

GGE3423: Introduction to Geographic Information Systems

Lab 6: Raster Data Processing and Analysis

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Start ArcMap

ArcGIS® ArcMap™
10.3.1
Loading Document...
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Part I

- Students (local addresses) in Fredericton

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Example Scenario

- Input data
 - dataset1.csv
 - Regularly spaced points (200m x 200m)
 - Value represents number of “hits”, i.e., students’ local addresses
 - 9,682 records
 - 662 students recorded

Coordinate system: WGS 1984 UNT Zone 19

Northings, Eastings, value
5081150, 671350, 0
5081150, 671550, 0
5081150, 671950, 0
5081150, 672150, 0
5081150, 672350, 0
5081150, 672750, 0
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5081150, 675350, 0
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5081150, 676150, 1
5081150, 676350, 0

4

Example Scenario

- Input data
 - dataset2.csv
 - Irregularly spaced points
 - One for each “hit”, i.e., students’ local addresses
 - 662 records

Coordinate system: WGS 1984 UNT Zone 19

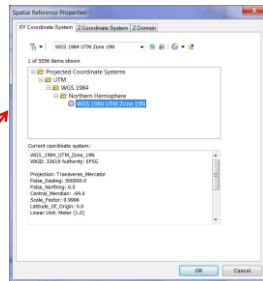
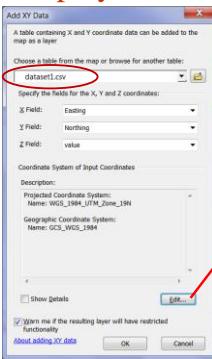
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Display data in ArcMap

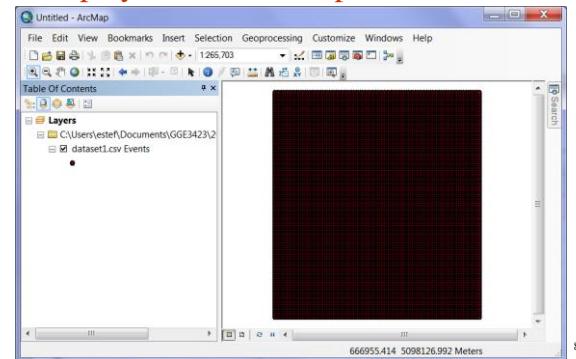
Add XY Data...
Adds a new map layer based on XY events from a table.

6

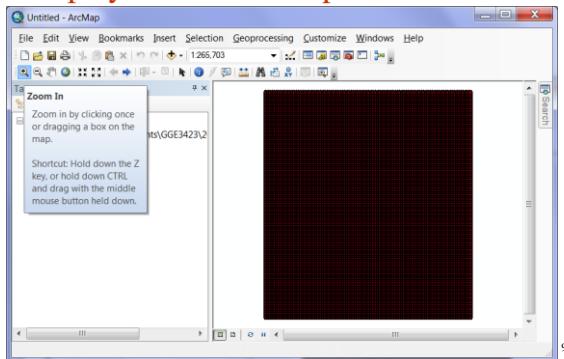
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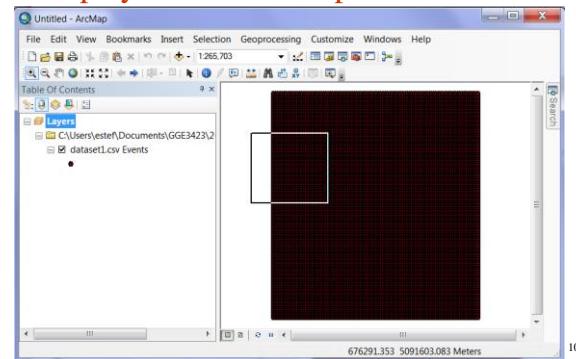
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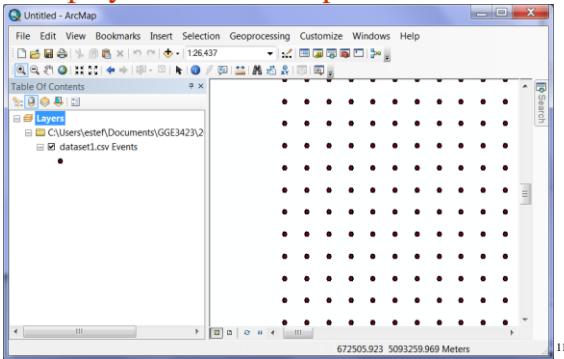
Display data in ArcMap



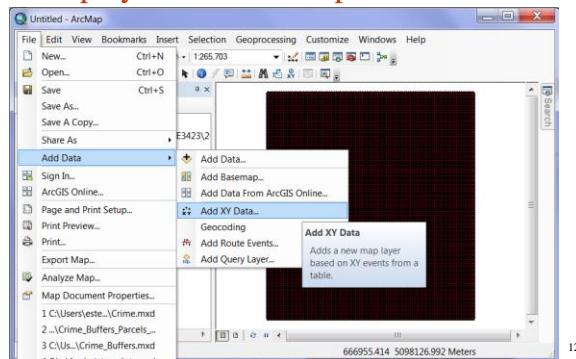
Display data in ArcMap



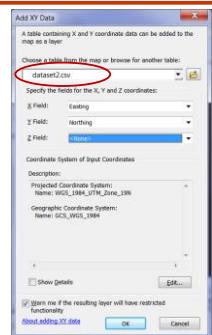
Display data in ArcMap



Display data in ArcMap

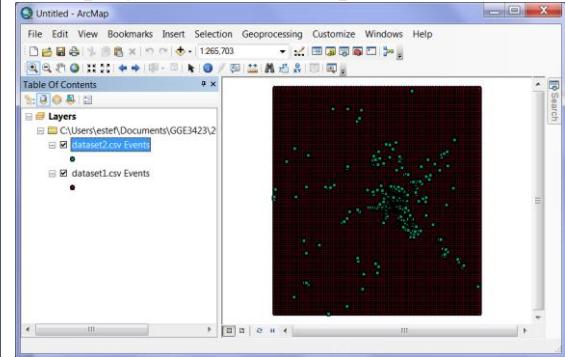


Display data in ArcMap



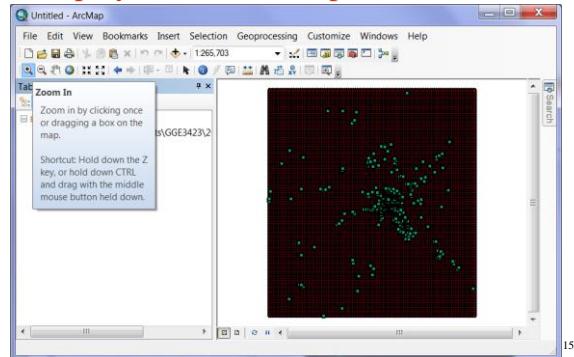
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Display data in ArcMap



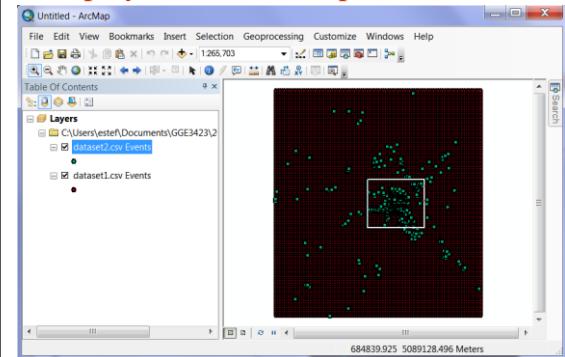
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Display data in ArcMap



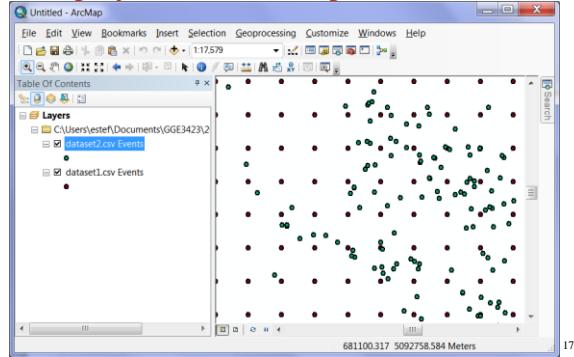
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Display data in ArcMap



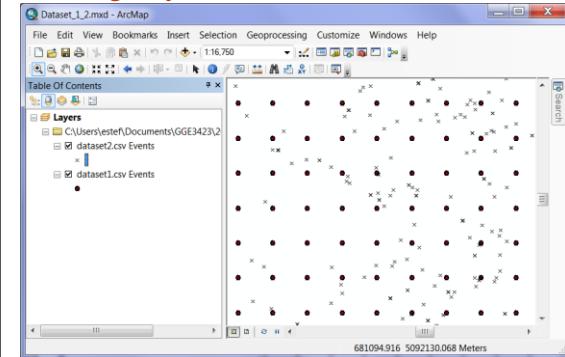
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Display data in ArcMap



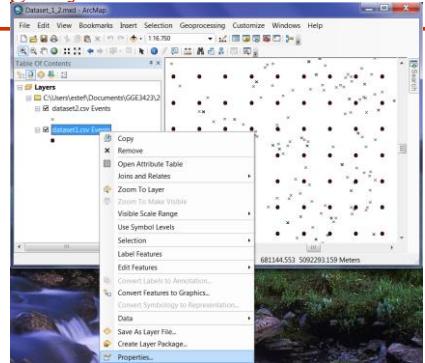
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Change Symbols – dataset2



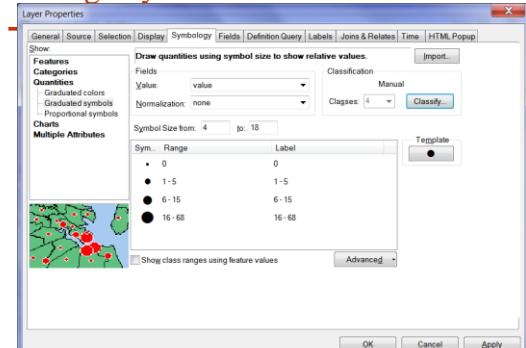
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Change Symbols – dataset1



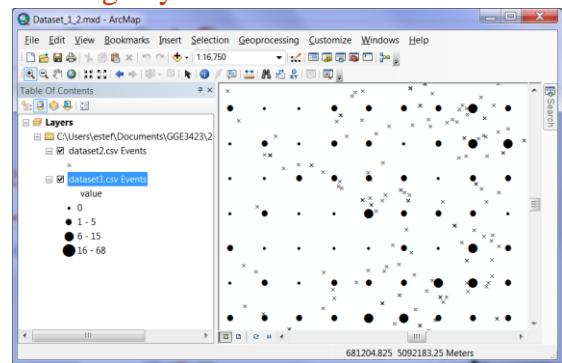
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Change Symbols – dataset1



