



GREKKON LIMITED

Climate Smart Solutions In Agriculture

Transient Electromagnetic
(TEM) Solutions

VISION

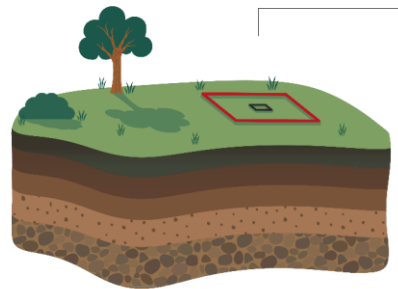
Deliver **next-generation** geophysical imaging solutions to **solve** today's water problems at the same time **address** the vulnerability **of groundwater to climate change.**

MISSION

To make it easy to map **ground water** and other **natural resources** in Africa.

TEM = Transient Electro Magnetic

HOW OUR TECHNOLOGY WORKS



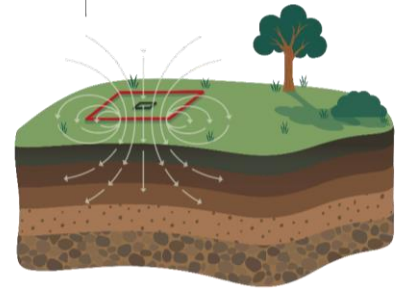
01



Transmitter loop and receiver coil are laid out on the surface.

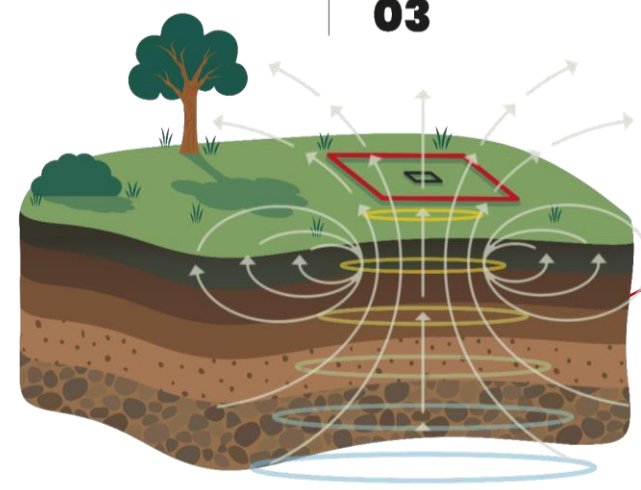
Steady current is transmitted in Tx-loop -> primary magnetic field

02



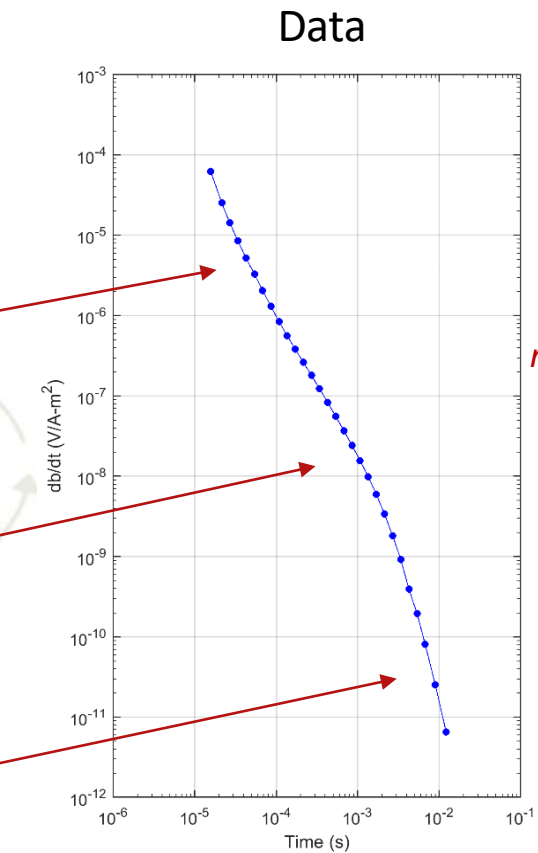
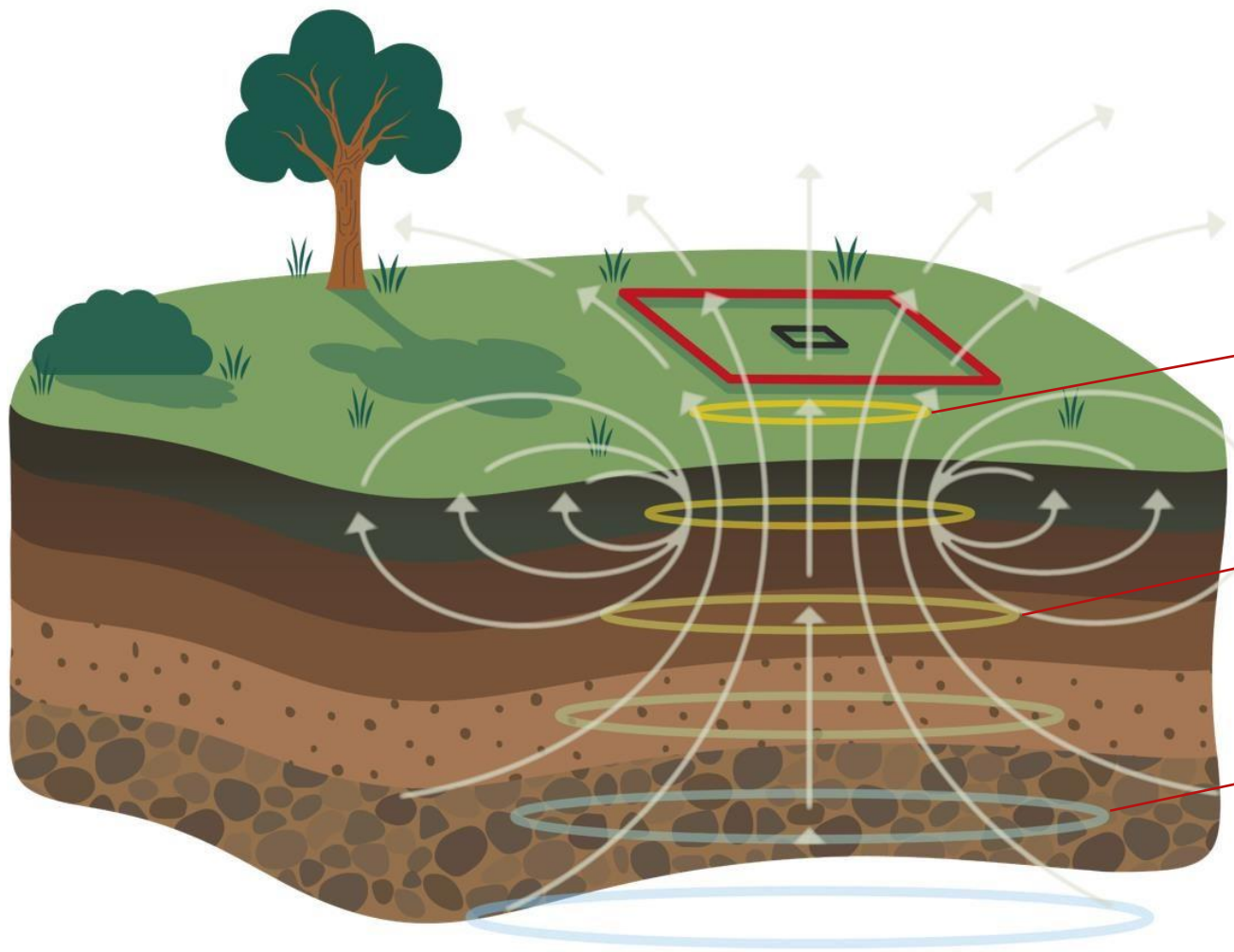
Inductive currents create secondary magnetic field -> Induced in the receiver coil

