



Magnetic Study of Lacustrine Sediments of Dream Lake at Northern Taiwan

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Magnetic proxies are applied to analyze a length of about 2.35 m lacustrine sediment core taken from the Dream Lake at northern Taiwan for the purpose of studying paleo-climate changes. Based on the AMS 14C dating data, this core supported the results for the last 6200 years. However, data of the last 2000 years were found to be absent due to that the top sediments (50 cm) has been dug out.

Magnetic results show that the abundance of magnetic minerals is generally very low except two peaks appeared at the depths 60-90 cm and below 210 cm which has the age intervals of 3500-4000 yrB.P. and 5800-6200 yrB.P. respectively. The older event has the magnetic susceptibility more than three times of that of the younger one. However, the other parameters, such as SIRM, bIRM, HIRM, ARM and NRM, show slight lower values at the older event than those at the younger one. This phenomenon suggests that the deeper level contains much more magnetic minerals than the shallow one, including many extra fine grain (superparamagnetic?) magnetic minerals which contributed the magnetic susceptibility but not remanent magnetizations. These two events might be originated from the eruptions of the Tatun Volcano Group or the neighboring volcanic province, especially from the north or northeast.

In addition, the proxy, S-ratio, indicated four low values appeared at the time interval between 5000-5800 yrB.P., which associated with higher ARM/SIRM peaks. This phenomenon proposed that extra-ordinary strong winter monsoon happened during these periods which brought aeolian dusts contained relative large amount highly oxidized magnetic minerals from the north.