

## CSAMT Control source audio-frequency-magnetotellurics

- CSAMT (controlled source audio-frequency magnetotellurics) is a ground active electromagnetic geophysical method used for subsurface resistivity mapping.
- The CSAMT method has proven useful for mapping the earth's crust in the 20 to 2,000 m depth range. Vertical resolution is generally 5 to 20% of the depth.
- The CSAMT method involves transmitting a controlled primary electromagnetic field at a range of frequencies into the ground from one location (transmitter site) and measuring the received secondary electric and magnetic field in the area of interest (receiver site-station).
- The ratio of orthogonal, horizontal electric and magnetic field magnitudes are used to calculate the resistivity structure of the earth.
- Calculated resistivity values from CSAMT data relate to geology.
- Primary factors affecting rock/sediment resistivity include: rock or sediment porosity, presence and grade of pore fluids



### Applications

#### Ground water and hydrothermal exploration

(geologic structure and lithology, water table trends, water mineralization and salinity and contamination)

#### Mineral exploration

(geologic structure and lithology, presence of ore conductors, impregnation and alteration zones)

#### Oil and Gas Exploration

(geologic structure, stratigraphy and lithology, depth to basement, basement geology mapping)

#### Civil Engineering, Geotechnical and Environmental Applications

(geologic structure, stratigraphy and lithology)

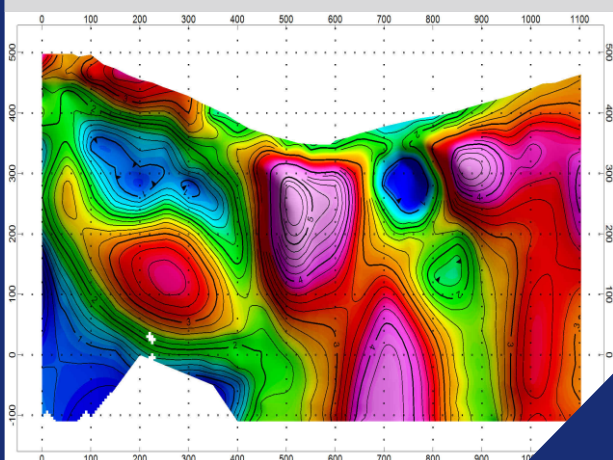
*Transmitter working-site*



*Observation station*



*Final resistivity section*



*3D resistivity model*

