The project is interdisciplinary and deals with solving archaeological problems by geoarchaeological methods

The archaeological problem is the settlement and its dynamics in prehistory (Neolithic, Bronze Age and Early Iron Age) in Aegean valleys. As a probe area we chose the Anthemous Valley, that is situated south-east from Thessaloniki.

It is a characteristic pattern, that the most intensively habited areas in prehistory were the lower parts of the valleys, where a close proximity to the water resources and arable lands served well for the development of agriculture.

Unfortunately during the time (especially since the Bronze Age – IIIrd millennium BC) in effect of deforestations caused by human activity, the erosion processes and mass movements were ignited and the slope material silted up the lower parts of the valleys. Therefore an alluvial plains were created, that covered the settlement remains. This process lasts until present times and researchers know that under thick alluvial coverages (sometimes up to dozen meters) there is a hidden signs of prehistoric activity such as buried sites and cemeteries. Archaeologists know also that they are very well preserved and contains very great scientific knowledge, ready to be discovered.

The most traditional archaeological method for investigating these sites is to excavate. In this situation however it is very expensive (we have to cut thorough thick alluvial layers) and moreover ineffective (we do not know where exactly to place the excavation, because on the surface there are no traces of archaeological remains).

In following project a new method is proposed that can solve these problems. It is a combination of non-invasive methods that uses electrical resistivity tomography and sourcing of geological cores with undisturbed sediments stratigraphy.

Electrical resistivity tommography allows us to see the underground structure of sediments (up to several dozens of meters), both anthropogenic (remains of buildings, walls, mounds or ditches etc.) and natural (palaeochannels, tectonic structures etc.). In effect of its usage it is possible to choose most suitable and optimal places for geological coring.

The content of the extracted cores is further examined in laboratories in various of analyzes (grain size analysis, geochemistry, pollen and diatom analysis). Thanks to this it is possible to gather a crucial information for reconstructing the settlement and natural processes, that created the cultural landscape of prehistoric valleys.

Our research will be conducted in Anthemous Valley, which was already (since 2010) an object of our investiagtions on prehistoric settlement. We recognized very deeply the settlements in the slope parts of the Valley. Thank to realization of the proposed project we will able to see the patterns ruling the lower parts. In effect we will achieve a full view of the settlement in the entire Valley. This will be the first work of this kind in the Northern Aegean, when a complete study of landscape and settlement changes will be elaborated in a geographically enclosed area.