ENV 407 – Atmospheric Processes: From Clouds to Global Scales
Hydrostatic Equilibrium – Hypsometric Equation

1. Using the equation we derived for barometric pressure as a function of altitude calculate H for a dry atmosphere with an effective temperature of 273°K.

2. For the value of H calculated above determine the altitude where P = 0.5 atm.

3. For the value of H calculated above what is the air pressure in atmospheres at the top of Mt Everest (8.85km)?

4. On Mars the atmosphere is mainly CO2, the temperature is 220°K and the acceleration of gravity is 3.7 m/s2. What is the scale height of the Martian atmosphere? Compare the scale height to the Earth's atmosphere and explain why they scale heights are different.