

## Geophysical Mapping with Gradiometer: Two Cases from Denmark

Inga Merkyte & Søren Albek

### Abstract

There has been a marked improvement of geophysical instruments for magnetic surveying in recent years, both in terms of application of multiple sensors and a strongly augmented sensitivity of the new instruments. To this comes a noteworthy development in software, including individual improvement of standard packages. With a sensitivity of 0,01 nT, the latest standard for equipment produced in the United Kingdom, geomagnetic surveying is at a level where it can truly compete with reconnaissance trenches as the standard preliminary archaeological method of investigation of sites.

The case studies:

(A) The famous Late Bronze Age Lusehøj locality on Fyn (Funen), where three overploughed burial mounds were surveyed. A number of prehistoric features were found, plus traces after an excavation carried out by King Frederik VII (by Huntsmaster F.Ch. Langkilde). The survey made it possible to link rich grave goods collected for the King in 1862 to one of the mounds and supply important data for upcoming excavations.

(B) Ølsemagle/Birkevang on Sjælland (Zealand), excavations Spring-Summer 2012. The task was to cover a "gap" between two main fields of excavation, in fact a 200 meter broad zone, and to investigate possible links between the fields. Geomagnetic surveying was also carried out in the fields of excavation, where visual inspection of actual features was possible. Comparison of a map with the archaeological features and a map of the same area based on geomagnetic data formed the base for further interpretation of the geomagnetic signals. Interpretations were also confirmed by actual information from the reconnaissance trenches. All in all, a huge field of so-called cooking-pits was recorded, as established next to an old brook, the course of which was also demonstrated by gradiometer mapping.

A short discussion will also be given on how to improve the measuring methods and subsequent computer-aided manipulation of data, not least with reference to Danish conditions.

*Inga Merkyte & Søren Albek*  
*University of Copenhagen*

