

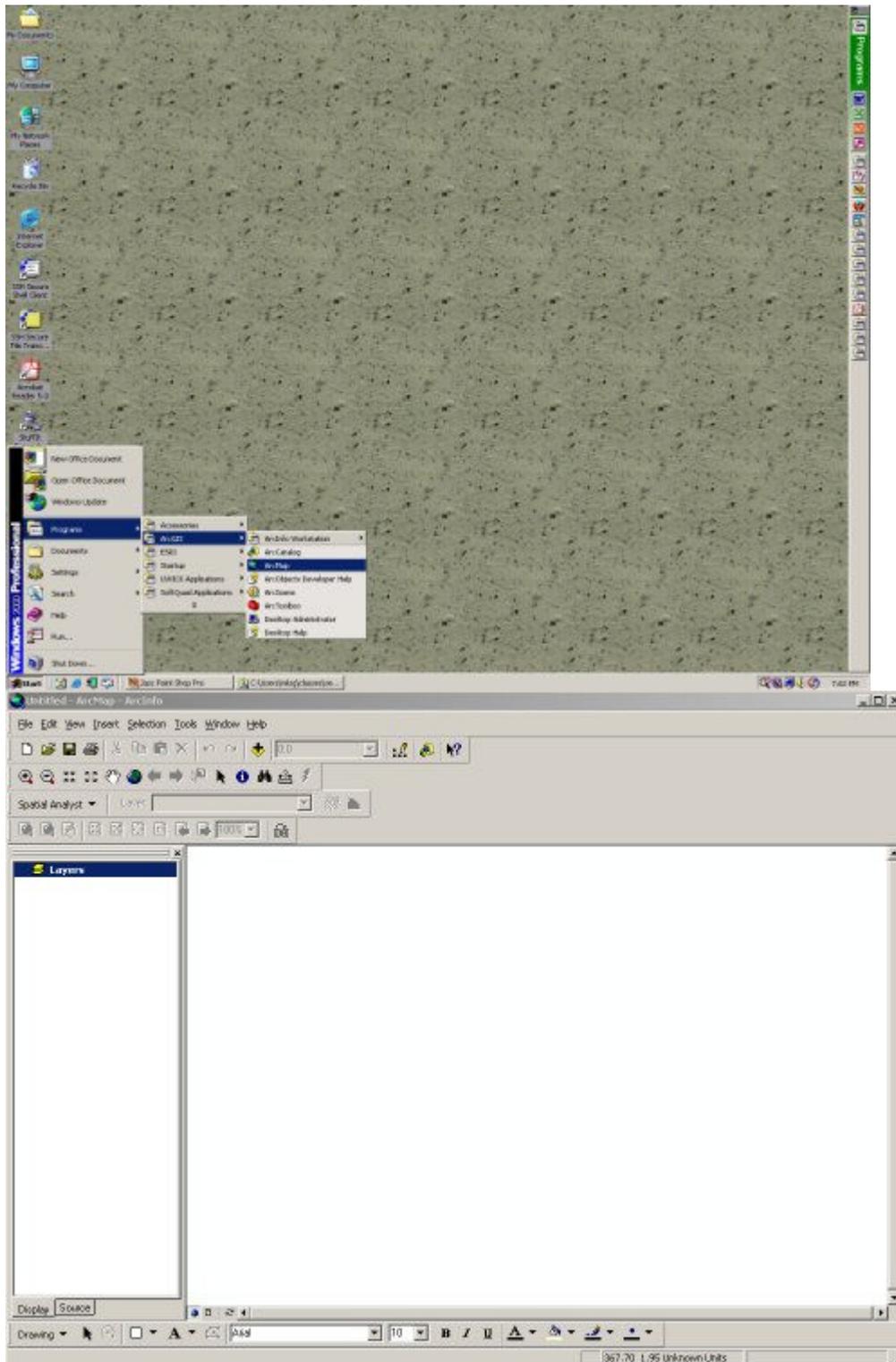
# Quick-start

## Geostatistical Analyst ArcGIS

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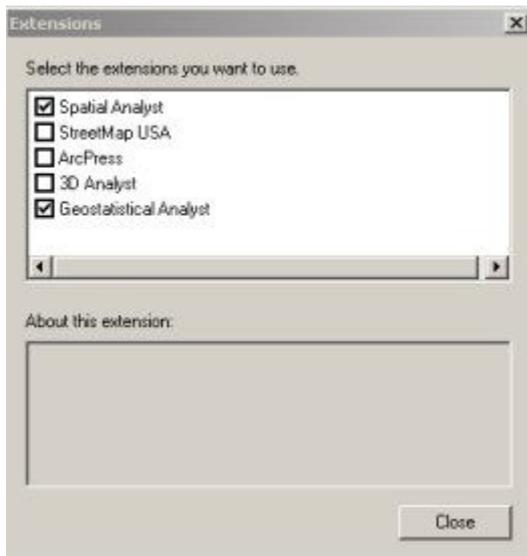
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1.) Open the ArcMAP interface of the ArcGIS. You'll find this option from the Windows' Start button.

