

Metadata Details

Title

Ice Flow Conditions in the Ice Sheet Draining Part of the Central Queen Maud Land, East Antarctica

Science Keywords

Category	Cryosphere
Topic	Glaciers/Ice Sheets
Expedition Year	1985-1986
ISO Topic	Meteorology

Summary

Abstract

The area of central Queen Maud Land described here, lies between longitudes 9° to 14°E and latitudes 70° to 72°S. The present day flow conditions of the area have been described to provide a first hand information about the dynamic state of this segment of the ice sheet, and to lay a basis for future work. The flow direction of the inland polar ice, as observed in the field, and the location of the grounding line is demarcated, based on surface studies. Coordination of four stakes fixed on the margin of the inland ice on experimental basis, has revealed movement of the ice varying from a minimum of 0.031 m to a maximum of 1.91 m per day, based on the observation of one year. The outline of a part of shelf ice surveyed (January-February, 1986) and compared with the satellite imagery of 1975, shows very little change in its outline. The present work could form a basis for inducting various techniques to assess the flow movement and mass flux in this part of central Queen Maud Land.

Purpose

Central Queen Maud Land encompassed between longitudes 9°E and 14°E and latitudes 70°S and 72°S reveals the two classical divisions of Antarctic ice, i.e the shelf ice and the inland continental ice. Between the two there has to be a line where the polar ice, moving over the bedrock, starts floating on the sea. This 'grounding line' is very important component of the system of the ice sheets and ice streams and throws light on their mass flow and dynamics, but at the same time is least understood because of the highly crevassed nature of its surface and lack of knowledge about the subglacial topography. Northwards the shelf ice is limited by the 'calving line', wherefrom the ice breaks in the form of icebergs into the sea. This is defined to a good extent by the present ice shelf boundary. Between the grounding line and the calving line, at least four ice rises are located in the above sector.

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