When plotting geographical data like this, it might be nice to include coastlines, national or state borders, etc. Can you find a Matlab function online that will plot coastlines and/or borders?

6 Univariate data

6.1 Univariate visualisation

Let's finally get down to looking at a variety of approaches to univariate plotting. Some you will have already seen in lectures, while others are nicely described at following blog site by Gramener (a data visualisation company):
`http://blog.gramener.com/54/charting-one-dimensional-data-linearly`.

Load Matlab's inbuilt *flu* dataset (by typing *load flu*) then produce the following plots. Think about some of the pros and cons of each and how it might be useful to describe some of the data for your project.

1. Using the hist function, show one of the flu data regions. Use help hist in the command window to see usage information for the hist function.
2. Draw a quantile plot for one of the flu data regions.
3. Draw a Q-Q plot using the MidAtl and SAtl flu data. Make sure to include a 45° reference line and set the axis limits and plot title appropriately. You will need to use the hold function.
4. Using the quantiles calculated for the Q-Q plot above, draw a Tukey Mean-Difference plot. Again, be sure to include a reference line (this time horizontal) and set the axis limits and plot title appropriately.
5. Use the HeatMap function to draw a heat-maps for some of the flu data regions. Some heat maps are really boring, for example, the mid-Atlantic region (MidAtl). Can you explain why? Look at the heat maps for the Mtn or ESCentral regions for comparison.
6. Draw vertical and horizontal bar charts in the same figure for one of the flu data regions. You will need to use the subplot function.
7. Draw stairstep and stem plots of the same data using the stairs and stem functions.
8. Draw sparklines for all the regions in the flu dataset in the same figure. Again, you will need to use the subplot function. You should also use a for loop to avoid code duplication. See above for an example of using a for loop to draw multiple plots and some advantages of dealing with dataset objects like flu over simple matrices. Make sure the axes for each sparkline are hidden.
9. Draw streamgraphs in a similar same way to how you drew the sparklines. Remember to halve the input data and plot both the halved values and their inverses.
10. Use both the plot and scatter functions to draw jitter plots of one of the flu data regions.
11. Use the boxplot function to draw box plots for all the regions in the flu data. If you read the help documentation for boxplot you should notice that you won't need to use subplot. Make sure the box plots are oriented horizontally. As a slight challenge, make the NE data appear at the top, with the other regions in order below.