



Výzkumný ústav geodetický, topografický a kartografický, v.v.i.
Research Institute of Geodesy, Topography and Cartography

Digitizing of old maps – case of the map collection Chartae-Antiquae.cz

Milan Talich

Milan.Talich@vugtk.cz

Digital Cultural Heritage, Berlin, August 30 - September 01, 2017, Staatsbibliothek Berlin

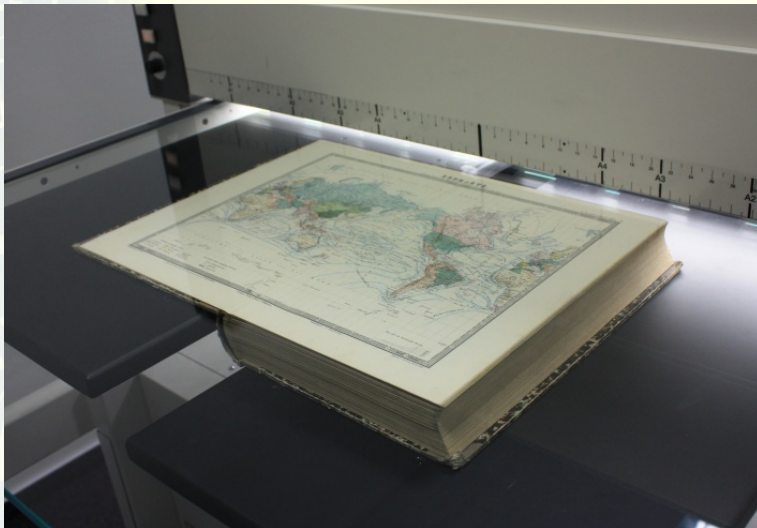
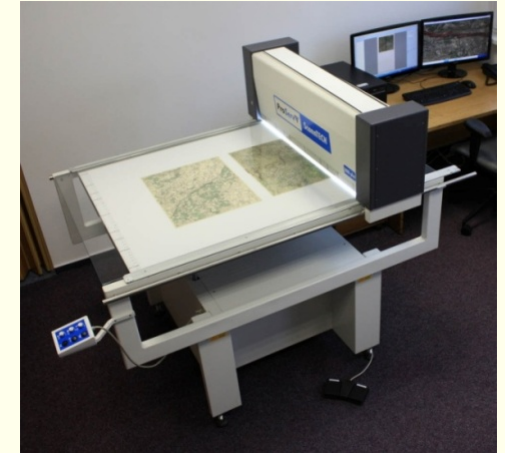
Motivation

- **Today's modern methods of digitization and on-line accessing of old maps allow much more than just making copies for viewing them.**
- **These modern methods allow to fully exploit the potential of old maps as cartographic works with all of their specific characteristics.**
- **This contribution will show good practice for digitization and on-line accessibility of old maps.**

Good practice by digitizing of old maps and atlases (requirements for proper digitization)

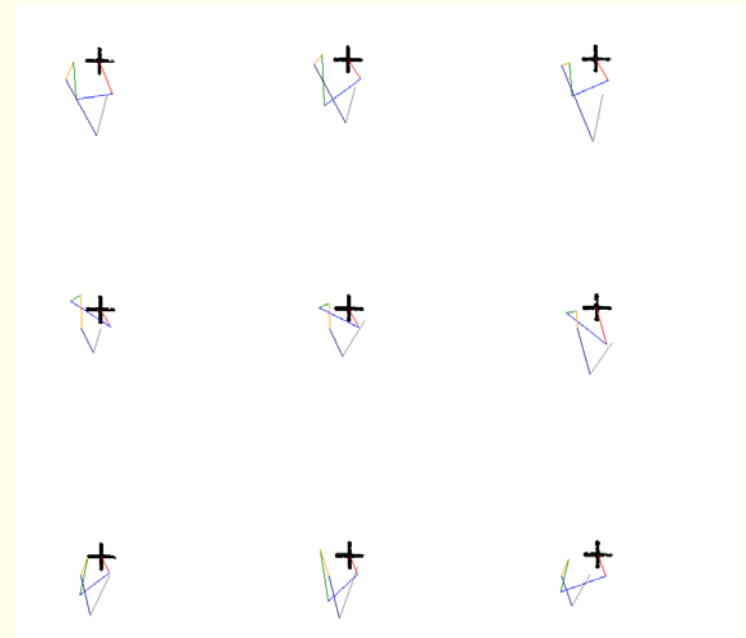
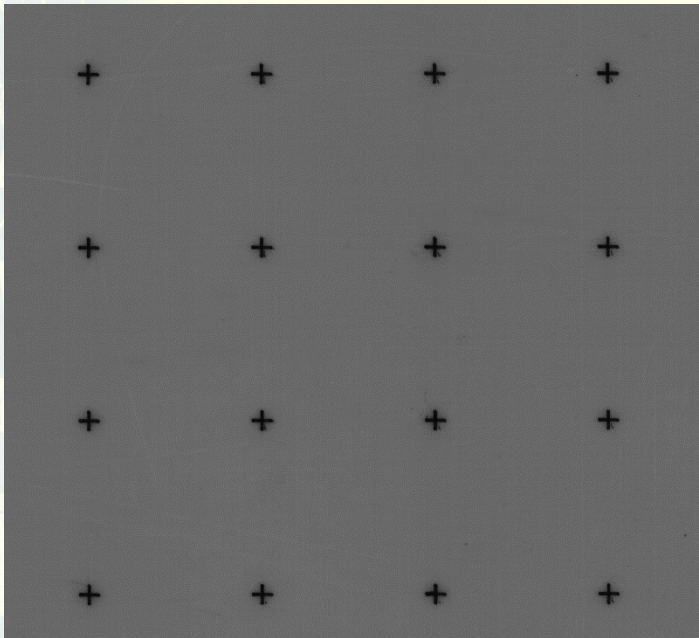
Maps and atlases – precise cartometric scanner (e.g. ScannTech 800i)

