Global Warming... Global Warming

Have the people at Wiley-Interscience lost their grip? According to the dust jacket, this book is to offer "a highly accessible, yet painstakingly accurate, examination" of the issues surrounding anthropogenic climate change. This book is so rambling, redundant, and imprecisely written, and full of omissions and inconsistencies, that it is hard to imagine that it would be of much use to anyone.

Certainly an accessible, clear, and accurate popular book on the subject would be welcome. One sometimes sees, for example, a confusion between the ideas of greenhouse warming and ozone depletion. Both are results of human pollution of the atmosphere, and each relates to different properties of the chlorofluorocarbons (CFCs). Yet Benarde fails to draw clearly the distinction. Long sections in this "Global Warming" book are devoted to ozone depletion. At one point it is asserted that the ozone "hole over the South Pacific, southern Atlantic, and Indian Oceans could be dangerous to marine life, the food chain, and global warming." In much of the book it is asserted that there are four greenhouse gases: water, carbon dioxide, ozone, and methane. Only occasionally are the CFCs listed as a fifth. There is one page on nitrous oxide, much of which pertains to ozone depletion. "Ooo, now the four greenhouse gases seem to be CFCs, nitrous oxide, methane and carbon dioxide.

The book is also loaded with outright inaccuracies. In more than one place, it is asserted that clouds are comprised of ice particles. (This is sometimes true, but liquid-water clouds are also common.) Apparently, the author sees respiration as endothermic, since he writes

\[ \text{C}_6\text{H}_12\text{O}_6 + 6 \text{O}_2 + \text{heat} \rightarrow 6 \text{CO}_2 + 6 \text{H}_2\text{O} \]

One might be inclined to be charitable about this error as possibly typographic until the section on photosynthesis, when the author refers to "the fact that the reaction produces heat." Also outrageous is the following account of the production of nitrous oxide by denitrification: "Apparent, species of the bacterium Nitrobacter convert nitrates (\(\text{NO}_3^-\)) in the soil to molecular nitrogen (\(\text{N}_2\)), which rises into the atmosphere, where it reacts with oxygen to form \(\text{N}_2\text{O}\)." One would think that mass conservation could be made clear enough, yet the following is said of the CFCs: "Perhaps as disturbing [sic] is the fact that, even if their production and release stopped abruptly tomorrow, their atmospheric concentrations would continue to increase . . ." Similarly, use of electric cars is advocated as a means of reducing \(\text{CO}_2\) emissions since "each electric-type vehicle coming onto the road reduces the demand for oil by as much as 20 barrels per day. The arithmetic is simple and direct; the solution is clear." No qualification as to the source of the additional electricity is offered. This list of examples could go on.

This book was apparently written quickly and was edited poorly. There are numerous typographical errors, many of which would have been easily caught by a spelling checker. But the main problem is that the author evidently has no background in the field. The jacket indicates that he is an epidemiologist, and I can find no indication that he has done any original work in areas relevant to this book. Readers wanting to educate themselves on the subject of climate change should go instead to such clear, nontechnical, and authoritative works as Energy and Climate Change, 1990, edited by Michael MacCracken (Lewis, ISBN 0-87371-417-2); or Prospects for Future Climate, 1990, also edited by MacCracken, with Alan Hecht Mikhail Budyko, and Yuri Izrael (Lewis, ISBN 0-87371-440-7).--D.S. WILKES, Dep. of Soil, Crop and Atmospheric Sciences, Cornell University, Ithaca, NY 14853.

Groundwater Contamination and Analysis at Hazardous Waste Sites

My continuing research interest in the general subject matter of this book has resulted over the last decade in my having browsed through numerous volumes that address similar issues. Many times these books have been more a collection of poorly edited symposium papers than a scientific presentation of well founded papers on the subject. Far too frequently have I found only a chapter or two that is of sufficient depth, timeliness, or editorial merit that it helps me extend my research methods.

Given this experience, I am pleased to report that the book reviewed here is well above average when compared with the wide array of previous such publications that purport to present state-of-art reviews on toxic wastes and groundwater contamination. This book presents contemporary and complete discussions of both basic and advanced issues by authors who have obviously been carefully selected to prepare their chapters. The editing is consistent and competent, and the entire book is typeset, not photoreproduced. Hence, equations, tables, figures, and text are all of the highest quality. There are also extensive reference lists for each chapter.

The content includes four subject matter sections: Analytica Methodologies, Monitoring Strategies, Site Investigations, an Geochemical Investigations. Within each section are three to five chapters that focus clearly on key issues ranging from a concise introduction to chemical analysis techniques, to a summary review of case studies that have evolved from the U.S. Geological Survey's "Organics in Water" program, to newly prepared chapters that demonstrate, often through other case studies, the proper application of monitoring protocols, experimental methodology, and statistical analysis. Case studies drawn from U.S., German, Canadian, and Australian sites illustrate the experimental design, measurement methods, analysis, and interpretation of toxic chemical leaching, volatilization, sorption, and degradation. In this respect, I found one chapter on "An Overview of Statistical Methods for Groundwater Detection Monitoring at Waste Disposal Sites" to be an excellent presentation with broader application to other environmental cases than waste disposal sites. The same can be said for many of the other chapters, which total 17.

I believe this will be a very useful book for those professionals engaged in field studies of organic chemical transport, and particularly those involved in hazardous waste site work. Hydrologists, geologists, and soil scientists in both the consulting and academic arenas will appreciate having ready access to this book. Unfortunately, as is the trend these days, it is fairly expensive at $175 per copy. However, my evaluation is that this book should be high on the list of priority purchases for those working in this area. --R.J. WAGENET, Department of Soil, Crop and Atmospheric Sciences, Cornell University, Ithaca, NY 14853.