Bookshelf

Climate Science

Michael E. Mann & Lee R. Kump, Dire Predictions – Understanding Global Warming. The Illustrated Guide to the Findings of the IPCC (2015). This book offers a visual guide to the major topics in climate science, presented in an easy-to-read question and answer format. *Dire Predictions* is very useful for gaining an accurate big-picture understanding of the most important findings. It's also terrific as a guide for discussing climate change with skeptics or those who do not have time for the deeper dive that K2P offers.

Spencer Weart, The Discovery of Global Warming (2008). Spencer Weart is a physicist and historian who has devoted enormous scholarly efforts to describing how anthropogenic climate change was discovered. In his superbly researched and well-written book, Dr. Weart colloquially describes how the central scientific findings were made and, importantly, how they were received by the government that paid for most of the efforts. The book offers great insight into the challenges of scientific investigation, showing what a genuine paradigm shift looks like. *The Discovery of Global Warming* is just the tip of the iceberg of Dr. Weart's work; for the full picture and a list of dozens of other books on the discovery of climate change, see here. An important omission from his story, though, is the pioneering work of 19th century scientist Eunice Foote, who was first to show that carbon dioxide traps heat more powerfully than ambient air. To learn about her discovery, see here.

Paul Edwards, A Vast Machine. Computer models, climate data, and the politics of global warming (2013). Like *The Discovery of Global Warming*, *A Vast Machine* is also a scientific history – this time of how the vast enterprise of meteorological investigation was established. In this detailed and absorbing work, we learn how the climate scientists who specialize in the atmosphere come to know what they know. This means a deep dive into the worldwide infrastructure for measuring the weather, and how the many strands of data are assembled to create the computer models that are the foundation for all our projections of the future climate.

Friederike Otto, Angry Weather. Heat Waves, Floods, Storms and the New Science of Climate Change (2019). This book is about a new specialty in the climate world known as *attribution science*. Until very recently, it has not been possible to say with any confidence that a particular extreme weather event like a very strong hurricane or prolonged heat wave is due to anthropogenic climate change. Instead, we could only say that carbon pollution means the dice have been loaded in favor of extreme events generally. But with attribution science, it becomes possible to assess the human contribution to *individual* extreme events and the damages they cause. Building her book around Hurricane Harvey that hit Texas in August 2017, climate scientist Friederike Otto delivers a highly readable

and hardhitting message about this new field. Among the implications of this new science are that fossil fuel companies that willfully misrepresent the facts of climate change can now face specific liability for defined damages.

Mark Bowen, Thin Ice: Unlocking the secrets of climate in the world's highest mountains (2005). This is a thrilling description of how glaciologist Lonnie Thompson and his team journey to the highest mountain ice caps, obtaining data about Earth's past climates by retrieving and analyzing ice cores. Stories of the expeditions are intertwined with explanations of the science of climate change and how the new data are interpreted. While *A Vast Machine* tells the story of climate change primarily by explaining the development of computer models, physicist and science writer Mark Bowen tells the other essential story about how experimental data about the changing Earth are obtained.

Jeff Goodell, The Water Will Come: Rising Seas, Sinking Cities, and the Remaking of the Civilized World (2018). One of the best recent books on the impacts of climate change, this work by journalist Jeff Goodell explores the consequences of sea level rise for coastal communities around the world. Disappearing ice sheets, retreating coasts and nuisance flooding are part of the story, but perhaps of greater importance is Goodell's focus on how people and organizations in high-risk areas resist the reality of what is happening, and how the United States and other countries exacerbate the problem with policies that incentivize continued building instead of adaptation and retreat.

Elizabeth Kolbert, The Sixth Extinction (2015). In this book, journalist Elizabeth Kolbert embeds herself with biologists and geologists at field sites around the world and emerges with compelling stories about the impact of anthropogenic climate change on biodiversity and the extinction of species. Essential reading for anyone with an interest in the natural world and a desire to learn how climate change acts as a threat multiplier - amplifying the harmful effects that humans have already brought about by deforestation, industrial agriculture and exploitation of Earth's animal, fiber and mineral resources.

Climate Politics, Culture and Denialism

Arlie Russell Hochschild, Strangers in Their Own Land: Anger and Mourning on the American Right (2018). Perhaps the single best analysis of how rural conservatives have become alienated from mainstream American culture, planting the seeds for the radicalization of the Republican party. Dr. Hochschild is a sociologist who embedded herself in rural Louisiana, in communities at the heart of the petrochemical complex that has given this region the name "cancer alley". Why do the folks who live here consistently elect politicians who block environmental regulations that would address the threats to their own health? An understanding of what is happening here is crucial for advocates who confront the same underlying dynamics in forging solutions to the climate crisis.

