Sedimentary Basins And Petroleum Geology Of The Middle East

Investigating the complex interplay between tectonics and sedimentation is a key endeavor in modern earth science. Many of the world's leading researchers in this field have been brought together in this volume to provide concise overviews of the current state of the subject. The plate tectonic revolution of the 1960's provided the framework for detailed models on the structure of orogens and basins, summarized in a 1995 textbook edited by Busby and Ingersoll. Tectonics of Sedimentary Basins: Recent Advances focuses on key topics or areas where the greatest strides forward have been made, while also providing on-line access to the comprehensive 1995 book. Breakthroughs in new techniques are described in Section 1, including detrital zircon geochronology, cosmogenic nuclide dating, magnetostratigraphy, 3-D seismic, and basin modelling. Section 2 presents the new models for rift, post-rift, transtensional and strike slip basin settings. Section 3 addresses the latest ideas in convergent margin tectonics, including the sedimentary record of subduction intiation and subduction, flat-slab subduction, and arc-continent collision; it then moves inboard to forearc basins and intra-arc basins, and ends with a series of papers formed under compessional strain regimes, as well as post-orogenic intramontane basins. Section 4 examines the origin of plate interior basins, and the sedimentary record of supercontinent formation. This book is required reading for any advanced student or professional interested in sedimentology, plate tectonics, or petroleum geoscience. Additional resources for this book can be found at: www.wiley.com/go/busby/sedimentarybasins.

Fluvial deposits represent the preserved record of one of the major nonmarine environ ments. 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 strati graphic 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.

This report assesses the oil & gas resource potential in the Cenozoic and Mesozoic strata of the three major sedimentary basins of the Pacific margin of Canada: the Tofino, Queen Charlotte, and Georgia basins. Ten conceptual petroleum plays are defined on the basis of various geological controls, with most plays identified from stratigraphic considerations. Once defined, the ten plays are each statistically analyzed to estimate their hydrocarbon resource potential. Total potential & field sizes quoted in the report are all median value estimates of in-place hydrocarbon volumes.

From Sedimentary Environments to Rock Physics

Sedimentary Basins of the World and Giant Hydrocarbon Accumulations

The Sedimentary Basins of Western Australia

Exploring for Oil and Gas Traps

Thermal History of Sedimentary Basins

In the extensive field of earth sciences, with its many subdisciplines, the trans fer 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 men tioned. 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 stu dents 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 sub jects 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 topi cal, 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.

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

The wealth of petroleum has made the Middle East one of the most actively explored regions of the world. The volume of geological, geophysical and geochemical data collected by the petroleum industry in recent decades is enormous. The Middle East may be a unique region in the world where the volume of subsurface data and information exceeds that based on surface outcrop. This book reviews the tectonic and geological history of the Middle East and the regional hydrocarbon potential on a country by country basis in the context of current ideas developed through seismic and sequence stratigraphy and incorporating the ideas of global sea level change. Subsurface data have been used as much as possible to amplify the descriptions. The paleogeographic approach provides a means to view the area as a whole. While the country by country approach inevitably leads to some repetition, it enhances the value of the volume as a teaching tool and underlines some of the changing lithologies within formations carrying the same name.

The Geology of Fluvial Deposits

World Atlas of Oil and Gas Basins

Quantitative Sedimentary Basin Modeling

The Petroleum Geology and Evaluations of the Sedimentary Basins of Indonesia

Methods and Case Histories

This Third Edition of Elements of Petroleum Geology is completely updated and revised to reflect the vast changes in the field since publication of the Second Edition. This book is a usefulprimer 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. Elements of Petroleum Geology begins with an account of the physical and chemical properties of

petroleum, reviewing methods of petroleum exploration and production. These methods include drilling, geophysical exploration techniques, wireline logging, and subsurface geological mapping. After describing the temperatures and pressures of the subsurface environment and the hydrodynamics of connate fluids, Selley examines the generation and migration of petroleum, reservoir rocks and trapping mechanisms, and the habit of petroleum in sedimentary basins. The book contains an account of the composition and formation of tar sands and oil shales, and concludes with a brief review of prospect risk analysis, reserve estimation, and other economic topics. Updates the Second Edition completely Reviews the concepts and methodology of petroleum exploration and production Written by a preeminent petroleum geologist and sedimentologist with decades of petroleum exploration in remote corners of the world Contains information pertinent to geophysicists, geologists, and petroleum reservoir engineers Updated statistics throughout Additional figures to illustrate key points and new developments New information on drilling activity and production methods including crude oil, directional drilling, thermal techniques, and gas plays Added coverage of 3D seismic interpretation New section on pressure compartments New section on hydrocarbon adsorption and absorption in source rocks Coverage of The Orinoco Heavy Oil Belt of Venezuela Updated chapter on unconventional petroleum

