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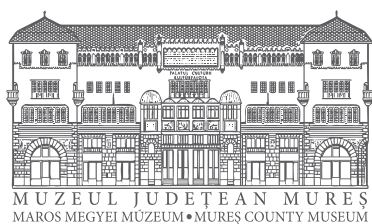
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2020



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ISSN 2668-7232



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AERIAL ARCHAEOLOGICAL INVESTIGATIONS IN TRANSYLVANIA. THE AERIAL ARCHAEOLOGICAL ARCHIVE OF TRANSYLVANIA AT THE INSTITUTE OF ARCHAEOLOGICAL SCIENCES OF THE EÖTVÖS LORÁND UNIVERSITY, BUDAPEST

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Dávid BARTUS*
László RUPNIK**

Between 2009 and 2019 we conducted aerial archaeological research in Transylvania and in Western Romania 11 times, spending 114.85 hours in the air. The research was funded by Hungarian and Romanian research funds (OTKA, CNCS-UEFISCDI), the Institute of Archaeological Sciences of the Eötvös Loránd University (hereafter IAS ELTE) Budapest, the Satu Mare County Museum (Satu Mare / Szatmárnémeti), the Mureş County Museum (Târgu Mureş / Marosvásárhely) and the National Museum of Union (Alba Iulia / Gyulafehérvár). More than 12 000 digital recordings were taken during the flights which will be made accessible for the scientific community via a web-based searchable database, operating on the backend server of the IAS ELTE. The terms of use include registration, accurate description of the technical details of the images in the scientific publication, and a reference to this paper and to the ID generated by the database.

Keywords: database, aerial archaeological research, Transylvania

Cuvinte cheie: bază de date, cercetare arheologică aeriană, Transilvania

AERIAL ARCHAEOLOGICAL RESEARCH IN TRANSYLVANIA

The early history of the Romanian aerial archaeological research has recently been briefly summarized by Irina Oberländer-Târnoveanu and Carmen Bem.¹ Several details and additional data on Transylvanian research of the past 30 years can be learned from the studies of Alexandre Simon Stefan² and from the review of Gabriel Emanuel Rus.³

The first aerial photographs of archaeological sites in Romania were taken by Carl Schuchardt in 1918 in the area between the Black Sea and the Danube.⁴ The first systematic aerial archaeological prospections were carried out in the region of ancient Histria, between 1928 and 1943.⁵ As far as we know, the aerial photographic research in Transylvania started only a little later; Aladár

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¹ OBERLÄNDER-TÂRNOVEANU-BEM 2009, 62–66.

² STEFAN 1999, 261–262; 2019, 10–18.

³ RUS 2015.

⁴ OBERLÄNDER-TÂRNOVEANU 2010, 389.

⁵ STEFAN 2019, 10–12.

Radnóti studied the western part of the *limes* in Roman Dacia on the basis of recordings taken for cartographic purposes in 1940.⁶ After World War II and until the 1980s Emil Condurachi and Dinu Adameşteanu had played an important role in this area.⁷ The former being the first director of the Archaeological Institute in Bucharest from 1954 had presented the results of several research projects – focusing mainly on ancient remains – at exhibitions abroad (Paris, Vienna).⁸ Among the results of the period up to the 1970s, the investigation of the famous prehistoric fortification system at Sântana should be pointed out, whose orthophoto taken in 1965 has already contained the basic topographical results known today.⁹ Dinu Adameşteanu, who founded the Italian National Archive of Aerial Photography (the *Aerofototeca Nazionale*, Rome) in 1958, assisted the Romanian research with sharing his experience with founding grants and organizing exhibitions.¹⁰ He also contributed to the establishment of an aerial photographic research department (*Secția de cercetări aerofotografice și evidență centralizată a siturilor arheologice*), which operated between 1978 and 1987 at the Directorate of National Cultural Heritage of the Romanian National Museum of History.¹¹ His student, Alexandre Simon Stefan, investigated 250 archeological sites in Romania between 1970 and 1986 by using orthophotos, from 1979 he supplemented the analyses with oblique photographs, too.¹² He primarily focused on prehistoric fortifications in the Timișoara–Arad area, as well as on the study of the Danube *limes* in Dobruja.¹³ Furthermore he dedicated several papers also to the

topography of ancient Histria.¹⁴ Last but not least, Ioana Bogdan-Cătănicu should be mentioned from this period, who successfully investigated not only the neighborhood of Alba Iulia but also the Danube *limes*.¹⁵

Based on this short overview, we can conclude that before the collapse of the communist regime in Central and Eastern Europe aerial archeological research in Romania stayed ahead of other former socialist countries in terms of skilled specialists and its organizational and operational background. However, research programmes barely concerned the territory of Transylvania before 1990 especially after Alexandre Simon Stefan had left the country in 1986, aerial archaeological research has been suspended also in Bucharest.¹⁶

