

Hurricane Climatology A Modern Statistical Guide Using R

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Contemporary Climatology P.J. Robinson 2014-09-25 Now in its second edition, Climatology continues to provide an up-to-date stimulating and comprehensive guide to the nature of the earth's climate. It presents a synthesis of contemporary scientific ideas about atmospheric circulation. Topics covered include: -Energy systems-The hydrological cycle-General circulation, local and regional climate-Application of climate information-Use of satellite observations

Global Environmental Change National Research Council 1999-09-14 How can we understand and rise to the environmental challenges of global change? One clear answer is to understand the science of global change, not solely in terms of the processes that control changes in climate and the composition of the atmosphere, but in how ecosystems and human society interact with these changes. In the last two decades of the twentieth century, a number of such research efforts--supported by computer and satellite technology--have been launched. Yet many opportunities for integration remain unexploited, and many fundamental questions remain about the earth's capacity to support a growing human population. This volume encourages a

renewed commitment to understanding global change and sets a direction for research in the decade ahead. Through case studies the book explores what can be learned from the lessons of the past 20 years and what are the outstanding scientific questions. Highlights include: Research imperatives and strategies for investigators in the areas of atmospheric chemistry, climate, ecosystem studies, and human dimensions of global change. The context of climate change, including lessons to be gleaned from paleoclimatology. Human responses to--and forcing of--projected global change. This book offers a comprehensive overview of global change research to date and provides a framework for answering urgent questions.

The Regional Impacts of Climate Change Intergovernmental Panel on Climate Change. Working Group II. 1998 Cambridge, UK : Cambridge University Press, 1998.

Perspectives on Atmospheric Sciences Theodore Karacostas 2018-09-07 This book provides the proceedings of the 13th International Conference of Meteorology, Climatology and Atmospheric Physics (COMECAP 2016) that is held in Thessaloniki from 19 to 21 September 2016. The Conference addresses fields of interest for researchers, professionals and

students related to the following topics: Agricultural Meteorology and Climatology, Air Quality (Indoor and Outdoor), Applied Meteorology and Climatology, Applications of Meteorology in the Energy sector, Atmospheric Physics and Chemistry, Atmospheric Radiation, Atmospheric Boundary layer, Biometeorology and Bioclimatology, Climate Dynamics, Climatic Changes, Cloud Physics, Dynamic and Synoptic Meteorology, Extreme Events, Hydrology and Hydrometeorology, Mesoscale Meteorology, Micrometeorology-Urban Microclimate, Remote Sensing- Satellite Meteorology and Climatology, Weather Analysis and Forecasting. The book includes all papers that have been accepted after peer review for presentation in the conference.

Disaster Resilience nist 2013-12-18 Although there is a great deal of high-quality information available on resilience-related topics hazard assessment, vulnerability assessment, risk assessment, risk management, and loss estimation as well as disaster resilience itself, there is no central source of data and tools to which the owners and managers of constructed facilities, community planners, policy makers, and other decision makers can turn for help in defining and measuring the resilience of their structures and communities. The purpose of this document is to provide a survey of the literature and an annotated bibliography of printed and electronic resources that serves as that central source of data and tools to help readers develop methodologies for defining and measuring the disaster resilience of their structures and communities. The report covers resilience-related topics at two different levels: (1) individual constructed facilities and correlated collections of constructed facilities that form a network (e.g., hospitals) and (2) community/regional scale frameworks (e.g., physical infrastructure, business and economic relationships, population and employment demographics). Thus, the first level focuses on physical infrastructure, whereas the second takes a broader look at how the physical infrastructure interacts with other activities that collectively define modern

communities. The reason for taking this approach is to establish a foundation for developing methodologies for defining and measuring the disaster resilience of structures. This step is especially important because physical infrastructure enables the community to function as a place of employment, a window to the regional and national economy, and a home for individuals. Developing better metrics and tools for defining and measuring the resilience of structures is an important step in meeting the challenge of measuring disaster resilience at the community scale.

Big Weather Mark Svenvold 2006-05-02 A view of nature's most violent forces at work follows a band of storm chasers over the course of a single tornado season, in a study of the effects of devastating weather, American eccentrics at work, and the commerce of catastrophe.

