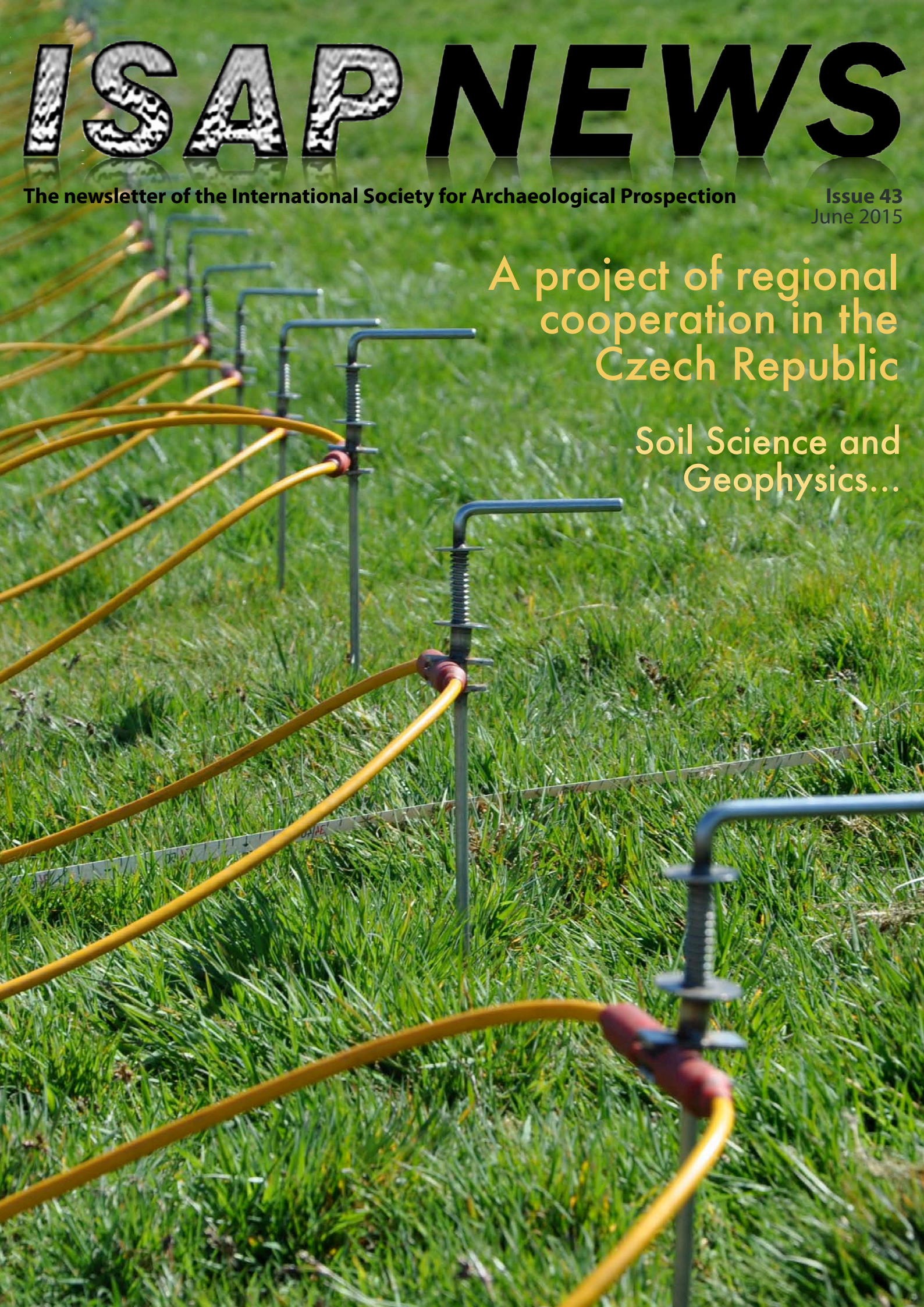
ISAP NEWS

The newsletter of the International Society for Archaeological Prospection

Issue 43
June 2015



A project of regional cooperation in the Czech Republic

Soil Science and Geophysics...

