

BOOK REVIEW / REVUE de LITTÉRATURE**The Thinking Person's Guide to Climate Change**

by Robert Henson

American Meteorological Society

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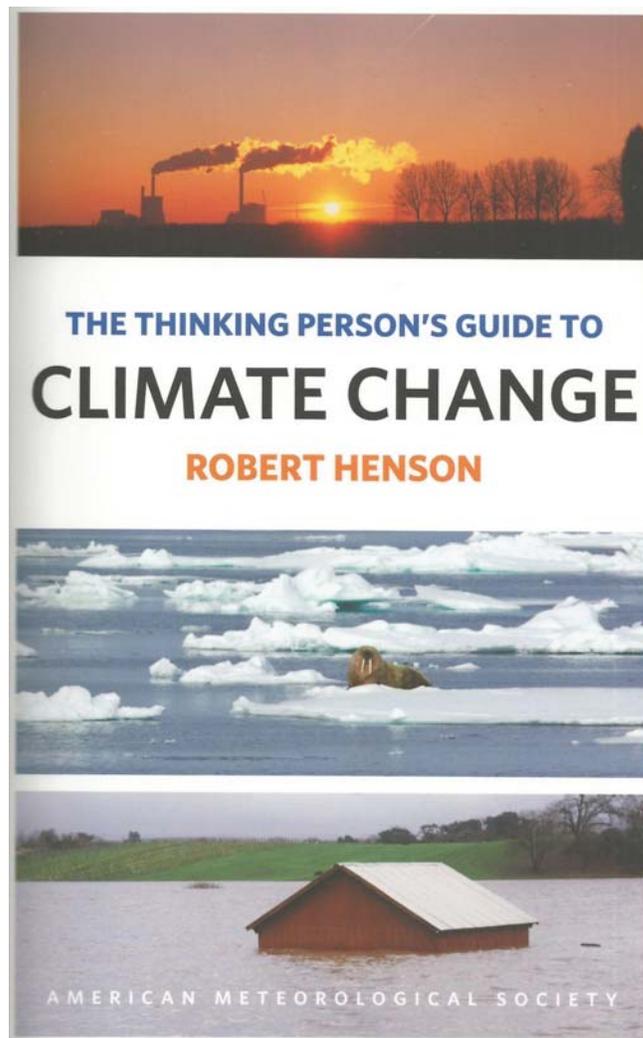
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Book reviewed by J.J.P. Smith¹

Humanity's imperative in 2015, one that outstrips other global political issues including armed conflicts, refugee and migration problems, and a changing world economy, is the pursuit of acceptable and legally binding measures to control greenhouse gas (GHG) emissions and thereby slow the now-accepted effects of long term climate change. Only by a narrow margin can the human race expect to avoid calamity out of the fragile consensus that emerged from the 20th conference of the parties (COP) to the UN *Framework Convention on Climate Change* (the UNFCCC) held in Lima in late 2014. The result was an *agreement to agree* going into the pivotal 21st COP this year in Paris. The long delay to effective climate change reduction measures across the organized international community has largely been caused by negotiating dynamics among a large number of countries and the inherent limitations of state sovereignty and equality. No longer can scientific uncertainty and caution be considered a part of the glacially slow progress to realizing the UNFCCC's vital goals.

The American Meteorological Society has tangibly advanced the discussion of these matters with its recent publication of Robert Henson's *The Thinking Person's Guide to Climate Change*. The book is thoughtfully written and accessible; a first rate work that demands wide readership across society. This is the proper role of a national scholarly ocean-atmosphere science organization, namely the advancement of science and education of a public through high quality materials. Robert Henson is known to many as a long-time author on the staff of the U.S. National Center for Atmospheric Research. Those familiar with popular meteorological education will recall his *Weather on the Air: A History of Broadcast Meteorology* (2010). *The Thinking Person's Guide to Climate Change* follows his well received *The Rough Guide to Climate Change* (2010). It is a qualitative and comprehensive review of most aspects of science, the international politics, the leading scientific commentators, and measures to counter

and adapt to climate change. The success of *The Thinking Person's Guide to Climate Change* lies in its two-fold synthesis of such issues and an engaging readability. Those looking for specific resources on the physics, climate modeling or thermodynamics of climate change, for example, should search elsewhere.



The book is organized into five parts: (i) the basics – global warming in a nutshell; (ii) the symptoms – now and in future; (iii) the science - “how we know what we know about climate change”; (iv) debates and solutions; and (v) what can you do? Several things convey its convincing (but not overly authoritative) tone, including the book’s sheer length, the author’s obvious knowledge of the subject, candid admissions of the limits of science and scientific uncertainty, and an attractive design presentation. Diagrams, photos, and graphs are evidently well selected, and the use of inset boxes for digressions into case studies and commentaries (“What makes the Arctic so vulnerable?”, for example, and “Climate change and the cinema”) make the entire book interesting. That the book is decidedly international in its viewpoint and case examples, and not that of an American

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science academic, adds to its credibility.

