loupe

A modern TEM conductivity mapping system for the near-surface

GROUNDWATER . LEVEES . EXPLORATION . GEOTECHNICAL . INFRASTRUCTURE

WHY USE LOUPE?

- Convenient portability, designed to be used at walking pace and generate a TEM reading every second

- Broad bandwidth transmitter & receiver for near-surface measurements

- Modern electronics and software with fully-integrated GPS for navigation and timing

- Modern signal processing for high quality data on urban & industrial sites

- Programmable transmitter frequencies and processing parameters

- Simple to use with lightweight backpacks designed for all-day usage

- High productivity from continuous operation whilst the system is moving

- One system for rapid profiling, soundings, or fixed loop with any transmitter

- Can be configured to be towed by ATV

- Real time display of profiles, decays and conductivity sections

- Automatic filtering of close VLF stations

- Pre-plan survey lines or create on the fly

- Extended duration with hot swap batteries, enough power to run all day

- Geolocated data

- Full time-series recording with weeks of time-series data storage capacity

- Full control or basic menus

- Rugged tablet or smartphone user interface over WiFi

- 24-bit ADCs

- Add notes and comments as you go

- Completely safe and easy to use

- Packaged in 2 cases that can be carried as luggage

Loupe is a unique conductivity-mapping system that provides high quality, high spatial resolution EM data while mobile, enabling rapid mapping of conductivity variations from the near-surface to around 40 metres depth.

Loupe gives you a real-time display of navigation, line paths, data and conductivity sections enabling real-time decisions on survey coverage. Base frequency, sampling interval and line paths may be changed on the fly, enabling operators to tune and optimise the system to suite the task at hand.

Taking advantage of developments in electronics and signal processing, the receiver's considerable real-time processing power allows Loupe to perform in areas of significant interference from power transmission lines and other sources.
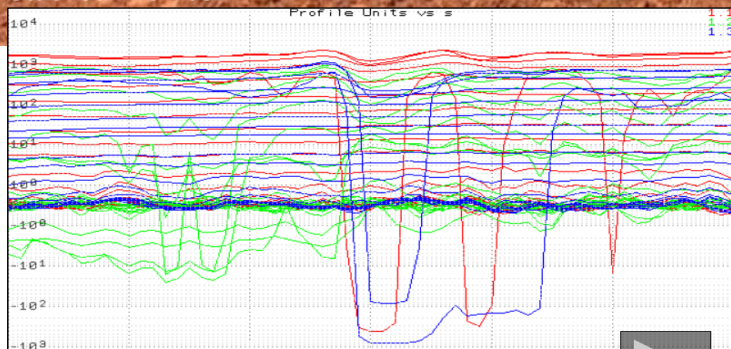
Software and firmware updates can be easily performed by the user. Specialised functions can be written on request.

