

Geochronology Time Scales And Global Stratigraphic Correlation Special Publication Sepm Society For Sedimentary Geology No 54

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Miocene Stratigraphy A. Montanari 1997-06-18 Integrated stratigraphy is essential for ⧫ detailed paleoecologic studies of critical intervals in Earth history ⧫ the calibration of the time scale for global use ⧫ the establishment of Global Stratotype Sections and Points (GSSPs) for the definition of chronostratigraphic boundaries. This book constitutes an excellent and probably unique example of how interdisciplinary stratigraphic and geochronologic studies are approached with modern methodologies and techniques. It contains numerous unpublished, accurate radioisotopic dates of volcano-sedimentary layers interbedded in fossiliferous marine and continental Miocene sequences representing Mediterranean and Pacific environments. New, extremely detailed paleontologic data which constitute the basis for an accurate definition of the Miocene biostratigraphy, and the study of the ecologic evolution of Miocene marine environments are also included. The chapters are complimented by black-and-white photographs, graphic figures, and tables. Stratigraphers, paleontologists and sedimentologists plus geologists working in oil companies will certainly find this work of interest.
Scientific Prospectus 1995

A Geologic Time Scale 2004 Felix M. Gradstein 2004 A new detailed international geologic time scale, including methodology and a wallchart.

Geochronology, Time Scales and Global Stratigraphic Correlation William A. Berggren 1995

Biotic Response to Global Change Stephen J. Culver 2006-12-14 Concern about the effects of global change on our planet's future has driven much research into the last few thousand years of earth history. In contrast, this volume takes a much longer viewpoint to provide a historical perspective to recent and future global change. Over 40 international specialists investigate the reaction of life to global environmental changes, from Cretaceous times to the turn of the century. During this time earth's climate has changed from a very warm, 'greenhouse' phase with no significant ice sheets to today's 'ice-house' world. A wide spectrum of animal, plant and protistan life is discussed, encompassing terrestrial, shallow-marine and deep-marine realms. Each chapter considers a particular taxonomic group, looking first at the general picture and then focusing on more specialized aspects such as extinctions, diversity and biogeography. This volume will form an invaluable reference for researchers and graduate students in paleontology, geology, biology, oceanography and climatology.

The Stratigraphic Record of Gubbio Marco Menichetti 2016-07-13 Since the beginning of the last century, the lower Jurassic to mid-Miocene pelagic succession exposed along the valleys of the Umbria and Marche Apennines of Italy represented a fertile playground for generations of earth scientists. This GSA Special Paper provides a reappraisal of the geological and integrated stratigraphic research, which was carried out by scores of earth scientists in the gorges around the medieval city of Gubbio over the past fifty years. Following review chapters about pioneering sedimentologic, biostratigraphic,

and magnetostratigraphic studies of the Gubbio sections, a series of papers presents new, original data addressing different stratigraphical, paleoenvironmental, and structural geological aspects of particular Cretaceous to Paleogene intervals, including the still much-debated K-Pg Boundary Event in the worldwide famous site of the Bottaccione Gorge, where the Alvarez theory of global mass extinction caused by a catastrophic extraterrestrial impact was born in 1980.

A Concise Geologic Time Scale J G Ogg 2016-05-13 **A Concise Geologic Time Scale: 2016** presents a summary of Earth's history over the past 4.5 billion years, as well as a brief overview of contemporaneous events on the Moon, Mars, and Venus. The authors have been at the forefront of chronostratigraphic research and initiatives to create an international geologic time scale for many years, and the charts in this book present the most up-to-date international standard, as ratified by the International Commission on Stratigraphy and the International Union of Geological Sciences. This book is an essential reference for all geoscientists, including researchers, students, and petroleum and mining professionals. The presentation is non-technical and illustrated with numerous colour charts, maps and photographs. The book also includes a detachable laminated card of the complete time scale for use as a handy reference in the office, laboratory, or field. Presents a summary of Earth's history over the past 4.5 billion years Includes a brief overview of contemporaneous events on the Moon, Mars, and Venus Includes full-color figures including charts, stratigraphic profiles, and photographs to enhance understanding of each geologic period Correlates regional geologic stages to the standard definitions approved by the International Commission on Stratigraphy Offers an explanation of the methods used to create the time scale

