

MobileMT

airborne geophysical surveys

from innovations to discoveries



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Your airborne geophysics experts with worldwide experience



THE MOST ADVANCED

INNOVATION IN

AIRBORNE AFMAG

TECHNOLOGY

At **Expert Geophysics**, innovation is essential part of our work.

MobileMT is the latest innovation in airborne electromagnetic technology and the most advanced generation of airborne AFMAG technologies. MobileMT combines the latest achievements in electronics, advances of modern airborne system design, and sophisticated signal processing techniques.

MobileMT technology utilizes naturally occurring electromagnetic fields in the frequency range of 25 Hz – 20,000 Hz band which are mainly associated with lighting discharges over the planet. Thunderstorms release energy, which is converted electromagnetic fields to that propagate through the ionosphere-Earth The electromagnetic fields interspace. and currents induced by these fields in the subsurface are used in MobileMT to understand the variations in the electrical resistivity of the subsurface.

Through the audio-magnetotelluric principles, advanced engineering design and sophisticated mathematical solutions, **MobileMT** is the only system proven to deliver geoelectrical information from shallow to > 1 km depth range with high spatial (lateral and in-depth) and resistivity resolution. MobileMT system detects resistivity contrasts of geology structures and boundaries of any shape and in any direction due to total field (three components) measurements. Detectible resistivity range is not limited by the range of time-domain principle.

MobileMT is the first system from the AFMAG family which has so high digitizing rate of measurements; both, magnetic and electric components; broad frequency range in four orders divided up to 30 customizable windows-channels. Even in conductive environment MobileMT significantly exceeds the depth of investigation of time-domain systems.



Technical features and specifications



FEATURES

An airborne bird, towed by a helicopter, measures variations of the magnetic field in the air with three orthogonal induction coils, while a ground station measures variations of the electric field in two orthogonal directions with four pairs of electrodes.

The ratio of the magnetic field magnitude and the electric field magnitude provides analytic parameters in selected bands of frequencies.

Advanced noise processing technique of both electronic and signal processing levels ensures high data quality.

The lightweight, aerodynamic bird is ideal for conducting surveys using small helicopters in a cost-efficient manner.

SPECIFICATIONS:

ELECTROMAGNETICS

Airborne receiver:	Three orthogonal induction coils, 1.4 m diameter each
Airborne shell:	Aerodynamic shaped capsule
Digitizing rate:	73,728 Hz
Tow cable length:	97 m
Weight:	250 kg
Ground sensors:	4 pair of electrodes

Frequency range: 25 – 20,000 Hz

Output frequencies: Selectable and customizable up to 30 frequency windows

Output computed parameters: apparent conductivity for selected frequency windows

MAGNETICS

Sensor: Geometrics cesium magnetometer G- 822A

AUXILIARY EQUIPMENT

GPS navigation system, radar altimeter, PC-104 data acquisition system.

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Deliverable Products







MobileMT deliverable products comprise a full set of processed digital data and visual products:

- Database of apparent conductivity for each frequency;
- Database of resistivity with depth (inverted data);
- Database of magnetic field;
- Apparent conductivity maps for selected frequencies;
- Visual inversions products: conductivity (or resistivity) 2D sections, depth slices and 3D voxels;
- EM and magnetic lineaments maps;
- Magnetic field transformation products;
- Complex data analysis and targeting.



Applications: Mineral exploration Oil and Gas Geothermal





MobileMT is the fast solution for 3D geoelectrical mapping applied to any kind of geologic prospecting project which includes resistivity differentiation even in a narrow range. **MobileMT** is an effective solution in the next exploration directions:

- Cu-bearing igneous intrusions (porphyrys) is an ideal target for **MobileMT**. Fault contacts and fault associated conductive zones. hiahlv resistive wedges of the intrusives and potassic alteration zones are very well identified and defined by the MobileMT exploration technique with great spatial, depth and resistivity resolution.
- Alteration and dissemination halos accompanied many mineralized zones (*Cu, Au, Ag, Mo, all types of VMS*).
- Highly and super conductive Ni-Cu-Co deposits are not easy detectable by popular airborne time-domain method (airborne TEM). MobileMT does not have those limitations in very conductive range.
- Mapping deep host/overlaying rocks alteration and basement conductors in unconformity uranium deposits exploration.
- Exploring diamondferous regions, detection kimberlites fields controlling structures and direct kimberlites detection.
- Delineation shallow and deep *fault zones* which have experienced fluid flux as indicated by low resistivity (*mineral and geothermal exploration*).

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