Attribution of Extreme Weather Events in the Context of Climate Change National Academies of Sciences, Engineering, and Medicine 2016-07-28 As climate has warmed over recent years, a new pattern of more frequent and more intense weather events has unfolded across the globe. Climate models simulate such changes in extreme events, and some of the reasons for the changes are well understood. Warming increases the likelihood of extremely hot days and nights, favors increased atmospheric moisture that may result in more frequent heavy rainfall and snowfall, and leads to evaporation that can exacerbate droughts. Even with evidence of these broad trends, scientists cautioned in the past that individual weather events couldn't be attributed to climate change. Now, with advances in understanding the climate science behind extreme events and the science of extreme event attribution, such blanket statements may not be accurate. The relatively young science of extreme event attribution seeks to tease out the influence of human-cause climate change from other factors, such as natural sources of variability like El Niño, as contributors to individual extreme events. Event attribution can

answer questions about how much climate change influenced the probability or intensity of a specific type of weather event. As event attribution capabilities improve, they could help inform choices about assessing and managing risk, and in guiding climate adaptation strategies. This report examines the current state of science of extreme weather attribution, and identifies ways to move the science forward to improve attribution capabilities.

Effects of Climate Change on Agriculture, Land Resources, Water Resources, and Biodiversity in the United States

Peter Backlund 2009-05 This report by the Nat. Science and Tech. Council's U.S. Climate Change Science Program (CCSP) is part of a series of 21 reports aimed at providing current assessments of climate change science to inform public debate, policy, and operational decisions. These reports are also intended to help the CCSP develop future program research priorities. The CCSP's guiding vision is to provide the Nation and the global community with the science-based knowledge needed to manage the risks and capture the opportunities associated with climate and related environmental changes. This report assesses the effects of climate change on U.S. land resources, water resources, agriculture, and biodiversity. It was developed with broad scientific input. Illus.

Hurricanes of the North Atlantic James B. Elsner 1999 As people continue to develop coastal areas, society's liability to hurricanes will dramatically increase, regardless of changes in the environment. This book addresses these key issues, providing a detailed examination of

Hurricane Climatology James B. Elsner 2013-03-28 Hurricane Climatology explains how to analyze and model hurricane data to better understand and predict present and future hurricane activity

Hurricanes Roger A. Pielke, Sr. 1997 Losses to hurricanes in the 1990s total more than those incurred in the 1970s and 1980s

combined, even after adjusting for inflation. This has led many to mistakenly conclude that severe hurricanes are becoming more frequent. In fact, according to recent research, the past few decades have seen a decrease in the frequency of severe storms and 1991 to 1994 was the quietest in at least 50 years. It does mean, however, that the world today is more vulnerable to hurricane impacts than it has ever been, which represents a serious policy problem. This book defines and assesses the hurricane problem, focusing primarily on the United States, in order to lay a foundation for action. The concept of vulnerability is used to integrate the societal and physical aspects of hurricane impacts. The book is unique in that it seeks to address both the scientific and societal aspects of hurricanes. While it focuses on the United States, it is intended to illustrate weather related impacts assessment that could be applied in other areas, and for phenomena other than hurricanes. More broadly, this book seeks to illustrate the beneficial uses (as well as limitations) of hurricane science to society. Explicit consideration of the relationship between science and society is much needed in an era when scientific research is under public and political pressure to demonstrate a better connection with societal needs.

Climatology John E. Oliver 1981

Resilient Urban Futures Zoé A. Hamstead 2021-04-06 This open access book addresses the way in which urban and urbanizing regions profoundly impact and are impacted by climate change. The editors and authors show why cities must wage simultaneous battles to curb global climate change trends while adapting and transforming to address local climate impacts. This book addresses how cities develop anticipatory and long-range planning capacities for more resilient futures, earnest collaboration across disciplines, and radical reconfigurations of the power regimes that have institutionalized the disenfranchisement of minority groups. Although planning processes consider visions for the future, the editors highlight a

more ambitious long-term positive visioning approach that accounts for unpredictability, system dynamics and equity in decision-making. This volume brings the science of urban transformation together with practices of professionals who govern and manage our social, ecological and technological systems to design processes by which cities may achieve resilient urban futures in the face of climate change.

NOAA Technical Report NWS. United States. National Weather Service 1971

Global Climate Change Impacts in the United States U.S. Global Change Research Program 2009-08-24 Summarizes the science of climate change and impacts on the United States, for the public and policymakers.

Hurricane Risk Jennifer M. Collins 2019-02-15 This book details the outcomes of new research focusing on climate risk related to hurricanes. Topics include numerical simulation of tropical cyclones, through tropical cyclone hazard estimation to damage estimates and their implications for commercial risk. Inspired by the 6th International Summit on Hurricanes and Climate Change: From Hazard to Impact, this book brings together leading international academics and researchers, and provides a source reference for both risk managers and climate scientists for research on the interface between tropical cyclones, climate and risk.

