

Physical Principles Of Sedimentary Basin Ysis

Physical Principles of Sedimentology is a textbook devoted to the physics of sedimentological processes. The applicability of fundamental principles, such as Newton's Three Laws of Motion, Law of Conservation of Energy, First and Second Laws of Thermodynamics, and of other physical relations in hydraulics and groundwater hydrology is illustrated by discussions of natural processes which form sediments or sedimentary rocks. The author's educational background as a major

in physics and geology, and his 40-year experience in teaching and research help him bring together physics and geology in this enjoyable and highly readable form.

A lavishly illustrated textbook on sequence stratigraphy, supported by numerous learning features and supplementary website.

Under the Earth ' s surface is a rich array of geological resources, many with potential use to humankind.

However, extracting and harnessing them comes with enormous uncertainties, high costs, and considerable risks. The valuation of subsurface resources involves assessing discordant factors to produce a decision model that is

functional and sustainable. This volume provides real-world examples relating to oilfields, geothermal systems, contaminated sites, and aquifer recharge. Volume highlights include:

- A multi-disciplinary treatment of uncertainty quantification
- Case studies with actual data that will appeal to methodology developers
- A Bayesian evidential learning framework that reduces computation and modeling time

Quantifying Uncertainty in Subsurface Systems is a multidisciplinary volume that brings together five major fields: information science, decision science, geosciences, data science

and computer science. It will appeal to both students and practitioners, and be a valuable resource for geoscientists, engineers and applied mathematicians. Read the Editors ' Vox: <https://eos.org/editors-vox/quantifying-uncertainty-about-earths-resources>

This publication shows the three-dimensional configuration of the gigantic tectonic sag of the Osaka Bay sedimentary basin on the eastern Eurasian margin based on reflection seismic data never before published. The basin has developed relatively quickly since the dawn of the Quaternary. High-resolution subsurface images on the profiles provide highly valuable information

about the architecture of active faults, paleoenvironmental changes, and mass balance on the convergent margin. The book presents an excellent case study of a tectonically controlled basin because morphologies and evolutionary processes of such basins show an enormous diversity, reflecting spatiotemporal variation in tectonic stress. Furthermore, this volume provides insight into the general mechanism of sedimentary basin formation. The quantitative analyses contained here will be thought-provoking for industry experts, academics, and graduate and undergraduate students engaged in geologic survey and civil

engineering. The contents will be especially useful to professionals in the fields of Quaternary geology, neotectonics, and active fault research.

Physical Principles of Sedimentary Basin Analysis

Lithosphere Dynamics and Sedimentary Basins: The Arabian Plate and Analogues

Selected Water Resources Abstracts

Principles of Sedimentary Basin Analysis

The Fate of Sediment from Source to Sink

An Interdisciplinary Approach

This Open Access

handbook published at

the IAMG's 50th

Page 6/59

anniversary, presents a compilation of invited path-breaking research contributions by award-winning geoscientists who have been instrumental in shaping the IAMG. It contains 45 chapters that are categorized broadly into five parts (i) theory, (ii) general applications, (iii) exploration and resource estimation, (iv) reviews, and (v) reminiscences covering related topics like mathematical

geosciences,
mathematical morphology,
geostatistics, fractals
and multifractals,
spatial statistics,
multipoint
geostatistics,
compositional data
analysis, informatics,
geocomputation,
numerical methods, and
chaos theory in the
geosciences.

Basin Analysis is an
advanced undergraduate
and postgraduate text
aimed at understanding
sedimentary basins
as geodynamic entities.