In order to boost aerial archaeological research in former socialist countries, the AARG (Aerial Archaeology Research Group), the largest European aerial archaeological research organization, regularly organized training courses for young researchers. Ioana Oltean, who participated in one of these trainings in Hungary in 1996, has started to carry out modern systematic aerial prospection in Romania from 1998 with William Hanson (Glasgow University). Alike previous photographic investigations, their activity has mainly targeted the Dobruja Region, although important new sites have been identified in the Olt valley, in Western Muntenia and in the southern region of the Mureș Valley, in Transylvania as well.¹⁷ While previous Romanian researchers focused primarily on exploring already known sites, an important goal of their plan has been to

⁶ RADNÓTI 1946.

⁷ OBERLÄNDER-TÂRNOVEANU-BEM 2009, 62–64.

⁸ STEFAN 2019, 13.

⁹ STEFAN 1999, 264; cf. GOGÂLTAN-SAVA 2010, 13.

¹⁰ OBERLÄNDER-TÂRNOVEANU-BEM 2009, 62–64.

¹¹ STEFAN 2019, 15.

¹² STEFAN 1999, 261–262.

¹³ His most important publications related to our topic: STEFAN 1977; 1986; 1999; 2019.

¹⁴ Summarizing: Stefan 2019.

¹⁵ BOGDAN-CĂTĂNICIU 1996, OBERLÄNDER-TÂRNOVEANU 2010, 389.

¹⁶ OBERLÄNDER-TÂRNOVEANU 2010, 389.

¹⁷ HANSON 1999; OLTEAN-HANSON 2001; HANSON-OLTEAN 2003; OLTEAN 2007; OLTEAN-HANSON 2015.

identify, map, and interpret new Roman period sites in a GIS-based environment. In addition to the conventional aerial prospection methods, recent and archive orthophotos, commercial satellite images,¹⁸ and more recently ALS technology have been involved in order to meet this purpose.¹⁹ The most significant sites investigated in the Mureş Valley are the fortifications of Micia,²⁰ Războieni and Cigmău.²¹

Since 2007 Zsolt Visy and later mostly his student, Máté Szabó have studied the eastern borders of the Roman Empire in Transylvania.²² Among the results published in popular-science literature²³ the documentation of the fortresses in Szeklerland and the results of aerial prospections conducted above snow-covered landscapes have to be pointed out, since the latter ones have not only revealed the Roman Period camps and watchtowers of the eastern *limes*,²⁴ but they also have yielded new information for mapping the prehistoric(?) burial mounds and the linear medieval ramparts.²⁵ András Sófalvi, archaeologist of the Haáz Rezső Museum (Odorheiu Secuiesc / Székelyudvarhely) also provided significant data in the field of aerial photographic exploration of the Transylvanian rampart system and the medieval fortifications.²⁶

As a result of Dan Ştefan and Maria

Magdalena Ştefan work important discoveries have recently been made by implementing UAV aerial photography, e.g. in the area of Vârful lui Crai (World War I, Roman Period)²⁷ or in East Transylvania, where Late Bronze Age²⁸ and Iron Age²⁹ settlements and Neolithic and Bronze Age salt exploitation areas³⁰ were investigated.

In the last decades a promising tendency can be observed: more and more studies applying aerial archeological and remote sensing research in Transylvania are released. Beside some detailed studies about Bronze Age settlements in Western Romania³¹ the data processing work focuses on the Roman Period. Virginia Rădeanu and Florin Fodorean analyzed aerial photographs to identify Roman roads and villas in Dacia,³² Felix Marcu and George Cupcea dealt with the centuriation of Ulpia Traiana,³³ Iulia Dana Negula with her colleagues conducted very detailed remote sensing research in the area of Micia³⁴ and also the geophysical investigations at Războieni-Cetate were based partly on aerial archaeology.³⁵ One of the most important endeavors was the PoroLimes Roman landscape archaeological project around Porolissum, in the framework of which orthophotos and UAV pictures with multispectral satellite imagery and LiDAR techniques were combined.³⁶

¹⁸ OLTEAN–HANSON 2015, 890.

¹⁹ OLTEAN–HANSON 2017.

²⁰ OLTEAN ET AL. 2005.

²¹ OLTEAN–HANSON 2015, 890–892.

²² PÁNCZÉL ET AL. 2011; 2014; SZABÓ 2018, 164–165.

²³ ORBÁN ET AL. 2008; PÁNCZÉL–SZABÓ 2015; VISY 2008.

²⁴ HÖPKEN ET AL. 2016.

²⁵ SZABÓ 2016, 244–257.

