Book review

Climate Change: An Australian Guide to the Science and Potential Impacts, edited by Barrie Pittock (Australian Greenhouse Office, 2003). ISBN 1-920840-12-5, 239 pages. PDF version available for free download at www.greenhouse.gov.au/science/guide/index.html

Want to know everything there is to know on climate change and its potential impacts for Australia? Then this is the book for you. Pittock has essentially prepared a 'Third-and-a-half Assessment Report' following those from the Intergovernmental Panel on Climate Change (IPCC) – but much shorter, more general, and with a special focus on Australia.

The work is largely based on, and consistent with, the IPCC's Third Assessment Report (TAR), published in 2001. It has also been extensively updated with relevant Australian and international studies, up to publication in late 2003.

Impact studies using the IPCC Special Report on Emissions Scenarios (SRES) have also been included, which were too late for inclusion in the TAR. As Pittock notes, the SRES emission projections will be included in the Fourth Assessment Report (FAR), and may alter the upper and/or lower bounds of projected climate change, but are most unlikely to alter the main conclusion '...that significant climate change is likely to occur with significant impacts' (p.18).

Pittock's compilation and presentation of information is excellent, as demonstrated by the breadth and comprehensiveness of material presented – 40 listed contributors and 29 pages of references (nearly 900 references in total). Indeed, the editor asked me to review this book as he '...couldn't think of another reviewer who wasn't listed as one of the authors'!

Pittock uses the language of an intelligent layperson, focussing on research results rather than the technical methods. His style is even-handed – descriptive, not prescriptive – though he does mention and refute some research results where appropriate for completeness.

I'm not in a position to quibble with the science of climate change or impacts – nor would I expect to, with such a dense publication drawing on numerous sources, edited by an authority such as Pittock. Nonetheless, in 2004 after the publication of this book the ground shifted slightly over evaporation changes, which were previously assumed to increase under enhanced greenhouse conditions. Recent studies have suggested that evaporation may have been declining, despite atmospheric warming (Roderick and Farquhar 2004). However, it remains unclear whether long-term observational records of evaporation are of sufficient density and quality to determine such trends with certainty. Perhaps this will be resolved for the FAR. Pittock links higher temperatures and increased potential evaporation (p. 62), which still holds, but he might have presented the information slightly differently, if published today.

Pittock proposes the need for a combination of (local) adaptation and (global) mitigation strategies, and reinforces the point throughout the book that some climate change is now inevitable, particularly with the delay in the realisation of some impacts. He notes that landscape management requires an integrated approach, as the land is impacted by multiple stresses, of which climate change is only one (p. 109).

Climate change is full of elements that both add to and negate possible impacts, but when detailing benefits of climate change, Pittock can only summon one page of information. He notes that '...potential gains have not been well documented, in part because of lack of stakeholder concern ... and consequent lack of ear-marked funding' (p. 165). Adaptation work has also been limited to date.

The bulk of the work is on climate change science (about 25 per cent of the content) and potential impacts of climate change in Australia (about 40 per cent). The focus on impacts is particularly important as the publication is intended for the lay audience – providing that all-important 'what does it mean to me' aspect. The book is an excellent reference to help communicate climate change science and impacts to a wide audience. However, it is more likely to be used selectively by a lay reader, rather than to have the entire picture consumed over 188 pages of reading. The Synthesis (Chapter 6) near the end of the book helps target the information, with Table 10 helpfully identifying major expected impacts, vulnerability and adaptability in Australia (p. 180), with references to

more detailed explanations elsewhere in the book. Section 5.9 (p. 171) also briefly lists some of the key issues for vulnerability and adaptation by State or Territory. Ideally, this book will be read by a general audience, not just by those already convinced by the significance of our changing climate.

The colour publication is beautifully laid out and well presented. You can obtain the publication through the Australian Greenhouse Office in Canberra, or in its entirety as a PDF document at www.greenhouse.gov.au/science/guide/index.html. It has been conveniently split into chapters online for those wanting only a chapter or two. However, if you chose to print out the PDF version, the colour figures do not reproduce as well in black and white.

Essentially, this book will be outdated by the Fourth Assessment Report from IPCC, due in 2006. Nonetheless, it is an excellent snapshot of existing conclusions from the TAR and updated research, specific to Australia, to 2003.

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Roderick, M.L. and Farquhar, G.D. 2004. Changes in Australian pan evaporation from 1970 to 2002. *Int. J. Climatol., 24(9)*, 1077-90.

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