Principles Of Sequence Stratigraphy Catuneanu

This Memoir provides a comprehensive review of the Precambrian basins of the four Archaean nuclei of India (Dharwar, Bastar, Singhbhum and Aravalli-Bundelkhand), encompassing descriptions of the time-space distribution of sedimentary-volcanic successions, the interrelationship between tectonics and sedimentation, and basin histories. Studies of 22 basins within the framework of an international basin classification scheme deepen an understanding of the basin architecture especially for cratonic basins. Most Indian sedimentary successions formed as cratonic to extensional-margin rift and thermal-sag basins, some reflecting mantle plume movement, subcrustal heating or far-field stress. This Memoir shows that Phanerozoic plate-tectonic and sequence stratigraphic principles can be applied to the Precambrian basins of large Archaean provinces. The differences between the stratigraphic architecture of the Indian Precambrian and examples of Phanerozoic basin-fill successions elsewhere are ascribed to variable rates and intensities of the controls on accommodation and sediment supply, and changes inherent in the evolution of the hydrosphere-atmosphere and biosphere systems.

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 peology 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

Sequence stratigraphy represents a new paradigm in geology. The principal hypothesis is that stratigraphie successions may be subdivided into discrete sequences bounded by widespread unconformities. There are two parts to this hypothesis. First, it suggests that the driving forces which generate sequences and their bounding unconformities also generate predietable three-dimensional stratigraphies. In re cent years stratigraphie research guided by sequence models has brought about fundamental im provements in our understanding of stratigraphie processes and the controls of basin architecture. Sequence models have provided a powerful framework for mapping and numerieal modeling, enabling the science of stratigraphy to advance with rapid strides. This research has demonstrated the importance of a wide range of processes for the generation of cyclie sequences, including eustasy, tectonics, and orbital forcing of climate change. The main objective of this book is to document the sequence record and to discuss our current state of knowledge about sequence-generating processes.

"This memoir grew out of the 2 1/2-day symposium, 'Variations in Depositional Systems Within a Sequence Stratigraphic Framework: Applications to Exploration,' that we organized at the 1991 AAPG annual meeting in Dallas, Texas."--Preface.

This book is intended to complement the author's 1996 book "The geology of fluvial deposits", not to replace it. The book summarizes methods of mapping and interpretation of fluvial depositional systems, with a detailed treatment of the tectonic, climatic and eustatic controls on fluvial depositional processes. It focuses on the preserved, ancient depositional record and emphasizes large-scale (basin-scale) depositional processes. Tectonic and climatic controls of fluvial sedimentation and the effects of base-level change on sequence architecture are discussed. Profusely illustrated and with an extensive reference to the recent literature, this book will be welcomed by the student and professional geologist alike.

Principles of Sequence Stratigraphy, Second Edition provides an in-depth treatise of sequence stratigraphy, from the theoretical principles to the practical workflow that guides its application 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, and defines 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 effectively and objectively. The book's balanced approach helps students and professionals to acquire a sound understanding of the concepts and methodology, as well as a common terminology that facilitates communication across the stratigraphic community. The process-based approach to sequence stratigraphy eliminates dogmatic precepts and enables a model-independent application of the method that honors the natural variability of the stratigraphic record. The text is richly illustrated with hundreds of full-color diagrams and examples of outcrop, borehole, and seismic data. Principles of Sequence Stratigraphy 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. 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. The new edition updates the award-winning first edition in all aspects of sequence stratigraphy, from the underlying theory to the practical applications Key new topics include the standard approach to sequence stratigraphic methodology, nomenclature, and classification; the role of modeling in sequence stratigraphy, and the difference between modeling and methodology; the issue of scale and stratigraphic resolution; and more All concepts are illustrated with numerous high-quality and full-color diagrams, photographs and illustrations, virtually on every aid in comprehension of the subject

