

The possible use of free on-line tools for digitizing old relief models



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Introduction

Relief models

- Usually hand-made or produced in small series
- Vulnerable objects – digital archiving is very important
- Special digitising tools – expensive

Our aim is to find a method based on freely available technology

Introduction

Types

- The s

- The s
techno

- Both
photos



25th ICC/ Pre-Conference Tutorial

3D DIGITIZATION IN CARTOGRAPHIC HERITAGE

Scanning historical globes and deformed maps

Paris, 2 July 2011

BnF Bibliothèque nationale de France - Tolbiac.

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Photographing



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The Hypr3D web site

Uploading images

Queue

Camera positions

Point cloud

Mesh

Texturing

Generating models

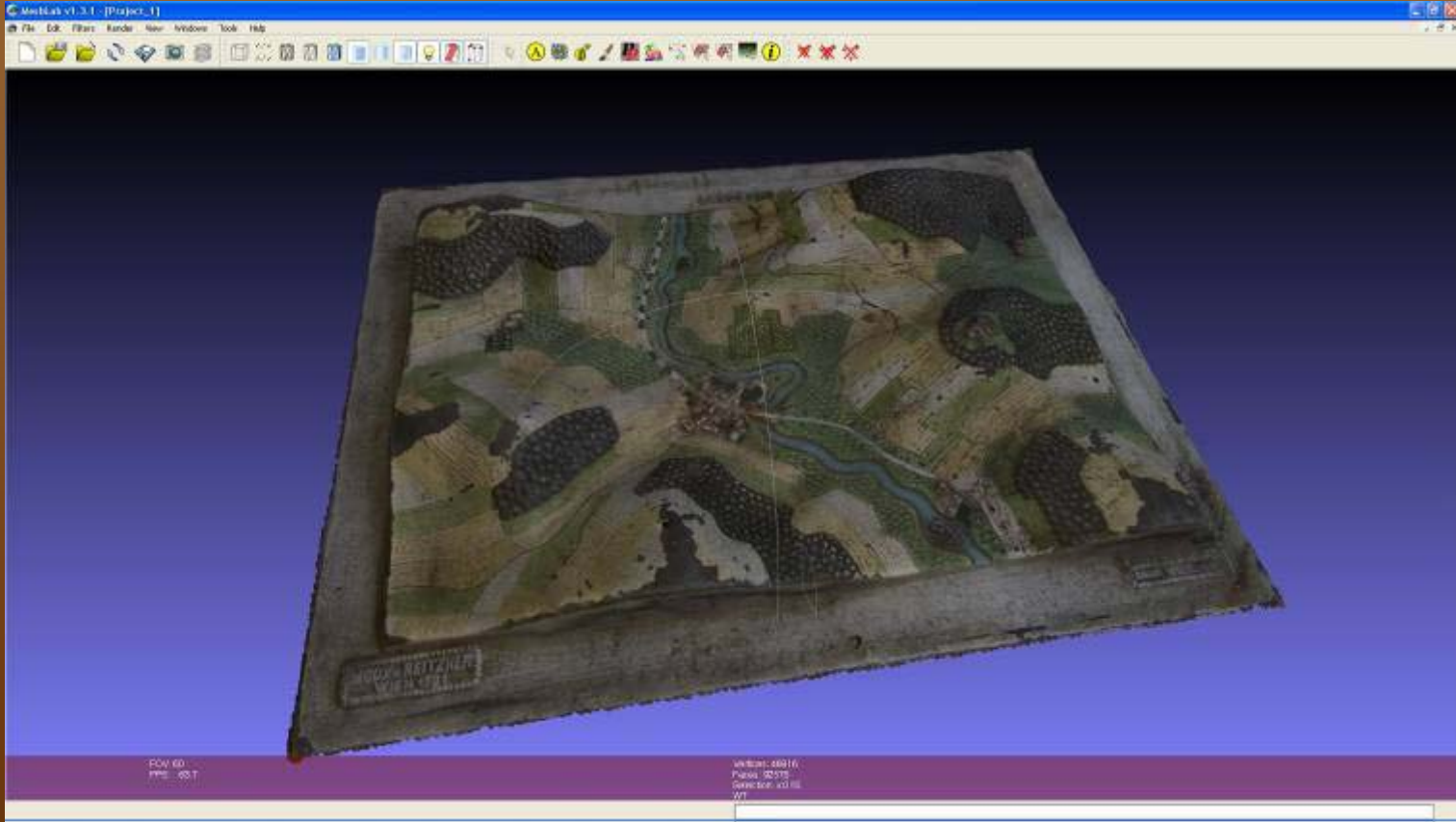
Complete

The screenshot shows the Hypr3D website interface. The main content area displays a 3D model of an educational relief map, which is a square map with a textured surface, mounted on a wooden base. The model is shown in a perspective view. To the