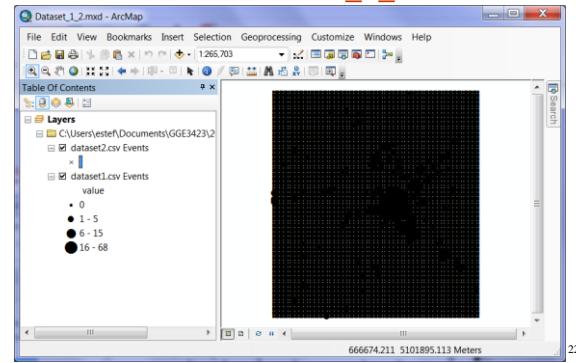
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Change Symbols – dataset1



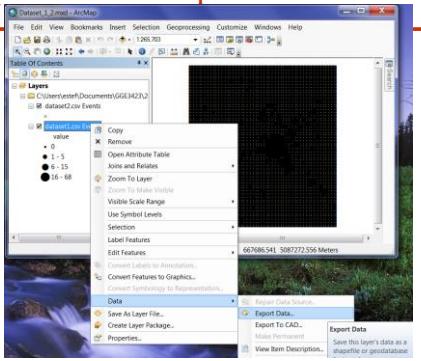
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Save document: dataset_1_2.mxd



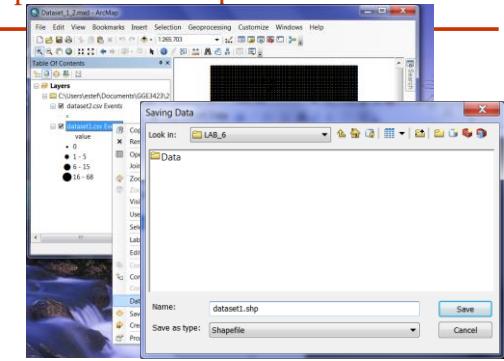
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Export data as shapefiles



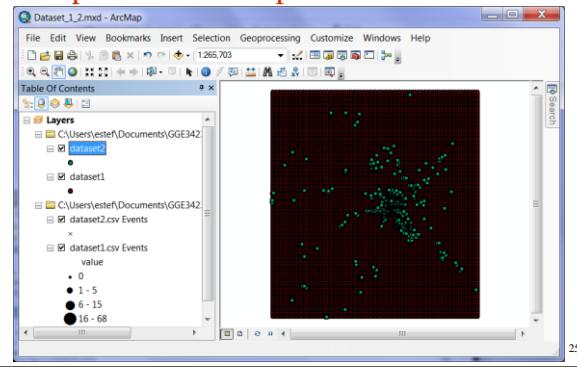
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Export data as shapefiles

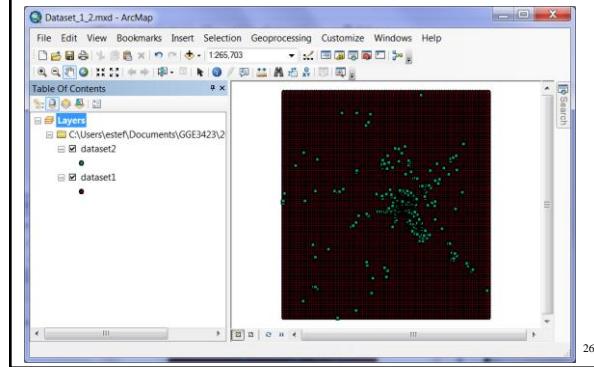


24

Export data as shapefiles

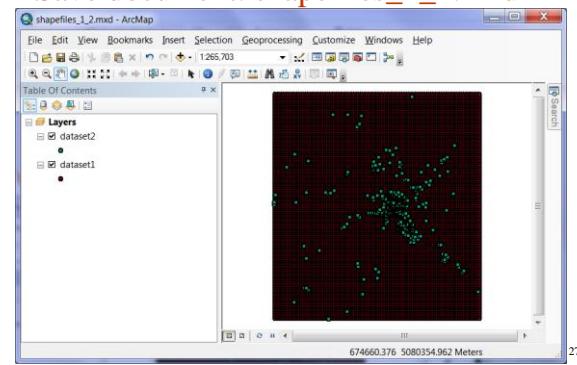


Remove csv files



26

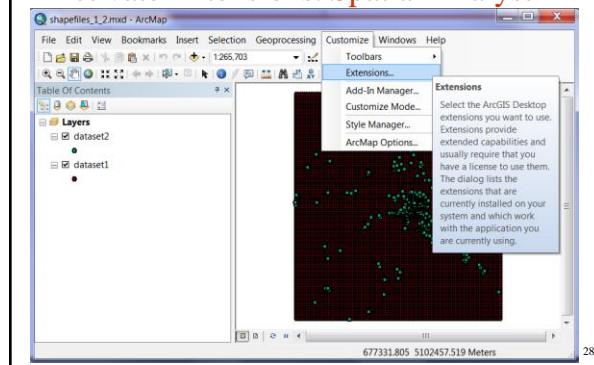
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27

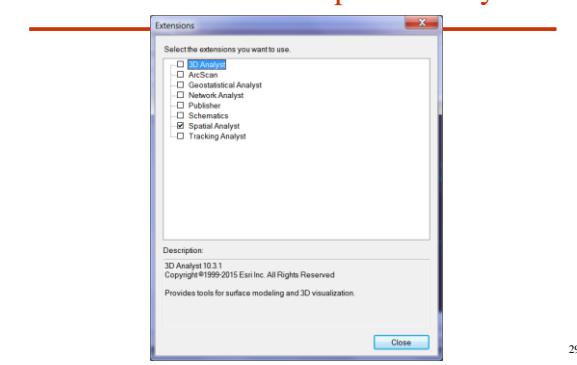
Activate Extensions: Spatial Analyst



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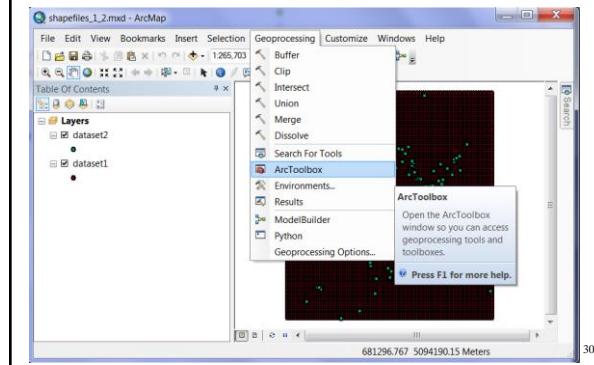
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Activate Extensions: Spatial Analyst



29

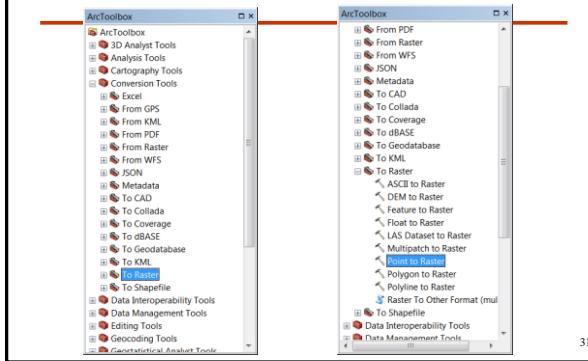
Create Raster file for dataset 1



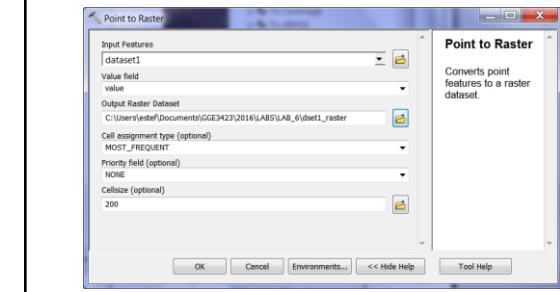
681296.767 5094190.15 Meters

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Create Raster file for dataset 1

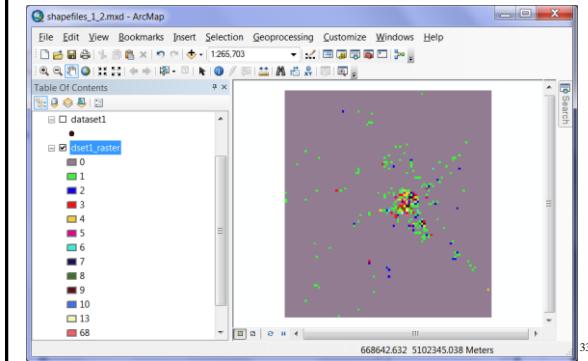


Create Raster file for dataset 1



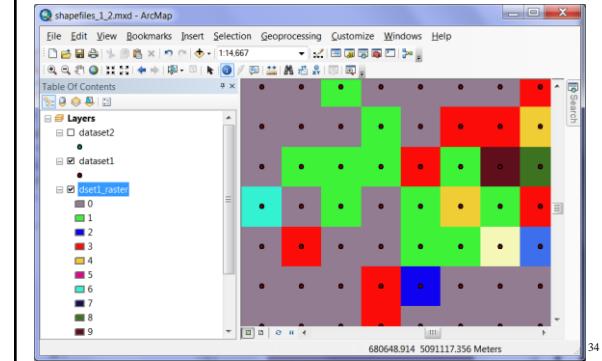
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Create Raster file for dataset 1



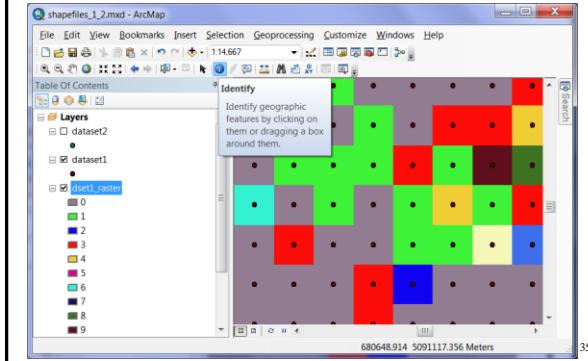
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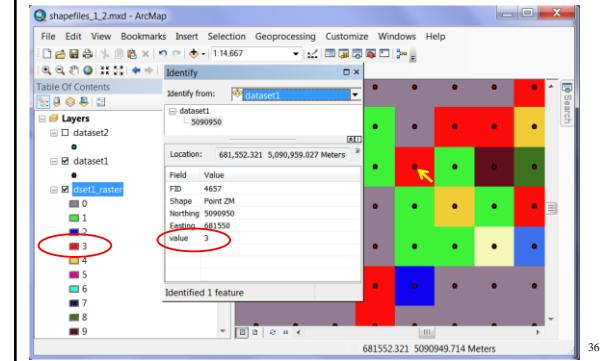
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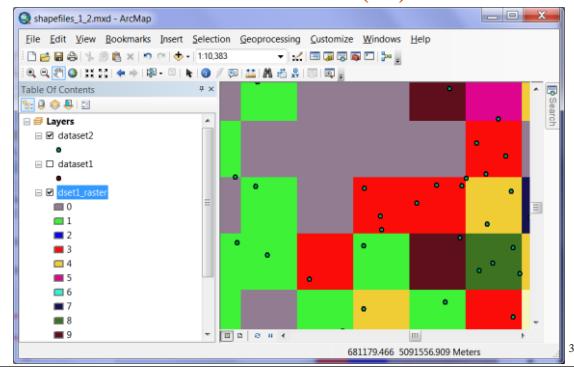
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Create Raster file for dataset 1