- format A0+,
- optical resolution **800 dpi**,
- color depth 24-bit, ICC profile,
- maximal deviation in positioning **0.2 mm**,
- **maintaining cartographic map properties**,



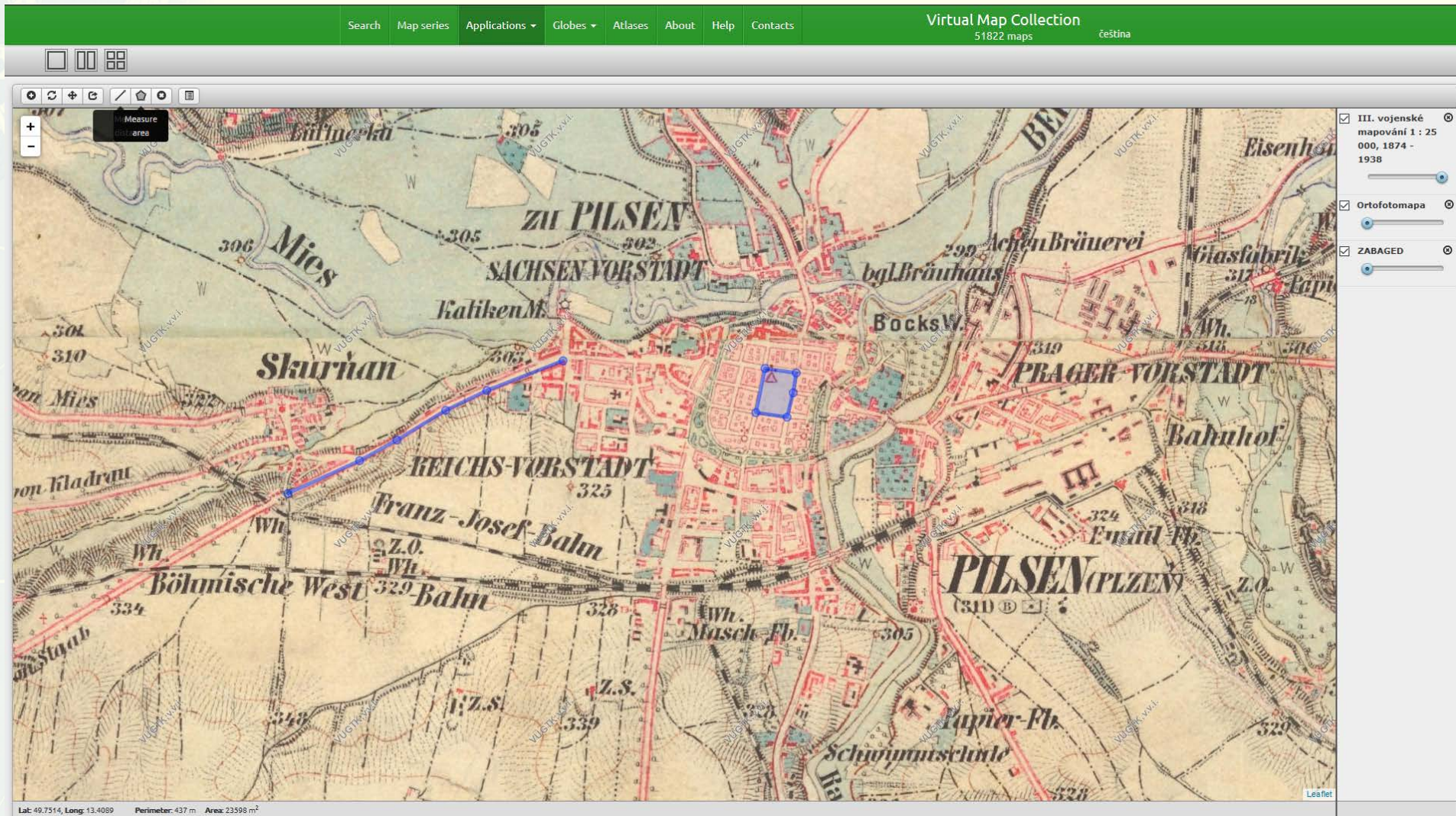
Accuracy Testing of Cartometric Scanners

- Testing by scanning of special template – rectangular grid of points with know real coordinates
- **Absolute Accuracy** - Differences between reproduction and original (Good accuracy is < 0.3 mm difference)
- **Relative Accuracy** - Differences between multiple reproductions of original (change of accuracy over time), detects sudden loss of accuracy (scanner defect)



Good practice for using of on-line available old maps

MapComparer - web application for comparing old maps, tools for measuring distances and areas, layering associated with opacity



Good practice for using of on-line available old maps

MapComparer - dividing the window into 2 or 4 sections, synchronization

Search Map series Applications ▾ Globes Atlases About Help Contacts Virtual Map Collection čeština

□ □ □

⌕ ↺ ⌕ ↻ ⌕ ↺ ⌕ ↻ ⌕ ↺ ⌕ ↻ ⌕ ↺ ⌕ ↻

Top Left Panel:

- Map: Pilsen area, showing historical features and labels like "ZU PILSEN", "SACHSEN VORSTADT", "PRAGER VORSTADT", "PILSEN (PLZEN)".
- Map series: III. vojenské mapování 1 : 25 000, 1874 - 1938
- Map series: III. vojenské mapování 1 : 75 000, 1935 - 1947
- Coordinates: Lat: 49.7463, Long: 13.3946

Top Right Panel:

- Map: Pilsen area, showing historical features and labels like "PILSEN", "Sachsen Vorstadt", "Prager Vorstadt".
- Coordinates: Lat: 49.746, Long: 13.3526

Bottom Left Panel:

- Map: Aerial view of Pilsen area, showing modern urban layout and the Elbe river.
- Coordinates: Lat: 49.7174, Long: 13.356

Bottom Right Panel:

- Map: Pilsen area, showing historical features and labels like "PILSEN", "Müllerova mapa", "Čech 1 : 132 000, 1720".
- Coordinates: Lat: 49.7544, Long: 13.373

Good practice for using of on-line available old maps

Map symbols - web application for automated search of map symbols on maps III. Military Survey

[Search](#) [Map series](#) [Applications ▾](#) [Globes ▾](#) [Atlases](#) [About](#) [Help](#) [Contacts](#)

Virtual Map Collection

51822 maps

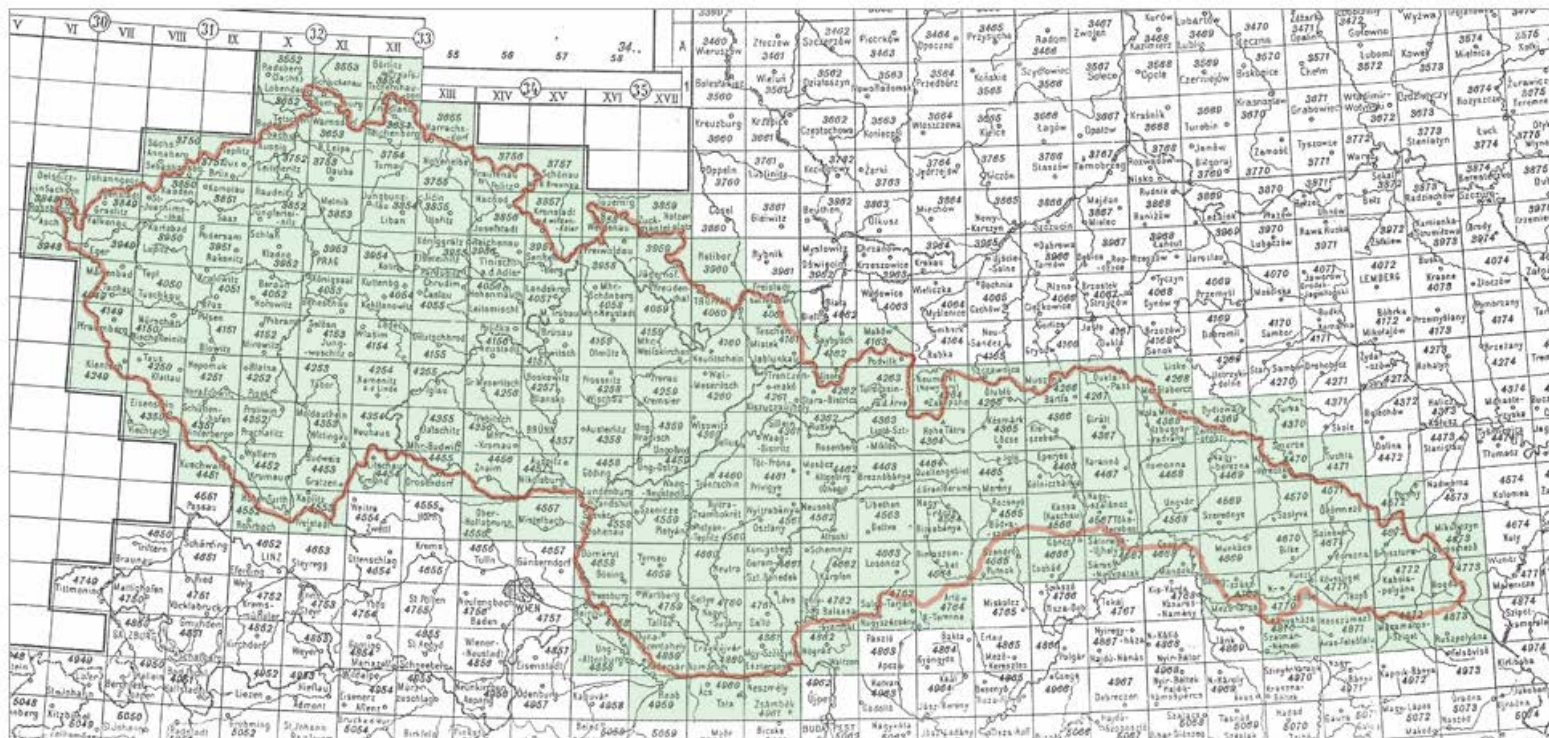
čeština

Map symbols of 3rd. Military Survey

3rd Military Survey 1 : 75 000 are one of the most important and attractive mapsets covering the territory of the Czech Republic. The importance if these maps lies in their rich set of map symbols, detailed coverage of the Czech Republic (and Slovakia) and long period of use.

This application show the positions of map sybols of 3rd Military Survey. These positions were found out by certified technology for map symbol detection on scanned images of maps from the collection of [The Institute of History, Academy of Sciences of the Czech Republic](#). The maps were scanned with 400DPI resolution.

The image below shows the map layout if 3rd Military survey, each sheet pointing to a detailed view showing the map symbol positions.



