

Importing a Shapefile

A SpaceStat Software Tutorial

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Geospatial Research and Software

MATERIALS

Data is installed with the SpaceStat installation

ESTIMATED TIME

5 minutes

OBJECTIVE

You will import county geographic information for Illinois that is stored as a Shapefile (.SHP) into SpaceStat to use for visualization and analysis.

BASIC FILE FORMATS

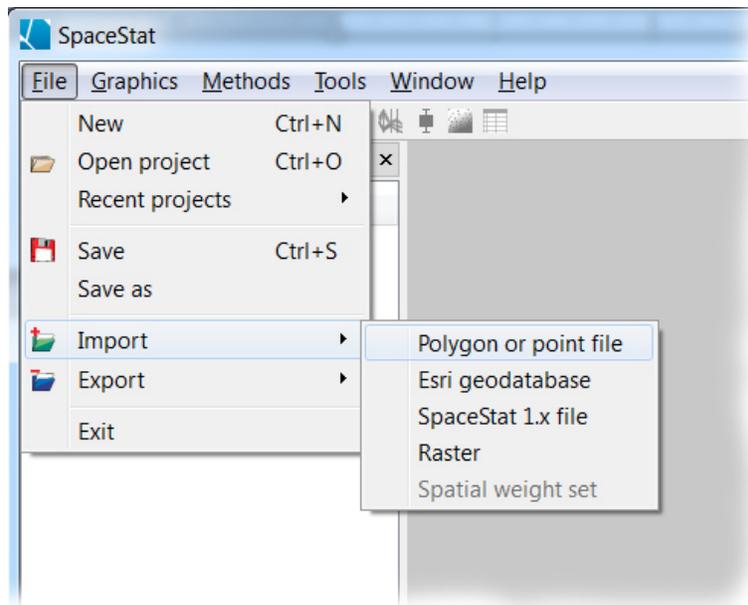
Data can be imported into SpaceStat from a variety of formats. Perhaps the most common format for geographical data is the file format used by the ESRI ArcGIS platform. A Geographic Information Systems (GIS) is used for storing data that is associated with geographic locations and is ideal for creating, modifying, and viewing that types of data that SpaceStat analyzes. The ArcGIS platform can export data in a file format called a 'Shapefile'. A Shapefile is actually a series of files of which the .SHP is one. The Shapefile used in this tutorial contains 4 files – a .SHP, .PRJ, .DBF, and .SHX file. Shapefiles contain the geographic information such as county boundaries and often include a few datasets that are associated with the geographic objects. In this tutorial we are also importing a separate .DBF file. The .DBF file contains data elements that are associated with the geographic objects, such as the population estimates for the counties. .DBF files can come from other sources as well including some versions of Microsoft Excel.

The SpaceStat import process: SpaceStat works on data with a geographic and temporal extent. In cases where the data is split across multiple files, it is necessary that the geographic information is imported first. After this has been imported, you can import other data and associate it with the geographic objects that have been created. Because you **must import geographic objects before you can import any other data**, we recommend the following workflow:

1. Import geographic objects
2. Import data that is associated with the geographic objects
3. Visualize and analyze your data

STEP 1: IMPORTING THE GEOGRAPHIC INFORMATION (.SHP)

We start by loading in the geographic information into SpaceStat since all other data will be associated with geographic objects. In this case the geographic information consists of county outlines which are polygon vector objects. Select 'Import polygon or point file'. This can be found in two places: 1) in the File->Import menu. 2) By clicking on the Import toolbar icon which look-s like a folder with a '+'.



Using the menu to Import polygon data

For this tutorial we will be working a Shapefile called 'Illinois'. **Click the Browse button** in the Import dialog and locate the Illinois.shp file. If you installed SpaceStat in the default location this file can be found at:

C:\Program Files\BioMedware\SpaceStat\Tutorials\IL

Make sure you select Illinois.SHP and **not the Illinois pop projections.dbf** file.

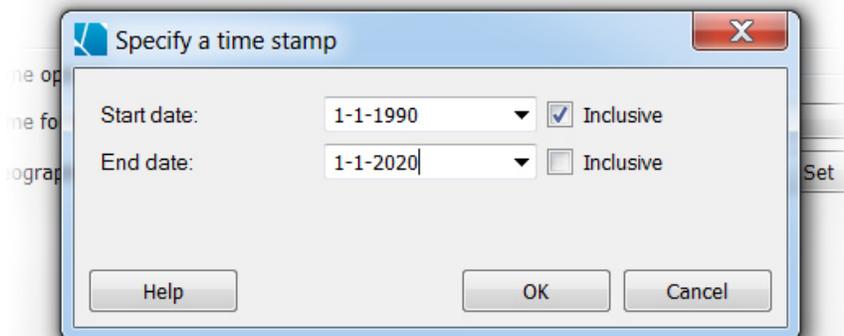
STEP 2: SETTING THE IMPORT METHOD

When you import data into SpaceStat you can either create a new set of geographic objects or you can attach data to pre-existing geographic objects. In this case, because we wish to import the Illinois counties for the first time, we wish to create new geographic objects. To do this, **select 'Create new geography' as the Import method**. This should be selected already. You can give the geography a name, but the default of 'Illinois' is fine. **SpaceStat defines a geography as a set of geographic objects of the same type and data structure.**