left of the model are several icons for camera control: a cube, a sphere, a point cloud, and a mesh. A 'Feedback' button is visible on the left side of the model. The top of the page features the title 'Educational relief model', the submitter's name 'Submitted by Matyas Uede', the date 'April 14, 2012', and the number of views '5 views'. There are social media icons for Facebook, Twitter, and YouTube, and a '3D Print This' button. The right side of the page contains a 'DESCRIPTION' section with the text 'Educational relief model from the 19th century', an 'INFORMATION' section with statistics: 'Hype Factor: 100.0', 'Images Uploaded: 8 out of 8', 'Images Used: 8', 'Total Points: 168,509', and 'Texture Pixels: 45,171,841', and a 'DOWNLOADS' section with a green plus icon. Below these sections is an 'IMAGES' section showing a grid of thumbnail images of the model from different angles. The bottom of the page shows a 'Comments (0)' section.

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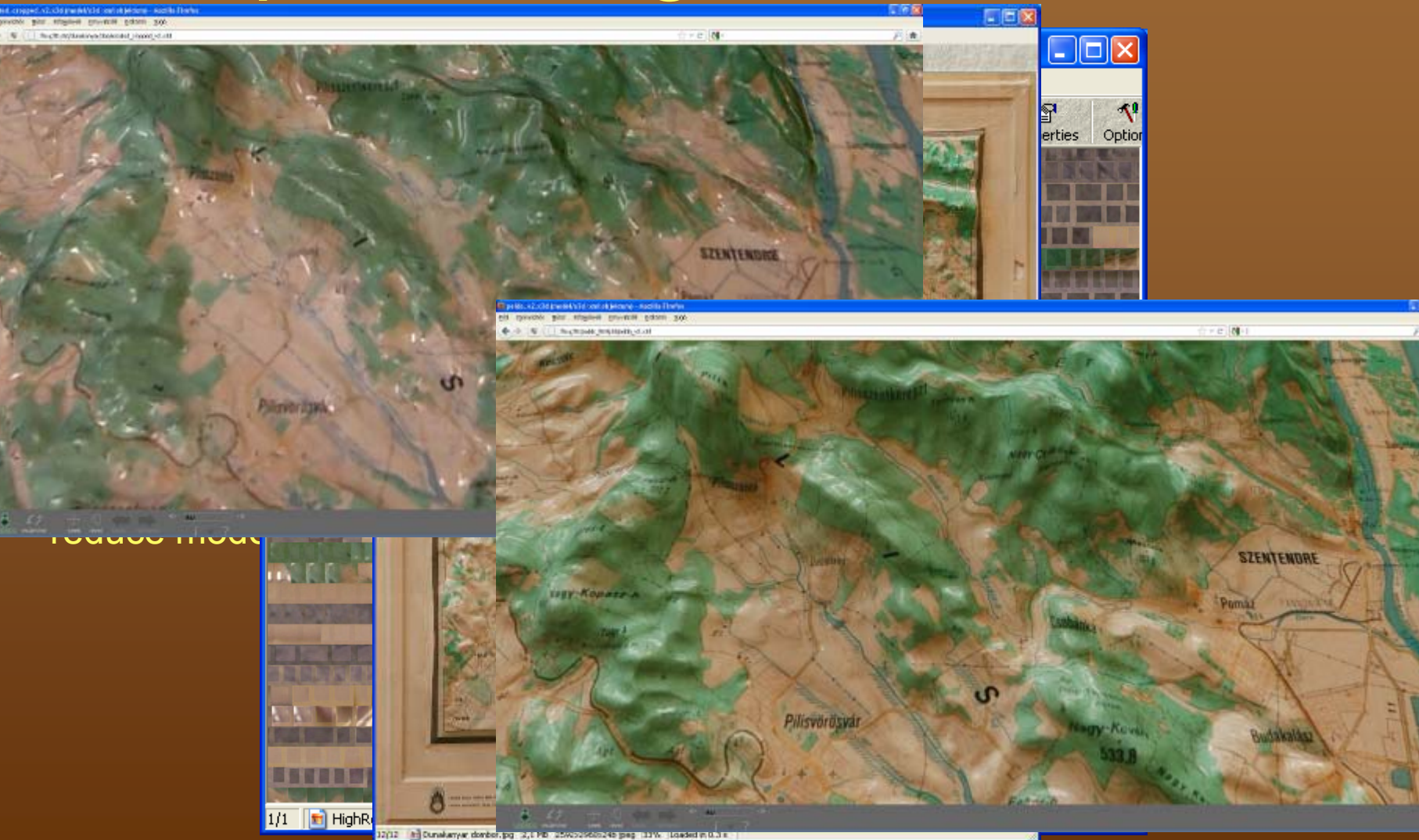
Post-processing

- Rotating the model into the X-Y plane
- Cropping unnecessary parts (ground, walls, etc.)



