



Multi-Frequency EM Conductivity Meter

Profiler™ EMP-400

www.geophysical.com

The Profiler™ EMP-400 is GSSI's powerful electromagnetic induction tool. This EM system was built from the ground up using a proprietary source cancellation and calibration system to create superior signal stability at an affordable price.

Typical Uses

- Environmental assessment
- Archaeology
- Geological investigation
- Site assessment
- Ground water investigation
- Agricultural research

Acquire Data

- User-friendly system
- Unmatched signal stability
- Multi-frequency system

Deliver Results

- Flexible battery options
- Advanced software features for real-time data results
- Files are stored on internal memory and structured in Excel format

Premium Mobility

- Lightweight – weighs under 10 pounds
- Wireless data logger eliminates cable noise
- Integrated GPS
- Environmentally sealed system that is durable and easy to transport



“The GSSI Profiler EMP-400 is a valuable tool that provides our clients with more efficient and comprehensive geophysical surveys. We have been impressed with its simplicity to deploy in the field and the data it outputs to create an easy to understand sub-surface image of our geophysical survey areas.”

Fletcher S. Thompson, E.F. Thompson Geotechnologies, Inc.

Profiler Solutions

Geophysical, agricultural and environmental professionals require a reliable and accurate means to examine soil conditions and structures found beneath the surface of the earth. GSSI's GPR and EM instruments have long been the choice for geophysical investigations with a wide range of high precision, field proven tools.

Versatility and Functionality

The Profiler EMP-400 is a frequency domain, electromagnetic profiling system. By acquiring multiple frequencies, the user can select the frequencies that provide the best results for a specific application.

The Profiler system's mechanical structure and electronics are designed for maximum structural and thermal stability. These key features minimize signal drift and maintain an accurate zero level and system null across the full bandwidth of the system.

Advanced software features offer the user several options to view the data, thereby enhancing survey efficiency. The "freeway" collection mode allows the user to collect un-gridded data by using GPS coordinates as reference points. Users can freely roam the survey site without setting up a physical grid on the ground to collect data. The Profiler EMP-400 also provides real-time data output via a color-coded map, which enables the user to quickly and easily identify areas of interest on site.



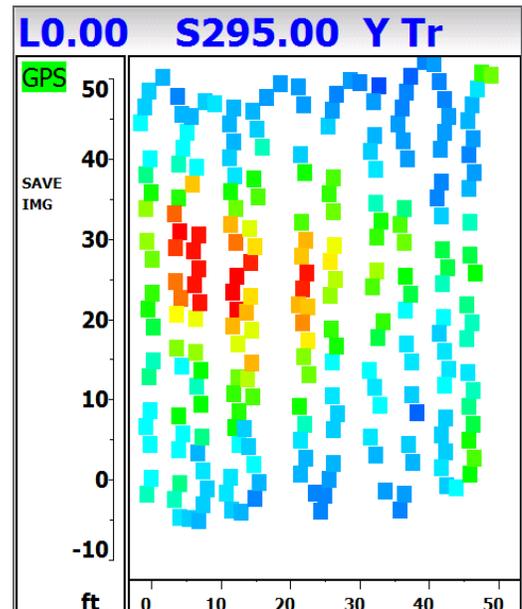
Picture shows complementary GPR system, UtilityScan™



Partnering GPR and EM Technology

Use GSSI's Profiler EMP-400 as a stand-alone geophysical instrument or as a complementary tool to our GPR products. Many companies find EM to be an effective survey method for large-scale environmental assessments, such as UST and drum locating, plume mapping and landfill delineation.

By using the Profiler as a quick reconnaissance level survey tool, users are better apt to narrow down areas of interest on large survey sites and use GPR to concentrate on anomalies.

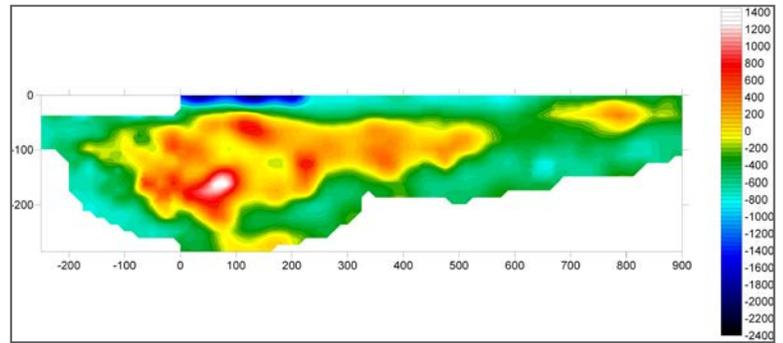


Data illustrates freeway collection mode using the real-time color-coded mapping feature.

Data Solutions

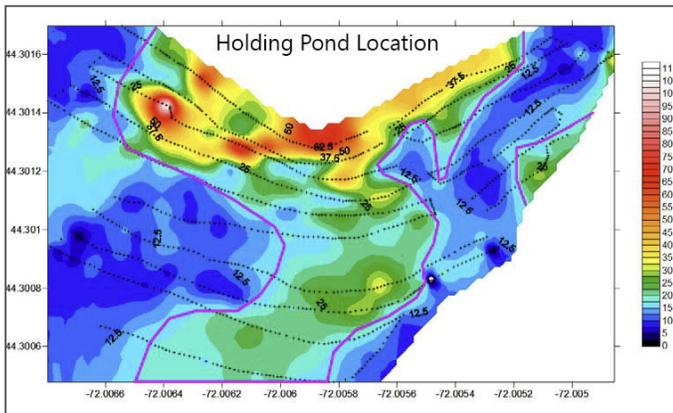
The Profiler can be configured to simultaneously measure up to 3 frequencies from 1000 Hz to 16,000 Hz. The system can be deployed in either the vertical or horizontal dipole mode.

