Homework 3

1. Plot the spatial pattern of the streamfunction for the subtropical-gyre circulation based on the mathematical expression we derived in class (Hint: use the commands "contour" or "contourf" in Matlab or Python to make this plot).

2. Download one global ocean reanalysis product during a winter month (Hint: you can find different products produced by different research agencies at https://reanalyses.org/ocean/overview-current-reanalyses, and download the monthly-mean data), and plot the vertical profiles of the stratification frequency N for one location in the tropical ocean, one location in the mid-latitude ocean and one location in the polar ocean (give the longitude and latitude information for these locations). Describe the differences in these profiles and try to give the reasons.