Geophysical Research Abstracts, Vol. 9, 05354, 2007
SRef-ID:

Rapid Climate Changes in Northern Taiwan During Last 1200 Years:Evidences from Lacustrine Sediments of Mei-Hwa Lake, Ilan

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Magnetic proxies and OC/TN ratios of organic matters are applied to analyze a lacustrine sediment core, named as MHL-5A drilled from the Mei-Hwa Lake at the Ilan plain of northeastern Taiwan, in order to investigate the paleo-climate and paleo-environment changes in the area studied. Based on AMS C-14 dating, the top 4.2 meters could support the information for the last 1200 years. Densely sampling of this core enables us to have very high resolution records (in decade and/or centennial scales) to study the rapid climate changes happened at the northern Taiwan area during last 1200 years.

The proxy S-ratio of the samples shows that their values distribute between 0.9 and 1.0, which implies that the major magnetic mineral contained in the sediments is magnetite. The saturated isothermal remanent magnetization (SIRM) represented as the abundance of the magnetic minerals has the same sense as the signal of OC/TN ratio. Furthermore, the proxy ARM/ χsg? reflected the relative grain size of the magnetic mineral, also shows that high values (finer grain) appear at those periods with high SIRM and OC/NT values, but low values (coarser grain) appear at low SIRM and OC/NT periods. However, lower S-ratio showing the increases of much more oxidized magnetic mineral input appeared at several levels, where the SIRM is low but beginning to increase. It is suggested that relative dry weather condition had happened during these periods. Concerning all these used proxies, the periods showing the high

SIRM, high OC/NT and high ARM/$g\chi$ are suggested to be in a very wet weather condition, which dominate large amount of precipitation and might induce floods to bring large amount of finer grained magnetic minerals followed the Lotung river into the lake. Power spectrum analyses of the time series of these proxies reveal a 150 years period during last 1200 years.