Landfill Delineation



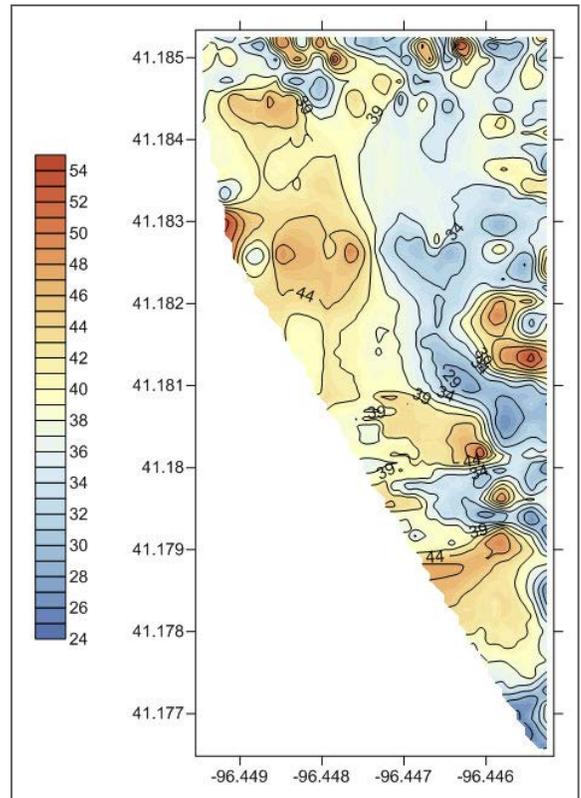
Soil conductivity map of a former landfill site indicating lateral extent of areas of high conductivity caused by landfill refuse.

Environmental Assessment



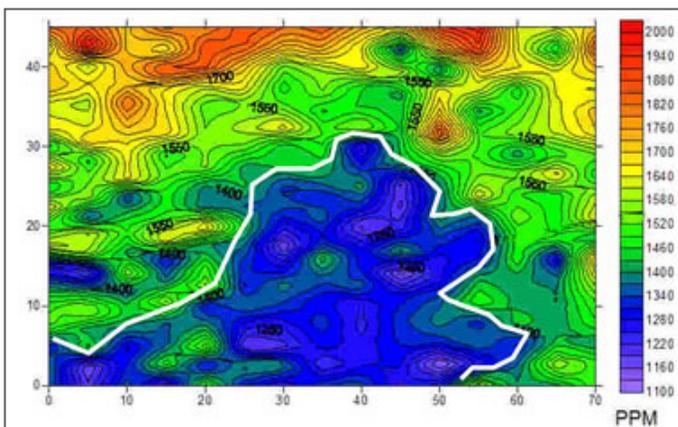
Profiler EM color contour plots showing the ability of the system to map potential plumes related to changes in soil conductivity. The data, collected at 15 kHz conductivity, illustrates a leachate plume from a holding pond represented by the pink outline.

Precision Agriculture



GSSI Profiler EMP-400 16 kHz conductivity plot showing variations in soil texture & moisture holding capacity at a known test plot. Data was collected with the system towed behind an ATV – note GPS positioning. Scale to the left shows the values represented in mS/m.

Geological Investigation



Data illustrates the lateral extents of a resistive anomaly common to sinkhole geology.

Electromagnetic Induction Method Explained

EM instruments contain two sets of coils that are located on opposite ends of the tool. One set of coils is used to transmit a primary magnetic field, which generates an electrical current into the ground. The induced current then generates a secondary magnetic field, which is sensed by the coils in the receiver end of the instrument. Data is then displayed on a control unit indicating the conductivity of the earth.

EM Equipment

The Profiler system is made up of two main components:

- 1 EM instrument; which is comprised of the transmitter (a), receiver (b) and electronics enclosure (c)
- 2 PDA; the instrument interface



System Specifications	
Coil Spacing	4 ft (1.21 m)
Operational Bandwidth	1 kHz to 16 kHz
Memory	248.5 MB 180,000 continuous data points 360,000 discrete data points
Power	Re-chargeable Lithium Ion battery or 4 (four) AA batteries
Data Transfer	by Microsoft ActiveSync or Device Manager via USB cable
Display	2.2 x 2.9 in (5.58 x 7.36 cm) color screen
Records up to 3 frequencies simultaneously	Measurement values: In-phase: PPM Quadrature: PPM Conductivity: mS/m
Mechanical	
Dimensions	57.5 (l) x 9.5 (w) x 4.9 (h) in (1.46 m x 24 cm x 12.4 cm)
Weight	9.9 lbs (4.5 kg)
Environmental	Water resistant

System Includes

- Profiler™ EMP-400 System with rugged, wireless data logger
- 20-channel WAAS GPS
- Batteries
- Battery chargers
- Carrying strap and low-carry handle
- Rugged transit case
- Instruction manual and Utilities CD

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04.01.2015