

## **Mid to Late Holocene Palaeoenvironment of Juyanhai Lake (Northwestern China)**

MISCHKE, S., DEMSKE, D., RIEDEL, F. and SCHUDACK, M.  
Institute of Palaeontology, Free University of Berlin, Germany

A number of Holocene sections in the closed basin of the ancient Juyanhai Lake in Inner Mongolia (Northwestern China) has been investigated with a focus on sedimentology, microfossils and molluscs. The lake is situated at the distal edge of a huge alluvial fan in the north of the Qilian Shan Mountains with peaks exceeding 5000 m in altitude.

Playa, permanent lake and aeolian deposits in the lower part of the sections indicate very unstable hydrological conditions prior to the Mid Holocene. 4600 yr BP a more stable environment was established and followed by two minor lake phases, each separated by aeolian sands. Stable isotope analysis on valves and shells of an ostracod (*Limnocythere inopinata*) and a gastropod species (*Radix auricularia*) yield increasing  $\delta^{18}\text{O}$  values at the beginning of each of the three lake phases.

During the development of each lake the  $\delta^{18}\text{O}$  values increased due to evaporative concentration of the lake water interrupted by some events of increasing freshwater inputs leading to minor excursions towards decreasing  $\delta^{18}\text{O}$  values. Carbon isotopes also reflect evaporative concentration of the lake waters in some cases but are more influenced by biogenic productivity and decay of organic matter in the shallow lake environment.

The increasing  $\delta^{18}\text{O}$  values at the beginning of the three lake periods following 4600 yr BP are interpreted to be a result of a gradual weakening of the Asian monsoon after the "climatic optimum" in Central Asia.