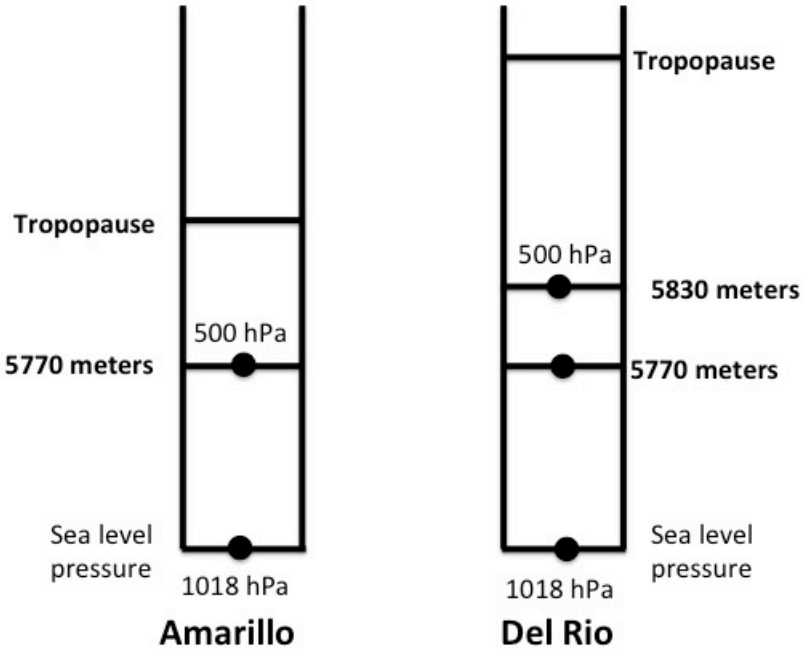
ATMO 1300 Section 001
In-class Worksheet #3
July 18th, 2017



1) Atmospheric pressure is decreasing with height at a greater rate over which location?
Amarillo

2) At which location is the average temperature in the troposphere warmer?
Del Rio

3) Above Amarillo, what is the pressure at 5770 meters above sea level?
500 hPa (or 500 mb)

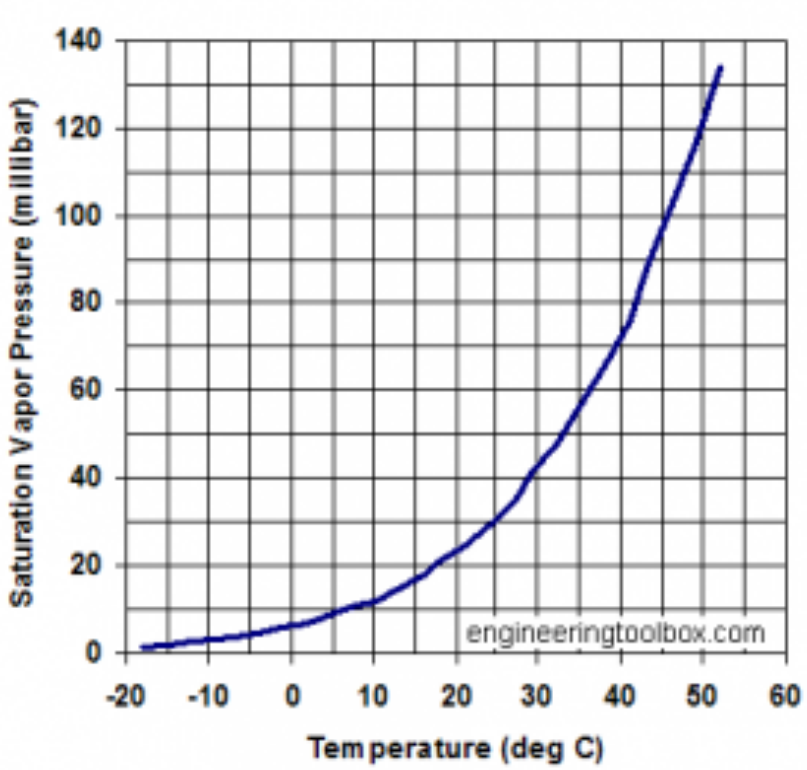
4) Above Del Rio, is the pressure at 5770 meters above sea level greater than 500 hPa, less than 500 hPa or equal to 500 hPa?
Greater than 500 hPa

5) Between Amarillo and Del Rio, at an altitude of 5770 meters, is there a horizontal pressure gradient?
YES!
The pressure gradient force points from Del Rio toward Amarillo.

6) Air mass A has a temperature of 27 °C.
Air mass B has a temperature of 5 °C.

a) Find the saturation vapor pressure for each air mass.

Air A 40 mb
Air B 10 mb



Air A has a vapor pressure of 14 mb
Air B has a vapor pressure of 6 mb.

b) Find the relative humidity for each air mass.

Air A:
14/40 *100 = 35%

Air B:
6/10 *100 = 60 %

For questions 7-10 indicate the type of condensation that would form, if any, given the dew point and minimum nighttime temperature. The starting temperature for each problem is 45°F. Remember 32°F is freezing.

7) Dew point is 39°F and the minimum temperature is 35°F.

Dew

8) Dew point is 27°F and the minimum temperature is 22°F.

Frost

9) Dew point is 33°F and the minimum temperature is 35°F.

No condensation forms

10) Dew point is 34°F and the minimum temperature is 27°F.

Frozen dew