

## Making Climate Change History: Documents from Global Warming's Past

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**Reviewer:** Katrin Kleemann

With *Making Climate Change History* Joshua P. Howe chooses a very clever title. Not only does it convey that he intends to write a history of climate change but it also alludes to making climate change a thing of the past, admittedly against high odds. Howe argues, '[...] when we look at problems related to climate change, thinking historically matters' (p. 3). The book's main aim is to introduce the reader to different types of primary sources, and to look at them as a historian would. For this purpose, Howe asks questions that a historian would pose. He introduces the reader to the concept that he coins, the 'presentist paradox' (p. 9), which puts forward the idea that we look at primary sources from our present day perspective with a sense of urgency in trying to answer questions about the current, pressing challenge, which is a warming world. It suggests that we should try to view primary documents as what they are, children of their own time.

*Making Climate Change History. Primary Sources from Global Warming's Past* is a scientific book published by the University of Washington Press in 2017. The book appeared in the Weyerhaeuser Environmental Classics series, which reprints studies that explore the relationships between humans with their natural environments. The series is edited by Paul S. Sutter, who also contributes a thought-provoking foreword to this book. Joshua P. Howe is an associate professor of history and environmental studies at Reed College in Portland, Oregon, and has previously published another book, *Behind the Curve: Science and Politics of Global Warming* (1), which is referenced here.

Divided into six chapters, the book also includes colour plates summarizing and historicizing important climate graphics from the past 60 years. The different chapters are each preceded by a short introduction to the topic, which also includes a practical further reading section of relevant literature. The primary sources for each chapter are mostly arranged in chronological order. Most of the primary sources have another paragraph-length introduction. The primary sources presented are incredibly diverse, dating from 1837 to 2016 and ranging from historical scientific publication to current papers published in scientific journals, as well as newspaper articles, private correspondence, transcripts of US government hearings and court decisions, publications of US government institutions, such as the Environmental Protection Agency or the Central Intelligence Agency, publications of international bodies such as the International Panel on Intergovernmental Change or the United Nations, as well as publications from environmental organizations

and a papal encyclical.

Howe essentially describes three different translation processes in his book. In this context, a translation process describes turning technical, scientific findings into information that is intelligible to the intended audience, i.e. politicians and later the general public. At first scientists tried to make sense of the natural world, they developed instruments to take measurements of the temperature, concentrations of gases in the atmosphere, and sea level change. Then scientists had to make sense of these measurements. He describes this translation process in his first chapter, 'The scientific "prehistory" of global warming', which includes four primary sources ranging from 1837 to 1938. (The list of contents mentions the year 1824 for Jean-Baptiste Joseph Fourier's publication, which is the date of the French original publication, the primary source used here is an English translation from 1837.) Howe introduces the reader to Jean-Baptiste Joseph Fourier, John Tyndall, Svante Arrhenius, and Guy Stewart Callendar. Their texts engage with what is now called carbon dioxide and the idea of greenhouse gases; although the authors were interested in these for different reasons than we are today. It is worth noting that some might query the use of the term 'prehistory' when referring to primary sources from the 19th century.

Once the scientists realized how quickly concentrations of carbon dioxide in the atmosphere were increasing and thus the temperature, they had to translate these technical and scientific forms of knowledge about climate change for environmentalists and policymakers. This is the translation process that chapters two to five deal with. In chapter two, titled 'The Cold War roots of global warming', which features five primary sources that were published between 1957 and 1959, Howe studies why some scientists were taken seriously when stating that large emissions of CO<sub>2</sub> into the atmosphere did have an impact on the increase of the global temperature, and why others were not. Here, Howe introduces other, unusual types of primary sources – congressional hearing transcripts for instance – with instructions to read them just like a theatre play, to ask who is on stage and what the different character's intentions are.

The third chapter deals with 'Making global warming green', and includes 12 primary sources covering the period from 1963 to 1984. In this time, climate change moved from the margins to the centre stage of international environmental politics. The 1960s were a period when the American public became aware of several environmental issues, most famously perhaps the issue of pollution through Rachel Carson's *Silent Spring* in 1962.<sup>(2)</sup> To make the public understand the meaning of an increase of carbon dioxide in the atmosphere, CO<sub>2</sub> was framed as a pollutant. Howe here introduces the readers to scientific organizations and the different interests they pursue. The translation process also encountered problems, some of which are described in the fourth chapter, 'Climate change as controversy'. 15 primary sources from 1971 to 1988 show an increasing entanglement between scientific publications and the public discourse as well as arguments made by officials that contradict one another, causing confusion. Howe identifies three episodes: 1) The global warming and the global cooling hypothesis in the 1970s; 2) conflicting reports published from US government bodies; and 3) a debate in the 1980s about a potential manmade nuclear winter. 'Climate change governance' is the fifth chapter's title, which introduces nine primary sources from 1987 to 1997. Several international bodies emerged in this time, notably the Intergovernmental Panel on Climate Change (IPCC), founded in 1988, consisting of scientists and government representatives, who would publish an Assessment Report every five to seven years. Other sources are from the World Commission on Environment and Development, the United Nations, the Kyoto Protocol, as well as the US government. A practical tool Howe uses here to assist the readers to make sense of these complex international governance documents is the image of a Matryoshka doll, where in every case there is more than meets the eye, with each one of the documents being influenced by internal and external politics.

