

Our vision

We strive to go beyond ordinary mapping with the goal of making groundbreaking discoveries. This ambition drives our technological engineering, the development of signal processing methods, data analysis, and interpretation. Our exploration techniques are not just advanced; they represent the pinnacle of sophistication, meticulously designed to reveal new geological insights and unlock the hidden potential of surveyed areas. Each survey is guided by a singular vision: to be more than just a mapping company, but one that charts the course of discoveries, leaving a lasting impact on the history of territorial exploration. Our ultimate measure of success is our clients' achievements in exploring their properties.



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Our services

Expert Geophysics provides a wide range of airborne geophysical services tailored to meet the unique needs of clients worldwide. We offer various airborne electromagnetic survey options, optimally combined with other methods. Our experts use their extensive knowledge and advanced technologies to deliver customized solutions that enhance groundwork and reduce drilling risks.



Our team

Our team comprises seasoned professionals with extensive experience in geophysics, electronics, and field operations. We have a strong track record of delivering consistent results and exceeding client expectations. Our collaborative and client-centric approach ensures that we deliver tailored solutions for exploration tasks and goals.

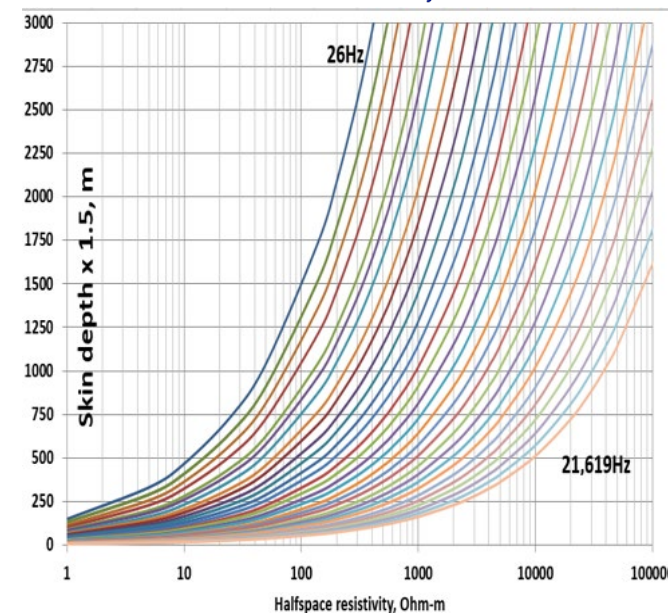
Our geophysics experts help you build a solid foundation for exploration today, ensuring discoveries tomorrow.



Our technicians and engineers are continuously engaged in research and development, enhancing our technology, developing new solutions, and providing ongoing support to our field crews during surveys.

MobileMT

Mobile MagnetoTellurics (MobileMT) is the most advanced generation of airborne natural field (passive) AFMAG technology. MobileMT is the only system proven to deliver geoelectrical information from near-surface to greater than 1 km depth with high spatial resolution. MobileMT combines the latest advances in electronics, airborne system design and sophisticated signal processing techniques to provide unmatched capabilities in the current frontiers of geophysical surveying.



MAIN PUBLICATIONS



MobileMT represents a game-changer in the field of mineral exploration, offering unprecedented capabilities for detecting and mapping critical minerals.



Technical specifications:

- Airborne receiver: Three orthogonal induction coils
- Airborne shell: Aerodynamic shaped capsule
- Digitizing rate: 73,728 Hz
- Tow cable length: 97 m
- Ground sensors 4 pairs of electrodes
- Electrode separation 50 m (typical)
- Frequency range: 25 Hz – 20,000 Hz
- Output computed parameters: Apparent conductivity for selected frequencies
- Output frequencies: Selectable from 25 Hz – 20,000 Hz depending on signal strength

Output parameters:

- Apparent conductivity is computed for selected frequency windows;
- Inverted resistivity-depth products.
- Complimentary data: magnetic field and VLF