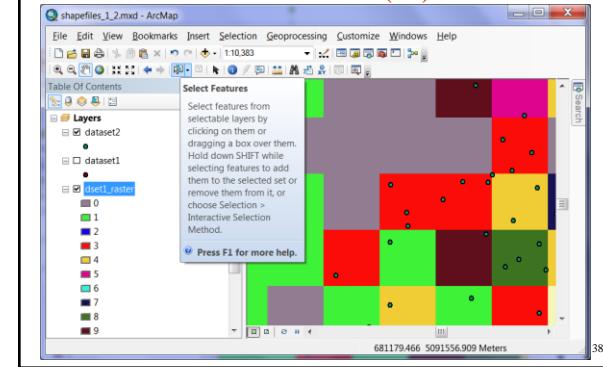


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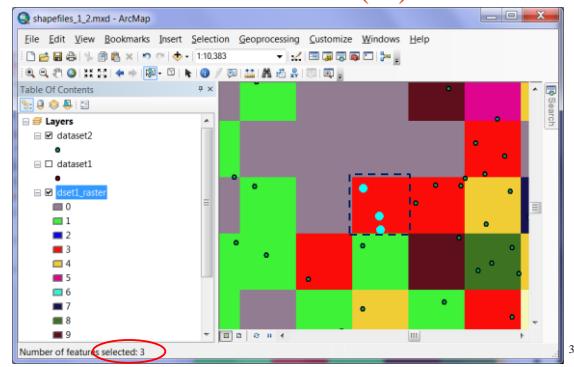
Raster file for dataset 1 (vs) dataset 2



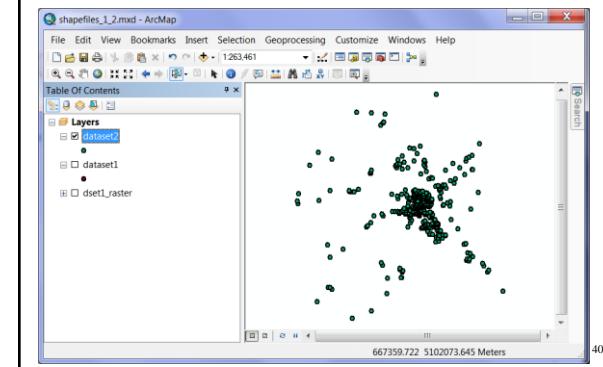
Raster file for dataset 1 (vs) dataset 2



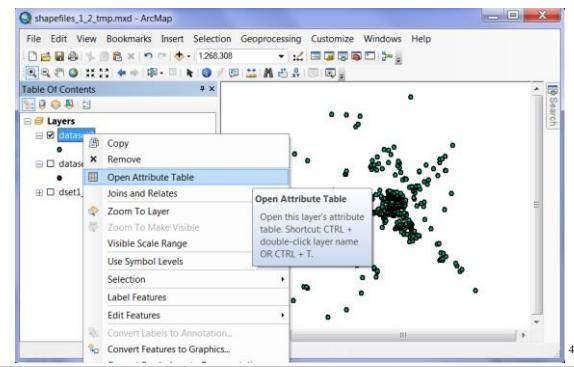
Raster file for dataset 1 (vs) dataset 2