Hurricanes and the Middle Atlantic States Rick Schwartz 2007 *Hurricanes and the Middle Atlantic States* focuses on the hurricane history of Delaware, Maryland, New Jersey, Pennsylvania and Virginia, although adjacent states are not neglected. It explores lessons learned and risks ahead. The book is geared to a general audience and is appropriate for teenagers and adults. It features fascinating stories, vintage and recent photographs and other illustrations. Hurricane history repeats. This book offers a window to the past and a meteorological crystal ball to the future.

An Introduction to Dynamic Meteorology John Marshall 1979 Introduction -- Basic conservation laws -- Elementary applications of the basic equations -- Circulation and vorticity -- Planetary boundary layer -- Dynamics of synoptic scale motions in middle latitudes -- Atmospheric oscillations : linear perturbation theory -- Numerical prediction -- Development and motion of midlatitude synoptic systems -- General circulation -- Stratospheric dynamics - - Tropical motion systems.

Weather: A Very Short Introduction Storm Dunlop 2017-01-19 From deciding the best day for a picnic, to the devastating effects of hurricanes and typhoons, the weather impacts our lives on a daily basis. Although new techniques allow us to forecast the weather with increasing accuracy, most people do not realise the vast global movements and forces which result in their day-to-day weather. In this Very Short Introduction Storm Dunlop explains what weather is and how it differs from climate, discussing what causes weather, and how we measure it. Analysing the basic features and properties of the atmosphere, he shows how these are directly related to the weather experienced on the ground, and to specific weather phenomena and extreme weather events. He describes how the global patterns of temperature and pressure give rise to the overall circulation within the atmosphere, the major wind systems, and the major oceanic currents, and how features such as mountains and the sea affect local weather. He also looks at examples of extreme and dangerous weather, such as of tropical cyclones (otherwise known as hurricanes and typhoons), describing how 'Hurricane Hunters' undertake the dangerous task of flying through them. We measure weather in a number of ways: observations taken on the land and sea; observations within the atmosphere; and measurements from orbiting satellites. Dunlop concludes by looking at how these observations have been used to develop increasingly sophisticated long- and short-range weather forecasting, including ensemble forecasting. 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.

Multivariate and 2D Extensions of Singular Spectrum

Analysis with the Rssa Package Nina Golyandina 2015-02-08

Implementation of multivariate and 2D extensions of singular spectrum analysis (SSA) by means of the R-package Rssa is considered. The extensions include MSSA for simultaneous analysis and forecasting of several time series and 2D-SSA for analysis of digital images. A new extension of 2D-SSA analysis called Shaped 2D-SSA is introduced for analysis of images of arbitrary shape, not necessary rectangular. It is shown that implementation of Shaped 2D-SSA can serve as a base for implementation of MSSA and other generalizations. Efficient implementation of operations with Hankel and Hankel-block-Hankel matrices through the fast Fourier transform is suggested. Examples with code fragments in R, which explain the methodology and demonstrate the proper use of Rssa, are presented.

A Vast Machine Paul N. Edwards 2010-03-12 The science behind global warming, and its history: how scientists learned to understand the atmosphere, to measure it, to trace its past, and to model its future. Global warming skeptics often fall back on the argument that the scientific case for global warming is all model predictions, nothing but simulation; they warn us that we need to wait for real data, “sound science.” In *A Vast Machine* Paul Edwards has news for these skeptics: without models, there are no data. Today, no collection of signals or observations—even from satellites, which can “see” the whole planet with a single instrument—becomes global in time and space without passing through a series of data models. Everything we know about the

world's climate we know through models. Edwards offers an engaging and innovative history of how scientists learned to understand the atmosphere—to measure it, trace its past, and model its future.

