ISAP NEWS

The newsletter of the International Society for Archaeological Prospection

Issue 20, July 2009

Contents

Editor's Note

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This 20th issue of ISAP News contains a bumper crop of articles demonstrating a wealth of amateur work. There is also the provisional programme for Archaeological Prospection 2009. If you are planning to pop over to Paris to attend this conference and haven't yet registered, then please, please complete and submit a form which can be found here: http://www.archeorient.mom.fr/colloqueap2009eng/inscriptionseng.html. The deadline for student bursary travel applications is fast approaching – 31st July – so if you want to apply, please visit: http://www.bradford.ac.uk/acad/archsci/archprospection/ArchPros09/bursary2009.php. Watch out for information on ISAP committee member nominations on the email list in the next few weeks. Voting will take place at the ISAP AGM on 11th September after the last session of the conference.

The Role of the Amateur in Geophysics

John Oswin, Bath and Camerton Archaeological Society, UK JohnOswin@aol.com

The idea of amateur involvement in geophysics in archaeology may not appeal to some professionals, particularly when there is little funding available. However, the amateur has a different, and complementary, role to play and the two approaches are compatible. The remarks here apply to UK. In other countries, other laws may apply. Although I work through an amateur society, the views expressed here are entirely my own.

I am an amateur and a retired scientist, but most whom I teach during summer training excavations have a background in the Humanities. They may be doing A-level or undergraduate studies, often as mature students. They may be limited in their understanding of the science, but they can become quite capable geophysics equipment operators. Their work can stand comparison with the professionals'.

The great advantage that amateurs have is that their man-hours come free. A survey does not have to be completed as quickly as possible within a fixed budget and over a fixed area. This means that large area surveys can be undertaken at a gentle pace over a long period of time, and whole landscapes of different periods can be observed beneath the present fields. It means that research surveys that are important archaeologically but not economically viable can be undertaken. It is there a case of amateur survey or no survey.

We have surveyed many sites, both locally and not-so-locally (including Shetland). However, my principal area of research is about five miles north of Frome, Somerset, and I have covered approximately 100 ha since 2003. The results of the first 80 ha were presented in ISAP News 12. The 20 ha surveyed since then have continued to provide significant results – e.g. see Figure 1 and also www.bacas.org.uk. All work has been done hedge-to-hedge in each field, not just to the nearest convenient grid, and has been done with both gradiometer and twin-probe resistance. I have found many times over that I cannot predict which instrument is going to find the interesting site, and if I cut out the resistance work to save time, I would fail to find many features. I appreciate the professional's need to concentrate on magnetometry for speed, but in stone-rich areas, much information may be lost without resistance.

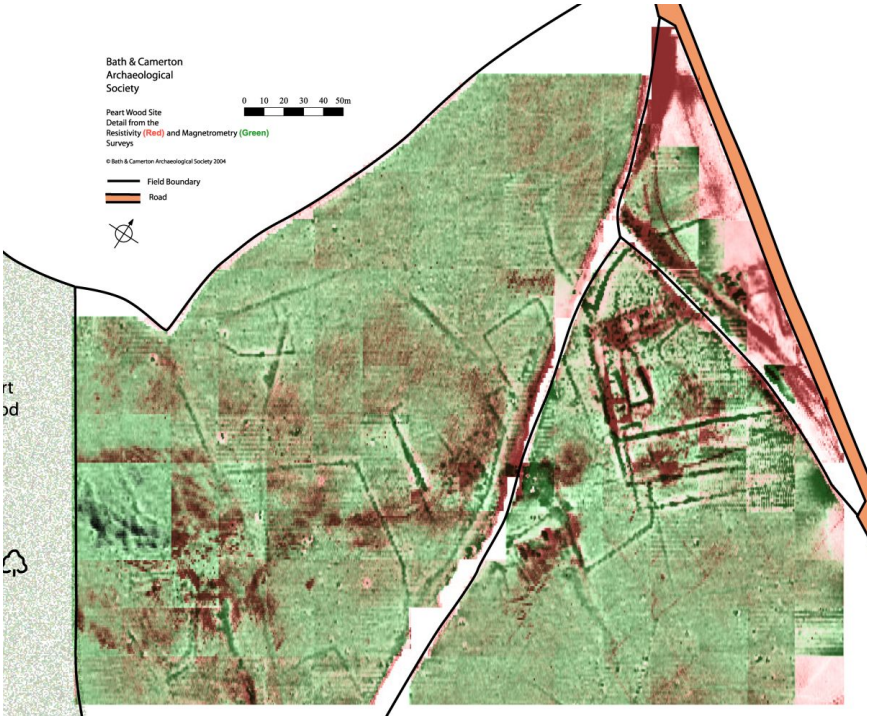

Figure 1: combined resistivity (red) and magnetometer (green) results form Peart Villa, Somerset

I am not suggesting all amateur work should be entirely free, as even they have equipment and travel costs to cover, and the participants need some reward. I am against authorities trying to use amateurs to get work done on the cheap and so deprive professionals of livelihood. I do believe that any work, professional or amateur, should be performed and reported to an adequate standard.

I am lucky in that, thanks to the Heritage Lottery Fund and the generosity of benefactors and of our members, the society is well equipped. I have both FM and twin Bartington magnetometers, both RM and TR resistance meters, the latter including a pseudo-section profiling kit. I have recently been given a magnetic susceptibility meter and I also have an EDM. Radar is the one that got away.

I regularly receive requests from other amateur societies for help with geophysics. I have requests both from societies and individuals to find how to obtain geophysics equipment. If professional members have obsolete but still functional kit, there may be a small market for it. If they are willing to part with it, I may be able to find it a new home, but budgets may be very small. Amateurs can make more use of lower cost, less sophisticated equipment but with the time they can apply, they can produce equally valid data.

Geophysical Surveying Around Chichester

Neville Haskins, Chichester & District Archaeology Society, UK haskins0@supanet.com
George Anelay, Chichester District Council, Heritage Outreach Officer, Arts & Heritage
Andy Payne, English Heritage Geophysics Team

There are many archaeological sites around Chichester which are of interest for research evaluation but which will never be important enough to require the involvement (and cost) of a team of professional archaeologists. As part of an outreach programme, the Arts and Heritage Team of Chichester District Council has, for a number of years, run archaeology projects with the local community examining some of these sites. The benefits are twofold inasmuch the sites are examined but also the population at large gains an insight into the importance of their local heritage. The main participants from the local populace have been from the Chichester and District Archaeology Society (CDAS).

In 2006, during an evaluation of a possible Iron Age settlement, it was thought that a geophysical survey was essential to identify targets for excavation and a training programme was arranged with the English Heritage (EH) Geophysics Team which is based in nearby Portsmouth. About two dozen volunteers from CDAS were trained in setting out survey grids and acquiring data with both earth resistance and fluxgate gradiometer equipment. The results were excellent showing a series of enclosures and possible trackways which were later excavated to reveal a Romano-British settlement. The results from these community excavations were reported in “Past Matters”; an annual publication of the Chichester District Council Arts and Heritage team.

