



## **Magnetic analyses on lacustrine sediments of Li-Yu Lake at Hualien of eastern Taiwan and its implication on paleo-environmental changes**

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Magnetic proxies were applied to analyze a lacustrine sediment core raised from the Li-Yu lake of Hualien at eastern Taiwan. The main purpose is to investigate the paleo-environment and paleo-climate changes at eastern Taiwan. The length of the core is about 7 meters, which cover an age interval of about the last 7000 years proposed from the C-14 dating.

Magnetic parameters pointed out that the records could be clearly distinguished into two parts from the depth of about 2.3 meters: the deeper part dominates very coarse grained with higher oxidized magnetic minerals which have the ages older than 2300 yrB.P., and vice versa at the shallower part. This proposed a severe event should have happened around 2300 yrB.P. The results of pollen analysis of the same core pointed out the same trend that no pollen could be found at the lower part, but relative abundant on the top part (Wang, personal communication). Based on both of the magnetic and pollen results we proposed that the sediments at the deeper part are originally the river deposits; a large scale landslide had happened at about 2300 yrB.P., which blocked the down stream part of the river and dam it to form the Li-Yu Lake; and since then, the sediments became to be the lake deposits.

Generally, the S-ratio of the samples distributed between 0.9 and 1.0, which implies that the major magnetic mineral contained in the sediments is magnetite. However, two special low S-ratio periods could be found: during 3900~3200 yrB.P. and during 2400~2300 yrB.P. These two periods are suggested to be two relative dried periods

in the area studied. In addition, magnetic proxies seem to suggest that the climate changes during the last 2300 years could be further divided into two periods: the variation seems to be more frequent after 600 yrB.P. than that of before.