ASSIGNMENT 9 – MYSTERY FILES

Due Date: Monday, November 18

This is an individual assignment worth 50 points. Please submit your answers and code to the D2L dropbox.

I have tried to obscure the identity of the two attached RINEX files (stations xxxx and yyyy). Using all the information from the previous homeworks (using an elevation cutoff of 10 degrees, ionosphere free pseudorange, etc), find out where these GPS stations are located (both are IGS stations).

Change your homework 8 code so that you iterate on the *a priori* receiver coordinates. Start with the positions in the file (which I set to be at Greenwich on the equator) and then print out (and turn in) the new latitude, longitude (in degrees, 8 decimal points. East longitude please) for each iteration. Report height in meters to 4 decimal points.

Iterate until the norm of (xyz – newxyz) is smaller than one micron. While the positions are not accurate in any sense to one micron, there is reason why you can't converge your least squares solution to that precision.

If the elevation angle is negative, do not compute a troposphere correction. If the elevation angle is positive, use a zenith delay of 2.3 meters. This is not a very good guess, but it is better than nothing.

Note how quickly your algorithm figures out where the site is.