Following this initial success a number of surveys were considered and a small team was put together to prioritise these, comprising the authors of this paper. Equipment was borrowed by CDAS from EH and over a dozen surveys have been undertaken on behalf of all three partners in the enterprise in the last 3 years by the team of trained volunteers from CDAS. CDAS also has close connections with the Chichester Harbour Conservancy and has provided volunteers to run a programme monitoring ancient monuments within the area of the Harbour. This was part of an outreach programme run by the Harbour Conservancy called ‘Rhythm of the Tides’. Some of the harbour sites have also been examined with geophysical surveys.

Figure 1: Volunteers Mary Haskins and Tim Pullan from CDAS carrying out a resistance survey in the courtyard of the Bishop’s Palace, Chichester, during Archaeology Day.

A number of problems were quickly identified. The underlying geology of Chichester city is ferriferous brick earth and this is not good for magnetometry. However, good results have been obtained using resistance techniques. To the north of the coastal plain the area quickly rises to the South Downs which are chalk and excellent data has been obtained here using magnetometry.

There have been a number of highlights during these surveys: one in April 2007 was undertaken to pinpoint a Roman tile kiln near Dell Quay within the Harbour Conservancy. Dumps of waste tiles were being eroded from the coastal bank by the sea and the site was thought to be at risk. A geomagnetic survey identified a strong target for a rescue dig which was carried out in 2008 and uncovered the kiln.

Figure 2: Volunteers from CDAS carrying out a magnetometer survey at a Romano-British settlement site near Chichester.

Each year the Council Arts and Heritage Team organises an archaeology week with the Cathedral to give school students experience of Archaeological methods. As part of this week the CDAS geophysics team run demonstrations but also undertake surveys around the Cathedral Close. These surveys using both resistance and magnetic surveys identified several targets in the Close and these were subsequently excavated to reveal both medieval and Roman buildings. The Close lies against the inside of the medieval City Walls and a new initiative by the Council, the Cathedral and local residents has lead to the award of a Heritage Lottery Fund grant to carry out detailed investigations of the City Walls. This will include community projects involving geophysical surveying and we will get an opportunity to see if the buildings we identified inside the walls spread outside as well.

All surveys are evaluated and reported to the standards required by EH and the information made available to the three partners. The information is added to the Chichester HMR and recorded by EH.

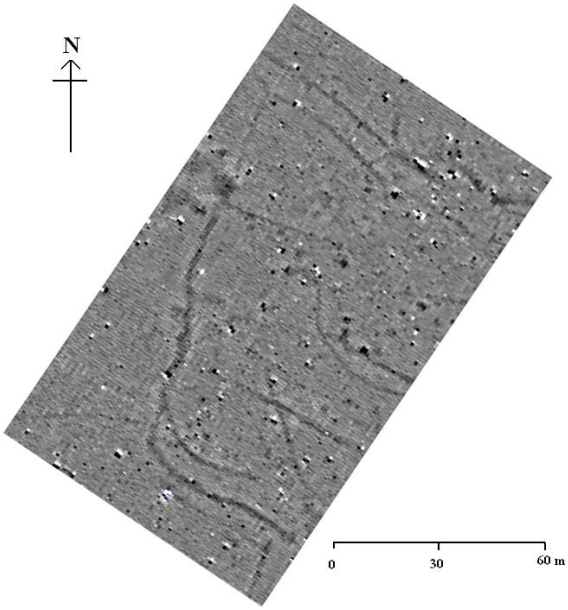

Figure 3: The results of the magnetometer survey of the Romano-British settlement showing possible enclosures and trackways. +3.40nT (black) to -3.40nT (white)

This collaborative initiative with CDAS has been very successful. Following on from the initial training the team has been expanded with further training sessions to augment the numbers of experienced surveyors as the original team shrinks by attrition. Training surveys were run on the Roman Amphitheatre in Chichester in 2008 and Fishbourne Roman Palace in 2009. Besides augmenting the numbers of volunteers, these exercises also produced surveys giving a clearer picture of the archaeology of scheduled sites without intrusion (after getting a licence to do it of course!!). The only problem is that there are too many potential sites in this archaeologically rich area and we would love to do them all!

The Stanbury Hill Project: Archaeological Investigation of a Rock Art Site

Keith Boughey, Bingley & District Local History Society, UK keith_boughey@hotmail.com

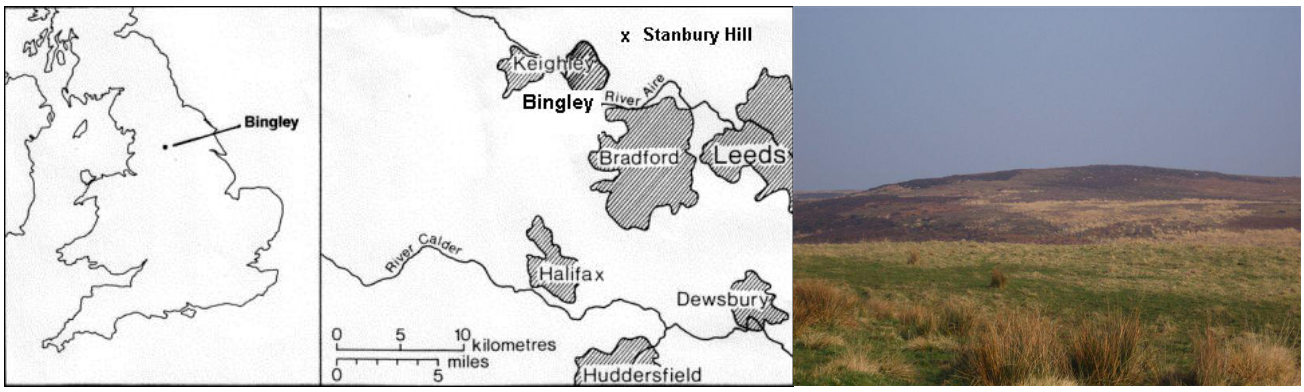

Figure 1: Location of Stanbury Hill, Bingley Moor, W. Yorks. and view from the S

Introduction

The Stanbury Hill Project is a collaboration between Bingley & District Local History Society and the Division of Archaeological Sciences at the University of Bradford. The project aims to engage local people in learning more about their past through direct participation, gaining skills in archaeological investigation.

Figure 2: Examples of prehistoric rock art and one of at least 6 'cairns' on Stanbury Hill

The site at Stanbury Hill, Bingley Moor, W. Yorkshire (Fig 1) is located on the edge of the moor overlooking Bingley and the Aire Valley. The archaeologically significant area apparent so far from cursory fieldwork covers approximately 6.25 ha: barely 6% of the total area of the hill. On this small hill there are no less than 22 separate recorded or possible archaeological sites or features (e.g. Fig 2) ranging from the largest single documented concentration of prehistoric rock art or 'cup-and-ring-marked' rocks on Bingley Moor to unrecorded and unexcavated possible 'burial cairns', prehistoric walling, cist-like features, and the find-spots for flint tools.

In common with most archaeological projects, the work at Stanbury Hill will be in five distinct phases: desk-based assessment, fieldwork, excavation, post-excavation conservation and analysis, and finally recording and publication. All phases will involve members of the society and other volunteers supervised by archaeological staff from the University. Currently over 70 people have fully enrolled on the project together with a further 100 on the mailing list.

