



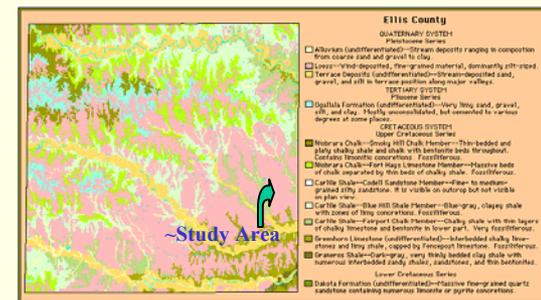
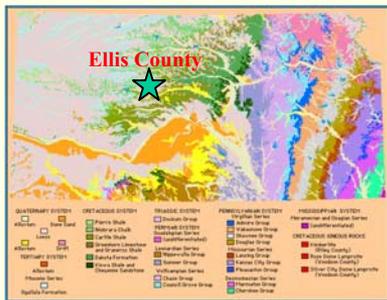
# Results of a magnetometer and electrical resistivity survey for a buried moonshine still, Ellis County, Kansas



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## Abstract

Remnants of a moonshine still buried during the early 1940s were found using an integrated geophysical field technique. Interpretation of a magnetometer-electrical resistivity survey [ER] on private, uncultivated land in east-central Ellis County, Kansas indicated two anomalies. The largest and most distinct anomaly is sub-circular and elongate along an east-west trend. The second smaller anomaly is sub-circular along a north-south trend. Magnetometer survey lines were aligned and measured along both north-south and east-west coordinates. ER anomalies spatially matched and confirmed the magnetometer anomalies. The ER survey consisted of two runs using two different electrode separations in order to evaluate different depths of electrical penetration. Interference signals from a nearby power line were detected in both the magnetometer and ER surveys, but the interference was not strong enough to mask the buried material. On-site excavation to a depth of 2-3 feet at each anomaly unearthed copper, steel, and tin materials in the form of curved plating, mesh, and wires at the large anomaly, and as a small can at the small anomaly.



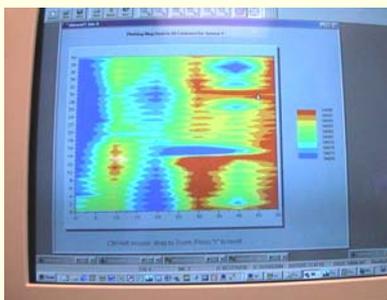
Field site and magnetometer survey. View north. Chris and Sarah.

Sarah operating magnetometer console

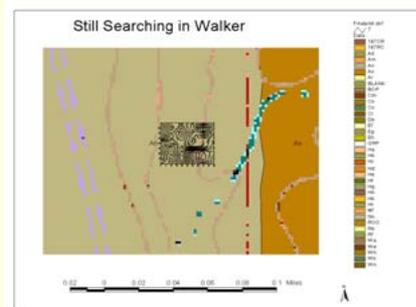
Power Lines



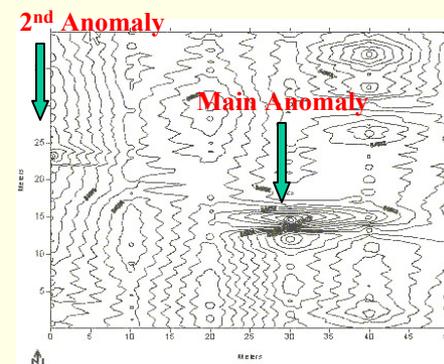
Field site: resistivity survey. View south. Daryl, Sarah and Chris.



Computer Modeling.



Magnetic anomaly map integrated with soil map using ArcView ©

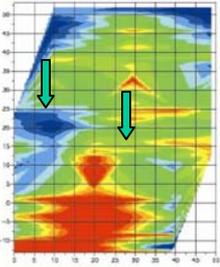


Magnetic anomaly map exhibiting interference from power lines.



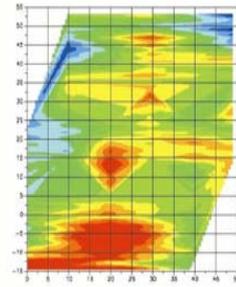
Resistivity data in X0Y plan for N factor(s) 0.2

### Shallow ER penetration



Resistivity data in X0Y plan for N factor(s) 0.5

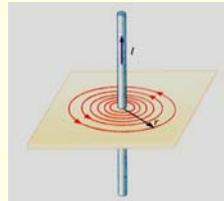
### Deeper ER penetration



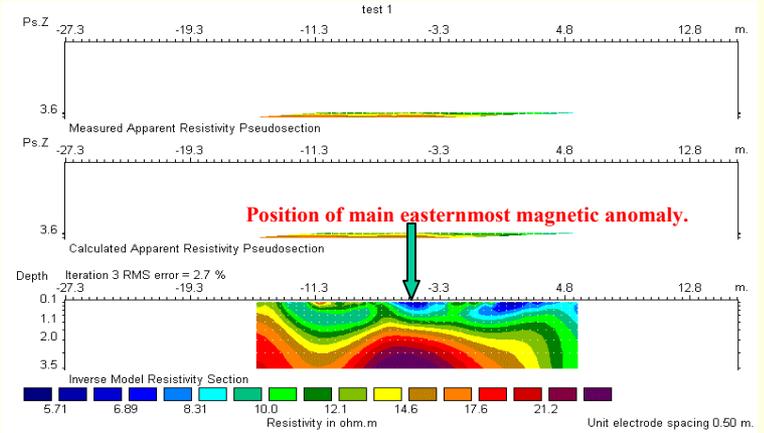
Electrical resistivity contours based on two different electrode spacings for determining electrical responses at two depths. Note that power line still creates interferences. ER grid shifted to west to better include westernmost magnetic anomaly (left arrow).



Who are those guys?

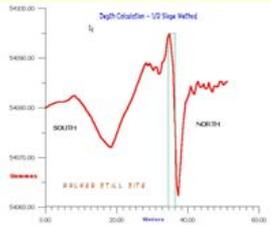


Magnetic field pattern around current.



Inversion Completed

Depth-conversion of electrical resistivity profile along main easternmost anomaly. Inversion better resolves anomaly



Depth ~1-2 meters.



Excavation commences.



1st find = tin can.



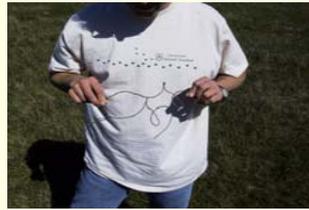
In situ metal.



Large metal sheet.



Wire mesh.



Wire.



Dig Deeper!



Mixed metals.



Copper fragment.



“Modern” Copper Still.



Inspecting metal fragments.



Family members.



Caught again!



Old Kansas Saloon.



Rusted iron fragments.



We wish to acknowledge the family who graciously allowed the FHSU geophysics crew access to their land, the excavation process, and in the ‘searching’ for their ancestral memories.