03

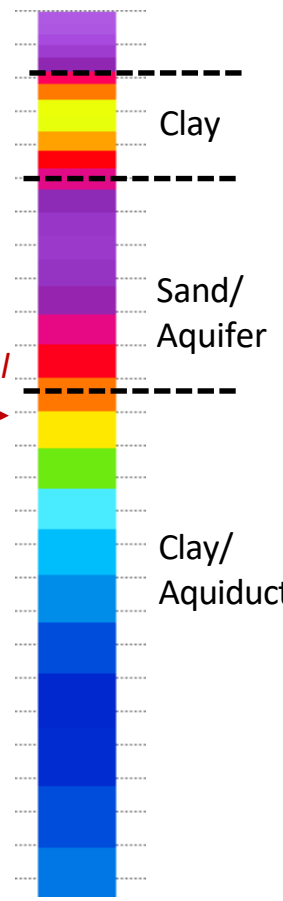


Current is shut-off this induces inductive currents in the subsurface

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mathematical
(inversion)



Product Family

sTEM



POWER: 5, 10 & 20 AMP
DEPTH: 200 – 600 M
COVERAGE: SINGLE POINT

The sTEM delivers accurate and reliable data for various use cases, including groundwater mapping and mining targets.

sTEM profiler



POWER: 5, 10 AMP
DEPTH: 100 – 150 M
COVERAGE: SECTIONS 2D

The sTEM profiler delivers data for various use cases, including groundwater mapping, MAR and sand and gravel deposits.

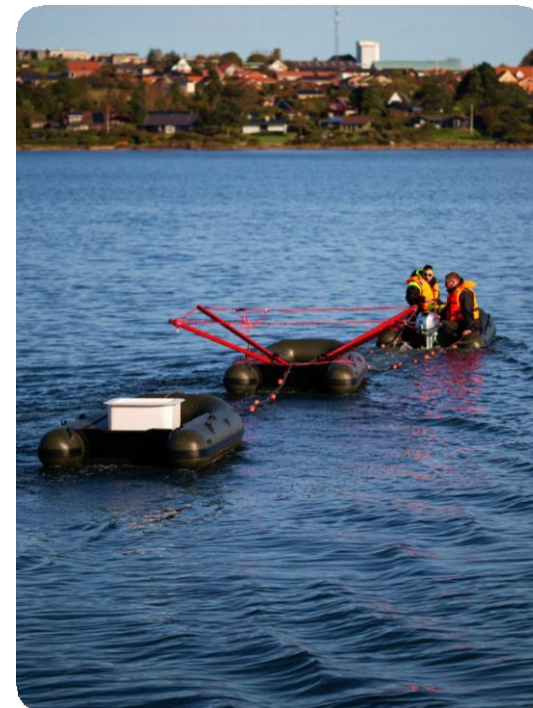
tTEM



POWER: 3 – 30 AMP
DEPTH: 100 – 200 M
COVERAGE: CONTINUOUS 3D

The tTEM delivers detailed data for use cases, including mapping groundwater, MAR and sand and gravel deposits.

FloaTEM



POWER: 3 – 30 AMP
DEPTH: 100 – 200 M
COVERAGE: CONTINUOUS 3D

Use FloaTEM for mapping aquifers, investigating water bodies, and understanding underwater structures.

sTEM OPTIONS

sTEM comes in several different configurations each has its own strengths; it is important to consider what option is best for your organizations needs.

