



First data on the expansion of lacustrine conditions in Lake Ohrid (Macedonia/Albania) from 1.35 to 1.2 Ma BP

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The ICDP project “SCOPSCO - Scientific Collaboration on Past Speciation Conditions in Lake Ohrid” investigates the effect of major geological and environmental changes on the evolution of Lake Ohrid’s (FYROM/Albania) species. Seismic surveys have been carried out in 2008 and 2009 and four different sites were selected for a deep drilling campaign in 2013.

It is generally accepted that the Lake Ohrid Basin is of tectonic origin which initially opened as a pull apart basin and later widened by E-W extension, while the time frame is still subject to uncertainties. To obtain more information on the onset of lacustrine conditions in the Lake Ohrid Basin, as well as on the spatial evolution of the lake, we correlate the sediment records from the main drill site DEEP (41°02’57” N, 020°42’54” E) and the PESTANI site (41°02’21” N, 020°45’45” E).

The DEEP site is located in the center of the lake and consists of an almost continuous 584 m long sediment record that comprises the entire lake history which covers according to geochronological studies at least 1.2 Ma. The Pestani site is located ~5 km to the East of the DEEP site. The base of the PESTANI record reaches ~197 m below sediment surface and approaches the bedrock. The interpretation of the seismic data suggests that the PESTANI site covers nearly the same time span as the DEEP site.

The chronological control of the PESTANI site is based on the transfer of the DEEP site age model according to glacial-interglacial related variations of the TIC and potassium content. Independent paleomagnetic measurements and tephrostratigraphy were used for the validation of the age model.

The comparison of lithological data, such as grain-size distribution, TIC content and XRF downcore measurements of both sites show that stable lacustrine conditions were established ~120 ka later at the PESTANI site than at the DEEP site. Hence, we can assume that the tectonic system in the Ohrid Basin was active during this period and led to an increase of the subsidence rate, first in the center of the Lake Ohrid Basin and later at its margins. Further studies which consider additional data, such as pollen or diatoms, could probably outline and quantify surface expansion as well as lake level fluctuations due to the limitation of individual taxa to a specific environment.