Climate and environmental changes in the Eastern Mediterranean during prehistoric times: new insights from carbon isotope analysis of archaeological plant remains.

Valentina Caracuta and Elisabetta Boaretto

Weizmann Institute-Max Planck Center For Integrative Archaeology and Anthropology
D-Reams Radiocarbon Laboratory. Weizmann Institute of Science, Rehovot, Israel.

Interactions between Mediterranean ecosystems and humans have been shaped by complex co-evolution since the Late-Pleistocene. Traces of this co-evolution are preserved as a record of the past in natural and anthropic deposits in the form of palaeoecological and archaeological data. In this work, we investigate the potential of plant remains as a tool to identify environmental and climatic changes that occurred in the Eastern Mediterranean during the Late-Pleistocene in particular for Cyprus and for the Southern Levant.

A review based on existing data available for Cyprus shows evidence of past woodlands during the Pre-Pottery Neolithic period. For the Southern Levant a different methodological approach has been used. The integration of micro-charcoals and the associated carbon isotope analyses allow to identify climate changes that occurred in the region during the last twenty thousand years. While climate changes have been investigated using natural proxies that are, in most cases, external to the archaeological site, the method presented here uses the archaeological charcoals to shed light on the evolution of the environment near the site, $^{14}$C to determine the absolute date and $\delta^{13}$C to indicate the amount of rain (and climate) at that time.