RELATIONSHIP BETWEEN ANNUAL MEANS OF $\delta^{18}O$ IN CORES FROM MIZUHO PLATEAU AND AIR TEMPERATURE AT SYOWA STATION, ANTARCTICA (Abstract)

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The oxygen isotopic composition ($\delta^{18}O$) in cores from the Antarctic ice sheet is considered to provide important information about paleo-temperature records. However the interpretation of the $\delta^{18}O$ values is not always easy, because of the influence of a stationary katabatic wind. Furthermore, the variation of $\delta^{18}O$ of fallen snow at Syowa Station was found to be controlled not only by its temperature of formation but also by the extent of the sea ice around Antarctica (K. KATO: Nature, **272**, 46, 1978). No relationship was seen between the extent of sea ice and air temperature at Syowa Station (K. KUSUNOKI: Sea level, Ice and Climatic Change, ed. by I. Allison, Willingford, IAHS, 171, 1981). Therefore it must be confirmed that the $\delta^{18}O$ in the cores from the Antarctic ice sheet provides information about paleo-temperature.

Seasonal cycles of $\delta^{18}O$ were seen in cores, from an area with a high rate of snow accumulation on the Mizuho Plateau. Then annual layers in the core were determined, with support from the stratigraphic analysis and gross β-radioactivity determination. A good relationship is found between the annual means of the $\delta^{18}O$ in the core and air temperature at Syowa Station.

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INSTRUMENTAL NEUTRON ACTIVATION ANALYSES OF THE SPHERULES FROM THE MIZUHO ICE CORE (Abstract)

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Continued from the previous work (Y. TAZAWA and Y. FUJII: Mem. Natl Inst. Polar Res., Spec. Issue, **29**, 220, 1983), individual spherical microparticles from particulate residues of several segments of the Mizuho ice core from 5 to 42 m depths were investigated by means of instrumental neutron activation analysis (INAA), X-ray microanalysis (XMA), and X-ray diffraction photography (XDP). One half of analyzed spherules (12/24) were perovskite-like particles having the same rare earth elements concentrations as those obtained in the previous work. A zircon ($ZrSiO_4$) spherule and five stainless-steel-like (Fe, Cr, Ni) spherules were also obtained. These queer spherules have never been found in deep sea sediments or anywhere else. Their characteristics suggest that they are of the same terrestrial origin, but they do not seem to have been formed in the course of ordinary geological process.

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