

Geophysical prospection of Iron Age coastal sites in Scandinavia known from metal detecting assemblages – new case studies from the PastCoast-project

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Abstract

Geophysical surveying of sites known from metal detecting shows a varying spatial relationship between the finds material and the geophysical information. The survey results of two case studies indicate that coastal erosion has removed parts of the archaeological site at Langelands gaarde. The Austråt manor case study reveal a large number of archaeological features, and a strong spatial correlation between the geophysical observations and metal detecting objects.

Keywords

archaeological prospection; GPR; magnetometer; metal detecting; Scandinavia

— Introduction

The PastCoast-project is a multidisciplinary project funded by the Norwegian Research Council, investigating coastal Iron Age sites known from metal detecting assemblages. Ultimately the project aims at studying changes and breakpoints in the utilization of prehistoric marine coastal environments, identifying possible causes for changes and creating an interpretive framework to identify possible human responses to changing environmental settings (Stamnes 2022). Along the shores of Scandinavia, a plethora of new and hitherto unknown sites has started to appear as a result of privately initiated amateur archaeology in the form of metal detecting. Such metal detecting assemblages identify some form of human presence and can provide new information regarding local and regional exploitation of land and settlement patterns. The metal detecting assemblages may result from a wide range of archaeological activity, such as coastal landing places, magnate farms, and possible commercial sites (Christiansen 2017). While metal detecting has a long tradition in Denmark (Dobat 2013), it is mainly within the last decade that it has really caught on in Norway. Here, knowledge of object assemblages has created new challenges in unders-

tanding the context of the finds and how best to protect potential archaeological sites (Fredriksen 2019). The depositional history of these objects might also vary, and it is important to investigate if the objects made their way into the ground as some form of redeposition, as direct evidence of past activity, or as an effect of post-depositional activities that might have shifted the objects in space (Henriksen 2016). Non-destructive techniques provide a large overview for prioritisation to optimise resources and minimise the impact of an archaeological excavations – ensuring maximum gain towards targeted research aims with a minimum of excavations. Therefore, there is an untapped potential to use large-scale geophysical surveys combined with small-scale excavation to understand sites known mainly from metal detecting assemblages. One of the main objectives of the PastCoast-project, is to survey a series of sites known mainly from metal detecting assemblages by large-scale high-resolution GPR and magnetometer-surveys, and firstly to investigate whether we can detect subsoil features at these sites, and interpret them from an archaeological perspective, and secondly to determine if there is a spatial relationship, both in a local