Another step was the popular translation so that the knowledge gained from climate science would have a cultural meaning that could reach the general public. Howe deals with this translation process in the last chapter, fittingly titled 'The past, the present, and the future,' which includes seven primary sources from 1989 to 2016, mainly written by non-scientists. The public became increasingly aware of the issue of climate change. Excerpts are from Bill McKibben's book, *The End of Nature*, from 1989, as well as Paul Crutzen's and Eugene F. Stoermer's idea of the 'Anthropocene'.<sup>(3)</sup> Other primary sources are a legal decision of

Massachusetts v. the EPA, and Pope Francis' encyclical *Laudato Si': On Care for Our Common Home*, the first encyclical solely dedicated to the environment. Unfortunately the book does not have a concluding chapter, so chapter six sums up the journey from the mid-18th century to the present. Howe concludes that to address issues like climate equity, climate justice, and finding solutions for the impacts of climate change, a history of climate change needs to be written by people who are literate in reading the primary sources that have been produced so far.

Information is not only translated into text, but it can also be translated into graphics, which then have to be translated again by the reader in order to be understood. Between chapters four and five, we find the 'Historicizing data' section. Three famous examples are used here. One is the Keeling Curve, which visualizes CO<sub>2</sub> in the atmosphere as parts per million, a curve that gradually increases over time as we put more fossil fuels in the atmosphere. The curve is named for Charles David Keeling, who started measuring this at the Mauna Loa Observatory in Hawaii. The two other examples are the so-called 'Hockey Stick', and different versions of 'emission scenarios', which reflect on how varying amounts of emissions can affect global temperatures and the sea levels in the future.

While other books, such as James Rodger Fleming's *Historical Perspectives on Climate Change* (4), which covers the history of climate change knowledge from the Enlightenment to the late 1950s, and Spencer R. Weart's *The Discovery of Global Warming* (5), which deals with the discoveries of Arrhenius to 2008, the publication year. Howe's book is special because it provides a broad overview of the mainly American side of the story of carbon dioxide and anthropogenic climate change from the first half of the 18th century to the present and tells it through the primary sources, embedding them in the necessary historical context, and formulates questions that challenge the readers to find out for themselves. This 'it's up to you to take action' approach is not new, and can also be found in Tim Flannery's *The Weather Makers*. (6) It ends on the note 'Over to you'. However, rarely does a book come with in-depth instructions on how to work with a primary source like a historian would.

Societies had to deal with a changing climate before the onset of industrialization, and with regard to the global climate change faced today it is particularly useful to understand how people have dealt with sudden shifts in climate in the past. Notable climatic shifts in the past millennium were the Medieval Climate Optimum and the so-called Little Ice Age, the latter of which lasted from around 1275 to the mid-19th century. Two recent examples that deal with early modern climate change in unfamiliar environments in the American context are Anya Zilberstein's *A Temperate Empire: Making Climate Change in Early America* and Sam White's recent book *A Cold Welcome: The Little Ice Age and Europe's Encounter with North America* (7); both study colonial America, how the European settlers tried to make sense of the climate they encountered and what risks an unfamiliar climate bore. Climate history is quite a young field in the environmental humanities, it studies the interactions between extreme weather events as well as climatic shifts and their impacts on societies around the globe. Forefathers of the field are Emmanuel Le Roy Ladurie and Christian Pfister. (8) A great strength of climate history is the collaboration between historians and climate scientists.

The book would have benefited from a stronger emphasis on *anthropogenic* climate change, in particular as the book is addressed to a general audience. In contrast, *natural* climate is as old as the planet and is studied by climatologists, glaciologists, dendrochronologists, and additionally for the more recent period, climate historians. Anthropogenic climate change is a phenomenon occurring in the last 250 years or so with the onset of industrialization. Greenhouse gases, such as carbon dioxide, have been emitted into to the atmosphere on an unprecedented scale since the early industrialization in around 1750, and have likely influenced the global temperature; reliable instrumental measurements only exist from circa the 1880s onward. There is, however, no climate change, if you don't have a baseline, that is, if you have nothing to compare your current weather and temperature records to. A multilingual and international approach is very important to recover long-term records that can shed light on the uniqueness of the rapid changes we are seeing today. Long-term records come in two forms: long-term weather observations by contemporaries such as ship logbooks, monks' records, or city chronicles and (for instance) ice core, tree ring, or speleothem

records.

The terms 'global warming' and 'climate change' seem to be used interchangeably in the book, a clearer definition and distinction of the terms would have been helpful and is actually part of the story, as, for instance, scientific papers in the 1970s referred to 'inadvertent climate modification'. 'Global warming' had its big breakthrough when James E. Hansen used the term when testifying to the Senate in 1988 (this document is used in the book). The IPCC now uses the term 'global climate change'. The term 'global warming' refers to the long-term trend in rising temperatures, whereas 'climate change' describes the effects of anthropogenic carbon dioxide emissions more broadly, such as changing precipitation and snowing patterns, increasing the likelihood of more severe storms and hurricanes, flooding in some areas and more extreme droughts in others. Frank I. Luntz, a spin doctor in the George W. Bush administration, made the case for 'climate change', as it sounded less threatening than 'global warming'.