Climate Time Series Analysis Manfred Mudelsee 2010-08-26

Climate is a paradigm of a complex system. Analysing climate data is an exciting challenge, which is increased by non-normal distributional shape, serial dependence, uneven spacing and timescale uncertainties. This book presents bootstrap resampling as a computing-intensive method able to meet the challenge. It shows the bootstrap to perform reliably in the most important statistical estimation techniques: regression, spectral analysis, extreme values and correlation. This book is written for climatologists and applied statisticians. It explains step by step the bootstrap algorithms (including novel adaptations) and methods for confidence interval construction. It tests the accuracy of the algorithms by means of Monte Carlo experiments. It analyses a large array of climate time series, giving a detailed account on the data and the associated climatological questions. This makes the book self-contained for graduate students and researchers. *Storm Tide Frequencies on the South Carolina Coast* Vance A. Myers 1975

A Handbook of Medical Climatology Samuel Edwin Solly 1897

The Metrics Manifesto Richard Seiersen 2022-05-03 Security professionals are trained skeptics. They poke and prod at other people’s digital creations, expecting them to fail in unexpected ways. Shouldn’t that same skeptical power be turned inward? Shouldn’t practitioners ask: “How do I know that my enterprise security capabilities work? Are they scaling, accelerating, or slowing as the business exposes more value to more people and through more channels at higher velocities?” This is the start of the modern measurement mindset—the mindset that seeks to confront security with data. *The Metrics Manifesto: Confronting Security with Data* delivers an examination of security metrics

with R, the popular open-source programming language and software development environment for statistical computing. This insightful and up-to-date guide offers readers a practical focus on applied measurement that can prove or disprove the efficacy of information security measures taken by a firm. The book's detailed chapters combine topics like security, predictive analytics, and R programming to present an authoritative and innovative approach to security metrics. The author and security professional examines historical and modern methods of measurement with a particular emphasis on Bayesian Data Analysis to shed light on measuring security operations. Readers will learn how processing data with R can help measure security improvements and changes as well as help technology security teams identify and fix gaps in security. The book also includes downloadable code for people who are new to the R programming language. Perfect for security engineers, risk engineers, IT security managers, CISOs, and data scientists comfortable with a bit of code, *The Metrics Manifesto* offers readers an invaluable collection of information to help professionals prove the efficacy of security measures within their company.

Modern Climatology Shih-Yu (Simon) Wang 2012-03-09 Climatology, the study of climate, is no longer regarded as a single discipline that treats climate as something that fluctuates only within the unchanging boundaries described by historical statistics. The field has recognized that climate is something that changes continually under the influence of physical and biological forces and so, cannot be understood in isolation but rather, is one that includes diverse scientific disciplines that play their role in understanding a highly complex coupled "whole system" that is the earth's climate. The modern era of climatology is echoed in this book. On the one hand it offers a broad synoptic perspective but also considers the regional standpoint, as it is this that affects what people need from climatology. Aspects on the topic of climate change - what is often considered a contradiction in terms

- is also addressed. It is all too evident these days that what recent work in climatology has revealed carries profound implications for economic and social policy; it is with these in mind that the final chapters consider acumens as to the application of what has been learned to date.

Hurricane Climatology James B. Elsner 2013-03-04 Hurricanes are nature's most destructive storms and they are becoming more powerful as the globe warms. *Hurricane Climatology* explains how to analyze and model hurricane data to better understand and predict present and future hurricane activity. It uses the open-source and now widely used R software for statistical computing to create a tutorial-style manual for independent study, review, and reference. The text is written around the code that when copied will reproduce the graphs, tables, and maps. The approach is different from other books that use R. It focuses on a single topic and explains how to make use of R to better understand the topic. The book is organized into two parts, the first of which provides material on software, statistics, and data. The second part presents methods and models used in hurricane climate research.

Practical Meteorology Roland Stull 2018 A quantitative introduction to atmospheric science for students and professionals who want to understand and apply basic meteorological concepts but who are not ready for calculus. [Confronting Climate Uncertainty in Water Resources Planning and Project Design](#) Patrick A. Ray 2015-08-20 *Confronting Climate Uncertainty in Water Resources Planning and Project Design* describes an approach to facing two fundamental and unavoidable issues brought about by climate change uncertainty in water resources planning and project design. The first is a risk assessment problem. The second relates to risk management. This book provides background on the risks relevant in water systems planning, the different approaches to scenario definition in water system planning, and an introduction to the decision-

scaling methodology upon which the decision tree is based. The decision tree is described as a scientifically defensible, repeatable, direct and clear method for demonstrating the robustness of a project to climate change. While applicable to all water resources projects, it allocates effort to projects in a way that is consistent with their potential sensitivity to climate risk. The process was designed to be hierarchical, with different stages or phases of analysis triggered based on the findings of the previous phase. An application example is provided followed by a descriptions of some of the tools available for decision making under uncertainty and methods available for climate risk management. The tool was designed for the World Bank but can be applicable in other scenarios where similar challenges arise. The Federal Response to Hurricane Katrina Superintendent of Documents 2006 "The objective of this report is to identify and establish a roadmap on how to do that, and lay the groundwork for transforming how this Nation- from every level of government to the private sector to individual citizens and communities - pursues a real and lasting vision of preparedness. To get there will require significant change to the status quo, to include adjustments to policy, structure, and mindset"--P. 2.