The rationale of the book is that knowledge of the basic principles of the thermo-mechanical behaviour of the lithosphere, the dynamics of the mantle, and the functioning of sediment routing systems provides a sound background for studying sedimentary basins, and is a prerequisite for the exploitation of resources contained in their sedimentary rocks. The third edition incorporates new

developments in the burgeoning field of basin analysis while retaining the successful structure and overall philosophy of the first two editions. The text is divided into 4 parts that establish the geodynamical environment for sedimentary basins and the physical state of the lithosphere, followed by a coverage of the mechanics of basin formation, an integrated analysis of the controls on the basin-fill and its burial

and thermal history, and concludes with an application of basin analysis principles in petroleum play assessment, including a discussion of unconventional hydrocarbon plays. The text is richly supplemented by Appendices providing mathematical derivations of a wide range of processes affecting the formation of basins and their sedimentary fills. Many of these Appendices

include practical exercises that give the reader hands-on experience of quantitative solutions to important basin analysis processes. Now in full colour and a larger format, this third edition is a comprehensive update and expansion of the previous editions, and represents a rigorous yet accessible guide to problem solving in this most integrative of geoscientific disciplines. Additional

resources for this book can be found at: <http://www.wiley.com/go/allen/basinanalysis>"www.wiley.com/go/allen/basinanalysis/a.

Continental margins and their fossilized analogues are important repositories of natural resources. With better processing techniques and increased availability of high-resolution seismic and potential field data, imaging of present-day continental margins and their embedded

sedimentary basins has reached unprecedented levels of refinement and definition, as illustrated by examples described in this volume. This, in turn, has led to greatly improved geological, geodynamic and numerical models for the crustal and mantle processes involved in continental margin formation from the initial stages of rifting through continental rupture and break-up to development of a new ocean basin.

Further informing these models, and contributing to a better understanding of the features imaged in the seismic and potential field data, are observations made on fossilized fragments of exhumed subcontinental mantle lithosphere and ocean-continent transition zones preserved in ophiolites and orogenic belts of both Palaeozoic and Mesozoic age from several different continents, including

Europe, South Asia and Australasia.
Published by the Geological Society on behalf of PGC Ltd. (1 hardback volume in slipcase). The 8th Conference on the Petroleum Geology of NW Europe was held in September 2015 and marked the 50th anniversary of the first commercial discovery offshore in the North Sea (West Sole, in September 1965). Its focus was '50 Years of Learning - a Platform

for Present Value and Future Success' and its objective was to provide an update on discoveries, developments, technologies and geological concepts from the region. The 39 extensively illustrated technical papers cover the full width of recent activity and are divided into the following sections: Plays and fairways; Play assessment; Recent successes and learnings from failures;

Infrastructure-led exploration and development; Late-life fields, re-development and the 'next life'; Onshore exploration and development. The proceedings volume follows the format of many of the previous conferences since the first in 1974. Collectively these provide a unique documentation of the discovery and development of several NW European hydrocarbon provinces. The volume

will be of interest to all geoscientists involved in exploration and development in NW Europe. It provides a fascinating overview of how creativity can continue to reveal hidden resources in an area that has been called 'mature' for at least the last 20 of its 50-year history.

Principles of Sequence Stratigraphy

For Sedimentary Basin Analysis and Modelling
The Lithosphere

U.S. Geological Survey

Page 19/59

Bulletin

Mechanism of Sedimentary
Basin Formation

Salt Tectonics in
Sedimentary Basins

This completely revised and enlarged second edition provides an up-to-date overview of all major topics in sedimentary geology. It is unique in its quantitative approach to denudation-accumulation systems and basin fillings, including dynamic aspects. The relationship between tectonism and basin evolution as well as the concepts of sequence cycle and event stratigraphy in various depositional environments are

Page 20/59

physical-principles-of-sedimentary-basin-ysis

extensively discussed.

Numerous, often composite figures, a well-structured text, brief summaries in boxes, and several examples from all continents make the book an invaluable source of information for students, researchers and professors in academia as well as for professionals in the oil industry.

This book will constitute the proceedings of the ILP Workshop held in Abu Dhabi in December 2009. It will include a reprint of the 11 papers published in the December 2010 issue of the AJGS, together with 11 other original papers.

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.