Since the search for hydrocarbon resources in the Arctic started in the 1930's the exploration activity has expanded into many of the Arctic regions, and several of the Arctic sedimentary basins have proven to be important sources of hydrocarbon. Nevertheless, the Arctic continental margins and adjacent onshore areas are still largely unexplored in the context of petroleum, and are therefore considered to be one of the few regions in the world where significant undiscovered sources of hydrocarbon may exist. The aim of the book is to give an updated overview of the geology of the Arctic sedimentary basins and their petroleum potential. Although the different basins vary significantly as regards sedimentary fill and tectonic evolution, many of the basins share some of the characteristics needed to become prolific oil and gas provinces. The book contains 45 extensively illustrated articles. It starts with papers on the Mesozoic source rocks, and

oceanic natural gas clatrates in the Arctic, respectively. Then follow articles on the regional and petroleum geology of the main regions; Greenland, North American Arctic, Soviet Arctic and the Barents Sea. Particular emphasis is placed on the Barents Sea. The two last chapters comprise articles on salt dynamics and methods. The book closes with a paper on international law in the Arctic. This volume will be of interest to both students and professional earth scientists/petroleum explorationists working in the northern latitudes. It will allow the readers to stay abreast of the development in this climatic region of the world.

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 Jii lich (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 Jiilich 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.

Sedimentary basins of the world, plate 1

Petroleum Geology of Sedimentary Basins of Western Africa

U.S.S.R.

The petroleum geology and analysis of the sedimentary basins of Burma, Thailand,

Malaysia, Indochina, and Taiwan

Principles of Sedimentary Basin Analysis

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 sym posium was to provide a forum where specialists from a variety of dis ciplines 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 useful ness ofthe 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 chem- . ically distinct kerogens respond differently to progressive burial heating.

In this work, the reader will find the basic concepts and vocabulary of sedimentary geology, along with a presentation of the new ideas that are in current use in petroleum exploration. This abundantly illustrated book will serve as an excellent educational tool and remain a valuable resource and handy reference work in any petroleum geology library.Contents: 1. Basics of dynamic geology. 2. Continental and oceanic basins. 3. Sedimentary driving mechanisms and environments. 4. Time evolution: Sedimentary sequences, stratigraphy. 5. From sediments to sedimentary basin rocks and mountain chains. 6. Petroleum systems. IndexState of Strain. 2. State of Stress. 3. Thermodynamics of Continuous Media. II. Mechanism of Material Strain. 4. Linear Elasticity. General Theory. 5. Plane Theory of Elasticity. 6. Behaviour of a Material Containing Cavities. 7. Thermodynamics of Saturated Porous Media. 8. Infinitesimal Thermoporoelasticity. 9. The Triaxial Test and the Measurement of Thermoporoelastic Properties. 10. Thermoporoelastoplasticity. General Theory and Application. III. Mechanisms of Material Cohesion Loss. 11. Fissuring. 12. Introduction to Damage Theory. 13. Appearance of Shearing Bands in Geomaterials.

Petroleum Geology

New Perspectives in Basin Analysis

Petroleum Basins and Hydrocarbon Potential of the Andes of Peru and Bolivia

A Short Text to Accompany Sedimentary Basins of the World

Regional Geology and Tectonics: Phanerozoic Rift Systems and Sedimentary Basins

Based on the Proceedings of the West Australian Basins Symposium Sponsored by the Western Australian Branch of the Petroleum Exploration Society of Australia, Limited and Held in Perth, Western Australia, August 14-17, 1994

Petroleum geoscience comprises those geoscientific disciplines which are of greatest significance for the exploration and recovery of oil and gas. These include petroleum geology, of which sedimentary geology is the main foundation along with the contextual and modifying principles of regional, tectonic and structural geology. Additionally, biostratigraphy and micropalaeontology, organic geochemistry, and geophysical exploration and production techniques are all important tools for petroleum geoscientists in the 21st century. This comprehensive textbook present an overview of petroleum geoscience for geologists destined for the petroleum industry. It should also be useful for students interested in environmental geology, engineering geology and other aspects of sedimentary geology

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.