Fieldwork: geophysical survey

Archaeologists from the University of Bradford assisted in an initial appraisal of the site and a preliminary geophysical survey was carried out by Dr. Chris Gaffney to assess the effectiveness of these techniques on this typical Yorkshire moorland site. Both magnetometry and resistance sweeps were conducted over two separate selected sections of the hill. This work successfully mapped many known features and also identified additional anomalies.

One of the project's first major purchases was a twin sensor Bartington 601-2 Dual Gradiometer which was immediately put to good use (Fig 3) surveying 20m x 20m grids at a 0.25m x 1m sample resolution. In the first surveying season of just over 3 weeks, 64 grids were surveyed, out of an estimated total to cover the site of 100 (Fig 4) – remarkable progress considering the difficulties of

the site, the inclement weather of an exposed upland site in November and the fact that we were all absolute beginners when it came to geophysics. But we learnt fast!

Figure 3: Volunteer Frank Jolley conducting a magnetometry traverse supervised by Andy Parkin of Bradford University

Although we are still at a relatively early stage of the analysis of the data, signs are promising. There are many pit and ditch type anomalies within the data and we are now learning how to process the results to enhance our interpretation. Many of the anomalies are associated with earthwork features and establishing links between different data sets will be important. However, it is worth noting some of the problems that we have had as novice magnetometer users:

- the uncertain moorland terrain, particularly in grids where the ground was covered in mature heather: 9 grids were left unsurveyed for this reason, pending the chance of burn-off by the local head gamekeeper.
- individual operator errors, e.g. lifting the apparatus intermittently to clear vegetation or the ropes marking the perimeter of the grid and a rolling gait brought on by fatigue: this was particularly apparent in 7 of the grids.
- powerful ferrous signals due to the remains of World War 2 mortar cases

Future immediate plans in the second season, due to start in July 2009, are:

- to survey selected grids using a closer sampling interval (e.g. 0.5m or 0.25m) to 'interlace' with existing magnetometry results.
- to carry out resistance survey of selected grids
- to fieldwalk the grids, logging and mapping the surface and other visually suspected archaeological features

Conclusion

Although the professional input from University staff has been invaluable, the project simply could not run without the undoubted enthusiasm and commitment of its many local amateur volunteer members who have braved often very poor weather. Starting from a virtually zero-skills base they have rapidly acquired confidence in a range of archaeological techniques, with skills cascaded on from one volunteer to another in the true spirit of community archaeology. Indeed, when access to the site was restricted the Society took the opportunity in the meanwhile to continue to offer geophysics training to freshly recruited volunteers on other projects.

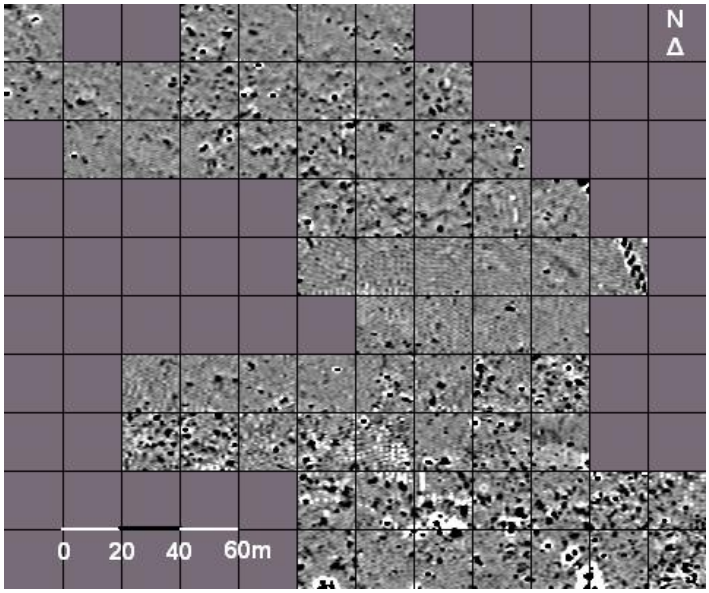

Figure 4: Magnetometer survey of Stanbury Hill (data collected by project members). The data have been minimally processed with no de-staggering. Black = +3nT, white = -3nT.

In conclusion, we believe the project is well on its way to delivering its objectives which are not only the interpretation of a prehistoric site on a stretch of local moorland, important though that is, but equally the raising of heritage awareness and the profile of archaeology within the local community, and an increase in the confidence of individuals through the acquisition of specialist skills, who can hopefully go on to apply this skill and expertise to further projects in the future.

Volunteer Archaeogeophysical Investigations at an Historic Caddo Indian Site in East Texas

Chester P. Walker, , Archaeo-Geophysical Associates, Texas, USA chetwalker@aga-llc.net
Timothy K. Perttula, Tom Middlebrook, Bo Nelson, and Mark Walters

The J. T. King site (41NA15) is an early 18th century Caddo habitation site in East Texas (Figure 1). The December 2008 archaeogeophysical work at the site was done by Texas Archeological Stewardship Network members and professional archaeologists volunteering their time to obtain unique data on the spatial organization of a Caddo settlement that was occupied at the time of the Spanish colonization of East Texas. This work has obtained the first clear archaeogeophysical view of how one East Texas Caddo group was living in the 18th century.

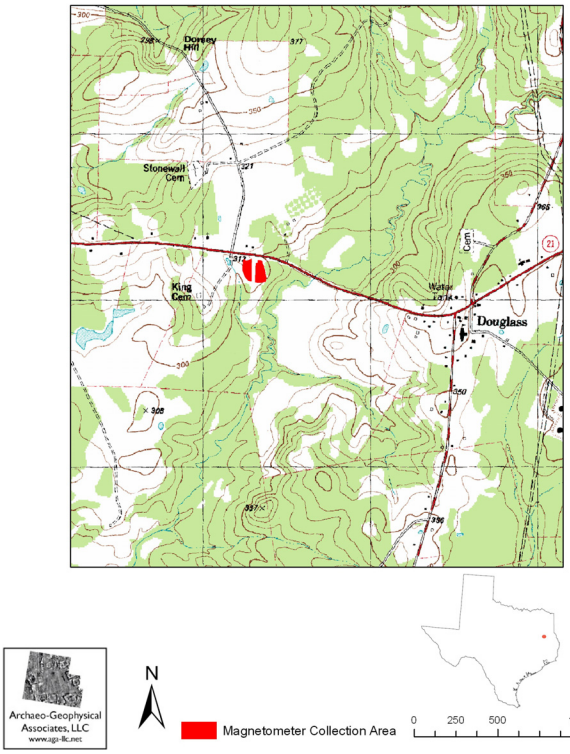

Figure 1. Magnetometer collection areas at the J. T. King site; the main Historic Caddo habitation area is in the eastern collection area.

The archaeogeophysical area surveyed at the site covered 2.5 hectares. Data was collected using a Bartington Fluxgate gradiometer mounted on a two-wheeled cart. Data was streamed out to an Allegro field computer and interfaced with RTK GPS data. Magnetometer data was collected at 10 reading per second and GPS data was collected at 2 readings per second. The GPS-guided gradiometer data were processed using a zero median de-stripping filter and then gridded (Figure 2A).