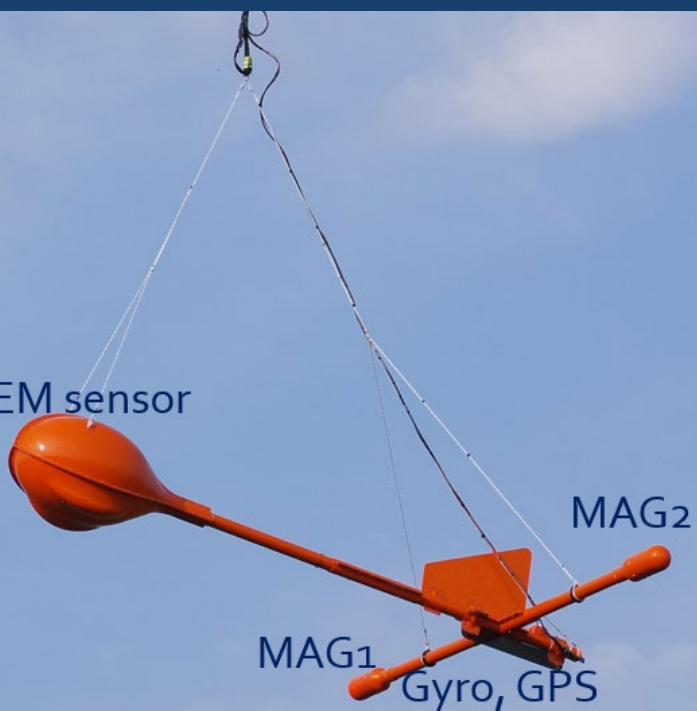
MobileMTm

MobileMTm is a compact version of the original MobileMT system

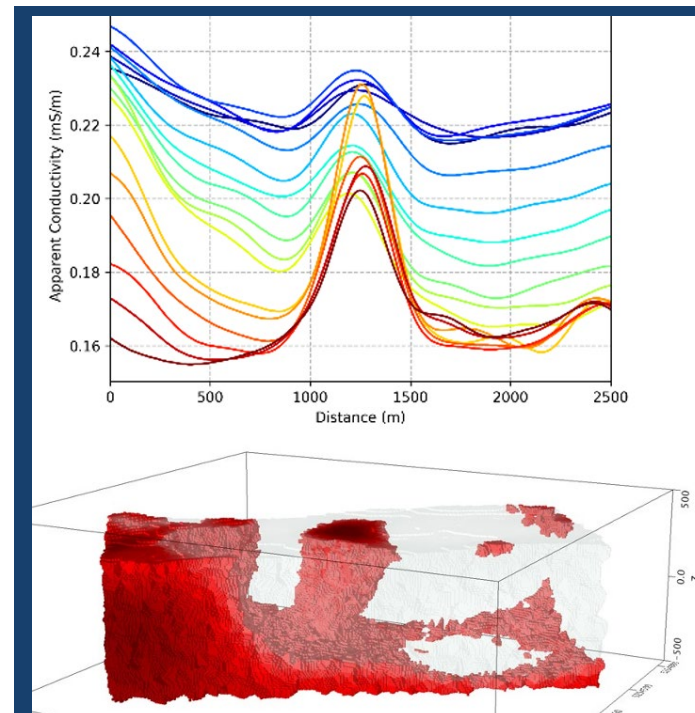
The airborne receiver has smaller coils, and two magnetometers are installed on the same frame, configured to measure the horizontal gradient of the magnetic field

Utilizes EM fields in a slightly higher frequency range (50 Hz to 27 kHz)

- Developed specifically for detail surveys with < 100 m line spacing and for the identification of discrete targets and structural features
- It is an optimal solution for surveys at high altitudes (>3000 m a.s.l.)
- Can be combined with radiometry



More information:

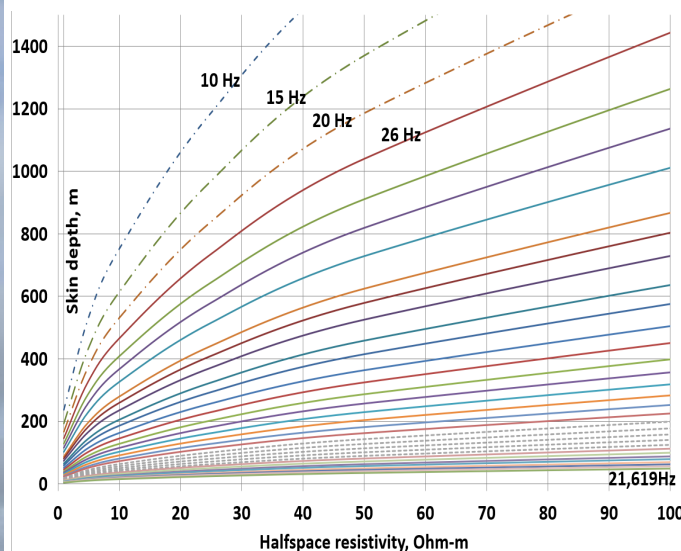


MobileMTd

The following advantages of the drone MobileMT system:

- reducing mechanical noise and getting data at lower frequencies beginning from 10-20 Hz, which is crucial in exploring conductive areas or areas covered by thick conductive overburden;
- flexibility in selecting the optimal survey timeframe amid peak natural electromagnetic activity, including after sunset.