The sedimentary record on Earth stretches back more than 4.3 billion years and is present in more abbreviated forms on companion planets of the Solar System, like Mars and Venus, and doubtless elsewhere.

Reading such planetary archives correctly requires intimate knowledge of modern sedimentary processes acting within the framework provided by tectonics, climate and sea or lake level variations. The subject of sedimentology thus encompasses the origins, transport and deposition of mineral sediment on planetary

surfaces. The author addresses the principles of the subject from the viewpoint of modern processes, emphasising a general science narrative approach in the main text, with quantitative background derived in enabling 'cookie' appendices. The book ends with an innovative chapter dealing with how sedimentology is currently informing a variety of cognate disciplines, from the timing and extent tectonic uplift to variations in palaeoclimate. Each chapter concludes with a detailed guide to key further reading leading to a large bibliography of over 2500 entries. The book is designed to

reach an audience of senior undergraduate and graduate students and interested academic and industry professionals.

Influences on Compositional Change from Source to Sink
Stratigraphy and Sedimentology
Thermal History of Sedimentary Basins

Geological Survey Bulletin
1st IFP Exploration Research Conference, Carcans, France, June 3-7, 1985

Handbook of Mathematical Geosciences

Lithostratigraphic Analysis of Sedimentary Basins deals with the concepts and methodology of

lithostratigraphic analysis used to elucidate various aspects of the geological history of sedimentary layers within a basin. The principles of stratigraphy and sedimentation as well as the influence of tectonism are discussed, along with their relevance to a variety of methods employed in the analysis of sedimentary basins. Comprised of seven chapters, this book begins with a classification of sedimentary basins and an overview of the methods used in their analysis. Certain lithological features, including sedimentary structures, textures, and assemblages of features that are considered to be diagnostic or indicative of particular depositional environments, are discussed,

together with their implications for interpretations of the geologic history of a sedimentary basin on the basis of both macrostratigraphic and microstratigraphic criteria. Other lithologic analyses that are mentioned relate to petrophysical properties such as porosity and permeability and to chemical properties such as trace element, organic, and hydrocarbon content. Methods employed in the examination of outcrops and rock samples are also considered. The final chapter describes the application of sedimentary basin analysis to exploration of oil and gas, coal, and minerals, together with potential storage reservoirs for natural gas. This monograph will be of interest to geophysicists,

geologists, geophysicists, and engineers.

This volume describes the nature, causes, and consequences of the diverse fluid movements that produce energy and mineral resources in sedimentary basins. The contained papers point to new capabilities in basin analysis methods and models. The processes that operate in the resource-producing thermo-chemical-structural reactors we call sedimentary basins are reviewed. Efficient ways to infer the tectonic history of basins are described. Impacts on hydrocarbon maturation and migration of glacial tilting, magmatic intrusion, salt migration, and fracturing are illustrated. The conditions under which subsurface flow will channel

with distance traveled are identified. Seismic methods that can image and map subsurface permeability channels are described. The surface maturation, surface charge, and chemical reaction foundations of creep subsidence are set forth. Dynamic aspects of the hydrogen resource in basins are analyzed. There is much that is new that is presented in these papers with the intent of stimulating thinking and enthusiasm for the advances that will be made in future decades. This book is intended as a practical handbook for those engaged in the task of analyzing the paleogeographic evolution of ancient sedimentary basins. The science of stratigraphy and sedimentology is central to such

endeavors, but although several excellent textbooks on sedimentology have appeared in recent years little has been written about modern stratigraphic methods. Sedimentology textbooks tend to take a theoretical approach, building from physical and chemical theory and studies of modern environments. It is commonly difficult to apply this information to practical problems in ancient rocks, and very little guidance is given on methods of observation, mapping and interpretation. In this book theory is downplayed and the emphasis is on what a geologist can actually see in outcrops, well records, and cores, and what can be obtained using geophysical techniques. A new approach is taken to

stratigraphy, which attempts to explain the genesis of lithostratigraphic units and to de-emphasize the importance of formal description and naming. There are also sections explaining principles of facies analysis, basin mapping methods, depositional systems, and the study of basin thermal history, so important to the genesis of fuels and minerals. Lastly, an attempt is made to tie everything together by considering basins in the context of plate tectonics and eustatic sea level changes.