Good practice for using of on-line available old maps

Map symbols - web application for automated search of map symbols

Search

Map series

Applications ▾

Globes ▾

Atlases

About


Help

Contacts

Virtual Map Collection
51822 maps

čeština

3rd Military Survey III. - sheet nr. 4156



<input type="checkbox"/> Zámek	
<input type="checkbox"/> Studna	
<input type="checkbox"/> Hostinec	
<input type="checkbox"/> Zřícenina	
<input type="checkbox"/> Rozhledna	
<input type="checkbox"/> Kostel	
<input type="checkbox"/> Kaple	
<input type="checkbox"/> Synagoga	
<input type="checkbox"/> Socha	
<input type="checkbox"/> Kříž	
<input type="checkbox"/> Vápenka	
<input type="checkbox"/> Továrna	
<input type="checkbox"/> Vysoká pec	
<input type="checkbox"/> Mlýn	
<input type="checkbox"/> Pila	
<input type="checkbox"/> Větrný motor	
<input type="checkbox"/> Pramen	
<input type="checkbox"/> Minerální vody	
<input type="checkbox"/> Lázně	
<input type="checkbox"/> Trigonometrický bod	

Good practice for using of on-line available old maps

Map symbols - web application for automated search of map symbols

Search

Map series

Applications ▾

Globes ▾

Atlases

About

Help


Contacts

Virtual Map Collection

51822 maps

čeština

3rd Military Survey III. - sheet nr. 4156



☐ Zámek

☐ Studna

☐ Hostinec

☐ Zřícenina

☐ Rozhledna

☒ Kostel

☒ Kaple

☒ Synagoga

☒ Socha

☒ Kříž

☐ Vápenka

☐ Továrna

☐ Vysoká pec

☐ Mlýn

☐ Pila

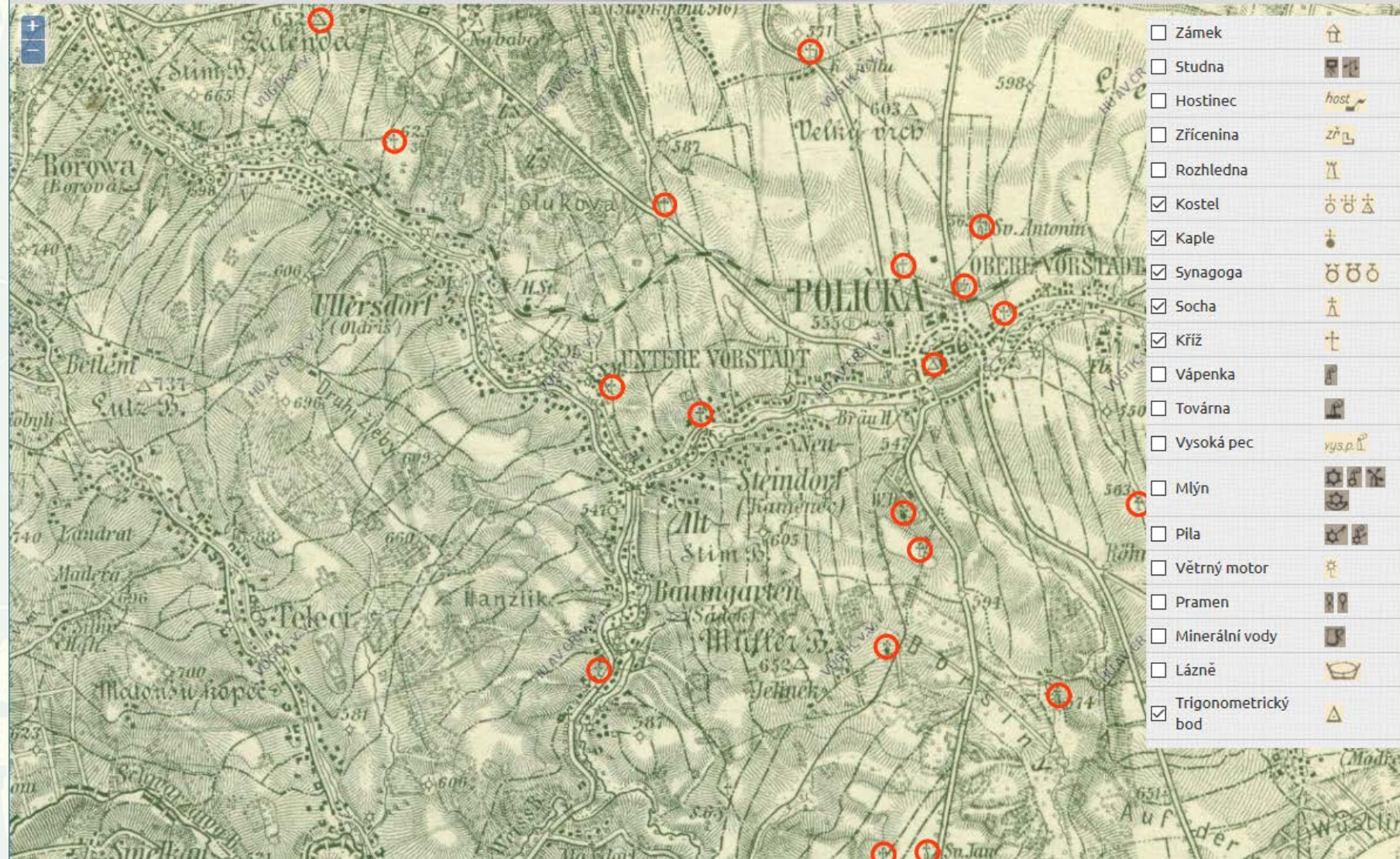
☐ Větrný motor

☐ Pramen

☐ Minerální vody

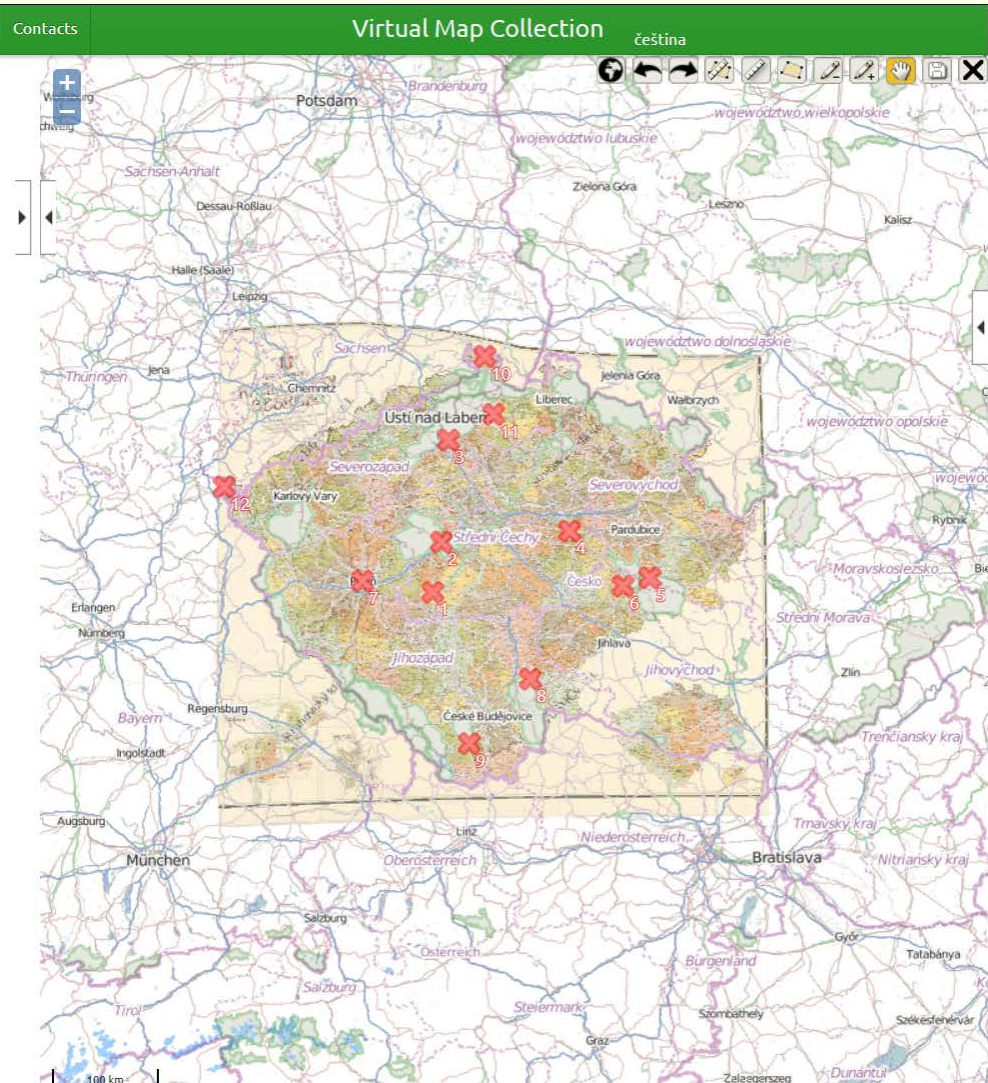
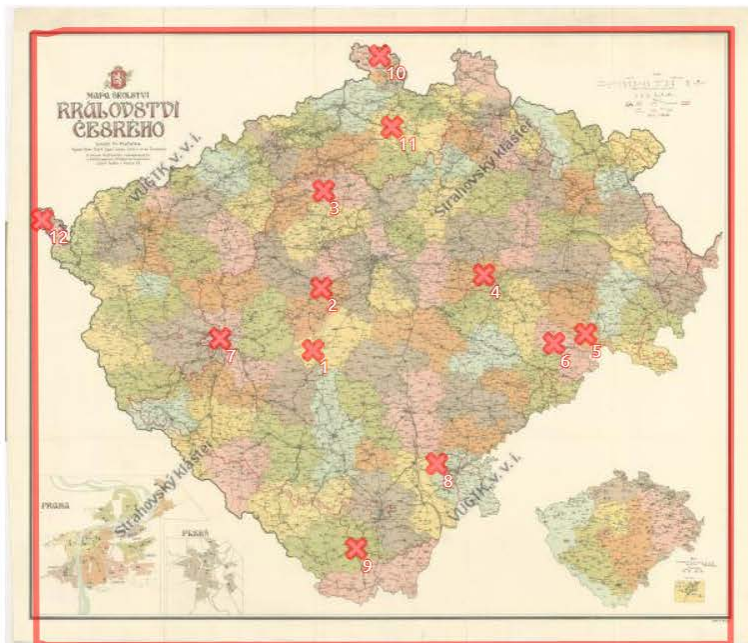
☐ Lázně

