



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

Chartae-Antiquae.cz – results of the project Cartographic sources as a cultural heritage

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Digital Approaches to Cartographic Heritage, Riga 20-22 April 2016

project „Cartographic sources as a cultural heritage“

- **Subtitle:** Research of the new methods and technologies of digitalisation to enable access and use of the old maps, plans, atlases and globes.
- 2011 – 2015
- Web of project: ***naki.vugtk.cz***
- Objectives:
 - to create an expert system of knowledge in the form of a web portal whose main component will be a set of on-line tools for digitalisation, processing, publicising and utilising of old maps, plans, atlases and globes.
 - an open on-line database of old cartographic works = Virtual Map Collection - Chartae-Antiquae.cz
 - system will also involve publicising of methodology and technological procedures which will be created in the course of the project.



Collaborating institutions



Národní knihovna
České republiky



Národní archiv



Česká republika
Státní oblastní archiv v Třeboni



Východočeské archivy



Moravský zemský archiv v Brně



Státní oblastní archiv v Plzni



SLOVENSKÁ TECHNICKÁ
UNIVERZITA V BRATISLAVE
STAVEBNÁ FAKULTA



LABORATOŘ
GEOINFORMATIKY
Univerzita J.E. Purkyně



SLOVENSKÁ AGENTÚRA
ŽIVOTNÉHO PROSTREDIA



Městská knihovna v Praze



**MUZEUM
V JAROMĚŘI**



**MUZEUM
BRNĚNSKA**

MĚSTSKÉ MUZEUM NOVÁ PAKA
ZALOŽENO V ROCE 1908



MĚSTSKÉ MUZEUM A GALERIE HOŘICE



Královská kanonie
premonstrátů na Strahově



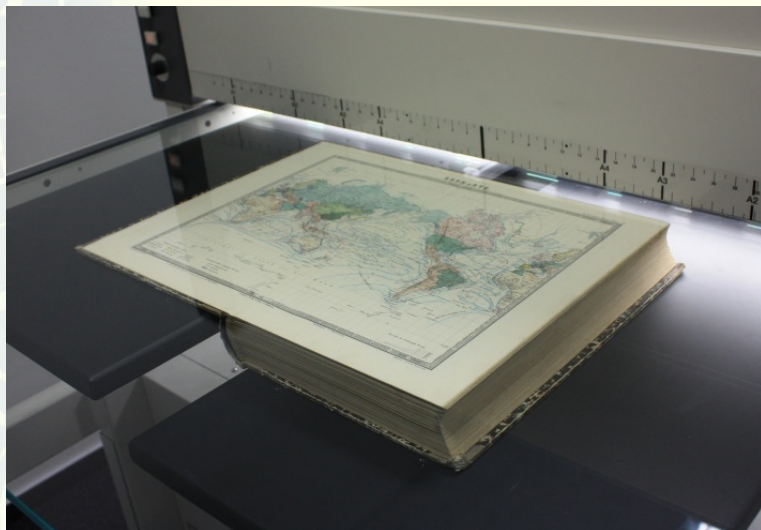
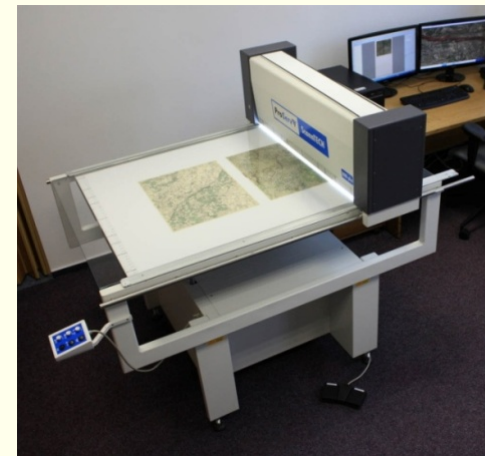
STŘEDOČESKÉ MUZEUM
V ROZTOKÁCH U PRAHY

- Klaudian Praha, s.r.o.
- Antikvariát Ptolomaeus
- Antikvariát - Praha.cz

Digitizing center of old cartographic products

Maps and atlases – precise cartometric scanner 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,