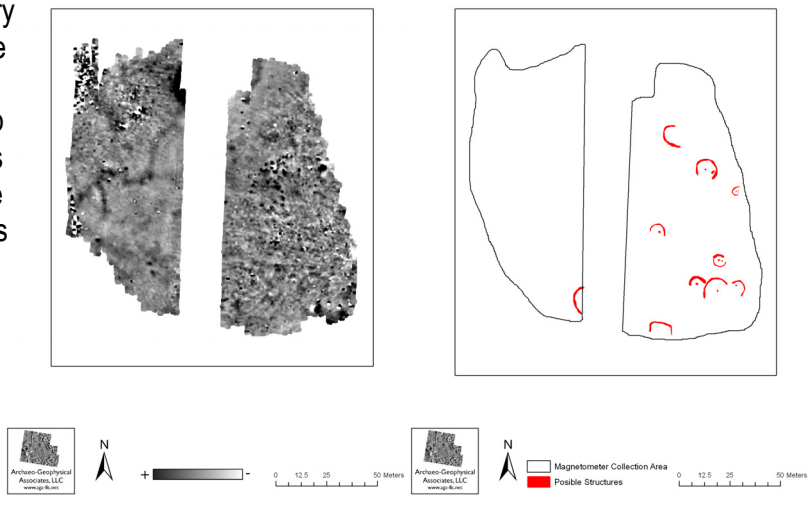

Figure 2: A) Processed Magnetometer data; B) Interpretive map of the J. T. King site based on the magnetometer findings.

Our interpretative map of the magnetometer data is provided in Figure 2B. A magnetically quiet area – an area with a drop in background magnetic activity – in the central part of the eastern collection area is a possible courtyard that is flanked by structures of different shapes and sizes (Figure 2B). The red areas outline possible Caddo structures. On the western side of the site is a fair amount of historic disturbances from burned late 19th-early 20th century Anglo-American houses to buried pipes, with one large area of magnetic enhancement.

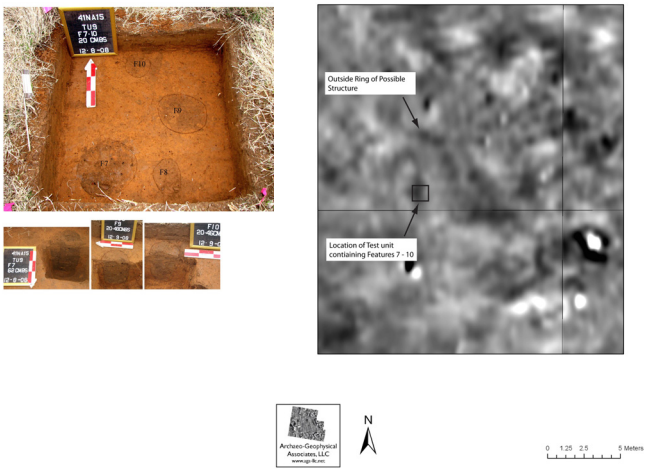

Figure 3: A) Features 7 – 10 shown in various stages of excavation; B) Locations of features on the magnetometer map and the location of the outside ring of a possible structure. The test unit was placed over a magnetic high in the center of a possible structure.

There are 10 possible Caddo structures detected in the archaeogeophysical investigations; they are round to sub-round in shape and range from 3.7 to 12.5 m in diameter. Seven of the possible structures have anomalies situated in or close to their center that may be central hearths or large center posts inside the structures (see Figure 2B).

A few magnetic anomalies have been successfully ground truthed at the King site during the volunteer investigations. So far test excavations have demonstrated a positive correlation between magnetometer anomalies and the occurrence of Caddo architectural features (Figure 3). A small grant from the US National Parks Department has recently been secured by the Authors to continue research at the J. T. King site. Future work will include more intensive archaeogeophysical surveying including the addition of GPR, resistivity and EM surveys as well as additional excavations.

Community Archaeology and the Archaeological Geophysicist

Chris Gaffney, University of Bradford, UK c.gaffney@bradford.ac.uk

Britain, along with many other countries, has a long tradition of amateur archaeology. However, during the explosion of professional archaeological groups in the 1990s it was clear that many amateurs felt sidelined from the process of discovery. It was about this time that many part-time archaeologists found that their opportunity to excavate on archaeological digs became scarce, and that they were diverted into peripheral activities – pushed towards jobs that they could not 'make a mess of'. However, that approach severely undervalues the ability of the amateur archaeologist. It may seem odd to some, but those who work on archaeological projects in their leisure time have often chosen not to be a full time archaeologist; they simply do it for the love of the subject. They are usually well motivated and successful people, just like professional archaeologists but with different practical skill sets. But why would they want to *do* geophysics? The answer lies in a need to understand something about the past in a short period of time. Geophysics engages the surveyor in the process of discovery. When that discovery is about a site of local interest then the engagement can extend beyond the individual and enhance community wide groups.

Part of the success of the amateur surveyor lies in the black box culture of much of the geophysical equipment that we use for shallow prospecting; and the apparent ease with which professionals can conjure an image from data downloaded a matter of minutes before hand has not gone unnoticed. While there are potential problems surrounding the roll out of technology, it is worth reflecting on the level of participation that part-time archaeological geophysicists normally work at:

1. Commissioning a survey. A few years ago it was common for a local archaeological or historical society to apply for funds to buy in the expertise of a professional group to undertake a geophysical survey. The downsides include superficial opportunities to engage and learn and the tangible deliverables are largely only within the report. However, the benefits are obvious: a quick turn around in the shape of a professional report and work to a known standard. Going down this route also opens up technology that is beyond the budget of most community groups and that requires particular expertise, e.g. GPR. It is sometimes the case that the commissioned group will also 'add value' to the basic survey work, especially if there is some research potential (see Figure 1).

2. Buy the equipment. Although it is unknown how many groups have gone down this route, it is clear from a quick web search that there are a good number. One or two of the groups are very well organised (e.g. John Oswin, this issue) and use the equipment to engender more work and therefore greater uptake of the techniques. This is, of course, a great positive and should be encouraged. However, how many other equipment purchases turn into obsolete items through under use? One measure of the viability of this approach is how many surveys from local groups have been published. If only a few, then we should consider a support structure to allow continued help to individual groups, thereby leading to more

'successful' outcomes. Undoubtedly this option works well if capable and dedicated individuals are present in the society. At present the good will of the instrument manufacturers must also be important for supporting the fledgling geophysicists.

