

Metadata Details

Title

Some Physical Characteristics of the Antarctic and Western Indian Oceans

Science Keywords

Category	Oceans
Topic	hydrography
Expedition Year	1981-1982
ISO Topic	Meteorology

Summary

Abstract

Expendable bathythermograph (XBT) and hydrographic observations made along the transects through Antarctic and western Indian Oceans on board M. V. Polar Circle during the First Indian Antarctic Expedition have been analysed and presented in this paper. A wide north-south variation in the physical oceanographic parameters has been noticed along the transects. Maximum sea surface temperatures have been observed between latitudes 6-10°S and a sharp fall of temperature has been found near the convergence zones particularly between latitudes 40-50°S. The surface temperatures ranged between 28.7°C and -1.7°C. The depths of the isothermal (mixed) layer in the Antarctic waters to the south of latitude 68°S extend to as deep as 200-400 m while at other regions, they are found to be within 100 m. The data clearly shows that a convergence process is taking place around 60°S with the Antarctic surface water slipping below and mixing with the sub antarctic surface water.

Purpose

The exploration of the Antarctic Ocean (Southern Ocean) receives much attention by oceanographers of various disciplines, because the ocean supports all the animal life and has a tremendous influence on meteorology and geophysical problems. During the First Indian Antarctic Expedition (Dec. 1981 -Feb. 1982), a preliminary study of various aspects of Antarctic Ocean waters have been undertaken. Onboard M.V. Polar Circle, expendable bathythermograph (XBT) and hydrographic observations have been made in the area of interest (Fig. 1). The cruise track covered a very long stretch from Mormugao port on India's west coast to the continent of Antarctica-. The expendable bathythermograph records in the depth range (0-760 m) have been obtained at 154 stations along the cruise track using the system developed by Sippican, USA. Seventeen hydrographic stations have been covered between latitudes 70-30°S and the water samples collected from standard depths.

Data Center