Welcome to the 43rd issue of ISAP News! While we've got your attention, we'd like to remind you to think of us next time you're out in the field, bemoaning data collection problems over a tea break, or mulling over a curiosity in your freshly processed data... and write something about it for us! 700 words or so would be great, and a couple of images would be ideal. As usual, the email address is below.

Now, onto this issue. We have some thoughts on the practicality and role of survey in the Czech Republic, as well as a report on the recent workshop addressing the importance of the interaction between soil science and geophysics in archaeological prospection. And we draw the attention of students and young professionals to the notice on conference bursaries.

Please send any contributions, notifications, and cover images for the next newsletter (ISAP News 44) to the email address below by the 30th September 2015. All entries are gratefully received!

Rob Fry & Hannah Brown

editor@archprospection.org

The Cover Photograph shows electrical resistance tomography kit in use during a Bradford University MSc fieldwork class. Photo: Hannah Brown.

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Project of Regional Cooperation: Non-Destructive Geophysical Surveys of Significant and Endangered Sites in the Ústí Region, Czech Republic

Roman Křivánek

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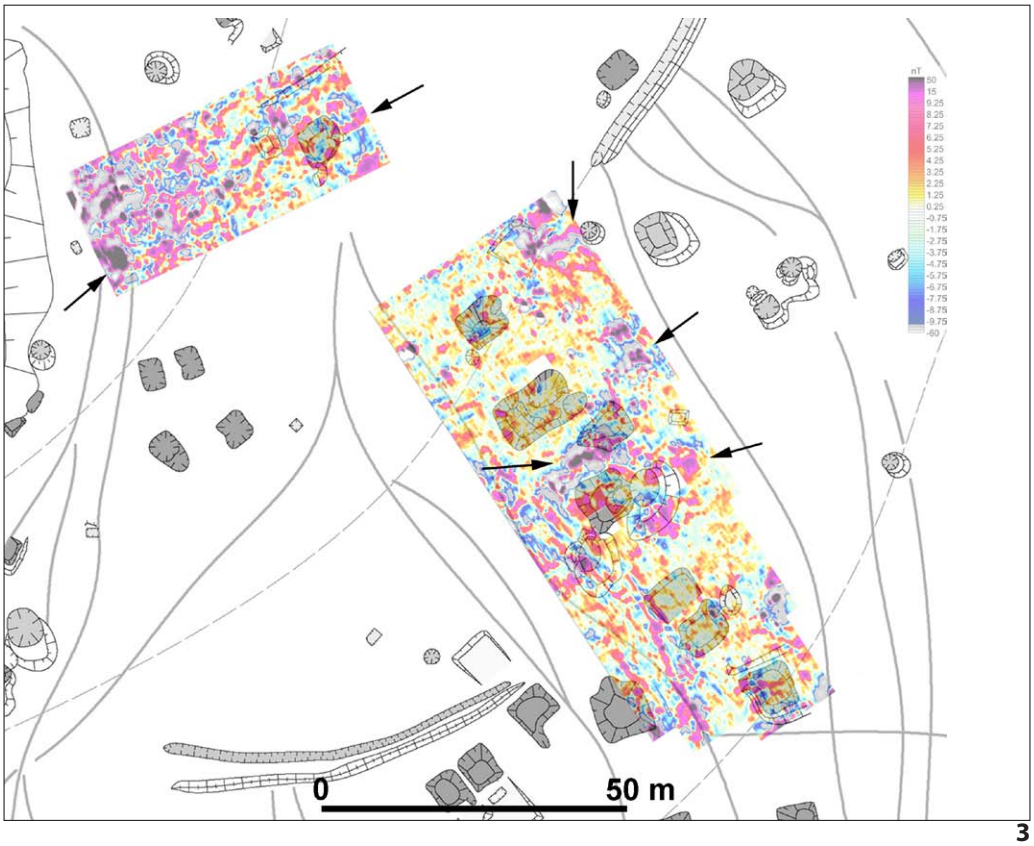
An independent project focused primarily on the archaeological prospection of selected archaeological sites has been very difficult, even unrealistic, in the Czech Republic in the last decade. Several circumstances have a significant influence on this situation. Non-destructive geophysical surveys are usually only a sub-part of archaeological projects, which archaeologists propose with greater or lesser success rates. Geophysical measurements are now, more than previously, subordinated to the needs of rescue excavations. The status and financial possibilities of grant agencies has also changed: an earlier Grant Agency of the Academy of Sciences was abolished, the advertising of projects in the Ministry of Culture Department of Conservation is irregular and rare, and technological agencies prefer projects aimed at achieving rapid economic benefits. On the other hand, parameters and requirements for large and international grants expect very broad and often international cooperation, and attractive and promising themes. Often, a considerable financial share in the project is often required. From the point of view of a single geophysicist in an archaeological institute this is not a satisfactory condition: the possibility of long-term systematic work is limited. Fortunately, in recent years a new opportunity to support the so-called Regional Cooperation Projects was formed at the Academy of Sciences.

