrated reservoir studies for hydrocarbon exploration. Topics are presented from a practical point of view and are supported by well-illustrated case histories. The reader (student as well as professional geophysicists, geologists and reservoir engineers) is taken from a basic level to more advanced study techniques. * Overview reflection seismic methods and its limitations. * Link

between basic seismic stratigraphic principles and high resolution sequence stratigraphy. * Description of various techniques for seismic reservoir characterization and synthetic modelling. * Overview nversion techniques, AVO and seismic attributes analysis.

Oil and Gas Production Handbook: An Introduction to Oil and Gas Production
Harvard Devold 2013*

Principles of Sequence Stratigraphy Octavian Catuneanu 2006-05-19
Principles of Sequence Stratigraphy provides an in-depth coverage and impartial assessment of all current ideas and models in the field of sequence stratigraphy. This textbook thoroughly develops fundamental concepts of sequence stratigraphy that links base-level changes to sedimentary deposits. It examines differing approaches to how the sequence stratigraphic method can be applied to

the rock record, and reviews practical applications such as how petroleum geologists can target where to drill for oil. The book's balanced approach helps students acquire a common terminology and conceptual understanding that will be helpful later in their academic and professional careers, whether they pursue jobs as geologists, geophysicists, or reservoir engineers. This textbook offers theoretical guidelines of how the facies and time relationships are expected to be under specific circumstances such as subsidence patterns, sediment supply, topographic gradients, etc. It goes beyond the standard treatment of sequence stratigraphy by focusing on a more user-friendly and flexible method of analysis of the sedimentary rock record than other current methods. The text is richly illustrated with dozens of full color photographs and original illustrations of

outcrop, core, well log, and 3D seismic data. There is a dedicated chapter on discussions and conclusions, along with an instructor site containing images from the book. Principles of Sequence Stratigraphy will appeal to researchers and professionals, as well as upper graduate and graduate students in stratigraphy, sedimentology, petroleum geology and engineering, economic geology, coal geology, seismic exploration, precambrian geology, and mining geology and engineering. * Offers theoretical guidelines of how the facies and time relationships are expected to be under specific circumstances such as subsidence patterns, sediment supply, topographic gradients, etc. * Contains numerous high-quality and full-color diagrams, photographs and illustrations, virtually on every aid in comprehension of the subject * Features a

dedicated chapter on discussions and conclusions incorporating all previous chapters with references, basic principles and strategies * Provides an extensive list of references for further reading, as well as an author and subject index for quick information access

Petroleum and Basin Evolution Dietrich H. Welte 2012-12-06 This book has been prepared by the collaborative effort of two somewhat separate technical groups: the researchers at the Institute for Petroleum and Organic Geochemistry, Forschungszentrum Jülich (KFA), and the technical staff of Integrated Exploration Systems (IES). One of us, Donald R. Baker, from Rice University, Houston, has spent so much time at KFA as a guest scientist and researcher that it is most appropriate for him to contribute to the book. During its more than 20-year history the KFA

group has made numerous and significant contributions to the understanding of petroleum evolution. The KFA researchers have emphasized both the field and laboratory approaches to such important problems as source rock recognition and evaluation, oil and gas generation, maturation of organic matter, expulsion and migration of hydrocarbons, and crude oil composition and alteration. IES Jilich has been a leader in the development and application of numerical simulation (basin modeling) procedures. The cooperation between the two groups has resulted in a very fruitful synergy effect both in the development of modeling software and in its application. The purpose of the present volume developed out of the 1994 publication by the American Association of Petroleum Geologists of a collection of individually authored papers entitled The Petroleum System - From Source to

Trap, edited by L. B. Magoon and W. G. Dow.

Sediment Routing

Systems Philip A. Allen
2017-09-30 This cutting-edge summary combines ideas from several sub-disciplines to provide an understanding of sediment routing systems and Earth surface dynamics.

Fundamentals of Basin and Petroleum Systems

Modeling Thomas Hantschel
2009-04-09 The first comprehensive presentation of methods and algorithms used in basin modeling, this text provides geoscientists and geophysicists with an in-depth view of the underlying theory and includes advanced topics such as probabilistic risk assessment methods.

