energy dispersive X-ray microanalyses (EDXMA) and X-ray diffraction photographies (XDP). A spherule from the Allan Hills has structures of Mg-rich olivine and magnetite with high Fe, Ni and S contents, which are similar to those of the Allende meteorite and Brownlee particles. It is enriched with siderophile elements such as Co, Ni, Os, Ir and Au by factors of 1.5–3 relative to chondritic abundances. Two spherules from Mizuho Station have a perovskite structure with high Cr and Fe contents, show unusual abundance in rare earth elements; Nd and Sm are highly enriched in them by factors of 2.5–10 relative to those of the terrestrial perovskites. Another one with stainless-steel-like composition (Fe; 65%, Cr; 10%, Ni; 7% in weight) from Mizuho Station shows a similar concentration of rare earth elements, depressed by a factor of 0.02 relative to those of the perovskite spherules.

(*Received April 14, 1983*)

SEASONAL VARIATION OF pH VALUES IN SNOW AT HALLEY BASE AND MIZUHO STATION, ANTARCTICA (Abstract)

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Profiles of pH in 1.7 m deep pit samples and a 21.8 m deep core obtained at Brunt Ice Shelf near British Halley Base in 1982 indicate clear seasonal variation with an annual minimum in summer. Furthermore, pH of drifted snow collected at Mizuho Station from February 1977 to January 1978 shows also clear seasonal variation, being high (5.4–5.7) during a period from early March to early November and low (4.8–5.3) during summer. The decrease in pH values in summer may be mainly due to the enhancements of fallout of sulfuric acid aerosol derived from stratospheric sulfate gases which subsided during summer.

(*Received May 13, 1983*)

SEASONAL VARIATION OF OXYGEN ISOTOPIC COMPOSITION OF DRIFTING SNOW AT MIZUHO STATION, EAST ANTARCTICA (Abstract)

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The variation of oxygen isotopic composition ($\delta^{18}O$) of fallen snow at Syowa Station is caused by the supply of ^{18}O-rich water vapor resulting from the approach of circumpolar cyclone (K. KATO: Nature, **272**, 46, 1978). However, that of drifting snow at Mizuho Station in the austral winter of 1974 was not attributable to the same cause (KATO *et al.*: Mem. Natl Inst. Polar Res., Spec. Issue, **7**, 245, 1978). In order to know the seasonal variation of $\delta^{18}O$ of drifting snow at Mizuho Station and to investigate the transportation process of water vapor to the station and the formation process of snow (cooling process for its formation), samples of drifted snow at the station were collected during the course of 1977 and their $\delta^{18}O$ values were determined.

The differences of the transportation process of water vapor to Mizuho Station and the formation process of snow at the station were found between the austral winter and the other seasons. The fallen snow is considered to be formed almost all by an isobaric cooling process under anticyclone in the austral winter, whereas by a moist-adiabatic cooling process of water vapor supplied by circumpolar cyclone in the other seasons.

(*Received April 23, 1983*)

OXYGEN ISOTOPE PROFILE IN THE 150 m CORE FROM MIZUHO STATION, EAST ANTARCTICA (Abstract)

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As is well known, oxygen isotopic composition ($\delta^{18}O$) in the cores from the Antarctic and Greenland ice sheets provides important information about paleoclimatic records, though the interpretation of $\delta^{18}O$ values in the cores, especially from the Antarctic ice sheet, is not always easy.

At Mizuho Station core drilling operations have been conducted by the Japanese Antarctic Research Expedition since 1970. The core was recovered from the depth down to 150 m. The $\delta^{18}O$ profile to a depth of 60 m of the Mizuho core was already reported (K. KATO: Mem. Natl Inst. Polar Res., Spec. Issue, **10**, 165, 1978). In the present study was determined the $\delta^{18}O$ profile in the depth range between about 60 m and about 150 m.

Since any dating of the Mizuho core was not carried out, mean annual accumulation of 7 g/cm^2 estimated from $\delta^{18}O$ determination (KATO *et al.*: Mem. Natl Inst. Polar Res., Spec. Issue, **14**, 88, 1979) and from the measurement of the growth rate of crystal grain (NARITA and MAENO: Nankyoku Shiryô, **67**, 11, 1979) of the Mizuho core was applied to dating of the core. The age of core bottom is estimated to be some 1700 years B.P. The climatic change in the past 1700 years shown in the $\delta^{18}O$ profile of the Mizuho core agrees fairly well with that from the long tree-ring records in North America (V. C. LAMARCHE, Jr.: Science, **183**, 1043, 1974).

(*Received April 23, 1983*)

OXYGEN ISOTOPE PROFILES IN THE CORES FROM MIZUHO STATION, EAST ANTARCTICA AND THEIR CLIMATIC IMPLICATIONS (Abstract)

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Oxygen isotopic composition ($\delta^{18}O$) in the cores from the Antarctic and Greenland ice sheets provides important information about paleoclimatic records. However, the interpretation of the $\delta^{18}O$ values in the cores, especially from the Antarctic ice sheet, is not always easy.

Mizuho Station is under the influence of a stationary katabatic wind, so that periods of erosion and deposition are not discerned on the snow surface around