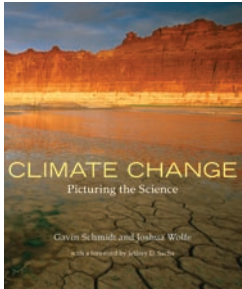


The big picture



CLIMATE CHANGE: PICTURING THE SCIENCE

Edited by Gavin Schmidt and Joshua Wolfe

W. W. Norton and Company: 2009. 320pp. £17.99

Words matter as much as images in communicating climate change.

As the world struggles with the stunningly complex politics of averting a climate catastrophe and building sustainability, policymakers and the public must fortify themselves with reliable information. Here, the epic work of scientists is critical. Science is, after all, “the most reliable and self-correcting method ever devised by humans for finding empirical truths about the real world,” note the editors of a new book on climate change. A collaboration between NASA climate modeller Gavin Schmidt, who founded the *RealClimate* blog, and photographer Joshua Wolfe, *Climate Change: Picturing the Science* is the latest of various efforts to convey the seriousness of the climate situation through imagery as well as words.

In this regard, it follows from *Earth Under Fire* by Gary Braasch and *Dire Predictions*, released last year by Schmidt’s fellow *RealClimate* contributor Michael Mann and climatologist Lee Kump. *Picturing the Science* mostly features the photography of Wolfe, Braasch and Peter Essick, but it also includes a smattering of pictures by other photographers and scientists, resulting in a broad diversity of images that are, in many cases, truly arresting.

The graphics nicely achieve the editors’ objective of illustrating the science, but the book’s real strength is in the essays. Schmidt and Wolfe bring together an impressive array of contributors to provide lucid, informative discussions of the key issues in climate science and policy. Highlights include physicist Tim Hall’s cogent and direct explanation of why anthropogenic global warming is scientifically correct, and journalist Elizabeth Kolbert’s brief but characteristically forceful essay on reporting climate change. In enabling the average reader to grasp some reasonably difficult concepts, *Picturing the Science* measures up well to Kolbert’s *Field Notes*

from a Catastrophe — for my money, the single most important contribution to the literature on climate change.

The numerous “Cool, I didn’t know that!” moments are an enjoyable aspect of *Picturing the Science*. The threat of sea level rise is, of course, common knowledge at this stage, but how many people knew that thermal expansion of water from rising temperatures and the melting of ice and snow contribute in just about equal measure? And unless you’re a paleoscientist of some ilk, it’s unlikely you’ve appreciated that the average lifetime of a species on Earth, from origin to extinction, is 4.5 million years.

Although the book covers a lot of good ground from science through to technology and policy, on certain topics more detailed coverage would have been welcome. For example, the book could have benefited from more discussion of two warming agents that, although not regulated under the Kyoto Protocol, have powerful impacts: black carbon (or soot) and ozone. Similarly, some of the more obvious impacts of climate change, such as those on human health and agriculture, barely get a mention.

In the section on mitigation, farming again seems orphaned. Though engineer Frank Zeman informs us that “genetic solutions may reduce emissions” of methane and nitrous oxide from agriculture, we are not apprised of other potentially powerful options such as biochar, no-till and organic farming, and, as Nobel laureate Rajendra Pachauri has implored, eating less meat.

On the subject of solutions, nuclear power is covered, however briefly, with all of its warts. Geoengineering is similarly — and accurately — depicted as having all manner of drawbacks. The discussion of carbon capture and storage, in my opinion a red herring, doesn’t shy away from the many factors that make it a

highly questionable bet. We simply need to stop using coal, not only because of the immense danger to our climate system, but also because of the attendant ills of devastating the land and water with mining, not to mention the associated pollution and debilitating human health impacts. The pursuit of carbon capture and storage is a considerable distraction as we seek to make the transition to a zero-carbon, sustainable world economy.

What we do need is a laser-like focus on producing clean energy. The book claims that “the transition to an emissions-free electricity sector has yet to begin”, but I beg to differ. Diverse renewable technologies — including power from wind, geothermal, and marine sources such as tides and waves, and solar technologies such as photovoltaics — are burgeoning. And quantum leaps in energy efficiency, green building, distributed generation and smart-grid technology are producing huge gains now and promise much more in the future.

On the issue of policy, the book holds up well. There is a particularly clear and concise discussion of cap and trade and other mechanisms. The authors are perfectly correct in their assessment that there has been “a remarkable shift in attitudes” in the last few years. This bodes well, certainly, but the consensus for action needs to be deepened and broadened. That is this book’s *raison d’être*, and to that end it will be an important contribution.

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