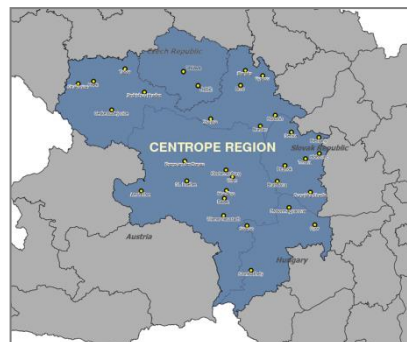


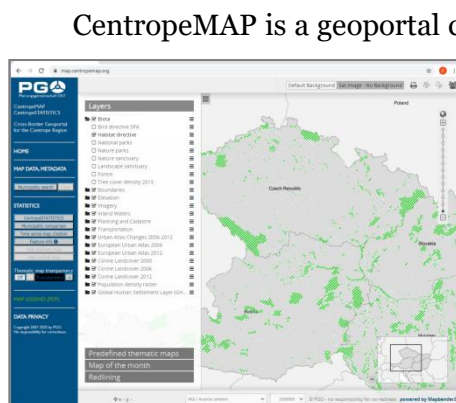
The Centrope region

The Centrope region consists of a number of adjacent counties and states along the borders between Austria, the Czech Republic, Hungary, and the Slovak Republic, comprising regions Jihomoravský, Jihočeský, Vysočina, Bratislavský, Trnavský, Győr-Moson-Sopron, Burgenland, Lower Austria, and Vienna. The two EU capital cities of Bratislava and Vienna, whose agglomerations are separated by a mere 50 kilometres, the cities of Brno and Győr, as regionally significant urban centres, as well as numerous other eminent and attractive cities, are the powerhouses of an economically and culturally expanding European region.



Centrope was founded 2003 by the political declaration of Kittsee (as Interreg IIIA project “Building a European Region”) and aims to strengthen partnership and economy in a region which was suffering from the Iron Curtain during the second half of the 20th century.

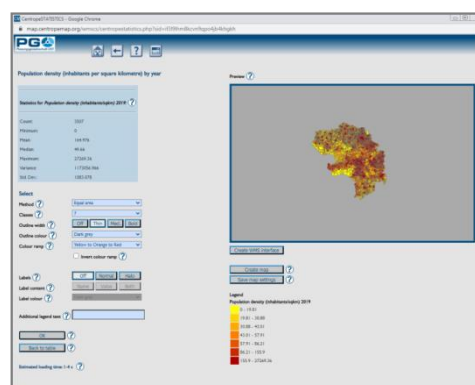
About CentropeMAP

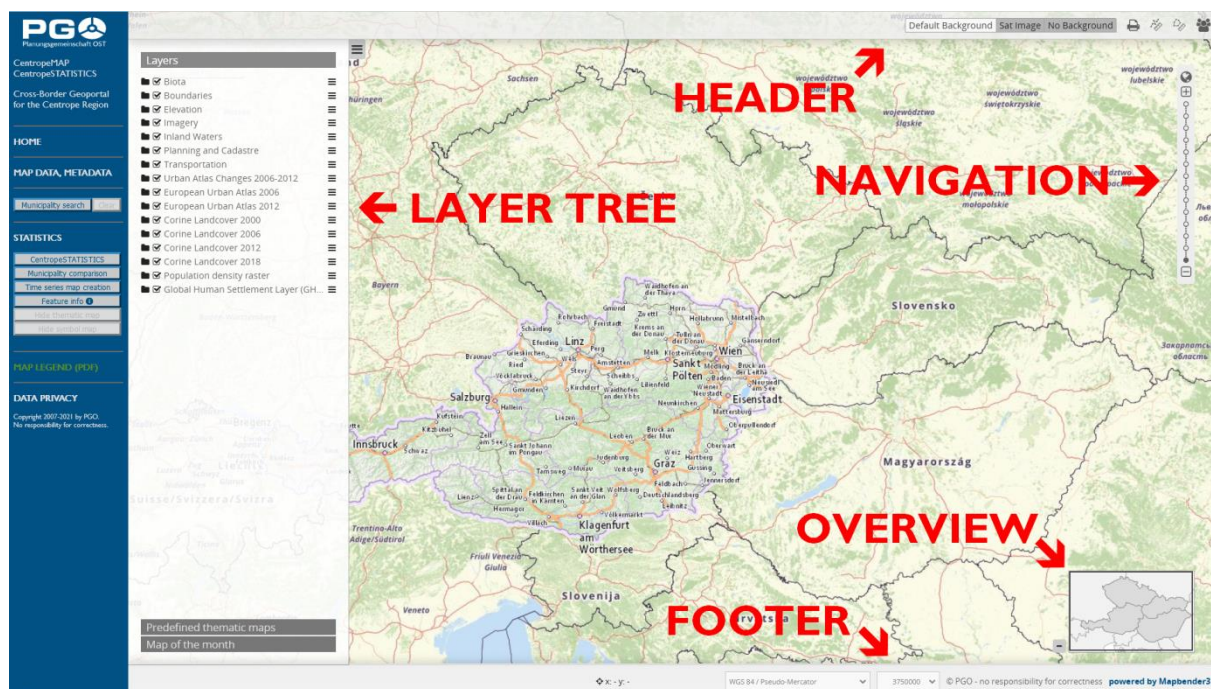


CentropeMAP is a geoportal connecting the region by collecting web map services from the partner countries. The services are brought together in a single map viewer and allow the user to experience a cross-border working area with dozens of data layers dealing with all topics which could be of interest for regional planners and similar professions. Layers are coming from the fields of biota, boundaries, elevation, imagery/base maps, inland waters, planning/cadastrate, structure, and transportation.

CentropeSTATISTICS

CentropeSTATISTICS is the only available free web tool to visualise cross-border statistical data in its own connected geoportal allowing the user to influence the way of visualisation in multiple ways in the Centrope region. CentropeSTATISTICS can not only create maps, it also serves charts which are interactively created from the data in the cross-border database. For the Czech Republic, CentropeSTATISTICS does not only cover the Centrope county Jihomoravský, but also features data from the county Vysočina which also has a common border with Austria.





How to launch CentropeMAP

CentropeMAP is a web-based map viewing client and does not need any additional piece of software to be installed on your computer. Just start your default web browser and open <http://map.centropemap.org>. This will take you immediately to the CentropeMAP geoportal. The web page (later on also referred to as map window) is divided into several sections as displayed in the illustration above. We will stick to these terms throughout this manual to avoid confusion.

The **menu** shows some helpful links and allows you to open CentropeSTATISTICS.

The **map** is displayed on the right side of your screen. It automatically adjusts to your screen size and resolution and will work properly at least up to full HD size (1920 x 1080 pixels). Around the map, you see further elements such as the header, the footer, the overview, the navigation, and the layer tree. Use the navigation area to set a zoom level of the map: you can either click on (+) to zoom in by one level or (-) to zoom out by one level or you can directly jump to any zoom level by clicking on the dots between (+) and (-). Click the world icon to zoom out as much as possible. Click the magnifying glass icon to select a zoom area by dragging a rectangle. The mouse pointer turns into crosslines. Place the mouse pointer somewhere over the map, then click and hold down the left mouse button. Now move the mouse and note the white rectangle between the starting point and your current mouse position. As soon as you release the left mouse button, CentropeMAP will zoom to the area covered by this white rectangle. Another way to zoom in or out is to move the mouse wheel: move it forward to zoom in and move it backward to zoom out. To improve performance and map legibility, CentropeMAP sticks to pre-defined zoom levels and does not allow scale levels in between.

In the **header** and **footer** sections of the map you can find some useful tools such as a background map switch, measurement tools, export function, another zoom level selector or

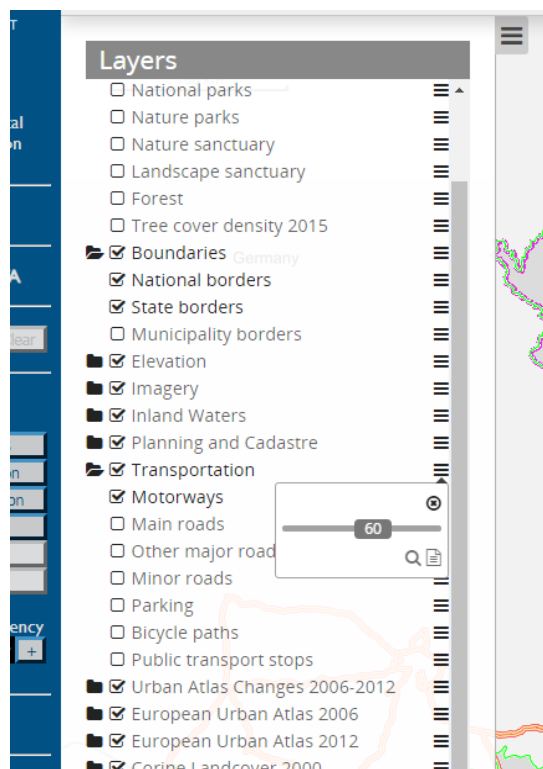
a coordinates display. The footer also features a “loading in progress” icon: a spinning symbol that keeps moving while map layers are being loaded from distributed servers.

The **overview** box shows a smaller scale map of your current map view so that you can more easily see which part of the region you are currently viewing. The rectangle inside the overview box illustrates the current map section. You can drag around this rectangle to change the current map section. Another way to drag the map is to simply move the mouse cursor somewhere over the map, hold down the left mouse button and move the image to the desired direction. Releasing the left mouse button initiates loading the new map image.

Switching layers on or off

Depending on the width of your screen, the layer tree may cover quite a large area of the map. Therefore, you can minimize it at any time by clicking the white and green (-) symbol near the middle of the right edge of the layer tree. The layer tree folds then and leaves back a white and green (+) symbol which allows you to unfold the layer tree again.

The layer tree consists of several folders showing the topics of the map layers. Each folder represents a group of web map services which depend on each other. Click on any folder or folder name to open the folder and see the layers inside this folder. Click on the selectbox on the left side of the layer name to activate a layer. The layers inside the folder (and also the folder itself) are greyed out and an animated (spinning) loading symbol shows up. Usually, after a few seconds the selected layer should be displayed in the map and the spinning symbol disappears again.



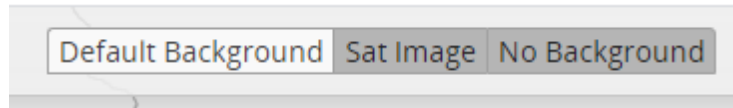
If for whatever reason a layer fails to load (most probably because one of the remote servers of our partners is not responding), the selected layer and its folder turn red and an exclamation mark symbol appears. In this case, please unselect the layer and try again after some minutes. If the problem persists, you may want to report the broken layer to the CentropeMAP administrators. To do so, just make a screenshot while the layer name is written in red letters and send this screenshot to the CentropeMAP team (contact e-mail see website imprint).

On the right side of each layer and folder name there are three short horizontal bars. If you click the bars next to a folder (see illustration), you get the possibility to adjust the transparency of all the layers in this folder. Move the slider to the left to make the layers more transparent. The number inside the slider shows the opacity level (0 is for full transparency, 100 for no transparency). If you click the magnifying glass icon, CentropeMAP zooms out to the full extent of the layers in the folder. If you click the text icon, you will see metadata for the layers in this folder.

If you click the bars next to a layer, you have the same options (only without transparency slider which is only available on folder level as all layers in one folder are dependent on each other and therefore cannot have different transparency settings).

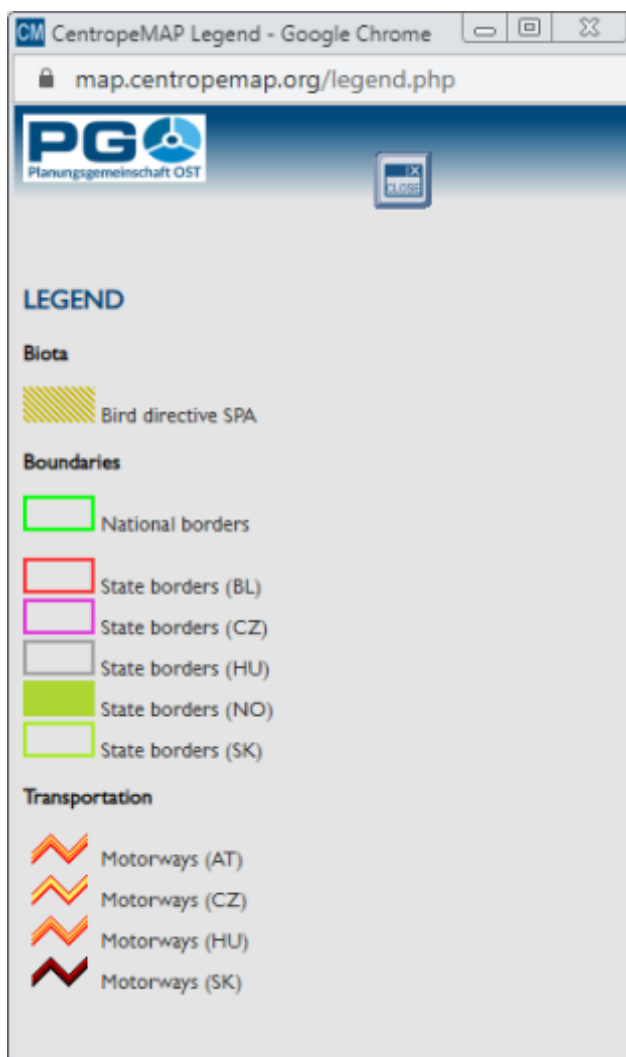
Changing the background map

To change the background map, you have to click the background switch buttons which are located in the header. You can see all available options for the background map next to each other. The currently active background is highlighted. The default background shows a basemap of the Centrope region.



Map legend

To see the map legend, click on “MAP LEGEND” in the left menu. An extra window pops up; it contains legend information for each layer. Some layers might have more than one entry because the layer is styled differently for different parts of the Centrope region (due to current lacks in geodata).



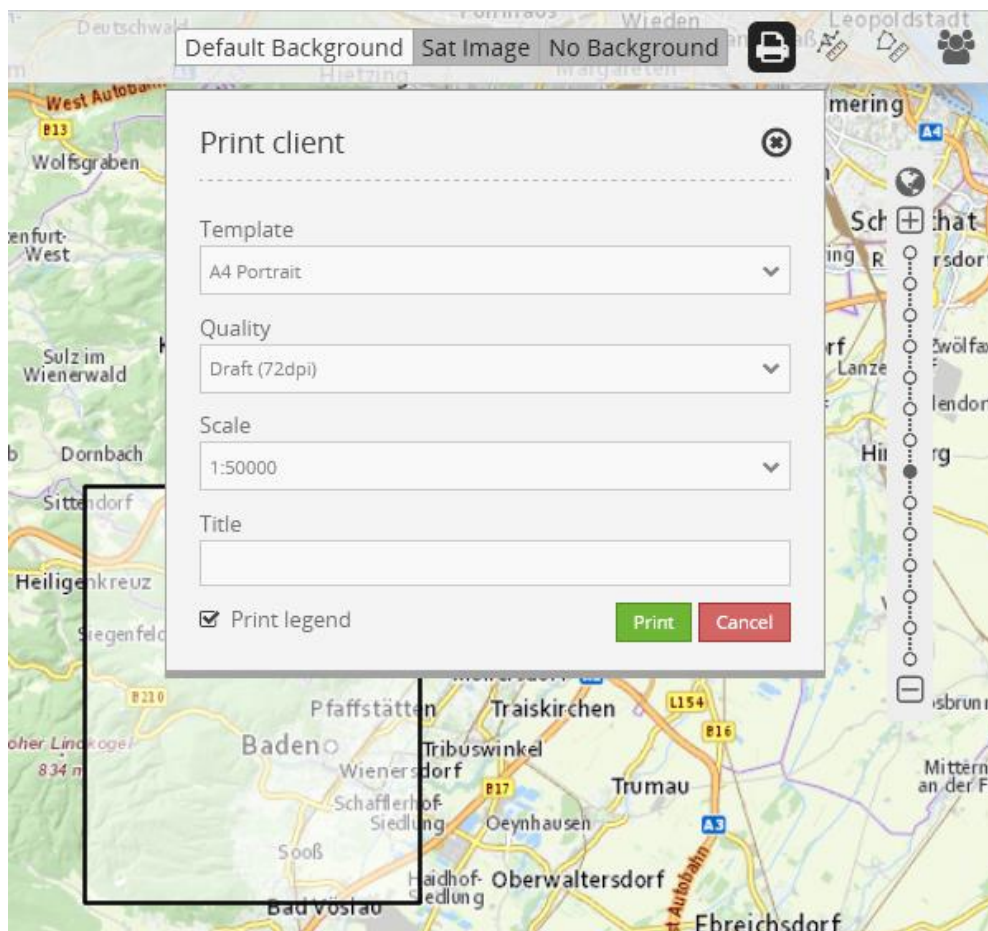
Printing a map (PDF export function)

To create a PDF from your current map, click the PDF Export button in the header. The print dialogue pops up (see illustration). You can select between different templates varying in format (A3 or A4 size) and orientation (portrait or landscape). Below you select the graphics quality which can be screen resolution (72 dpi) or slightly better (96 dpi).

The reason why we cannot offer a standard print resolution of 300 dpi is as follows: CentropeMAP receives its map content from distributed servers all over the Centrope region. Most of them have a limitation to the maximum image size in pixels. The better the print quality (= image resolution), the higher the number of pixels in an image covering the same region. To avoid error messages and incomplete maps, we are only offering quality options which are almost unlikely to invoke error messages from remote servers.

Next, select the desired map scale. All zoom levels from the map view are available. Having selected a zoom level, you will see a rectangle inside the map window showing you the extent of the map which will be covered by your PDF. You can alter the zoom level and the orientation to change size and orientation of this rectangle, and you can drag around the rectangle in your map to adjust it to the map content of your choice. If you like, you can also add a title which will be shown as text above the map in your PDF output.

Having adjusted all options, click the green “Print” button and wait a couple of seconds (may also be up to a minute depending on variety of map content) until you are prompted to save a PDF file to your local disk. You can then create further PDFs if you like or press the red “Cancel” button to close the print dialogue.

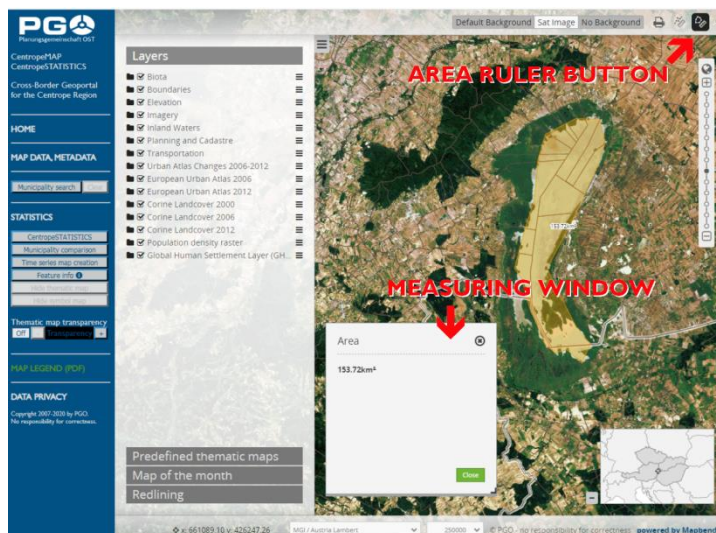


Measuring

To measure a distance, activate the line ruler with a click on the line ruler button in the header area. An overlay labelled “Distance” pops up. To start measuring, move the mouse cursor to the point where you want to start to measure. Click the left mouse button to start. The mouse cursor is now drawing a thin orange line to illustrate your measurement. Your measuring route may consist of a start point and an end point only, but it also may have intermediate points. For any intermediate point, move the mouse cursor over the intermediate point and click the left mouse button. To end your distance measurement, double-click the left mouse button at the last point of your measured route. The parts of your route are now summed up and displayed in bold letters as last line in the distance overlay. To close the distance overlay, hit “Close” in the distance overlay or click on the line ruler button in the header area. Do not forget to copy or write down the result of your measurement if necessary because the measured distances are neither kept as numbers nor as lines when the distance overlay is closed.