MobileMTd depth of investigation in conductive environment



More information:



The drone platform option prioritizes delivering higher data quality at depth rather than solely reducing costs.

Drones operate at slower speeds, which reduces motion noise and enhances data quality, particularly in terms of depth of investigation. Additionally, drone-based surveys are more cost-effective than helicopter-based surveys, which incur higher expenses.

MobileMT case studies

Scan and read!



Deep gold bearing structures



Critical Minerals



Kimberlites



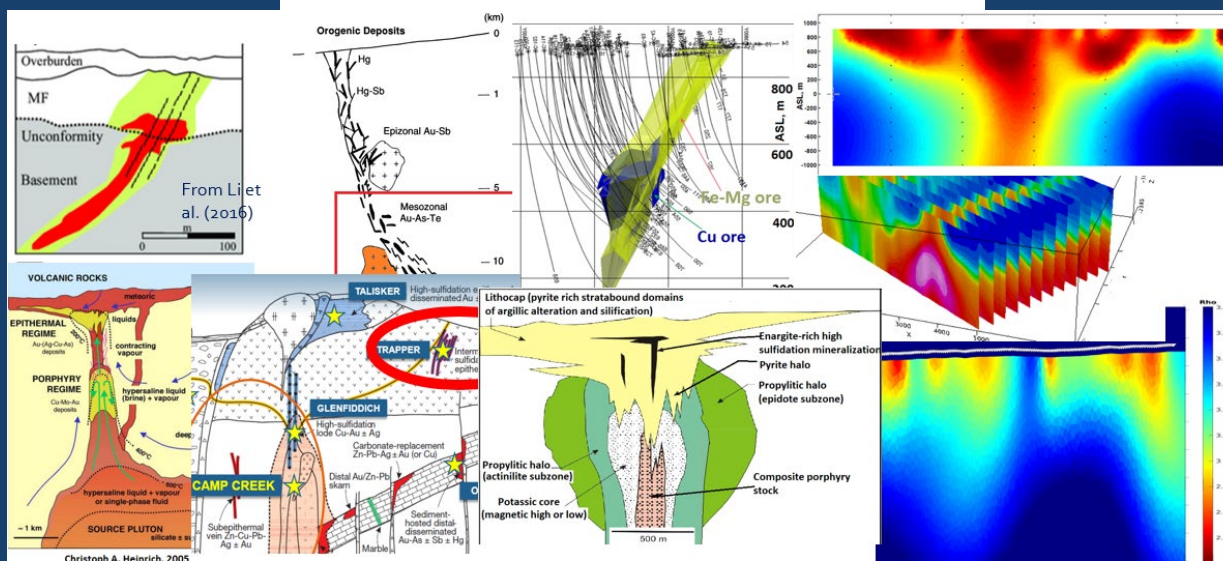
Unconformity and basement-hosted Uranium (Athabasca)



Porphyry and Epithermal



Massive Sulphides

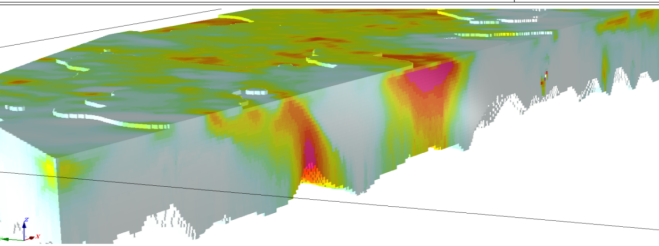
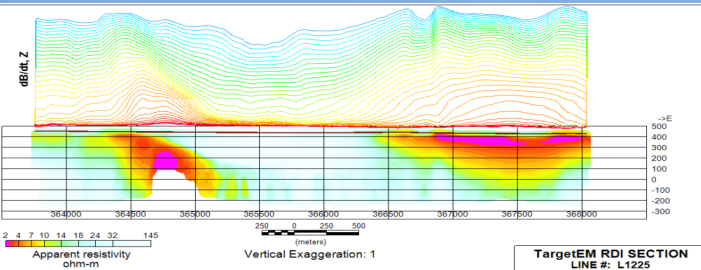


TargetEM

Expert Geophysics Limited developed a series of airborne time-domain systems for commercial surveys worldwide. TargetEM is the latest airborne EM development by the industry-leading R&D team. Currently, there are two TargetEM configurations (21, 26 m diameter), which are fast and easily customizable depending on exploration tasks and terrain conditions.

