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Fossil Ecosystems of North America - Paul Selden 2008-03-20
Most major recent advances in understanding the history of life on Earth have been through the study of exceptionally well preserved biotas (Fossil-Lagerstätten). These are windows on the history of life on Earth and can provide a fairly complete picture of the evolution of ecosystems through time. This book follows the success of Evolution of Fossil Ecosystems by the same authors which covered Fossil-Lagerstätten around the world. The success of the first book prompted this new book which draws on four localities from the original book and adds another ten, all located in North America. Following an introduction to Fossil-Lagerstätten, each chapter deals with a single fossil locality. Each chapter contains a brief introduction placing the Lagerstätte in an evolutionary context; there then follows a history of study of the locality; the background sedimentology, stratigraphy and palaeoenvironment; a description of the biota; discussion of the palaeoecology, and a comparison with other Lagerstätten of a similar age and/or environment. At the end of the book is an Appendix listing museums in which to see exhibitions of fossils from each locality and suggestions for visiting the sites.

Earth as an Evolving Planetary System - Kent C. Condie 2011-08-22
Earth as an Evolving Planetary System, Second Edition, examines the various subsystems that play a role in the evolution of the Earth. These subsystems include such components as the crust, mantle, core, atmosphere, oceans, and life. The book contains 10 chapters that discuss the structure of the Earth and plate tectonics; the origin and evolution of the crust; the processes that leave tectonic imprints in rocks and modern processes responsible for these imprints; and the structure of the mantle and the core. The book also covers 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. This book is meant for advanced undergraduate and graduate students in Earth Sciences, with a basic knowledge of geology, biology, chemistry, and physics. It also may serve as a reference tool for specialists in the geologic sciences who want to keep abreast of scientific advances in this field. Kent Condie's corresponding interactive CD, Plate Tectonics and How the Earth Works, can be purchased from Tasa Graphic Arts here: http://www.tasagraphicarts.com/progptearth.html Two new chapters on the Supercontinent Cycle and on Great Events in Earth history New and updated sections on Earth's thermal history, planetary volcanism, planetary crusts, the onset of plate tectonics, changing composition of the oceans and atmosphere, and paleoclimatic regimes Also new in this Second Edition: the lower mantle and the role of the post-perovskite transition, the role of water in the mantle, new tomographic data tracking plume tails into the deep mantle, Euxinia in Proterozoic oceans, The Hadean, A crustal age gap at 2.4-2.2 Ga, and continental growth

Earth System Analysis - Hans-Joachim Schellnhuber 2012-12-06
Since this new science is of an unprecedented interdisciplinary nature, the book does not merely take stock of its numerous ingredients, but also delivers their multifaceted integration. The resulting master paradigm - the co-evolution of nature and anthroposphere within a geo-cybernetic continuum of processes - is based on a structured manifold of partial paradigms with their specific ranges. Most importantly, this serves the scientific foundation of a meaningful, safe and efficient environment and development management for solving the most burning questions concerning humankind and its natural environment. The more concrete elucidation of the natural and human dimensions, as well as various attempts and instruments of integration are represented in the different parts of the book, while the didactic quality is heightened by many allegoric illustrations.

The Shock of the Anthropocene - Christophe Bonneuil 2016-02-09
Dissecting the new theoretical buzzword of the “Anthropocene” The Earth has entered a new epoch: the Anthropocene. What we are facing is not only an environmental crisis, but a geological revolution of human origin. In two centuries, our planet has tipped into a state unknown for millions of years. How did we get to this point? Refuting the convenient view of a “human species” that upset the Earth system, unaware of what it was doing, this book proposes the first critical history of the Anthropocene, shaking up many accepted ideas: about our supposedly recent “environmental awareness,” about previous challenges to industrialism, about the manufacture of ignorance and consumerism, about so-called energy transitions, as well as about the role of the military in

environmental destruction. In a dialogue between science and history, The Shock of the Anthropocene dissects a new theoretical buzzword and explores paths for living and acting politically in this rapidly developing geological epoch.

