The Protracted Permo Triassic Crisis And Multi Episode

This volume focuses on the broad pattern of increasing biodiversity through time, and recurrent events of minor and major ecosphere reorganization. Intense scrutiny is devoted to the pattern of physical (including isotopic), sedimentary and biotic circumstances through the time intervals during which life crises occurred. These events affected terrestrial, lacustrine and estuarine ecosystems, locally and globally, but have affected continental shelf ecosystems and even deep ocean ecosystems. The pattern of these events is the backdrop against which modelling the pattern of future environmental change needs to be evaluated.

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)

Mass extinctions shaped the Mesozoic Era. The End Triassic Extinction (ETE) caused an important reorganization of tetrapods by pruning Permian and Triassic clades of stem-mammals and non-crocodylomorph-pseudosuchians. Rapid global climate change caused by the emplacement of the Central Atlantic Magmatic Province is coincident with the ETE, however the mechanism for survivorship selectivity is debated. Historically, a debate about competitive exclusion vs the "luck" of survivorship has been invoked to explain the rise of dinosaurs after the ETE. I test this hypothesis in two ways: 1) mechanistic thermal niche modeling and 2) phylogenetic reconstruction. Mechanistic thermal niche modeling blends global climate model results with the physiology and geometry of animals to calculate thermal stress. I tested thirteen Late Triassic terrestrial tetrapod taxa in climates before and during the End Triassic Extinction. Thermal performance in Late Triassic climates predict the paleobiogeographic distribution of body fossils prior to the ETE, while modeling of ETE phases suggests a brief, intense cold phase due to volcanogenic aerosolized sulfur played a deciding role in the selectivity of the end Triassic biotic crisis on land, which would have been reinforced by a less selective but prolonged global warming phase that stressed all tetrapods. Mechanistic modeling requires robust estimates of dimensions and mass. I tested two methods for estimating lengths of missing vertebral data and quantified the impact of competing interpretations of rib angulation in Mesozoic archosaurs. Incorrectly inferring mammal-like rib cages in archosaurs results in volumetric mass estimate inflation of 10% and biases Niche Mapper biophysical modeling. Dinosaurs which survived the ETE biotic crisis underwent significant evolutionary radiations in the remainder of the Mesozoic, including the origin of birds. A newly described, paravian theropod from the Upper Jurassic Morrison Formation provides strong evidence against a model of widespread secondarily flightless avialans in favor of a protracted, largely terrestrial piecewise acquisition of anatomical characters related to flight. Phylogenetic results support aerial behavior evolved several times independently among the ancestors of birds, but only avialans acquired advanced arboreal adaptations, and ultimately survived the Cretaceous/Paleogene Extinction.

Inventory of Foraminifers and Calcareous Algae, Biostratigraphy and Paleogeography

Proceedings of the 15th International Symposium on Ostracoda, Berlin, 2005

Understanding Late Devonian and Permian-Triassic Biotic and Climatic Events

Earth and Life

Chemostratigraphy

An Introduction to Paleobiology

Palaeobiology: A Synthesis was widely acclaimed both for its content and production quality. Ten years on, Derek Briggs and Peter Crowther have once again brought together over 150 leading authorities from around the world to produce Palaeobiology II. Using the same successful formula, the content is arranged as a series of concise articles, taking a thematic approach to the subject, rather than treating the various fossil groups systematically. This entirely new book, with its diversity of new topics and over 100 new contributors, reflects the exciting developments in the field, including accounts of spectacular newly discovered fossils, and embraces data from other disciplines such as astrobiology, geochemistry and genetics. Palaeobiology II will be an invaluable resource, not only for palaeontologists, but also for students and researchers in other branches of the earth and life sciences. Written by an international team of recognised authorities in the field. Content is concise but informative. Demonstrates how palaeobiological studies are at the heart of a range of scientific themes.

