VTEM™ ET

VERSATILE TIME-DOMAIN ELECTROMAGNETIC SYSTEM

VTEM™ ET is a completely redesigned system that harnesses the core VTEM™ principles combined with the latest technological advancements to address the current needs of the market. All components of the system including the transmitter, receiver and digital acquisition system have been optimized for enhanced near-surface exploration.

GEOTECH
AIRBORNE GEOPHYSICAL SURVEYS

VTEM™ ET

VERSATILE TIME-DOMAIN ELECTROMAGNETIC SYSTEM

FEATURES

- 3x faster current turn-off than existing VTEM™ systems
- 4.5x higher sampling rate of the EM decay
- 1 µs resolution of EM decay curve in early times
- Continuous measurement of EM signal decay beginning from 5 µs after transmitter current turn-off
- Single transmitted waveform provides continuous soundings avoids the potential pitfalls of using dual transmitted waveforms
- New receiver with increased frequency bandwidth

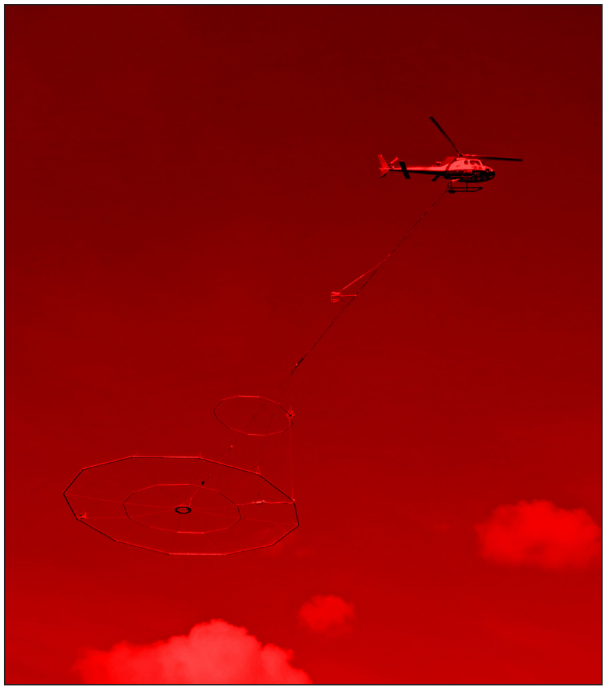
Each of these improvements contributes to an overall increase in the system's sensitivity to subtle changes in the near-surface geology and improves the accuracy of data models. The results are precise, distortion free measurements of the time-domain EM decay as early as 5 µs after the transmitter current turn-off right through to the latest time channels.

BENEFITS

- Specifically designed for precise near-surface applications but also has significant depth of investigation.
- Rapid turn-off of the current waveform generates a stronger ground response and results in larger signal amplitudes measured by the receiver which enhances the signal-to-noise.
- Precise early-time measurements from 5 µs enhances sensitivity to changes in near-surface geology within the upper tens of metres which can be resolved more accurately through inversion modeling.
- Ability to differentiate resistivities within a very narrow range due to a greater number of time channels and higher sampling rate.
- Enhanced vertical resolution for more accurately defining the depths of main geological boundaries that represent distinct resistivity layers.
- Greater sensitivity to high resistivity range than previous VTEM™ systems.
- Lightweight compact design allows for superior access to higher-altitudes.

APPLICATIONS

- Groundwater (e.g. aquifer characterization, saltwater intrusion, acid mine-waste)
- Engineering (e.g. road planning, void detection, overburden thickness mapping, structural vulnerability)
- Gold (e.g. mapping quartz veins, alteration zones, lithology)
- Base metals
- Kimberlites
- Higher-resistivity targeting (e.g. MVT, SEDEX, CRD, Zinc-rich VMS)
- Near-surface Resistivity Mapping
- High-elevation surveying



TRANSMITTER

Transmitter-receiver geometry	In-loop, vertical dipole
Transmitter coil	Dodecagon shape-vertical axis, 278 m²
Base frequency	Standard 30 Hz or 25 Hz depending on powerline frequency
Pulse shape	Polygonal
Pulse width	4 – 7.5 ms (7 ms typical)
Peak dipole moment	Up to 160,000 NIA (110,000 typ.)
Peak current	Up to 330 Amperes (200 typical)

RECEIVER

Coils	Z only
Sample rate	864,000 Hz over entire waveform
Bandwidth	Up to 80 kHz
Spheric noise rejection	Digital
Industrial noise rejection	60 Hz or 50 Hz

MECHANICAL

Nominal survey speed	90 km/hr
EM transmitter/receiver ground clearance	30 m
Operating temperature	-45°C to 45°C
Power requirements	From helicopter, auxiliary power not required
Shipping	Standard packaging (longest piece - 2.5 m)
Installation/assembly time	One day typically

Website
www.geotechairborne.com
sales@geotechairborne.com

Offices
Australia
Canada
Chile
South Africa

GEOTECH
AIRBORNE GEOPHYSICAL SURVEYS