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 prerequisite 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.

Subsidence Analysis and
Visualization

Fifty Years of IAMG
Lithostratigraphic Analysis of
Sedimentary Basins
From Depositional Systems to
Sedimentary Successions on the
Norwegian Continental Margin
Quantifying Uncertainty in

Subsurface Systems Sedimentology and Sedimentary Basins

This book is devoted to the mechanisms of sedimentary basin formation on active plate margins, which show enormous diversity reflecting complex tectonic processes. Multidisciplinary approach pursuing basin-forming mechanism is based on geology, sedimentology, geochronology and geophysics. Some chapters are dedicated to the genetic analysis of sedimentary basins in wrench deformation zones in forearc and intra-arc regions. Another block of chapters deals with basin formation in peripheral regions of Eurasia and intra-arc / foreland basins under the influence of the fluctuation of stress regimes. Finally geophysical approaches to basin analyses

are shown in some chapters from microscopic to regional scales. Diverse contents of the chapters provide the audience with the present accomplishments of basin researches on active margins by Earth scientists.

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

Sedimentology has seen many significant advances and changes over the past 40 years, ranging from facies modelling to sequence stratigraphy; chemostratigraphy to basin analysis; and the integration of studies of physical, chemical and, increasingly, biological

processes in the interpretation and prediction of sedimentary environments and products. The subject is becoming ever more interdisciplinary and applied, and now has far more links to other physical sciences. Research and debate are continuing afresh as we move into this new interdisciplinary phase and promise many developments and increased uses of our subject. Now seemed a good time to publish a series of review papers concerning some key current areas of research. We hope that these papers will provide comprehensive starting points for those wishing to become acquainted with an area, act as stimuli for debate, and provide awareness and ideas for future research avenues. No issue of this sort can, of course, ever be truly comprehensive in

its coverage: these reviews concern only selected snippets from the wide scope of sedimentology and each has, of necessity, been selective in its own area. An overview of the processes related to geopressure development, prediction and detection using state-of-the-art tools and technologies.

Salt Tectonics

An Integrated Seismic Study on the Evolutionary Processes of a Tectonic Basin

Physical Principles of Sedimentology
Recent Advances

Evolution, Facies, and Sediment Budget
Sedimentary Basins

Sedimentology is a core discipline of earth and environmental sciences. It enquires the origins, transport and deposition of mineral sediment on the Earth's surface. The subject

is a link between positive effects arising from the building of relief by tectonics and the negative action of denudation in drainage catchments and tectonic subsidence in sedimentary basins. The author addresses the principles of the subject, emphasising the advantages of a general science approach and the importance of understanding modern processes. Sedimentology and Sedimentary Basins is not an encyclopaedia, but attempts to stimulate interdisciplinary thought across the whole subject area and related disciplines. The book has been designed to meet the needs of earth and environmental science undergraduates. This book incorporates developments in chronostratigraphy, sequence stratigraphy & sedimentation & tectonics that have taken place during the last decade. In particular, the wealth of case studies that have appeared since the late 1980s, focusing on sequence architecture & the relationships between

sedimentation & tectonics, have required a virtually complete rewriting of Chapters 6 to 9. The global-eustasy model that was popular as a mechanism for sequence generation at the time of writing of the earlier editions of this book has been downplayed in this edition in the face of abundant new evidence pointing to the importance of tectonism as a process that may generate sequences over a wide range of temporal & physical scales. Amongst other additions, this edition contains new sections describing such topics as basin inversion & basement control of sedimentary basin development & a range of new case studies of the plate tectonics of sedimentary basins. The analysis of energy systems is of paramount importance in modern societies, since it is fundamental to guarantee a sustainable economic development. It combines technical and economic research with a specific focus on quantitative