Design Of Coastal Structures And Sea Defenses Kim Young C 2014-09-25 Coastal structures are an important component in any coastal protection scheme. They directly control wave and storm surge action or to stabilize a beach which provides protection to the coast. This book provides the most up-to-date technical advances on the design and construction of coastal structures and sea defenses. Written by renowned practicing coastal engineers, this edited volume focuses on the latest technology applied in planning, design and construction, effective engineering methodology, unique projects and problems, design and construction challenges, and other lessons learned. Many books have been written about the theoretical treatment of coastal and ocean structures. Much less has been written about the practical

practice aspect of ocean structures and sea defenses. This comprehensive book fills the gap. It is an essential source of reference for professionals and researchers in the areas of coastal, ocean, civil, and geotechnical engineering.

The Politically Incorrect Guide to Climate Change Marc Morano 2018-02-26 "The climate scare ends with this book." —SEAN HANNITY "This book arms every citizen with a comprehensive dossier on just how science, economics, and politics have been distorted and corrupted in the name of saving the planet." —MARK LEVIN Less freedom. More regulation. Higher costs. Make no mistake: those are the surefire consequences of the modern global warming campaign waged by political and cultural elites, who have long ago abandoned fact-based science for dramatic fearmongering in order to push increased central planning. The Politically Incorrect Guide to Climate Change gives a voice -- backed by statistics, real-life stories, and incontrovertible evidence -- to the millions of "deplorable" Americans skeptical about the multibillion dollar "climate change" complex, whose claims have time and time again been proven wrong.

Occupational Outlook Handbook United States. Bureau of Labor Statistics 1976

Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation Christopher B. Field 2012-05-28 This Intergovernmental Panel on Climate Change Special Report (IPCC-SREX) explores the challenge of understanding and managing the risks of climate extremes to advance climate change adaptation. Extreme weather and climate events, interacting with exposed and vulnerable human and natural systems, can lead to disasters. Changes in the frequency and severity of the physical events affect disaster risk, but so do the spatially diverse and temporally dynamic patterns of exposure and vulnerability. Some types of extreme weather and climate events have increased in frequency or magnitude, but populations

and assets at risk have also increased, with consequences for disaster risk. Opportunities for managing risks of weather- and climate-related disasters exist or can be developed at any scale, local to international. Prepared following strict IPCC procedures, SREX is an invaluable assessment for anyone interested in climate extremes, environmental disasters and adaptation to climate change, including policymakers, the private sector and academic researchers.

Global Perspectives on Tropical Cyclones Johnny C. L. Chan 2010 Make God's Word your everyday traveling companion. Thin and lightweight, Thomas Nelson's KJV Compact UltraSlim™ Bible boasts a complete and easy-to-read Bible that is ready to go when you are! A Bible you can be comfortable taking with you every day and everywhere you go, the Compact UltraSlim Bible is thin enough to tuck into your purse, briefcase, backpack, or glove compartment, yet large enough for easy readability. The Compact UltraSlim Bible is the perfect gift and ideal companion for today's Christian on the move. Features include: Presentation page Self-pronouncing text Words of Jesus in red Concordance Full-color maps Type size: 6 Part of the CLASSIC SERIES line of Thomas Nelson Bibles Compact UltraSlim Bibles sold to date: More than 135,000 The King James Version-The most successful Bible translation in history with billions of copies published Thomas Nelson Bibles is giving back through the God's Word in Action program. Donating a portion of profits to World Vision, we are helping to eradicate poverty and preventable deaths among children. Learn more and discover what you can do at www.seegodswordinaction.com.