To measure an area, activate the area ruler with a click on the area ruler button in the header area. An overlay labelled “Area” pops up. In this overlay you will see the measured area. To start measuring, move the mouse cursor to the point where you want to start to measure. Click the left mouse button to start. The cursor is now drawing an orange polygon to illustrate your measurement.



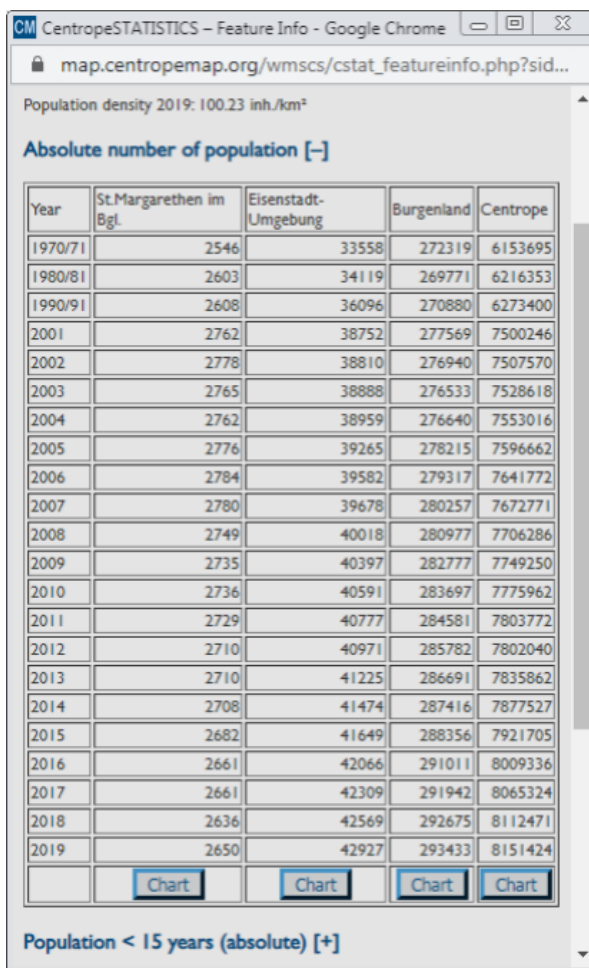
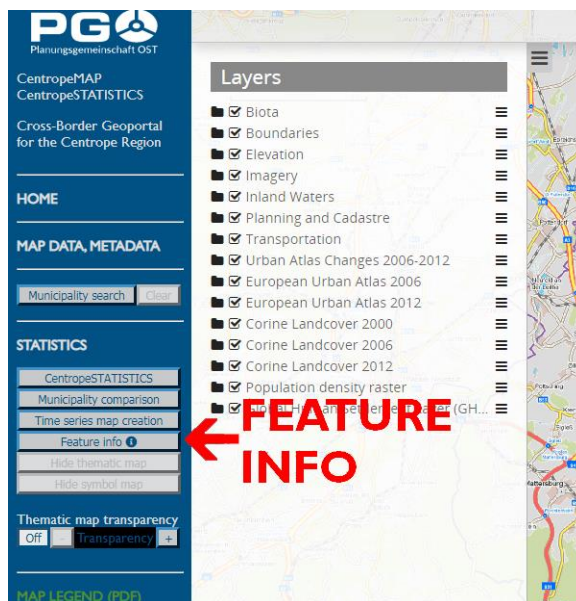
Add nodes to the measuring polygon by moving the mouse button along the edges of the area you want to measure and click the left mouse button every time the polygon outline should change its direction. The polygon is automatically drawn as closed figure so the measured area is covered in transparent orange colour. The intermediate result of your measurement is displayed in the area overlay. To finish the area measurement, double-click on the last node of your measurement polygon. The result is now displayed in bold letters in the area overlay. To close the area overlay, hit “Close” in the area overlay or click on the area ruler button in the header area. Do not forget to copy or write down the result of your area measurement if necessary because the measured area is neither kept as number nor as polygon when the area overlay is closed.

Feature info

If you would like to know more about a certain spot in the map, you have the possibility to receive detailed feature information. To active feature info, click on the “Feature Info” button in the left menu of the map window. This is an “On/Off” button, so after your first click the button is going to stay pressed to indicate that the feature info tool is active. It stays active until you click on the “Feature Info” button in the left menu a second time to turn it off.

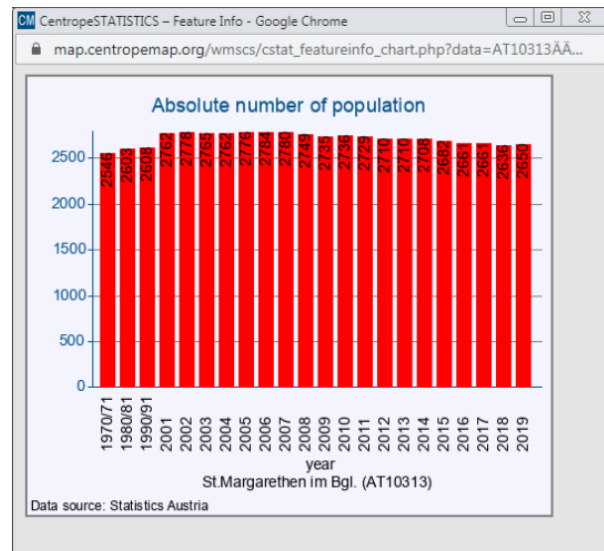
If you move the mouse pointer over the map with activated feature info, you can see that the pointer changes from the standard arrow to an arrow with question mark. To receive detailed feature information, just click on the desired spot in the map. Relevant information is going to be displayed in a pop-up window.

If there is no thematic map active, basic information on the selected municipality is presented. Detailed indicators are displayed with expandable headlines. Click on a headline to show detailed figures for a topic. Each detailed table has chart button at the bottom to



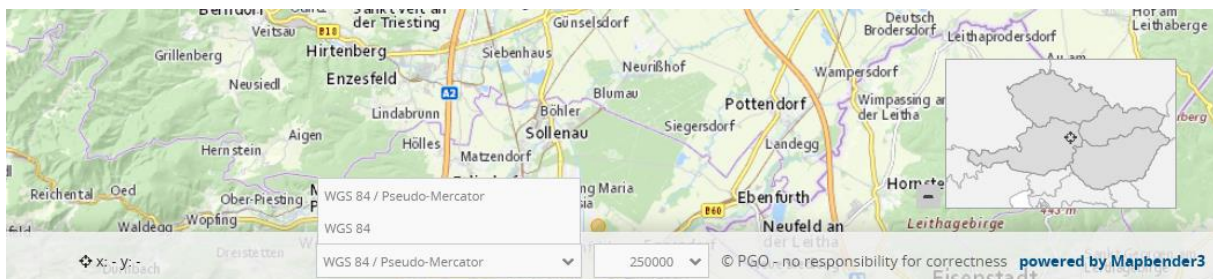
display the shown figures as charts for the selected municipality, the district, the county (state) or the whole Centrope region.

If a thematic map is active, only information on the thematic map's topic is presented.



Changing the projection

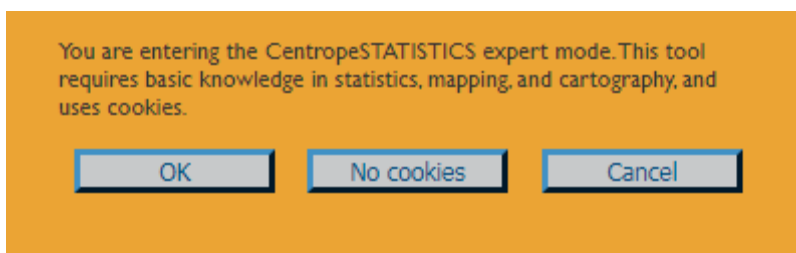
By default, CentropeMAP uses the geographic projection EPSG:3857 – WGS 84/Pseudo-Mercator. You can also display your map in Lat-Lon projection (EPSG:4326, WGS84). However, in this case the standard background map is not available. To change the projection of your map, click on the projection drop down in the footer area of the map window, then choose the desired projection.



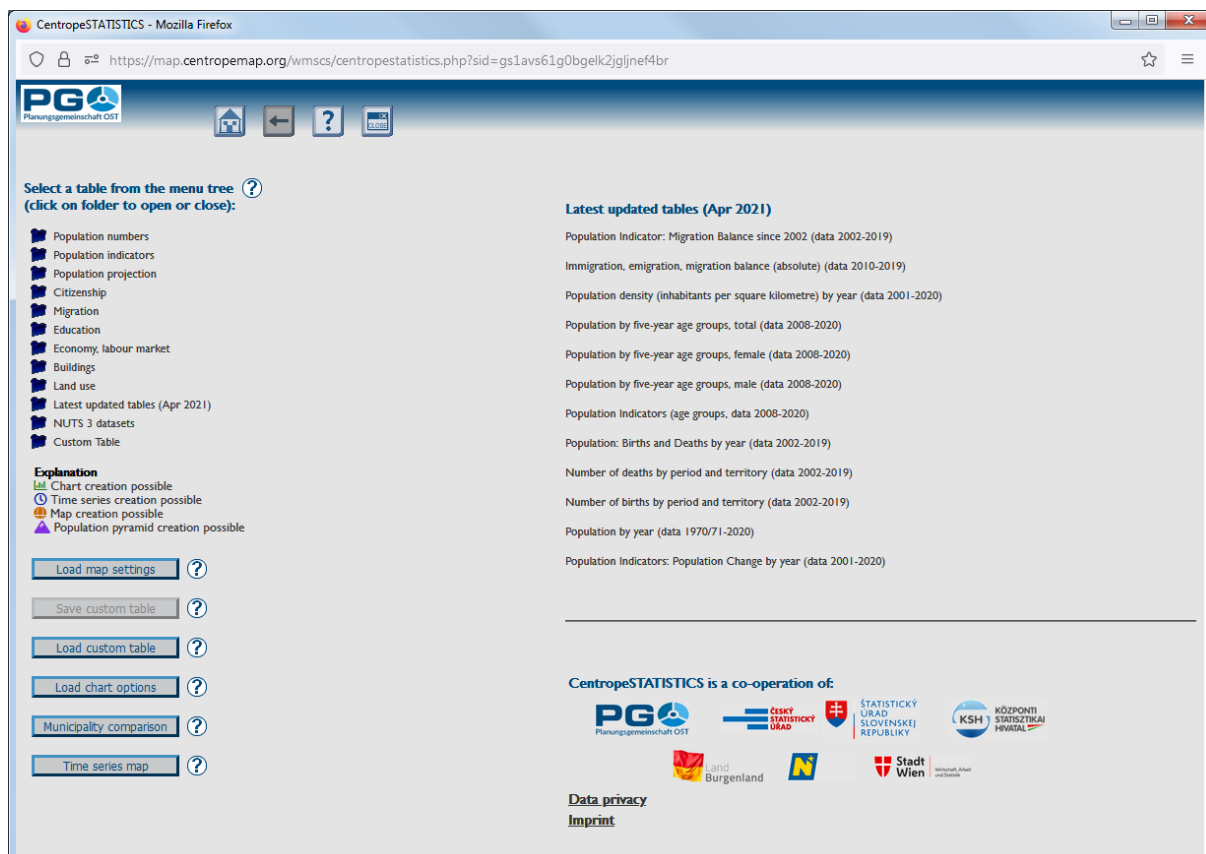
Introduction to CentropeSTATISTICS

CentropeSTATISTICS gives you full access to the whole Centrope cross-border statistics database. You can download these data and set several options while creating your thematic map or chart. This tool is meant for planners, statisticians and other professionals who know how to create meaningful thematic maps and charts. For quick queries or for people who do not have much experience in creating thematic maps or charts from statistic tables, there are a couple of thematic maps directly available from the CentropeMAP layer menu tree.

When opening CentropeSTATISTICS, a new browser window opens. If you are opening CentropeSTATISTICS for the very first time, a warning will appear:



Click “OK” to continue to CentropeSTATISTICS, or click “Cancel” to close the CentropeSTATISTICS window. If you select “OK”, CentropeSTATISTICS will set a cookie in your browser to save your selection so that the warning does not appear every time you open CentropeSTATISTICS. The lifetime of this cookie is, however, limited to 14 days so that you will have to confirm this warning message approximately every two weeks. The reason for this warning is that CentropeSTATISTICS allows unlimited map and chart creation in the custom table section, so there may also be the chance to create nonsense or misleading output. If you decide to refuse cookies (we have to offer you this choice for legal reasons), the warning will appear every time you open the tool. CentropeSTATISTICS always starts in a pop-up window as shown below.



Select a table

Looking at the CentropeSTATISTICS start screen, you will see that it is divided into three parts. At the top you have the title bar with some buttons, and below the screen is divided into a left half (with the menu tree) and a right half (with links to all partner institutions on every start). All available statistics themes are collected in the menu tree on the left part of the CentropeSTATISTICS window. To expand or close a folder, click on the folder symbol or on the folder title next to it. A folder can contain more subfolders and/or statistics themes. Statistics themes are the lines with no folder symbol on the left side. They change their font colour to blue if you move the mouse pointer over them.

To select a theme, click on it. After your click, the availability form is loaded into the right half of the statistics window (see illustration below). It shows you which attributes (years) are available for selection. Choose at least one attribute (you can select multiple attributes from one box if you hold down the CTRL key while clicking). As long as you did not select at least one attribute from each selectbox, the “Continue” button is disabled and a warning message in orange letters is shown (see the following illustration).

Select a table from the menu tree ?
(click on folder to open or close):

- Population numbers
 - Population by year [Lst](#)
 - Population by sex and year [Lst](#) [Map](#)
 - Marital status of population by year [Lst](#)
 - Population by five-year age groups, total [Lst](#)
 - Population by five-year age groups, female [Lst](#)
 - Population by five-year age groups, male [Lst](#)
 - Number of births by period and territory [Lst](#)
 - Number of deaths by period and territory [Lst](#)
 - Births and Deaths by year (absolute and per 1000 inhabitants) [Lst](#) [Map](#) [Time series](#)**
- Population indicators
- Population projection
- Citizenship
- Migration
- Education
- Economy, labour market
- Buildings
- Land use
- Latest updated tables (Apr 2020)
- NIUTS 3 datasets
- Custom Table

Explanation

- [Lst](#) Chart creation possible
- [Time series](#) Time series creation possible
- [Map](#) Map creation possible

Load map settings ?

Save custom table ?

Load custom table ?

Load chart options ?

Municipality comparison ?

Time series map ?

Select attributes for Population: Births and Deaths by year ?

Year

- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018

Select all

Switch selection

Clear

You have to select at least one characteristic from each attribute to proceed.

Continue ?

You can create a time series map from these data.

Continue ?

Data availability ?

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
CZ	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
HU	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SK	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
AT	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Data sources ?

Vienna
Statistics Austria http://www.statistik.gv.at/web_en/ [Contact Info](#)
Data source: 1970/71 to 1990/91 (values from 1971, 1981, 1991); values mapped to municipalities as of 2011. 2001-...: population census, population register
Last update: 2020

Lower Austria
Statistics Austria http://www.statistik.gv.at/web_en/ [Contact Info](#)
Data source: 1970/71 to 1990/91 (values from 1971, 1981, 1991); values mapped to municipalities as of 2011. 2001-...: population census, population register

Having correctly selected, the “Continue” button is enabled and warning message disappears. The grey and green squares below the “Continue” button indicate for which spatial and temporal extents the data of the chosen theme is available.

The country abbreviations are as follows:

- AT: Austria (federal states Lower Austria, Burgenland, Vienna)
- CZ: Czech Republic (regions Jihočeský, Jihomoravský, Vysočina)
- HU: Hungary (counties Győr-Moson-Sopron, Vas)
- SK: Slovakia (regions Bratislavský, Trnavský)

A green square means that data is available, a grey square indicated that data is not available in a certain part of the Centrope region for a certain year. Below the data availability matrix you can find information on data sources. Click “Continue” to proceed to the next step or select another theme from the menu tree on the left half of your screen.

Clicking the “Continue” buttons opens the selected table in the statistics window. In the header area you will see an additional button in the middle. This button hosts the Excel export function. If you press it, CentropeSTATISTICS sends the content of the table as MS Excel file (.xls) to your computer. You will be prompted to save or open the file.

At the top of the window you also see the same selection box(es) as before. This allows you to alter your attribute selection without having to go back to the start. Note that you have to click on the “Reload Table” button if you change the attribute selection.

Select attributes for Population: Births and Deaths by year

Year

2011
2012
2013
2014
2015
2016
2017
2018

Select all
Switch selection
Clear
Reload table ?

Map or chart creation possible.

Data source ?

Options ?

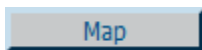
code	name	year	births	birthsper1000inh	deaths	deathsper1000inh	balance_of_births
HU02060	Gönyű	2018	31	10.18	35	11.49	-4
HU02079	Dunaremete	2018	1	3.97	2	7.94	-1
HU02237	Vág	2018	4	8.93	3	6.7	1
HU02361	Nagybajcs	2018	9	8.99	11	10.99	-2
HU02413	Kisbajcs	2018	1	4.48	1	4.48	0
HU02495	Nagycenk	2018	21	9.78	24	11.18	-3
HU02556	Mórichida	2018	7	8.65	11	13.6	-4
HU02617	Sopronnémeti	2018	3	9.87	4	13.16	-1
HU02635	Ottevény	2018	36	11.81	26	8.53	10
HU03364	Szilsárhány	2018	6	8.72	12	17.44	-6
HU03753	Rábcakapi	2018	2	13.89	1	6.94	1
HU03887	Szerencsény	2018	7	9.2	19	24.97	-12
HU04020	Himod	2018	8	13.18	8	13.18	0
HU04039	Csorna	2018	80	7.82	123	12.03	-43
HU04172	Tárnokréti	2018	0	0	1	6.17	-1
HU04367	Bogyoszló	2018	7	11.67	8	13.33	-1
HU04376	Lázi	2018	3	5.32	9	15.96	-6
HU04589	Veszkény	2018	4	4.09	11	11.24	-7
HU04622	Zsira	2018	2	2.38	11	13.06	-9
HU04783	Mosonmagyaróvár	2018	286	8.58	403	12.1	-117
HU04792	Rábacsanak	2018	5	10.04	5	10.04	0
HU04880	Ágfalva	2018	16	6.93	31	13.43	-15

Table options

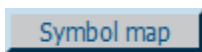
To show the table options, click on the header “Options” or on the “+” sign beneath the expand the options area. The explanations from top to bottom are as follows:

- *Order datasets by*: You can select the order of datasets by column. Press “Apply order” to save your selection first, then proceed to other options.
- *Show ... datasets*: allows you to define how many datasets are shown on this page. This does not have any influence on the creation of maps and charts. Maps and charts always refer to the full table.
- *Change decimal separator to...*: toggle between comma and point for use as decimal separator
- *Switch to ... view*: toggle between CSV and table view.
- *Explain column names*: opens a new window with further explanations regarding the contents of the table columns.

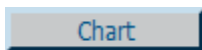
If you chose exactly one attribute from each selectbox before, the message “Map creation possible” is shown directly below the selectbox(es). In one or more columns of the table (make sure you are in table view and not in CSV view mode!) you will most probably see one or more of these buttons:



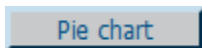
This button lets you create a thematic map which is shown as layer in the CentropeMAP window. See chapter 5 for details.



This button lets you create a symbol map which is shown as layer in the CentropeMAP window. See chapter 8 for details.



This button lets you create a bar, point or line chart from the selected column. See chapter 11 for details.



This button lets you create a pie chart from the selected table. See chapter 11 for details. All charts are brought to you as image files in PNG format.

Working with custom tables

Working with custom tables offers multiple additional options, therefore we dedicated an own chapter to this topic. Please refer to chapter 13 to learn more about working with custom tables.

Create a choroplethic map

Click on the “Map” button in the table header to create a map with the data of the column below. The map creation view appears on your screen (see illustration below).

The screenshot shows the 'Map' creation view in the CentropeSTATISTICS application. The interface is divided into several sections:

- Population: Births and Deaths by year**: A header for the data source.
- Statistics for Live births per 1,000 inhabitants 2018:** A table showing statistical values for the selected column.