Geomathematics: Theoretical Foundations, Applications and Future Developments Frits Agterberg 2014-07-14 This book provides a wealth of geomathematical case history studies performed by the author during his career at the Ministry of Natural Resources Canada, Geological Survey of Canada (NRCan-GSC). Several of the techniques newly developed by the author and colleagues that are described in this book have become widely adopted, not only for further research by geomathematical colleagues, but by government organizations and industry worldwide. These include Weights-of-Evidence modelling, mineral resource estimation technology, trend surface analysis, automatic stratigraphic correlation and nonlinear geochemical exploration methods. The author has developed maximum likelihood methodology and spline-fitting techniques for the construction of the international numerical geologic timescale. He has introduced the application of new theory of fractals and multi fractals in the geostatistical evaluation of regional mineral resources and ore reserves and to study the spatial distribution of metals in rocks. The book also contains sections deemed important by the author but that have not been widely adopted because they require further research. These include the geometry of preferred orientations of contours and edge effects on maps, time series analysis of Quaternary retreating ice sheet related sedimentary data, estimation of first and last appearances of fossil taxa from frequency distributions of their observed first and last occurrences, tectonic reactivation along pre-existing schistosity planes in fold belts, use of the grouped jackknife method for bias reduction in geometrical extrapolations and new applications of the theory of permanent, volume-independent frequency distributions.

Ocean Drilling Program Proceedings Ocean Drilling Program 1999

The Beginning of the Age of Mammals Kenneth D. Rose 2006-10-31 The life's work of one of the most knowledgeable researchers in the field, this richly illustrated, magisterial book combines sound scientific principles and meticulous research and belongs on the shelf of every paleontologist and mammalogist.

New Perspectives on the Old Red Sandstone Geological Society of London 2000

The Late Eocene Earth Christian Koeberl 2009 The Late Eocene and the Eocene-Oligocene (E-O) transition mark the most profound oceanographic and climatic changes of the past 50 million years of Earth history, with cooling beginning in the middle Eocene and culminating in the major earliest Oligocene Oi-1 isotopic event. The Late Eocene is characterized by an accelerated global cooling, with a sharp temperature drop near the E-O boundary, and significant stepwise floral and faunal turnovers. These global climate changes are commonly attributed to the expansion of the Antarctic ice cap

following its gradual isolation from other continental masses. However, multiple extraterrestrial bolide impacts, possibly related to a comet shower that lasted more than 2 million years, may have played an important role in deteriorating the global climate at that time. This book provides an up-to-date review of what happened on Earth at the end of the Eocene Epoch.

STRATI 2013 Rogério Rocha 2014-04-23 The 1st International Congress on Stratigraphy (STRATI 2013), held in Lisbon, 1–7 July 2013, follows the decision to internationalize the conferences previously organized by the French Committee of Stratigraphy (STRATI), the last one of which was held in Paris in 2010. Thus, the congress possesses both the momentum gained from an established conference event and the excitement of being the first International Congress on Stratigraphy. It is held under the auspices of the International Commission on Stratigraphy (IUGS) and it is envisaged that this first congress will lead to others being held in the future. This book includes all papers accepted for oral or poster presentation at the 1st International Congress on Stratigraphy. Papers include a short abstract, main text, figures, tables and references. Each paper has been reviewed by two internationally renowned scientists.

Applied Stratigraphy Eduardo A.M. Koutsoukos 2007-08-16 Stratigraphy has come to be indispensable to nearly all branches of the earth sciences, assisting such endeavors as charting the course of evolution, understanding ancient ecosystems, and furnishing data pivotal to finding strategic mineral resources. This book focuses on traditional and innovative stratigraphy techniques and how these can be used to reconstruct the geological history of sedimentary basins and in solving manifold geological problems and phenomena.

