

By Edmond A Mathez Climate Change The Science Of Global Warming And Our Energy Future

How do meteorologists design forecasts for the next day's, the next week's, or the next month's weather? Are some forecasts more likely to be accurate than others, and why? Making Sense of Weather and Climate takes readers through key topics in atmospheric physics and presents a cogent view of how weather relates to climate, particularly climate-change science. It is the perfect book for amateur meteorologists and weather enthusiasts, and for anyone whose livelihood depends on navigating the weather's twists and turns. Making Sense of Weather and Climate begins by explaining the essential mechanics and characteristics of this fascinating science. The noted physics author Mark Denny also defines the crucial differences between weather and climate, and then develops from this basic knowledge a sophisticated yet clear portrait of their relation. Throughout, Denny elaborates on the role of weather forecasting in guiding politics and other aspects of human civilization. He also follows forecasting's effect on the economy. Denny's exploration of the science and history of a phenomenon we have long tried to master makes this book a unique companion for anyone who wants a complete picture of the environment's individual, societal, and planetary impact.

"Addressing a wide range of topics related to climate, [Comprehending the climate crisis]: tells where carbon originated and how it found its way on Earth; details how carbon became a part of the fossil fuels that are the backbone of the global economy; describes the composition of the atmosphere before civilization's influence began to alter it; provides basic scientific concepts by way of examples; discusses the mechanics of the combustion of fossil fuels and how dependence on them has led to significant changes in the atmosphere's composition; and addresses the solutions available to consider for individuals, families, societies and governments"--P. [4] of cover.

Curating the Future: Museums, Communities and Climate Change explores the way museums tackle the broad global issue of climate change. It explores the power of real objects and collections to stir hearts and minds, to engage communities affected by change. Museums work through exhibitions, events, and specific collection projects to reach different communities in different ways. The book emphasises the moral responsibilities of museums to address climate change, not just by communicating science but also by enabling people already affected by changes to find their own ways of living with global warming. There are museums of natural history, of art and of social history. The focus of this book is the museum communities, like those in the Pacific, who have to find new ways to express their culture in a new place. The book considers how collections in museums might help future generations stay in touch with their culture, even where they have left their place. It asks what should the people of the present be collecting for museums in a climate-changed future? The book is rich with practical museum experience and detailed projects, as well as critical and philosophical analyses about where a museum can intervene to speak to this great conundrum of our times. Curating the Future is essential reading for all those working in museums and grappling with how to talk about climate change. It also has academic applications in courses of museology and museum studies, cultural studies, heritage studies, digital humanities, design, anthropology, and environmental humanities.

A reference guide that contains alphabetically arranged entries, from the Tambora Eruption and Global Climate Emergency of 1815-1818 to World Mayors' Organizations, about the science and history of global climate change.

What Everyone Needs to Know

Thinking Globally

Picturing the Science

Thunder & Lightning

Climate, Catastrophe, and Faith

Causes, Impacts and Solutions to Global Warming

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

The third edition of Fundamentals of Hydrology provides an absorbing and comprehensive introduction to the understanding of how fresh water moves on and around the planet and how humans affect and manage the freshwater resources available to them. The book consists of three parts, each of fundamental importance in the understanding of hydrology: The first section deals with processes within the hydrological cycle, our understanding of them, and how to measure and estimate the amount of water within each process. This also includes an analysis of how each process impacts upon water quality issues. The second section is concerned with the measurement and analytical assessment of important hydrological parameters such as streamflow and water quality. It describes analytical and modelling techniques used by practising hydrologists in the assessment of water resources. The final section of the book draws together the first two parts to discuss the management of freshwater with respect to both water quality and quantity in a changing world. Fundamentals of Hydrology is a lively and accessible introduction to the study of hydrology at university level. It gives undergraduates a thorough understanding of hydrological processes, knowledge of the techniques used to assess water resources, and an up-to-date overview of water resource management. Throughout the text, examples and case studies from all around the world are used to clearly explain ideas and techniques. Essay questions, guides to further reading, and website links are also included.

