

ASSIGNMENT 02 – GEOFERENCING, VECTORIZATION

TASK:

Make a map showing the urban expansion of Montreal. Derived the extent of built-up areas from old maps (try to show at least three time periods including this year). Try to quantify the change (in relative and absolute numbers).

You can find the inspiration [here](#) .

In technical report cite sources for the old maps used (URL) and answer following question:

1. How has the extent of built-up area changed during the whole time period (relatively and absolutely?)

DATA SOURCES :

19th century – [Montreal \(1825\)](#)

20th century – try to find one

21st century – ArcGIS Pro basemap

- optionally you can search images for earlier centuries [here](#) or [here](#)

SUBMISSION FORM:

- technical report
- 1 map in PDF format
- ppkx

INSTRUCTIONS:

Part 1 – Georeference an old map*

- Add the old map to your map.
- Set the projection of Map properly (*Properties-Coordinate Systems*)**
- Activate the Georeference tool (on the *Imagery* tab).
- Zoom in to the area of interest (area covered by the old map). Save the map display to Bookmarks (on the *Map* tab).
- On the *Georeference* tab choose *Fit to Display to* reposition and place the image within the current map display. You can use *Move/Scale/Rotate* tool to refine the approximate placement of the image for better identification of control points for georeferencing in next step.
- On the *Georeference* tab, click *Add Control Points*. Now try to find at least 4 identical points (control points) on the image (source) and the reference map. These points should be spread out throughout the image to obtain the best possible registration.
- After collecting all points, on the *Georeference* tab, click *Save*.

*You can find more detail information in [ArcGIS tutorial](#)

**Try to identify the zone number in UTM projection system (see [Wikipedia](#))

Part 2 – Vectorization

- Create new feature class (*Catalog-Databases-New-Feature Class*). Choose the feature geometry, add fields for attributes you want to record (“year”) and choose the right coordinate system.
- Vectorize the extent of built-up area for all georeferenced maps (*Edit-Features-Create Feature*). For each polygon, i.e. an old map, enter the value for “year” attribute.
- Symbolize the layer properly to show the urban expansion of Montreal (*Symbology-Graduated Colors*). Overlay the layers on a reference map that reflects the current extent of built-up area (*Map-Layer-Basemap*).