Late Cretaceous and Cenozoic Mammals of North America Michael O. Woodburne 2004-04-21 This book places into modern context the information by which North American mammalian paleontologists recognize, divide, calibrate, and discuss intervals of mammalian evolution known as North American Land Mammal Ages. It incorporates new information on the systematic biology of the fossil record and utilizes the many recent advances in geochronologic methods and their results. The book describes the increasingly highly resolved stratigraphy into which all available temporally significant data and applications are integrated. Extensive temporal coverage includes the Lancian part of the Late Cretaceous, and geographical coverage includes information from Mexico, an integral part of the North American fauna, past and present.

Western North Atlantic Palaeogene and Cretaceous Palaeoceanography Geological Society of London 2001

Proceedings of the Ocean Drilling Program Ocean Drilling Program 2000

Proxies in Late Cenozoic Paleooceanography C. Hillaire-Marcel 2007-05-25 The present volume is the first in a series of two books dedicated to the paleoceanography of the Late Cenozoic ocean. The need for an updated synthesis on paleoceanographic science is urgent, owing to the huge and very diversified progress made in this domain during the last decade. In addition, no comprehensive monography still exists in this domain. This is quite incomprehensible in view of the contribution of paleoceanographic research to our present understanding of the dynamics of the climate-ocean system. The focus on the Late Cenozoic ocean responds to two constraints. Firstly, most quantitative methods, notably those based on micropaleontological approaches, cannot be used back in time beyond a few million years at most. Secondly, the last few million years, with their strong climate oscillations, show specific high frequency changes of the ocean with a relatively reduced influence of tectonics. The first volume addresses quantitative methodologies to reconstruct the dynamics of the ocean and the second, major aspects of the ocean system (thermohaline circulation, carbon cycle, productivity, sea level etc.) and will also present regional synthesis about the paleoceanography of major the oceanic basins. In both cases, the focus is the “ open ocean leaving aside nearshore processes that depend too much on local conditions. In this first volume, we have gathered up-to-date methodologies for the measurement and quantitative interpretation of tracers and proxies in deep sea sediments that allow reconstruction of a few key past-properties of the ocean(temperature, salinity, sea-ice cover, seasonal gradients, pH, ventilation, oceanic currents, thermohaline circulation, and

paleoproductivity). Chapters encompass physical methods (conventional grain-size studies, tomography, magnetic and mineralogical properties), most current biological proxies (planktic and benthic foraminifers, deep sea corals, diatoms, coccoliths, dinocysts and biomarkers) and key geochemical tracers (trace elements, stable isotopes, radiogenic isotopes, and U-series). Contributors to the book and members of the review panel are among the best scientists in their specialty. They represent major European and North American laboratories and thus provide a priori guarantees to the quality and update of the entire book. Scientists and graduate students in paleoclimatology, paleoceanography, climate modeling, and undergraduate and graduate students in marine geology represent the target audience. This volume should be of interest for scientists involved in several international programs, such as those linked to the IODP (IODP – Integrated Ocean Drilling Program; PAGES – Past Global Changes; IMAGES – Marine Global Changes; PMIP: Paleoclimate Intercomparison Project; several IGCP projects etc.), That is, all programs that require access to time series illustrating changes in the climate-ocean system. Presents updated techniques and methods in paleoceanography Reviews the state-of-the-art interpretation of proxies used for quantitative reconstruction of the climate-ocean system Acts as a supplement for undergraduate and graduate courses in paleoceanography and marine geology

Confined Turbidite Systems Simon A. Lomas 2004

Stratigraphy Wang Naiwen 2020-12-17 This volume presents the proceedings of Symposium I "Stratigraphy" of the 30th International Geological Congress at Beijing. The proceedings aim to present a view of contemporary geology and should be of interest to researchers in the geological sciences.