Climate Change is geared toward a variety of students and general readers who seek the real science behind global warming. Exquisitely

illustrated, the text introduces the basic science underlying both the natural progress of climate change and the effect of human activity on the deteriorating health of our planet. Noted expert and author Edmond A. Mathez synthesizes the work of leading scholars in climatology and related fields, and he concludes with an extensive chapter on energy production, anchoring this volume in economic and technological realities and suggesting ways to reduce greenhouse-gas emissions. Climate Change opens with the climate system fundamentals: the workings of the atmosphere and ocean, their chemical interactions via the carbon cycle, and the scientific framework for understanding climate change. Mathez then brings the climate of the past to bear on our present predicament, highlighting the importance of paleoclimatology in understanding the current climate system. Subsequent chapters explore the changes already occurring around us and their implications for the future. In a special feature, Jason E. Smerdon, associate research scientist at Lamont-Doherty Earth Observatory of Columbia University, provides an innovative appendix for students.

The Fifth Edition of this bestselling textbook features stunning art, the most up-to-date science, and a wealth of online learning tools, all developed under the critical eyes of Stephen Marshak. Heavily revised with remarkably detailed photographs, animations, and maps, the text offers rich and engaging pedagogy, an expanded chapter on energy, and coverage of recent global events, from Hurricane Sandy and the Washington Landslide to Typhoon Haiyan and the Japanese Tsunami.

An Encyclopedia of Science and History

Layered Intrusions

The British National Bibliography

A Global Studies Reader

(Kanon Der Erdbestrahlung und Seine Anwendung Auf Das Eiszeitenproblem) Belgrade, 1941

Weather Past, Present, Future

Welcome to the Anthropocene. Since the start of the Industrial Revolution, human-caused climate change has impacted the globe with the burning of fossil fuels. The debate in classrooms and the political realm should not be whether climate change is happening or how much it places human civilization at risk but over how societies and individuals should respond. This interdisciplinary book offers an in-depth examination of the history of the Earth's climate and how historians and citizens can influence contemporary climate debate and activism. The author explains climate history and climate science and makes this important subject matter accessible to a general audience. Chapter topics include examining the Earth's geological past, the impact of climate on human evolution, the impact of climate on earlier civilizations, climate activism, and the need for international cooperation. Presenting climate history, human history, and climate science in a readable format and featuring resources for students, this book is meant for use by teachers in high school elective or an introductory college course setting.

Energy Balance Climate Models Written by renowned experts in the field, this first book to focus exclusively on energy balance climate models provides a concise overview of the topic. It covers all major aspects, from the simplest zero-dimensional models, proceeding to horizontally and vertically resolved models. The text begins with global average models, which are explored in terms of their elementary forms yielding the global average temperature, right up to the incorporation of feedback mechanisms and some analytical properties of interest. The effect of stochastic forcing is then used to introduce natural variability in the models before turning to the concept of stability theory. Other one dimensional or zonally averaged models are subsequently presented, along with various applications, including chapters on paleoclimatology, the inception of continental glaciations, detection of signals in the climate system, and optimal estimation of large scale quantities from point scale data. Throughout the book, the authors work on two mathematical levels: qualitative physical expositions of the subject material plus optional mathematical sections that include derivations and treatments of the equations along with some proofs of stability theorems. A must-have introduction for policy makers, environmental agencies, and NGOs, as well as climatologists, molecular physicists, and meteorologists.

A collection of essays and articles provides a study of how the planet works, discussing Earth's structure, geographical features, geologic history, and evolution.

Provides comprehensive coverage of the questions of global warming and climate change, including scientific descriptions and explanations of all factors, from carbon dioxide to sunspots, that might contribute to climate change.

A Guide for Commercial Architecture

The Political Economy of Government, Business, and Public Responses to Climate Change

The Physics of Climate Change

Climate Change

Everything You Need to Know about Global Warming and How to Stop It

The Earth Machine

Combines scientific analysis with lavish photography to illuminate the effects of climate change on the global ecosystem, in a visual treatise that draws on expert contributions to cover such subjects as retreating glaciers, sinking Alaskan tundra villages, and eroding coral reefs.

Original.