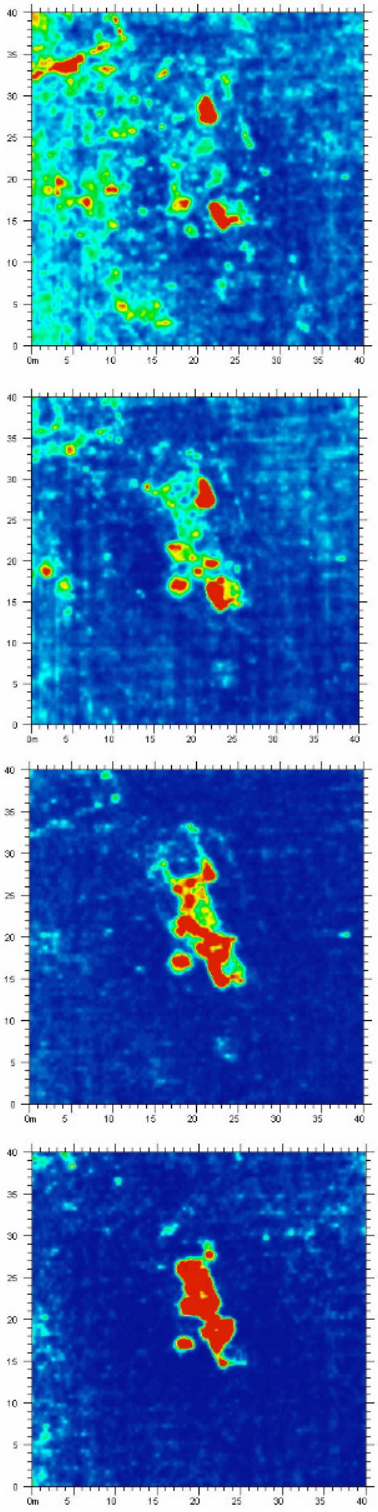

Figure 1: Images from a GPR survey undertaken by GSB Prospection Ltd. The local group commissioned magnetometer and resistance surveys via a lottery grant. When a presumed Roman building was discovered GSB funded a GPR survey, which added value to the initial work. The shallow images (top) indicate evidence for former ploughing in the topsoil, while the deeper slices (bottom) show the footprint of the building. Thanks are due to Jimmy Adcock of GSB Prospection for sharing these images.

3. Partnership schemes. In this strategy a local group is effectively trained and mentored by professionals through the lifetime of a project. Then small numbers of the society in turn train other members. The objective is to ensure that the society learns the full gamut of skills to complete the project and can take on additional projects afterwards. The training is embedded in the research design, but can be very flexible e.g. phone advice, refresher courses or 'induction' for new members part way through the project. The hope is not to turn the amateurs into professionals, but to get them to survey to a similar standard in a short period of time. They are encouraged to keep asking questions: whatever errors or mistakes the amateur makes you can be sure the professional has already been there! A good partnership can also be productive for the professional group – the Stanbury Hill project (Keith Boughey, this issue) has created opportunities for the University of Bradford to test new equipment on a site where invasive work will also take place. A shortcoming is that even regular support cannot satisfy all the needs of a group with variable abilities and aspirations.

In summary, the rise of the amateur geophysicist is a good thing for the profession as it highlights the public interest in the application of our science, and, in my experience, most novice geophysicists welcome the link with a professional group or individual. However, we must consider the ramifications of a move to the greater involvement of amateur or part-time geophysicists. The danger is that we set the bar too low for novice users and it is the post survey period that worries me most. It is possible to teach all comers to collect data and recognise if it is 'good' or 'bad'. It is possible for many to process data appropriately and a few will be adept at interpretation. We all must aim beyond 'stamp collecting' good images and ensure competency in presenting and publishing of valid results so the knowledge of our subject is advanced for all. Clearly we need a strategy for continued support if this trend is to have a long-term benefit for both amateurs and professionals alike.

Conference, Seminar and Course Announcements

EAGE Near Surface 2009

Trinity College, Dublin, Ireland, 6-10th September 2009

The Old Library and Public Meeting Hall, Trinity College

Why not pop over to Dublin's fair city this coming September and find out how the shallow geophysical community in Ireland is addressing Archaeology? The 15th European Meeting of Environmental and Engineering Geophysics has special themes each day this year, starting with a workshop on Archaeology on the Sunday followed by related papers on Monday specially timed to avoid the Paris meeting later in the week. A day of Engineering and Geotechnical applications will follow on Tuesday and Ground Water and Glacial studies on Wednesday. There is also a field trip to Newgrange/Hill of Tara on the Thursday. Visit www.eage.org to see the full programme of two parallel oral sessions with complementary posters and a commercial exhibition. Hope to see you there!

Mémoire du sol, Espace des homes: 8th International Conference on Archaeological Prospection and the 7th "colloque de GEOFCAN"

Conservatoire National des Arts et Métiers, Paris, France, 9-12 September 2009

Mémoire du sol, Espace des hommes

8th International Conference on Archaeological Prospection

7ème Colloque GEOFCAN

Tuesday, September 8

15:00 – 18:00	Registration at the Conference Desk

Wednesday, September 9

9:00 – 10:00	Official opening of the Conference
Invited paper **10:00 – 10:30**	**Jörg Fassbinder** Global Survey of the Frontiers of the Roman Empire in Southern Germany, UNESCO World Heritage Site
10:30 – 11:00	Coffee break
Sites and their landscapes **11:00 – 13:00**	Chairman: To be arranged (TBA)
11:00 – 11:15	**Irina.A. Arzhantseva, M.A. Andreev, S.A. Akulenko, M.J. Kats, I.N. Modin** Geophysical Investigations on Por-Bajin Island in Tuva Region, Russia
11:15 – 11:30	**Rémi Valois, R. Guérin, R. Pigeaud, J. Rodet** Geophysical study to characterize input karst water circulation in Saulges's cave Mayenne, France)

11:30 – 11:45	**Stefano Campana, L. Marasco, A. Pecci, L. Barba, M. Dabas, S. Piro, D. Zamuner** Integration of ground remote sensing surveys and archaeological excavation to characterise the medieval mound (Scarlino, Tuscany - Italy)
11:45 – 12:00	**Daniela Cottica, D. Busato, S. Donnici, A. Traviglia** The changing landscape of Costanziaco: a lost settlement in the northern lagoon of Venice
12:00 – 12:15	**Sébastien Gondet, A. Dhemaied, K. Mohammadkhani, F. Rejiba** Geophysical investigations in the vicinity of the Persepolis Royal Terrace (Fars province, Iran)
12:15 – 12:30	**Tomasz Herbich** Geophysical surveying in Egypt: periodic report for 2007-2008
12:30 – 12:45	**Apostolos Sarris, N. Papadopoulos, S. Theodoropoulos, B. Gourley, Guan Grong Shen, Y. Lolos, T. Kalpaxis** Revealing the Ancient City of Sikyon through the Application of Integrated Geophysical Approaches and 3D modelling.
12:45 – 13:00	**Alexandre Novo, R. Sala, E. Garcia, R. Tamba, M. Solla, H. Lorenzo** From Celtiberians to Romans: Combined geophysical (3D GPR and fluxgate gradiometer) prospection for the archaeological characterization of Castro de la Magdalena (León, Spain)
13:00 – 14:30	Lunch Time
14:30 – 16:15	Poster and Exhibitions
16:15 – 16:45	Coffee break
Sites and their landscapes **16:45 – 18:30**	Chairman: TBA
16:45 – 17:00	**Marcelo Ciminale, D. Gallo, M. Pallara, R. Laviano** Understanding the origin of magnetic anomalies in Monte San Vincenzo (Southern Italy) archaeological site: susceptibility measurements, PXRD, XRF and optical analysis
17:00 – 17:15	**Andrei N. Mazurkevich, D. Y. Hookk, J.W.E. Fassbinder** Magnetometry and Susceptibility prospecting on Neolithic - early Iron Age sites at Serteya, North-West Russia
17:15 – 17:30	**Klaus Löcker, E. Nau, W. Neubauer, A. Hinterleitner** Magnetic surveys of Early and Middle Neolithic settlements in Austria
17:30 – 17:45	**Nikos G. Papadopoulos, A. Sarris, Myeong-Jong Yi, Jung-Ho Kim** Tumuli exploration using surface 3D Electrical Resistivity Tomography
17:45 – 18:00	**Luis Barba, J. Blancas, A. Ortiz, D. Carballo** Geophysical prospection and aerial photography in La Laguna, Tlaxcala, Mexico.
18:00 – 18:15	**Jean-Michel Maillol, R. D. Garvin, J. H. Kelley and D. Lacroix** Ground Penetrating Radar surveys of Viejo Period settlements of the Chihuahua Culture, Upper Santa Maria Valley, Chihuahua, Mexico.
18:15 – 18:30	**Kenneth L. Kvamme** Geophysical contributions to the understanding of northern great plains archaeology, USA

