Monuments and More - Archaeological Geodata in Saxony
Content

Content .............................................................................................................................................................. 1
1 Motivation ..................................................................................................................................................... 3
2 Geodata for Archaeological Purposes ......................................................................................................... 3
2.1 2.1. Sites, Monuments and More ........................................................................................................ 3
2.2 2.2. Base Maps and Thematic Maps .................................................................................................. 4
2.3 2.3. Queryable Geodata ..................................................................................................................... 4
2.4 2.4. Historic Maps ............................................................................................................................. 4
2.5 2.5. Assisting Information .................................................................................................................. 5
3 3. Résumé ................................................................................................................................................ 6
4 References .................................................................................................................................................. 7

Attachment: Examples of geodata web services .............................................................................................. 8

Key Words: archaeology, geodata, digital maps, Saxony.

File: Paper_en_DICGIS_V0.1.doc
saved: 30.07.2014 16:24
printed: 30.07.2014 16:24

state of content: July 2014
draft: R. Göldner
1 Motivation

The information system of the Archaeological Heritage Office Saxony was developed with the aim of recording, storing and presenting archaeological data from Saxony. Because of their geographic reference these information are managed with a geographic information system (GIS) in cooperation with a powerful database.

2 Geodata for Archaeological Purposes

2.1 Sites, Monuments and More

The current structure of archaeological spatial data is the result of more than 20 years’ experience. It contains archaeological survey areas, archaeological sites and monument areas:

- **Archaeological survey areas** are areas that were surveyed with archaeological methods, not regarding any results and so rated as archaeological neutral.

- **Archaeological sites** are areas that yielded archaeological knowledge in an archaeological positive or negative sense:
  - Positive sites are areas where traces of human life were detected, with proven extent and independent of the current preservation status. Find spots (not invasive surveyed) and excavation sites (invasive surveyed) belong to positive sites.
  - Negative sites are intensive surveyed areas without any traces of human life.

- **Monument areas** indicate a supposed extent of on-site preserved traces of human life, representing heritage protection as stated by law.
2.2 Base Maps and Thematic Maps

Geographic base maps mostly come from the surveying department of Saxony, but also by other providers, often as geo-data service via internet. Please see attachment for a short overview.

2.3 Queryable Geodata

Based on this combination of spatial and attributive data many different kinds of queries are possible. You can easily create thematic maps, e.g. with find spots of special epochs or with activity sites of a given year. Of course the issues of heritage protection are of central interest.

2.4 Historic Maps

There are two important historic map sets in Saxony, "Meilenblätter" (mile sheets) from about 1800 and "Ur-Oeder" (primal Oeder) from about 1600. Both have been used for archaeological research for a long time, and in the pre-digital era copying machine and light table where the most important tools to gain new information from them.

"Meilenblätter" and "Ur-Oeder" were first digitally scanned in 1998 by an initiative of the Archaeological Heritage Office in Saxony. The "Meilenblätter" were georeferenced in 2003, "Ur-Oeder" followed suit in 2009, both performed by the Archaeological Heritage Office in Saxony. While the old scans have qualitative...
Archaeological Heritage Office Saxony, Dr. Reiner Göldner  
„Monuments and More – Archaeological Geodata in Saxony“

limitations, because they are based on photocopies of the map sets, there exist new, high resolution data sets of "Meilenblätter" and “Ur-Oeder” now.

2.5 Assisting Information

But besides this geo-data may support expansion of knowledge, so grave mounds, walls and hollow-ways could often be found easier and better using digital elevation models at the computer than going into the open country.

Figure 8 – Hillshades of grave mounds at Rosenfeld.  
Figure 9 – Hillshades of walls at Lastau.

Figure 10 – Coloured hillshades of ancient fortification (Seußlitz).  
Figure 11 – 3D-views from TIN (ancient fortification Seußlitz).

Ancient roads are important components of the cultural heritage. Preserved remains have to be protected as monuments. But the documentation is often insufficient, because historical sources frequently deliver only topological features without specific route descriptions. The evaluation of ancient maps without GIS is hard and tricky. On-site prospection of terrain is expensive and time consuming. But modern GIS technology and high resolution remote sensing data brought a change. Ancient maps can be georeferenced with reasonable effort and evaluation of remote sensing data (DTM, DOP, CIR) replaces on-site prospection. Prepared in this way it is possible to prospect even large regions from one’s desk with reasonable effort. In this manner long distances of ancient roads were studied and identified as part of the Via Regia.
3 Résumé

As combination of modern GIS and database technologies the archaeological information system became an essential companion for archaeological heritage protection and research. Geographic data supports almost all fields of archaeological work, from prospective field work to the archiving of results.
4 References

Archaeological geodata, [internal data], © Staatsbetrieb Landesamt für Archäologie Sachsen

