Plankton Stratigraphy Cambridge Earth Science

This comprehensive synthesis of our knowledge of the biostratigraphy of marine plankton is the work of an international team of eighteen authors. It covers all the major fossil groups that can be used to date sediments and rocks in the time interval Late Mesozoic to Holocene. Altogether more than 3200 taxa are considered, almost all of which are illustrated and depicted on range charts, making the book a valuable work of reference in the earth sciences. For ease of reference by specialists interested in either calcareous or non-calcareous microfossils, the original work is now divided into two independent volumes. Volume 2 describes siliceous and other non-calcareous microfossils, covering radiolaria, diatoms, silicoflagellates, dinoflagellates and ichthyoliths.
Hardcover plus CD
A new detailed international geologic time scale, including methodology and a wallchart.
This volume reviews and reappraises the value and impact of outcrop-based fieldwork in hydrocarbon exploration, appraisal, development and production. There has been a resurgence in the use and need for outcrop-based research as analogues and benchmarks for subsurface overburden and reservoir studies, and digital technologies combined with traditional methods are revolutionizing this area of field-studies.
Sea-level constitutes a critical planetary boundary for geological processes and human life. Sea-level fluctuations during major greenhouse phases are still enigmatic and strongly discussed in terms of changing climate systems. The geological record of the Cretaceous greenhouse period provides a deep-time view on greenhouse-phase Earthsystem processes that facilitates a much better understanding of the causes and consequences of global, geologically short-term, sea-level changes. In particualr, Cretaceous hothouse periods can serve as a laboratory to better understand a near-future greenhouse Earth. This volume presents high-resolution sea-level records from globally distributed sedimentary archives of the Cretaceous involving a large group of scientists from the International Geoscience Programme IGCP 609. Marine to non-marine sedimentary successions were analysed for revised age constraints, the correlation of global palaeoclimate shifts and sea-level changes, tested for climate-driven cyclicities, and correlated within a high-resolution stratigraphic framework of the Geological Timescale. For hothouse periods, the hypothesis of significant global groundwater-related sea-level change, i.e. aquifer-eustasy as a major process, is reviewed and substantiated.
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The Mediterranean and northern Arabian regions provide a unique natural laboratory to constrain geodynamics associated with arc-continent and continent-continent collision and subsequent orogenic collapse by analysing regional and temporal distributions of the various elements in the geological archive. This book combines thirteen new contributions that highlight timing and distribution of the Cretaceous to Recent evolution of the Calabrian, Carpathian, Aegean and Anatolian segments of the Africa-Arabia-Eurasia subduction zone. These are subdivided into five papers documenting the timing and kinematics of Cretaceous arc-continent collision, and Eocene and Miocene continent-continent collision in Anatolia, with westward extrusion of Anatolia as a result. Eight papers provide an overview and new data from stratigraphy, structure, metamorphism and magmatism, covering the geological consequences of the largely Neogene collapse that characterizes the segments of interest, in response to late stage reorganization of the subduction zone, and the roll-back and break-off of (segments of) the subducting slab.

This book is a comprehensive collection of the best scholarship available on the transition between the Paleocene and Eocene epochs -- when the earth experienced the warmest climatic episode of the Cenozoic era. These 21 contributions detail the major turnover among marine and terrestrial organisms that resulted from sudden global warming.

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)

Stratigraphy, a branch of geology, is the science of describing the vertical and lateral relationships of different rock formations formed through time to understand the earth history. These relationships may be based on lithologic properties (named lithostratigraphy), fossil content (labeled biostratigraphy), magnetic properties (called magnetostratigraphy), chemical features (named chemostratigraphy), reflection seismology (named seismic stratigraphy), age relations (called chronostratigraphy). Also, it refers to archaeological deposits called archaeological stratigraphy. Stratigraphy is built on the concept "the present is the key to the past" which was first outlined by James Hutton in the late 1700s and developed by Charles Lyell in the early 1800s. This book focuses particularly on application of geophysical methods in stratigraphic investigations and stratigraphic analysis of layered basin deposits from different geologic settings and present continental areas extending from Mexico region (north America) through Alpine belt including Italy, Greece, Iraq to Russia (northern Asia).

