Preface

Change on geological time-scales from hundreds to thousands and millions of years is natural and occurs at great rate and amplitude. Sea level 18 000 years ago was about 130 m lower than now and rose to its present level by about 8000 years ago — all natural.

There is much concern at present about the impact of human-induced change in atmospheric composition, and its possible consequences — the Enhanced Greenhouse Effect. There is no doubt that we have changed the composition of the atmosphere over the last 200 years, but there is argument about whether this will lead to an artificially changed climate. There is even debate about whether any possible impact will be for good or ill. We are, perhaps largely unwittingly, making decisions that may affect our grandchildren and even generations thousands of years in the future.

Important philosophical questions are at stake. Can we tell what the near future will be and whether we are prepared to live in a world with a climate that we have generated, to burden future generations with the results of our current lifestyle? Can we control the climate of the future? Can we make judgements about whether human-induced change is good or bad? What is "good"? If we can identify a change for the "better", should we cause the change to be made?

It is essential that we document and reach an understanding of what is natural, so that we can identify and separate the human-induced element. The papers in this volume will provide part of the basis for identifying the natural baseline dataset for the exercise.

Research into global change on various time-scales has proceeded independently in the Southern Hemisphere countries, providing fascinating insights into the evolution of local environments and biota. Seldom, however, have these efforts been integrated into a hemispherical view of how the environment has changed, so that common influences can be identified and local effects differentiated.

Recent advances in emphasis on studies of global change, improvements in dating and other analytical techniques, and a larger pool of researchers, all have meant a vast increase in our knowledge. This increase, with improved modern means of communication, has led to greatly enhanced appreciation of the topic.

Greatly improved knowledge of the Cenozoic glacial record in Tasmania, and development in Tasmania of a research focus into the evolution of the Late Neogene record in Antarctica, through geological and glaciological research, stimulated the Tasmanian Division of the Australian and New Zealand Association for the Advancement of Science (ANZAAS) to convene a symposium, in November 1995, to discuss the question of integrating this knowledge. It was decided to invite speakers with expertise in the history of other Southern Hemisphere countries, so that a Southern Hemisphere perspective could be obtained. The Royal Society of Tasmania willingly undertook to publish the papers arising from the symposium. These papers are presented in this volume more-or-less in the order of delivery, those dealing with the evidence from the oldest rocks early in the volume, those dealing with modern phenomena late in the volume.

This meeting would not have been possible without support from various individuals, granting institutions and sponsors. The Australian Antarctic Foundation provided funds for publication and travel of international participants; the Department of Industry, Science and Technology assisted with support for international visitors. The Antarctic Division (Department of the Environment, Sport and Territories) provided the venue and other facilities.

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