the station. Therefore, the interpretation of $\delta^{18}O$ values in the cores from Mizuho Station becomes complicated. The $\delta^{18}O$ values of thick and fine-grained layers with little-developed depth hoar in the Mizuho cores are considered to provide the best information about paleo-temperature records (KATO and WATANABE: Mem. Natl Inst. Polar Res., Spec. Issue, **19**, 243, 1981). However, such layers were not determined in most of the previous studies to be compared with the studies on the Mizuho cores and cannot be determined in the deeper core from Mizuho Station.

The profile of $\delta^{18}O$ of little increments in the Mizuho cores does not always show the same trend of $\delta^{18}O$ variation as that shown by the profile of $\delta^{18}O$ of such layers. The profile of $\delta^{18}O$ of composite samples of little increments in the long interval of one core agrees very well with those of $\delta^{18}O$ of such layers in one adjacent core as well as $\delta^{18}O$ of the long depth interval in another adjacent core. This good agreement of the trend of $\delta^{18}O$ variation among these three cores shows that the trend of $\delta^{18}O$ variation indicates that of paleo-temperature changes.

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TECHNICAL ASSESSMENT OF DEEP DRILLING (Abstract)

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The drill system used in the successful U.S. deep drillings through Greenland and Antarctic ice in late sixties was very large and required enormous logistic support far beyond the capability of the Japanese Antarctic Research Expedition (JARE). However, recent technological progress has so much reduced the necessary power for ice drilling that now a small deep-drilling system suitable for JARE becomes feasible. Based on the reports of the Japanese dry-hole drillings, of the Danish drill which drilled through Greenland ice 2000 m thick in 1979 to 1981, and of the French thermo- and electrodrills intended for a 3000-m drilling, all presented at the Ice Drilling Technology Workshop held in Calgary in 1982, the following system was assessed technically feasible: *A drill* (est. wt.: 100 kg) equipped with a simplified French-type (the centrifugal cage omitted) chip-transport device will take a 2-m core in 5 minutes with an input of 200 V, 2A. *A 7.5-kW winch* (1000 kg, including a 5.7-mm-ϕ armored cable 3 km in length and 400 kg in weight) will hoist the drill at 60 m/min. With a soft-start device, *a 12-kVA generator* can run the winch. A 5-minutes preparation time for a run assumed, the system will drill to 2.4 km in 1200 runs in 1000 hours. Auxiliary equipments added, the total net weight of the system will be less than 2000 kg, excluding the hole liquid, a mixture of kerosene and R-11, which, though amounting to 25000 kg, or, loss considered, 35000 kg for a 120-mm-ϕ hole 2.4 km deep, may be transported over a few years.

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