Digitization of old cartographic products

- mostly at 600dpi resolution, the more valuable maps and atlases at 800dpi
- 2 copies are archived in TIFF with LZW compression,
- metadata on digitized maps are stored in a database and used to search maps, import or enter via web form (name of the map, scale, year of publication, the definition of the displayed area (Bounding Box), author, Publisher, edition ...)
- technical metadata are added after digitizing (file name, date of digitizing, scanner type, resolution, color profile (ICC), checksum (hash) label media for archiving, ...)
- **Scanned over 70 000 old maps, and 107 atlases, for example:**
 - G. a J. Blaeu, Theatrum Orbis Terrarum Sive Novus Atlas, 1644 – 1646, 4 parts,
 - J. Blaeu, Atlas Maior Sive Cosmographia Blaviana, 1662, 11 parts
 - M. Martini, Novus Atlas Sinensis, 1655
 - J. D. Cassini, Map of the France, 1756 – 1815
 - B. D´Alb, Map of the Apennine peninsula, 1792 – 1798
 - P. Fabricius, Map of the Moravia, 1573
 - J. A. Komeský, Map of the Moravia, 1640



Virtual Map Collection - chartae-antiquae.cz

- It is now available to **50 025 map sheets** from various map collections in the Czech Republic,
- in some months approximately **70 000 map** = rich resource of old cartographic works,
- published in the maximum available resolution (**mostly 600dpi, often 800dpi**)
- **Zoomify**, watermarked
- **georeferenced** map are accessible by Web Map Service (**WMS, TMS**)
- **Web applications** to work with old maps: geographic search, Zoomify map viewer, MapComparer, 3D models of globes viewer, automated search of map symbols on maps III. Military Survey, viewer of the atlases, Zoomify to WMS, display WMS in 3D view
- **Users** = historians, cartographers, surveyors, landscapers, environmentalists, water managers, urban planners, architects, students, researchers, the general public, lovers of old maps, ...

Access to old maps on chartae-antiquae.cz

geographic search

[Search](#) [Map series](#) [MapComparer](#) [Globes](#) [About](#) [Terms of Use](#) [Help](#) [Contacts](#) **Virtual Map Collection**

Location: **Name:**

Publication date: **Scale:**

Order by:

Geometrický popis, mapa, p...
Publication date: **1835**
Scale: **1 : 2880**

Halb-Plan Karte des Gebirg...
Publication date: **1820**
Scale: **1 : 121000**

Hospodářská mapa polesí Bě...
Publication date: **1887 - 1897**
Scale: **1 : 5000**