The stratigraphic concept of a depositional sequence was introduced to the scientific literature by Peter Vail and his colleagues in the late 70s, building on the shoulders of giants like Chamberlain, Sloss and Wheeler. Since then, several papers compared and contrasted the original sequence-stratigraphic school published in the AAPG Memoir 26 in 1977 with other approaches to subdivide the geologic record, as well as, debating the model validity and impact on the community. At its core, the "model" is really a stratigraphic interpretation method, which was never explicitly documented in the literature. The objective of this book is to present the sequence stratigraphic method in its current form in an attempt to clarify its usage and application in diverse geologic data and depositional environments. This publication is the result of more than 3 decades of sequence stratigraphy research and application. The objective is to emphasize the most important aspects of Sequence Stratigraphy-a method to guide geologic interpretation of stratigraphic data (seismic profiles, well-logs, cores and outcrops) across scales (from local to regional and global) and depositional environments (from continental to deep marine). This book

in an 11 x 17 format is designed to be easily used for teaching or self-learning experiences. In the second edition of the "Atlas", the book was divided in 2 volumes-Exercises and Solutions-to make it easier to use the publication as text book for sequence stratigraphy courses in universities. Also, a new exercise was added and several of the existing exercises went through major updating and editing.

This memoir, which grew out of an Exxon-led, AAPG-sponsored field trip, discusses concepts and applications of sequence stratigraphy. Following a description and historical perspective of the terminology used, 14 papers discuss topics such as models for topset play types; the sequence stratigraphic significance of trace fossils; lateral variability in the Campanian and lower Maastrichtian of the western interior seaway; facies architecture of parasequences; controls on sequence stacking; stratigraphy of Turonian-Santonian strata; sequence, parasequence, and intraparasequence architecture of the grassy member; and high-frequency sequence stratigraphy and paleogeography of the Kenilworth member. The papers are accompanied by excellent fold-out photos and diagrams--in bandw and color. Annotation copyright by Book News, Inc., Portland, OR

Stratigraphy and Timescales covers current research across a wide range of stratigraphic disciplines, providing information on recent developments for the geoscientific research community. This fully commissioned review publication aims to foster and convey progress in stratigraphy, including geochronology, magnetostratigraphy, lithostratigraphy, event-stratigraphy, isotope stratigraphy, astrochronology, climatostratigraphy, seismic stratigraphy, biostratigraphy, ice core chronology, cyclostratigraphy, palaeoceanography, sequence stratigraphy, and more. Contains contributions from leading authorities in the field Informs and updates on all the latest developments in the field Aims to foster and convey progress in stratigraphy, including geochronology, magnetostratigraphy, lithostratigraphy, event-stratigraphy, and more

This book presents findings from research into the Precambrian history of the Indian shield obtained using state-of-the-art technology. It demonstrates a paradigm shift towards studying the Precambrian shield regions using petrological, geochemical, structural, metallogenic, sedimentological and paleobiological data from the rocks in the Precambrian shield area, and presents a collection of contributions on these diverse topics that help to reconstruct the Precambrian evolution of the Indian Shield.

"This textbook provides a balanced coverage of all current models in the field of sequence stratigraphy. Alternative approaches as to how the sequence stratigraphic method should be applied to the rock record is examined from the perspective of a unifying platform, demonstrating that sufficient common ground exists to standardize sequence stratigraphy. A distinction is made between the fundamental core concepts, which are embraced by all 'schools', and the trivial aspects that are model-dependant. This work is not only a review of past and current literature, but also includes key original viewpoints and is illustrated with new graphic material and numerous field examples of outcrop, core, well-log and 3-D seismic data in full colour."--BOOK JACKET.

Relates the physical and geometric elegance of geologic structures within the Earth's crust and the ways in which these structures reflect the nature and origin of crystal deformation through time. The main thrust is on applications in regional tectonics, exploration geology, active tectonics and geohydrology. Techniques, experiments, and calculations are described in detail, with the purpose of offering active participation and discovery through laboratory and field work.

Globally growing demand of energy and mineral resources, reliable future projection of climate processes and the protection of coasts to mitigate the threats of disasters and hazards require a comprehensive understanding of the structure, ongoing processes and genesis of the marine geosphere. Beyond the “classical” research fields in marine geology in current time more general concepts have been evolved integrating marine geophysics, hydrography, marine biology, climatology and ecology. As an umbrella the term “marine geosciences” has been broadly accepted for this new complex field of research and the solutions of practical tasks in the marine realm. The “Encyclopedia of Marine Geosciences” comprises the current knowledge in marine geosciences whereby not only basic but also applied and technical sciences are covered. Through this concept a broad scale of users in the field of marine sciences and techniques is addressed from students and scholars in academia to engineers and decision makers in industry and politics.