Carbon Isotope Stratigraphy, Volume Five in the Advances in Sequence Stratigraphy series, covers research in stratigraphic disciplines, including the most recent developments in the geosciences. This fully commissioned review publication aims to foster and convey progress in stratigraphy with its inclusion of a variety of topics, including Carbon isotope stratigraphy - principles and applications, Interpreting Phanerozoic d13C patterns as periodic glacio-eustatic sequences, Stable carbon isotopes in archaeological plant remains, Review of the Upper Ediacaran-Lower Cambrian Detrital Series in Central and North Iberia: NE Africa as possible Source Area, Calibrating d13C and d18O chemostratigraphic correlations across Cambrian strata of SW, and much 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

Chemostratigraphy: Concepts, Techniques, and Applications is the first collection of contributed articles that introduces young geoscientists to the discipline while providing seasoned practitioners with a standard reference that showcases the topic□s most recent research and application developments. This multi-contributed reference on one of the youngest and most dynamic branches of the geosciences includes articles from some of the world□s leading researchers. This book is a one-stop source of chemostratigraphy theory and application, helping geoscientists navigate through the wealth of new research that has emerged in recent years. Edited by one of the world□s foremost chemostratigraphy experts Features contributed articles from a broad base of topics including stratigraphic correlation, hydrocarbon exploration, reservoir characterization, and paleo-climatic interpretation Includes a range of application-based case studies addressing spatio-temporal scales for practical, field-specific concepts

Trace Fossils

Fundamentals of Biogeography

Proceedings of the National Academy of Sciences of the United States of America

Ammonoid Paleobiology: From macroevolution to paleogeography

Sixth Symposium on Chemical Evolution and the Origin and Evolution of Life

Global Biodiversity, Extinction Intervals and Biogeographic Perturbations Through Time

The great diversity of ostracod applications in biology and palaeontology is clearly illustrated by eighteen papers from the 15th International Symposium on Ostracoda. Collectively, the contributions provide a comprehensive update of ongoing research and the latest findings in ostracod sciences. You ' ll learn how ostracods are used as model groups in a variety of research studies, ranging from evolutionary biology to climate change.

This book serves as an up-to-date introduction, as well as overview to modern trace fossil research and covers nearly all of the essential aspects of modern ichnology. Divided into three section, Trace Fossils covers the historical background and concepts of ichnology, on-going research problems, and indications about the possible future growth of the discipline and potential connections to other fields. This work is intended for a broad audience of geological and biological scientists. Workers new to the field could get a sense of the main concepts of ichnology and a clear idea of how trace fossil research is conducted. Scientists in related disciplines could find potential uses for trace fossils in their fields. And, established workers could use the book to check on the progress of their particular brand of ichnology. By design, there is something here for novice and veteran, insider and outsider, and for the biologically-oriented workers and for the sedimentary geologists. * Presents a review of the state of ichnology at the beginning of the 21st Century * Summarizes the basic concepts and methods of modern trace fossil research * Discusses crucial background information about the history of trace fossil research, the main concepts of ichnology, examples of current problems and future directions, and the potential connections to other disciplines within both biology and geology

The 1st International Congress on Stratigraphy (STRATI 2013), hold 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.

Medical Reviews Selected Bibliography 2011 November

American Paleontologist

Evolution in Action

Insect Biodiversity

Virtual field trips through the Nature of the past

Morphogenesis, Environmental Stress and Reverse Evolution

Understanding basin-fill evolution and the origin of stratal architectures has traditionally been based on studies of outcrops, well and seismic data, studies of and inferences on qualitative geological processes, and to a lesser extent based on quantitative observations of modern and ancient sedimentary environments. Insight gained on the basis of these studies can increasingly be tested and extended through the application of numerical and analogue forward models. Present-day stratigraphic forward modelling follows two principle lines: 1) the deterministic process-based approach, ideally with resolution of the fundamental equations of fluid and sediment motion at all scales, and 2) the stochastic approach. The process-based approach leads to improved understanding of the dynamics (physics) of the system, increasing our predictive power of how systems evolve under various forcing conditions unless the system is highly non-linear and hence difficult or perhaps even impossible to predict. The stochastic approach is more direct, relatively simple, and useful for study of more complicated or less-well understood systems. Process-based models, more than stochastic ones, are directly limited by the diversity of temporal and spatial scales and the very incomplete knowledge of how processes operate and interact on the various scales. The papers included in this book demonstrate how cross-fertilization between traditional field studies and analogue and numerical forward modelling expands our understanding of Earth-surface systems.