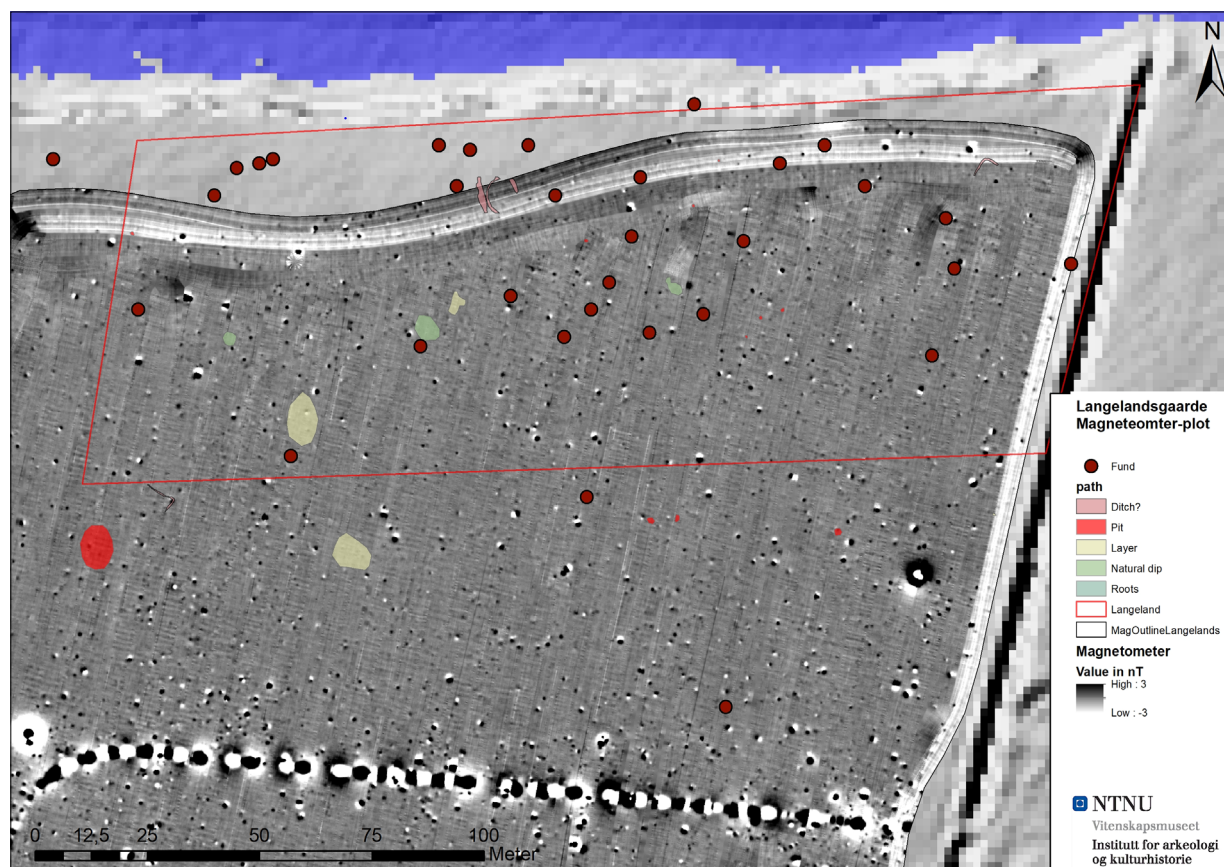


Fig. 1: Magnetometer plot, location of metal detecting objects and GPR interpretations from Langelands gaarde, Limfjord in Denmark.

and regional perspective, between the finds assemblages and subsoil features. This will help in the characterization of these sites, and improve our cultural historical understanding of their context and significance.

Materials and methods

The PastCoast-project aims at investigating at least six different sites in Denmark and Norway. Two sites, Langelands gaarde by Limfjorden in Denmark, and Austrått at Ørlandet in Mid-Norway, have until now been subjected to large-scale magnetometer and GPR surveys using the 3d-Radar Mark IV step-frequency GPR system with a ground-coupled antenna, and a sensys 16 channel magnetometer array. Two more sites will be surveyed in the Autumn of 2022 and winter of 2023. One of these will be the famous landing-site or coastal trading site of Lundeborg on Fynen in Denmark, closely linked to the Roman Iron Age magnate area of Gudme. While Langelands gaarde is mainly known through its find material, Austrått on the other hand was a large manor in

high medieval times and the home of several nobles throughout history. A larger metal detection rally was conducted there in 2015.

Results

The Langelands gaarde site has revealed a wide range of objects from the early Iron Age, such as Roman denares, a golden berlok, gold clippings and several fibulae, all indicating some form of activity – potentially a landing- or trading site. Several of the finds have been found on the shorebed, and 10-15 m of the shore edge has been eroded away over the past decade. The geophysical survey revealed few, if any notable anomalies in the gradiometer data image (Fig. 1). The interpretation of the GPR data also revealed only a few geophysical observations within the area where the metal detectorist has found most of the objects. Subsequent trial trenching did not reveal any archaeological activity besides one pit and a ploughed-out layer containing charcoal and some animal bones.

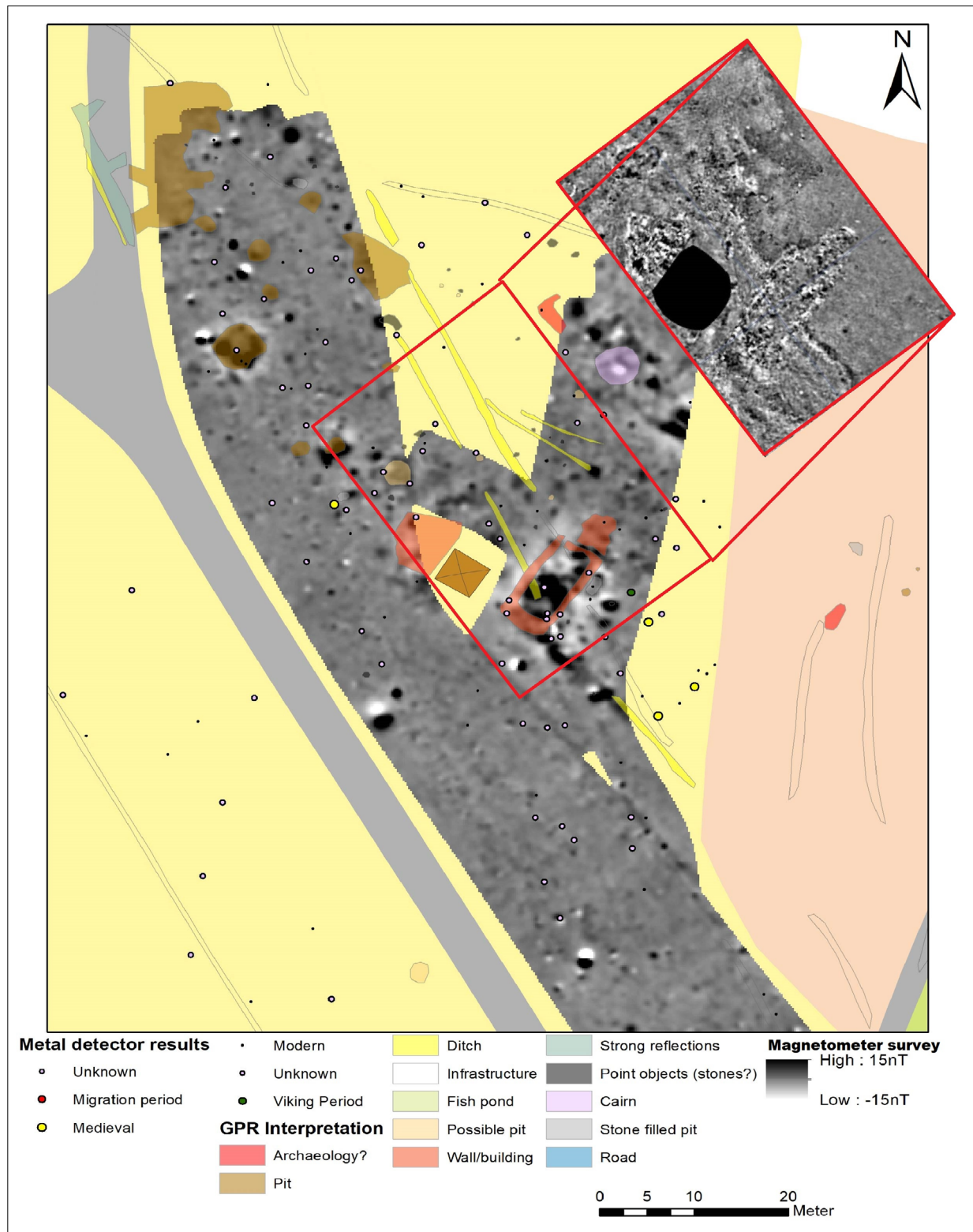



Fig. 2: Magnetometerplot, GPR interpretations and location of metal detecting objects from the central manor area of Austrått, Ørlandet Municipality, Norway. The red square shows an extract of a GPR depth slice from the area around the possible tower building remains discovered.

The Austrått-site, on the other hand, revealed a plethora of observations related to the manor house and probably centuries of settlement history (Fig. 2). The GPR data from this site also showed a sequence of relict beach ridges and other palaeotopographical information. Archaeological interpretations of the GPR data from the area include four possible building remains, several larger pits – including the older fish-dam for the manor, a cairn and a ring-ditch within the manor gardens, and stone-filled pits (potentially cooking pits). One of the buildings is centrally placed within the area with the highest density of metal detecting finds, and is potentially the lost medieval “tower-house” mentioned in written sources.

Discussion and conclusion

The Langelands gaarde site revealed few notable indications of a spatial correlation between the metal detecting objects and the geophysical results or the trial trenching observations. The trenching to a large degree confirmed the lack of presence of archaeological features related to the metal detecting objects. This observation is interpreted such that most of the main area of activity has already been lost to coastal erosion, and that the metal objects still found are mainly the result of displacement activity, such as plowing or similar, which dispersed the objects over the area.

The Austrått dataset, on the other hand, revealed a large amount of archaeological activity, and a correlating trend between the location of metal objects and the archaeological interpretation of the GPR data. This dataset also revealed information on the garden archaeology on site, possible burial monuments, and settlement traces all relating to the manor and previous settlement history.

The two case studies show two different ways how geophysical data can provide new information on sites known from metal detecting assemblages. While at Langelands gaarde there was a lack of spatial relationship, which might be interpreted as the result of coastal erosion, the situation was quite the opposite at Austrått. Here, a close spatial relationship between the two datasets has seemingly been found. 

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