Creating and Customizing a Map

A SpaceStat Software Tutorial

Project created in [Attaching Data to a Geography – A SpaceStat Tutorial](#), or [SpaceStat_Tutorial_Creating_and_Customizing_a_Map.SPT](#)

ESTIMATED TIME

10 minutes

OBJECTIVE

You will create a map to visualize the population projections for Illinois. You will then animate this map across time and customize its appearance to best suit the data.

ABOUT MAPS IN SPACESTAT

This tutorial will continue working with the project created in the [Attaching Data to a Geography – A SpaceStat Tutorial](#). Maps are the most common visualization in SpaceStat and can be used to explore your data in a variety of ways. As with all visualizations in SpaceStat, maps are time-enabled. By this, any underlying changes in the data over time will be reflected in the map when you animate it. Maps also fully support linking and brushing with other visualizations.

Maps are created for you when you run some analysis methods which have appropriate coloring schemes and default appearances. When you create your own custom map, SpaceStat doesn't know as much about the data you are trying to display so it creates a default map that may not be the best for your data. This tutorial will show you some of the options for modifying a map's appearance to better suit what you are trying to visualize.

In this tutorial we will be focusing on polygonal data as this is one of the most common types of geographic data used in SpaceStat. Polygonal data can be displayed in four main methods: 1) **single colors** where all polygons are displayed in the same color (or with a transparent fill), 2) **continuous color schemes** where the polygons are colored according to the attribute by scaling between color break colors, 3) **classified color schemes** where a range of values all have the same color (often the colors for classes are stepped between logical colors), and 4) **qualitative color schemes** where specific data values are assigned specific colors. Single color schemes are often used when you want to show the geography of the polygons rather than data values. Continuous color schemes are used when you have continuous and well-distributed data values such as temperature observations. Classified color schemes work well for data that may not have even distributions and allow for relatively easy matching of a color to a class of values and because of these traits are often used for population data. Qualitative color schemes are used when the data values are numerical but do not

reflect a natural ordering such as with region codes. Some of the later tutorials will explore the visualization options in greater depth.

If you have created the project from Attaching Data to a Geography – A SpaceStat Tutorial then you can use the project created there and skip to Step 2. If not, you will need to open the SpaceStat project containing the Illinois county geography. To do this, either navigate through the menus to File-> Open Project or **click the Open Project button** as shown below.
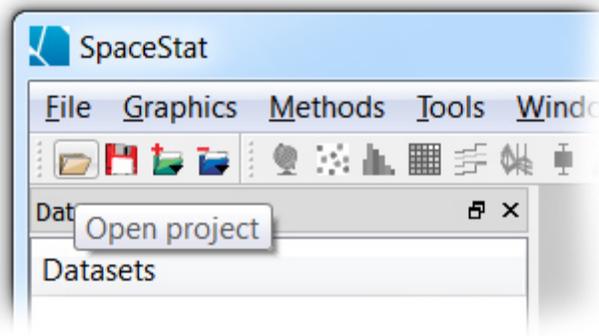
Using the Open Project button

For this tutorial we will be working the Illinois county geography. You can download this project from the following link:

SpaceStat_Tutorial_Creating_and_Customizing_a_Map.SPT

Next we will create a map of the population of 20-24 year olds in Illinois. There are several ways to create a new map, but in this tutorial locate the Create Map button on the main toolbar (it looks like a small globe). **Press the Create Map button** to begin the new map creation.

When you have a large number of visualizations open, it can be difficult to find the one you are searching for if you do not name them with meaningful names. For this exercise **name the map 'Population 20-24'**. The default geography of 'Illinois' is correct. The fill color dataset is the data set that determines what color the polygons are painted. **Choose the dataset '20-24' for the fill color**. You can accept the default name for the layer or specify a new name. In this case our map will only consist of a single layer, but in some cases you may want to overlay two or more layers on the same map. Later tutorials will explain the layering concept in more detail. Lastly the default of inserting

this layer into a new map is appropriate here. When all the settings match the dialog below, **click the 'OK' button** to create the new map – that's all it takes!
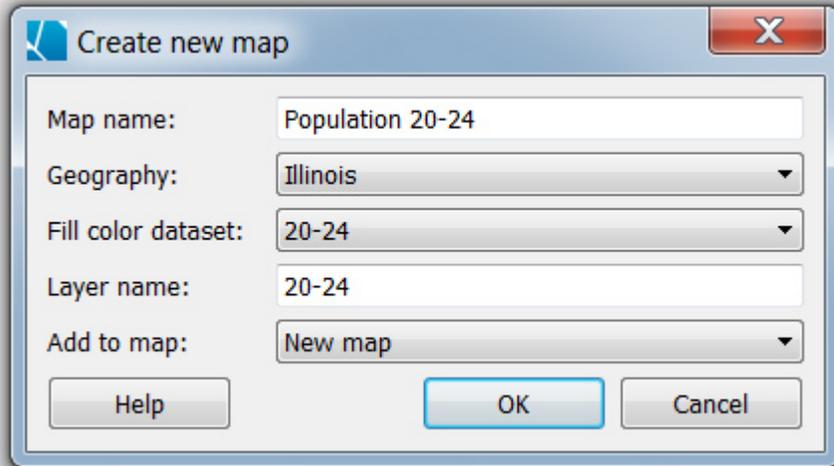

New map dialog settings

Map at 1990 with the default continuous color scheme

The default coloring scheme in SpaceStat is a simple continuous color scheme ranging from the minimum to the maximum data values (over all time). You can see quickly that this coloring isn't very useful for this particular dataset. Cook County which contains Chicago has such a high population compared to the rest of Illinois that any other variation in population among the counties is obscured. This is data is more appropriately displayed with a classified color scheme.

