

# ***Fluvial Depositional Systems Springer Geology***

**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**

**An updated treatment of management and geomorphology of large rivers around the world The newly revised Second Edition of Large Rivers: Geomorphology and Management delivers a thoroughly updated exploration of the form and function of major rivers. The book brings together a set of papers on the large rivers of the world, offering readers an insightful examination of a demanding subject. The new Second Edition of the book includes fully updated and revised chapters, as well as two entirely new chapters on the Ayeyarwady and the Arctic rivers. This fascinating volume describes the environmental requirements for creating and maintaining a major river system, case studies on over a dozen large rivers from**

**different continents in a variety of physical environments, and the measurement and management of large rivers. Unmatched in scope, Large Rivers sheds light on a subject lacking in comprehensive study. Readers will benefit from the inclusion of: A thorough introduction to the geology of large river systems, hydrology and discharge, transcontinental moving and storage of sediment, and the greatest floods and largest rivers An exploration of the classification, architecture, and evolution of large-river deltas Discussions of sedimentology and stratigraphy of large river deposits, including their recognition in the ancient record and the distinction from incised valley fills An examination of the effects of tectonism, climate change, and sea-level change on the form and behavior of the modern Amazon river and its floodplain Measurement and management of large rivers The effect of climatic change on large rivers Perfect for postgraduate students and researchers in fluvial geomorphology, hydrology, sedimentary geology, and river management, Large Rivers: Geomorphology and Management will also earn a place in the libraries of engineers and environmental consultants in the private and public sectors working on major rivers around the world.**

**The return of the congress to North America after 20 years of absence could not have been in a more ideal location. The beauty of Banff and the many offerings of the Rocky Mountains was the perfect background for a week of interesting and innovative discussions on the past, present and future of geostatistics. The congress was well attended with approximately 200 delegates from 19 countries across six continents. There was a broad spectrum of students and seasoned geostatisticians who shared their knowledge in many areas of study including mining, petroleum, and environmental applications. You will find 119 papers in this two volume set. All papers were presented at the congress and have been peer-reviewed. They are grouped by the different sessions that were held in Banff and are in the order of presentation. These papers provide a permanent record of different theoretical perspectives from the last four years. Not all of these ideas will stand the test of time and practice; however, their originality will endure. The practical applications in these proceedings provide nuggets of wisdom to those struggling to apply geostatistics in the best possible way. Students and practitioners will be digging through these papers for many years to come. Oy Leuangthong Clayton V. Deutsch ACKNOWLEDGMENTS We would like to thank the industry sponsors who contributed generously to the overall success and quality of the congress: De Beers Canada Earth Decision Sciences Maptek Chile Ltda. Mira Geoscience Nexen Inc. Petro-Canada Placer Dome Inc.**

**Alluvial fans are important sedimentary environments. They trap**

**sediment delivered from mountain source areas, and exert an important control on the delivery of sediment to downstream environments, to axial drainages and to sedimentary basins. They preserve a sensitive record of environmental change within the mountain source areas. Alluvial fan geomorphology and sedimentology reflect not only drainage basin size and geology, but change in response to tectonic, climatic and base-level controls. One of the challenges facing alluvial fan research is to resolve how these gross controls are reflected in alluvial fan dynamics and to apply the results of studies of modern fan processes and Quaternary fans to the understanding of sedimentary sequences in the rock record. This volume includes papers based on up-to-date research, and focuses on three themes: alluvial fan processes, dynamics of Quaternary alluvial fans and fan sedimentary sequences. Linking the papers is an emphasis on the controls of fan geomorphology, sedimentology and dynamics. This provides a basis for integration between geomorphological and sedimentological approaches, and an understanding how fluvial systems respond to tectonic, climatic and base-level changes.**

## **Terrigenous Clastic Depositional Systems**

### **Alluvial Fans**

### **The Sedimentary Basins of the United States and Canada**

### **Natural Disaster and Coastal Geomorphology**

### **Neo-Thinking on Ganges-Brahmaputra Basin Geomorphology**

### **Stratigraphy**

*This book envisages a multi-proxy approach using stable isotopes, geochemical proxies, magnetic susceptibility and associated biotic events for paleoclimatic and paleoenvironmental interpretations of the Mesozoic sedimentary record of India. Mesozoic rocks of India record abnormal sea level rise, greenhouse climate, intensified volcanism, hypoxia in seawater, extensive black shale deposition, and hydrocarbon occurrence. The Mesozoic has also witnessed mass extinction events, evolution of dinosaurs, and breakdown of the supercontinent Pangea and the formation of Gondwana. Although the Mesozoic geology of India has witnessed significant progress in the last century, literature survey reveals a huge gap in knowledge regarding sequence stratigraphy, chemostratigraphy and key geological events. A synthesis of sedimentological, paleontological and chemical data is included to presenting a comprehensive understanding of the Indian Mesozoic record to students, researchers and professionals.*