Reservoir Characterization is a collection of papers presented at the Reservoir Characterization Technical Conference, held at the Westin Hotel-Galleria in Dallas on April 29-May 1, 1985. Conference held April 29-May 1, 1985, at the Westin Hotel—Galleria in Dallas. The conference was sponsored by the National Institute for Petroleum and Energy Research, Bartlesville, Oklahoma. Reservoir characterization is a process for quantitatively assigning reservoir properties, recognizing geologic information and uncertainties in spatial variability. This book contains 19 chapters, and begins with the geological characterization of sandstone reservoir, followed by the geological prediction of shale distribution within the Prudhoe Bay field. The subsequent chapters are devoted to determination of reservoir properties, such as porosity, mineral occurrence, and permeability variation estimation. The discussion then shifts to the utility of a Bayesian-type formalism to delineate qualitative ""soft"" information and expert interpretation of reservoir description data. This topic is followed by papers concerning reservoir simulation, parameter assignment, and method of calculation of wetting phase relative permeability. This text also deals with the role of discontinuous vertical flow barriers in reservoir engineering. The last chapters focus on the effect of reservoir heterogeneity on oil reservoir. Petroleum engineers, scientists, and researchers will find this book of great value.

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.
The studies of Earth's history and of the physical and chemical properties of the substances that make up our planet, are of great significance to our understanding both of its past and its future. The geological and other environmental processes on Earth and the composition of the planet are of vital importance in locating and harnessing its resources. This book is primarily written for research scholars, geologists, civil engineers, mining engineers, and environmentalists. Hopefully the text will be used by students, and it will continue to be of value to them throughout their subsequent professional and research careers. This does not mean to infer that the book was written solely or mainly with the student in mind. Indeed from the point of view of the researcher in Earth and Environmental Science it could be argued that this text contains more detail than he will require in his initial studies or research.
Sequence stratigraphy is a powerful tool for the prediction ofdepositional porosity and permeability, but does not account forthe impact of diagenesis on these reservoir parameters. Therefore,integrating diagenesis and sequence stratigraphy can provide abetter way of predicting reservoir quality. This special publication consists of 19 papers (reviews and casestudies) exploring different aspects of the integration ofdiagenesis and sequence stratigraphy in carbonate, siliciclastic,and mixed carbonate-siliciclastic successions from variousgeological settings. This book will be of interest tosedimentary petrologists aiming to understand the distribution ofdiagenesis in siliciclastic and carbonate successions, to sequencestratigraphers who can use diagenetic features to recognize andverify interpreted key stratigraphic surfaces, and to petroleumgeologists who wish to develop more realistic conceptualmodels for the spatial and temporal distribution of reservoirquality. This book is part of the ahref="http://www.sedimentologists.org/"International Associationof Sedimentologists/a (IAS) Special Publications. The Special Publications from the IAS are a set of thematicvolumes edited by specialists on subjects of central interest tosedimentologists. Papers are reviewed and printed to the same highstandards as those published in the journal ahref="http://www.iasnet.org/publications/sed.php"Sedimentology/aand several of these volumes have become standard works ofreference.
Geologic Time Scale 2020 (2 volume set) contains contributions from 80+ leading scientists who present syntheses in an easy-to-understand format that includes numerous color charts, maps and photographs. In addition to detailed overviews of chronostratigraphy, evolution, geochemistry, sequence stratigraphy and planetary geology, the GTS2020 volumes have separate chapters on each geologic period with compilations of the history of divisions, the current GSSPs (global boundary stratotypes), detailed bio-geochem-sequence correlation charts, and derivation of the age models. The authors are on the forefront of chronostratigraphic research and initiatives surrounding the creation of an international geologic time scale. The included charts display the most up-to-date, international standard as ratified by the International Commission on Stratigraphy and the International Union of Geological Sciences. As the framework for deciphering the history of our planet Earth, this book is essential for practicing Earth Scientists and academics. • Completely updated geologic time scale • Provides the most detailed integrated geologic time scale available that compiles and synthesize information in one reference • Gives insights on the construction, strengths and limitations of the geological time scale that greatly enhances its function and its utility
Coated grains have always attracted attention, at first of naturalists, and later of geologists, and the interest in these peculiar bodies was re lated both to their intriguing form and their significance in facies inter pretation and sedimentology and to their relevance to accumulations of hydrocarbons and other mineral deposits. This resulted in numerous publications on this subject, and the intention of this volume is to sum marize the present state of knowledge on coated grains. The idea of the book was to unite some general papers with papers reporting case studies of both recent and ancient coated grains. The organization of the book follows this intention. The papers presented in this volume have been invited by the editor; the theme of the book merits a few words of personal history. The development of studies of coated grains during the last two decades has not only resulted in a great increase in knowledge of recent and ancient environments of coated grain formation, but also numerous important and controversial questions of classification, environmental significance, mineralogical composition etc. of ancient coated grains have arisen. To answer these questions, in 1978 I started the study of many ancient and recent occurrences of coated grains at the Institut fUr Geologie, Ruhr-UniversiUH Bochum, following the invitation of Hans Fiichtbauer and sponsored by the Alexander von Humboldt-Stiftung.
A lavishly illustrated textbook on sequence stratigraphy, supported by numerous learning features and supplementary website.
Seismic attributes play a key role in exploration and exploitation of hydrocarbons. In Seismic Attributes for Prospect Identification and Reservoir Characterization (SEG Geophysical Developments No. 11), Satinder Chopra and Kurt J. Marfurt introduce the physical basis, mathematical implementation, and geologic expression of modern volumetric attributes including coherence, dip/azimuth, curvature, amplitude gradients, seismic textures, and spectral decomposition. The authors demonstrate the importance of effective color display and sensitivity to seismic acquisition and processing. Examples from different basins illustrate the attribute expression of tectonic deformation, clastic depositional systems, carbonate depositional systems and diagenesis, drilling hazards, and reservoir characterization. The book is illustrated generously with color figures throughout. "Seismic Attributes" will appeal to seismic interpreters who want to extract more information from data; seismic processors and imagers who want to learn how their efforts impact subtle stratigraphic and fracture plays; sedimentologists, stratigraphers, and structural geologists who use large 3D seismic volumes to interpret their plays within a regional, basinwide context; and reservoir engineers whose work is based on detailed 3D reservoir models. Copublished with EAGE.
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 mod ern 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 ob tained 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 nam ing. 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 at tempt is made to tie everything together by