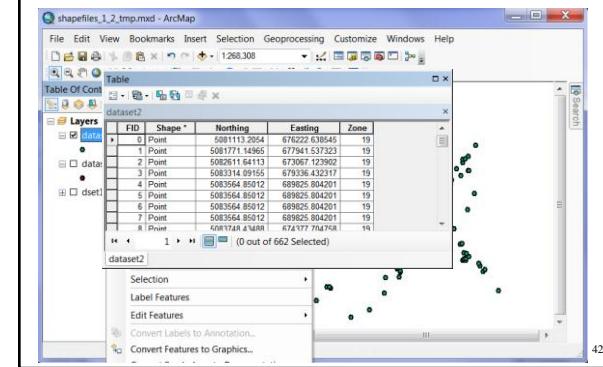
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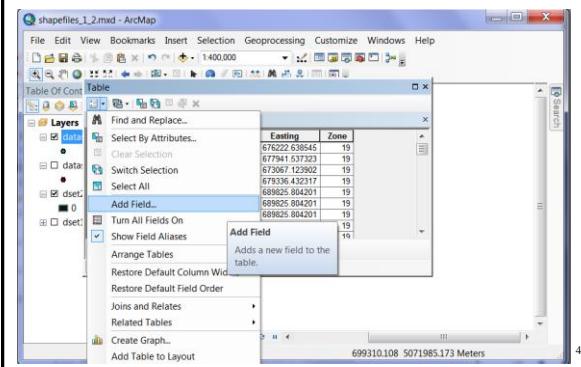
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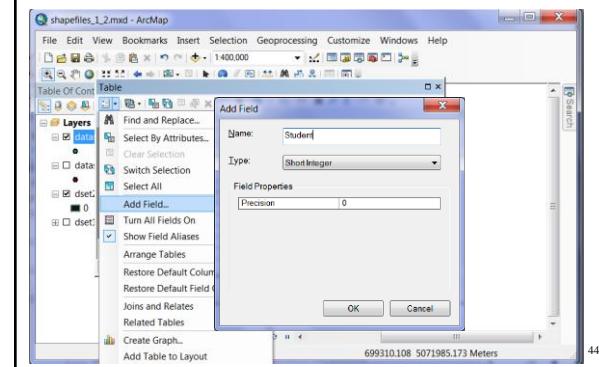
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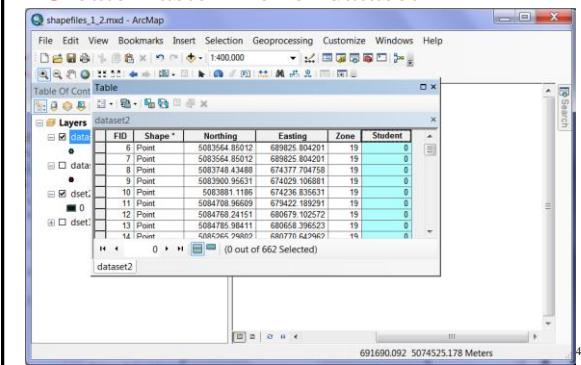
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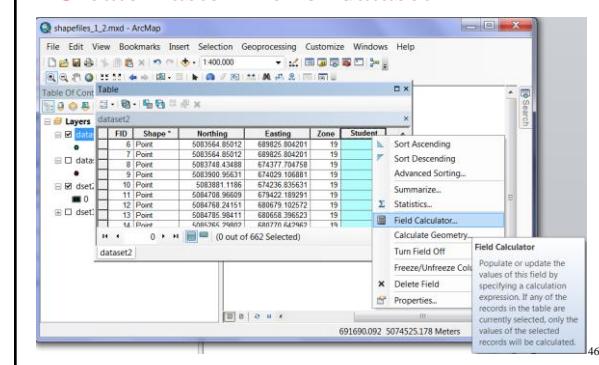
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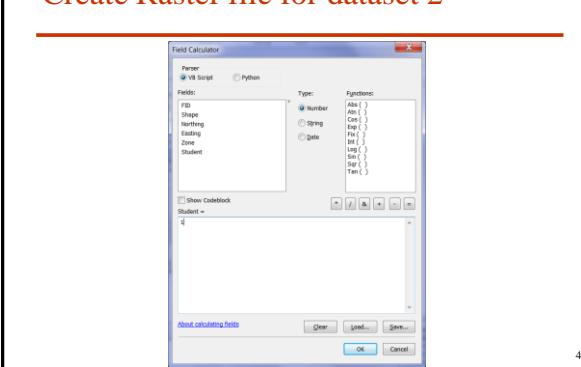
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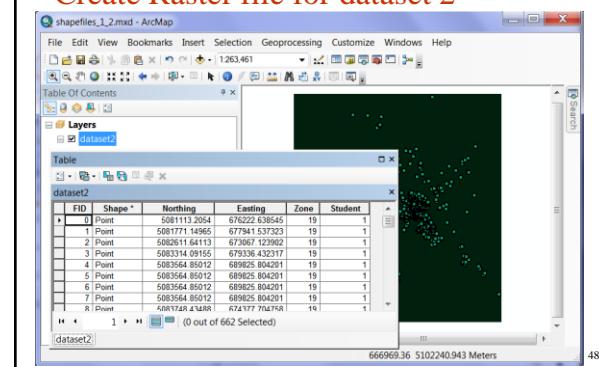
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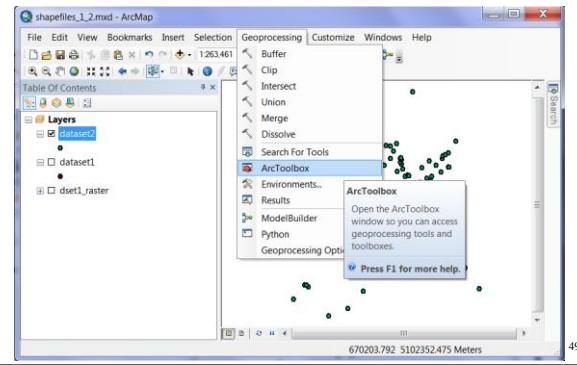
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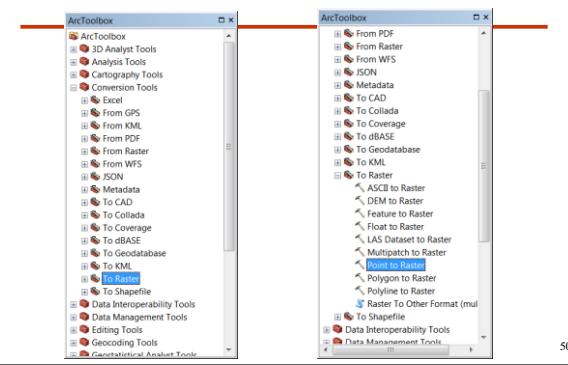
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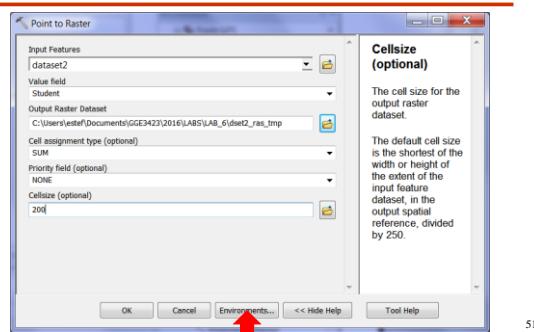
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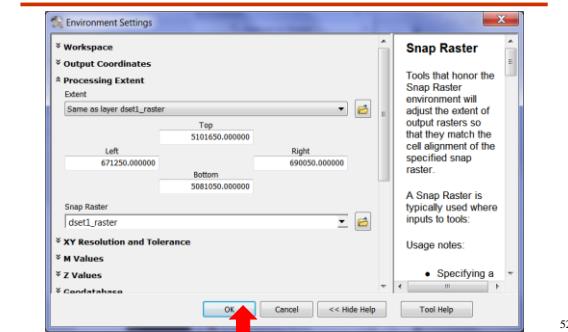
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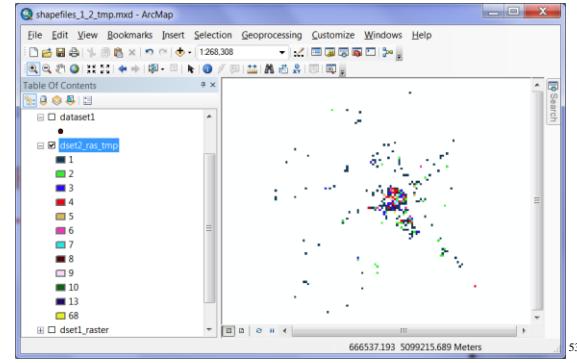
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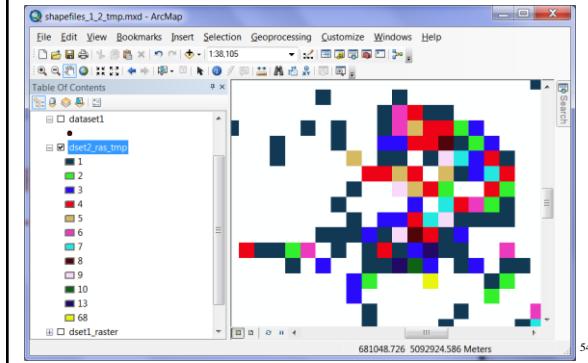
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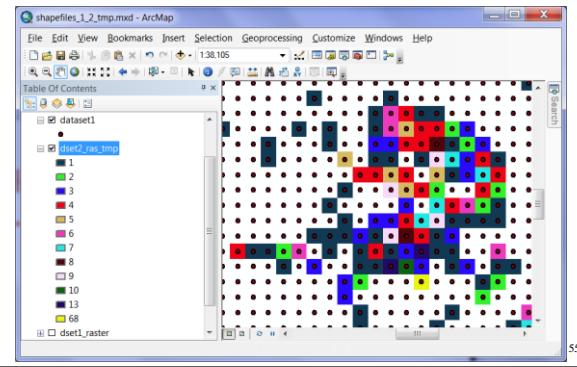
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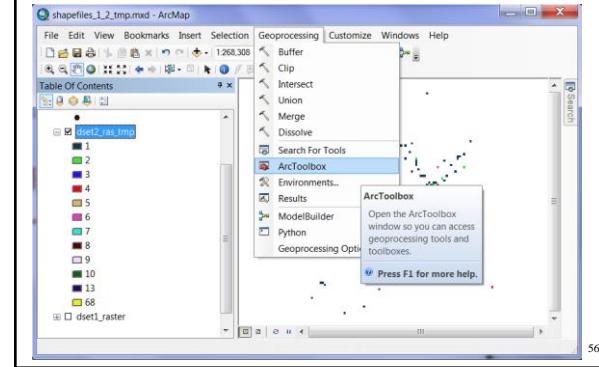
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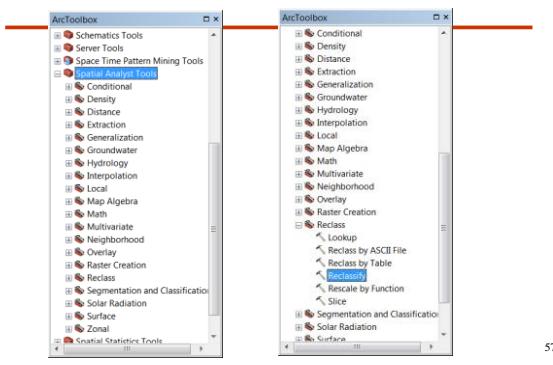
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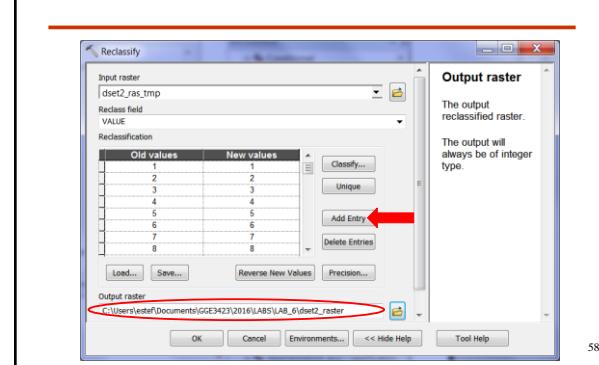
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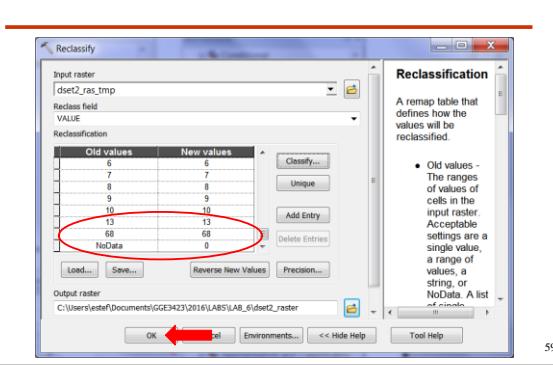
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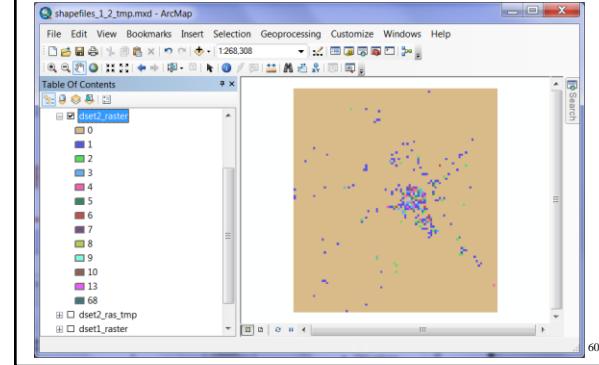
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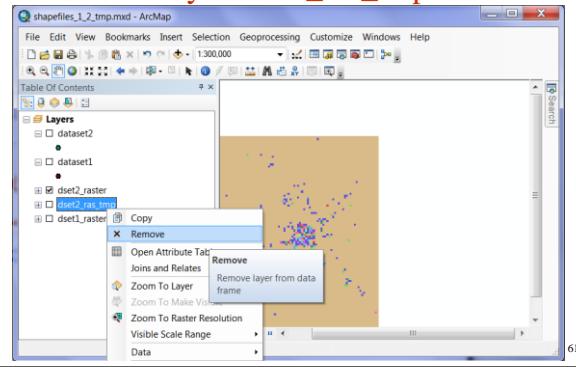
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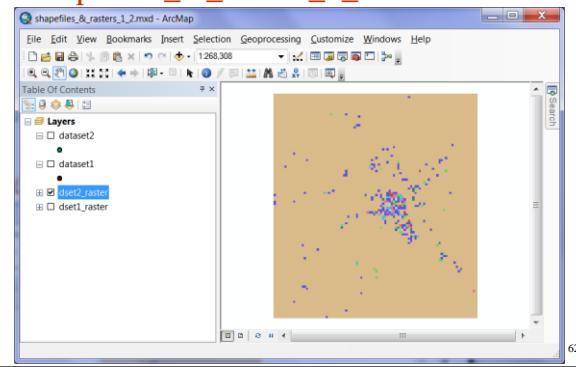
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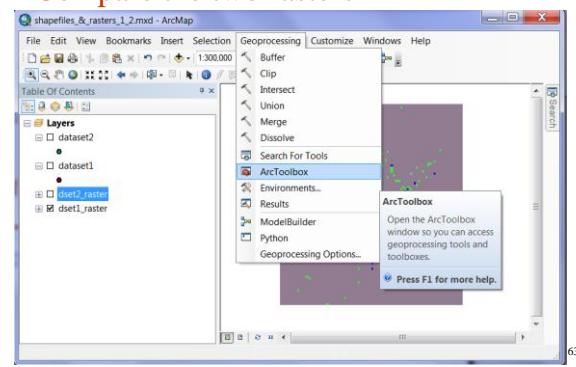
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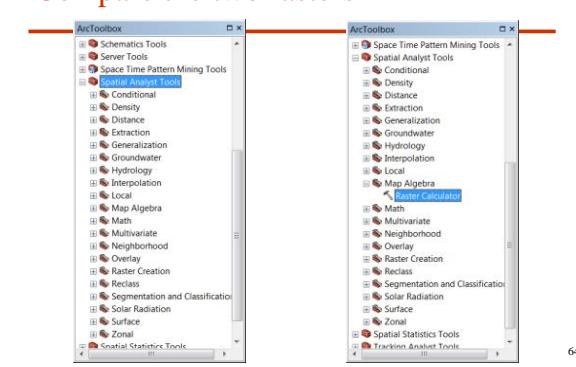
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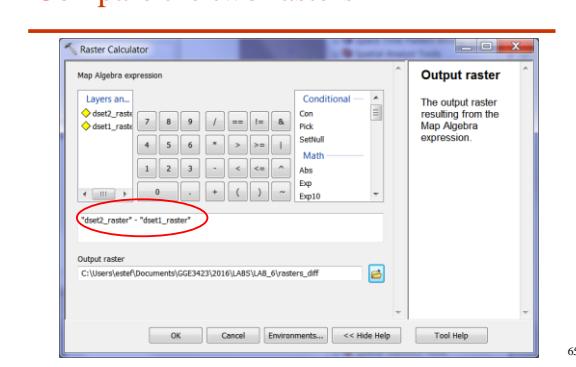
Compare the two rasters