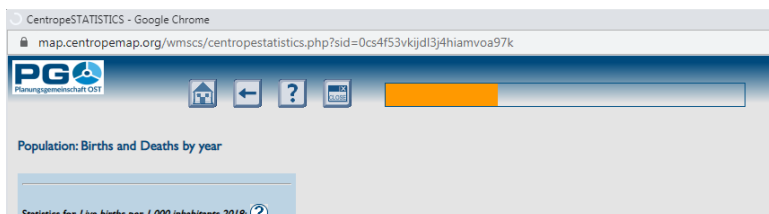
Count:	3507
Minimum:	0
Mean:	11.042
Median:	9.52
Maximum:	333.33
Variance:	145.541
Std. Dev:	12.064
- Column Statistics**: A red arrow points to the statistics table.
- Map Options**: A section containing various configuration options:
 - Select**: A dropdown menu for 'Method' and 'Classes'.
 - Classes**: A dropdown menu for 'Classes'.
 - Outline width**: A dropdown menu for 'Outline width'.
 - Outline colour**: A dropdown menu for 'Outline colour'.
 - Colour ramp**: A dropdown menu for 'Colour ramp'.
 - Invert colour ramp**: A checkbox for 'Invert colour ramp'.
 - Labels**: A dropdown menu for 'Labels'.
 - Label content**: A dropdown menu for 'Label content'.
 - Label colour**: A dropdown menu for 'Label colour'.
 - Additional legend text**: A text input field.
- OK/BACK BUTTONS**: A red arrow points to the 'OK' and 'Back to table' buttons.
- Loading Time Estimation**: A red arrow points to the 'Estimated loading time: 1-4 s' text.

The right half of the window remains empty at the beginning because in this area you are going to see the map preview later on. Note the two blinking green arrows near the selection boxes “Method” and “Classes”. You have to choose an option at least for these two selection boxes to be able to create a map. If you did that correctly, the green arrows will disappear and the “Apply” button is enabled. The “Back to table” button lets you switch back to the table view. The dark blue area above shows some descriptive statistical values for the selected data column and is displayed for information purposes only. At the very bottom of the window you will see a line showing the estimated map creation time in seconds. The estimated loading time may vary depending on the selected data class building method (selection box “Method”). Note that with method “Standard deviation” the “Classes” selection box is disabled because the number of classes is automatically set with the “Standard deviation” method.

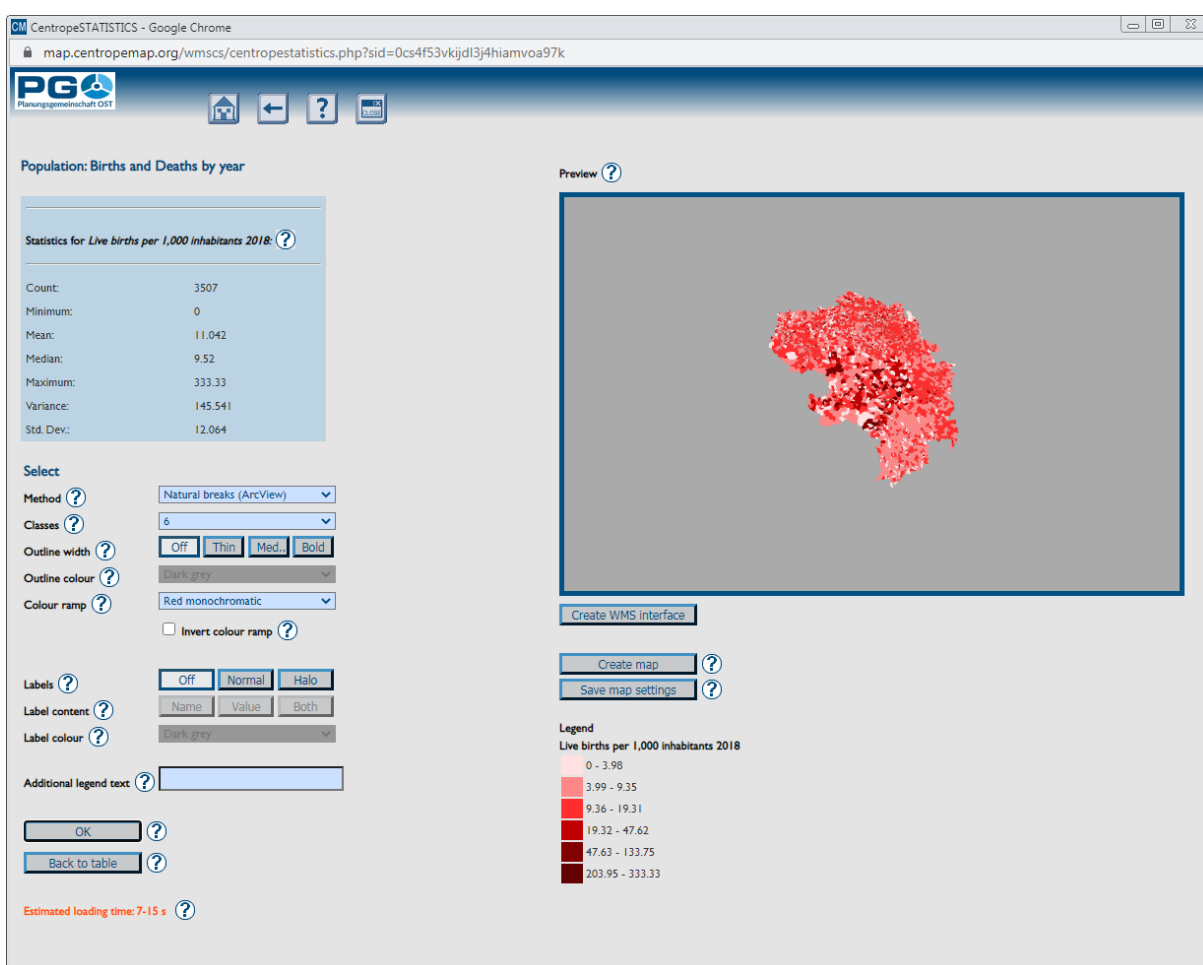
The map options

- *Select method:* Choose how the legend classes should be defined. You can select one of these options:
 - *Equal interval:* The numeric range of all classes has the same size.
 - *Quantiles:* The elements are evenly distributed so that each class contains the same number of elements.
 - *Standard deviation:* The class ranges are defined according to the standard deviation of the elements.
 - *Equal area:* The elements are distributed in a way that each class covers (approximately) the same area (sum of municipality areas in each class is equal).
 - *Natural breaks (ArcView):* The natural breaks algorithm minimizes the variance within classes and maximizes the variance between classes. This option produces an output similar to the algorithm used in ESRI's ArcView GIS.
 - *Natural breaks (Jenks):* same as above but using the Jenks algorithm which produces slightly different results than the ArcView method.
 - *Manual choice:* Using this option you can define the limits for the selected number of classes on your own. See chapter 6 for more information on how to do this.
- *Select number of classes:* lets you define how many classes you will have in your map legend. This is disabled if you select the standard deviation method above.
- *Select outline width/Select outline colour:* Define the width and the colour of the polygon outlines of your thematic map.
- *Select colour ramp:* Define the colours of your thematic map. You can choose between monochromatic, dichromatic and gradient colour ramps. The difference between dichromatic and gradient colour ramps is that dichromatic colour ramps go from colour 1 to white and then from white to colour 2 (e. g. grey – white – red) whereas gradient colour ramps directly fade from colour 1 to colour 2 and then from colour 2 to colour 3 (e. g. yellow – orange – red). Colour 2 is never white.
- *Invert colour ramp:* Check this box to invert the sequence of colours (e. g. green to red dichromatic will turn to red to green dichromatic, monochromatic colour ramps will have darkest colours on top).
- *Define zero handling* (only available with dichromatic colour ramps and columns containing values both greater than zero and less than zero!):
 - *No special zero handling:* leave everything as it is
 - *Treat white as zero only:* The class including zero is split into two classes, and a separate class having zero as only value is added. Note: The effective number of classes is higher by 2 than the preselected number of classes.
 - *Use white for class incl. 0:* preserve class definition, but shift the colour ramp so that white is used for the class including the zero value.
 - *No white in legend:* preserve class definition, but build a colour ramp with no white class
- *Labels:* lets you define colour, halo and content of text labels in your thematic map. See chapter 7 for details.

Remember the two blinking green arrows near the selection boxes “Method” and “Classes”? If you have selected at least a method and a number of classes (or method only if it is “standard deviation”), the arrows will disappear and the “OK” button is enabled so that you can press it now to start the creation of the map preview. Also keep in mind that the estimated loading time is higher if you select one of the natural breaks methods – these methods use an iterative algorithm which takes more time to calculate the classes.



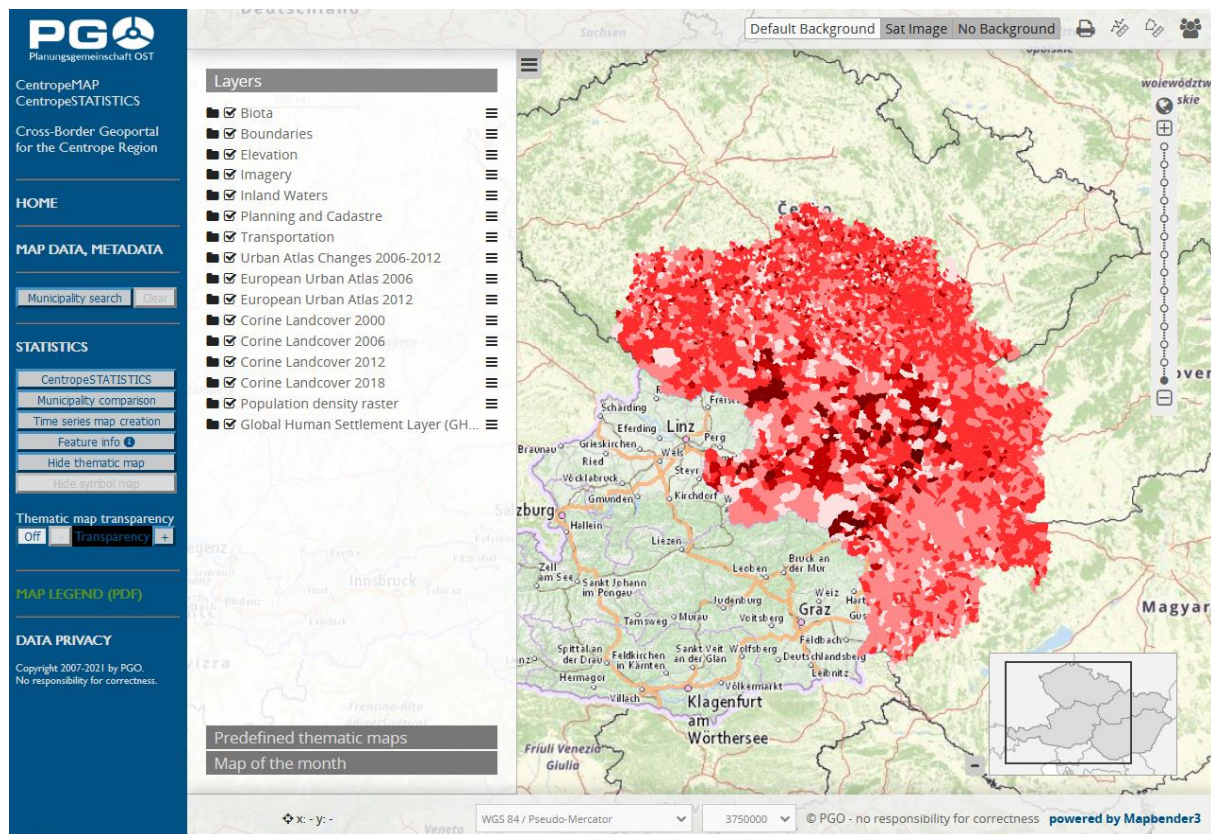
After you pressed the “OK” button, a progress bar appears in the top area of the window (see illustration on the left).



After you pressed the “Apply” button, the figures from the originating statistics table are shifted to a temporary table and the stylesheet for map display has to be created. In rare cases the progress bar might become full and then be replaced by a warning message which tells you that CentropeSTATISTICS is waiting for the server to reply. The statistics tables are cleaned up once a day automatically (typically during night). If there were lots of queries during the day, it may happen that the database response time is extended by a few seconds. After preview calculation your screen will look like the illustration on bottom of the previous page.

The image on the right in this illustration is just a preview of the map. You can neither pan nor zoom into it. To copy the thematic map contents to the main map window as map layer, click on the “Create Map” button. The map, which has been precalculated in the background, is now brought into the CentropeMAP window. Change to the CentropeMAP window to see your thematic map (*but do not close the CentropeSTATISTICS window because as soon as the CentropeSTATISTICS window is closed, your CentropeSTATISTICS session is terminated and all table and map data is removed from your screen.*)

Congratulations, you’re done. You can use the thematic layer exactly as any other CentropeMAP layer (zoom, pan, set transparency, print, ...). The only thing which is different to the other layers is how to turn the layer completely off (and on again). To do so, you have separate buttons in the left side menu of the map window. Click on “Hide thematic map” to turn off visibility of the thematic map. Click the same button (which is then labelled “Show thematic map again”) to turn it on again. If you close the CentropeSTATISTICS window, the thematic map is turned off automatically and cannot be turned on again unless you start a new CentropeSTATISTICS working session.



Manual class definition

One of the options in the “Select method” drop-down box is “manual choice”. Using this option you can define the limits for the selected number of classes on your own. If you select this option and press “OK”, there will be an additional button “Edit Classes” below the legend (see the illustration below).

The screenshot shows the CentropeSTATISTICS web interface. On the left, under 'Population: Births and Deaths by year', there is a table for 'Statistics for Live births per 1,000 inhabitants 2018':

Count:	3507
Minimum:	0
Mean:	111.042
Median:	9.52
Maximum:	333.33
Variance:	145.541
Std. Dev:	12.064

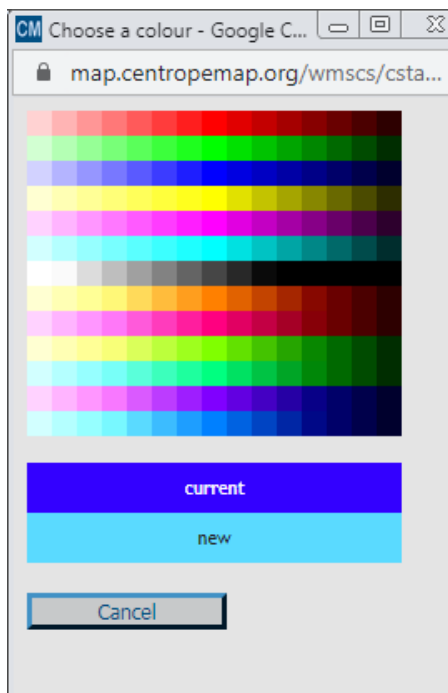
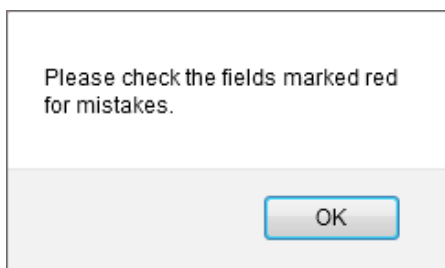
Below this, the 'Select' section shows 'Method' set to 'Manual choice' and 'Classes' set to 6. Other options like 'Outline width', 'Outline colour', 'Colour ramp', 'Invert colour ramp', 'Labels', 'Label content', 'Label colour', and 'Additional legend text' are also visible. At the bottom left are 'OK' and 'Back to table' buttons.

On the right, a map preview shows a red-shaded area. Below the map are buttons for 'Create WMS interface', 'Create map', and 'Save map settings'. A legend titled 'Live births per 1,000 inhabitants 2018' shows six color-coded ranges: 0 - 55.56 (red), 55.56 - 111.11 (pink), 111.11 - 166.67 (magenta), 166.67 - 222.22 (purple), 222.22 - 277.78 (blue), and 277.78 - 333.33 (dark blue). Below the legend is an 'Edit classes' button, which is highlighted with a red arrow.

The 'Edit classes' pop-up window shows a table with six rows, each representing a class with its upper and lower limits. The first row (red) has values 0 and 55.56. The subsequent rows have values 55.56, 111.11, 111.11, 166.67, 166.67, 222.22, 222.22, 277.78, and 277.78, 333.33. The first column contains color swatches corresponding to the legend. At the bottom are 'Apply' and 'Cancel' buttons.

A pop-up window opens (see illustration on the left). In this window, you can edit the upper limits of each but the last class. The lower limits are automatically calculated from the upper limits of the previous class, the minimum and the maximum values cannot be changed as they are given by the original data.

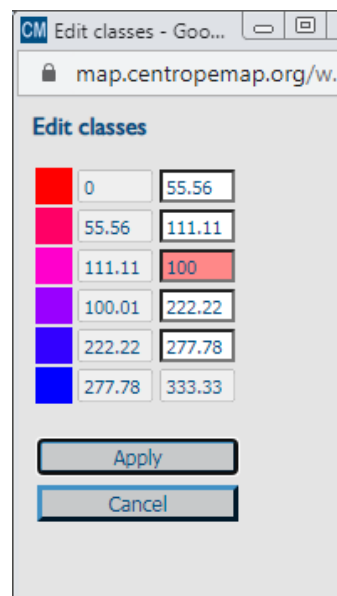
If you press the “Apply” button, the input fields are checked for errors. If there are any errors (e. g. an upper class limit is lower than the upper class limit of the previous class or the input is not a number), the affected fields are shown in red and a message appears (see next page):



Confirm the message, then correct the input in the red fields and press “Apply” again. If everything is correct, the pop-up closes and the map preview is redrawn using the class values of your choice.

In the edit window the user also has the possibility to change the legend colours one by one (instead of selecting a predefined colour ramp from the drop-down box on the left). To edit a colour, simply click on the colour square left of the class value input fields. Another window shows up and asks you to pick a colour. To choose a colour, move the mouse over the colour matrix. A comparison of the current and the new colour is given at the bottom of the window. Click on the colour to select it. The colour window will then disappear and you can see the new colour in the edit window. To apply both colours and values to the map preview, click the “Apply” button in the “Edit classes” pop-up window. The map preview is automatically reloaded then. Note

that pressing the “Apply” button in the map preview window at this point will keep the values, but restore the default colours. Therefore, the change of class colours should always be your last step before you click the “Create map” button.



Labels

You can label your map with the label controls which are located on the lower left side of the map creating window. In the first row, you select whether you want no labels (default), normal labels or labels with a halo. The halo option uses an outlined label font and can increase the legibility of labels. You should select this option if you select a colour ramp which uses very bright colours as well as very dark colours.

The second row of label settings allows you to select the content of the labels. You can choose between name (i. e. the name of the municipality or NUTS 3 area), value (i. e. the statistics value you calculated classes from), or both (which will display name and value in one line separated by a comma).

Then, from the third row of settings choose the label colour (i. e. the font colour). All chosen label settings are applied to the map with a click on the “Apply” button located below the map options area.

Population: Births and Deaths by year

Statistics for Live births per 1,000 inhabitants 2018: ?

Count:	3507
Minimum:	0
Mean:	11.042
Median:	9.52
Maximum:	333.33
Variance:	145.541
Std. Dev:	12.064

Select

Method ?

Classes ?

Outline width ?

Outline colour ?

Colour ramp ?

☐ Invert colour ramp ?

