ISAP NEWS

The newsletter of the International Society for Archaeological Prospection

Issue 25, October 2010

Contents

Editor's Note

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Welcome to the 25th issue of ISAP News. This is to be my last issue as Editor for ISAP as I will shortly be going on maternity leave and am standing down from the ISAP Management Committee at the same time. If anyone is interested in taking over this role then please see page 9 for more information.

Also, please note that there is to be an ISAP AGM this December, following on from the NSGG conference in London and it would be great for as many of you to be there as possible.

I do hope that there will be lots of interest in the post of Editor and look forward to reading someone else's production of the Newsletter in January!

Archaeological Prospection in Migdal, Galilee, Israel

Luis Barba, Jorge Blancas and Linda R. Manzanilla lubarba@me.com
Instituto de Investigaciones Antropológicas, UNAM, Mexico
Marcela Zapata
Universidad Anáhuac Mexico Sur, Mexico

Recently, the Israel Antiquities Authority granted the first license (G-64 / 2019) to Mexico through this project, where the Universidad Anahuac Mexico Sur is the responsible academic institution, (project direction of Marcela Zapata), in partnership with the Instituto de Investigaciones Antropologicas of the National Autonomous University of Mexico (UNAM).

The main goal of the Migdal Project is to develop a comprehensive archaeological research beginning with the archaeological prospection, continuing with the extensive excavation in most of the 3 Ha of available land and concluding with the analyses of ecofacts, artifacts, debris and architecture. The Archaeological Prospection Laboratory has proposed the use the of a scientific methodology established since 1980, using an interdisciplinary approach that integrates all recovered information to obtain results that help to present a clear and objective point of view of the history of the ancient town of Migdal, 5 km north of the modern town of Tiberias in the western shore of Galilean Sea, Israel.

Figure 1: Combined aerial photo and topographic map

Results and Comments

Topographic survey covered 4.62 Ha and included 655 points recorded by Ashtech Promark 2 GPS. The contour lines overlap aerial photo. All houses in the northern part of the photo have been demolished. The green area was cleaned using bulldozers removing the uppermost layer of soil with vegetation.

This survey revealed the strong impact of the bulldozer work in recent years. In the western part of the site we have contour lines above -204 m than form a small terrace where several modules of the prospection grid were set. In the same way some modules in the central part of the grid, are placed in other slight topographic elevations. In the eastern part of the grid there is a nearly flat surface that seem to be a more recent filling, to level that part of the site (figure 1).

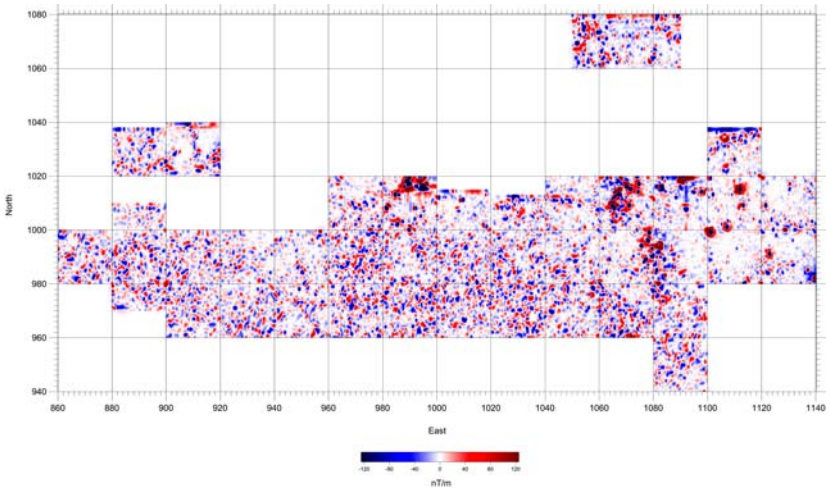


Figure 2: Magnetic gradient map of the Migdal archaeological site

For the magnetic gradient survey we used GEOSCAN FM36, covering a total area 1.53 Ha, including 61440 readings. This survey provided a large amount of information (figure 2). The western part of this map is in the uppermost part of the land and closer to the already excavated synagogue. In this area we found some interesting square patterns of dipolar anomalies. From E960 to E1060 we have in the central part observed strong magnetic dipolar anomalies that suggest the presence of large blocks of basalt and can recognize several linear features.

