Earth System History 3rd Edition

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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.

This text remains the only textbook for the historical geology module written from a truly integrated Earth systems perspective, combining the physical and biological history of Earth. This thoroughly updated new edition includes new coverage on mass extinctions and climate change, plus improved organization based on the geologic timescale.

Geography is a multidisciplinary field which looks at both physical and social aspects of the world. The broad scope of the field makes it a daunting area for those who do not have a specific background in it. Geography for Non-Geographers thus introduces readers to the most important aspects of geography and how they affect us. It covers all areas of geography, from physical geography to climate and weather to human and cultural geography. Geography for Non-Geographers is presented in an accessible and straightforward manner, explaining scientific concepts in the most basic way possible. Along with basic geographical principles, the text provides a clear, concise presentation of the consequences of the physical interactions with the environment we inhabit. Each chapter ends with a chapter review test to help evaluate mastery of the concepts presented. Readers acquire an understanding of and skill in geographical principles, adding a critical component to their professional knowledge.

A Brief Guide to the World

Earth System: History and Natural Variability - Volume I

Volume 1

Earth System, The: Pearson New International Edition

Paleoecology

Science and Its Uses

Addressed to the undergraduate and postgraduate students pursuing studies in the broad interdisciplinary field of Earth Science, this thoroughly revised book, in its

Fourth Edition, is aimed at facilitating the comprehension between the pre-planetary history and the subsequent geological processes of the Earth system. This is done keeping in mind the current interest in exoplanets and the evolution of the life supporting crustal composition of the Earth, much different from that of the other planets, in terms of the Earth's internal heat, density distribution and the strong magnetic field due to the dominant presence of metallic Fe in its core. The new edition draws the attention of the reader to the different surface gravity features and the internal compositional structures of the Earth, Moon and the Sun acquired during the Hadean. Examples of lithospheric movements, rifting, subduction and the continued mantle-crust interaction from Indian and Southeast Asian geology would bring the readers close to interlinking these tectonic processes to the genesis of igneous, sedimentary and metamorphic rocks as well as to the episodes of mineralizations. Emphasizing these dynamic processes, the text focuses on the constitution of oceans, the causes of mass extinctions and the evolution of life forms, the biogeochemical cycles of elements, and also, on the life protecting ozone layer of the stratosphere, all unique to the Earth System. The student is sensitized towards the natural hazards of frequent volcanic eruptions, earthquakes, tsunamis, floods, and climate change besides explicating the threats posed by global warming, atmospheric and hydrosphere pollution, caused by the industrial emanations and indiscrete waste disposal. KEY FEATURES • Each chapter is replete with examples, illustrations, tables and figures to make reading more fruitful and enriching. • Chapter-end summary helps in recapitulation of the concepts discussed. • Additional Reading provided at the end of each chapter directs the readers to the vast source of information. NEW TO THE FOURTH EDITION Considering the growing global interest in locating a habitable exoplanet like the Earth, and in exploring the Moon and the Mars, the present edition thoroughly updates the information about • the geochemical processes, unique to the Earth System, that gave rise to the life supportive crust, oceans and the atmosphere. • the role played by plate tectonics in forming the igneous, sedimentary and metamorphic rocks, mineral deposits, and also, in the evolution of life. • the geo-environmental hazards of volcanic eruptions, earthquakes, floods, tsunamis, droughts and desertification. • the growing adoption of solar, hydro, wind and nuclear energy in power generation, and in management of clean environment. TARGET AUDIENCE • M.Sc. (Geology, Applied Geology, Geoinformatics, Geophysics, Geochemistry, Geography, Earth Science, and Environmental Science) • B.Sc. (Geology, Applied Geology)

What is fuzzy logic?--a system of concepts and methods for exploring modes of reasoning that are approximate rather than exact. While the engineering community has appreciated the advances in understanding using fuzzy logic for quite some time, fuzzy logic's impact in non-engineering disciplines is only now being recognized. The authors of Fuzzy Logic in Geology attend to this growing interest in the subject and introduce the use of fuzzy set theory in a style geoscientists can understand. This is followed by individual chapters on topics relevant to earth scientists: sediment modeling, fracture detection, reservoir characterization, clustering in geophysical data analysis, ground water movement, and time series analysis. George Klir is the Distinguished Professor of Systems Science and Director of the Center for Intelligent Systems, Fellow of the IEEE and IFSA, editor of nine volumes, editorial board member of 18 journals, and author or co-author of 16 books Foreword by the inventor of fuzzy logic-- Professor Lotfi Zadeh