Hospodářská mapa polesí Hr...
Publication date: **1885**
Scale: **1 : 5000**

www.chartae-antiquae.cz/maps/21137

Access to old maps on chartae-antiquae.cz

viewing maps - **Zoomify**

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Mapa města Hlinsko

+

-



Scale: 3626

Non-numeric scale: 10 böhmischen Landseilen

Edition: neuvedeno

Publication year: 1731

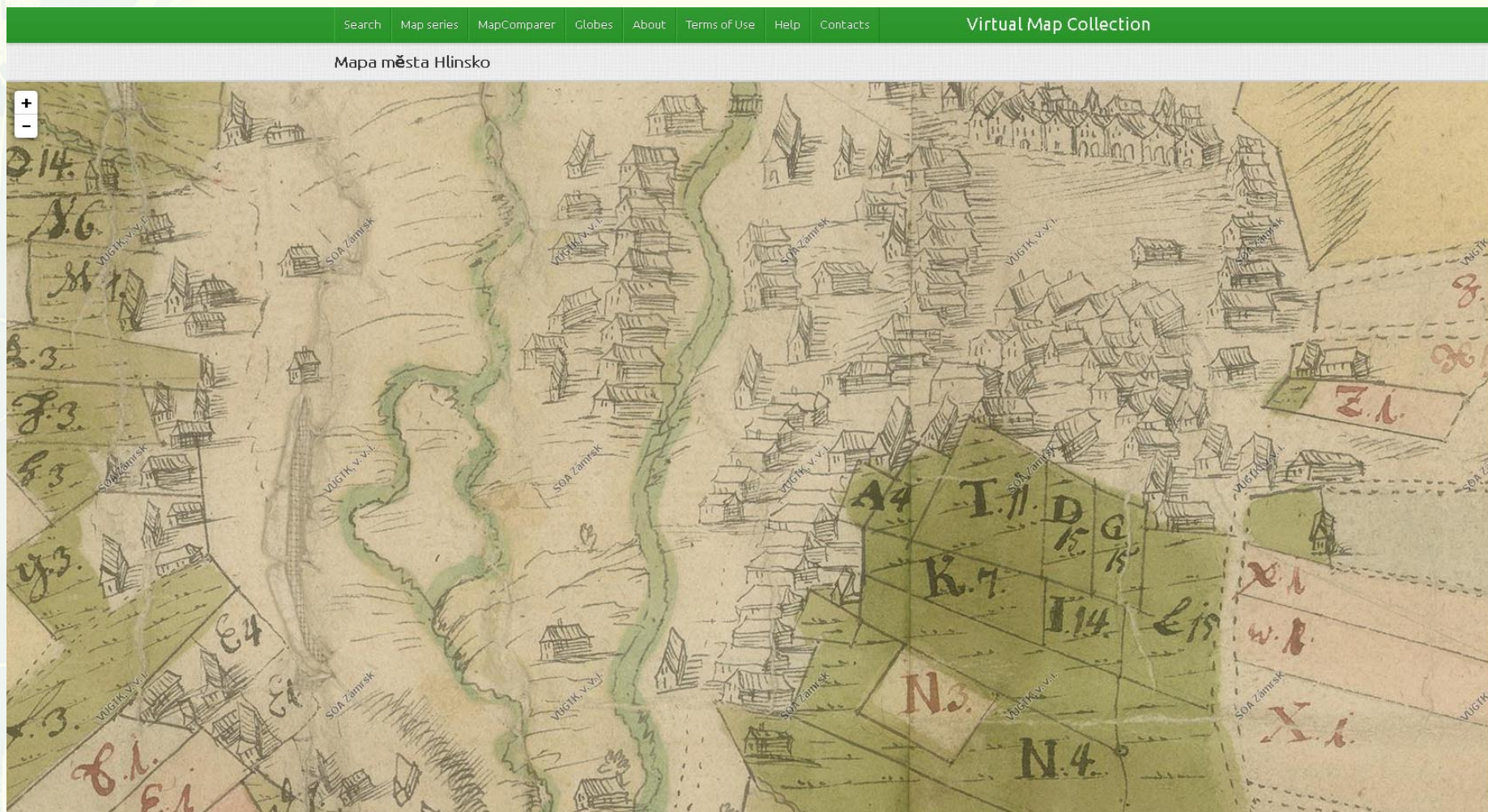
Author: Ing. František Xaver Preitsch

Owner: Státní oblastní archiv v Zámrsku

Annotation: Rukopisná kolorovaná mapa podlepená plátnem o rozměrech 124,5 x 143 cm. Mapa zobrazuje město Hlinsko. Jednotlivé pozemky jsou značeny literami nebo značkami, které odkazují na osedlé majitele pozemků (Phillip Wydt, Mathes Swanda, Crispin Tichey, Jacob Ludwik, Anna Nechutin, Fridrich Woda, Thomas Claudi, Lorentz Woldan, Thomas Tlaskal, Thomas Frdrich (sic!), Wentzl Wokal, Thomas Tlustey, Georg Mauska, Jacob und Georg Swoboda, Carl Woda, Wentzl Klubal, Georg Bohuslav, Thomas Pracharsch, Thomas Prochazka, Thomas Swirschina, Mathes Kosynsky, Johann und Mathes Woldan, Wentzl Wobrovsky, Anna Malínskin, Wentzl Woda, Johann Schwanda, Martin Sochol, Carl Woda starší, Thomas Bohuslaw, Jacob Tuma, Johann Schafranek, Thomas Schafranek mladší, Johann Severin, Johann Wobrausky, Stanislaus Wokal, Wentzl Flala, Thomas Gragor, Jacob Ludwik, Thomas Tlustey, Mathes Kosynsky, Wentzl Pantutschek, Carl Zach, Catharina Wokalin, Dorotea Tržewikošin, JOhann Tlaskal, Johann Tainka, Wentzl Byska, Wenzl Stepanoskey, Jacob Pantuschek, Mathes Prokop, Johann Ryschawy und Max Wobrausky, Mark Urbanides, Wentzl Dainku, Martin Kuamek, JOhann Akermann, Wentzl Tlaskal, Georg Ackermann, Johann Woldan, Caspar Fickel, Thomas Schaffranek, Mathes Borowitschka, Johann Bysko, farní pozemky, kostelní pozemky, obecní a pozemky kaple sv. Jana). Mapa rozlišuje druhy pozemků. V levé horní části růžice světových stran, v pravé horní tabulka s osedlými a názvem mapy. V pravém dolním rohu mapa pozemku ve Studnici, orámován v ozdobnou volutou. Mapa nese grafické měřítko. Autorem mapy je Ing. František Xaver Preitsch, v letech 1737-1765 zemský měřič. Digitalizaci provedl VUGTK v rámci projektu "Kartografické zdroje jako kulturní dědictví. Výzkum nových metodik a technologií digitalizace, zpřístupnění a využití starých map, plánů, atlasů a globů." Identifikační kód projektu: DF11P01OVV021

