Ancient Monuments Laboratory
Report 1/93

GEOPHYSICAL SURVEY
MAYFIELD FARM, CORNWALL

N Linford

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Summary

A magnetometer survey was conducted at Mayfield Farm, Black Cross, Cornwall to investigate the significance of a raised mound and adjacent cropmarks due to be destroyed by the construction of the A39 St Columb bypass. The abundance of modern ferrous detritus associated with the farm severely limited the success of the survey although a number of amomalies, broadly replicating the cropmark data, have been identified.

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Mayfield Farm, Cornwall

Magnetometer survey 1992

Introduction

Following a request from the Cornwall Archaeological Unit a magnetometer survey was conducted over an area due to be destroyed by the construction of the St Columb road bypass. Of particular interest was a small circular mound believed to be either a Bronze Age barrow or more probably, a relatively modern midden associated with the post-medieval farm 80m to the east. The aim of the survey was to investigate the nature of this feature and its relationship, if any, to the semicircular cropmark (PRN 33950) directly south-east of it and to the linear cropmark (PRN 33951) due east.

The site (SW 9087 6053) lies over the lower Devonian Meadfoot Beds composed of black calcareous slates with thin limestones (Geological Survey of Great Britain, drift geology, sheet 346).

Method

Magnetometer survey was considered to be the most suitable method to adopt in this case due to the short length of time available and the success of the technique over similar geology elsewhere.

A grid of 30m squares was established covering both the circular mound and the position of the cropmark (see location plan). Data was collected from each grid square with a Geoscan FM36 magnetometer at 0.25m intervals along successive N-S traverses 1m apart.

The magnetometer data was transferred to a microcomputer in the field and subsequently processed on a Tektronix graphics workstation. The final presentation of the raw data (Plot A) has been enhanced by the use of a low pass Gaussian filter (Scollar 1990) in both greytone (Plot B) and stacked trace plot form (Plot C).

Soil samples were taken from the centre of each 30m square to assess the topsoil magnetic susceptibility (Figure 1). Sieved and dried samples were subsequently measured using a Bartington MS2 susceptibility meter and 100cc laboratory coil.

Results

The results of the survey have been severely marred by the plethora of ferrous metal associated with the modern farm. Survey squares 1-4, 8 and 9 have been affected by the presence of the fence running diagonally EW to the farm buildings;

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there is little evidence of the raised mound save for an area of slightly enhanced readings to the east of square 1. The only other identifiable anomaly is the modern water pipe leading from the western field boundary into square 3.

A more confident interpretation can be made in the areas of the survey more remote from the disturbance of the farm. Here a pattern of broken linear anomalies (see highlighted areas of Plot B) leads from the SE corner of square 5 extending through square 6 to form a curvilinear anomaly within square 7. The anomaly in square 6 appears to join with a branch running out of the survey to the west. This pattern partially replicates the cropmark evidence from the site and suggests a series of enclosure ditches or previous field boundaries.

Topsoil magnetic susceptibility values (Figure 1) were found to be consistently high, as expected over this geology, with the maximum enhancement occurring in squares 1, 2 and 3. It is uncertain whether these readings reflect an increase in archaeological activity (eg the interior of a settlement enclosure).

Conclusion

Despite the encouraging values for topsoil magnetic susceptibility, interference from ferrous objects associated with the modern farm has severely limited the success of the magnetometer survey. There is a correlation between the cropmark evidence to the west of the site and the magnetic results, although the latter provide little additional information.