What about climate change? Is there a connection between dragon legends and dinosaurs? Is evolution the bloodiest religion ever? What about cavemen? What are the 10 best evidences for a young creation? The Answers series has been a powerful tool in equipping believers to share and defend their faith. Now the newest book in this landmark series takes on hot button topics like climate change, ancient man, and many more. Too many people have walked away from their faith because they sought answers for what seemed a contradiction in Christian belief and scientific teaching. For those who desire a deeper walk and a thriving faith in the face of a growing cultural adversity, now find the answers to questions you have or others may use to genetic engineering, this powerful team of apologists is able to inspire you and those you know who may not yet believe.

Environmental Structure And Function: Earth System is a component of Encyclopedia of Earth and Atmospheric Sciences in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. This volume contains several chapters, each of size 5000-30000 words, with perspectives, applications and extensive illustrations. It carries state-of-the-art knowledge in the fields of Environmental Structure and Function: Earth Systems and is aimed, by virtue of the several applications, at the following five major target audiences: University and College Students, Educators, Professional Practitioners, Research Personnel and Policy Analysts, Managers, and Decision Makers and NGOs.

The History of Power, Fuel, and Energy from 1600

Implications to Civilizations

You Are Here

Urban Watersheds

Geography for Nongeographers

Earth System : History and Natural Variability

Steven Stanleys Historische Geologie ist das umfassende Kernlehrbuch der PalAontologie fA1/4r angehende Geologen, aber auch Biologen und Geographen und, last but not least, auch Lehramtsstudenten in diesen FAchern. Die erste Auflage - immerhin A1/4ber 10.000 Exemplare - hat sich im deutschen Lehrbuchmarkt auf Anhieb behauptet und in der Neuauflage viele Verbesserungen durch Aktualisierung, aber auch inhaltliche PrAzisierungen erfahren. Insbesondere wurden zwei vAllig neue Kapitel zu den groAen StoffkreislAufen der Erde bzw. zur Erdentwicklung nach der groAen Vereisung im PleistozAn aufgenommen.

Earth System: History and Natural Variability theme is a component of Encyclopedia of Natural Resources Policy and Management, in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. The Theme on Earth System: History and Natural Variability with contributions from distinguished experts in the field, presents a description of the cosmic environment around our planet influencing the Earth in a number of ways through variation of solar energy or meteorite impacts. The structure of the Earth and its rocks, waters and atmosphere is described. The Theme focuses on geological and evolutionary processes through the history of Earth's epochs and biomes since the Early Earth to the Quaternary. The unifying processes between the Earth's life and its rocks, waters and atmosphere are global natural cycles of carbon, sulfur and other elements that connect and influence the rate of geological processes, climate change, biological evolution and human economy. These five volumes are aimed at the following five

major target audiences: University and College students Educators, Professional practitioners, Research personnel and Policy analysts, managers, and decision makers and NGOs.

This new and expanded edition builds upon the first edition's accessible and comprehensive overview of the interdisciplinary field of sustainability. The focus is on furnishing solutions and equipping the student with both conceptual understanding and technical skills for the workplace. Each chapter explores one aspect of the field, first introducing concepts and presenting issues, then supplying tools for working toward solutions. Techniques for management and measurement as well as case studies from around the world are provided. The second edition includes a complete update of the text, with increased coverage of major topics including the Anthropocene; complexity; resilience; environmental ethics; governance; the IPCC's latest findings on climate change; Sustainable Development Goals; and new thinking on native species and novel ecosystems. Chapters include further reading and discussion questions. The book is supported by a companion website with links, detailed reading lists, glossary, and additional case studies, together with projects, research problems, and group activities, all of which focus on real-world problem solving of sustainability issues. The textbook is designed to be used by undergraduate college and university students in sustainability degree programs and other programs in which sustainability is taught.