Power options

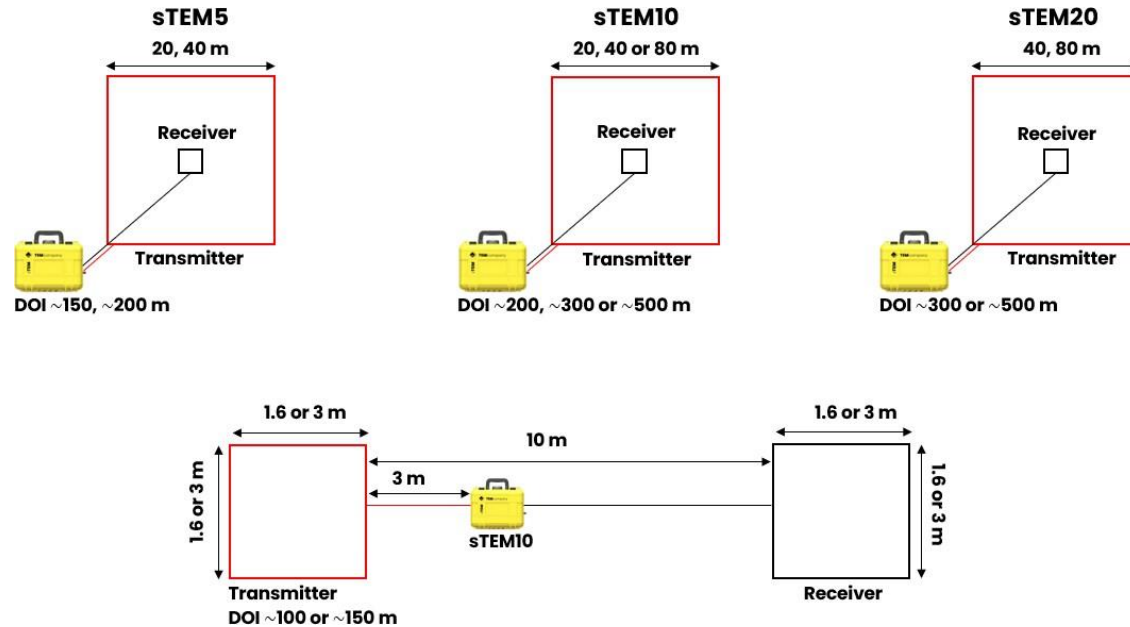
sTEM comes in **three** power configurations: **5 Amps**, **10 Amps** or **20 Amps**.

Transmitter loop

There are **three** different central transmitter loop options **20x20 m**, **40x40 m** or **80x80 m**.

Two offset transmitter loop option **1.6x1.6 m** or **3x3 m** with *two turns*.

Not all transmitters can drive all loops, check figure below to see what is available for the different transmitters.



*DOI (Depth of investigation) an estimate of the maximum depth the different systems can secure dependable information of the subsurface.

sTEM system

20x20 m



15 kg

40x40 m



21.5 kg

80x80 m



40.7 kg



115 kg

sTEM tr6fisport c6se



23 kg

sTEM profiler



115 kg +7.3 kg

Profiler tr6fisport c6ses

The App

sTEM Controller App - Introduction

Figure 18 explains the interface of the sTEM controller App.

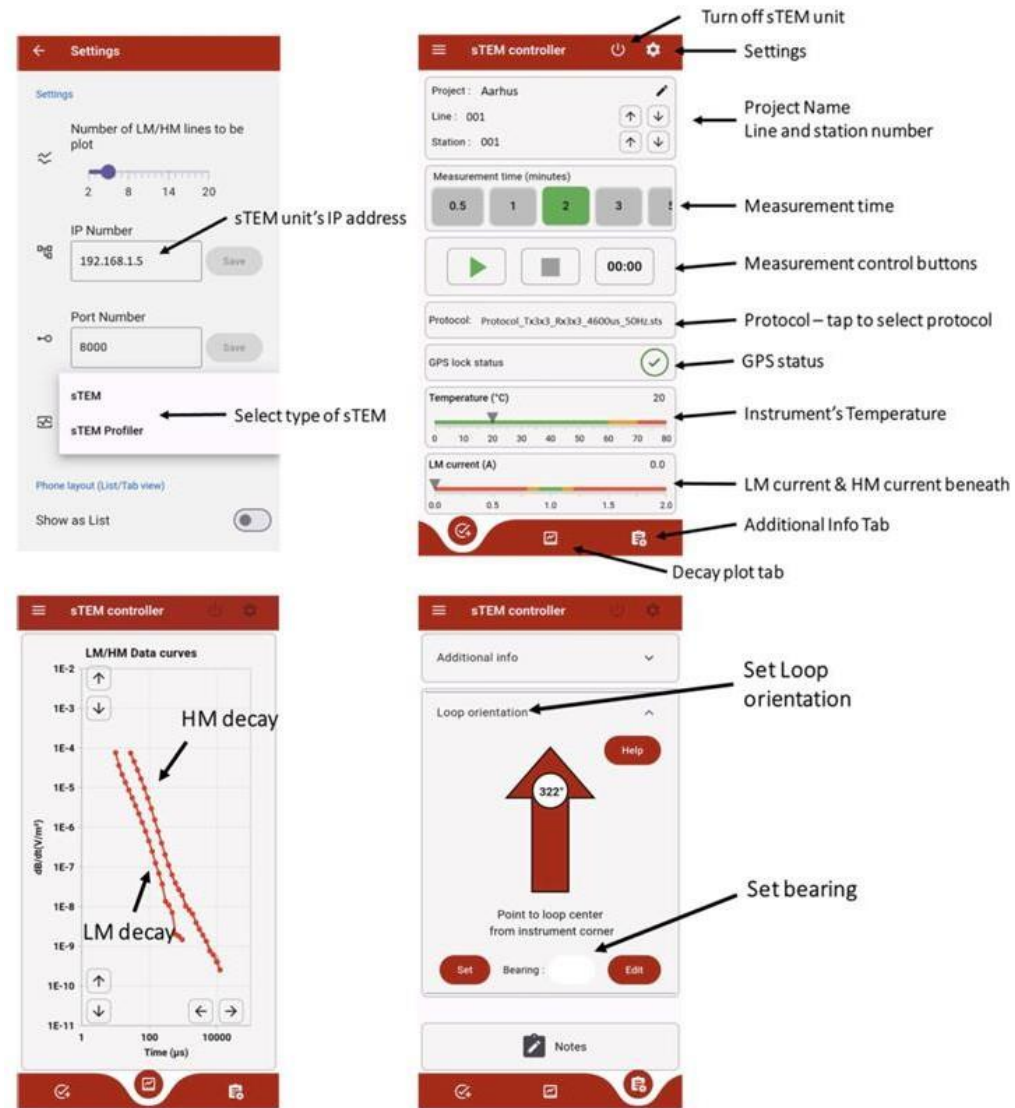


Figure 18. sTEM Controller app environment. Version 1.1.0.

