

Metadata Details

Title

Isotopic and TL Studies of Antarctic Ice Samples.

Science Keywords

Category	Cryosphere
Topic	Glaciers/Ice Sheets
Expedition Year	1982-1983
ISO Topic	Meteorology

Summary

Abstract

Shallow ice core samples near Dakshin Gangotri Station Antarctica from the transition zone between the inland polar ice and shelf ice were studied for ^{210}Pb , ^{137}Cs , ^{18}O and Thermoluminescence (TL) of trapped dust in ice layers. The total B activity shows a small peak around 15 m but ^{137}Cs activity is below the detection limit in all the samples. The lead ^{210}Pb activity indicates an average fallout in the range 1.1 ± 0.3 dpm/L in various samples. The vertical profile of ^{18}O in 3 m ice core ranges between -17.2 to -21.5‰ indicating a mean annual surface air temperature of 9°C at the time of deposition. Natural thermoluminescence levels of the trapped dust are smaller than the geological levels consistent with data obtained earlier.

Purpose

Shallow ice core samples were collected near Dakshin Gangotri Station, from a location situated 40 km inside the shelf, by the second Indian Expedition to Antarctica during January-February 1983. The samples were brought in frozen condition to Goa and then air lifted to Physical Research Laboratory, Ahmedabad in specially fabricated boxes (cooled by dry ice) for analysis. The ice samples were studied for natural and artificial radio activity, ^{137}Cs , ^{210}Pb , Stable Isotope ^{18}O and Thermoluminescence (TL) of trapped dust in ice layers. These data are compared with the findings in samples collected by the first Indian Expedition to Antarctica (Bhandan et al 1984).

Data Center