considering basins in the con text of plate tectonics and eustatic sea level changes.
1. The Early Earth. -- 2. Generation of Continental Crust. -- 3. Tectonism and Mantle Plumes through Time. -- 4. Precambrian Volcanism: an independent Variable through Time. -- 5. Evolution of the Hydrosphere and Atmosphere. -- 6. Evolution of Life and Precambrian Bio-Geology. -- 7. Sedimentation through Time. -- 8. Sequence Stratigraphy and the Precambrian. -- 9. SynthesisThe early earth / editor, D.R. Nelson. Earth's formation and first billion years / D.R. Nelson. The early Precambrian stratigraphic record of large extraterrestrial impacts / B.M. Simonson, G.R. Byerly and D.R. Lowe. Strategies for finding the record of early Precambrian impact events / D.H. Abbott and J.T. Hagstrum -- Generation of continental crust / editors, D.R. Nelson and W.U. Mueller. Isua enigmas : illusive tectonic, sedimentary, volcanic and organic features of the> 3.7 Ga Isua Greenstone Belt, southwest Greenland / J.S. Myers. Geochemical diversity in volcanic rocks of the> 3.7 Ga Isua Greenstone Belt, south ...
Hardcover plus Foldouts
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
This book contains six chapters dealing with the investigation of seismic and sequence stratigraphy and integrated stratigraphy, including the stratigraphic unconformities, in different geological settings and using several techniques and methods, including the seismostratigraphic and the sequence stratigraphic analysis, the field geological survey, the well log stratigraphic interpretation, and the lithologic and paleobotanical data. Book chapters are separated into two main sections: (i) seismic and sequence stratigraphy and (ii) integrated stratigraphy. There are three chapters in the first section, including the application of sequence and seismic stratigraphy to the fine-grained shales, to the fluvial facies and depositional environments, and to the Late Miocene geological structures offshore of Taiwan. In the second section, there are three chapters dealing with the integrated stratigraphic investigation of Jurassic deposits of the southern Siberian platform, with the stratigraphic unconformities, reviewing the related geological concepts and studying examples from Middle-Upper Paleozoic successions; and, finally, with the integrated stratigraphy of the Cenozoic deposits of the Andean foreland basin (northwestern Argentina).
It has been more than a decade since the appearance of the First Edition of this book. Much progress has been made, but some controversies remain. The original ideas of Sloss and of Vail (building on the early work of Blackwelder, Grabau, Ulrich, Levorsen and others) that the stratigraphic record could be subdivided into sequences, and that these sequences store essential information about basin-forming and subsidence processes, remains as powerful an idea as when it was first formulated. The definition and mapping of sequences has become a standard part of the basin analysis process. The main purpose of this book remains the same as it was for the first edition, that is, to situate sequences within the broader context of geological processes, and to answer the question: why do sequences form? Geoscientists might thereby be better equipped to extract the maximum information from the record of sequences in a given basin or region. Tectonic, climatic and other mechanisms are the generating mechanisms for sequences ranging over a wide range of times scales, from hundreds of millions of years to the high-frequency sequences formed by cyclic processes lasting a few tens of thousands of years
This fourth edition builds on the success of previous editions and for the first time is produced in full colour throughout with improved photos and diagrams. It retains its popular pocket size and is an essential buy for all students working in the field. The text shows how sedimentary rocks are tackled in the field and has been written for all those with a geological background. It describes how the features of sedimentary rocks can be recorded in the field particularly through the construction of graphic logs. In succeeding chapters the various sedimentary rock types, textures and structures are discussed and shown how they can be described and measured in the field. There are expanded sections on trace fossils and volcaniclastics along with updated reference list. Finally a concluding section deals briefly with facies identification and points the ways towards facies interpretations, and the identification of sequences and cycles. Key Features: Full colour throughout with improved photos, figures and diagrams in a modern layout. Complete revision and update of best selling textbook which is part of the highly successful Field Guide series. Expanded sections on trace fossils and volcaniclastics along with updated reference list. Handy pocket size with laminated cover. Includes supplementary website with downloadable logging sheets for fieldwork activities.
In recent years there has been a virtual explosion of stratigraphic studies utilizing the principles of sequence stratigraphy. Although the concept of time stratigraphy is not new, the packaging of depositional units into systems tracts and sequences is. This new approach has led to the reassessment of areas that in some cases have been the subject of intense geological scrutiny for decades. The fundamental principles upon which sequence stratigraphy is based are applicable at a broad range of temporal and physical scales. This volume arises from several sessions on sequence stratigraphy held at the Thirteenth International Sedimentological Congress, with emphasis on facies associations within a sequence stratigraphic framework.
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