The main advantages of the TargetEM systems family are the following:

- Very high signal-to-noise ratio
- 12.5/15 Hz base frequency
- Superior rectangular waveform with a short turn-off time
- Dipole moment typical ~500,000 NIA with TargetEM26
- 3 rigid orthogonal coils (X,Y and Z)
- Full waveform recording at digitizing rate of 73,728 Hz
- dB/dt and B-field data
- Raw streaming or/and stacked & processed data
- Complementary MAG and VLF data



case studies



TargetEM is not just another time-domain system. It's a combined time-domain, AFMAG VLF and mag system (+spectrometry on demand).

mTEM (micro-TEM)

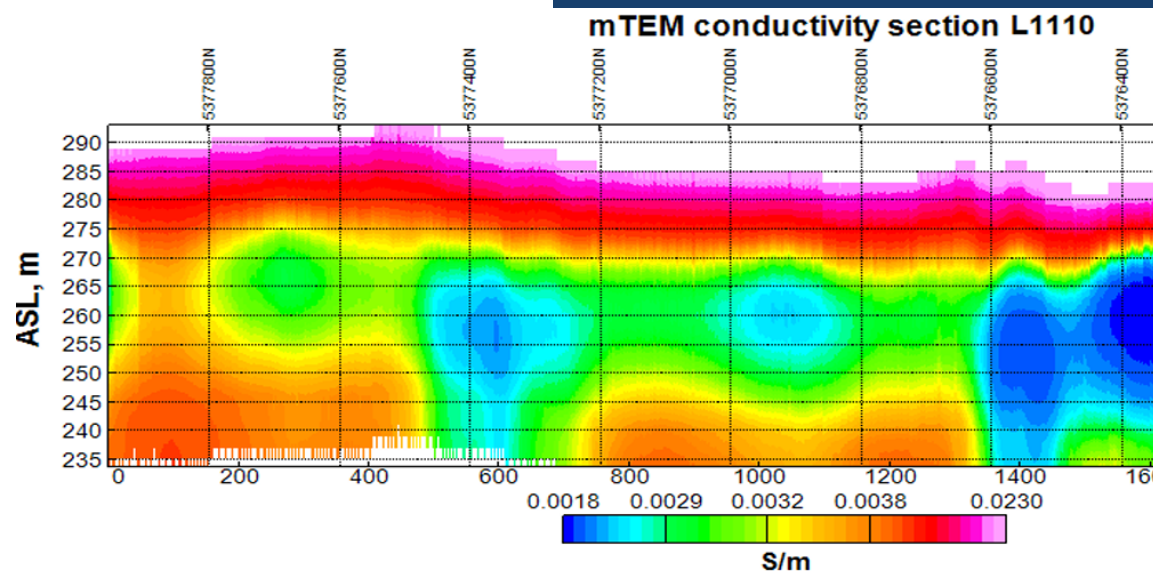
mTEM, a time-domain system for detail near surface investigations.

mTEM system advantages:

- Small footprint and high base frequency enable very high spatial resolution;
- Detail subsurface geoelectric characterization;
- Designed to work in areas with industrial electromagnetic noise (powerlines).

Saudi Aramco earns recognition for exploration and water management technologies with the help of EGL's airborne **mTEM** system.

More information:



Complementary methods



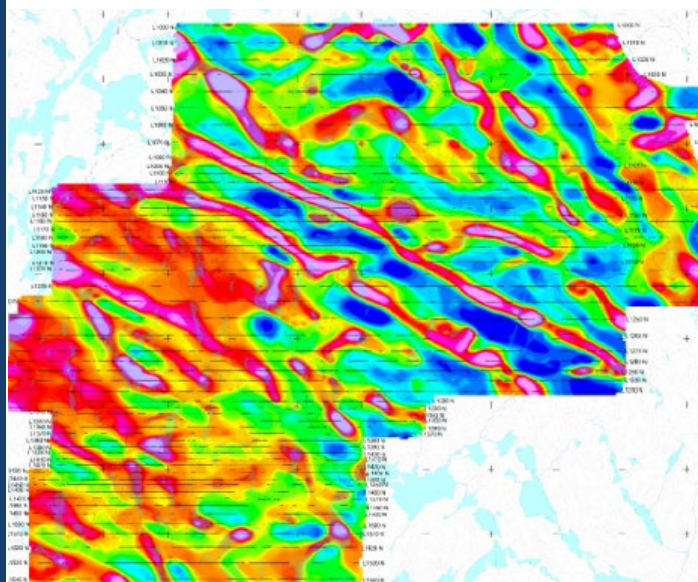
Magnetic field (with all systems)

Radiometry (with MobileMTm, TargetEM)