²⁶ SÓFALVI 2011; 2013; 2019.

²⁷ ŞTEFAN–ŞTEFAN 2014.

²⁸ ŞTEFAN–POPA 2017.

²⁹ ŞTEFAN ET AL. 2015a, 2015b.

³⁰ KAVRUK ET AL. 2019.

³¹ MARTA ET AL. 2010.

³² RĂDEANU–FODOREAN 2010.

³³ MARCU–CUPCEA 2011.

³⁴ NEGULA ET AL. 2020.

³⁵ MISCHKA ET AL. 2018.

³⁶ OPREANU 2014; ROMAN ET AL. 2016a; 2016b; 2017; ROMAN–URSU 2016.

THE AERIAL ARCHAEOLOGICAL COLLECTION OF TRANSYLVANIA AT THE IAS ELTE

The Transylvanian aerial archaeological research project which we established together with Sándor Berecki started in 2009 and the last aerial picture was taken in October 2019 (Fig. 1). In contrast to most of the above-mentioned projects, we aimed to organize our work regardless of chronological aspects, we tried to document – and if it was possible, to detect new – archaeological sites from the prehistory to the modern ages. Bearing in mind the latter purpose our prospections were planned mostly for the early summer period. For similar reasons we also tried to arrange flights during snowy, leafless periods, however these missions mostly failed because of the uncertain weather conditions during or at the end of the winter season. The best-studied zone of our prospection flights

is the central, widening part (vale) of the Mureş Valley, where both climatic conditions and the large-scale agriculture proved to be favorable for the identification of crop marks. Beside the Roman settlements, which are relatively easy to detect, we tried to perform a more complete documentation of the Celtic settlements and cemeteries, as well as of fortifications and burial mounds of various periods in whole Transylvania. We participated in the aerial documentation of the rescue excavations prior the construction of the south Transylvanian highway.

In addition to the exhibitions organized in Transylvania (Târgu Mureş / Marosvásárhely and Alba Iulia / Gyulafehérvár) and in Hungary (Budapest, Komárom, Nagykanizsa, Keszthely), we have continuously reported on our results

