



Ancient Lake Ohrid: Towards an understanding of its evolutionary and environmental history

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Lake Ohrid (Albania and Macedonia) is considered to be the oldest existing lake in Europe, with an age of three to five million years and an extraordinary high number of endemic species. Recently, the age of Lake Ohrid and of major evolutionary events were estimated by molecular clock analyses of mitochondrial DNA genes from endemic species and their sister groups. The reasons for the evolutionary history of Lake Ohrid and processes leading to the unique fauna are however largely unknown, because a sedimentary record covering the complete history of the lake is lacking.

Up to 14 m long sediment sequences were recovered from different sites in Lake Ohrid between 2005 and 2007 and are currently investigated with a multi-disciplinary approach. The occurrence of several tephras is the basis for the establishment of reliable age-depth models and indicates that Lake Ohrid is a valuable archive of volcanic ash dispersion in the Mediterranean region. The sediment sequences recovered span the last glacial / interglacial cycle and record sensitively climate changes and human impact in the region. Shallow hydro-acoustic seismic surveys carried out in 2004 and 2007 indicate faults and sediment redeposition, particularly at the steep sub-aquatic slopes close to the shore of Lake Ohrid. The results match with those achieved by an airgun survey in autumn 2007, which revealed c. 600 m of relatively undisturbed sediment fill in the central part of the lake.

Based on these results, the study of sediment sequences recovered from Lake Ohrid within the scope of a future deep-drilling project would allow (1) to obtain robust information about the age and the origin of the lake, (2) to achieve a continuous record of tectonic, volcanic and climatic changes, and (3) to test if the evolution is triggered

by long-term stability or by rapid changes.