ATKIS-DGM2/DTM – digital terrain model, [internal data], © Staatsbetrieb Geobasisinformation und Vermessung Sachsen

ATKIS-DOP (RGB) – digital orthophoto, [online as geographic data service], Available: http://www.landesvermessung.sachsen.de/ias/basiskarte4/service/SRV4ADV_P_DOPRGB/ WMSFREE_TK/wmsservice

ATKIS-DOP (CIR) – digital orthophoto, [online as geographic data service], Available: http://www.landesvermessung.sachsen.de/ias/basiskarte4/service/SRV4ADV_P_DOPCIR/ WMSFREE_TK/wmsservice, © Staatsbetrieb Geobasisinformation und Vermessung Sachsen

Bodenkarte (BK50) – soil map, [online as geographic data service], Available: http://www.umwelt.sachsen.de/umwelt/infosysteme/wms/services/boden/bk50

Meilenblätter von Sachsen – historic map, Berlin exemplar, acquired 1780-1806 at the head of Friedrich Ludwig Aster, HTW Dresden, [online as geographic data service], Available: http://geoinformatik.htw-dresden.de/cgi-bin/mbl, © Staatsbibliothek zu Berlin - Preußischer Kulturbesitz

Erosionsgefährdung – danger of erosion, [online as geographic data service], Available: http://www.umwelt.sachsen.de/umwelt/infosysteme/wms/services/boden/erosion


Fritzsche, Nadine: Results of Internship, Archaeological Heritage Office of Saxony, 2009, [internal]

Messtischblätter – historic toponraphic map, [online as geographic data service], Available: http://www.landesvermessung.sachsen.de/ias/basiskarte4/service/SRV4ADV_HIST25/ WMSFREE_TK/wmsservice

Schmidt, Raimo: Results of Internship, Archaeological Heritage Office of Saxony, 2011, [internal]

TK25/RD25 topographic map 1: 25000, [internal data], © Staatsbetrieb Geobasisinformation und Vermessung Sachsen

TOP.SN – digital topographic map of Saxony, [online as geographic data service], Available: http://www.landesvermessung.sachsen.de/ias/basiskarte4/service/SRV4TOPSN/ WMSFREE_TK/wmsservice

Ur-Oeder – historic map, acquired 1586-1607 by Matthias Oeder [internal data], © Hauptstaatsarchiv Dresden

Verwaltungsgliederung – districts, [online as INSPIRE conformal geographic data service], Available: http://www.landesvermessung.sachsen.de/ias/basiskarte4/service/SRV4IN_FLURST/ WMSFREE_/ WMSFREE_/wmsservice
### Attachement: Examples of geodata web services

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
<th>©</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOP.SN</td>
<td>topographic basemap</td>
<td>GeoSN</td>
<td><img src="image1.png" alt="TOP.SN" /></td>
</tr>
<tr>
<td>Verwaltungs-</td>
<td>districts</td>
<td>GeoSN</td>
<td><img src="image2.png" alt="Verwaltungs-" /></td>
</tr>
<tr>
<td>gliederung</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOP-RGB</td>
<td>orthophotos, true colour</td>
<td>GeoSN</td>
<td><img src="image3.png" alt="DOP-RGB" /></td>
</tr>
<tr>
<td>DOP-CIR</td>
<td>orthophotos, coloured infrared</td>
<td>GeoSN</td>
<td><img src="image4.png" alt="DOP-CIR" /></td>
</tr>
<tr>
<td>DTM</td>
<td>digital terrain model, shaded relief</td>
<td>GeoSN</td>
<td><img src="image5.png" alt="DTM" /></td>
</tr>
<tr>
<td>Messtisch-</td>
<td>Historic topographic map (about 1900)</td>
<td>GeoSN</td>
<td><img src="image6.png" alt="Messtisch-" /></td>
</tr>
<tr>
<td>blätter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meilenblätter</td>
<td>Historic topographic map (about 1900)</td>
<td>Staatsbibliothek zu Berlin – Preußischer Kulturbesitz, HTW Dresden</td>
<td><img src="image7.png" alt="Meilenblätter" /></td>
</tr>
<tr>
<td>Ur-Oeder</td>
<td>Historic topographic map (about 1900)</td>
<td>Hauptstaatsarchiv Dresden, LfA</td>
<td><img src="image8.png" alt="Ur-Oeder" /></td>
</tr>
<tr>
<td>Bodenkarte</td>
<td>Soil map (overview)</td>
<td>LfULG SN</td>
<td><img src="image9.png" alt="Bodenkarte" /></td>
</tr>
<tr>
<td>Erosions-</td>
<td>Danger of erosion</td>
<td>LfULG SN</td>
<td><img src="image10.png" alt="Erosions-" /></td>
</tr>
<tr>
<td>gefährdung</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>