The New York Times bestseller that makes scientific subjects both understandable and fun: "Every sentence sparkles with wit and charm." –Richard Dawkins From the Pulitzer Prize-winning New York Times science journalist and bestselling author of *Woman*, this is a playful, passionate guide to the science all around us (and inside us)—from physics to chemistry, biology, geology, astronomy, and more. Drawing on

conversations with hundreds of the world's top scientists, Natalie Angier creates a thoroughly entertaining guide to scientific literacy. For those who want a fuller understanding of some of the great issues of our time, *The Canon* offers insights on stem cells, bird flu, evolution, and global warming. For students—or parents whose kids ask a lot of questions about how the world works—it brings to life such topics as how the earth was formed, or what electricity is. Also included are clear, fascinating explanations of how to think scientifically and grasp the tricky subject of probability. *The Canon* is a joyride through the major scientific disciplines that reignites our childhood delight and sense of wonder—and along the way, tells us what is actually happening when our ice cream melts or our coffee gets cold, what our liver cells do when we eat a caramel, why the horse is an example of evolution at work, and how we're all really made of stardust.

"[The author] draws out the complex relationship between religion and climate change. He shows that the religious movements and ideas that emerge from climate shocks often last for many decades, and become a familiar part of the religious landscape, even though their origins in particular moments of crisis may be increasingly consigned to remote memory" -- From jacket flap.

"Brilliant and fundamental, this is the necessary book about our prime global emergency. Here you'll find the facts, the processes, the physics of our complex and changing climate, but delivered with eloquence and urgency. Lawrence Krauss writes with a clarity that transcends mere politics. Prose and poetry were never better bedfellows." —Ian McEwan, Booker Prize-winning author of *Solar and Machines Like Me* "The ideal book for understanding the science of global warming..at once elegant, rigorous, and timely." — Elizabeth Kolbert, Pulitzer Prizewinning author of *The Sixth Extinction* "A brief, brilliant, and charming summary of what physicists know about climate change and how they learned it." —Sheldon Glashow, Nobel Laureate in Physics, Metcalf Distinguished Professor Emeritus, Boston University "The distinguished scientist Lawrence Krauss turns his penetrating gaze on the most pressing existential threat facing our world: climate change. It is brimming with information lucidly analysed. Such hope as there is lies in science, and a physicist of Dr. Krauss's imaginative versatility is unusually qualified to offer it." —Richard Dawkins, author of *The Blind Watchmaker* and *Science in the Soul* "Lucid and gripping, this study of the most severe challenge humans have ever faced leads the reader from the basic physics of climate change to recognition of the damage that humans have already caused and on to the prospects that lie ahead if we do not change course soon." —Noam Chomsky, Laureate Professor, University of Arizona, author of *Internationalism or Extinction?* "Lawrence Krauss tells the story of climate change with erudition, urgency, and passion. It is our great good luck that one of our most brilliant scientists is also such a gifted writer. This book will change the way we think about the future." —Jennifer Finney Boylan, author of *Good Boy and She's Not There* "Everything on climate change that I've seen is either dumbed down and bossy or written for other climate scientists. I've been looking for a book that can let me, a layperson, understand the science. This book does just what I was looking for. It is important." —Penn Jillette, Magician, author of *Presto!* and *God, No!* "The renowned physicist Lawrence Krauss makes the science behind one of the most important issues of our time accessible to all." —Richard C. J. Somerville, Distinguished Professor Emeritus, Scripps Institution of Oceanography, University of California, San Diego "Lawrence Krauss is a fine physicist, a talented writer, and a scientist deeply engaged with public affairs. His book deserves wide readership. The book's eloquent exposition of the science and the threats should enlighten all readers and motivate them to an urgent concern about our planet's future." —Lord Martin Rees, Astronomer Royal, former president of the Royal Society, author of *On the Future: Prospects for Humanity*

Museums, Communities and Climate Change

Encyclopedia of Global Warming

Comprehending the Climate Crisis

The Canon

Modern Thermodynamics for Chemists and Biochemists

The Science of Global Warming and Our Energy Future

Climate ChangeThe Science of Global Warming and Our Energy FutureColumbia University Press

Thermodynamics is fundamental to university curricula in chemistry, physics, engineering and many life sciences. It is notoriously difficult for students to understand, learn and apply. This book explains the fundamental concepts with clarity, and shows how they can be applied to a variety of chemical and life science contexts.