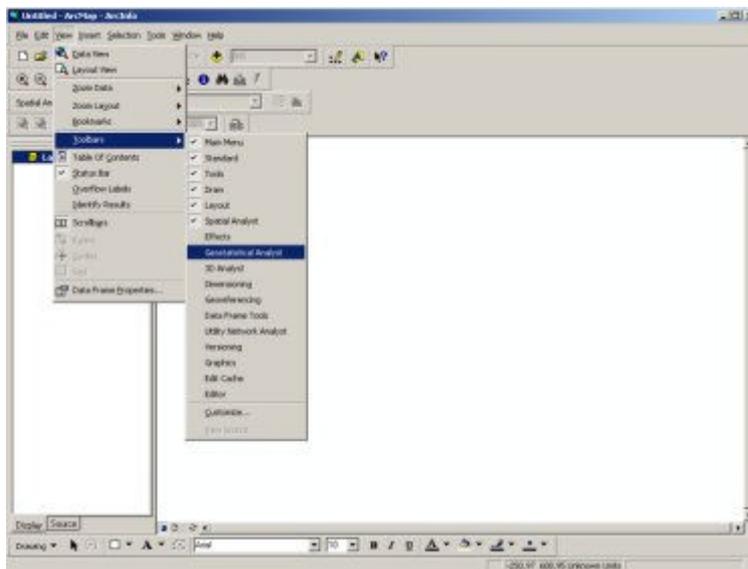


2.) You'll need to add the Geostatistical Analyst Extension by selecting from the main menu **TOOLS > Geostatistical Analyst**

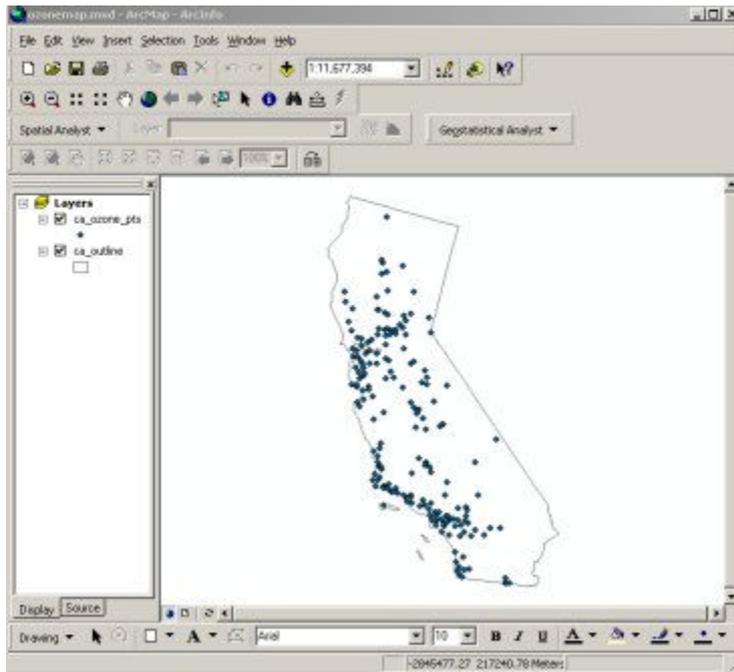




3.) Now add the toolbar for the Geostatistical Analyst by selecting from the main menu **VIEW > TOOLBARS > Geostatistical Analyst**



4.) Add Layers. Use the same approach as ArcView. Double click to change shades, fills, etc.



5) Save the MAP (different term, same concept as project). Try to reopen with the **OPEN EXISTING** option.



