

## FOREWORD

This volume consists of 22 papers presented for dedication to "The Nagata Symposium on Geomagnetically Conjugate Studies and the Workshop on Antarctic Middle and Upper Atmosphere Physics," which was held in San Diego, California, U.S.A., from June 16 to 20, 1986, as a part of the XIX SCAR Meeting.

Prof. Takesi NAGATA was the first chairman of the SCAR Working Group on Upper Atmosphere Physics since its establishment in 1966. He has been one of the key persons in SCAR from the beginning of Antarctic scientific activity during IGY, and he served also as a Vice-President of SCAR from 1972 to 1976. Prof. NAGATA was the first director of the National Institute of Polar Research since its establishment in September 1973, until he retired in December 1984. His devotion to the Antarctic research has been greatly appreciated by the international community of Antarctic research.

In this symposium, Prof. NAGATA reviewed the conjugate studies carried out since the International Geophysical Year (IGY). Invited review talks and contributed papers covered the topics with recent results observed at conjugate-pair ground stations such as Syowa-Iceland, Siple-Quebec and South Pole-Frobisher Bay, onboard Geos-1 and -2 satellites, and results of simulation studies for thermospheric behaviors in the northern and southern hemispheres.

All of the presented papers emphasized the importance of the observation of geomagnetic conjugacy in high latitudes, which gives us useful information on the acceleration mechanism for auroral particles and generation and propagation mechanisms for plasma waves in the magnetosphere.

A variety of topics was discussed in the Workshop on Antarctic Middle and Upper Atmosphere Physics, namely the research on geospace phenomena, including recent results of auroras, cosmic noise absorption, balloon observation, particle precipitations, and the Middle Atmosphere Program in Antarctica, especially the ozone depletion.

We hope that this special issue will be valuable for those who are interested in the geomagnetically conjugate phenomena, in the middle and upper atmosphere physics in the polar regions and also for those who are concerned with Antarctic research activities.

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Natsuo SATO, Editor  
National Institute of Polar Research