

## Foreword

The 21st Symposium on Polar Meteorology and Glaciology sponsored by the National Institute of Polar Research was held on November 25–26, 1998. The Symposium reported on continuing efforts of Japanese polar meteorologists, glaciologists and physical oceanographers. The research areas covered by this symposium were meteorological and glaciological observations, remote sensing, instrumentation and polar region engineering as well as modeling, dynamics related to polar regions.

Much of topics were related to the outcome of major research programs of “Atmospheric circulation and material cycle in the Antarctic” (1997–), “Glacier mass balance and global change and “Ocean-atmosphere interaction in the antarctic sea ice zone” carried out by the Japanese Antarctic Research Expedition and some topics on atmospheric, glaciological and oceanographical research in the Arctic region. A total of 107 papers were presented at the symposium and the present volume contains 10 full-length scientific papers, 3 scientific notes, 1 review and 2 reports. Each paper has been reviewed by one or two referees for judging the acceptability. It is hoped that this volume will contribute to the progress of research on the polar cryosphere, atmosphere and hydrosphere.

Our sincere thanks are due to all of the contributors and referees who have readily cooperated in publishing this volume. We also thank Ms. T. TOMINAGA, Ms. M. OKAZAKI and Ms. M. TANIKAWA as well as the staffs of polar meteorology and glaciology section and the publication officers at the Library of the National Institute of Polar Research for their assistance and arrangement of the symposium and the publication of this volume.

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