Climate change is real...depending on who you ask. Scientists and environmentalists have been going head-to-head at toe with CEOs and politicians over our global resources, insisting that a large-scale climate crisis is upon us. This collection of diverse perspectives looks at all sides of this fraught debate, discusses the pros and cons of global action to curtail climate change, and offers ideas and solutions for what readers can do about climate change on the home front while the media duking it in political arenas.

Global Warming: Causes, Impacts and Solutions covers all aspects of global warming including its causes, impacts, and engineering solutions. Energy and environment policies and strategies are scientifically discussed to expose the best ways to reduce global warming effects and protect the environment and energy sources affected by human activities. The importance of green energy consumption on the reduction of global warming, energy saving and energy security are also discussed. The book also focuses on energy management and conservation strategies for better utilization of energy sources and technologies in buildings and industry as well as ways of improving energy efficiency at the end use, and introduces basic methods for designing and sizing cost-effective systems and determining whether it is economically efficient to invest in specific energy efficiency or renewable energy projects, and describes energy audit procedures commonly used to improve the energy efficiency of residential and commercial buildings as well as industrial facilities. These features and more provide the necessary tools to reduce global warming and to improve energy management leading to higher energy efficiencies. In order to reduce the negative effects of global warming due to excessive use of fossil fuel technologies, the following alternative technologies are introduced from the engineering perspective: fuel cells, solar power generation technologies, energy storage technologies, hydrogen energy technologies, wind energy technologies, geothermal energy technologies, and biomass technologies. These technologies are presented in detail and modeling studies including case studies can also be found in the book.

Canon of Insolation and the Ice-age Problem

Early Earth Systems

Our Climate Future

Energy Balance Climate Models

Inside and Out

Fundamentals of Hydrology

This textbook is tightly focused on the problem of anthropogenic climate change. It is unique among textbooks on climate change in that it combines an

introduction of the science with an introduction to the non-science issues such as the economic and policy options. Unlike more purely descriptive textbooks, it contains the quantitative depth that is necessary for an adequate understanding of the science of climate change. The goal of the book is for a student to leave the class ready to engage in the public policy debate on this issue. This is an invaluable textbook for any introductory survey course on the science and policy of climate change, for both non-science majors and introductory science students.

Addressing the widespread desire to better understand how climate change issues are addressed in the United States, this book provides an unparalleled analysis of features of the US economic and political system that are essential to understanding its responses to climate change. The introductory chapter presents a firm historical context, with the remainder of the book offering balanced and factual discussions of government, business and public responses to issues of energy policies, congressional activity on climate change, and US government involvement in international conferences. Abundant statistical evidence illustrates key concepts and supports analytic themes such as market failures, free riders, and the benefits and costs of alternative courses of action among industry sectors and geographic areas within the US. Written for audiences both outside and within the US, this accessible book is essential reading for anyone interested in climate change, energy, sustainable development or related issues around the world.

This second edition of Climate Change is an accessible and comprehensive guide to the science behind global warming. Exquisitely illustrated, the text is geared toward students at a variety of levels. Edmond A. Mathez and Jason E. Smerdon provide a broad, informative introduction to the science that underlies our understanding of the climate system and the effects of human activity on the warming of our planet. Mathez and Smerdon describe the roles that the atmosphere and ocean play in our climate, introduce the concept of radiation balance, and explain climate changes that occurred in the past. They also detail the human activities that influence the climate, such as greenhouse gas and aerosol emissions and deforestation, as well as the effects of natural phenomena. Climate Change concludes with a look toward the future, discussing climate model projections, exploring the economic and technological realities of energy production, and presenting a view of the global warming challenge through the lens of risk. Each chapter features profiles of scientists who advanced our understanding of the material discussed. This new edition expands on the first edition's presentation of scientific concepts, making it ideal for classroom use for a wide swath of undergraduate and masters students with both science and nonscience backgrounds.