Paleoecology is a discipline that uses evidence from fossils to provide an understanding of ancient environments and the ecological history of life through geological time. This text covers the fundamental approaches that have provided the foundation for present paleoecological understanding, and outlines new research areas in paleoecology for managing future environmental and ecological change. Topics include the use of actualism in paleoecology, development of paleoecological models for paleoenvironmental reconstruction, taphonomy and exceptional fossil preservation, evolutionary paleoecology and ecological change through time, and conservation paleoecology. Data from studies of invertebrates, vertebrates, plants and microfossils, with added emphasis on bioturbation and microbial sedimentary structures, are discussed. Examples from marine and terrestrial environments are covered, with a particular focus on periods of great ecological change, such as the Precambrian-Cambrian transition and intervals of mass extinction. Readership: This book is designed for advanced undergraduates and beginning graduate students in the earth and biological sciences, as well as researchers and applied scientists in a range of related disciplines.

One of the leading textbooks in its field, Bringing Fossils to Life applies paleobiological principles to the fossil record while detailing the evolutionary history of major plant and animal phyla. It incorporates current research from biology, ecology, and population genetics, bridging the gap between purely theoretical paleobiological textbooks and those that describe only invertebrate paleobiology and that emphasize cataloguing live organisms instead of dead objects. For this third edition Donald R. Prothero has revised the art and research throughout, expanding the coverage of invertebrates and adding a discussion of new methodologies and a chapter on the origin and early evolution of life.

Micropaleontology of Some Permian Localities in the Tethyan Realm

古生物學報

The Geologic Time Scale 2012

Palaeozoic Climate Cycles

Past, Present and Future

Concepts, Techniques, and Applications

"Comprises articles stemming from the March 2013 international conference at London's Natural History Museum. Researchers across geological, geophysical, and biological disciplines present key results from research concerning the causes of mass extinction events"--

******* The second edition (1979) is cited in BCL3. The third updates and covers two new areas in sedimentary geology: depositional systems analysis and the study of mass extinctions. Annotation copyrighted by Book News, Inc., Portland, OR***

Unraveling the mystery of the catastrophic age of extinctions Two hundred sixty million years ago, life on Earth suffered wave after wave of cataclysmic extinctions, with the worst wiping out nearly every species on the planet. The Worst of Times delves into the mystery behind these extinctions and sheds light on the fateful role the primeval supercontinent, known as Pangea, might have played in causing these global catastrophes. Drawing on the latest discoveries as well as his own firsthand experiences conducting field expeditions to remote corners of the world, Paul Wignall reveals what scientists are only now beginning to understand about the most prolonged and calamitous period of environmental crisis in Earth's history. Wignall shows how these series of unprecedented extinction events swept across the planet, killing life on a scale more devastating than the dinosaur extinctions that would follow. The Worst of Times unravels one of the great enigmas of ancient Earth and shows how this ushered in a new age of vibrant and more resilient life on our planet.

The Global Triassic

The Worst of Times

Science and Society

Concepts, Problems, Prospects

Ancient Environments

This book simulates a historical walk through nature, teaching readers about the biodiversity on Earth in various eras with a focus on past terrestrial environments. Geared towards a student audience, using simple terms and avoiding long complex explanations, the book discusses the plants and animals that lived on land, the evolution of natural systems, and how these biological systems changed over time in geological and paleontological contexts. With easy-to-understand and scientifically accurate and up-to-date information, readers will be guided through major biological events from the Earth's past. The topics in the book represent a broad paleoenvironmental spectrum of interests and educational modules, allowing for virtual visits to rich geological times. Eras and events that are discussed include, but are not limited to, the much varied Quaternary environments, the evolution of plants and animals during the Cenozoic, the rise of angiosperms, vertebrate evolution and ecosystems in the Mesozoic, the Permian mass extinction, the late Paleozoic glaciation, and the origin of the first trees and land plants in the Devonian-Ordovician. With state-of-the art expert scientific instruction on these topics and up-to-date and scientifically accurate illustrations, this book can serve as an international course for students, teachers, and other interested individuals.