Practical Petroleum Geochemistry for Exploration and Production

Harry Dembicki
2016-10-06 Practical Petroleum Geochemistry for Exploration and Production provides readers with a

single reference that addresses the principle concepts and applications of petroleum geochemistry used in finding, evaluating, and producing petroleum deposits. Today, there are few reference books available on how petroleum geochemistry is applied in exploration and production written specifically for geologists, geophysicists, and petroleum engineers. This book fills that void and is based on training courses that the author has developed over his 37-year career in hydrocarbon exploration and production. Specific topical features include the origin of petroleum, deposition of source rock, hydrocarbon generation, and oil and gas migrations that lead to petroleum accumulations. Also included are descriptions on how these concepts are applied to source rock evaluation, oil-to-oil, and oil-to-source rock correlations, and ways of interpreting natural gas data

in exploration work. Finally, a thorough description on the ways petroleum geochemistry can assist in development and production work, including reservoir continuity, production allocation, and EOR monitoring is presented. Authored by an expert in petroleum geochemistry, this book is the ideal reference for any geoscientist looking for exploration and production content based on extensive field-based research and expertise. Emphasizes the practical application of geochemistry in solving exploration and production problems Features more than 200 illustrations, tables, and diagrams to underscore key concepts Authored by an expert geochemist that has nearly 40 years of experience in field-based research, applications, and instruction Serves as a refresher reference for geochemistry specialists and non-specialists alike

Petroleum Engineer's Guide to Oil Field Chemicals and Fluids

Johannes Fink 2011-05-13
Petroleum Engineer's Guide to Oil Field Chemicals and Fluids is a comprehensive manual that provides end users with information about oil field chemicals, such as drilling muds, corrosion and scale inhibitors, gelling agents and bacterial control. This book is an extension and update of Oil Field Chemicals published in 2003, and it presents a compilation of materials from literature and patents, arranged according to applications and the way a typical job is practiced. The text is composed of 23 chapters that cover oil field chemicals arranged according to their use. Each chapter follows a uniform template, starting with a brief overview of the chemical followed by reviews, monomers, polymerization, and fabrication. The different aspects of application,

including safety and environmental impacts, for each chemical are also discussed throughout the chapters. The text also includes handy indices for trade names, acronyms and chemicals. Petroleum, production, drilling, completion, and operations engineers and managers will find this book invaluable for project management and production. Non-experts and students in petroleum engineering will also find this reference useful. Chemicals are ordered by use including drilling muds, corrosion inhibitors, and bacteria control Includes cutting edge chemicals and polymers such as water soluble polymers and viscosity control Handy index of chemical substances as well as a general chemical index
Regional Geology and Tectonics: Principles of Geologic Analysis David G. Roberts 2012-04-09 Expert petroleum geologists David Roberts and Albert Bally

bring you Regional Geology and Tectonics: Principles of Geologic Analysis, volume one in a three-volume series covering Phanerozoic regional geology and tectonics. It has been written to provide you with a detailed overview of geologic rift systems, passive margins, and cratonic basins, it features the basic principles necessary to grasping the conceptual approaches to hydrocarbon exploration in a broad range of geological settings globally. Named a 2013 Outstanding Academic Title by the American Library Association's Choice publication A "how-to" regional geology primer that provides a detailed overview of tectonics, rift systems, passive margins, and cratonic basins The principles of regional geological analysis and the main geological and geophysical tools are discussed in detail. The tectonics of the world are captured and identified in

detail through a series of unique geographic maps, allowing quick access to exact tectonic locations. Serves as the ideal introductory overview and complementary reference to the core concepts of regional geology and tectonics offered in volumes two and three in the series.

Impact of Natural Hazards on Oil and Gas Extraction Ian Lerche

2013-03-09 Since the dissolution of the Soviet Union almost a decade ago, there has been rapid evolution of interactions between the Western nations and individual countries of the former Soviet Union. As part of that interaction, the autonomous independent Republic of Azerbaijan through its scientific arm, the Geological Institute of the Azerbaijan Academy of Sciences under the Directorship of Academician Akif Ali-Zadeh and Deputy Director Ibrahim Guliev, arranged for personnel to be

seconded to the University of South Carolina. The idea here was to see to what extent a quantitative understanding could be achieved of the evolution of the Azerbaijan part of the South Caspian Basin from dynamical, thermal and hydrocarbon perspectives. The Azeris brought with them copious amounts of data collected over decades which, together with the quantitative numerical codes available at USC, enabled a concerted effort to be put forward, culminating in two large books (Evolution of the South Caspian Basin: Geological Risks and Probable Hazards, 675 pps; and The South Caspian Basin: Stratigraphy, Geochemistry, and Risk Analysis, of which were published by the Azerbaijan Academy of 472 pps.) both Sciences, and also many scientific papers. Thus, over the last four to five years an integrated comprehensive start has been made to

understand the hydrocarbon proneness of the South Caspian Basin. In the course of the endeavor to understand the basinal evolution, it became clear that a variety of natural hazards occur in the Basin.

