

## Petroleum Development Geology

Unconventional Petroleum Geology, Second Edition presents the latest research results of global conventional and unconventional petroleum exploration and production. The first part covers the basics of unconventional petroleum geology, its introduction, concept of unconventional petroleum geology, unconventional oil and gas reservoirs, and the origin and distribution of unconventional oil and gas. The second part is focused on unconventional petroleum development technologies, including a series of technologies on resource assessment, lab analysis, geophysical interpretation, and drilling and completion. The third and final section features case studies of unconventional hydrocarbon resources, including tight oil and gas, shale oil and gas, coal bed methane, heavy oil, gas hydrates, and oil and gas in volcanic and metamorphic rocks. Provides an up-to-date, systematic, and comprehensive overview of all unconventional hydrocarbons Reorganizes and updates more than half of the first edition content, including four new chapters Includes a glossary on unconventional petroleum types, including tight-sandstone oil and gas, coal-bed gas, shale gas, oil and gas in fissure-cave-type carbonate rocks, in volcanic reservoirs, and in metamorphic rocks, heavy crude oil and natural bitumen, and gas hydrates Presents new theories, new methods, new technologies, and new management methods, helping to meet the demands of technology development and production requirements in unconventional plays Full text engineering e-book.

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.

This book covers "how oil & gas is formed ; how to find commercial quantities ; how to drill, evaluate, and complete a well ; all the way through production and improved oil recovery." - back cover.

Methods and Applications in Petroleum and Mineral Exploration and Engineering Geology is an interdisciplinary book bridging the fields of earth sciences and engineering. It covers topics on natural resources exploration as well as the application of geological exploration methods and techniques to engineering problems. Each topic is presented through theoretical approaches that are illustrated by case studies from around the globe. Methods and Applications in Petroleum and Mineral Exploration and Engineering Geology is a key resource for both academics and professionals, offering both practical and applied knowledge in resources exploration and engineering geology. Features new exploration technologies including seismic, satellite images, basin studies, geochemical modeling and analysis Presents cases studies from different countries such as the Hoggar area (Algeria), Urals and Siberia (Russia), North of Chile (II and III regions), and North of Italy (Trentino Alto adige) Includes applications of the novel methods discussed

This monograph presents a unique combination of structural and tectonic modelling with applied petroleum geological problems. Focussing on the Norwegian Continental Shelf and neighbouring areas, it includes discussion covering all scales - from development of sedimentary basins, to formation of fractures and joints on a microscale - and from exploration, to the exploitation of hydrocarbons. The book's coverage of structural and tectonic modelling, petroleum geology applications, and the treatment of the Norwegian Continental Shelf should make this book an invaluable resource book for advanced students of structural and tectonic modelling, teachers, and researchers; as well as for geologists and geophysicists in the petroleum industry.

Petroleum Geoscience, 2nd edition is a comprehensive introduction to the application of geology and geophysics to the search for and production of oil and gas. The aim this updated second edition remains the same - to provide a comprehensive grounding in the geological sciences as applied to exploration 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 new case histories drawn from the authors' experiences. Petroleum Geoscience, 2nd edition 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. Discovery and production of petroleum underpinned global development throughout the twentieth century but times are changing. Combustion of fossil fuels and release of greenhouse gases, mainly carbon dioxide, is driving climate change. The skills and knowledge of the petroleum geoscientist also find application in carbon storage in and heat recovery (geothermal energy) from the Earth. This second edition addresses such technologies in the newly added Chapter 7. The target readership is mainly final year undergraduates and postgraduates in the earth sciences together with little-experienced technical staff within the petroleum industry. The book draws on a large variety of examples from many basins around the world and as a consequence should appeal to those interested in petroleum geoscience, whether they be in Aberdeen or Abu Dhabi, Houston or Ho Chi Min.

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

Principles of Petroleum Development Geology examines concepts that are fundamental to the success of tomorrow's petroleum geologists whether they call themselves exploration, development or environmental geologists. Petroleum development geology contains strong aspects of structural geology, reservoir engineering, drilling engineering, petrophysics, reflection seismology, and petroleum land management. This textbook is designed to outline the most salient aspects of these disciplines as they apply to development geology. Written on an introductory level, the book places emphasis on principles. Field examples and practical problems with solutions are included.