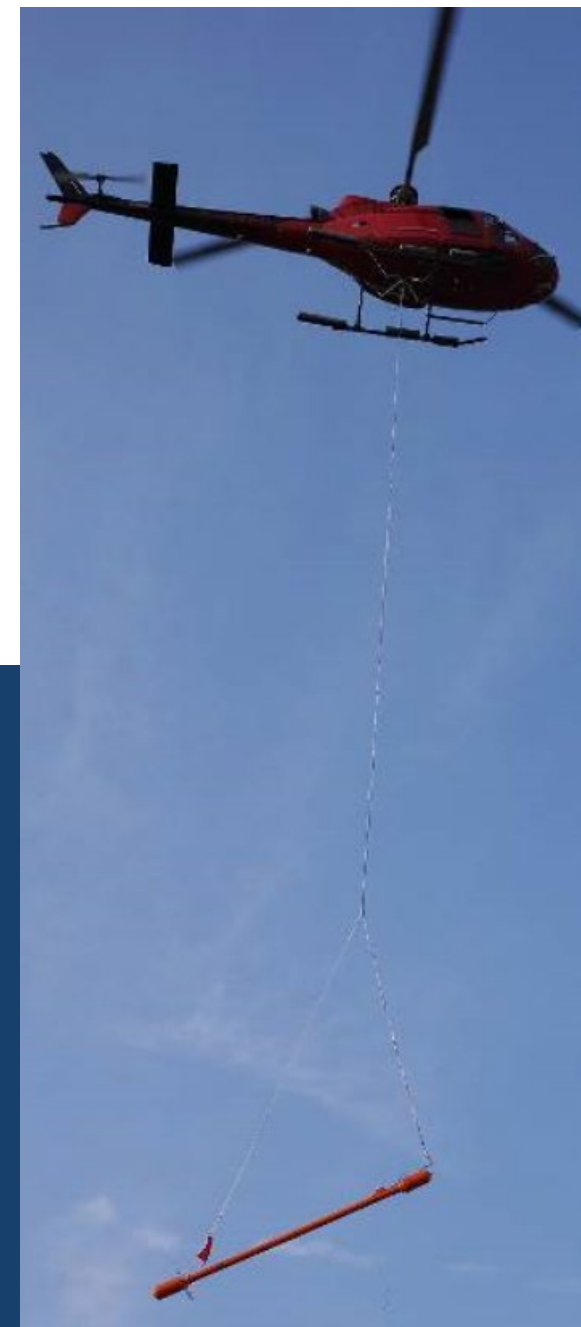
VLF (with MobileMT, MobileMTm, TargetEM)

The airborne magnetometer is a state-of-the-art system developed by EGL. It utilizes a Geometrics G822A or Scintrex CB-3 cesium magnetometer sensor, installed in the separate towed-bird and a high-accuracy Larmor frequency counter developed in house. Magnetometry is combined with all electromagnetic systems, as well as used separately.

Gamma spectrometry – A Radiation Solutions Airborne Gamma Ray Spectrometer RS-500, with a sampling interval of 1.0 second. The RS-500 Series gamma-ray spectrometer is the “Gold Standard” in airborne instrumentation for the detection and measurement of low level radiation from both naturally occurring and man-made sources.