modelling, in order to optimize the modalities of energy demand and supply globally. The book covers major advanced topics related to the analysis of energy by considering different aspects, namely management, planning and policies. The most recent trends, such as smart grids, transition from fossil fuels to renewables based energy systems and distributed generation, are also discussed in this book. Intended to be a collection of various contributions from experts all around the world, it includes latest research results, innovations and methodologies about the analysis of energy systems. The book also focuses to contribute to the current debate related to the evolution of energy systems, by discussing in an open way the pro ' s and con ' s without any pre-constitute point of view. Title is aimed to be a reference for the academic community, students and professionals with a wider interdisciplinary

background. Key Features: Presents integration of renewable sources with conventional energy systems. Topic is addressed from a multidisciplinary point of view, i.e. economy, technical, modelling, planning. Investigates management and planning aspects of future energy supplies. Multidimensional nature of energy systems is highlighted and discussed. Contributes towards implementing policy measures to reduce primary energy consumptions and carbon footprint.

Over the past five years there have been many advances in the field of basin analysis. Developments such as the publication of new stratigraphic codes; new research in fission-track dating; evolution of thought regarding the importance of tectonic versus eustatic controls of regional and global cycles; and refinements of geophysically-based, basin-subsidence models have necessitated the publication of a second

edition of Principles of Sedimentary Basin Analysis. Like the first edition, this book emphasizes the stratigraphic evidence which geologists can actually see in outcrops, well records, and core samples and can gather using geophysical techniques. Principles of Sedimentary Basin Analysis is both an excellent text for students and a practical handbook for professional geologists.

Analysis of Energy Systems

Principles and Practice

Regional Geology and Tectonics: Principles of Geologic Analysis

A Readable Textbook for Beginners and Experts

Sedimentology

Sediment Provenance

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 initiation 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 compressional 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.

An unrivalled consolidation of topics related to salt tectonics, suitable for graduate students, researchers and professionals.

Presenting a coherent synthesis of lithosphere studies, this book covers a range of geophysical methods (seismic reflection, refraction, and receiver function methods; elastic and anelastic seismic tomography; electromagnetic and magnetotelluric methods; thermal, gravity and rheological models), complemented

by petrologic and laboratory data on rock properties. It also provides a critical discussion of the uncertainties, assumptions, and resolution issues that are inherent in the different methods and models of the lithosphere. Multidisciplinary in scope, global in geographical extent, and covering a wide variety of tectonics settings across 3.5 billion years of Earth history, this book presents a comprehensive overview of lithospheric structure and evolution. It is a core reference for researchers and advanced students in geophysics, geodynamics, tectonics, petrology, and geochemistry, and for petroleum and mining industry professionals. A user-friendly, thorough

introduction to quantitative modelling of sedimentary basins, illustrated throughout with real-world examples, applications and test exercises.

From Modern Hyper-extended Margins to Deformed Ancient Analogues

Management, Planning and Policy Applications in Earth Sciences, Basin Analysis, Petroleum and Mineral Exploration

From Sedimentary Environments to Rock Physics

Millenium Reviews - The Journal of the International Association of Sedimentologists

Petroleum Geoscience

modelling of basins for graduate students,

researchers and oil industry professionals."
--Book Jacket.

This cutting-edge summary combines ideas from several sub-disciplines to provide an understanding of sediment routing systems and Earth surface dynamics.

