

Climatic and environmental history of southwestern Balkans during the last glacial cycle; first results of Lake Prespa sediment core

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The Collaborative Research Center (CRC) 806: “Our Way to Europe; Culture-Environment Interaction and Human Mobility in the Late Quaternary” (www.sfb806.uni-koeln.de), focuses on the dispersal of Modern Man from Africa and his permanent establishment in Central Europe. In this framework, project cluster B deals with the eastern corridor of dispersal into Europe, namely the Near East, Anatolia and the Balkans. The integrated project B2 focuses on the Balkan region where *Homo sapiens sapiens* first arrived about 30-32 ka BP (uncalibrated) ago. Southwestern Balkans constitute an ideal setting for evaluating hypotheses concerning glacial vegetation refuges, paleoclimatic and human impact aspects.

The study area of project B2 consists of two transboundary lakes: Lake Prespa (AL/FYROM/GR) and Lake Dojran (FYROM/GR). Both lakes are relatively old - early Pliocene (5Ma) and late Miocene (8Ma), respectively, and are located in the main **three** refugial areas of important central European forest species during the last glacial. Building on the promising outcome of neighboring Lake Ohrid sediment record multi-proxy analysis, this project aims to reconstruct the environmental history of the region during the last glacial-interglacial cycle on a sub-millennial time scale. Hence, plant microfossil analysis and sedimentological and other micropalaeontological investigations in sediment sequences from these lakes will offer the opportunity to reconstruct even short time climate changes.

For this purpose, a long (15,75m) sediment record from Lake Prespa was recovered in 2009. The coring site was selected after the completion of shallow seismic surveys carried out between 2007 and 2009. The Prespa core was retrieved using a short gravity corer for undisturbed surface sediments and a 3m long piston corer (UWITEC Co.) and is already being investigated using geophysical, geochemical, ostracod, and pollen analysis. One of the core halves was used to measure magnetic susceptibility and then kept as archive for future analysis. The other half was sub-sampled with a 2-cm interval and then the samples were freeze-dried. In this first phase of the project, samples for pollen analysis were taken every 32 cm, processed with standard palynological methods and pollen, spores, and palynomorphs were determined under a light microscope at 400 x magnification and identified with keys and pollen atlases.

The 50 samples used for pollen analysis are characterized by relatively high pollen concentration throughout the entire 15.75 m-core. There are several tephra layers identified within the sequence, including the well-known Campanian/Ignimbrite Y5' layer which serves as precise dating markers. The Pleistocene sequence is dominated by open-steppe vegetation along with the presence of forest pollen taxa, which suggest relatively cold conditions. On the other hand, the Holocene sequence is characterized by the surge of *Quercus* and *Pinus* which indicates the transition to forest-dominated vegetation. Human impact can be traced by an increase in pollen of taxa such as *Plantago* sp., as well as the appearance of typical agricultural plants such as *Cerealia*, *Olea* and *Juglans*.