Access to old maps on chartae-antiquae.cz

Detail viewing maps - Zoomify



Access to old maps on chartae-antiquae.cz

Georeferenced maps in the form of web services

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



2 km

Map selection options:

- ☒ 3rd Military Survey 1 : 25 000
- ☐ Special maps of 3rd Military Survey
- ☒ Müller's Map of Bohemia
- ☐ Müller's Map of Moravia
- ☐ ZABAGED
- ☒ Základní mapa ČR
- ☐ Ortophoto
- ☐ 2nd Military Survey 1 : 28 800

11

Georeferencing of the Third Military Survey of Austria-Hungary

Overlap with a contemporary map
– after standard georeferencing



Discrepancy about **5 mm** in a map sheet

Overlap with a contemporary map
– after elastic georeferencing



Discrepancy about **0.36 mm** in a map sheet

TALICH M., SOUKUP L., HAVRLANT J., AMBROŽOVÁ K., BÖHM O., ANTOŠ F.: **Georeferencing of the Third Military Survey of Austrian Monarchy.** In: [Proceedings of the 26th International Cartographic Conference](#), Dresden, Germany, 25–30 August 2013, str. 898-899, International Cartographic Association, ISBN 78-1-907075-06-3

SOUKUP L., HAVRLANT J., BÖHM O., TALICH M.: **Elastic Conformal Transformation of Digital Images.** In: FIG Working Week 2012 – Territory, environment, and cultural heritage, Rome, Italy, 6-10 May 2012, str. 10, ISBN 97887-90907-98-3

Access to old atlases on chartae-antiquae.cz

Viewer of the atlases

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Virtual Map Collection čeština

de Wit, 1630 - 1706

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Leaflet

Access to old globes on chartae-antiquae.cz

Viewer of the 3D and 2D models of globes

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Celestial, Blaeu, 1603
[3D model](#), [2D map](#)
Publication year, author: 1603, Willem Janszoon Blaeu
Dimensions: diameter: 34.0 cm
Collection: Národní technické muzeum, inv. č. 25482
[Description](#)



Celestial, Blaeu, 1603
[3D model](#), [2D map](#)
Publication year, author: 1603, Willem Janszoon Blaeu
Dimensions: diameter: 34.0 cm
Collection: Královská kanonie premonstrátů na Strahově, inv. č. GLB4
[Description](#)



Celestial, Harbrecht, 1621
[3D model](#), [2D map](#)
Publication year, author: 1621, Isaac Habrecht II
Dimensions: diameter: 20.5 cm, height: 20.5 cm
Collection: Národní technické muzeum, inv. č. 24857
[Description](#)



Terrestrial, Blaeu, 1630
[3D model](#), [2D map](#)
Publication year, author: 1630, Guilielmus Blaeu
Dimensions: diameter: 67.0 cm
Collection: Královská kanonie premonstrátů na Strahově, inv. č. GLB3
[Description](#)



