

CHEMICAL CHARACTERISTICS AND SALT ORIGIN OF
THE WATER IN LAKE VANDA, WRIGHT VALLEY,
SOUTHERN VICTORIA LAND,
ANTARCTICA (ABSTRACT)

Kikuo KATO

*Water Research Institute, Nagoya University,
Furocho, Chikusa-ku, Nagoya 464-01*

Since the International Geophysical Year (1957-1958), a number of saline lakes have been found and studied in the Dry Valley region, southern Victoria Land, Antarctica. The water in Lake Vanda shows specific chemical characteristics of calcium-chloride type. Many ideas for the origin of salts in the water have been presented. From the discussions on the mass balance of chemical constituents in Lake Vanda, C. TOMIYAMA and Y. KITANO (Nankyoku Shiryo (Antarct. Rec.), 83, 37, 1984) reported that calcium chloride-rich ground water provides almost all of the salt in Lake Vanda. However, comparing the amounts of chemical constituents in the lake water with the concentrations of those in the ground water, ratios of the chemical constituents, except for sulfate ion which changes to hydrogen sulfide gas under the reduced conditions as confirmed in this lake, are found to be almost the same in both the lake water and the ground water. Taking into consideration that the amounts of chemical constituents in the lake water were estimated from the calculations, the ratios of the chemical constituents in both waters may be identical. This fact is considered to show that the ground water is derived from the saline water in Lake Vanda. And it is not likely that the ground water is supplied through the very thick permafrost in this area.

(Received March 2, 1989; Revised manuscript received May 10, 1989)