

Water quality and hydrology of Lake Meike and Oike

Yoshiko Iizumi[1], Norio Ogura[2]

[1] Sci. of Resources and Environment, Tokyo U. A&T, [2] Int. Env. and Agr. Sci., Tokyo U. A&T

<http://www.tuat.ac.jp>

Lake Meike and Oike lie near the top of Mt. Yatsugatake in Japan. These lakes are very close to each other, the distance between them is approximately 120m, but their water quality is distinct from each other. The concentrations of alkalinity and major cations of the water in Lake Meike are significantly lower than in Lake Oike. For the purpose of clarifying the hydrological differences between the two lakes, we measured water level using automatic water gauges. The period of this survey was from July 6 to October 24, 1999.

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For the purpose of clarifying the hydrological differences between the two lakes, we measured water level using automatic water gauges. The period of this survey was from July 6 to October 24, 1999. Lake Meike and Oike have no steady inflow and outflow, but Lake Meike does receive inflow in times of heavy rain. The maximum depth, of Lake Meike and Oike is 6.3m and 9.7m, respectively.

According to these results, the fluctuation range of the two lakes' water level were over 2m in this period. This suggests that there are inputs and outputs from underground sources to the two respective lakebeds. Range of difference in maximum depth of the two lakes were approximately 3.3m to 3.5m. This result differs from that of the Nagano Prefectural Government (1996). In times of heavy rain, the hydrograph of Lake Meike showed two peaks, whereas the hydrograph of Lake Oike showed only one. Thus, hydrological characteristics of the two lake watersheds were differed. It was suggested that lake water chemistry is influenced by hydrological and soil chemical characteristics.