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INFORMATION SHEET:
THE MAGNETOTELLURIC (MT) METHOD

IRECCSEM

Evaluating Ireland's potential for onshore carbon sequestration and storage using electromagnetics

www.ireccsem.ie

The Magnetotelluric (MT) method

- ***Magnetotellurics*** is a non-invasive, ***passive*** geophysical method used to identify different rock types beneath the Earth's surface.
- The method measures the Earth's ***naturally-occurring*** magnetic field and electrical currents flowing in rocks beneath the Earth's surface.
- No artificial source is generated or transmitted into the ground during the recording of these measurements.
- Measurements are made during ***one to two nights of recording*** using specialised equipment.
- The equipment consists of 5 electrodes (to measure the electrical currents), and 3 magnetometer coils (to measure the magnetic field) and a recording box.
- ***Electrodes*** are "cup-sized" receivers buried in small 20 cm deep holes.
- ***Magnetometer coils*** are cylindrical shaped sensors, 90 cm or 150 cm long and 6 cm in diameter. They are buried in shallow, 20 cm deep, 20 cm wide trenches.

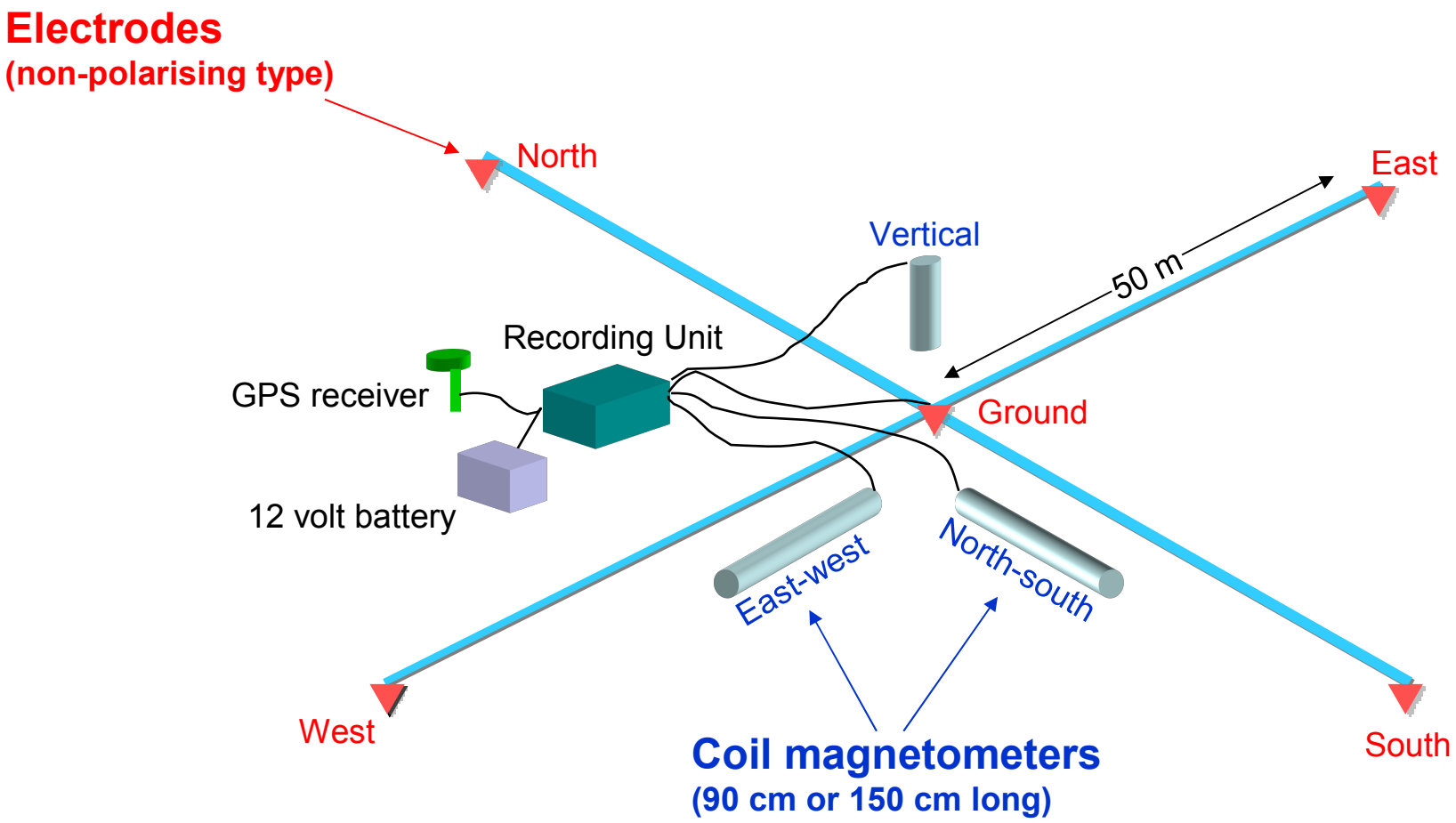
MT field site set-up

Measure

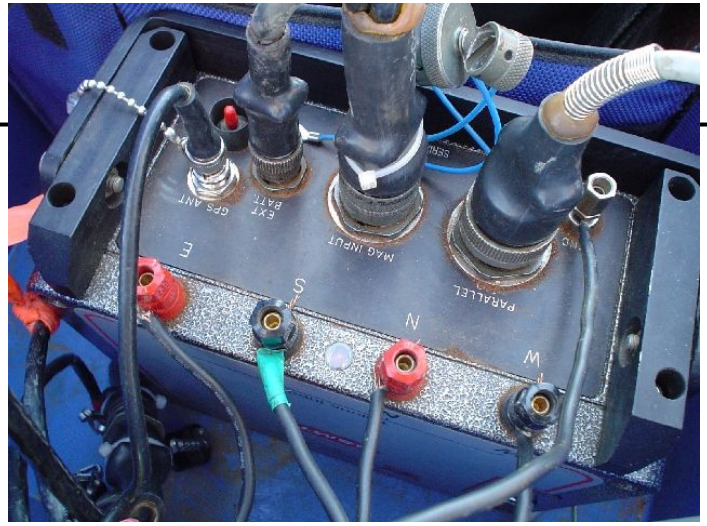
Magnetic-field measured using 3 magnetometer coils

Electric-field measured using 5 electrodes connected by 25 m long electrical cables

All signals recorded by a central recording unit powered by 12 Volt car battery



MT field equipment



Phoenix Geophysics MTU-5 broadband recorder

Magnetic-field measurement using buried coil-magnetometer

Electrode

Electric-field measurement using buried electrode