In module N940E1080, close to the south limit, another rectangular structure is revealed.

For the electric survey, the GEOSCAN RM15 measuring equipment was employed using twin poles array. Covering a total area 1.02 Ha and including 10200 readings. Survey was conducted in areas where the magnetic gradient did not clearly define the structures. The electrical resistivity map is a bit smaller than the magnetic. In the western part of the map we can observe a large quantity of small rooms forming clusters (figure 3).

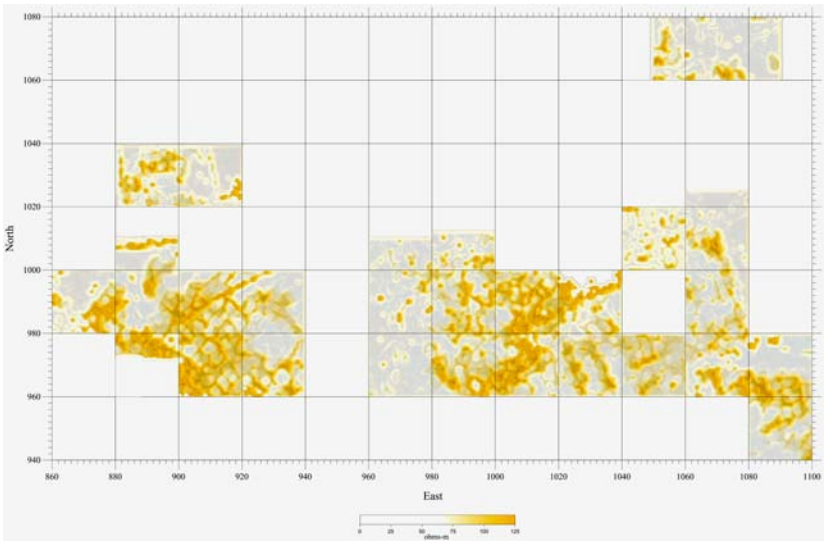


Figure 3: Electrical resistivity map of the site

It is possible that in the central part of the map the basaltic blocks that produce the magnetic anomalies could be more than 1.5 m deep and in this way they were not reached by the electric field. In addition, a modern floor was placed in grid N980 E1000 sometimes preventing the insertion of the probes or producing very high electric readings with no archaeological meaning.

University Of Bradford Awarded Irish Research Fellowship To Review 10 Years Of Geophysical Data From Road Schemes

James Bonsall, Chris Gaffney and Ian Armit J.P.T.Bonsall1@bradford.ac.uk
AGES, University of Bradford, UK

The National Roads Authority (NRA) of Ireland has awarded its Research Fellowship Programme 2010 to Dr. Chris Gaffney and Prof. Ian Armit (Ages, University of Bradford). Their proposal, to the theme 'Preparing for the future: A reappraisal of archaeo-geophysical surveying on National Road Schemes 2001-2010' supports a studentship that will be undertaken by James Bonsall, a former MSc Archaeological Prospection student at Bradford. James has, for the last 8 years, undertaken commercial and research surveys across Ireland as a Director of Earthsound Archaeological Geophysics. James has recently taken a sabbatical from the company to study for a PhD. Earthsound will act as the University of Bradford's Industrial Partner in the research.