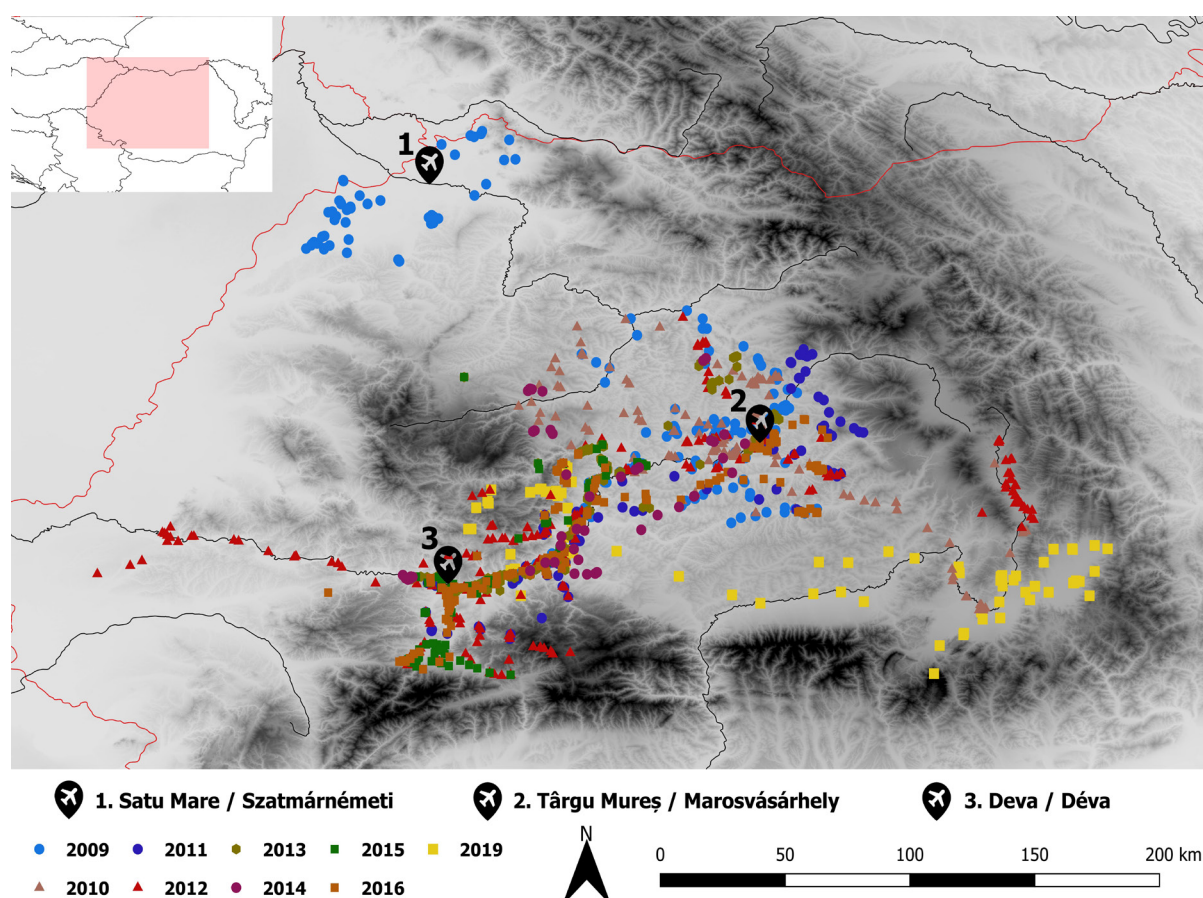


Fig. 1. Aerial Archaeological Investigations of the Institute of Archaeological Sciences of the Eötvös Loránd University (2009–2019; airfields, archaeological sites)

in scientific publications and conferences,³⁷ and released several popular science articles.³⁸ Since 2014, our colleague from Târgu Mureş, Sándor

Berecki, has also been taking aerial photographs by himself, related to his Celtic landscape archaeological project.³⁹

TECHNICAL BACKGROUND

The prospections (Fig. 2) were organized by Sándor Berecki and Zoltán Czajlik, but researchers from several Transylvanian museums (Mariana Egri, Iosif Vasile Ferencz, Zsolt Györfi, József Gábor Nagy, Aurel Rustoiu, Gabriel Rustoiu, Sándor József Sztáncsuj) participated in the preliminary data collection process. During the project – with one exception – we always flew with CTSW ultralight aircraft (2009–2013: with the plane registered as D – MDVD, 2014–2019: with the aircraft having a tail number Y – 5122), the pilot has always been Simion Câmpian. In 2009 in Satu Mare county we had a Diamond type low-wing aircraft (registration number YR – EDC), the aviator was Eugen Chincea. During the prospections we worked with Nikon DSLR cameras (Nikon D300 and from 2019 D750 cameras, Nikkor 24–70 mm f2,8G ED and from 2019 24–120 mm f4G ED lenses). The navigation was based on the aircrafts built-in Garmin GPS and on photos taken on ground, the coordinates

were recorded with Garmin GPSs connected to the cameras and with continuous Garmin GPS track recording. Since 2019 we have been using a smartphone and a safety (secondary) GPS tracker for navigation and for the track recording. The primary identification of the photos and the arrangement of the data in Excel spreadsheets (and later into the Aerial Archaeological Database) were performed by László Rupnik.

One of the fundamental problems we had to face during the research was – paradoxically – the increasing size of the Aerial Archaeological Archive, which had to be urgently transformed into a GIS database. Issues like supporting our project partners' work, providing up-to-date access to the continuously archived and systematically organized data during aerial prospections and field work raised more and more questions regarding steps from planning flights through primary data processing to establishing efficient search options.

Date	Base	Flight hours
18–19 June 2009	Satu Mare / Szatmárnémeti	7.15
26–28 June 2009	Târgu Mureş / Marosvásárhely	18.75
8–10 June 2010	Târgu Mureş / Marosvásárhely	13.25
22–23 June 2011	Târgu Mureş / Marosvásárhely	10.8
23 March 2012	Deva / Déva	2.9
17–19 June 2012	Deva / Déva	15.3
2–4 July 2013	Deva / Déva	11.8
7–8 July 2014	Deva / Déva	7.75
1–2 July 2015	Deva / Déva	6.75
1–5 July 2016	Deva / Déva and Târgu Mureş / Marosvásárhely	11.9
16–18 October 2019	Deva / Déva	8.5
Total: 11 campaigns	29 days	114.85 hours

Fig. 2. Aerial Archaeological Investigations of the Institute of Archaeological Sciences of the Eötvös Loránd University (2009–2019; summary of the campaigns).

³⁷ CZAJLIK ET AL. 2011; 2014; 2018; BERECKI ET AL. 2012; 2013.

³⁸ CZAJLIK 2009, 2012b; 2012c; 2012d; 2012e; 2013; 2019; BOTÁR–CZAJLIK 2012; NAGY–CZAJLIK 2012.

³⁹ BERECKI 2015.