Surveyed by: Mark Cole 26-27 March 1992
Neil Linford

Report by: Neil Linford 2 February 1993

References

Scollar, I, 1990 *Remote sensing and archaeology*, Cambridge

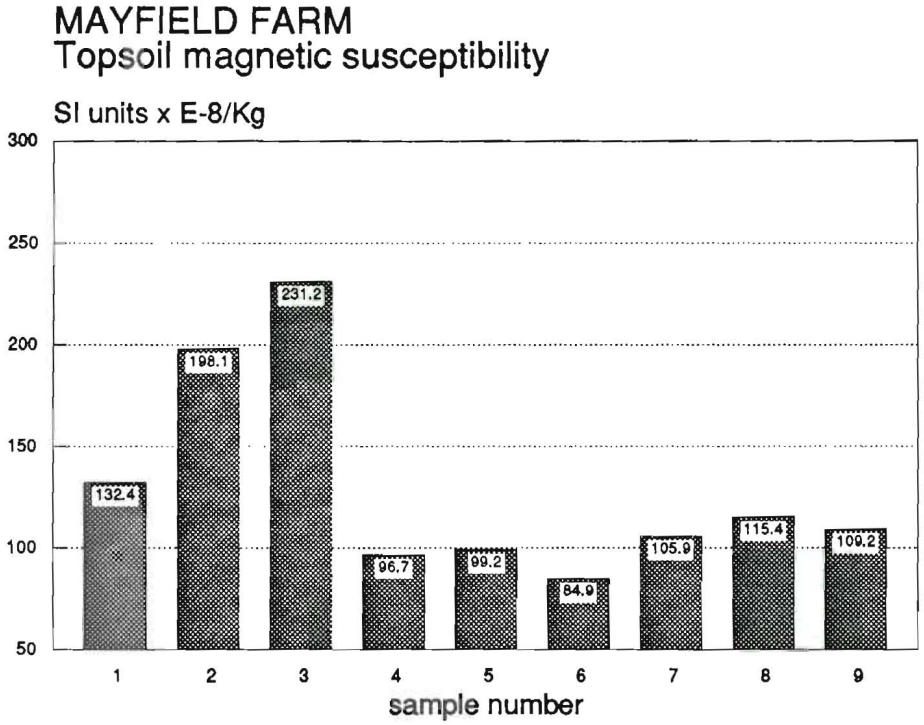
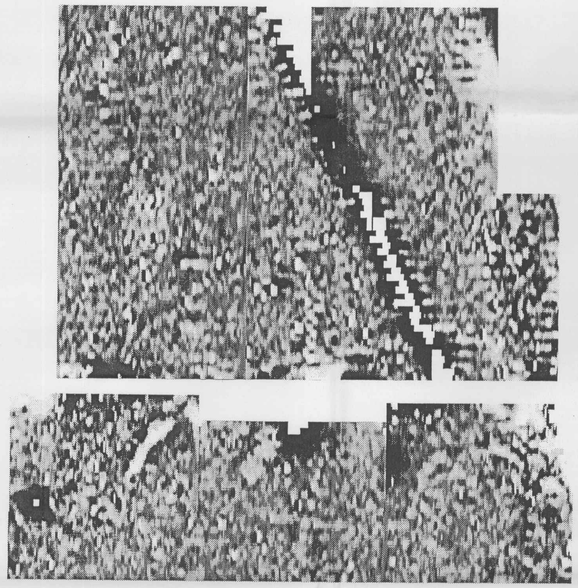


Figure 1; Topsoil susceptibility from squares 1 - 9.

MAYFIELD FARM, BLACKCROSS, CORNWALL

Magnetometer Survey March 1992

A.



