

Book Reviews: Atmospheric Science and Global Change

Introduction to a series of book reviews on atmospheric science and global change

Issues related to global climate change have repeatedly appeared in issues of *Environmental Science and Pollution Research*. Topics traditionally directed towards meteorologists and climatologists, however, today involve many other scientists. For this particular reason, the following four books reviewed here were selected for their high merits as reference texts and background material assisting those working in areas dealing with climate change: *Air Composition & Chemistry (2nd ed.)* by Peter Brimblecombe, *An Introduction to Atmospheric Physics* by David G. Andrews, *Statistical Analysis in Climate Research* by Hans von Storch and Francis W. Zwiers, and the *Encyclopaedia of Global Environmental Change – The Earth System: Physical and Chemical Dimensions of Global Environmental Change* by Michael

C. MacCracken and John S. Perry. There certainly are many more excellent books on the market – and I will certainly mention here every issue of the IPCC reports. For a full appreciation of the quality of work presented in those reports, however, quite some basic understanding of atmospheric physics and chemistry is required, an understanding delivered, for example, through the very good textbooks introduced in this issue.

Jörg Matschullat
Interdisciplinary Environmental Research Center
Freiburg University of Mining and Technology
D-09596 Freiberg, Germany
joerg.matschullat@ioez.tu-freiberg.de
<http://www.ioez.tu-freiberg.de>; <http://www.gug.org>

The Earth System: Physical and Chemical Dimensions of Global Environmental Change

Editors: MacCracken MC and Pery JS

Publisher: 2002, John Wiley & Sons Ltd., Vol. 1: 773 pp.; 5-volume hardback set; £1500.00; ISBN 0-471-977969-5

The Earth System: Physical and Chemical Dimensions of Global Environmental Change is the first of the five-volume *Encyclopaedia of Global Environmental Change*, edited by Ted Munn from the Institute of Environmental Sciences, University of Toronto, Canada. This review focuses solely on Volume 1. It begins with ten review essays on major topics: The Earth System; Earth System Processes; Earth System History; Earth Observing Systems; The Global Temperature Record; Models of the Earth System; Model Simulations of Present and Historical Climates; Projection of Future Changes in Climate; Depletion of Stratospheric Ozone; and International Organisations in the Earth Sciences. Following these review essays, there are more than 100 shorter articles (in alphabetical order) that deal with definitions, biographies, and acronym descriptions. Being broad in scope, the substantial, condensed material makes the volume suitable both for scientists in other disciplines and for non-specialists.

The last four volumes of the encyclopaedia concentrate on multifarious aspects of global environmental change. II: The Earth system: biological and ecological dimensions of global environmental change, III: Causes and consequences of global environmental change, IV: Responding to global environmental change, and V: Social and economic dimensions of global environmental change. In total, this 5-volume encyclopaedia contains over 500 articles and 600 international contributors. All keywords for all articles are pro-

vided in the index (alphabetical list of articles) at the end of each volume.

How to review such a major compilation work? Many people – even scientists – still insist on the Cartesian way of thinking in nicely defined and clearly structured sections of scientific thought. The reality of urgent questions and thus science, however, has long taken all of us into a world where interdisciplinary thinking, working, and the capability to communicate results to other members of the community have become mandatory. Since we may not have become a lot more intelligent or capable in the meantime, we need encyclopaedias and similar assistance more than ever to quickly assess definitions or overviews, and quick introductions to other fields. From this perspective, both the authors and editors, as well as the publisher, deserve all merit to have offered such a series of volumes. To my personal displeasure the (understandable?) price is so prohibitive for most individuals that one will only find these fine volumes in selected libraries. I then wonder if this was what all those respectable colleagues had in mind when they laboured to put their work together.

The value is certainly there. The volumes are very nicely made, and it is a pleasure to sit and browse, to discover new details, or to fresh up known facts. Of course, one will also find missing information – this is unavoidable. And even if individuals may only rarely consider buying these works, I sincerely hope that they may become an integral and widely used part of all serious libraries around the globe.