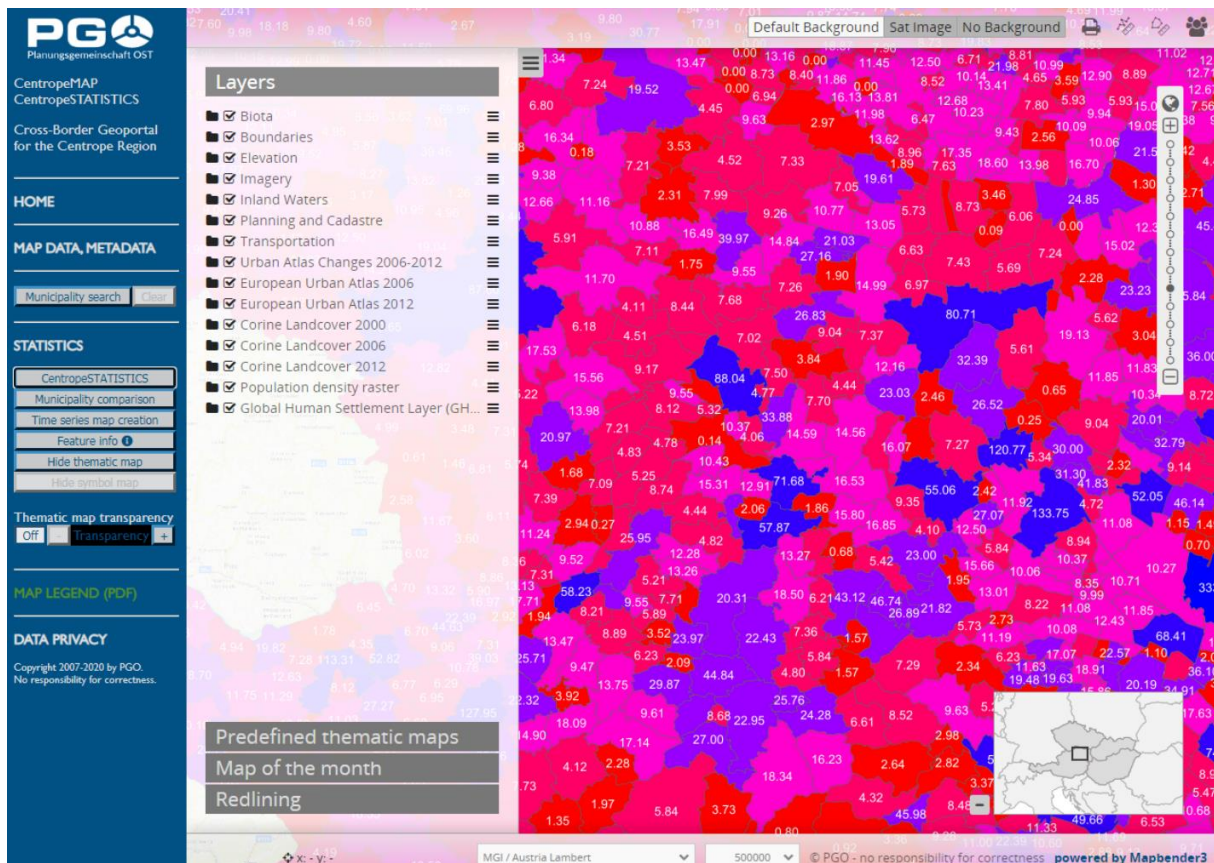
Labels ?

Label content ?

Label colour ?

Additional legend text ?

? ?



In the map, labels are always placed automatically. The best label placement is calculated by the map server. Overlapping labels are never allowed, so it depends on the zoom factor of your map whether you can see all labels or only some of them.

Here is the result of a map with labels (previous page). When using labels, you should always turn on outlines (to visualise the municipality boundaries) so that you can clearly see which value belongs to which area.

Hint: Use “Thematic map transparency” (in the blue area on the left side of the map window) to let the background map shine through for better orientation.

Kartogramme, Kartodiagramme

With CentropeSTATISTICS, you can not only create choroplethic maps (= maps with coloured areas), but also symbol maps in various layouts:

- *Dot maps*: for data at nominal or ordinal scale level: each dot symbolises that some attribute is given, e. g. highest level of education available. Attributes are distinguished from one another by the colour of the symbol. Various symbol types can be used.
- *Bubble maps*: for one data column from your table (interval and ratio scale levels), e. g. number of pupils. The symbol size represents the value, symbol colour and symbol type are equal for each occurrence.
- *Bar chart maps*: two or more related columns are displayed as bar chart, e. g. the number of live births and deaths. Colours can be chosen separately for each column, and colour schemes can be applied.
- *Pie chart maps*: two or more related columns (with the precondition of being able to build a 100 % sum) are displayed as pie chart, e. g. male and female population. Colours can be chosen separately for each column, and colour schemes can be applied.
- *Pie chart maps with variable pie size*: two or more related columns (with the precondition of being able to build a 100 % sum) are displayed as pie chart, e. g. male and female population. The size of the pie is defined by another value, e. g. the absolute number of population. Colours can be chosen separately for each column, and colour schemes can be applied.

The “Symbol map” button appears in table view on top of each column which allows you to create a symbol map. Click the button to switch to the symbol map creation window.

CentropeSTATISTICS - Google Chrome

map.centropemap.org/wmscs/centropestatistics.php?sid=0cs4f53vkjdl3j4hiamvoa97k

PGO
Planungsgemeinschaft OST

Values to be displayed ?

- ☒ births (bubble map: symbol size represents value)
- ☐ deaths (bubble map: symbol size represents value)
- ☐ births, deaths (pie chart map: percentage of values is displayed as pie chart)
- ☐ births, deaths, births, deaths (pie chart map: percentage of values is displayed as pie chart)
- ☐ births, deaths (bar chart map: absolute values are displayed as bar chart)

Define map settings ?

- ☐ Colour scheme: default
- ☐ Symbol colour: I
- ☐ Symbol type: circle
- ☐ Symbol min size: 5
- ☐ Symbol max size: 14
- ☐ Colour input: sliders

Labels

- ☐ Labels: Off Normal Halo
- ☐ Label content: Name Value Both
- ☐ Label colour: Dark grey

Apply ?

← ATTRIBUTE SELECTION

← MAP OPTIONS

← APPLY BUTTON

The symbol map creation window looks pretty much like the standard map creation window. Again, the right half of the window remains empty at first; this is the place where your map preview will be at a later stage. On the top you can choose which values from your table you want to display in your symbol map. You can choose between single attributes and combinations of attributes. Each option is linked to a specific type of map (dot map, bubble map, bar chart map, pie chart map or pie chart map with variable pie size); the type of map is listed in brackets right next to the attribute names. You cannot change the symbol map type of an option because this would most probably lead to a meaningless or misleading map.

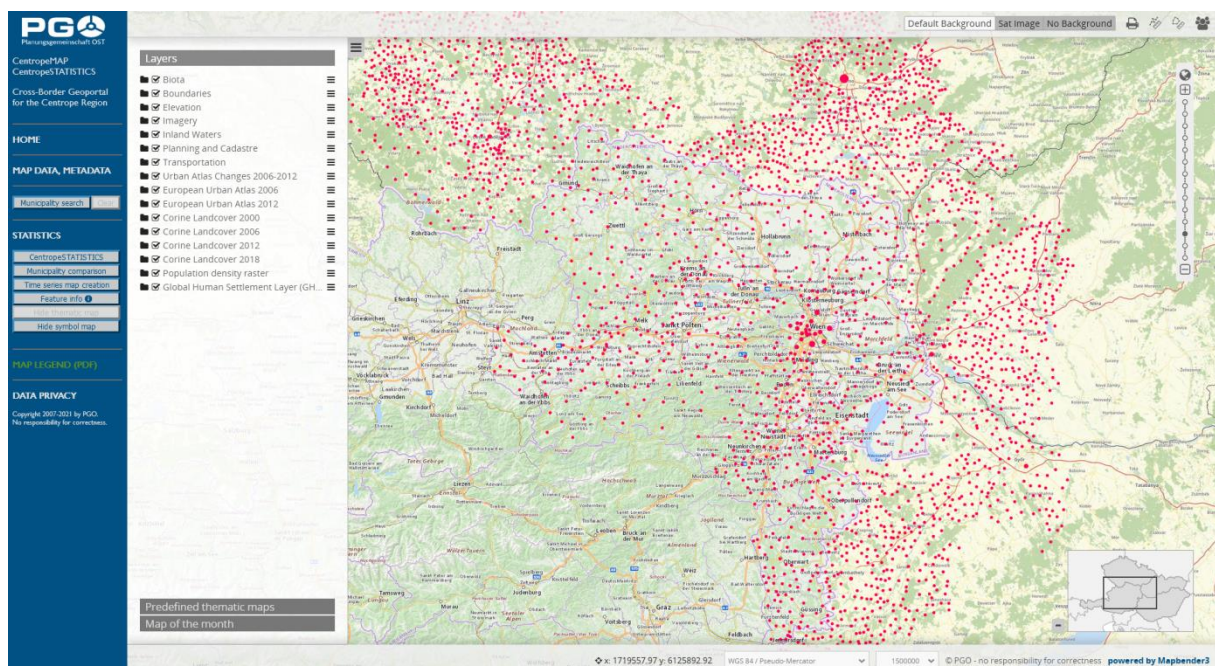
Below this choice you will find some map design settings (map options). Note that this design option list may change automatically when you switch to another combination of attributes. In detail, you can alter:

- **Colour scheme:** select a given colour scheme to match the layout of your document. Below there are numerous fields where you can edit single colours. The colour scheme changes automatically to “custom” then. Note that custom colour selections cannot be restored if you apply a standard colour scheme afterwards.
- **Single colours:** Each single colour can be changed. If you decide to do so, the colour scheme will automatically switch to “custom”. Applying another colour scheme on top of you custom settings will overwrite your custom colours without any undo option.
- **Symbol type:** You can choose between some pre-defined symbols such as circle, square, X, cross, triangle or star.
- **Symbol size:** define the size of your symbols (also applies to the size of pie and bar charts). If the symbol size refers to an attribute, you can set the minimum and maximum size; the actual symbol size is then between min and max size, depending on the attribute value.
- **Colour input:** There are three ways to select colours:

- *sliders*: move the slider bars to adjust the RGB values. The old and new colours are shown in the pop-up for comparison.
- *direct RGB input*: type numbers between 0 and 255 into text fields.
- *colour picker*: a colour maze is shown in the pop-up; click on a colour to select it.
- *Labels*: lets you define colour, halo and content of text labels in your symbol map. See chapter 7 for details.

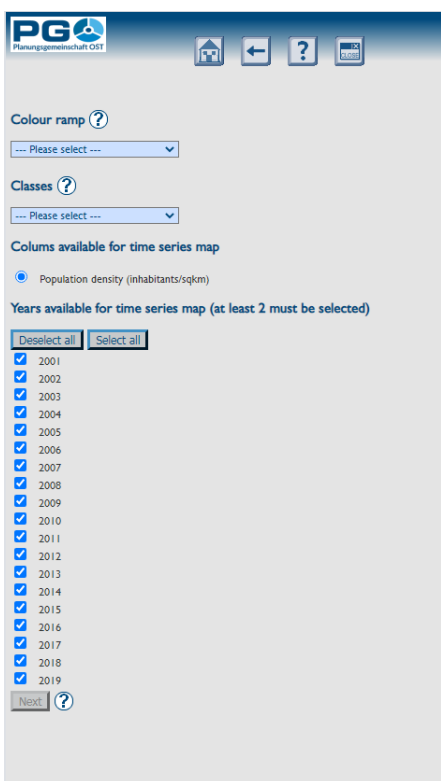
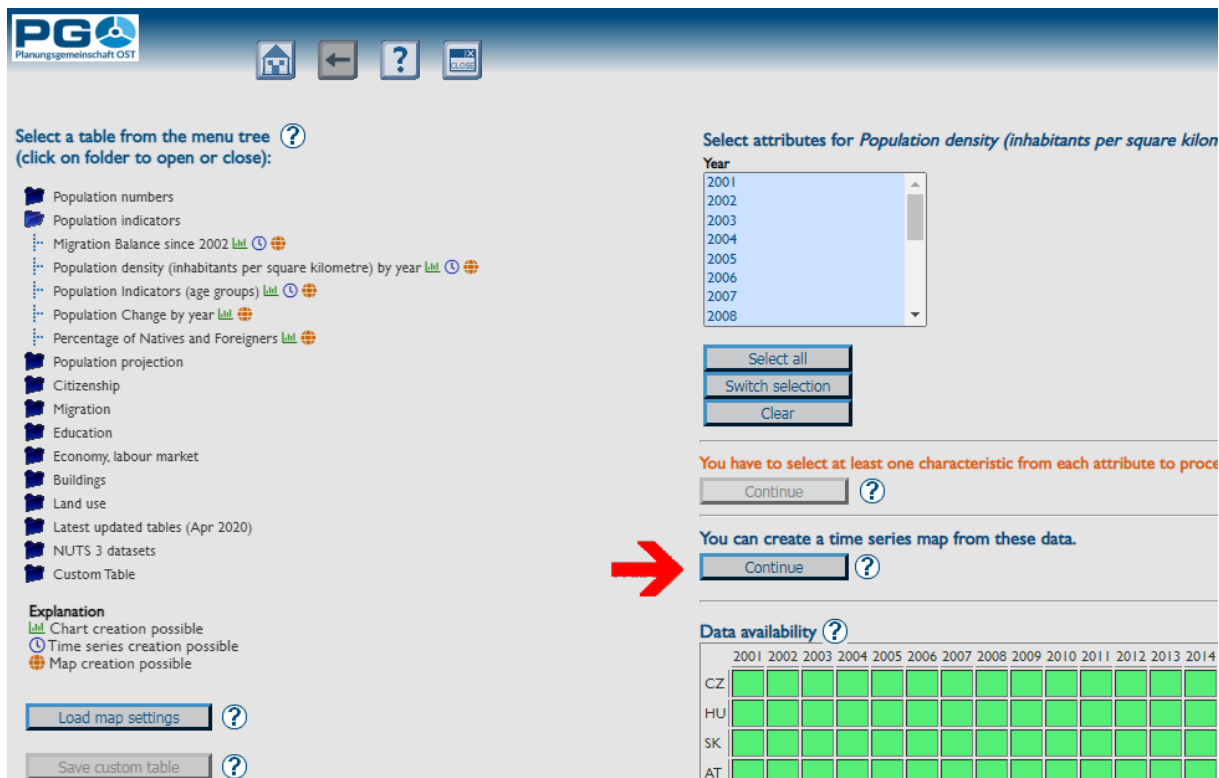
When done, press the “Apply” button. In the right half of the window you will then see a preview of your symbol map layer. Be aware that the creation of pie charts and bar charts takes its time as hundreds (or thousands) of point symbols have to be prepared. Due to the high complexity of symbol maps it is more or less impossible to roughly estimate the calculation time, so only a blinking “drawing...” sign is displayed instead of a progress bar.

After some time (may last from a few seconds to half a minute, depending on the amount of data and the complexity of symbols to be processed), the preview appears. If the preview suits your needs, click the “Create Map” button at the bottom of the preview image. CentropeSTATISTICS will then load the symbol layer into the map. Like with the preview, this may take a few seconds.



Create a time series map

Datasets which fulfil the basic requirements of map creation and are available for a consequent series of years can be used to create an animated time series map. Select the topic of your choice from the left menu tree in the CentropeSTATISTICS start window, then press the “Continue” button next to the message “You can create a time series map from these data”.

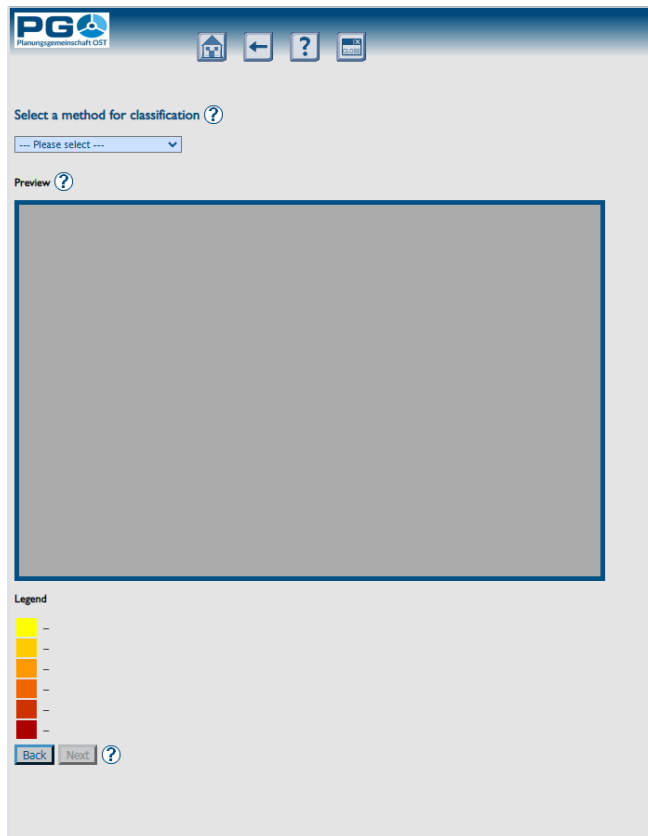


In the first step you are asked to choose a colour ramp and the number of classes for your time series map. If the selected table offers more than one column for time series map creation, you can also choose the table column here.

Below there is a listing of all years available for time series map creation (see image on the left). By default, all years are checked; this selection can be changed by the user. If all necessary selections are done, the “Next” button at the bottom of the window is enabled and leads you to the second step (see image on the next page).

A preview window is shown. The user can now test different methods of classification, the result is immediately shown in the preview window with a legend below. Having found a suitable classification method, hit “Next” to proceed to the final step, which is the creation of the animated time series map (see image below).

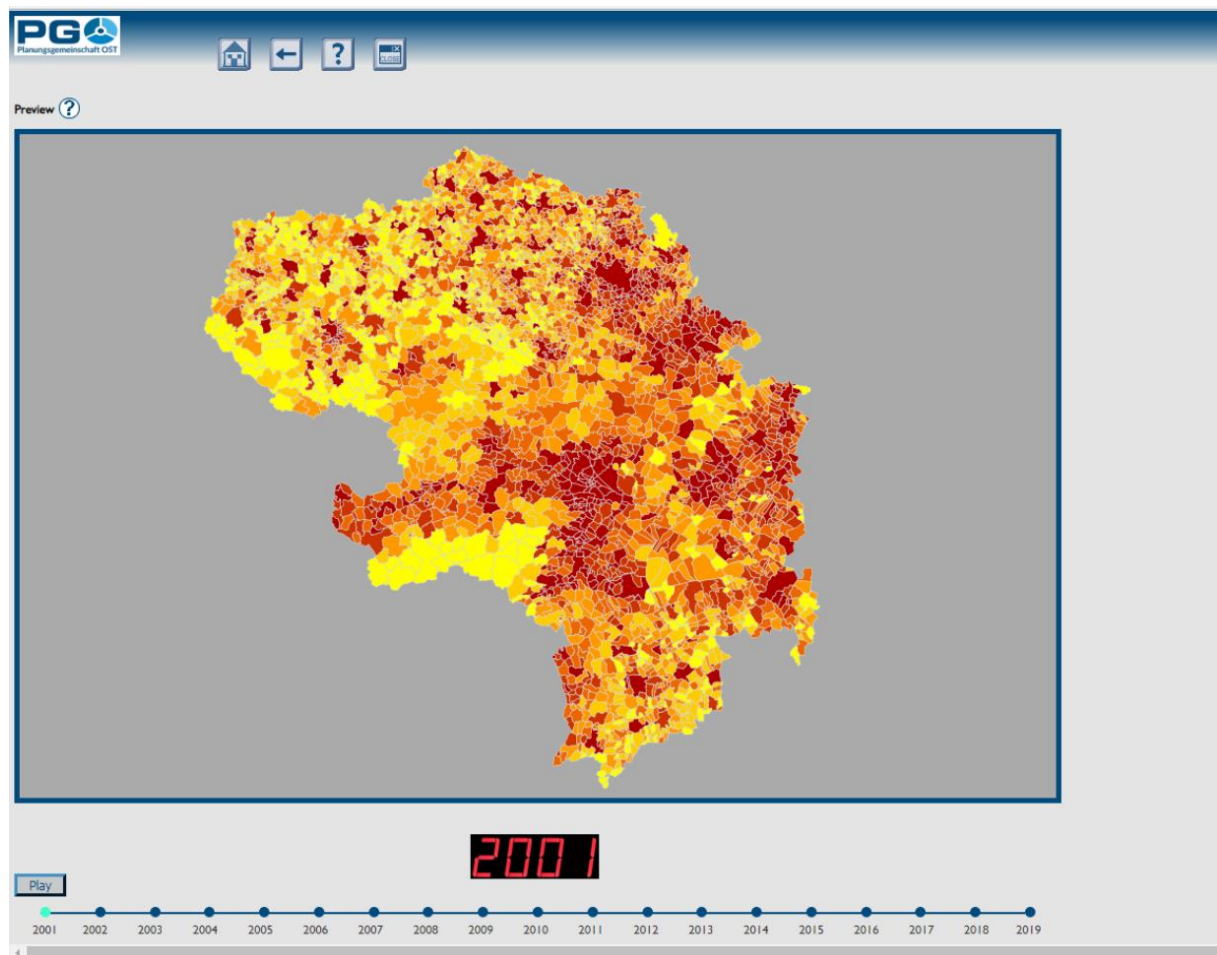
At start the map classification is shown for the first

