In the year of 2007 a new digitizing center was founded in the Research Institute of Geodesy, Topography and Cartography (VÚGTK). This center is a part of Brno Information Center (DJB) which also operates the Surveying library. In this library are stored some old and valuable publications from the field of geodesy and cartography.

But in this center we mainly focus on old and valuable maps, plans and map atlases and we deal with the whole process of accessing old maps via internet – digitizing, adjusting digital images, georeferencing and pre-processing images for online publishing on internet. In the field of old maps we cooperate with Institute of History of Academics of Sciences of the Czech Republic and with Survey Office in Prague.

Before publishing via Zoomify application, the acquired raw scans need to be cropped and watermarked. Zoomify is a commercial tool that is used both for image processing (to prepare large format images for online publication) and for displaying images in web pages while allowing to zoom and pan the images. We use this tool for publishing individual maps or individual map sheets with map information in the case of a map sets.

Fig. 1 - New digitizing centre of VÚGTK

Fig. 2 - Samples of maps digitized in our digitizing center

Fig. 3 - Map atlas in scanner candle and scanner accuracy evaluation

Fig. 4 - Important part of the digitizing center is large flat bed scanner Trias Vidar

Fig. 5 - Map sheets in scanner candle and scanner accuracy evaluation

Technical equipment...

Because we want to digitize mainly old maps, map plans and map atlases in our centre, we looked for a suitable type of scanner which would fulfill following demands:

- cartometric accuracy of scanner
- digital artwork up to format A0
- book digitising possibility (map atlases)
- maximum artwork formats is A0+ (914 x 1300 mm)
- maximum thickness of artwork which can be up to 15 mm, so books, atlases and maps on thick paper and even on canvas can be digitized by this type of scanner.

Large format scanner Our large Trias Vidar...large format scanner Our large format scanner Trias Vidar...

Technical equipment...

Because we want to digitize mainly old maps, map plans and map atlases in our centre, we looked for a suitable type of scanner which would fulfill following demands:

- cartometric accuracy of scanner
- digital artwork up to format A0
- book digitising possibility (map atlases)
- maximum artwork formats is A0+ (914 x 1300 mm)
- maximum thickness of artwork which can be up to 15 mm, so books, atlases and maps on thick paper and even on canvas can be digitized by this type of scanner.

Large format scanner

The only type of scanner which in our opinion is the most suitable for digitizing of old and valuable maps, damaged documents and maps taped by thick paper is a large flat bed scanner. In this type the map is placed on scanner desk which presses it to a scan glass and over a glass we have a camera. Then we can transport the scanned map. A large format scanner digitizes whole artwork up to format A0.

The scanner can be equipped with 60 sheets and large atlases (up to A0 format) can be safely and efficiently digitized.

About us...

Cooperate with us...

In our digitizing centre we processed following map sets – Müller's map of Bohemia (1720) and Moravia (1716), special maps of the 3rd Military Survey and a sample of the first release of national map series called Derived State Map - 1 : 5 000 (DSM1). Ortophotomaps, cadastral maps and old military maps from different servers are connected to our additional map layers and together with our own map layers make our web application well suited for analyzing old maps in old maps and for comparing old maps with the present state. Results of our work with old maps of the Czech Republic can be seen on our Map portal http://mapy.vugtk.cz

Fig. 6 - Special maps published via Zoomify -

Before publishing via Zoomify application, the acquired raw scans need to be cropped and watermarked. Zoomify is a commercial tool that is used both for image processing (to prepare large format images for online publication) and for displaying images in web pages while allowing to zoom and pan the images. We use this tool for publishing individual maps or individual map sheets with map information in the case of a map sets.

Fig. 7 - Our javascript based client for exploration of maps published by Zoomify application with two map composition by transparency

Zoomify

Final processing steps of acquired maps are map digitizing and publishing of digital images for online publication. Also in the process we prepared the maps with metadata. These metadata are use in our own application. In this way we are able to digitize the maps digitally, georeference them and provide a powerful tool for comparing old maps with new ones.

Projects we have done:

- Digitizing and publishing of Müller's map of Bohemia, Moravia and regions
- Digitizing and publishing of special maps of the third military survey
- Digitizing and publishing of plans of Prague city
- Digitizing and publishing of national maps between years 1790 - 1845

Projects in progress:

- Publishing of the third military survey maps 1 : 25 000
- Digitizing and publishing of the first release of Derived state maps 1 : 5 000

In our years long project funded by Ministry of Culture we want to improve methods for digitizing of all old cartographic products (maps, city plans, map atlases, globes) and we want to develop new software tools for adjusting digital images, georeferencing and preprocessing images for online publishing. In the end of the projects there will be books not only for viewing but also for changes analyzing on maps of different release and tools for 3D countryside reconstruction.

Maps publishing...

Projects in process:

- Publishing of the third military survey maps 1 : 25 000
- Digitizing and publishing of the first release of Derived state maps 1 : 5 000

In our years long project funded by Ministry of Culture we want to improve methods for digitizing of all old cartographic products (maps, city plans, map atlases, globes) and we want to develop new software tools for adjusting digital images, georeferencing and preprocessing images for online publishing. In the end of the projects there will be books not only for viewing but also for changes analyzing on maps of different release and tools for 3D countryside reconstruction.

Maps publishing...

Digital copies of maps we further process and continuously publish on our web server portal http://mapy.vugtk.cz.

The majority of these maps are comprised of old maps of the area of today Czech Republic. All published maps and maps sets are provided with brief description. More detailed description about map origins, content and purpose are given in accompanying text. Our goal is to make maps we scan stored in archive and map collections accessible for a wider group of general and experts.

The maps can be viewed in the digital web browser either via a flash application called Zoomify or in a javascript-based application utilizing a Mapserver backend. The maps displayed here come mainly from a map collection of The Institute of History, Academy of Sciences of the Czech Republic.

We cooperate with this institute on digitization and web publication of their map collections.

Cooperate with us...

We are open to any cooperation in a field of cartographic products digitizing and publishing. If you have any questions, or hesitate to contact us, we are looking forward to you!