LAMONT, OKLAHOMA – 0000070506

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----------------------------------------------------------------------------- PRES HGHT TEMP DWPT RELH MIXR DRCT SKNT THTA THTE THTV hPa m C C % g/kg deg knot K K K

----------------------------------------------------------------------------- 1000.0 8 966.0 317 24.6 22.1 86 17.68 150 23 300.7 352.9 303.9 925.0 691 21.4 20.5 95 16.71 155 26 301.2 350.5 304.2 902.0 914 19.6 19.4 99 15.97 160 29 301.5 348.8 304.4 870.0 1219 17.8 17.8 100 14.99 175 36 302.8 347.3 305.5 850.0 1422 16.8 16.8 100 14.37 180 39 303.7 346.6 306.4 822.0 1708 15.2 15.2 100 13.39 183 37 305.0 345.2 307.4 810.0 1833 16.2 15.4 95 13.77 185 36 307.3 349.1 309.8 782.0 2134 14.0 12.8 93 12.06 185 37 308.1 344.9 310.3 754.0 2438 11.7 10.3 91 10.52 185 40 308.9 341.1 310.8 727.0 2743 9.5 7.7 88 9.14 185 40 309.6 337.8 311.3 705.0 2999 7.6 5.5 87 8.10 193 39 310.2 335.4 311.8 700.0 3058 8.4 2.4 66 6.54 195 39 311.8 332.4 313.0 695.0 3117 9.8 -4.2 37 4.05 195 40 313.9 327.1 314.7 682.0 3275 10.8 -10.2 22 2.59 197 43 316.8 325.5 317.3 650.0 3658 7.4 -13.2 22 2.14 200 50 317.3 324.6 317.7 626.0 3962 4.8 -15.5 21 1.83 200 52 317.6 324.0 318.0 603.0 4267 2.1 -17.9 21 1.56 200 51 318.0 323.4 318.3 559.0 4877 -3.3 -22.6 21 1.12 205 49 318.6 322.6 318.8 539.0 5176 -5.9 -24.9 21 0.95 207 48 318.9 322.3 319.1 525.0 5382 -7.3 -35.3 9 0.36 208 48 319.6 321.0 319.7 500.0 5760 -9.9 -28.9 20 0.71 210 47 320.9 323.5 321.0 479.0 6096 -12.6 -33.7 15 0.47 210 48 321.7 323.4 321.8 442.0 6700 -17.9 -36.9 17 0.37 212 52 322.3 323.7 322.4 400.0 7440 -23.7 -37.7 26 0.37 215 57 324.1 325.5 324.2 390.0 7620 -25.1 -38.5 28 0.35 215 58 324.6 326.0 324.7 329.0 8834 -34.7 -43.7 40 0.24 223 52 327.6 328.6 327.6 300.0 9470 -39.9 -47.9 42 0.17 220 50 329.0 329.7 329.1 283.0 9866 -43.3 -49.3 51 0.15 222 50 329.7 330.3 329.7 250.0 10690 -49.5 -58.5 34 0.06 225 49 332.3 332.6 332.4 225.0 11370 -54.9 -60.9 47 0.05 230 48 334.2 334.4 334.2 200.0 12110 -61.3 -68.3 39 0.02 230 45 335.5 335.6 335.5 150.0 13860 -69.5 -77.5 30 0.01 190 31 350.2 350.2 350.2 100.0 16330 -61.5 -88.5 2 0.00 220 12 408.6 408.6 408.6

\*Note: In TTAA, **00008 ///// /////** shows that the 1000 mb temperature, dew point and wind data is missing. In this case, it is because the surface pressure is 966 mb, thus the 1000 mb level doesn’t exist. However, it is approximated that the geopotential height of the 1000 mb level (above sea level) is 8 m.

ATM 211: RAOB Plotting Exercise #2: Lamont, OK

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

On the attached page, you’ll find radiosonde data from 0000Z on a day in May in Lamont, Oklahoma. The TTAA (mandatory levels) and TTBB (Significant levels) are all given, but this time they are decoded for you.

Plot the entire sounding on your Skew-T chart. A good method for doing this is:

1) Plot all temperature and dew points first, but don’t connect the points yet.

2) Connect the dew point and temperature points with a straight edge. Typically, temperature is red and dew point is green. Your dew point and temperature lines should *never* cross, but they may meet. If they meet, the air at this level is saturated.

3) Plot only the mandatory level winds on one of the wind axes. *(Hint: Look up the mandatory levels in your RAOB packet).*

4) Write your name on the Skew-T (preferably on the name label on the reverse side).

Q1: At what level is the LCL for a parcel rising from the surface? Show your parcel path in blue or black on the Skew-T.

Q2: Now continue the parcel upward past the LCL. When the parcel reaches 500 mb, is it warmer or colder than the environment temperature? How much warmer/colder is it? Again, show your parcel path on the Skew-T.

Q3: Using the answer to Q2, based on the density difference between the parcel and the surrounding environment, do you expect the parcel to continue to rise on its own? Why/why not?

Q4: Compute the 1000-500 mb thickness. Express your answer in dekameters (dam).