With clear explanations, real-world examples and updated questions and answers, the tenth edition of Environmental Chemistry emphasizes the concepts essential to the practice of environmental science, technology and chemistry while introducing the newest innovations in the field. The author follows the general format and organization popular in preceding editions, including an approach based upon the five environmental spheres and the relationship of environmental chemistry to the key concepts of sustainability, industrial ecology and green chemistry. This readily adaptable text has been revamped to emphasize important topics such as the world water crisis. It details global climate change to a greater degree than previous editions, underlining the importance of abundant renewable energy in minimizing human influences on climate. Environmental Chemistry is designed for a wide range of graduate and undergraduate courses in environmental chemistry, environmental science and sustainability as well as serving as a general reference work for professionals in the environmental sciences and engineering.

The Handbook of Nature

Earth System Science: A Very Short Introduction

Introduction to Energy Analysis

A Reader

Geology, Contamination, Environmental Regulations, and Sustainability, Second Edition

Human-Earth System Dynamics

With growing concerns about the security, cost, and ecological consequences of energy use, people around the world are becoming more conscious of the systems that meet their daily needs for food, heat, cooling, light, transportation, communication, waste disposal, medicine, and goods. Powering Up Canada is the first book to examine

in detail how various sources of power, fuel, and energy have sustained Canadians over time and played a pivotal role in their history. Powering Up Canada investigates the ways that the production, processing, transportation, use, and waste issues of various forms of energy changed over time, transforming almost every aspect of society in the process. Chapters in the book's first part explore the energies of the organic regime – food, animal muscle, water, wind, and firewood-- while those in the second part focus on the coal, oil, gas, hydroelectricity, and nuclear power that define the mineral regime. Contributors identify both continuities and disparities in Canada's changing energy landscape in this first full overview of the country's distinctive energy history. Reaching across disciplinary boundaries, these essays not only demonstrate why and how energy serves as a lens through which to better understand the country's history, but also provide ways of thinking about some of its most pressing contemporary concerns. Engaging Canadians in an urgent international discussion on the social and environmental history of energy production and use – and its profound impact on human society – Powering Up Canada details the nature and significance of energy in the past, present, and future. Contributors include Jenny Clayton (University of Victoria), George Colpitts (University of Calgary), Colin Duncan (Queen's University), J.I. Little (Emeritus, Simon Fraser University), Joanna Dean (Carleton University), Matthew Evenden (University of British Columbia), Laurel Sefton MacDowell (Emerita, University of Toronto Mississauga), Joshua MacFadyen (Arizona State University), Eric Sager (University of Victoria), Jonathan Peyton (University of Manitoba), Steve Penfold (University of Toronto), Philip van Huizen (McMaster University), Andrew Watson (University of Saskatchewan), and Lucas Wilson (independent scholar).

Understanding that the natural world beneath our feet is the point at which civilization meets the natural world is critical to the success of restoration and prevention efforts to reduce contaminant impacts and improve the global environment because of one simple fact – contaminants do not respect country borders. Contaminants often begin their destructive journey immediately after being released and can affect the entire planet if the

release is in just the right amount, at just the right location, and at just the right time. Taking an interdisciplinary approach, Urban Watersheds, Geology, Contamination, Environmental Regulations, and Sustainability, Second Edition presents more than 30 years of research and professional practice on urban watersheds from the fields of environmental geology, geochemistry, risk analysis, hydrology, and urban planning. The geological characteristics of urbanized watersheds along with the physical and chemical properties of their common contaminants are integrated to assess risk factors for soil, groundwater, and air. This new edition continues to examine the urban environment and the geology beneath urban areas, evaluates the contamination that affects watersheds in urban regions, and addresses redevelopment strategies. Features of the Second Edition: Examines contaminants and the successes of environmental regulation worldwide and highlights the areas that need improvement Describes several advances in investigation techniques in urban regions that now provide a huge leap forward in data collection, resolution, and accuracy Explains the importance of understanding the geological and hydrogeologic environments of urban and developed regions Provides new and enhanced methods presented as a sustainability model for assessing risks to human health and the environment from negative human-induced contaminant impacts Includes a new chapter that surveys how environmental regulations have been successful or have failed at protecting the air, water, and land in urban areas Suitable for use as a textbook and as a professional practice reference, the book includes case studies on successful and unsuccessful approaches to contaminant remediation as well as practical methods for environmental risk assessment. PowerPoint® presentations of selected portions of the book are available with qualifying course adoption. Daniel T. Rogers is currently the Director of Environmental Affairs at Amsted Industries Inc. in Chicago, Illinois. His writings address environmental geology, hydrogeology, geologic vulnerability and mapping, contaminant fate and transport, urban geology, environmental site investigations, contaminant risk, brownfield redevelopment, and sustainability. He has taught geology and environmental chemistry at Eastern Michigan