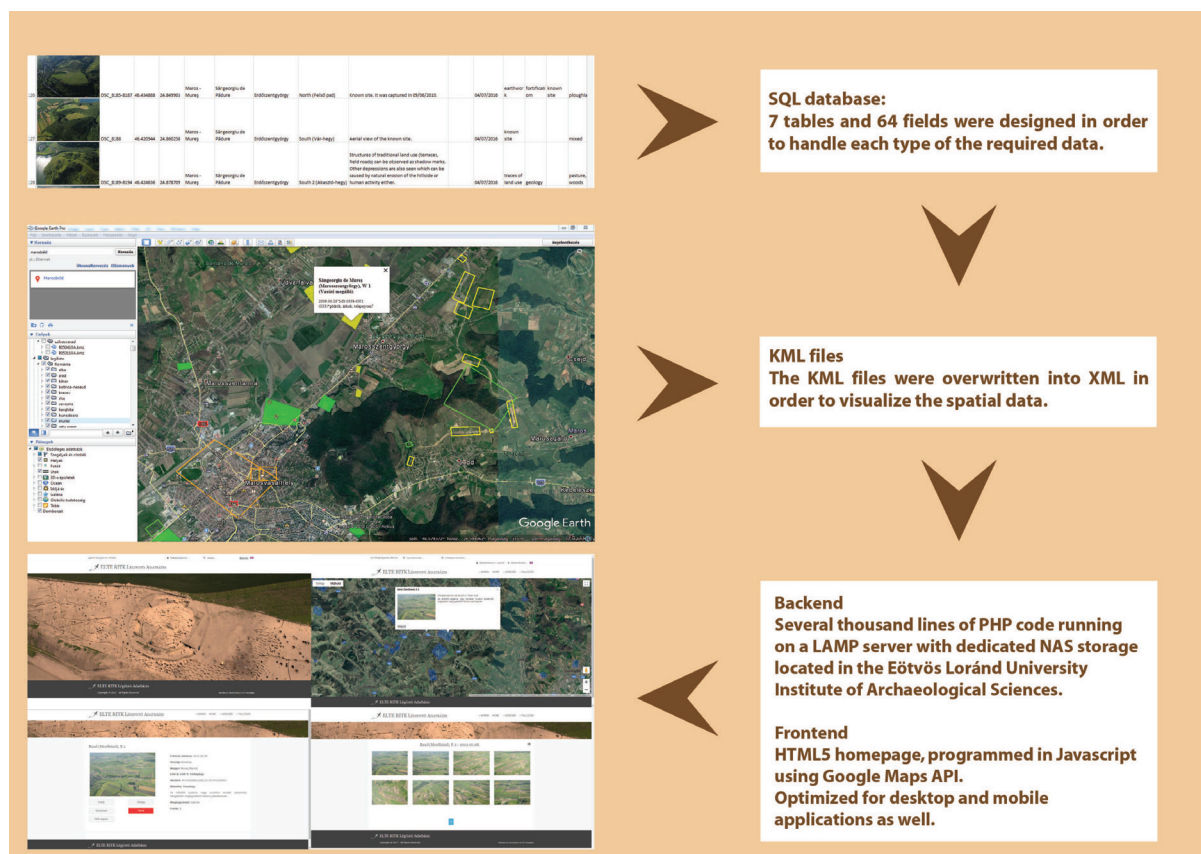


Fig. 3. Aerial Archaeological Database of Transylvania at the Institute of Archaeological Sciences of the Eötvös Loránd University.

STRUCTURE AND USE OF THE AERIAL ARCHAEOLOGICAL DATABASE OF TRANSYLVANIA (FIG. 3)

Due to the complexity of the task, building a completely new database system and developing an online administrator and user frontend was the most practical solution for storing and visualizing the Aerial Archaeological Archive and the GIS data related to the aerial photos. The PHP-SQL backend runs on the ELTE's own server, the database contains all available information on both the photos and the photographed sites. One of the basic feature of the web-based frontend interface is the possibility of displaying and making searchable the polygons of the various sites on an interactive map, which uses Google Maps Javascript API. In addition to map view, users can perform simple and complex searches, create various filters and query lists by gathering data on a specific area, period, or archaeological feature. All the information available related to these selected elements in the database, as well as the uploaded

photos can be displayed according to different principles and sorting criteria.

The system offers five different user levels, while the administration interface serves also as a content management (CMS) interface. Each user level can be geographically restricted, i.e. a researcher can get permission for a country, county, or just for a site, hence, the lengthy process of requesting and sending photos that had previously happened via e-mail can be greatly simplified and automated. Editing, correcting, deleting the full range of information in the database, as well as adding and uploading new data, photographic missions, sites, or photographs can be achieved through the same web interface. Polygons that record the spatial data of the sites can also be freely edited in the administration interface thanks to KML files created dynamically from the SQL database. On the admin interface it is possible

to assign separate notes to each photo, which may later help the scientific interpretation. The checkable and traceable use of the system is supported by a tool that, just at the touch of a button, allows to generate and download data sheets in PDF format which contain all the relevant information, thumbnails of the photographs and all related bibliographic references. The bibliographic data listed on these sheets are queried from a separate bibliographic database

integrated into the system. On each PDF data sheet there is a system generated reference ID, by which they can be unambiguously and professionally cited in publications and presentations.