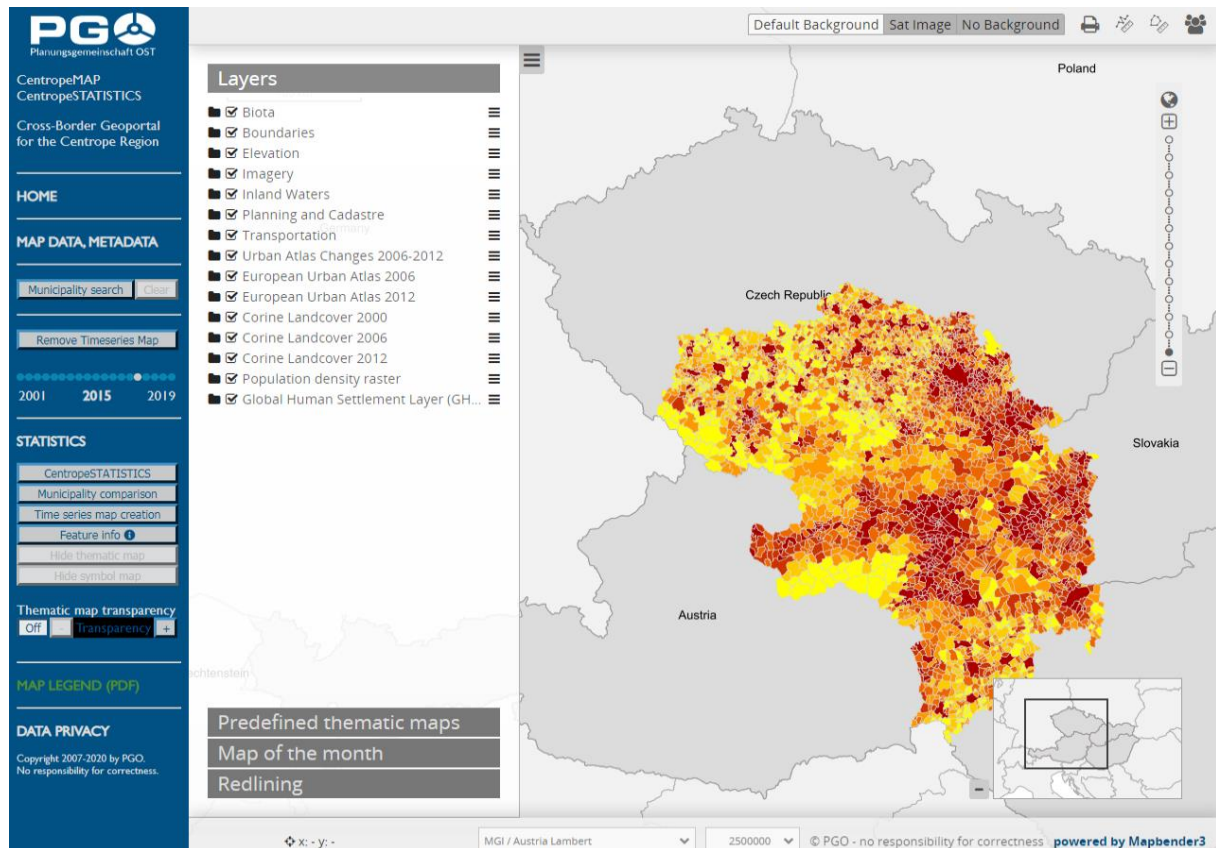


year of your time series. All available years are shown like a rope of pearls right below the map image. The active year is highlighted on the rope of pearls as well as shown in a digital display between rope of pearls and map. Click on any year to show the map for this year, or click the “Play” button at the bottom to start the animation. (The button turns into a “Pause” button then.) While the animation is running, the time series map images are shown one after the other in a permanent loop, Click “Pause” to stop the loop and “Play” to continue again.

You can also view the time series map in the main map window. To do so, navigate to the map window (but do not close the time series window as this will destroy the time series map) and have a look on the left menu (blue area in the

map window). Also here you can see a rope of pearls indicating the available years of time series map display.

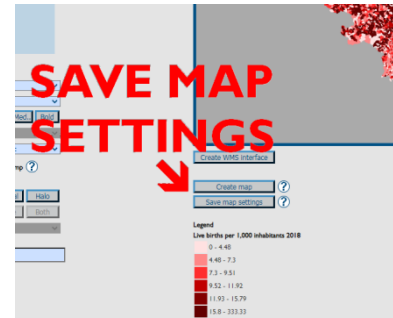




Click on any of the available years to display map data for this year in the map. In this window the time series map is not animated, but handling (zoom, pan, transparency, add other map layers) is just like any other map layer in the map window. The legend is shown in the legend window (click the green link “MAP LEGEND” to open), the time series map is also included in the print (PDF export) function.

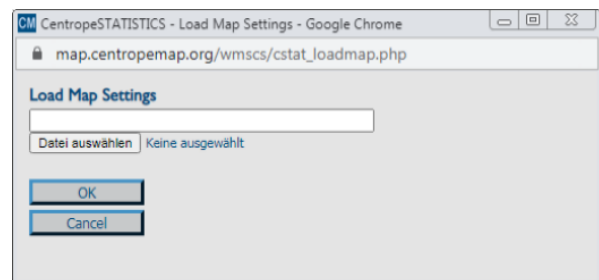
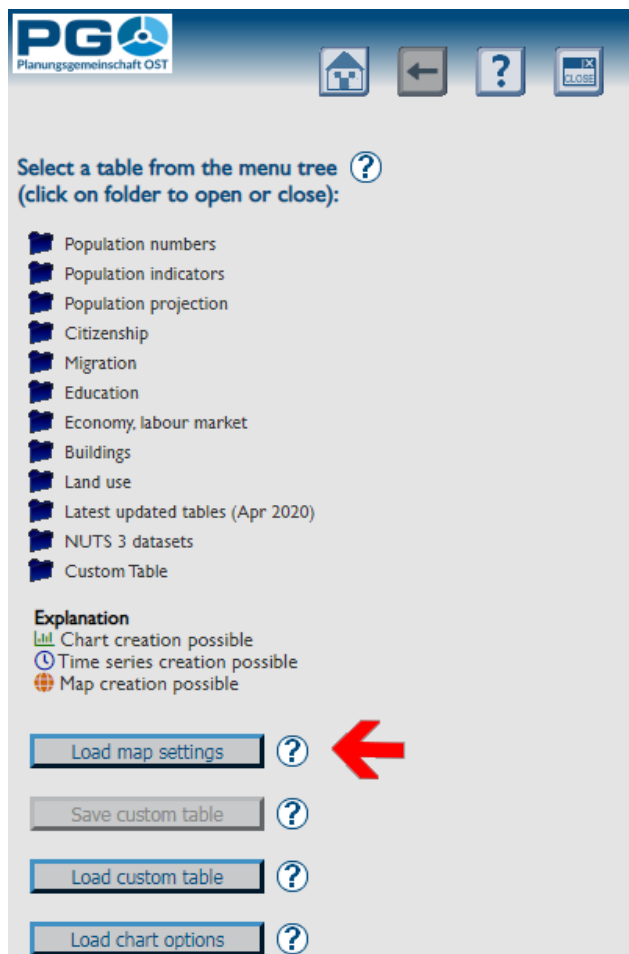
Save map settings

If you are working with standard thematic maps (choroplethic maps), you have the possibility to save your map settings. (Does not work with custom tables.) This allows you to store the current input data and layout of your map in a file which you can save to your local filesystem. At any later time and on any computer you can restore your thematic map with the help of this file. You can also pass on map settings files to colleagues so that they can take a look at your map without having to know which settings you chose.



You can save your map settings from the map preview window. Simply click the “Save map settings” button which is located right below the “Create map” button next to the map preview. You are then prompted to save an XML file to your local filesystem. Do not edit this file because it will become invalid due to a built-in checksum mechanism.

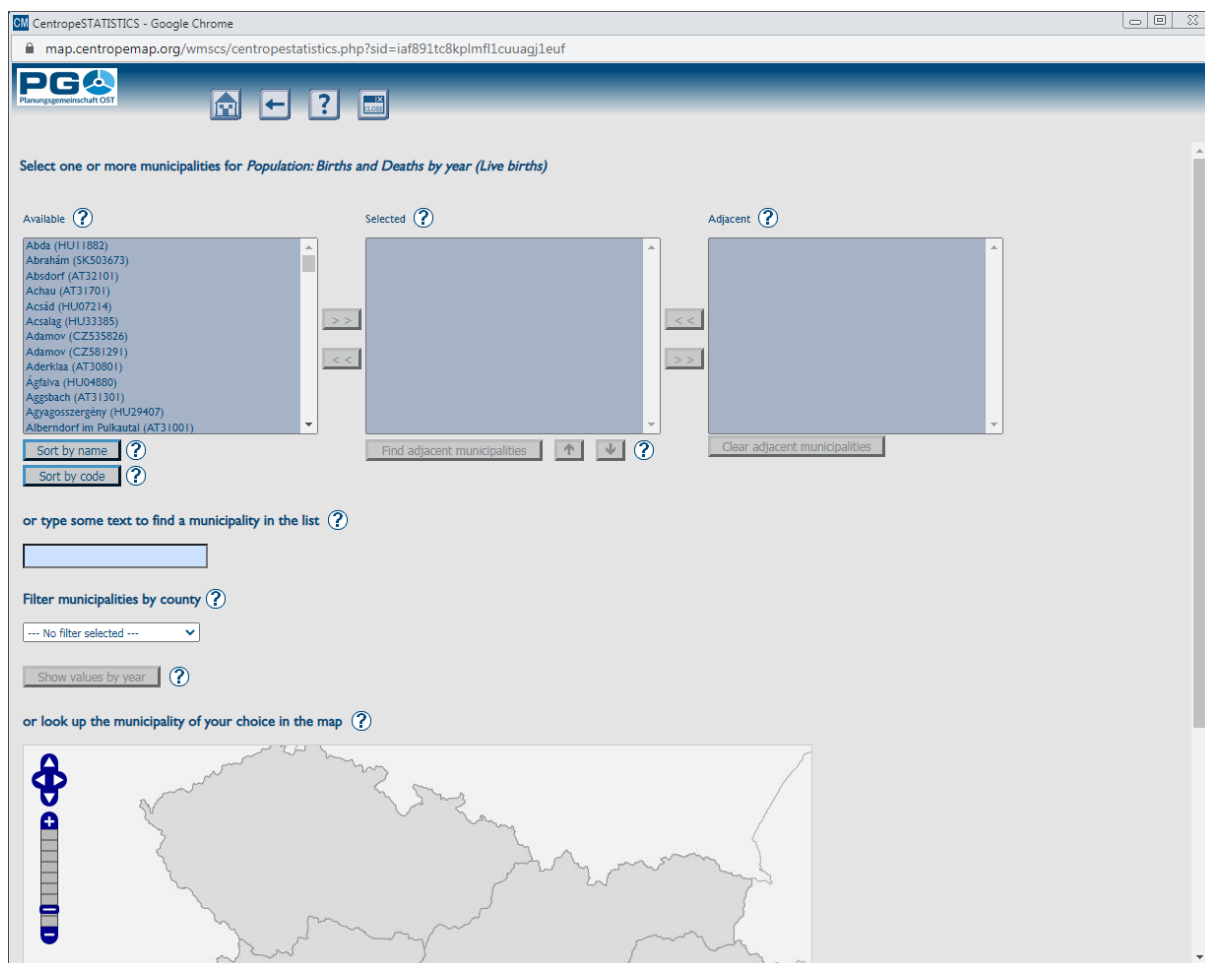
To bring back saved map settings to your screen, go to the start page of CentropeSTATISTICS (the one which is loaded on CentropeSTATISTICS startup or after you pressed the home button in the top area of the CentropeSTATISTICS window).



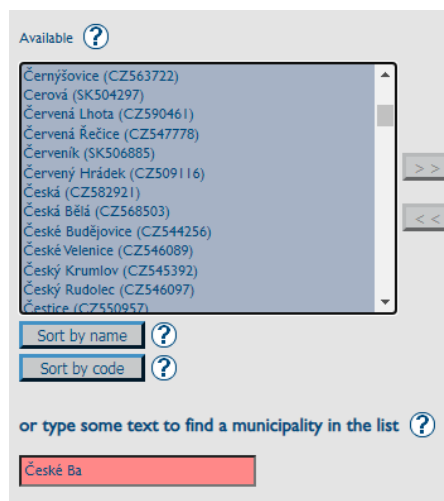
You will then be prompted to select a file from your local filesystem. The file will be uploaded to the CentropeMAP server and checked for integrity. If the integrity check fails, an error message will be displayed: “This is no valid CentropeSTATISTICS file.” If the integrity check succeeds, you are forwarded directly to the map preview.

Create column/bar charts (or point or line charts)

Pressing a “Chart” button loads the bar chart municipality selectbox:



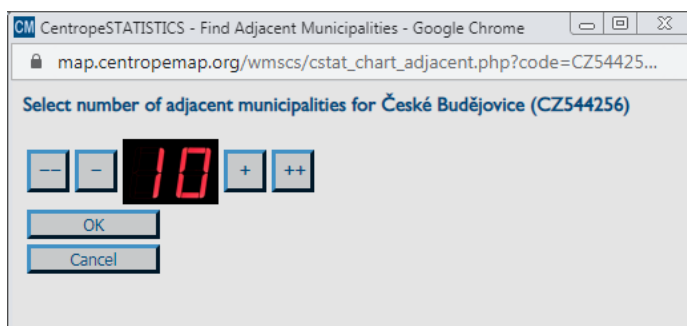
Select one or more municipalities from the left box to create a chart showing data exactly for the chosen municipalities – this is done with a single click on the municipality name (select more than one municipality by holding the CTRL key pressed while clicking) and then another single click on the button labelled “>>”. This method copies the selected municipality to the box in the middle where you can not only see and check your selection, but also reorder the municipalities. To reorder the selected municipalities, choose a municipality with a single click, then hit the arrow buttons below the middle selection box to move the selected municipality up or down. The first municipality in the list will be the first municipality in your chart (beginning from the top or from the left depending on the chart type). You can also search for a municipality by typing some text into the input field at the bottom. The first match with your text input is automatically highlighted in the left selection box, you can directly transfer it with the “>>” button to the middle selection box or continue typing. If no municipality matches your input, the input field turns red. Delete the last character until it turns white, then type some different text.



Another way to find the municipality of your choice is to select from the map below the search fields. Just left click on the map to select or deselect a municipality or drag a rectangle to select many municipalities at once. To select a handful of municipalities, simply single click on them one after the other. All selected municipalities are highlighted in the map and also shown in the search box above. The search boxes and the map are always synchronised and show the same selection.

To delete a municipality from your selection (in the middle box), click on the municipality in the middle box you want to delete, and hit the “<<” button afterwards. The municipality is then removed from the selection box in the middle. Or single click on a highlighted municipality in the map to remove it from your selection. If you zoom deeper into the map, municipality boundaries and municipality names will show up.

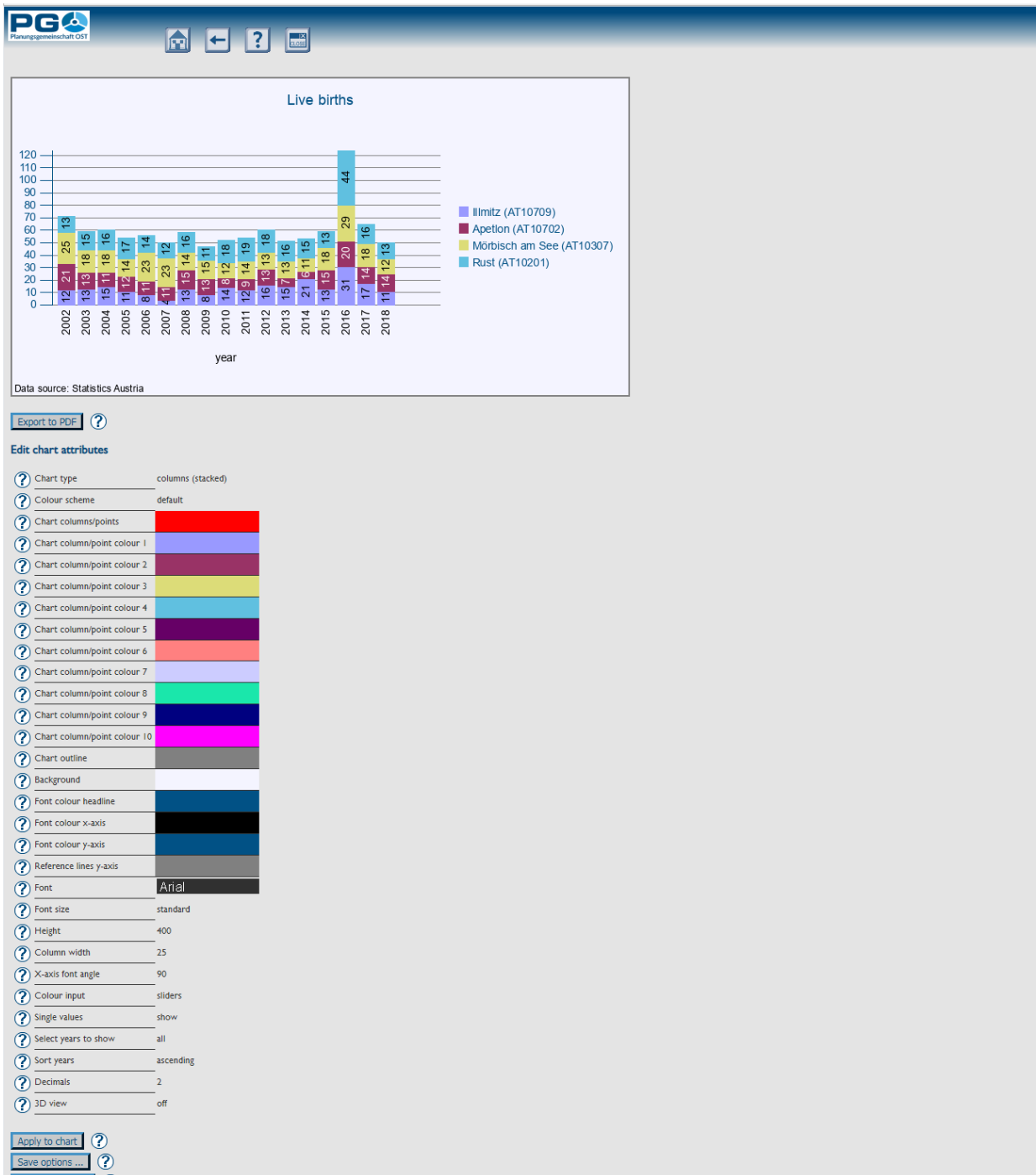
To search for adjacent municipalities, make sure that exactly one municipality shows up in the selection box in the middle, then press the “Find adjacent municipalities” button which is located right below the middle box. A pop-up window opens asking you to determine the number of adjacent municipalities you want to be returned. Use the buttons located left and right to the red number display: press “-” to decrease the number by 1, “--” to decrease the number by 10, “+” to increase the number by 1, or “++” to increase the number by 10. The adjacent municipalities are queried from CentropeMAP’s geodatabase by linear distance between the polygon centres of the selected municipality and the adjacent municipalities. The requested number of adjacent municipalities is sorted ascending by distance and then returned to the right selection box of the municipality selection window.



Select one or more adjacent municipalities from the right box and add them to your selection in the middle – this is done with a single click on the municipality name (select more than one municipality by holding the CTRL key pressed while clicking) and then another single click on the button labelled “<<”. This copies the selected municipality to the box in the middle. To delete an adjacent municipality from your selection (in the middle box), make a single click and hit the “>>” button afterwards. The municipality is then removed from the selection box in the middle.