Data manager to import data from the field instrument

The screenshot displays the TEM Data Manager interface. On the left, the 'Instrument Data Folder(s)' pane shows a list of folders and files under the path /C:/Data:

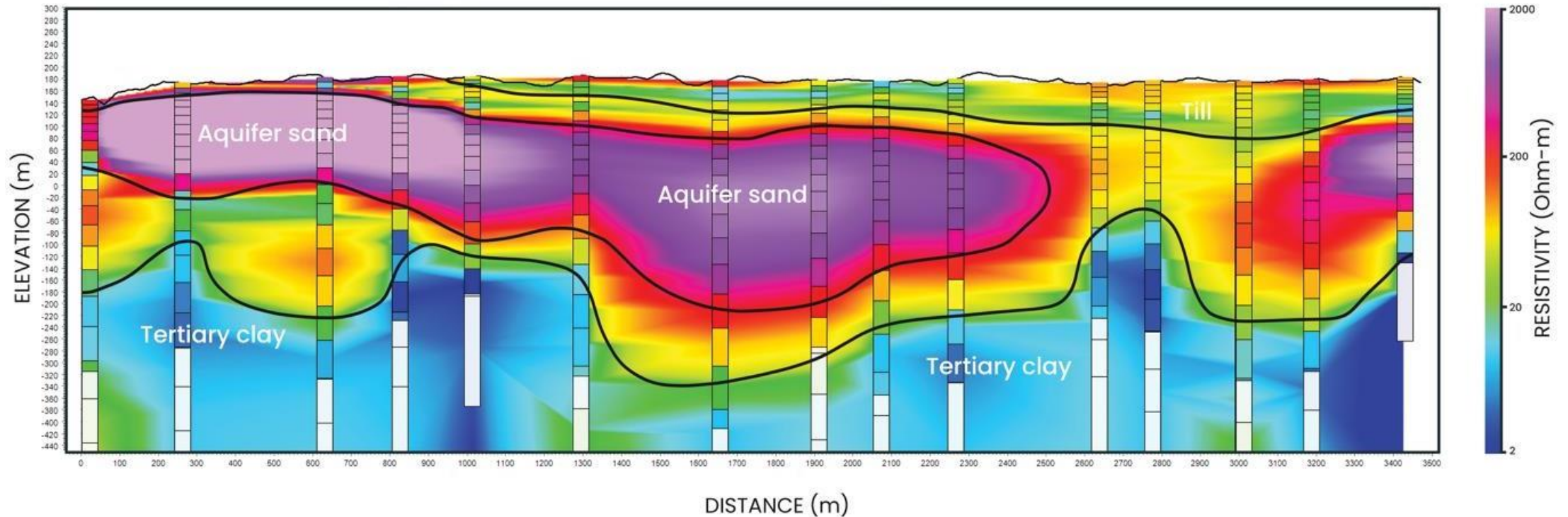
Name	Size	Modified
Logs	<DIR>	24/05/2024 14.25.32
Log_20240201_095814.log	896	01/02/2024 10.58.15
2024_0424	<DIR>	24/04/2024 14.00.04
20230929_083000	<DIR>	29/09/2023 10.31.15
20230929_082844	<DIR>	29/09/2023 10.28.50

Buttons for 'Copy →' and 'X Delete' are visible between the panes. The 'Local PC' pane on the right shows the path C:\Users\ChristosBoufidis\OneDrive - Aarhus and a 'back' button. A green callout box at the bottom center contains the text: 'Copy data from instrument to local PC'.

