



Inishargy, Co. Down

Geophysical investigations at the location of a single find of Viking ring silver

SMR No.: DOW 018:001

Grid Ref: J 6061 6465

On behalf of

Northern Ireland Environment Agency (NIEA)

Sapphire Mussen & Ronan McHugh

CAF GSR 23

Contents

List of Figures	2
1 Summary.....	3
2 Cartographic Evidence.....	4
3 The Survey Site	4
4 Survey Specific Information	5
5 Discussion of Survey Results	6
6 Conclusion.....	7

List of Figures

- Figure 1 Map showing the location of Inishargy
- Figure 2 Extracts from 6-inch Ordnance Survey maps of Inishargy
- Figure 3 Map showing the location of the 2012 gridded survey area
- Figure 4 Shade plots of the resistance data
- Figure 5 Relief plot and simplified interpretation of the resistance data
- Figure 6 Processed plots of the results of magnetometry data

1.0 Summary

1.1 Site Specific Information

<i>Site Name:</i>	Inishargy
<i>Townland:</i>	Inishargy
<i>SMR No.:</i>	Vicinity of DOW 018:001
<i>Grid Ref.:</i>	J 6061 6465
<i>County:</i>	Down
<i>Dates of Survey:</i>	29 th October-1 st November 2012
<i>Surveyors:</i>	Emily Murray, Sapphire Mussen and Ronan McHugh, Centre for Archaeological Fieldwork, Queens University Belfast
<i>Size of area surveyed:</i>	0.36 hectares
<i>Weather conditions:</i>	Fair conditions
<i>Geology:</i>	Bedrock geology of mudstone, greywacke and conglomerate (500k), sandstone (250K) and superficial layers of till diamicton
<i>Survey type:</i>	Electrical earth resistance and Magnetometry

1.2 Abstract

A limited geophysical survey was carried out between 29th October and 1st November covering the area immediately surrounding a find spot of a single piece of Viking silver ring money. The purpose of the survey was to investigate whether there were subsurface archaeological remains associated with the artefact. Two geophysical techniques were employed, magnetometry and electrical resistance. It was not anticipated that the underlying bedrock would be of any impediment to either survey method, the underfoot ground conditions also did not provide any hindrance. The only obstacles encountered were large hay bales in the field, some of which lay within the gridded survey area. No remains of archaeological significance were detected by either survey method. The only anomalies detected seem to represent a series of field drains and field boundaries. It is not recommended that further survey work be carried out over this location.

2.0 Cartographic evidence

Ordnance survey maps of the area show no features of archaeological interest immediately surrounding the find spot. A number of changes to the field boundaries may be observed; it is seen from the first and third editions that the boundaries underwent a number of changes between 1835 and 1932 (figure 2). By 1932, the field in which the survey grid was located was divided in two and encroached upon by marshland which lies southeast of it. The current location of the find spot would place it directly over the intersection shown between arable land and marshland. By 1957 it appears that there is no longer a fence line separating these two areas (figure 2c). The site is currently completely fenced off from the marshland although its south-eastern boundary now encloses more of this area than in previous times (figure 2d). The boundary which divided the survey field in two has also been removed.

3.0 The Survey Site

The find of Viking silver was made approximately 200m to the east-southeast and down slope of Inishargy church site and enclosure (NISMR DOW 018:001). The survey grid was set up to cover a total area of 0.36 hectares immediately surrounding the find-spot which was located at the base of a southeast facing drumlin in an area of arable land adjacent to an area of marshland (figure 3). The southeastern edge of the grid coincided with a modern field boundary which consisted of a barbed wire fence, with a drain or small *sheugh* beyond it. The terrain within the grid had a significant northwest to southeast gradient, leveling off along the boundary edge. The field is used for agricultural purposes and at the time of the survey had been recently cut; a number of large hay bales within the field, some within the gridded survey area which caused only a slight inconvenience in conducting the survey.