☒ Trigonometrický bod



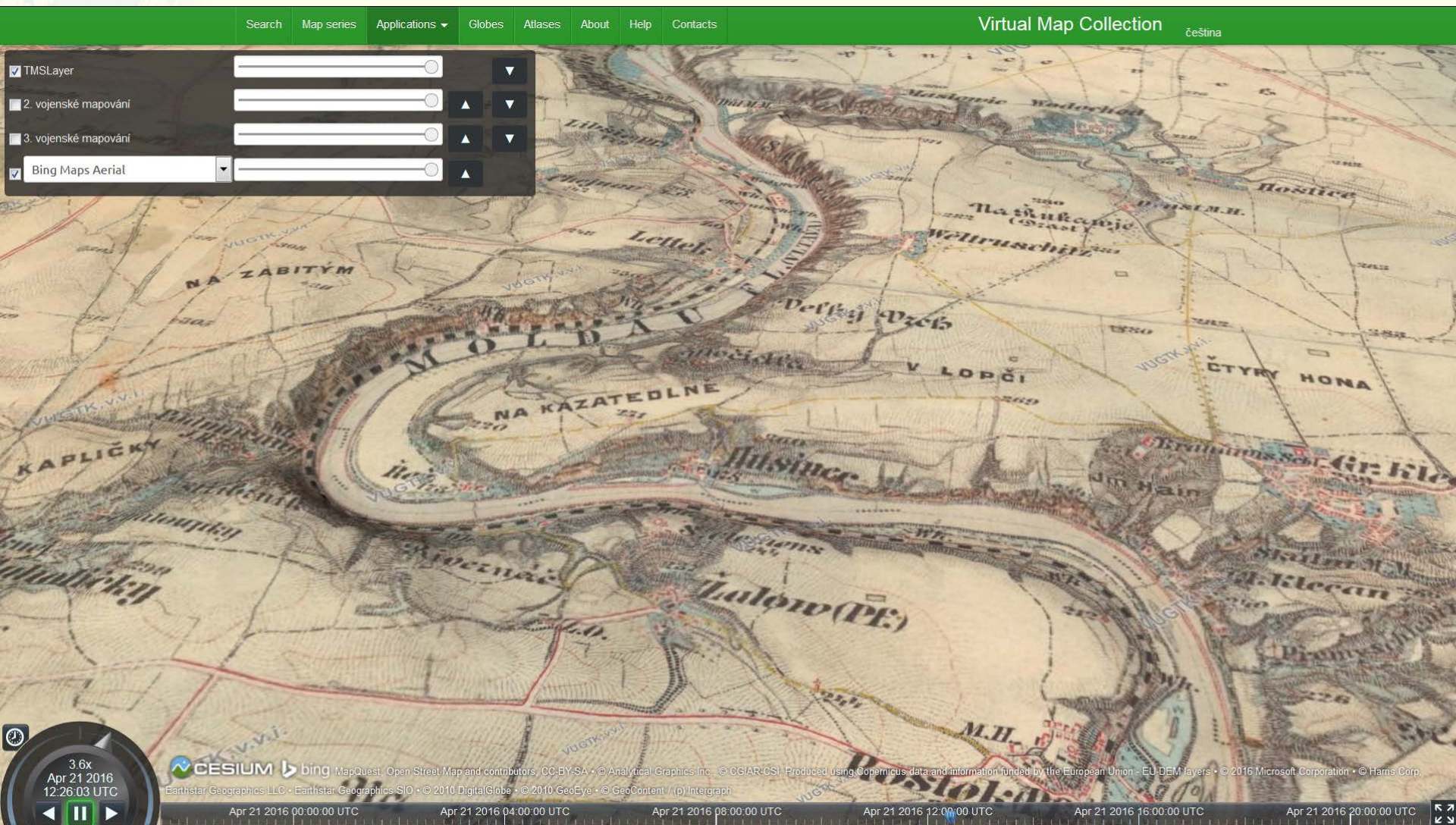
Good practice for using of on-line available old maps

Zoomify to WMS - web application for Georeferencing of your own maps accessible in Zoomify