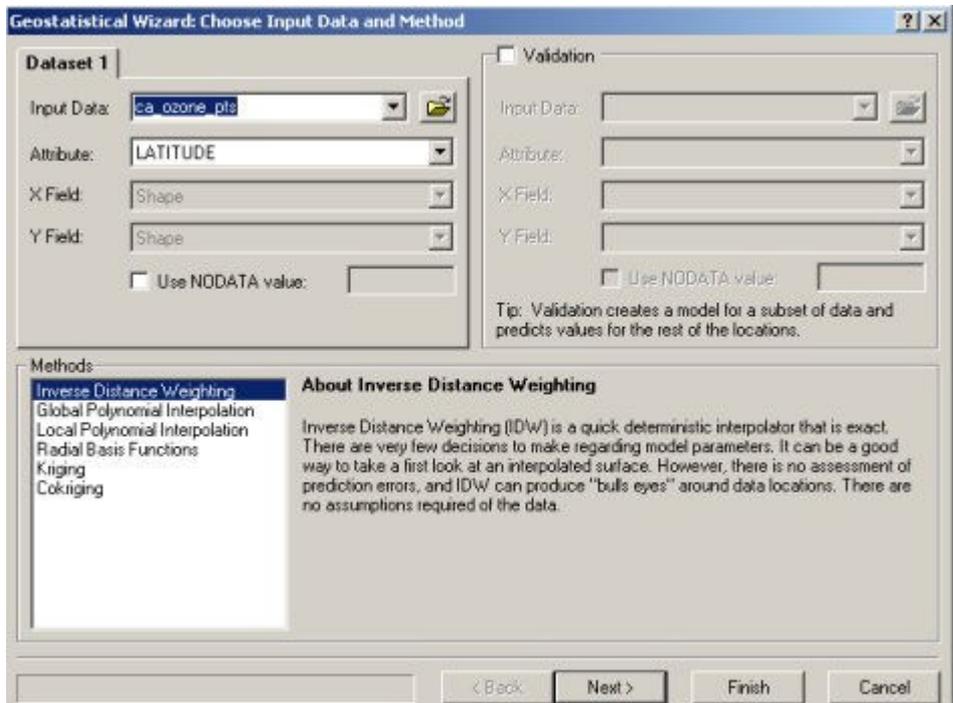
## Quick-start part 1

### Geostatistical Analyst ArcGIS

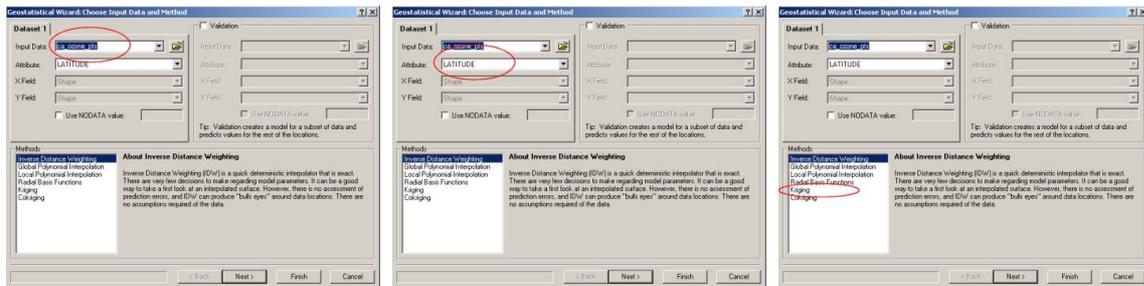
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The first thing to do is to let the software WIZARD make a default surface. We'll get to see the interface we'll use in depth later on, but for now we'll just click through the options and see what it all looks like.

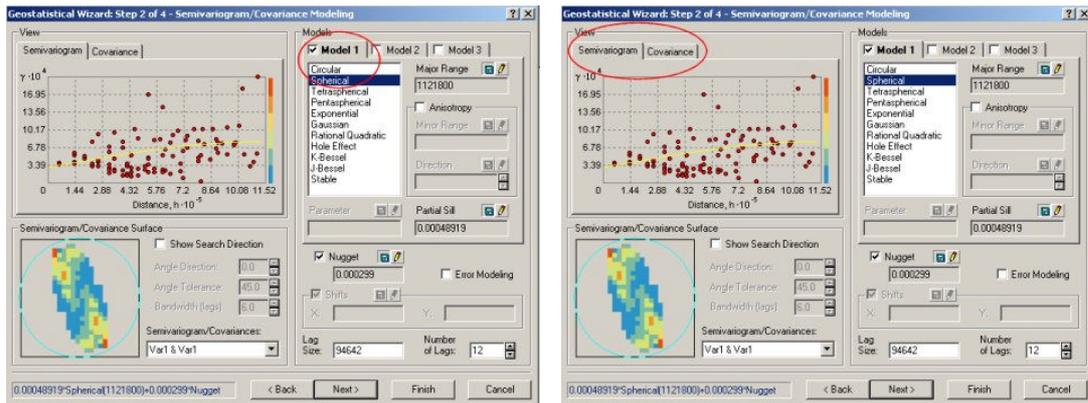
1.) From the toolbar for the **Geostatistical analyst > Geostatistical Wizard**



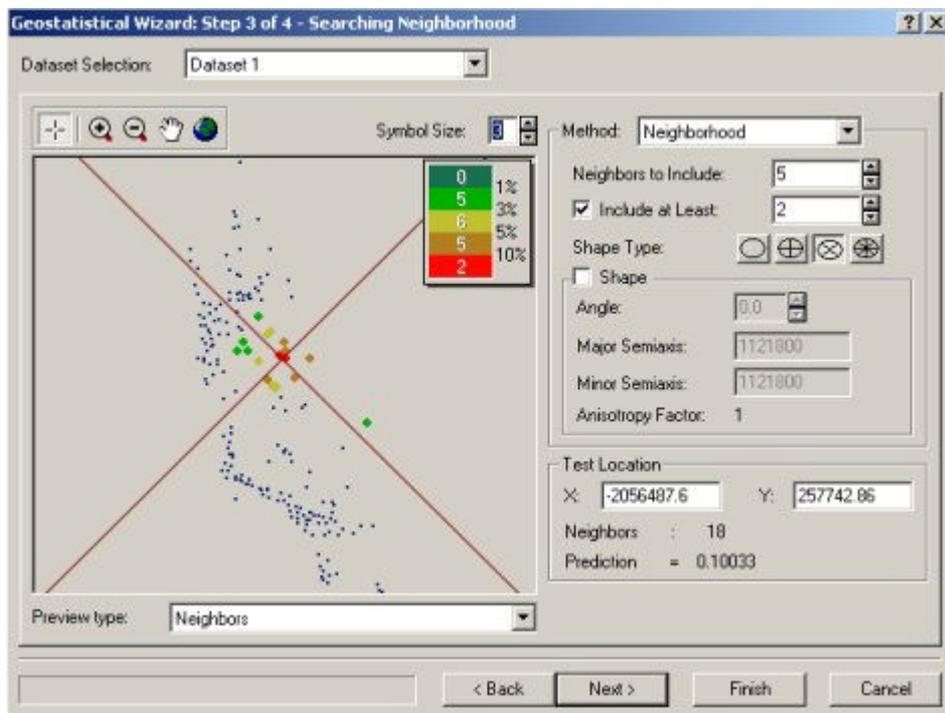
2.) From this dialog box select the correct **Input Data** (ca\_ozone\_pts) and **Attribute** (ozone). Also select the **Kriging** method. Then click **NEXT**.