As soon as you are done with municipality selection and sorting, press the “Show values by year” button. According to the selected theme, data for the requested municipalities are now queried from the cross-border statistical database for all available years. In the next step you are taken to the chart output window which offers you the chart and a lot of options to influence its layout. The chart is a graphics file, so you can copy it into your clipboard (single click with the right mouse button, then select “Copy” from the context menu) or save it to your local file system: single click with the right mouse button, then select “Save image as ...” from the context menu. Or hit the “Export to PDF” button directly below the chart.

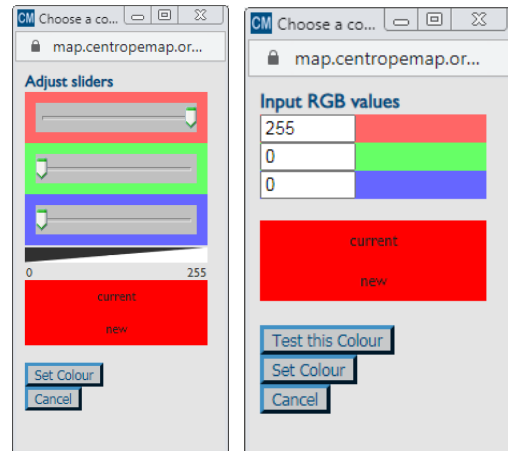
Below there are several attributes you can edit. All attributes are clickable, the options are shown in a small pop-up window.



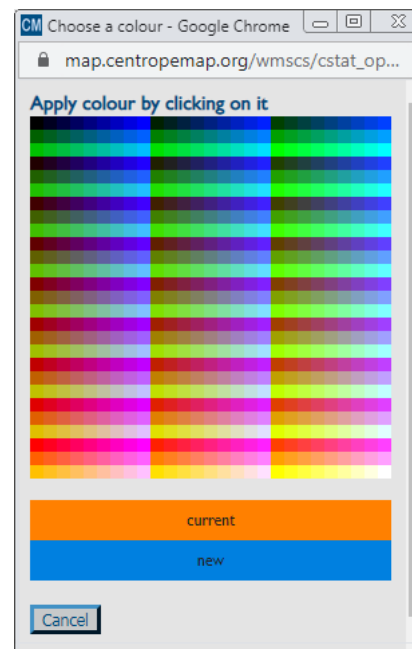
- **Chart type:** columns (bar chart), points, lines, points with lines. With bar charts municipalities are shown next to each other (like in the illustration above), with point and/or line charts they are shown one upon the other.
- **Colour scheme:** select a given colour scheme to match the layout of your document. Below there are numerous fields where you can edit single colours. The colour scheme changes automatically to “custom” then. Note that custom colour selections cannot be restored if you apply a standard colour scheme afterwards.
- **Font, font size:** set font and font size. These fonts are embedded into the chart, you need not have them installed on your system.
- **Height:** define the height of your chart in pixels.

- *Column width*: Define the width of the bars in the chart. With point and/or line charts this setting influences the horizontal space between the single values.
- *X-axis font angle*: set an angle from 0 to 90 degrees
- *Colour input*: There are three ways to select colours (see also illustrations):

- *sliders*: move the slider bars to adjust the RGB values. The old and new colours are shown in the pop-up for comparison.
- *direct RGB input*: type numbers between 0 and 255 into text fields.
- *colour picker*: a colour maze is shown in the pop-up; click on a colour to select it.



- *Single values*: lets you define whether the single values are shown in (or above) the bars. This option works only with bar charts. Point and/or line charts do not show single values.
- *Indexed values*: shows the chart values as indexed values. The user can define for which year the indices are calculated (base index value = 100).
- *Select years to show*: allows to set the range of years to be displayed.
- *Sort years*: The years can be sorted ascending or descending (from left to right).
- *Decimals*: number of decimals to be displayed with single values.
- *3D view*: You can have your chart drawn with flat bars or 3-dimensional blocks.

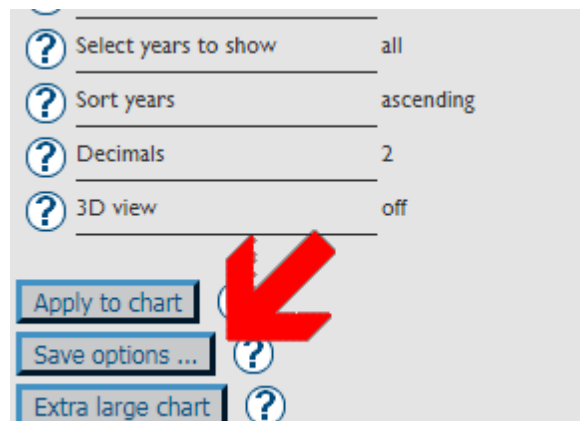


Um Ihre Einstellungen auf das Diagramm anzuwenden, betätigen Sie die Schaltfläche „Apply to chart“. Mit der Schaltfläche „Extra large chart“ aktivieren Sie die Einstellungen für sehgeschwache Personen.

Diagrammoptionen speichern und laden

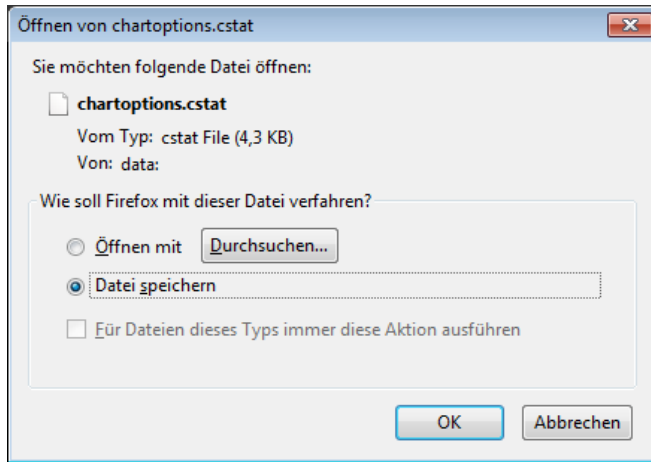
Having created a chart, you can save all chart options (contents, colours, layout settings, ...) to your local filesystem to be able to recreate this chart at any later time from any computer.

To save your chart options, click on the “Save options ...” button which is located directly below the “Apply to chart” button in the lower left corner of the

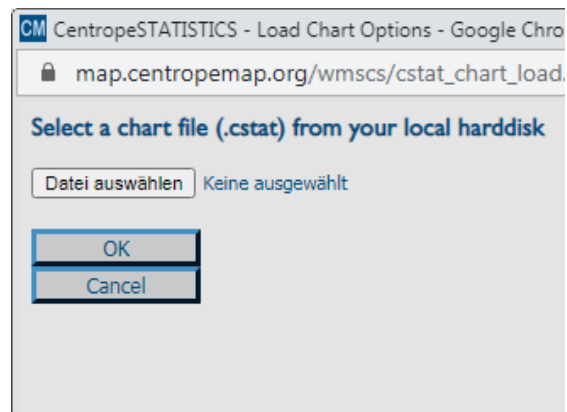


CentropeSTATISTICS window. You are then prompted to save a file to your local filesystem (see illustrations).

Save this file (which is named “chartoptions.cstat” by default but may of course be renamed), then click on “OK” below the “Export completed” message.



To load chart options during a CentropeSTATISTICS session, you first of all need to go to the start page of CentropeSTATISTICS. You can do this with a click on the “Home” button in the header area. A pop-up window opens where you can select a file from your local filesystem. Upload this file to the CentropeSTATISTICS server with a click on “OK”. The file is then checked for integrity. If it passes the integrity test, you are forwarded directly to the chart page where your chart will be displayed with all settings as saved before. If it fails to pass the integrity test, CentropeSTATISTICS will display an error message saying “Invalid contents in uploaded file. Data not processed.”



Create pie charts

Pressing a “Pie chart” button loads the pie chart selectbox: (see illustration on next page). In addition to the selection of municipalities (like with bar charts) there are a few more options available:

- *Values to be displayed:* Select the combination of values to be displayed. These combinations are pre-defined and cannot be changed. (Other combinations of the values available in the selected table would not produce meaningful charts.)
- *Year to be displayed:* Select the year to be displayed. A pie chart always combines two or more values from one table for one municipality and one year, so there is no possibility to select more than one year at once.
- *Select one or more municipalities:* A pie chart can be created only for one municipality. Nevertheless, you can compare values for more than one municipality. If you select two or more municipalities, the chart creation engine automatically switches to bar chart mode. These bar charts combine the selected values in stacked horizontal bars which sum up to 100 % individually, so the length of the bar segments refers to the percentage like the parts of a pie chart.

The screenshot shows the 'Values to be displayed' section of the CentropESTATISTICS application. It includes a header with the PGO logo and navigation icons. The main content area has three sections: 'Values to be displayed', 'Year to be displayed', and 'Select one or more municipalities for Population: Births and Deaths by year'. The 'Values to be displayed' section has two radio buttons: 'births, deaths' (selected) and 'birthsper1000inh, deathsper1000inh'. The 'Year to be displayed' section has a row of radio buttons for years from 2002 to 2018, with 2018 selected. The 'Select one or more municipalities for Population: Births and Deaths by year' section includes a hint: 'Hint: Selecting a single municipality will create a pie chart. Selecting two or more municipalities will create a bar chart.' Below this is a 'Show chart' button. The 'Available' section lists 15 municipalities with their codes. The 'Selected' and 'Adjacent' sections are empty. At the bottom, there is a search bar and a filter dropdown set to 'No filter selected'.

Values to be displayed ?

☒ births, deaths
☐ birthspersper1000inh, deathspersper1000inh

Year to be displayed ?

☐ 2002 ☐ 2003 ☐ 2004 ☐ 2005 ☐ 2006 ☐ 2007 ☐ 2008 ☐ 2009 ☐ 2010 ☐ 2011 ☐ 2012 ☐ 2013 ☐ 2014 ☐ 2015 ☐ 2016 ☐ 2017 ☒ 2018

Select one or more municipalities for Population: Births and Deaths by year ?

Hint: Selecting a single municipality will create a pie chart. Selecting two or more municipalities will create a bar chart.

Show chart ?

Available ?

Abda (HU11882)
 Abraham (SK503673)
 Absdorf (AT32101)
 Achau (AT31701)
 Acsád (HU07214)
 Acsalag (HU33385)
 Adamov (CZ535826)
 Adamov (CZ581291)
 Aderkias (AT30801)
 Ágfalva (HU04880)
 Aggsbach (AT31301)
 Ágyagoszgerény (HU29407)
 Alberndorf im Pulkautal (AT31001)

Selected ?

Adjacent ?

Sort by name ?
 Sort by code ?

Find adjacent municipalities ?
 Clear adjacent municipalities

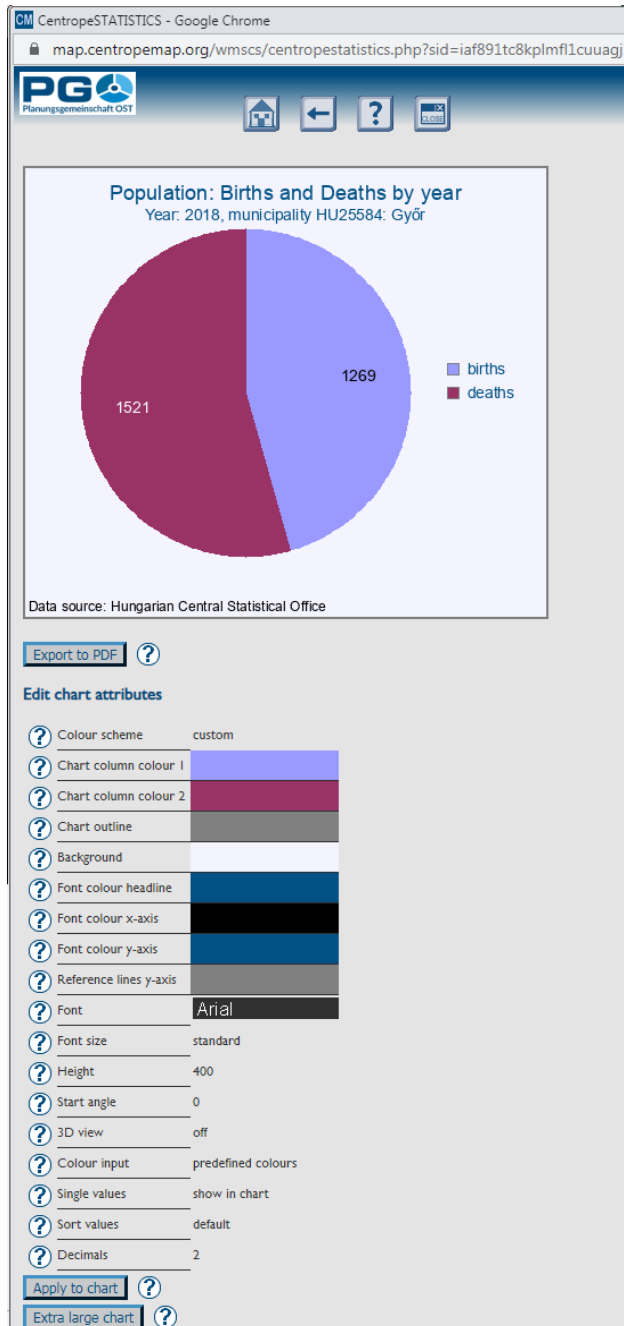
or type some text to find a municipality in the list ?

Filter municipalities by county ?

--- No filter selected ---

Having done your selection, click on “Show chart” to proceed.

The pie chart is shown in the chart creation window (see following illustration). Below there are several attributes you can edit. All attributes are clickable, the options are shown in a small pop-up window.

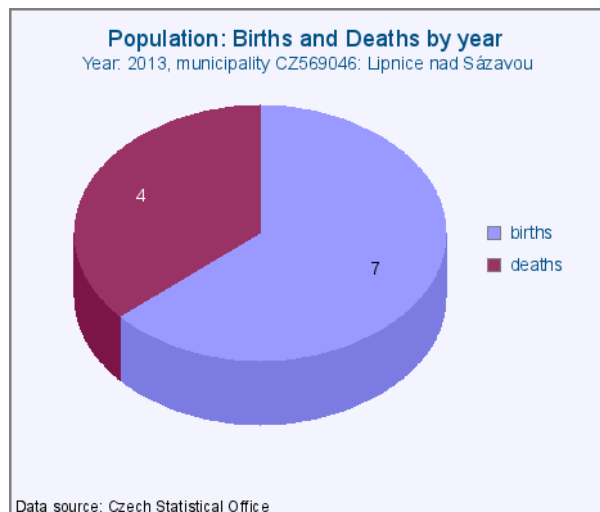


- **Colour scheme:** select a given colour scheme to match the layout of your document. Below there are numerous fields where you can edit single colours. The colour scheme changes automatically to “custom” then. Note that custom colour selections cannot be restored if you apply a standard colour scheme afterwards.

- **Font, font size:** set font and font size.
- **Height:** define the height of your chart in pixels.

- **Start angle:** The values of the pie chart are drawn clockwise from the start angle which is 0 degrees (12 o'clock) by default. 90 degrees are equal to 3 o'clock, 180 to 6 o'clock etc. A full circle has 360 degrees, so the value can be chosen between 0 and 359.

- **3D view:** You can have your pie chart drawn as flat circle or as 3-dimensional cake (see example).



- **Colour input:** There are three ways to select colours (see also illustrations):
 - **sliders:** move the slider bars to adjust the RGB values. The old and new colours are shown in the pop-up for comparison.
 - **direct RGB input:** type numbers between 0 and 255 into text fields.
 - **colour picker:** a colour maze is shown in the pop-up; click on a colour to select it.

- *Single values:* lets you define whether the single values are shown directly in the pie, next to the pie within the legend, in both places or not at all.
- *Sort values:* define the sequence of values. They can be ordered ascending or descending by value, alphabetically ascending or by default (which is the order in which the values are stored in the database).
- *Decimals:* number of decimals to be displayed with single values.

Creation of population pyramid charts

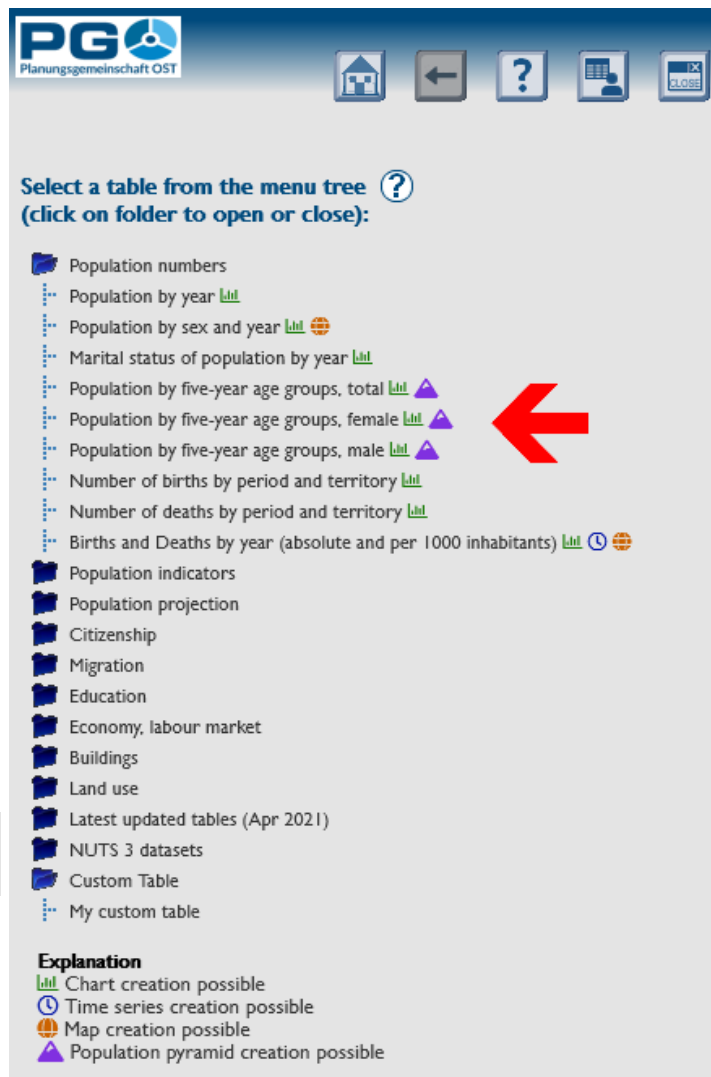
Population pyramid diagrams can be generated from the tables with the population by age groups. Since the data on the population by age groups are available annually, it is possible at the same time to depict the population pyramids as an animated time series. The possibility of generating population pyramids is marked in the table tree by pyramid symbols.

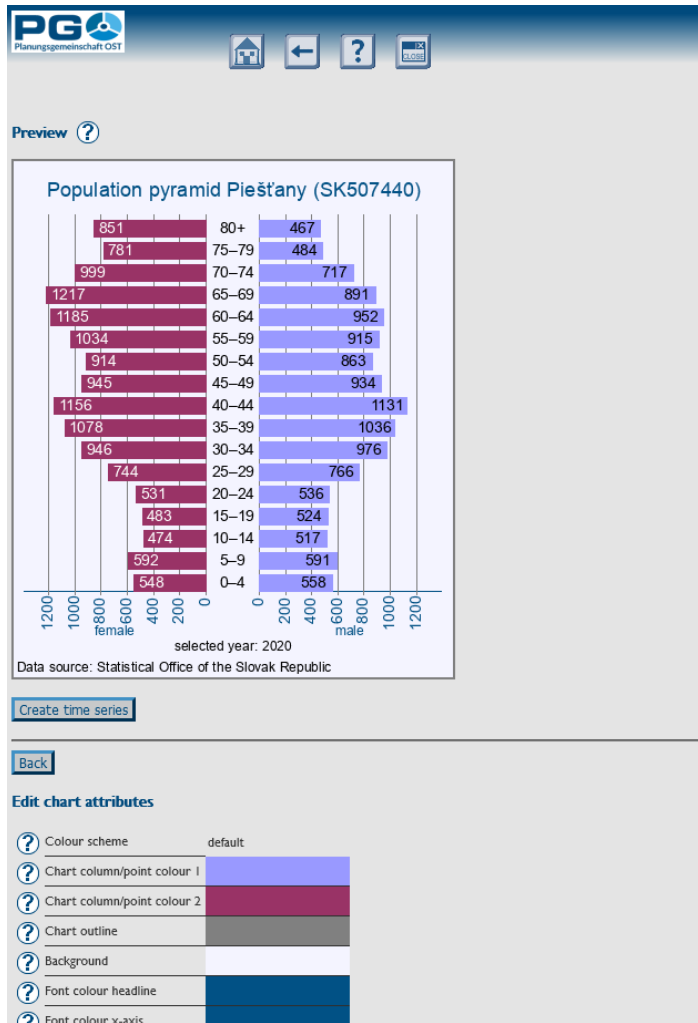
When selecting one of the tables marked in this way from the table tree, the note “You can create population pyramids from this table.” appears in the right half of the window. Click on the “Continue” button below to switch to the creation of the population pyramids.