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.

Processes and Ore Deposits of Ultramafic-Mafic Magmas through Space and Time focuses on the fundamental processes that control the formation of ore deposits from ultramafic-mafic magmas, covering chromite, platinum-group element (PGE), Ni-sulfides and Ti-V-bearing magnetite. The exploration, exploitation and use of these magmatic ores are important aspects of geology and directly linked to the global economy. Magmatic ores form from ultramafic-mafic magmas and crystallize at high-temperature after emplacement into crustal magma chambers, and are genetically linked to the evolution of the parental magmas through space and time. This book features recent developments in the field of magmatic ore deposits, and is an essential resource for both industry professionals and those in academia. Elucidates the relationships between tectonic settings and magmatic ore mineralization Provides the links between magma generation in the mantle and ore mineralization at crustal levels Features the latest research on changing patterns in magmatic ore mineralization through time and their bearing on the chemical evolution of the Earth's mantle

The Vegetation of Antarctica Through Geological Time

Paleoecology

How Life on Earth Survived Eighty Million Years of Extinctions

Constraints from Shangsi, China

Permian-Triassic Evolution of Tethys and Western Circum-Pacific

Applications of Palaeontology

The Late Devonian and Permian-Triassic intervals are among the most dynamic episodes of Earth history, marked by large secular changes in continental ecosystems, dramatic fluctuations in ocean oxygenation, major phases of biotic turnover, volcanism, bolide impact events, and rapid fluctuations in stable isotope systems and sea level. This volume highlights contributions from a broad range of geological sub-disciplines currently striving to understand these critical intervals of geologically rapid, global-scale changes. * Provides updated, current models for the mid-Late Devonian and Permian-Triassic mass extinction episodes * Highlights several new analytical approaches for developing quantitative datasets * Takes an integrated approach presenting datasets from a broad range of sub-disciplines

Palaeontology, the scientific study of fossils, has developed from a descriptive science to an analytical science used to interpret relationships between earth and life history. This book provides a comprehensive and thematic treatment of applied palaeontology, covering the use of fossils in the ordering of rocks in time and in space, in biostratigraphy, palaeobiology and sequence stratigraphy. Robert Wynn Jones presents a practical workflow for applied palaeontology, including sample acquisition, preparation and analysis, and interpretation and integration. He then presents numerous case studies that demonstrate the applicability and value of the subject to areas such as petroleum, mineral and coal exploration and exploitation, engineering geology and environmental science. Specialist applications outside of the geosciences (including archaeology, forensic science, medical palynology, entomopalynology and melissopalynology) are also addressed. Abundantly illustrated and referenced, Applications of Palaeontology provides a user-friendly reference for academic researchers and professionals across a range of disciplines and industry settings.

This volume presents results of a variety of case studies documenting the Late Palaeozoic climate changes and cyclicity of deposition. The collected papers cover many aspects related to palaeoenvironmental analysis with sedimentological, stratigraphic, palaeobiological, geochemical, and palaeomagnetic studies of the fossil record around the Late Palaeozoic Ice Age and soon after. They span a stratigraphic interval from Carboniferous to Permian–Triassic transition around the world. This book comprising results for a range of disciplines, is a valuable source for not only researchers who are actively working on specific aspects of the Late Palaeozoic and looking for an up-to-date reference on this inhospitable time in the Earth's history. It is also of interest to climate modellers and the wider scientific community with an interest in the latest research on the decline of the Palaeozoic World.