*Fluvial deposits represent the preserved record of one of the major nonmarine environments. They accumulate in large and small intermontane valleys, in the broad valleys of trunk rivers, in the wedges of alluvial fans flanking areas of uplift, in the outwash plains fronting melting glaciers, and in coastal plains. The nature of alluvial assemblages - their lithofacies composition, vertical stratigraphic record, and architecture - reflect an inter play of many processes, from the wandering of individual channels across a floodplain, to the long-term effects of uplift and subsidence. Fluvial*

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

*With its thickness of more than 15 km of strata, covering some 200,000 km<sup>2</sup>, the Belt basin displays one of the planet's largest, best-exposed, most accessible, and best-preserved sequences of Mesoproterozoic sedimentary and igneous rocks. This volume focuses on research into this world-class province; kindles ideas about this critical era of Earth evolution; and covers aspects of the basin from its paleontology, mineralogy, sedimentology, and stratigraphy to its magmatism, ore deposits, geophysics, and structural geology.*

*Coal Bed Methane: From Prospect to Pipeline is the proceedings of the 25th anniversary of the North American Coal Bed Methane Forum. It provides the latest advancements in the production of coal bed methane covering a variety of topics, from exploration to gas processing, for commercial utilization. Additionally, it presents the origin of gas in coal, reservoir engineering, control of methane in coal mines, production techniques, water management, and gas processing. The vast coal resources in the United States continue to produce tremendous amounts of natural gas, contributing to a diverse range energy assets. Following a rapid advancement and subsequent plateau in technological developments, this book captures the full life cycle of a well and offers petroleum geologists and engineers a single source of a broad range of coal bed methane applications. This book addresses crucial technical topics, including exploration and evaluation of coal bed reservoirs; hydraulic fracturing of CBM wells; coal seam degasification; and production engineering and processing, among others. It also covers legal issues, permitting, and economic analysis of CBM projects. Edited by a team of coal bed methane experts from industry, academia and government who have more than 75 years of combined experience in the field. Authored by well-recognized members of the gas and coal industry, universities, US government departments, such as the Department of Energy and the National Institute of Occupational Safety and Health (NIOSH) More than 200 figures, photographs, and illustrations aid in the understanding of the fundamental concepts Presents the full scope of improvements in US energy independence, coal mine safety, and greenhouse gas emissions*

*Principles of Sequence Stratigraphy*

*Principles of Sedimentary Basin Analysis*

***U.S. Geological Survey Bulletin***

***Belt Basin: Window to Mesoproterozoic Earth***

***Geoscience to Engineering***

***Applications to Fossil Fuel and Groundwater Resources***

Advances in Sequence Stratigraphy, Volume Two covers current research across a wide range of stratigraphic disciplines, providing information on the most recent developments for the geoscientific research community. Chapters in this volume include Sequence Stratigraphy – Oman, Sequence Stratigraphy and diagenesis, Sequence Stratigraphy of Siliciclastic Systems, Upper Devonian Biostratigraphy, Event Stratigraphy and Late Frasnian Kellwasser Extinction Bio-events in the Iowa Basin: Western Euramerica, Sea-level change and Sequence Stratigraphy, Sequence Stratigraphy: A Material-based Approach Versus A Time-Based Approach, and Anisian-Ladinian marker horizon: Implications for sequence stratigraphy and intra-tethyan correlation. 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 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.

The innovation and refinement of the techniques and concepts of sequence stratigraphy has been one of the most exciting and profound developments in geology over the past thirty years. Seismic stratigraphy has now become one of the standard tools of the geoscientist, and there is a pressing need for an introductory text on sequence stratigraphy. This new book sets out to define and explain the concepts, principles and applications of this remarkably influential approach to the study of sedimentary strata. The authors take a rigorous objective stance in evaluating the techniques and interpretation of sequence stratigraphy - basing the text on an internal training course developed by British Petroleum (BP). A new text on this increasingly important field A practical guide based on the experience of practising sequence stratigraphers Based on a highly successful BP training course

This Special Publication explores the relationship between the preserved strata of the rock record and the passage of time. It covers the controls on preservation of strata in the record, through the qualitative and statistical properties of stratigraphic data, to the implications for analysis, interpretation, modelling and prediction.

