Climatology vs Pseudoscience: Exposing the Failed Predictions of the Global Warming Skeptics

by Dana Nuccitelli
Santa Barbara (CA): Praeger, 2015. 212 pages

reviewed by Jonathan Cole

Public surveys and opinion polls show that most Americans drastically underestimate the strength of the scientific consensus on human-caused (anthropogenic) climate change. In 2013, the Yale Project on Climate Change Communication found that only 42% of adults nationwide agree that “most scientists think global warming is happening” (Leiserowitz and others 2013). Dana Nuccitelli’s new book, Climatology vs Pseudoscience, examines the reasons why the general public remains largely unaware of the strong scientific consensus for anthropogenic climate change, and provides detailed refutations of the primary arguments made against the consensus position. Nuccitelli, a frequent blogger for the Guardian and for the invaluable Skeptical Science website (http://skepticalscience.com/), has emerged in recent years as an important voice in explaining climate science to the general public and in debunking claims of climate contrarians (Nuccitelli’s preferred term, although he occasionally uses “skeptics,” including in the book’s subtitle).

Nuccitelli’s writing is clear and his explanations lucid. Although the chapter titles are thematic, the book’s organization is roughly chronological, taking readers from Joseph Fourier’s first speculations on the heat-trapping properties of the atmosphere in the early nineteenth century though the latest IPCC reports in 2013 and 2014. Along the way, contrarian arguments by scientists from Knut Ångström to Richard Lindzen are examined and refuted.

Nuccitelli’s core argument is that the projections of mainstream climate science have provided a far better match to reality than the claims of those who oppose the consensus view. The third chapter is titled, with perhaps a touch of hyperbole, “The astounding accuracy of early climate models.” To substantiate the accuracy of climate models from the 1970s and 1980s, Nuccitelli produces newly generated graphs rather than the scientists’ original figures. For example, in examining pioneering climate scientist Wally Broecker’s 1975 projections, Nuccitelli adjusts Broecker’s projections to reflect actual atmospheric carbon dioxide concentrations, showing a reasonable match with actual temperature records up to about 2010. While some might criticize the adjusted figures as not matching the original predictions, Nuccitelli’s goal is to demonstrate the model’s ability to forecast temperatures.

Newly generated figures are also called on to address a key difficulty in “exposing the failed predictions of the global warming skeptics”: although those who reject the consensus view often place great emphasis on small discrepancies between climate model projections and the temperature record, they rarely make specific, testable temperature projections themselves. Thus there are few graphs of their predictions available for ex-
amination and comparison. Nuccitelli's solution is to create graphs that illustrate the poor fit between the assertions of climate contrarians and the actual temperature record. For example, based on Richard Lindzen's 1989 statement that "the likelihood over the next century of greenhouse warming reaching magnitudes comparable to natural variability seems small." Nuccitelli generates a "reconstructed Lindzen prediction" for 1880 to 2013. He is careful to specify that "these projections are my interpretation of Lindzen's comments, not Lindzen's own projections." Again, this approach could be controversial, but the resulting graph dramatically illustrates that Lindzen's assertions appear inconsistent with the evolution of temperatures in the twentieth and twenty-first centuries. Although Nuccitelli clearly identifies figures that are self-generated or adjusted, the transparency and validity of his results would have been strengthened by links to supplementary materials documenting the details of the graphs' construction.

Nuccitelli's background is in physics, and he shows particular strength in exposing arguments whose physical basis is weak or non-existent, such as the oft-cited contention that current warming is just the continuation of a "recovery" from the Little Ice Age, with little explanation of what might have caused the recovery. He is also critical of models that try to produce empirical temperature fit based on simple curve-fitting without any underlying physical reasoning. For example, Loehle and Scafetta argued in 2011 that a simple mathematical function provides a reasonable fit for temperatures from 1850 to the present; Nuccitelli produces a plot that runs their model further back in time, showing that it fails miserably in matching temperatures before about 1600.

The book provides an overview of the research underpinning the widely cited "97% consensus" figure, including a valuable "behind-the-scenes" description of the 2012 Consensus Project. This study, led by John Cook of Skeptical Science and by Nuccitelli, provided solid data demonstrating the overwhelming consensus on anthropogenic climate change among active climate scientists. Nuccitelli's discussion documents the extreme care and integrity that went into this research.

Nuccitelli goes on to examine possible reasons for the "consensus gap" between the agreement among climate scientists and the perceptions of the general public, assigning primary responsibility to the media's penchant to play up controversies and to seek "false balance." Although it could be argued that the significant resources expended by fossil fuel and other economic interests to create doubt play an equally significant role, organizations that actively seek to deny or discredit the scientific consensus, such as the Heartland Institute, receive only a brief mention.

The final chapter, "What does the future hold?" seems to sit a bit uneasily with the rest of the book. It moves beyond scientific arguments, delving into economic solutions (and advocating a revenue-neutral carbon tax). As with the rest of the text, Nuccitelli's discussion is clear and compelling, but it's not clear how this chapter squares with the book's focus on countering contrarian claims.

With its emphasis on graphs and physical reasoning, *Climatology vs Pseudoscience* may be too dense to serve as an introduction to climate science for the general reader. One audience for this book could be "recovering climate skeptics" with some background in math and science—those who have begun to question their skepticism in the light of the
accumulating evidence for anthropogenic warming. Unfortunately, they may be put off by the tone of many passages: for example, expanding on a quote from Carl Sagan, Nuccitelli remarks that “most of the climate contrarians … bear much more resemblance to Bozo the Clown than to the Wright Brothers.” Even the book’s title seems to dismiss arguments against the consensus view as “pseudoscience,” though the term is never defined in the book, and not all such arguments can be classified as pseudoscientific.

Instead, the primary audience for this book is likely to be the much larger group of climate educators, communicators, and interested citizens looking for solid, well-reasoned arguments against some of the most common contrarian claims. For them, this book will stand as a well-written and invaluable resource.

REFERENCES


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