

LABORATORIO: CNR-ISPC

NAME OF THE INSTRUMENT

Georadar Ris Hi-Mod, IDS System

GENERAL DESCRIPTION:

The georadar available in MOLAB is used in several fields of investigations due to its extremely handy, fast and completely non-invasive. The georadar method (also known as Ground Penetrating Radar - GPR) is an high-resolution technique that allows to acquire a large amount of information on large areas in the first meters of the subsoil, referable to the presence of buried bodies, cavities, structures of archaeological interest, subsoil stratifications, etc. An instrumental radar apparatus operates by generating high-frequency impulsive waves (typically between 10 MHz to a few GHz), which are transmitted into the subsoil using an appropriate "antenna transmitter" placed on the surface of the ground. The electromagnetic signal propagates in the medium and undergoes reflections if it encounters a medium with discontinuity of the electromagnetic parameters. The reflected wave that returns to the surface is recorded by a "receiving antenna". The captured signal is then transmitted to the control unit which amplifies it and records it in digital format. The possibility to use several frequencies and therefore a variable resolution and depth of investigation makes the technique applicable also on structures related to built cultural heritage and beyond.

TECHNICAL DESCRIPTION:

The portable georadar instrument is equipped with a control system, a series of antennas with 200MHz, 600MHz, 900MHz and 2000MHz frequencies.

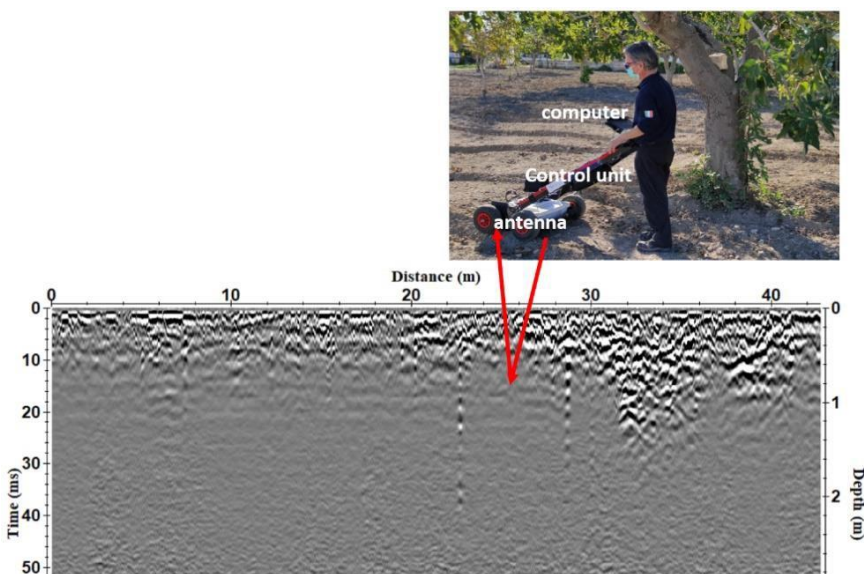


Figure: georadar system with examples of radar section.

FURTHER INFORMATION:

- LeucciG., 2007, Ground Penetrating Radar: Un'introduzione per gli Archeologi; Aracne Editrice, Roma; ISBN: 978-88-548-0951-2.
- Leucci G., 2015, Geofisica Applicata all'Archeologia e ai Beni Monumentali. Dario Flaccovio Editore, Palermo, pp. 368. ISBN: 9788857905068
- Leucci G., 2019, Nondestructive Testing for Archaeology and Cultural Heritage: A practical guide and new perspective. Springer editore pp 217, ISBN 978-3-030-01898-6
- Leucci G., 2020, Advances in Geophysical Methods Applied to Forensic Investigations: New Developments in Acquisition and Data Analysis Methodologies. Springer editore, pp 200, ISBN 978-3-030-46241-3

Referente: Giovanni Leucci (giovanni.leucci@cnr.it)