Stratigraphy: A Modern Synthesis

Laterites of the Bengal Basin

Advances in Sequence Stratigraphy

Large Rivers

Seismic Facies and Sedimentary Processes of Submarine Fans and Turbidite Systems

Proceedings of the International Field Exploration and Development Conference 2020

The purpose of this monograph is to provide participants in my various short courses with a statement of the material I cover in my lectures. In addition, key illustrations are reproduced with guidance. A brief bibliography of reference material is appended to each chapter. The bibliography includes those references that I consider critical to my remarks. No claim is made of or bibliographic completeness. This monograph also is intended as a brief summary of depositional processes, Holocene sediments, ancient counterparts of depositional environments, and examples of oil- and gas-bearing stratigraphic traps in five depositional environments. This summary is intended to complement lecture and reading courses dealing with sedimentology, depositional systems, sedimentary facies, sedimentary environments, sandstone diagenesis, and sedimentary modeling as a predictive tool for exploration. The student is cautioned, however, that this monograph is merely an introduction and summary overview of the subject. More complete treatments appear in standard textbooks. Sedimentology has changed and advanced over the past twenty-five years, in part because the American oil industry needed to make predictions about the occurrence of the harder-to-find stratigraphic traps. In addition, the development of plate-tectonic theory, and supportive data from the Deep Sea Drilling Project, have caused sedimentology to change from an essentially descriptive science to a mature, predictive science. The 1960s and 1970s in particular witnessed an explosion of new insights and understanding of how sediments are deposited, and how sedimentary rocks are formed.

This book focuses on neotectonic movements and river channel evolution of the Indian subcontinent with special reference to the Himalayan Neotectonics. Neotectonic movements have played an important role in channel evolution in tectonically active zones especially for the mountain channels, foredeeps and active deltas. The book addresses the issues of the channel evolution in neotectonically active domains of India. It aims at readers of India as well as abroad, interested in earth sciences, geomorphology, tectonics, physical geography and river forms and processes of India.

This book is a compilation of selected papers from the 10th International Field Exploration and Development Conference (IFEDC 2020). The proceedings focuses on Reservoir Surveillance and Management, Reservoir Evaluation and Dynamic Description, Reservoir Production Stimulation and EOR, Ultra-Tight Reservoir, Unconventional Oil and Gas Resources Technology, Oil and Gas Well Production Testing, Geomechanics. The conference not only provides a platform to exchange experiences, but also promotes the development of scientific research in oil & gas exploration and production. The main audience for the work includes reservoir engineer, geological engineer, enterprise managers senior engineers as well as professional students.

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 information including numerous lists of references, and is up-to-date. As a source volume, this book is second to none. Clear and well organized." GEOPHYSICS

River to Reservoir

Himalayan Neotectonics and Channel Evolution

Sequence Stratigraphy

Geologic Studies in Alaska by the U.S. Geological Survey, 1997

Sedimentary Structures

*Nonrenewable energy resources, comprising fossil fuels and uranium, are not randomly distributed within the Earth's crust. They formed in response to a complex array of geologic controls, notably the genesis*

of the sedimentary rocks that host most commercial energy resources. It is this genetic relationship between economic resources and environment that forms the basis for this book. Our grouping of petroleum, coal, uranium, and ground water may appear to be incongruous or artificial. But our basic premise is that these ostensibly disparate resources share common genetic attributes and that the sedimentological principles governing their natural distributions and influencing their recovery are fundamentally similar. Our combined careers have focused on these four resources, and our experiences in projects worldwide reveal that certain recurring geologic factors are important in controlling the distribution of commercial accumulations and subsurface fluid flow. These critical factors include the shape and stability of the receiving basin, the major depositional elements and their internal detail, and the modifications during burial that are brought about in these sediments by pressure, circulating fluids, heating, and chemical reaction. Since the first edition of this book in 1983, there has been a quantum leap in the volume of literature devoted to genetic stratigraphy and refinement of sedimentological principles and a commensurate increase in the application of these concepts to resource exploration and development.

Tidal deposits have been a specific research topic for about 40 years, and whilst this has resulted in a proliferation of papers in scientific journals, there have only been a few book-length syntheses. Over the years, tidal sedimentology has been reinforced by fluid mechanics and numerical modelling but has remained rooted in facies and stratigraphic studies. Recent developments in tidal sedimentology lean toward a more quantitative assessment of the imprint of tides in the facies record of intertidal and shallow subtidal areas. They highlight the increasing relevance of tidal deposits studies, from high resolution subsurface reservoir geology to climate change and sea-level rise. This volume gathers 17 contributions to the Tidalites 2012 congress held in Caen, France. It reflects current advances in the sedimentology and stratigraphy of tidal deposits, in both ancient and modern environments. It shows the current diversity of this field of research, through a wide spectrum of methods including remote sensing, in-situ hydrodynamical measurements, and ichnology, in addition to classic field studies and petrography.

