Metr 201 Quiz #1
100 pts.
(Test will be collected at 10 AM)

A. Definitions. (5 points each for a total of 20 points in this section).

(a) mixing ratio --

(b) atmospheric river--

(c) The study of the development of and evolution of atmospheric motions and circulation systems as solutions of the fundamental equations of hydrodynamics or other systems of equations appropriate to special situations is the definition of ____________________________________________

(d) GOES is an abbreviation...expand it out --
B. **Unit Conversion.** (30 pts)

The average value of atmospheric density at sea level is approximately $1.24 \times 10^{-3}$ g cm$^{-3}$. Convert this to S.I. units (MKS units). Show all work (No credit for correct answer if work is not shown).
C. Weather Charts (Total of 25 points in this section).

Figure 1: Surface plot of weather data 2130 UTC 4 Feb 2015

Figure 2: Surface plot of weather data 2133 UTC 4 Feb 2015
Figure 1 is the 2130 UTC Infrared Satellite Image and Figure 2 the 2133 UTC surface plot for 4 February 2015. The following questions relate to these charts. Answer in complete sentences.

1. What is the significance of the colors shown inside the box drawn on Figure 1? Here I would like you to explain what the colors particularly signify and what the implication is meteorologically. (15 pts)

2. The box drawn on Figure 2, the surface data plot, generally corresponds to that shown on Figure 1. Generally describe how the weather station data plotted in portions of the box drawn on Figure 2 can be used to verify your answer in (1) just above. (10 pts)
Figure 3: Forecast of Precipitable Water valid 0000 UTC 7 February 2015

Figure 3 is a forecast for the precipitable water field from the GFS valid 0000 UTC 7 February 2015.

1. Decode the date and time to Pacific Standard Time. (5 pts)

2. Describe how Figure 3 illustrates an Atmospheric River as you defined it in Section A of the quiz. (2-3 sentences) (20 pts)