Macroevolution, Thermal Ecology and Extinction in Terrestrial Mesozoic Tetrapods

STRATI 2013

Conservation Biology

Techniques and Case Studies

Ostracodology - Linking Bio- and Geosciences

§§ 256-295

Der Löwe-Rosenberg enthält die grundlegende, umfassende Kommentierung des deutschen Strafprozessrechts und gibt dem Benutzer eine Hilfe zur Lösung nicht nur häufig auftauchender, sondern auch entlegener Sachfragen. Der Großkommentar erläutert die StPO, das GVG, das EGGVG sowie die das Strafverfahren betreffenden Vorschriften der EMRK und des IPBPR. Der gegenwärtige Erkenntnisstand und der Stand der rechtlichen Kontroversen sind vollständig dargestellt. Der Löwe-Rosenberg ist als Großkommentar der Praxis angelegt, bei Darstellung und Gewichtung wird stets auf Praxisbezug und Praxistauglichkeit geachtet. Auch für die Neuauflage konnten wieder besonders fachkundige Herausgeber und Autoren aus Wissenschaft und Praxis gewonnen werden, die für eine wissenschaftlich fundierte und zugleich praxisorientierte Erläuterung stehen. Band 7 enthält die die umfassende Kommentierung der §§ 256-257 StPO zur Hauptverhandlung sowie der Vorschriften zur Entscheidung über die im Urteil vorbehaltene oder die nachträgliche Anordnung der Sicherungsverwahrung (§ 275a StPO) und zum Verfahren gegen Abwesende (§§ 276-295 StPO).

Volume Two of the new guide to the study of biodiversity in insects Volume Two of Insect Biodiversity: Science and Society presents an entirely new, companion volume of a comprehensive resource for the most current research on the influence insects have on humankind and on our endangered environment. With contributions from leading researchers and scholars on the topic, the text explores relevant topics including biodiversity in different habitats and regions, taxonomic groups, and perspectives. Volume Two offers coverage of insect biodiversity in regional settings, such as the Arctic and Asia, and in particular habitats including crops, caves, and islands. The authors also include information on historical, cultural, technical, and climatic perspectives of insect biodiversity. This book explores the wide variety of insect species and their evolutionary relationships. Case studies offer assessments on how insect biodiversity can help meet the needs of a rapidly expanding human population, and examine the consequences that an increased loss of insect species will have on the world. This important text: Offers the most up-to-date information on the important topic of insect biodiversity Explores vital topics such as the impact on insect biodiversity through habitat loss and degradation and climate change With its companion Volume I, presents current information on the biodiversity of all insect orders Contains reviews of insect biodiversity in culture and art, in the fossil record, and in agricultural systems Includes scientific approaches and methods for the study of insect biodiversity The book offers scientists, academics, professionals, and students a guide for a better understanding of the biology and ecology of insects, highlighting the need to sustainably manage ecosystems in an ever-changing global environment.

Permian and Triassic are the interval known for the integration and separation of Pangea, the closure of the Palaeotethys and the opening of Mesotethys. They were associated with a series of worldwide events including the Late Palaeozoic glaciation and succeeding extensive evaporatic and reef formations, the end-Palaeozoic regression, strong orogenies and widespread volcanism and magmatism, and finally, the Permo-Triassic biotic macro-extinction. These events resulted in the formation of enormous reserves of coal, petroleum, evaporites, phosphorites and metal resources. The Permian and Triassic thus constitutes a time interval particularly important both for understanding the Earth's history and for exploration of mineral resources. The book aims to reconstruct the Permian-Triassic history of Pangea, Palaeo-Tethys and Palaeo-Pacific through stratigraphic, palaeogeographic and other interdisciplinary approaches. It consists of two parts. Part 1 deals with regional stratigraphy of Tethyan and western Circum-Pacific countries which is the basis for interregional correlation, and palaeogeography. Part 2 deals with the biotic evolution at the Permian-Triassic transition, focusing on the major invertebrate groups: foraminifers, radiolarians, brachiopods, ammonoids and conodonts.