4.0 Survey specific information:

4.1 Details of equipment and methodology employed;

Survey type	Electrical Earth Resistance	Magnetometry
Instrumentation	Geoscan RM15 resistance meter and MPX15 multiplexer	Bartington Grad 601-2 fluxgate gradiometer
Probe/sensor configuration	Parallel twin (3-probe)	Twin sensor
Probe/sensor spacing	0.5m	--
Grid size	20m x 20m	20m x 20m
Traverse interval	0.5m	1m
Sample interval	0.5m	0.25m
Traverse pattern	Zig-Zag	Zig-Zag
Spatial accuracy	Grids set out using a Leica TS06 series total station	Grids set out using a Leica TS06 series total station

4.2 The Survey

Nine survey grids covering a total area of 60m by 60m were set out in the area immediately surrounding the find spot which was located using a handheld Global Positioning System with an accuracy of 6m (figure 3). The bulk of the survey area lay on the north-western side of the find spot due to the proximity of an adjacent field boundary. Two techniques were employed for the survey; electrical earth resistance from the 29th-31st October and magnetometry on the 1st November, 2012.

4.2.2 The earth resistance survey was carried out using a Geoscan RM15 meter and MPX15 multiplexer. All grids were surveyed at a traverse interval of 0.5m and with a probe spacing of 0.5m. The results of the resistance survey are graphically presented in figures 4-5. An interpretation of these results is given in Section 5.1 and should be read in association with figure 5b, an interpretative illustration of the resistance survey data.

4.2.3 The magnetometry survey was conducted over the same gridded area using a Bartington Grad 601-2 fluxgate gradiometer with a sample interval of 0.25m. The results of the magnetometry survey are graphically presented in figure 6 and an interpretation of these results is given in Section 5.2.

5.0 Discussion of survey results

5.1 No remains of archaeological significance were detected during the course of the earth resistance survey. There was nothing of note in the area directly over the find spot and all features discovered can be easily explained away as the results of modern agricultural activity. The background readings of the site are fairly homogenous and of mid-range resistance with some patchy areas which are most likely a reflection of the topography of the site and underlying geology. Tilling of the field is evidenced by the presence of a series of regular straight lines running in a northwest to southeast direction across the survey area.

5.1.1 The r1 anomaly measures less than 1m in width and runs northwest to southeast across the entire survey area. It corresponds almost perfectly with the line of a field boundary as marked on the third edition Ordnance survey map of 1932 and as yet, still represented by the current Ordnance survey map (figure 2b-d). It is highly probable that anomaly r1 represents this field boundary.

5.1.2 The r2 anomalies are most likely representative of a series of stone lined field drains associated with 19th and 20th century agricultural use of the site. Each of these anomalies measure less than 0.5m in width and are of varying length. They run at varying angles from north to south and northwest to southeast across the site, following the downward slope of the site and terminating along the south-eastern edge along the fence line and location of r3.

5.1.3 Anomaly r3 is detected as a band of high resistance flanked by low resistance running from southwest to northeast along the south-eastern edge of the survey area. This anomaly may be an indication of the underlying geology and drainage conditions in this part of the site which represents the base of an inter-drumlin hollow. Its width varies from 1m to 5m and its curvilinear form appears quite natural; it could be suggested, given its location as the division between the arable land of the drumlin and the waterlogged land of the marsh, that it forms a natural water margin or stream bed predating reclamation and draining of the marshland. It is also possible that it was once a man made *sheugh* cut during a phase of land reclamation. In its current state this feature has since been filled with soil, rubble and other debris which is evidenced in the ground surface along the line of the wire fence which forms the south-eastern boundary to the site.

5.2 No remains of archaeological significance were detected in the magnetometry survey. The magnetic signals for the majority of the plot were relatively homogenous with frequent but isolated magnetic spikes indicating the presence of ferrous debris throughout the field, an inevitable result of agricultural activity. The contrast between the spikes and the relatively flat readings elsewhere in the plot are most evident in figure 6b. The most prominent anomaly was located at the southeastern edge of the grid. Here a linear, strongly dipolar, magnetic field, up to 7m wide in places, extended along the edge of the grid, coinciding with the line of the modern field boundary. The strength of the readings characterising this anomaly exceeded the level of response to a standard wire fence, so it is likely that a quantity of ferrous debris has accumulated along the line of the boundary over the years; the location of the fence – at the base of an inter-drumlin hollow – would lend itself to a soil drift and a natural build up of material.

