The Importance of Maps at the Archaeological Excavations Works

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The Anatolian peninsula, a settlement area which hosted to a number of civilizations throughout the ages, has archaeologically a deep cultural structure and wealthy cultural properties.
The term “Culture”

- The fact that Turkey has a huge wealth for the cultural properties and the importance of this wealth for the common history of mankind is undisputed.
- So each archaeological research in this region has a certain importance not only for cultural facts of Turkey, and also for the humankind.
The word “archaeology”

Archaeological excavation

STUDY AREA

Çorum is a province in Turkey, lying both inside the Middle Black Seas region and also inside Central Anatolian region.
The opportunities, which the geographical position, geographical characteristics and the resources, especially the mines, of this city provide, ensure that Çorum has an outstanding cultural level which has improved throughout the history of humanity in Near East, and that the territory in question remains in contact with both eastern and western cultures.

However Boğazkale-Hattuṣa has appeared in “UNESCO’s World Heritage List” since 1986 and the Boğazköy archives including cuneiform tablets also take place in the “UNESCO’s World Memory Registers” from 2001.
## The Name of Archaeological Area

<table>
<thead>
<tr>
<th>The Name of Archaeological Area</th>
<th>Beginning Date of Excavation</th>
<th>President of Excavation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boğazköy- Hattuṣa</td>
<td>1906</td>
<td>Dr. Andreas Schaechner</td>
</tr>
<tr>
<td>Alacahöyük</td>
<td>1996 (1907)</td>
<td>Dr. Aykut Çınaroğlu</td>
</tr>
<tr>
<td>Ortaköy-Şapinuva</td>
<td>1992</td>
<td>Dr. Aygül Säel</td>
</tr>
<tr>
<td>Resulğlu Cemetry-Settlement Area</td>
<td>2003 (1968-1983)</td>
<td>Dr. Tayfun Yıldırım</td>
</tr>
<tr>
<td>Eskiyapar</td>
<td>2010</td>
<td>Dr. Tunç Sipahi</td>
</tr>
</tbody>
</table>

## The Phases of Archaeological Field Studies

- Survey
- Test excavation
- Excavation
- Analyses and researches
- Documentation and reports
- Curation
THE MAPS AND MAPPING IN ARCHAEOLOGICAL FIELD STUDIES

- In archaeological studies, the maps are used for different goals from the phase of planning the survey to the exhibition phase in every stage.
- The visual mappings relating to the archaeological area will provide easy-comprehensible additional information to the decision makers, so it will ensure to keep on the archaeological studies in a systematic manner.
- If the data acquiring from the archaeological excavations are treated with maps, or during the creation process of a new map or matching a number of maps each other, it will be required to use Geographic Information System (GIS).

DIAGNOSING THE PROBLEMS

- Using the different coordinate (projection) systems.
- Producing final maps in different scales.
- The measurement errors due to using different measurement techniques.
- Using a symbol in legend in different meanings (deficiencies in standard illustration).
- Not including some information such as the creation date, publication date etc.
- Deficiencies for routing and informing.
- Not including the contour lines or the information about their intervals.
- Inconsistencies between the textural information about the area and illustration.
- Deficiencies about the updates.
- Deficiencies in 3D studies.
- The basic analyzes on the numerical maps can’t perform, because of using printed maps.
Suggestions for the Solutions of Problems

- From the statistical information, reports and final maps which are acquired by questioning, analyses and modeling practices performing by means of both attributive and graphic information of archaeological data in numerical environment, it will enable to reach new and different approaches.
- In order to get efficiency from the archaeology based projects, it is required a field administrator; it is important that the plan of field administration has feasibility and updateability characteristics.
- To create a plan of field administration, it required to evaluate a number of variables such as physical condition, threats and constrains.

- The results acquiring from GIS can be used to support the decision about an archaeological artifact from an excavation. The final decision, concerning that GIS outcomes affect the decisions in which mechanisms, belongs only to the decision-maker.
### PHASE 1
**TARGET**

- Documenting the architectural artifacts acquiring from the pre-defined area, registering them to the maps and marking on them.