The sinuous form and peculiar evolution of meandering rivers has long captured the imagination of people. Today, meandering rivers exist in some of the most densely populated areas in the World, where they provide environmental and economic wealth and opportunities, as well as posing hazards. Through geological time, the ancestors of these modern meanders built deposits that are now host to mineral resources, groundwater, and hydrocarbons. This Special Publication illustrates the breadth of current research on meandering rivers and their deposits. The collection of research papers demonstrates the state of science on fluvial process-product relationships. The articles cover fundamental and applied studies of both modern and ancient rivers, are based on state-of-the-art technology, include complementary philosophical approaches, and span a wide range of spatial and

*temporal scales. This book includes some of the most recent advances in the study of the morphodynamics and sedimentology of meandering rivers, and is an important resource for those who want to investigate fluvial systems and their deposits.*

*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*

*A Multi-Proxy Approach*

*The Geology of Fluvial Deposits*

*Contributions to Modern and Ancient Tidal Sedimentology*

*With Reference to Terrigenous Clastics*

*Coal Bed Methane*

*Geostatistics Banff 2004*

***Reservoir quality in fluvial siliciclastic rocks is variable. Permeability is influenced by micron-scale grain coatings or bedding style on the m-/km-scale. Outcrops allow the analysis of depositional environments and diagenesis, thus an investigation of reservoir quality controls. A process-oriented approach is used to understand variability in a meander deposit, compaction and cementation behavior of lithofacies types during burial and the discrepancy between porosity and permeability values.***

***This book describes the latest research on the geological, geochemical, geochronological, biological, and geomorphic evolution of the unique and relatively pristine landscape of the Cape Mountains and the Karoo Basin, a region in South Africa that is currently being targeted for shale gas exploration and development. With up-to-date graphics, maps, drill-core and seismic data, it offers the latest observations and synthesis, and highlights areas of ongoing research. The work presented also considers a wider connection of the Cape-Karoo system to other basins in Central Gondwana, including South America, thus following in the footsteps of A. L. du Toit. Clearly, there is still much to be learned before shale gas development can be considered, and this book provides some timely perspectives.***

***This book explores the latest advances in our understanding of the evolution of the Ganga-Brahmaputra delta, examining the Damodar basin, Bhagirathi-Hooghly basin and Jalangi basin from historical, quantitative and applied geomorphology perspectives. The evolution of the Ganga-Brahmaputra delta is highly complex and remains poorly understood. To address that gap, this edited volume presents 11 research papers: the first seven chapters focus on the pure geomorphology and geohydrology of the delta, while the remaining four examine its applied geomorphological aspects. The book offers a valuable guide for geologists, geographers, hydrologists, landscape ecologists, environmentalists, engineers, planners and policy makers.***

***This Brief analyses and discusses the laterites in the Bengal Basin. The book highlights: (1)***

*the definition, identification and classification of ferruginous materials, (2) the mode of laterite formation and its other horizons, (3) processes and theories of lateritisation, (4) determination of laterite ages, (5) recognition of palaeogeomorphic and palaeoclimatic significance and (6) geo-chronology and reconstruction of former lateritized landscapes. The chapters cover the tectono-climatic evolution of north-south laterite profiles of the north-western Bengal Basin on the Rajmahal Basalt Traps, Archean Granite-Gneiss, Gondwana Sandstones, Palaeogene Gravels and Older Palaeo-Deltaic Alluvium. The book uses advanced field-based studies, quantitative analysis and thematic mapping to cover various areas of palaeogeography and regolith geology of the Bengal Basin in connection with laterite genesis, palaeoweathering, tectonic geomorphology, Quaternary geomorphology and pedogeomorphology. It introduces laterites as a potential stratigraphic marker in Indian geology by explaining their palaeogeomorphic and palaeoclimatic significance. This Brief is a comprehensive resource to researchers, students and academicians of geography, geomorphology and geology working on laterites.*

