

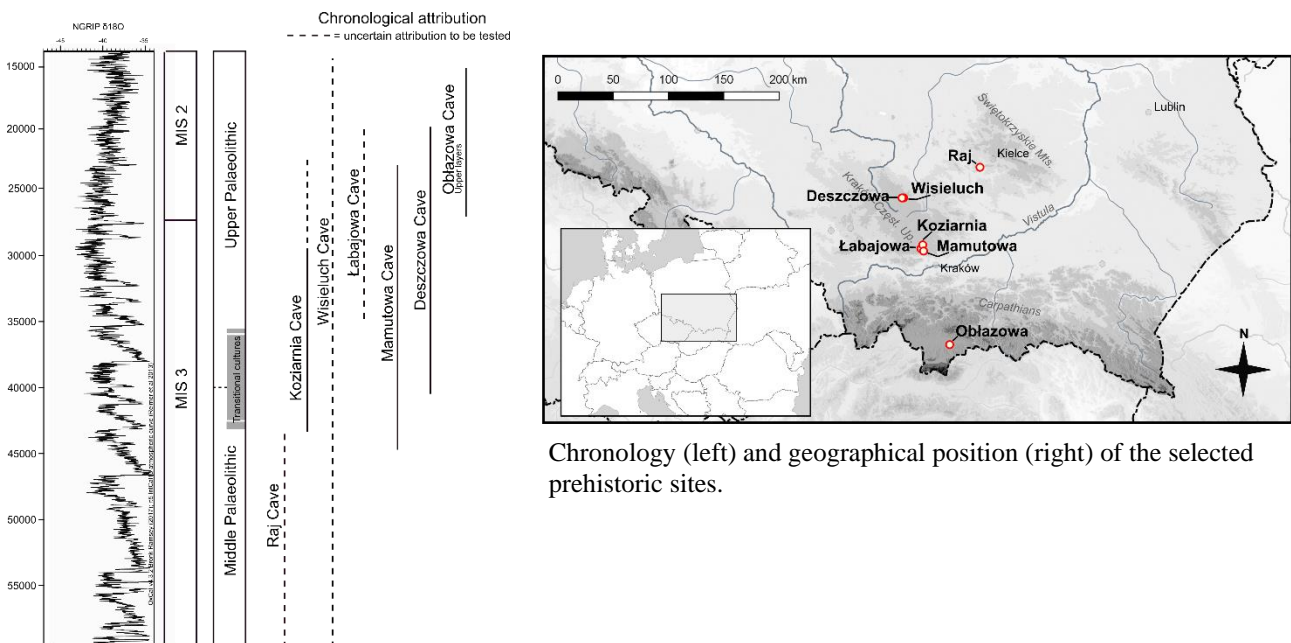
Palaeoecology is the study and understanding how organisms related with the environments in the past. The research related to this discipline is concerned with determining past occurrences, distributions, and abundances of organisms for reconstructing populations, communities, landscapes, environments, ecosystems, and climate of the past using different kind of evidences.

Palaeoecological research is essential for better interpretation of paleoanthropological and archaeological results in the perspective of human behaviour and evolution. Thus, understanding how, and in which extent, the climate and environment affected humans is crucial to enhance our knowledge of the Prehistory and to investigate the connection of human cultures detected in Europe.

Our project is designed to **reconstruct in detail the climate and environment changes that happened during the Prehistory in southern Poland** and to relate the detected changes to the settlement strategies adopted by humans between late Middle Palaeolithic and early Upper Palaeolithic, between ca. 60,000 and 14,500 years ago.

To accomplish this goal, Principal Investigator's research team is planning to adopt an approach using the contributes of different disciplines, as Vertebrate and Invertebrate Palaeontology (the study of ancient mammals, reptiles, amphibians, birds, and molluscs), Anthracology (the study of ancient wooden charcoals), and Lipid Biomarkers analysis (the study of the plant lipid traces present on sediments) to reconstruct the past landscape from the cave materials. Archaeology will be also involved to detect possible connections between the mobility strategies by the prehistoric human groups and the landscape change. With a joint collaboration between the Faculty of Archaeology of the University of Warsaw and the Institute of Systematics and Evolution of Animals in Kraków, we will study the fossil material coming from seven cave sites located in three key areas of southern Poland: Deszczowa Cave, Wisieluch Cave, Łabajowa Cave, Koziarnia Cave, and Mamutowa Cave in the Kraków-Częstochowa Upland, Raj Cave in the Bobrzyska Valley near the Świętokrzyskie Mountains, and Obłazowa Cave in the western Carpathians.

Natural archives as caves often contain evidences that can be linked to past global climate change and the biotic response connected to them. From those data it is also possible to reconstruct the regional environment and the animal and plant communities who were present in area, as well as their changes through time. In case of the presence of archaeological sites, it is possible to understand in which habitats the human species adapted. For the first time, accurate absolute dates using the radiocarbon method will be performed on small vertebrate bones to create a reliable chronological framework. This will allow us to build a multidisciplinary model that describes in detail the climate, environment and cultural changes that happened in southern Poland between 60,000 and 14,500 years ago.



Chronology (left) and geographical position (right) of the selected prehistoric sites.