

Foreword

This volume is devoted entirely to the Proceedings of "The Third Symposium on Coordinated Observations of the Ionosphere and the Magnetosphere in the Polar Regions" which was held at the National Institute of Polar Research from March 10th to 12th, 1980. The objects of the symposium were to discuss the significant data on the ionosphere and the magnetosphere obtained during the IMS period and to make a comprehensive study of substorm phenomena.

The symposium consisted of the following three sessions: I) Upper Atmosphere Disturbance in the Polar Region, II) Rocket observations at Syowa Station, Antarctica, and III) Future Plans. The present volume contains thirty-five selected contributions among the fifty individual scientific papers which were reported at the symposium. In Part I, in addition to 15 papers dealing with the ground-based observations of VLF-ELF emissions (5 papers), VLF emissions (8 papers) and radio and visual auroras (2 papers), two reports concerning the relation of solar corona to geomagnetic disturbances and of interplanetary magnetic field to substorms are presented.

During the IMS period, 19 sounding rockets were launched into the auroral ionosphere from Syowa Station in coordination with polar orbiting satellite observations as well as the ground-based observation. Through the successful rocket flights, a great amount of physical information within auroras was obtained. Seventeen papers in Part II of this volume deal with such significant results obtained aboard sounding rockets at Syowa Station. The scientific items studied are profiles of electron density and temperature, precipitating electrons, magnetic fields and VLF emissions. In Part III, the practical future plans of substorm observations in Antarctica are discussed with special emphasis on sounding rocket experiments.

It is hoped that this special issue of the Memoirs of National Institute of Polar Research will be helpful to those who are interested in the ionospheric and magnetospheric disturbances in the polar region and also to those who are concerned with Antarctica.

March 1981

Takesi NAGATA, Editor
Director, National Institute of
Polar Research