PREFACE

It is obvious that the Antarctica is one of the final frontiers on earth, and that we are still a long way away from understanding its nature. Recent studies, however, have revealed that the Antarctica, with its surrounding oceans, has a very important role in controlling global changes of climate. It also contains valuable resources, e.g., krill, fish, oil, and heavy minerals, etc. which are depleting from the old continents. As scientists, we feel the ultimate goal of Antarctic research is the understanding of Antarctic natural system and processes which are subject to extreme environment conditions. The application of knowledge achieved through scientific activities can be used to predict how weather changes and/or to decide how much we obtain animal proteins from the Antarctic Ocean, etc.

Nevertheless, there are limits to modern science and the technologies that we have developed. Though much progress in Antarctic science has been made in the last decade, ways to collect scientific data and useable resources without disturbing the environments and life forms have yet to be discovered. If we try to increase some scientific and exploitable activities in Antarctica, the Antarctica might undergo some detrimental damages. Since Antarctica is a common wealth not only for present human beings, but also for the future ones, a certain level of environmental protection is essential.

Several new issues and movements have been emerging to promote our knowledge about the Antarctica. Our interests and will for the protection of the Antarctica and its ecosystem have been especially increased and propagated all around the world. In recent years, most international Antarctic meetings consider this subject as a major issue. The debates on the partial development of natural resources and absolute environmental protection in the Antarctic areas are still arguable among countries, scientists, and policy makers. To overcome this challenging problem, scientists should be able to advise others on how we should treat the Antarctica in the future. The wisest way to commence solving this difficulty is by carefully listening to many different voices and collaborating all ideas. Then, we could discuss and set the aims, strategies, and procedures on Antarctic activities with more systematic methods.

To accomplish our aforementioned goal, attempts to uncover natural phenomena on a scientific basis are necessary. The need for interdisciplinary research has been encouraged to improve our understanding on Antarctic science. International joint research will also be most important in the planning and development of scientific activities. In this regard, the Korea Ocean Research and Development Institute (KORDI) organized the First International Symposium on Antarctic Science held in Seoul, Korea, on November 4−5, 1988, and the Second Symposium on Antarctic biology, geology, geophysics, chemistry, physics, meteorology, and upper atmospheric physics in Seoul on September 17−18, 1990. Both were sponsored jointly by KORDI, Korean National Committee on Antarctic Research, Korea Science and Engineering Foundation, and Ministry of Science and Technology.

This volume is the collection of papers contributed, during the Second International Symposium on Antarctic Science, by invited speakers from Brazil, Chile, Japan, Korea, Poland, Union of Soviet Socialist Republics, United Kingdom, United States of America and Uruguay. The organizers of this symposium believe that a better understanding of Antarctic science was achieved through the presentations and discussions during the sessions, and that the close relationship to conduct joint research has been formed among the participants. It is our hope that the publication of these proceedings is a step forward toward the achievement of our aim to delineate the natural processes in the Antarctica.

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Editor
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