Sediment Provenance: Influences on Compositional Change from Source to Sink provides a thorough and inclusive overview that features data-based case studies on a broad range of dynamic aspects in sedimentary rock structure and deposition. Provenance data plays a critical role in a number of aspects of sedimentary rocks, including the assessment of palaeogeographic reconstructions, the constraints of lateral displacements in orogens, the characterization of crust which is no longer exposed, the mapping of depositional systems, sub-surface correlation, and in predicting reservoir quality. The provenance of fine-grained

sediments—on a global scale—has been used to monitor crustal evolution, and sediment transport is paramount in considering restoration techniques for both watershed and river restoration. Transport is responsible for erosion, bank undercutting, sandbar formation, aggradation, gullying, and plugging, as well as bed form migration and generation of primary sedimentary structures. Additionally, the quest for reservoir quality in contemporary hydrocarbon exploration and extraction necessitates a deliberate focus on diagenesis. This book addresses all of these challenges and arms geoscientists with an all-in-one reference to sedimentary rocks, from source to deposition. Provides the latest data available on various aspects of sedimentary rocks from their source to deposition. Features case studies throughout that illustrate new data and critical analyses of published data by some of the world's

most pre-eminent sedimentologists Includes more than 150 illustrations, photos, figures, and diagrams that underscore key concepts "Sedimentology and stratigraphy are covered in unprecedented depth in this updated and dynamic follow-up to 'Principles of sedimentology', regarded since its publication in 1978 as the definitive text in the field. Suitable for advanced undergraduate and graduate students, this new text encompasses a contemporary global view of sedimentary deposits. The most recent data on such increasingly important topics as seismic stratigraphy and sequence stratigraphy, process sedimentology, facies patterns, extraterrestrial forcing functions, basin analysis, and plate tectonics are explored. The text's structure and organization accommodate a complete treatment of both sedimentology and stratigraphy and presents them in a historical context." --

Three-Dimensional Architecture and
Paleoenvironments of Osaka Bay
Multidisciplinary Approach on Active Plate
Margins

Tectonics of Sedimentary Basins

50 Years of Learning - Proceedings of the
8th Petroleum Geology Conference

Sedimentary Basins and Crustal Processes at
Continental Margins

Basin Analysis

The Norwegian Continental Shelf
(NCS), focus of this special
publication, is a prolific hydrocarbon
region and both exploration and
production activity remains high to
this day with a positive production
outlook. A key element today and in
the future is to couple technological
developments to improving our
understanding of specific geological

situations. The theme of the publication reflects the immense efforts made by all industry operators and their academic partners on the NCS to understand in detail the structural setting, sedimentology and stratigraphy of the hydrocarbon bearing units and their source and seal. The papers cover a wide spectrum of depositional environments ranging from alluvial fans to deepwater fans, in almost every climate type from arid through humid to glacial, and in a variety of tectonic settings. Special attention is given to the integration of both analogue studies and process-based models with the insights gained from extensive subsurface datasets.

The collection of papers in this volume is a direct result of the Society of Economic Paleontologists and Mineralogists Research Symposium on "Thermal History of Sedimentary Basins: Methods and Case Histories" held as part of the American Association of Petroleum Geologists Annual Convention in New Orleans in March 1985. The original goal of the symposium was to provide a forum where specialists from a variety of disciplines could present their views of methods that can be used to study the thermal history of a sedimentary basin or an important portion of a basin. An explicit part of that goal was to illustrate each method by presentation of a case history

application. The original goal is addressed by the chapters in this volume, each of which emphasizes a somewhat different approach and gives field data in one way or another to illustrate the practical usefulness of the method. The significance of our relative ignorance of the thermal conductivities of sedimentary rocks, especially shales, in efforts to understand or model sedimentary basin thermal histories and maturation levels is a major thrust of the chapter by Blackwell and Steele. Creaney focuses on variations in kerogen composition in source rocks of different depositional environments and the degree to which these chem-

kerogens respond differently to progressive burial heating. 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

Volume 1: Principles of Geologic
Analysis

Suggestions from Current
Observations, Analyses, and
Simulations

From Turbulence to Tectonics
Principles and Application to
Petroleum Play Assessment

Quantitative Analysis of Geopressure
for Geoscientists and Engineers

Thermal Modeling in Sedimentary
Basins