The Aerial Archaeological Database, can be managed and displayed by countries or smaller administrative units (county, province, etc.), furthermore, if needed, it can be extended in any spatial direction. All functions of the Database are available in both Hungarian and English.

FINAL REMARKS

Field access to the Aerial Archaeological Database of Transylvania is also possible by using mobile devices, therefore, from 2019 on we use smart phones with screens of high brightness. All the data necessary for the surveys can be previously downloaded to these devices and due to their built-in GPS tool they are able to display the position of the aircraft and of the destinations continuously. Similarly to the solutions used during the earlier flights in Transylvania, this method can completely substitute the traditional and time-consuming map-based navigation, – which was one of the main aims of the development.

Comparing to flat and hilly landscapes, aerial photography in Transylvanian valleys where mostly small-scale agriculture is practiced, or in mountainous regions which are often covered by forest or grazing lands, or sometimes having a rocky surface, is a different task both in terms of weather conditions, aeronautical and

photographic techniques. Distinguishing natural and human impacts in the archaic landscape, and separating those of archaeological importance is a long learning process that requires detailed analysis. This has drawn our attention to fundamental problems in the identification of sites difficult to detect and outline, and hereby it has triggered small but very important technological changes in data collection, flight methodology and primary processing strategies.⁴⁰ An implication of this process is the Aerial Archaeological Database of Transylvania itself, which, based on its structure and size, is suitable for applying and testing further development ideas. In the course of its development our aim was to establish a system which is easy to extend and upgrade and provides a research-friendly environment. We are looking forward to the feedback of all our registered users who are willing to share with us their experiences, critical and helpful comments.⁴¹

ACKNOWLEDGMENT

The project was funded by the OTKA 111058, the CNCS-UEFISCDI PN-II-RU-PD-2012–3-0326 research projects and by the Higher Educational Institutional Excellence Program and Thematic Excellence Program of the Eötvös Loránd University, 2019–2021. Further

support was provided by the Institute of Archaeological Sciences of the Eötvös Loránd University, the Satu Mare County Museum, the Mureş County Museum and especially the National Museum of Union (Alba Iulia / Gyulafehérvár).

⁴⁰ CZAJLIK ET AL. 2014.

⁴¹ Registration is processed after sending an e-mail to the following address: aaa@btk.elte.hu

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ABBREVIATIONS

<i>AARGNews</i>	Aerial Archaeology Research Group Newsletter
<i>Acta</i>	Acta. Muzeul Național Secuiesc, Sfântu Gheorghe
<i>ActaArchHung</i>	Acta Archaeologica Academiae Scientiarum Hungaricae, Budapest
<i>ActaMB</i>	Bruckenthal. Acta Musei, Sibiu/Hermannstadt
<i>ActaMN</i>	Acta Musei Napocensis, Cluj-Napoca
<i>ActaMoldMer</i>	Acta Moldaviae Meridionalis. Anuarul Muzeului Județean Vaslui
<i>ActaMP</i>	Acta Musei Porolissensis, Zalău
<i>ActaMT</i>	Acta Materialia Transylvanica. Technical Sciences Department of the Transylvanian Museum Society, Cluj-Napoca/Kolozsvár
<i>ActaPraehistA</i>	Acta Praehistorica et Archaeologica
<i>ActaSic</i>	Acta Siculica, Sf. Gheorghe/Sepsiszentgyörgy
<i>ActaTS</i>	Acta Terrae Septemcastrensis, Sibiu
<i>AISC</i>	Anuarul Institutului de Studii Clasice Cluj
<i>AJA</i>	American Journal of Archaeology
<i>Aluta</i>	Aluta. Studii și cercetări
<i>AmJPhysAnthropol</i>	American Journal of Physical Anthropology
<i>AnatRec</i>	Anatomical Record. American Association of Anatomists
<i>Angustia</i>	Angustia. Muzeul Carpaților Răsăriteni, Sfântu Gheorghe
<i>AnMuzOlt</i>	Anuarul Muzeului Olteniei
<i>AnnForRes</i>	Annals of Forest Research
<i>AnnHN</i>	Annales Historico-Naturales Musei Nationalis Hungarici, Budapest
<i>ANsachs</i>	Archäologie in Niedersachsen
<i>AnthrK</i>	Anthropológiai Közlemények, Budapest
<i>Antiquity</i>	Antiquity. A Quarterly Review of Archaeology
<i>Apulum</i>	Apulum. Acta Musei Apulensis, Alba Iulia
<i>ArchAust</i>	Archaeologia Austriaca
<i>ArchBulg</i>	Archaeologia Bulgarica, Sofia
<i>ArchÉrt</i>	Archaeologiai Értesítő, Budapest
<i>ArchHist</i>	Archaeologia Historica, Brno
<i>ArchHung</i>	Archaeologia Hungarica, Budapest
<i>ArchKorr</i>	Archäologisches Korrespondenzblatt, Römisch-Germanischen Zentralmuseum Mainz
<i>ArchPol</i>	Archaeologia Polona,
<i>Areopolisz</i>	Areopolisz. Történelmi és társadalomtudományi tanulmányok, Székelyudvarhely
<i>Argesis</i>	Argesis. Studii și comunicări, Pitești
<i>ASz</i>	Agrártörténeti Szemle
<i>AusgrFuWestf</i>	Ausgrabungen und Funde in Westfalen-Lippe