5.2.1 A second, weaker magnetic anomaly was visible close to the southwestern edge of the grid. This anomaly was much narrower, ranging from 0.5m to 2m in width, and was recognised by variations of approximately $\pm 1-2\text{nT}$ from the plot mean. Definition of the anomaly was patchy and inconsistent, but it emerged from the northwestern edge of the grid and extended downslope beyond its southeastern edge. The dimensions of the feature combined with its relatively weak and fluctuating magnetic signals, suggest that this anomaly probably imaged a field drain that has filled up with local soil, stone and gravel, of slightly differing magnetic character, at various locations along its course. In the alternative, it may represent the line of a former fence, which is now only detectable by weakly ferrous fittings and nails which were dropped in the soil.

6.0 Conclusion

No features of archaeological significance were discovered during the course of either the earth resistance survey or the magnetometry survey. All anomalies present can be explained away as either disused fence lines or stone lined field drains from agricultural use of the site since the 19th century. As these anomalies have been investigated through mechanical excavation within the gridded area and shown not to be of archaeological importance, it is not recommended that further survey work be carried out at this location. The artefact found at this spot is likely to have been shifted from some other location at Inishargy and been transported by agricultural processes.



Figure 2: Comparison of extracts from 6-inch Ordnance survey maps of Inishargy

- (a) First edition Ordnance survey 1829-1835
- (b) Third edition Ordnance survey 1857-1932
- (c) Fourth edition Ordnance survey 1901-1957
- (d) Current digital Ordnance survey data with current field boundary overlaid and outlined in black

