

Geophysics and Geology

Electromagnetic Conductivity

Electromagnetic (EM) methods encompass a wide spectrum of tools and techniques, and include commonly-used tools such as metal detectors and pipe and cable locators for detection and mapping of buried utilities.



EM conductivity is most useful for soil and rock mapping. The results are similar to resistivity, except measurements are made using an induced electromagnetic field, rather than direct injection of electrical current. No direct contact with the earth is required with this method.

Like resistivity, EM conductivity is useful in void detection, delineation of fill areas and qualitative assessment of soil and rock distribution. In addition, though not as economical as a pipe and cable locator, EM conductivity tools may also be used for metal detection, and that feature is frequently used in supplement with soil-conductivity mapping for the location of buried metallic utilities, well casings and archaeological artifacts.

More information on EM conductivity is available from the Federal Highway Administration at the following link:

<http://www.cflhd.gov/resources/agm/geoApplications/SurfaceMethods/94ElectromagneticMethods.cfm>