

G302 In-Class Exercise: Using Surfer to Create Elevation Models

This lab introduces standard digital mapping techniques using the software program Surfer 7.0. Log-on to your favorite network computer and enjoy the ride!

Task 1. - USGS Digital Elevation Models

The USGS has 7.5' topographic quadrangles available for free download . The DEM's are grid data with elevations of the land surface for quadrangles across the United States. The Regional Ecosystem Office in Portland has a web site with links to download all of the USGS 7.5-minute DEM's for Washington and Oregon

A. Visit the REO DEM file download site at:

http://www.reo.gov/gis/data/DEM_Files/northwest.asp

-follow the links to download USGS 7.5' DEMs (they are at 10 m resolution).

-select Oregon from the list of states

-select the monmouth quadrangle

- click on *.zip file and save the file to your "H:\\" drive or hard drive, and place it in a folder called "monmouth" (you will have to create this using windows explorer)

- this is a compressed, "zipped" file, you can uncompress by using "winzip" software on the start-programs menu, winzip will uncompress the file and make it ready for import into Surfer.

- start surfer, from the "map" menu, choose shaded relief, and select the *.dem file in your monmouth folder, surfer will import the DEM and display it as a shaded relief map.

Use the text icon / tool and put your name and map title on the map

Print the map and include in your lab packet.

- now try choosing "contour map" from the map menu, and make a contour map of the monmouth quad.

Use the text icon / tool and put your name and map title on the map

Print the map and include in your lab packet.

- experiment with the other map types, and try adjusting the parameters of each... see what happens when you change the options of the map.

B. Save the following to your "H:\\" drive, floppy, or other hard drive space.

- go back to the REO web site and down load Mary's Peak quad for Oregon

- use surfer and the "map" menu, create the following and print the results:

(use the text tool to put a title and name on your maps).

(1)mary's peak contour map, with a contour interval of 100 ft

(2) mary's peak shaded relief map

(3)mary's peak vector map

(4)An overlay of the contour map and vector map for Mary's Peak (hint: create both maps on the same plot, use edit-select all, then go to map-overlay maps)

include print outs in your lab packet for this week.

C. Now, repeat the procedure for the quadrangle on which you live. Mark the location of your house or apartment using the surfer drawing tools. Print all of your work and make it look good, creativity and artistic design count!