Participating institutions

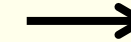
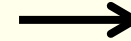
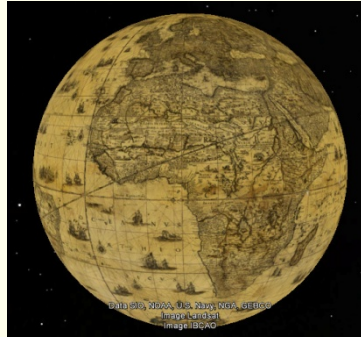
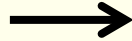
- SOA in Třeboň
- National Library of the Czech Republic
- Muzeum Brněnska
- SOA Plzeň
- Laboratory of Geoinformatics, FŽP UJEP
- National Archive
- SOA Zámorsk
- National Technical Museum
- City Museum in Jaroměř
- Municipal Library of Prague
- City Museum in Hořice
- Royal Canonry of Premonstratensians at Strahov
- SOA Litoměřice
- Vlastivědné muzeum v Olomouci
- Slovak University of Technology in Bratislava
- Kludian Praha, s.r.o.
- Slovak Environmental Agency
- Olomouc Archbishopric
- Archdiocesan Museum in Kroměříž
- Ptolomaeus Antiquarian Bookshop
- Antiquarian Bookshop Praha Dejvice
- Municipal Museum Nová Paka

