STRUCTURAL ANALYSES OF ICE OBTAINED FROM THE METEORITE ICE FIELD AROUND THE SØR RONDANE MOUNTAINS (ABSTRACT)

Shuji FUJITA and Shinji MAE

Department of Applied Physics, Faculty of Engineering, Hokkaido University, Kita-13, Nishi-8, Kita-ku, Sapporo 060

Structural analyses of ice obtained from the bare ice surface around the Sør Rondane Mountains, where more than 2000 meteorites were collected, were carried out. Ice fabrics, cracks, and crystals in the samples were investigated to determine the strain accumulated in ice along their particle paths, and to determine the stress/strain configuration of the ice sheet around the mountains standing in the ice sheet.

In the area which is near the side wall of the mountains, single maximum fabric pattern was observed, and the axis of single maximum lay roughly perpendicular to the flow line. It is deduced from the observation results that the ice sheet is widely subjected to vertical shear strain there. Shear strain is caused due to shear stress between ice flow and side wall of the nunatak.

In Nansenisen which is up-stream from the mountains, it was found that observed fabric patterns could be classified into two types. One is single maximum pattern and the axis of single maximum lies in the longitudinal direction. The other is great circle girdle pattern, and the girdles are on the horizontal plane. Great circle girdle patterns were observed in the area where high concentration of moraines and meteorites was observed. Since only similar two types of fabric have ever been observed in other meteorite ice fields, each type is a principal fabric patterns in the meteorite ice field. This means there are two principal types of stress/strain configuration there. Configuration of accumulated strain in ice was deduced. The meaning of such strain related to the concentration mechanism of meteorites and moraines is discussed.

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VARIATIONS OF OXYGEN ISOTOPIC COMPOSITION AND DISTRIBUTION OF CONTINENTAL ICE IN THE LAST ICE AGE. (II) MASSIVE GROUND ICE BODY IN ARCTIC CANADA (ABSTRACT)

Kikuo KATO

Water Research Institute, Nagoya University, Furo-cho, Chikusa-ku, Nagoya 464-01

Massive ground ice bodies are seen in the Canadian Arctic. The origins and formation processes of the ice bodies remain in need of research. So, I am studying a massive ground ice body in Mackenzie Delta, N.W.T., Canada, on the basis of a hypothesis that it is a relict ice body of the Laurentide ice sheet. If so, a massive ground ice body should provide important information about oxygen isotopic composition of the Laurentide ice sheet.

Dating of the ice body must supply an important key in clarifying its origin and formation processes. Radiocarbon dates of the sediments found in the core samples obtained throughout the massive ice body were first determined by accelerator mass spectrometry. The sediments