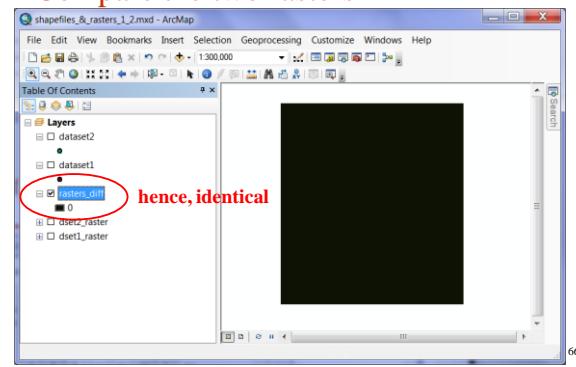
Compare the two rasters

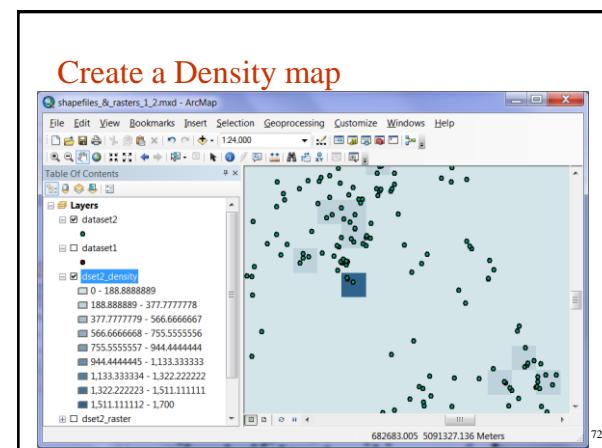
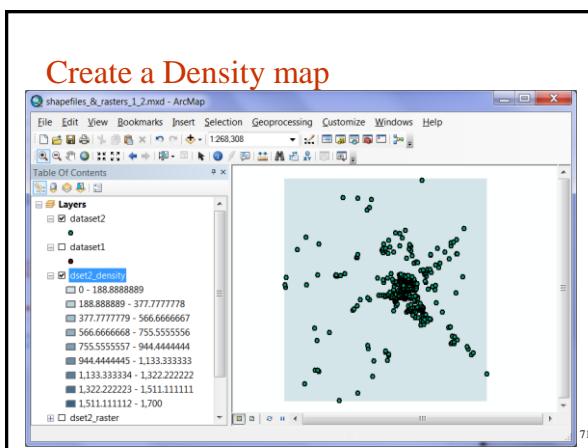
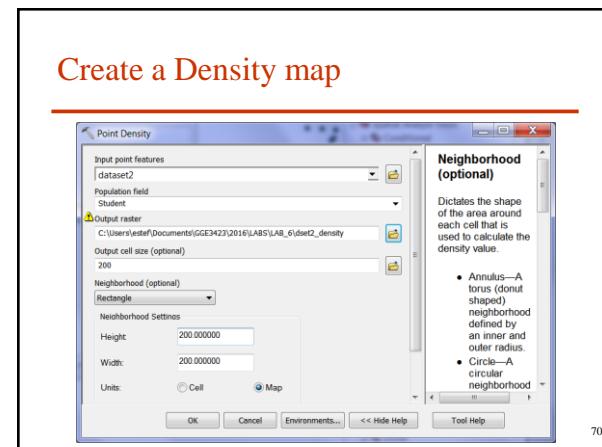
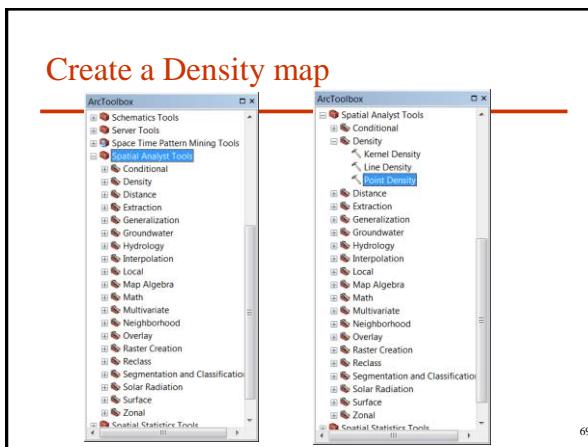
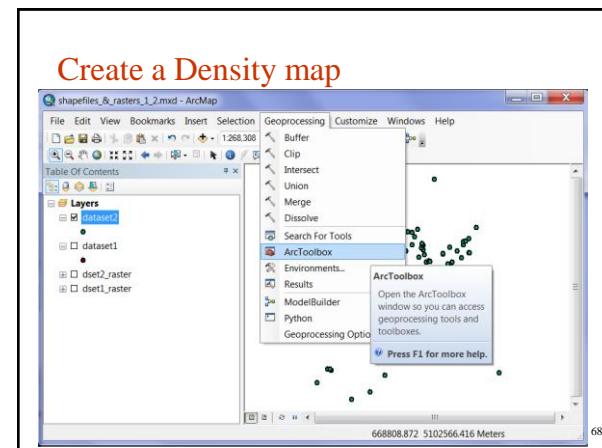
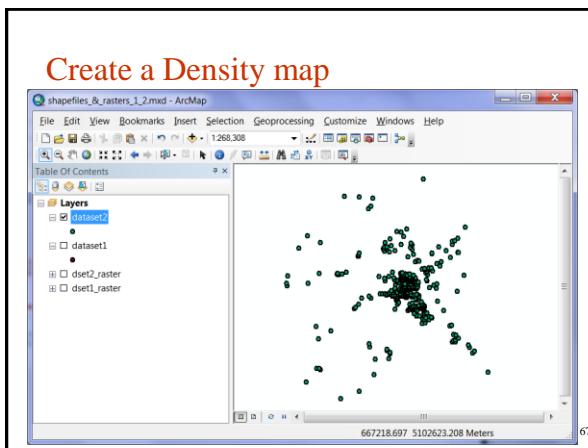


Compare the two rasters

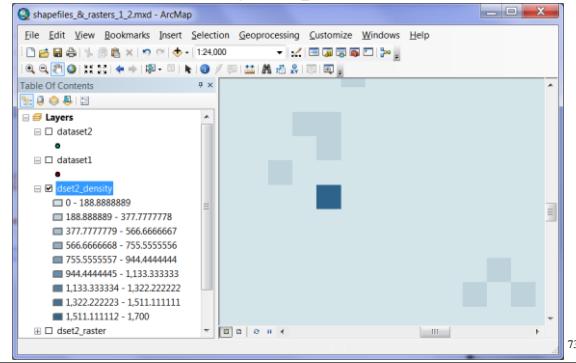


Compare the two rasters

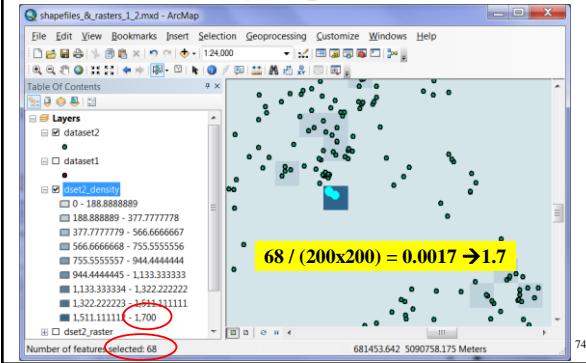




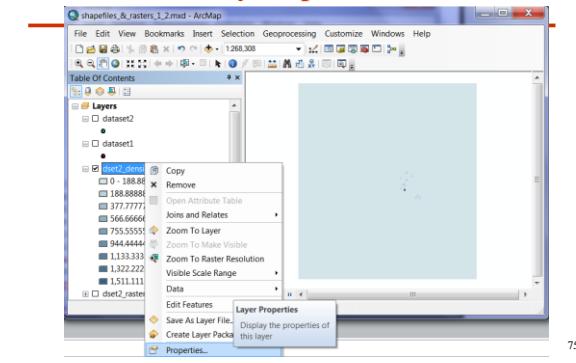
Create a Density map



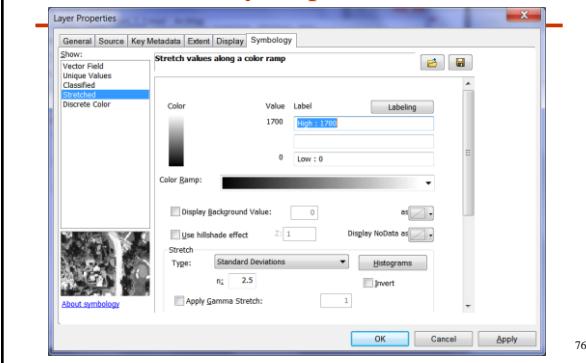
Create a Density map



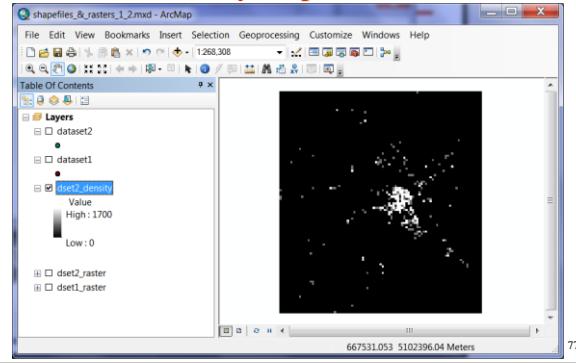
Create a Density map



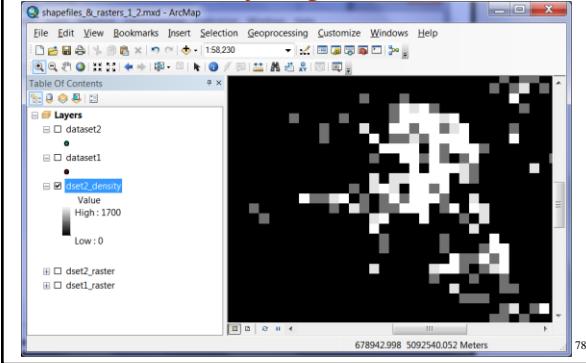
Create a Density map



Create a Density map



Create a Density map



Part II

- Elevation points in Fredericton

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Example Scenario

- Get elevation data for the city of Fredericton

<http://www.fredericton.ca/en/open-data>

<http://data.fredericton.ca/en/dataset/elevation-points>

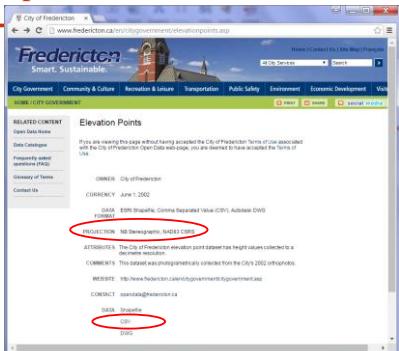
Download CSV file

Also available in Lab_6/Data (423,898 spots)

spots.csv - Notepad	
File	Edit
Open...	Save
Save As...	Ctrl+S
Share As	
Add Data...	
Sign In...	
ArcGIS Online...	
Page and Print Setup...	
Print Preview...	
Print...	
Export Map...	
Analyze Map...	
Map Document Properties...	
1 C:\Users\steve...\Crime.mxd	
2 ...\Crime_Buffers_Parcels...	
3 ...\Crime_Buffers...	
4 C:\...\Modeler\Crime_Results.mxd	

