

REVIEW

The Environmental Record in Glaciers and Ice Sheets. Edited by Hans Oeschger and C C Langway, Jr, Report of the Dahlem Workshop, Berlin, March 13–18, 1988. Chichester, 1989, John Wiley & Sons, 400 pages.

In recent years, the ice in polar ice sheets has become an increasingly important source of paleoenvironmental information. *The Environmental Record in Glaciers and Ice Sheets* offers the non-specialized reader an overview of the subject, which is difficult to find all in one place. This book has arrived to fill a need felt by many non-glaciologists who wish to gain an understanding of how ice sheets store such data and how they can be recovered.

This volume is a report of the Dahlem Workshop held in Berlin in March 1988, the general goal of which was to assess and interpret the environmental record in glaciers. The book consists of background papers and summary group reports. In the Introduction, Langway and Oeschger (p 6) outlined the four specific problems that the Workshop addressed:

1. How do glaciers record environmental processes and preserve information?
2. What anthropogenic impacts are recorded in glaciers?
3. How can an ice core chronology be established?
4. What does the long-term ice core record tell us about global changes in the environment?

The discussions and reports that follow make instructive reading for scientists and students who wish to review information on the environmental record of our planet over the last few hundred thousand years.

To my surprise, the volume also contains some novel ideas in this field and is not merely a review of results already published elsewhere. For example, in the paper, “The Transformation of Snow to Ice and the Occlusion of Gases,” by Jakob Schwander, the idea that there might be a gravitational separation of atmospheric gases in the firn is presented, to my knowledge, for the first time. The polar ice sheets, and the information contained therein are no longer of interest only to glaciologists but also to those concerned with the human impact on the planet—acid rain, heavy metal pollution, the Greenhouse problem, etc. To illustrate the global and interdisciplinary nature of the field, Group 4 alluded to the fact that the carbon dioxide concentration of the atmosphere was much lower during glacial than during interglacial times (p 382), a result that was quite unexpected.

This volume is well structured and provides a general review of the subject as well as some thought-provoking *avante-garde* ideas.

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