Recent climatic change and its chemical records in lake Erhai

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As a main lodging of surface substances, the plateau-lake sediment continuously records the information of regional climate and environment with high-resolution, and thus has major implications for reconstructing short time-scale climatic changes. Through careful sampling of recent sediments and accurate dating by radionuclides, the evolutionary history of the regional climate and environment in recent 650 years is reconstructed successfully by chemical records in sediments of Lake Erhai.

The results show that the CaO/_MgO*Al_2O_3_ratio in sediments can indicate palaeotemperature changes while the $(CaO+K_2O+Na_2O)/Al_2O_3$, Sr/Ba, Ca/Mg ratios have the palaeoclimate implications for revealing the aridity/humidity changes, according to which three climate phases are revealed: the warm-dry period within 1340-1570AD_the cold-humid period within 1570-1800AD and the warm-dry period since 1800AD. This suggestes that the climatic succession type in the region of Lake Erhai is the warm-dry and the cold-humid alternatively and there exists 200 years time-scale climatic quasi-periodical changes. At present, it is at the end of the warm-dry period and at the beginning of the cold-humid period, so the temperature will fall and the precipitation will increase.

On the one hand, the regional climate in Erhai Lake shows consistency with the global climate. On the other hand, it takes on specific regional characteristics. Therefore, to strengthen palaeoclimate study in this region is very important and meaningful in theory and reality for extending contents of global changes, realizing climatic change characteristics in the southwest monsoon zone and perfecting the Asian paleomonsoon study

Provenance of low-grade metamorphic terrains of the Dabie UHP collisional zone, central China

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The Dabie-Sulu ultrahigh-pressure (UHP) collisional zone represents the eastern terrain of the Qinling-Dabie orogenic belt. This belt marks the early Mesozoic collision between the North and South China Blocks and intervening microplates (Meng and Zhang, 2000). Besides the UHP terrain *sensu stricto*, several major tectonically juxtaposed units are recognized, i.e. the Susong HP metamorphic terrain to the south and the North Dabie gneiss unit and the North Huaiyang low-grade metamorphic terrain to the north.

The eastern part of the North Huaiyang terrain is made up of two greenschist-facies rock units: the Luzhengguang group that mainly comprises late Proterozoic schists, quartzites and metagranitoids and the Fuziling group that mainly comprises late Proterozoic to early Palaeozoic quartzites, schists, sandstones, and minor volcanic rocks. These low-grade rocks were diversely interpreted as the sediments of active or passive continental margins (e.g., Mattauer et al., 1985; Sengör et al., 1988; Okay et al., 1993; Zhuo et al., 2001). This terrain is largely covered by Mesozoic volcano-sedimentary rocks and is intruded by Mesozoic granitoids.

Six metagranites from the Luzhengguang group are dated at about 780 Ma to 730 Ma, indicating that this unit came from the northern margin of the South China Block. This magmatic event was probably related to the break-up of Rodinia. Two metasediments from the Fuziling group contain detritus zircons of Archean to Paleozoic ages. These data probably demonstrate that the sources are of the North China affinity as well as of the South China affinity, the southern Qinling. The sedimentation took place along the active continental margin earliest during late Silurian, indicating by the Paleozoic detritus zircons and relatively high initial εNd values.

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