Projects of Regional Cooperation are based on the close cooperation of the particular workplace of the Academy of Sciences, and the particular partner or institution in the region. The workplace of the Academy of Sciences here performs the function of the guarantor of the scientific quality of the project; a regional partner then provides the specific means of using the results of the project in the region. Projects are one-year projects, with the possibility of extension up to 3 years, and involve funding for specific targeted work in the region (rather than finance for investment). Besides the support of the Academy of Sciences, finances come from both sides of the project. Project results are mainly presented and practically used in the region. The advantage of these smaller projects is much less bureaucracy in preparing the proposal, supervision of financing and a much greater chance to get support for the project. The case of the Project of Regional Cooperation "Non-destructive geophysical surveys of significant and endangered archaeological sites in the Ústí Region," is a collaboration of a geophysicist of the Institute of Archaeology in Prague and archaeologists of the Institute of Archaeological Heritage Preservation in Most, in northwest Bohemia. Selection of archaeological sites and situations is closely linked with the activities of the archaeological workplace in the Ústí Region. The results of the geophysical surveys will be used in the on-going projects and research in the region, but also in the protection of important archaeological sites or for the monitoring of endangered yet un-investigated or newly

Figure 1 *Combination of magnetometer survey result with a segment of mining and settlement area of Kremsiger, cadastre Přísečnice, in the Ore Mountains (source of plan: Institute of Archaeological Heritage Preservation in NW Bohemia in Most; survey: Křivánek 2013-2014).*



identified archaeology. From an archaeological perspective, the rugged landscape of the Ústí region contains a very wide and diverse range of sites and activities. The state of preservation of the subsurface is closely related to the extent and intensity of modern activities in the region (afforestation/deforestation in the mountains, old and present mining, settlements, industry and agriculture in the lowlands).

