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The Lake Ohrid SCOPSCO project

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The ICDP SCOPSCO project at Lake Ohrid in Macedonia and Albania was one of the most successful lake drilling campaigns worldwide. Drilling took place from April to June 2013 and yielded more than 2000 m of sediments from four different sites in the lake. The maximum penetration was 569 m below lake floor and the overall recovery at all drill sites was > 95 %. Almost two years after the drilling operation, core opening and processing as well as biological and geological analyses are still ongoing. However, most of the cores from the main drill site, the so-called DEEP site in the centre of the lake, are meanwhile opened and reveal a unique record of lake history. The extraordinary quality of seismic, borehole logging and core data allows us to achieve the major goals of the SCOPSCO project. Seismic data, diatoms and coarse-grained sediments in the basal cores indicate that Lake Ohrid had no marine origin, as it was speculated in the past. The data show that Lake Ohrid established in a highly dynamic pull-apart basin with varying fluvial and shallow water conditions. On top of these basal sediments, borehole logging data, XRF scanning data, carbonate, and the amount of organic matter indicate a complete and high resolution succession of glacial / interglacial cycles and interspersed stadials and interstadials. This allows us to determine the establishment of Lake Ohrid by means of chronostratigraphic tuning to about 1.3 to 1.5 Ma ago. Additional, independent age control is given by paleomagnetic data and by numerous tephra layers, which can be correlated with well-dated proximal tephra deposits in Italy. The uppermost 350 m of the sediment record contain more than 30 tephras, which makes the Lake Ohrid record to the rosetta stone of distal Italian tephra deposits in the Balkan region. The unique sediment record of Lake Ohrid is fundamental to obtain crucial information on the overall goal of the SCOPSCO project, i.e. to clarify why Lake Ohrid has one of highest number of endemic taxa in lakes worldwide and what are the triggers of speciation. The results from our studies indicate that the long and continuous existence of Lake Ohrid and the lack of catastrophic events are the major preconditions for the unique fauna existing in Lake Ohrid today.