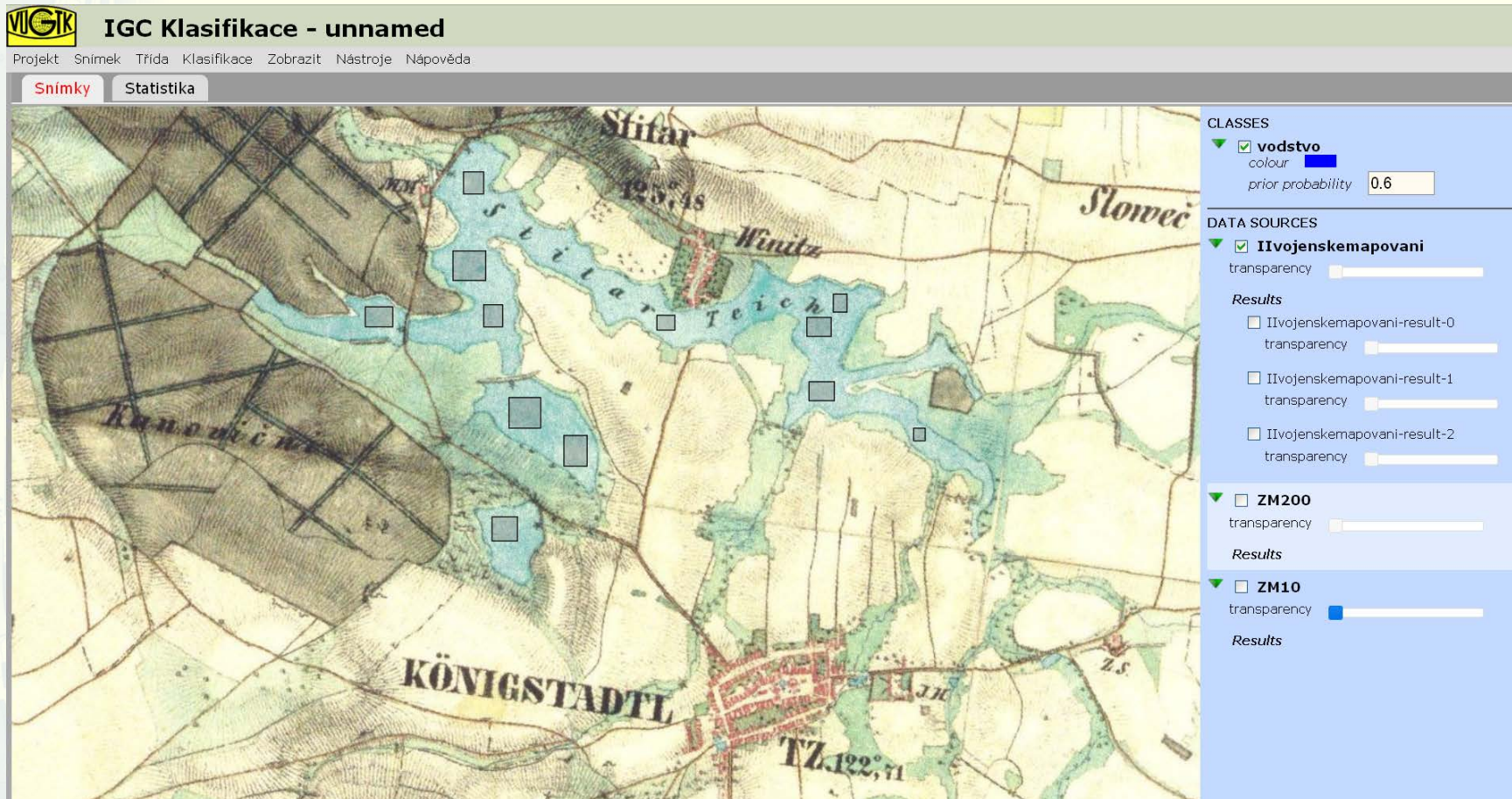
Good practice for using of on-line available old maps

display WMS or TMS in 3D view - web application for displaying of your own georeferenced old maps accessible in WMS or TMS on 3D terrain model



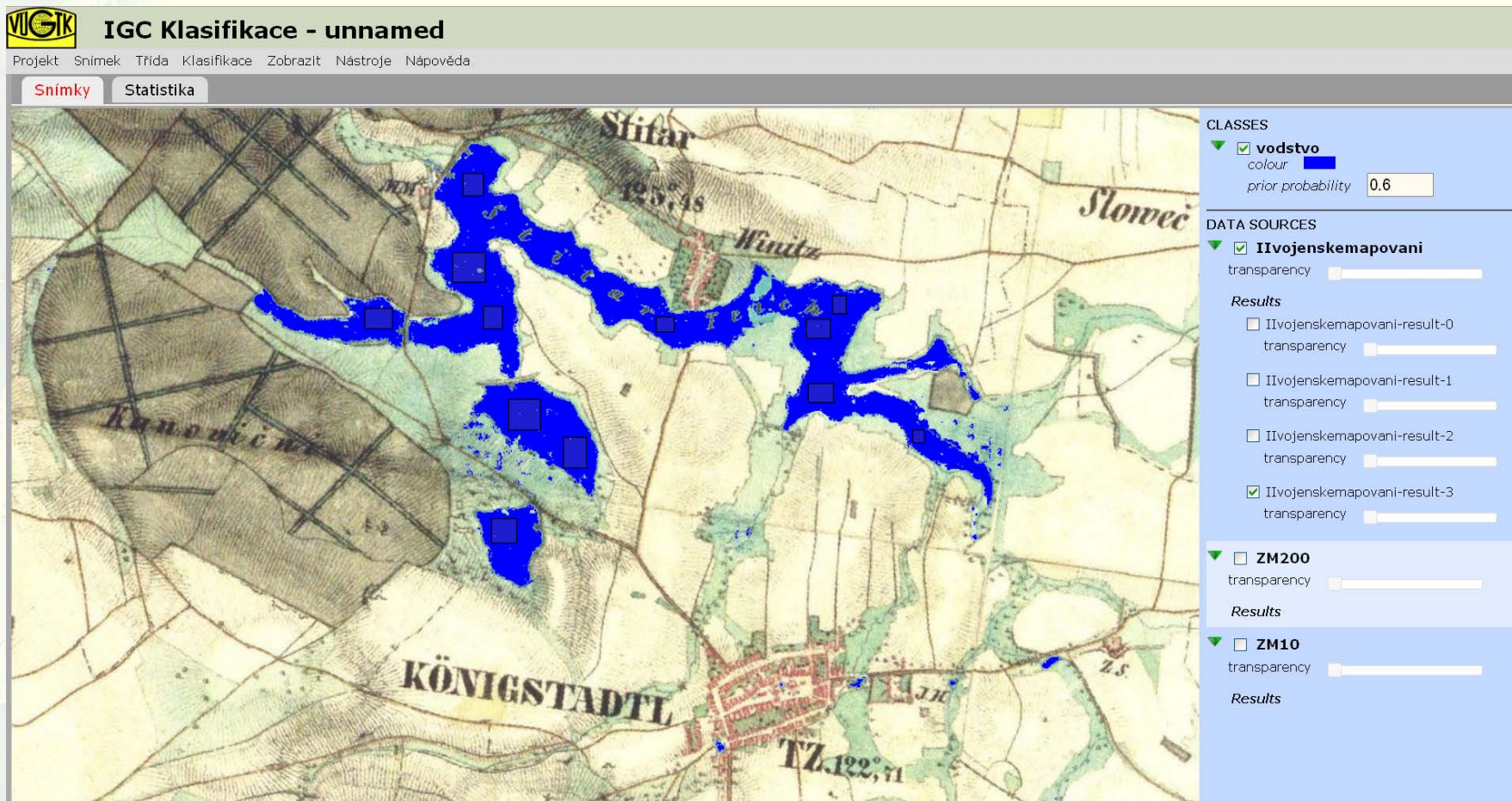
Good practice for using of on-line available old maps

