RECONSTRUCTIVE 3D MODELS OF THE BRNO FOR THE YEARS 1400, 1645 AND 1749 AND THEIR USE IN EDUCATION

Vilém Walter, Lukáš Herman, Zdeněk Stachoň

Masaryk University, Faculty of Science, Department of Geography
Brno, Czech Republic
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  - Old maps
  - Other sources
    - graphical
    - written
    - archeological
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  - Model on Moravian square
  - Web presentation
  - Utilization
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Introduction

• 3 historical models of Brno for years 1400, 1645, 1749
• The models were made in Archaia Brno company as a part of the project „Encyclopedia of Brno city“
• The main purpose is to show the historical appearance of the city to general public
Historical data Sources

- Old maps
- Other sources
  - graphical
  - written
  - archeological
Sources - maps

- before 1645 - no available detailed maps of Brno city

1650: Topographia Moraviae (M. Merian)

1672: Relazione Dell' assedio di Bruna
Sources - maps

- Stable cadastre (1824) – best maps for our purpose

Plans of fortifications from War Archive (Kriegsarchiv) in Vienna (1658-1749)
Other sources - graphical

Other sources – graphical

• 18th and 19th century – many paintings and graphics
• (Josef Masserle, Franz Richter, Eduard Gurk etc.)
Other sources

- Archeological Researches
  - mainly made by Archaia Brno

- Written sources
  - documents from National Heritage Institute, Moravian Archives and the Archives of the City of Brno.
Processing

- Free software Google (today the Trimble) SketchUp
- Around 400 houses
- Simple models in the LoD2
- Important objects such as churches, monasteries, fortifications and Špilberk Castle, in LoD3.
- WGS-84
- Export to KML
Presentation on WWW

- [http://www.brno1645.cz](http://www.brno1645.cz)
Bronze sculpture

• City model from 1645 has been used for creation of the bronze sculpture in scale 1:1000
• It is located on the Moravian Square in the centre of Brno.
• Historical state of the city is presented to the tourists and general public
Utilization in education

- Curriculum of geography and history (urban development)
- High school students
  - during the GIS Day 2014
- University students
  - in courses focused on local history of urbanism
  - in course 3D modelling and visualization (Z8311)
Future work

- Continuous updating of 3D models and correction of errors (e.g. based on the new archaeological findings)
- Add information attached to each captured objects.
- New ways of utilizing existing models:
  - Mixed reality (superposition of 3D models and photos or video)
  - Augmented reality (real time)
  - Establishment of „serious game“
Conclusion

• Created reconstructive models of Brno have a wide range of applications.
• They are fully comparable from this point of view with other 3D city models that have been created in the Czech Republic or abroad.
• Wide use balances the challenging process of creating 3D models.
THANK YOU FOR YOUR ATTENTION