During the late 1990s and early-to-mid 2000s, Ireland underwent a period of economic boom known as the Celtic Tiger that resulted in a large and sustained number of construction projects. The NRA has over the last ten years funded a large number of extensive geophysical surveys in advance of subsequent intrusive excavations. These surveys have helped reveal the extent of hundreds of known and unknown archaeological sites across the country. Embedded within the NRA is a belief that archaeological geophysics can

and will add value to the process of discovery that is required for mitigation and cost effective preservation by record. Undertaken at the beginning of a project, geophysical practitioners have often complained that the importance of their surveys in driving succeeding work is rarely acknowledged. Conversely, those excavating previously surveyed sites often only give feedback when features have been 'missed' by the geophysicist. As a result there is an uneven acceptance of the suitability of geophysical survey for road schemes and a need to reconsider the balance between the initial impact and the long term success of geophysical work within NRA schemes. This research will critically reflect upon ten years of accrued data and outputs to establish the significance of and prospects for geophysical survey. This will enhance their effectiveness in future NRA schemes.

Geophysical surveys carried out on NRA schemes are data rich, extensive in size and often very highly specified. Subsequent excavations provide considerable opportunities for us to assess the suitability of geophysical methods to map and interpret anomalies that are often the product of subtle archaeological features. As a result of the digital delivery of excavation and survey, the road schemes are an excellent resource to study the parameters that contribute to a successful outcome.

A series of seasonality tests will represent - what we believe to be - the first investigation of its type on Irish soils. Ireland has a heavy annual rainfall that differs from mainland Europe and varies considerably across the country. These tests will be carried out over varying geologies to monitor climatic variations in electrical resistivity responses to archaeology over the course of a year. The regular tests will be carried out to assess the differences between traditionally used techniques, new and emerging technologies and to analyse penetration depth and its applicability to Irish corridor assessments.

Figure 1: Bronze Age enclosure (Site AR26) on the M8/N8 Cullahill-Cashel Road Improvement Scheme at Ballydavid, County Tipperary. © Earthsound Archaeological Geophysics; Valerie J. Keely Limited

Ireland presents a number of unique challenges that often restrict the effectiveness of heavily specified linear corridor assessments: deep peats preserve a large number of wooden trackways; basalts, granites and other volcanic geologies often prevent the use of magnetometer assessments; conversely, some limestone/sandstone geologies limit the discovery of archaeology which can have a limited- or non-magnetic contrast; a largely aceramic material culture hinders the identification of otherwise prospective features such as ditch/pit fills. Fieldwork will address these 'missing sites' by developing techniques in a series of problem solving experiments to determine suitable methods of assessment.

The NRA has been a leader in embracing geophysical survey for evaluation of archaeology in such schemes, but linear projects are common elsewhere. Anecdotal evidence suggests increasing use of geophysics on large linear developments. There is similar anecdotal evidence to suggest that an uncritical use of technology in many of these projects would be counterproductive. As a result the academic analysis of the NRA schemes could have great impact beyond Ireland.

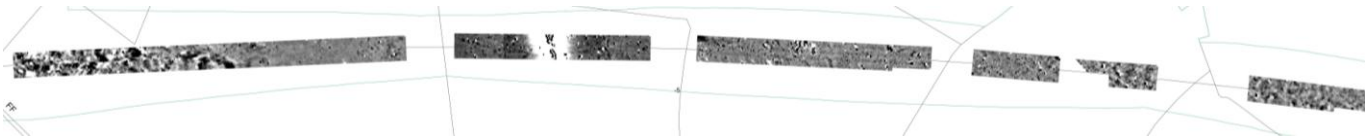
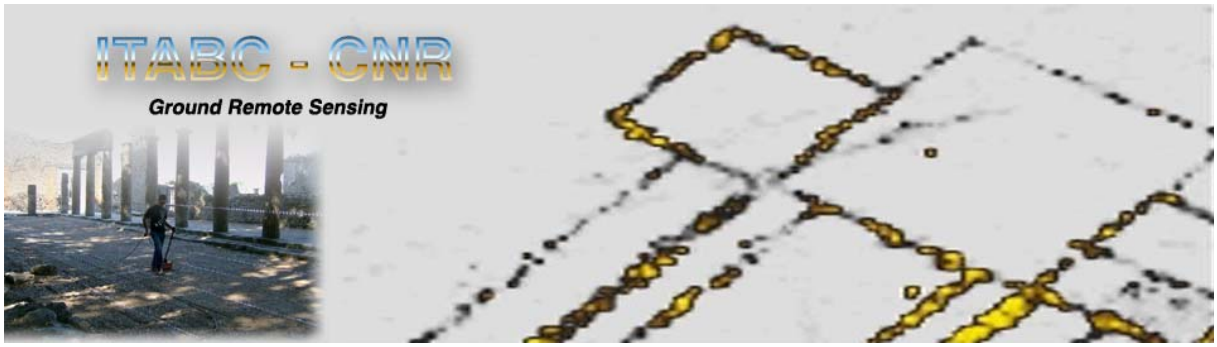