In the three chapters that comprise the first part's descriptive review of climate change and global warming, Henson avoids complicated technical explanations. "But there's near unanimous agreement that global climate is already starting to change and that fossil fuels are at least partly to blame ... the uncertainty that does exist has played both ways in the political realm." (p. 5). This part presents an efficient plan of the book, from casual understanding, to results (impacts), to steps to reverse climate change. A minor criticism is a too-brief mention of the relationship between stratospheric ozone depletion and climate change mechanisms. A complex phenomena with an attempt to explain that might lose a lay reader, the subject is a useful pedagogical device to illustrate the manifold impacts of human activity on the atmosphere.

The second part ("The Symptoms") occupies one-third of the book. Here, Henson chose issues of human interest which are impacted by climate change: extreme heat; floods and droughts; melting ice covered areas; oceans; hurricanes and other storms; and ecosystems and agriculture. More than a discussion of direct effects, the human costs of climate change are neatly woven together in this part. "Poverty is certainly a major co-factor in heat deaths across the developing world. A blistering two-month long heat wave in 2013 brought major suffering to hundreds of millions of people across eastern China ..." (p. 75). (Something this reviewer experienced a year later while in Shanghai at a conference). Chapter 6, "The Big Melt", deals exclusively with the problems of a warming Arctic Ocean region, Henson noting that climate change is not yet a pronounced concern (at least comparatively) in the Antarctic ("Antarctica's ice sheet holds its own"). The illustration on page 119 that depicts the summer 2012 surface layer melting of Greenland's entire ice cap is sobering, reminding the reader of the immediacy of the problem. Sea level rise and changing ocean circulation (for example, a discussion of perturbations in Atlantic meridional overturning circulation) are adeptly treated in chapter 7. All the major recent seemingly climate change-linked ocean storms of recent years – Wilma, Rita, Katrina, Nargis, and Sandy to name some – are discussed in chapter 8. The prospective impacts of global warming and increased atmospheric carbon dioxide (CO₂) on the biosphere are surveyed in chapter 9. Much scientific research remains to be done in the assessment of climate change on agriculture, recalling the revelation in 2014 that increased CO₂ was not only changing temperature and agricultural cycles, but reducing the food quality of some crops. (See e.g. Samuel S. Myers *et al*, "Increasing CO₂ threatens human nutrition" *Nature* [May 7, 2014] 13179).

Part three ("The Science") is the educational core of *The Thinking Person's Guide to Climate Change*. Henson's determination to avoid descent into technical discussion is evident. How climate change (*i.e.* increasing atmospheric

temperatures) are tracked (chapter 10), the geological timescale perspective of global temperature fluctuations (chapter 11), and how the future arc of climate change can be modeled (chapter 12) feature in this part. The secret of the scientist-climate change commentator lies in a credible interdisciplinarity. Henson carries this out in part four ("Debates and Solutions") with a review of the political, legal, social, economic, and technical contention about climate change that has so blocked progress. "Global warming politics didn't catch fire at first. For the most part, the topic remained in the scientific background until it became clear that the rise in greenhouse gases was real and serious." (p. 319). The discussion of the events and interests that continue to animate public debate is up to date (Henson reviews the popular understanding, for example, of "Supertyphoon" Haiyan in 2013 as climate change exacerbated). This part might have benefited from a more detailed insight into the working of the UNFCCC – the administration of climate change regulation, so to speak – and some comparison of national political cultures. However, that would add to a work already just the right length and which had to leave room for the description of emissions control targets. Chapter 15 is a long exegesis about political solutions ("Kyoto and beyond") that alone should be read as we contemplate COP 21 in Paris. In chapter 16, the book turns to a review of technical solutions and we are here reminded of the limits of human ingenuity in the face of still-increasing uses of fossil fuels over the coming decades.

In part five ("What can you do?") Henson has ensured a wide readership for his book with a thoughtful review of social measures to arrest climate change. His *leitmotif* is the concept of the carbon footprint, a useful rationalizing device for individual action. "Just as new dieters often keep a food diary, an excellent way to start reducing your emissions is by using carbon calculators." (p. 439). The topics of home energy, transport and travel, consumer uses ("shopping"), and carbon offsetting get good treatment here. A discussion of energy efficient building design would have been beyond the scope of the book. Two other modest omissions given their coming salience in national schemes for GHG reduction might have been presented here: carbon taxation (although mentioned earlier) and ethical investing for climate change.

The Thinking Person's Guide to Climate Change is an impressive work, timely and comprehensive in its range of discussion. It is a useful resource for those in earth, environmental and (of course) ocean-atmosphere science, meteorologists, policy-makers, and educators. The book has obvious utility as a text and also as social commentary discussion vehicle. In an age of the immediate availability of internet resources, Robert Henson's book reminds us of the epistemic importance of well-written books of scientific commentary.