CREATING HIGH RESOLUTION SHADED SURFACE RELIEF MAPS USING ARCVIEW

DEM Mapping

Acquiring DEM data

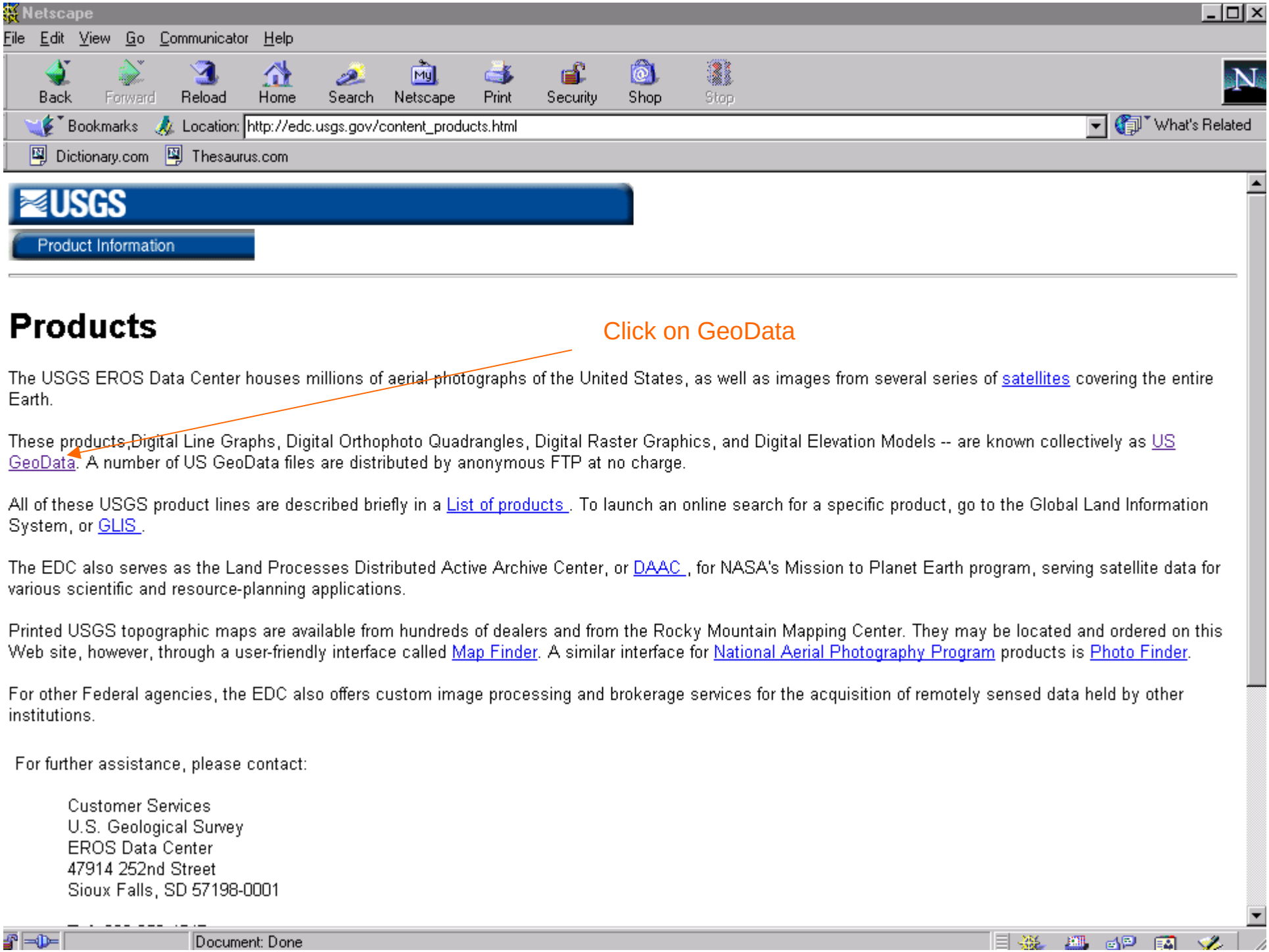
Directory Structure

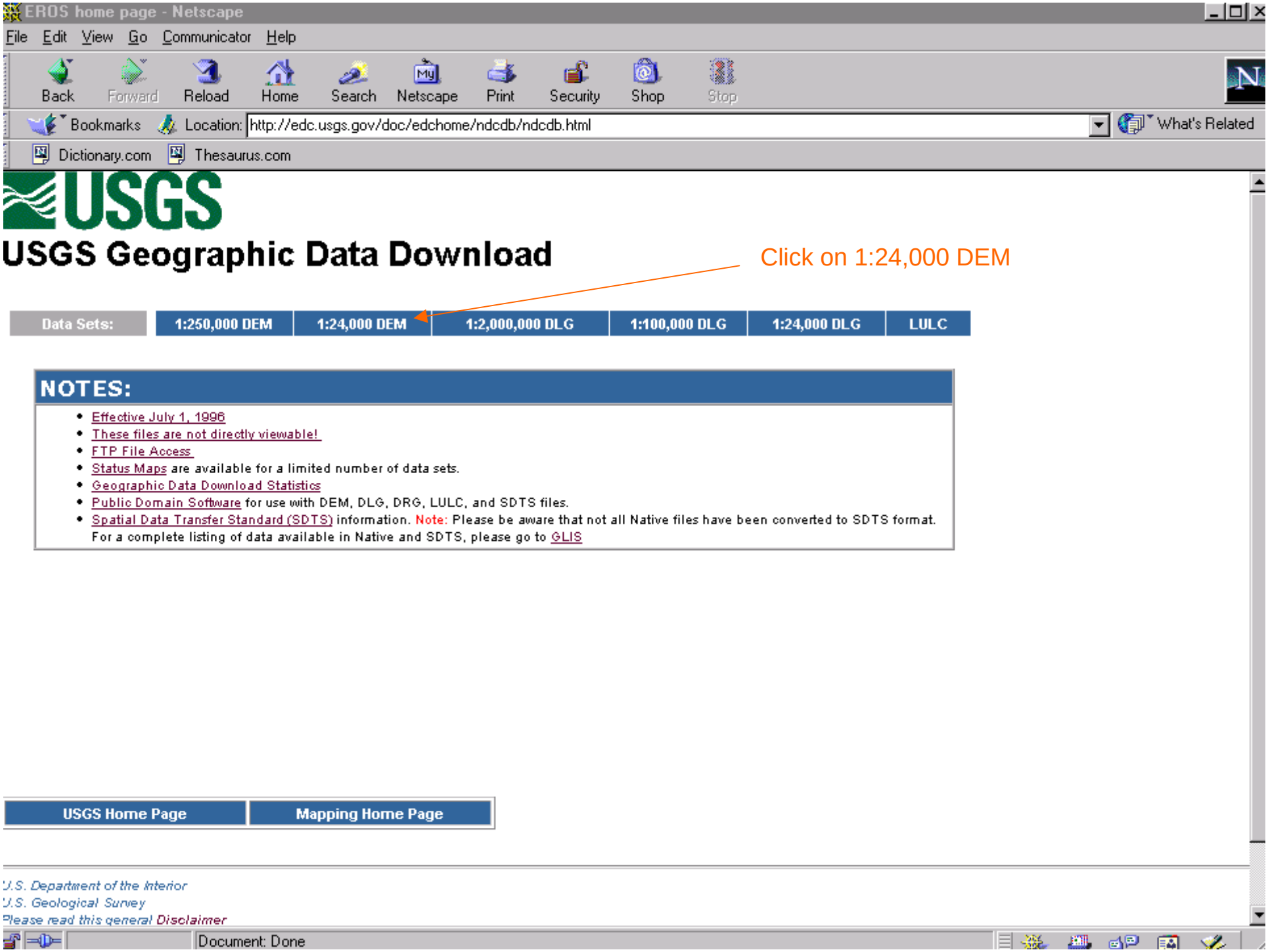
- Before downloading SDTS DEMs into ArcView, a good thing to do is first build a directory structure.
- A good format might be \75_minute_dem\Michigan (State_name)
- Subdirectories will be created beneath state_name \75_minute_dem\Michigan\evans_creek

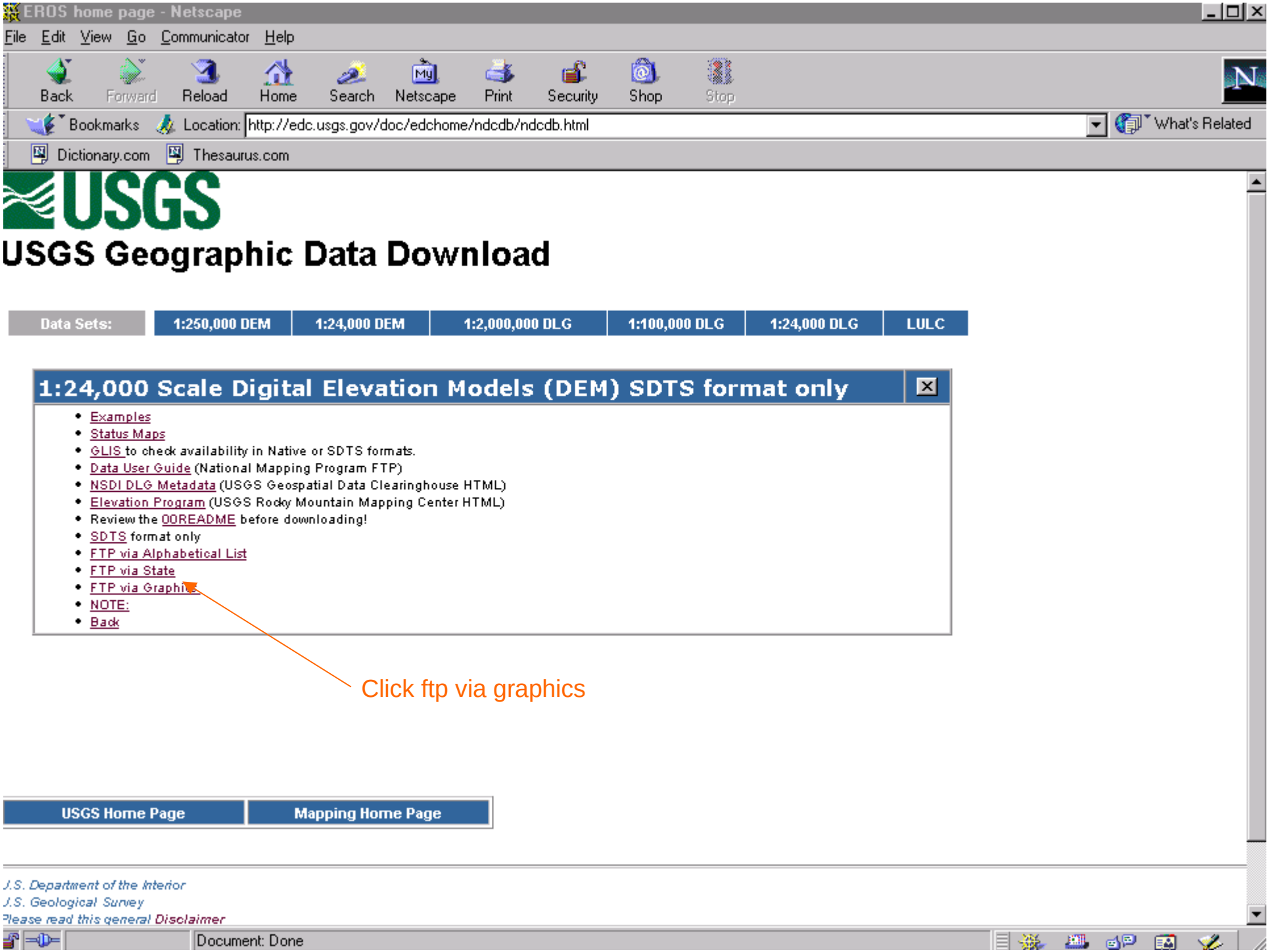
On the Internet

- Log into the USGS EROS DATA CENTER site at http://edcwww.cr.usgs.gov/doc/edchome/ndcdb/ndcdb.html
- This is the place to start acquiring high resolution DEM data for mapping applications

EROS home page - Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Shop Stop
Bookmarks Location: http://edcwww.cr.usgs.gov/
What's Related
Dictionary.com Thesaurus.com
USGS
science for a changing world
EROS Data Center, Sioux Falls, SD
Click on Product Information
ABOUT EROS
Background
Key Word Search
Programs
PRODUCTS
Product Information
NASA DAAC
Examples
SERVICES
Customer Services
Search & Ordering
Business Partners
RESEARCH
Publications/Library
Partners
WHAT'S NEW
NATIONAL ARCHIVE
FEATURES
LANDSAT 7
Need Help Determining what you need?
USGS Home Page
Mapping Home Page
U.S. Department of the Interior
U.S. Geological Survey
Please read this general Disclaimer
URL: http://edc.usgs.gov
Maintainer: edcweb@usgs.gov
Last Update: 28 September 2000
USGS Privacy Statement
FIRSTGOV
Your First Click to the U.S. Government
Document: Done


Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Shop Stop
Bookmarks Location: http://edc.usgs.gov/content_products.html
What's Related
Dictionary.com Thesaurus.com
USGS
Product Information
Products
Click on GeoData
The USGS EROS Data Center houses millions of aerial photographs of the United States, as well as images from several series of satellites covering the entire Earth.
These products,Digital Line Graphs, Digital Orthophoto Quadrangles, Digital Raster Graphics, and Digital Elevation Models -- are known collectively as US GeoData. A number of US GeoData files are distributed by anonymous FTP at no charge.
All of these USGS product lines are described briefly in a List of products . To launch an online search for a specific product, go to the Global Land Information System, or GLIS .
The EDC also serves as the Land Processes Distributed Active Archive Center, or DAAC , for NASA's Mission to Planet Earth program, serving satellite data for various scientific and resource-planning applications.
Printed USGS topographic maps are available from hundreds of dealers and from the Rocky Mountain Mapping Center. They may be located and ordered on this Web site, however, through a user-friendly interface called Map Finder. A similar interface for National Aerial Photography Program products is Photo Finder.
For other Federal agencies, the EDC also offers custom image processing and brokerage services for the acquisition of remotely sensed data held by other institutions.
For further assistance, please contact:
Customer Services
U.S. Geological Survey
EROS Data Center
47914 252nd Street
Sioux Falls, SD 57198-0001
Document: Done


EROS home page - Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Shop Stop
Bookmarks Location: http://edc.usgs.gov/doc/edchome/ndcdb/ndcdb.html What's Related
Dictionary.com Thesaurus.com
USGS
USGS Geographic Data Download
Click on 1:24,000 DEM
Data Sets: 1:250,000 DEM 1:24,000 DEM 1:2,000,000 DLG 1:100,000 DLG 1:24,000 DLG LULC
NOTES:
Effective July 1, 1996
These files are not directly viewable!
FTP File Access
Status Maps are available for a limited number of data sets.
Geographic Data Download Statistics
Public Domain Software for use with DEM, DLG, DRG, LULC, and SDTS files.
Spatial Data Transfer Standard (SDTS) information. Note: Please be aware that not all Native files have been converted to SDTS format.
For a complete listing of data available in Native and SDTS, please go to GLIS
USGS Home Page
Mapping Home Page
U.S. Department of the Interior
U.S. Geological Survey
Please read this general Disclaimer
Document: Done


EROS home page - Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Shop Stop
Bookmarks Location: http://edc.usgs.gov/doc/edchome/ndcdb/ndcdb.html
What's Related
Dictionary.com Thesaurus.com
USGS
USGS Geographic Data Download
Data Sets: 1:250,000 DEM 1:24,000 DEM 1:2,000,000 DLG 1:100,000 DLG 1:24,000 DLG LULC
1:24,000 Scale Digital Elevation Models (DEM) SDTS format only
Examples
Status Maps
GLIS to check availability in Native or SDTS formats.
Data User Guide (National Mapping Program FTP)
NSDI DLG Metadata (USGS Geospatial Data Clearinghouse HTML)
Elevation Program (USGS Rocky Mountain Mapping Center HTML)
Review the 00README before downloading!
SDTS format only
FTP via Alphabetical List
FTP via State
FTP via Graphics
NOTE:
Back
Click ftp via graphics
USGS Home Page
Mapping Home Page
U.S. Department of the Interior
U.S. Geological Survey
Please read this general Disclaimer
Document: Done

7.5 minute DEM Index Map - Netscape

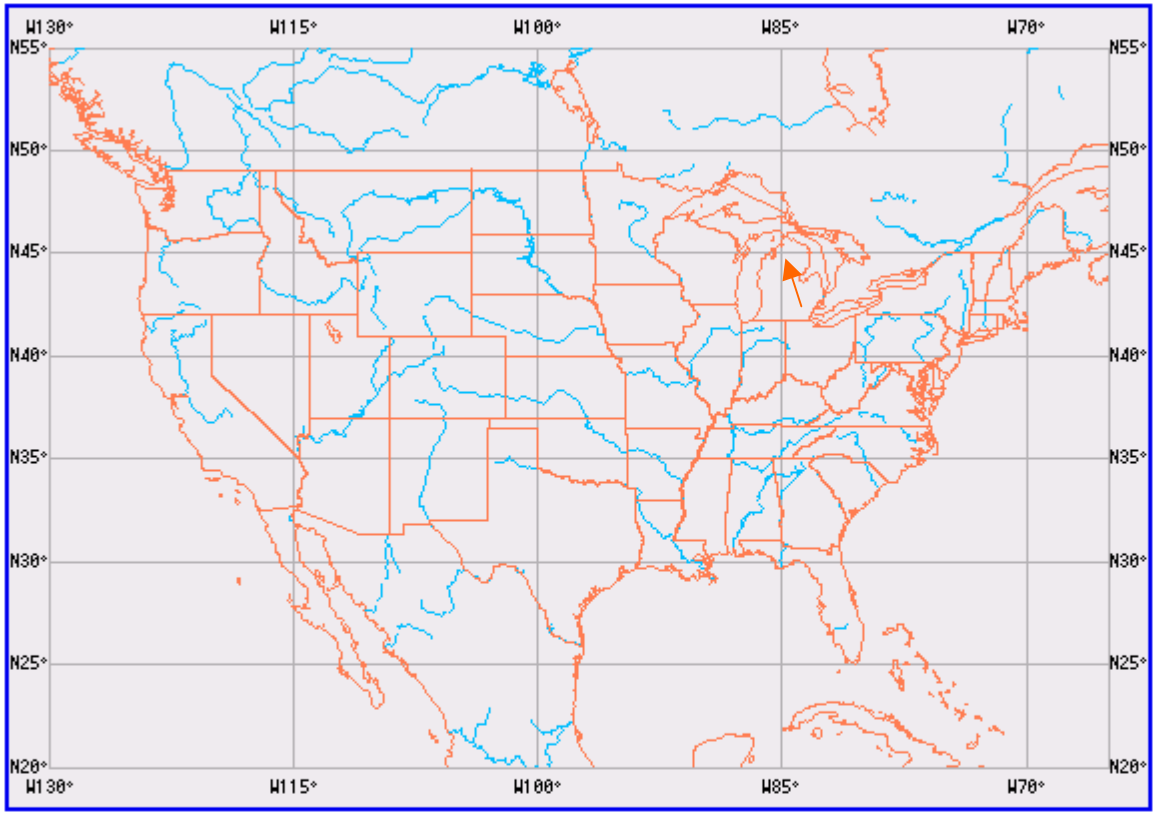
File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Shop Stop

Bookmarks Location: http://edc.usgs.gov/bin/maptest/coords=55+-130+20+-65/scale=24/type=dem/zoom=8 What's Related

Dictionary.com Thesaurus.com

Select a point to zoom:



US map appears, select area of interest

Document: Done

7.5 minute DEM Index Map - Netscape

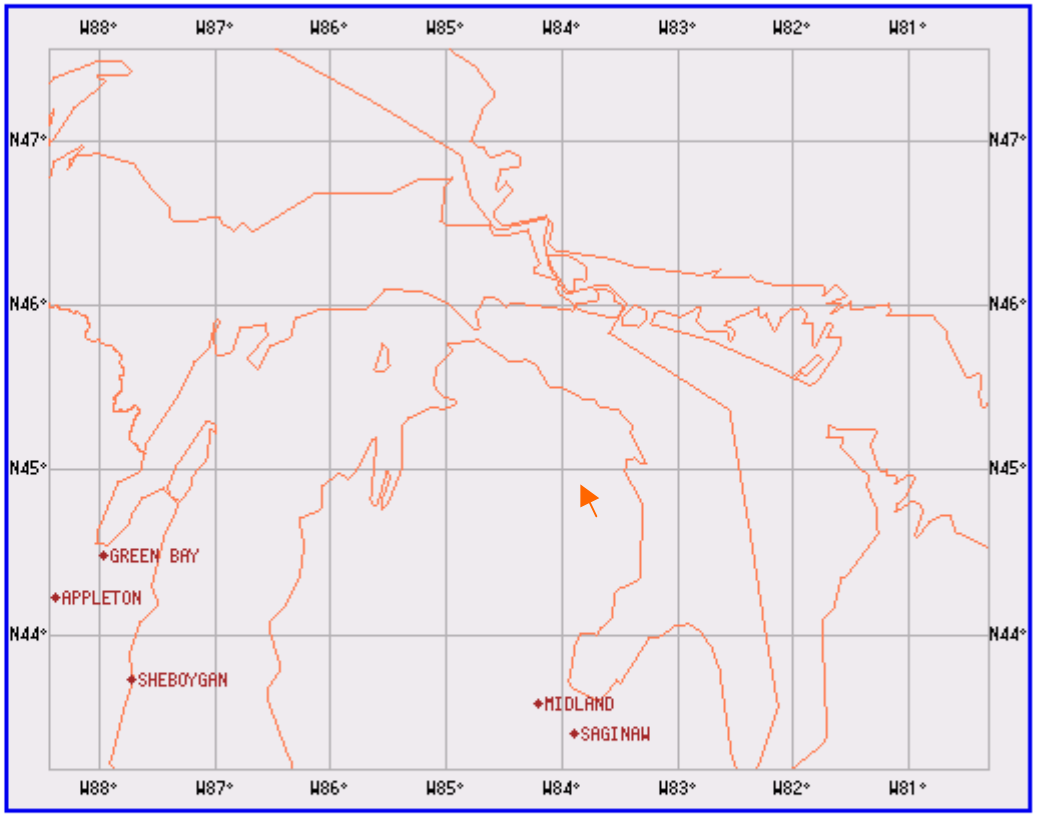
File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Shop Stop

Bookmarks Location: http://edc.usgs.gov/bin/maptest/coords=55.000000+-130.000000+20.000000+-65.000000/scale=24/type=dem/zoom=8?392,119 What's Related

Dictionary.com Thesaurus.com

Select a point to zoom:



Zoomed to area of interest, select area of interest again

Document: Done

7.5 minute DEM Index Map - Netscape

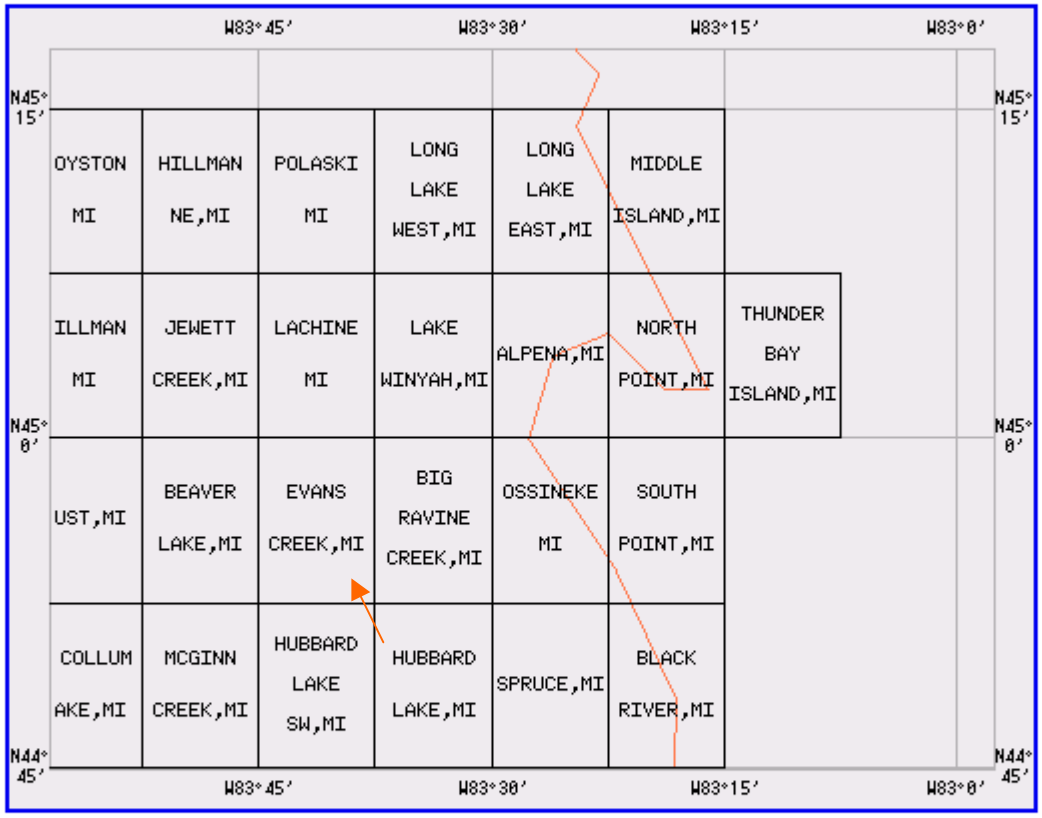
File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Shop Stop

Bookmarks Location: http://edc.usgs.gov/bin/maptest/coords=47.562500+-88.439857+43.187500+-80.314857/scale=24/type=dem/zoom=8?307,229 What's Related

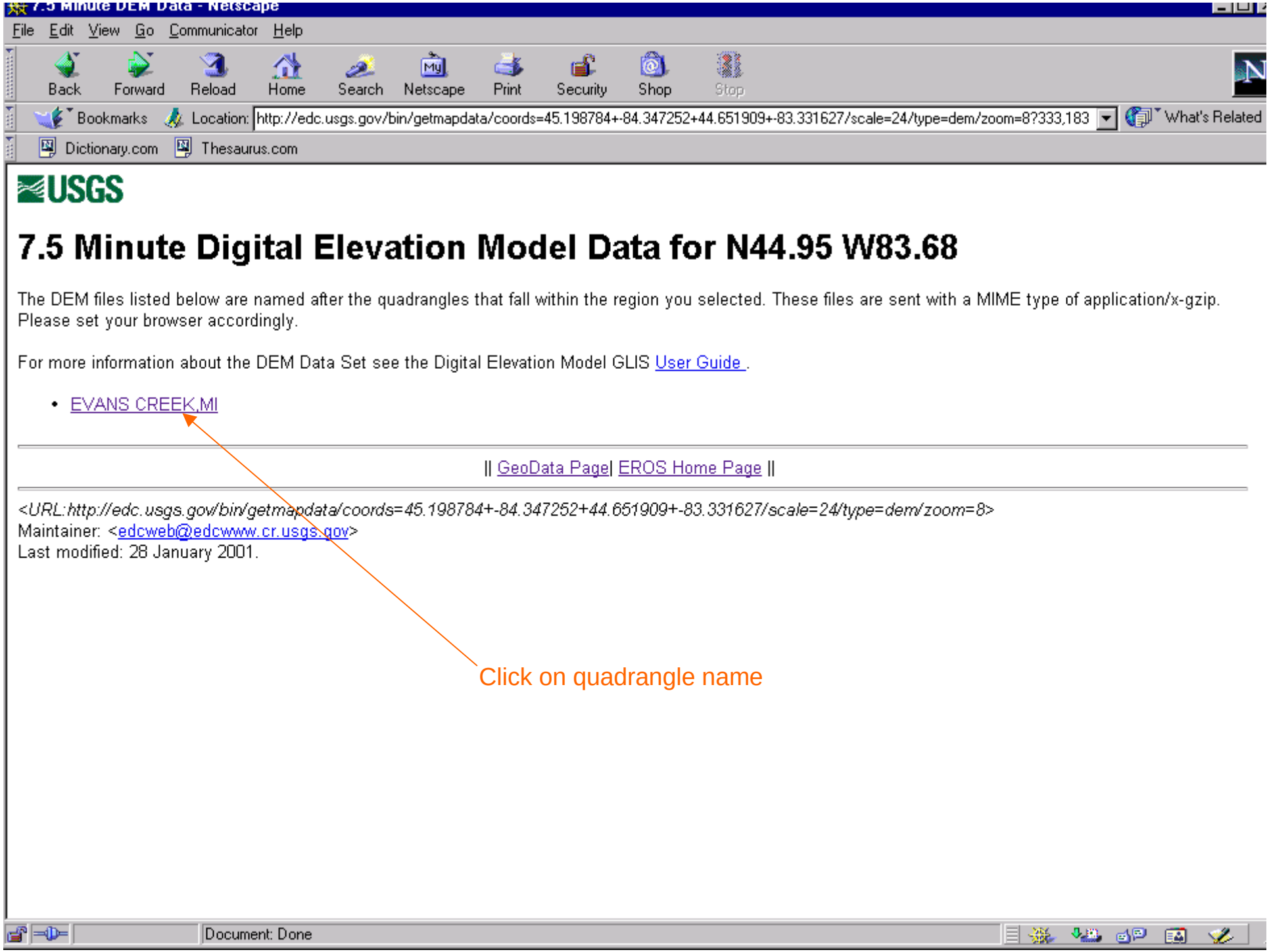
Dictionary.com Thesaurus.com

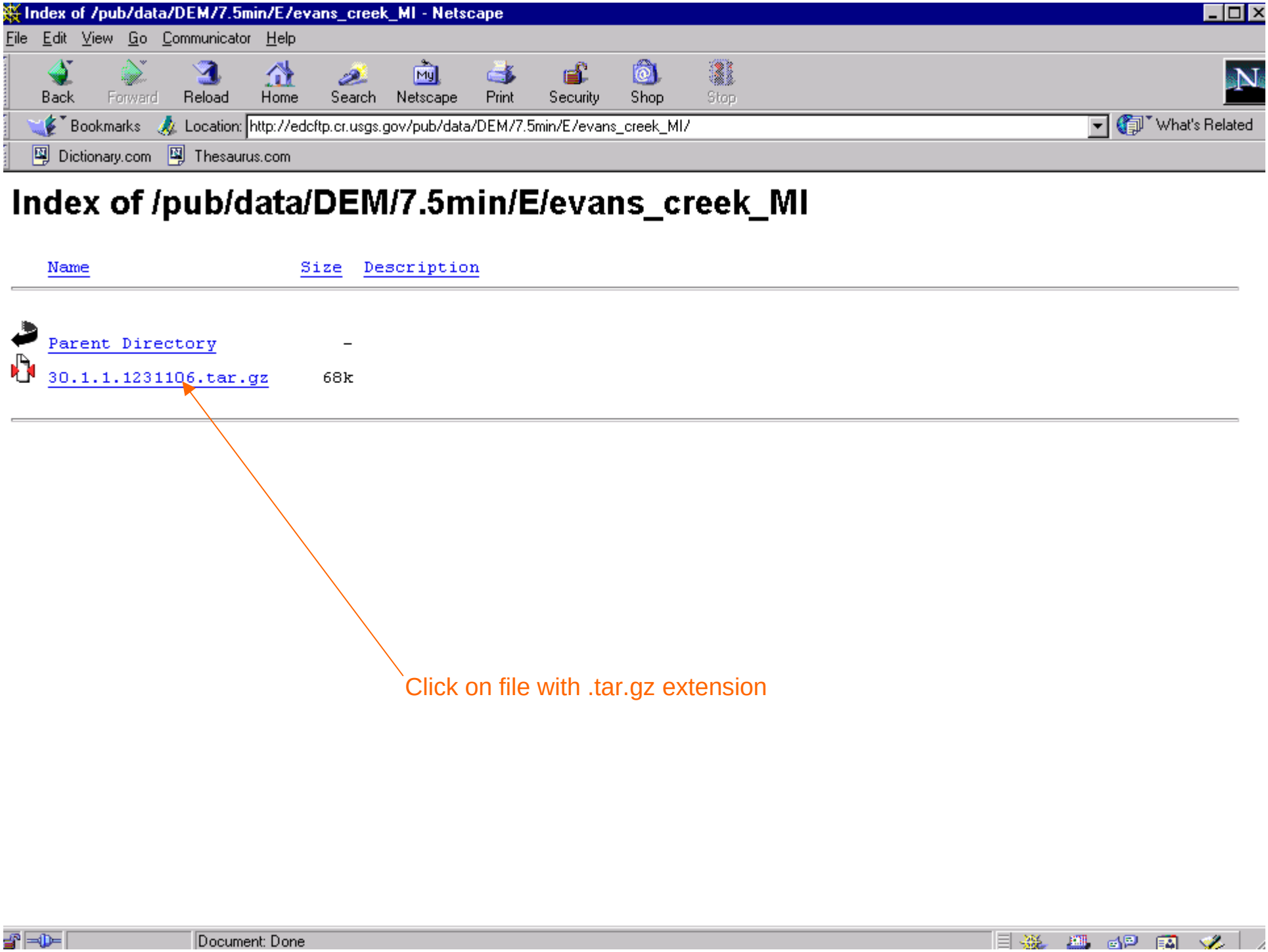
Select a map to access the data:

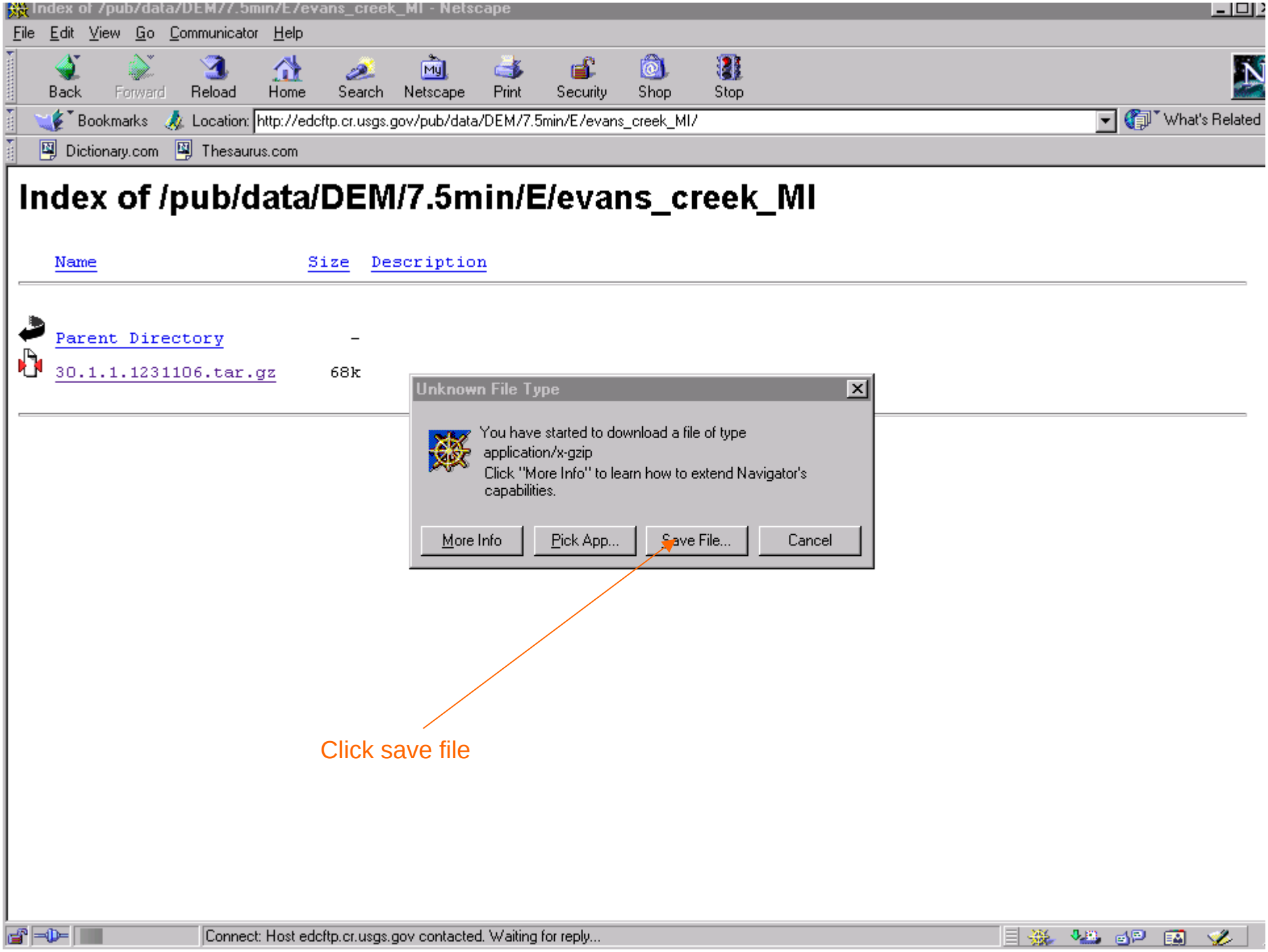


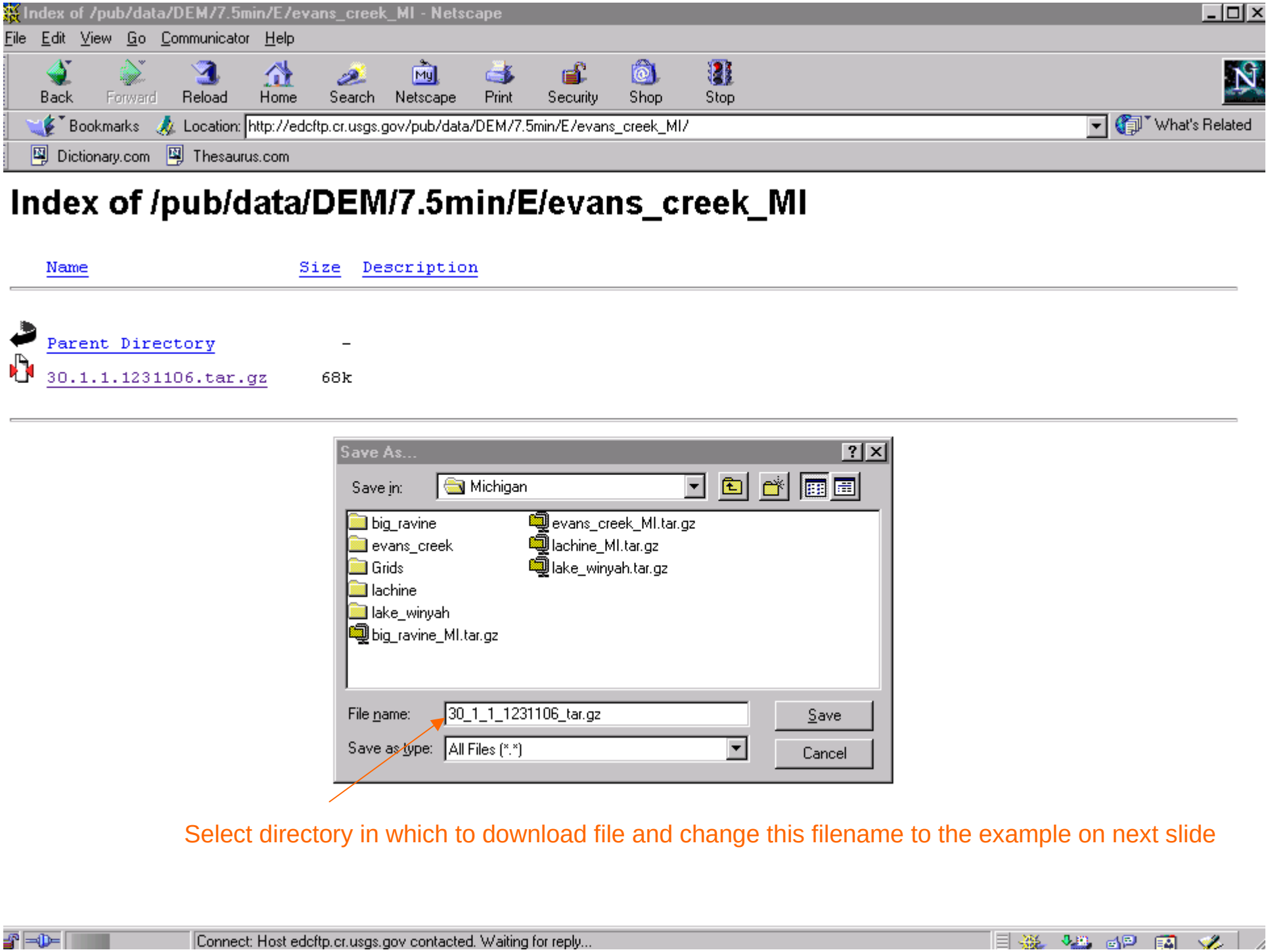
7.5' minute USGS quadrangles appear, select quadrangle of interest

Document: Done


7.5 Minute DEM Data - Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Shop Stop
Bookmarks Location: http://edc.usgs.gov/bin/getmapdata/coords=45.198784+-84.347252+44.651909+-83.331627/scale=24/type=dem/zoom=8?333,183 What's Related
Dictionary.com Thesaurus.com
USGS
7.5 Minute Digital Elevation Model Data for N44.95 W83.68
The DEM files listed below are named after the quadrangles that fall within the region you selected. These files are sent with a MIME type of application/x-gzip. Please set your browser accordingly.
For more information about the DEM Data Set see the Digital Elevation Model GLIS User Guide .
EVANS CREEK,MI
|| GeoData Page| EROS Home Page ||
<URL:http://edc.usgs.gov/bin/getmapdata/coords=45.198784+-84.347252+44.651909+-83.331627/scale=24/type=dem/zoom=8>
Maintainer: <edcweb@edcwww.cr.usgs.gov>
Last modified: 28 January 2001.
Click on quadrangle name
Document: Done


Index of /pub/data/DEM/7.5min/E/evans_creek_MI - Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Shop Stop
Bookmarks Location: http://edcftp.cr.usgs.gov/pub/data/DEM/7.5min/E/evans_creek_MI/
What's Related
Dictionary.com Thesaurus.com
Index of /pub/data/DEM/7.5min/E/evans_creek_MI
Name Size Description
Parent Directory -
30.1.1.1231106.tar.gz 68k
Click on file with .tar.gz extension
Document: Done


Index of /pub/data/DEM/7.5min/E/evans_creek_MI - Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Shop Stop
Bookmarks Location: http://edcftp.cr.usgs.gov/pub/data/DEM/7.5min/E/evans_creek_MI/
What's Related
Dictionary.com Thesaurus.com
Index of /pub/data/DEM/7.5min/E/evans_creek_MI
Name Size Description
Parent Directory -
30.1.1.1231106.tar.gz 68k
Unknown File Type
You have started to download a file of type application/x-gzip
Click "More Info" to learn how to extend Navigator's capabilities.
More Info
Pick App...
Save File...
Cancel
Click save file
Connect: Host edcftp.cr.usgs.gov contacted. Waiting for reply...



Select directory in which to download file and change this filename to the example on next slide

Downloading files

- When down loading a file it is best to rename it before actually downloading. The example file from the previous slide is 30.1.1.1231106.tar.gz
- We can actually rename this file evans_creek_MI.tar.gz
- When you rename it be sure it has the .tar.gz extension on the end

Index of /pub/data/DEM/7.5min/E/evans_creek_MI - Netscape

File Edit View Go Communicator Help

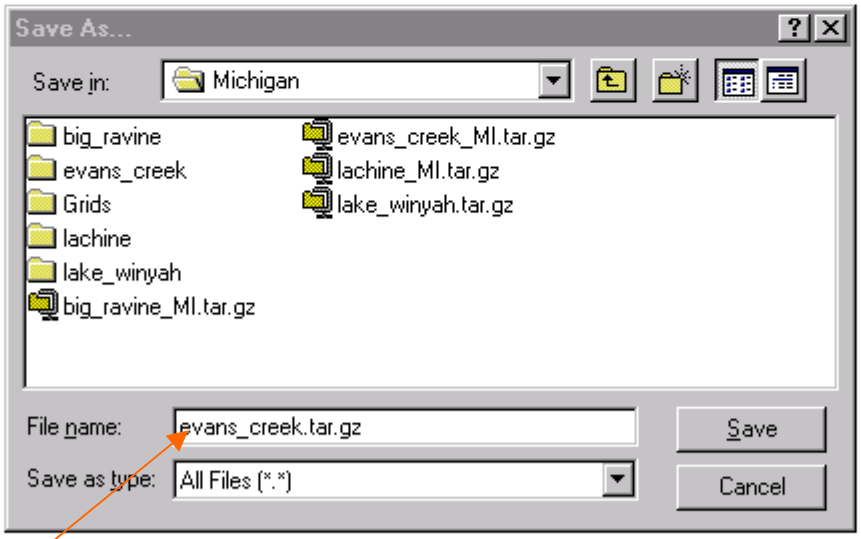
Back Forward Reload Home Search Netscape Print Security Shop Stop

Bookmarks Location: http://edcftp.cr.usgs.gov/pub/data/DEM/7.5min/E/evans_creek_MI/ What's Related

Dictionary.com Thesaurus.com

Index of /pub/data/DEM/7.5min/E/evans_creek_MI

Name	Size	Description
Parent Directory	-	
30.1.1.1231106.tar.gz	68k	



NOTE: new name still has .tar.gz extension, but is more comprehensive than the original name

Connect: Host edcftp.cr.usgs.gov contacted. Waiting for reply...

Tarred & Zipped

- The downloaded files are tarred and zipped
- Tar puts all the files together into one file
- Zip compresses the tarred file
- On the PC use a utility such as Winzip. Winzip will unzipp and untar at the same time.

ArcView

- Once you have the files you want you can begin importing them into ArcView.
- One thing to be aware of is that the DEM files can be in meters or feet and they can be in 30x30 (most common) meter grids or 10x10 meter grids.
- Differences in vertical units will cause some extra processing steps

Add grid directory to directory structure

Using Windows explorer add a directory to put your ArcView grid files in.

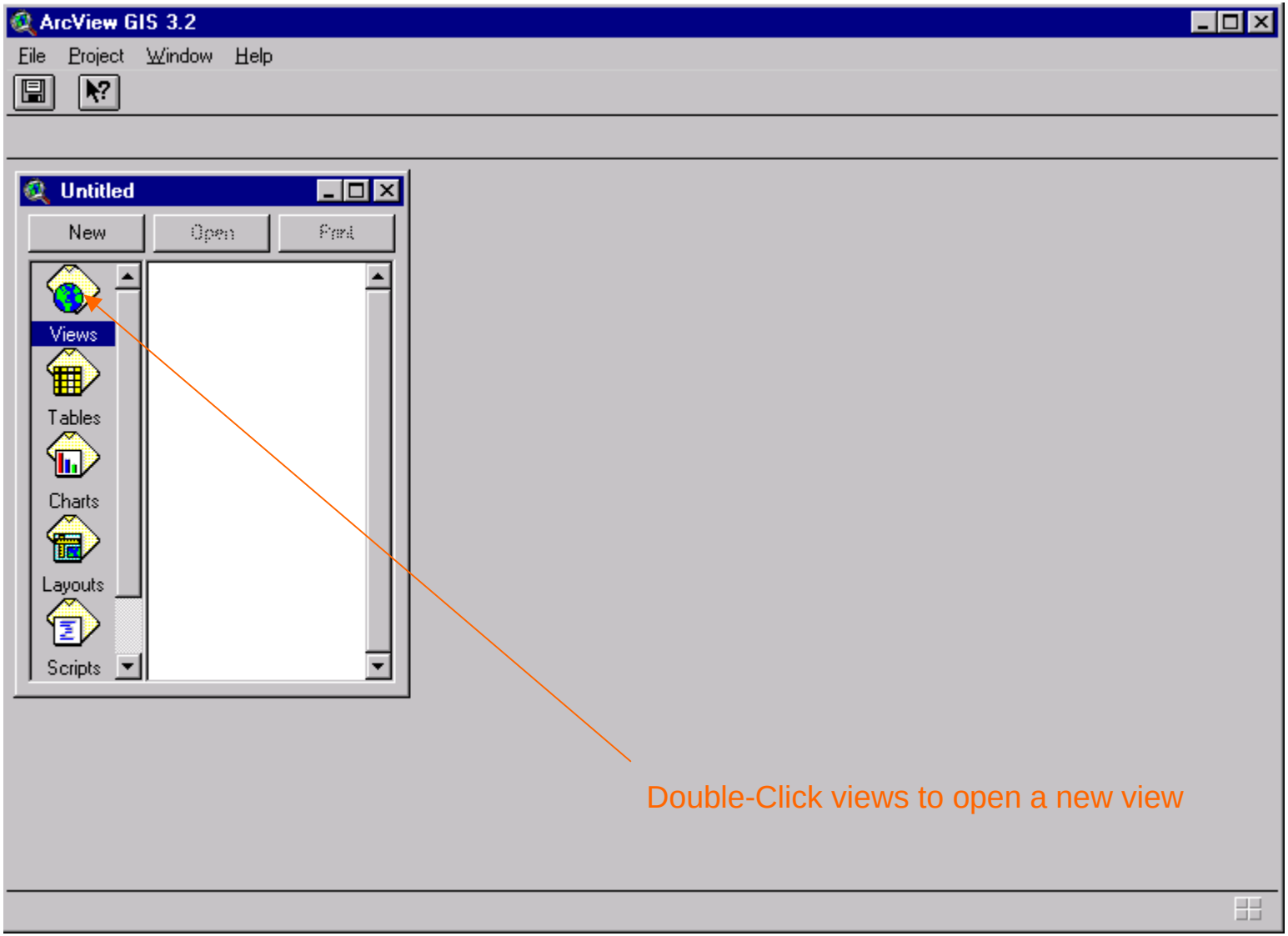
I usually just call mine grid.

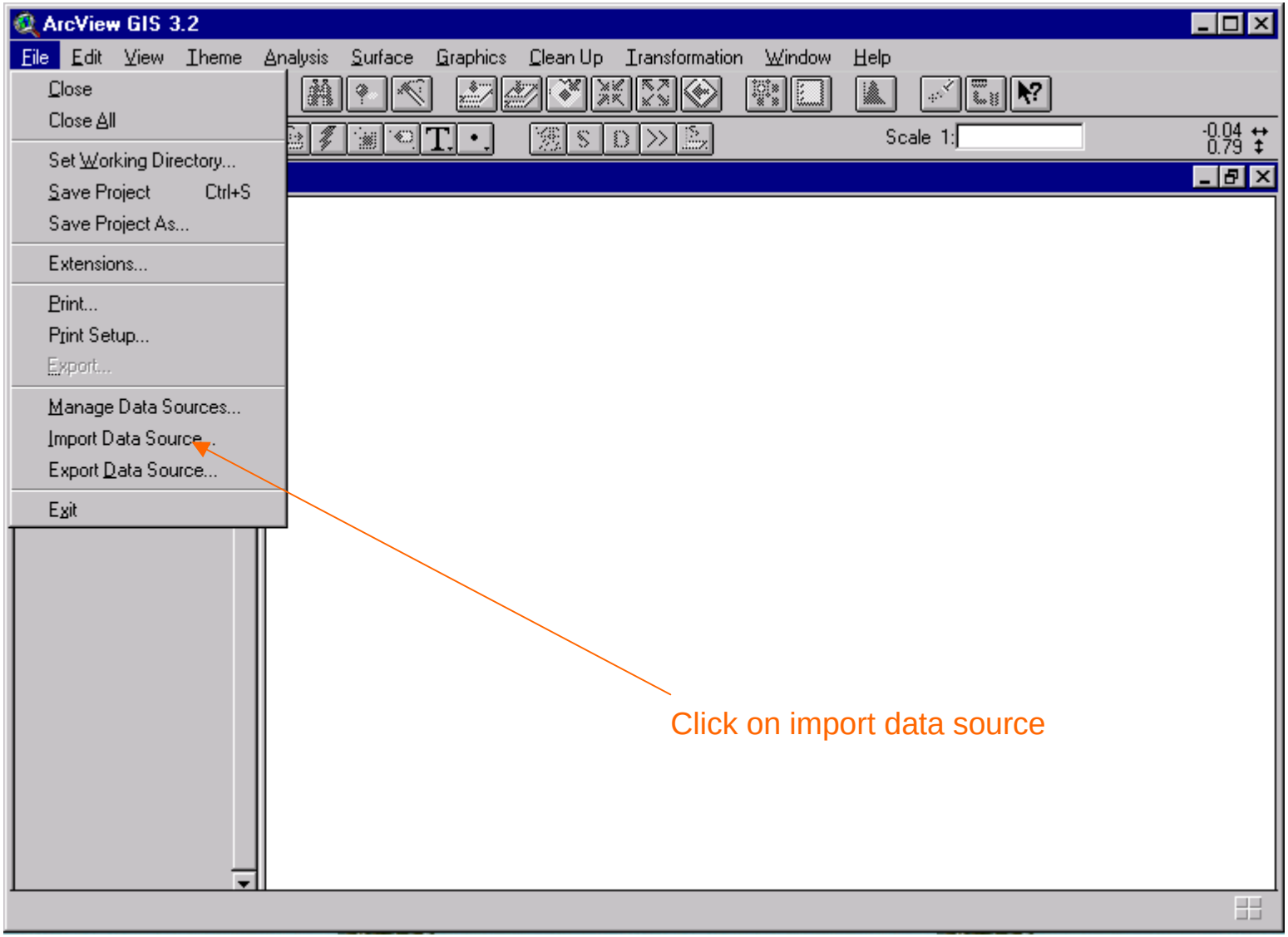
\75_minute_dem\Michigan\grid

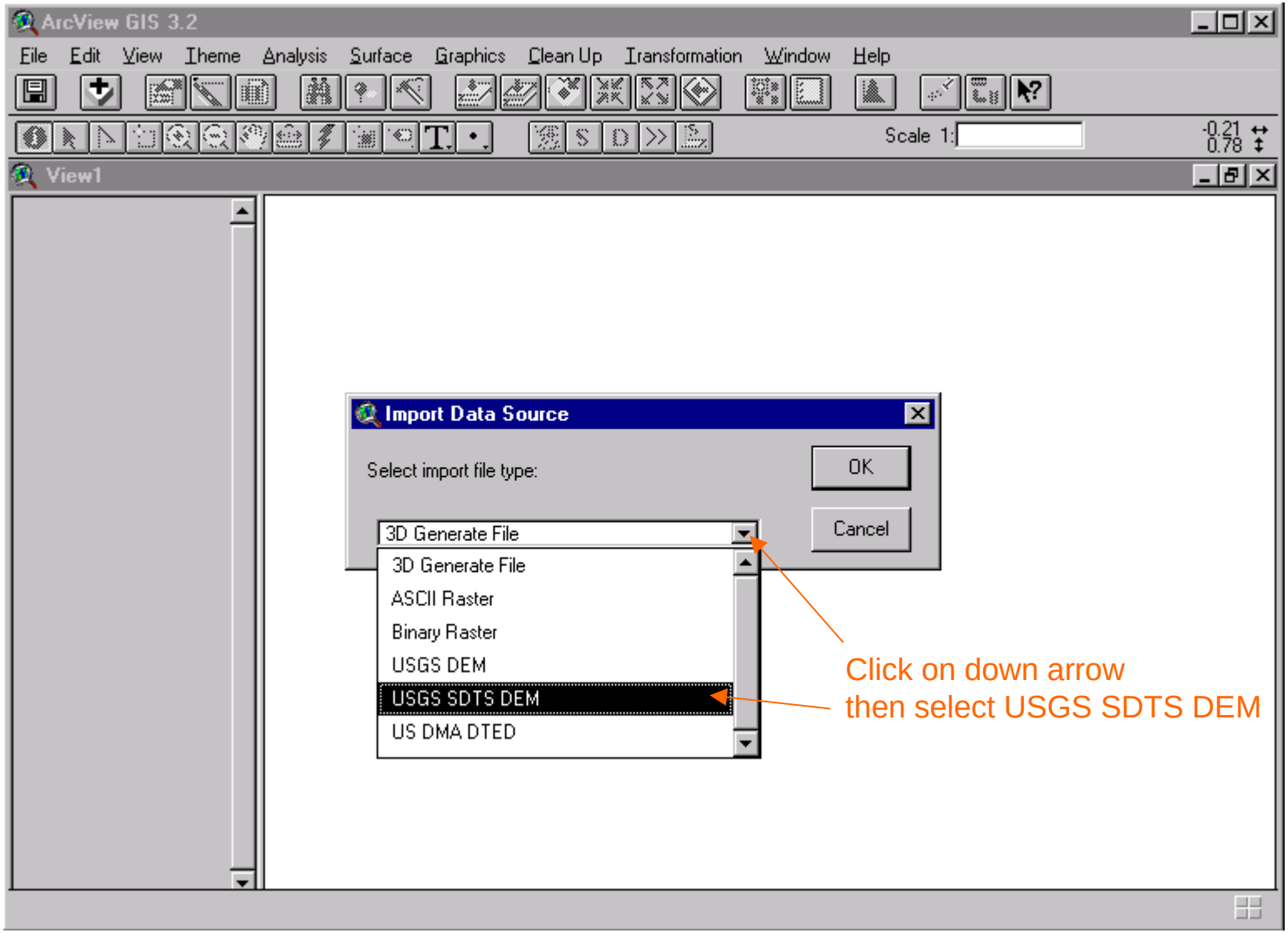
USGS DEMs in ArcView

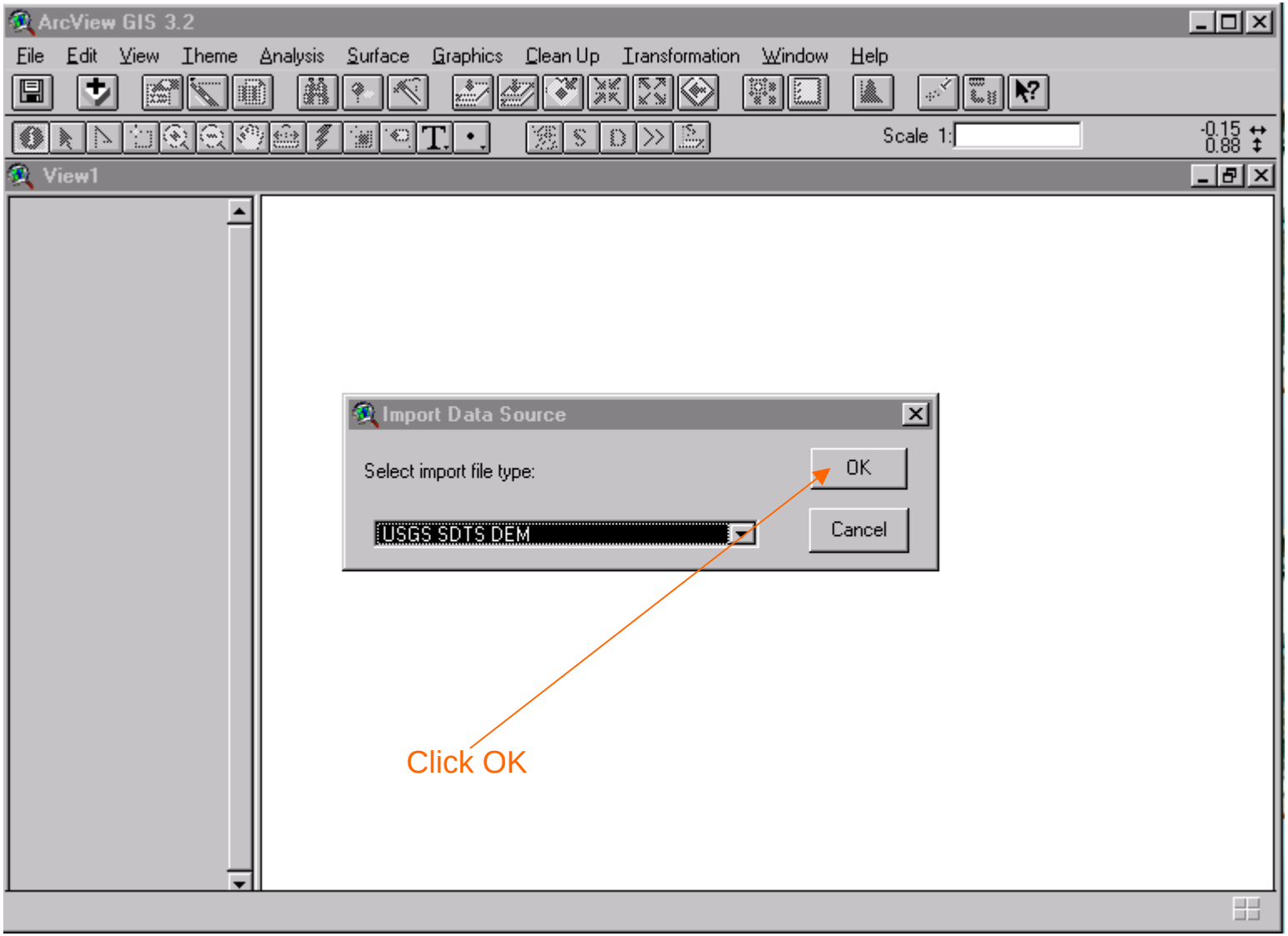
- Importing DEMs into Arcview.
- Combining multiple DEMs in ArcView (mosaic).
- Generating shaded relief maps in Arcview.
- Overlaying cultural data.

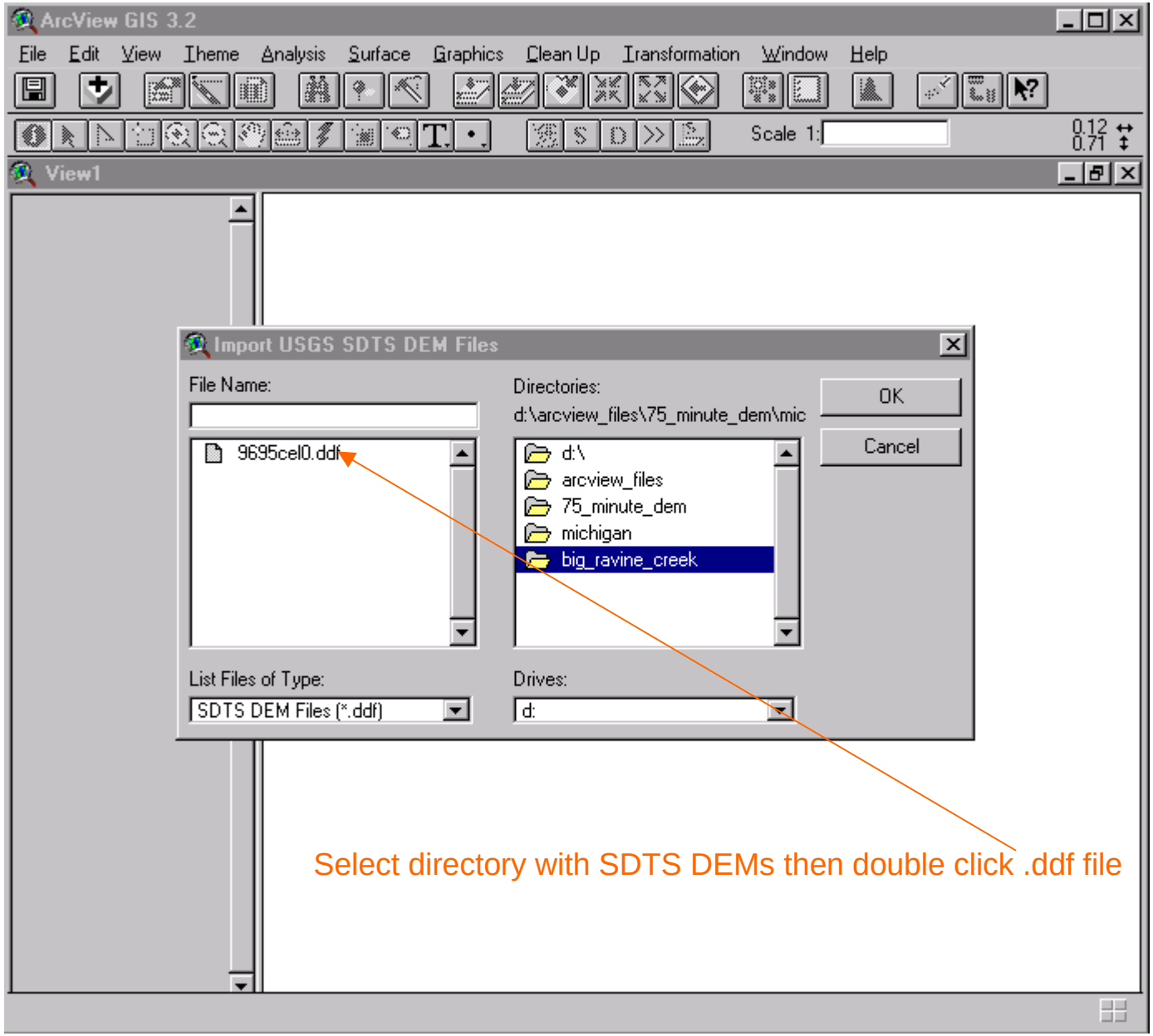
Open ArcView

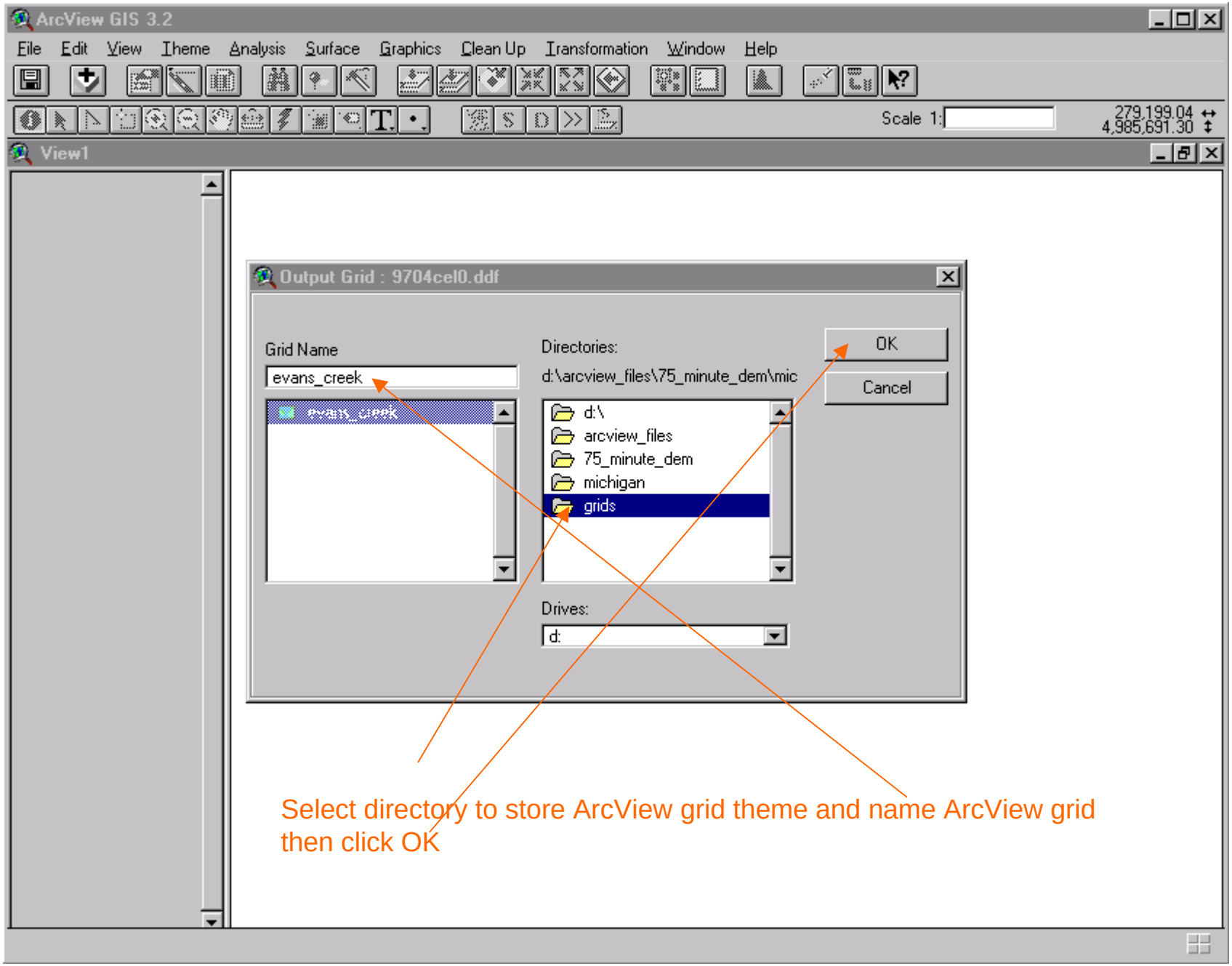

ArcView GIS 3.2
File
Project
Window
Help
Untitled
New
Open
Find
Views
Tables
Charts
Layouts
Scripts
Double-Click views to open a new view

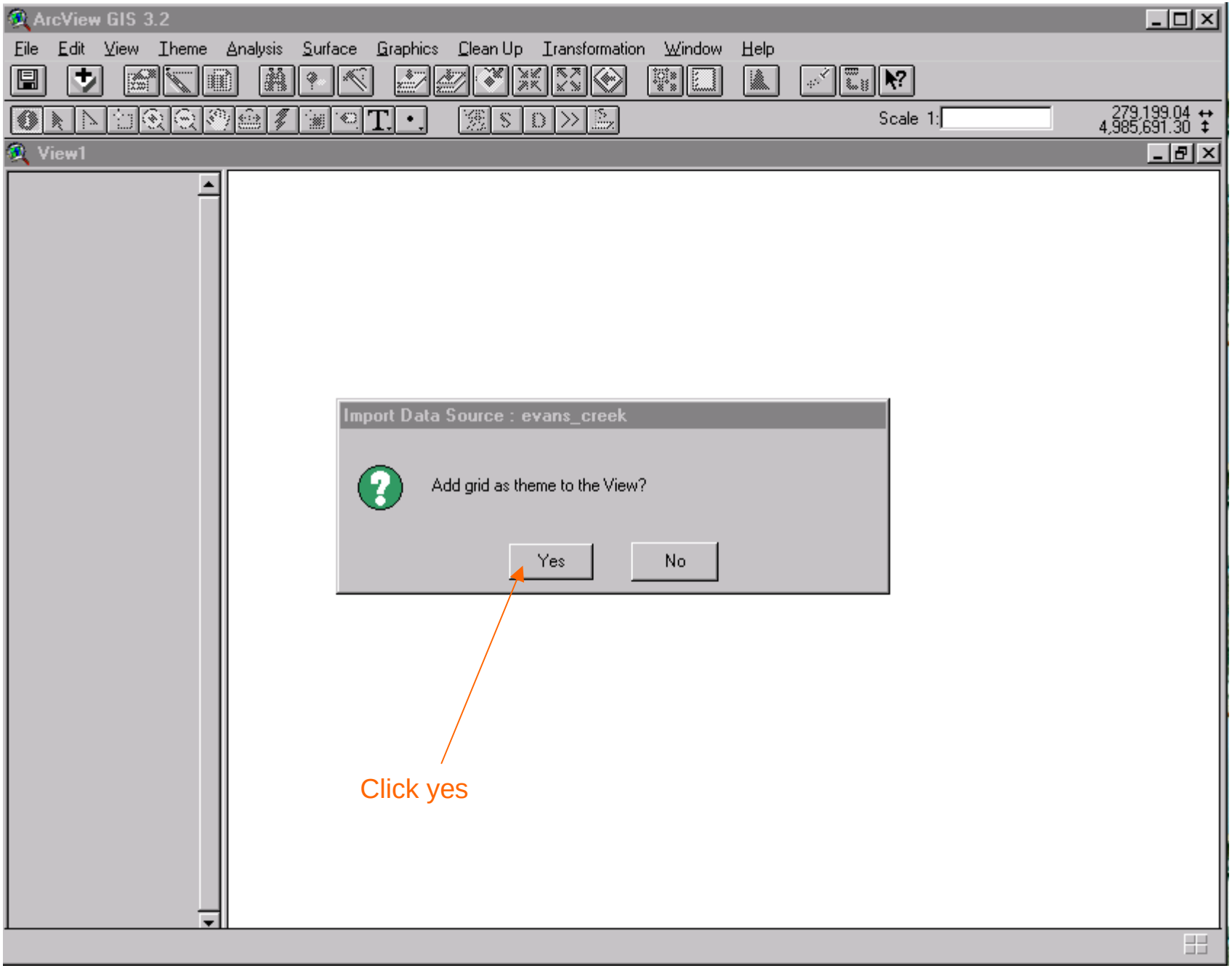

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Close
Close All
Set Working Directory...
Save Project Ctrl+S
Save Project As...
Extensions...
Print...
Print Setup...
Export...
Manage Data Sources...
Import Data Source...
Export Data Source...
Exit
Scale 1:
-0.04
0.79
Click on import data source

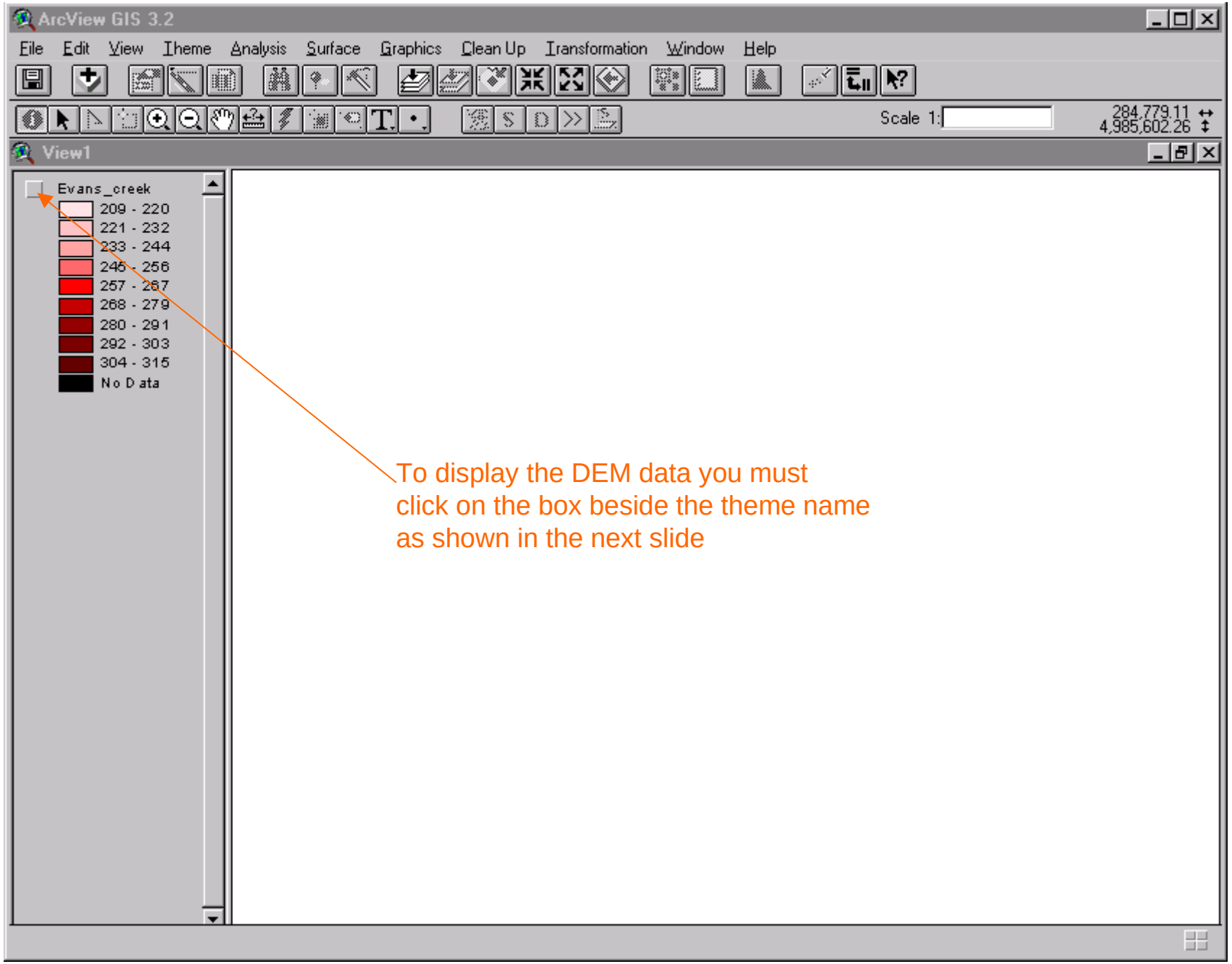

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
View1
Import Data Source
Select import file type:
OK
Cancel
3D Generate File
3D Generate File
ASCII Raster
Binary Raster
USGS DEM
USGS SDTS DEM
US DMA DTED
Click on down arrow
then select USGS SDTS DEM

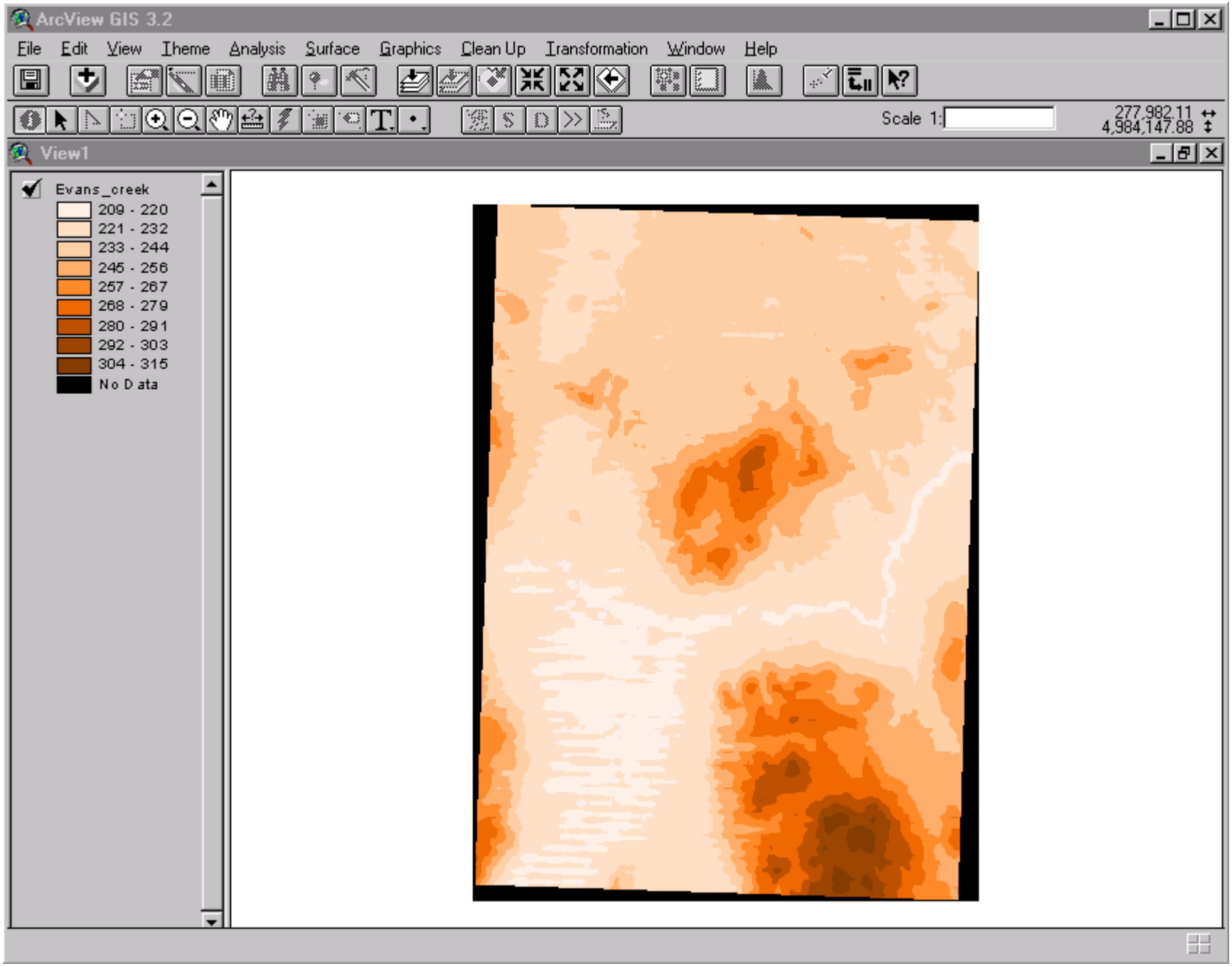

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
View1
Import Data Source
Select import file type:
USGS SDTS DEM
OK
Cancel
Click OK


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
0.12
0.71
View1
Import USGS SDTS DEM Files
File Name:
9695cel0.ddf
Directories:
d:\arcview_files\75_minute_dem\mic
d:\
arcview_files
75_minute_dem
michigan
big_ravine_creek
OK
Cancel
List Files of Type:
SDTS DEM Files (*.ddf)
Drives:
d:
Select directory with SDTS DEMs then double click .ddf file


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
279,199.04
4,985,691.30
View1
Output Grid : 9704cel0.ddf
Grid Name
evans_creek
Directories:
d:\arcview_files\75_minute_dem\mic
OK
Cancel
d:\
arcview_files
75_minute_dem
michigan
grids
Drives:
d:
Select directory to store ArcView grid theme and name ArcView grid then click OK

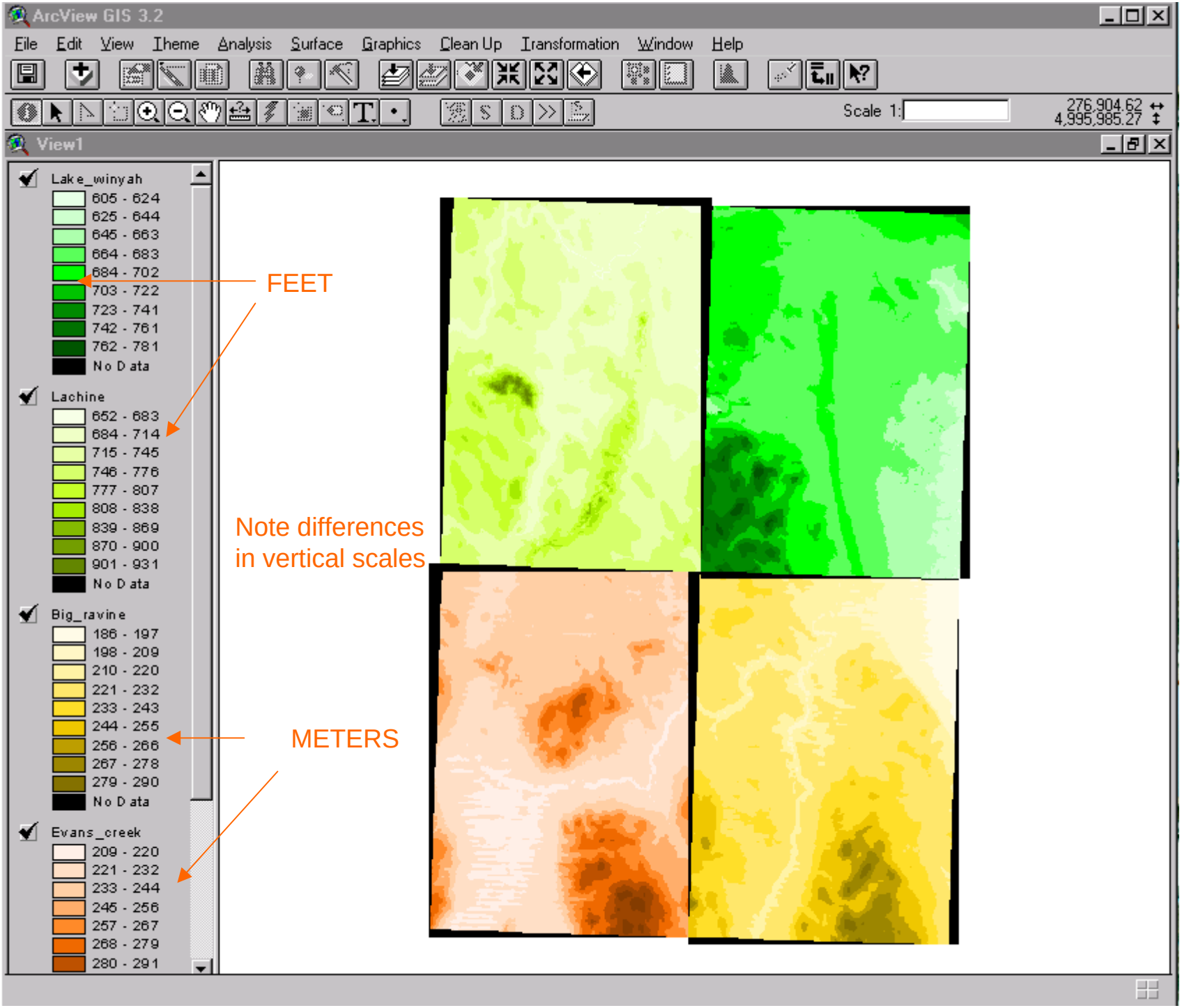

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
279,199.04
4,985,691.30
View1
Import Data Source : evans_creek
Add grid as theme to the View?
Yes
No
Click yes


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
284,779.11
4,985,602.26
View1
Evans_creek
209 - 220
221 - 232
233 - 244
245 - 256
257 - 267
268 - 279
280 - 291
292 - 303
304 - 315
No Data
To display the DEM data you must
click on the box beside the theme name
as shown in the next slide


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
277,982.11
4,984,147.88
View1
Evans_creek
209 - 220
221 - 232
233 - 244
245 - 256
257 - 267
268 - 279
280 - 291
292 - 303
304 - 315
No Data

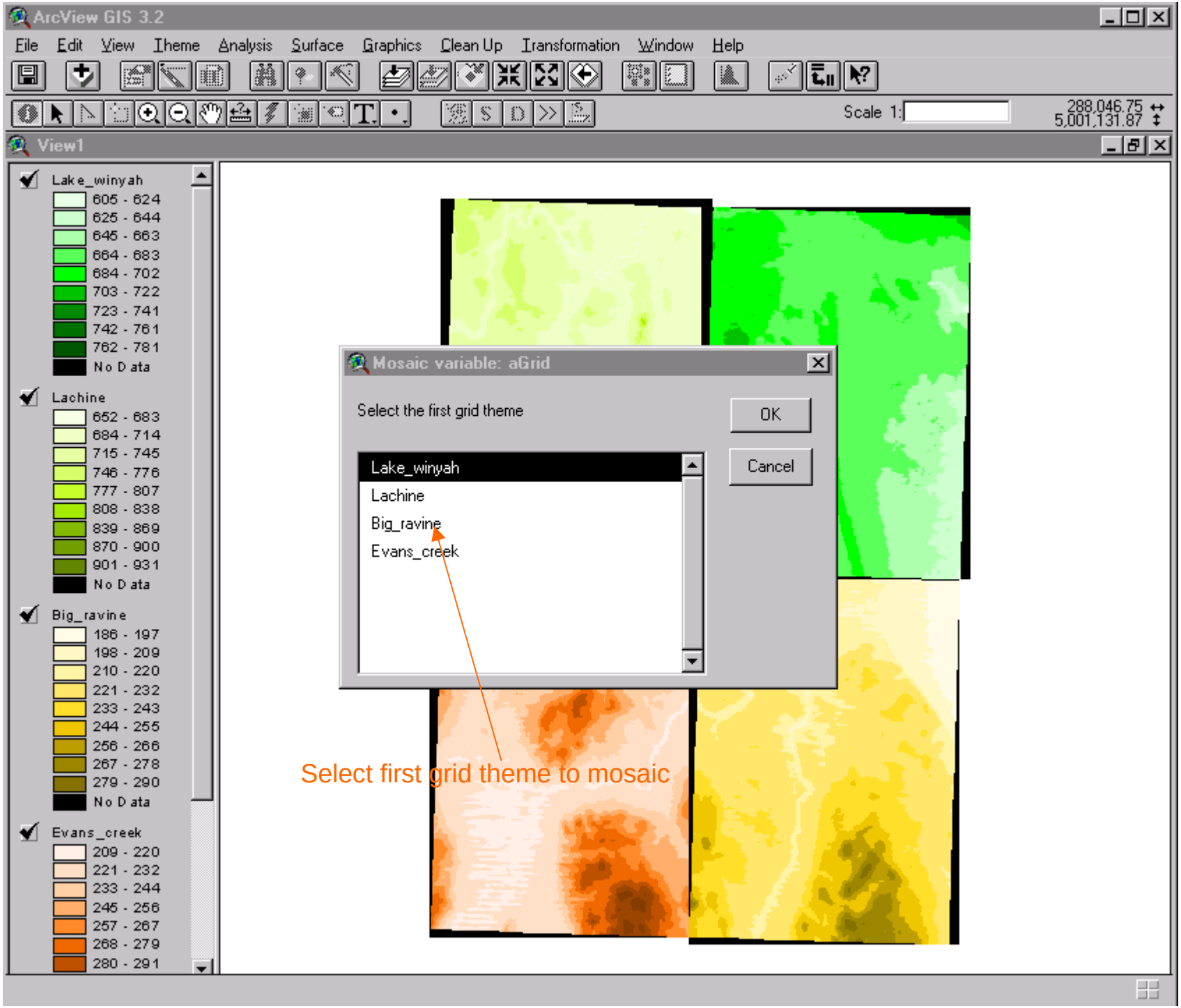
Adding adjacent quadrangles

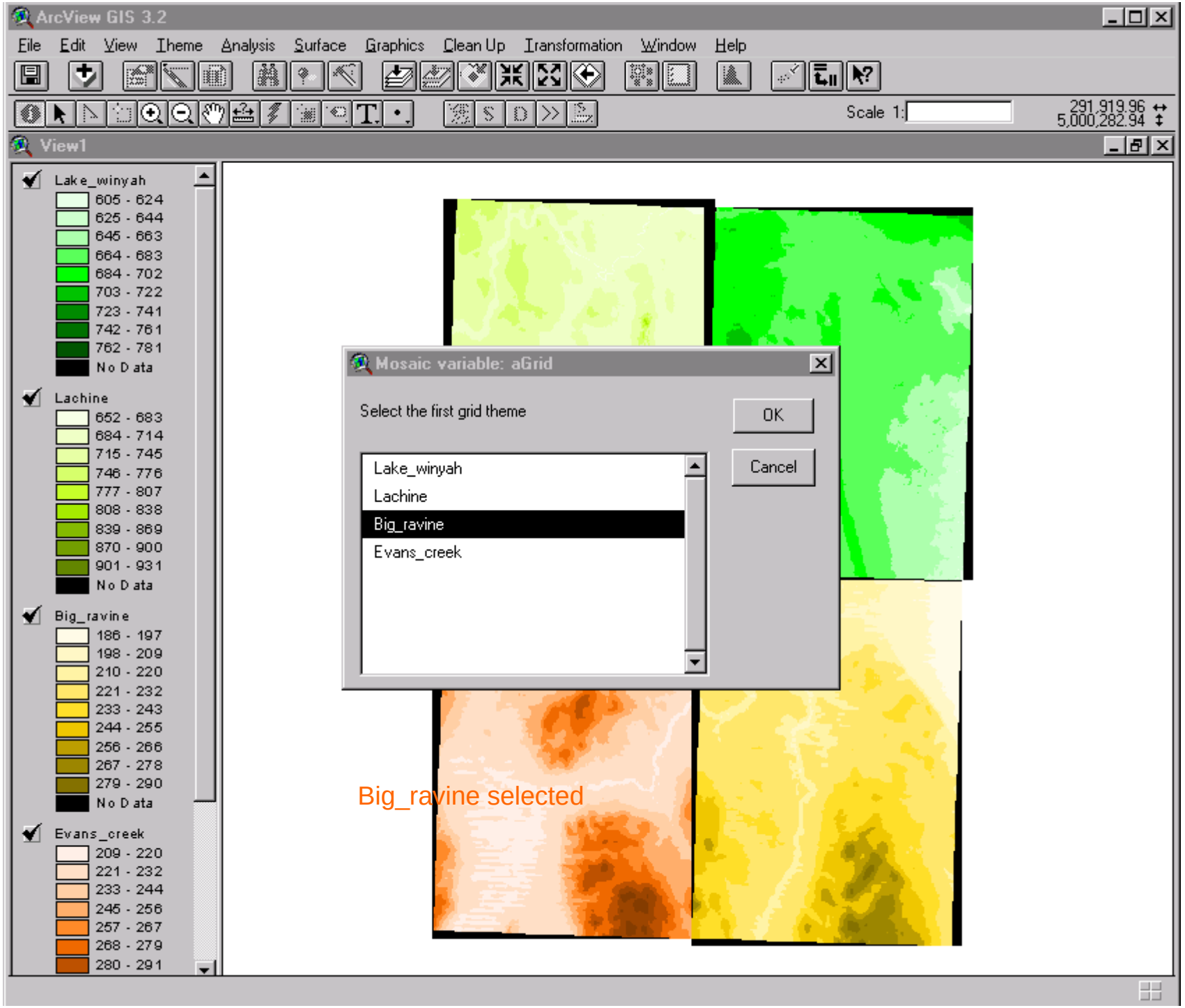
- We have downloaded 4 adjacent quadrangles in the same fashion as the first
- The next slide shows the 4 quadrangles displayed on the screen separately
- We will eventually mosaic these tiles together to form one quadrangle map
- Note on the following slide differences in the scale of the vertical units (meters & feet)

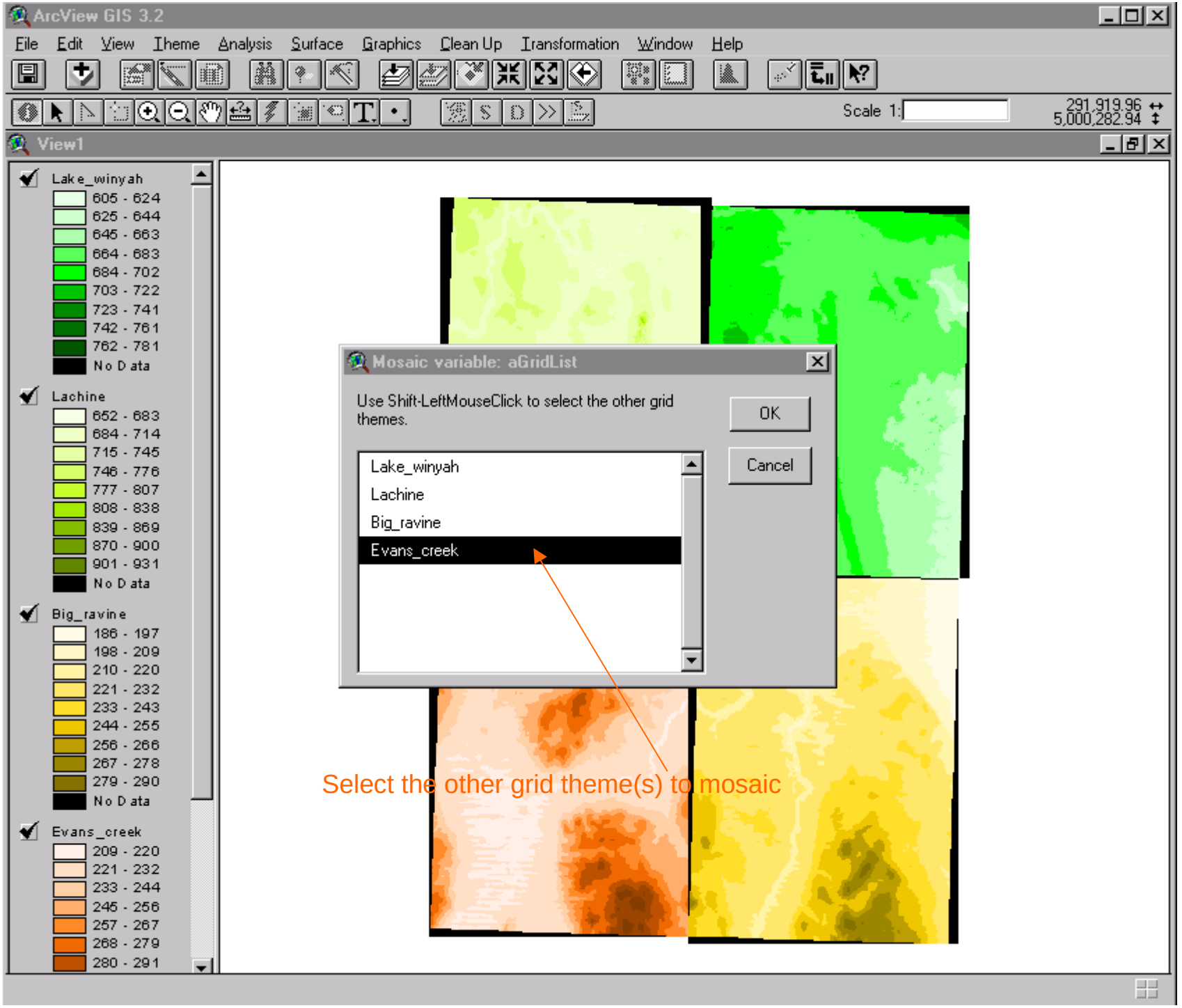

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
276,904.62
4,995,985.27
View1
Lake_winyah
605 - 624
625 - 644
645 - 663
664 - 683
684 - 702
703 - 722
723 - 741
742 - 761
762 - 781
No Data
Lachine
652 - 683
684 - 714
715 - 745
746 - 776
777 - 807
808 - 838
839 - 869
870 - 900
901 - 931
No Data
Big_ravine
186 - 197
198 - 209
210 - 220
221 - 232
233 - 243
244 - 255
256 - 266
267 - 278
279 - 290
No Data
Evans_creek
209 - 220
221 - 232
233 - 244
245 - 256
257 - 267
268 - 279
280 - 291
FEET
Note differences
in vertical scales
METERS

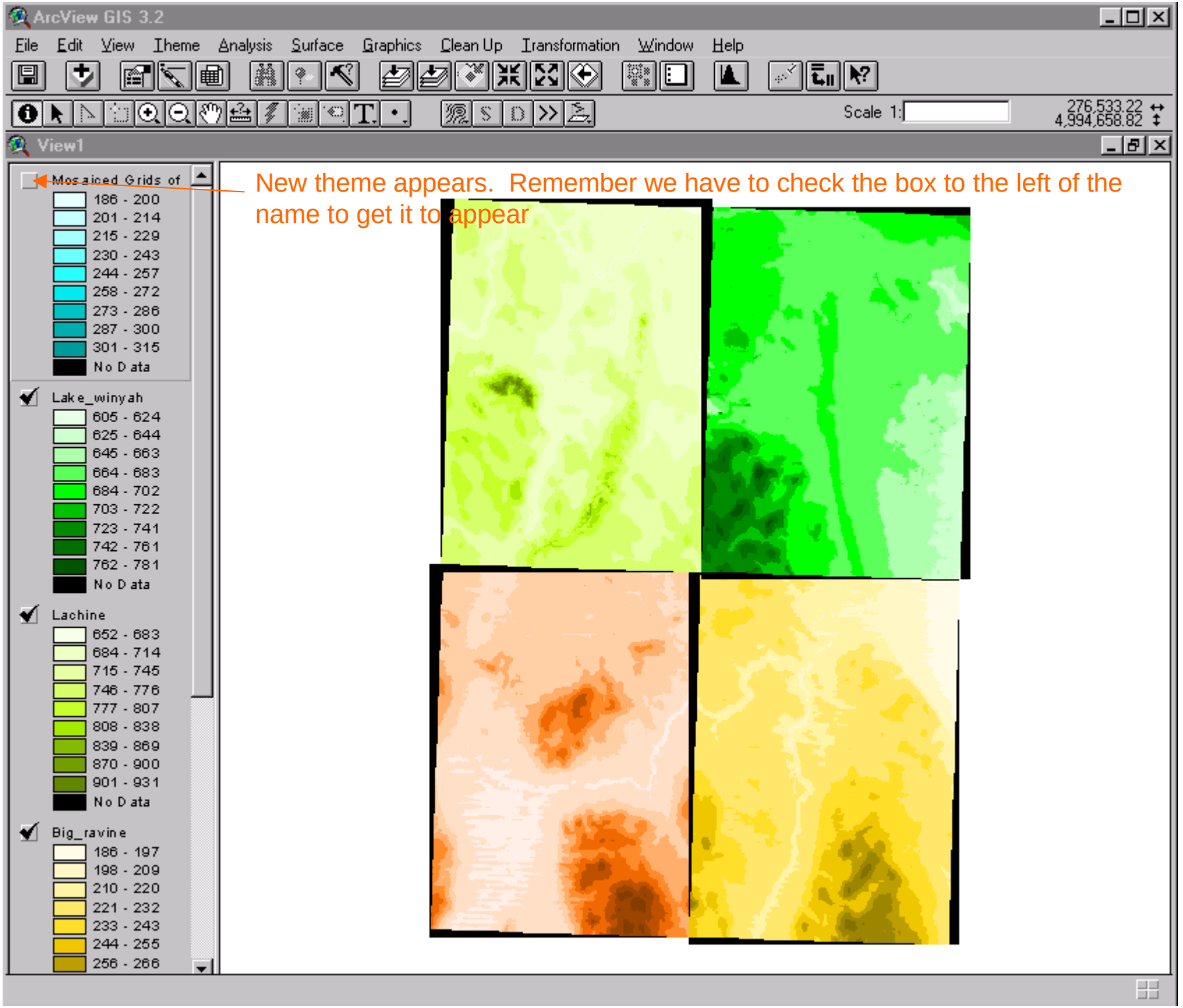
Converting meters to feet

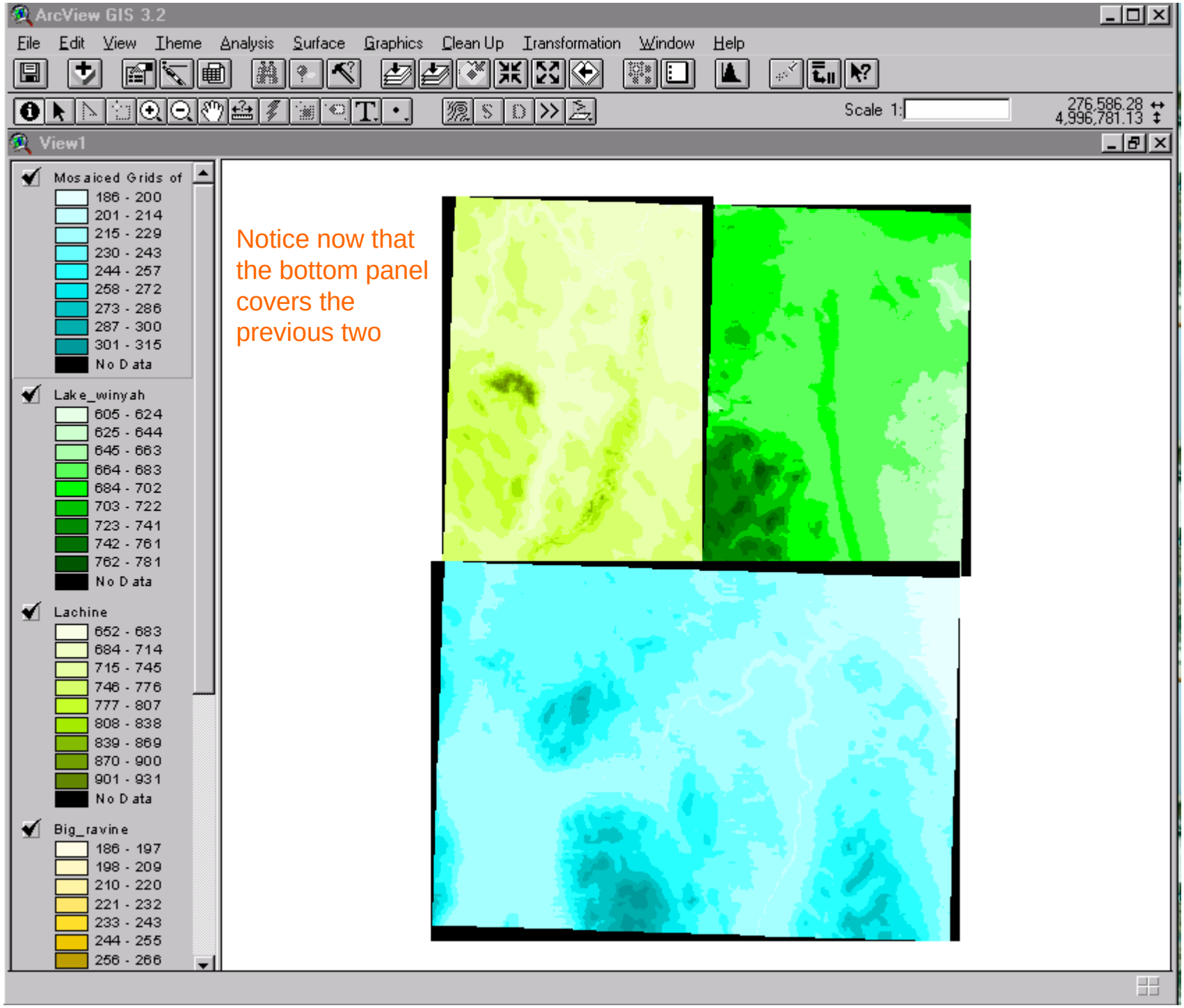
- First we combine the quadrangles with meter units
- We perform a calculator function to convert the grid data from meters to feet
- Finally we combine all the grids with vertical units in feet


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
288,046.75
5,001,131.87
View1
Lake_winyah
605 - 624
625 - 644
645 - 663
664 - 683
684 - 702
703 - 722
723 - 741
742 - 761
762 - 781
No Data
Lachine
652 - 683
684 - 714
715 - 745
746 - 776
777 - 807
808 - 838
839 - 869
870 - 900
901 - 931
No Data
Big_ravine
186 - 197
198 - 209
210 - 220
221 - 232
233 - 243
244 - 255
256 - 266
267 - 278
279 - 290
No Data
Evans_creek
209 - 220
221 - 232
233 - 244
245 - 256
257 - 267
268 - 279
280 - 291
Mosaic variable: aGrid
Select the first grid theme
OK
Cancel
Lake_winyah
Lachine
Big_ravine
Evans_creek
Select first grid theme to mosaic


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
291,919.96
5,000,282.94
View1
Lake_winyah
605 - 624
625 - 644
645 - 663
664 - 683
684 - 702
703 - 722
723 - 741
742 - 761
762 - 781
No Data
Lachine
652 - 683
684 - 714
715 - 745
746 - 776
777 - 807
808 - 838
839 - 869
870 - 900
901 - 931
No Data
Big_ravine
186 - 197
198 - 209
210 - 220
221 - 232
233 - 243
244 - 255
256 - 266
267 - 278
279 - 290
No Data
Evans_creek
209 - 220
221 - 232
233 - 244
245 - 256
257 - 267
268 - 279
280 - 291
Mosaic variable: aGrid
Select the first grid theme
OK
Cancel
Lake_winyah
Lachine
Big_ravine
Evans_creek
Big_ravine selected

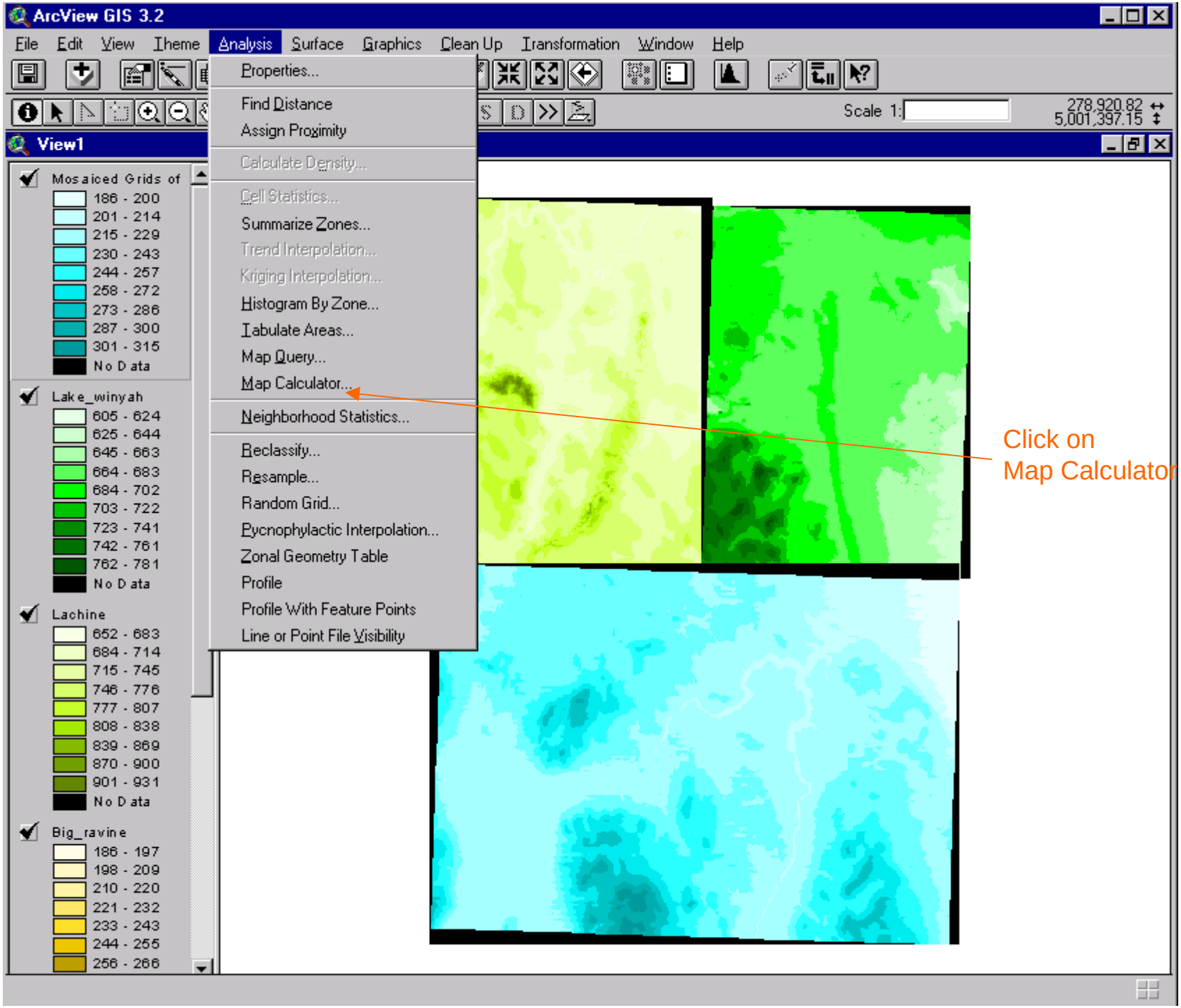

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
291,919.96
5,000,282.94
View1
Lake_winyah
605 - 624
625 - 644
645 - 663
664 - 683
684 - 702
703 - 722
723 - 741
742 - 761
762 - 781
No Data
Lachine
652 - 683
684 - 714
715 - 745
746 - 776
777 - 807
808 - 838
839 - 869
870 - 900
901 - 931
No Data
Big_ravine
186 - 197
198 - 209
210 - 220
221 - 232
233 - 243
244 - 255
256 - 266
267 - 278
279 - 290
No Data
Evans_creek
209 - 220
221 - 232
233 - 244
245 - 256
257 - 267
268 - 279
280 - 291
Mosaic variable: aGridList
Use Shift-LeftMouseClick to select the other grid themes.
OK
Cancel
Lake_winyah
Lachine
Big_ravine
Evans_creek
Select the other grid theme(s) to mosaic

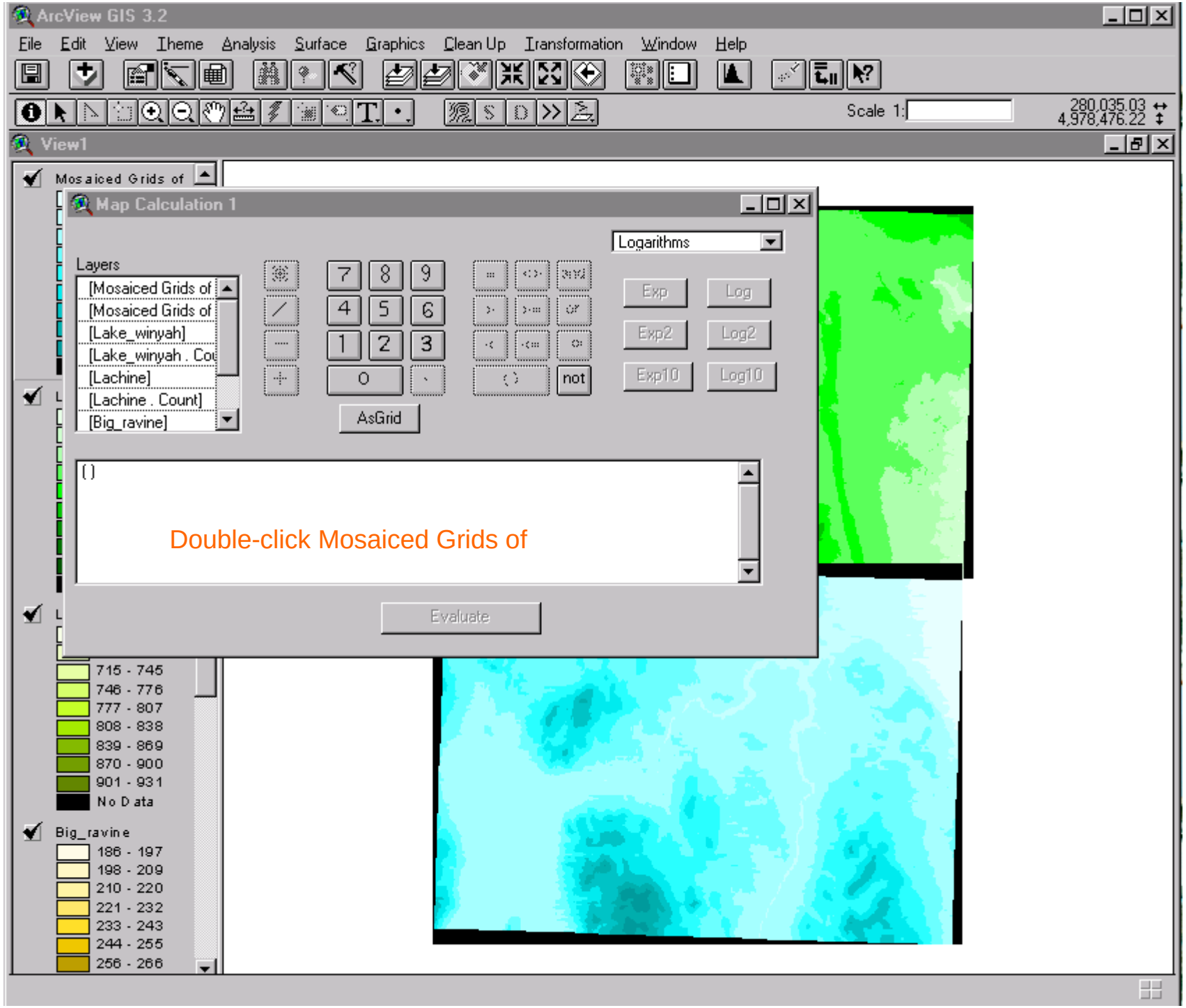

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
276,533.22
4,994,658.82
View1
Mosaiced Grids of
186 - 200
201 - 214
215 - 229
230 - 243
244 - 257
258 - 272
273 - 286
287 - 300
301 - 315
No Data
Lake_winyah
605 - 624
625 - 644
645 - 663
664 - 683
684 - 702
703 - 722
723 - 741
742 - 761
762 - 781
No Data
Lachine
652 - 683
684 - 714
715 - 745
746 - 776
777 - 807
808 - 838
839 - 869
870 - 900
901 - 931
No Data
Big_ravine
186 - 197
198 - 209
210 - 220
221 - 232
233 - 243
244 - 255
256 - 266
New theme appears. Remember we have to check the box to the left of the name to get it to appear

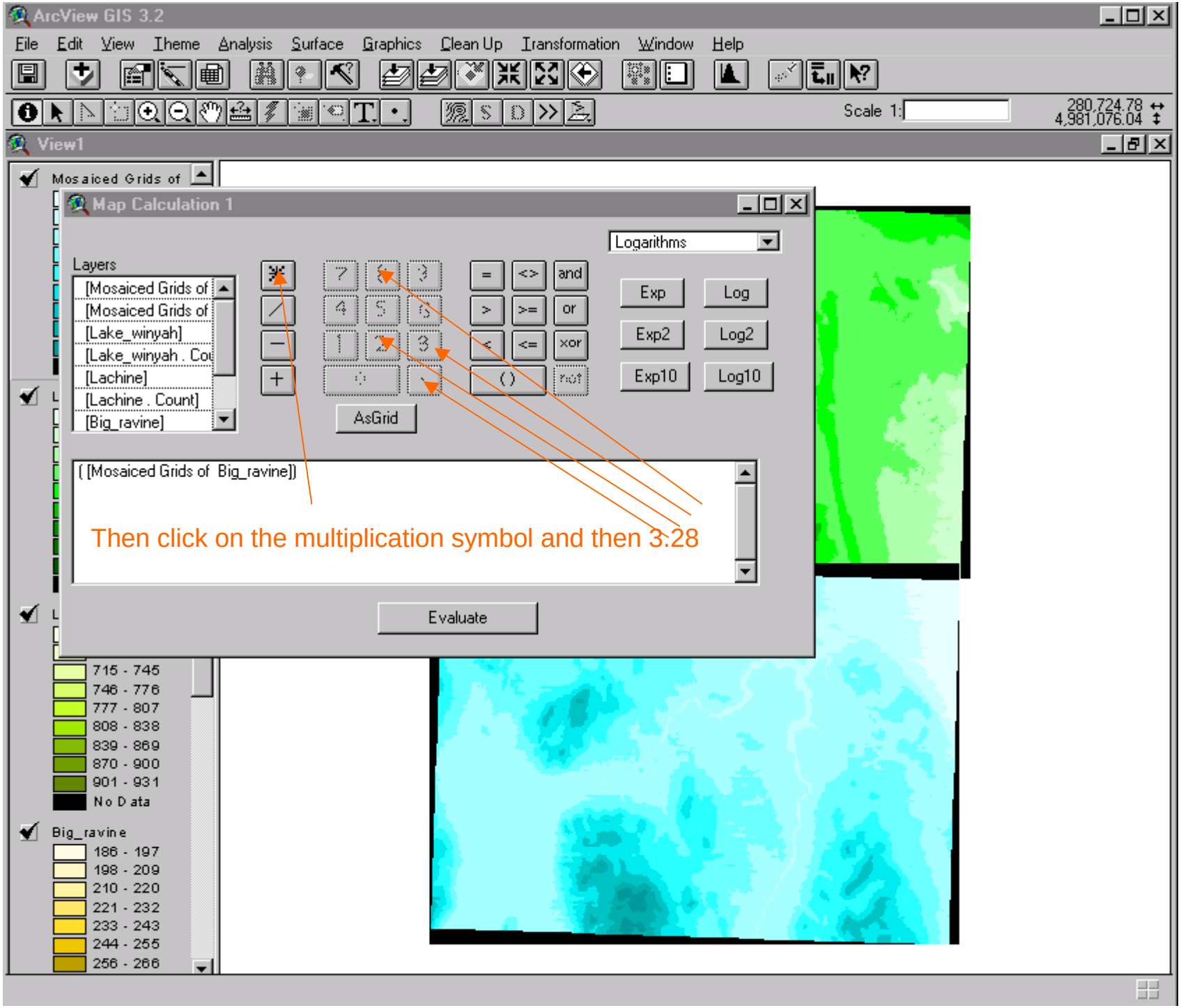

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
276,586.28
4,996,781.13
View1
Mosaiced Grids of
186 - 200
201 - 214
215 - 229
230 - 243
244 - 257
258 - 272
273 - 286
287 - 300
301 - 315
No Data
Lake_winyah
605 - 624
625 - 644
645 - 663
664 - 683
684 - 702
703 - 722
723 - 741
742 - 761
762 - 781
No Data
Lachine
652 - 683
684 - 714
715 - 745
746 - 776
777 - 807
808 - 838
839 - 869
870 - 900
901 - 931
No Data
Big_ravine
186 - 197
198 - 209
210 - 220
221 - 232
233 - 243
244 - 255
256 - 266
Notice now that the bottom panel covers the previous two

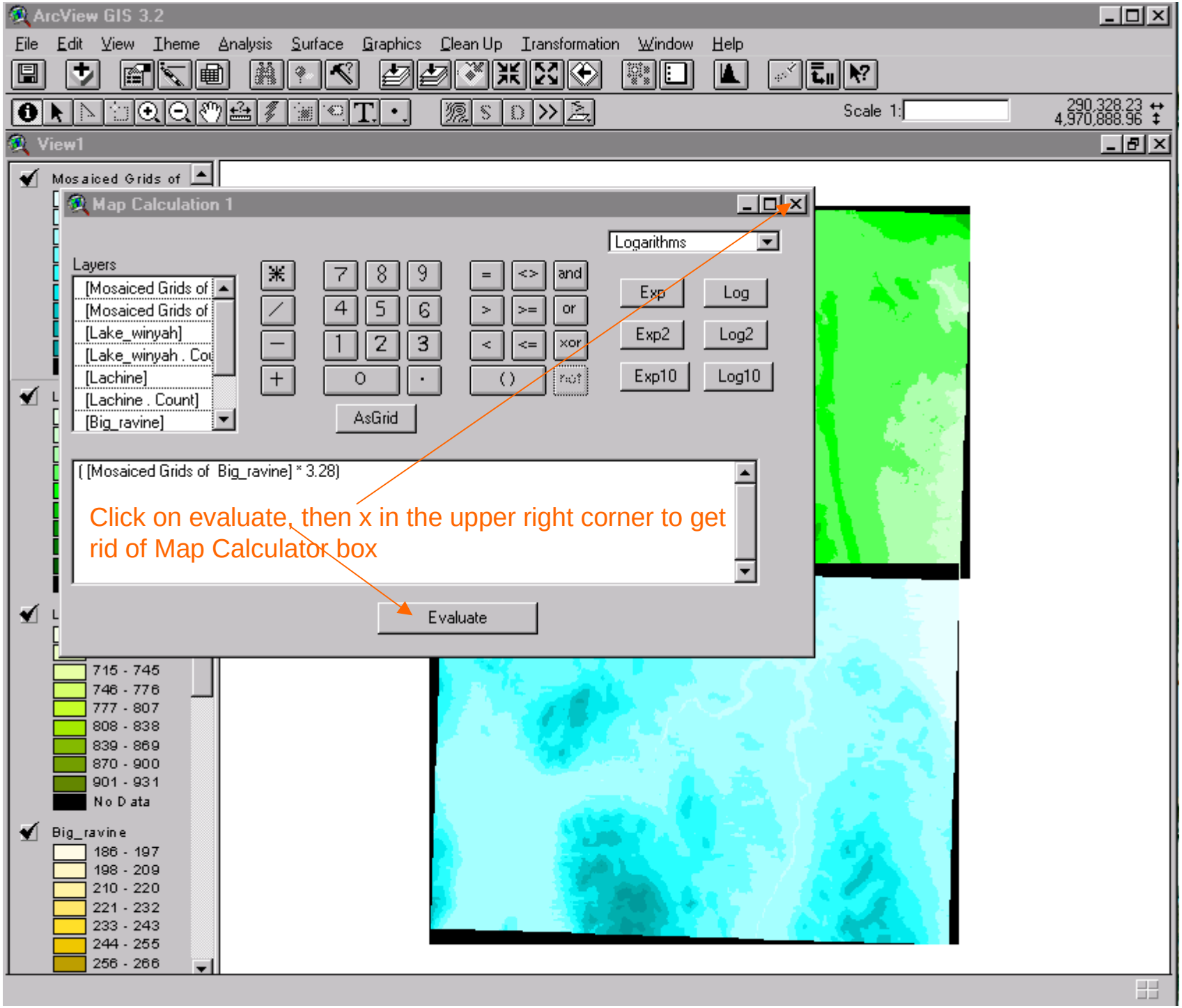
Map Calculator

- Now that we have the meter quadrangles spliced together we can perform a mathematical operation to convert from meters to feet


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Properties...
Find Distance
Assign Proximity
Calculate Density...
Cell Statistics...
Summarize Zones...
Trend Interpolation...
Kriging Interpolation...
Histogram By Zone...
Tabulate Areas...
Map Query...
Map Calculator...
Neighborhood Statistics...
Reclassify...
Resample...
Random Grid...
Pycnophylactic Interpolation...
Zonal Geometry Table
Profile
Profile With Feature Points
Line or Point File Visibility
Scale 1:
278,920.82
5,001,397.15
View1
Mosaiced Grids of
186 - 200
201 - 214
215 - 229
230 - 243
244 - 257
258 - 272
273 - 286
287 - 300
301 - 315
No Data
Lake_winyah
605 - 624
625 - 644
645 - 663
664 - 683
684 - 702
703 - 722
723 - 741
742 - 761
762 - 781
No Data
Lachine
652 - 683
684 - 714
715 - 745
746 - 776
777 - 807
808 - 838
839 - 869
870 - 900
901 - 931
No Data
Big_ravine
186 - 197
198 - 209
210 - 220
221 - 232
233 - 243
244 - 255
256 - 266
Click on
Map Calculator

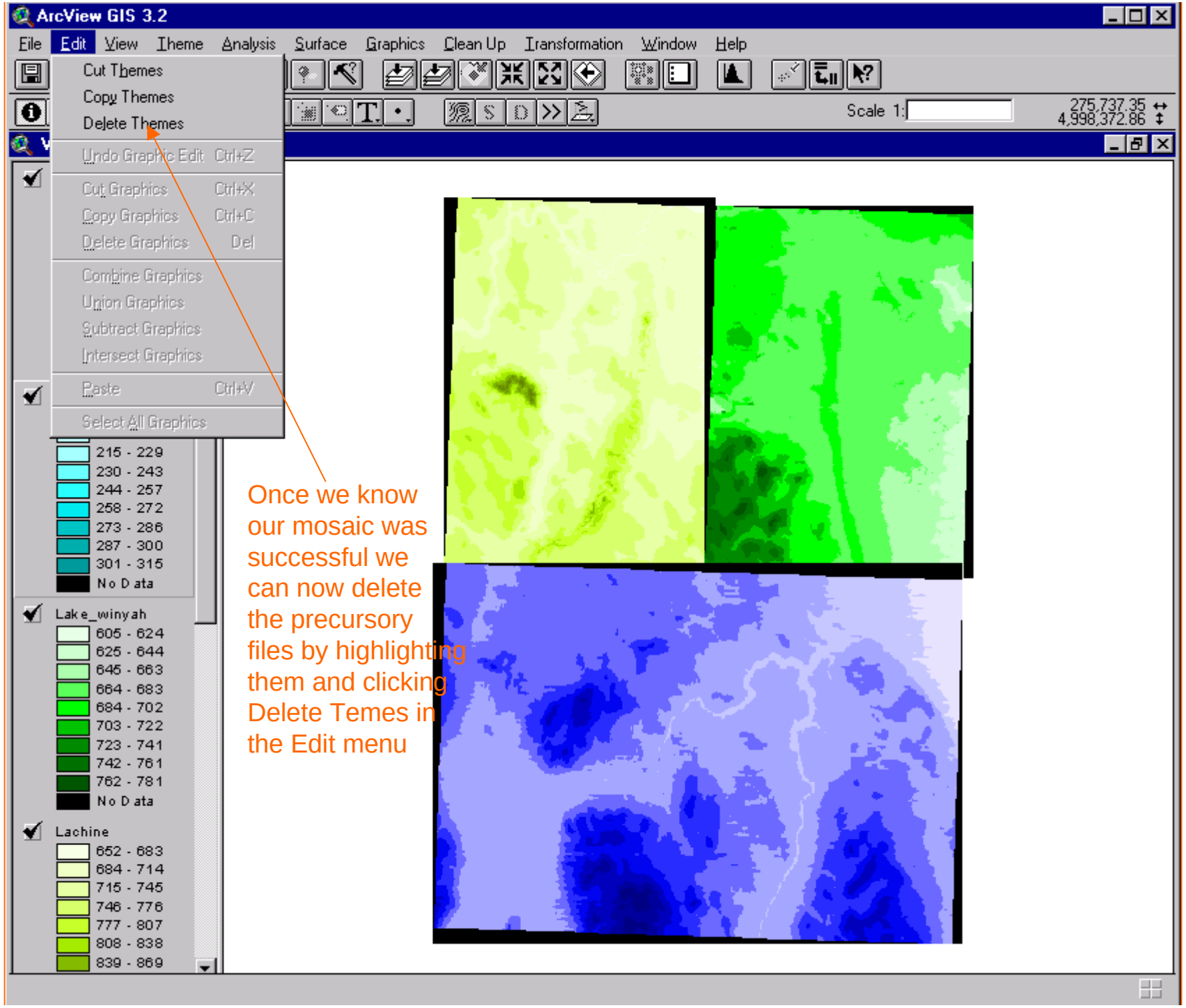

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
280,035.03
4,978,476.22
View1
Mosaiced Grids of
Map Calculation 1
Logarithms
Layers
[Mosaiced Grids of
[Mosaiced Grids of
[Lake_winyah]
[Lake_winyah . Co
[Lachine]
[Lachine . Count]
[Big_ravine]
AsGrid
Exp
Log
Exp2
Log2
Exp10
Log10
not
( )
Double-click Mosaiced Grids of
Evaluate
715 - 745
746 - 776
777 - 807
808 - 838
839 - 869
870 - 900
901 - 931
No Data
Big_ravine
186 - 197
198 - 209
210 - 220
221 - 232
233 - 243
244 - 255
256 - 266


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
280,724.78
4,981,076.04
View1
Mosaiced Grids of
Map Calculation 1
Logarithms
Layers
[Mosaiced Grids of
[Mosaiced Grids of
[Lake_winyah]
[Lake_winyah . Cou
[Lachine]
[Lachine . Count]
[Big_ravine]
and
or
xor
not
Exp
Log
Exp2
Log2
Exp10
Log10
AsGrid
([Mosaiced Grids of Big_ravine])
Then click on the multiplication symbol and then 3.28
Evaluate
715 - 745
746 - 776
777 - 807
808 - 838
839 - 869
870 - 900
901 - 931
No Data
Big_ravine
186 - 197
198 - 209
210 - 220
221 - 232
233 - 243
244 - 255
256 - 266


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
290,328.23
4,970,888.96
View1
Mosaiced Grids of
Map Calculation 1
Logarithms
Layers
[Mosaiced Grids of
[Mosaiced Grids of
[Lake_winyah]
[Lake_winyah . Cou
[Lachine]
[Lachine . Count]
[Big_ravine]
AsGrid
Exp
Log
Exp2
Log2
Exp10
Log10
([Mosaiced Grids of Big_ravine] * 3.28)
Click on evaluate, then x in the upper right corner to get rid of Map Calculator box
Evaluate
715 - 745
746 - 776
777 - 807
808 - 838
839 - 869
870 - 900
901 - 931
No Data
Big_ravine
186 - 197
198 - 209
210 - 220
221 - 232
233 - 243
244 - 255
256 - 266

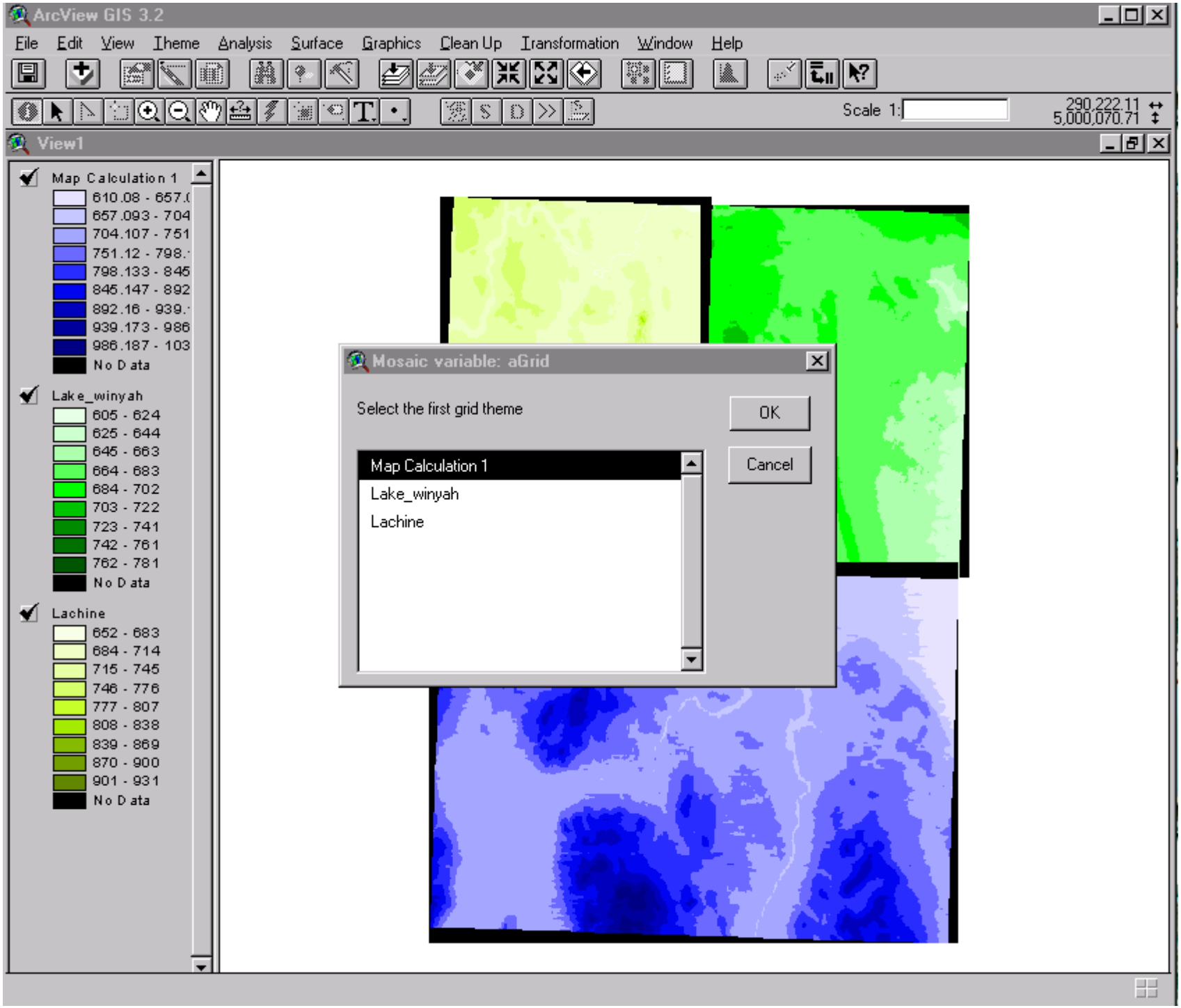
Deleting unnecessary themes

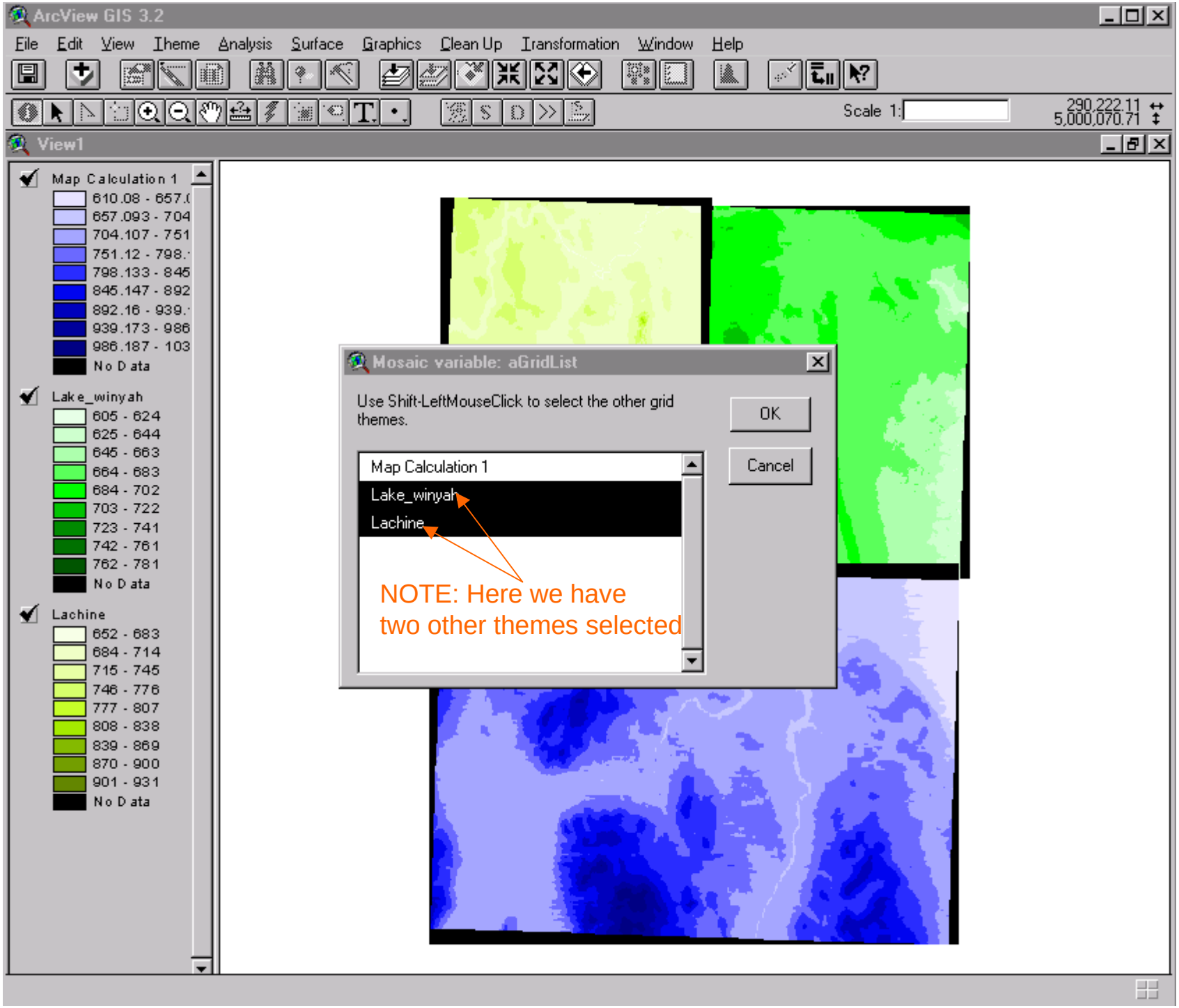
- Once we've checked to make sure our new theme is correct by adding it to the view, we can eliminate the precursory themes.
- We do this by highlighting the themes we want to delete.
- To highlight one theme, click on it. To highlight multiple themes shift-click on them

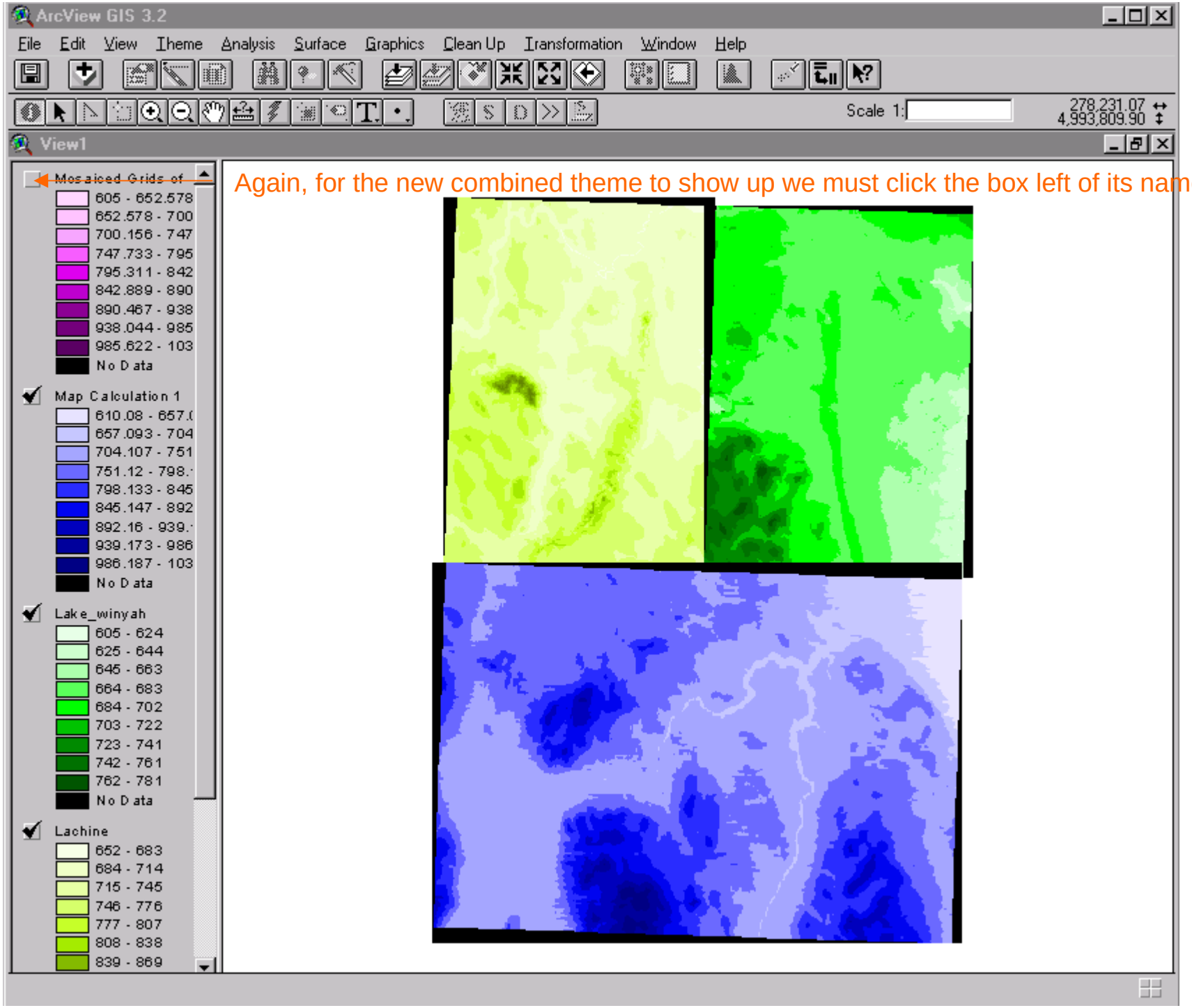

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Cut Themes
Copy Themes
Delete Themes
Undo Graphic Edit Ctrl+Z
Cut Graphics Ctrl+X
Copy Graphics Ctrl+C
Delete Graphics Del
Combine Graphics
Union Graphics
Subtract Graphics
Intersect Graphics
Paste Ctrl+V
Select All Graphics
Scale 1:
275,737.35
4,998,372.86
215 - 229
230 - 243
244 - 257
258 - 272
273 - 286
287 - 300
301 - 315
No Data
Lake_winyah
605 - 624
625 - 644
645 - 663
664 - 683
684 - 702
703 - 722
723 - 741
742 - 761
762 - 781
No Data
Lachine
652 - 683
684 - 714
715 - 745
746 - 776
777 - 807
808 - 838
839 - 869
Once we know our mosaic was successful we can now delete the precursory files by highlighting them and clicking Delete Temes in the Edit menu

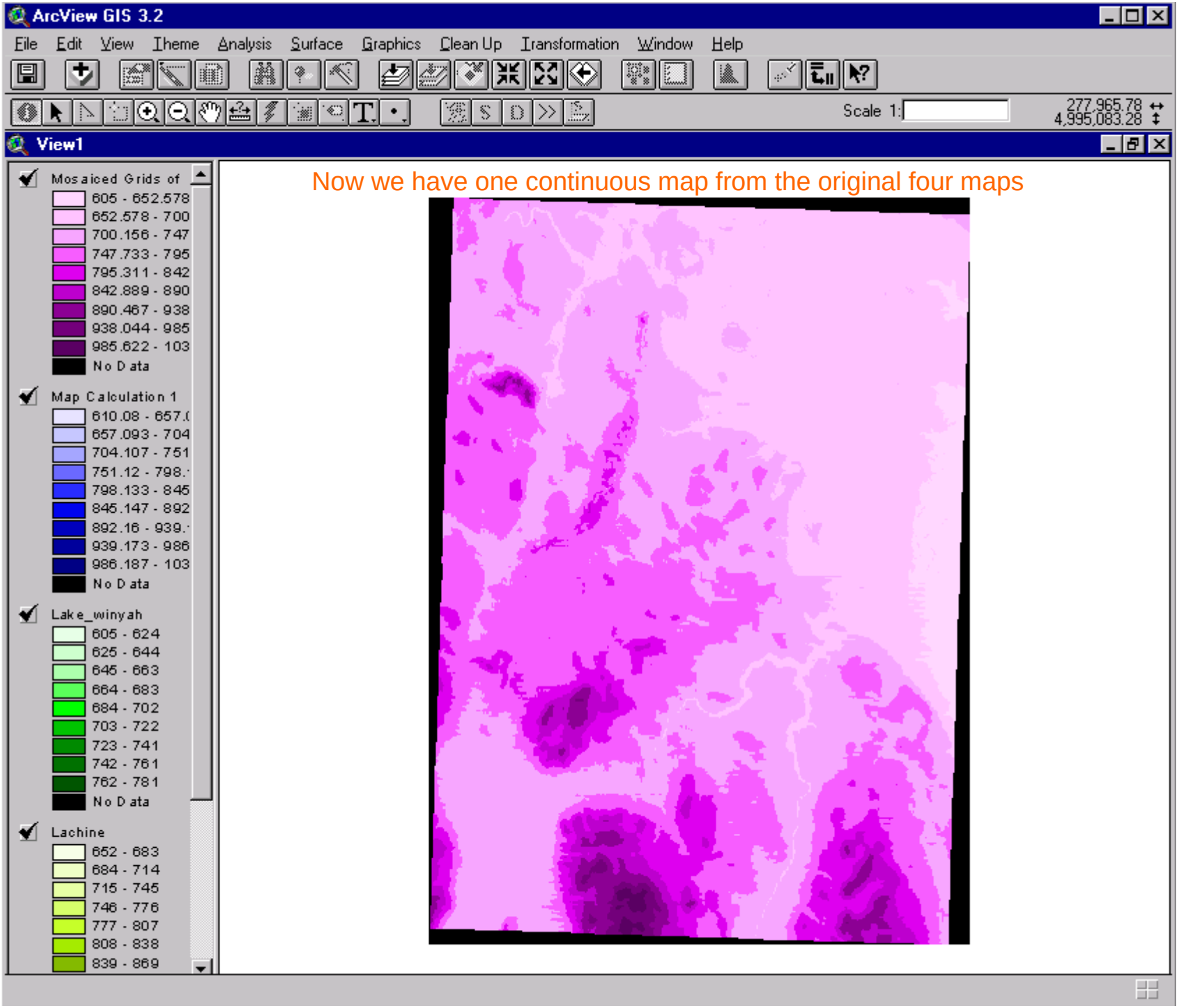
Combining the entire region

- Now we have the entire region we started with in the same vertical units
- We can now mosaic the files in feet together to get one continuous map.
- This process is the same that we used before.
- Transformation:Mosaic and then select the relevant files


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
290,222.11
5,000,070.71
View1
Map Calculation 1
610.08 - 657.
657.093 - 704
704.107 - 751
751.12 - 798.
798.133 - 845
845.147 - 892
892.16 - 939.
939.173 - 986
986.187 - 103
No Data
Lake_winyah
605 - 624
625 - 644
645 - 663
664 - 683
684 - 702
703 - 722
723 - 741
742 - 761
762 - 781
No Data
Lachine
652 - 683
684 - 714
715 - 745
746 - 776
777 - 807
808 - 838
839 - 869
870 - 900
901 - 931
No Data
Mosaic variable: aGrid
Select the first grid theme
OK
Cancel
Map Calculation 1
Lake_winyah
Lachine


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
290,222.11
5,000,070.71
View1
Map Calculation 1
610.08 - 657.(
657.093 - 704
704.107 - 751
751.12 - 798.
798.133 - 845
845.147 - 892
892.16 - 939.
939.173 - 986
986.187 - 103
No Data
Lake_winyah
605 - 624
625 - 644
645 - 663
664 - 683
684 - 702
703 - 722
723 - 741
742 - 761
762 - 781
No Data
Lachine
652 - 683
684 - 714
715 - 745
746 - 776
777 - 807
808 - 838
839 - 869
870 - 900
901 - 931
No Data
Mosaic variable: aGridList
Use Shift-LeftMouseClick to select the other grid themes.
OK
Cancel
Map Calculation 1
Lake_winyah
Lachine
NOTE: Here we have
two other themes selected


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
278,231.07
4,993,809.90
View1
Again, for the new combined theme to show up we must click the box left of its name
Mosaiced Grids of
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data
Map Calculation 1
610.08 - 657.(
657.093 - 704
704.107 - 751
751.12 - 798.
798.133 - 845
845.147 - 892
892.16 - 939.
939.173 - 986
986.187 - 103
No Data
Lake_winyah
605 - 624
625 - 644
645 - 663
664 - 683
684 - 702
703 - 722
723 - 741
742 - 761
762 - 781
No Data
Lachine
652 - 683
684 - 714
715 - 745
746 - 776
777 - 807
808 - 838
839 - 869

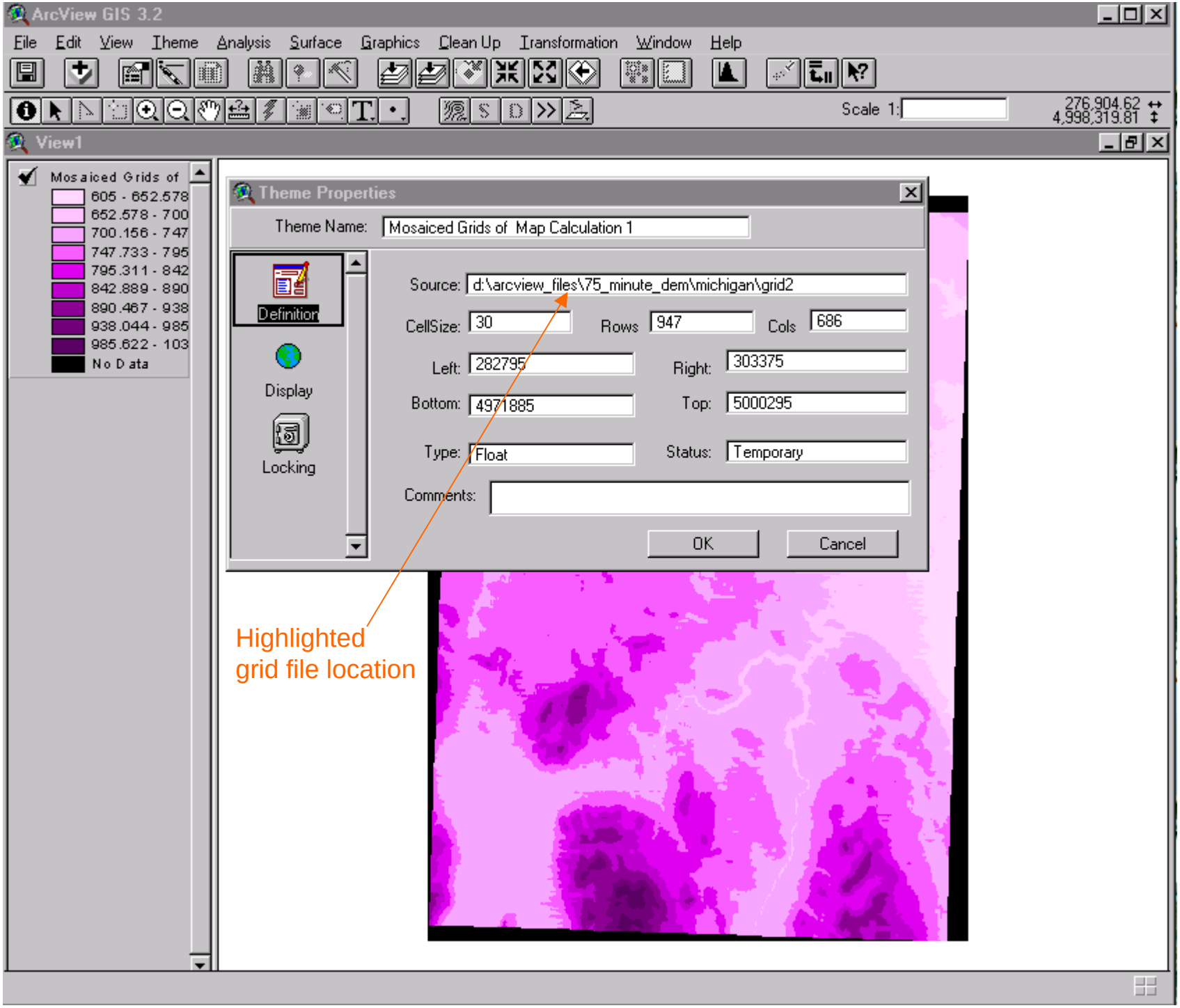

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
277,965.78
4,995,083.28
View1
Mosaiced Grids of
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data
Map Calculation 1
610.08 - 657.(
657.093 - 704
704.107 - 751
751.12 - 798.
798.133 - 845
845.147 - 892
892.16 - 939.
939.173 - 986
986.187 - 103
No Data
Lake_winyah
605 - 624
625 - 644
645 - 663
664 - 683
684 - 702
703 - 722
723 - 741
742 - 761
762 - 781
No Data
Lachine
652 - 683
684 - 714
715 - 745
746 - 776
777 - 807
808 - 838
839 - 869
Now we have one continuous map from the original four maps

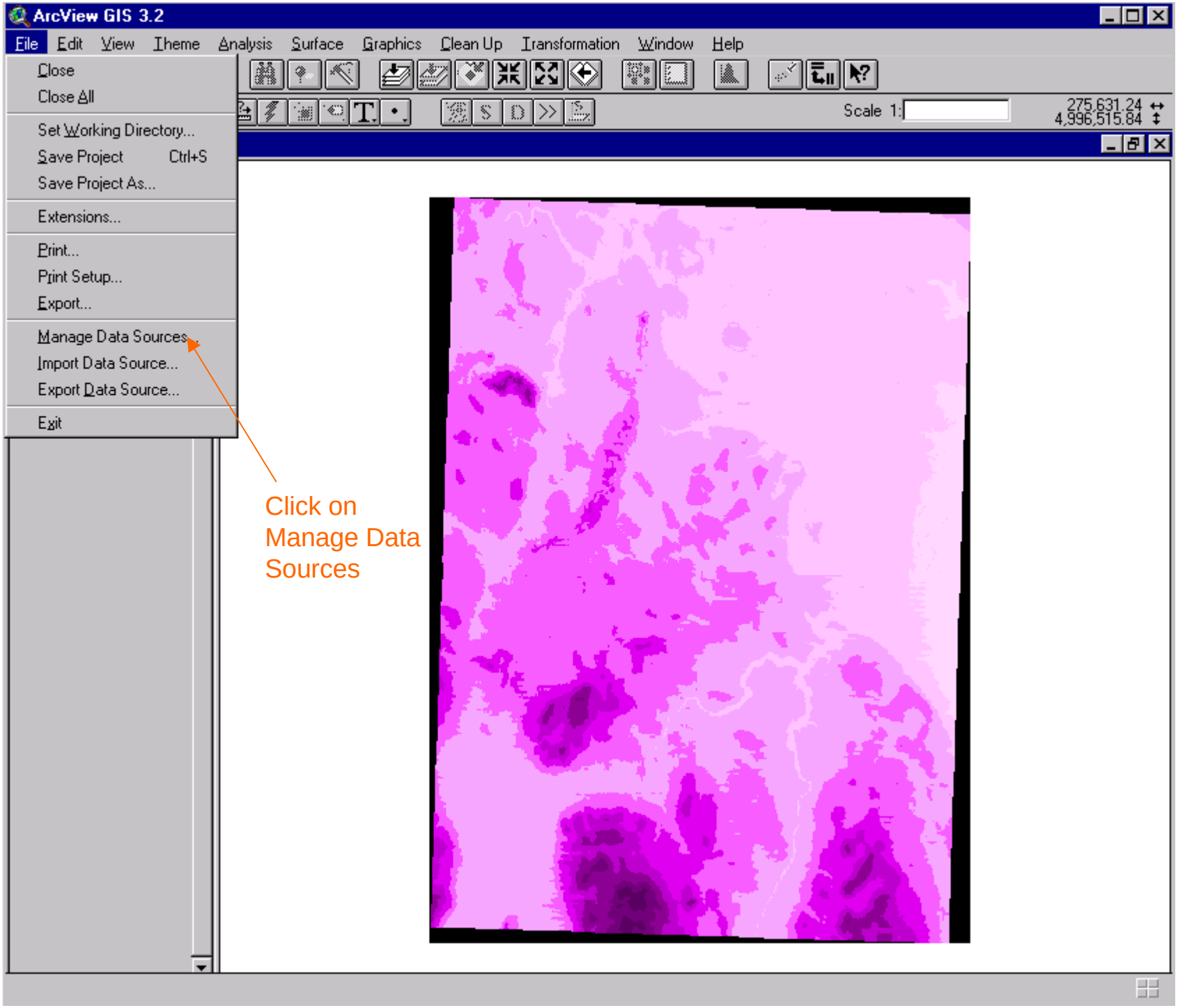
House Cleaning

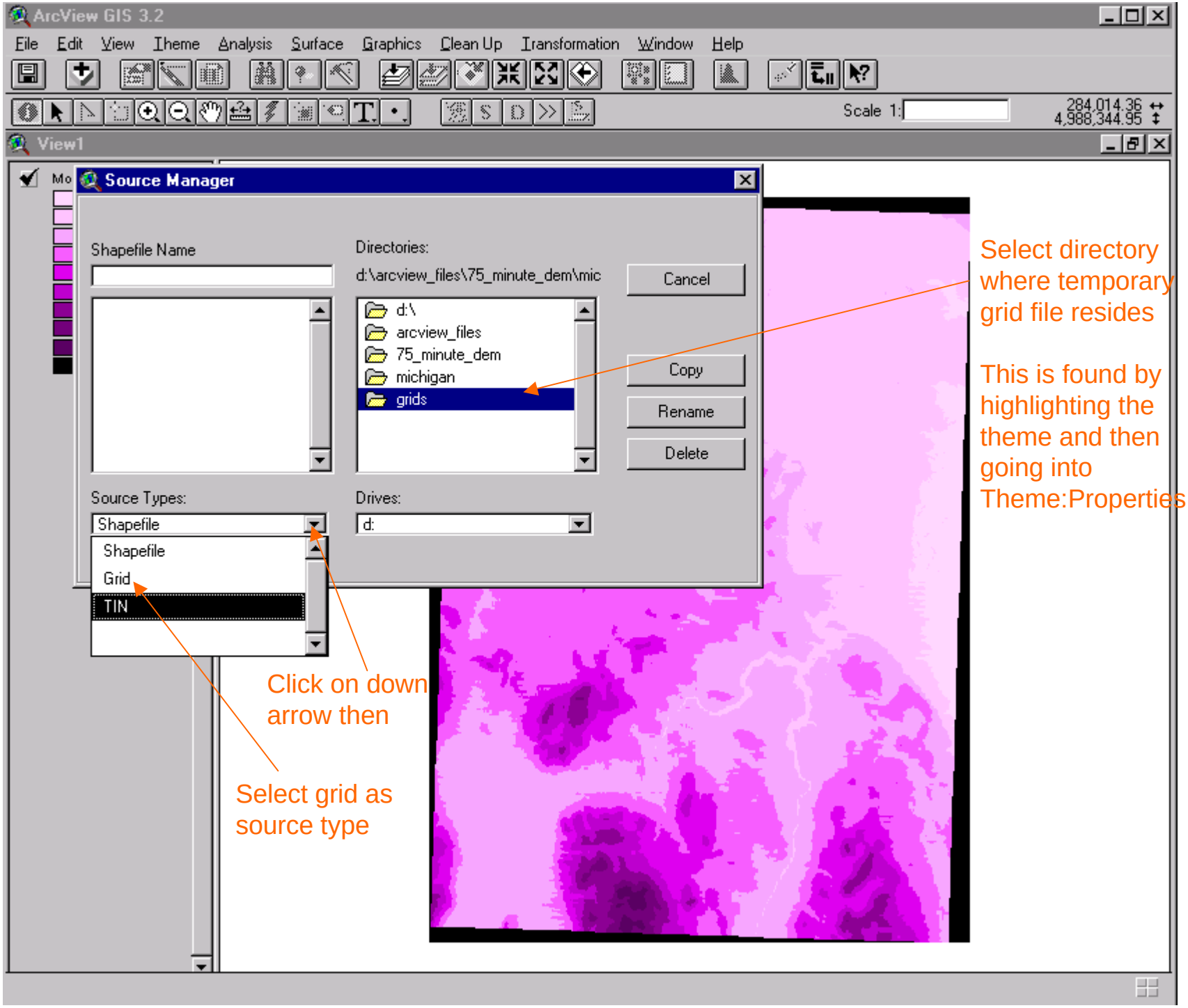
- Now we are in a position to create hill shaded relief maps.
- First however we may want to do some house cleaning.
- Our mosaic files are kept in a temporary file, arbitrarily named and are apt to get accidentally deleted.
- We can move this file to a more permanent position using manage data sources

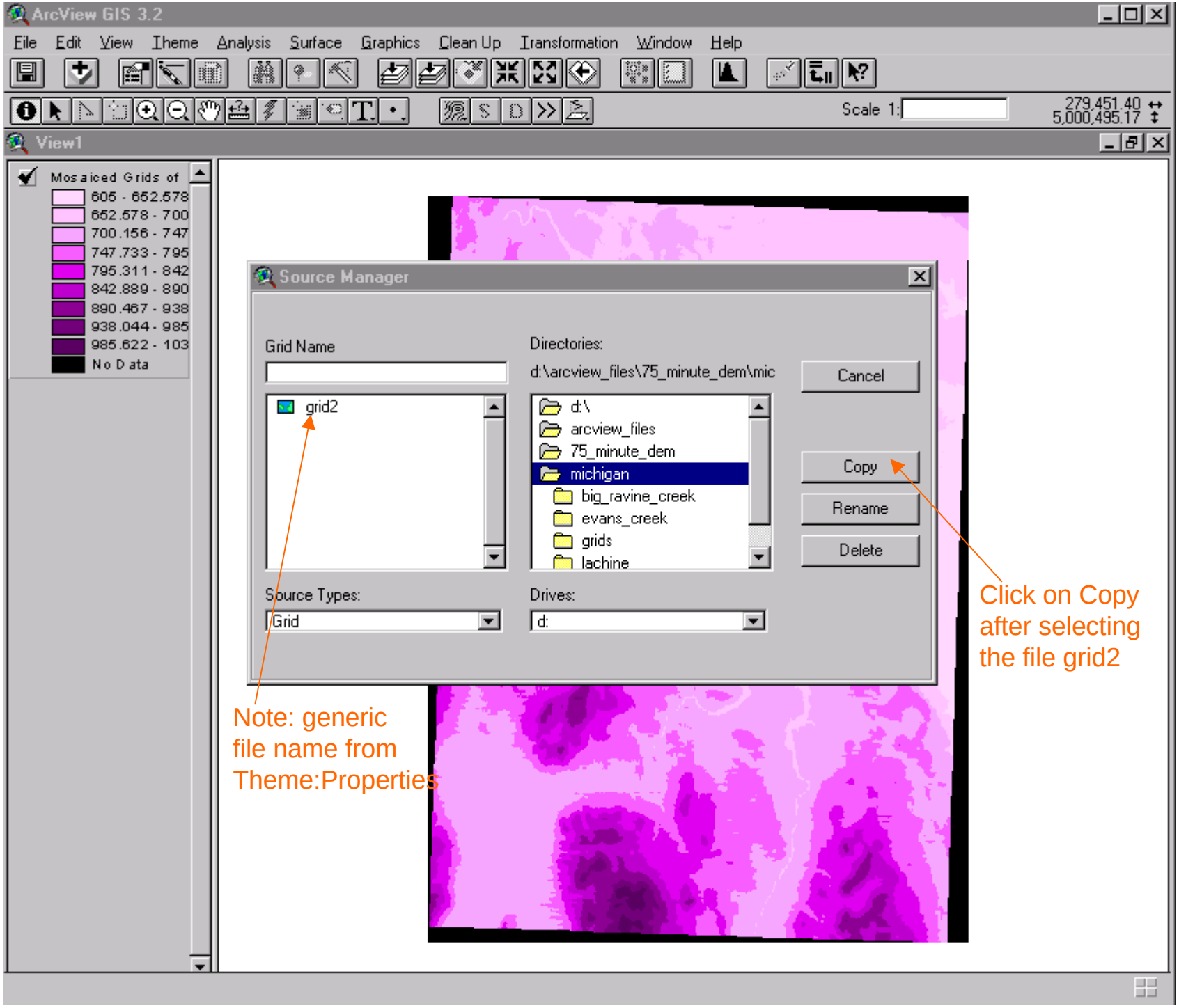
Where does my mosaiced file reside?

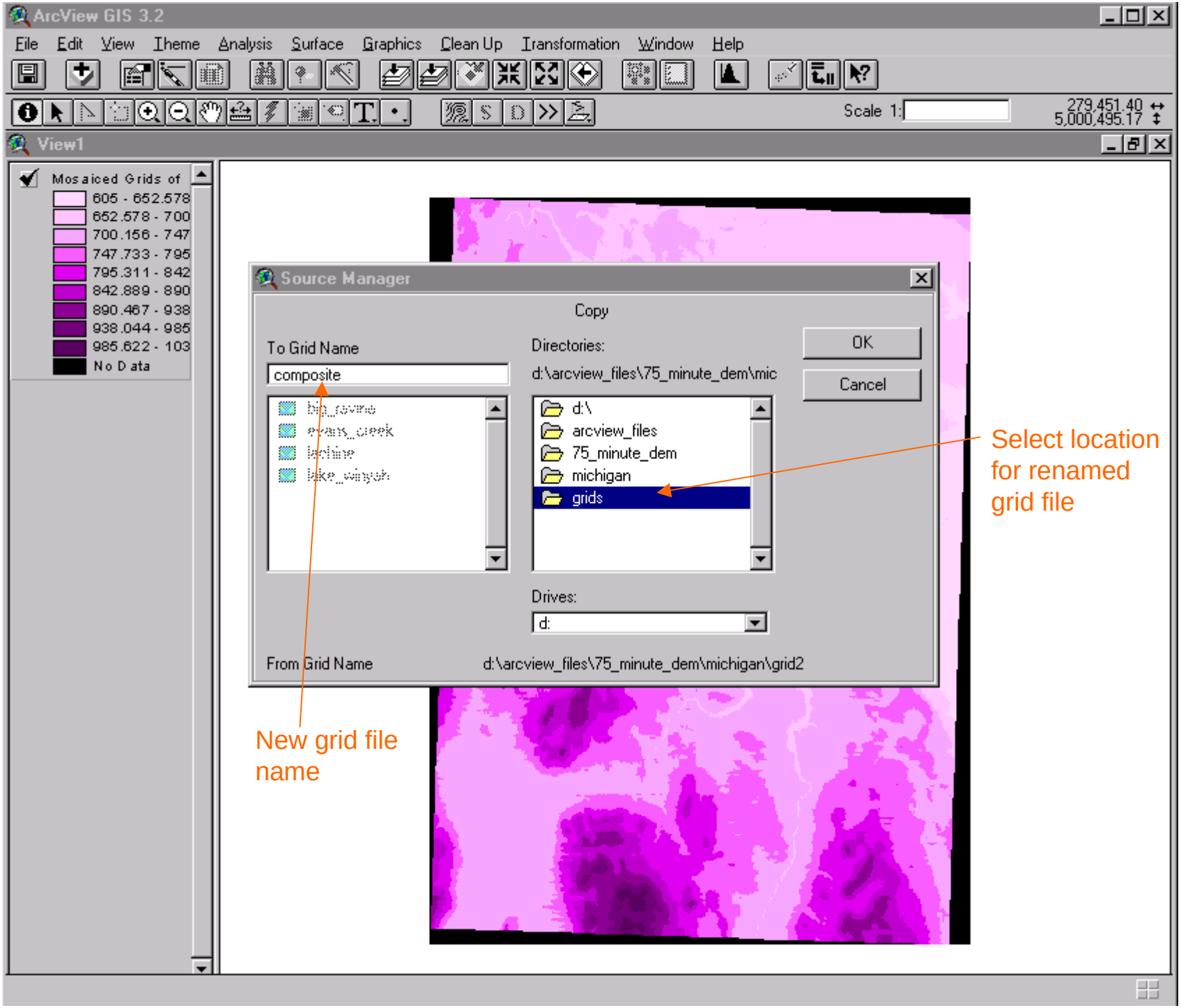
- If you have set a working directory (File:Set Working Directory) it will save the file as grid1 or grid2 etc. in that directory.
- If you delete this theme in a view, it will delete from the hard disk.
- Highlight the mosaiced theme, then go to Theme:Properties and it will show you the files location. See next slide.

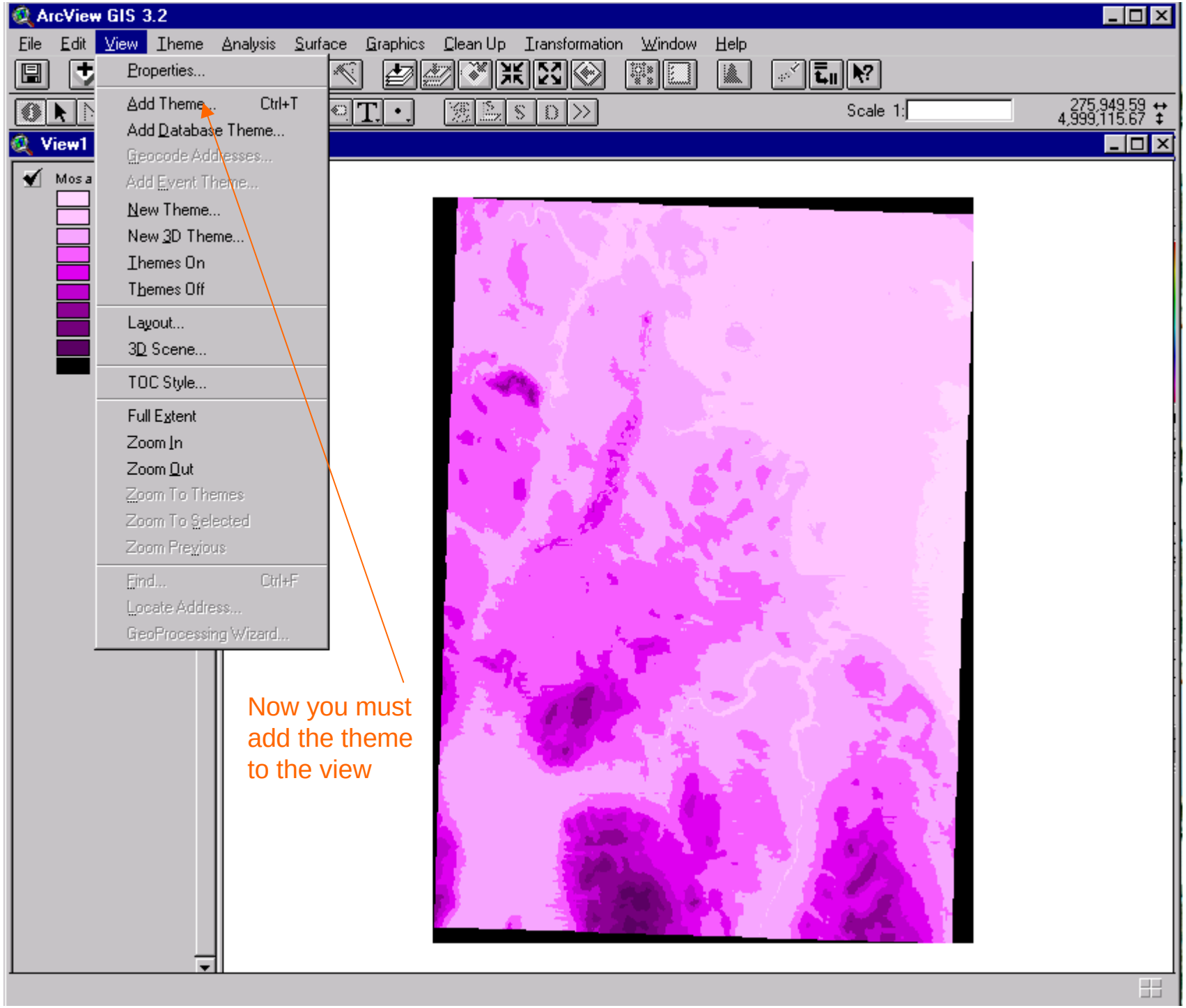

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
276,904.62
4,998,319.81
View1
Mosaiced Grids of
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data
Theme Properties
Theme Name: Mosaiced Grids of Map Calculation 1
Definition
Display
Locking
Source: d:\arcview_files\75_minute_dem\michigan\grid2
CellSize: 30
Rows 947
Cols 686
Left: 282795
Right: 303375
Bottom: 4971885
Top: 5000295
Type: Float
Status: Temporary
Comments:
OK
Cancel
Highlighted
grid file location

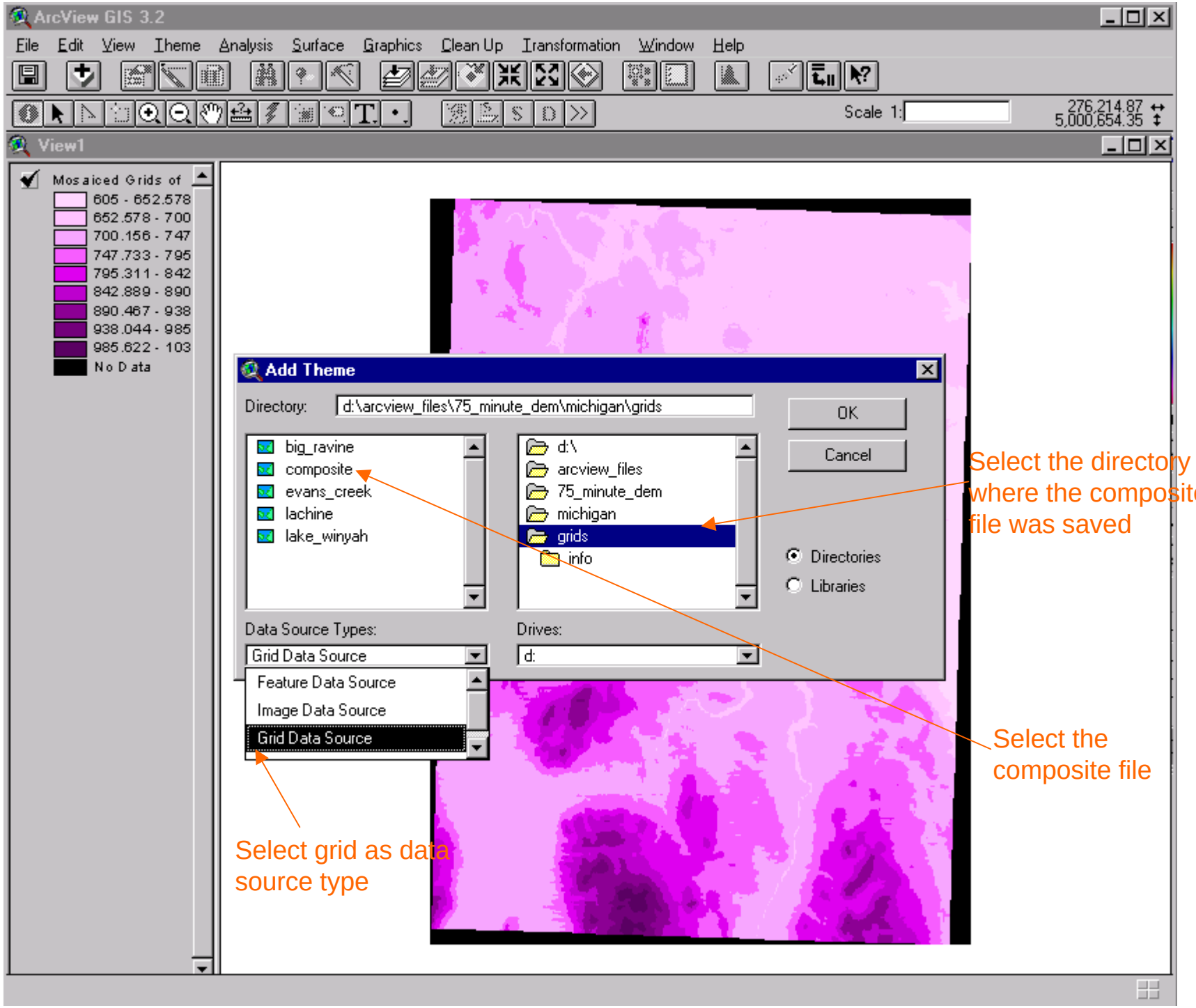

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Close
Close All
Set Working Directory...
Save Project Ctrl+S
Save Project As...
Extensions...
Print...
Print Setup...
Export...
Manage Data Sources...
Import Data Source...
Export Data Source...
Exit
Scale 1:
275,631.24
4,996,515.84
Click on Manage Data Sources

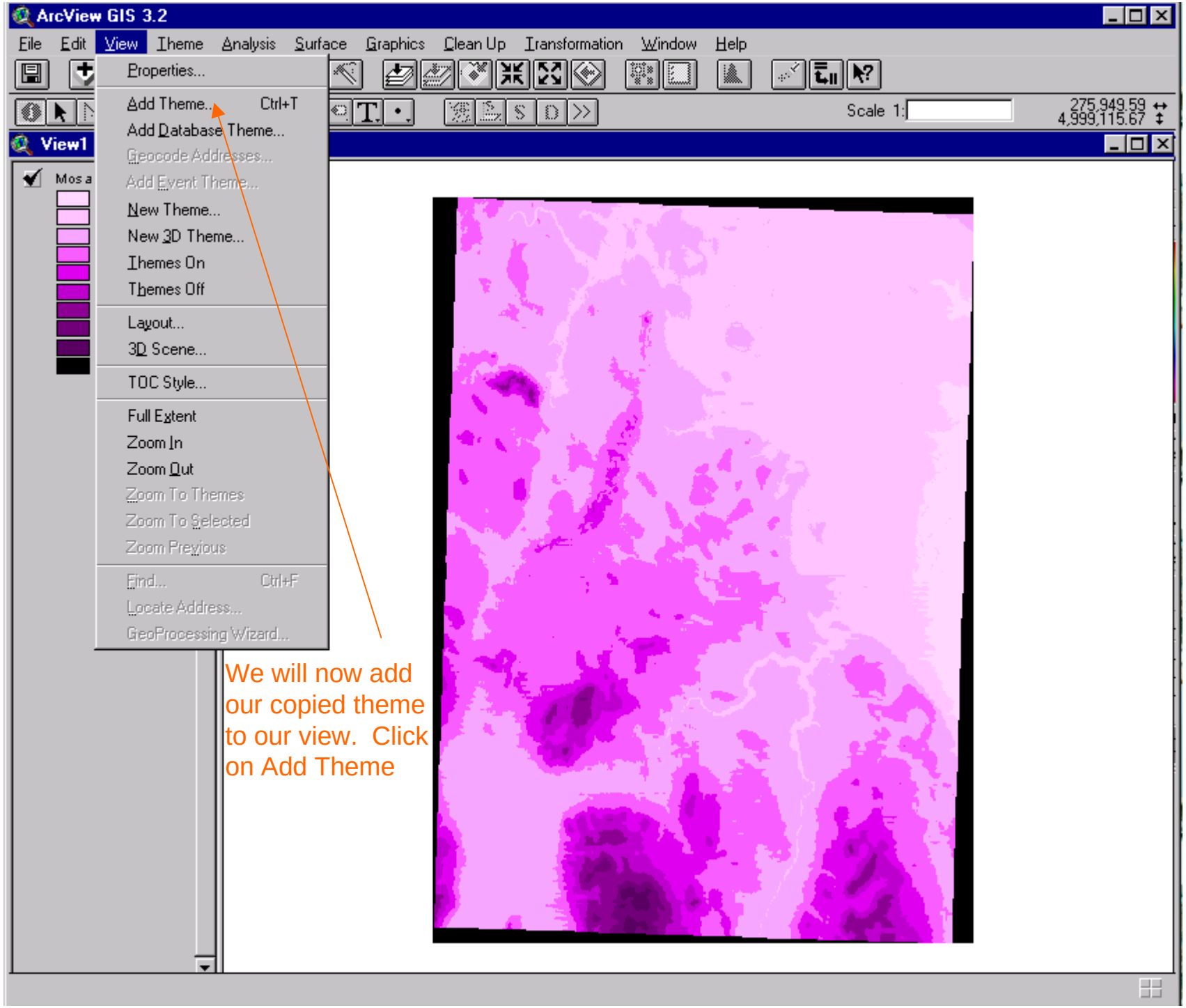

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
284,014.36
4,988,344.95
View1
Source Manager
Shapefile Name
Directories:
d:\arcview_files\75_minute_dem\mic
Cancel
d:\
arcview_files
75_minute_dem
michigan
grids
Copy
Rename
Delete
Source Types:
Shapefile
Drives:
d:
Shapefile
Grid
TIN
Select directory where temporary grid file resides
This is found by highlighting the theme and then going into Theme:Properties
Click on down arrow then
Select grid as source type

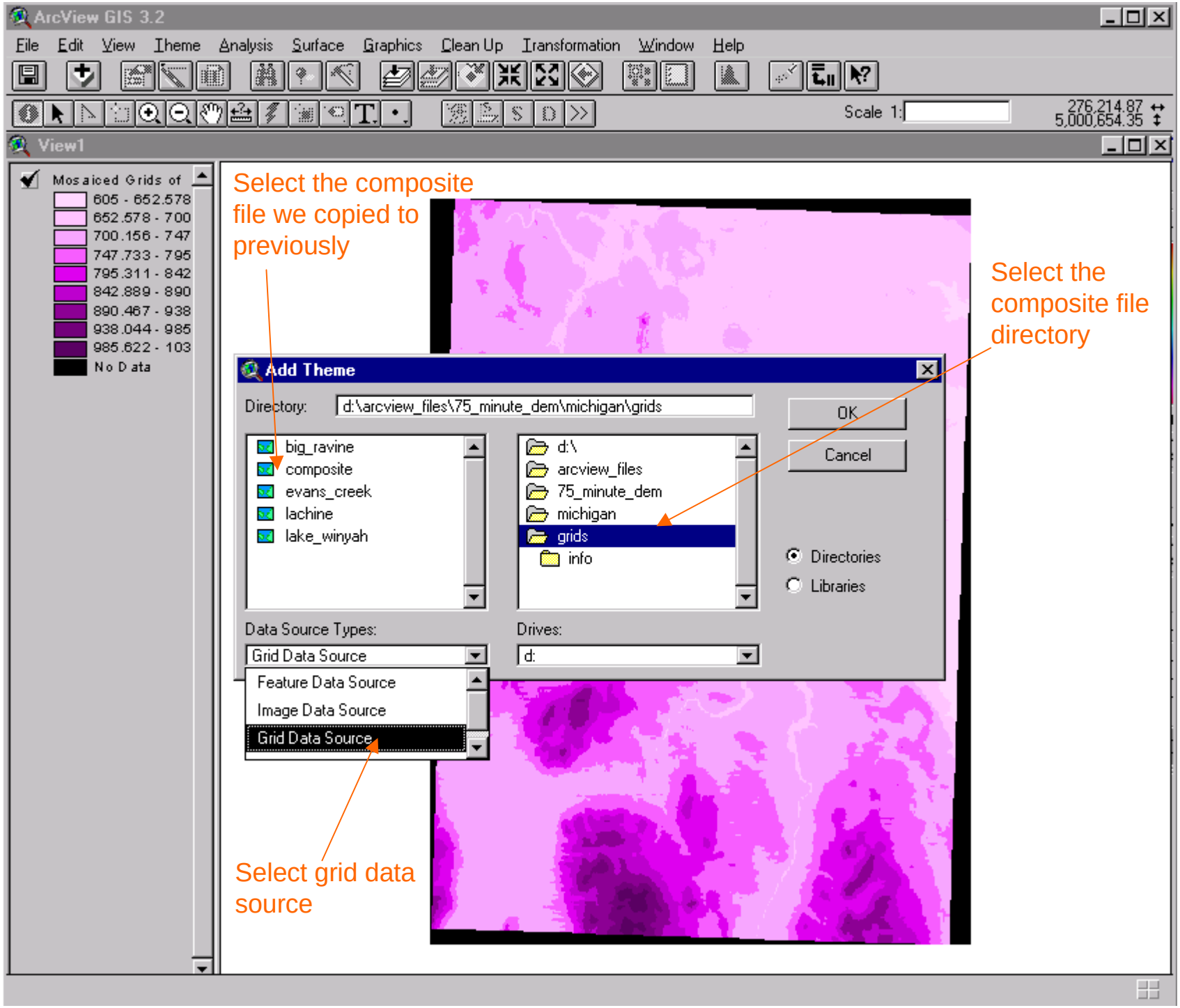

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
279,451.40
5,000,495.17
View1
Mosaiced Grids of
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data
Source Manager
Grid Name
Directories:
d:\arcview_files\75_minute_dem\mic
Cancel
grid2
d:\
arcview_files
75_minute_dem
michigan
big_ravine_creek
evans_creek
grids
lachine
Copy
Rename
Delete
Source Types:
Grid
Drives:
d:
Note: generic file name from Theme:Properties
Click on Copy after selecting the file grid2

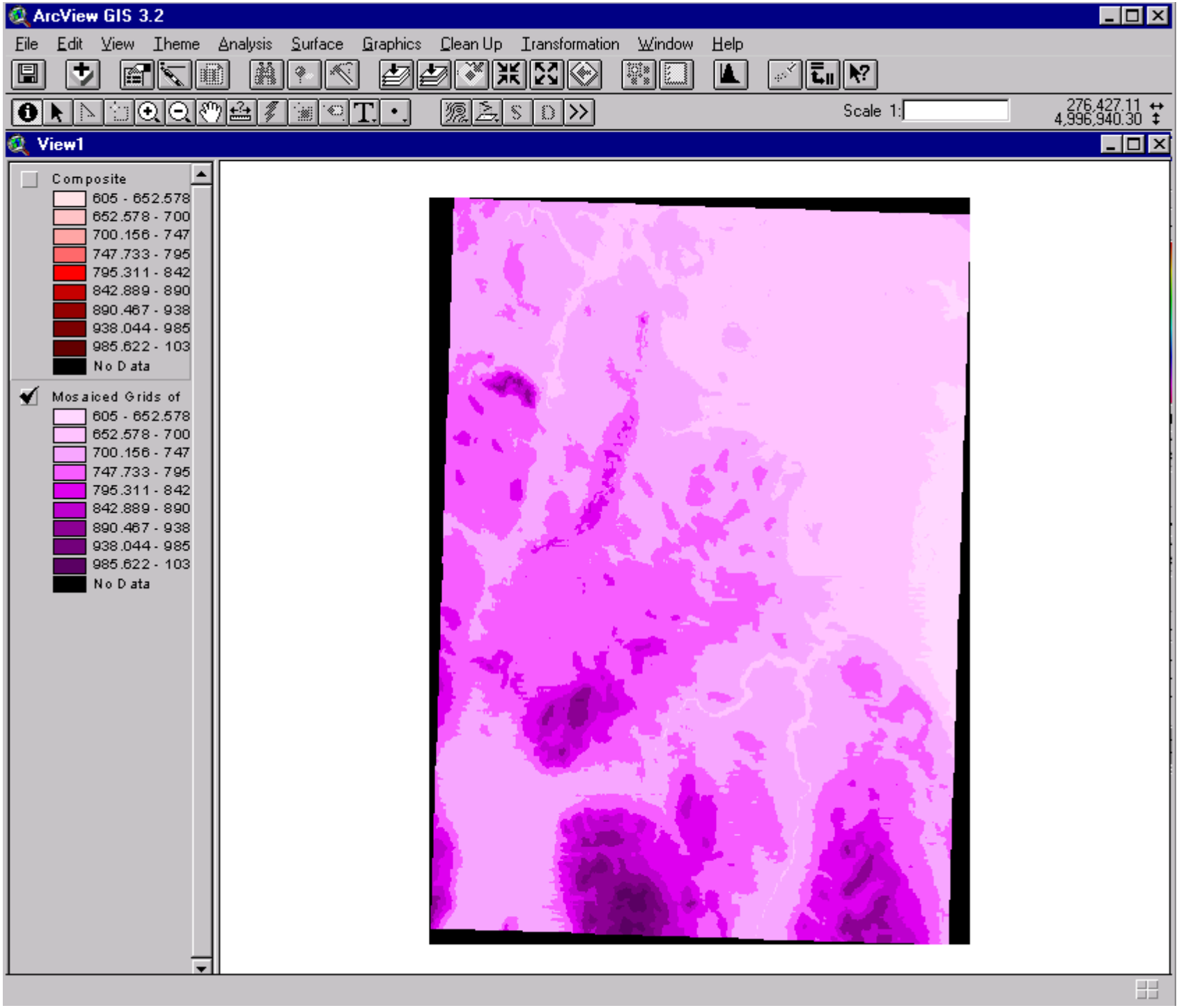

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
279,451.40
5,000,495.17
View1
Mosaiced Grids of
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data
Source Manager
Copy
To Grid Name
composite
Directories:
d:\arcview_files\75_minute_dem\mic
OK
Cancel
d:\
arcview_files
75_minute_dem
michigan
grids
Drives:
d:
From Grid Name
d:\arcview_files\75_minute_dem\michigan\grid2
New grid file name
Select location for renamed grid file

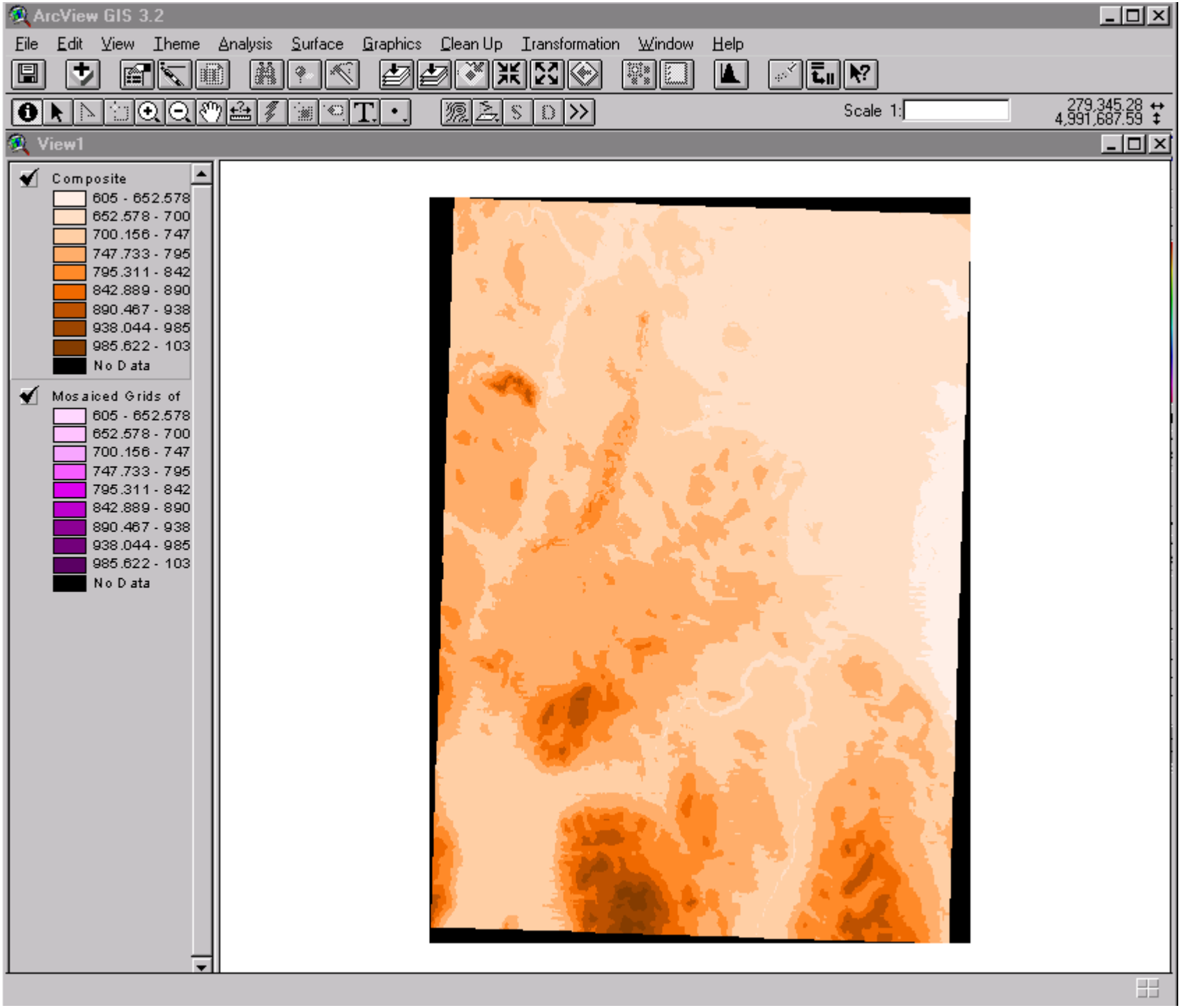

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Properties...
Add Theme... Ctrl+T
Add Database Theme...
Geocode Addresses...
Add Event Theme...
New Theme...
New 3D Theme...
Themes On
Themes Off
Layout...
3D Scene...
TOC Style...
Full Extent
Zoom In
Zoom Out
Zoom To Themes
Zoom To Selected
Zoom Previous
Find... Ctrl+F
Locate Address...
GeoProcessing Wizard...
Scale 1:
275,949.59
4,999,115.67
View1
Mos a
Now you must add the theme to the view

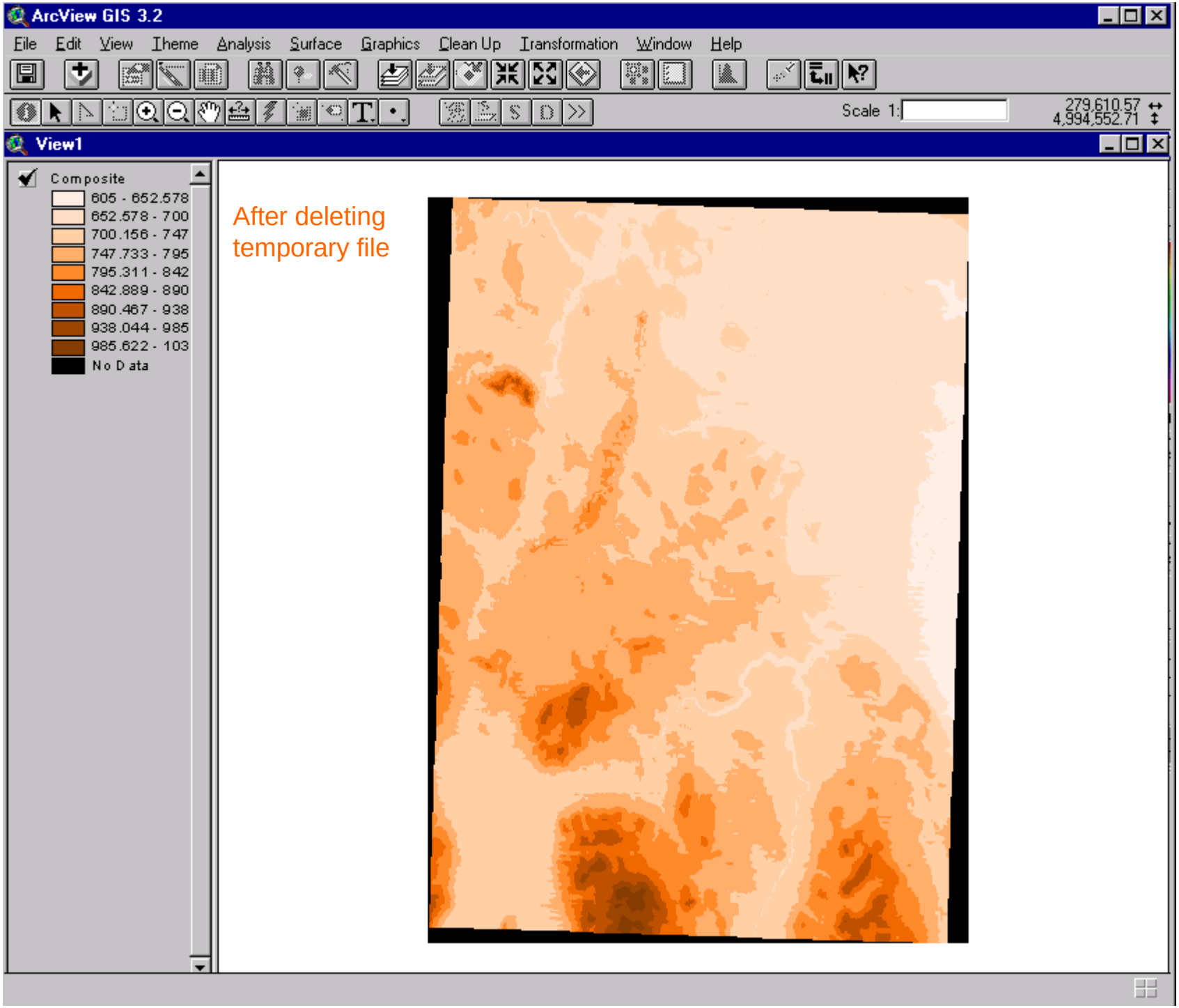

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
276,214.87
5,000,654.35
View1
Mosaiced Grids of
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data
Add Theme
Directory:
d:\arcview_files\75_minute_dem\michigan\grids
OK
Cancel
big_ravine
composite
evans_creek
lachine
lake_winyah
d:\
arcview_files
75_minute_dem
michigan
grids
info
Directories
Libraries
Data Source Types:
Grid Data Source
Feature Data Source
Image Data Source
Grid Data Source
Drives:
d:
Select the directory where the composite file was saved
Select the composite file
Select grid as data source type


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Properties...
Add Theme... Ctrl+T
Add Database Theme...
Geocode Addresses...
Add Event Theme...
New Theme...
New 3D Theme...
Themes On
Themes Off
Layout...
3D Scene...
TOC Style...
Full Extent
Zoom In
Zoom Out
Zoom To Themes
Zoom To Selected
Zoom Previous
Find... Ctrl+F
Locate Address...
GeoProcessing Wizard...
Scale 1:
275,949.59
4,999,115.67
View1
Mos a
We will now add our copied theme to our view. Click on Add Theme


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
276,214.87
5,000,654.35
View1
Mosaiced Grids of
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data
Select the composite file we copied to previously
Select the composite file directory
Add Theme
Directory:
d:\arcview_files\75_minute_dem\michigan\grids
OK
Cancel
big_ravine
composite
evans_creek
lachine
lake_winyah
d:\
arcview_files
75_minute_dem
michigan
grids
info
Directories
Libraries
Data Source Types:
Grid Data Source
Drives:
d:
Feature Data Source
Image Data Source
Grid Data Source
Select grid data source

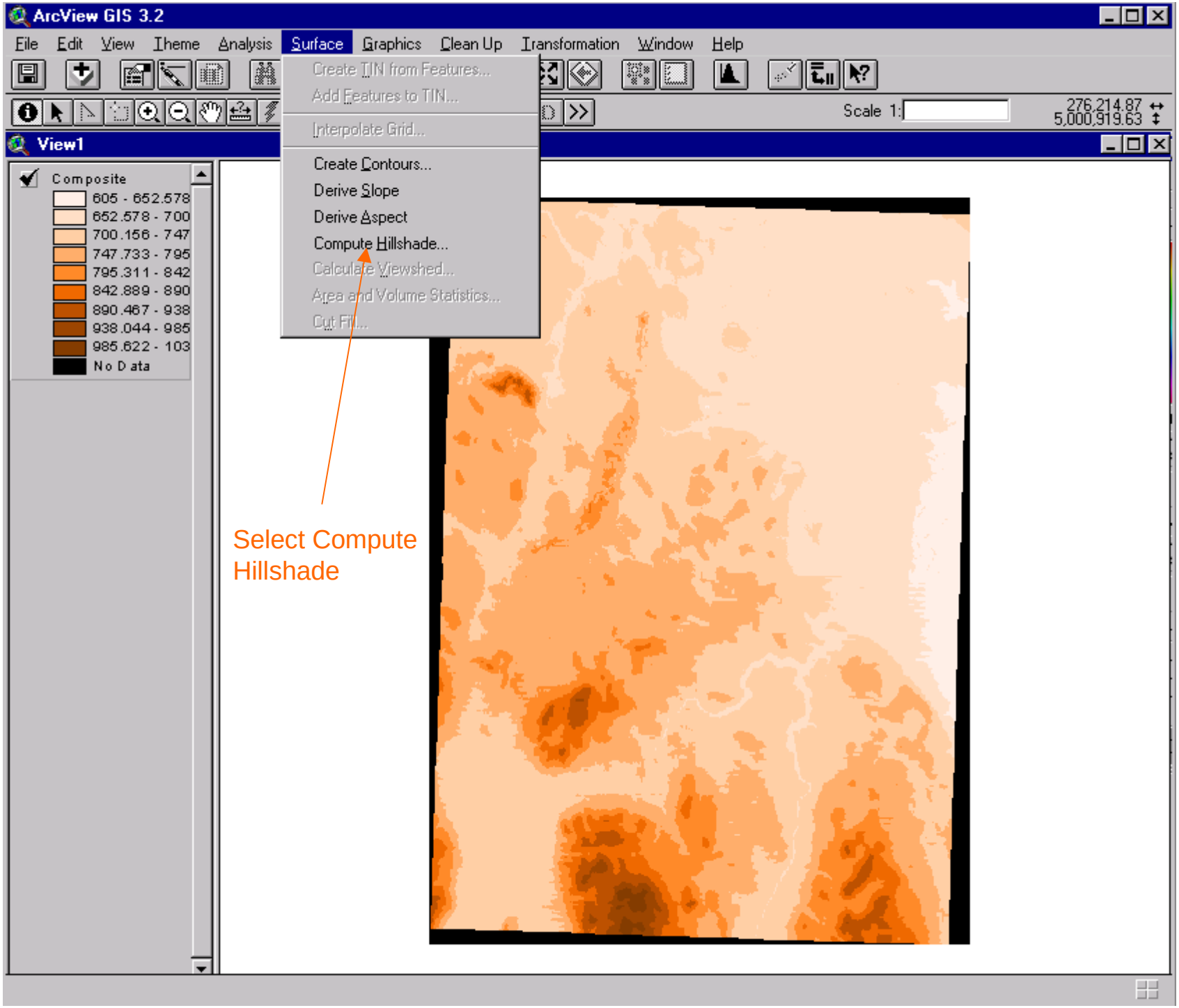

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
276,427.11
4,996,940.30
View1
Composite
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data
Mosaiced Grids of
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data

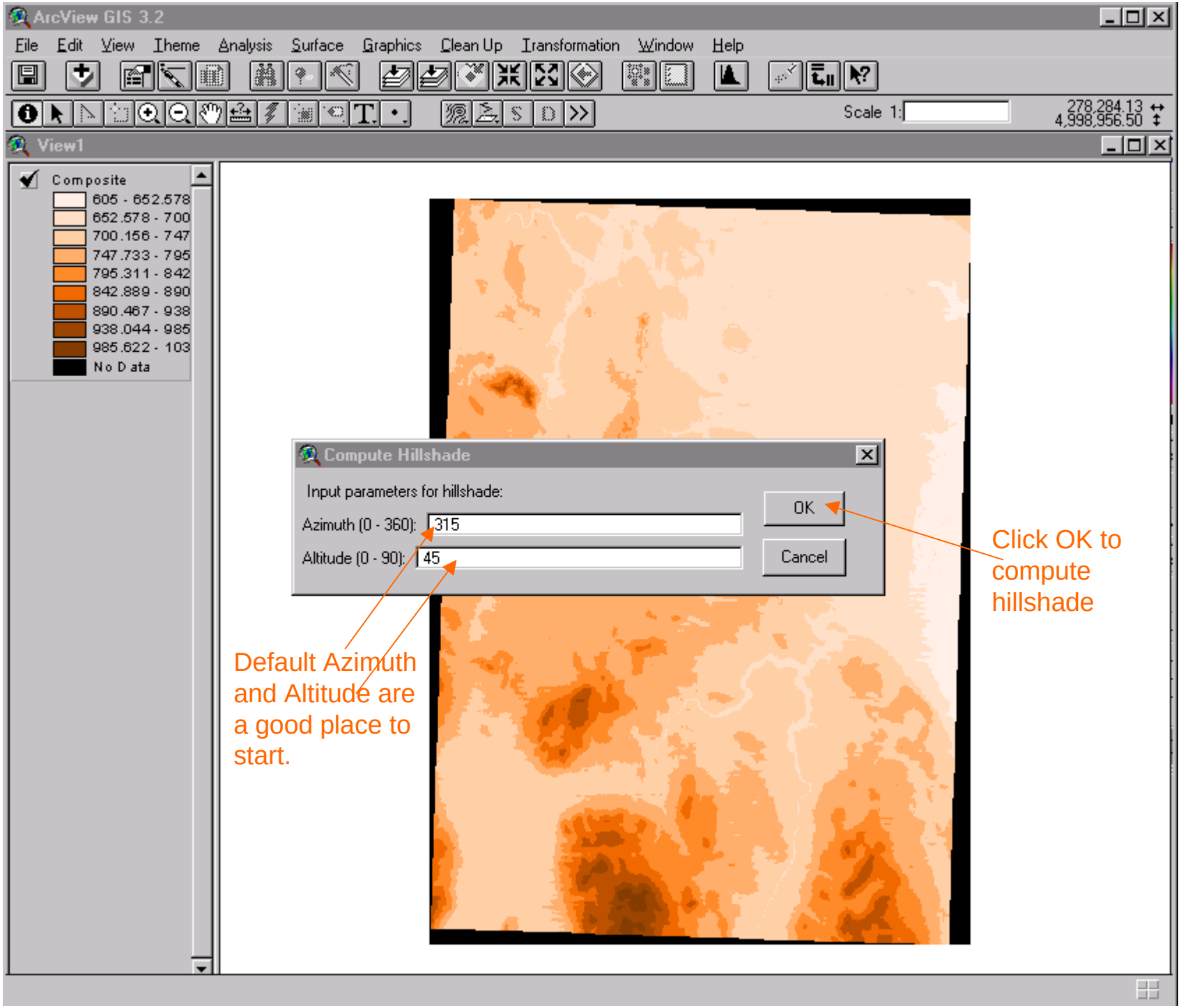

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
279,345.28
4,991,687.59
View1
Composite
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data
Mosaiced Grids of
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data

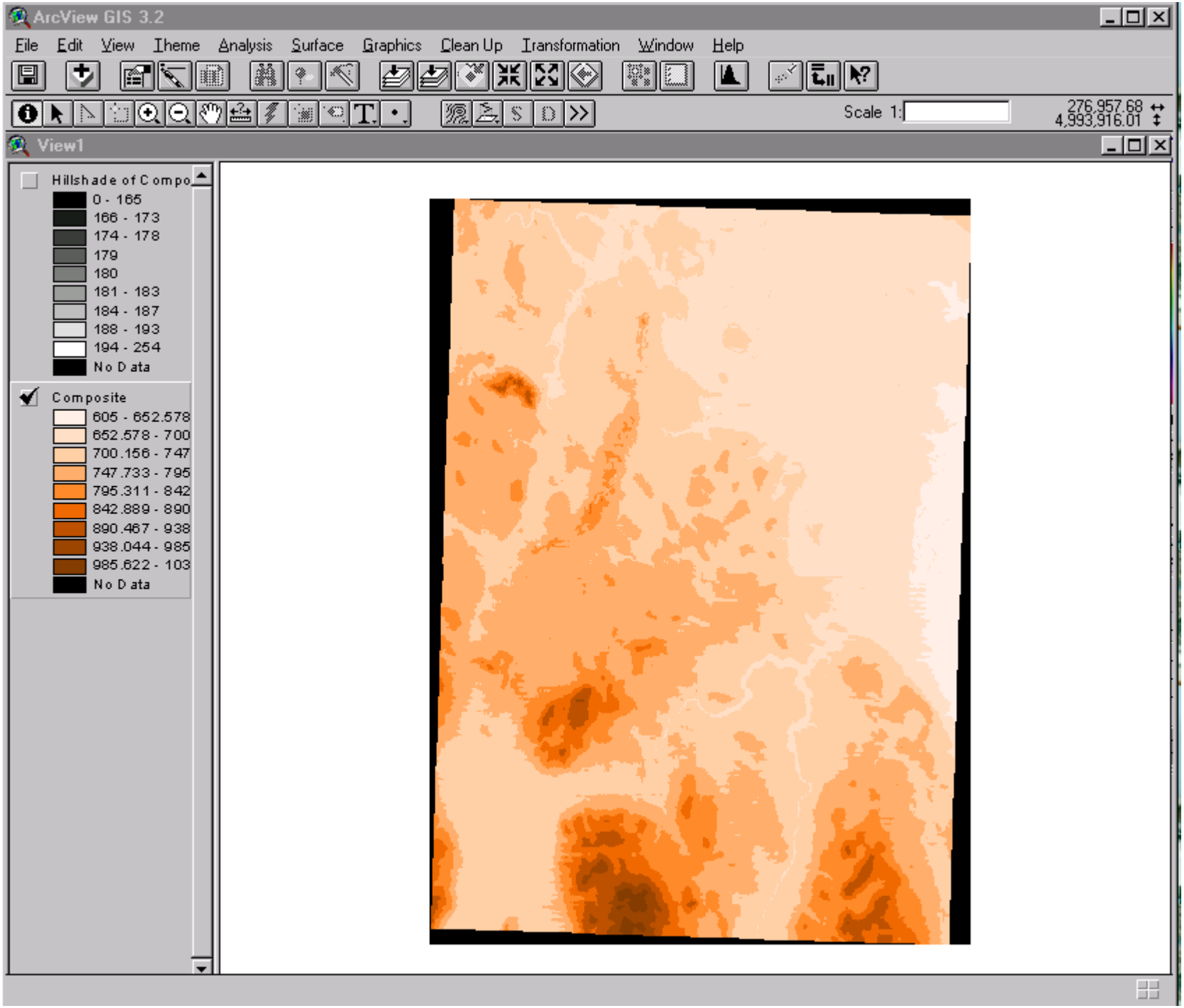

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
279,610.57
4,994,552.71
View1
Composite
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data
After deleting temporary file

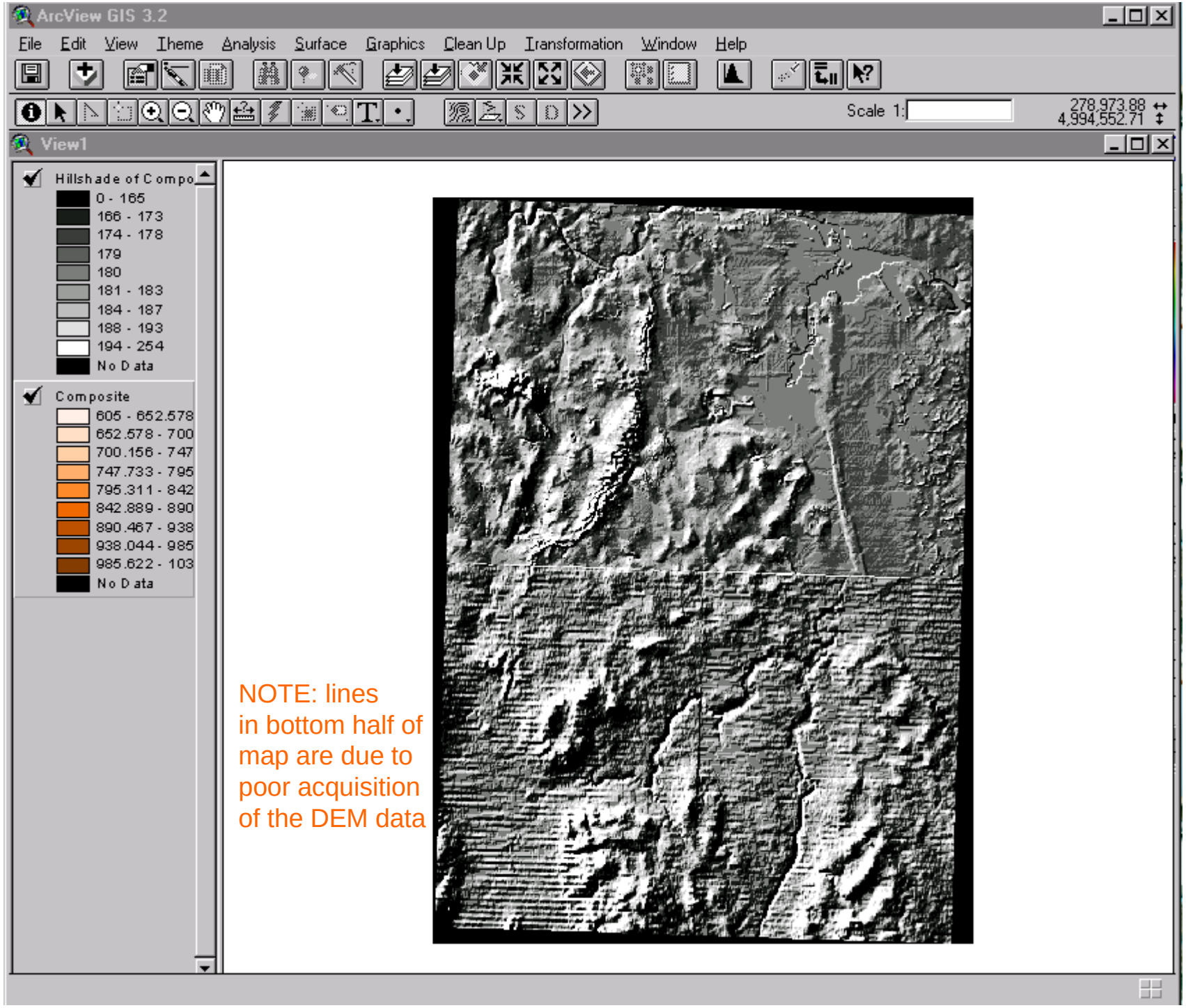
Hillshade Relief Map

- Two components are required for a hillshaded relief map
- One is Azimuth, which is the sun’s compass position relative to the map
- Altitude is the sun’s position relative to the horizon.


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Create TIN from Features...
Add Features to TIN...
Interpolate Grid...
Create Contours...
Derive Slope
Derive Aspect
Compute Hillshade...
Calculate Viewshed...
Area and Volume Statistics...
Cut Fill...
Scale 1:
276,214.87
5,000,919.63
View1
Composite
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data
Select Compute Hillshade


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
278,284.13
4,998,956.50
View1
Composite
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data
Compute Hillshade
Input parameters for hillshade:
Azimuth (0 - 360): 315
Altitude (0 - 90): 45
OK
Cancel
Default Azimuth and Altitude are a good place to start.
Click OK to compute hillshade


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
276,957.68
4,993,916.01
View1
Hillshade of Compo
0 - 165
166 - 173
174 - 178
179
180
181 - 183
184 - 187
188 - 193
194 - 254
No Data
Composite
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data


ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
278,973.88
4,994,552.71
View1
Hillshade of Compo
0 - 165
166 - 173
174 - 178
179
180
181 - 183
184 - 187
188 - 193
194 - 254
No Data
Composite
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data
NOTE: lines in bottom half of map are due to poor acquisition of the DEM data

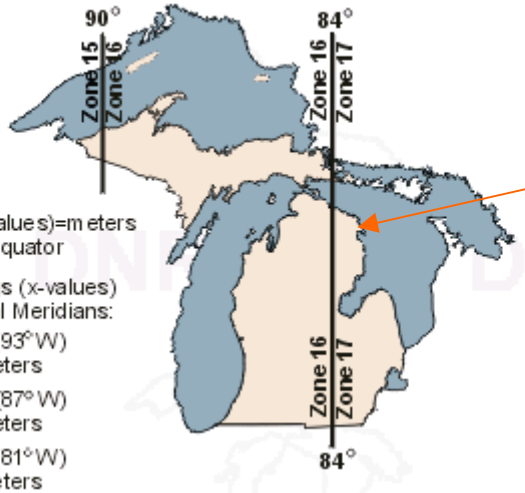
Setting Projection Info

- If not adding overlays in the same relative coordinates, we must tell ArcView what projection the grid file is in, and then the only data it knows how to overlay (without using a conversion utility) is in latitude and longitude coordinates.
- The next slide shows the DEM projection zones in Michigan.
- Our data is in UTM Zone 17

Michigan Department Of Natural Resources: Spatial Data Library - Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Shop Stop
Bookmarks Location: http://www.dnr.state.mi.us/spatialdatalibrary/ What's Related
Dictionary.com Thesaurus.com

Universal Transverse Mercator

UTM Grid



Our data is from here

Northing (y-values)=meters north of the Equator

False Eastings (x-values) on the Central Meridians:

Zone 15 (93°W) 500,000 meters

Zone 16 (87°W) 500,000 meters

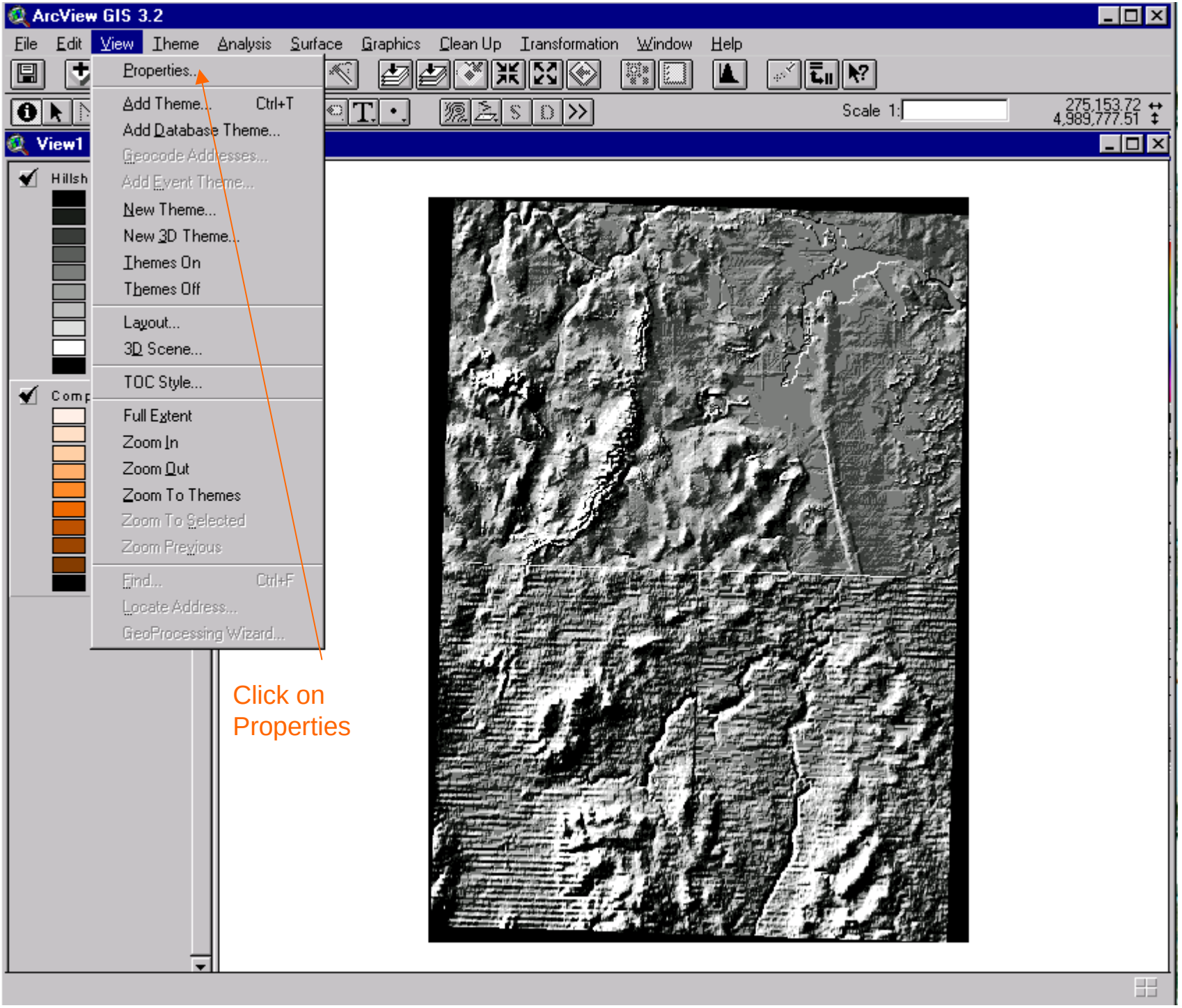
Zone 17 (81°W) 500,000 meters

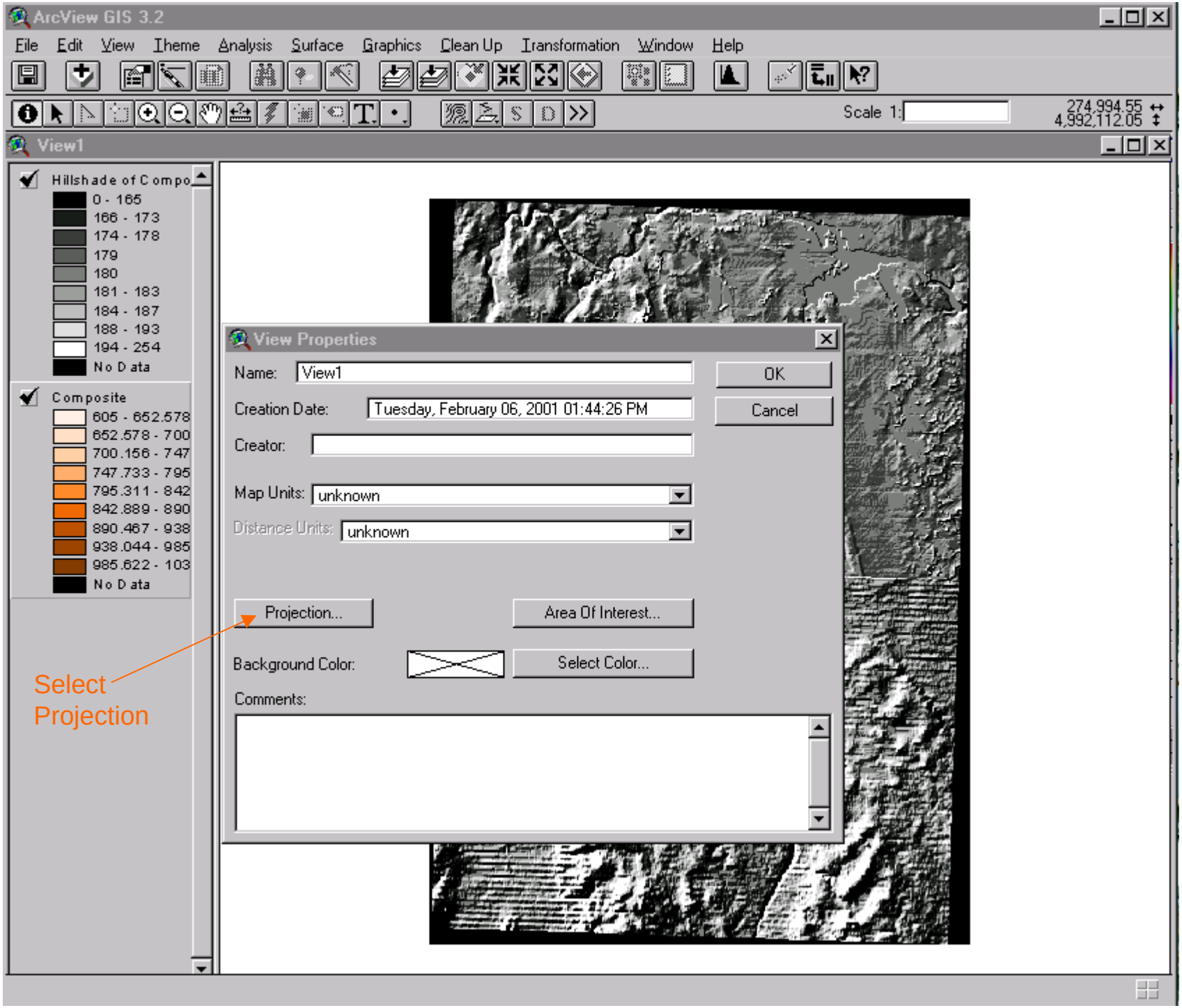
What is a Reference System?

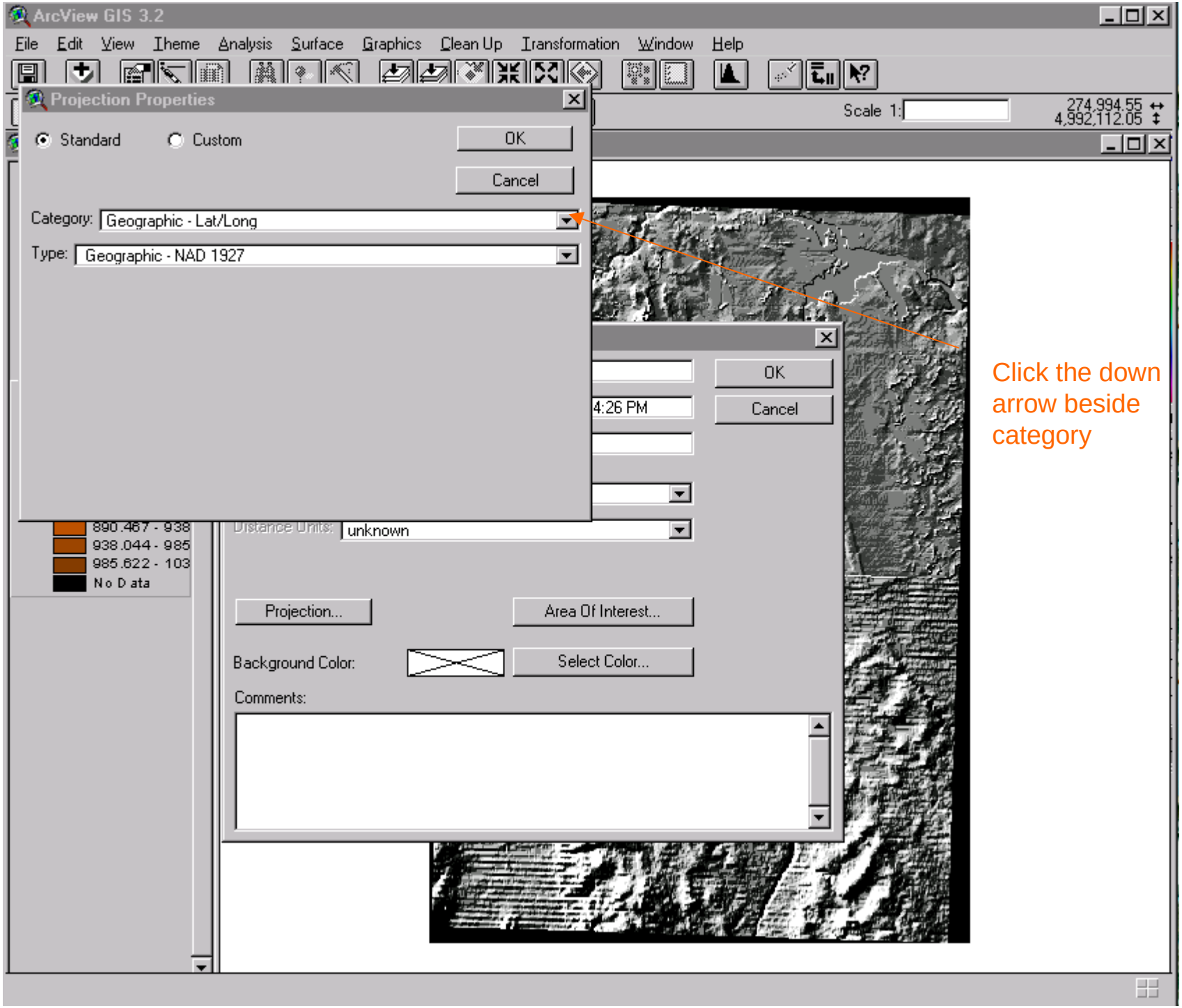
A map projection will transform, or alter, two angles (latitude and longitude) in three dimensions, to x and y Cartesian coordinates in two dimensions. How do we come up with the latitude and longitude for a particular location? We tend to think of latitudes and longitudes as absolutes, but they are not. The angles that we call latitude and longitude are based on measurements that are relative to a specified origin and based on a model that has a precise shape and vertex.

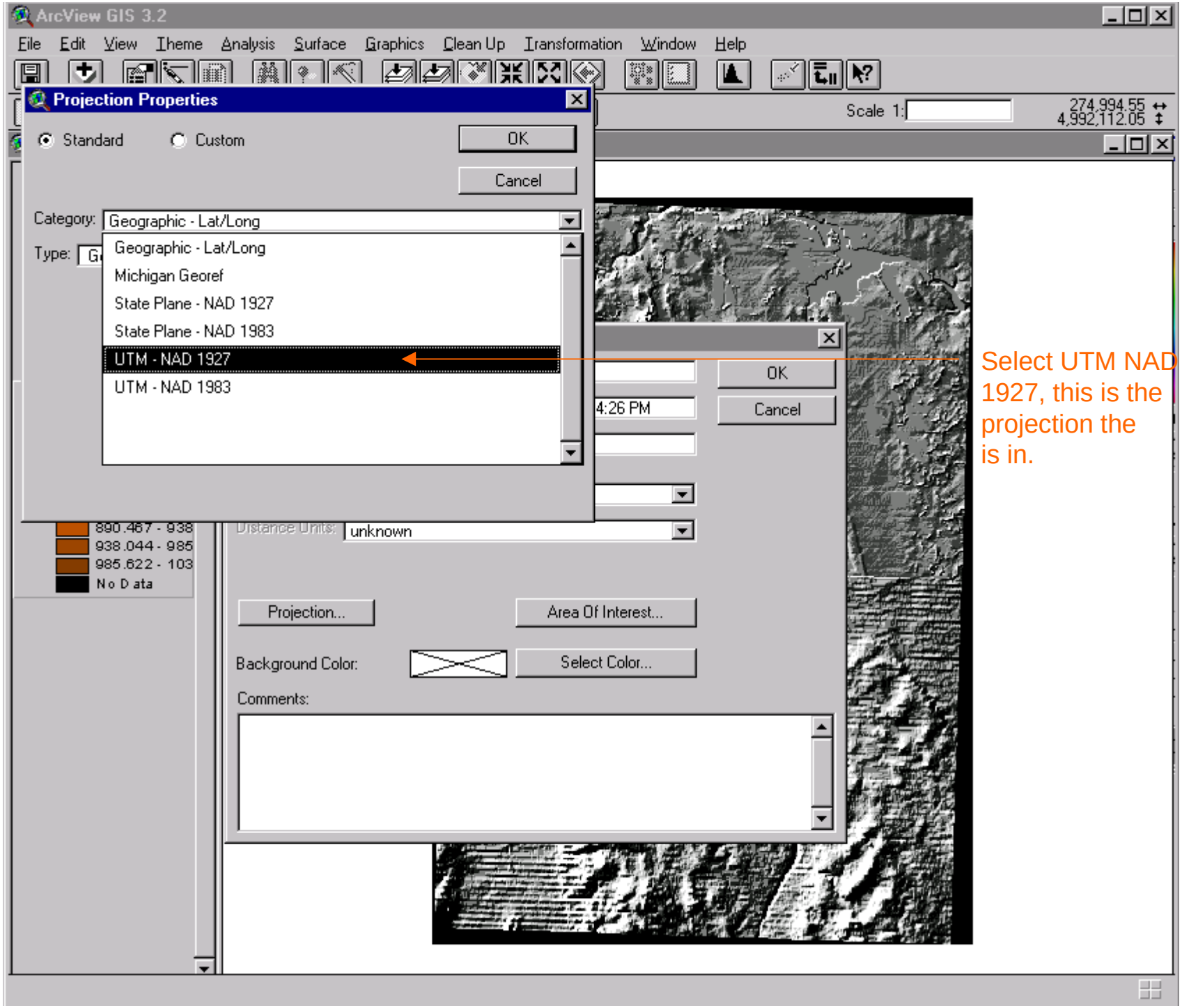
Even in a simple two-dimensional case, trying to describe the location of a point with only an angular distance is useless, unless we know the location of the angle's vertex and the location of measurement

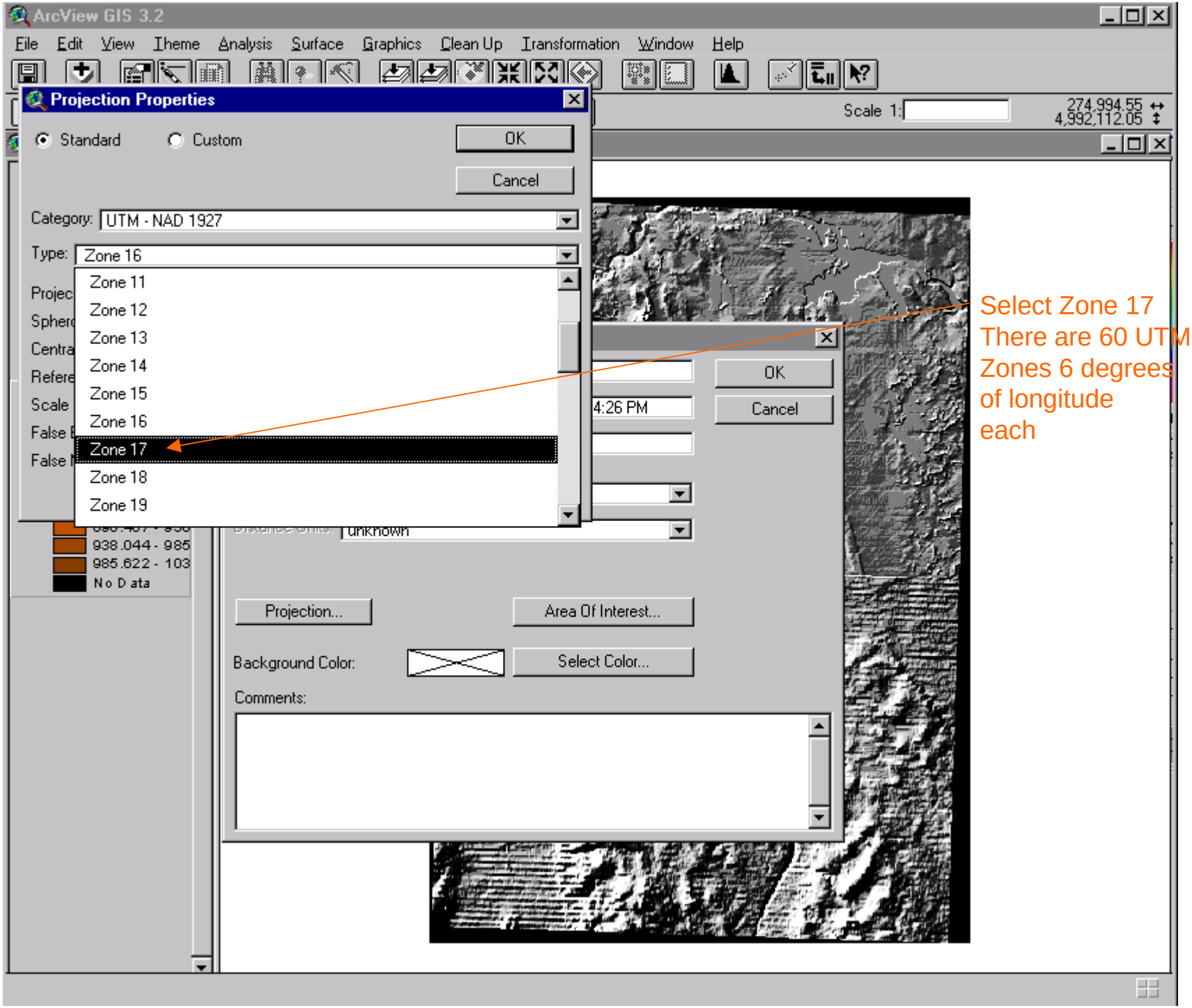
Document: Done

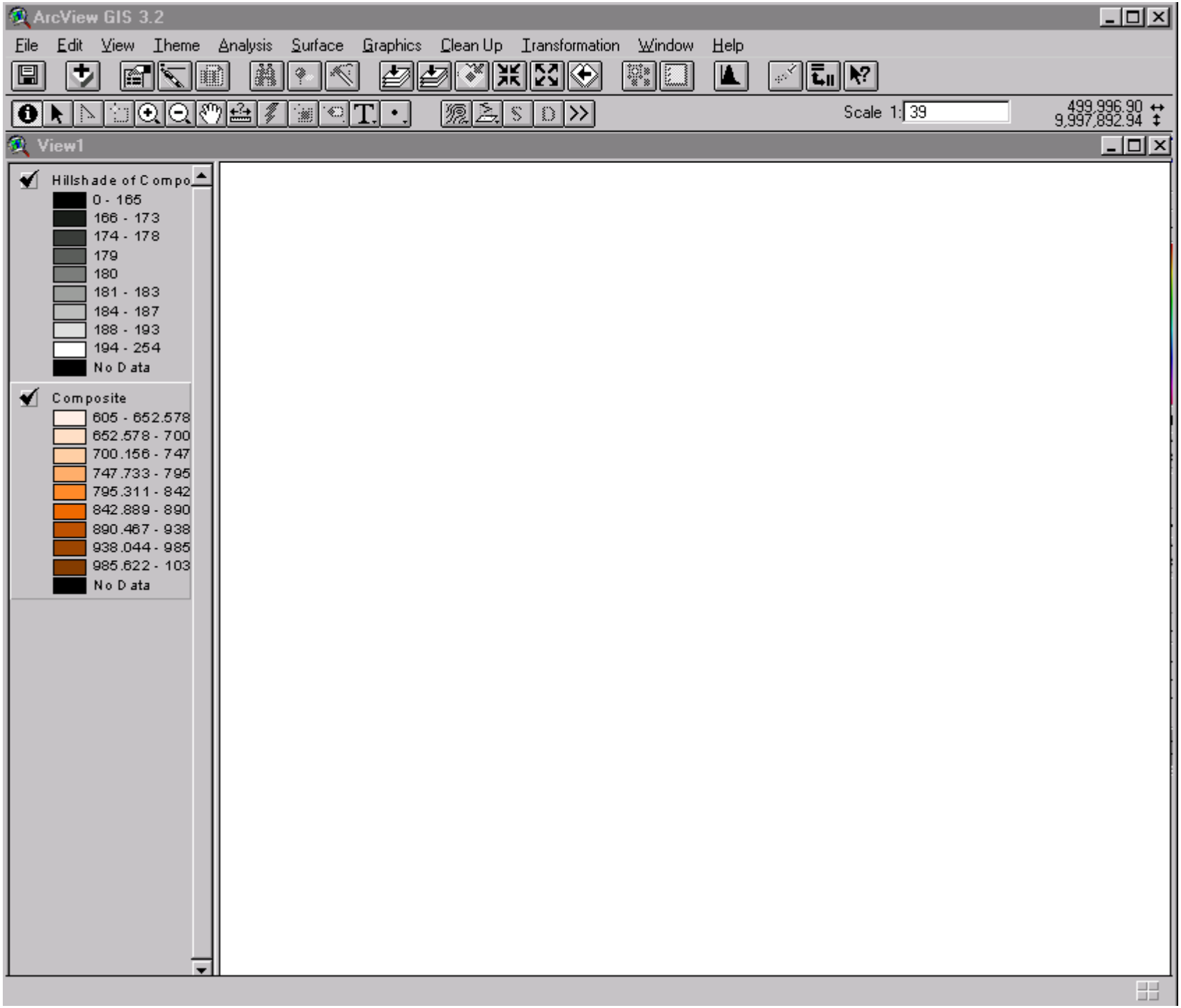

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Properties...
Add Theme... Ctrl+T
Add Database Theme...
Geocode Addresses...
Add Event Theme...
New Theme...
New 3D Theme...
Themes On
Themes Off
Layout...
3D Scene...
TOC Style...
Full Extent
Zoom In
Zoom Out
Zoom To Themes
Zoom To Selected
Zoom Previous
Find... Ctrl+F
Locate Address...
GeoProcessing Wizard...
Scale 1:
275,153.72
4,989,777.51
View1
Hillsh
Comp
Click on
Properties

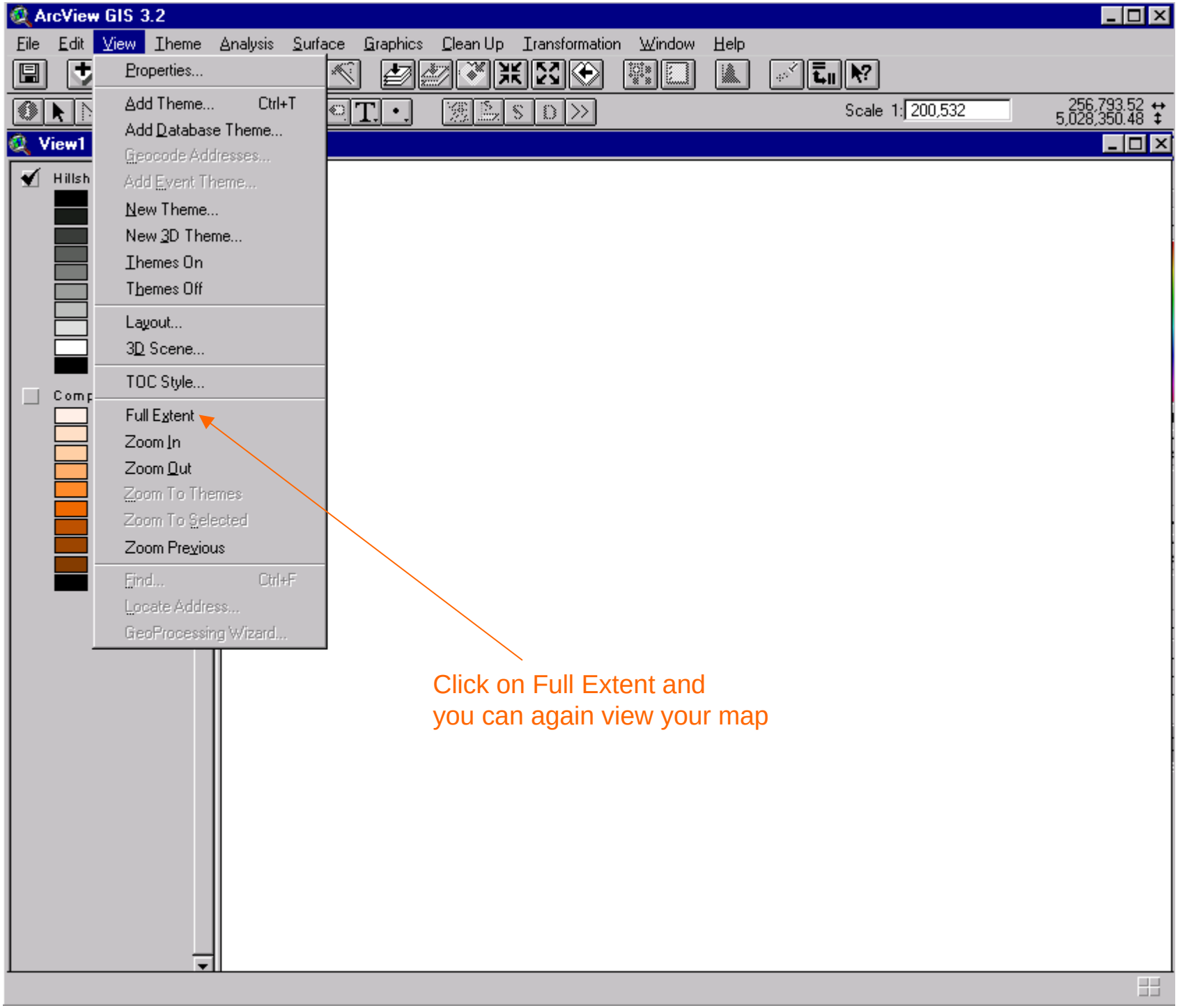

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
274,994.55
4,992,112.05
View1
Hillshade of Compo
0 - 165
166 - 173
174 - 178
179
180
181 - 183
184 - 187
188 - 193
194 - 254
No Data
Composite
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data
View Properties
Name: View1
Creation Date: Tuesday, February 06, 2001 01:44:26 PM
Creator:
Map Units: unknown
Distance Units: unknown
OK
Cancel
Projection...
Area Of Interest...
Background Color:
Select Color...
Comments:
Select Projection

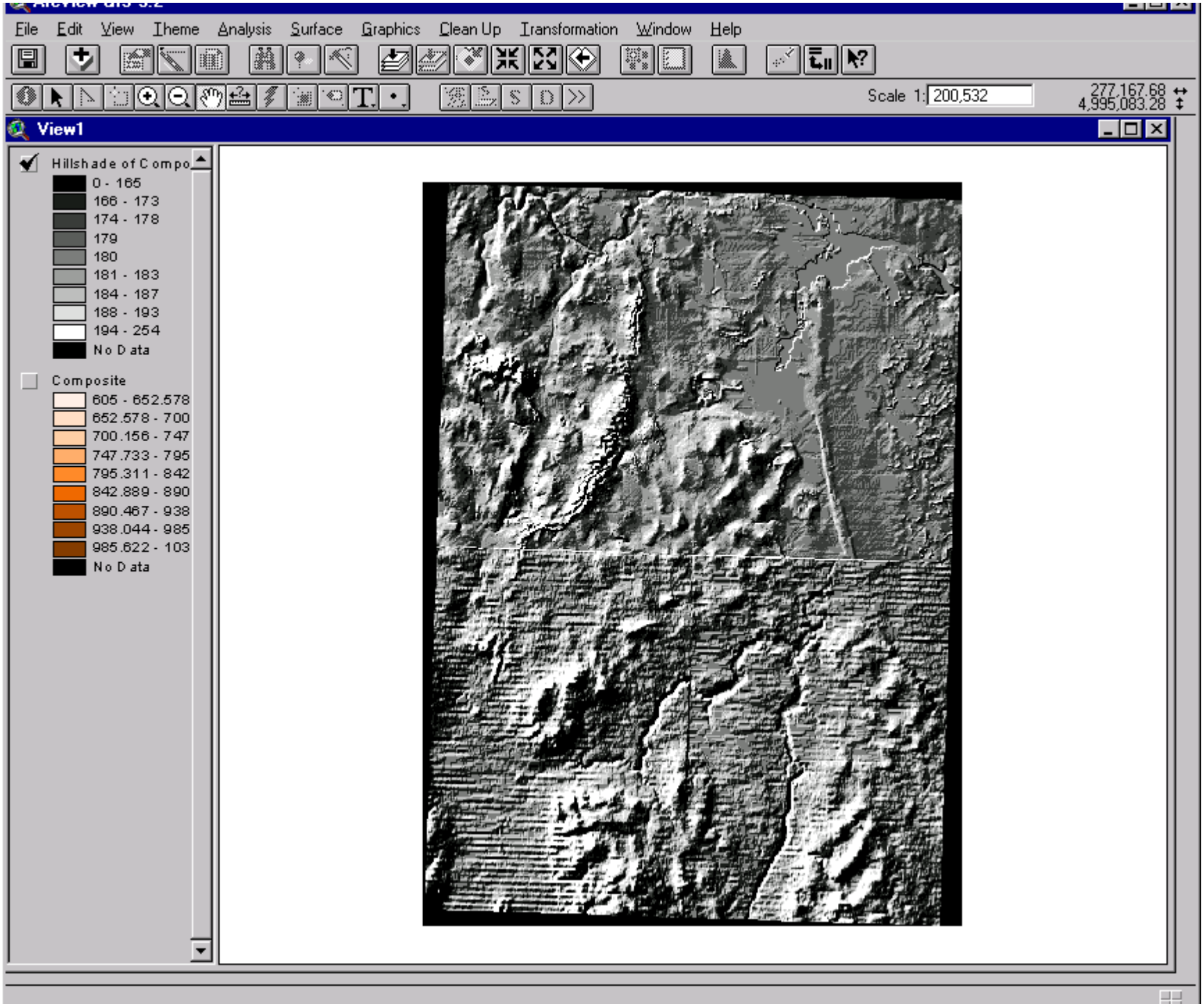

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
274,994.55
4,992,112.05
Projection Properties
Standard
Custom
OK
Cancel
Category: Geographic - Lat/Long
Type: Geographic - NAD 1927
OK
Cancel
4:26 PM
890.467 - 938
938.044 - 985
985.622 - 103
No Data
Distance Units: unknown
Projection...
Area Of Interest...
Background Color:
Select Color...
Comments:
Click the down arrow beside category

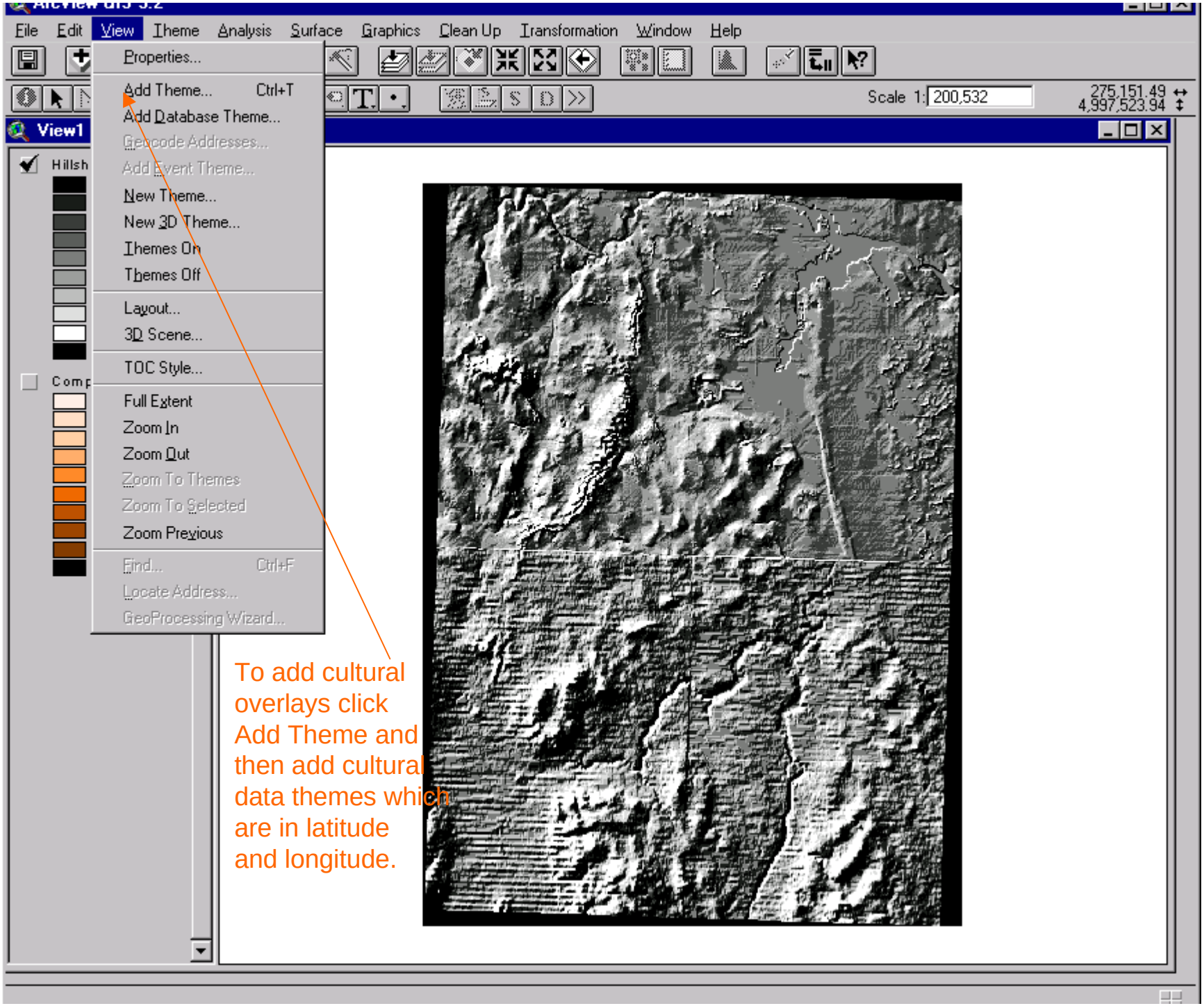

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
274,994.55
4,992,112.05
Projection Properties
Standard
Custom
OK
Cancel
Category: Geographic - Lat/Long
Type:
Geographic - Lat/Long
Michigan Georef
State Plane - NAD 1927
State Plane - NAD 1983
UTM - NAD 1927
UTM - NAD 1983
890.467 - 938
938.044 - 985
985.622 - 103
No Data
OK
Cancel
4:26 PM
Distance Units: unknown
Projection...
Area Of Interest...
Background Color:
Select Color...
Comments:
Select UTM NAD 1927, this is the projection the is in.

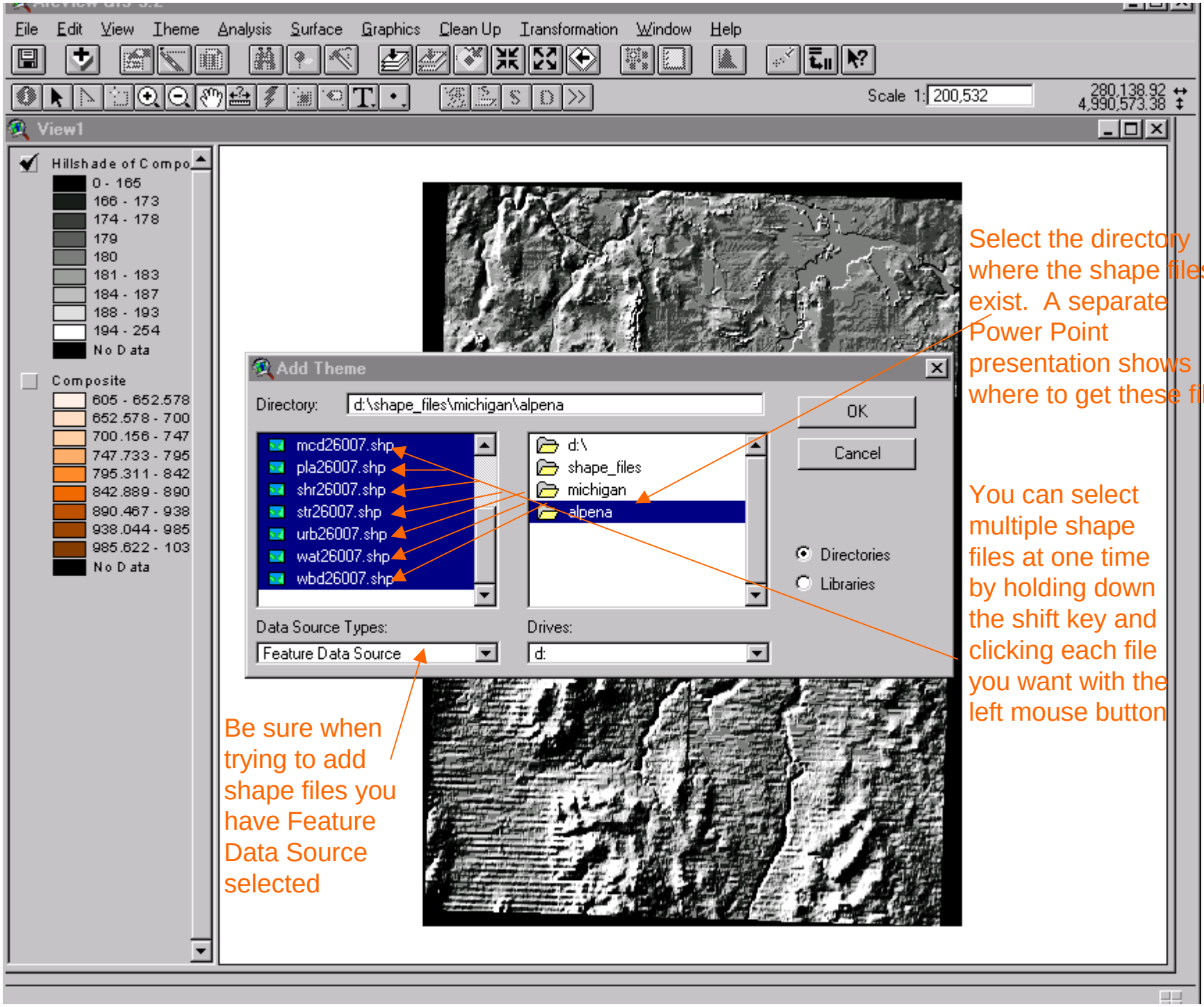

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1:
274,994.55
4,992,112.05
Projection Properties
Standard
Custom
OK
Cancel
Category: UTM - NAD 1927
Type: Zone 16
Zone 11
Zone 12
Zone 13
Zone 14
Zone 15
Zone 16
Zone 17
Zone 18
Zone 19
938.044 - 985
985.622 - 103
No Data
OK
Cancel
4:26 PM
unknown
Projection...
Area Of Interest...
Background Color:
Select Color...
Comments:
Select Zone 17
There are 60 UTM
Zones 6 degrees
of longitude
each

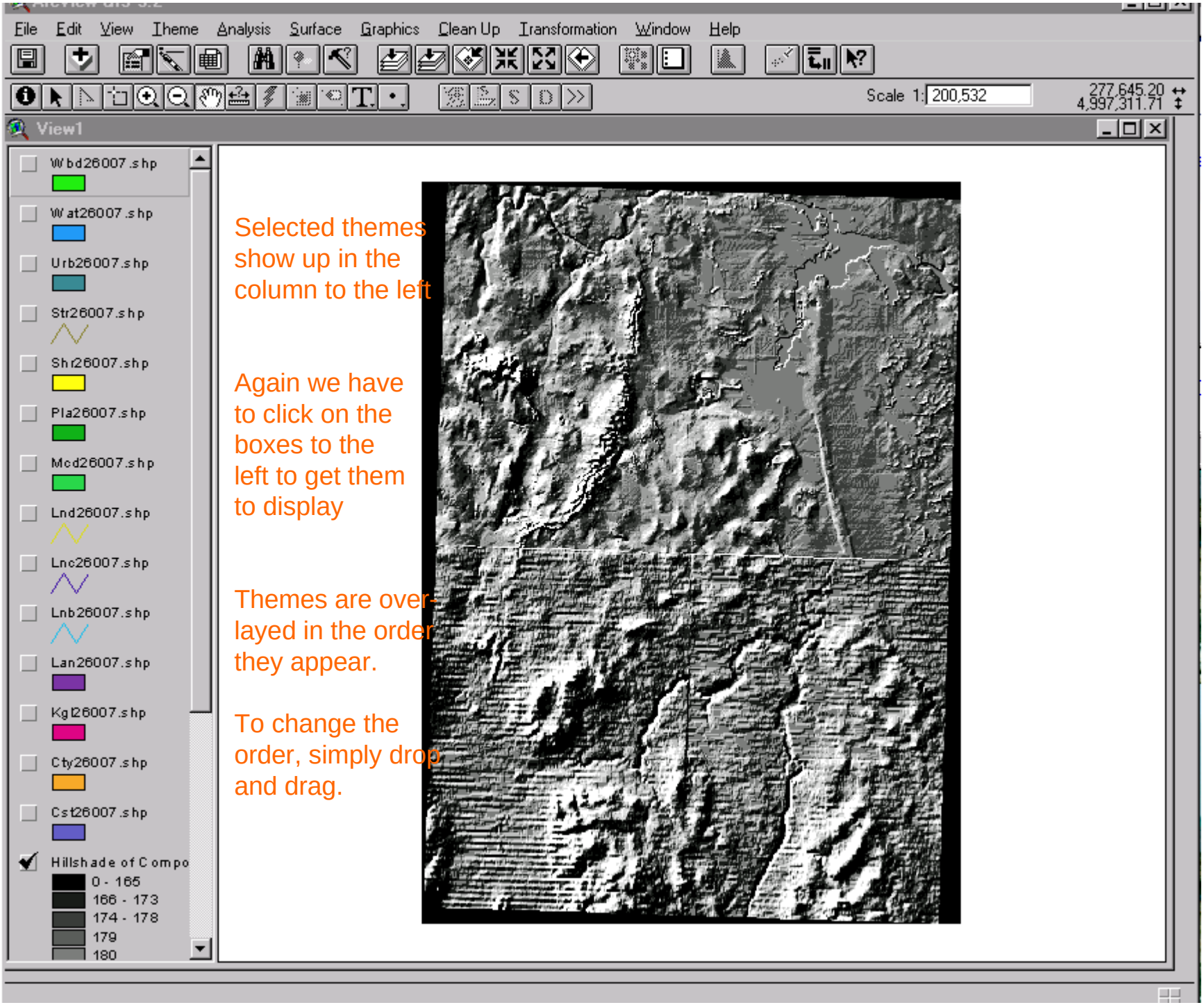

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1: 39
499,996.90
9,997,892.94
View1
Hillshade of Compo
0 - 165
166 - 173
174 - 178
179
180
181 - 183
184 - 187
188 - 193
194 - 254
No Data
Composite
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data

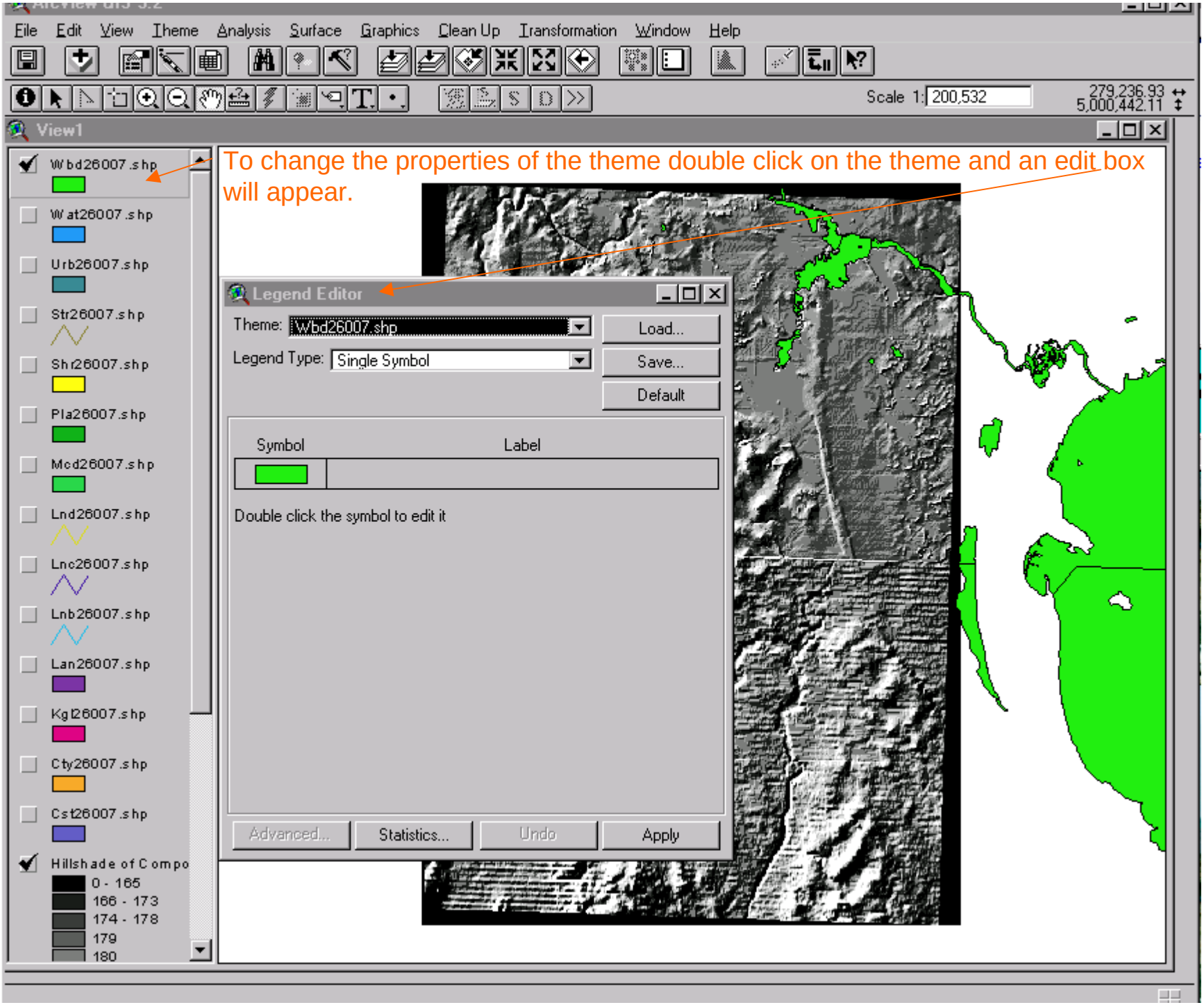

ArcView GIS 3.2
File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Properties...
Add Theme... Ctrl+T
Add Database Theme...
Geocode Addresses...
Add Event Theme...
New Theme...
New 3D Theme...
Themes On
Themes Off
Layout...
3D Scene...
TOC Style...
Full Extent
Zoom In
Zoom Out
Zoom To Themes
Zoom To Selected
Zoom Previous
Find... Ctrl+F
Locate Address...
GeoProcessing Wizard...
Scale 1: 200,532
256,793.52
5,028,350.48
View1
Hillsh
Comp
Click on Full Extent and
you can again view your map

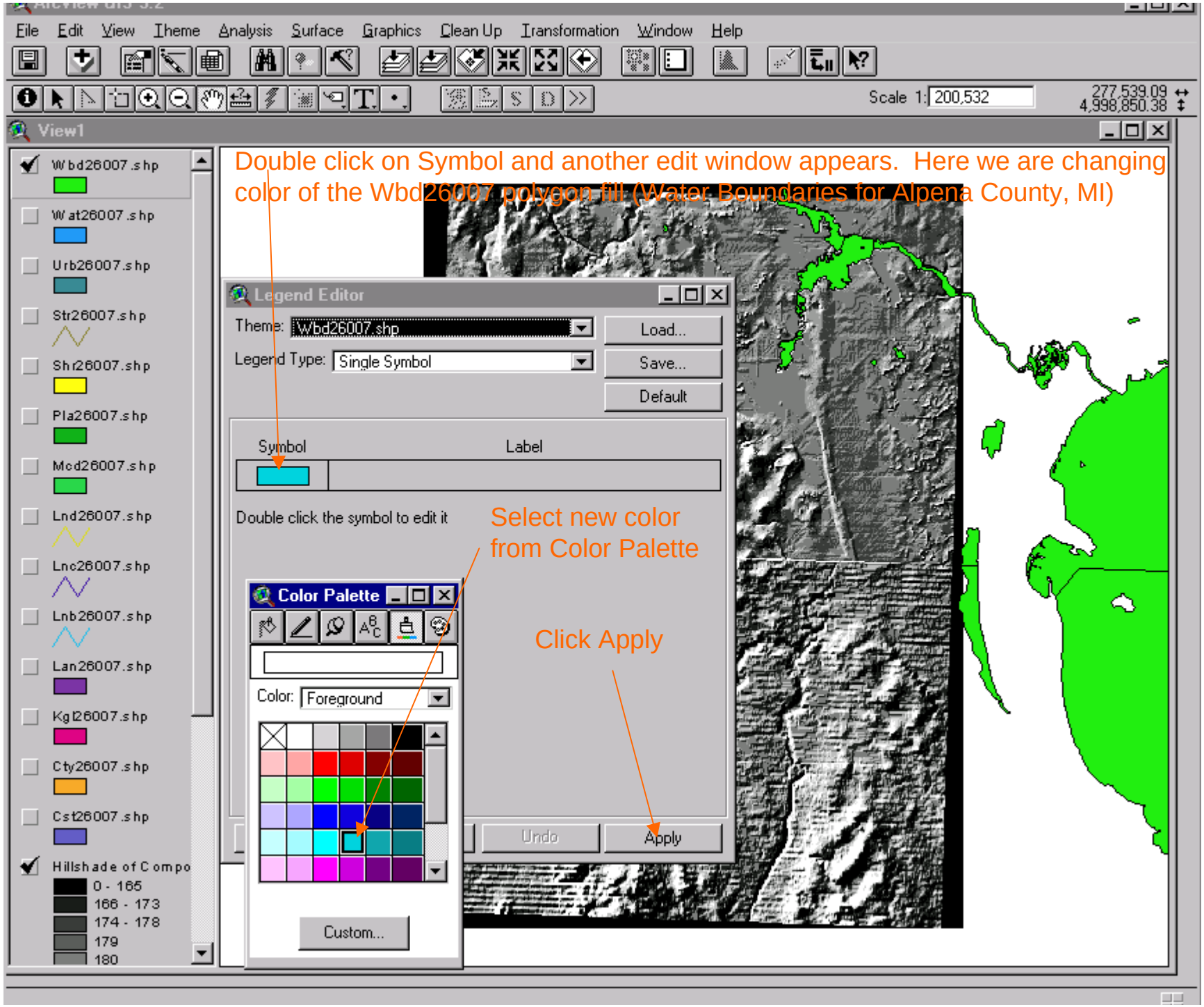

File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1: 200,532
277,167.68
4,995,083.28
View1
Hillshade of Compo
0 - 165
166 - 173
174 - 178
179
180
181 - 183
184 - 187
188 - 193
194 - 254
No Data
Composite
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data

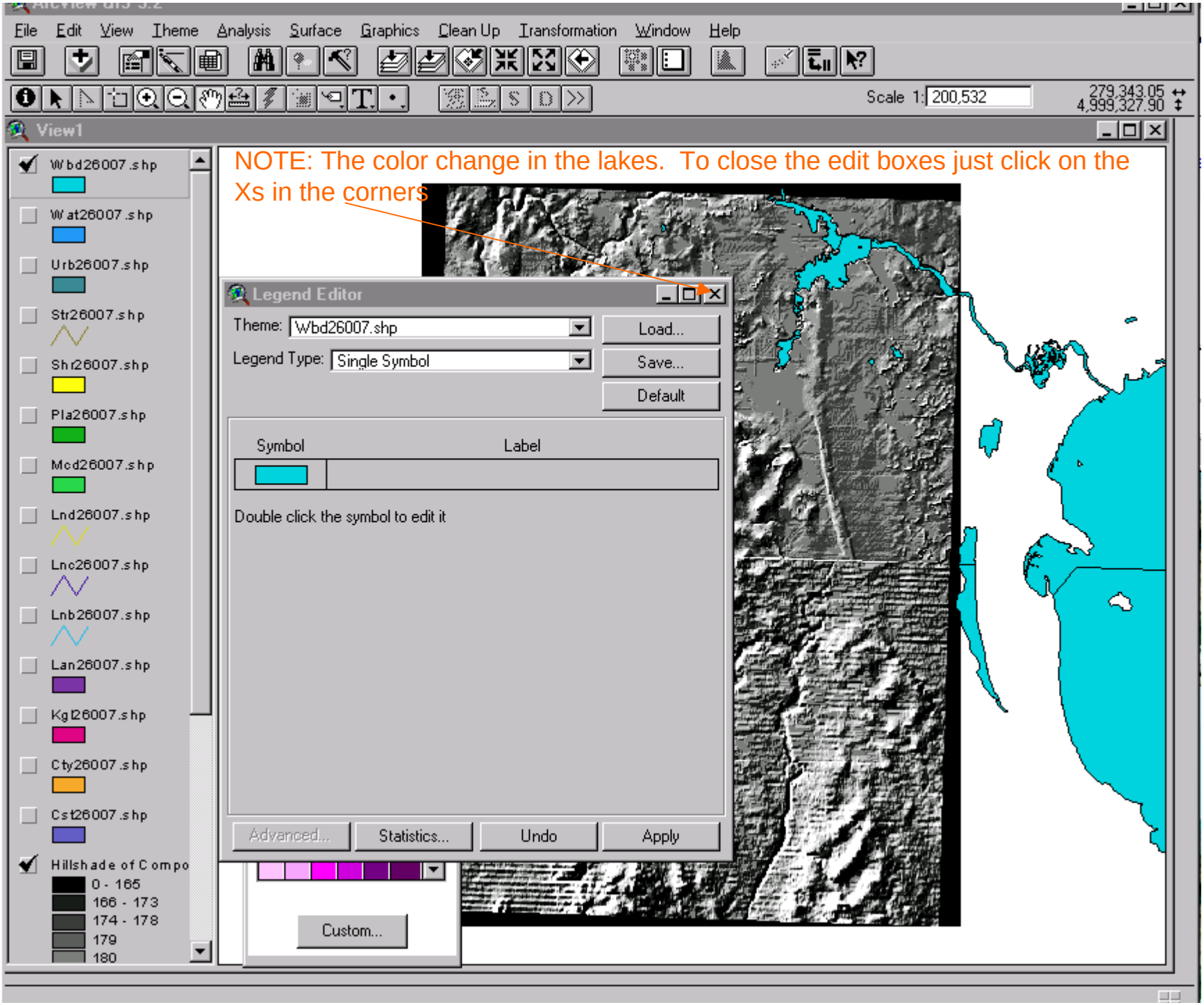

File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Properties...
Add Theme... Ctrl+T
Add Database Theme...
Geocode Addresses...
Add Event Theme...
New Theme...
New 3D Theme...
Themes On
Themes Off
Layout...
3D Scene...
TOC Style...
Full Extent
Zoom In
Zoom Out
Zoom To Themes
Zoom To Selected
Zoom Previous
Find... Ctrl+F
Locate Address...
GeoProcessing Wizard...
Scale 1: 200,532
275,151.49
4,997,523.94
View1
Hillsh
Comp
To add cultural overlays click Add Theme and then add cultural data themes which are in latitude and longitude.

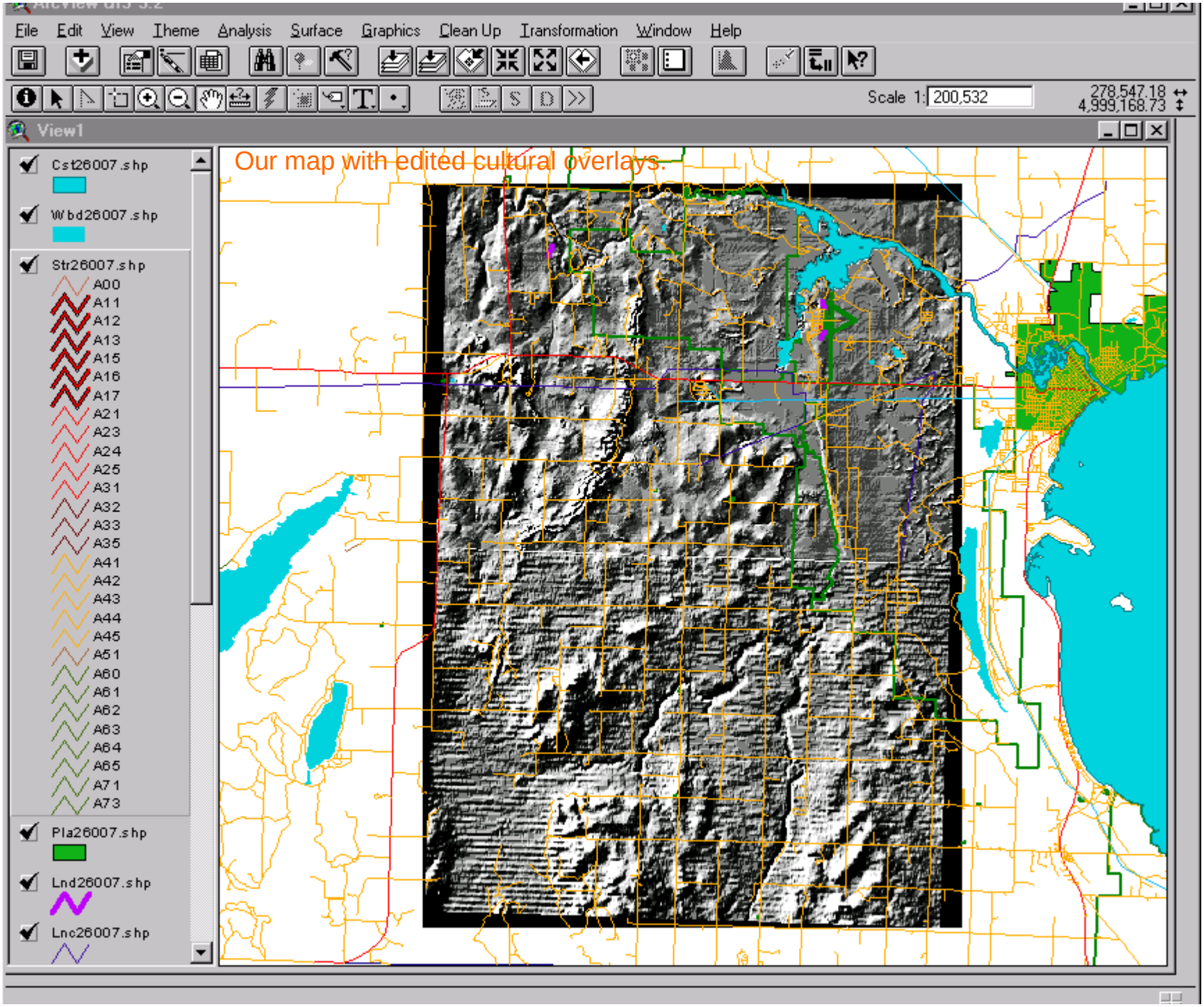

File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1: 200,532
280,138.92
4,990,573.38
View1
Hillshade of Compo
0 - 165
166 - 173
174 - 178
179
180
181 - 183
184 - 187
188 - 193
194 - 254
No Data
Composite
605 - 652.578
652.578 - 700
700.156 - 747
747.733 - 795
795.311 - 842
842.889 - 890
890.467 - 938
938.044 - 985
985.622 - 103
No Data
Add Theme
Directory: d:\shape_files\michigan\alpena
OK
Cancel
mcd26007.shp
pla26007.shp
shr26007.shp
str26007.shp
urb26007.shp
wat26007.shp
wbd26007.shp
d:\
shape_files
michigan
alpena
Directories
Libraries
Data Source Types:
Feature Data Source
Drives:
d:
Select the directory where the shape files exist. A separate Power Point presentation shows where to get these files
You can select multiple shape files at one time by holding down the shift key and clicking each file you want with the left mouse button
Be sure when trying to add shape files you have Feature Data Source selected

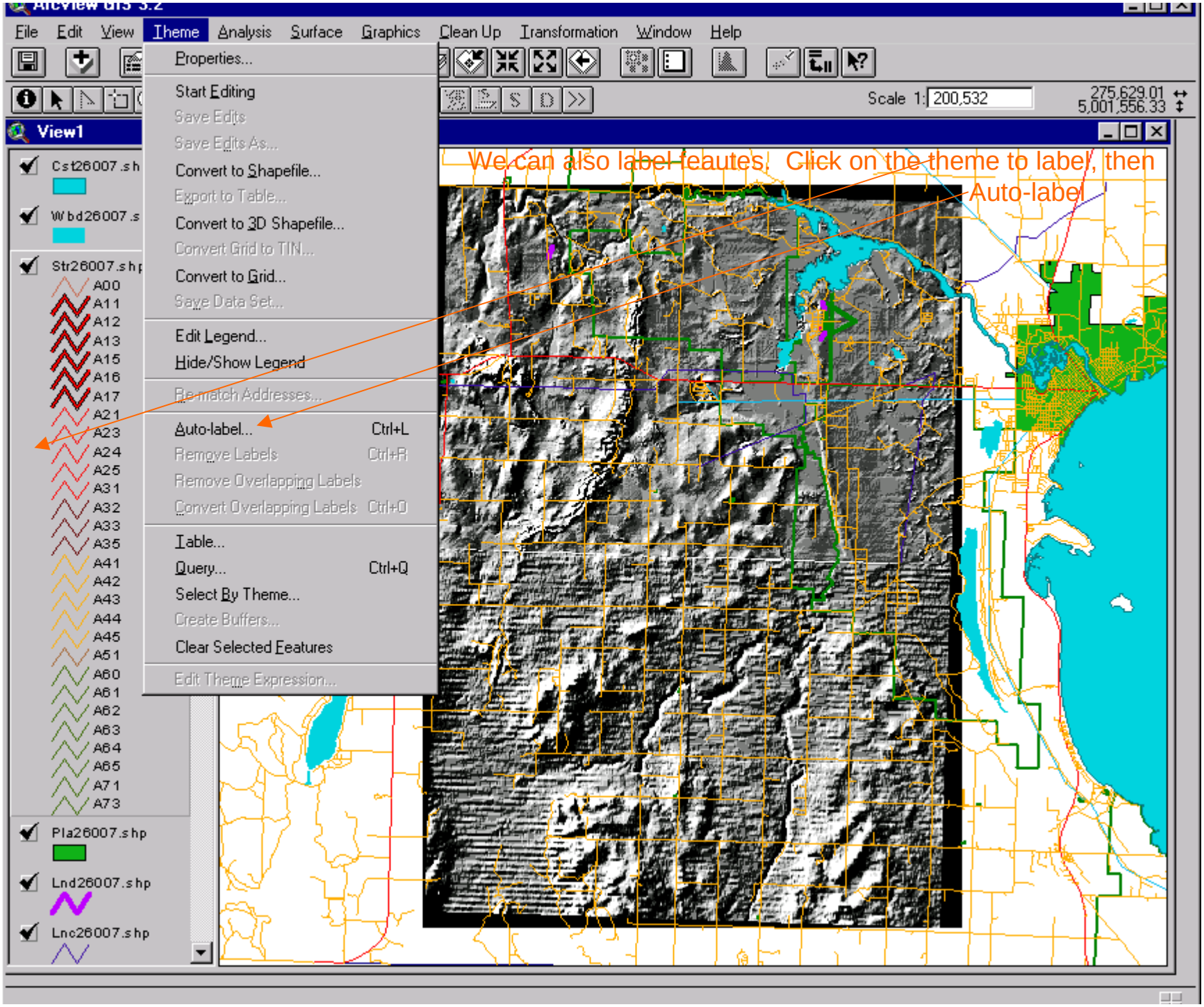

File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1: 200,532
277,645.20
4,997,311.71
View1
Wbd26007.shp
Wat26007.shp
Urb26007.shp
Str26007.shp
Shr26007.shp
Pla26007.shp
Mcd26007.shp
Lnd26007.shp
Lnc26007.shp
Lnb26007.shp
Lan26007.shp
Kgt26007.shp
Cty26007.shp
Cst26007.shp
Hillshade of Compo
0 - 165
166 - 173
174 - 178
179
180
Selected themes show up in the column to the left
Again we have to click on the boxes to the left to get them to display
Themes are over-layed in the order they appear.
To change the order, simply drop and drag.

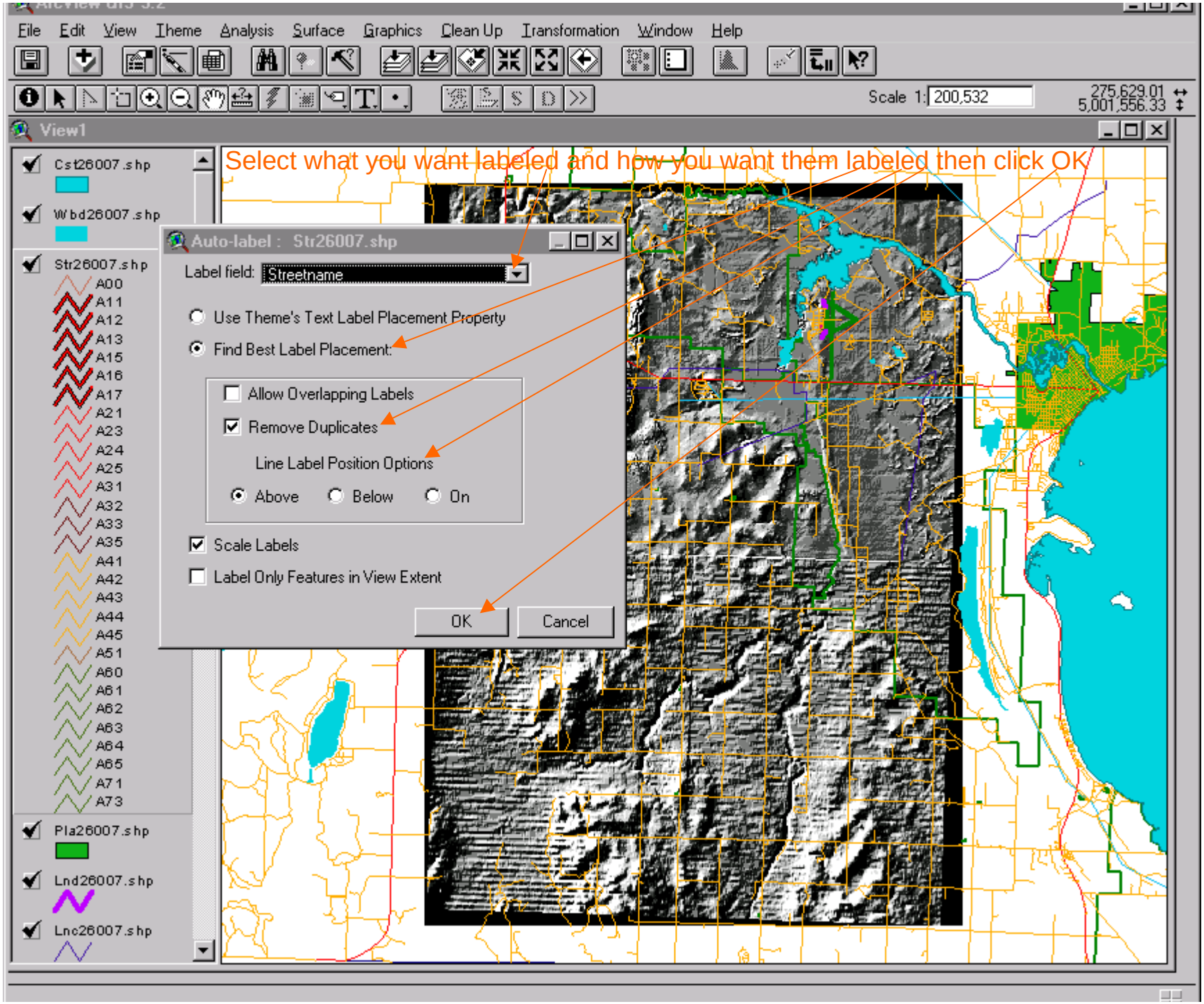

File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1: 200,532
279,236.93
5,000,442.11
View1
To change the properties of the theme double click on the theme and an edit box will appear.
Wbd26007.shp
Wat26007.shp
Urb26007.shp
Str26007.shp
Shr26007.shp
Pla26007.shp
Mcd26007.shp
Lnd26007.shp
Lnc26007.shp
Lnb26007.shp
Lan26007.shp
Kgl26007.shp
Cty26007.shp
Cst26007.shp
Hillshade of Compo
0 - 165
166 - 173
174 - 178
179
180
Legend Editor
Theme: Wbd26007.shp
Legend Type: Single Symbol
Load...
Save...
Default
Symbol
Label
Double click the symbol to edit it
Advanced...
Statistics...
Undo
Apply

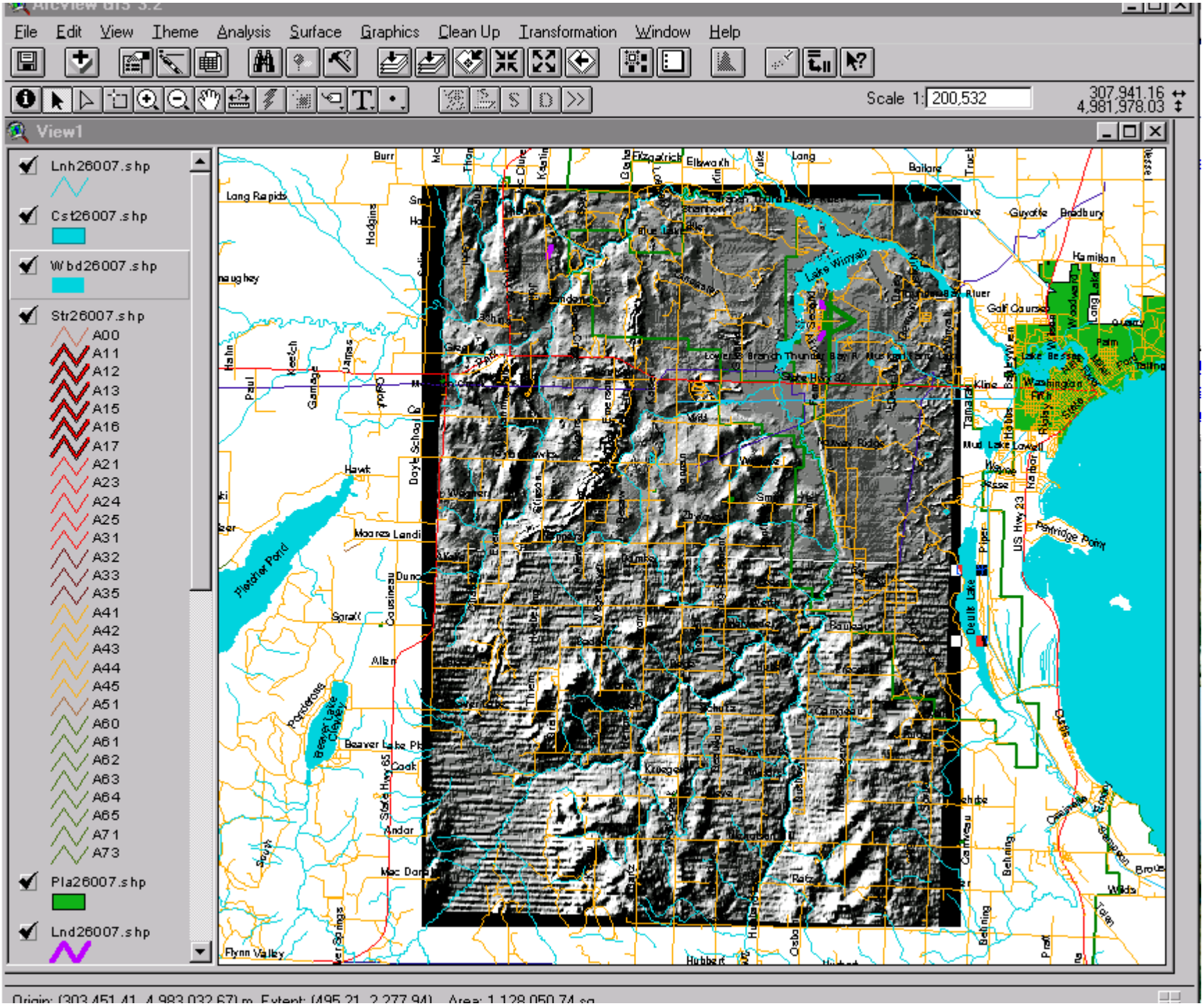

File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1: 200,532
277,539.09
4,998,850.38
View1
Wbd26007.shp
Wat26007.shp
Urb26007.shp
Str26007.shp
Shr26007.shp
Pla26007.shp
Mcd26007.shp
Lnd26007.shp
Lnc26007.shp
Lnb26007.shp
Lan26007.shp
Kgl26007.shp
Cty26007.shp
Cst26007.shp
Hillshade of Compo
0 - 165
166 - 173
174 - 178
179
180
Double click on Symbol and another edit window appears. Here we are changing color of the Wbd26007 polygon fill (Water Boundaries for Alpena County, MI)
Legend Editor
Theme: Wbd26007.shp
Legend Type: Single Symbol
Load...
Save...
Default
Symbol
Label
Double click the symbol to edit it
Select new color from Color Palette
Color Palette
Color: Foreground
Custom...
Click Apply
Undo
Apply


File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1: 200,532
279,343.05
4,999,327.90
View1
NOTE: The color change in the lakes. To close the edit boxes just click on the Xs in the corners
Wbd26007.shp
Wat26007.shp
Urb26007.shp
Str26007.shp
Shr26007.shp
Pla26007.shp
Mcd26007.shp
Lnd26007.shp
Lnc26007.shp
Lnb26007.shp
Lan26007.shp
Kgl26007.shp
Cty26007.shp
Cst26007.shp
Hillshade of Compo
0 - 165
166 - 173
174 - 178
179
180
Legend Editor
Theme: Wbd26007.shp
Legend Type: Single Symbol
Load...
Save...
Default
Symbol
Label
Double click the symbol to edit it
Advanced...
Statistics...
Undo
Apply
Custom...


File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1: 200,532
278,547.18
4,999,168.73
View1
Our map with edited cultural overlays.
Cst26007.shp
Wbd26007.shp
Str26007.shp
A00
A11
A12
A13
A15
A16
A17
A21
A23
A24
A25
A31
A32
A33
A35
A41
A42
A43
A44
A45
A51
A60
A61
A62
A63
A64
A65
A71
A73
Pla26007.shp
Lnd26007.shp
Lnc26007.shp


File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Properties...
Start Editing
Save Edits
Save Edits As...
Convert to Shapefile...
Export to Table...
Convert to 3D Shapefile...
Convert Grid to TIN...
Convert to Grid...
Save Data Set...
Edit Legend...
Hide/Show Legend
Re-match Addresses...
Auto-label... Ctrl+L
Remove Labels Ctrl+R
Remove Overlapping Labels
Convert Overlapping Labels Ctrl+O
Table...
Query... Ctrl+Q
Select By Theme...
Create Buffers...
Clear Selected Features
Edit Theme Expression...
Scale 1: 200,532
275,629.01
5,001,556.33
View1
Cst26007.sh
Wbd26007.s
Str26007.shp
A00
A11
A12
A13
A15
A16
A17
A21
A23
A24
A25
A31
A32
A33
A35
A41
A42
A43
A44
A45
A51
A60
A61
A62
A63
A64
A65
A71
A73
Pla26007.shp
Lnd26007.shp
Lnc26007.shp
We can also label feautes. Click on the theme to label, then Auto-label


File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1: 200,532
275,629.01
5,001,556.33
View1
Select what you want labeled and how you want them labeled then click OK
Cst26007.shp
Wbd26007.shp
Str26007.shp
A00
A11
A12
A13
A15
A16
A17
A21
A23
A24
A25
A31
A32
A33
A35
A41
A42
A43
A44
A45
A51
A60
A61
A62
A63
A64
A65
A71
A73
Pla26007.shp
Lnd26007.shp
Lnc26007.shp
Auto-label : Str26007.shp
Label field: Streetname
Use Theme's Text Label Placement Property
Find Best Label Placement:
Allow Overlapping Labels
Remove Duplicates
Line Label Position Options
Above
Below
On
Scale Labels
Label Only Features in View Extent
OK
Cancel


File Edit View Theme Analysis Surface Graphics Clean Up Transformation Window Help
Scale 1: 200,532
307,941.16
4,981,978.03
View1
Lnh26007.shp
Cst26007.shp
Wbd26007.shp
Str26007.shp
A00
A11
A12
A13
A15
A16
A17
A21
A23
A24
A25
A31
A32
A33
A35
A41
A42
A43
A44
A45
A51
A60
A61
A62
A63
A64
A65
A71
A73
Pla26007.shp
Lnd26007.shp
Lake Winnah
Pletcher Pond
Beaver Lake Clewley
Deulk Lake
Partridge Point
Hamilton
Golf Course
Lake Bessey
Washington Firth
Mud Lake
Lowell
Long Rapids
Hawk
Moores Landi
Allen
Andor
Flynn Valley
Hubbert
Bethning
Brous
Wilds
Origin: (303,451.41, 4,983,032.67) m Extent: (495.21, 2,277.94) Area: 1,128,050.74 sq

Font too big or too small

- If the fonts are not what you want you can change them.
- Go to Theme: Remove Labels
- Go to Window: Show Symbol Window
- This will pop up the edit window where you can select the font palette.
- Change your font and do Theme: Auto-label until the desired results