Understanding Climate's Influence on Human Evolution - National Research Council 2010-04-17

The hominin fossil record documents a history of critical evolutionary events that have ultimately shaped and defined what it means to be human, including the origins of bipedalism; the emergence of our genus Homo; the first use of stone tools; increases in brain size; and the emergence of Homo sapiens, tools, and culture. The Earth's geological record suggests that some evolutionary events were coincident with substantial changes in African and Eurasian climate, raising the possibility that critical junctures in human evolution and behavioral development may have been affected by the environmental characteristics of the areas where hominins evolved. Understanding Climate's Change on Human Evolution explores the opportunities of using scientific research to improve our understanding of how climate may have helped shape our species. Improved climate records for specific regions will be required before it is possible to evaluate how critical resources for hominins, especially water and vegetation, would have been distributed on the landscape during key intervals of hominin history. Existing records contain substantial temporal gaps. The book's initiatives are presented in two major research themes: first, determining the impacts of climate change and climate variability on human evolution and dispersal; and second, integrating climate modeling, environmental records, and biotic responses. Understanding Climate's Change on Human Evolution suggests a new scientific program for international climate and human evolution studies that involve an exploration initiative to locate new fossil sites and to broaden the geographic and temporal sampling of the fossil and archeological record; a comprehensive and integrative scientific drilling program in lakes, lake bed outcrops, and ocean basins surrounding the regions where hominins evolved and a major investment in climate modeling experiments for key time intervals and regions that are critical to understanding human evolution.

The Uninhabitable Earth - David Wallace-Wells 2020-03-17

#1 NEW YORK TIMES BESTSELLER • “The Uninhabitable Earth hits you like a comet, with an overflow of insanely lyrical prose about our pending Armageddon.”—Andrew Solomon, author of The Noonday Demon With a new afterword It is worse, much worse, than you think. If your anxiety about global warming is dominated by fears of sea-level rise, you are barely scratching the surface of what terrors are possible—food shortages, refugee emergencies, climate wars and economic devastation. An “epoch-defining book” (The Guardian) and “this generation’s Silent Spring” (The Washington Post), The Uninhabitable Earth is both a travelogue of the near future and a meditation on how that future will look to those living through it—the ways that warming promises to transform global politics, the meaning of technology and nature in the modern world, the sustainability of capitalism and the trajectory of human progress. The Uninhabitable Earth is also an impassioned call to action. For just as the world was brought to the brink of catastrophe within the span of a lifetime, the responsibility to avoid it now belongs to a single generation—today’s. Praise for The Uninhabitable Earth “The Uninhabitable Earth is the most terrifying book I have ever read. Its subject is climate change, and its method is scientific, but its mode is Old Testament. The book is a meticulously documented, white-knuckled tour through the cascading catastrophes that will soon engulf our warming planet.”—Farhad Manjoo, The New York Times “Riveting. . . . Some readers will find Mr. Wallace-Wells’s outline of possible futures alarmist. He is indeed alarmed. You should be, too.”—The Economist “Potent and evocative. . . . Wallace-Wells has resolved to offer something other than the standard narrative of climate change. . . . He avoids the ‘eerily banal language of climatology’ in favor of lush, rolling prose.”—Jennifer Szalai, The New York Times “The book has potential to be this generation’s Silent Spring.”—The Washington Post “The Uninhabitable Earth, which has become a best seller, taps into the underlying emotion of the day: fear. . . . I encourage people to read this book.”—Alan Weisman, The New York Review of Books

The Sun, the Earth, and Near-earth Space - John A. Eddy 2009

" ... Concise explanations and descriptions - easily read and readily understood - of what we know of the chain of events and processes that connect the Sun to the Earth, with special emphasis on space weather and Sun-Climate."--Dear Reader.

Earth Systems Data Processing and Visualization Using MATLAB - Zekâi en 2019-03-27

This book is designed to provide easy means of problem solving based on the science philosophical and logical rules that lead to effective and reliable software at the service of professional earth system scientists through numerical scientific computation techniques. Through careful examination of software illuminated by brief scientific explanations given in the book the reader may develop his/her skills of computer program writing. Science aspects that are concerned with earth systems need numerical computation procedures and algorithms of data collected from the field measurements or laboratory records. The same is also valid for data processing in social sciences and economics. Some of the data assessment and processing procedures are at the large scales and complex, and therefore, require effective and efficient computer programs. Data reduction and graphical display in addition to probabilistic and statistical calculations are among the general purposes of the book. Not only students’ works but also projects of researchers at universities and tasks of experts in different companies depend on reliable software. Especially, potential users of MATLAB in earth systems need a guidance book that covers a variety of practically applicable software solutions.