Thursday, September 10

Invited paper **9:00 – 9:30**	**Matthieu Thivet, G. Bossuet, C. Laplaige** Integrated geophysical and LIDAR surveys at the archaeological site of Ancient Epomanduodurum, Mandeure-Mathay (Franche-Comté, Eastern France).
Sites and their Landscapes **9:30 – 10:30**	Chairman: TBA
9:30 – 9:45	**Mary. K. Saunders, S. Ovenden, S. Hamilton, C. Richards** Moai, quarries and problems with customs. Experiences and results of geophysical survey on Rapa Nui, Easter Island
9:45 – 10:00	**K. Pieta, A. H. Shehab, J.Tirpák, M. Bielich, M. Bartík** Archaeological and geophysical survey in deserted early islamic village Al-Qusur (Failaka, Kuwait)
10:00 – 10:15	**Roman. Krivánek, J. Marik** Early Medieval stronghold Libice nad Cidlinou – an example of use of geophysical methods in systematic non-destructive archaeological project
10:15 – 10:30	**Richard Cuttler, C. Gaffney, V. Gaffney, H. Goodchilde, A. Howard, G. Sears** Changing Perspectives on the City of Cyrene, Libya; remote sensing and the management of the buried resource
10:30 – 11:00	Coffee break
Landscape Evolution **11:00 – 11:45**	Chairman: TBA
11:00 – 11:15	**Timothy Horsley, R. Flad, G. Bennett, Li Shui Cheng, Jiang Zhang Hua, Pochan Chen** Investigating ancient landscapes and settlement patterns in the Chengdu Plain, Sichuan, China
11:15 – 11:30	**Eymeric Morin, F. Hinschberger, J-J. Macaire, I. Gay-Ovéjéro, C. Chartin** Significance of the correlation between electrical conductivity dataset and lithology in Pleni-Lateglacial and Holocene alluvial archives. A case study: the Choisille catchment (SW Paris Basin, France)
11:30 – 11:45	**Armelle Querrien, J. Moulin, A. Tabbagh** Confrontation of geophysical survey, soil studies and excavation data to evidence erosion generated by agricultural work
11:45 - 13:00	Poster and Exhibitions
13:00 – 14:30	Lunch Time
History and evolution of the urban soil **14:30 – 16:15**	Chairman: TBA
14:30 – 14:45	**Wolfgang. Neubauer, S. Seren, A. Hinterleitner, K. Löcker, P. Melichar** Archaeological Interpretation of combined magnetic and GPR surveys of the Roman town Flavia Solva, Austria
14:45 – 15:00	**Cornelius Meyer** Córdoba - Qurtuba - Corduba: More than two millenia of construction activity. Geophysical prospection examples from 2004 to 2008.
15:00 – 15:15	**Jeanine Abdul Massih, C. Benech, M. Gelin** First results on the city planning of Cyrrhus (Syria)

15:15 – 15:30	**Lieven Verdonck, F. Vermeulen** GPR survey at the Roman town of Mariana (Corsica)
15:30 – 15:45	**Salvatore Piro, D. Goodman** Integrated GPR and archaeological investigations to characterise the Palatino's area and Coliseum Valley (Forum, Roma, Italy)
15:45 – 16:00	**Immo Trinks, P. Karlsson, A. Biwall, A. Hinterleitner** Mapping the urban subsoil using ground penetrating radar – challenges and potentials for archaeological prospection
16:00 – 16:15	**Andrew Parkyn** A Survey in the Park: methodological and practical problems associated with leisure activity in the late Victorian period.
16:15 – 16:45	Coffee Break
Methods and innovations **16:45 – 18:30**	Chairman: TBA
16:45 – 17:00	**Robert Tamba, R. Sala, E. Garcia** Testing the use of geostatistical and statistical methods to improve data visualization. Case study on GPR survey of Tarragona Cathedral.
17:00 – 17:15	**Jürg Leckebusch** Test and data processing of a GPR array
17:15 – 17:30	**Neil Linford, P. Linford, L. Martin, A. Payne** Stepped frequency GPR survey with a multi-element array antenna: results from field application on archaeological sites
17:30 – 17:45	**Dean Goodman, H. Hiromichi, N. Higashi, Y. Nishimura, M. Tokuda** The Application of GPR Overlay Analysis in Archaeological Prospection: Discovery at the Japanese Imperial Family Tombs in Miyazaki Prefecture
17:45 – 18:00	**Alois. Hinterleitner, S. Seren, K. Löcker, W. Neubauer, E. Bayirli** Data Processing and Image Enhancement of GPR Sureys of Roman Villas in Austria
18:00 – 18:15	**Julien Thiesson, M. Pétronille, F-X. Simon** Magnetic signal prospecting using multi parameter measurements
18:15 – 18:30	**Rinita A. Dalan** Probing the Surface: Adding Depth and Detail to Surface Geophysical Surveys using Down-hole Susceptibility Measurements
20:00	Social Dinner

Friday, September 11

Methods and innovations **9:00 – 10:30**	Chairman: TBA
9:00 – 9:15	**David Simpson, M. van Meirvenne, E. Lück, J. Rühlmann, J. Bourgeois** Testing of multi-coil FDEM sensors on a field model with magnetic susceptibility contrast
9:15 – 9:30	**Yuri Manstein, A. Manstein** The novel EM-I sensor NEMFIS: method, equipment and case stories of archaeological prospection
9:30 – 9:45	**Yann Deberge, M. Dabas** An area of the gallic oppidum of Gondole (Le Cendre, Puy-de-Dôme, France) revealed by magnetic survey : extrapolation from excavation data

