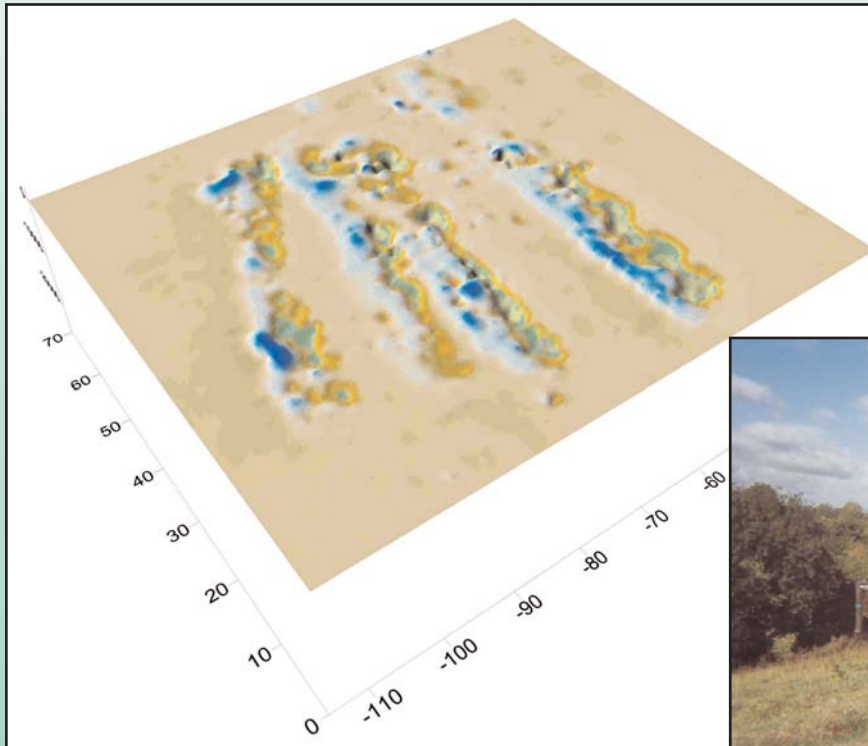


Magnetometry and magnetic gradiometry are two of the most commonly used geophysical methods in site investigation. The principle behind these techniques is the detection of variations in the earth's magnetic field, usually associated with changes in the magnetic susceptibility of the subsurface, or buried metalliferous objects.

Magnetic gradient surveys are conducted along survey lines or on a grid basis to highlight anomalous subsurface areas. Results can be presented as a contour plot or profile of vertical magnetic gradient against distance in units of nanoTesla/metre (nT/m).



Vertical Magnetic Gradient Survey over a Landfill in Devon



APPLICATIONS

- Mapping buried foundations and obstructions on derelict sites
- Locating concealed mineshafts
- Detecting geological structures such as faults, fissures and vertical contacts
- Location of hazardous waste materials and industrial scrap metal
- Detection of buried metal pipes, tanks and other man-made structures
- Mapping of archaeological features

ADVANTAGES

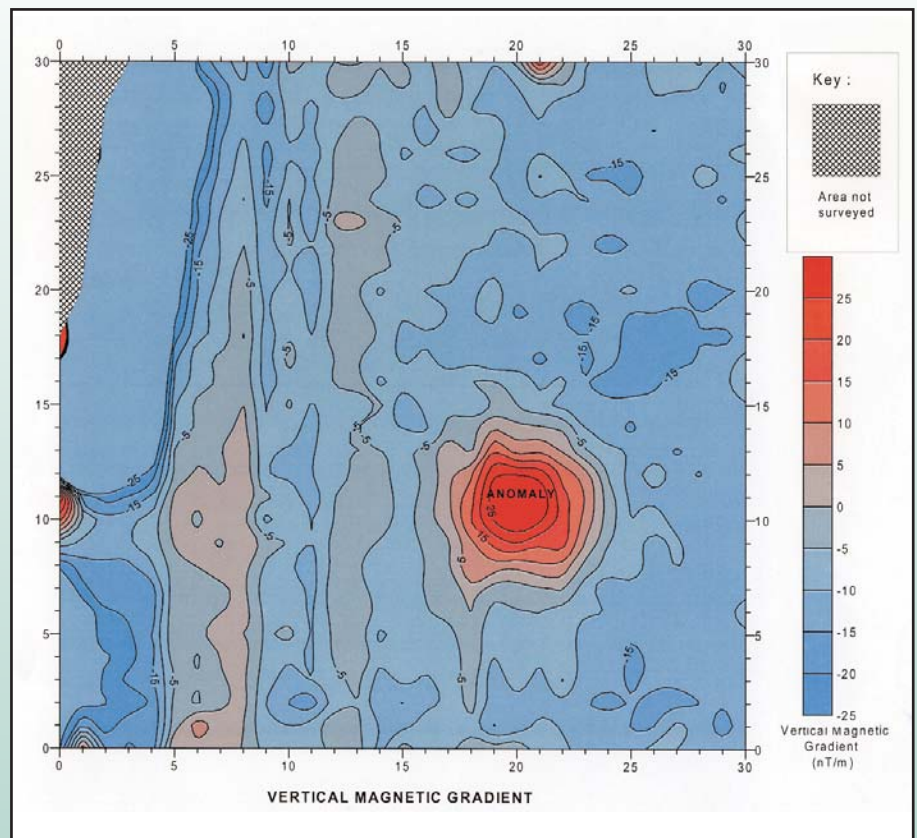
- Cost effective mapping tool
- Non-intrusive technique
- Up to 5000m² can be surveyed in one day on a 2m grid basis
- Applicable to a large number of engineering, geological, environmental and archaeological investigations
- Ease of deployment
- Speed of operation