You can create population pyramids from this table.
[Continue](#) ?

In the next step you select the desired municipality. This is done in the same way as when creating other diagrams (see chapter 5).

After selecting the municipality, press the “Show values” button. The population pyramid for the current year is generated and displayed as a sample diagram. Here you have the possibility to change various display options as when creating other charts (see chapter 5) and apply them to the population pyramid by clicking on “Apply to chart” (for example chart see next page).





If you are satisfied with the most recent population pyramid (and have no need for a time series display), this was already the last step. To proceed to the creation of a time series, press the button “Create time series”.

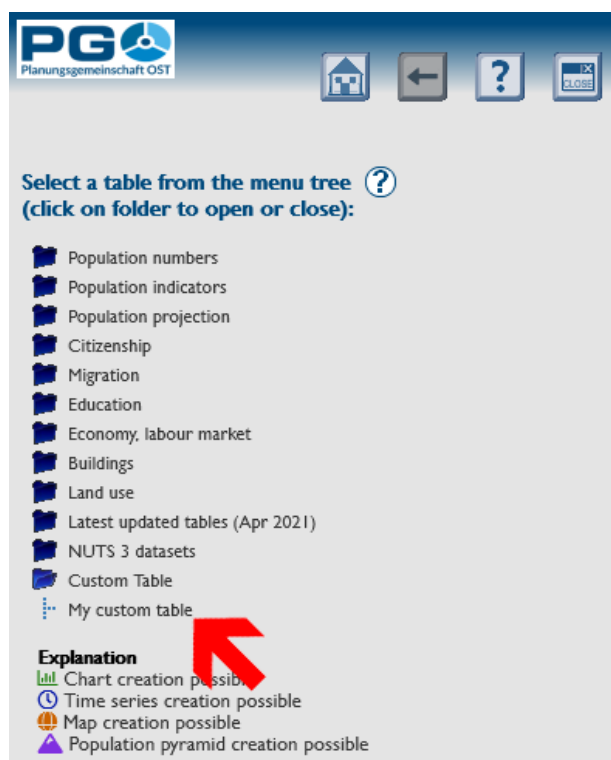
After pressing the button, the population pyramids for the existing years are created in the background. At the bottom of the window, a beaded line with a year display is created, which you can use to call up the data for the individual years directly. Above this is a “Play”/“Pause” button for playing or pausing the animation.

Create a custom table



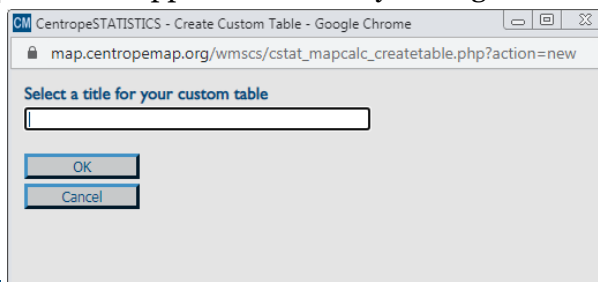
to your custom table. Enter some text in the title field, then press the “OK” button or hit the “Enter” key.

If you switch to your custom table for the first time, you can see that the table is quite empty: It shows only the



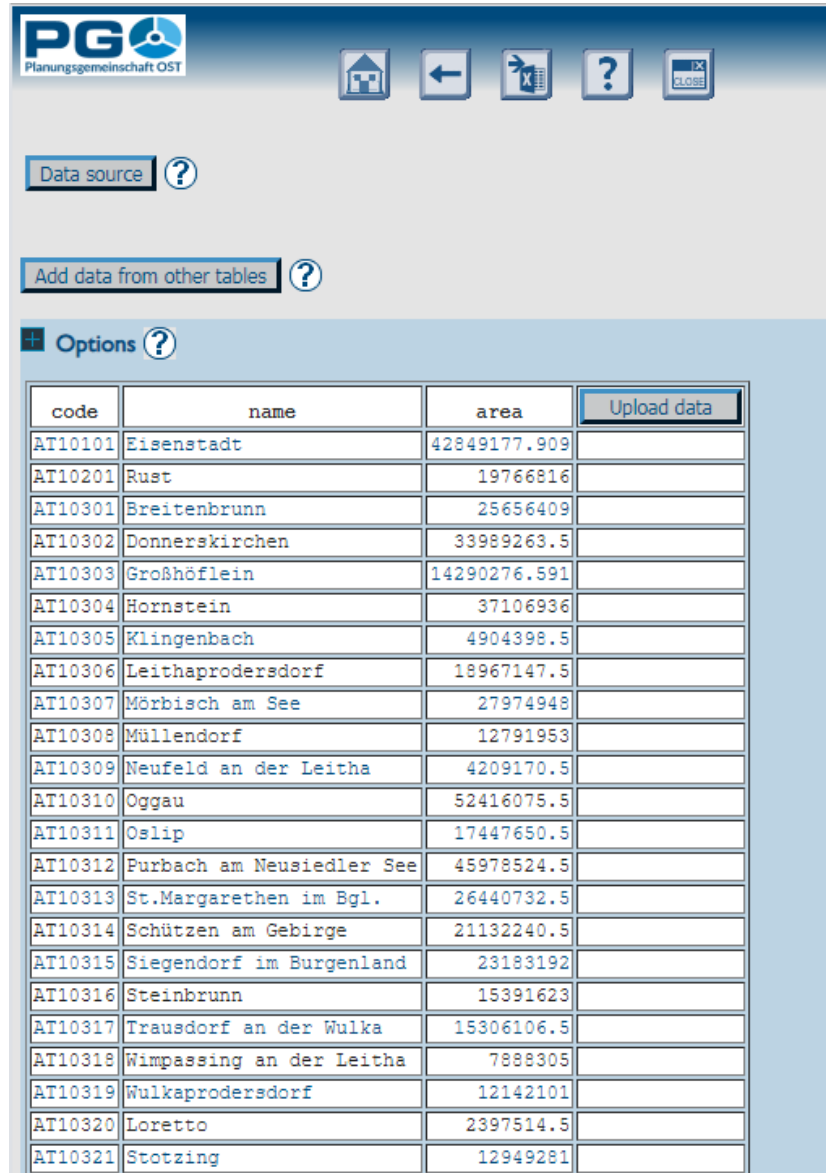
There are plenty of datasets available via CentropoSTATISTICS. Perhaps you want to create your own statistical indicators based on data from one or more tables. CentropoSTATISTICS allows you to create a temporary personal table where you can put together data from different tables and create your own values.

First of all, if you want to work with a custom table, you have to create one. Expand the “Custom Table” folder in the menu tree and click “Create custom table” (see illustration on the left). You can also load a custom table which was saved in a previous CentropoSTATISTICS session (more details are explained at the end of this chapter). If you select “Create custom table”, a pop-up window appears and asks you to give a title



municipalities and their area in m², but nothing more. So, in the next step you have to add columns to your custom table. Hit the “Add data from other tables” button and select the data of your choice. Or return to the start page and select any table you want from the menu tree. Open it as usual. You can see that an additional button appears on the top of each column: “Add to custom table”. Whenever you press the this button, CentropoSTATISTICS copies the selected column to your custom table (or returns a warning message if the column already exists in your custom table). During the copying process, a pop-up window appears in case of a failure. There are two reasons why data transfer could fail:

- You already added this column to your custom table. In this case, the column is not copied a second time, but you will receive a message stating “A column with this content already exists in your custom table.”
- The column does not match the area which is covered by your custom table. Field calculations and map output are done only for the geographic



The screenshot shows the CentroppeSTATISTICS interface. At the top, there is a header bar with the PGO logo and navigation icons. Below the header, there are three main sections: 'Data source', 'Add data from other tables', and 'Options'. The 'Options' section is currently active, displaying a table of administrative units. The table has three columns: 'code', 'name', and 'area'. The 'code' column contains unique identifiers for each unit, the 'name' column contains the unit's name, and the 'area' column contains the area value. An 'Upload data' button is located at the top right of the table.

code	name	area	Upload data
AT10101	Eisenstadt	42849177.909	
AT10201	Rust	19766816	
AT10301	Breitenbrunn	25656409	
AT10302	Donnerskirchen	33989263.5	
AT10303	Großhöflein	14290276.591	
AT10304	Hornstein	37106936	
AT10305	Klingenbach	4904398.5	
AT10306	Leithaprodersdorf	18967147.5	
AT10307	Mörbisch am See	27974948	
AT10308	Müllendorf	12791953	
AT10309	Neufeld an der Leitha	4209170.5	
AT10310	Oggau	52416075.5	
AT10311	Oslip	17447650.5	
AT10312	Purbach am Neusiedler See	45978524.5	
AT10313	St.Margarethen im Bgl.	26440732.5	
AT10314	Schützen am Gebirge	21132240.5	
AT10315	Siegersdorf im Burgenland	23183192	
AT10316	Steinbrunn	15391623	
AT10317	Trausdorf an der Wulka	15306106.5	
AT10318	Wimpassing an der Leitha	7888305	
AT10319	Wulkaprodersdorf	12142101	
AT10320	Loretto	2397514.5	
AT10321	Stotzing	12949281	

intersection of the data added to your table. E. g. if you add a column containing data for the whole Centroppe region and another column with data for whole Austria, all following operations will only be performed for the Centroppe part of Austria. If you try to add a column which would set this geographical intersection to an empty result, CentroppeSTATISTICS will notice this and prevent you from adding this column stating “This column does not match your table geographically. It contains only data for administrative units which are not taken into consideration within your custom table. Action not performed.”

Upload data to a custom table

Another way to add data to your custom table is the upload function. This function allows you to add external data, i. e. datasets which are not part of the CentropeSTATISTICS cross-border database. These data has to be in a specific format to allow upload to your custom table. There are two options depending on the notation of decimals you are using. If you are using the comma (",") as decimal separator, your field separator is the semicolon (";") – option 1 on the left. If you are using the point as decimal separator, your field separator is the comma (",") – option 2 on the right.

Allowed data format, option 1	Allowed data format , option 2
code;value1;value2	code,value1,value2
AT90101;1;46	AT90101,1,46
AT90201;2;53,2	AT90201,2,53.2
AT90301;3;60,1	AT90301,3,60.1
AT90401;4;23	AT90401,4,23
AT90501;5;45,8	AT90501,5,45.8
AT90601;6;92	AT90601,6,92
AT90701;7;91	AT90701,7,91
AT90801;8;2,4	AT90801,8,2.4
AT90901;9;77	AT90901,9,77
AT91001;10;25,9	AT91001,10,25.9
AT91101;11;67,9	AT91101,11,67.9
AT91201;12;90	AT91201,12,90
AT91301;13;45,5	AT91301,13,45.5
AT91401;14;38,2	AT91401,14,38.2
AT91501;15;53,6	AT91501,15,53.6
AT91601;16;98,4	AT91601,16,98.4
AT91701;17;55	AT91701,17,55
AT91801;18;34,1	AT91801,18,34.1
AT91901;19;58	AT91901,19,58
AT92001;20;52,9	AT92001,20,52.9
AT92101;21;49,4	AT92101,21,49.4
AT92201;22;87	AT92201,22,87
AT92301;23;12,2	AT92301,23,12.2

Your data must be saved in CSV format (which is a common export option in spreadsheet software like MS Excel). Make sure that the column names are written in the first line. Otherwise you will lose the first line of data and get wrong column names. The first column should be named "code" and it must contain the municipality codes (starting with two letters for the country: AT, CZ, HU, or SK) as identifiers so that CentropeSTATISTICS can do a table join between your custom table and the imported CSV table.

If your datasets are formatted properly, the data is added to your custom table (which is automatically refreshed then). If your datasets fail to pass the integrity check, you are given a warning message saying "Error: The CSV file is not formatted properly." and the data is not committed.

The field calculator

With a custom table, you can also do your own calculations and use the output of these calculations in a thematic map. Let's explore this chapter by an example: We want to create a map of the percentage of people aged 0 to 14 living in each municipality in the year 2011. There is no table available where this percentage has already been precalculated, so we have to do the calculation on our own.

Step 1 (if not already done): create a custom table (see chapter 4.1.).

Step 2: go to your custom table, hit "Add data from other tables", select "population by five-year age groups, total", then the year 2011 and the columns "population aged 00 to 04", "population aged 05 to 09", "population aged 10 to 14", and "population (absolute values)". (We will need the whole number of population in each municipality as well to be able to calculate the percentage of 0-to-14-year-olds.)

Step 3: Your custom table should now look like this:

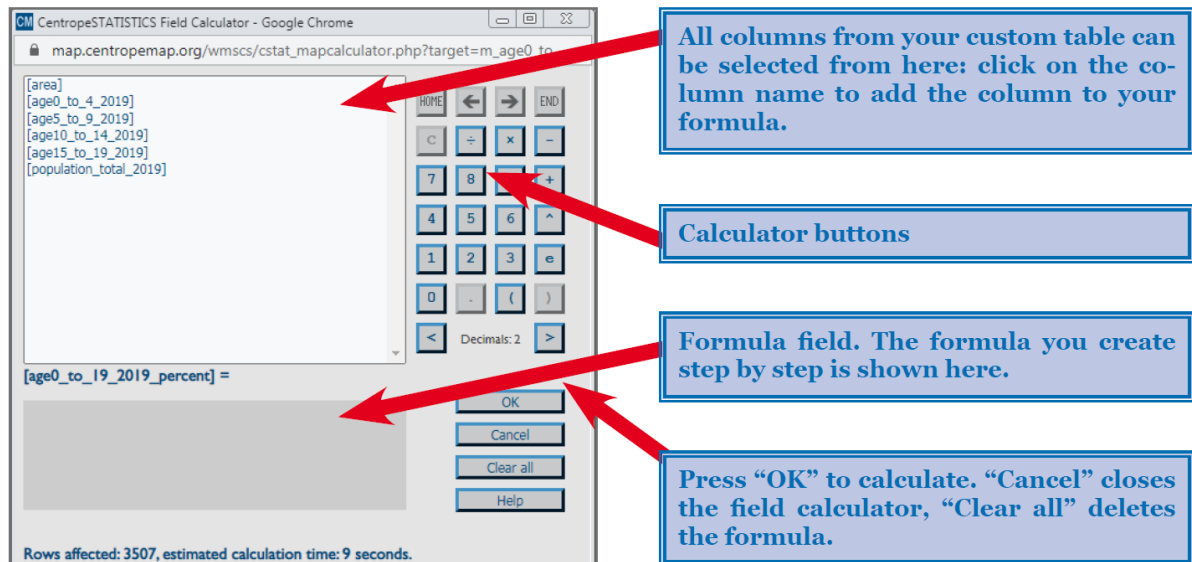
		Map Remove Pie chart	Map Remove Pie chart	Map Remove Pie chart	Map Remove Pie chart	Map Remove Pie chart	Create new column Upload data
name	area	age0 to 4 2019	age5 to 9 2019	age10 to 14 2019	age15 to 19 2019	population total 2011	
	42849177.909	695	685	678	689	14637	
	19766816	73	83	88	97	1940	
n	25656409	57	83	81	74	1910	
hen	33989263.5	65	79	66	85	1822	

Step 4: Step 4: Notice the empty column on the right end of the table. One of the buttons above it says: "Create new column". Press it and you will be asked to enter a name for your new column. We need an empty column where we can store the result of our field calculation. According to the other column names, we will now give it the name "age0_to_14_2011_percent". The custom table is refreshed and the new column appears, together with two additional buttons: "Field calculator" (which we will use right in the next step) and "Reclassify". Your custom table looks like that now:

			Map Remove Pie chart	Map Remove Pie chart	Map Remove Pie chart	Map Remove Pie chart	Map Remove Pie chart	Map Remove Pie chart	Map Field calculator Reclassify Rename Remove Pie chart
code	name	area	age0 to 4 2019	age5 to 9 2019	age10 to 14 2019	age15 to 19 2019	population total 2019	age0 to 19 2019 percent	
AT10101	Eisenstadt	42849177.909	695	685	678	689	14637	0	
AT10201	Rust	19766816	73	83	88	97	1940	0	
AT10301	Breitenbrunn	25656409	57	83	81	74	1910	0	
AT10302	Donnerskirchen	33989263.5	65	79	66	85	1822	0	

Step 5: Press the buttons as if you were using any standard desk calculator or use your keyboard. The "C" button lets you undo your last calculator action, i. e. remove a digit, an operator or a column name from the formula field. If you press "OK", the formula will be checked for errors. If errors are found, you will receive a warning message "Syntax error!".

Here is a step-by-step example how to create a formula. We have population by age groups (0-4, 5-9, 10-14) and want to calculate the percentage of 0-to-14-year olds of total population. It is necessary to sum up the three age groups 0-4, 5-9, 10-14, divide the sum by the total population and multiply the result with 100 to receive percentage values in a range of [0..100]. Remember that according to mathematical rules multiplicative operations (multiplication and division) take precedence over additive operations (addition and

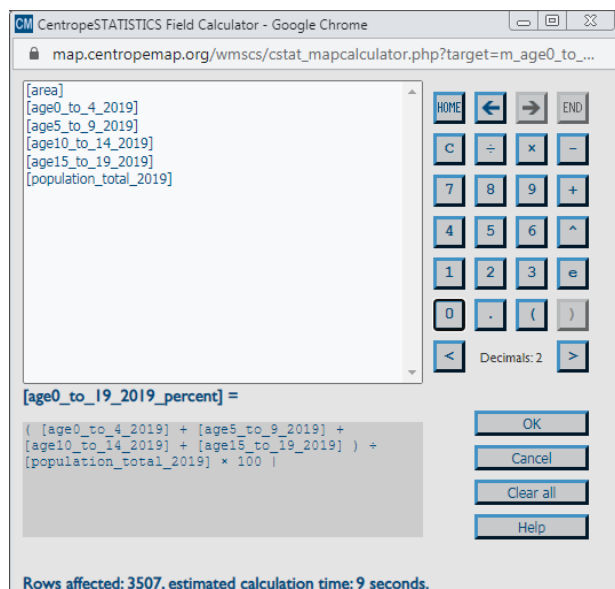


The screenshot shows the 'CentropeSTATISTICS Field Calculator' window. It features a list of columns on the left, a central formula field, a numeric keypad on the right, and buttons for 'OK', 'Cancel', 'Clear all', and 'Help' at the bottom. Red arrows point from text boxes to specific parts of the interface:

- All columns from your custom table can be selected from here: click on the column name to add the column to your formula.** (Points to the column list)
- Calculator buttons** (Points to the numeric keypad)
- Formula field. The formula you create step by step is shown here.** (Points to the formula input area)
- Press "OK" to calculate. "Cancel" closes the field calculator, "Clear all" deletes the formula.** (Points to the bottom buttons)

At the bottom of the window, it states: 'Rows affected: 3507, estimated calculation time: 9 seconds.'

subtraction). So we have to put the addition into brackets which means your first button should be “(”. Then you click on “age_o_to_4_2011”, hit “+” ... and so on until you clicked age_10_to_14_2011. After that, the addition is complete, so we have to close the bracket. Multiplication and division are still remaining. As both operations have the same hierarchical level in mathematics, it does not matter which one comes first. The field calculator should now look like on the right – the formula is entered and we are ready to press the “OK” button to start the field calculation. The estimated calculation time is shown at the bottom of the field calculator window. With every press of the “OK” button, the formula is given an integrity check. Calculation is only done with a correct formula, otherwise the field calculator returns a “Syntax error”.