The conference was held in Snowbird, Utah, October 1988, as a sequel to the Conference on Large Body Impacts held in 1981, also in Snowbird. This volume contains 58 peer-reviewed papers, arranged into sections that cover the major themes of the conference: catastrophic impacts, volcanism, and mass mortality; geological signatures of impacts; environmental effects of impacts; patterns of mass mortality; volcanism and its effects; case histories of mass mortalities; and events and extinctions at the K/T boundary. Annotation copyrighted by Book News, Inc., Portland, OR

The first complete dinosaur skeleton, that of an Iguanodon, was discovered in a coal mine in Bernissart in 1878. This book examines the Bernissart locality, the methodology of the excavation, and the genus Iguanodon.

An integrated treatment of the principal fields of classical and applied geosciences of Central America, this authoritative two-volume monograph treats the region as a whole, exploring geology, earth resources and geo-hazards across political boundaries. It reviews the published literature, and supplements it with an abundance of information from o

Contains 17 contributed chapters on the geology and tectonics of Panama, Costa Rica, and offshore areas. Five chapters describe onshore geology, three describe a combination of onshore geology and offshore marine geophysical data and attempt land-sea correlations, six describe marine geophysical dat

From AMETHYST to ARTESIAN SPRING, from COAL GAS to CONTINENTAL DRIFT, from SEISMOGRAM to STROMATOLITE, the Encylopedia of the Solid

Earth Sciences provides a comprehensive modern reference text for all the subdisciplines of the Earth Sciences. The Encyclopedia is primarily intended for professional earth scientists and those specializing in related subjects. However, it will also provide an important reference for students of the Earth Sciences and those needing information on terms in current usage. The book contains three main styles of entry: articles up to 1500 words on major topics such as plate tectonics, standard entries of up to a couple of hundred words on topics such as groups of minerals,and brief definitions of, for instance, individual minerals.

The innovation and refinement of the techniques and concepts ofsequence stratigraphy has been one of the most exciting andprofound developments in geology over the past thirty years.Seismic stratigraphy has now become one of the standard tools ofthe geoscientist, and there is a pressing need for an introductorytext on sequence stratigraphy. This new book sets out to define andexplain the concepts, principles and applications of thisremarkably influential approach to the study of sedimentary strata.The authors take a rigorous objective stance in evaluating thetechniques and interpretation of sequence stratigraphy - basing thetext 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 practisingsequence stratigraphers Based on a highly successful BP training course

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.

This monumental synthesis of our knowledge of the biostratigraphy of marine plankton is the work of an international team of thirteen authors, who have contributed nineteen chapters in all. The book covers every aspect of the stratigraphy of plankton, starting with the fossil schemes and then systematically examining the identification of the groups through geological time (from the present to the Cretaceous era). A particular strength of the work is the provision of thousands of photographs and diagrams of particular planktic fossils, making the book an indispensable work of reference in the earth sciences.

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.

On a Sustainable Future of the Earth’s Natural Resources is divided into three sections, with

individual chapters contributed by experts on diff erent facets of the earth sciences, natural resources management and related issues. The first section focuses on the status of Earth's resources; land, water, biota and atmosphere. Reviews on the rate of exploitation and the need to conserve these resources for future sustenance are also covered in this section. Th e following section includes chapters elucidating environmental, ecological, climatological and anthropological pressures on sustained nourishment with the Earth's resources. The last section describes management practices, issues and perspectives on sociological, legal, administrative, ICT and strategic efforts that need to be implemented in order to sustain our natural resources. This book covers a broad spectrum of the Earth's resources and sustenance, offering a comprehensive perspective on their past, present and future.

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.

This comprehensive book provides a unique overview of advances in the biology and ecology of marine protists. Nowadays marine protistology is a hot spot in science to disclose life phenomena using the latest techniques. Although many protistological textbooks deal with the cytology, genetics, ecology, and pathology of specific organisms, none keeps up with the quick pace of new discoveries on the diversity and dynamics of marine protists in general. The bookMarine Protists: Diversity and Dynamics gives an overview of current research on the phylogeny, cytology, genomics, biology, ecology, fisheries, applied sciences, geology and pathology of marine free-living and symbiotic protists. Poorly known but ecologically important protists such as labyrinthulids and apostome ciliates are also presented in detail. Special attention is paid to complex interactions between marine protists and other organisms including human beings. An understanding of the ecological roles of marine protists is essential for conservation of nature and human welfare. This book will be of great interest not only to scientists and students but also to a larger audience, to give a better understanding of protists' diverse roles in marine ecosystems.