**SURVEY**

<table>
<thead>
<tr>
<th>Data Set 1 (DS-I)</th>
<th>Data Set 2 (DS-II)</th>
<th>Data Set 3 (DS-III)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadastral map at scales of 1/25000</td>
<td>Satellite images &gt; 5m</td>
<td>Aerial photos</td>
</tr>
<tr>
<td>Digital photo-camera</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Software**

- ACS, CAD and CBS software;
- Data Transfer Software;
- Image Processing Software;
- Microsoft Program;

**OPERATION**

- Producing new data;
- Documentation;
- Producing data suited for standards;  
- Survey Reports;

**RESULT**

- Producing new data;
- Documentation;
- Producing data suited for standards;  
- Survey Reports;

**DECISION**

- A decision about whether a testing excavation will perform, or not.

### PHASE 2
**TARGET**

- Detecting the archaeological levels in a small area defining during the excavation or a survey and examining these levels.

**TESTING EXCAVATION**

<table>
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<th>Data Set 1 (DS-I)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Satellite images &gt; 5m</td>
<td>Aerial photos</td>
<td>LIDAR</td>
</tr>
<tr>
<td>Survey maps</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Software**

- ACS, CAD and CBS software;
- Data Transfer Software;
- Image Processing Software;
- Microsoft Program;

**OPERATION**

- Producing new data;
- Documentation;
- Producing data suited for standards;  
- Survey Reports;

**RESULT**

- Producing new data;
- Documentation;
- Producing data suited for standards;  
- Survey Reports;

**DECISION**

- A decision about whether a long-termed excavation will perform, or not.

### PHASE 3
**TARGET**

- Detecting archaeological levels in a pre-defined archaeological area by long-termed studies, and determining the probable relationships between these levels and neighboring settlements.

**EXCAVATION**

<table>
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<th>Data Set 1 (DS-I)</th>
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<th>Data Set 3 (DS-III)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadastral map at scales of 1/2000; Zoning sheet at scales of 1/1000; Satellite images &gt; 5m</td>
<td>Aerial photos</td>
<td>Satellite images &gt; 5m</td>
</tr>
<tr>
<td>Survey maps</td>
<td></td>
<td></td>
</tr>
</tbody>
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**Software**

- ACS, CAD and CBS software;
- Data Transfer Software;
- Image Processing Software;
- Microsoft Program;

**OPERATION**

- Producing new data;
- Documentation;
- Producing data suited for standards;  
- Survey Reports;

**RESULT**

- Producing new data;
- Documentation;
- Producing data suited for standards;  
- Survey Reports;

**DECISION**

- A decision about whether a long-termed excavation will perform, or not.

### SOFTWARE

- GPS/ DGPS;
- Portable GIS record unit including digital records formats;
- Digital Photo cameras etc.

**OPERATION**

- Producing new data;
- Documentation;
- Producing data suited for standards;  
- Survey Reports;

**RESULT**

- Producing new data;
- Documentation;
- Producing data suited for standards;  
- Survey Reports;

**DECISION**

- A decision about whether a long-termed excavation will perform, or not.

The projection system must be indicated formerly. For the maps which will be included to the system, the transformation parameters to be calculated. (The projection system suggested for Çorum is UTM ZONE 36N-WGS84)
RESULTS

- In a condition of establishing the system which we point out in this context, updating the data from the scientific researches in the archaeological sites, reaching to the information resources and sharing the data will be so quickly and safely. The practices about accessing the data, questioning and reporting the results can be performed safely and quickly apart from the time.

RESULTS

- By using the sets of data, which we offer as a suggestion here, the measurement tools and software in the archaeological studies, we can produce maps which are suitable for the pre-defined standards.
- The maps in question will be equipped with a number of characteristics such as accuracy, relevance for the purpose, lucidity, comprehensibility, easy readability and aesthetic.
- The data which are required by users will be transferred in an accurate, qualified and reliable manner, according to a certain systematic.
RESULTS

- As the accuracy and the quality of data from the working fields increase, the practices can be varied in this degree.

- Increasing practices in variety will contribute to produce solutions which assist to put forward the facts of history of humanity, to identify the remains both under the surface and above the earth which is the target of archaeological studies and to discover the ancient marks.

Thank you for listening

Grazie per l'ascolto