Other projects

So far digitized about 120 globes, 104 globes exposed on the web

Access to old globes on chartae-antiquae.cz

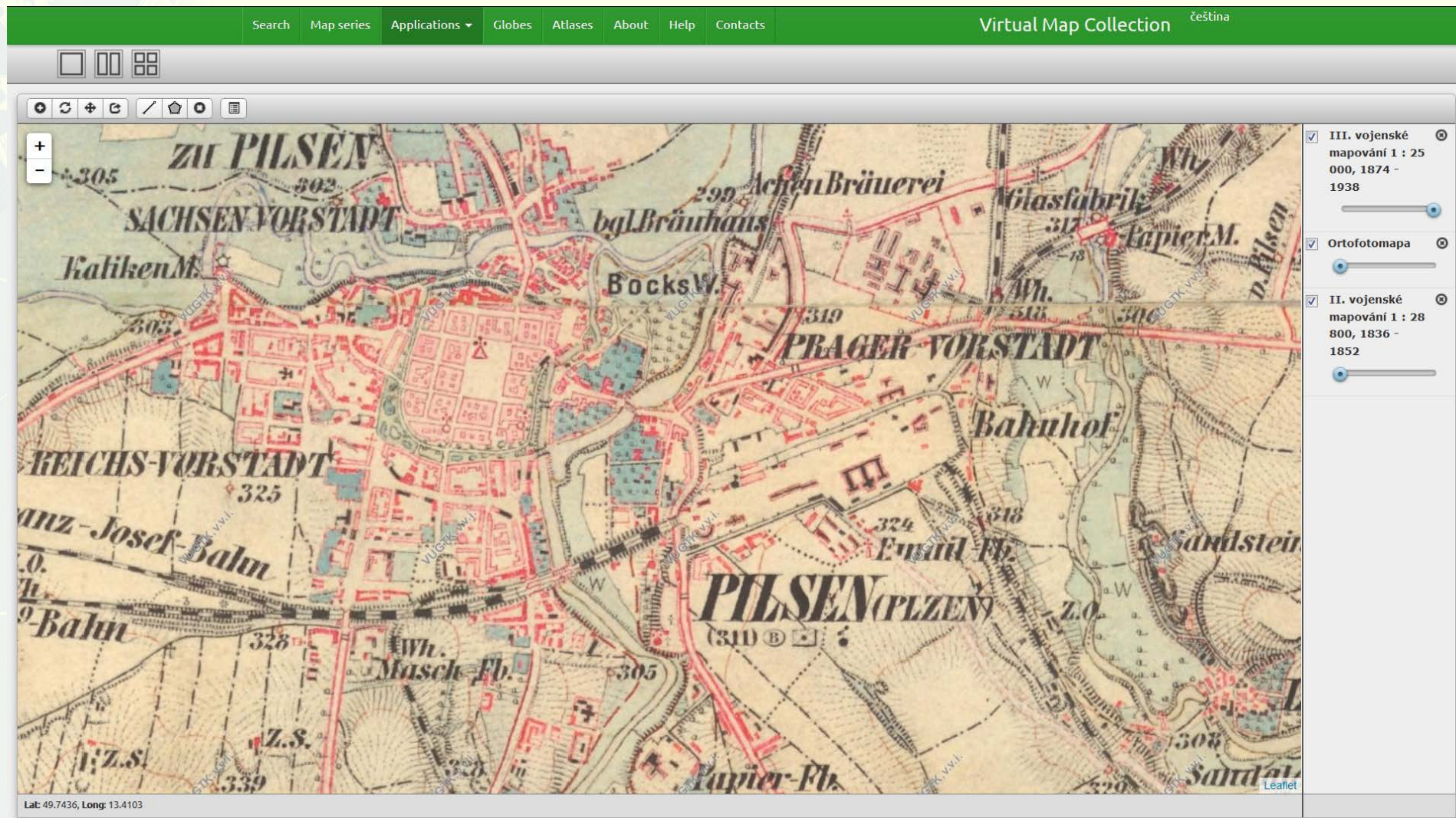
Method of digitization of the globes



TALICH M., AMBROŽOVÁ K., HAVRLANT J., BÖHM O.: [Digitization of Old Globes by a Photogrammetric Method.](#) Lecture Notes in Geoinformation and Cartography 2015. Cartography - Maps Connecting the World. 27th International Cartographic Conference 2015 - ICC2015. Editors: Claudia Robbi Sluter, Carla Bernadete Madureira Cruz, Paulo Márcio Leal de Menezes. pp 249-263, 2015, DOI 10.1007/978-3-319-17738-0_17, ISBN: 978-3-319-17737-3, ISSN 1863-2246

Web applications on chartae-antiquae.cz

MapComparer - web application for comparing old maps



Web applications on chartae-antiquae.cz

MapComparer - web application for comparing old maps

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□ □ □

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Top Left Map: III. vojenské mapování 1 : 25 000, 1874 - 1938
III. vojenské mapování 1 : 75 000, 1935 - 1947
Lat: 49.7463, Long: 13.3946

Top Right Map: Lat: 49.746, Long: 13.3526

Bottom Left Map: Lat: 49.7174, Long: 13.356

Bottom Right Map: Müllerova mapa Čech 1 : 132 000, 1720
Lat: 49.7544, Long: 13.373

Web applications on chartae-antiquae.cz

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

Vyhledávání

Mapové sady

MapComparer

Glóby

Map. značky

O projektu

Nápověda

Kontakty

Virtualní mapová sbírka

english

III. vojenské mapování - list č. 4153



Web applications on chartae-antiquae.cz

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

[Vyhledávání](#) [Mapové sady](#) [MapComparer](#) [Glóby](#) [Map. značky](#) [O projektu](#) [Nápověda](#) [Kontakty](#) [Virtualní mapová sbírka](#) [english](#)

