

Archaeological Geophysics

Environment Theme A: Investigative Techniques in Geophysics



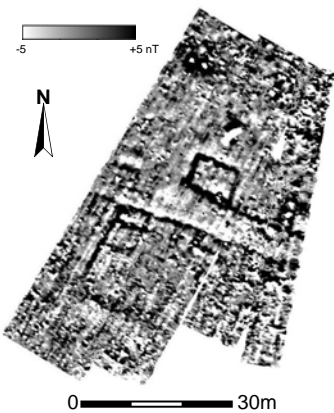
International Society for Archaeological Prospection

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Archaeological geophysics has emerged as a sub-discipline, combining scientific archaeological prospection techniques and shallow geophysical investigations. The purpose is to obtain archaeologically meaningful predictions of possible buried features, to assist with further excavation, planning and building processes, or to feed directly into site and landscape research.

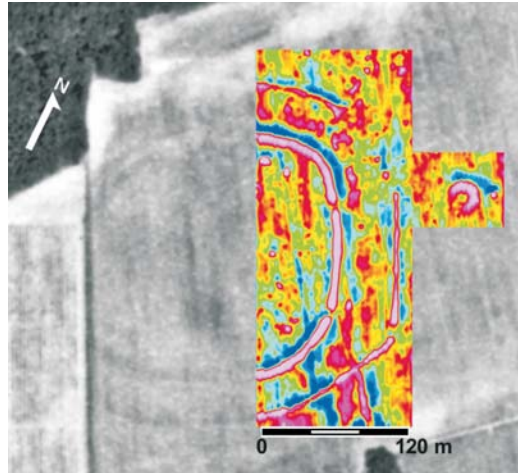
Cyrene, Libya



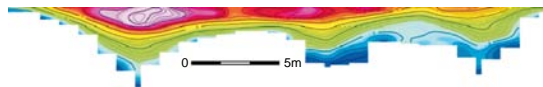
The magnetometer survey (three-sensor fluxgate gradiometer system, 0.125m x 0.5m) clearly shows the layout of the ancient city. Data were recorded with simultaneous GPS positioning, collecting topographical information simultaneously and not requiring grid layout.

Project supported by Prof V. Gaffney, University of Birmingham

Neolithic Ring Ditches, Slovak Republic



Host'ovce circular double ditched enclosure, aerial photograph and magnetometer survey (-10nT to +10 nT, blue to purple; 0.15m x 0.5m). Combination of aerial and magnetometer data revealed six entrances. Magnetometer data also show linear anomalies of more recent settlement structures.



Golianovo multi-ring circular enclosure with wing-entrances. Vertical profile of apparent magnetic susceptibility, measured on an excavated section through multiple ditches (0.1×10^{-3} to 3.3×10^{-3} (SI), blue to purple).

Multi-phase Garden Design, Stowe Barton



Earth resistance surveys over a lawn area (RM15, 0.5m twin probe, 0.5m x 0.5m) revealed two previous garden designs.

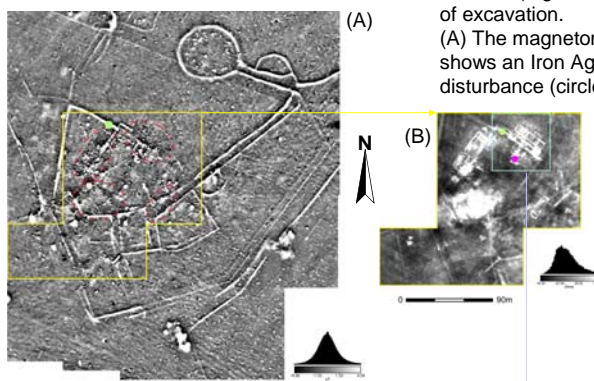


Phase 1: Circular layout centred on fountain as depicted in contemporary paintings.



Phase 2: L-shaped flower beds form a subsequent design.

Dunkirt Barn, Hampshire, U.K.



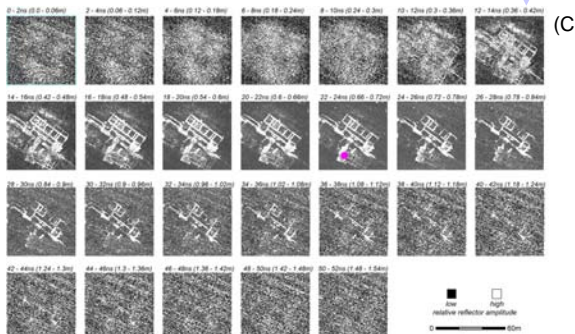
Geophysical surveys were undertaken to better define the archaeological features (e.g. the Roman Villa identified by antiquarian digging) in advance of excavation.

(A) The magnetometer survey (Cs magnetometer, 0.125m x 0.5m) clearly shows an Iron Age banjo enclosure system and localised areas of magnetic disturbance (circled in red) indicated the position of several large buildings.



(B) Earth resistance (RM15, 0.5m twin, 1m x 1m) revealed detailed floor plans of the Romano-British structures.

Coarse chalk material and flint rubble in the upper fill of an Iron Age ditch explaining the unusual high resistance response recorded over these features.



(C) GPR (PulseEKKO PE1000, 450MHz, 0.05m x 0.5m) identified the main corridor building as a separate phase of building from activity immediately to the S.



Rammed chalk and flint masonry Roman walls of two phases running side by side in the area of the resistance/GPR anomalies at ●.



Detail of the multiple phased structure ●. Looking E with the degraded remnants of a hypocaust and bath structure visible in the foreground at the SW corner of the complex.