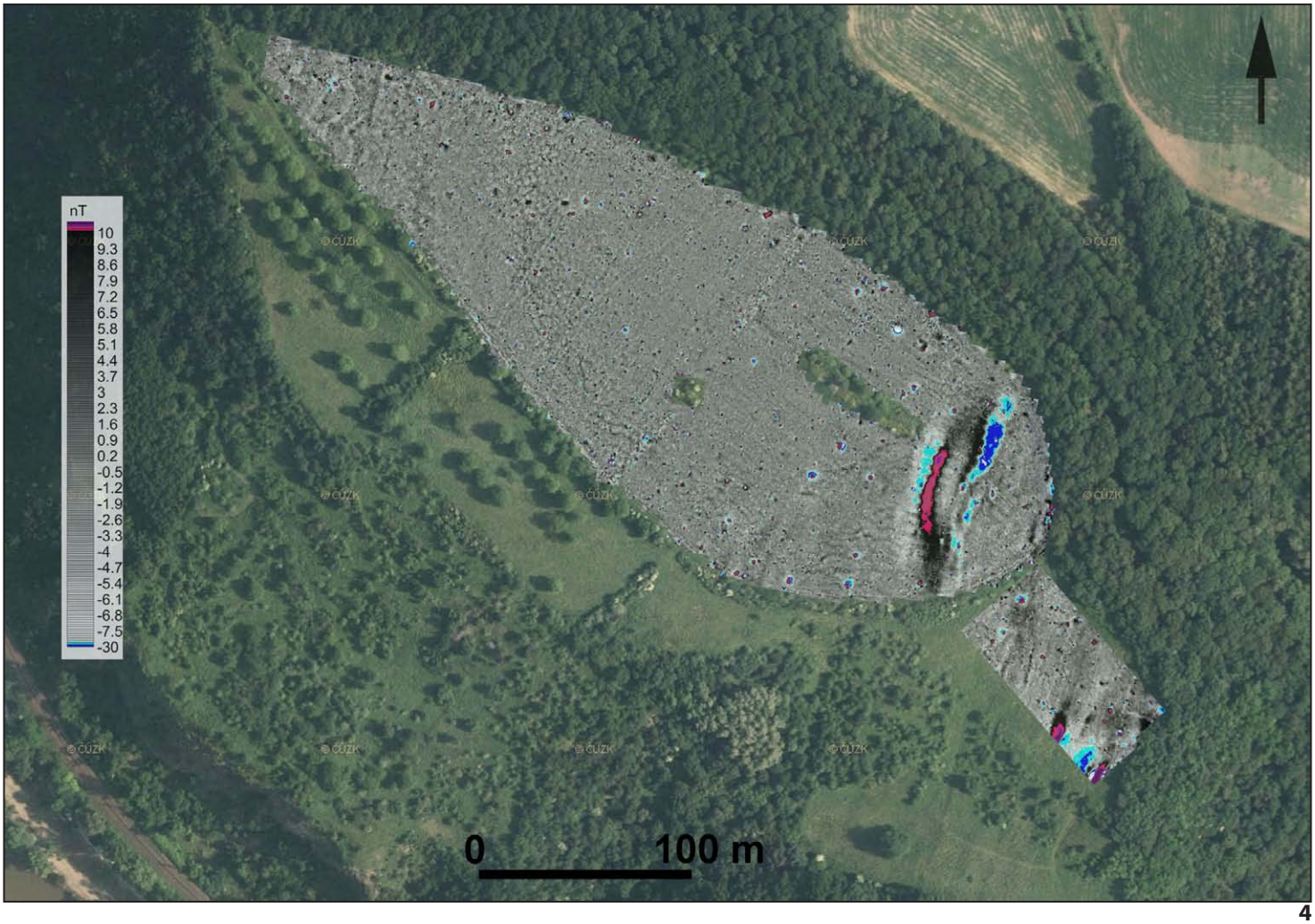
One of the main areas of application of geophysical methods within the framework of the project is the monitoring of former mining, settlement and production areas in the Ore Mountains. Some of these sites were also verified by the archaeological research within the framework of the Archeomontan project (for example, Lissek et al. 2014). Geophysical surveys in the area of the defunct medieval mining settlement and mine at Kremsiger, for example, contribute to the efficient location of archaeological tests. In several places there was evidence of processing of the mined ore (crushing magnetite and ferrous metals) in the immediate vicinity of sunken houses of the miners' settlement (**fig. 1:** previous page).

Another area of intensive application of geophysical methods within the project is the monitoring of important archaeological sites (cemeteries, fortified areas or hillforts) that are currently threatened by modern landscape changes, illegal metal detector surveys or long-term agricultural activities. Magnetometer survey of the inner part of the prehistoric and early medieval hillfort Hrádek, on cadastre Libochovany, for example, contributed to the differentiation of modern surface treatments, revealed only isolated concentrations of sunken features for such an extensive fortified area (suggesting probable alternative functions of the hillfort), as well as the identification of an unknown inner division (**fig. 2**).

