

EGU2020-13592

<https://doi.org/10.5194/egusphere-egu2020-13592>

EGU General Assembly 2020

© Author(s) 2020. This work is distributed under the Creative Commons Attribution 4.0 License.



## Multi-proxy approach to reconstruct Middle and Late Holocene paleoenvironment and climate in the eastern Carpathians.

**Maria J. Ramos-Roman**<sup>1</sup>, Heikki Seppä<sup>1</sup>, Eniko Magyari<sup>2</sup>, Cindy De Jonge<sup>3</sup>, Daniel Veres<sup>4</sup>, Volker Heyd<sup>5</sup>, Timothy I. Eglinton<sup>3</sup>, and Anne-Lise Develle<sup>6</sup>

<sup>1</sup>Department of Geosciences and Geography, University of Helsinki, Finland

<sup>2</sup>Department of Environmental and Landscape Geography, MTA-MTM-ELTE Research Group for Paleontology, Eötvös Loránd University, H-1117, Budapest, Pázmány Péter stny. 1/C, Hungary

<sup>3</sup>Department of Earth Sciences, ETH Zürich, Sonneggstrasse 5, CH-8006 Zürich, Switzerland

<sup>4</sup>Institute of Speleology, Romanian Academy, 400006 Cluj-Napoca, Romania

<sup>5</sup>Department of Culture-Archeology, 00014 University of Helsinki, Finland

<sup>6</sup>EDYTEM, UMR 5204 CNRS, Univ. Savoie Mont Blanc, Pôle Montagne, 73376, Le Bourget du Lac, France

Sediments from lakes are a useful climate archive that provides information about past climate changes and human impact. It is well-known that abrupt climate change can be the trigger of the collapse or migrations of past civilizations. To have a better understanding of the migration of the Yamnaya civilization, located west of the Black Sea at ~5.5-5 cal kyr BP, we hypothesize that past climate changes acts as a driver of this migration. To test this we focus on a sedimentary record retrieved from the Mocearu lake that is located at 780 m a.s.l. in the Buzau mountains (eastern Carpathians, Romania). The record has a length of 7 m and covers the last ~6.5 cal kyr BP based on AMS radiocarbon dates. To reconstruct vegetation, environment and climate during the Middle and Late Holocene, we use complementary techniques: pollen, inorganic (XRF-analysis) and organic geochemistry based on lipid biomarkers (brGDGTs). The reconstruction has been carried out with higher resolution during the Middle Holocene, with the objective of finding evidence of the climatic changes that may have occurred around 5 cal kyr BP. Based on preliminary radiocarbon dating, the climatic reconstruction (based on brGDGTs) shows an increase in temperature from ~6 to 5.5 cal kyr BP, followed by a prominent decrease ~5.3-5 cal kyr BP.