This book deals with the contemporary and controversial topic of Environmental Change and National Security. Security encompasses various elements of human security that are going to be affected by the vagaries of environmental change, brought about by the relentless unsustainable development path undertaken by the modern society. The question is no longer about what the interrelations between climate change and security are, but about when they would be acknowledged by the policy-makers, rising above a narrow mindset that sees it as militarisation of the debate, rather than a human security issue. The book takes a prismatic view of the environmental change debate as observed by the military.

A Primer for Sustainable Development

Environment Change and National Security

The Science of a Dynamic Planet

Ecological Impacts of Climate Change

Climate Change and American Policy

Teaching Climate History

Since Gemmology was first published, thousands of readers have used it to gain an in-depth appreciation of the science of gemmology, its history and practice. This third edition has been completely revised to cover the latest methods of gem enhancement and identification, as well as the most up to date test instruments and laboratory techniques. It includes details of the Gemmological Associations recently introduced Foundation course, and even provides sample examination questions. * Contains essential information for the Gem-A exams * Fully updated to cover recent advances and instruments * An invaluable resource for gemmologists worldwide

In this accessible text, Mark Juergensmeyer, a pioneer in global studies, provides a comprehensive overview of the emerging field of global studies from regional, topical, and theoretical perspectives. Each of the twenty compact chapters in Thinking Globally features Juergensmeyer's own lucid introduction to the key topics and offers brief excerpts from major writers in those areas. The chapters explore the history of globalization in each region of the world, from Africa and the Middle East to Asia, Europe, and the Americas, and cover key issues in today's global era, such as: • Challenges of the global economy • Fading of the nation-state • Emerging nationalisms and transnational ideologies • Hidden economies of sex trafficking and the illegal drug trade • New communications media • Environmental crises • Human rights abuses Thinking Globally is the perfect introduction to global studies for students, and an exceptional resource for anyone interested in learning more about this new area of study.

In Poverty and Wealth in East Africa Rhiannon Stephens offers a conceptual history of how people living in eastern Uganda have sustained and changed their ways of thinking about wealth and poverty over the past two thousand years. This history serves as a powerful reminder that colonialism and capitalism did not introduce economic thought to this region and demonstrates that even in contexts of relative material equality between households, people invested intellectual energy in creating new ways to talk about the poor and the rich. Stephens uses an interdisciplinary approach to write this history for societies without written records before the nineteenth century. She reconstructs the words people spoke in different eras using the methods of comparative historical linguistics, overlaid with evidence from archaeology, climate science, oral traditions, and ethnography. Demonstrating the dynamism of people's thinking about poverty and wealth in East Africa long before colonial conquest, Stephens challenges much of the received wisdom about the nature and existence of economic and social inequality in the region's deeper past.

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.

A Geochemical Approach

Making Sense of Weather and Climate

Portrait of a Planet

A Conceptual History

A Whirligig Tour of the Beautiful Basics of Science

The United States in a Warming World

Climate change has long been a contentious issue, even before its official acknowledgment as a global threat in 1979. Government policies have varied widely, from Barack Obama's dedication to environmentalism to George W. Bush's tacit minimizing of the problem to

Republican officials' refusal to acknowledge the scientific evidence supporting anthropogenic climate change. Presented chronologically, this collection of important policy-shaping documents shows how the views of both advocates and deniers of climate change have developed over the past four decades.

This edited work contains the most recent advances related to the study of layered intrusions and cumulate rocks formation. The first part of this book presents reviews and new views of processes producing the textural, mineralogical and geochemical characteristics of layered igneous rocks. The second part summarizes progress in the study of selected layered intrusions and their ore deposits from different parts of the world including Canada, Southwest China, Greenland and South Africa. Thirty experts have contributed to this update on recent research on Layered Intrusions. This highly informative book will provide insight for researchers with an interest in geology, igneous petrology, geochemistry and mineral resources.

An illustrated introduction to the dynamic workings of the Earth furnishes a guided tour of the planet's more than four-billion-year history, revealing how Earth evolved from space dust into a life-sustaining world of oceans, weather, thermal energy, and mobile land masses.

From the National Book Award finalist Lauren Redniss, author of *Radioactive*, comes a dazzling fusion of storytelling, visual art, and reportage that grapples with weather in all its dimensions: its danger and its beauty, why it happens and what it means. WINNER OF THE PEN/E. O. WILSON LITERARY SCIENCE WRITING AWARD • NAMED ONE OF THE BEST BOOKS OF THE YEAR BY SAN FRANCISCO CHRONICLE, KIRKUS REVIEWS, AND SHELF AWARENESS Weather is the very air we breathe—it shapes our daily lives and alters the course of history. In *Thunder & Lightning*, Lauren Redniss tells the story of weather and humankind through the ages. This wide-ranging work roams from the driest desert on earth to a frigid island in the Arctic, from the Biblical flood to the defeat of the Spanish Armada. Redniss visits the headquarters of the National Weather Service, recounts top-secret rainmaking operations during the Vietnam War, and examines the economic impact of disasters like Hurricane Katrina. Drawing on extensive research and countless interviews, she examines our own day and age, from our most personal decisions—Do I need an umbrella today?—to the awesome challenges we face with global climate change. Redniss produced each element of *Thunder & Lightning*: the text, the artwork, the covers, and every page in between. She created many of the images using the antiquated printmaking technique copper plate photogravure etching. She even designed the book's typeface. The result is a book unlike any other: a spellbinding combination of storytelling, art, and science. Praise for *Thunder & Lightning* “[An] aesthetically charged and deeply researched account . . . a wild rainstorm of a book, pelting the reader with ideas and inspiration.”—*Nature* “A gorgeous and illuminating illustrated study of weather in all its tempestuous variety . . . Redniss’s combo of fact, folklore, and vibrant etched copperplate prints enthralls.”—*O: The Oprah Magazine* “Eerily beautiful . . . Contains plenty of scientific explanation (including more than a few nods toward global warming), but also far-flung personal stories that illuminate the beauty, wonder and chaos inherent in the elements.”—*The New York Times* “Magical . . . Redniss has . . . shown us how human beings live with nature—fighting, coexisting, taming, predicting via leech barometer and radar and intuition.”—*The New York Times Book Review* “[A] twenty-first-century genius . . . Redniss is inventing a new literary genre. . . . The reader willing to put herself fully in Redniss’s hands will be rewarded with a delicious feeling of being enveloped by a phenomenon that eclipses the chiming trivialities of daily life.”—*Elle* “Lends a graphic-novel-like allure to some of nature’s most curious paradoxes.”—*Vogue* “Redniss is one of the most creative science writers of our time—her combination of beautiful artwork, reporting, and poetic prose brings science to life in ways that words alone simply cannot.”—*Rebecca Skloot* “Redniss combines her own dual punch of expressive art and impressive erudition to give an entirely new take on all that happens above our heads. This is an illuminated book that is also an illuminating one.”—*Adam Gopnik* “A strange and wonderful thing, the work of a first-class mind that refuses to submit to any categories or precedent.”—*Dave Eggers* “Beautiful and totally original.”—*Elizabeth Kolbert*

Encyclopedia of Crisis Management

Curating the Future

Gemmology

Net Zero Energy Design

Earth

The Science Behind the Forecasts

"This book offers the most up-to-date examination of climate change's foundational science, implications for our future, and clean energy solutions that can mitigate its effects"--Back cover.

How will future climates be different from today's world—and what consequences will changes in climate have for societies and their development strategies? This book is a primer on the essential science for grasping the workings of

climate change and climate prediction. It is accessible for readers with little to no background in science, with an emphasis on the needs of those studying sustainable development. John C. Mutter gives a just-the-facts overview of how the climate system functions and what we know about why changes occur. He recounts the evolution of climatology from the earliest discoveries about Earth's climate to present-day predictive capabilities, and clearly presents the scientific basis of fundamental topics such as climate zones, ocean-atmosphere dynamics, and the long-term cycles from glacial to interglacial periods. Mutter also details the mechanisms of climate change and the ways in which human activity affects global climate. He explains the science behind some known consequences of rising temperatures, such as sea level rise, hurricane behavior, and climate variability. The primer discusses how climate predictions are made and examines the sources of uncertainty in forecasting. *Climate Change Science* is a straightforward and easy-to-read treatment of the fundamental science needed to comprehend one of today's most important issues.

