

GEOG1150. Cartography

Lab 9. Surface mapping

This lab is designed to introduce a number of surface mapping techniques and methods to students. The operations that create surface maps for statistical data and land surface data will be practised and options of interpolation will also be experimented.

1. Create a new empty map and insert three data frames and load the Hong Kong TPU map as the new layer to each data frame. Examine the TPU map and notice what is contained in its attribute table.
2. Add the Hong Kong TPU based census data into your database. This time, the attribute table contains two variables, male and female population for the age group 15 - 19 in 1996. You need to add the two fields together to create a new field for the total population of the age group.
3. On the first data frame, create a choropleth map using a quartile classification.
4. On the second frame, first add a new layer using the label-point of the TPU map. Join its attribute table with the census table then create a grid. Take the default parameters and the Spline interpolation method. You should create a grid (a raster map) as the result of the interpolation. Create the isarithmic map (or isopleths). Display the contours on top of the TPU boundaries with auto-labels.
5. On the third view, create a dot map.
6. Now create a layout that will include all these three views with an appropriate title, scale bar, north arrow and legends. Remember to include your name and student number at the bottom of the layout.
7. Create a new data frame and add the given digital elevation model (DEM) as a new grid theme and the contour lines as a new feature themes. Examine the contour lines and DEM.
8. Create a hill shading grid using ArcMap Spatial Analyst. Overlay this grid on top of the original DEM and set this hill shading grid as 50% transparent. What does this visual enhancement show? You may rejustify the transparent range for the hill shading grid or the colour ramp for the original DEM to make the picture looks better.
9. Create isolines of the DEM using Spatial Analyst. Superimpose the contour lines with their labels on the top of visually enhanced DEM. Create a layout and print the result with appropriate title, scale bar, north arrow, legend, etc. Do not forget your name!