

Antarctica and Environmental Change

edited by **D.J. Drewry, R.M. Laws, and J.A. Pyle**, published by Oxford Science Publications, ISBN 0-19-854068-X, 137 pages at \$55.

Review by **Christopher G. Kendall**

This book records the proceedings of the Royal Society Discussion Meeting held on 20 and 21 of May 1992 on the topic of Antarctica and environmental change. Papers in this text were by a variety of authors and focuses on the effects of changes in climate in Antarctica. It considers whether these are anthropogenic effects or normal climatic changes. The thesis is that the Antarctica is an ideal place to check into the effects of climatic change and that by examining the ice column it is possible to check for changes in pesticide residue, heavy metals, past climates and atmospheric chemistry, etc. Similarly ice cores provide a means to check temperature and precipitation fluctuations through time. The 15 papers of this book cover the vertical variability in ice cores; the use of aerial photography and satellite images to examine the variation in the size of the ice cap; Antarctic climatic modeling; how the ozone zone changes and how its partial disappearance over Antarctica has implications with respect to global change; how the ice cores can be used to determine climatic history of the Antarctic continent and perhaps predict its future; how the ice sheet change with time and climate; and how southern ocean has different sea-ice distributions and how they are related to the climate; how the kinetic energy of the Southern Ocean changes and how a comparison can be made between observations and general circulation model; how the sedimentary record of Antarctica responds to the climatic change; what the effect of rock weathering, soil development and colonization can be under a changing Antarctic climate; how terrestrial plants and invertebrates respond to Antarctica environmental change at high latitudes; what the biogeochemical carbon cycles and climatic change are in response to Antarctic marine primary production; the Southern Ocean benthic fauna and their response to climatic change; krill fish stocks and their response to changing environments; the effects on seabird, seal and whale population of change; and finally there is a general paper summarizing the text in this volume and drawing some general conclusions.

What interested me was that the book presented a picture of wide variations in climate which have taken place since man's first recorded visits to the Antarctica. It is clear that the climate changes are constant and that these changes have tremendous effects on the presence or absence of sea ice and the various faunas of the area. No marked relationship to anthropogenic effects was noted except some pollutants in the ice cap. In fact, there is a remarkable correlation between the carbon oxide methane and climate of the last glacial cycle recorded in the ice caps.

The illustrations in this text are very clear and there are a number of color maps, particularly some showing the distribution of sea ice. There are some clear line drawings and well focused photographs. This book is aimed at experts who have interest in Antarctica and its environmental change and represents a good source book for these people. The papers within the volume tend to be rather general but well referenced and modern in their orientation. The book is more concerned with physical geography and climatic change than any geological or geophysical considerations, so it is probably not going to end up with many geophysicists shelves. However, it may be useful in your local and/or company library when a specific interest in the Antarctica needs to be tracked. Since Antarctica is so sensitive to climatic change, it really lends itself to the types of study recorded in book and to the type of paleoclimatic modeling that we may consider for the rest of the globe. Here in Antarctica, models can be tested and examined because changes are so rapid. This slim volume is tightly

written and I am glad to have it on my shelves.