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.

Drawing on a combination of modern occurrences and likely ancient counterparts, this atlas is a treatise of mat-related sedimentary features that one may expect to see in ancient terrigenous clastic sedimentary successions. By combining modern and ancient examples, the connection is made to likely formative processes and the utilization of these features in the interpretation of ancient sedimentary rocks. * The first full compilation of microbial mat features/structures preserved in the sliciclastic rock record * High quality, full color photographs fully support the text * Modern and ancient examples connect the formative processes and utilization of mat-related features in the interpretation of sedimentary rocks

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.

The book reviews and summarizes the Indian Mesozoic geological evolution in an innovative alternative perspective of sequence stratigraphy. It mainly focuses on the Jurassic interval, but also concisely discusses the preceding Triassic and Cretaceous geological records. The key to the study is primarily held in the recently developed ammonoid based high resolution scales in the Triassic and Jurassic period. The Indian Jurassic record is thus elevated to a high resolution pedestal. The large intra-Jurassic stratigraphic gap in Kachchh, with increase in duration from margin to basin, has been précised in different sections, along with radical revision of its long held interpretation from sub-aerial to sub-marine all over from Arabia to Australia. Other significant gaps are also differentiated into sub-aerial and sub-marine. The Indian Late Precambrian – Neogene record is organized into five mega-sequences. Among these, the fourth – also the most important one – includes the intra-Permian to Early Eocene interval from the origin to the closure of the Neotethys. Based on multidisciplinary integration of the Indian Mesozoic geological record and comparison with hydrocarbon producing basins on east and west of India, a highly positive scenario of the hydrocarbon source/reservoir sediment perspective is outlined in the book in sequence stratigraphic backdrop as an edifice for future elaborate evaluation.