

CORRELATION BETWEEN SNOW ACCUMULATION RATE ON
MIZUHO PLATEAU AND AIR TEMPERATURE AT
SYOWA STATION, ANTARCTICA (Abstract)

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The relationship between the rate of snow accumulation and air temperature on the Antarctic and Greenland ice sheets is not yet clear. However, this relationship is essential for studies of the transportation mechanism of water vapor and climatic change in ice sheets. The correlation between the snow accumulation rate on the Mizuho Plateau and air temperature at Syowa Station has been investigated.

Snow stake measurements have been conducted on the Mizuho Plateau since 1968. The area-mean rate of snow accumulation was determined in the continuous accumulation zone, where the formation of annual layer is horizontally continuous. Correlation between the area-mean of the annual accumulation and the annual mean air temperature at Syowa Station shows that with a decrease in annual mean air temperature, the area-mean of annual accumulation increased in 1968–1975 and decreased in 1976–1982 except for 1980.

(Received May 21, 1984)

ANNUAL CHANGES OF SNOW ACCUMULATION IN THE
COASTAL AREA NEAR SYOWA STATION FROM
ANALYSIS OF FIRN CORES (Abstract)

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Glaciological studies of firn cores were carried out at two stations (S18 and S40) in the coastal area near Syowa Station. Annual layers of a 10-m firn core at S40 were determined by means of stratigraphic analysis, oxygen isotopic composition ($\delta^{18}\text{O}$) and gross β activity profiles in the cores. The result shows annual changes of snow accumulation at S40 during the period between 1954 and 1974.

A typical seasonal variation is seen in the $\delta^{18}\text{O}$ profile of a core from 0 m to 9 m depth at S18. And ice lenses or thick ice layers seen in the core are the best stratigraphic criteria to judge summer layers. Therefore, the 30-m firn core at S18 was dated and a variation of annual snow accumulation from the beginning of this century to 1981 was obtained.

The changes of annual accumulations at S18 and S40 show a similar tendency during the same period. This coincides with the results of snow stake measurements along the oversnow traverse routes. The spectral analysis of annual accumulation at S18 shows predominant periodicities of eighteen and forty-five years.

(Received April 5, 1984)