

Final project

Deadline: 22.01.2016. (Friday)

Map making with automatic generalization

Kristina Kehayova, Pawluk Barbara, Ruszaj Mateusz Andrzej, Weißbach Laura

Make two maps using a geoinformatics or graphic software. You can select the topic, I only ask that you have to use automation to create some layers at the second map.

The first map is the original one. You have to derive the second map from the first one. Use the automatic generalization modules in ArcGIS or QGIS. The scale of the derived map is smaller than the original one.

Create a short documentation about your work: motivation for the map theme, data sources, applied software, map layers. Focus on the automatic generalization (which layers did you generalize automatically? Which algorithms did you use (simplification and/or smoothing)? Was the manual correction necessary? Which layers did you generalize manually? Did you try out more algorithms on a layer?). The map have to be ready for printing (title, legend, scale, your name), export it in PDF or JPG format.

Paper size: A/3 or A/4 .

Send me: your map in PDF or JPG format and the documentation

Point generalization

Alex Boava Meza, Khechine Mohamed Ali, Pazmino Santana Francisco Xavier

You have to write an application for point generalization. You can choose the programming language.

Point cloud data* available here: <http://mercator.elte.hu/~ungvarizs/generalization/points.txt>

Requirements:

- Users can change the input data
- Graphic user interface: where the user can see the point cloud.
- What you have to achieve in the program:

On the fly generalization: the generalization happening in the moment of zooming. You have to write fast algorithms.

Send me: your program and the short documentation

*Short description:

The point cloud is the result of a modeling research. The points shows the tensor values of the stress field caused by tectonic movements of Earth's crust. There are more than 40 000 point in the file, therefore the displaying is quite slow. You have to clustering the points. I recommend you the quad-tree based algorithms, or K-means, or ISODATA algorithm. Point

data generalization algorithm should base on the geometry (coordinates), not on the attribute values of points.

line_name: name of the tectonic line

line_id: an identifier to every line with sequential numbering

point_id: an identifier to every point with sequential numbering

x,y: coordinates in degree, using WGS84 system.

z: elevation (0 at everywhere)

s1, s2, s3: direction of each component

s1v, s2v, s3v: value of the components

distance: distance from the tectonic line.