3) By default, the Ordinary Kriging and prediction map will be selected. Click **NEXT** and go on to the Semivariogram dialog. Take note of the Model for the fitted line through the semivariance. Also click between the **Semivariogram and Covariance Tabs**. Then click on **NEXT**.



4. This dialog looks at the prediction of a point at the crosshairs and the values at the points in a given neighborhood. Move the crosshairs around by clicking. Then click on **NEXT**

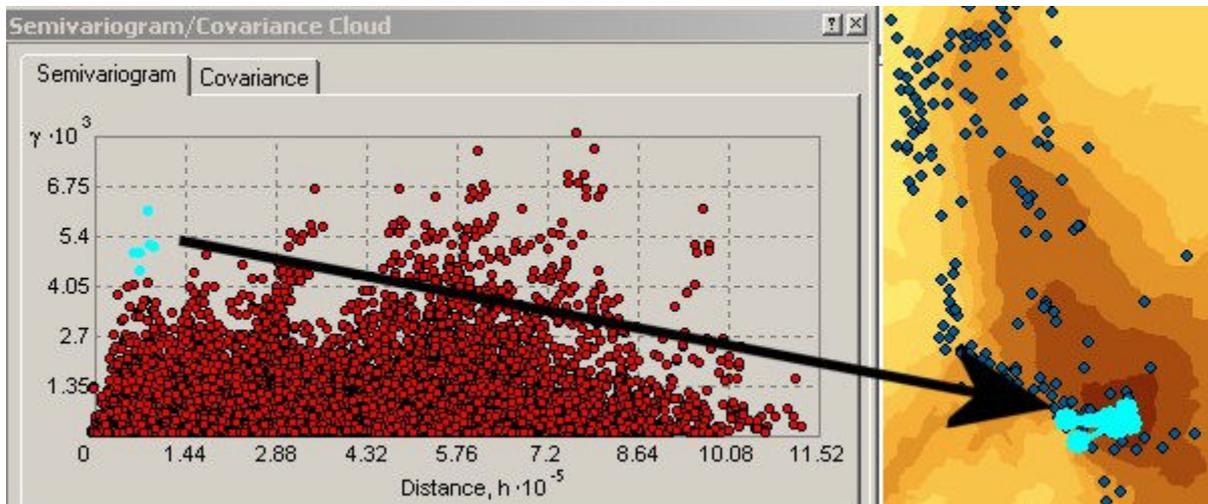


5.) The cross validation dialog is all about how well the model predicts unknown locations. Click through the tabs. Click **FINISH**



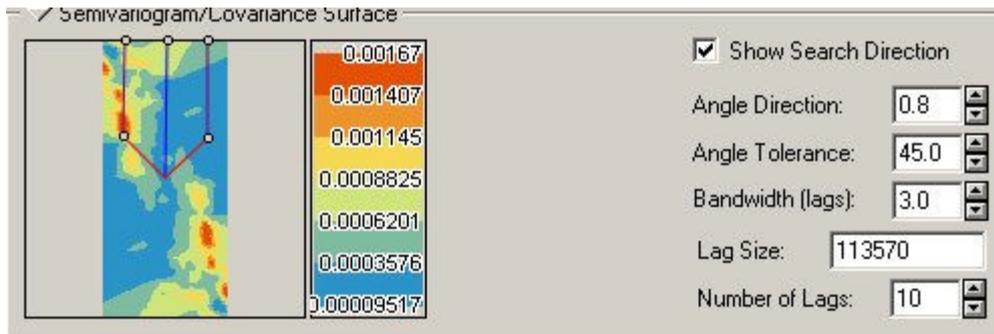
6.) After looking at the summary of the new layer, click OK and the layer will be added to the top of the table of contents.

Then the values of each pair of locations plotted on y-axis represent each axis. Then you can click and drag in the graph.



High variance, small s

5.) Searching for directional sp; On the map click and move the POINTER and note the change in the semiv



Paint the points

in the highest part of the semivariogram the directional trend.