George Marshall, Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change (2014). This book is about the social, cultural and psychological reasons that explain why it is possible for so many people to avoid confronting the reality of climate change. The author, George Marshall, is a longtime advocate who cofounded the Climate Outreach and Information Network, an organization dedicated to improving public engagement with climate change. If you want to understand the dysfunctional social dynamics illustrated in the movie "Don't Look Up" - a farce in which an imminent meteor impact that will destroy civilization is used as an allegory for climate change - you need look no farther than this book. I found much of the book to be challenging to read, since it delves so deeply into why our response has been inadequate so far. But Marshall ends on a positive note, explaining how creating narratives of cooperation can bring people together around a common cause.

Nathaniel Rich, Losing Earth: A Recent History (2019). In this sobering account, journalist Nathaniel Rich looks at how information about climate change first began to penetrate the corridors of Washington DC in 1979. It tells the story of efforts by pioneering climate advocates, scientists and some US government officials and lawmakers over the following decade, to enact crucial emissions reduction laws before the heatwaves, floods and forest fires could become as severe as they are today. The failure of these advocates was catalyzed by the rise of climate denialism and the nearly full capture of the Republican party by fossil fuel interests, a situation that still persists today.

Naomi Oreskes and Erik Conway, Merchants of Doubt (2010). This is the definitive story of how the scientific facts about climate change were distorted by a small group of individuals with ties to the fossil fuel industry and hard Right political action networks. Most striking is the description of how the precise same network of individuals promoted misinformation about both the dangers of smoking and the science of global warming. The authors go further to expose the campaigns against the scientific foundations of acid rain and depletion of the ozone layer. In the process, they make crucial observations about the nature of the scientific enterprise and the way that the news media abets the spread of misinformation by improperly casting the scientific and denialist worldviews as two sides of a legitimate debate.

Michael Mann, The New Climate War: The Fight to Take Back Our Planet (2021). Dr. Michael Mann is a leading climate scientist and a favorite target of denialists for his pioneering work in unravelling the record of Earth's temperature from ancient eras until today. In this book, Dr. Mann explains how the campaign to obscure the facts of global warming has shifted from flat-out denial to other misleading arguments about how much humans are responsible and how much damage climate change is already causing. He also describes the campaigns aimed at deflecting the blame for warming from fossil fuel corporations to individuals. These campaigns began with the iconic "crying American Indian" TV ad - part of a cynical plastics industry campaign to prevent bottle bills and other tough regulation of waste.

John Cook, Cranky Uncle vs. Climate Change: How to Understand and Respond to Climate Science Deniers (2020). An illustrated, entertaining and reliable guide to understanding the roots of climate denialism, written by the founder of the renowned Skeptical Science website. *Cranky Uncle* explores the underlying roots of climate denialism, debunks its main arguments, and gives us insights into how to respond.

Policy and Advocacy

Mark Jaccard, The Citizen's Guide to Climate Success. Overcoming Myths That Hinder Progress (2020). A unique and engaging description of the many ways that we can become swayed by persuasive and pervasive false stories about climate solutions. Dr. Jaccard lays out the human capacity for self-deception and shows how individuals and groups create myths that confuse and misrepresent the climate change problem. The existence of these myths deters our ability to focus on real solutions that can be implemented now. Among many others, Dr. Jaccard examines the myth that solving climate change requires dismantling capitalism, the myth that we have no alternative to fossil fuels, and the myth that changing personal behavior is the most important way to decrease greenhouse gas emissions.

Katharine Hayhoe, Saving Us: A Climate Scientist's Case for Hope and Healing in a Divided World (2021). Dr. Katharine Hayhoe is a climate scientist and one of America's most prominent advocates. In this work, Dr. Hayhoe explains climate change with a focus on how we engage with the issue in both personal and societal terms, essential understanding if we are to bring about positive change. With decades of experience at the forefront of the field, Dr. Hayhoe is able to illuminate the challenge we face with stories and anecdotes from her own engagement with scientific colleagues, political and business leaders, and individuals in faith communities. I also recommend Dr. Hayhoe's TED talk, *The most important thing you can do to fight climate change: talk about it*, which has attracted 4 million views. The title of that talk is also the most important message of the book: through conversation, we can raise awareness, bridge differences, and become agents of change.