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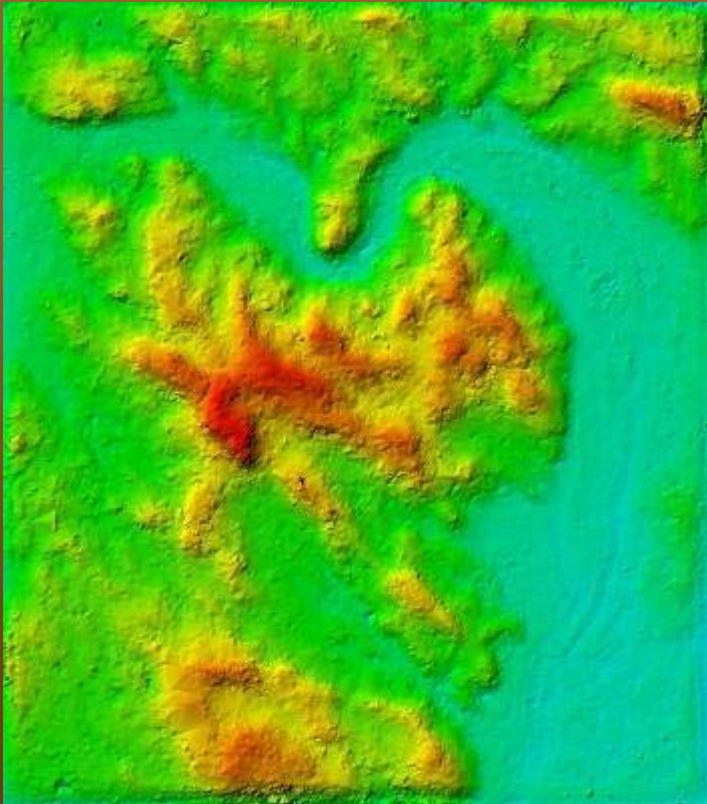
Post-processing



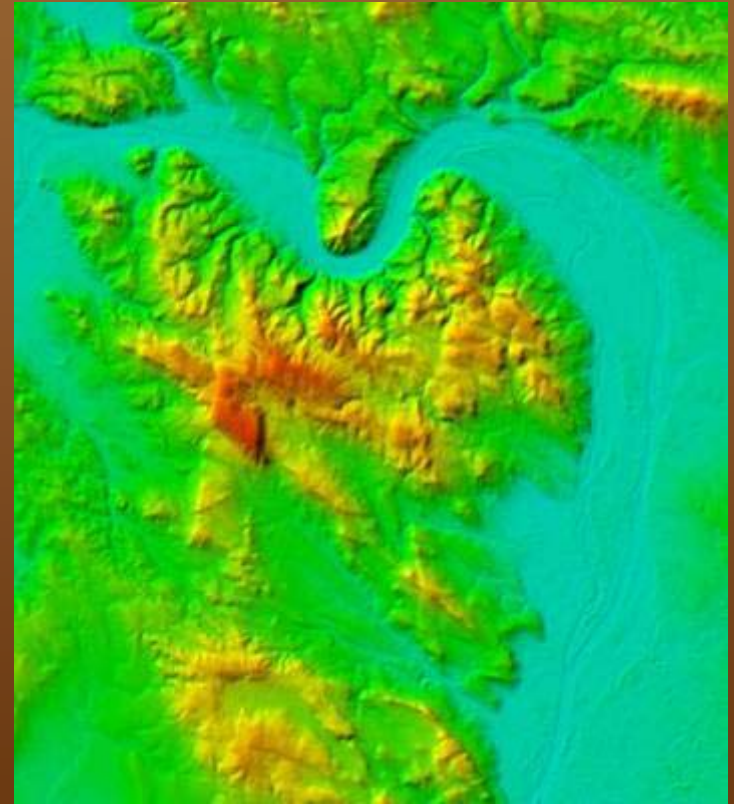
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Converting to DEM

- Georeferencing the point cloud using GCPs
- Generating DEM based on the georeferenced point cloud



DEM based on the point cloud



SRTM of the same area

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Conclusions, problems

The method is far not perfect, it can be an option if the digital representation of relief models is desired but there is no financial support for this task. This solution is cheap, and easy-to-use.

Limited accuracy

- straight edges and flat surfaces are represented with minor faults

Scalability problems

- the solution that worked well for a 50cm*50cm object was first failed when it was tried on a large (3m*2m) wall relief map

Further plans

- Trying and examining other web services and/or desktop applications performing 3D model creation based on photographs
- Improving post-processing possibilities
- Extending the method to relief globes.
- Establishing a “Virtual relief model museum”

Thank you for your attention

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