Geophysical Research Abstracts Vol. 19, EGU2017-2299, 2017 EGU General Assembly 2017 © Author(s) 2016. CC Attribution 3.0 License.



Ground Penetrating Radar employment for searching ancient cisterns.

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Ground Penetrating Radar technology and methodology can provide support for the archaeological research. In particular, investigations in archaeological sites [1-3] and monuments of historical interest [4-6] have provided in many cases information of interest about the presence, the size, the shape and the depth of embedded anomalies, that can range from foundations to crypts, or also walled passages, walled doors, embedded voids or reinforcement bars, fractures and so on.

In this contribution we will focus on the possibility to identify ancient cisterns with the aid of a GPR prospection. In particular, the attention will be focused on Messapic cisterns. The Messapians were a population that used to reside in the southern part of the Apulia region (the so called Salento), Their remains dates back from the 8th century B.C. up to the Roman conquest, in the 3rd century B.C.

They used to build cisterns for gathering the rain water, both for drinking and for agricultural purposes. The shape of the cisterns can be quite different from case to case, and rarely they are found empty. Rether, in most cases the remains shows a structure with the roof collapsed and filled up with loose materials, which makes their identification with a GPR a challenging issue. At the conference, the results and the interpretation of GPR data gathered in the two Messapic sites of San Vito dei Normanni and Cavallino (both in the Salento area) will be shown and discussed.

References

1) R. Lasaponara, G. Leucci, N. Masini, R. Persico, Investigating archaeological looting using satellite images and GEORADAR: the experience in Lambayeque in North Peru, Journal of Archaeological Science, vol. 42, pp. 216-230, 2014.

2) R. Castaldo, L. Crocco, M. Fedi, B. Garofalo, R. Persico, A. Rossi, F. Soldovieri, GPR Microwave Tomography for Diagnostic of Archaeological Sites: the Case of a high-way construction in Pontecagnano (Southern Italy), Archaeological Prospection, vol. 16, pp. 203-217, 2009.

3) L. Matera, M. Noviello, M. Ciminale, R. Persico, Integration of multisensor data: an experiment in the archaeological park of Egnazia (Apulia, Southern Italy), Near Surface Geophysics, Vol. 13, n. 6, pp. 613-621, 2015

4) G. Leucci, N. Masini, R. Persico, F. Soldovieri." GPR and sonic tomography for structural restoration : the case of the Cathedral of Tricarico", Journal of Geophysics and Engineering, vol. 8, pp. S76-S92, Aug. 2011.

5) M. Pieraccini, L. Noferini, D. Mecatti, C. Atzeni, R. Persico, F. Soldovieri, Advanced Processing Techniques for Step-frequency Continuous-Wave Penetrating Radar: the Case Study of "Palazzo Vecchio" Walls (Firenze, Italy), Research on Nondestructive Evaluation, vol. 17, pp. 71-83, 2006.

6) N. Masini, R. Persico, E. Rizzo, A. Calia, M.T. Giannotta, G. Quarta, A. Pagliuca, "Integrated Techniques for Analysis and Monitoring of Historical Monuments: the case of S.Giovanni al Sepolcro in Brindisi (Southern Italy)." Near Surface Geophysics, vol. 8, n. 5, pp. 423-432, 2010.