<i>AVes</i>	Arheološki vestnik, Ljubljana
<i>BÁMÉ</i>	A Béri Balogh Ádám Múzeum Évkönyve, Szekszárd
<i>Banatica</i>	Banatica, Muzeul Banatului Montan, Reșița
<i>BAR (I.S./B.S.)</i>	British Archaeological Reports, International Series / British Series, Oxford
<i>BerRGK</i>	Bericht der Römisch-Germanischen Kommission
<i>BMI</i>	Buletinul Monumentelor Istorice, București
<i>BMJT (S.A.)</i>	Buletinul Muzeului Județean Teleorman (Seria Arheologie), Alexandria
<i>BuletinCIVA</i>	Buletinul Cercului de Istorie Veche și Arheologie „Vladimir Dumitrescu”, Sibiu
<i>BulletinPeabody</i>	Bulletin of the Peabody Museum of Natural History
<i>CA</i>	Cercetări Arheologice
<i>CCAR</i>	Cronica Cercetărilor Arheologice din România
<i>CommArchHung</i>	Communicationes Archaeologicae Hungariae, Budapest
<i>Cumania</i>	Cumania. A Bács-Kiskun Megyei Múzeumok Közleményei, Kecskemét
<i>CurrSweda</i>	Current Swedish Archaeology
<i>CsSzMÉ</i>	Csíki Székely Múzeum Évkönyve, Csíkszereda
<i>Dacia (N. S.)</i>	Dacia. Recherches et découvertes archéologiques en Roumanie, I–XII (1924–1948), București; Nouvelle série (N. S.): Dacia. Revue d’archéologie et d’histoire ancienne, București
<i>DissArch</i>	Dissertationes Archaeologicae ex Instituto Archaeologico Universitatis de Rolando Eötvös Nominatae, Budapest
<i>DolgKolozsvar (Ú.S.)</i>	Dolgozatok az Erdélyi Nemzeti Múzeum Érem- és Régiségtárából, (új sorozat, 2006–), Kolozsvár
<i>DolgSzeged</i>	Dolgozatok a Szegedi Tudományegyetem Régiségtudományi Intézetéből, Szeged
<i>Drobeta</i>	
<i>EJA</i>	European Journal of Archaeology
<i>EphemNap</i>	Ephemeris Napocensis, Cluj-Napoca
<i>FI</i>	File de Istorie. Muzeul de Istorie al Județului Bistrița-Năsăud, Bistrița
<i>FolAnt</i>	Folia Anthropologica, Szombathely
<i>FolArch</i>	Folia Archaeologica, Budapest
<i>Gallia</i>	Gallia. Fouilles et monuments archéologiques en France métropolitaine
<i>Georeview</i>	Georeview. Scientific Annals of Ștefan cel Mare University of Suceava, Geography Series
<i>Germania</i>	Germania. Anzeiger der Römisch-Germanischen Kommission des Deutschen Archäologischen Instituts
<i>Hierasus</i>	Hierasus. Muzeul Județean Botoșani
<i>HOMÉ</i>	A Herman Ottó Múzeum Évkönyve, Miskolc
<i>HTRTE</i>	A Hunyadmegyei Történelmi és Régészeti Társulat Évkönyve, Déva
<i>HZ</i>	Historische Zeitschrift
<i>IJOsteo</i>	International Journal of Osteoarchaeology
<i>Istros</i>	Istros. Muzeul Brăilei
<i>JAHA</i>	Journal of Ancient History and Archaeology