University and the University of Michigan.
Earth as an Evolving Planetary System, Third Edition, examines the various subsystems that play a role in the evolution of the Earth, including subsystems in the crust, mantle, core, atmosphere, oceans, and life. This third edition includes 30% new material and, for the first time, includes full color images in both the print and electronic versions. Topics in the great events chapters are now included in the beginning of the book, with the addition of a new feature of breakout boxes for each event. The second half of the book now focuses on a better understanding of Earth's history by looking at the interactions of the subsystems over time. The Earth's atmosphere, hydrosphere, and biosphere, crustal and mantle evolution, the supercontinent cycle, great events in Earth history, and the Earth in comparison to other planets are also covered. Authored by a world leader in tectonics who also authored the two previous editions Presents comprehensive coverage of the Earth's history that is relevant for both students and teachers Includes important section on Comparative Planetary Evolution, not found in other textbooks All illustrations presented throughout both the print and electronic versions in full color
This book explores the factors and mechanisms that may have influenced the dynamic behaviors of earliest civilizations, focusing on both environmental (geographic) factors on which traditional historic analyses are based and human (behavioral) factors on which anthropological analyses are usually based. It also resurrects a number of common ancestral terms to help readers understand the complicated process of human and cultural evolution around the globe. Specifically, in almost all indigenous languages, the words 'wa' and any variants of it were originally associated with the sound of crying of – and certainly were selected as the common ancestral word with the meanings of "house, home, homeland, motherland, and so on" by – early humans living in different parts of the world.This book provides many neglected but still crucial environmental and biological clues about the rise and fall of civilizations – ones that have largely resulted from mankind's long-lasting "Win-Stay Lose-Shift" games throughout the world. The narratives and findings presented at this book are unexpected but reasonable – and are what every student of anthropology or

history needs to know and doesn't get in the usual text. "Professor Guo explores the dynamics of civilizations from the beginnings to our perplexingly complex world. There are lots of thought-provoking ideas here on the rise and decline of civilizations and nations... Anyone wishing to understand global developments should give this book serious consideration." ----John Komlos, University of Munich, Germany, and Duke University, USA "It is interesting to see a Chinese perspective on the questions of deep history that have engaged Jared Diamond, Yuval Harari and David Christian. Guo argues that understanding cyclical threats has been the key to human progress, which is driven by the dialectic of material privation and human ingenuity." ----Peter Rutland, Wesleyan University, USA

The Biology and Ecology of Giant Kelp Forests

ENVIRONMENTAL STRUCTURE AND FUNCTION: EARTH SYSTEM

The Facts on File Dictionary of Earth Science

Earth System: History and Natural Variability - Volume IV

Encyclopedia of Environmental Change

Fossil Traces of Coal-Age Tetrapods

Science and politics are closely connected in today's global environmental issues. This book focuses on these links in relation to climate change, the threats to wildlife species, and natural hazards and disasters. Study of these reveals the need for more effective international cooperation and the limits of global governance.

This completely updated edition of TheHandbook of Nature provides scientific answers to questions that arise when looking at the world around us. This book examines the relationship between humans and nature, specifically, it explains how natural phenomena/disasters influence the way we live and how human activity influences environmental changes and the frequency and intensity of natural disasters. Furthermore, the second edition of The Handbook of Nature discusses the relationship that humans should have with nature in the future. Should we intentionally minimize our impact on nature or should we find technical solutions to repair the damage that we have made? This edition also addresses how we can use lessons from the past to avoid irreparable damage in the future. The Handbook of Nature includes numerous illustrations and real-world case studies.