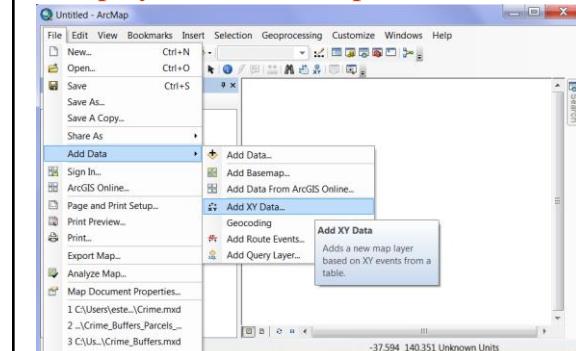
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Example Scenario



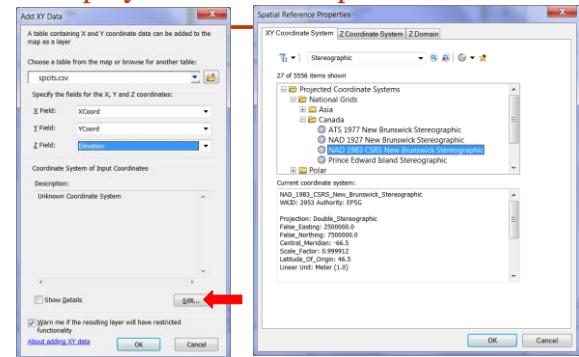
81

Display data in ArcMap

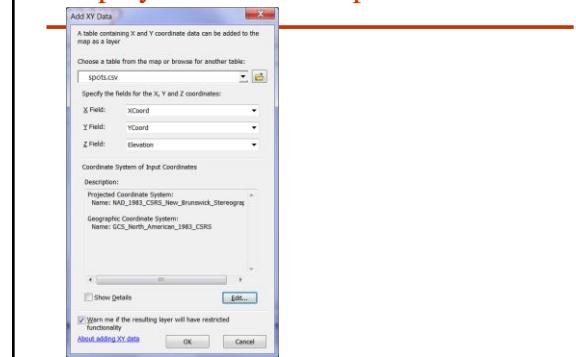


82

Display data in ArcMap

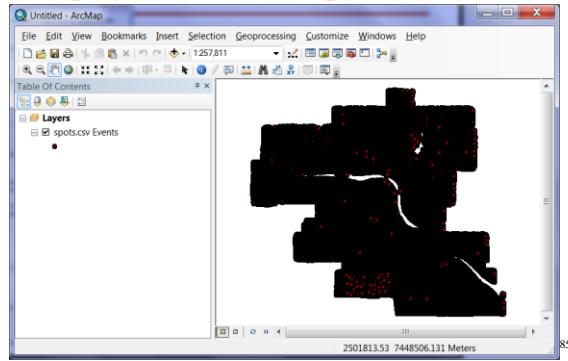


Display data in ArcMap

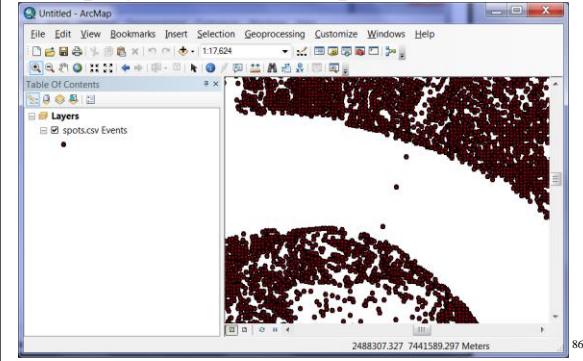


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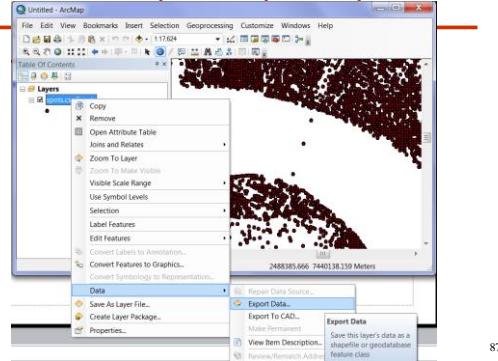
Display data in ArcMap



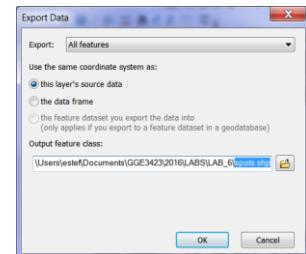
Display data in ArcMap



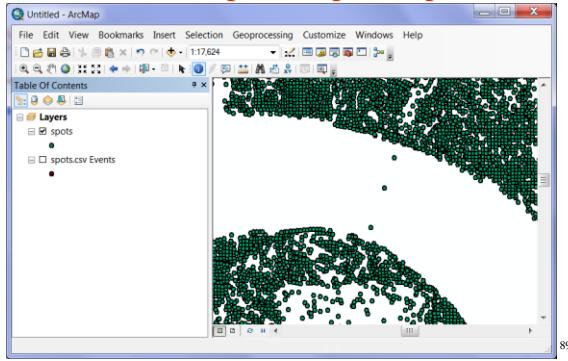
Save it as a shapefile: spots.shp



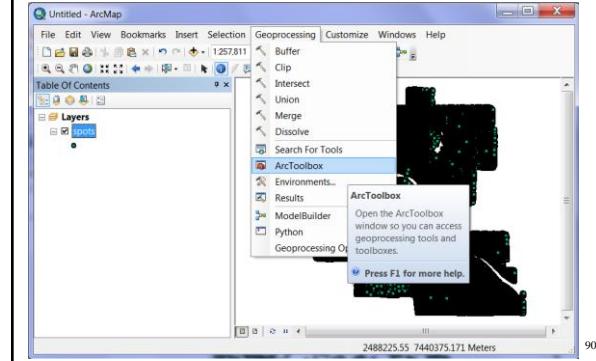
Save it as a shapefile: spots.shp



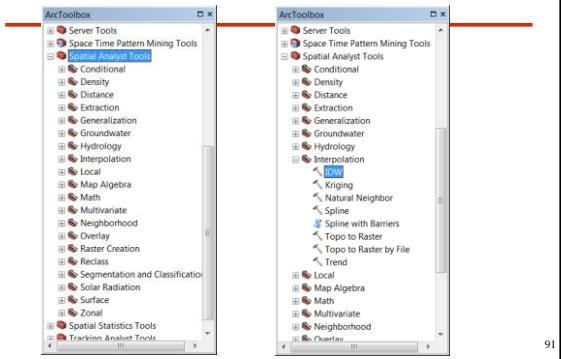
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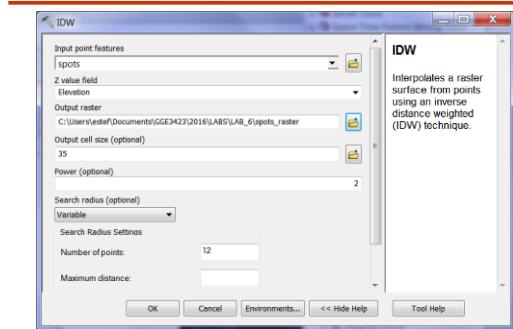
Create an Elevation Raster (IDW)



Create an Elevation Raster (IDW)

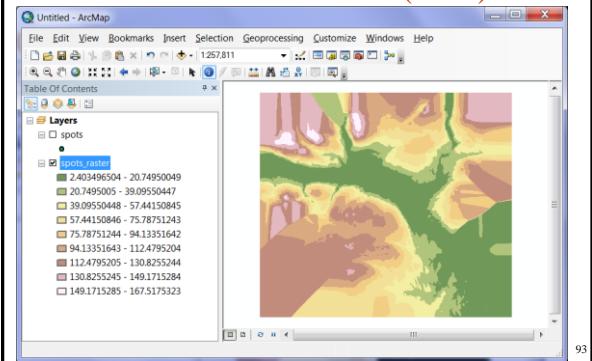


Create an Elevation Raster (IDW)



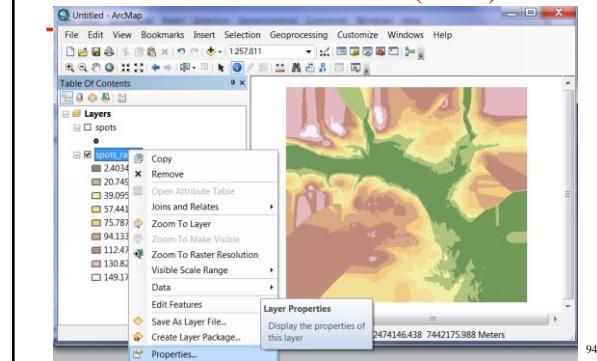
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Create an Elevation Raster (IDW)



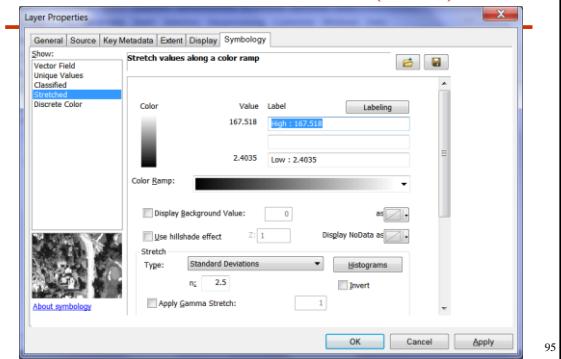
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Create an Elevation Raster (IDW)