This screenshot shows the same field calculator window, but now with a completed formula entered in the formula field:

$$([age0_to_4_2019] + [age5_to_9_2019] + [age10_to_14_2019] + [age15_to_19_2019]) / [population_total_2019] * 100$$

The formula is enclosed in brackets and uses the column names from the list. The 'OK' button is highlighted, indicating it is the next step to execute the calculation. The status at the bottom remains: 'Rows affected: 3507, estimated calculation time: 9 seconds.'

Step 6: The field calculation is done and the custom table is refreshed. In our column “ageo_to_14_2011_percent” we can now see the results of our field calculation for each municipality. To create a map from these data, just press the button labelled “Map” and proceed like told in chapter 5 (Create a choroplethic map).

Data reclassification

Data reclassification allows you to create separate data classes from columns containing continuous values. This can, for example, be useful if you want to exclude municipalities with a certain attribute range for further calculation: Set the unwanted range to a reclassification value of zero and use the field calculator for a multiplication. Then you can treat the attribute value of zero as “no data” in your map.

CentropeSTATISTICS Reclassification - Google Chrome

map.centropemap.org/wmscs/cstat_mapcalc_reclass.php?tar

Reclassifying age0_to_19_2019_percent ?

Minimum value: 0 ?

Maximum value: 39.13 ?

from	to	New value
0.00	19.57	0
19.58	39.13	1

Add row ?

Delete row ?

OK ?

Cancel

Start reclassification by clicking “Reclassify” on top of a column of your custom table. (Note: Reclassification is only available for own calculation results. If you want to reclassify existing values, you need to copy these values into a new column – create a new column and set it equal to the column of your choice with the help of the field calculator.

The reclassification window starts with two rows of data reclassification. To add rows (i. e. to add reclassification value ranges), click on “Add row”. Make sure that the “to” value is not lower than the “from” value of the next line. If a “to” value lower than the “from” value of the next line is discovered, the “from” value of the next line turns red to draw your attention to a field not having a proper value inserted. Press the “OK” button to start reclassification. The result is added as separate row to your custom table, so the values before reclassification are not overwritten.

Data aggregation

Almost all datasets in the CentropeSTATISTICS cross-border database are provided on municipality level. A few datasets are available on NUTS 3 level only. To be able to combine these datasets, CentropeSTATISTICS offers the possibility to aggregate municipality level data to district and NUTS 3 level. Directly above your custom table there is an “Options” section. Expand it by clicking on the word “Options”, then you can see an “Aggregate” button if data in the table is on municipality level. Press the button to open the aggregation function in a separate pop-up window. For aggregation you can choose between various aggregation methods:

- SUM (add all values within area)
- MAX (find highest value within area)
- MIN (find lowest value within area)

Apply filter

Change decimal separator to comma ? Switch to CSV view ?

Data on municipality level. **Aggregate** ?

code	name	area	age0_to_4_2019	age5_...
AT10101	Eisenstadt	42849177.909	695	
AT10201	Rust	19766816	73	

Map
Remove
Pie chart

Table Aggregation ?

- ☒ Aggregate to district level
☐ Aggregate to NUTS 3 level
-
- ☒ SUM (add all values within NUTS 3 area)
☐ MAX (find highest value within NUTS 3 area)
☐ MIN (find lowest value within NUTS 3 area)
☐ MEAN (calculate arithmetic mean within NUTS 3 area)
☐ MEDIAN (find the median within NUTS 3 area)
☐ WEIGHTED MEAN (calculate arithmetic mean and weight it by area)

< Decimals: 2 >

OK

Cancel

Caution: Execution of this function cannot be undone.

- MEAN (calculate arithmetic mean within area)
- MEDIAN (find the median within area)
- WEIGHTED MEAN (calculate arithmetic mean and weight it by area)

Select the desired number of decimals, then press “OK” to start aggregation. Caution: The execution of the aggregate function cannot be undone; this means: Once you converted the contents of your table from municipality level data into NUTS 3 or district level data, you cannot convert the data back to municipality level, and you also cannot add data from municipality level tables to your custom table any more!

Save and load a custom table

At any time you can save the contents of your custom table to a file which you can store locally on your system. This option allows you to continue work with your custom table at any later time, or to share a custom table with colleagues. To download the custom table to your local workspace, go to the start page of CentropeSTATISTICS by clicking the “Home” button, then press “Save custom table”. A pop-up window appears. At first, it will display “File transfer...” during the creation of the custom table file on the CentropeSTATISTICS server. As soon as the file is ready for download, it is directly sent to your computer. You will receive the message “Table export completed.” as well as a prompt to save a file to your computer.

Select “Save” from this prompt. Do not select “Open” because there is no piece of software on your computer you could open this file with. The default file name is always “customtable.cstat” but you can change it to whatever you like.

For security reasons (i. e. to prevent malicious code from being transferred from outside), the local copy of your custom table is stored in a non-human-readable format. To be able to work with a custom table file, you have to load it into CentropeSTATISTICS using the “Load custom table” button on the start page of CentropeSTATISTICS.

If you have already created a custom table in your current CentropeSTATISTICS working session, the uploaded table will overwrite the existing one, so make sure you save this table first if you do not want the data in it to be lost.

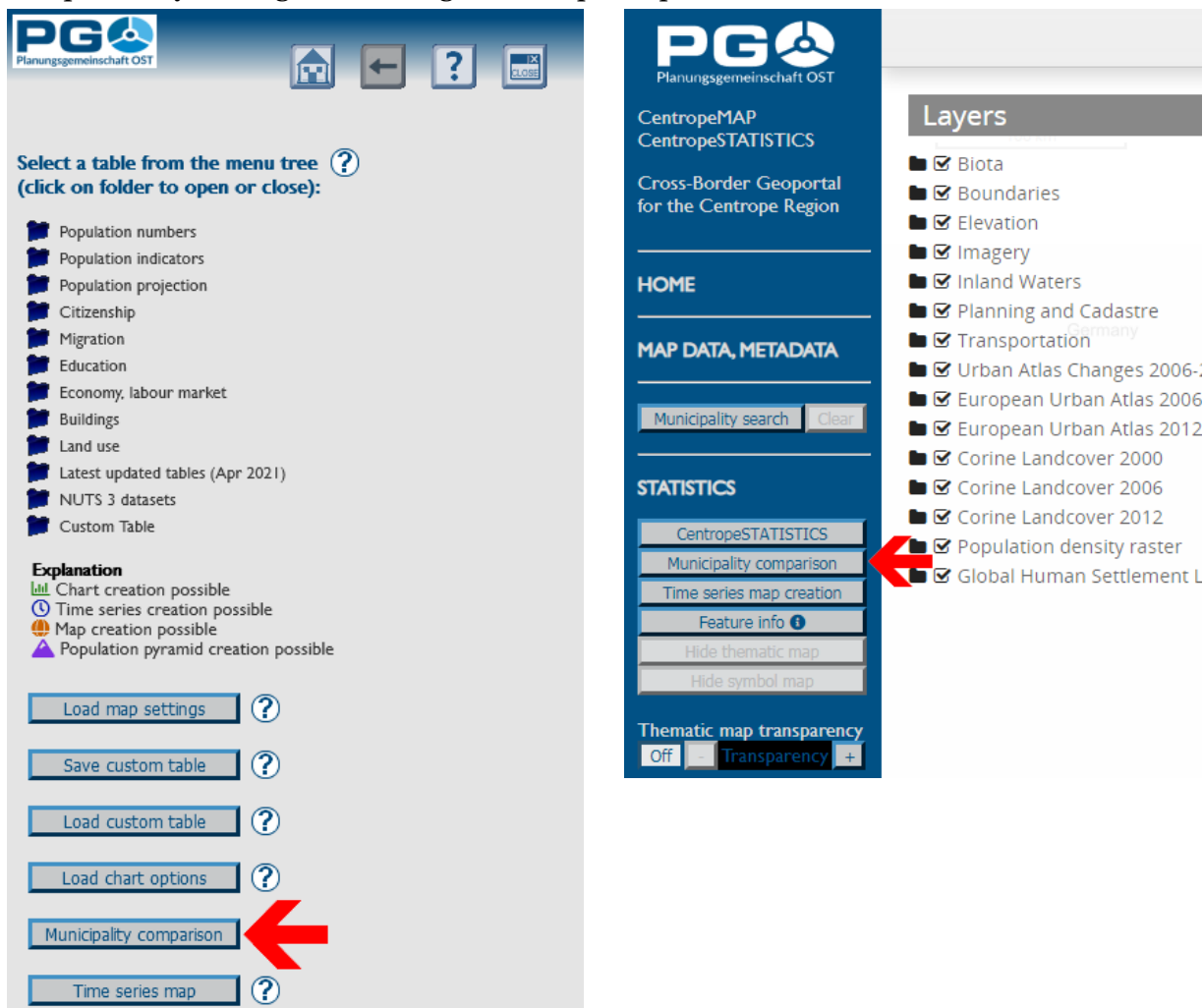
The “Load custom table” window prompts you to select a file from your local filesystem to be uploaded to the CentropeSTATISTICS server. After you selected a file and pressed the “OK” button, the file is transferred to the CentropeSTATISTICS server, decrypted and checked for integrity. If it passed the integrity check, the custom table is embedded into your working session and the pop-up window closes.

If the file fails to pass the integrity check, CentropeSTATISTICS throws the message: “Invalid contents in uploaded file. Data not processed.” In this case, the custom table file is corrupt and the data inside lost.



Municipality and region comparison

The municipality and region comparison tool allows for an easy comparison of statistical indicators between selected municipalities and regions. To start the municipality and region comparison, you can either hit the “Municipality comparison” button in the CentropeMAP geoportal or you press the “Municipality comparison” button on the start window of CentropeSTATISTICS (see illustrations). To do a municipality or region comparison, you are guided through five simple steps.



Step 1: Select the comparison mode (see illustration on the next page). These modes are available:

- Show values for a single municipality,
- Compare two single municipalities,
- Show values for a user-defined region (values of municipalities within the region are aggregated for chart creation),
- Compare values of a single municipality and a user-defined region,
- Compare two user-defined regions.

Select the mode of your choice and hit “Next”.

CM CentropeSTATISTICS - Google Chrome

map.centropemap.org/wmscs/centropestatistics.php?sid=iaf891tc8kplmfl1c

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Municipality comparison – Step 1 of 5

- ☐ Show values for a single municipality
- ☐ Compare two single municipalities
- ☐ Show values for a user-defined region (aggregate data from selected municipalities)
- ☐ Compare values of a single municipality and a user-defined region
- ☐ Compare values of two user-defined regions

Next ?

Step 2: Select the municipalities (single ones or multiple municipalities to build a user-defined region). The municipality selection is working the same way as with chart creation. If you compare two regions or a single municipality and a region, the municipality selection is repeated. The headline of the municipality selection window tells you if you should select a single municipality or build a region.

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Municipality comparison – Step 3 of 5: Select indicators for table and chart creation

- ☐ Population (number of inhabitants) absolute by year
- ☐ Population aged 14 and younger
- ☐ Population aged 15 to 64 years
- ☐ Population aged 65 and older
- ☐ Population aged 60 and older
- ☐ Dependency ratio
- ☐ Population density (inhabitants per square km)
- ☐ Number of live births by year
- ☐ Number of births per 1000 inhabitants
- ☐ Number of deaths by year
- ☐ Number of deaths per 1000 inhabitants
- ☐ Migration balance

Select all Deselect all

Back Next ?

Step 3: Select indicators for table and chart creation. Selected statistical indicators from the cross-border database of CentropeSTATISTICS are available for choice. To include an indicator, activate the checkbox next to the indicator name. You have to activate at least one checkbox to be able to proceed.

Step 4: Select years to be displayed for tables and charts. This step offers all years which data are available for from the database. To include a year, activate the checkbox next to the year. You have to activate at least one checkbox to be able to proceed. It might be useful to use the “Select all” button to see the whole time series.

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Municipality comparison – Step 4 of 5: Select years to be displayed for tables and charts

- ☐ 1970/71
- ☐ 1980/81
- ☐ 1990/91
- ☐ 2001
- ☐ 2002
- ☐ 2003
- ☐ 2004
- ☐ 2005
- ☐ 2006
- ☐ 2007
- ☐ 2008
- ☐ 2009
- ☐ 2010
- ☐ 2011
- ☐ 2012
- ☐ 2013
- ☐ 2014
- ☐ 2015
- ☐ 2016
- ☐ 2017
- ☐ 2018
- ☐ 2019

Select all Deselect all

Back Next ?

Note that for some indicators data might not be available for all years shown in this list. For these indicators data is shown for all available years within your selection.

Step 5: Chart and table output (comparison result). The result of your municipality and/or region comparison is directly brought to your screen. First of all you will see an overview map where the municipalites or regions of your choice are highlighted. Below you can find charts and tables for the indicators and time series of your choice.

Municipality comparison – Step 5 of 5: Here is the result of your choice

Export to PDF ?

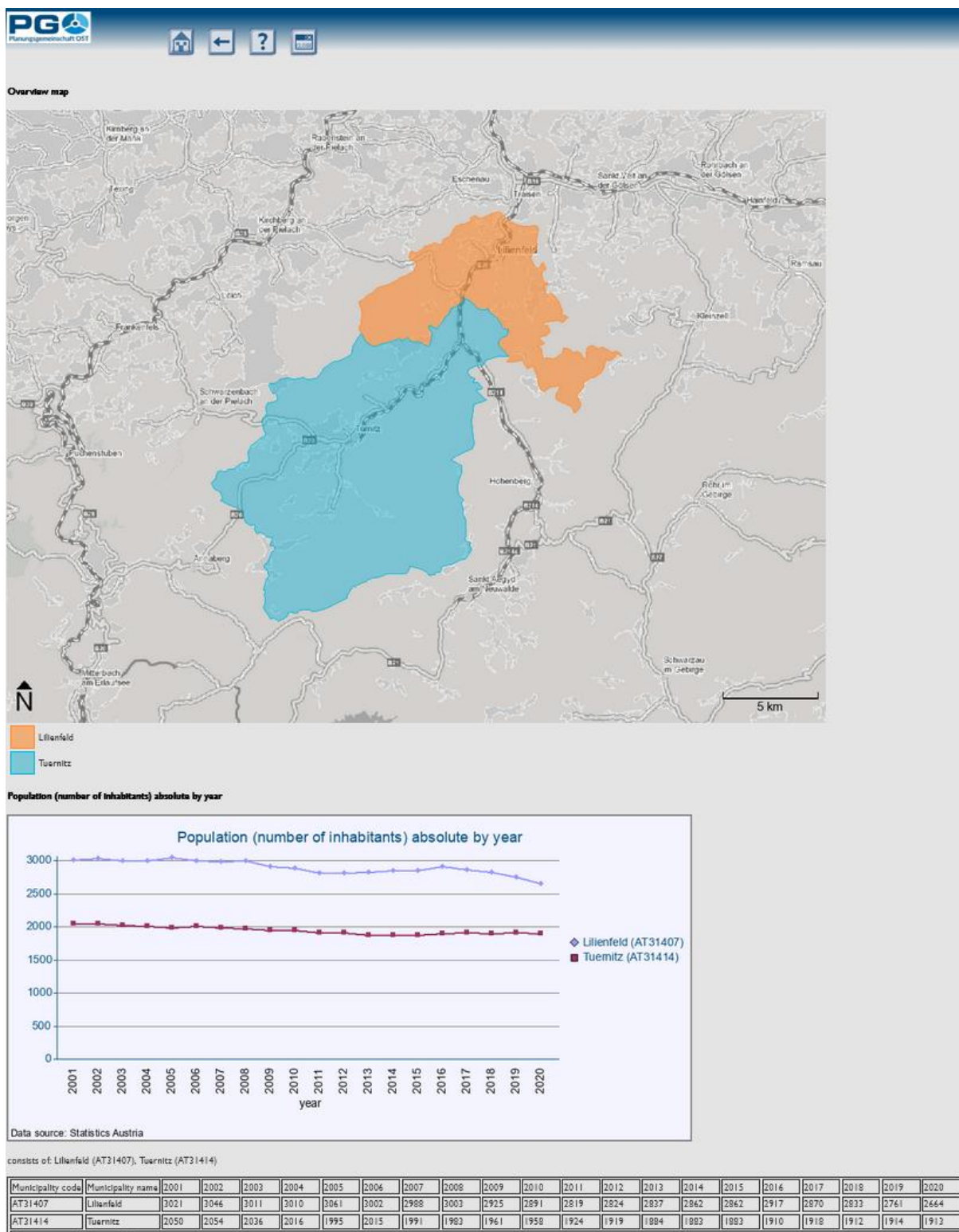
Export to Excel ?

Overview map

Map showing geographical area with highlighted regions.

On top of the page you can see two important buttons which lead you to PDF and Excel export functions. The “Export to PDF” functions creates a multi-page PDF with overview map, charts and figures from your comparison.

The “Export to Excel” function creates a multi-page spreadsheet containing all data of your selection from the cross-border database, but no maps and charts.



Creation of population pyramids

With CentropeSTATISTICS you can create population pyramids by municipality, both statically for a desired year and as an animated time series.

On the start page of the statistics portal, you will find the tables for the age groups of the population in the “Population numbers” folder. These are labelled with a purple pyramid symbol, which indicates the possibility of creating population pyramids. Open any of these tables. The message “You can create population pyramids from this table.” will then appear in the right-hand side of the window. Click on the “Continue” button to continue.



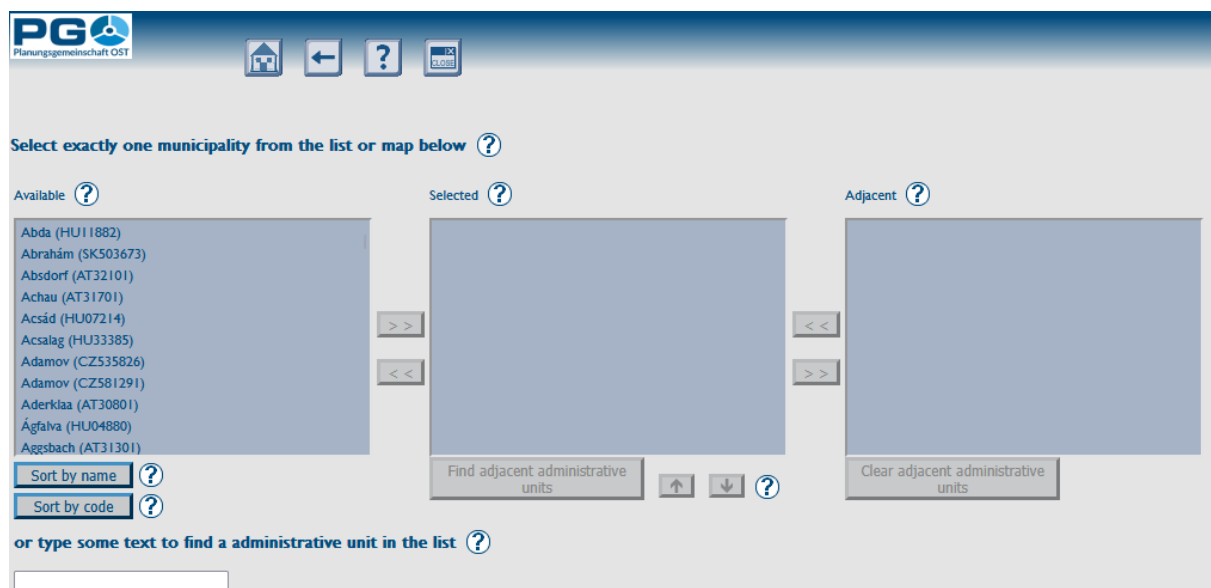
You can create population pyramids from this table.

Continue



You will then be taken to the municipality selection in the usual view. Now select the desired municipality from the list and add it to the centre selection box (“Selected”) by double-clicking or clicking on the right arrow.

Then click on “Show values” below.



The population pyramid for the desired municipality is now displayed with the latest available data.

To retrieve the data for all available years and create an animation from it, click on the “Create time series” button below the graphic.

The time series data is loaded and the animation is assembled.

You can control the animation on the screen as loop using the “Play/Pause” button or click directly with the mouse on a year in the time series pearl string below the graphic to call up a specific year.