The Fugro Group is an international organisation with around seven thousand staff in over fifty countries. Our major disciplines are Geotechnics, Environmental Services and Survey.

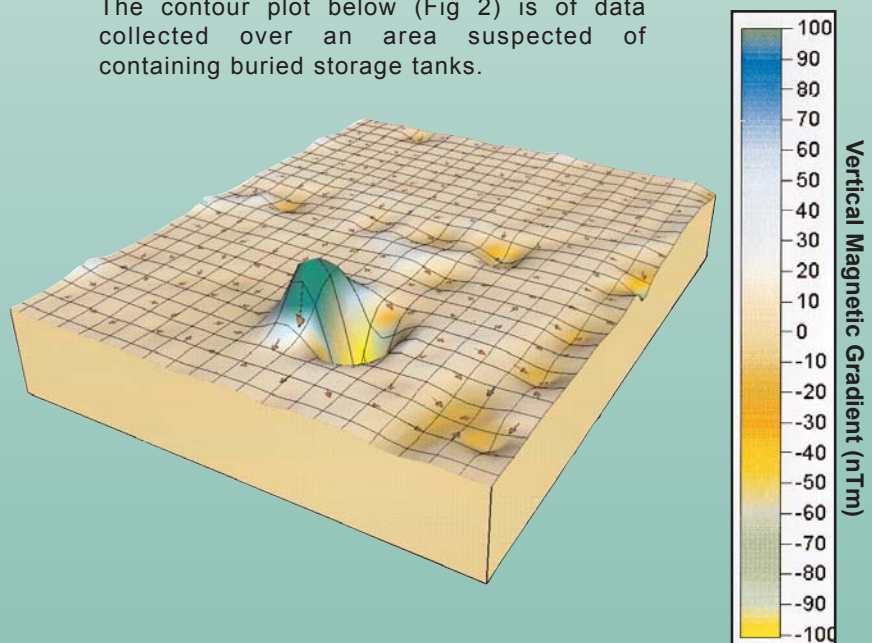
The G858 Caesium Vapour Magnetometer is an instrument commonly used in magnetic surveys. An Alkali metal, in this case caesium, is irradiated with beams of spectral light. This process is known as optical pumping. The procession of these charged vapours under the influence of the geomagnetic field can then be measured.

The Vertical Magnetic Gradient is normally measured using two containers of proton-rich fluid at a vertical separation of 0-5m. This eliminates the need to monitor the time-variation of the geomagnetic field and aids the resolution of complex anomalies.

Fig 1 (right) illustrates a typical magnetic anomaly over a suspected mineshaft in the north of England.



The contour plot below (Fig 2) is of data collected over an area suspected of containing buried storage tanks.



Magnetic surveying is often used in conjunction with other geophysical methods to give the most detailed view of the subsurface possible.

OTHER GEOPHYSICAL TECHNIQUES AVAILABLE :

- Electromagnetic Induced Conductivity
- Microgravity
- Ground Probing Radar
- Seismic Refraction & Reflection
- Cross-hole & Down-hole Seismic
- Resistivity Depth Profiling & Imaging
- Borehole Geophysics

Details of services and specifications may change without notice.

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Ref: B16-Vertical Magnetic Gradient

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