

EM31 TERRAIN CONDUCTIVITY SURVEYS

HIGH RESOLUTION GEOPHYSICAL TECHNOLOGIES

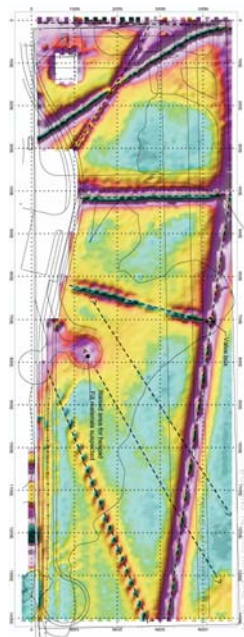
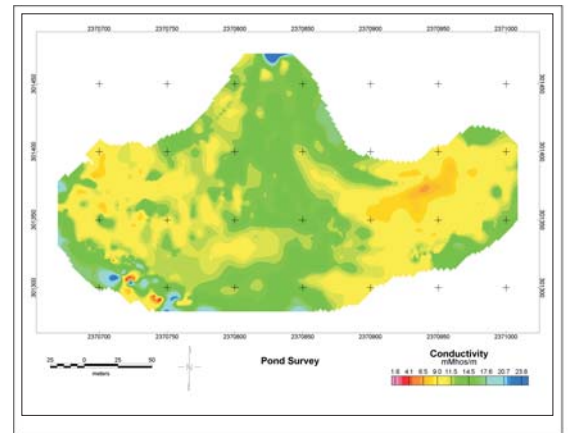


ARM Geophysics performs Terrain Conductivity Surveys for a variety of applications. To perform Terrain Conductivity Survey ARM uses a Geonics EM-31DL conductivity meter. For environmental applications the EM31 data can be used to map landfills, buried drums, and shallow groundwater contamination. It also has geotechnical applications such as soil thickness and possible sinkhole or pinnacle locations in karst terrain.

Where possible ARM integrated the data collection with Global Positioning Systems (GPS) with at least sub-meter accuracy. Depending on how the data is collected the effective depth of the system is approximately 7.5 or 18 feet. The

System is a non-intrusive conductivity measuring device, and data can be collected almost as fast as the operator can walk. The system provides two measurements, Quadrature (apparent conductivity) and In-phase data (metallic response). The data is digitally recorded and periodically down-loaded to a field computer for quality assurance and preliminary interpretation. Data interference's may occur near utility lines and metal structures.

At the conclusion of a survey, the EM-31 data is interpreted and mapped as shown in the example. The EM-31 data is contoured, and presented in a fashion that will show the interpreted subsurface features (ie; areas of concern).



An EM-31 survey, which measures the apparent conductivity of the subsurface, can be used to estimate the relative amounts of soil and rock within the area of measurement. Higher apparent conductivities measurements would imply a thicker soil cover, while lower apparent conductivities would suggest a greater effect from bedrock, therefore indicating a thinner soil cover. Discrete areas of elevated conductivity within a limited areal extent can be an indicator of subsurface sinkhole development activity.

EM-31 surveys can also be used to map utilities, drums, waste pits, USTs, and landfills. Each of these features is highly conductive and can be identified in the EM-31 data. The conductivity map to the left shows the conductive response from subsurface pipes and a waste pit.



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