

Introduction

Since the beginning of the Japanese Antarctic Research Expedition, many geochemists in this country have taken keen interest in the geochemical researches of the white continent, especially in the area of Syowa Station. Chemical properties of water, snow, minerals, evaporites, and marine sediments were investigated. Origin and evolution of saline lakes in the coastal area have been discussed based on the analyses of main components and isotopic composition of oxygen and hydrogen in lake water, together with geomorphic evidence. Moreover, oceanographic investigations in the southern ocean were also carried out on board along the course of cruise.

In 1973, a project of environmental science was started in cooperation with biological and medical researches. And the investigations of environmental elements are being conducted at Syowa Station and the Mizuho Camp.

On the other hand, Japanese participation in the scientific research of the McMurdo Sound region in South Victoria Land dates from December 1963, when a hydrogeochemical survey was done. Many field surveys of this region were in successive seasons made by Japanese summer parties. The research developed into the international project called the Dry Valley Drilling Project during 1972–1975. This project was organized by scientists from the United States, New Zealand and Japan, for the purpose of clarifying the Cenozoic history of the Antarctic.

The presentation and discussion at the symposium can be summarized as follows. The saline lakes around Syowa Station are of marine origin and heavy minerals in them were supplied from the precipitation. Highly saline lakes in the Dry Valleys may be elucidated as the results of evolution of sea water in frigid condition. Geological processes in the Dry Valleys were clarified by isotopic studies of lake waters, surrounding evaporites, and the DVDP drilled core. Isotopic composition of Ross Island volcanic rocks shows that the basalt is of oceanic origin. Increasing rate of the content of carbon dioxide in atmospheric air was about 1 ppm/year at Syowa Station, which is almost in accord with that of South Pole or Mauna Loa in Hawaii.

After the symposium, a new and advanced program of geochemical researches in the Antarctic was discussed by the participants; any comment on the results in this issue and new proposal should be highly welcomed.

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