Plate Tectonics Assignment (20 points)

Part I: Plate Boundary Features

1) Go to the USGS Earthquake Catalog
2) Click on the Settings icon on the upper right corner
3) Click on Search Earthquake Catalog
4) Under Basic Options, set "Magnitude" to 2.5+, "Date & Time" to Custom starting from Jan. 1st, 2010 and End Today's date, "Geographic Region" to Custom and draw a rectangle on the NE Pacific Ocean that covers: south to north: off the coast of San Francisco up to the north British Columbia, east to west: from the coast to the middle of the Ocean (below the Gulf of Alaska). Make sure your rectangle includes Juan De Fuca Plate.
5) Under Output Options, set "Format" to CSV.
6) Click on Search. A new page including the list of earthquakes should appear in a second.
7) Copy all and save it as a .csv file.
8) In Jupyter Notebook, read the "Time", "Latitude", "Longitude", and "Magnitude" columns.
9) Plot (scatter plot) earthquake magnitude vs time (1 point).
10) Show earthquake locations (lat and lon) on a map by circles. The radius of these circles should be proportional to the earthquake magnitude. (2 points).
11) Answer these questions:
    a. Across what geographic area are you able to observe earthquake data in this map? Why do you see most of the earthquakes in that area? (2 points).
    b. What is the range of earthquake size (magnitude) in these data? What is the average earthquake size in this area? (2 points).
    c. Map the earthquakes in April 2015 (include this map in your report). Where are those earthquakes mostly located? What event can you link these earthquakes to? (2 points).

Part II) Divergent Boundary vs Transform Boundary

Identify a divergent boundary and a transform boundary on the map you selected in part I (1 point). Repeat step 1 to 10 in each region. Show all the figures and maps (4 points) and answer this question:

    d. What kind of patterns in earthquake magnitude and location you observe over time along each boundary? (2 points)

4 points for writing a clear report with no mistakes/typos and in correct format. Figures should also be in correct format (labels, readable font, title, legend, etc.)

More information and some interactive maps can be found here.

Bonus point (Optional): make your map and earthquake size plot interactive and linked together like what you see in the link above. (5 extra points)