Earth's Evolving Systems - Martin 2016-12-16

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.

Encyclopedia of Marine Mammals - William F. Perrin 2009-02-26

This thorough revision of the classic Encyclopedia of Marine Mammals brings this authoritative book right up-to-date. Articles describe every species in detail, based on the very latest taxonomy, and a host of biological, ecological and sociological aspects relating to marine mammals. The latest information on the biology, ecology, anatomy, behavior and interactions with man is provided by a cast of expert authors – all presented in such detail and clarity to support both marine mammal specialists and the serious naturalist. Fully referenced throughout and with a fresh selection of the best color photographs available, the long-awaited second edition remains at the forefront as the go-to reference on marine mammals. More than 20% NEW MATERIAL includes articles on Climate Change, Pacific White-sided Dolphins, Sociobiology, Habitat Use, Feeding Morphology and more Over 260 articles on the individual species with topics ranging from anatomy and behavior, to conservation, exploitation and the impact of global climate change on marine mammals New color illustrations show every species and document topical articles FROM THE FIRST EDITION "This book is so good...a bargain, full of riches...packed with fascinating up to date information. I recommend it unreservedly it to individuals, students, and researchers, as well as libraries." --Richard M. Laws, MARINE MAMMALS SCIENCE "...establishes a solid and satisfying foundation for current study and future exploration" --Ronald J. Shusterman, SCIENCE

Physical Geology - Steven Earle 2016-08-12

This is a discount Black and white version. Some images may be unclear, please see BCCampus website for the digital version.This book was born out of a 2014 meeting of earth science educators representing most of the universities and colleges in British Columbia, and nurtured by a widely shared frustration that many students are not thriving in courses because textbooks have become too expensive for them to buy. But the real inspiration comes from a fascination for the spectacular geology of western Canada and the many decades that the author spent exploring this region along with colleagues, students, family, and friends. My goal has been to provide an accessible and comprehensive guide to the important topics of geology, richly illustrated with examples from western Canada. Although this text is intended to complement a typical first-year course in physical geology, its contents could be applied to numerous other related courses.

Global Change and the Earth System - Will Steffen 2006-01-27

Global Change and the Earth System describes what is known about the Earth system and the impact of changes caused by humans. It considers the consequences of these changes with respect to the stability of the Earth system and the well-being of humankind; as well as exploring future paths towards Earth-system science in support of global sustainability. The results presented here are based on 10 years of research on global change by many of the world's most eminent scholars. This valuable volume achieves a new level of integration and interdisciplinarity in treating global change.

Terra Firma: the Earth Not a Planet, Proved from Scripture, Reason, and Fact - David Wardlaw Scott 2016-09-06

In this compelling work on Flat Earth Theory, David Waldo Scott uses a collection of scripture, reason, and fact to argue against the idea that the earth is a planet. Since its publication in 1901, Terra Firma: the Earth Not a Planet, Proved From Scripture, Reason, and Fact has become one of the primary texts on the subject and is a wonderful insight into the philosophy of a bygone age. Focussing on the work made by 'modern astronomers', Scott draws on testimonies from travellers past, biblical scriptures, as well as other concepts from flat earth theorists to produce a wide-ranging collection of evidence to support his argument. Chapters in the book include: - The Adamic Creation - The Nebular Hypothesis: Examination of Three Alleged Proofs of the World's Globularity - The World Circular, But Not Globular; Has Immovable Foundations, Therefore Not a Planet - The Horizontally of Land and Water Proved - The Sun, Moon, and Stars, According to Modern Astronomy - The Deluge – Biblical Account Despite being written over a decade ago, this work by David Waldo Scott continues to inspire modern generations. This edition by Read & Co. Books features an introduction to astronomy and is an interesting read for those interested in Flat Earth Theory and Christianity.