<i>JAMÉ</i>	A Nyíregyházi Jósza András Múzeum Évkönyve, Nyíregyháza
<i>JASc</i>	Journal of Archaeological Science
<i>JAT</i>	Journal of Ancient Topography – Rivista di Topografia Antica
<i>JbAS</i>	Jahrbuch Archäologie Schweiz
<i>JbRGZM</i>	Jahrbuch des Römisch-Germanischen Zentralmuseums, Mainz
<i>JCerEnvD</i>	Journal of Ceramics and Environmental Design
<i>JHumEvol</i>	Journal of Human Evolution
<i>JNES</i>	Journal of Near Eastern Studies
<i>JOM</i>	JOM. The Journal of The Minerals, Metals & Materials Society
<i>JRA</i>	Journal of Roman Archaeology
<i>JRomPotSt</i>	Journal of Roman Pottery Studies
<i>JSchrVgHalle</i>	Jahresschrift für Mitteldeutsche Vorgeschichte Halle (Saale)
<i>KJb</i>	Kölner Jahrbuch für Vor- und Frühgeschichte
<i>KM</i>	Keresztény Magvető. Az Erdélyi Unitárius Egyház Folyóirata, Kolozsvár
<i>KRRMK</i>	A Kaposvári Rippl-Rónai Múzeum Közleményei
<i>KuBA</i>	Kölner und Bonner Archaeologica
<i>Levant</i>	Levant. Journal of the British School of Archaeology in Jerusalem and the British Institute at Amman for Archaeology and History
<i>MacActaA</i>	Macedoniae Acta Archaeologica, Prilep
<i>Marisia</i>	Marisia (V–), Studii și Materiale, Târgu Mureș
<i>Marisia-AHP</i>	Marisia: Archaeologia, Historia, Patrimonium, Târgu Mureș
<i>MCA</i>	Materiale și Cercetări Arheologice, București
<i>MFME</i>	A Móra Ferenc Múzeum Évkönyve, Szeged
<i>MMMK</i>	A Magyar Mezőgazdasági Múzeum Közleményei
<i>MTAK (II)</i>	A Magyar Tudományos Akadémia II. Társadalmi-Történeti Tudományok Osztályának Közleményei (1950–1966), A Magyar Tudományos Akadémia II. Filozófiai és Történettudományi Osztályának Közleményei (1966–1981)
<i>NMME</i>	Nógrád Megyei Múzeumok Évkönyve, Salgótarján
<i>OxfJA</i>	Oxford Journal of Archaeology
<i>PBF</i>	Prähistorische Bronzefunde, Stuttgart
<i>ProblemeKfsNsg</i>	Probleme der Küstenforschung im südlichen Nordseegebiet
<i>ProcPrehistSoc</i>	Proceedings of the Prehistoric Society
<i>PZ</i>	Praehistorische Zeitschrift
<i>RCRFA</i>	Rei Cretariae Romanae Fautorum Acta, Tongeren
<i>RevBis</i>	Revista Bistriței, Complexul Județean Muzeal Bistrița-Năsăud
<i>Sargetia (S.N.)</i>	Sargetia. Acta Musei Devensis, Deva
<i>SCA</i>	Studii și Cercetări Antropologice
<i>SCIV(A)</i>	Studii și Cercetări de Istorie Veche (și Arheologie 1974–), București
<i>SlovArch</i>	Slovenská Archeológia, Bratislava
<i>SMMK</i>	A Somogy Megyei Múzeumok Közleményei, Kaposvár
<i>StAntArch</i>	Studia Antiqua et Archaeologica, Iași
<i>Starinar</i>	Starinar. Arheološki Institut Beograd

<i>StCercNum</i>	Studii și cercetări de numismatică, București
<i>StComSM</i>	Studii și Comunicări Satu Mare
<i>StComVrancea</i>	Vrancea. Studii și comunicări, Focșani
<i>StudiaAA</i>	Studia Antiqua et Archaeologica, Iași
<i>SUBB-Historia</i>	Studia Universitatis Babeș–Bolyai, series Historia, Cluj-Napoca
<i>Századok</i>	Századok, A Magyar Történelmi Társulat Folyóírata, Budapest
<i>Terra Sebus</i>	Terra Sebus, Acta Musei Sabesiensis, Sebeș
<i>Thraco-Dacica</i>	Thraco-Dacica. Institutul de Arheologie „Vasile Pârvan” Centrul de Tracologie, București
<i>Tyragetia</i>	Tyragetia. The National Museum of History of Moldova, Chișinău
<i>UPA</i>	Universitätsforschungen zur Prähistorischen Archäologie, Bonn
<i>VAH</i>	Varia Archaeologica Hungarica, Budapest
<i>VMMK</i>	A Veszprém Megyei Múzeumok Közleményei, Veszprém
<i>WMMÉ</i>	A Wosinsky Mór Múzeum Évkönyve, Szekszárd
<i>ZBf</i>	Zeitschrift für Balkanforschung