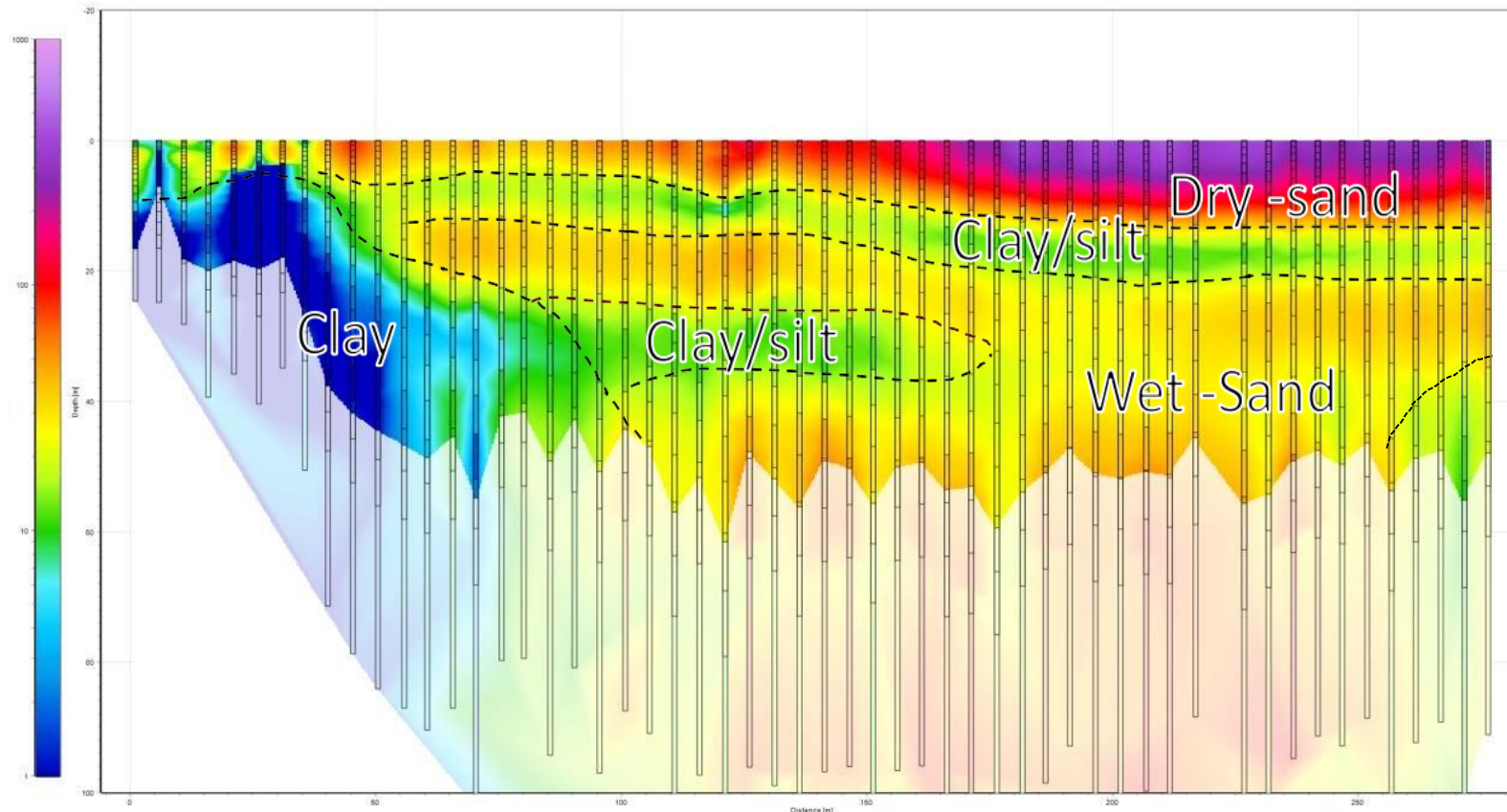
From d6t6 to geologic6l ifiterpret6tiofi

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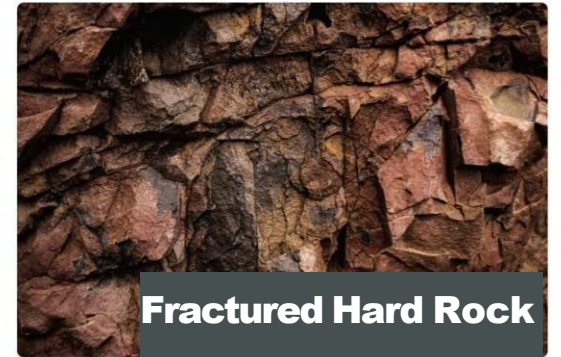
SECTION OF sTEM SOUNDINGS



From data to 3D geological interpretation



APPLICATION



USERS OF OUR SYSTEMS

- **Research Institutes**
- **Universities**
- **Contractors**
- **Large scale mining**
- **Geo survey enterprises**
- **NGOs / CBOs**
- **Construction survey**
- **Consultancies**
- **Water operators**
- **Governments**



Research Institutes

Our systems empower efficient, detailed and comprehensive geophysical and geological mapping of the shallow subsurface and can assist the advancing scientific knowledge related to groundwater resources.



Contractors

With TEMcompany you have a partner in construction and infrastructure development projects, where having precise information about groundwater conditions is of utmost importance.



Small Scale Businesses

Achieve your business goals and let us support your specific needs.



Consultants

Provide clients with expert advice and valuable insights in matters concerning groundwater investigations.



Non-Governmental Organizations

NGOs are tackling environmental and social issues, including securing sustainable groundwater resources and we provide the services that aligns with these distinct requirements and goals.

sTEM in Kenya (Kakuma)