III. vojenské mapování - list č. 4153

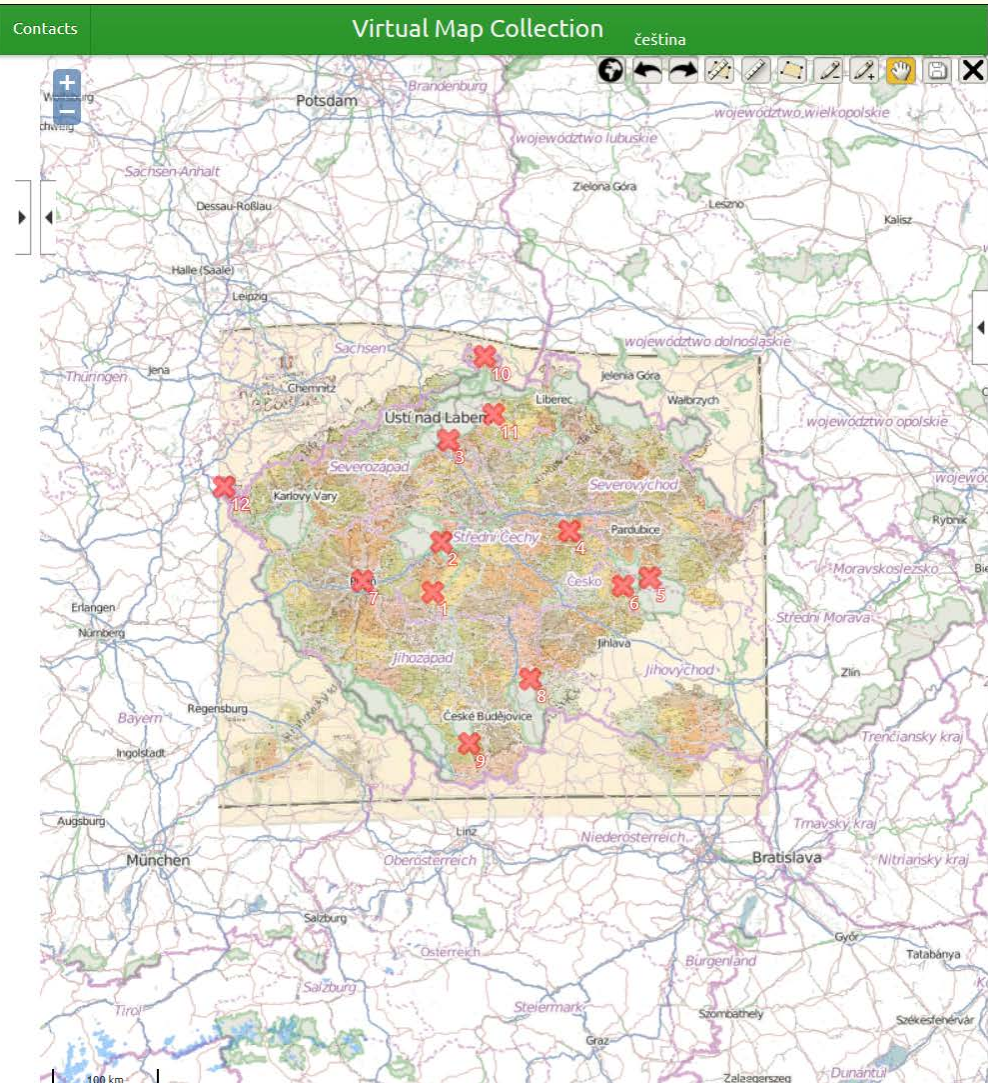
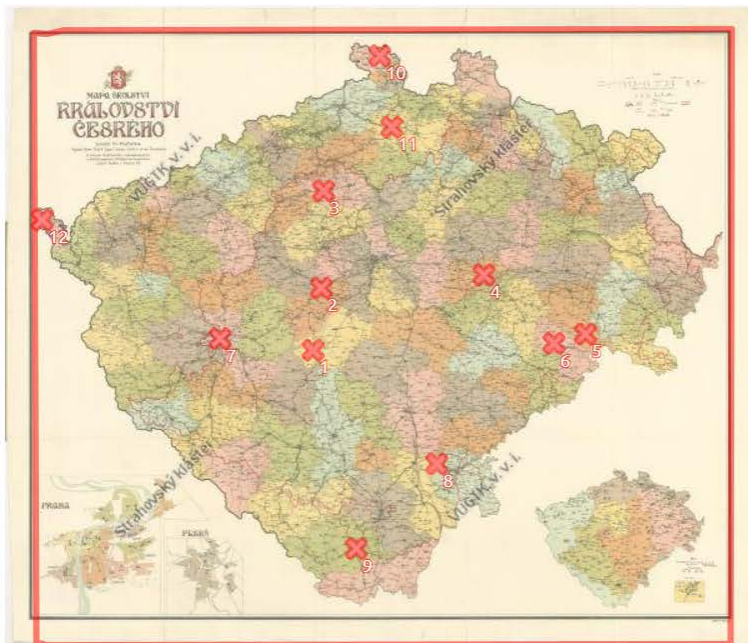


A detailed historical military map from the III. vojenské mapování (III. Military Survey) series, specifically list number 4153. The map shows a region with several towns and villages, including Mesetitz, PRCTZ, SEDLETZ, Wiska, Rohov, and others. Red circles are drawn around various features on the map, likely indicating the locations of specific map symbols. The map is oriented with North at the top.

