

Preface

The Twentieth Symposium on Polar Biology, sponsored annually by the National Institute of Polar Research (NIPR) was held on 4 and 5 December 1997, Tokyo. The symposium was aimed to introduce new results obtained in the polar region covering marine and terrestrial biology. In this symposium, sea ice ecology and flux study (SIEFS), sea ice and penguin study (SIPENS), and terrestrial ecosystems influenced by environmental changes were highlighted topics. A total 10 oral and 62 poster presentations contributed to the symposium. This proceedings include 11 full-length papers from the presentation.

This volume was edited under the direction of the Editorial Board of NIPR with the help of a sub-editorial board consisting:

Dr. Satoru KOJIMA (Tokyo Woman's Christian University)
Dr. Harvey MARCHANT (Australian Antarctic Division)
Dr. Hiroshi SASAKI (Ishinomaki Senshu University)
Dr. Atsushi TANIMURA (Mie University)
Dr. Yasuhiko NAITO, Dr. Mitsuo FUKUCHI,
Dr. Hiroshi KANDA, Dr. Yoshikuni OHYAMA,
Dr. Kentaro WATANABE, Dr. Tsuneo ODATE,
Dr. Sakae KUDOH, Dr. Satoshi IMURA,
Dr. Akiko KATO, Dr. Katsuhumi SATO,
Dr. Toru HIRAWAKE.

We thank these colleagues for their special efforts in editing this volume.

Conveners: Hiroshi KANDA
Akiko KATO
National Institute of Polar Research