SOC 4650/5650: PS-06

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Directions

Please complete all steps below. Your map and written answer should be uploaded to your GitHub assignment repository by 4:20pm on Tuesday, March 28th, 2017. This lab uses data from `USHealth` and the `USBoundary.gdb`.

Data Preparation

1. In Microsoft Excel, save the file `US_HEALTH_stroke.csv` as an `xlsx` file. Add this file to your table of contents in `ArcMap`.
2. Add the county boundary data to your map.
3. Open the Attribute Table and check to make sure that the numeric `FIPS` variable you created for Lab 10 is still on your attribute table. If it is not, create a new attribute that has the same data as the existing variable `FIPS`, but stored in a numeric format.
4. Join the stroke mortality rate data to your county boundary data.
5. There are some values of `-1` in the insurance data. Those are "missing" counties that the CDC does not provide insurance rate estimates for. To remove them, execute a query on your joined data that looks like this:[1] `"US_HEALTH_stroke$.strokeRate" >= 0`
6. Export the joined data as a shapefile and save it into your `USHealth` directory.

[1] If you named your `xlsx` file something different, you will have to put that file name in the query in place of the example text shown here.

Mapping Stroke Rates for the Contiguous United States

7. In a new map document, add the data you created in step 5. Also add the state boundary data from `USBoundary.gdb` to your map.
8. Select a projected coordinate system for this map that is appropriate for mapping the contiguous United States (i.e. the "lower 48").

9. Create a thematic choropleth map for that shows variation in the number of individuals who die from strokes. Use Jenks Natural Breaks with 5 data classes for your symbology. Also use a ColorBrewer color scheme to symbolize these data.

10. Overlay the state boundaries (symbolized with a hollow fill) to make it easier to identify states that have particularly high rates of stroke mortality. Also overlay the county boundaries on your data so that they are above the choropleth data but below the state boundaries. These are important because there are a number of counties that are missing stroke mortality estimates. Symbolize these with the same hue that is used for the country boundaries on the choropleth layer.

11. Add and appropriately symbolize ground layers using the data available in `USBoundary.gdb`.

Mapping Stroke Rates for Alaska

12. In a new data frame, copy the data from the previous section and change the extent of the map so that it shows only Alaska.

13. Change the projected coordinate system of this second data frame so that it is appropriate for mapping Alaska.

14. Re-position your map image to accommodate any changes to the shape of your data.

Mapping Stroke Rates for Hawaii

15. In a new data frame, copy the data from the previous section and change the extent of the map so that it shows only Hawaii.

16. Change the projected coordinate system of this second data frame so that it is appropriate for mapping Hawaii.

17. Re-position your map image to accommodate any changes to the shape of your data.

Creating and Evaluating the Map Layout

18. Create a well designed and well laid-out map layout with all three data frames included. The map layout should be similar to other print maps showing the contiguous United States with inset maps for Alaska and Hawaii. Clearly delineate the data in the inset maps from your larger map of the contiguous United States, and be sure to provide all of the relevant data about your map layout (title, authorship, projection systems, etc.) as well. Export your complete map layout as a `pdf` file at `500dpi`.

19. In a new Markdown formatted text file, evaluate in a paragraph the spatial distribution of stroke rates. What areas of the country appear to have higher rates of stroke mortality?