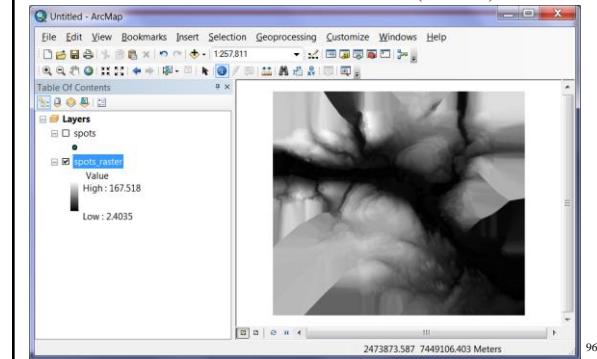
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Create an Elevation Raster (IDW)

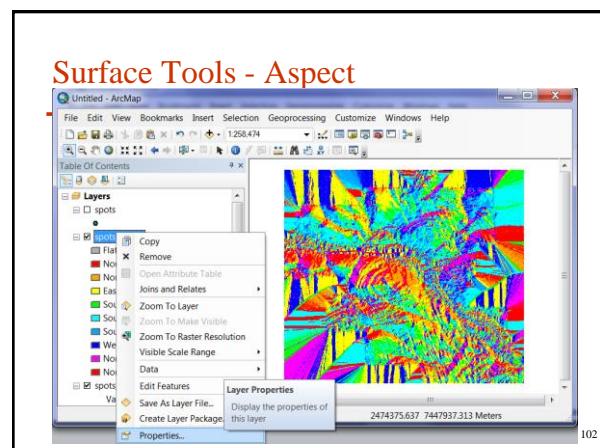
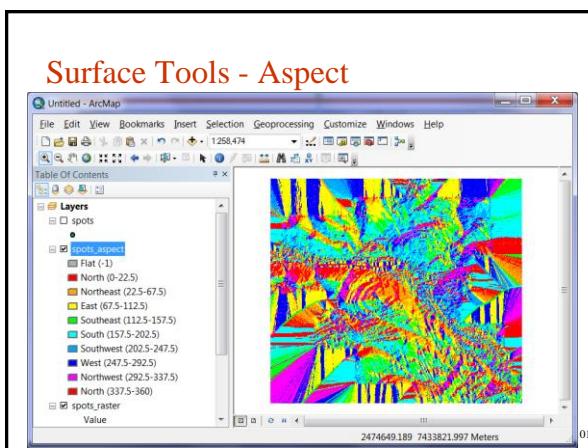
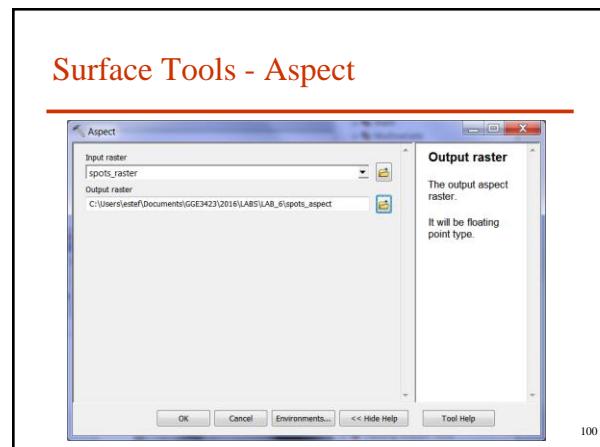
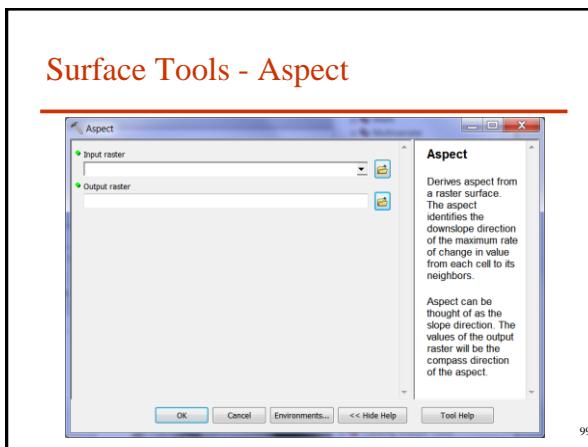
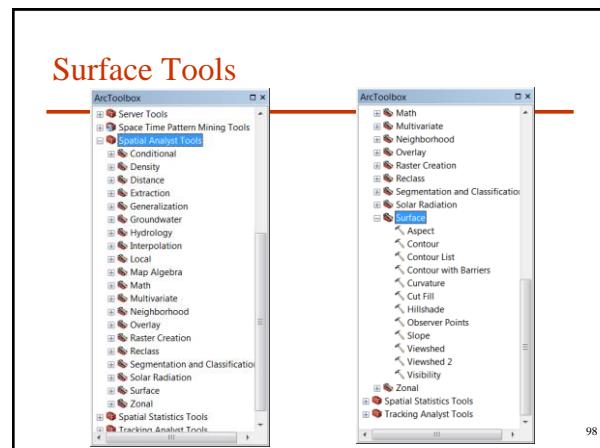
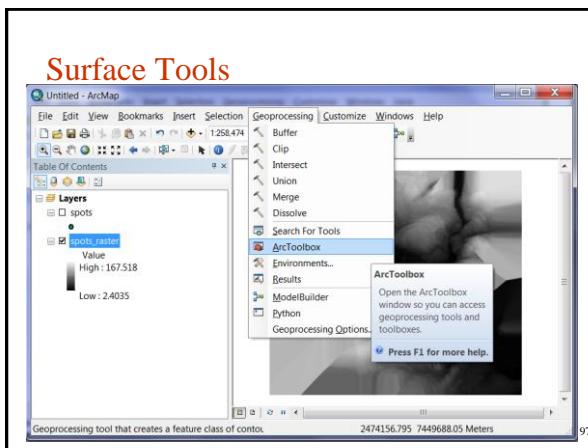


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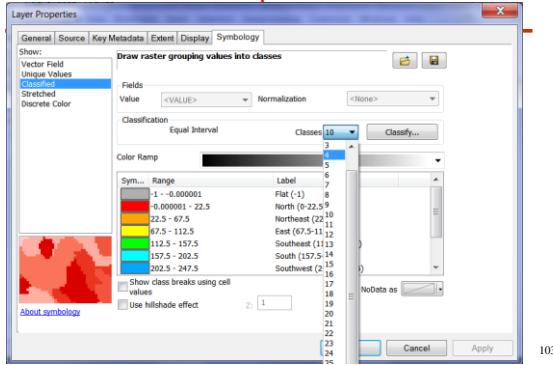
Create an Elevation Raster (IDW)



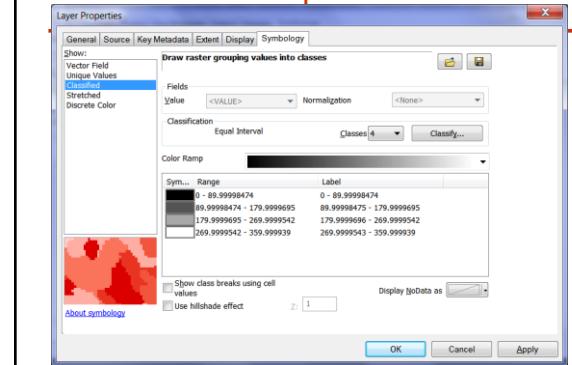
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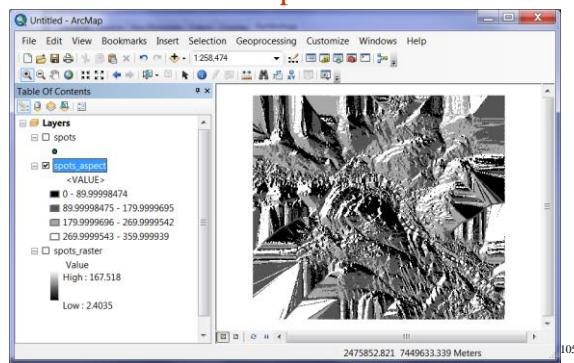
Surface Tools - Aspect