Seismic Stratigraphy

Payton 1977 "This Memoir is the result of plans made after the first Research Symposium on Seismic Stratigraphy presented at the 1975 national convention of the American Association of Petroleum Geologists. Selected reports from technical meetings since that time are also included."--Foreword.

Basin Analysis P. A. Allen 1992

Physical Principles of Sedimentary Basin

Analysis Magnus Wangen 2010-01-14 modelling of basins for graduate students, researchers and oil industry professionals." -- Book Jacket.

Petroleum Geology of the North Sea K. W. Glennie 2009-06-29 Since the 3rd

edition of this publication, emphasis within the petroleum industry has shifted from exploration to appraisal and development of existing hydrocarbon resources. This change is reflected in this new 4th edition, which has been significantly expanded to accommodate additional material. The centerpiece of the book, however, remains a series of descriptions, in stratigraphic order, of the depositional history and hydrocarbon related rock units of the North Sea.

Thermal History of Sedimentary Basins Nancy D. Naeser 2012-12-06 The collection of papers in this volume is a direct result of the Society of Economic Paleontologists and Mineralogists Research Symposium on "Thermal History of Sedimentary Basins: Methods and Case Histories" held as part of the American Association of Petroleum Geologists Annual Convention in New Orleans in March 1985. The original

goal of the symposium was to provide a forum where specialists from a variety of disciplines could present their views of methods that can be used to study the thermal history of a sedimentary basin or an important portion of a basin. An explicit part of that goal was to illustrate each method by presentation of a case history application. The original goal is addressed by the chapters in this volume, each of which emphasizes a somewhat different approach and gives field data in one way or another to illustrate the practical usefulness of the method. The significance of our relative ignorance of the thermal conductivities of sedimentary rocks, especially shales, in efforts to understand or model sedimentary basin thermal histories and maturation levels is a major thrust of the chapter by Blackwell and Steele. Creaney focuses on variations in kerogen composition in source rocks

of different depositional environments and the degree to which these chemically distinct kerogens respond differently to progressive burial heating.

Sedimentology and Petroleum Geology Knut Bjørlykke 1989

Micropaleontology Pratul Kumar Saraswati

2015-12-17 This book will help readers learn the basic skills needed to study microfossils especially those without a formal background in paleontology. It details key principles, explains how to identify different groups of microfossils, and provides insight into their potential applications in solving geologic problems. Basic principles are addressed with examples that explore the strengths and limitations of microfossils and their geological records. This overview provides an understanding of taphonomy and quality of the fossil records, biomineralization and

biogeochemistry, taxonomy, concepts of species, and basic concepts of ecology. Readers learn about the major groups of microfossils, including their morphology, ecology, and geologic history. Coverage includes: foraminifera, ostracoda, coccolithophores, pteropods, radiolaria, diatoms, silicoflagellates, conodonts, dinoflagellates, acritarch, and spores and pollens. In this coverage, marine microfossils, and particularly foraminifera, are discussed in more detail compared with the other groups as they continue to play a major role in most scientific investigations. Among the various tracers of earth history, microfossils provide the most diverse kinds of information to earth scientists. This richly illustrated volume will help students and professionals understand microfossils, and provide insight on how to work with them to better understand evolution of life, and age and the

paleoenvironment of sedimentary strata.

Basin Analysis Philip A. Allen 2013-05-30 Basin Analysis is an advanced undergraduate and postgraduate text aimed at understanding sedimentary basins as geodynamic entities. The rationale of the book is that knowledge of the basic principles of the thermo-mechanical behaviour of the lithosphere, the dynamics of the mantle, and the functioning of sediment routing systems provides a sound background for studying sedimentary basins, and is a pre-requisite for the exploitation of resources contained in their sedimentary rocks. The third edition incorporates new developments in the burgeoning field of basin analysis while retaining the successful structure and overall philosophy of the first two editions. The text is divided into 4 parts that establish the geodynamical environment