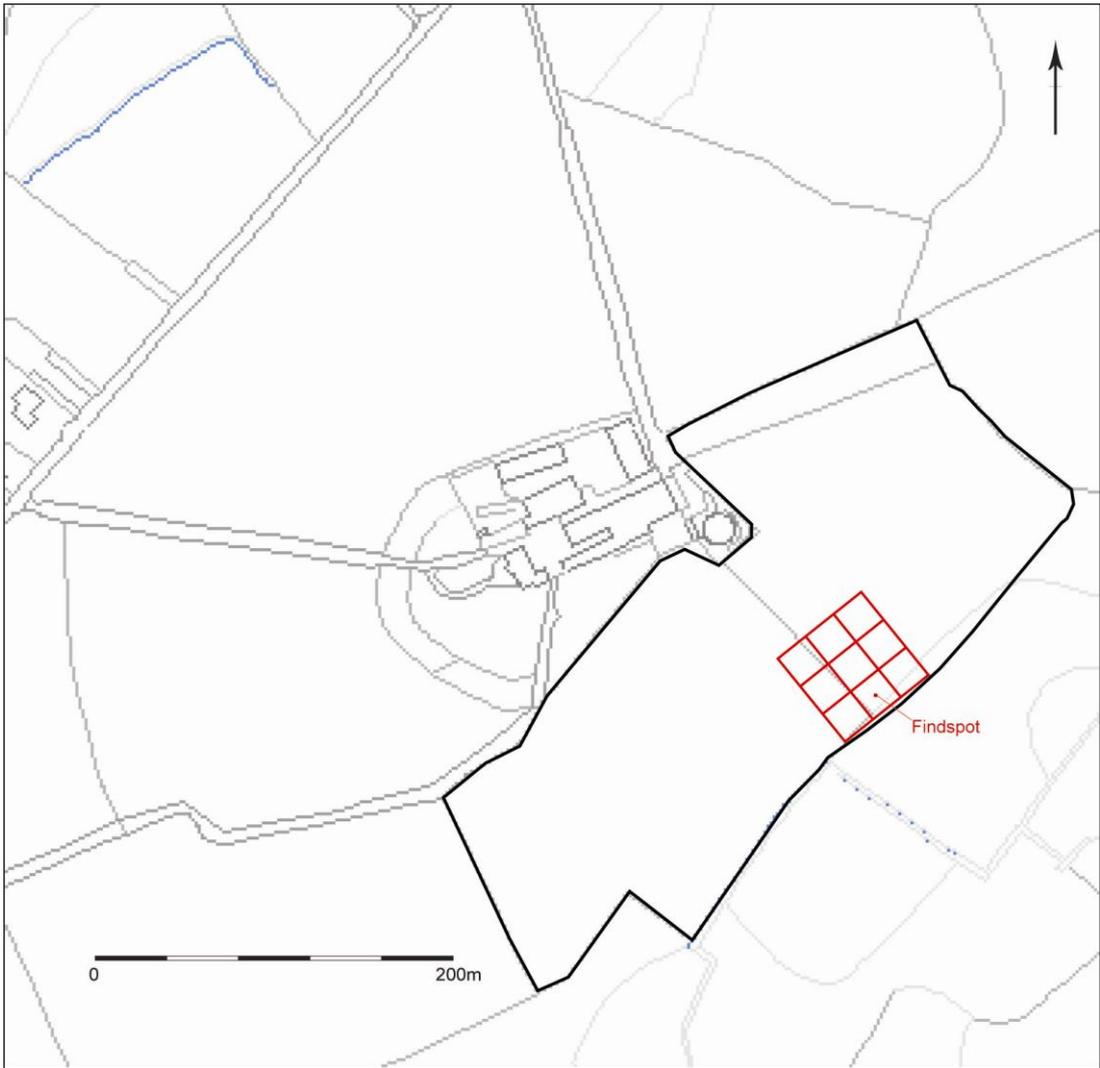


Figure 3: Location of survey grid with findspot marked and current field boundary overlaid on current OS data

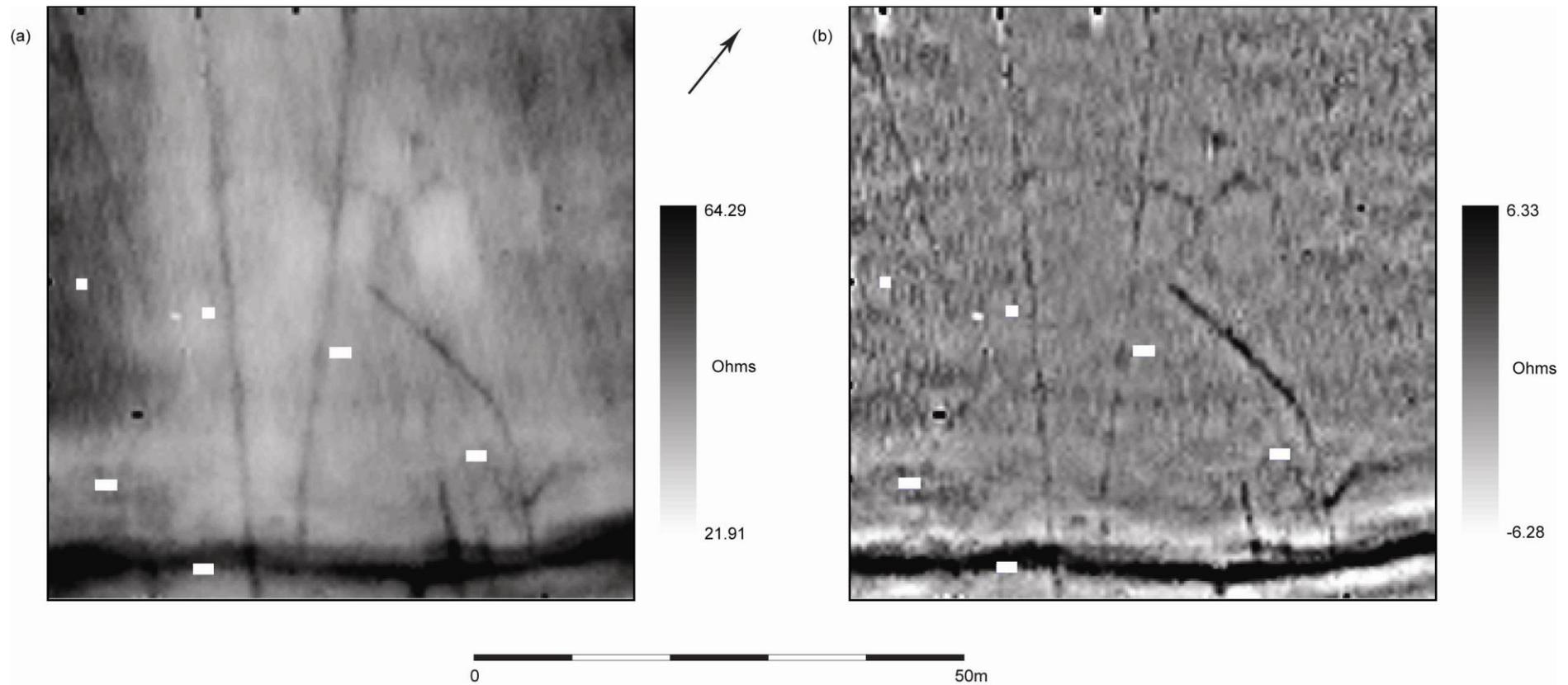


Figure 4: (a) Shade plot of raw resistance data
(b) Shade plot of data after the application of High Pass Filter which has the effect of filtering out broader trends and enhancing the detail of smaller and fainter anomalies