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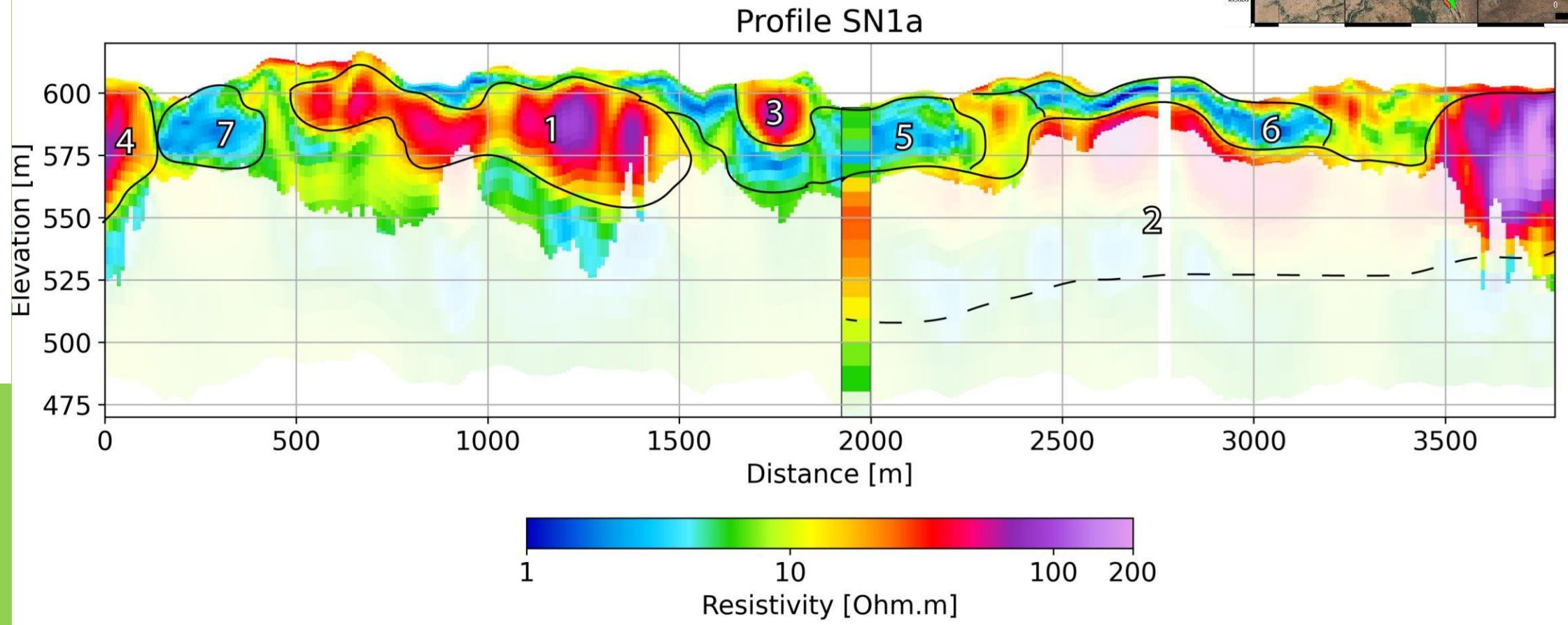
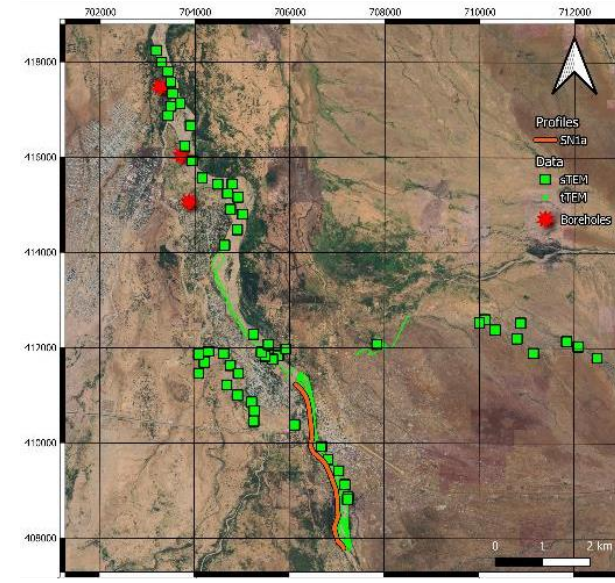


Kakuma, Kenya

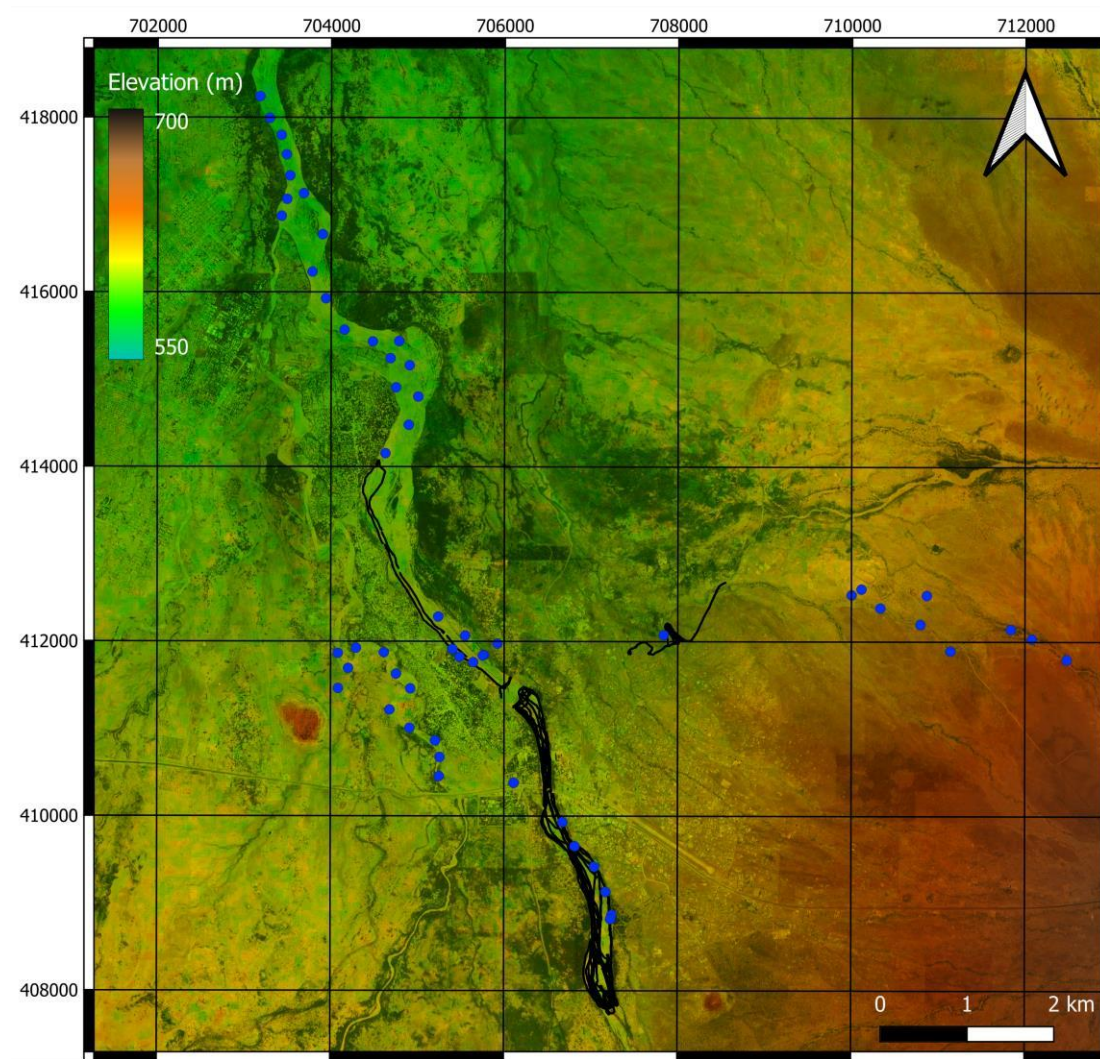
1,3,4. River sand (Aquifer) or hard-rock

5,6,7. Clay or brackish aquifers

2. Deep resistor. Sandstone



Kakuma, Kenya



What is aerial TEM technology?

