EARTH SYSTEMS
Environment · Water · Sustainability

Geophysical Subsurface Surveys

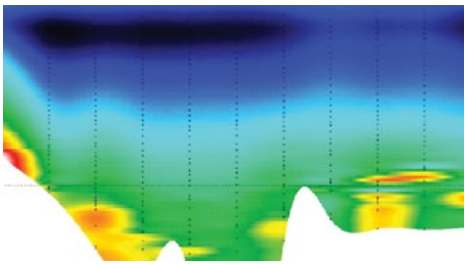
Earth Systems utilises its expertise in cutting-edge, non-invasive geophysical survey and mapping techniques to provide cost-effective subsurface exploration services for a range of environmental investigations. These techniques can be used to identify contaminated seeps and aquifers, and map groundwater quality and contaminant dispersal as well as subsurface geology.

Non-invasive geophysical mapping utilises the latest technology to conduct rapid and cost-effective subsurface surveys. Earth Systems' geophysical mapping services include:

- Subsurface geological mapping
- Aquifer identification and delineation
- Groundwater quality mapping
- Contaminated site assessment
- Identification and mapping of leaks and seeps from dams, tanks, channels, landfills and mine waste structures.

These geophysical mapping techniques allow coverage of a number of hectares in just a few days, and can be used to differentiate between zones both horizontally and vertically.

The geophysical technologies utilised by Earth Systems can be used to acquire two-dimensional cross-sections to a depth specified by the investigation, which can be composited into highly informative three-dimensional reconstructions of the subsurface.

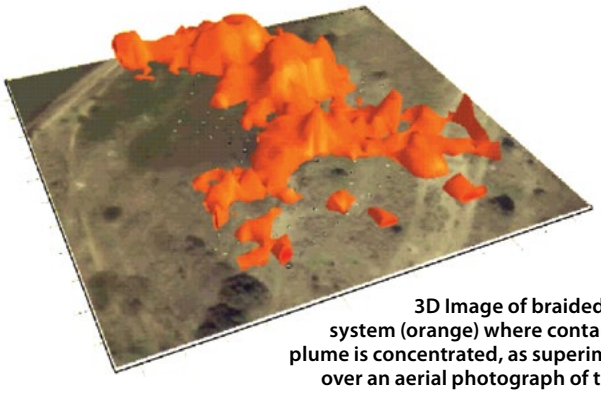


Cross-section of pollutant plume (dark blue) in sand channels incised by clay lenses (light blue).

SERVICES PROVIDED

Earth Systems can design and implement a detailed geophysical program, process and interpret data, provide reports and combined with advanced geochemical and hydrogeological expertise, use this knowledge to help address site issues.

The geophysical methods used by Earth Systems are at the forefront of technological innovation and include ground magnetics, ground penetrating radar, standard electromagnetic techniques, depth-resolving electromagnetic techniques (eg. TEM), resistivity and self potential.



3D Image of braided fluvial system (orange) where contaminant plume is concentrated, as superimposed over an aerial photograph of the site.

OUR EXPERIENCE

Earth Systems has recent experience in non-invasive subsurface mapping throughout Australia, including:

- Delineation of DNAPL and LNAPL plumes and identification of other potential off-site migration pathways.
- Characterisation of aquifer system at a power station to establish connectivity between aquifers and saline seeps.
- Cross-section of pollutant plume (dark blue) in sand channels incised by clay lenses (light blue) .
- This information assisted with prevention of contamination of local waterways.
- Identification of sulphate distribution at an abandoned mine in South Australia.
- Identification of water accumulation within mine wastes to assess geotechnical stability and develop remediation actions.
- Characterisation of potential pollutant migration paths from a landfill to prevent potential contamination of Ramsar wetlands.

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