Encyclopedia of Geology 2020-12-16 Encyclopedia of Geology, Second Edition presents in six volumes state-of-the-art reviews on the various aspects of geologic research, all of which have moved on considerably since the writing of the first edition. New areas of discussion include extinctions, origins of life, plate tectonics and its influence on faunal provinces, new types of mineral and hydrocarbon deposits, new methods of dating rocks, and geological processes. Users will find this to be a fundamental resource for teachers and students of geology, as well as researchers and non-geology professionals seeking up-to-date reviews of geologic research. Provides a comprehensive and accessible one-stop shop for information on the subject of geology, explaining methodologies and technical jargon used in the field Highlights connections between geology and other physical and biological sciences, tackling research problems that span multiple fields Fills a critical gap of information in a field that has seen significant progress in past years Presents an ideal reference for a wide range of scientists in earth and environmental areas of study

Biostratigraphy in Production and Development Geology M. D.. Simmons 1999

The Geologic Time Scale 2012 2-Volume Set F. M. Gradstein 2012-07-31 The Geologic Time Scale 2012, winner of a 2012 PROSE Award Honorable Mention for Best Multi-volume Reference in Science from the Association of American Publishers, is the framework for deciphering the history of our planet Earth. The authors have been at the forefront of chronostratigraphic research and initiatives to create an international geologic time scale for many years, and the charts in this book present the most up-to-date, international standard, as ratified by the International Commission on Stratigraphy and the International Union of Geological Sciences. This 2012 geologic time scale is an enhanced, improved and expanded version of the GTS2004, including chapters on planetary scales, the Cryogenian-Ediacaran periods/systems, a prehistory scale of human development, a survey of sequence stratigraphy, and an extensive compilation of stable-isotope chemostratigraphy. This book is an essential reference for all geoscientists, including researchers, students, and petroleum and mining professionals. The presentation is non-technical and illustrated with numerous colour charts, maps and photographs. The book also includes a detachable wall chart of the complete time scale for use as a handy reference in the office, laboratory or field. The most detailed international geologic time scale available that contextualizes information in one single reference for quick desktop access. Gives insights in the construction, strengths, and limitations of the geological time scale that greatly enhances its function and its utility. Aids understanding by combining with the mathematical and statistical

methods to scaled composites of global succession of events. Meets the needs of a range of users at various points in the workflow (researchers extracting linear time from rock records, students recognizing the geologic stage by their content).

Time-Series Analysis and Cyclostratigraphy Graham P. Weedon 2005-09-15 Increasingly environmental scientists, palaeoceanographers and geologists are collecting quantitative records of environmental changes (time-series) from sediments, ice cores, cave calcite, corals and trees. This book explains how to analyse these records, using straightforward explanations and diagrams rather than formal mathematical derivations. All the main cyclostratigraphic methods are covered including spectral analysis, cross-spectral analysis, filtering, complex demodulation, wavelet and singular spectrum analysis. Practical problems of time-series analysis, including those of distortions of environmental signals during stratigraphic encoding, are considered in detail. Recent research into various types of tidal and climatic cycles is summarised. The book ends with an extensive reference section, and an appendix listing sources of computer algorithms. This book provides the ideal reference for all those using time-series analysis to study the nature and history of climatic and tidal cycles. It is suitable for senior undergraduate and graduate courses in environmental science, palaeoceanography and geology.

Biostratigraphic and Geological Significance of Planktonic Foraminifera Marcelle K. BouDagher-Fadel 2015-10-02 The role of fossil planktonic foraminifera as markers for biostratigraphical zonation and correlation underpins most drilling of marine sedimentary sequences and is key to hydrocarbon exploration. The first - and only - book to synthesise the whole biostratigraphic and geological usefulness of planktonic foraminifera, *Biostratigraphic and Geological Significance of Planktonic Foraminifera* unifies existing biostratigraphic schemes and provides an improved correlation reflecting regional biogeographies. Renowned micropaleontologist Marcelle K. Boudagher-Fadel presents a comprehensive analysis of existing data on fossil planktonic foraminifera genera and their phylogenetic evolution in time and space. This important text, now in its Second Edition, is in considerable demand and is now being republished by UCL Press.