Another area of application of geophysical methods in the Ústí Region is the survey of the surroundings of brown coal mines, where mining rescue excavations have taken place for decades. Other geophysical surveys then pursue less investigated and less well-known archaeological sites (eg. military camps, deserted castles, medieval strongholds), or completely new and unprotected situations discovered during aerial surveys (new settlements, enclosures, burial grounds). Geoelectrical resistivity survey of a wooded area of the ruined castle Šebín on, cadastre Levousy, for example, brought a new knowledge of the state of the subsurface preservation of the masonry foundations and internal divisions, to aid preservation of the monument (**fig. 3:** overleaf).

The Project of Regional Cooperation was initiated in mid-2014 and continues this year. Extending the cooperation with archaeologists in the region into the year 2016 is

Figure 2 *Combination of magnetometer results and aerial photo of hillfort Hrádek, cadastre Libochovany (source of aerial photo from 2011: www.kontaminace.cenia.cz; survey: Křivánek 2014-2015).*



also being considered. Almost 20 different archaeological situations were monitored during approximately one year of geophysical measurements in the field. It was impossible to survey most of these sites without the financial support of the Project of Regional Ccooperation in the Ústí Region. The quick results of the geophysical measurements will be used for the needs of monument care in the region. A valuable advantage for geophysicists is also the fact that many of the surveyed archaeological sites have been, are or will be within a short time frame, verified by the archaeological investigations. It will be possible to compare the results of the geophysical measurements with the results of other, destructive, methods of archaeological research and non-destructive survey.

References

Lissek, P., K. Derner, V. Šrein, P. Bohdálek & Křivánek, R. 2014. Výzkum hornického sídliště Kremsiger v roce 2013. Untersuchung der Bergbausiedlung Kremsiger im Jahre 2013. Archaeomontan 2014. Ergebnisse und perspektiven, Internationale Fachtagung, Dippoldiswalde 23. bis 25. Oktober 2014 – Výsledky a výhledy, Mezinárodní konference, Dippoldiswalde 23.-25. říjen 2014. Arbeits- und Forschungsberichte zur sächsischen Bodendenkmalpflege Beiheft 29, Landesamt für Archäologie Sachsen, Dresden. pp. 151-166.

