

Ground Penetrating Radar (GPR) uses high-frequency pulsed electromagnetic waves to map subsurface information.

GPR is applied to a variety of problems from geology, to archeology, engineering and environment.

GPR (Ground Penetrating Radar)

Ground-penetrating radar (GPR) is a non-destructive geophysical method that uses high-frequency electromagnetic energy, which is transmitted into materials (soil, rock, concrete) through an antenna.

The transmitted pulses can be reflected from buried objects or distinct contacts between materials with different electrical conduction properties. The antenna then receives the reflected waves and stores them in the digital control unit.

GPR method provides a two-dimensional cross-section of subsurface features.

Depth of penetration and resolution depend on the antenna frequency being used. Lower frequency antennas generally achieve greater depth of penetration, but have poorer spatial resolution; higher frequency antennas provide less penetration but higher resolution.



APPLICATIONS

Ground penetrating radar (GPR) has many different applications:

- ✓ locate utilities
- ✓ locate voids
- ✓ locate buried structures or objects
- ✓ concrete inspection
- ✓ examine stratigraphy

EQUIPMENT

CONTROL UNIT

Data storage 1 GB

Display mode: Linescan, O-scope, 3D

Sample size: 8-bit or 16-bit

Number of samples per scan: 256, 512, 1024, 2048, 4096, 8192

Time range: 0-8,000 nanosecondi

Gain: manual or automatic, 1-5 gain points (-20 to +80 dB)

Encoder

Manual marking

Transmit rate up to 100 kHz

ANTENNAS

100 MHz

900 MHz

400 MHz

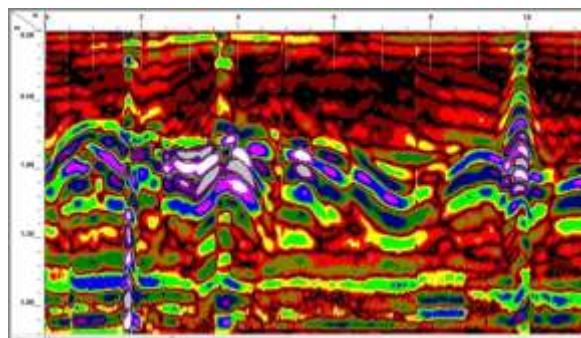
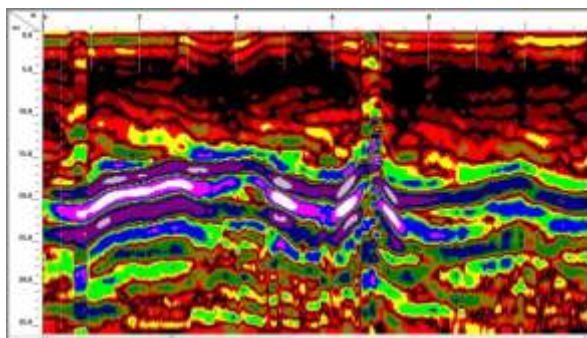
1600 MHz



DATA PROCESSING

GPR profiles are displayed as a color-amplitude image where waveform amplitudes are plotted according to predefined colors. Measured travel time data can be converted into depth with knowledge of the velocity of propagation in the subsurface layers.

Processing operations performed on GPR data include time-zero correction, gain control, filters, migration etc...



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Sede legale

Sedi operative

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