6.) **exit** the dialog. menu click on **Selection > Clear Selected Features.**

## Quick-start part 3

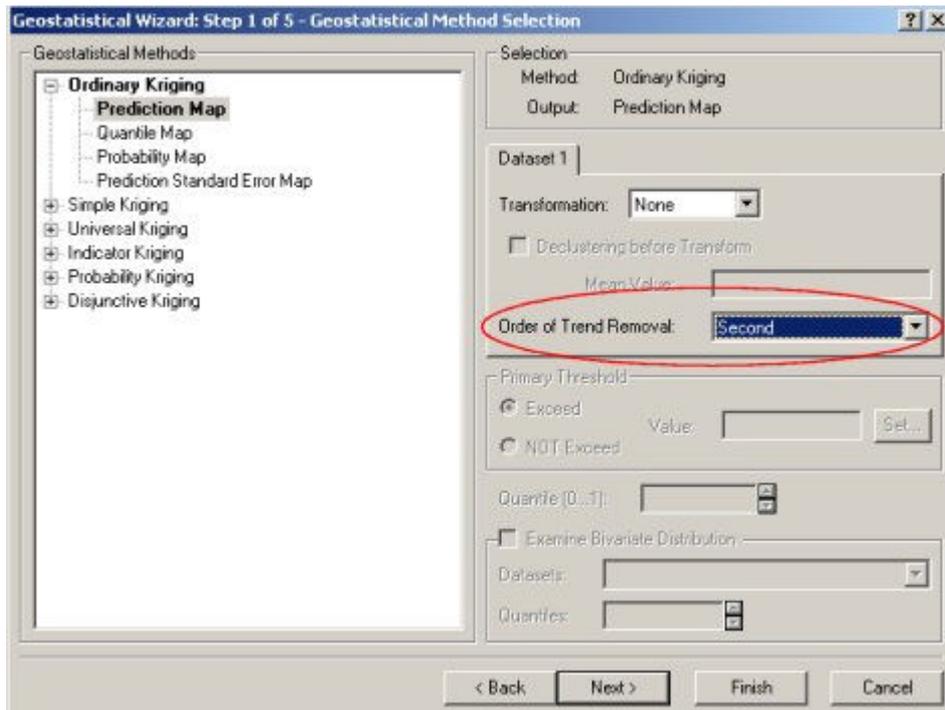
### Geostatistical Analyst ArcGIS

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You'll need to make sure that your ArcGIS ArcMap is loaded.

Select the **Geostatistical Wizard** from the Geostatistical Analyst Toolbar, Select the correct **Input, Attribute, and Kriging** as the Method. Click **NEXT**.

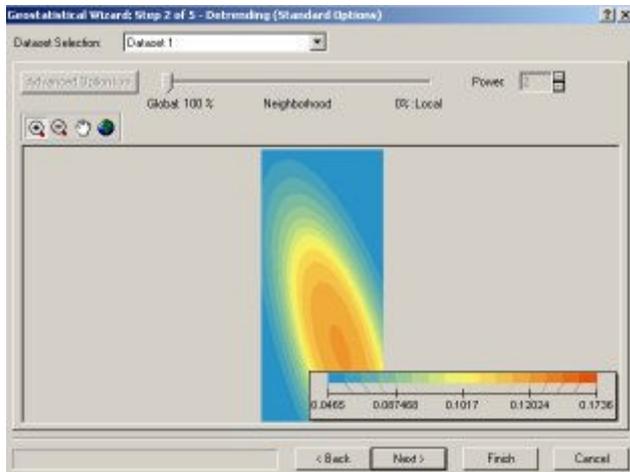
1.) By default Ordinary Kriging and Prediction will be selected. On the **Method** dialog box click on **Order of Trend Removal** and select **Second**.



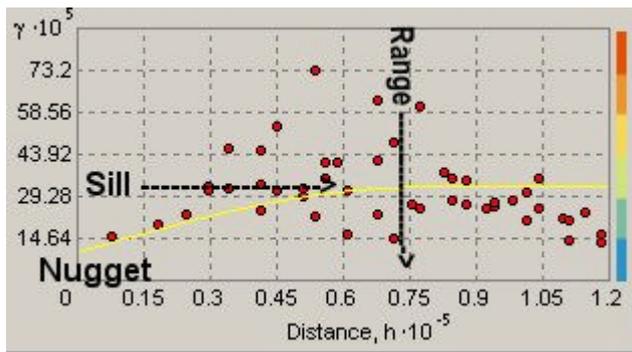
Click on **NEXT** to

move on.

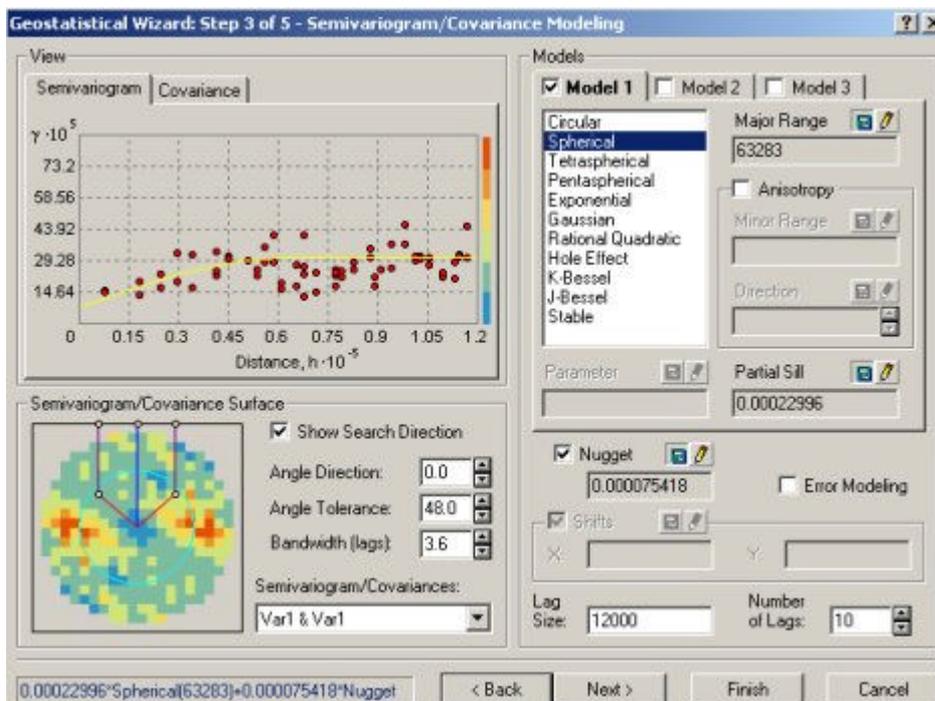
2.) The global trend is mapped as a surface (direction of rapid change). Examine and then click on **NEXT**