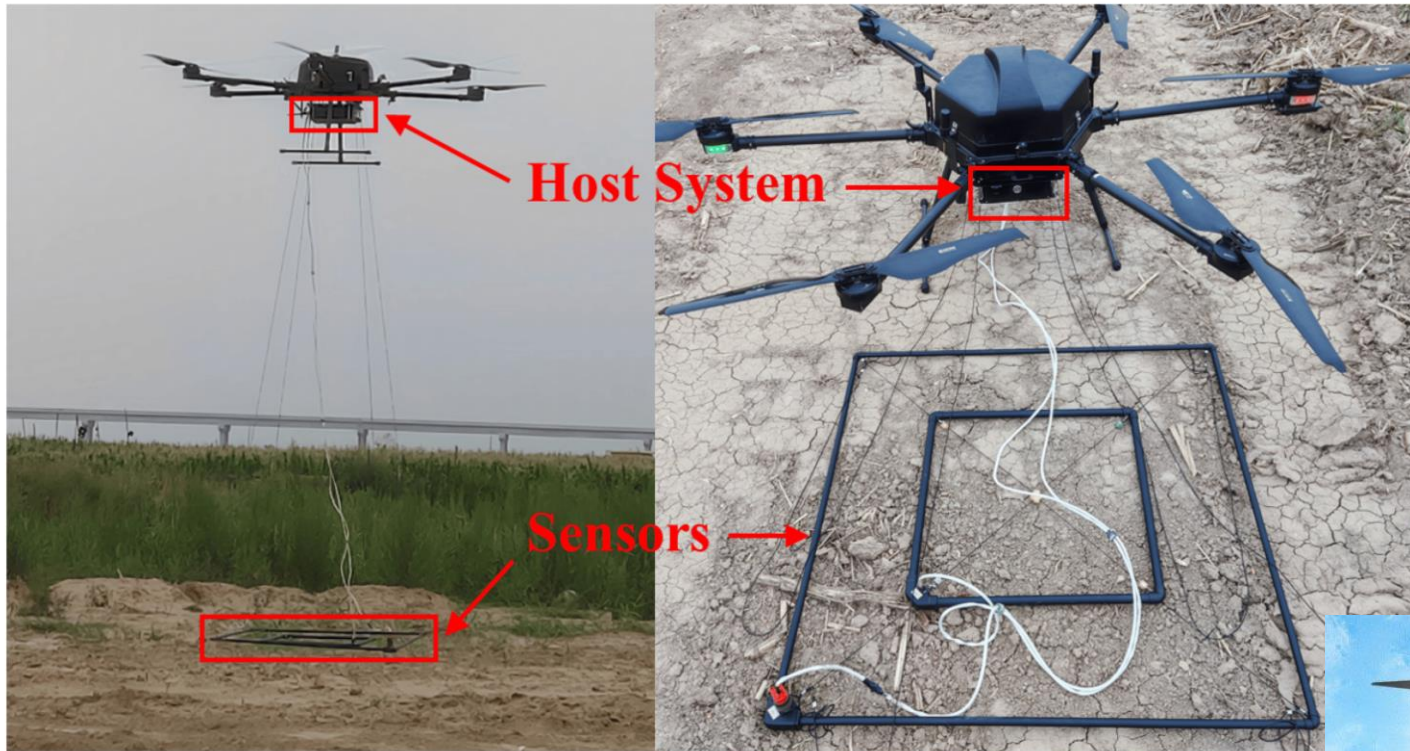
Aerial transient electromagnetic (TEM) technology is a **noninvasive** method that uses drones, or aircraft to detect **subsurface electrical resistivity**. It's also known as **time-domain electromagnetics** (TDEM).

How does it work?

A transmitter loop on the ground induces an electric current in the subsurface

A receiver antenna measures the rate of change in the magnetic field created by the current