*Probing the Gaps in Our Understanding*

*Geologic Studies in Alaska by the U.S. Geological Survey During ...*

*Strata and Time*

*Precambrian Basins of India*

*Mesozoic Stratigraphy of India*

*Geomorphology, Sedimentology, Dynamics*

***From the reviews: "...This is an extremely useful reference text for the sedimentary geologist to own. It is well produced with clear illustrations and text, and gives excellent factual information on a large number of topics." (Palaeogeography, Palaeoclimatology, Palaeoecology) "...represents a significant contribution to the literature of geoscience. It should be in the library of anyone seriously interested in sedimentology." (Marine Geology) "This book is still unsurpassed in providing a good, basic synthesis of modern sedimentary environments, especially the physical attributes of the deposits being formed and the processes responsible..." (Sedimentary Geology)***

***This book deals with the Tsunami intrusion in the lower plain in the Tohoku region and role played by the coastal and fluvial landforms in the damages. The land-use patterns and the recent urbanization has also been partly responsible for a risk level enhancement. The 2011 East Japan Earthquake and Tsunami has violently hit the coastal plain in the Tohoku and Kanto regions. The coastal geomorphology of these regions have played an important role in the impacts of this natural disaster. The authors introduce tectonic settings, explain and assess these different risks, and discuss future disaster prevention and mitigation planning.***

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

*volume should be a combination of topical, regional, and interdisciplinary approaches. Although these three terms can be defined separately, in reality they should flow into each other. A topical treatment should relate to a major category of sedimentary geology.*

*Completely revised new edition, in colour for the first time, of an established undergraduate textbook in elementary sedimentology.*

*Proceedings of the Tidalites 2012 Conference*

*Stratigraphic and Tectonic Context*

*Depositional Sedimentary Environments*

*A Modern Synthesis*

*New Perspectives in Basin Analysis*

*Sedimentary Facies, Basin Analysis, and Petroleum Geology*

**Fluvial Depositional Systems Springer Science & Business Media**

**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.**

**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.**

**This volume brings together a number of papers from two workshops with the theme, 'Rain, Rivers, Reservoirs', which considered the dynamic changes to river systems as part of natural processes, particularly changing climatic conditions. Bringing researchers from two different locations to Brazil and the UK allowed scientists to contribute to and promote, 'debate on current research...on how the planet works and how we can live sustainably on it'. This volume features a series of papers on the geoscience of modern and ancient rivers from across the world (Brazil, United States, Spain, Argentina, Canada, India and the UK), their evolution through time, their management, their deposits and their engineering, with both subsurface aquifers/hydrocarbon reservoirs (of Carboniferous, Triassic and Cretaceous age) and surface reservoirs considered.**

**Geomorphology and Management**

**Characterization, Geochronology and Evolution**

**Sandstone Depositional Models for Exploration for Fossil Fuels**

**Regional Geology and Tectonics: Principles of Geologic Analysis**

**Wetlands Through Time**

**Origin and Evolution of the Cape Mountains and Karoo Basin**

*The Frontiers in Sedimentary Geology series was established for the student, the researcher, and the applied scientist to enhance their potential to stay abreast of the most recent ideas and developments and to become familiar with certain topics in the field of sedimentary geology. This series deals with subjects that are in the forefront of both scientific and economic interests. The treatment of a subject in an individual volume, therefore, should be a combination of topical, regional, and interdisciplinary approaches. The interdisciplinary aspects are becoming more and more important because most studies dealing with the natural sciences cannot effectively stand alone. Although this thrust may sound simple, in reality it is not, basically because each discipline has developed its own jargon and definitions of terms. Communication among disciplines is a major issue and can be accomplished more constructively when people with different backgrounds join together at the same symposium and can read from the same volume rather than confining themselves within the world of their own specialty*

*meetings and journals. Books in this series provide this connective link between disciplines. Each book in this series provides a continuous and connected flow of concepts throughout the volume by the use of introductory chapters that outline a topic to help the reader grasp its problems and to understand the contributions that follow.*

*The updated textbook is intended to serve as an advanced and detailed treatment of the evolution of the subject of stratigraphy from its disparate beginnings as separate studies of sedimentology, lithostratigraphy, chronostratigraphy, etc., into a modern integrated discipline in which all components are necessary. There is a historical introduction, which now includes information about the timeline of the evolution of the components of modern stratigraphy. The elements of the various components (facies analysis, sequence stratigraphy, mapping methods, chronostratigraphic methods, etc.) are outlined, and a chapter discussing the modern synthesis is included near the end of the book, which closes with a discussion of future research trends in the study of time as preserved in the stratigraphic record.*

*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*

*A Field Guide with Excursions*

*Fluvial Meanders and Their Sedimentary Products in the Rock Record (IAS SP 48)*

*U.S. Geological Survey Professional Paper*

*From Prospect to Pipeline*

*Volume 1: Principles of Geologic Analysis*

*Fluvial Depositional Systems*