For courses in Earth Systems Science offered in departments of Geology, Earth Science, Geography and Environmental Science. The first textbook of its kind that addresses the issues of global change from a true Earth systems perspective, The Earth System offers a solid emphasis on lessons from Earth's history that may guide decision-making in the future. It is more rigorous and quantitative than traditional Earth science books, while remaining appropriate for non-science majors.

The Columbia Icefield is the largest sub-polar accumulation of glacial ice in North America. Because it is possible to drive to the second largest glacier flowing out of the Columbia Icefield, it is the best-known ice age feature in Canada and a remarkably popular tourist destination. From this amazing and accessible ice mass we can learn a great deal about how water shaped our landscape in the past and how it will shape our civilization in the future. Despite a century of accelerating recession, the Columbia Icefield is still an incredible geographical feature. It is a high basin of accumulated snow and ice that presently straddles

223 square kilometres, some 86 square miles, of the Great Divide, the stupendous mountain wall that marks the boundary between the provinces of British Columbia and Alberta. It also straddles Banff and Jasper National Parks, contributing significantly to their designations as United Nations World Heritage Sites. Written by one of Canada's most respected experts on water and water-related climate processes, this remarkable book offers a clear and concise visual overview of the geological history and features of the Columbia Icefield; an outline of human presence in the glaciated landscapes of the mountain West; and a breathtaking photographic tour of one of the world's most amazing landscapes.

The Planet Remade

A Critical Voyage Through the History

eine Einführung in die Geschichte der Erde und des Lebens

THE DYNAMIC EARTH SYSTEM, Fourth Edition

Fuzzy Logic in Geology

Accessibly written by a team of international authors, the Encyclopedia of Environmental Change provides a gateway to the complex facts, concepts, techniques, methodology and philosophy of environmental change. This three-volume set illustrates and examines topics within this dynamic and rapidly changing interdisciplinary field. The encyclopedia includes all of the following aspects of environmental change: Diverse evidence of environmental change, including climate change and changes on land and in the oceans Underlying natural and anthropogenic causes and mechanisms Wide-ranging local, regional and global impacts from the polar regions to the tropics Responses of geo-ecosystems and human-environmental systems in the face of past, present and future environmental change Approaches, methodologies and techniques used for reconstructing, dating, monitoring, modelling, projecting and predicting change Social, economic and political dimensions of environmental issues, environmental conservation and management and environmental policy Over 4,000 entries explore the following key themes and more: Conservation Demographic change Environmental management Environmental policy Environmental security Food security Glaciation Green Revolution Human impact on environment Industrialization Landuse change Military impacts on environment Mining and mining impacts Nuclear energy Pollution Renewable resources Solar energy Sustainability Tourism Trade Water resources Water security Wildlife conservation The comprehensive coverage of terminology includes layers of entries ranging from one-line definitions to short essays, making this an invaluable companion for any student of physical geography, environmental geography or environmental sciences.

The popular belief that a scientific understanding of reality is incompatible with a Christian one is simply wrong. Some Christian understandings of reality do conflict with some scientific understandings. But a thoroughly rational Christian understanding of the origin and history of the universe will be informed by the best scientific theories and the "facts" founded on them. This book weaves a narrative of the origin and history of the universe from the perspective of contemporary science with a Christian understanding of God and of God's role in the origin and history of the universe. At the center of this integrated narrative is the view that God, who is pure, unbounded Love, is Creator: the zest for life in the universe comes from God, and God is the source of Truth, Beauty, and Goodness in the universe. God is amazed and delighted at what God-and-the-world has created; God is saddened by ways creatures have fallen short of pure, unbounded Love, Truth, Beauty, and Goodness; and God's pure, unbounded Love keeps on trying to persuade all creatures toward Truth, Beauty, and Goodness.