Encyclopedia of Dinosaurs Philip J. Currie 1997-10-06 This book is the most authoritative encyclopedia ever prepared on dinosaurs and dinosaur science. In addition to entries on specific animals such as Tyrannosaurus, Triceratops, and Velociraptor, the *Encyclopedia of Dinosaurs* covers reproduction, behavior, physiology, and extinction. The book is generously illustrated with many detailed drawings and photographs, and includes color pictures and illustrations that feature interpretations of the best known and most important animals. All alphabetical entries are cross-referenced internally, as well as at the end of each entry. The *Encyclopedia* includes up-to-date references that encourage the reader to investigate personal interests. The most authoritative encyclopedia ever prepared on dinosaurs includes many detailed drawings, photographs and illustrations in both color and black-and-white. Contains comprehensively cross-referenced alphabetical entries with internal references, as well as references at the conclusion of each entry. Provides in-depth references, allowing readers to pursue independent interests. Includes sixteen plates and 35 color illustrations.

Stratigraphy: A Modern Synthesis Andrew D. Miall 2015-12-28 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.

Stratigraphy Jacques Rey 2008 This book, written by 33 stratigraphic experts, presents various processes available which will enable the location in time of all rock types: sedimentary, metamorphic, plutonic, and eruptive, whether they are in outcrop or at subsurface. The terminology and the appropriate practices for each method are presented in separate chapters and illustrated with concrete examples. The order of the chapters is modeled on the progression of the stratigraphic process, from the descriptive to the interpretative, from the methods of the geometric stratigraphy (lithostratigraphy and genetic stratigraphy, chemostratigraphy, magnetostratigraphy) to the chronological stratigraphy (biostratigraphy), followed by the chronometric stratigraphy (isotopic geochronology). The final two chapters are dedicated to chronostratigraphic units and correlations which combine the contributions of various methods and to the presentation of the 2007 version of the Geological Time Scale. The definitions of stratigraphic terms can be found in a glossary at the end of the work. The book is addressed to all professional geologists, from the industrial sector as well as those in universities, including teachers and researchers who would like to deepen their knowledge of the vocabulary, the concepts, the methods and the practical applications of different approaches of stratigraphy, a reference discipline for the entirety of the geological sciences.

Stratigraphy Andrew D. Miall 2022 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.

Chemostratigraphy Across Major Chronological Boundaries Alcides N. Sial 2018-11-13 Exploring environmental changes through Earth ' s geological history using chemostratigraphy Chemostratigraphy is the study of the chemical characteristics of different rock layers. Decoding this geochemical record across chronostratigraphic boundaries can provide insights into geological history, past climates, and sedimentary processes. Chemostratigraphy Across Major Chronological Boundaries presents state-of-the-art applications of chemostratigraphic methods and demonstrates how chemical signatures can decipher past environmental conditions. Volume highlights include: Presents a global perspective on chronostratigraphic boundaries Describes how different proxies can reveal distinct elemental and isotopic events in the geologic past Examines the Archaean-Paleoproterozoic, Proterozoic-Paleozoic, Paleozoic-Mesozoic, and Mesozoic-Paleogene boundaries Explores cause-and-effect through major, trace, PGE, and REE elemental, stable, and radiogenic isotopes Offers solutions to persistent chemostratigraphic problems on a micro-global scale Geared toward academic and researchgeoscientists, particularly in the fields of sedimentary petrology, stratigraphy, isotope geology, geochemistry, petroleum geology, atmospheric science, oceanography, climate change and environmental science, Chemostratigraphy Across Major Chronological Boundaries offers invaluable insights into environmental evolution and climatic change.

Warm Climates in Earth History Brian T. Huber 2000 Leading experts in paleoclimatology assess intervals of global warmth in earth history.

Evolutionary Paleobiology James W. Valentine 1996-12-15 Representing the state of the art in evolutionary paleobiology, this book provides a much-needed overview of this rapidly changing field. An influx of ideas and techniques both from other areas of biology and from within paleobiology itself have resulted in numerous recent advances, including increased recognition of the relationships between ecological and evolutionary theory, renewed vigor in the study of ecological communities over geologic timescales, increased understanding of biogeographical patterns, and new mathematical approaches to studying the form and structure of plants and animals. Contributors to this volume—a veritable who's

who of eminent researchers—present the results of original research and new theoretical developments, and provide directions for future studies. Individually wide ranging, these papers all share a debt to the work of James W. Valentine, one of the founders of modern evolutionary paleobiology. This volume's unified approach to the study of life on earth will be a major contribution to paleobiology, evolution, and ecology.

