

Advancements of Archaeological Prospection

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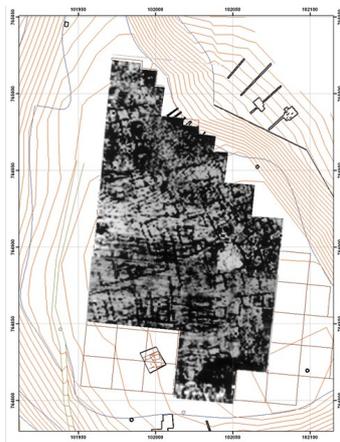
Geophysical Prospecting which aims to detect, map and image subsurface remnants of the past human activity is otherwise called “Archaeological Prospection”. The trivial outcome resembles the result that would have been drawn if an excavation had taken place. Thus, excavations can be better planned, accelerated and focused on specific targets. The recently introduced “image fusion” techniques boosted these methods into new perspectives.

Further, methods like the Ground Penetrating Radar (GPR) allow indoor and urban operations plus investigations for possible cracks and fractures that threaten the integrity of the standing monuments. Also, the continuously developing tomographic techniques, like the Electrical Resistivity Tomography (ERT) yield 3-dimensional subsurface imaging.

Archaeological Prospection can be also employed to treat non-conventional problems related to the preservation and restoration of monuments, works of art and archaeological heritage.

Geophysical Prospection, under favorable conditions, can yield images which resemble the result that would had been drawn if an excavation had taken place. The ancient ruins comprise resistive structures buried in a relatively conductive environment. Thus, they create high resistance anomalies which are mapped by geophysical prospecting. In the example shown in this figure, the subsurface resistance has been mapped and its distribution is depicted in a grey scale. The darker tones indicate areas of high resistance which are presumably caused by the concealed ancient ruins. The example has been drawn from the exploration of the site hosting the ruins of the ancient city “Europos” in N. Greece . The closed rectangular anomalies reflecting the presence of remnants of foundation walls form a plane view showing, more or less, the shape of the ancient urban complex.

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(Tsokas, G.N., et al 1994, A large scale geophysical survey in the archaeological site of Europos (northern Greece). "Journal of Applied Geophysics", 32, 85-98).