
Reconstructing palaeolandscapes: new perspective combining geophysics and excavations

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Abstract

Geophysical surveys for archaeological research became very important for detecting key targets and also environmental changes. Modelling the results can be useful to imagine and reconstruct the environment and conditions at the time of occupation. We present an example of a 3D reconstruction of the environment using geophysical methods. The case study is the ancient lake Duvensee, one of the best known archaeological sites of the Mesolithic in Germany. The comparison between archaeological excavations and geophysical GPR surveys has allowed a reconstruction of the palaeoenvironment during the Preboreal and Boreal helping the archaeological research to understand the evolution of the lake basin. From the GPR reflection data we created a 3D model of the lake area showing five islands hosting Mesolithic camps. The locations of the islands and their estimated dive-up times agree with the spatio-temporal pattern of the previous archaeological finds. The model shows where Hunter-gatherers could settle and move from one island to another following the shorelines of the overgrowing lake.

Moreover, the combined use of different geophysical methods (GPR, ERT and SH Seismics) and stratigraphic information from corings provided the results to identify almost the complete stratigraphy of the basin.

This study will also provide a very important planning tool for searching large scale palaeolandscapes and a multidisciplinary approach to reconstructing prehistoric landscapes and cultural transformations.

Keywords: Geophysics, Mesolithic, 3D reconstruction, settlement archaeology, corings

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