Modeling Count Data Joseph M. Hilbe 2014-07-21 "This entry-level text offers clear and concise guidelines on how to select, construct, interpret, and evaluate count data. Written for researchers with little or no background in advanced statistics, the book presents treatments of all major models using numerous tables, insets, and detailed modeling suggestions. It begins by

demonstrating the fundamentals of linear regression and works up to an analysis of the Poisson and negative binomial models, and to the problem of overdispersion. Examples in Stata, R, and SAS code enable readers to adapt models for their own purposes, making the text an ideal resource for researchers working in public health, ecology, econometrics, transportation, and other related fields"--

Coastal Hazards Related to Storm Surge Rick Luettich 2018-03-13 This book is a printed edition of the Special Issue "Coastal Hazards Related to Storm Surge" that was published in JMSE

Applied Climatology Allen Perry 2013-03-07 'Big freeze' conditions, storms, severe flooding, droughts, and heatwaves - recent extremes in weather, with their resultant physical, economic and human losses, highlight the vulnerability of society to changes in the atmosphere. Atmospheric pollution, urbanization, natural atmospheric disasters are causing dramatic changes in climatic environments. Applied Climatology examines the effects of climate on physical, biological and cultural environments. Specialist contributors from Europe, North America and Australasia examine the impacts of changing climates on the functioning and development of physical biological environments including glaciers, water resources, landforms, soils, vegetation and animals. Weather and climate effects day-to-day activities and lifestyles from the clothes we wear to the buildings we design, and the food and energy we produce. This book focusses on the relationship between climate and a wide range of human activities and responses relating to health and comfort, building design, transport systems, agriculture and fisheries, tourism and social, industrial and legal issues. Climate-environment relationships and impacts on human activities are predicted to change dramatically if global warming accelerates at the rates currently proposed. Applied Climatology examines the characteristics and consequences of the changing

global climate and considers the future for both natural and human environments.

Advancing the Science of Climate Change National Research Council 2011-01-10 Climate change is occurring, is caused largely by human activities, and poses significant risks for-and in many cases is already affecting-a broad range of human and natural systems. The compelling case for these conclusions is provided in *Advancing the Science of Climate Change*, part of a congressionally requested suite of studies known as America's Climate Choices. While noting that there is always more to learn and that the scientific process is never closed, the book shows that hypotheses about climate change are supported by multiple lines of evidence and have stood firm in the face of serious debate and careful evaluation of alternative explanations. As decision makers respond to these risks, the nation's scientific enterprise can contribute through research that improves understanding of the causes and consequences of climate change and also is useful to decision makers at the local, regional, national, and international levels. The book identifies decisions being made in 12 sectors, ranging from agriculture to transportation, to identify decisions being made in response to climate change. *Advancing the Science of Climate Change* calls for a single federal entity or program to coordinate a national, multidisciplinary research effort aimed at improving both understanding and responses to climate change. Seven cross-cutting research themes are identified to support this scientific enterprise. In addition, leaders of federal climate research should redouble efforts to deploy a comprehensive climate observing system, improve climate models and other analytical tools, invest in human capital, and improve linkages between research and decisions by forming partnerships with action-oriented programs.

Reducing Coastal Risk on the East and Gulf Coasts Committee on U.S. Army Corps of Engineers Water Resources Science, Engineering, and Planning: Coastal Risk Reduction 2014-11-10

Hurricane- and coastal-storm-related losses have increased substantially during the past century, largely due to increases in population and development in the most susceptible coastal areas. Climate change poses additional threats to coastal communities from sea level rise and possible increases in strength of the largest hurricanes. Several large cities in the United States have extensive assets at risk to coastal storms, along with countless smaller cities and developed areas. The devastation from Superstorm Sandy has heightened the nation's awareness of these vulnerabilities. What can we do to better prepare for and respond to the increasing risks of loss? "Reducing Coastal Risk on the East and Gulf Coasts" reviews the coastal risk-reduction strategies and levels of protection that have been used along the United States East and Gulf Coasts to reduce the impacts of coastal flooding associated with storm surges. This report evaluates their effectiveness in terms of economic return, protection of life safety, and minimization of environmental effects. According to this report, the vast majority of the funding for coastal risk-related issues is provided only after a disaster occurs. This report calls for the development of a national vision for coastal risk management that includes a long-term view, regional solutions, and recognition of the full array of economic, social, environmental, and life-safety benefits that come from risk reduction efforts. To support this vision, "Reducing Coastal Risk" states that a national coastal risk assessment is needed to identify those areas with the greatest risks that are high priorities for risk reduction efforts. The report discusses the implications of expanding the extent and levels of coastal storm surge protection in terms of operation and maintenance costs and the availability of resources. "Reducing Coastal Risk" recommends that benefit-cost analysis, constrained by acceptable risk criteria and other important environmental and social factors, be used as a framework for evaluating national investments in coastal risk reduction. The recommendations of this report will assist

engineers, planners and policy makers at national, regional, state, and local levels to move from a nation that is primarily reactive to coastal disasters to one that invests wisely in coastal risk reduction and builds resilience among coastal communities.