Classification of digitised old maps - Practical example - Estimating the surface area of former lake Štítarský in the first half of 19th century from II. Military Survey maps



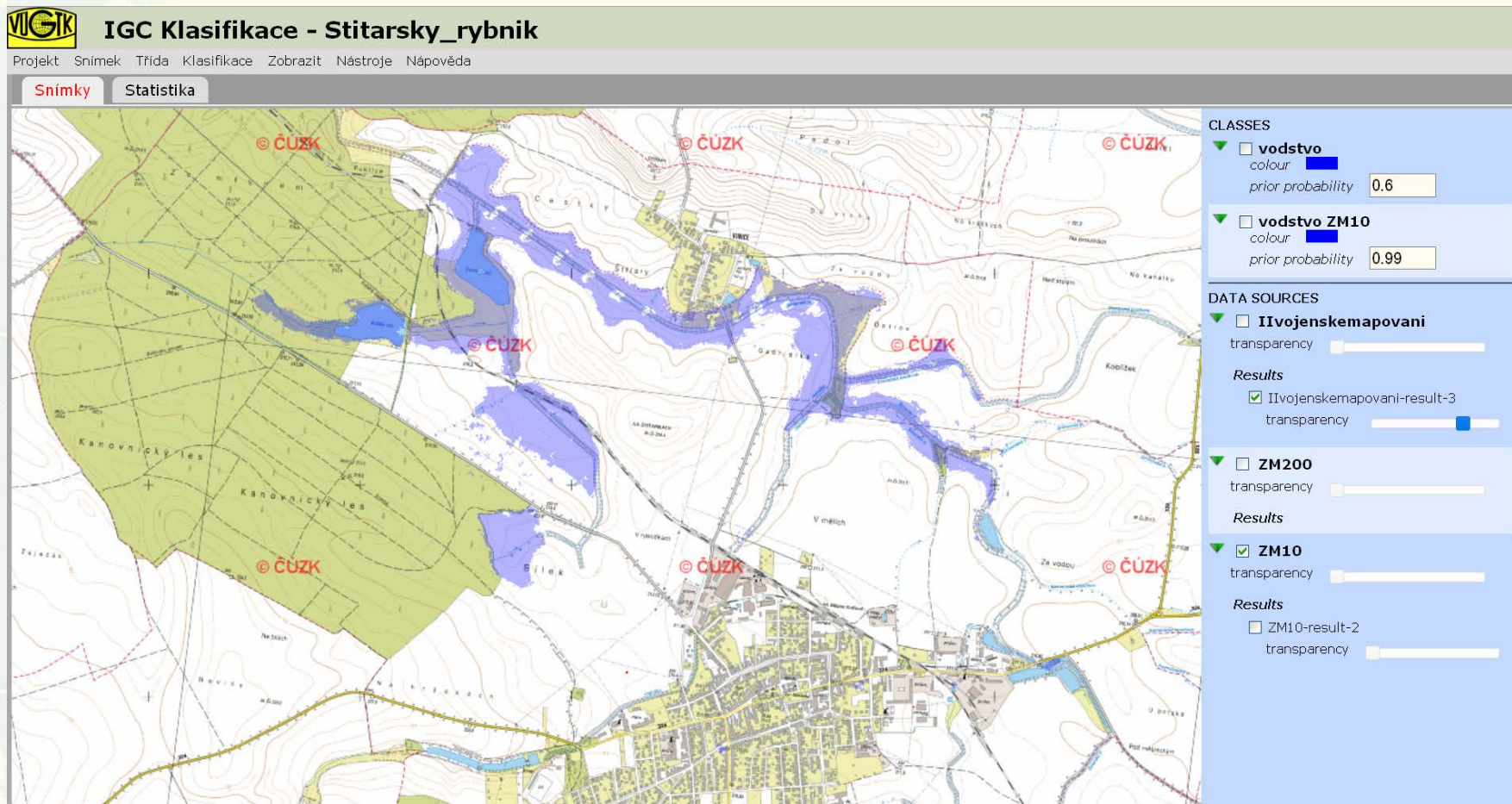
Good practice for using of on-line available old maps

Classification of digitised old maps - Practical example - Lake Štítarský,
result of classification with training areas selection



Good practice for using of on-line available old maps

Classification of digitised old maps - Practical example - Lake Štítarský, classification result displayed over contemporary map source



TALICH M., BÖHM O., SOUKUP L.: **Classification of digitized old maps and possibilities of its utilization.**
e-Perimtron, Volume 7, No. 3: 136-146, ISSN 1790-3769, http://www.e-perimtron.org/Vol_7_3/Talich_et_al.pdf

Conclusion

- **User are no longer satisfied only by simple digitization and on-line publication of old maps for viewing them.**
- **Users demands more, some added value, that would simplify the use of digitized old maps and allow to gain more information than from classic use of paper maps.**
- **The future life of old maps is to shift their understanding from nice pictures (artifacts) to an online service available.**

Thank you for your attention

chartae-antiquae.cz

Milan.Talich @vugtk.cz