Figure 2: Magnetic Gradiometer data on the N8 Fermoy Mitchelstown Scheme © Earthsound Archaeological Geophysics & Sub-Strata

Conference, Seminar and Course Announcements

GPR Methods for Archaeology and Historical Buildings

Institute for Technologies Applied to Cultural Heritage, Rome, Italy, 1-3 December 2010



The archaeological and cultural heritage environments often have unique site conditions as well as special requirements for making useful subsurface images from ground penetrating radar surveys. ITABC-CNR organises a workshop which will explore GPR Methods in Archaeology and Historical Buildings. The course will cover a variety of topics which will encompass field collection practices and survey design as well as introduce signal processing and image processing techniques which are often used for these specific applications. The use of forward models to aid in the interpretation of recorded radargrams from archaeological sites and historical buildings will be examined with demonstrations of GPR simulations. Various surveys from Italian, Japanese, Asian, and Native American sites will be shown that will highlight the use of GPS navigation, topographic corrections, time slicing, horizon slicing, and overlay analysis in GPR archaeometry.

The registration form and the programme are available from the web-site: http://grs-lab.itabc.cnr.it/ or for more information email: Salvatore.piro@itabc.cnr.it

Recent Work in Archaeological Geophysics and Environmental Forensics

Burlington House, Piccadilly, London, UK, 15-16 December 2010

NSGG
Near-Surface Geophysics Group

FGG Forensic Geoscience Group

15 DECEMBER 2010: RECENT WORK IN ARCHAEOLOGICAL GEOPHYSICS

Draft Programme of Events:

0915-1000	Registration and Coffee
1000-1005	Introduction
1005-1020	*The Discovery of the Rosnaree Enclosure, County Meath, Ireland: Implications for the Continuing Evaluation of the Archaeological Potential of the Brú Na Bóinne World Heritage Site.* K Barton and C Brady.

1025-1040	*Bronze Age Settlements and New Discovered Ring Ditches of the Maykop Culture in the North-Caucasus (Russia).* J Fassbinder, S Reinhold and A Belinskiy.
1045-1100	*A Reassessment of the Utility of the Geonics EM38 Together with Suggested Methodologies for its Application in Archaeological Investigations.* P Cheetham.
1105-1120	*New Approaches to Improve Magnetic Prospection: Applications on Archaeological Sites in Provence.* Y Quesnel, A Jrad, H Boukbida, P Rochette, P-E Mathé, J Gattacceca, J-C Parisot, D Hermitte, S Khatib and F Mocci.
1125-1155	Coffee
1155-1210	*Longhouses, Field Boundaries and Rocky Outcrops: Modelling of Geophysical Data Sets Affected by Geological Outcrops in the Shetland Island for Past Land Use.* R Legg, J M Bond, C Gaffney and C P Heron.
1215-1230	*Adaptation of Aero-Magnetic Interpretation Techniques for Archaeo-Magnetic Purposes.* S Cheyney, I Hill, N Linford, S Fishwick and C Leech.
1235-1250	*Data Presentation And Interpretation.* J Lyall.
1255-1300	Morning closing remarks
1300-1430	Lunch (available locally)
1430-1445	*Recent Works in G.P.R. Applied to Cultural Heritage.* P M Barone, E Pettinelli, S E Lauro and E Mattei.
1450-1505	*Reflections from Westminster Abbey.* E Utsi.
1510-1525	*What Shielding? How to Pick Up Signals with a GPR Antenna.* A Schmidt.
1530-1600	Tea
1600-1615	*The Ludwig Boltzmann Institute for Archaeological Prospection & Virtual Archaeology - A New Perspective for Landscape Archaeology: Research Programme and First Results From Large-Scale, High-Resolution Archaeological Prospection.* I Trinks, A Hinterleitner, E Nau, T Zitz, K Löcker, M Gabler, W Neubauer, M Doneus, N Doneus, M Kucera, C Briese and D Scherzer.
1620-1635	*Methodological and Archaeological Challenges in the First Season of the Stonehenge Hidden Landscapes Project.* C Gaffney, V Gaffney and W Neubauer.
1640-1655	*Towards Reconstructing an Ancient City: Case Study of Pelusium, Northern Sinai, Egypt.* T Herbich.