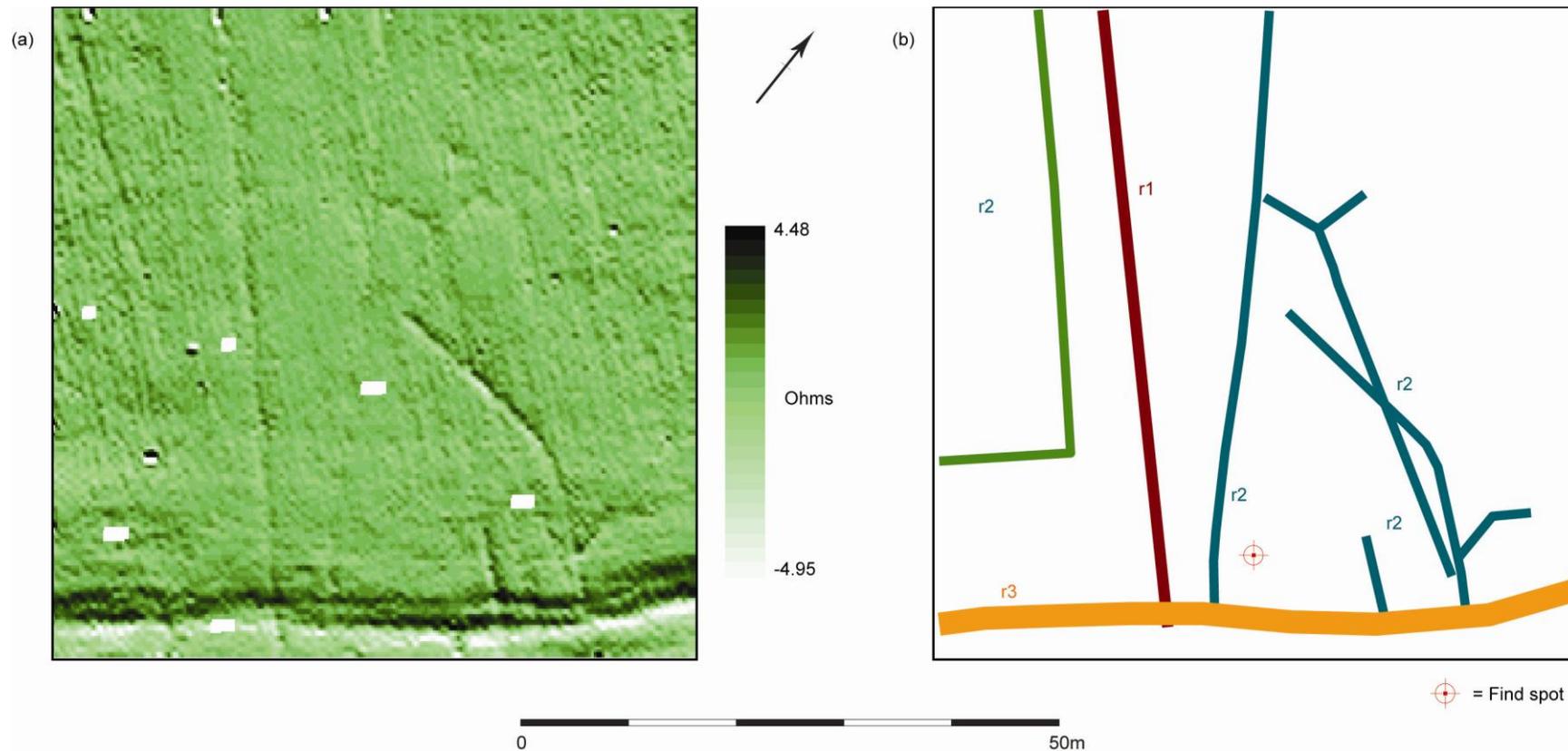


Figure 5: (a) Shade relief plot of resistance data
 (b) Graphic summary of earth resistance anomalies; to be read in conjunction with Section 5.1, location of find spot is marked