Understanding the Earth System - Sarah E. Cornell 2012-08-09

Explaining the what, the how and the why of climate science, this multidisciplinary new book provides a review of research from the last decade, illustrated with cutting-edge data and observations. A key focus is the development of analysis tools that can be used to demonstrate options for mitigating and adapting to increasing climate risks. Emphasis is given to the importance of Earth system feedback mechanisms and the role of the biosphere. The book explains advances in modelling, process understanding and observations, and the development of consistent and coherent studies of past, present and 'possible' climates. This highly illustrated, data-rich book is written by leading scientists involved in QUEST, a major UK-led research programme. It forms a concise and up-to-date reference for academic researchers or students in the fields of climatology, Earth system science and ecology, and also a vital resource for professionals and policymakers working on any aspect of global change.

Fundamentals of Geomorphology - Richard John Huggett 2011-03-15

This extensively revised, restructured, and updated edition continues to present an engaging and comprehensive introduction to the subject,

exploring the world's landforms from a broad systems perspective. It covers the basics of Earth surface forms and processes, while reflecting on the latest developments in the field. Fundamentals of Geomorphology begins with a consideration of the nature of geomorphology, process and form, history, and geomorphic systems, and moves on to discuss: structure: structural landforms associated with plate tectonics and those associated with volcanoes, impact craters, and folds, faults, and joints process and form: landforms resulting from, or influenced by, the exogenic agencies of weathering, running water, flowing ice and meltwater, ground ice and frost, the wind, and the sea; landforms developed on limestone; and landscape evolution, a discussion of ancient landforms, including palaeosurfaces, stagnant landscape features, and evolutionary aspects of landscape change. This third edition has been fully updated to include a clearer initial explanation of the nature of geomorphology, of land surface process and form, and of land-surface change over different timescales. The text has been restructured to incorporate information on geomorphic materials and processes at more suitable points in the book. Finally, historical geomorphology has been integrated throughout the text to reflect the importance of history in all aspects of geomorphology. Fundamentals of Geomorphology provides a stimulating and innovative perspective on the key topics and debates within the field of geomorphology. Written in an accessible and lively manner, it includes guides to further reading, chapter summaries, and an extensive glossary of key terms. The book is also illustrated throughout with over 200 informative diagrams and attractive photographs, all in colour.

Why the Electoral College Is Bad for America - George C. Edwards III 2019-08-20

A new edition of the best-known book critiquing the U.S. electoral college In this third edition of the definitive book on the unique system by which Americans choose a president—and why that system should be changed—George Edwards includes a new chapter focusing on the 2016 election. "As the U.S. hurtles toward yet another election in which the popular vote loser may become president, Edwards's book is essential reading. It clearly and methodically punctures myths about the Electoral College's benefits."—Richard L. Hasen, author of The Voting Wars "Supported by both history and data, George Edwards convincingly argues the Electoral College is anti†'democratic, anti†'equality, and anti†'common sense. We should dismantle it, and soon."—Kent Greenfield, author of Corporations Are People Too (And They Should Act Like It)

Human-Earth System Dynamics - Rongxing Guo 2018-05-16

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

Earth System History - Steven M. Stanley 2008-10-10

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.

Early Earth Systems - Hugh R. Rollinson 2009-03-12

Early Earth Systems provides a complete history of the Earth from its beginnings to the end of the Archaean. This journey through the Earth's early history begins with the Earth's origin, then examines the evolution of the mantle, the origin of the continental crust, the origin and evolution of the Earth's atmosphere and oceans, and ends with the origin of life. Looks at the evidence for the Earth's very early differentiation into core, mantle, crust, atmosphere and oceans and how this differentiation saw extreme interactions within the Earth system. Discusses Archaean Earth processes within the framework of the Earth System Science paradigm, providing a qualitative assessment of the principal reservoirs and fluxes in the early Earth. "The book would be perfect for a graduate-level or upper level undergraduate course on the early Earth. It will also serve as a great starting point for researchers in solid-Earth geochemistry who want to know more about the Earth's early atmosphere and biosphere, and vice versa for low temperature geochemists who want to get a modern overview of the Earth's interior." Geological Magazine, 2008

