Metadata Details

Title

On the Distribution of Calcium, Magnesium, Sulphate and Boron in the South-Western Indian Ocean Region of the Southern Ocean

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Science Keywords

Category	Marine Science
Topic	Ocean Chemistry
Expedition Year	1981-1982
ISO Topic	Atmosphere

Summary

Abstract

The major ions namely, calcium, magnesium, sulphate and boron arc studied in the south-west Indian Ocean. The concentrations and their ratios to chlorinity of these ions arc found to be 418K ? 5 mg/kg and 0.02191 ? 0.00017 for calcium, 1285 ? 17 mg/kg and 0.06730 ? 0.00057 for magnesium, 2.67 ? 0.004 mg/kg and 0.01399 ? 0.000067 for sulphate and 4.62 ? 0.44 mg/kg and 0.242 ? 0.023 for boron. Calcium showed distinct variations at sub-tropical convergence and Antarctic divergence whereas magnesium, though a conservative element, did not show any regular pattern of variation. Sulphate, a biologically inactive anion was found to be most conservative. Moron shows dissimilar pattern of variation in the Antartica and sub-tropical region and varies inversely with chlorinity in the sub-tropical region. The depth wise variations of all these four ions have been described.

Purpose

Southern region of the Indian Ocean and the Antarctic region needs a considerable attention to understand the influence of physical processes on the major constituents and their relations with chlorinity since the waters in this region influence the deep and bottom waters of all the oceans in the Northern region. In view of this, water samples were collected along a section from 32?S to 70?S during the First Indian Expedition to Antarctica. The present report deals with the distribution of some major constituents like calcium, magnesium, sulphate and boron in the South-West Indian Ocean region of the Southern Ocean, An attempt has also been made to correlate the data with the physical properties of seawater.

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