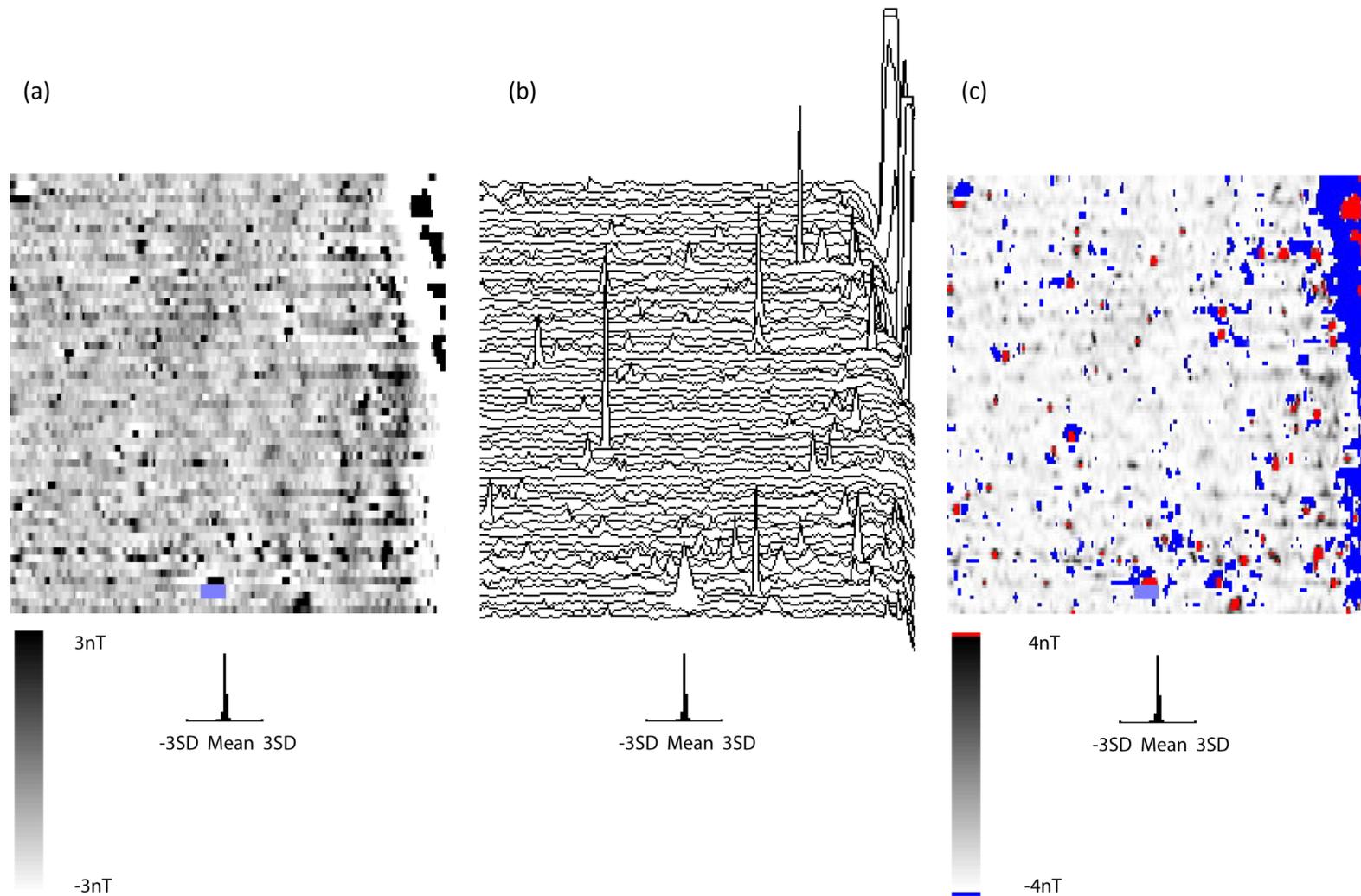


Figure 6 (a) Greyscale plot of raw data
 (b) Trace plot of raw data illustrating the magnitude of magnetic signals
 (c) Colour plot of processed data which has been processed with periodic filter to remove striping effects and 'spikes'