Considering this book deals with anthropogenic climate change, which does affect the entire planet, an international perspective would have been desirable, in order to look at how other countries are dealing with this issue, perhaps also from a non-Western perspective. In terms of geography, with the exception of the first and the fifth chapter, the book focuses almost exclusively on the United States of America. Howe does, however, reflect on this in his introduction and admits to the American bias of the majority of his sources. An international perspective would also have been useful in order to understand the uniqueness of the American path, in which scepticism toward the climate change debate plays such a prominent role, which effectively led the US to be the only country in the world which is not part of the Paris Agreement. On the world stage, the US is not unique in its divide, with powerful lobbies casting doubt on, and large parts of the population being sceptical about, anthropogenic climate change, but there are in fact countries in which the existence of anthropogenic climate change is not questioned.

Joshua P. Howe intended the book to be 'a series of starting points, wormholes into historical worlds both familiar and strange.' (p. 18). The book aims to encourage the readers to look at the primary sources from the history of climate change like a historian would, as Howe deems it of great importance to think historically when facing an uncertain future. He succeeds at this, introducing the reader to an admirably diverse range of primary sources, putting them into historical context, proposing questions and asking the reader to try to answer these when reading the documents. Howe certainly does a fine job at challenging his readers to critically engage with the primary sources presented, explaining that scientific peer-reviewed papers use a different language, serve a different purpose, and address a different audience to a popular newspaper article or government assessment report. The desired effect, it seems, is for the readers to take these newly obtained skills and think critically and with a historical perspective about the present and future. At the same time Howe leaves his audience enough space to formulate their own thoughts when reading the documents. The diversity of primary sources and the background information that comes with them make this book not only a fascinating read for general audiences but also for historians, particularly to learn about the American history of anthropogenic climate change. The non-historian reader should be aware, however, that a crucial part of the historian's work is finding and gathering primary sources, which do not necessarily come in the shape of printed, English language texts. Howe briefly mentions in his introduction how difficult it was to find materials outside the scientific papers that illuminate the polarization of the matter.

It is fantastic that Howe acknowledges the power of climate graphics and other forms of visualizations in the climate change discourse by including a colour insert in his book. They will become an even more integral feature in the future and it is farsighted of Howe to extend historical literacy beyond text-based primary sources. Howe does state that this book was not intended to be complete. There is such a wide range of primary sources out there that a selection had to be made, and Howe excels at presenting his readers with a very diverse reading list. The majority of the primary sources are only excerpts; however, they are publically accessible.

Historical literacy and critical thinking are skills useful far beyond this book, particularly in our times of fake news and so-called alternative facts. When being confronted with an uncertain future in a warming

world, it is crucial to think deeply and critically. Being literate in climate change history and to be able to look at climate change research and policies from a different perspective, is a good first step on the long road to making anthropogenic climate change a thing of the past.

And of course this is a very topical subject; much is presently happening in terms of international governance, but also with regard to precedent and climate justice. Increasingly courts around the world allow climate change as an argument in lawsuits against states and large corporations that harm the environmental health of the current and future population. Many new, potential primary sources are in the process of being produced, and these will help write the next chapter in the history of anthropogenic climate change.

## Notes

1. Joshua P. Howe, *Behind the Curve: Science and Politics of Global Warming* (Seattle, WA, 2014). [Back to \(1\)](#)
2. Rachel Carson, *Silent Spring* (Boston, MA, 1962). [Back to \(2\)](#)
3. Bill McKibben, *The End of Nature* (New York, NY, 1989). [Back to \(3\)](#)
4. James Rodger Fleming, *Historical Perspectives on Climate Change* (Oxford, 1998). [Back to \(4\)](#)
5. Spencer R. Weart, *The Discovery of Global Warming* (Cambridge, MA, 2008). [Back to \(5\)](#)
6. Tim Flannery, *The Weather Makers. Our Changing Climate and What it Means for Life on Earth* (London, 2007). [Back to \(6\)](#)
7. Sam White, *A Cold Welcome. The Little Ice Age and Europe's Encounter with North America* (Cambridge, MA, 2017); Anya Zilberstein, *A Temperate Empire. Making Climate Change in Early America* (Oxford, 2016). [Back to \(7\)](#)
8. Emmanuel Le Roy Ladurie, *Times of Feast, Times of Famine. A History of Climate Since the Year 1000* (London, 1972); Christian Pfister, *Wetternachhersage. 500 Jahre Klimavariationen und Naturkatastrophen (1496–1995)* (Bern, 1999). [Back to \(8\)](#)

I appreciate Professor Kleeman's review of my work, as well as the opportunity to respond here. I find the review thoughtful, accurate, and fair, and I am happy to let her evaluation stand without further comment.

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