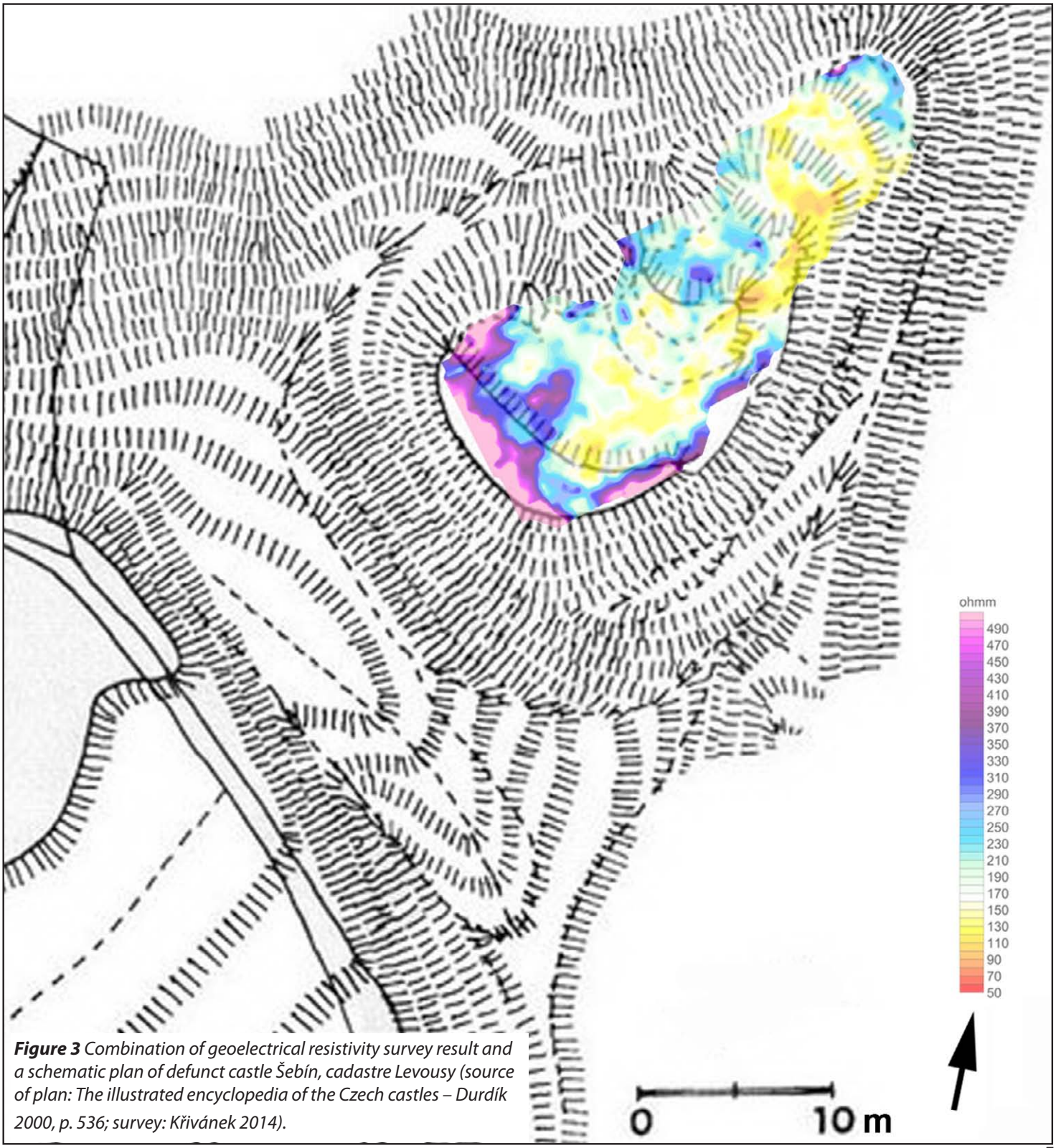


Figure 3 *Combination of geoelectrical resistivity survey result and a schematic plan of defunct castle Šebín, cadastre Levousy (source of plan: The illustrated encyclopedia of the Czech castles – Durdík 2000, p. 536; survey: Křivánek 2014).*

Interactions Between Soil Science And Geophysics in Archaeological Prospection (ISSGAP) Workshop Held in Rethymno, Crete

Kayt Armstrong, Carmen Cuenca-Garcia & Ian Moffat

GeoSatReSeArch Lab, Institute for Mediterranean Studies, Crete issgapnetwork@gmail.com

On June 17th and 18th the Laboratory of Geophysical – Satellite Remote Sensing & Archaeoenvironment (GeoSat ReSeArch Lab) at the Institute for Mediterranean Studies in Rethymno, Crete, hosted a workshop about the interactions between soil science and geophysical prospection in archaeology. The participants were Abir Jrad, Apostolos Sarris, Carmen Cuenca-Garcia, Ian Moffat, Kayt Armstrong, Kelsey Lowe (all GeoSatReSeArch Lab), Anne and Martin Roseveare (ArchaeoPhysica), Clare Wilson (Stirling University), Elina Adona (Aristotle University Thessaloniki), Martijn van Leusen (Groningen University) and Philippe de Smedt (Gent University).

The purpose of the workshop was to discuss the points of interaction between geophysics, geoarchaeology, geochemistry, and paleo-environmental studies in Archaeology. Since the studies of Scollar, Clark and Weston, back in the early stages of the discipline of archaeo-geophysics, little progress has been made in the understanding of the relationships between soil properties and geophysical results. One of the consequences of this gap in knowledge is that our abilities to interpret the full suite of information extractable from geophysical datasets are still very limited. This deficiency prevents geophysical survey moving beyond basic prospection in archaeology and becoming a significant tool for answering nuanced questions about archaeology. Whilst the research community has acknowledged this issue, resolving it requires cross disciplinary collaboration and so there have been very few research projects that have focused on this topic. Likewise, there has not been any scholarly discussion devoted to considering and structuring the achievements of the projects that have been completed in this area.

