

# Basin Analysis Principles And Applications To Petroleum

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Understanding Oil and Gas Shows and Seals in the Search for Hydrocarbons John Dolson 2016-06-15 This book explains in detail how to use oil and gas show information to find hydrocarbons. It covers the basics of exploration methodologies, drilling and mud systems, cuttings and mud gas show evaluation, fundamental log analysis, the pitfalls of log-calculated water saturations, and a complete overview of the use of pressures to understand traps and migration, hydrodynamics, and seal and reservoir quantification using capillary pressure. Also included are techniques for quickly generating pseudo-capillary pressure curves from simple porosity/permeability data, with examples of how to build spreadsheets in Excel, and a complete treatment of fluid inclusion analysis and fluid inclusion stratigraphy to map migration pathways. In addition, petroleum systems modeling and fundamental source rock geochemistry are discussed in depth, particularly in the context of unconventional source rock evaluation and screening tools for entering new plays. The book is heavily illustrated with numerous examples and case histories from the author's 37 years of exploration experience. The topics covered in this book will give any young geoscientist a quick start on a successful career and serve as a refresher for the more experienced explorer.

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.

**Sedimentology and Petroleum Geology** Knut Bjørlykke 1989

The Petroleum System Geological Survey (U.S.) 1989 Investigations about porosity in petroleum reservoir rocks are discussed by Schmoker and Gautier. Pollastro discusses the uses of clay minerals as exploration tools that help to elucidate basin, source-rock, and reservoir history. The status of fission-track analysis,

which is useful for determining the thermal and depositional history of deeply buried sedimentary rocks, is outlined by Naeser. The various ways workers have attempted to determine accurate ancient and present-day subsurface temperatures are summarized with numerous references by Barker. Clayton covers three topics: (1) the role of kinetic modeling in petroleum exploration, (2) biological markers as an indicator of depositional environment of source rocks and composition of crude oils, and (3) geochemistry of sulfur in source rocks and petroleum. Anders and Hite evaluate the current status of evaporite deposits as a source for crude oil.

**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.

*Basin Analysis* 2005

**Sedimentology and Stratigraphy** Gary Nichols 2013-04-30 This fully revised and updated edition introduces the reader to sedimentology and stratigraphic principles, and provides tools for the interpretation of sediments and sedimentary rocks. The processes of formation, transport and deposition of sediment are considered and then applied to develop conceptual models for the full range of sedimentary environments, from deserts to deep seas and reefs to rivers. Different approaches to using stratigraphic principles to date and correlate strata are also considered, in order to provide a comprehensive introduction to all aspects of sedimentology and stratigraphy. The text and figures are designed to be accessible to anyone completely new to the subject, and all of the illustrative material is provided in an accompanying CD-ROM. High-resolution versions of these images can also be downloaded from the companion website for this book at: [www.wiley.com/go/nicholssedimentology](http://www.wiley.com/go/nicholssedimentology).

**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.

**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

**Principles of Sequence Stratigraphy** Octavian Catuneanu 2022-07-22 Principles of Sequence Stratigraphy, Second Edition presents principles to practical workflow that guide applications in a consistent manner that is independent of model, geological setting and the types and resolution of the data available. The book explains the points of agreement and difference between the various approaches to sequence stratigraphy, while also defining the common ground that affords the standard application of the method. This enables the practitioner to avoid nomenclatural and methodological confusions and apply sequence stratigraphy. The text is richly illustrated with hundreds of full-color diagrams and examples of outcrop, borehole and seismic data. The book's balanced approach helps students and professionals acquire a sound understanding of the concepts and methodology. It will appeal to geologists, geophysicists and engineers with interest in basin analysis, stratigraphy and sedimentology, as well as in all economic applications that concern the exploration and production of natural resources, including water, hydrocarbons, coal and sediment-hosted mineral deposits. Updates the award-winning first edition in all aspects of sequence stratigraphy, from the underlying theory to the practical applications Presents the standard approach to sequence stratigraphic methodology, nomenclature, and classification; the role of modeling in sequence stratigraphy, and the difference between modeling and methodology Discusses the roles of scale and stratigraphic resolution in sequence stratigraphy, and the workflow that affords a consistent application of the method irrespective of the types of data available Describes the three-dimensional nature of the stratigraphic architecture, and the variability of stratigraphic sequences with the tectonic setting, depositional setting, and the climatic regime Illustrates all concepts with high-quality, full-color diagrams, outcrop photographs, and subsurface well data and seismic images

**Salt Tectonics** Martin P. A. Jackson 2017-02-06 Salt tectonics is the study of how and why salt structures evolve and the three-dimensional forms that result. A fascinating branch of geology in itself, salt tectonics is also vitally important to the petroleum industry. Covering the entire scale from the microscopic to the

continental, this textbook is an unrivalled consolidation of all topics related to salt tectonics: evaporite deposition and flow, salt structures, salt systems, and practical applications. Coverage of the principles of salt tectonics is supported by more than 600 color illustrations, including 200 seismic images captured by state-of-the-art geophysical techniques and tectonic models from the Applied Geodynamics Laboratory at the University of Texas, Austin. These combine to provide a cohesive and wide-ranging insight into this extremely visual subject. This is the definitive practical handbook for professional geologists and geophysicists in the petroleum industry, an invaluable textbook for graduate students, and a reference textbook for researchers in various geoscience fields. *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.