The largest seaweed, giant kelp (Macrocystis) is the fastest growing and most prolific of

all plants found on earth. Growing from the seafloor and extending along the ocean surface in lush canopies, giant kelp provides an extensive vertical habitat in a largely two-dimensional seascape. It is the foundation for one of the most species-rich, productive, and widely distributed ecological communities in the world. Schiel and Foster's scholarly review and synthesis take the reader from Darwin's early observations to contemporary research, providing a historical perspective for the modern understanding of giant kelp evolution, biogeography, biology, and physiology. The authors furnish a comprehensive discussion of kelp species and forest ecology worldwide, with considerations of human uses and abuses, management and conservation, and the current and likely future impacts of global change. This volume promises to be the definitive treatise and reference on giant kelp and its forests for many years, and it will appeal to marine scientists and others who want a better appreciation and understanding of these wondrous forests of the sea.
Presents an illustrated dictionary of more than 3,700 frequently used terms in Earth science.
Imagination
The New Answers Book Volume 4
Earth System History
Footprints in Stone
The Ecology and Silviculture of Oaks, 3rd Edition
Sustainability Principles and Practice
This book details atmospheric chemistry from its inception to modern day. Beginning from the investigation of waters in the air this book explores how scientists disovered and analyzed atmospheric chemicals throughout time. Other topics covered are: dust in the air including soot and air pollution, gases in the air including nitrogen, oxygen, carbon dioxide, ozone and more, and lastly pioneers in modern atmospheric chemistry.
Climate change and air quality are two of the most pressing issues facing Mankind. This book gives undergraduate and graduate students and professionals working in the science and policy of pollution, climate change and air quality a broad and up-to-date account of our understanding of the processes that occur in the atmosphere, how these are changing as Man's relentless use of natural resources continues and what effects these changes are having on the Earth's climate and the quality of the air we breath. Written by an international team of experts, this text gives an excellent overview of our current understanding of the state of the Earth's atmosphere and how it is changing. It is an invaluable resource for students, teachers and professionals. Key features: End of chapter questions Each chapter includes both basic concepts and more in-depth material, allowing faculty to direct students accordingly Most up-to-date treatment of key issues such as stratospheric chemistry, urban air pollution, and climate change
This textbook provides an introduction to energy analysis for those students who want to specialise in this challenging field. In comparison to other textbooks, this book provides a balanced treatment of complete energy systems, covering the demand side, the supply side, and the energy markets that connect these. The emphasis is very much on presenting a range of tools and methodologies that will help students find their way in analysing real world problems in energy systems. This new edition has been updated throughout and contains additional content on energy transitions and improvements in the treatment of several energy systems analysis approaches. Featuring learning objectives, further readings and practical exercises in each chapter, Introduction to Energy Analysis will be essential

reading for upper-level undergraduate and postgraduate students with a background in the natural sciences and engineering. This book may also be useful for professionals dealing with energy issues, as a first introduction into the field.
"This collection provides original and often counter-intuitive insights into central issues facing public institutions, particularly universities, in a globalizing and increasingly knowledge-based economy. It is almost head-spinning in its challenges to prevailing orthodoxies from across the intellectual spectrum, and the capacity to crash-merge ideas that have traditionally inhabited distinct realms to generate original knowledge syntheses." Terry Flew, Professor of Media and Communication, Creative Industries Faculty, Queensland University of Technology, Brisbane, Australia --
Earth as an Evolving Planetary System
The Columbia Icefield – 3rd Edition
Governance of Earth Systems
Over 30 Questions on Creation/Evolution and the Bible
Three Volume Set
Three Models of Imagination in the Age of the Knowledge Economy

When humanity first glimpsed planet Earth from space, the unity of the system that supports humankind entered the popular consciousness. The concept of the Earth's atmosphere, biosphere, oceans, soil, and rocks operating as a closely interacting system has rapidly gained ground in science. This new field, involving geographers, geologists, biologists, oceanographers, and atmospheric physicists, is known as Earth System Science. In this Very Short Introduction, Tim Lenton considers how a world in which humans could evolve was created; how, as a species, we are now reshaping that world; and what a sustainable future for humanity within the Earth System might look like. Drawing on elements of geology, biology, chemistry, physics, and mathematics, Lenton asks whether Earth System Science can help guide us onto a sustainable course before we alter the Earth system to the point where we destroy ourselves and our current civilisation. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