Expert petroleum geologists David Roberts and Albert Bally bring you Regional Geology and Tectonics: Phanerozoic Rift Systems and Sedimentary Basins, volume two in a three-volume series covering Phanerozoic regional geology and tectonics. Experience in analyzing and assessing rifts—locations where the Earth ' s outer shell and crust have been stretched over time by seismic activity—is critical for you as an exploration geologist in identifying Earth ' s most lucrative hydrocarbon locations in which extraction is both efficient and safe. Vast compilations of related industry data present regional seismic lines and cross sections, and summaries of analogue and theoretical models are provided as an essential backdrop to the structure and stratigraphy of various geological settings. Named a 2013 Outstanding Academic Title by the American Library Association's Choice publication A practical reference for petroleum geologists that discusses the importance of rift systems and the structural evolution of the Earth Analyses of active rifts in East Africa, China, Siberia, the Gulf of Suez, and the Russian Arctic provide immediately implementable petroleum exploration applications in regions heavily targeted by oil & gas companies Presents overviews of sequence stratigraphy in rifts and structural controls on clastic and carbonate sedimentation—critical to the exact mapping of the most lucrative hydrocarbon locations by exploration geologists

Methods and Case Studies
Petroleum Geology
Depositional Evolution and Petroleum Applications
Elements of Petroleum Geology
The Gulf of Mexico Sedimentary Basin

This is a how-to encyclopedia of prospecting for oil and gas. The book, an addition to the Handbook set of the Treatise of Petroleum Geology, focuses on procedures and proven petroleum exploration techniques that are critical for generating viable prospects. The twenty-one chapters deal with exploration philosophy, the concept and critical elements of traps in a petroleum system, evaluating the elements of a petroleum province, and methods for predicting reservoir occurrence, quality, and performance.

Professor Li's World Atlas of Oil and Gas Basins is a fresh and comprehensive treatise of the distribution of the world's hydrocarbon reserves. The Atlas highlights the geographical, sedimentary and geological features of the basins, using a combination of maps and stratigraphic diagrams to depict the history, prospectivity and commercial production capacity of the reserves on a continental and country-by-country basis. The Atlas is an essential reference source for petroleum geologists and reservoir engineers working in hydrocarbon exploration and production. It is also a valuable and original teaching aid for university graduate and postgraduate courses. The Atlas provides a welcome addition to the global database of the world's energy resources and is therefore an indispensable source of information for the formulation of future strategies to exploit oil and gas reserves. Written by one of China's foremost petroleum geologists, the Atlas provides a rare analysis of the industry from the perspective of the country whose demand for oil and gas is set to become the largest in the next few decades. It is an important and vital scholarly work.

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.

Tectonics, Sedimentary Basins, and Petroleum Systems, AAPG Memoir 75
Sedimentary Facies, Basin Analysis, and Petroleum Geology
The Western Gulf of Mexico Basin
Analyzing the Thermal History of Sedimentary Basins

Petroleum Resource Potential of Sedimentary Basins on the Pacific Margin of Canada

The Sedimentary Basins of the United States and Canada, Second Edition, focuses on the large, regional, sedimentary accumulations in Canada and the United States. Each chapter provides a succinct summary of the tectonic setting and structural and paleogeographic evolution of the basin it covers, with details on structure and stratigraphy. The book features four new chapters that cover the sedimentary basins of Alaska and the Canadian Arctic. In addition to sedimentary geologists, this updated reference is relevant for basin analysis, regional geology, stratigraphy, and for those working in the hydrocarbon exploration industry. Features updates to existing chapters, along with new chapters on sedimentary basins in Alaska and Arctic Canada Includes nearly 300 detailed, full-color paleogeographic maps Written for general geological audiences and individuals working in the resources sector, particularly those in the fossil fuel industry

Review of the second edition "For geologists and geophysicists studying sedimentary fill of basins, this volume is a valuable addition to their shelves. The book is packed with informationincludes numerous lists of references, and is up-to-date. As a source volume, this book is second to none. It is clear and well organized." GEOPHYSICS

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.

Petroleum and Basin Evolution

The Petroleum Geology and Examinations of the Sedimentary Basins of Indonesia

For Sedimentary Basin Analysis and Modelling

Proceedings of the Norwegian Petroleum Society Conference, 15-17 August 1990, Tromso, Norway

Petroleum Geochemistry and Basin Evaluation

A collection of poems personifying fifteen different colors.
Insights from Petroleum Geochemistry, Geology and Basin Modeling
The Petroleum Geology and Evaluations of the Sedimentary Basins of the Philippines
Tectonics of Sedimentary Basins
Petroleum Geology of the Sedimentary Basins, the Petroleum Industry's Economic Environment
Petroleum Geoscience