The objective of this workshop was to bring together key researchers working on the integration of soil analysis and archaeo-geophysics to set, for the first time, a research agenda. During the workshop, the panel discussed the outcomes of past and on-going projects. Based on these experiences, the panel also formulated observations and recommendations relating to:

- The type of research questions that a combined approach may be able to answer in archaeological studies
- Potential methodological challenges
- The overall role of such integrated strategies in the development of the discipline of archaeo-geophysics

We anticipate that the observations and recommendations will be published in a relevant archaeological journal. We also agreed to form a network of researchers with interests in these areas.

If you would like to participate in the network, please contact the organisers (Carmen, Ian and Kayt) at

issgapnetwork@gmail.com

and we will add you to our communications list.

Class on Advanced GPR Processing and Interpretation

This 3 day class will focus on the interpretation of ground penetrating radar data from a variety of disciplines including archaeology, environmental sciences and geology.

Attendees will also receive an overview of GPR theory and data processing using RADAN.

The class is designed for users with at least one year of field experience with GPR who are looking for further guidance on data interpretation, trouble-shooting data quality issues in the field, and post-processing.

The Instructors are Professor Lawrence Conyers (University of Denver, Colorado, USA) and Sara Gale (GSSI Incorporated)
October 23-25 2015 in Nashua, New Hampshire, USA

Contact Sara Gale at: **gales@geophysical.com**

ISAP

ISAP Bursaries and Poster Prizes 2015

1) ISAP Young Professionals Bursaries 2015
The bursaries are intended to to assist students and young professionals who are members of ISAP to attend the 11th International Conference on Archaeological Prospection in Warsaw, September 2015.

ISAP will award no more than 4 (four) bursaries of a value of 200 EUR each. Applicants have to make a clear case on the application form why they should receive this support from ISAP ("I want money" is not enough!). There is no restriction as to country of residence.

Application closing date is **1 August 2015**.

Download the application form, fill in and email to the chairman.

2) ISAP Poster Prizes 2015
A prize will be awarded for the conference's best poster, amounting to 50 EUR. The award is open to all posters presented and the award will go to the respective first author.

The selection of the prize winner will be made by the attendees of the conference, similar to the NSGG meeting in London, 2014.

The Aerial Archaeology Research Group (AARG) Annual Conference will be held in Santiago de Compostela (Spain) Wednesday 9th to Friday 11th September 2015

AARG is a lively and friendly international group of young and old researchers. It provides a forum for the exchange of ideas and experience on archaeology and landscape studies using all forms of remote sensing, especially airborne and satellite based techniques. AARG is actively involved in promoting the collection, interpretation and application of remote sensing data in fostering research, conservation and public understanding. Its members are among those pushing the boundaries of the collection and analysis of air- and space-borne sensors.

Since its foundation in the early 1980s, AARG has vigorously encouraged discussion and cooperation through its annual conferences, workshops, specialist publications and biannual newsletter, AARGnews. Membership is open to all who have an interest or practical involvement in aerial archaeology, remote sensing and landscape studies.

This year's conference is organized together with The Incipit-Instituto de Ciencias del Patrimonio, Santiago de Compostela.

We warmly encourage you to join us for papers, posters and discussions on the themes of :

