

POLAR LOW SPECIAL ISSUE II

Preface

The mesoscale weather systems, known as polar lows, that form over the North Atlantic, the North Pacific Ocean and the adjacent Arctic sea are well-known to meteorologists and voyagers in these areas. Several papers on these violent and unexpected storms have appeared in the literature. Their detailed structure and dynamics, however, are still not well documented. A three-year research programme on Polar Lows was started in Norway in 1983 by The Norwegian Meteorological Institute, in order to increase our understanding of these phenomena and to establish operational forecasting of them. Several results from numerical forecasts of polar lows with limited area models are presented in this issue. In some of the experiments, the effect of slantwise convection on their simulation has been studied.

Special observations of polar lows were taken during the Arctic Cyclone Expedition, 1984, a collaborative effort organized and mainly conducted by the National Oceanic and Atmospheric Administration (NOAA). Some of these observations are presented in this issue. We have the pleasure of being able to publish the first article with results from research aircraft measurements within a polar low. They were taken by the Arctic Cyclone Expedition on 27 February 1984 over the Norwegian Sea south of Jan Mayen.

The Polar Low Project was concluded by an International Conference held in Sundvolden, Oslo, May 1986. It was organized by Mr. Magne Lystad of The Norwegian Meteorological Institute, Oslo and Mr. Ole Gunnar Houmb from the Oceanographic Company of Norway. The 11 papers published in this issue were presented at the conference. They have observational and theoretical objectives and deal with the behaviour of both the atmosphere and the ocean.

This is the second special issue on polar lows published in *Tellus*. The first one with papers presented at a conference in Copenhagen, August 1984, was published in *Tellus* 37A, no. 5. With the publication of this issue, *Tellus* wants to make a further contribution to a better understanding of these special kinds of atmospheric vortices. The papers have been subjected to the normal *Tellus* review procedures and we would like to express our thanks to the reviewers for undertaking the additional effort associated with the production of this special issue.

The Editors