

## Variability of TOC and TN in the sediment of Lake Kizaki, in relation to limnological and meteorological condition.

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Total organic carbon and nitrogen (TOC, TN) have been analyzed recently as a proxy of climate variability. But there are not enough study to compare with the other factor, which may control TOC and TN of lake sediment. In this study, I compare the recent 20 years data of monthly limnological observation in Lake Kizaki (mainly chlorophyll a = chl.a), meteorological data in Omachi-city (temperature) and core sediment of Lake Kizaki . Along with the increasing of average temperature in winter in 1990s, productions of chl.a in winter and TOC concentrations of sediment in Lake Kizaki are increasing. It is inferred that winter temperature is an important factor that influences the amount of TOC in the sediment of Lake Kizaki.

Lacustrine deposit is an efficient source of information on successive paleo-climate change in detail. Total organic carbon and nitrogen (TOC, TN) have been analyzed recently as a proxy of climate variability. But there are not enough study to compare the modern lake productivity and meteorological conditions, which may control TOC and TN of lake sediment. In this study, I compare the recent 20 years data of monthly limnological observation in Lake Kizaki (mainly chlorophyll a = chl.a), meteorological data in Omachi-city (temperature) and core sediment of Lake Kizaki. Lake Kizaki is located in the north of Nagano Prefecture. It is one of the Nishina-sanko (three lakes in Nishina district) which is aligned on Itoigawa-Shizuoka tectonic line. Lake Kizaki is 28 m deep in maximum, and oligotrophic to mesotrophic. Summer temperature (average of June to September) is in positive relationship to the winter temperature (average of December to March) in 1990s. Correlation between precipitation and temperature is in negative in summer and positive in winter. Water temperature and air temperature is in positive. Average winter temperature in 1990s is higher than 1980s. Total chl.a productivity is highest in winter (December) in Lake Kizaki. In general, variability of chl.a in lake is supposed to be influenced much by nutrient. Amount of chl.a in winter has positive relation with winter temperature. Along with the increasing of average temperature in winter in 1990s, productions of chl.a in winter and TOC concentrations of sediment in Lake Kizaki are increasing. It is inferred that winter temperature is an important factor that influences the amount of TOC in the sediment of Lake Kizaki.