

## Foreword

The Twelfth Symposium on Polar Meteorology and Glaciology sponsored by the National Institute of Polar Research was held on July 18–19, 1989. The symposium reported on continuing efforts of Japanese polar meteorologists, glaciologists and physical oceanographers. The research areas covered by this symposium were: atmospheric constituents including the subject of “ozone hole”, radiations, sea ice and physical oceanography, atmospheric circulation and climate, ice sheet and snow cover, snow crystals, remote sensing, instrumentation and polar region engineering. Much of the topics were related to the outcome of major research programs of the Antarctic Climate Research (ACR) in 1987–1991, East Queen Maud Land Glaciological Project (EQGP) in 1982–1986 and Middle Atmosphere (MAP) in 1982–1985 carried out and being carried out by the Japanese Antarctic Research Expedition.

A total of 77 papers were presented at the symposium and the present volume contains 12 full-length papers and 29 abstracts which will be published in appropriate journals. Full-length papers are arranged in the order of scientific areas of meteorology, physical oceanography and glaciology.

It is hoped that this volume will contribute to the progress of research on the polar atmosphere, cryosphere and hydrosphere. Our sincere thanks are due to all of the contributors and referees who have readily cooperated to bring about this proceedings.

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