for sedimentary basins and the physical state of the lithosphere, followed by a coverage of the mechanics of basin formation, an integrated analysis of the controls on the basin-fill and its burial and thermal history, and concludes with an application of basin analysis principles in petroleum play assessment, including a discussion of unconventional hydrocarbon plays. The text is richly supplemented by Appendices providing mathematical derivations of a wide range of processes affecting the formation of basins and their sedimentary fills. Many of these Appendices include practical exercises that give the reader hands-on experience of quantitative basin analysis processes. Now in full colour and a larger format, this third edition is a comprehensive update and expansion of the previous editions, and represents a rigorous yet

accessible guide to problemsolving in this most integrative of geoscientific disciplines. Additional resources for this book can be found at:

<http://www.wiley.com/go/allen/basinaanalysis>"www.wiley.com/go/allen/basinaanalysis/a.

Petroleum Geoscience Knut Bjørlykke 2015-05-19 This comprehensive textbook presents an overview of petroleum geoscience for geologists active in the petroleum industry, while also offering a useful guide for students interested in environmental geology, engineering geology and other aspects of sedimentary geology. In this second edition, new chapters have been added and others expanded, covering geophysical methods in general and electromagnetic exploration methods in particular, as well as reservoir modeling and production, unconventional resources and practical petroleum

exploration.

Elements of Petroleum Geology Richard C. Selley 2022-08-26 *Elements of Petroleum Geology*, Fourth Edition is a useful primer for geophysicists, geologists and petroleum engineers in the oil industry who wish to expand their knowledge beyond their specialized area. It is also an excellent introductory text for a university course in petroleum geoscience. This updated edition includes new case studies on non-conventional exploration, including tight oil and shale gas exploration, as well as coverage of the impacts on petroleum geology on the environment. Sections on shale reservoirs, flow units and containers, IOR and EOR, giant petroleum provinces, halo reservoirs, and resource estimation methods are also expanded. Written by a preeminent petroleum geologist and sedimentologist with decades of petroleum exploration in remote

corners of the world Covers information pertinent to everyone working in the oil and gas industry, especially geophysicists, geologists and petroleum reservoir engineers Fully revised with updated references and expanded coverage of topics and new case studies

Sedimentology and Sedimentary Basins Mike

R. Leeder 2009-04-01 Sedimentology is a core discipline of earth and environmental sciences. It enquires the origins, transport and deposition of mineral sediment on the Earth's surface. The subject is a link between positive effects arising from the building of relief by tectonics and the negative action of denudation in drainage catchments and tectonic subsidence in sedimentary basins. The author addresses the principles of the subject, emphasising the advantages of a general science approach and the importance of understanding

modern processes. Sedimentology and Sedimentary Basins is not an encyclopaedia, but attempts to stimulate interdisciplinary thought across the whole subject area and related disciplines. The book has been designed to meet the needs of earth and environmental science undergraduates.

Petroleum Formation and Occurrence B.P. Tissot 2013-11-11 Current and authoritative with many advanced concepts for petroleum geologists, geochemists, geophysicists, or engineers engaged in the search for or production of crude oil and natural gas, or interested in their habitats and the factors that control them, this book is an excellent reference. It is recommended without reservation. AAPG Bulletin.

The Gulf of Mexico Sedimentary Basin John W. Snedden 2019-11-21 A comprehensive and richly illustrated overview of the Gulf of Mexico Basin,

including its reservoirs, source rocks, tectonics and evolution.

Subsidence Analysis and Visualization

Eun Young Lee 2018-06-15 This book provides a comprehensive introduction to techniques for quantitative subsidence analysis and visualization with example applications. Subsidence analysis is an essential step to understand basin evolution through geologic time and space in the study of sediments and sedimentary basins. Quantifying techniques have been developed and applied in many basin research projects to evaluate total, tectonic and thermal subsidence. They are also a pre-requisite for basin evolution modelling. Recent studies have applied visualization techniques to understand regional subsidence contexts and trends, which confirmed that three-dimensional visualization of the basin subsidence is highly helpful to gain insight into basin

evolution. In this book, we show how geoscience and computer science can be effectively combined in advanced basin analysis, especially in terms of basin subsidence. Each type of subsidence analysis is introduced with example applications. In particular we present a study of the Vienna basin using BasinVis, a MATLAB-based program for analyzing and visualizing basin subsidence. Given its breadth of coverage, this book will benefit students in undergraduate and postgraduate courses and provide helpful information for research projects and industry applications.