1700-1715	*Early Urbanism in Europe? Geophysical Survey at Nebelivka, Ukraine.* Duncan Hale, J Chapman, N Swann, M Videiko and R Villis.
1720-1730	Conclusion
1730-1930	Wine reception in Lower Library
1730-1830	Separate event: ISAP AGM

Posters (09:30-19:30 in the Lower Library):

East Park, Sedgefield, County Durham - Geophysical Survey of a Roman Civilian Settlement. D Hale, N Swann and R Villis.

Mapping Pleistocene Landscape Features Using Archaeological Geophysics. A Butler, J Walford.

Geophysics in Your Back Garden: From Rural Retreats to Royal Palaces 18 Years of 'Geophys' On Time Team. GSB Prospection.

'It Never Rains But It Pours' Earth Resistance Seasonality Testing in Bradford. A Parkyn.

The Interface of Geophysical and Geochemical Survey: Towards an Understanding of Geophysical Data Quality in Challenging Archaeological Sites. C Cuenca-Garcia.

Enhancing Magnetic Survey Interpretation of Roman Cities: Geophysical Data Combination and Archaeological Feedback on Ammaia. J Verhegge, A Schmidt, C Gaffney, F Vermeulen and L Verdonck.

Detecting Mass Graves on Historic Battlefields. P Masters and C Enright.

3D GPR-Survey in the Roman Town of Baalbek. R Linck, J Fassbinder and M van Ess.

Neolithic - Early Iron Age Sites at Serteya, North-West Russia: Archaeological Survey, Magnetometry And Susceptibility Prospecting. D Yu Hookk, A N. Mazurkevich and J Fassbinder.

A Ground Penetrating Radar Survey at Thorpe Waterville Castle, Northamptonshire. T Dennis, S Parry, M de Bootman and J Fulcher.

Towards an Integrated, Multi-Method Remote Sensing Strategy for Archaeological Landscape Analysis: The Discovery of the Rosnaree Enclosure, Brú Na Bóinne World Heritage Site, County Meath, Ireland. K Barton, C Brady.

Identifying The Wessex Culture - A Geophysical Analysis of the Clandon Aggrandised Barrow. P Cheetham.

Preliminary Geophysical Survey Results From Songo Mnara, Tanzania. K Welham and H Manley.

Large Scale Geophysical Survey at the Roman Legionary Fortress of Inchtuthil, Perth & Kinross, Scotland. P Morris, D J Woolliscroft and B Hoffmann.

Archaeomagnetic Prospecting for an Ancient Roman-Byzantine Church Site at Yasilah (Pella) in Northern Jordan. K Fahmi and A Qazaq.

Archaeological Geophysical Prospection in Peatland Environments: Case Studies and Suggestions for Future Practice. K Armstrong, T Darvill and P Cheetham.