Earth System History - Steven M. Stanley 2014-04-11

This classic textbook is now in its fourth edition and Steven Stanley has teamed up with John Luczaj, an award winning field geologist. Written from a truly integrated earth systems perspective this updated edition includes new coverage on mass extinction, the hot topic of climate change and Proterozoic history. There is a wide range of interactive studying and teaching tools available with this text, because of LaunchPad access. Earth System History is available with LaunchPad. LaunchPad combines an interactive ebook with high-quality multimedia content and ready-made assessment options, including LearningCurve adaptive quizzing. See ‘Instructor Resources’ and ‘Student Resources’ for further information.

Down to Earth - Bruno Latour 2018-11-26

The present ecological mutation has organized the whole political landscape for the last thirty years. This could explain the deadly cocktail of exploding inequalities, massive deregulation, and conversion of the dream of globalization into a nightmare for most people. What holds these three phenomena together is the conviction, shared by some powerful people, that the ecological threat is real and that the only way for them to survive is to abandon any pretense at sharing a common future with the rest of the world. Hence their flight offshore and their massive investment in climate change denial. The Left has been slow to turn its attention to this new situation. It is still organized along an axis that goes from investment in local values to the hope of globalization and just at the time when, everywhere, people dissatisfied with the ideal of modernity are turning back to the protection of national or even ethnic borders. This is why it is urgent to shift sideways and to define politics as what leads toward the Earth and not toward the global or the national. Belonging to a territory is the phenomenon most in need of rethinking and careful redescription; learning new ways to inhabit the Earth is our biggest challenge. Bringing us down to earth is the task of politics today.

Rare Earth - Peter D. Ward 2007-05-08

What determines whether complex life will arise on a planet, or even any life at all? Questions such as these are investigated in this groundbreaking book. In doing so, the authors synthesize information from astronomy, biology, and paleontology, and apply it to what we know about the rise of life on Earth and to what could possibly happen elsewhere in the universe. Everyone who has been thrilled by the recent discoveries of extrasolar planets and the indications of life on Mars and the Jovian moon Europa will be fascinated by Rare Earth, and its implications for those who look to the heavens for companionship.

The Blue Planet: An Introduction to Earth System Science, 3rd Edition - Brian J. Skinner 2010-12-13

The Blue Planet: An Introduction to Earth System Sciences, 3rd Edition is an innovative text for the earth systems science course. It treats earth science from a systems perspective, now showing the five spheres and how they are interrelated. There are many photos and figures in the text to develop a strong understanding of the material presented. This along with the new media for instructors makes this a strong text for any earth systems science course.

The Earth System - Lee R. Kump 2011

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.

Science of Earth Systems - Stephen D. Butz 2008

The Classroom Interactivity CD-ROM has 4 different software applications each resembling a popular game show format. The games include The Ladder Game, Championship Game, Break Out of the Box and Hangman Deluxe. ISBN-10: 1-4180-4128-9 / ISBN-13: 978-1-4180-4128-1