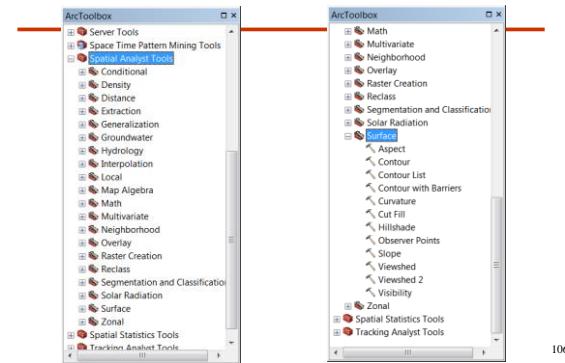
Surface Tools - Aspect



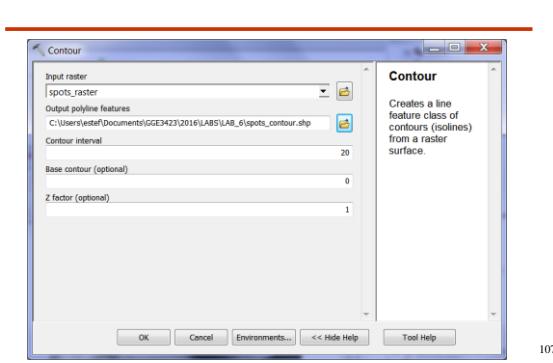
Surface Tools - Aspect



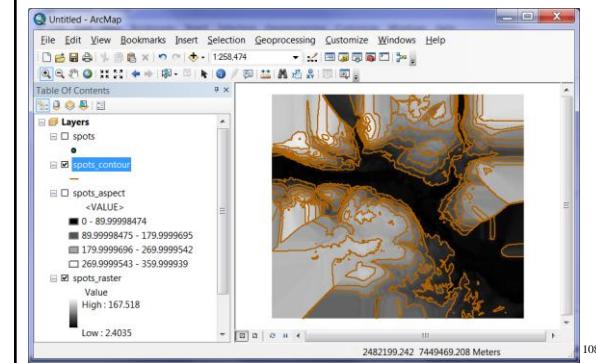
Surface Tools



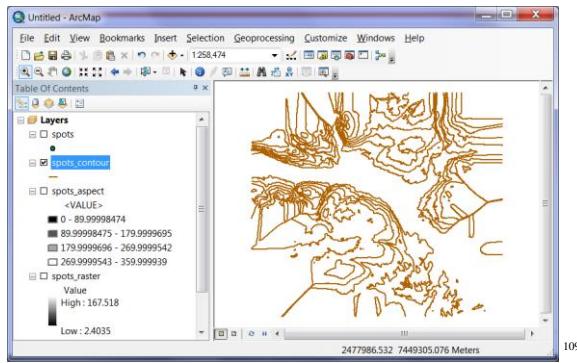
Surface Tools - Contour



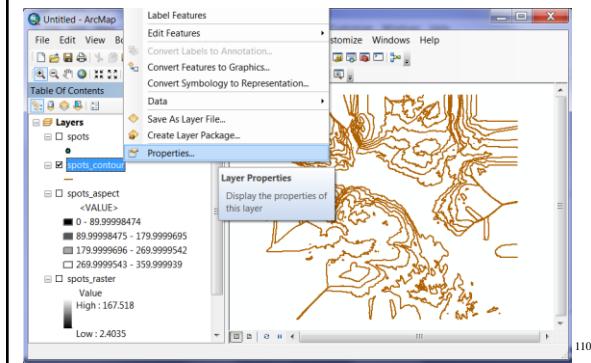
Surface Tools - Contour



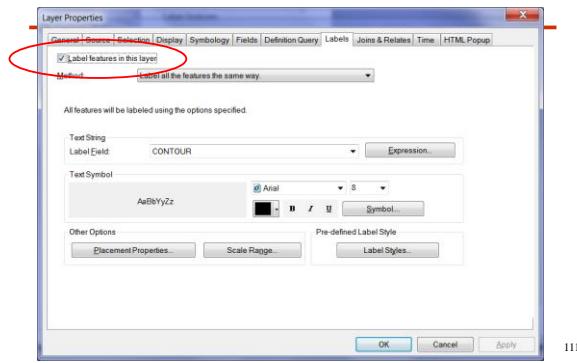
Surface Tools - Contour



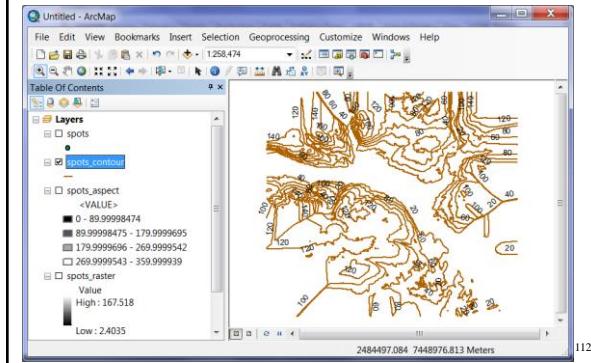
Surface Tools - Contour



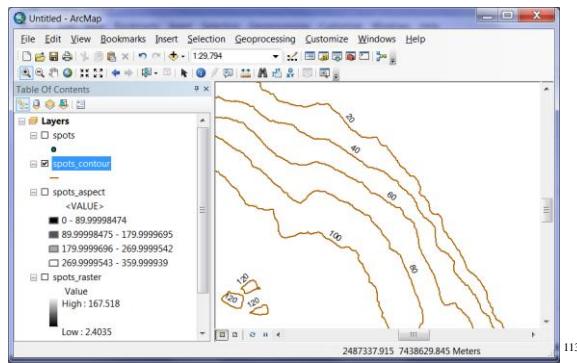
Surface Tools - Contour



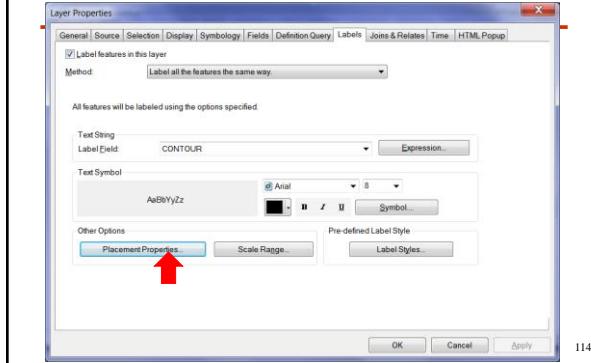
Surface Tools - Contour



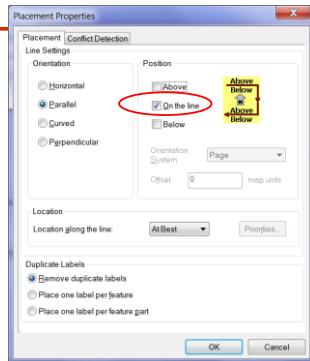
Surface Tools - Contour



Surface Tools - Contour

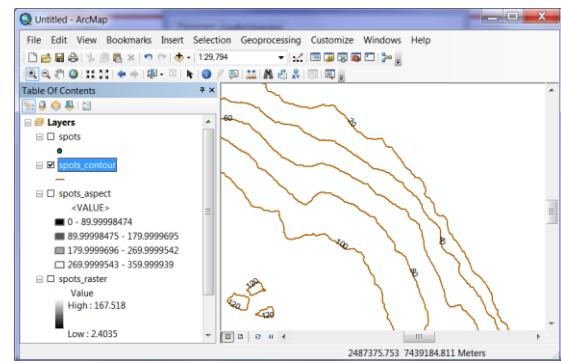


Surface Tools - Contour



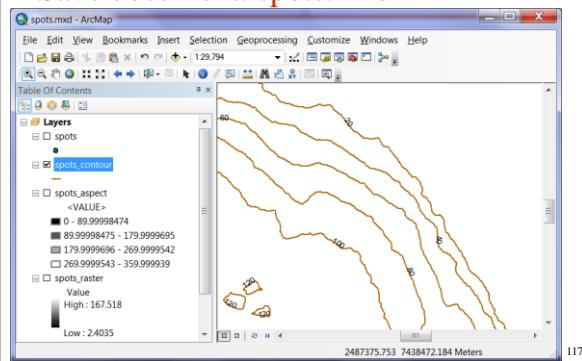
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Surface Tools - Contour



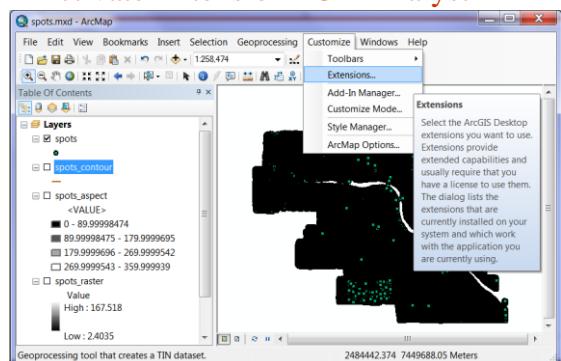
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Save document: spots.mxd



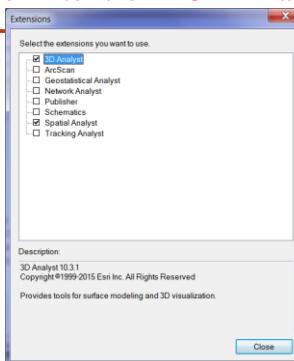
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Activate Extension – 3D Analyst



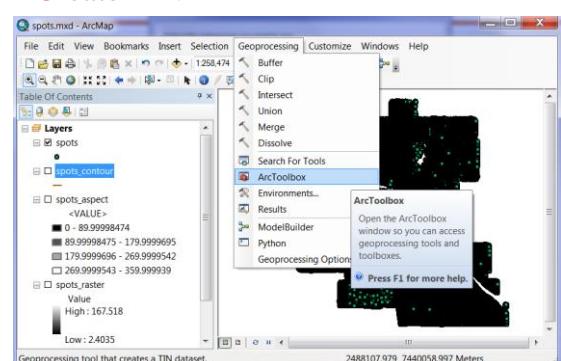
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Activate Extension – 3D Analyst



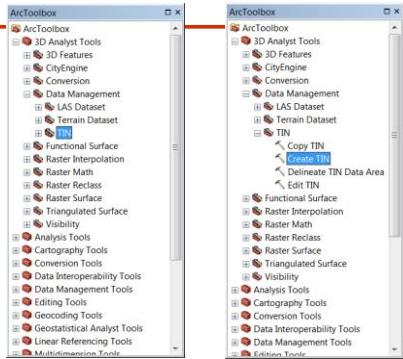
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Create TIN



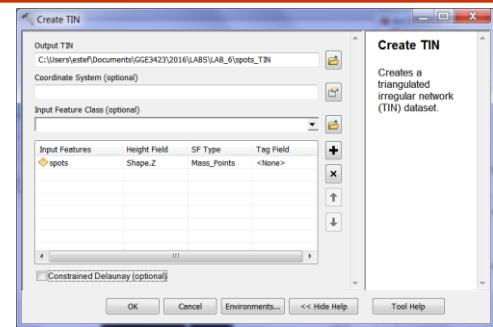
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Create TIN



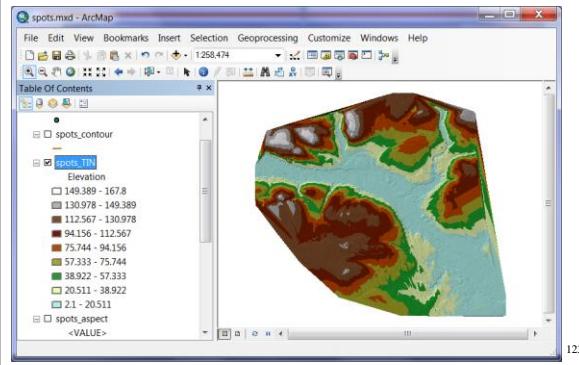
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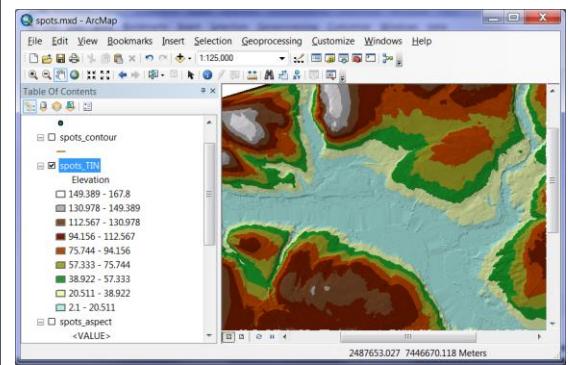
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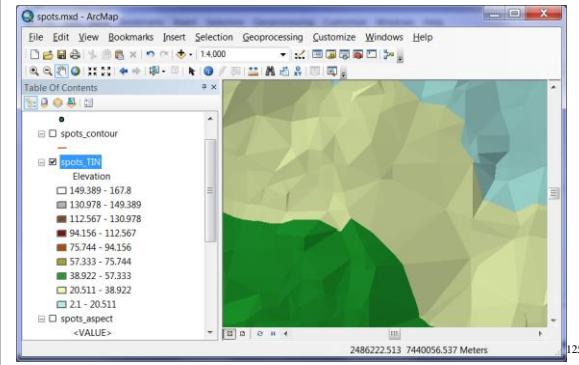
123

Create TIN



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Create TIN



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References

ArcGIS Raster Tutorial

- <http://desktop.arcgis.com/en/arcmap/10.3/manage-data/raster-and-images/intro-to-the-raster-tutorial.htm>

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