Beyond Venus; the Geophysical Survey of Links of Notland, Westray, Orkney. A Kattenberg, J Kainz.

Reconstructing the Ring of Brodgar – Using Earth Resistance, ERT and GPR to Locate Further Monoliths. I Wilkins, M Saunders and A Brend.

Recent Geophysical Survey at the Site of Çatalhöyük, Turkey. J Ogden, I Hodder and K Strutt.

Man and Machine: Progress in Geophysical Data Acquisition and Handling. M Roseveare and A Roseveare.

The DART Project: A Major New Investigation Into What Lies Beneath Our Soils. A. Beck, A Cohn, C Gaffney, N Metje, C Neylon, A Schmidt, M Steven, K Wilkinson, D Boddice, R Fry, L Pring and D Stott.

A Geophysical Survey over a Norwegian Iron Age Settlement Site. A A Stamnes.

Roman Dalswinton in South West Scotland: A Comparison of Single and Sixteen Sensor Magnetic Surveys. R Jones, R Jones, B Hanson and O O'Grady.

Commercial Exhibitors:

3d-Radar	DW Consulting	Geoscan Research Ltd
Bartington Instruments Ltd	Geomatrix Ltd	Utsi Electronics Ltd

16 DECEMBER 2010: ENVIRONMENTAL FORENSICS
The programme will be announced shortly.

Further information will be available at: http://www.geolsoc.org.uk/page7381.html

And a registration form can be downloaded from: http://www.geolsoc.org.uk/webdav/site/GSL/shared/Word_docs/specialist%20and%20regional/forensic/NSGG_FGG_regform2010.rtf or the ISAP website. Please note that all registration forms must be received by 30th November at the latest.

Announcements

ISAP Management Committee

ISAP AGM 2010
This year's ISAP Annual General Meeting (AGM) will be held immediately after the day meeting "Recent Work in Archaeological Geophysics" on 15 December 2010 at 5:30pm in Burlington House. There will be a wine reception afterwards. The agenda has the usual items of a 'non-electing AGM', including the minutes of the previous meeting (see the ISAP web site). If you would like to raise specific points under "Any other Business", please notify the Chairman (Chris Gaffney) or Honorary Secretary (Armin Schmidt) in advance.

Editor

As mentioned at the beginning of the newsletter our Editor, Louise Martin, is resigning. ISAP therefore invites expressions of interest with immediate effect to fill this important post, which is part of the Management Committee. The closing date is Friday 19th November 2010. This is initially for the period up to the next electing AGM in September 2011 in Izmir, Turkey, and will include the production of three issues of the Newsletter, but is expected to continue for longer thereafter.

Journal Notification

Archaeological Prospection 17:4

The final issue of the year of Archaeological Prospection contains the following articles:

Novo et al. *Three-Dimensional Ground-Penetrating Radar Strategies Over An Indoor Archaeological Site: Convent Of Santo Domingo (Lugo, Spain).*

Sola et al. *Ground-Penetrating Radar Assessment Of The Medieval Arch Bridge Of San Antón, Galicia, Spain Ortega Et Al. Applying Electrical Resistivity Tomography To The Identification Of Endokarstic Geometries In The Pleistocene Sites Of The Sierra De Atapuerca (Burgos, Spain).*

Lowe and Fogel. *Understanding Northeastern Plains Village Sites Through Archaeological Geophysics.*

Rosa et al. *The Contribution Of Geophysical Prospecting In The Reconstruction Of The Buried Ancient Environments Of The House Of Marcus Fabius Rufus (Pompeii, Italy).*

Udphuay et al. *Ground-Penetrating Radar Imaging Of 12th Century Romanesque Foundations Beneath The 13th Century Gothic Abbey Church Of Valmagne, France.*

There are also reviews of two books:
'*Magnetometry for Archaeologists*' and '*Rathgrogahan Archaeological and Geophysical Survey in a Ritual Landscape*'.

Commercial Advertisements