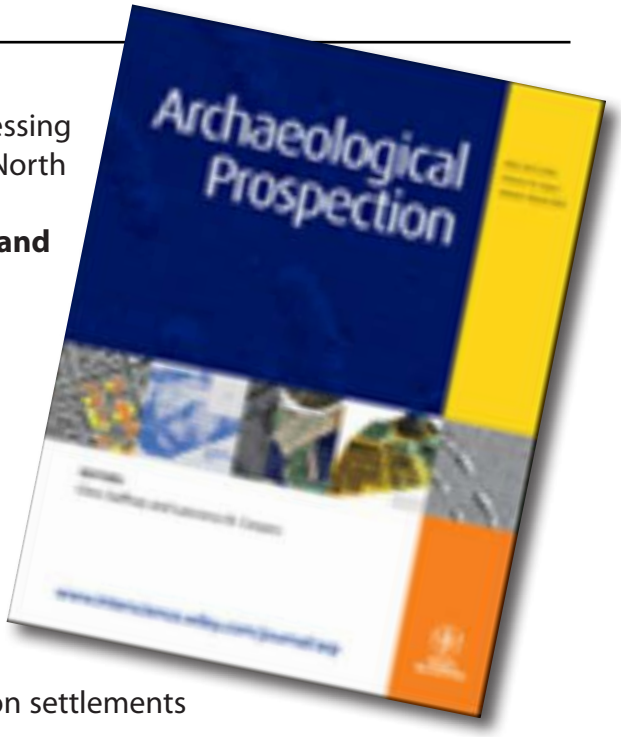
- visual / textual communication
- mis-interpretations and disappointments
- lost arts & lost practices / new arts & new practices
- stories through aerial photography (narratives based on completed research)
- hidden landscapes
- measuring change in the landscape

You can find more information on the conference website at:
http://aarg2015.incipit.csic.es/
and about AARG at: **http://www.univie.ac.at/aarg/index.php/my-home.html**
or by contacting **aarg.chair@gmail.com**

editor@archprospection.org

Journal Notification

Archaeological Prospection 22 (2)



CORONA photographs in monsoonal semi-arid environments: addressing archaeological surveys and historic landscape dynamics over North Gujarat, India.
F. C. Conesa, M. Madella, N. Galiatsatos, A. L. Balbo, S. V. Rajesh and P. Ajithprasad

The impact of spatial sampling and migration on the interpretation of complex archaeological ground-penetrating radar data
L. Verdonck, D. Taelman, F. Vermeulen and R. Docter

Spatial configurations of water management at an early Angkorian capital – combining GPR and TerraSAR-X data to complement an archaeological map
T. F. Sonnemann

Gradiometer and ground-penetrating radar survey of two Reducción settlements in the Zaña Valley, Peru
P. Vanvalkenburgh, C. P. Walker and J. O. Sturm

Geophysical investigations on the Viking Period platform mound at Aska in Hagebyhöga Parish, Sweden
M. Rundkvist and A. Viberg

Green waste and archaeological geophysics
J. Gerrard, L. Caldwell and A. Kennedy

UNIVERSITY of BRADFORD

MSc Archaeological Prospection
Shallow Geophysics
At The University of Bradford, UK

The course is a highly focused postgraduate degree programme which develops specialist skills in the theory and practice of archaeological prospection, in particular in near-surface geophysics.

It provides students with knowledge and experience of the principal geophysical and geochemical techniques currently available for the detection of buried archaeological features and other near-surface targets. The course provides appropriate background to materials and soil science, together with the relevant mathematical principles.

Other methods of detection such as remote sensing, topographical survey and field-walking are introduced as essential components of an integrated approach to landscape assessment. Sampling procedures and the computer treatment and display of field data from all methods are critically examined with the aid of case studies based on field experience. Skills and knowledge are developed through lectures, seminars, laboratory and fieldwork classes and a substantial individual research dissertation.

Course Syllabus:
- Electrical Methods of Survey
- Magnetic and Electromagnetic Methods of Survey
- Site Evaluation Strategies
- GIS for Practitioners
- The Nature of Matter
- Treatment, Display and Interpretation of Field Data
- Soils and Chemical Prospection
- Dissertation (MSc)

Special Features:
- In-depth specialist training, including hands-on experience in the Division's geophysics and computer laboratories and in the field
- First destination figures indicate that about 85% of postgraduates in Archaeological Sciences achieve work or further studies in the discipline or cognate areas

For more information visit:
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or contact Dr Chris Gaffney: c.gaffney@bradford.ac.uk