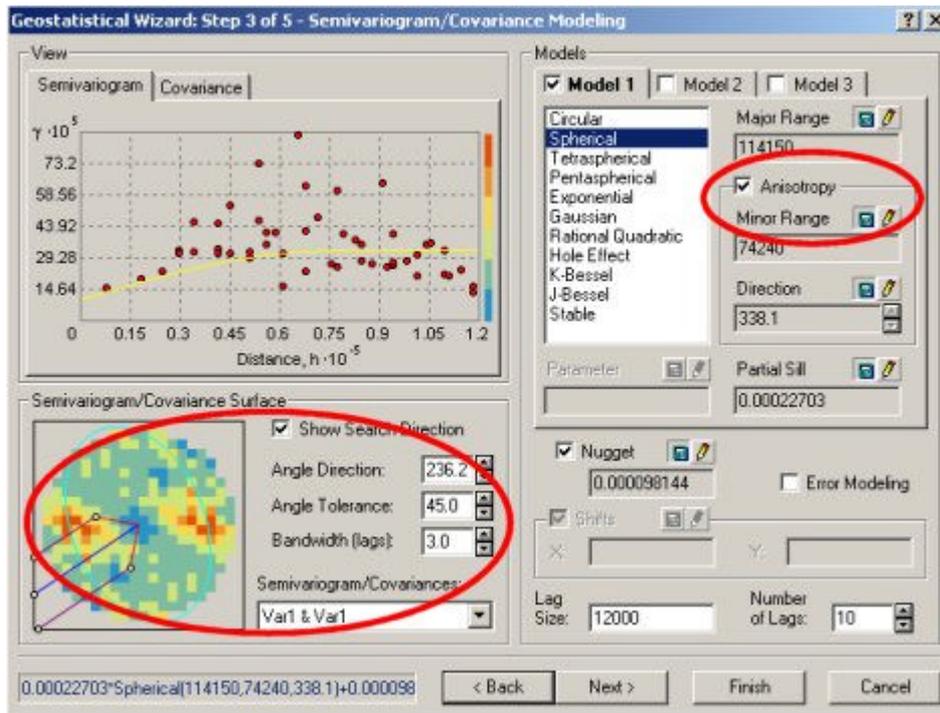
3.) We'll now look at the dissimilarity of data points as a function of distance in binning the lags. The fitted semivariogram using the parameters for a spherical semivariogram is used as a default. With fewer points it is easy to see the semivariogram and investigate it's shape.



4.) On the semivariogram/covariance model dialog window you'll see that you can change the lag size and number of lags. Change these settings (lag size = 12000, number of lags = 10). Note the change in the semivariogram.



5.) Now look at the semivariogram surface ( the color map in the lower left). The value of each cell is color coded and the average value for each cell of the surface is plotted on the semivariogram graph. The x-axis is the distance from the center of the cell to the center of the semivariogram surface. The values represent dissimilarity. Click on **Show Search Direction**. Now only the cells within the search tool (the lines on the surface) and being plotted. **Click and hold to move** the search tool. To use this information you must click on the **Anisotropy** option.



Set your search

direction to:

Angle Direction: 340.0

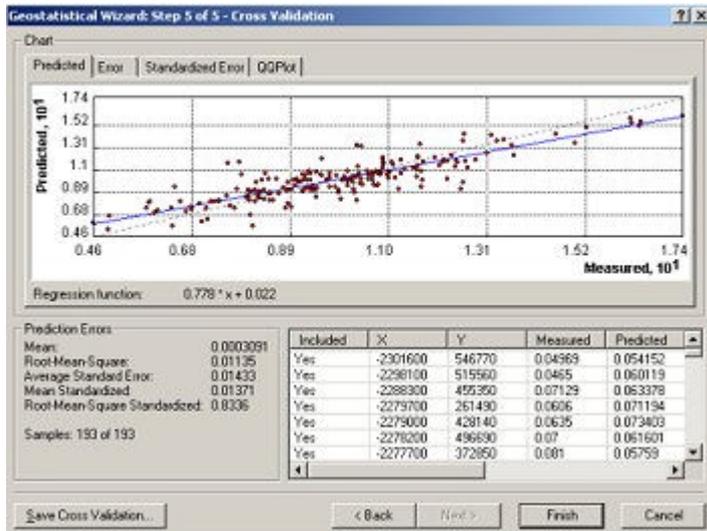
Angle Tolerance: 45.0

Bandwidth (lags): 3.0

Click **NEXT**

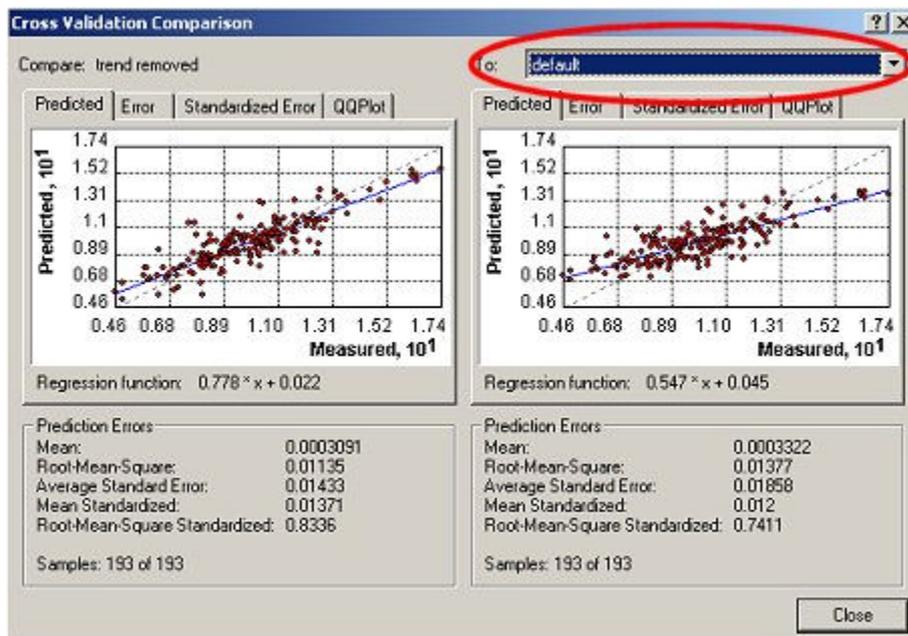
6.) To establish a neighborhood from which to select those points which will be used to predict unmeasured locations, the search neighborhood dialog is designed to investigate and pick this setting. **UNCHECK** the shape box when through and just use the defaults.

7.) The Cross-validation window tells you how well the model predicts the unknown values. To do this points are omitted, a value is predicted using the remaining points, and then the measured and predicted values are compared.



Checkout the various plots. Click on **FINSH** and **OK** to the summary window. Your new trend removed layer will be added to the map.

8.) Well now compare the default surface and the surface with the trend removed. Move the new trend removed layer to the top **RIGHT-CLICK** and select **COMPARE**



## Quick-start part 4

Geostatistical Analyst  
ArcGIS

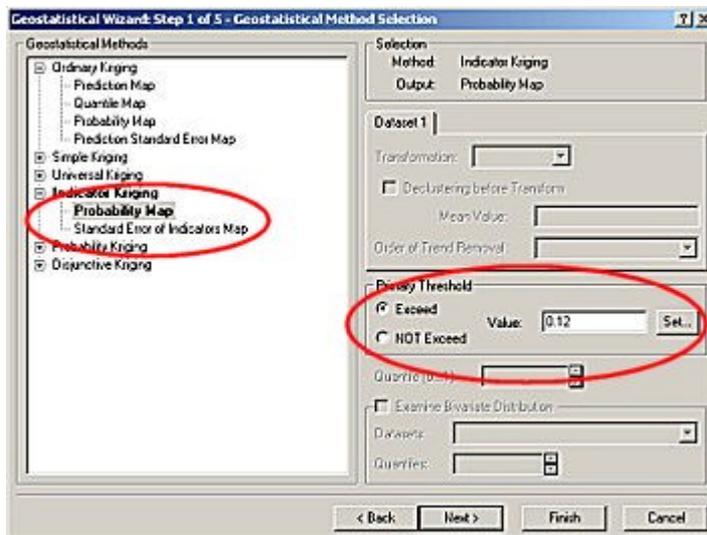
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Making a probability map.

You'll need to make sure that your ArcGIS ArcMap is loaded. Select the **Geostatistical Wizard** from the Geostatistical Analyst Toolbar, Select the correct **Input, Attribute, and Kriging** as the Method. Click **NEXT**.

1.) In the Method selection dialog click on **Indicator Kriging and Probability Map**