9:45 – 10:00	**Volker Lindinger, J. Coolen, S. Groh** From data to structures. Multistage geomagnetic data interpretation within the Mautern Hinterland Survey.
10:00 – 10:15	**Armin Schmidt, R. Coningham, P. Gunawardhana** At the equator: making sense of magnetometer data
10:15 – 10:30	**Irina. A. Arzhantseva, M. A. Andreyev, I. N. Modin** Continuous aquatic soundings of the lake Tere-Khol' water area in the Republic Of Tuva (Russia)
10:30 – 11:00	Coffee break
Methods and innovations **11:00 – 12:00**	Chairman: TBA
11:00 – 11:15	**Rémi. Clement , M. Descloitres, T. Gunther, L. Oxarango** Comparison of three arrays in time-lapse ERT: Simulation of a leachate injection experiment.
11:15 – 11:30	**Maud Seger, I. Cousin, G. Giot, H. Boizard, F. Mahu, G. Richard** Characterisation of the structural heterogeneity of the soil layer by using in situ 2D and 3D electrical resistivity measurements
11:30 – 11:45	**Meriç A. Berge, M. G. Drahor** Optimum electrical resistivity tomography (OERT) approach using combination of different arrays in archaeological investigations
11:45 – 12:00	**Marta C. Bottacchi, T. Colonna, F. Mantovani, M. Medri** Application of the ohmmapper resistivity-meter to detect the theatre of sentinum roman town by using 3D resistivity model
12:00 – 13:00	Poster and Exhibitions
13:00 – 14:30	Lunch Time
Methods and innovations **14:30 – 16:30**	Chairman: TBA
14:30 – 14:45	**P. Tsourlos, G.N. Tsokas** Tomographic Imaging of Ancient Wall Foundations in Thessaloniki, North Greece
14:45 – 15:00	**Mahmut G. Drahor, M. A. Berge, C. Oztürk, N. Alpaslan, G. Ergene** Integrated usage of geophysical prospection techniques in h.yük (tepe, tell) type archaeological settlements
15:00 – 15:15	**James Adcock** "My other computer's a BEAR": A potential strategy for processing large volume datasets
15:15 – 15:30	**Kayt Armstrong, T. Darvill, P. Cheetham** Archaeological Geophysical Prospection in Peatland Environments: case studies and suggestions for future practice
15:30 – 15:45	**Marina. A. Chemyakina, M. I. Epov** Geophysical methods in the research of the archaeological sites of Western Siberia and Altai: results and perspectives
15:45 – 16:00	**Andreas Viberg, I. Trinks, K. Lidén** A short review of the use of geophysical prospection methods in Swedish archaeology
16:00 – 16:15	**Georg Zotti, W. Neubauer, P. Schneidhofer, R. Totschnig** Simulation of astronomical aspects of Middle Neolithic circular ditch systems

16:15 – 16:30	**Immo Trinks, J. Gustafsson, J. Emilsson, J. Friborg, C. Gustafsson, B. Johansson and J. Nissen** Efficient, large-scale archaeological prospection using a true 3D GPR array system
16:30 – 17:00	Coffee break
17:00 – 18:00	Poster and Exhibitions
18:00 – 19:00	General Assembly of ISAP

Saturday, September 12

10:00 – 16:00	Excursion

Posters sessions

Sites and their Landscapes

Applied geophysics in archaeological prospecting at sites of Authumes (Saône-et-Loire) and Mirebeau (Côte-d'Or) (Bourgogne, Eastern France). Philippe Barral, Gilles Bossuet, Martine Joly, In Collaboration With M. Dabas, C. Camerlynck, L. Aubry, A. Daubigney, M. Thivet, S. Alix
Magnetometry and soil magnetism on Celtic Square Enclosures in Bavaria, Southern Germany Karin Berghausen, Jörg W.E. Fassbinder
Chupicuaro archaeological sites : from magnetic survey to excavation (late pre-classic period, Middle Lerma Valley, Guanajuato, Mexico) Vincent Bichet, Christophe Petit, Christophe Durlet, Véronique Darras, Brigitte Faugere
Thinking a site: diversity of sources, asset and necessity. The example of cistercians monasteries in Auvergne (France) Emma Bouvard
Geophysical prospection of an archaeological site (Grand, France): characterisation of the hydraulic system in a karstic context Claire Brinon, Pauline Kessouri
The opppidum of Boviolles (Meuse, France) Thierry Dechezlepretre, Michel Dabas
Magnetic prospection of Scythian Kurgans from Chilik, South-Eastern Kazakhstan Jörg W.E. Fassbinder, T. Gorka, H. Parzinger, A. Nagler
Batilly-en-Gâtinais (Loiret), a rural aristocratic settlement S. Fichtl, M. Dabas, D. Josset
Magnetic survey of the Late Period great temple enclosure in Tell el-Balamun, Egypt Tomasz Herbich
Archaeological evaluation of alluvial landscapes in Western Maryland, USA Timothy Horsley, Robert Wall
Integrated Examination and Comparison of the Prospection Methods at Japanese Historical Kiln Sites. Akihiro Kaneda, Yasushi Nishimura, Kazuhiko Nishiguchi
GPR survey at El Zayyan Temple in Kharga Oasis, Egypt Katsura Kogawa, Hiroyuki Kamei, Takayuki Ako, Toshio Tsukamoto
From Training Ground to Battlefield: recording the archaeology of the Great War Peters Masters
Geophysical Survey at archaeological sites in north-eastern Syria Inna Mateiciucová, Peter Milo, Tomáš Tencer, Marek Vlach

Geophysical Survey at archaeological site Kaszaper, Békés County, Hungary. Peter Milo, László Lichtenstein, Zoltán Rózsa, Tomáš Tencer, Zoltán Fekete, Marek Vlach
New data from magnetic survey of Ptolemais Krzysztof Misiewicz, Wies:aw Malkowski
Ten years on: Geophysical survey on the 'Heart of Neolithic Orkney' World Heritage Area. Susan M. Ovenden, John Gater, M. K. Saunders
Archaeological Maps: methods and techniques for territorial analysis Leonor Rocha, Gertrudes Branco
GPR prospection at Borgholm castle, .land, Sweden Immo Trinks, P. Karlsson, Magnus Stibéus, Clas Ternström, Alois Hinterleitner
Archaeological prospection in the Swedish mountain tundra region Andreas Viberg, Immo Trinks, Kerstin Lidén
Investigation into farmstead and landscape interaction: Case study of two abandoned farmsteads at Hamar, Unst (Shetland) R. M. Legg, J. M. Bond, C. Gaffney and C. P. Heron

Landscape evolution

Methodological development of archaeological survey in La Serena region (Spain): a GIS-based approach for a regional project Sebastián Celestino Pérez, Victorino Mayoral Herrera, Enrique Cerrillo Cuenca
Contribution of large geophysical survey to analyse the evolution of the western boundary of the city of Allonnes (72) : Integration of Google images, Napoleonian cadastre and large magnetic surveys Katherine Gruel, Vincent Bernollin, Michel Dabas
Contribution of geophysical methods to explaining water flow in a carbonate medium Favray site (Nièvre, France) Mohammad Hamidi , Asal Sirhan, Pierre Andrieux
Soil depth mapping using seismic surface waves for the assessment of soil vulnerability to erosion Kevin Samyn, O. Cerdan, G. Grandjean, A. Bitri, S. Bernardie, J.F. Ouvry
The contribution of archaeology to knowledge about the landscape Gertrudes Branco, Leonor Rocha