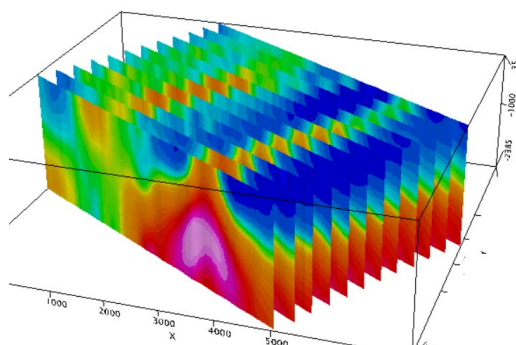
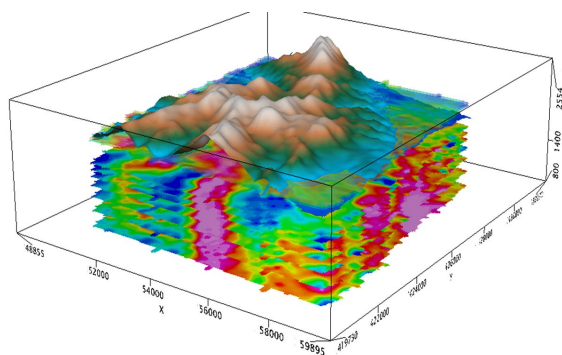
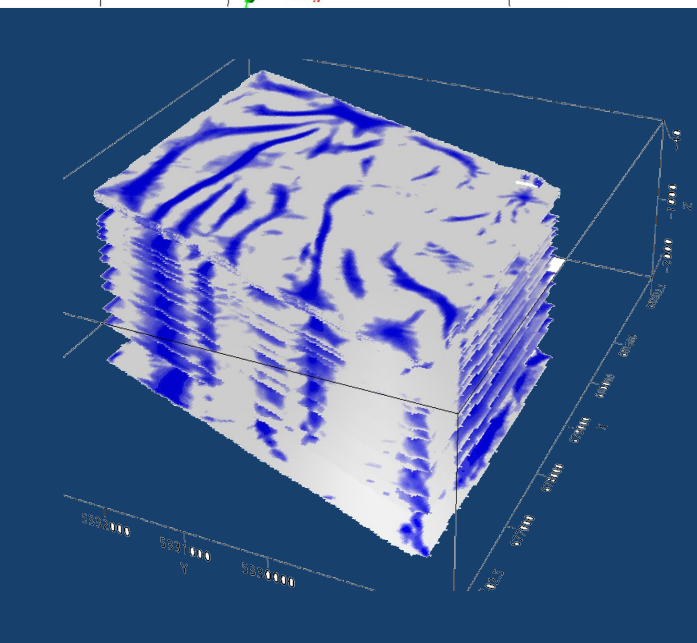
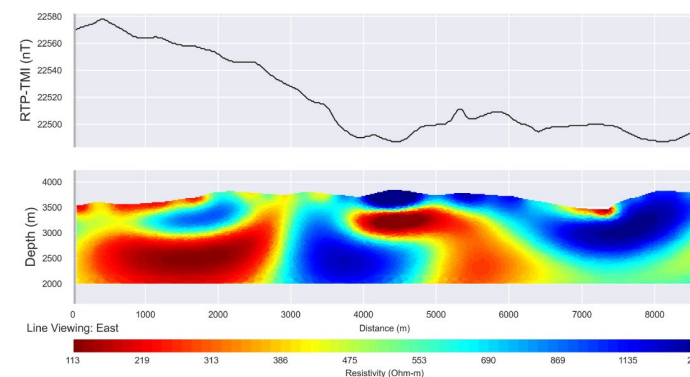
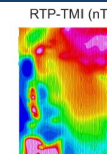
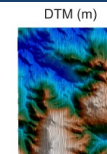
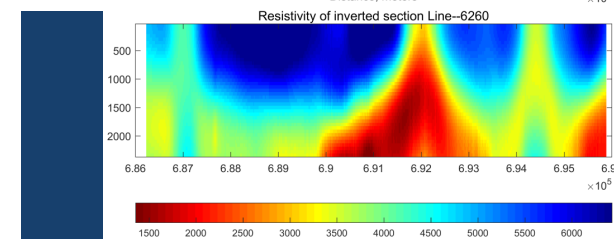
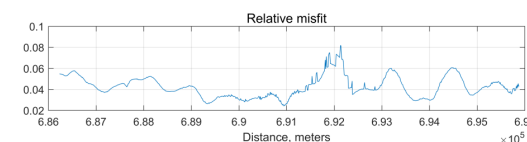
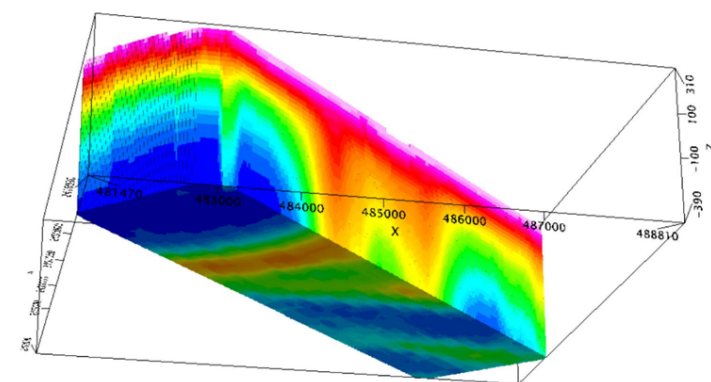
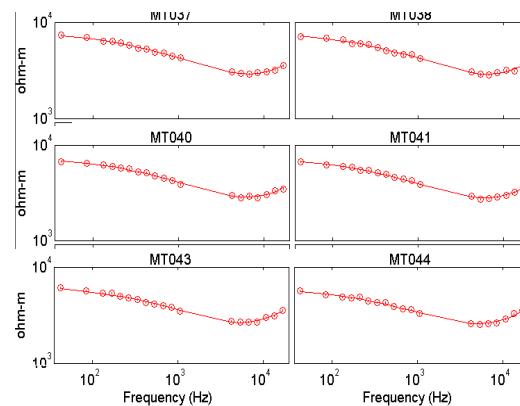
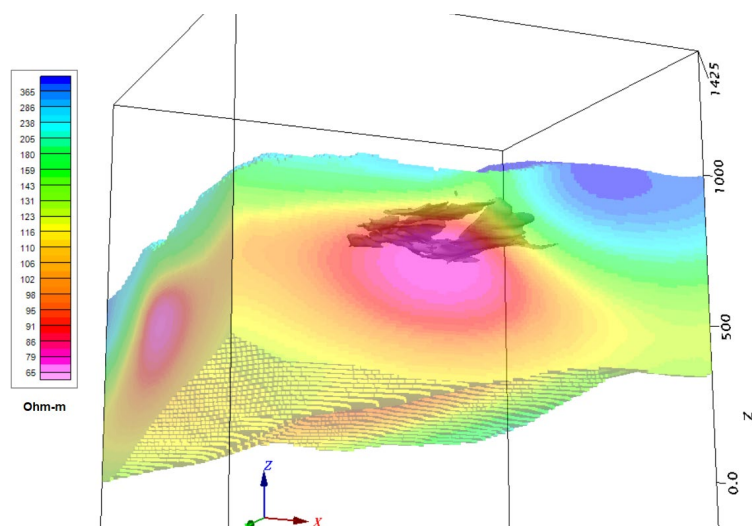


