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The environmental change and human impact during late Holocene: a study from Chaohu Lake, East China

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Studies in palaeo-environmental change have been undertaken in different locations and using different methods. However, uncertainties still exist in establishing the main drive of environmental change – which factor dominates the historical environment change? Is it climate change or human activities, or both? These questions have not been fully answered yet. Therefore, this study, as part of my PhD project, is to develop and apply a range of geochemical techniques and attempts to answer the questions by interpreting geochemical records associated with other available climate proxies (magnetic records, pollen data, etc.).

Although Chaohu Lake has been studied in eutrophication and environmental pollution for long time, it is a new area for palaeo-environmental studies. A preliminary study (Xuerong Dai & John Dearing, personal communication) has been conducted on an alluvial core collected from the catchment of the lake. The Holocene records in magnetic proxies, geochemical/mineralogical properties, grain-size compositions and pollen distribution, reveal that the evolution process of the lake and its catchment experienced seven different climatic periods during last 10k years. In addition, it is also concluded that changes in sea level and climate are the dominant factors contributing to the evolution of Chaohu Lake.

In this study, geochemical techniques are applied on a sediment core collected under the shallow water from Chaohu Lake. It is expected to use the geochemical results to

interpret the historical environmental changes in the lake and its catchment, combining with available magnetic records and archaeological documentary. In this report, preliminary geochemical data will be provided and attempts are put onto interpreting the result and comparing it with the data collected from the alluvial core. Based on the current data, it is supposed to have a further understand of Holocene environmental change in the study area, find possible factors triggering the change.