History and evolution of the urban subsoil

Urban archaeology and environmental data: Lyon's experience Stéphane Gaillot, Etienne Hofmann
Magnetic survey on the tell of Qinasrin (Syria) Yves Bière, Marie-Odile Rousset, Christophe Benech
The spatial organization of the Phoenician city of Amrith (Syria) Michel Al Maqdissi, Christophe Benech
Application of the space syntax to the study of city planning from Syrian Late Bronze Age circular cities Sébastien Gondet, Christophe Benech

Methods and Innovations

Beyond the picturesque: analysing the information content of airborne remotely sensed data for understanding prehistoric sites Rebecca Bennett, Kate Welham, Ross Hill, Andrew Ford
Three-dimensional structure of a highly heterogeneous soil horizon derived by Electrical Resistivity Tomography Isabelle Cousin, A. Frison, G. Giot, H. Bourennane, R. Guérin, G. Richard
A case study on necropole area of Antandros ancient city (Turkey) by magnetic prospection **Melda Küçükdemirci**
2D Electrical Resistivity Tomography survey optimisation of solute transport in porous media Gregory Lekmine, Marc Pessel, Harold Auradou
What interest to use caesium magnetometer instead of fluxgate gradiometer? Vivien Mathé, François Lévêque, Marion Druez
3D Inversion of Automated Resistivity Profiling (ARP) Data Nikos G. Papadopoulos, Gregory N. Tsokas, Michel Dabas, Myeong-Jong Yi and Panagiotis Tsourlos
The square array revisited: a lightweight multisensor platform for vulnerable soil environments. Andrew Parkyn, Chris Gaffney, Armin Schmidt and Roger Walker
Localization and characterization of buried magnetic structrures, using a Multi-Scale Tomography. Application to archeological structures on Fox-Amphoux site. Ginette Saracco, P.E. Mathe, F. Moreau, D. Hermitte
Combining Data of Different GPR Systems of Surveys of the Roman Fort Qreiye-cAyyash, Syria. S. Seren, A. Hinterleitner, M. Gschwind, W. Neubauer, K. Löcker
What do all the numbers mean? Making sure we have all the pieces of the puzzle. Thomas Sparrow, Chris Gaffney, Armin Schmidt

Announcements

University of Bradford

Next summer (2010) the Division of Archaeology, Geography and Environmental Sciences intends to run a short course for amateur or otherwise aspiring archaeological geophysicists. If you would like to be sent details of the course when the date is confirmed then please send an email to Armin Schmidt (A.Schmidt@Bradford.ac.uk) or Chris Gaffney (c.gaffney@bradford.ac.uk). If you know someone who is not a member of ISAP but may benefit from such a course, then please pass this information on.

GeoSIG Press Release

Members of the Institute for Archaeologists (IfA) and the wider archaeological geophysical community have come together to form the IfA Geophysics Special Interest Group (GeoSIG). Open to both IfA members and non-IfA members, the GeoSIG represents the interests of archaeological geophysicists to IfA council and in the Institute's activities.

The role of GeoSIG is:

- To act as a focus for IfA members interested in geophysicsTo produce documents and guidelines relating to geophysical workTo promote geophysical work constructively within the structure of archaeology The group is currently examining a number of specific issues:

- The practical implementation of guidelines such as the Geophysical Survey in Archaeological Field Evaluation (English Heritage, 2008)
- Archiving of geophysical data
- Training and CPD for practitioners in archaeological geophysics
- Training and CPD for users of archaeological geophysics

GeoSIG is working closely with ISAP, EIGG, and EuroGPR to ensure that we keep up to date with developments in the wider geophysical community. The committee also has close links with the Near Surface committee of EAGE.

The GeoSIG committee comprises Peter Barker (Chair), Hannah Heard (Secretary), Ken Hamilton (Treasurer), Roger White and Adrian Butler. There are also representatives from ISAP, EIGG, EuroGPR, EAGE and English Heritage, and plans to include representatives from ALGAO, CADW, Historic Scotland and NIEA.

Membership is free to IfA members (£10 for non members).

For more information, please contact Ken Hamilton (ken.hamilton@norfolk.gov.uk, 01362 869275)

Journal Notification

Archaeological Prospection 16:3

Two things to mention regarding Archaeological Prospection.

Firstly, the 2008 Impact Factors (IF) for citation listed journals have just been released. I am delighted to say that AP has an IF of 1.304. As you may remember last year saw the announcement of Archaeological Prospection's first IF (see ISAP News Issue 16). This year's value, called 2008 but relating to papers published in 2006/2007, is 98% greater than the 2007 figure. I would like to thank the many authors, reviewers and editorial board members for their part in producing so many quality papers.

Secondly, the next issue of Archaeological Prospection is a Special Issue organised by Italian colleagues. I think it is fair to say that there is something for everyone in this issue. I hope that these articles will stimulate you to write a contribution for Archaeological Prospection.

Issue 16:3. Special Issue Integrated remote sensing techniques for Archaeological Prospection
Guest Editors: Marcello Ciminale, Rosa Lasaponara and Salvatore Piro

A multiscale approach for reconstructing archaeological landscapes: applications in northern Apulia, Italy. M. Ciminale, D. Gallo, R. Lasaponara and N. Masini.

The role of intergrated geophysical survey methods in the assessment of archaeological landscapes: the case of Portus. S. Keay, G. Earl, S. Hay, S. Kay, J. Ogden and K. Strutt.

Ground-penetrating radar survey over Bronze Age circular monuments on a sandy soil, complemented with electromagnetic induction and fluxgate gradiometer data. L. Verdonck, D. Simpson, W. M. Cornelis, A. Plyson, J. Bourgeois, R. Docter and M. Van Meirvenne.

Application of the holographic radar RASCAN to cultural heritage inspections. L. Capineri, P. Falorni, G. Borgioli, A. Bulletti, S. Valentini, S. Ivashov, A. Zhuravlev, V. Razevig, I. Vasiliev, M. Paradiso, M. Inagaki, C. Windsor and T. Bechtel.

GPR microwave tomography for diagnostic of archaeological sites: the case of a highway construction in Pontecagno, southern Italy. R. Castaldo, L. Crocco, M. Fedi, B. Garofalo, R. Persico, A. Rossi and F. Soldovieri.

*Integration of remote sensing, geophysical surveys and archaeological excavation for the study of a medieval mound (Tuscany, Italy).*S. Campana, M. Dabas, S. Prio and D. Zamuner.

GPR, ERT and magnetic investigations inside the Martyrium of St Philip, Hierapolis, Turkey. L. Nuzzo, G. Leucci and S. Negri.

As ever, ISAP members receive a huge discount on the price of this journal. Archaeological Prospection is the only IF journal dedicated to this subject area and details of how to take advantage of this ISAP member benefit can be found on the ISAP website (http://www.bradford.ac.uk/acad/archsci/archprospection/).

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