☒	Zámek	
☒	Studna	
☒	Hostinec	
☒	Zřícenina	
☒	Rozhledna	
☒	Kostel	
☒	Kaple	
☒	Synagoga	
☒	Socha	
☒	Kříž	
☒	Vápenka	
☒	Továrna	
☒	Vysoká pec	
☒	Mlýn	
☒	Pila	
☒	Větrný motor	
☒	Pramen	
☒	Minerální vody	
☒	Lázně	
☒	Trigonometrický bod	

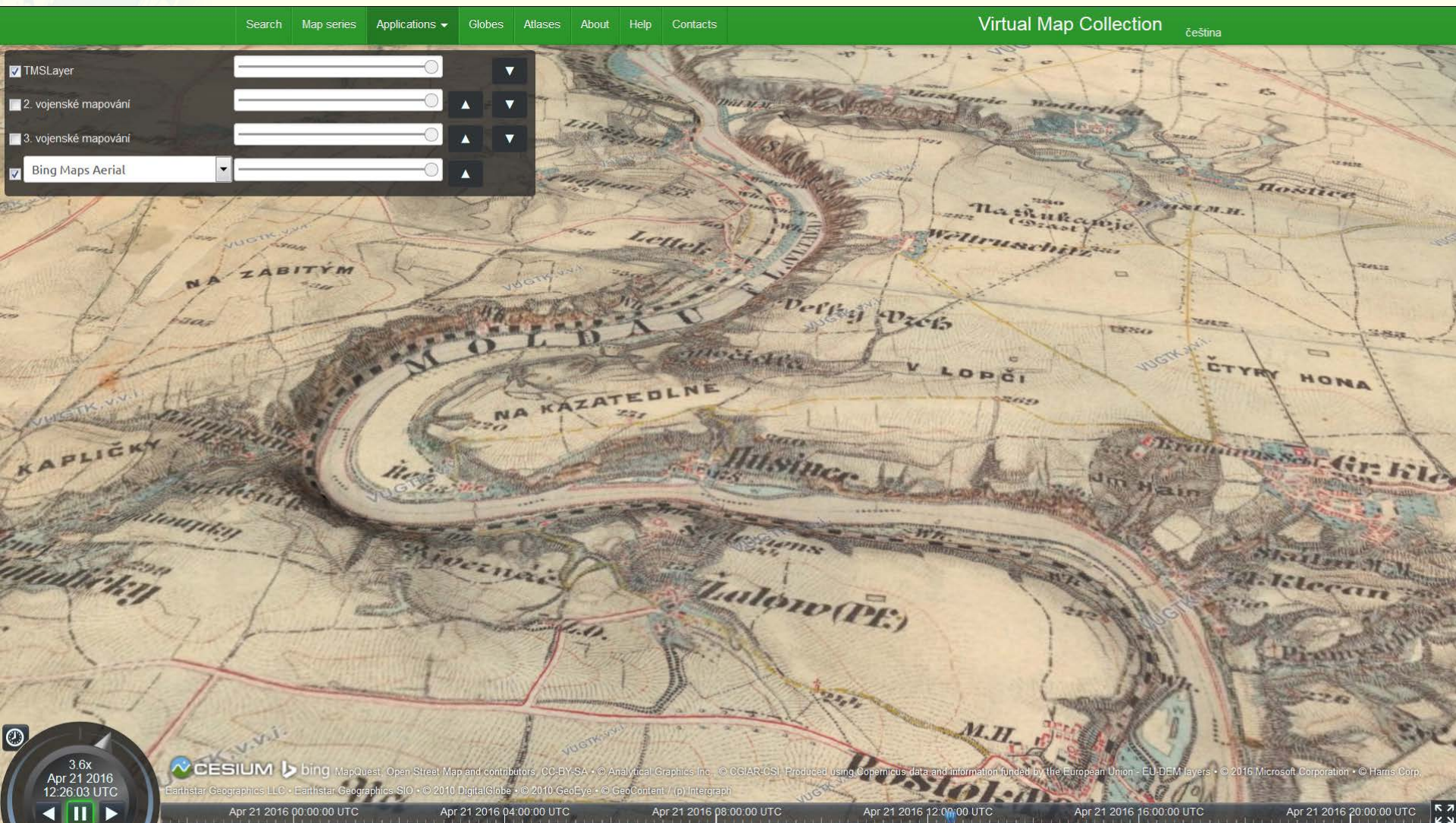
Web applications on chartae-antiquae.cz

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



Web applications on chartae-antiquae.cz

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



Thank you for your attention

chartae-antiquae.cz

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„Cartographic sources as a cultural heritage. Research of new methods and technologies of digitization to enable access and use of old maps, plans, atlases and globes.“

under the auspices of the Program for applied research and development of national and cultural identity (NAKI) of Ministry of Culture of the Czech Republic.