The world faces an environmental crisis unprecedented in human history. Carbon dioxide levels have reached heights not seen for three million years, and the greatest mass extinction since the time of the dinosaurs appears to be underway. Such far-reaching changes suggest something remarkable: the beginning of a new geological epoch. It has been called the Anthropocene. The Birth of the Anthropocene shows how this epochal transformation puts the deep history of the planet at the heart of contemporary environmental politics. By opening a window onto geological time, the idea of the Anthropocene changes our understanding of present-day environmental destruction and injustice. Linking new developments in earth science to the insights of world historians, Jeremy Davies shows that as the Anthropocene epoch begins, politics and geology have become inextricably entwined.

Footprints in Stone is the definitive guide to the Steven C. Minkin (Union Chapel) Paleozoic Footprint Site in northwest Alabama, the discovery of whose vast quantity

of 310-million-year-old fossil tetrapod footprints and other traces is one of the most significant developments in modern paleontology.

The Dictionary of Sustainability provides clear and accurate definitions of the extensive vocabulary that has developed in this emerging and interdisciplinary field, saving considerable time from searching through the massive quantity of information of differing degrees of quality that is available through the Internet. Providing authoritative definitions of standard terms used by scholars and practitioners it provides a clear and thorough conceptual framework and ensures those delving into topics for the first time, or returning to them, can quickly find what they need. It also contains careful use of cross-references, and includes several expanded entries to provide readers with nuanced understanding of important topics. The dictionary will be essential reading for all students studying sustainability topics, as well as a handy reference for practitioners wanting to make a sustainable difference in the workplace.

Environmental Chemistry

Atmospheric Chemistry

Earth's Evolving Systems

The Birth of the Anthropocene

God and the History of the Universe

Historische Geologie

Earth’s Evolving Systems: The History of Planet Earth, Second Edition is an introductory text designed for popular courses in undergraduate Earth history. Written from a “systems perspective,” it provides coverage of the lithosphere, hydrosphere, atmosphere, and biosphere, and discussion of how those systems interacted over the course of geologic time.

Environment and Society connects the core themes of environmental studies to the urgent issues and debates of the twenty-first century. In an era marked by climate change, rapid urbanization, and resource scarcity, environmental studies has emerged as a crucial arena of study. Assembling canonical and contemporary texts, this volume presents a systematic survey of concepts and issues central to the environment in society, such as: social mobilization on behalf of environmental objectives; the relationships between human population, economic growth and stresses on the planet’s natural resources; debates about the relative effects of collective and individual action; and unequal distribution of the social costs of environmental degradation. Organized around key themes, with each section featuring questions for debate and suggestions for further reading, the book introduces students to the history of environmental studies, and demonstrates how the field’s interdisciplinary approach uniquely engages the essential issues of the present. Instructor's Guide

One word binds us all: geography. We are all geographers, human beings who care about the places we think of as 'home' – our habitat. And yet we have lost touch with the connection between our actions and the state of the planet that we all share. We need a new narrative that restores the connections between humanity and the Earth. We are being confronted by a daily barrage of geographical stories on climate

change, geopolitics, population growth, migration, dwindling resources, polluted oceans and natural hazards. These are planetary concerns affecting all people and all places. They are challenges which can be addressed through geography. In this short but powerful book, Nicholas Crane makes the compelling case that never has geography been so important. On this finite orb, with its battered habitat, sustained in dark space by a thin, life-giving atmosphere, we have reached a point in our collective geographical journey where knowledge is the best guarantor of the future. [NOTE: published in hardback as YOU ARE HERE]

Steve Stanley was the first author to write an historical geology textbook with whole-earth approach to the subject. It remains the only textbook for the course written from a truly integrated earth systems perspective. Now in its Third Edition, Earth System History has three powerful reasons to remain the leading textbook in this market: unmatched currency; proven student pedagogy; and a new interactive online study center.

Dictionary of Sustainability

Paul J. Crutzen and the Anthropocene: A New Epoch in Earth's History

Environment and Society

Past, Present and Future

Powering Up Canada

Atmospheric Science for Environmental Scientists