STEP 3: SPECIFYING THE TIME STAMPS

All data and objects in SpaceStat have a temporal support, or time for which they exist. In this case, we need to tell SpaceStat for what dates the Illinois geography will be used. Since in later tutorials we are planning on attaching population estimates from 1990 to 2019 for these counties, we will define our geography to exist for this time interval. Since all our data is observed at the same times for all of our counties, these data fall under the **Time slice** paradigm. To do this we need to **change the Start date to: 1-1-1990**. Make sure that you **select the Inclusive option**, as it should include the starting day.

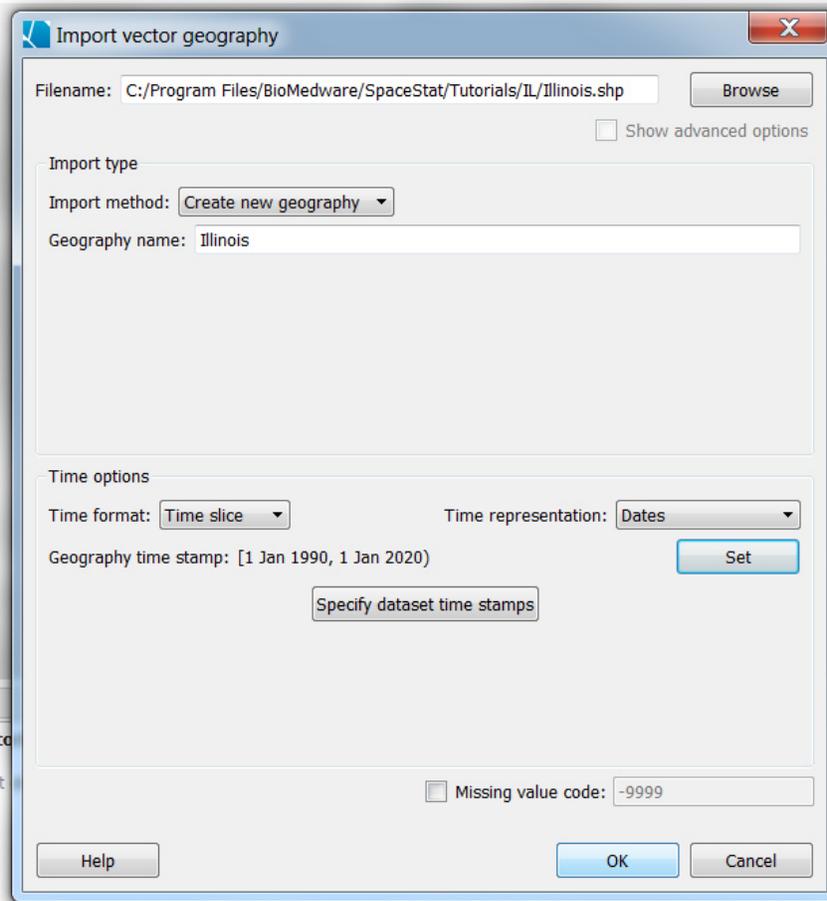
For the **End date, choose 1-1-2020**. Here, make sure that the **Inclusive option is not selected**. This tells SpaceStat that the interval includes all time up until, but not including January 1st, 2020 – i.e. through the end of December 31st, 2019 which is what we want. The screen below shows what your time stamps should look like.



Specifying the time stamps

STEP 4: REVIEW YOUR SETTINGS

Data import is a very important step in SpaceStat. This is when the geographic and temporal relationships are attached to data. In most cases, these relationships are fixed at import and cannot be changed after the import process. You can always delete the data and re-import it with correct settings if you make a mistake, but to avoid this it is strongly recommended to check all of your import settings before completing the process. The following screenshot shows the complete settings used to import the Shapefile for this tutorial.



Final dialog settings

STEP 5: USE THE PROJECT YOU HAVE CREATED

*Now that you have imported the data into SpaceStat, you are free to visualize, explore, and analyze the data. In the next tutorial, *Attaching Data to a Geography – A SpaceStat Software Tutorial*, we will show how to attach data to the project we have just created.*