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SCOPSCO: Scientific Collaboration On Past Speciation Conditions in Lake Ohrid

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Lake Ohrid is a transboundary lake with approximately two thirds of its surface area belonging to the Former Yugoslav Republic of Macedonia and about one third belonging to the Republic of Albania. With more than 210 endemic species described, the lake is a unique aquatic ecosystem and a hotspot of biodiversity. This importance was emphasized, when the lake was declared a UNESCO World Heritage Site in 1979, and included as a target area of the International Continental Scientific Drilling Program (ICDP) already in 1993.

Though the lake is considered to be the oldest, continuously existing lake in Europe, the age and the origin of Lake Ohrid are not completely unravelled to date. Age estimations vary between one and ten million years and concentrate around two to five million years, and both marine and limnic origin is proposed. Extant sedimentary records from Lake Ohrid cover the last glacial/interglacial cycle and reveal that Lake Ohrid is a valuable archive of volcanic ash dispersal and climate change in the central northern Mediterranean region. These records, however, are too short to provide information about the age and origin of the lake and to unravel the mechanisms controlling the evolutionary development leading to the extraordinary high degree of endemism. Concurrent genetic brakes in several invertebrate groups indicate that major geological and/or environmental events must have shaped the evolutionary history of endemic faunal elements in Lake Ohrid.

High-resolution hydroacoustic profiles (INNOMAR SES-96 light and INNOMAR SES-2000 compact) taken between 2004 and 2008, and multichannel seismic (Mini-GI-Gun) studies in 2007 and 2008 demonstrate well the interplay between sedimentation and active tectonics and impressively prove the potential of Lake Ohrid for an ICDP drilling campaign. The maximal sediment thickness is $\tilde{6}$80 m in the central basin, where unconformities or erosional features are absent. Thus the complete history of the lake is likely recorded.

A deep drilling in Lake Ohrid would help (i) to obtain more precise information about the age and origin of the lake, (ii) to unravel the seismotectonic history of the lake area including effects of major earthquakes and associated mass wasting events, (iii) to obtain a continuous record containing information on volcanic activities and climate changes in the central northern Mediterranean region, and (iv) to better understand the impact of major geological/environmental events on general evolutionary patterns and shaping an extraordinary degree of endemic biodiversity as a matter of global significance. For this purpose, five primary drill sites were selected based on the results obtained from sedimentological studies, tectonic mapping in the catchment and detailed seismic surveys conducted between 2004 and 2008. For the recovery of the up to ca. 680 m long sediment sequences the GLAD800 shall be used.