To change the appearance of a map, use the Map Properties. This can be accessed by **clicking the Map Properties button** on the **map toolbar** (this is the open book icon). There are many different visualization options within the map properties, but make sure you are in the 'Polygon fill attributes' tab.

Select 'Classified' from the color mode dropdown list on the right of the dialog. You can use whatever number of classes you think is appropriate, but 5 is a good option. The default 'Quantiles' classification method will try to place about the same number of counties in each class, but in this case the 'Jenks natural breaks' classification works better. The Jenks routine tries to fine groupings in the data where values are most similar and divide the classifications according to these 'natural' groupings. **Select the 'Jenks natural breaks' from the Classification Method dropdown** and keep the default Blue-yellow-red color palette. You can now click the 'OK' button to change your map appearance. The new map should look like the map below. With this map it is easier to interpret the distribution of population across Illinois.
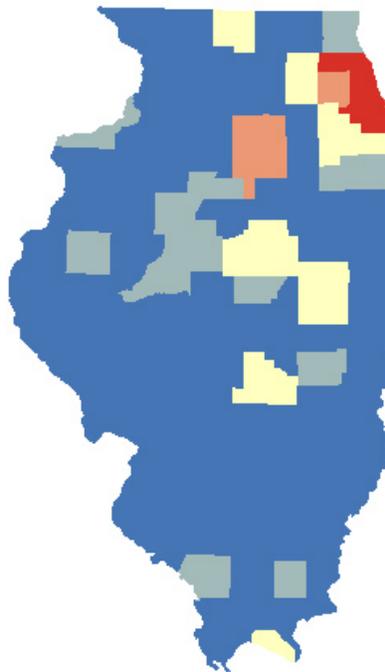
Map at 1990 with a classified color scheme

The data behind our visualization changes through time. By default you are shown the data at the beginning of the temporal extent. It is often useful to play a simple animation of the map to see how the data changes over time. Each visualization that has time-varying data has an Animation Toolbar. This toolbar is on the top of the visualization window just to the right of the Map Tools Toolbar. The toolbar displays the current time on the right and has several CD player style control buttons. Just **press the Play Button** to start your map animating. For the first few years there aren't any changes in the population classification but notice the changes in the later years. Particularly evident is the growth in the counties surrounding Chicago.
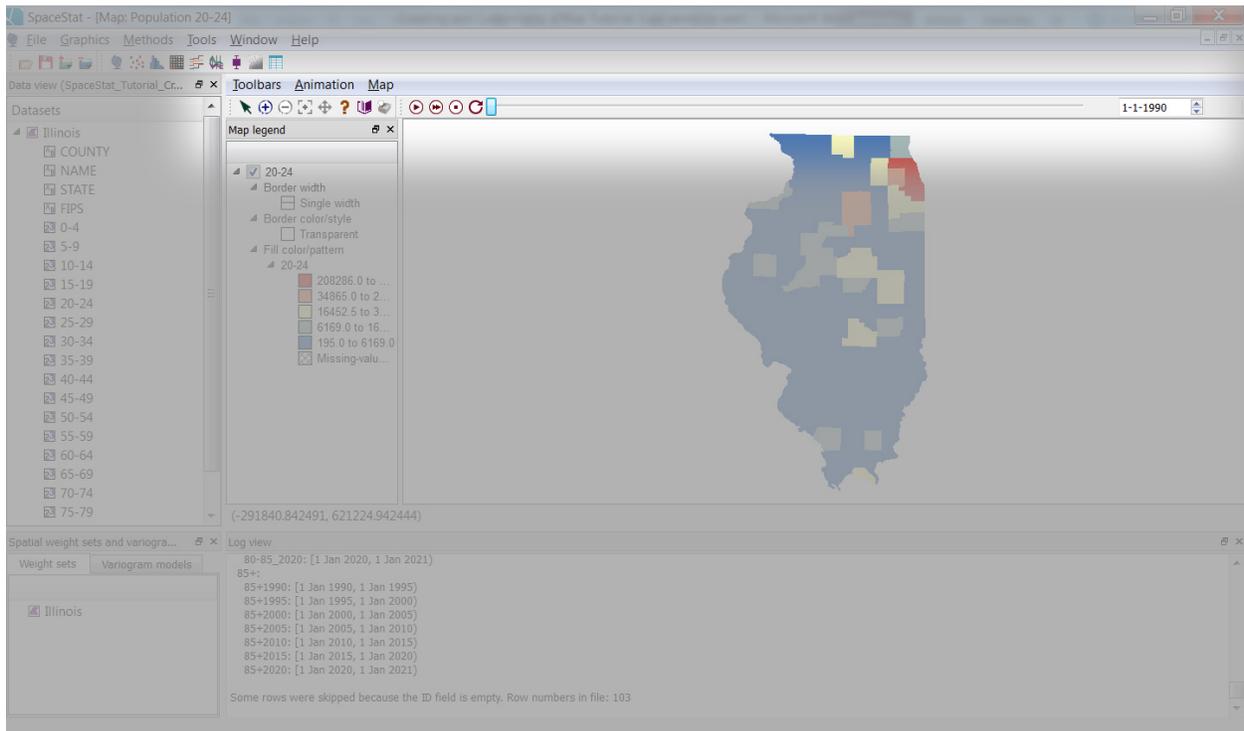
Location of the Map Toolbar within the SpaceStat interface (with the map is maximized)