Petroleum Development Geology Principles of Petroleum Development Geology Prentice Hall

Petroleum development scenarios are detailed for proposed Gulf of Alaska Outer Continental Shelf lease sale no. 65 (it follows the earlier Gulf of Alaska OCS lease sale no. 39). This report describes production technology (platforms, towers, etc.), engineering constraints (oceanography, geology, geohazards, biology, environmental regulation), production system selection, employment aspects, shore facilities, economics of field development, scenario selection, petroleum geology, and development costs.

Petroleum Geology of Libya, Second Edition, systematically reviews the exploration history, plate tectonics, structural evolution, stratigraphy, geochemistry and petroleum systems of Libya, and includes valuable new chapters on oil and gas fields, production, and reserves. Since the previous edition, published in 2002, there have been numerous developments in Libya, including the lifting of sanctions, a new licensing system, with licensing rounds in 2004, 2005, 2006, and 2007, many new exploratory wells, discoveries and field developments, and a change of regime. A large amount of new data has been published on the geology of Libya in the past fourteen years, but it is widely scattered through the literature. Much of the older data has been superseded, and several of the key publications, especially those published in Libya, are difficult to access. This second edition provides an updated source of reference which incorporates much new information, particularly on petroleum systems, reserves, oil and gas fields, play fairways, and remaining potential. It presents the results of recent research and a detailed description of Libyan offshore geology.

The book includes an extensive and comprehensive bibliography. Presents over 180 full colour illustrations including maps, diagrams and charts, illustrating the key concepts in a clear and concise manner Authored by two recognized world authorities on geology in Libya, with over 40 years' experience in Libya between them Provides an expanded and updated version of the bestselling previous edition, nicknamed the Explorationist's Bible Lays the foundation for the post-revolution exploration age in Libya

A practical book for geologists involved in petroleum production, here is a comprehensive review of basic techniques in production geology, the links with related subjects, and the function of geologists in the planning and operation of all phases of oilfield development. The first part discusses the basic techniques used in the analysis and graphic representation of the stratigraphy, tectonic structure, reservoir sedimentology and hydrocarbon distribution of an oilfield. The second part describes how this knowledge is applied in the various phases of field development. The mutual support between production geology and neighbouring disciplines such as seismology, log interpretation, reservoir engineering is stressed. Throughout the book, the text is secondary to the illustrations; these are examples, mostly hypothetical, of conditions and techniques discussed, designed so as to bring out as clearly as possible the importance of the points made. It is thus an ideal book for graduate students, specializing in petroleum geology and for participants in post-graduate courses, in universities or within industry.

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 undergraduates to be published in the last ten years. Packed full of real-life case studies from Petroleum industry.

Reservoir characterization as a discipline grew out of the recognition that more oil and gas could be extracted from reservoirs if the geology of the reservoir was understood. Prior to that awakening, reservoir development and production were the realm of the petroleum engineer. In fact, geologists of that time would have felt slighted if asked by corporate management to move from an exciting exploration assignment to a more mundane assignment working with an engineer to improve a reservoir's performance. Slowly, reservoir characterization came into its own as a quantitative, multidisciplinary endeavor requiring a vast array of skills and knowledge sets. Perhaps the biggest attractor to becoming a reservoir geologist was the advent of fast computing, followed by visualization programs and theaters, all of which allow young geoscientists to practice their computing skills in a highly technical work environment. Also, the discipline grew in parallel with the evolution of data integration and the advent of asset teams in the petroleum industry. Finally, reservoir characterization flourished with the quantum improvements that have occurred in geophysical acquisition and processing techniques and that allow geophysicists to image internal reservoir complexities.

This volume contains a compilation of 17 seminal papers, taken from various Geological Society Special Publications and the Journal of the Geological Society, on the use and application of stratigraphy in petroleum geology over the last 20 years. The volume focuses on case studies in fundamental stratigraphy, applied and integrated stratigraphy and alternative methods of stratigraphy. The book is introduced with an original scientific and historical review of the subject: all papers are set in context with both the benefits of the techniques and some of the short-comings highlighted. By compiling these papers, commercial stratigraphers John Gregory, Philip Copestake and Julian Pearce have created a volume intended for a wide readership. However, it is of particular relevance for the training of undergraduate students studying courses on petroleum geology, basin development and sequence stratigraphy as well as for all postgraduate students working in petroleum-related scientific fields. It is also intended as a volume of general use for geoscientists entering the petroleum industry, as well as current workers requiring an overview.