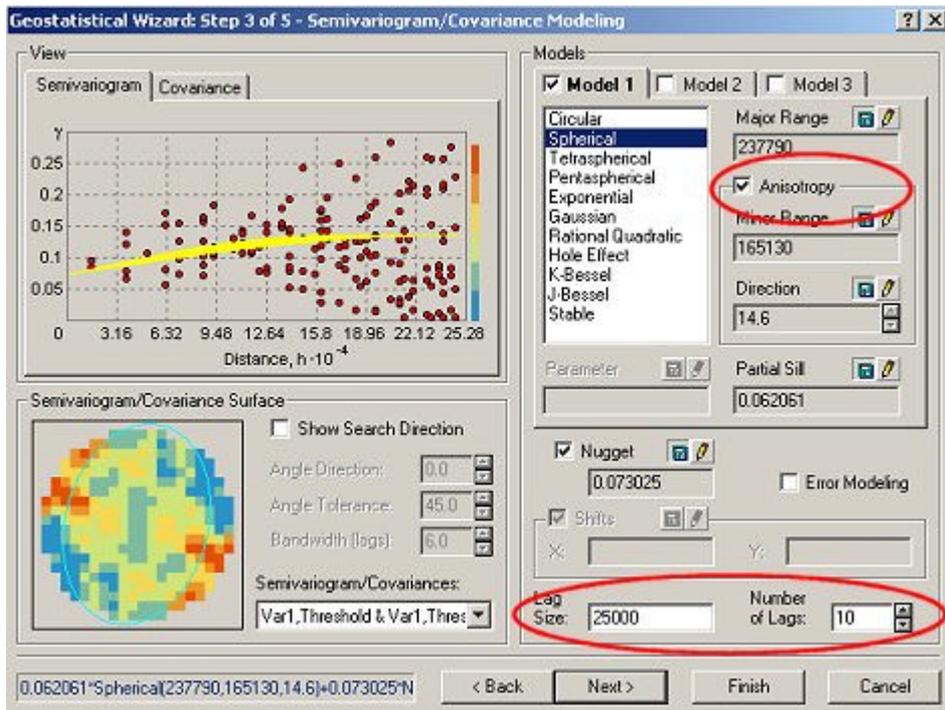


Set the **Primary Threshold** value to

0.12 and the **Exceed** button. The click on **NEXT**

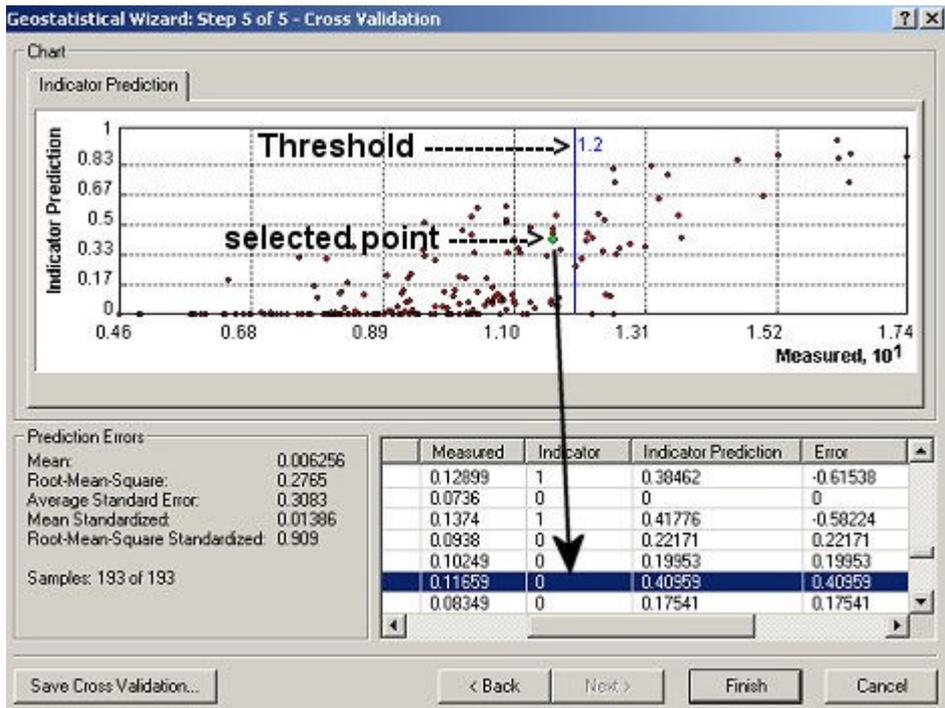
2.) Click **NEXT** on the additional cutoffs dialog

3.) On the semivariogram dialog click **Anisotropy** and set the **lag size** to 25000 and the **number of lags** to 10.



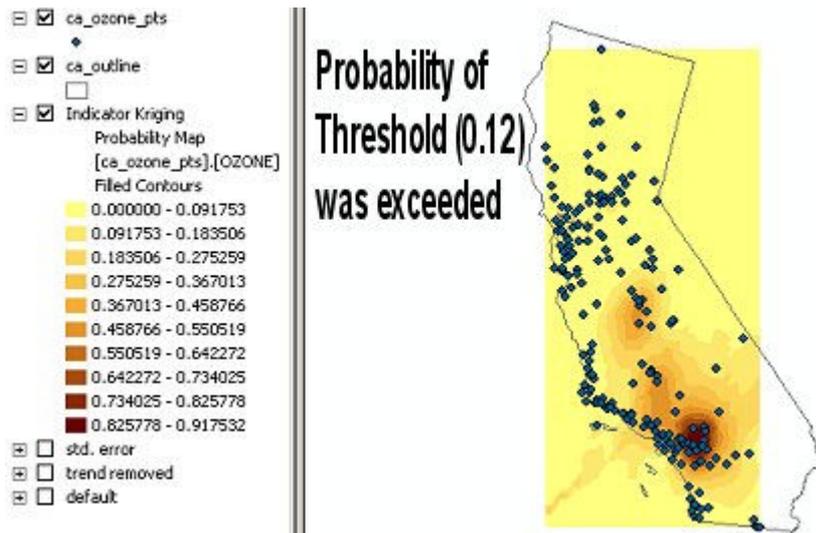
4.) Click on NEXT

until you reach the Cross Validation



5.) Click on FINISH

and OK to output the layer.



6.) Learn to make a map like this:

