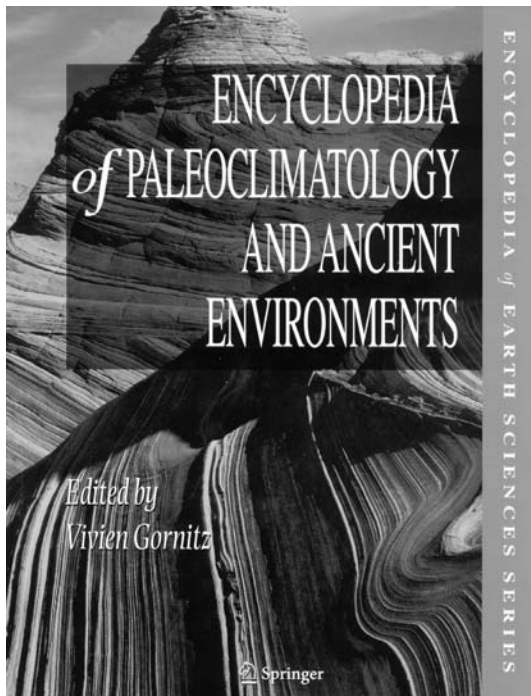


Book reviews

Encyclopedia of paleoclimatology and ancient environments, edited by Vivien Gornitz, 2009. Encyclopedia of Earth Sciences Series. Springer, P.O. Box 17, 330 AA Dordrecht, The Netherlands. Hardcover, xxvii + 1049 pages. Price EUR 399.00, USD 539.00, GBP 359.00 (printed or online); EUR 499.00 (printed + online). ISBN 978-1-4020-4551-6 (printed); 978-1-4020-4411-3 (online); 978-1-4020-5197-5 (printed + online).



The huge quantity of data on the Earth's palaeoenvironments that has been gathered in the course of time can be used for future research only if a proper synthesis is prepared from time to time. This is why this work has been waited for by every geoscientist working in this field. The applicability of such a synthesis depends, at least partly, on the type of presentation. Two types of encyclopaedias exist: one includes similarly-styled entrances with widely-accepted and concise descriptions, while the other comprises relatively lengthy chapters on key subjects, which look like individual review articles with a clearly personal point of view.

The work edited by Gornitz is an encyclopaedia of the second type. I think this is justified because so much palaeoenvironmental information is still lacking.

The chapters of the encyclopaedia are informative, but they are quite different in length, style, and composition. Palaeoclimatology, palaeogeography, geomorphology, geochemistry, and several more disciplines that are important for the climatological reconstruction of the geological past form a wide spectrum, and the encyclopaedia is, therefore, truly comprehensive. The geological history is, however, represented in the book somewhat disproportionately: much attention is paid to the Quaternary, and the Cenozoic era is discussed in much more detail than the pre-Cenozoic. Moreover, there is an overlap of chapters with respect to what time interval they deal with. This complicates the use of the encyclopaedia but, on the other hand, the overlaps help presenting different views of the same problems.

Gröcke deals with 'greenhouse' climates, whereas Link does so for 'icehouse' climates. These two chapters on such opposite conditions during the Earth history are very suitable. In addition, these chapters are accompanied by a pretty review of the Snowball Earth hypothesis by Young. A description of Holocene climates by Roberts would have profited from a more extensive discussion of the abrupt cooling events (Mayewski et al., 2004).

The chapter by Harper suggests that at least some biotic diversity changes might have been linked to major climatic perturbations. An im-

pressive summary is presented by DeConto, who examines the role of plate tectonics in climate change. His chapter is a true pearl of this encyclopaedia. Stothers gives insight into the problems of the volcanism/climate relationship. I wish to remark in this context that events such as deglaciations have been shown to be able themselves to force volcanic activity (Zielinski et al., 1996). A strong aspect of the book is establishing a close relationship between the past and the present. Two chapters, with titles such as 'Climate' and 'Paleoclimate', respectively, would therefore have been key contributions to this book; they should, for instance, detail the wide variety of definitions of these terms. These chapters do, however, not exist, which is highly unfortunate.

The encyclopaedia is easy to use. Chapters are sorted alphabetically. A detailed subject index occupies the last 50 (!) pages. Each chapter ends with cross-references, which indicate relevant chapters on related topics. Illustrations (some are in full colour) are numerous, but they are not similarly styled. Many are reprinted from earlier-published (including quite old) works. It think that a detailed version of the geological time scale should have been included, and some other data, too, might have been included as appendices. The book is expensive and heavy. Is it aimed at rich scientists with a good physical health only? More seriously, the weight is OK (little of the con-

tents might be deleted), but in my opinion the price should be reduced by at least 50%.

The encyclopaedia certainly should not be considered as the ultimate answer to questions regarding palaeoclimate and palaeoenvironments. On the contrary, it demonstrates how limited and controversial our knowledge is. I appreciate that the editor and the numerous contributors avoid pretending to have the last word in the ongoing discussion, and that they invite us to continue the exploration of the Earth's past. This encyclopaedia, which is impressive because of its scientific content, its size, and its cover design, will show to be very useful for all geoscientists. It belongs in each geoscience library.

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