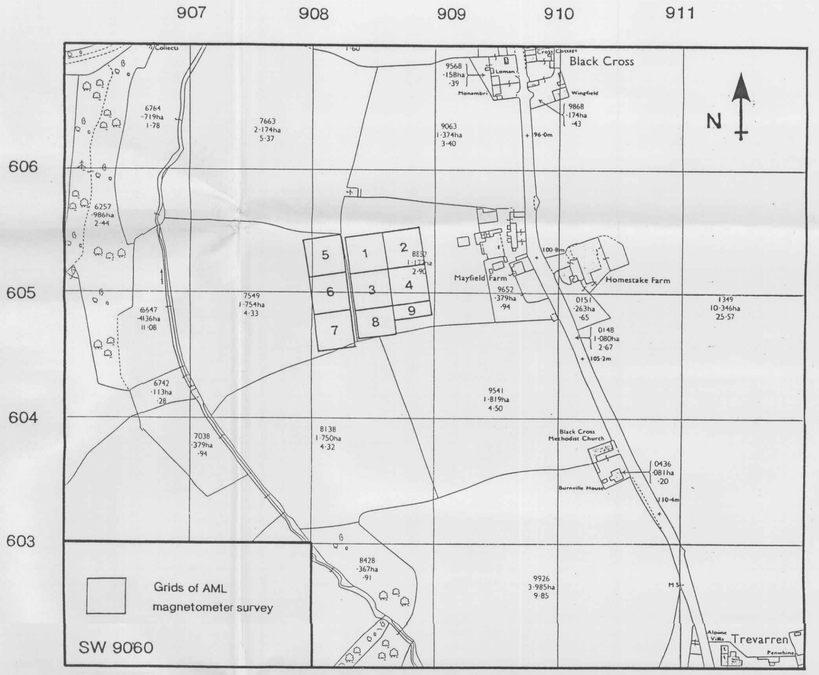
□ High
△
▼
■ Low

N

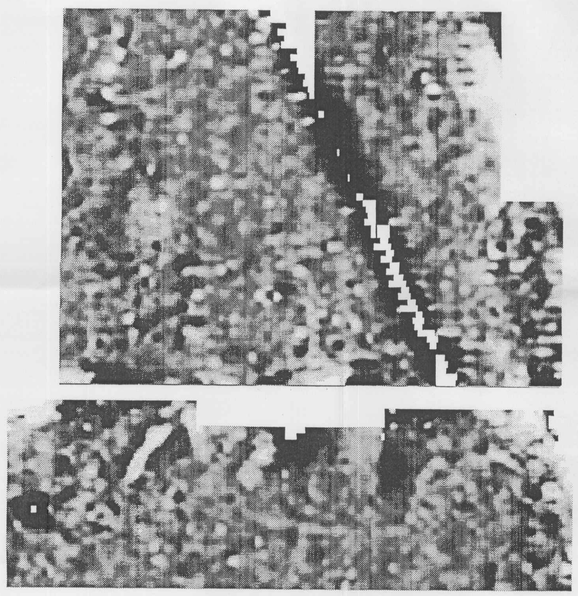
Scale of plots

0 30m 60m

LOCATION PLAN



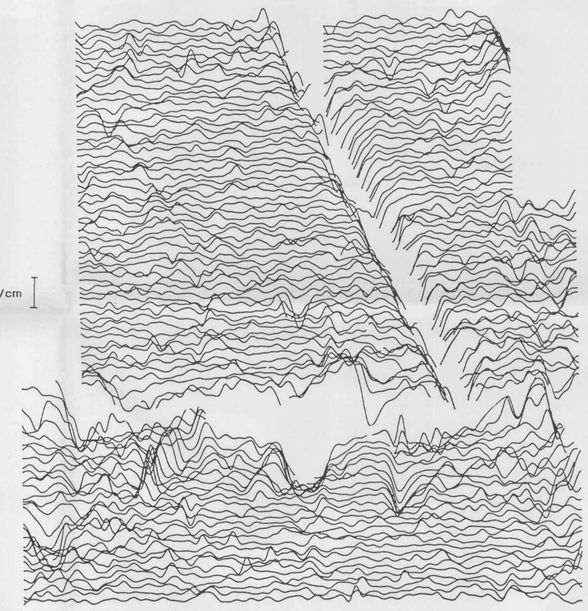
B.



□ High
△
▼
■ Low

C.

8 nT/cm



Key to plots.

A. Grey-scale of raw data
B. Grey-scale of smoothed data
C. Trace-plot of smoothed data

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