MobileMT VLF amplitude map, 24.8 kHz
(northern Ontario)

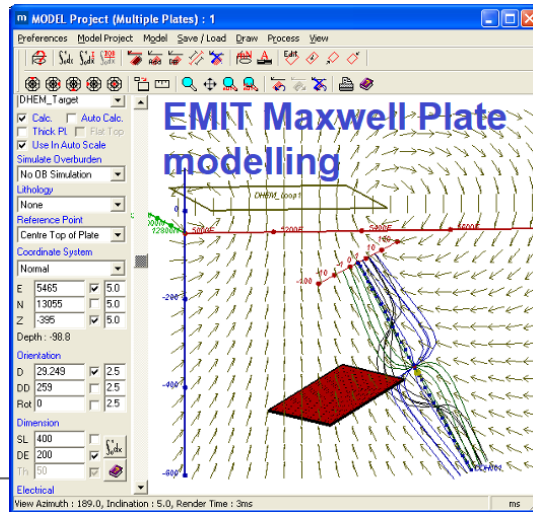


MobileMT survey products

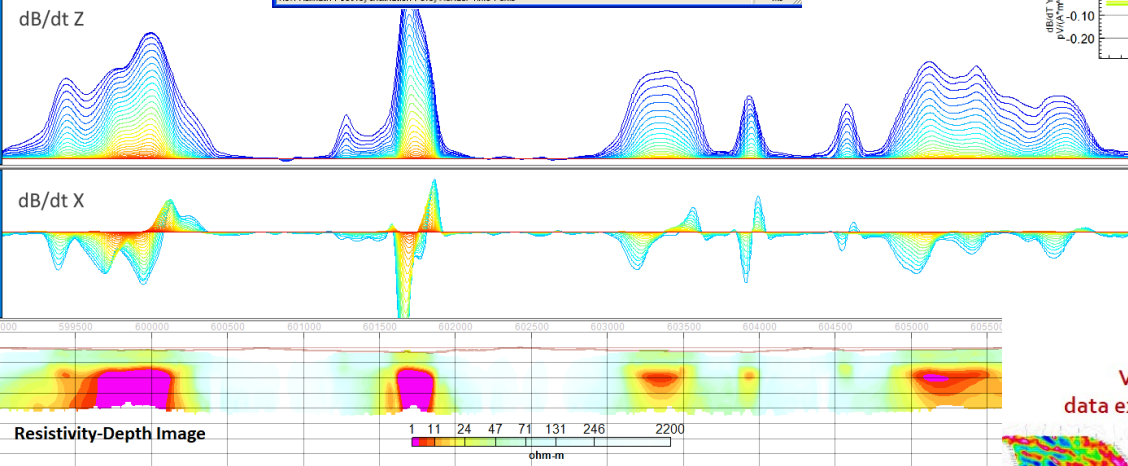
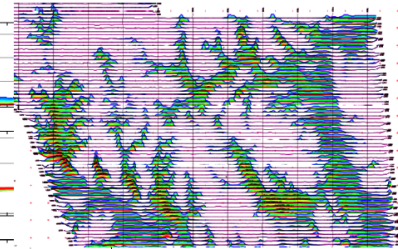
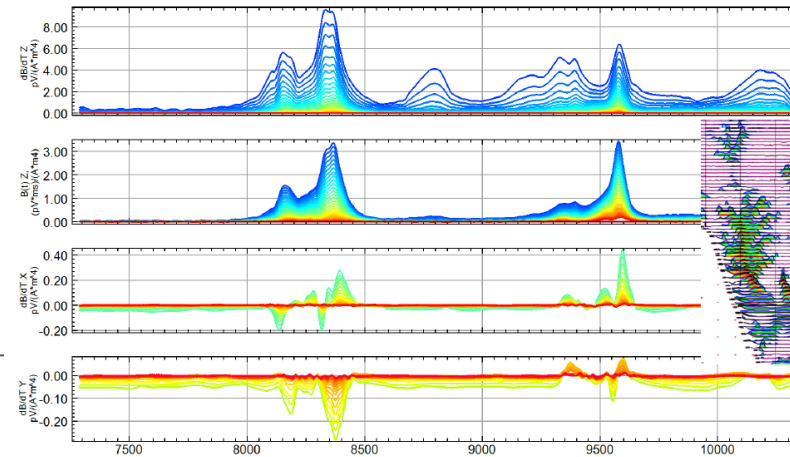
In addition to standard databases, grids, and maps, our deliverables include the inversion or imaging of electromagnetic (EM) data into resistivity-depth products. These products include sections, depth slices, and 3D voxels.