Lithostratigraphic Analysis of Sedimentary Basins

C. E. B. Conybeare 2013-09-11 Lithostratigraphic Analysis of Sedimentary Basins deals with the concepts and methodology of lithostratigraphic analysis used to elucidate various aspects of the geological history of sedimentary

layers within a basin. The principles of stratigraphy and sedimentation as well as the influence of tectonism are discussed, along with their relevance to a variety of methods employed in the analysis of sedimentary basins. Comprised of seven chapters, this book begins with a classification of sedimentary basins and an overview of the methods used in their analysis. Certain lithological features, including sedimentary structures, textures, and assemblages of features that are considered to be diagnostic or indicative of particular depositional environments, are discussed, together with their implications for interpretations of the geologic history of a sedimentary basin on the basis of both macrostratigraphic and microstratigraphic criteria. Other lithologic analyses that are mentioned relate to petrophysical properties

such as porosity and permeability and to chemical properties such as trace element, organic, and hydrocarbon content. Methods employed in the examination of outcrops and rock samples are also considered. The final chapter describes the application of sedimentary basin analysis to exploration of oil and gas, coal, and minerals, together with potential storage reservoirs for natural gas. This monograph will be of interest to geophysicists, geologists, geophysicists, and engineers.

African Basins R.C. Selley 1997-11-20 Following on from the first 2 books in the series, *Sedimentary Basins of the World*, which covered *Chinese Sedimentary Basins (Volume 1)* and *South Pacific Sedimentary Basins (Volume 2)*, comes Volume 3, on *African Basins*. Africa covers a larger land area than the USA, Europe, India and the ASEAN nations put together. It is rich in natural

resources, including oil, gas, coal and nearly every metalliferous mineral. Yet Africa is still one of the least explored continents. This book brings together in one volume, concise reviews of basins previously documented in a vast array of diffuse literature. It also contains some of the first detailed accounts of several basins which have never before been described in such depth. These include the onshore Owambo, Lullemeden, and Sudanese rift basins, and the offshore basins of southern Africa. The contributions are by authors, and teams of authors, with great knowledge and experience of the basins that they describe. The thirteen chapters are arranged in 3 parts covering North Africa, Central Africa and Southern Africa and the book is illustrated by maps, cross-sections, stratigraphic sections and seismic lines. Each chapter includes a comprehensive bibliography

and the book concludes with a subject index. For academic geologists researching the geology of Africa, and for industrial geologists seeking natural resources within African sedimentary rocks, this book is an invaluable source of information.

Petroleum Source Rocks

Barry J. Katz 2012-12-06

Over the past two decades there has been increased interest in the availability of hydrocarbon charge through a better understanding of petroleum geochemistry and the identification and characterization of petroleum source rocks. These rocks are geochemically unique and form under specific sets of circumstances. This book brings together both geologic and geochemical data from fifteen petroleum source rocks, ranging in age from Devonian to Eocene, that would otherwise be widely dispersed in the literature or available only in proprietary corporate

databases. Much of this information, presented in either a tabular or graphic fashion, provides the petroleum explorationist and the geochemist with a framework to establish relationships among various geochemical indices and depositional settings.

Basin Analysis 2005
Stratigraphy: A Modern Synthesis Andrew D. Miall
2015-12-28 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.

Regional Geology and Tectonics: Principles of Geologic Analysis Nicola Scarselli 2020-06-17
Regional Geology and

Tectonics: Principles of Geologic Analysis, 2nd edition is the first in a three-volume series covering Phanerozoic regional geology and tectonics. The new edition provides updates to the first edition's detailed overview of geologic processes, and includes new sections on plate tectonics, petroleum systems, and new methods of geological analysis. This book provides both professionals and students with the basic principles necessary to grasp the conceptual approaches to hydrocarbon exploration in a wide variety of geological settings globally. Discusses in detail the principles of

regional geological analysis and the main geological and geophysical tools Captures and identifies the tectonics of the world in detail, through a series of unique geographic maps, allowing quick access to exact tectonic locations Serves as the ideal introductory overview and complementary reference to the core concepts of regional geology and tectonics offered in volumes 2 and 3 in the series **Salt Tectonics** Martin P. A. Jackson 2017-02-28 An unrivalled consolidation of topics related to salt tectonics, suitable for graduate students, researchers and professionals.