



Preliminary stable isotope results from the Mohos peat bog, East-Carpathians

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This work provides preliminary results of an isotope investigation carried out on a peat core drilled in the ombrotrophic Mohos peat bog, Ciomadul Mountain, (46°8'3.60"N, 25°54'19.43"E, 1050 m.a.s.l.), East Carpathians, Romania. The Ciomadul is a single dacitic volcano with two craters: the younger Saint Ana and the older Mohos which is a peat bog, and surrounded by a number of individual lava domes as well as a narrow volcanoclastic ring plain volcano. A 10 m long peat core has been taken previously, and is available for stable oxygen and carbon isotope analysis. It is known from our previous work (Hubay et al., 2015) that it covers a period from 11.500 cal year B.P. to present. The peat bog is composed mainly of Sphagnum, which has a direct relationship with the environment, making it suitable for examine the changes in the surrounding circumstances. Isotopic analysis of the prepared cellulose from Sphagnum moss has the attribute to provide such high resolution quantitative estimates of the past climate and there is no such climate studies in this area where the past climate investigations based on oxygen isotope analysis of the Sphagnum.

Oxygen and carbon stable isotope analysis were carried out on the hemicellulose samples, which were chemically prepared for ^{14}C dating and taken from every 30 cm of the 10 m long peat core. The oxygen isotope composition of the precipitation can be revealed from the $\delta^{18}\text{O}$ values of the prepared cellulose samples, since, while carbon isotope ratio tells more about the wet and dry periods of the past. Studying both oxygen and carbon isotope signatures, slight fluctuations can be seen during the Holocene like some of the six periods of significant climate changes can be seen in this resolution during the time periods of 9000–8000, 6000–5000, 4200–3800, 3500–2500, 1200–1000, and 600–150 cal yr B.P. Additionally, the late Pleistocene - early Holocene environmental changes can be clearly observed as Pleistocene peat samples have increasingly negative delta values as going back in time.

All measurements were carried out in Hertelendi Laboratory of Environmental Studies, Institute for Nuclear Research, Hungarian Academy of Sciences.

Katalin Hubay, Mihály Braun, Sándor Harangi, László Palcsu, Marianna Túri, László Rinyu, Mihály Molnár, 2015. European Geosciences Union (EGU) General Assembly 2015, Radiocarbon dating of Sphagnum cellulose from Mohos peat bog, East Carpathians, accepted in CL5.10/GM1.10 Geophysical Research Abstracts Vol. 17, EGU2015-10813, 2015