TargetEM survey products

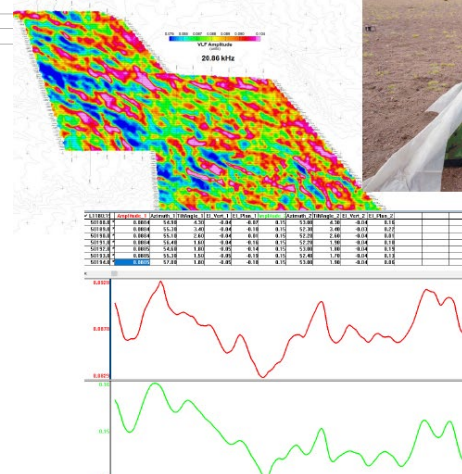


TargetEM time-domain measurements output

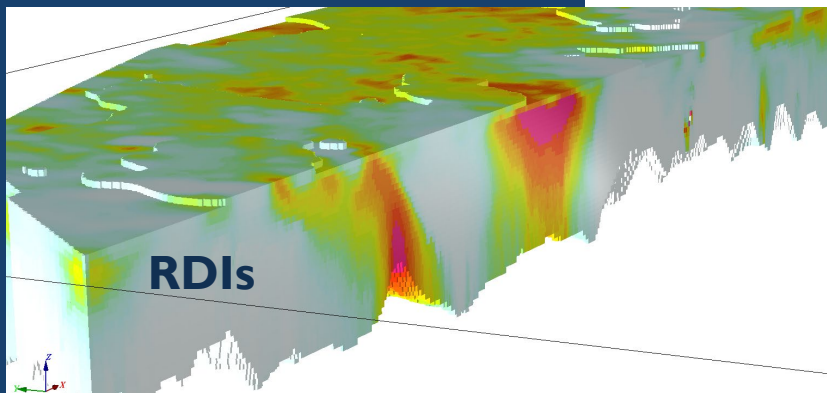
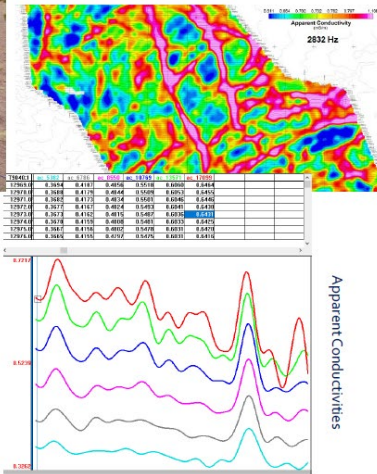


"Passive" EM measurements output
(with additional electric component base station)

VLF
data extraction



Natural field AFMAG
data extraction





EXPERT GEOPHYSICS

TARGET^{EM}

MOBILE^{MT}

Our strategy focuses on delivering top-quality data using state-of-the-art airborne geophysical technologies to optimize exploration efforts and uncover new discoveries. We are committed to continual technological advancement, reinforcing our position as an industry leader.

AIRBORNE GEOPHYSICAL SURVEYS WORLDWIDE

WWW.EXPERTGEOPHYSICS.COM