

1-Query

2-Overlay

3- Conversions

4- Buffer

5- DEM-Slope-Aspect

“@” represent each step

“Rc” means Right click

1-Query

Data Source: 425_lab_GIS_MapInfo>1-Query>shp_data

Data Exploration

@Open vector layers (format :shape) ; MajorCities, Population, StateCapitals

@By pressing F2 data stored in the layer could be observed.

Observe MajorCities layer on map screen.

@ Save project as “Query_Mapinfo.wor”

@ Open table of layer “Population”>Select row 2 ; Washington

Realize that “Washington” is also selected on the map.

Use Select button on the tool bar. 

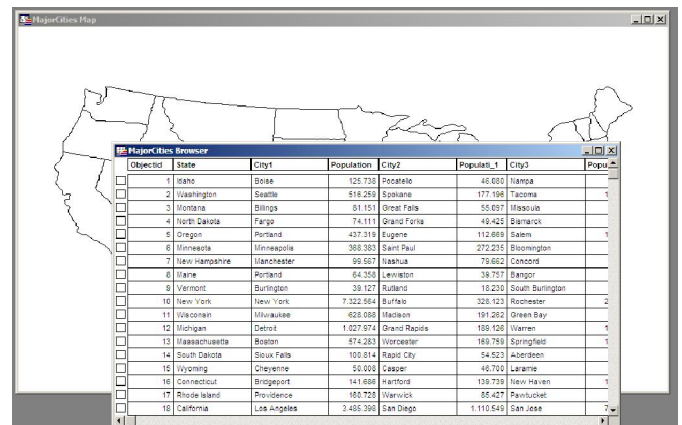
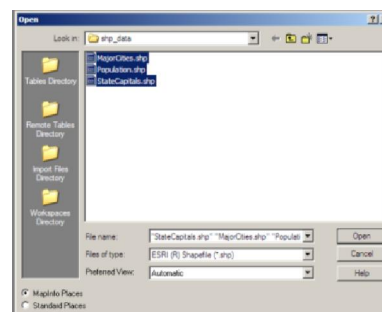
Use remove selection button to deselect 

By double clicking a region on map you can obtain the area, perimeter and boundary coordinates of that region.

Querying in MapInfo

@ Open table of layer “Population”

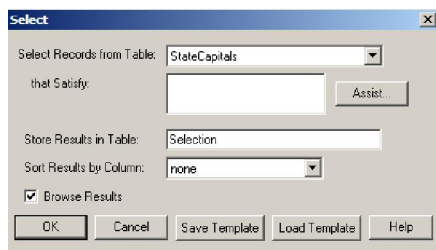
@ Lets perform some simple queries;



1-Find the names of states where there is an increase in population from year 1980 to year 1990.

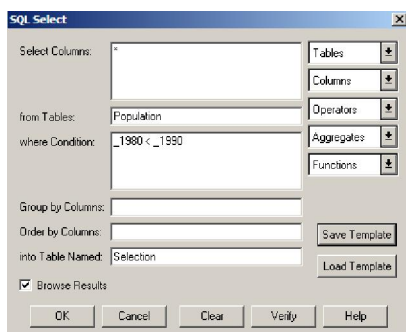
You can use “Query> Select” or “Query> SQL Select” for this simple query, let’s see how to use both of them;

@ Using Query> Select




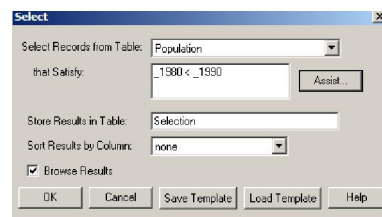
(Do not type the command, only choose fields names and related operators to create queries at this stage.)

@Using Query> Sequential Query Language(SQL) Select;

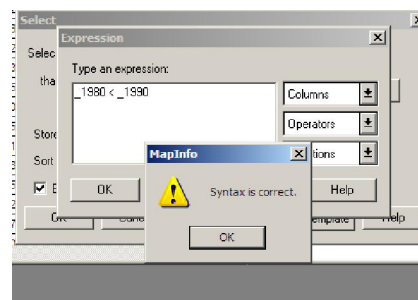


Observe that searched features are selected both from table and map.

Use Unselect All button to deselect selected states 



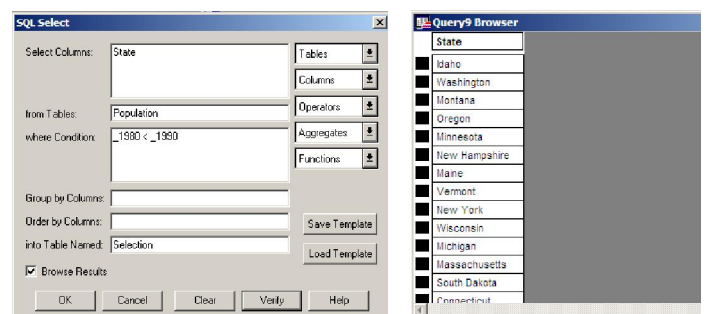
Write the query expression and check syntax by pressing verify, the following picture will appear.



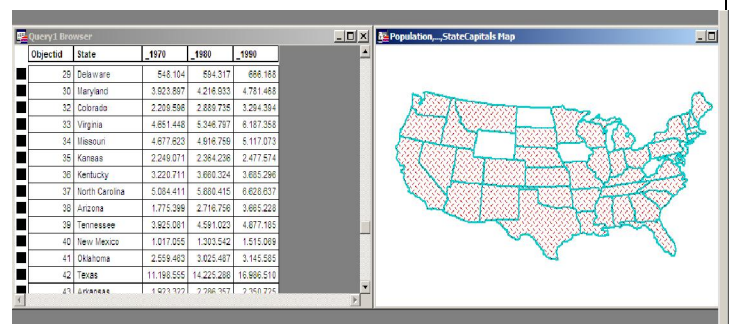
(You can save the query by save template.)

States which satisfies that condition will be shown red.

With SQL Select only the desired column could be listed.



Both ways give the following result.



States in major cities table are written more than once
the number of each city can be found by a simple query
also.

State	Count
Idaho	3
Washington	3
Montana	3
North Dakota	3
Oregon	3
Minnesota	3
New Hampshire	3
Maine	3
Vermont	3
New York	3
Wisconsin	3
Michigan	6
Massachusetts	3
South Dakota	3
Wyoming	3
Connecticut	3

Another query to find the number of each state and
maximum population of each state.

State	Count	Max(Population)
Idaho	3	944,127
Washington	3	4,132,353
Montana	3	788,690
North Dakota	3	652,717
Oregon	3	2,633,156
Minnesota	3	4,975,970
New Hampshire	3	929,610
Maine	3	1,125,043
Vermont	3	511,456
New York	3	17,558,165
Wisconsin	3	4,705,642
Michigan	6	9,262,044
Massachusetts	3	5,737,093
South Dakota	3	808,758

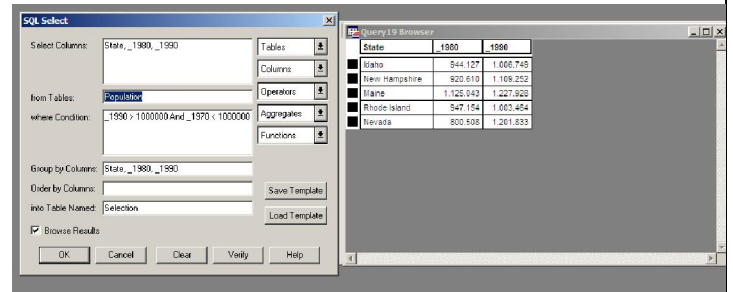
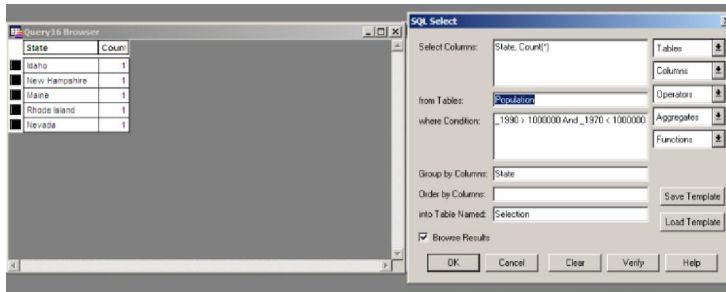
**2- Find the states where the population in 1990
bigger than 1000000 and at the same time in 1970
population less than 1000000.**

$_1990 > 2*500000$ And $_1970 < 1000000$

You can use operators like +, -, *, /, And ,Or...

You can search for any features using any fields (string or character).

Objectid	State	1970	1989	1990
1	Idaho	713,015	944,127	1,008,746
7	New Hampshire	797,861	929,610	1,106,392
8	Illinois	993,722	1,126,043	1,227,828
17	Rhode Island	946,725	947,154	1,003,494
21	Texas	468,736	600,500	1,201,033

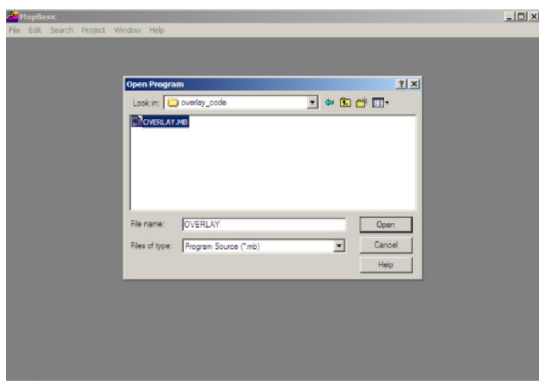


2-Overlay

Open “Soil.tab” and “vegcover.tab”

Then open Map Basic.

File> Open> 425_lab_GIS_MapInfo> 2-Overlay>
overlay_code> OVERLAY.MB



Project> Run

A screen will appear on MapInfo.

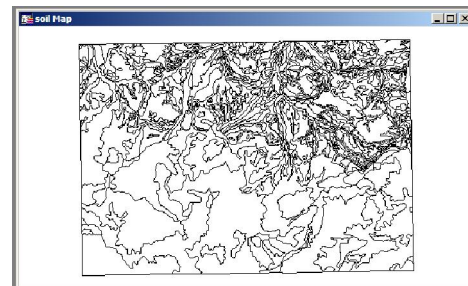


Save the document as Overlay_soil_vegcover under
2-Overlay folder.

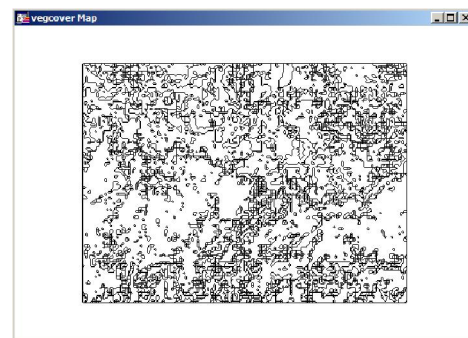
@ Conduct queries table of “overlay_soil_vegcover” using
“SQL Select” to explore relations between soil type and
vegetation cover.

**1-Search for the areas where the coniferous forests
have been grown on clay soil.(let’s assume CBE
indicates clay soil)**

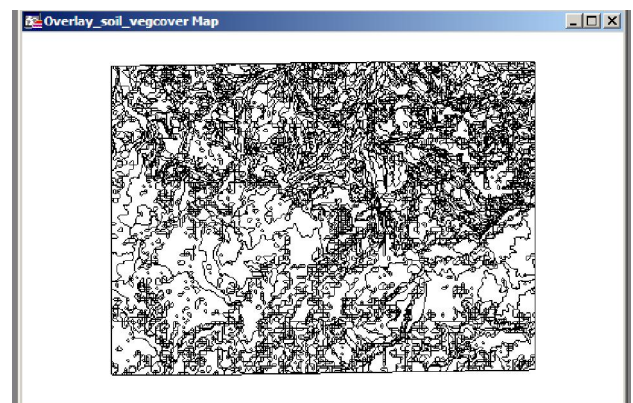
Soil Map



Vegcover Map



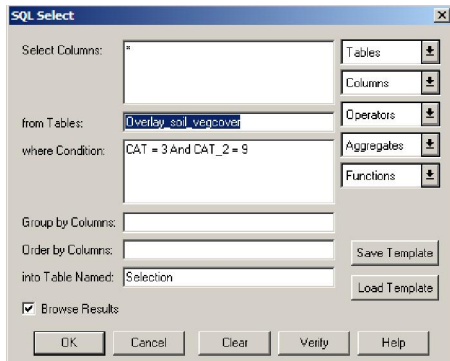
Soil_Vegcover Overlay Map



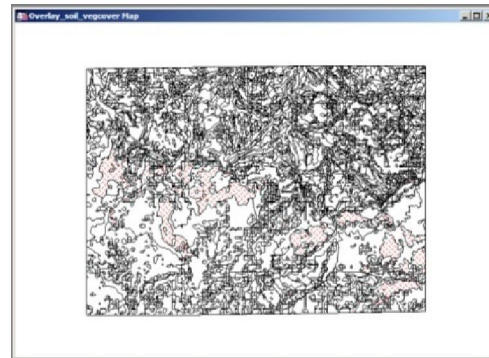
Don't type SQL command select from the SQL Builder window:

CAT=3 for 'coniferous forest'
CAT2=9 for 'CBE'

Write command as *"CAT = 3 And CAT_2 = 9"*



Related fields are selected on map.



CAT	LABEL	CAT_2	LABEL_2
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE
3	coniferous forest	9	CBE

Query Browser

3- Conversions

Conversions are made with Universal Translator tool.

Tools> Universal Translator> Universal Translator

Useful conversions are;

1-Conversion of .shp file to .tab file

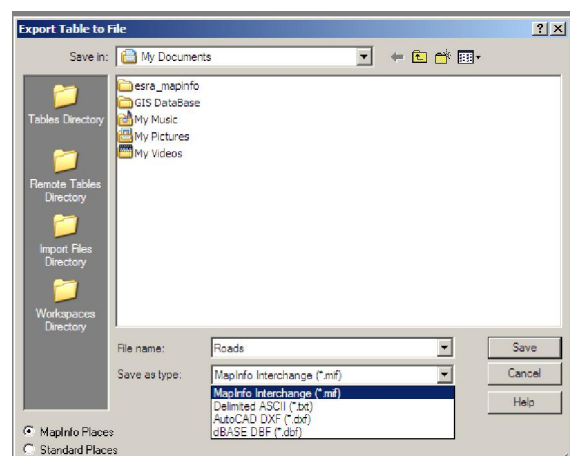
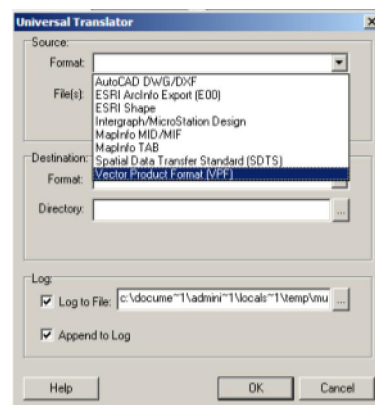
2- .tab file to .shp file conversion

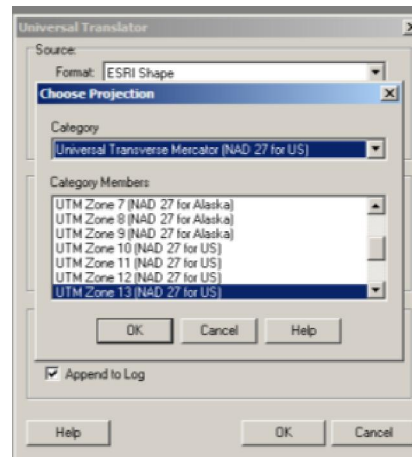
Another tool which can be used for conversion is

Table> Export

It converts an already open table to following file types.

Convert 425_lab_GIS_MapInfo> 4-Buffer> Roads>
Roads.shp file to Roads.tab





4- Buffer

If we want to create different buffer zones having different sizes for each road type we should firmly create layers of different road types.

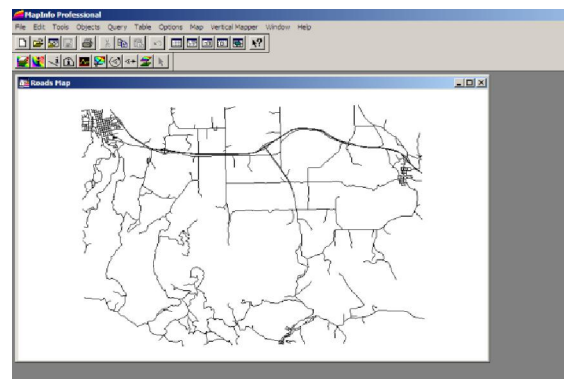
@At first we distinguish interstate roads from other types for this purpose we use queries.

Query> Select

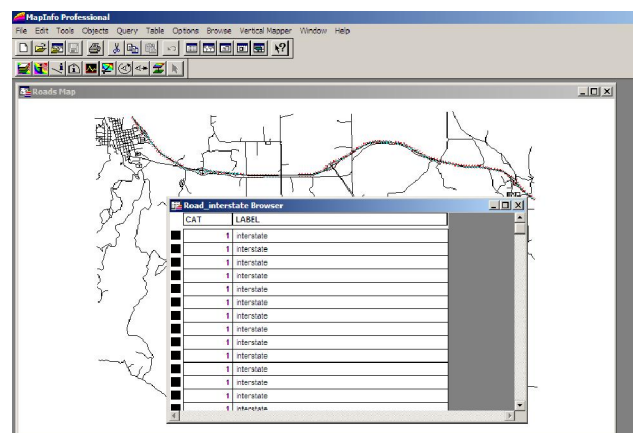
Input vector: “roads”

Query command: CAT=1

Output layer name: "Road_interstate" > OK



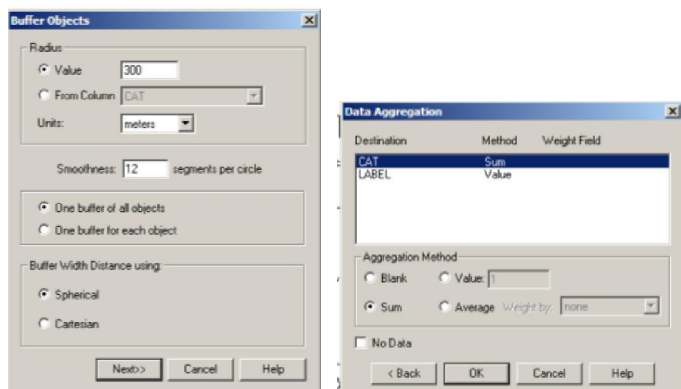
Road at the upper side will be selected.



Creating Buffer zone

First make Roads layer Editable from Layer Control, otherwise, Buffer tool under Objects will not be activated.

Creates a buffer (tampon bölge) around features of given type



Write radius as 300m.

@ With the similar procedure create buffer zones;
100 meter radius for roads types “primary highways,
hard surface”
Corresponding file name will be: “buffer_road_primary
_100”

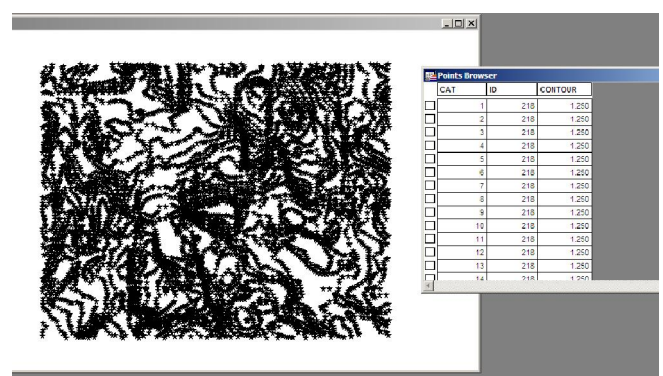
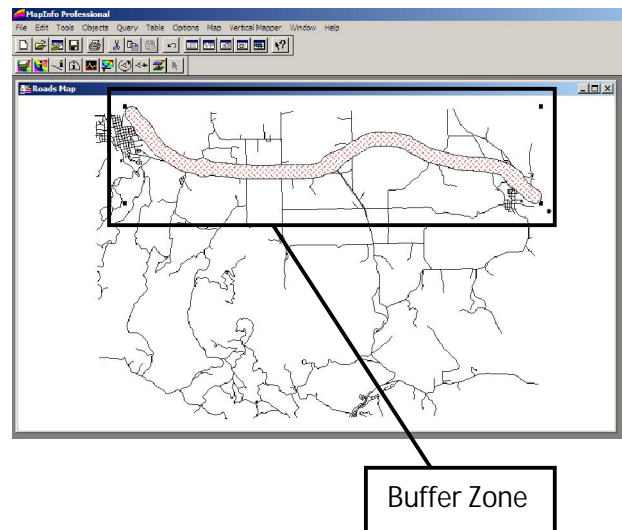
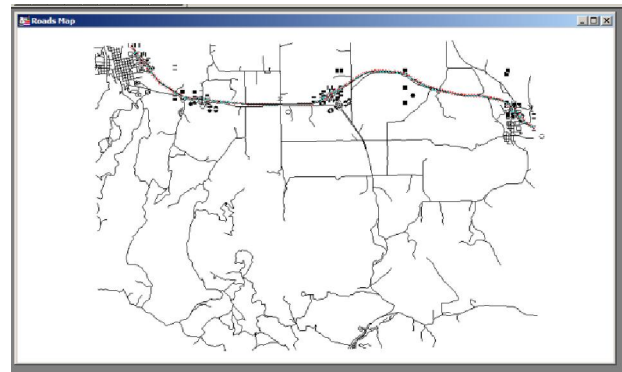
5- DEM-Slope-Aspect

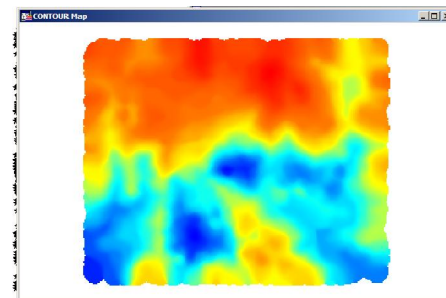
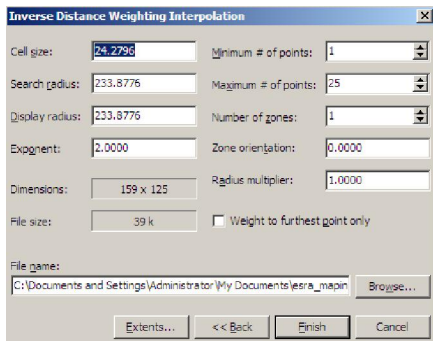
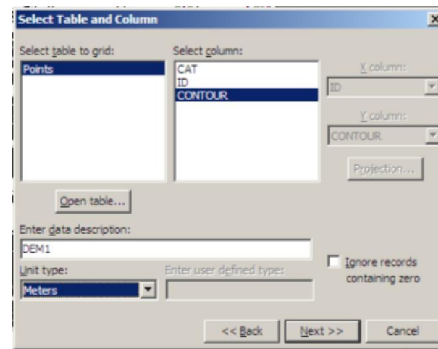
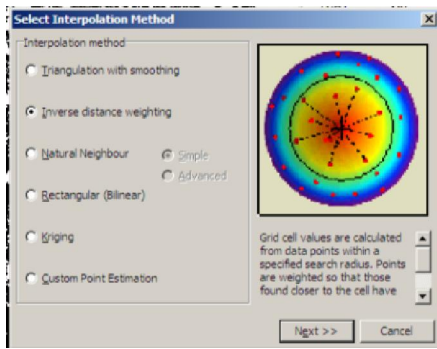
Data Source: 425_lab_GIS_MapInfo >5- DEM-Slope-
Aspect > Points> Points.tab

Creating Digital Elevation Model (DEM)

Vertical Mapper> Create Grid> Interpolation

“Surface interpolation from vector point data by Inverse
Distance Weighting method”



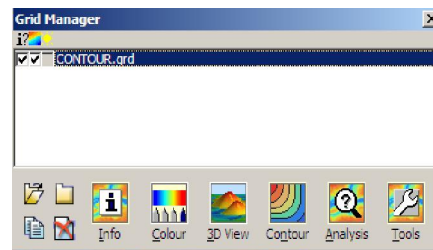


Creating Slope Map and Aspect Map from DEM

@ Open "CONTOUR.tab"

@ Vertical Mapper> Grid Manager> Analysis> Create

Slope & Aspect



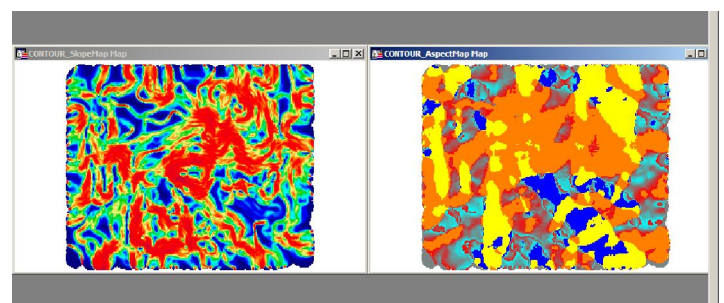
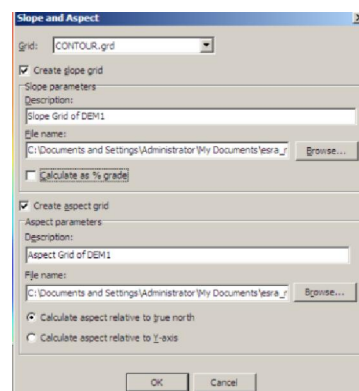
@In the **Slope and Aspect** dialogue, choose a grid from the **Grid** list.

@Enable the **Create Slope Grid and Create Aspect Grid** check box to create a slope grid.

@Enable the **Calculate as % Grade** check box to calculate the slope as a percent grade. When you clear this check box, the slope is calculated in degrees.

@In the **Aspect Parameters** section, do one of the following:

- Choose the **Calculate Aspect Relative to True North** option to set north to zero degrees azimuth and allow values to progress in a clockwise direction.



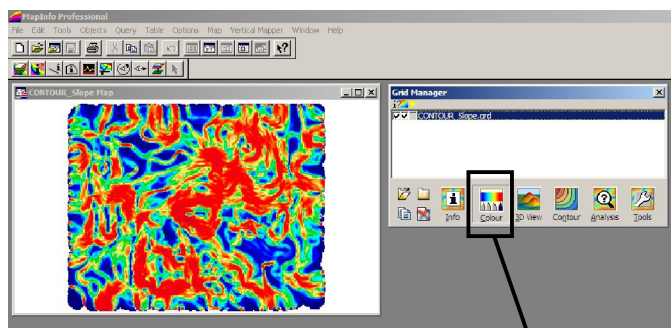
· Choose the **Calculate Aspect Relative to Y-axis** option to set "Y" at the top of the map.

Histogram for Slope and Aspect Map

Two Histogram tools exist one of them Grid Manager>

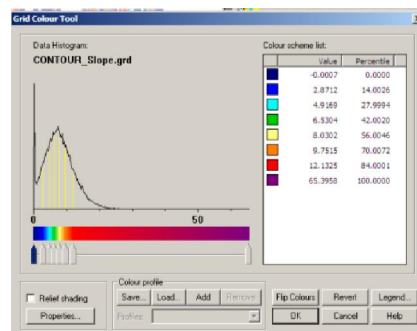
Colour> Histogram

Grid Manager> Info> Histogram

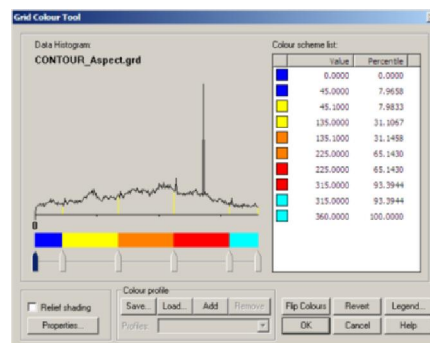


Click this

Data histogram for Slope Map

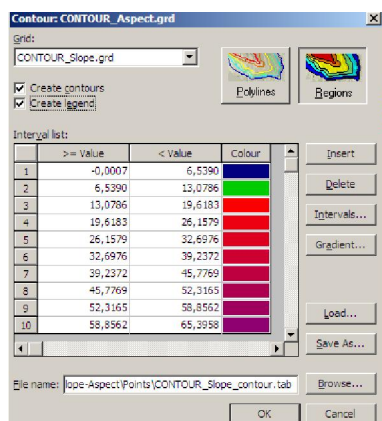


Data histogram for Aspect Map



You can also create contour lines for a grid by Contour

Grid Tool in Grid Manager.



Contour Map for Slope Map will be generated as following.