**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

**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.

**Physical Principles of Sedimentary Basin Analysis** Magnus Wangen 2010-01-14 A user-friendly, thorough introduction to quantitative modelling of sedimentary basins,

illustrated throughout with real-world examples, applications and test exercises. *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

**Practical Petroleum Geochemistry for Exploration and Production** Harry Dembicki 2022-08-26 Practical Petroleum Geochemistry for Exploration and Production, Second Edition provides readers with a single reference that addresses the principle concepts and applications of petroleum geochemistry used in finding, evaluating, and producing petroleum deposits. The revised volume includes a new chapter on environmental forensic applications of petroleum geochemistry. With the current emphasis on environmental issues (pollution, climate changes, and corporate responsibility), information about how petroleum geochemistry can be used to recognize these problems, determine their source, help identify who is responsible, and how these problems may be mitigated are vital to efficient and economical operation of a project from exploration to production to abandonment. Practical Petroleum Geochemistry for Exploration and Production, Second Edition will continue to serve as a foundational reference to understanding the underpinning of the science, as well as a source of references that the reader can use to find detailed descriptions of methods and protocols. Emphasizes the practical application of geochemistry in solving exploration and production problems Features more than 200 illustrations, tables, diagrams, and case studies to underscore key concepts Authored by an expert geochemist with over 40 years of experience in field-based research, applications, and instruction New edition includes a chapter on environmental issues (impact, climate change, pollution, and corporate responsibility), as well as expanded coverage of topics such as hydrates as unconventional resources; geomicrobial methods (especially DNA analysis) and the use of sea surface slicks from seafloor seeps in surface geochemistry; using GC x GC and asphaltene FTIR in oil correlation studies; and interpretation isotope data for the maturity of thermogenic natural gas

**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.

**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 interplay 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.

**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 information, 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 solutions to important 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:  
ahref="http://www.wiley.com/go/allen/basinanalysis"www.wiley.com/go/allen/basinanalysis/a.

**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** Charles E. 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

**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.

**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.

**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 integrated 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 inversion techniques, AVO and seismic attributes analysis.

**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, Iullemmeden, 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.

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

**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.

**The Gulf of Mexico Sedimentary Basin** John W. Snedden 2019-11-30 The Gulf of Mexico Basin is one of the most prolific hydrocarbon-producing basins in the world, with an estimated endowment of 200 billion barrels of oil equivalent. This book provides a comprehensive overview of the basin, spanning the US, Mexico and Cuba. Topics covered include conventional and unconventional reservoirs, source rocks and associated tectonics, basin evolution from the Mesozoic to Cenozoic Era, and different regions of the basin from mature onshore fields to deep-water subsalt plays. Cores, well logs and seismic lines are all discussed providing local, regional and basin-scale insights. The scientific implications of seminal events in the basin's history are also covered, including sedimentary effects of the Chicxulub Impact. Containing over 200 color illustrations and 50 stratigraphic cross-sections and paleogeographic maps, this is an invaluable resource for petroleum industry professionals, as well as graduate students and researchers interested in basin analysis, sedimentology, stratigraphy, tectonics and petroleum geology.

*Mechanism of Sedimentary Basin Formation* Yasuto Itoh 2013-08-28 This book is devoted to the mechanisms of sedimentary basin formation on active plate margins, which show enormous diversity reflecting complex tectonic processes.

Multidisciplinary approach pursuing basin-forming mechanism is based on geology, sedimentology, geochronology and geophysics. Some chapters are dedicated to the genetic analysis of sedimentary basins in wrench deformation zones in forearc and intra-arc regions. Another block of chapters deals with basin formation in peripheral regions of Eurasia and intra-arc / foreland basins under the influence of the fluctuation of stress regimes. Finally geophysical approaches to basin analyses are shown in some chapters from microscopic to regional scales. Diverse contents of the chapters provide the audience with the present accomplishments of basin researches on active margins by Earth scientists.

*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.

**Petrology of Sedimentary Rocks** Sam Boggs 2009-02-19 Advanced textbook outlining the physical, chemical, and biological properties of sedimentary rocks through petrographic microscopy, geochemical techniques, and field study.

**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

*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.

*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.

*Regional Geology and Tectonics: Principles of Geologic Analysis* David G. Roberts 2012-03-16 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.

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