Principles of Sedimentary Basin Analysis Andrew D. Miall 2013-03-09 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 includes numerous lists of references, and is up-to-date. As a source volume, this book is second to none. It is clear and well organized." GEOPHYSICS
Geologic Time Scale 2020 Felix M. Gradstein 2020 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 synthesizes 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

The Geology of Central Europe: Mesozoic and Cenozoic Tom McCann 2008 Volume 2 provides an overview of the Mesozoic and Cenozoic evolution of Central Europe. This period commenced with the destruction of Pangaea and ended with the formation of the Alps and Carpathians and the subsequent Ice Ages. Separate summary chapters on the Permian to Cretaceous tectonics and the Alpine evolution are also included. The final chapter provides an overview of the fossils fuels, ore and industrial minerals in the region.

Fossil Mammals of Asia Xiaoming Wang 2013-05-14 Fossil Mammals of Asia, edited by and with contributions from world-renowned scholars, is the first major work devoted to the late Cenozoic (Neogene) mammalian biostratigraphy and geochronology of Asia. This volume employs cutting-edge biostratigraphic and geochemical dating methods to map the emergence of mammals across the continent. Written by specialists working in a variety of Asian regions, it uses data from many basins with spectacular fossil records to establish a groundbreaking geochronological framework for the evolution of land mammals. Asia's violent tectonic history has resulted in some of the world's most varied topography, and its high mountain ranges and intense monsoon climates have spawned widely diverse environments over time. These geologic conditions profoundly influenced the evolution of Asian mammals and their migration into Europe, Africa, and North America. Focusing on amazing new fossil finds that have redefined Asia's role in mammalian evolution, this volume synthesizes information from a range of field studies on Asian mammals and biostratigraphy, helping to trace the histories and movements of extinct and extant mammals from various major groups and all northern continents, and providing geologists with a richer understanding of a variety of Asian terrains.

The Permian Timescale S.G. Lucas 2018-03-12 This volume brings together state-of-the-art reviews of the non-biostratigraphic and biostratigraphic data that are used to define and correlate Permian time intervals. It includes analyses of Permian radio-isotopic ages, magnetostratigraphy, isotope-based stratigraphy and timescale-relevant biostratigraphy. It is the first book devoted to this subject and represents the cutting edge of Permian time-scale research.

The Geology of Stratigraphic Sequences Andrew D. Miall 2013-06-29 Sequence stratigraphy

represents a new paradigm in geology. The principal hypothesis is that stratigraphic 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 predictable three-dimensional stratigraphies. In recent years stratigraphic research guided by sequence models has brought about fundamental improvements in our understanding of stratigraphic processes and the controls of basin architecture. Sequence models have provided a powerful framework for mapping and numerical 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 cyclic 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.

Regional Geology and Tectonics: Principles of Geologic Analysis Nicola Scarselli 2020-06-17 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.

Problems of Geocosmos-2018 Tatiana B. Yanovskaya 2019-07-13 This book includes the proceedings of the conference "Problems of the Geocosmos" held by the Earth Physics Department, St. Petersburg State University, Russia, every two years since 1996. Covering a broad range of topics in solid Earth physics and solar-terrestrial physics, as well as more applied subjects such as engineering geology and ecology, the book reviews the latest research in planetary geophysics, focusing on the interaction between the Earth's shells and the near-Earth space in a unified system. This book is divided into four sections: • Exploration and Environmental Geophysics (EG), which covers two broad areas of environmental and engineering geophysics – near-surface research and deep geoelectric studies; • Paleomagnetism and Rock Magnetism (P), which includes research on magnetostratigraphy, paleomagnetism applied to tectonics, environmental magnetism, and marine magnetic anomalies; • Seismology (S), which covers the theory of seismic wave propagation, Earth's structure from seismic data, global and regional seismicity and sources of earthquakes, and novel seismic instruments and data processing methods; and • Physics of Solar-Terrestrial Connections (STP), which includes magnetospheric phenomena, space weather, and the interrelationship between solar activity and climate.