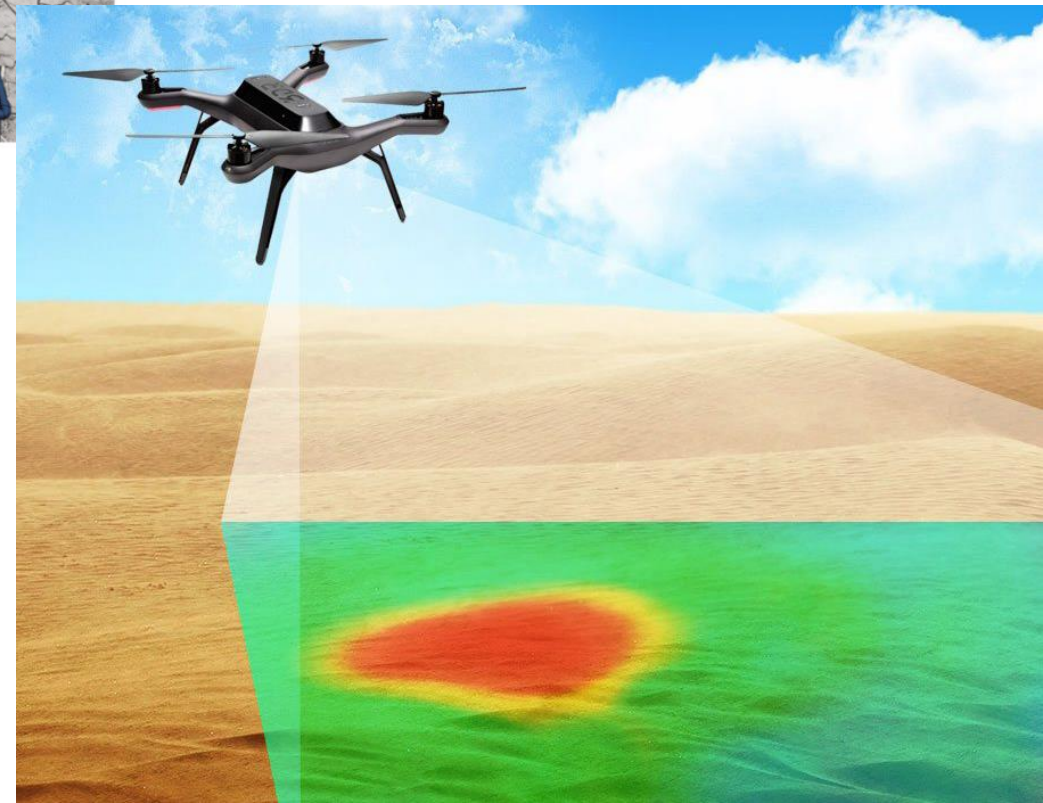
The returning signal is inverted to create a model of the subsurface's electrical resistivity



Product by drone

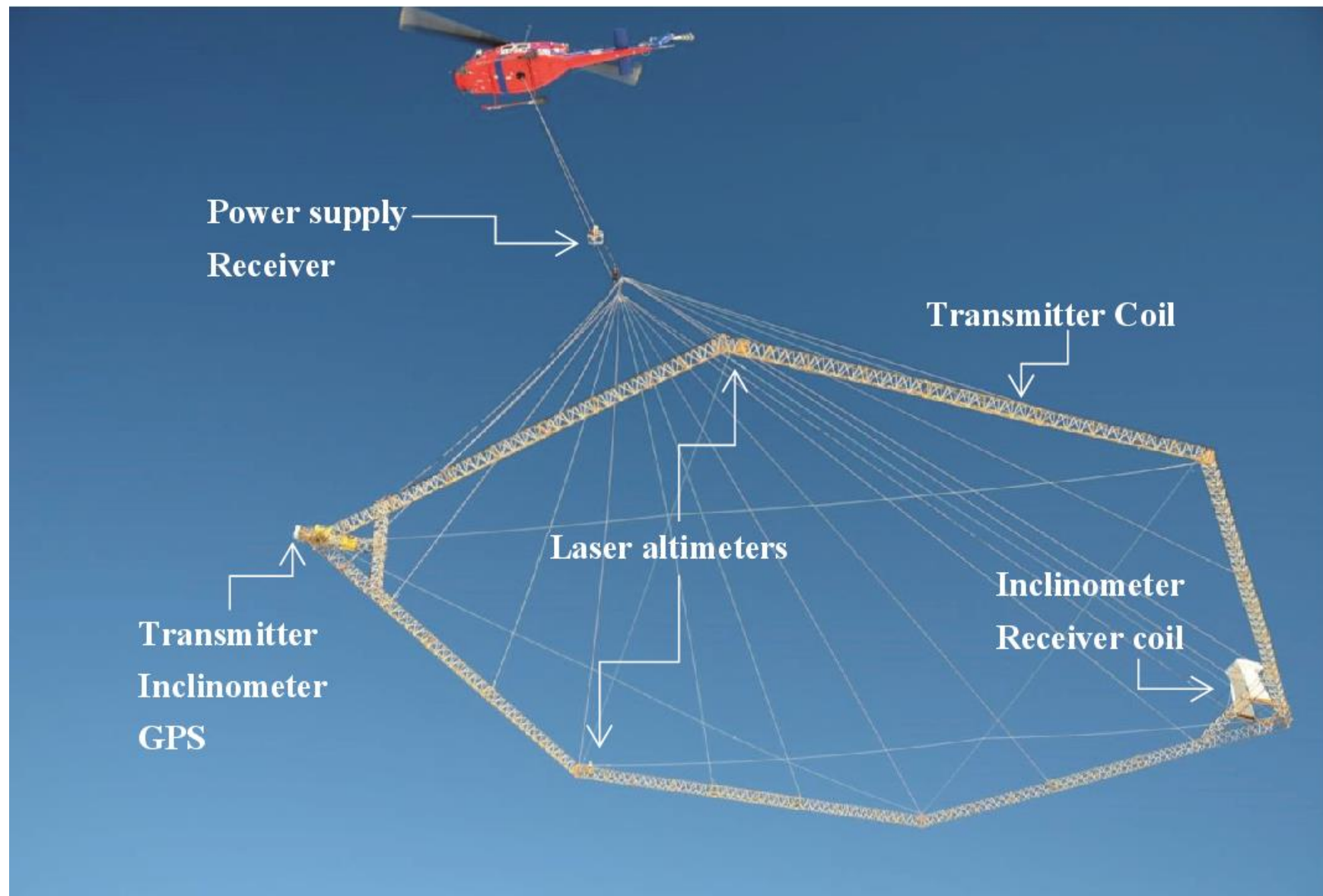
The sensors consist of a transmitter and a receiver loop

The host system must have as little electric interference as possible



Product by chopper

- Ideal for long distance coverage
- Terrains that are difficult or impossible to cover with drones



Applications

Mineral and geothermal exploration: TEM can help identify the location of minerals and geothermal resources

Hydrogeology: TEM can help identify the location of groundwater

Environmental surveys: TEM can help identify environmental issues such as pollution

Imaging conductive bodies: TEM can help identify conductive bodies within resistive media

Sample raw data generated (*Minas Gerais area, Brazil*)