Earth's Evolving Systems - Ronald Martin 2011-07

Earth's Evolving Systems: The History Of Planet Earth Is Intended As An Introductory Text That Examines The Evolution Of The Earth And Its Life From A Systems Point Of View. The Text Covers Major Topics Like The Lithosphere, Hydrosphere, Atmosphere, And Biosphere, And Discusses How These Systems Interacted With Each Other And Evolved Through Geologic Time. The Author Takes Care To Integrate The Current State Of Our Earth Systems With Those Of The Past In An Effort To Develop Students' Interests In Earth System In General. It Begins With By Examining The Basics Of Earth Systems, Including Discussions Of Sedimentation, Evolution, Stratigraphy, And Plate Tectonics. Part Two Looks At The Beginning Of Time With The Origin Of The Earth And Discusses Its Early Evolution, Through The Origin Of Life And Its Evolution To Multiculluraity. The Third Section Goes On To Cover The Paleozoic Through The Neogene Eras, Discussing Topics Such As Tectonics, Mountain Building, Sea Level, Climate, Life, And Mass Extinctions In Each Era. The Final Part Moves On To The Modern World, Discussing The Interactions Between Humans And Earth Systems, With An Emphasis On The Climatic System. Key Features Of Earth's Evolving System: - Presents The Earth As A Continuously Evolving And Dynamic Planet Whose History Consists Of A Succession Of Vastly Different Worlds Very Much Unlike Our Modern Earth. - Discusses The Scientific Method In Chapter 1, Emphasizing How Historical Geology Differs From The Standard "Scientific Method" Presented As The Paradigm Of Experimental Sciences And Of All Science. - Bridges Traditional Historical Geology Texts By Discussing Historical Information In The Context Of The Interaction And Integration Of Earth Systems Through Geologic Time By Using The Tectonic (Wilson) Cycle As A Unifying Theme. - Concentrates On North America But Offers A Global Perspective On Earth Systems On Processes Such As Orogenesis, Seaways, And Ocean Circulation, The Evolution Of Life, And Mass Extinction. - Discusses Rapid Climate Change And Anthropogenic Impacts In The Context Of A Continuously Evolving Earth Whose Environments Are Now Being Altered By Anthropogenic Climate Change. -

End-Of-Chapter Materials Include: General Review Questions, More Challenging "Food For Thought" Questions, Key Terms Listing, And A "Sources And Further Readings" Section. - Boxes Throughout The Text Highlight Interesting Bits Of Related Information, Unusual Occurrences, Or Elaborates On Material Presented In The Text

An Engineer's Guide to MATLAB - Edward B. Magrab 2011

An authoritative guide to generating readable, compact, and verifiably correct MATLAB programs. This highly respected work helps students develop a strong working knowledge of MATLAB that can be used to solve a wide range of engineering problems.

Thermodynamic Foundations of the Earth System - Axel Kleidon 2016-03-11

Thermodynamics sets fundamental laws for all physical processes and is central to driving and maintaining planetary dynamics. But how do Earth system processes perform work, where do they derive energy from, and what are the limits? This accessible book describes how the laws of thermodynamics apply to Earth system processes, from solar radiation to motion, geochemical cycling and biotic activity. It presents a novel view of the thermodynamic Earth system explaining how it functions and evolves, how different forms of disequilibrium are being maintained, and how evolutionary trends can be interpreted as thermodynamic trends. It also offers an original perspective on human activity, formulating this in terms of a thermodynamic, Earth system process. This book uses simple conceptual models and basic mathematical treatments to illustrate the application of thermodynamics to Earth system processes, making it ideal for researchers and graduate students across a range of Earth and environmental science disciplines.

Climate Change: Our Warming Earth - Carol Hand 2015-01-01

This title presents the history of climate change. Vivid text details how early studies of greenhouse gases and climate models led to our modern understanding of Earth's climate. It also puts a spotlight on the brilliant scientists who made these advances possible. Useful sidebars, rich images, and a glossary help readers understand the science and its importance. Maps and diagrams provide context for critical discoveries in the field. Aligned to Common Core Standards and correlated to state standards. Essential Library is an imprint of Abdo Publishing, a division of ABDO.

Ecological Climatology - Gordon B. Bonan 2008-09-18

This book introduces an interdisciplinary framework to understand the interaction between terrestrial ecosystems and climate change. It reviews basic meteorological, hydrological and ecological concepts to examine the physical, chemical and biological processes by which terrestrial ecosystems affect and are affected by climate. The textbook is written for advanced undergraduate and graduate students studying ecology, environmental science, atmospheric science and geography. The central argument is that terrestrial ecosystems become important determinants of climate through their cycling of energy, water, chemical elements and trace gases. This coupling between climate and vegetation is explored at spatial scales from plant cells to global vegetation geography and at timescales of near instantaneous to millennia. The text also considers how human alterations to land become important for climate change. This restructured edition, with updated science and references, chapter summaries and review questions, and over 400 illustrations, including many in colour, serves as an essential student guide.

The World Book Encyclopedia - 2002

An encyclopedia designed especially to meet the needs of elementary, junior high, and senior high school students.

