

AOS 100/101  
Spring 2008

HOMework #6  
(Due Fri. April 25)

*Please provide concise, grammatically correct, neatly written answers to the following questions. All questions can be answered in, at most, a few sentences. Don't forget to write your name on the paper!!!*

**NAME:**

- 1) A hockey puck is placed on a *flat*, infinite sheet of ice in the Southern Hemisphere. It is then given a slight push to the east. The sheet of ice is frictionless so that the speed of the puck after the push is constant. What horizontal force acts on the puck after the push? Describe (or draw) the path the puck takes after the push. Explain your description (or drawing).  
(10 pts)
  
- 2) Imagine you are in Madison standing outside on a windy day with the wind at your back. In what horizontal direction would you go if you were interested in moving to a location with lower pressure? Explain. What if you repeated the experiment while studying abroad in Santiago, Chile?  
(10 pts)
  
- 3) *Veering* is a term that means “to turn in a clockwise direction”. On a certain day in Madison, the PGF remains constant in size and direction in the lowest 1 km of the atmosphere (i.e. from the ground to 1 km above the ground). Explain why the wind direction in the lowest 1 km of the atmosphere veers with increasing height on that day. (HINT: Consider the force balances at the surface and at 1 km)  
(10 pts)
  
- 4) What two forces are balanced in geostrophic flow? The winds well above the surface in the middle latitudes are nearly in geostrophic balance. How does this fact serve as proof that the Earth rotates on its axis?  
(10 pts)