

INORGANIC AND ORGANIC CARBON ANALYSIS OF LACUSTRINE SEDIMENTS, CANADAIGUA LAKE, NY

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During the upper Pleistocene (~13,320 BP), Canandaigua Lake was 2-3°C warmer than present temperature (Ellis, Mullins, Patterson, 2004). This study analyzes Holocene levels of carbonate and organic matter in Canandaigua Lake in order to predict future climate trends. By analyzing $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ in lake carbonates, it is possible to find the surface water temperature at the time of carbonate formation if $\delta^{18}\text{O}$ and constants A and B are known in the formula

$$10^3 \ln \alpha_{x-y} = B10^6 T^2 \pm A$$

where α is the isotopic fractionation factor, A and B are experimentally determined or calculated constants, and T is temperature (Ito, 2001).