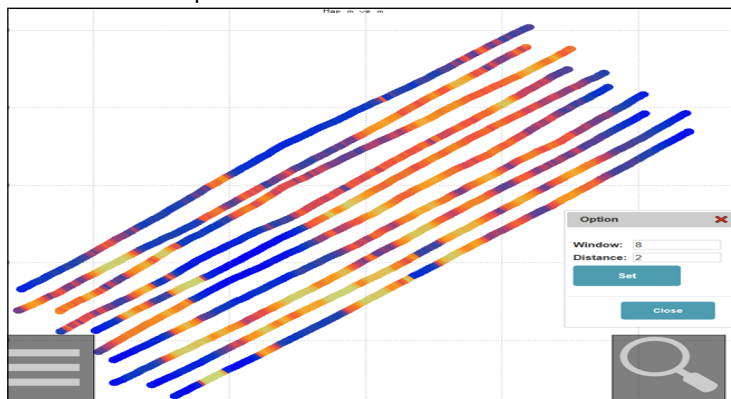TAILINGS . ORE GRADE . GRAPHITE . WEATHERING . BEDROCK TOPOGRAPHY

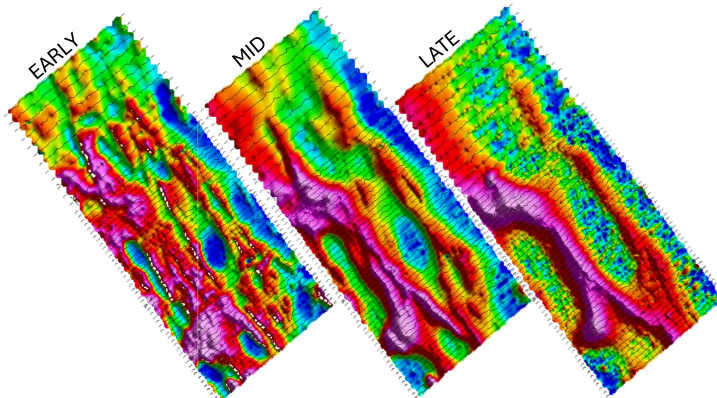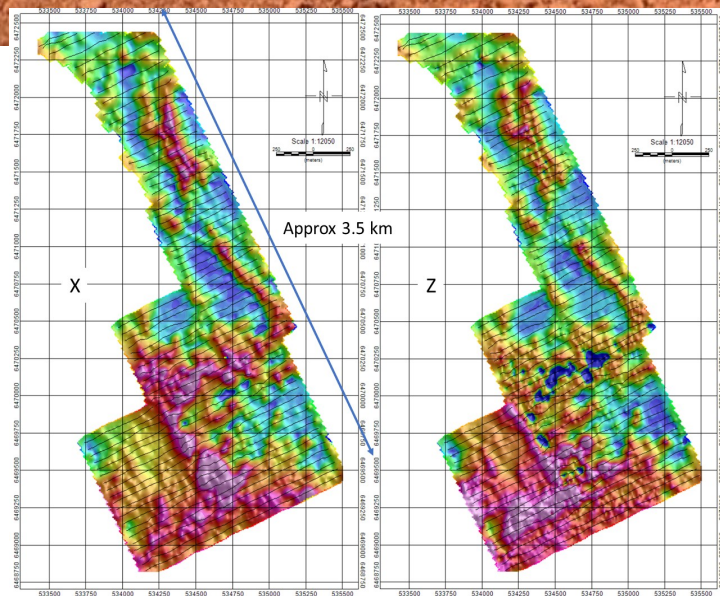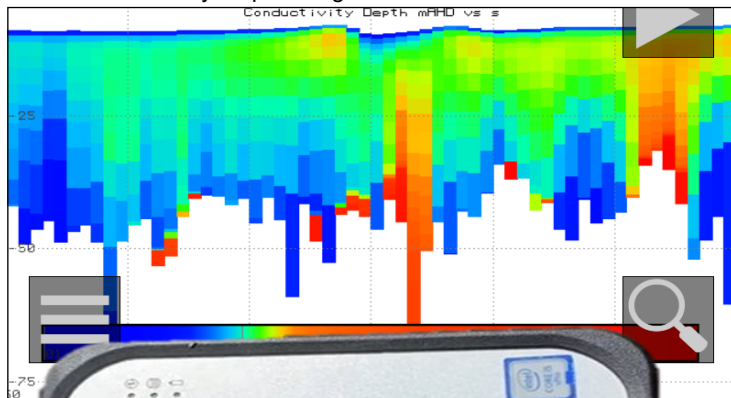RARE EARTHS . SALINITY . UNDERGROUND . HAZARDS . WASTE DUMPS

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Stacked Profiles

Plan Channel Amplitude

Profile Conductivity-Depth Image

Approx 3.5 km

X   Z

EARLY   MID   LATE

LOUPE TRANSMITTER & DATA PROCESSOR

Diameter	0.68 m
Moment	100 A.turn-m^2
Orientation	vertical axis
Turn off	8 microseconds
Transmitter Freq.	typically 75 Hz or 90 Hz, user-selectable
Duty Cycle	typically 50%
Synchronisation	GPS
Battery	2x Lithium Ion < 100 W.hr
Battery life	~3 hrs per pair, hot swappable, 2 spare pairs
User Interface	rugged tablet or smart phone
Data Storage	SD card for raw data, processed data on tablet
Weight	14 kg

LOUPE RECEIVER

Sensor	3 orthogonal coils, air cored
Effective Area	200 turn-m^2 per coil
Data storage	processed and full time-series
Sample rate	500 kHz
Bandwidth	100 kHz
Synchronisation	10 m cable at present
Separation	typically 10 m transmitter-receiver separation
Weight	10 kg

loupe GEOPHYSICS
Western Australia
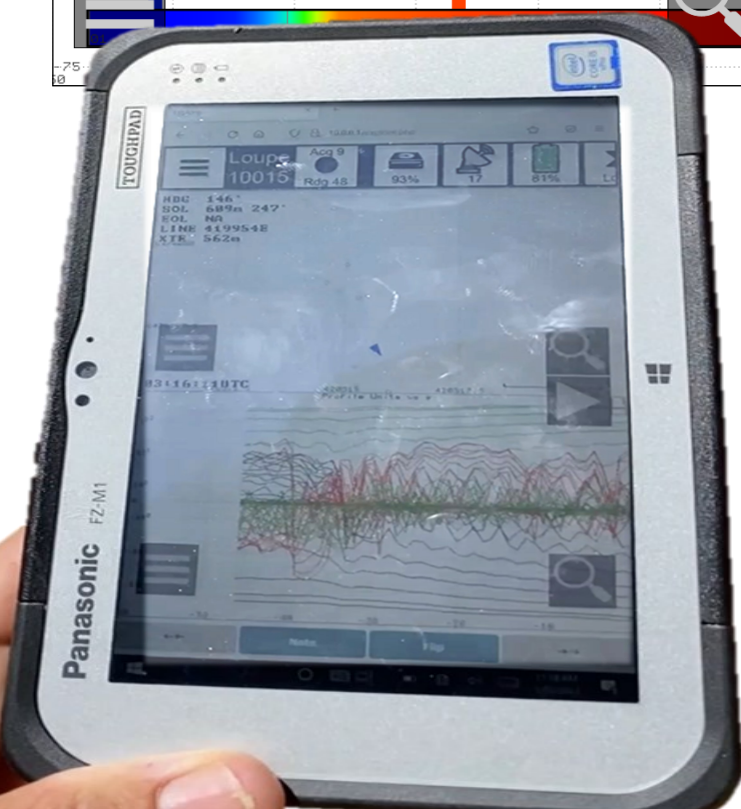
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