Their Evolutionary and Sedimentological Impact

Bulletin 41

From Understanding to Prediction

Palaeobiology II

Volcanism, Impacts, and Mass Extinctions: Causes and Effects

Processes and Ore Deposits of Ultramafic-Mafic Magmas through Space and Time

It is widely acknowledged that life has adapted to its environment, but the precise mechanism remains unknown since Natural Selection, Descent with Modification and Survival of the Fittest are metaphors that cannot be scientifically tested. In this unique text, invertebrate and vertebrate biologists illuminate the effects of physiologic stress on epigenetic responses in the process of evolutionary adaptation from unicellular organisms to invertebrates and vertebrates, respectively. This book offers a novel perspective on the mechanisms underlying evolution. Capacities for morphologic alterations and epigenetic adaptations subject to environmental stresses are demonstrated in both unicellular and multicellular organisms. Furthermore, the underlying cellular-molecular mechanisms that mediate stress for adaptation will be elucidated wherever possible. These include examples of ' reverse evolution ' by Professor Guex for Ammonites and for mammals by Professor Torday and Dr. Miller. This provides empiric evidence that the conventional way of thinking about evolution as unidirectional is incorrect, leaving open the possibility that it is determined by cell-cell interactions, not sexual selection and reproductive strategy. Rather, the process of evolution can be productively traced through the conservation of an identifiable set of First Principles of Physiology that began with the unicellular form and have been consistently maintained, as reflected by the return to the unicellular state over the course of the life cycle.

Looks at the fossil plant history of Antarctica and its relationship to the global record of environmental and climate change.

This volume work is a testament to the abiding interest and human fascination with ammonites. We offer a new model to explain the morphogenesis of septa and the shell, we explore their habitats by the content of stable isotopes in their shells, we discuss the origin and later evolution of this important clade, and we deliver hypotheses on its demise. The Ammonoidea produced a great number of species that can be used in biostratigraphy and possibly, this is the macrofossil group, which has been used the most for that purpose. Nevertheless, many aspects of their anatomy, mode of life, development or paleobiogeographic distribution are still poorly known. Themes treated are biostratigraphy, paleoecology, paleoenvironment, paleobiogeography, evolution, phylogeny, and ontogeny. Advances such as an explosion of new information about ammonites, new technologies such as isotopic analysis, tomography and virtual paleontology in general, as well as continuous discovery of new fossil finds have given us the opportunity to present a comprehensive and timely "state of the art" compilation. Moreover, it also points the way for future studies to further enhance our understanding of this endlessly fascinating group of organisms.

古地理学报

Analogue and Numerical Modelling of Sedimentary Systems

Extinction, Survival, and Recovery of Lagenide Foraminifers in the Permian-Triassic Boundary Interval, Central Taurides, Turkey

Rate and Tempo of Late Permian Events

Origin and Evolution of the Cape Mountains and Karoo Basin

First International Congress on Stratigraphy At the Cutting Edge of Stratigraphy

This edited volume will provide a treatment of evolutionary conservation biology that introduces and explains major concepts and also unifies recent theoretical and empirical advances.

Fundamentals of Biogeography presents an accessible, engaging and comprehensive introduction to biogeography, explaining the ecology, geography, history and conservation of animals and plants. Starting with an outline of how species arise, disperse, diversify and become extinct, the book examines: how environmental factors (climate, substrate, topography, and disturbance) influence animals and plants; investigates how populations grow, interact and survive; how communities form and change; and explores the connections between biogeography and conservation. The second edition has been extensively revised and expanded throughout to cover new topics and revisit themes from the first edition in more depth. Illustrated throughout with informative diagrams and attractive photos and including guides to further reading, chapter summaries and an extensive glossary of key terms, Fundamentals of Biogeography clearly explains key concepts in the history, geography and ecology of life systems. In doing so, it tackles some of the most topical and controversial environmental and ethical concerns including species over-exploitation, the impacts of global warming, habitat fragmentation, biodiversity loss and ecosystem restoration.

Nature through Time

Carbon Isotope Stratigraphy

Bringing Fossils to Life

Wetlands Through Time