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Late Pleistocene and Holocene Climatic Variability in the Carpathian-Balkan Region

ABSTRACTS VOLUME

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The impact of the 8.2 ka rapid climate change event on the vegetation and lake ecosystem of the South Carpathian Mountains, Romania

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Our research is based on pollen-based reconstruction of vegetation composition changes in the Shouthern Carpathians in response to rapid climate changes during the Early Holocene. We demonstrated vegetation response in the northern slope of Retezat Mountains focusing on Lake Brazi. Retezat has a particular importance because of its location and different climatic effects that prevail. Our aim was to examine the vegetation response due to climatic oscillations, which occurred during the Early Holocene. We paid particular attention to the climate change occurring 8200 years ago. We used pollen analysis for the Holocene section of the sediment of Lake Brazi. We investigated the sediment section which covers the so called climatic oscillation at higher resolution.

Our results suggest that there were significant changes during the 8.2 ky event (between the years 8300 and 8000) in vegetation structures in the northern slope of the Retezat, which affected mainly the areas at lower altitudes. Deciduous forest zone is located here and an increase in the frequency of forest fires occurring during the climatic oscillation is due to higher summer temperatures and associated occassional drought years with low late summer precipitation. The periodic wildfires facilitated the return of forest openings where hornbeam (Carpinus betulus) appeared, and spread temporarily. The diatoms, organic matter and biogenic silica content changes in the sedimentwere interpreted jointly with the pollen and microcharcoal results. We can say that during the 8.2 ky event there were opposite changes in the Retezat in the winter and the summer. In winter our proxy records indicate increasing amount of available moisture, while in summer it was decreased. Overall, we infer a strong climatic shift in the study area characterized by a strong increase in continentality and seasonality during the 8.2 ky event.