Climate, Earth Processes and Earth History - Richard J. Huggett 2012-12-06

Today, climate-related processes and problems are referred to as Global Change by nearly everyone including scientists, politicians, and economists; citizens worldwide are anxious about the often ob served disorientation of our environment under the influence of man. Better information on the Earth's natural systems and their possible alterations is necessary. The topic itself is so wide that sound scien tific descriptions of it as a whole are rare. For the non-specialist infor mation from relevant fields is not easy to obtain; and often, the pro gnostic models presented are contradictory and even for specialists difficult to evaluate. Therefore, this book on Climate, Earth Processes and Earth History by Richard Huggett fills an important gap. It discusses the great, climate-related areas of the Earth's environment. The atmosphere, the hydrosphere, the sediments as products of weathering and geomorphic processes, the relief as landforms and soils, and the biosphere are thoroughly treated as the prominent sub systems which are greatly affected by climate. These subsystems not only control the visual and internal aspects of our landscapes, but they are themselves especially influenced by climatic changes which can be due to either changes in the natural system or anthropogenic changes. Thus, our landscapes will be subject to significant altera tions, if climatic variations exceed certain thresholds. The plan for the present book by Richard Huggett was originally discussed in regard to the Springer Series on Physical Environment.

Faith, Reason, and Earth History - Leonard Brand 1997

The Origin of Continents and Oceans - Alfred Wegener 1966-01-01

In 1915 Alfred Wegener's seminal work describing the continental drift was first published in German. Wegener explained various phenomena of historical geology, geomorphy, paleontology, paleoclimatology, and similar areas in terms of continental drift. This edition includes new data to support his theories, helping to refute the opponents of his controversial views. 64 illustrations.

Dynamics of the Earth System: Evolution, Processes and Interactions - Dhananjai K. Pandey 2020-04-09

This book highlights Indian scientific endeavours and contributions to answering the vast multitude of questions posed by our changing environment. The International Ocean Discovery Program (IODP) explores Earth's history and dynamics using deep ocean drilling platforms to recover the data locked inside seafloor sediments and rocks. Since 2009, Indian scientists have been actively engaged in these expeditions. Scientists from various Earth Science disciplines have seized this opportunity to offer their expertise in order to help unravel the mysteries of the past – by delving deep into the valuable sedimentary records of our oceans. This book presents a compilation of some of their most important findings to motivate and encourage young minds for their enhanced role in the cutting edge science of ocean drilling.

Historical Geology Lab Manual - Pamela J. W. Gore 2014-06-03

This lab manual is accessible to science and nonscience majors and also provides a strong background for geology and other science majors. Concepts carry over from one lab to the next and are reinforced so that at the end of the semester, the students have experience at interpreting the rock record and an understanding of how the process of science works.

Earth System: History and Natural Variability - Volume II - Vaclav Cilek 2009-07-15

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.

Heaven and Earth - I. R. Plimer 2009

Climate, sea level, and ice sheets have always changed, and the changes observed today are less than those of the past. Climate changes are cyclical and are driven by the Earth's position in the galaxy, the sun, wobbles in the Earth's orbit, ocean currents, and plate tectonics. In previous times, atmospheric carbon dioxide was far higher than at present but did not drive climate change. No runaway greenhouse effect or acid oceans occurred during times of excessively high carbon dioxide. During past glaciations, carbon dioxide was higher than it is today. The non-scientific popular political view is that humans change climate. Do we have reason for concern about possible human-induced climate change? This book's 504 pages and over 2,300 references to peer-reviewed scientific literature and other authoritative sources engagingly synthesize what we know about the sun, earth, ice, water, and air. Importantly, in a parallel to his 1994 book challenging "creation science," Telling Lies for God, Ian Plimer describes Al Gore's book and movie An Inconvenient Truth as long on scientific "misrepresentations." "Trying to deal with these misrepresentations is somewhat like trying to argue with creationists," he writes, "who misquote, concoct evidence, quote out of context, ignore contrary evidence, and create evidence ex nihilo."

Earth as an Evolving Planetary System - Kent C. Condie 2015-12-01

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

Earth System Science: A Very Short Introduction - Tim Lenton 2016-02-25

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.