Andreas Karelas, Climate Courage: How Tackling Climate Change Can Build Community, Transform the Economy, and Bridge the Political Divide in America (2020). In this book, green energy advocate Andreas Karelas offers a relentlessly hopeful take on how to win the battle for a healthy climate. Drawing a sharp contrast with doomsday narratives, Mr. Karelas takes us on a fascinating journey through American society, giving example after example of how faith communities, business leaders, social changemakers, clean energy entrepreneurs and many other individuals and groups are already making a difference. The book delivers a timely and important message: at every level of society, we can make

renewable energy into an irresistible cultural trend that will win hearts and minds across the political spectrum.

Carla Wise, Awake on Earth: Facing Climate Change with Sanity and Grace (2016). I highly recommend this book for the inspiration and fortitude it arouses as we confront the realities of climate change in our own lives. As a biologist, Dr. Wise knows the science and communicates it well, but the greater value of this remarkable work is the eloquence with which she describes how she has learned to face the climate crisis in her own life. If you feel ever despair, anger or dread about our situation, these quiet and unassuming pages offer hope and the possibility for renewal and revitalization of your own commitment to make a difference.

Solomon Goldstein-Rose, The 100% Solution: A Plan for Solving Climate Change (2020). This book by a young journalist and state legislator offers a well-researched overview of our climate predicament. It is built around five solution pillars that are entirely consistent with the best scientific thinking, including electrification of end uses in homes, businesses and industries. Crucially, Mr. Goldstein-Rose emphasizes not just the transition to renewable power but the need to actively remove carbon from the atmosphere, even after we reach net zero emissions. Recommended as a highly readable guide for advocates who want to ground their actions in a reliable big-picture roadmap for policy action.

Hal Harvey, Designing Climate Solutions: A Policy Guide for Low-Carbon Energy (2017). This book provides an outstanding resource that gives detailed information on which policies are effective in each economic sector, covering electric power, industry, transportation, and buildings. Dr. Harvey uses careful computer modeling to estimate the contributions of each policy to reducing emissions. The book is exceptionally well organized and illustrated, offering a thorough guide to how policies in every sector can be optimally designed. Although written for policymakers, this volume is very readable and a terrific resource for savvy advocates who wish to petition local, state and federal governments for effective change.

Peter Fox-Penner, Power After Carbon: Building a Clean, Resilient Grid (2020). This book distills a great deal of information about the US electricity industry. Dr. Fox-Penner, a leading expert on the power sector, describes the presently fragmented electric grid and reviews ideas and technologies for how it can be integrated into a national network, while also building capacity for local power. The challenge of transitioning to fully carbon-free power no later than mid-century is also discussed. Finally, a great deal of attention is given to how utilities will have to organize their business models as they negotiate the complexities of federal oversight, state regulation, and the coming large new buildout of transmission lines. This is a detailed yet readable deep dive that is essential for advocates who want to focus their efforts on the all-important power sector.

Leah Stokes, Short Circuiting Policy: Interest Groups and the Battle Over Clean Energy and Climate Policy in the American States (2020). The greening of the US electricity grid is advancing rapidly in about half the states, while many others lag far behind. In this book Dr. Leah Stokes offers a detailed and scholarly analysis of the US electricity industry, the central pillar in driving the net zero energy transition. With case studies focusing on Texas, Arizona, Ohio, and Kansas, she looks at how climate advocates and their opponents mobilize for combat on the battlefield for supplying power to the grid. Grounding her analyses in a comprehensive model of policy change, Dr. Stokes shows how clean energy laws are enacted, implemented, and revised over time. For committed advocates who want to focus intensively on the electric power sector, this book lends invaluable insights on how more of these crucial battles can be won.

William Nordhaus, The Climate Casino: Risk, Uncertainty and Economics for a Warming World (2013). Without government policy, greenhouse gas emissions continue unabated because burning fossil fuels is profitable while the costs of warming are externalized to everyone else. Professor William Nordhaus won the Nobel Prize in Economics for showing that carbon prices offer – at least in theory - the most effective approach for solving this problem. In this widely read work for laypersons, Dr. Nordhaus frames the full scope of the climate problem and explains the policy challenges involved in putting the different kinds of carbon pricing policies in place.

Danny Cullenward and David G. Victor, Making Climate Policy Work (2020). In this insightful new book, political scientists Danny Cullenward and David Victor offer a new understanding of the politics of market-based climate solutions. They explain why these potentially highly effective policies have, for the most part, not been put in place at anywhere near the scale needed to be effective. For cap-and-trade programs, the problems are administrative complexity and susceptibility to be gamed by industry demands for free allowances and dubious offsets. With carbon taxes, in contrast, the visibility of the price makes lawmakers who advocate for them easy targets for political opponents. Nonetheless, with a simple political model that features only interest groups and institutional factors, the authors provide comprehensive insights into why market-based strategies have not reached their full promise. The insights then yield some simple proposals for improving the way the programs are designed.