Conveniently organized and packed with robust technical content and clear explanations of key principles Written by an architect who is the director of sustainability at a global architecture firm, *Net Zero Energy Design* is a practical guide for architects and related construction professionals who want to design and build net zero energy commercial architecture. It offers no-nonsense strategies, step-by-step technical analysis, and valuable examples, in addition to developed case studies. With a focus on application in a variety of building types and scales, the book also develops a broad-based understanding of all the integrated principles involved in achieving net zero energy. This book is an indispensable resource for anyone venturing into net zero energy design, construction, and operation, and it also serves as an excellent resource on a variety of sustainable design topics. Important features include: Organization based upon the commercial building delivery process Robust technical content for use in actual project applications Analysis examples that demonstrate key technical principles Plenty of design data for use as a valuable design resource Abundant and sophisticated information graphics and color illustrations and photographs A distinct design focus on the content that inspires adoption of principles into projects

Although now a growing and respectable research field, crisis management—as a formal area of study—is relatively young, having emerged since the 1980s following a succession of such calamities as the Bhopal gas leak, Chernobyl nuclear accident, Space Shuttle Challenger loss, and Exxon Valdez oil spill. Analysis of organizational failures that caused such events helped drive the emerging field of crisis management. Simultaneously, the world has experienced a number of devastating natural disasters: Hurricane Katrina, the Japanese earthquake and tsunami, etc. From such crises, both human-induced and natural, we have learned our modern, tightly interconnected and interdependent society is simply more vulnerable to disruption than in the past. This interconnectedness is made possible in part by crisis management and increases our reliance upon it. As such, crisis management is as beneficial and crucial today as information technology has become over the last few decades. Crisis is varied and unavoidable. While the examples highlighted above were extreme, we see crisis every day within organizations, governments, businesses and the economy. A true crisis differs from a "routine" emergency, such as a water pipe bursting in the kitchen. Per one definition, "it is associated with urgent, high-stakes challenges in which the outcomes can vary widely (and are very negative at one end of the spectrum) and will depend on the actions taken by those involved." Successfully engaging, dealing with, and working through a crisis requires an understanding of options and tools for individual and joint decision making. Our *Encyclopedia of Crisis Management* comprehensively overviews concepts and techniques for effectively assessing, analyzing, managing, and resolving crises, whether they be organizational, business, community, or political. From general theories and concepts exploring the meaning and causes of crisis to practical strategies and techniques relevant to crises of specific types, crisis management is thoroughly explored. **Features & Benefits:** A collection of 385 signed entries are organized in A-to-Z fashion in 2 volumes available in both print and electronic formats. Entries conclude with Cross-References and Further Readings to guide students to in-depth resources. Selected entries feature boxed case studies, providing students with "lessons learned" in how various crises were successfully or unsuccessfully managed and why. Although organized A-to-Z, a thematic "Reader's Guide" in the front matter groups related entries by broad areas (e.g., Agencies & Organizations, Theories & Techniques, Economic Crises, etc.). Also in the front matter, a Chronology provides students with historical perspective on the development of crisis management as a discrete field of study. The work concludes with a comprehensive Index, which—in the electronic version—combines with the Reader's Guide and Cross-References to provide thorough search-and-browse capabilities. A template for an "All-Hazards Preparedness Plan" is provided the backmatter; the electronic version of this allows students to explore customized response plans for crises of various sorts. Appendices also include a Resource Guide to classic books, journals, and internet resources in the field, a Glossary, and a vetted list of crisis management-related degree programs, crisis management conferences, etc.

There is No Planet B

Introduction to Modern Climate Change

Climate Change Science

Environmental Chemistry

Key Documents, 1979-2015

The world's climate is changing, and it will continue to change throughout the 21st century and beyond. Rising temperatures, new precipitation patterns, and other changes are already affecting many aspects of human society and the natural world. In this book, the National Research Council provides a broad overview of the ecological impacts of climate change, and a series of examples of impacts of different

kinds. The book was written as a basis for a forthcoming illustrated booklet, designed to provide the public with accurate scientific information on this important subject.

Poverty and Wealth in East Africa

Dead Heat

How Changes in Climate Drive Religious Upheaval