

Climate Physics

PHYS 428

Spring 2018

Problem Assignment #3

due 2/23/2018

1. Marshall & Plumb problem 7.2.
2. Marshall & Plumb problem 7.3.
3. Marshall & Plumb problem 7.4.
4. Marshall & Plumb problem 7.6.
5. Marshall & Plumb problem 7.8.
6. Marshall & Plumb problem 7.9.
7. Marshall & Plumb problem 7.10.
8. Go to weather.rap.ucar.edu/upper and plot the 500mb wind, temperature, and geopotential height contours for the United States. Locate a region that is a candidate for geostrophic flow. Calculate the geopotential height gradients and resulting geopotential winds. Compare your calculated wind speeds with the measured winds. Based on your calculation, are the measured winds in geostrophic balance? If you'd prefer another source for geopotential maps, feel free. In any case, please print a copy of the upper air plot used for your calculation.