

LAB#2

DEW POINT TEMPERATURE AND RELATIVE HUMIDITY

In this lab the goal is to explore the relationship between temperature and humidity. You will create 4 small graphs for data from CVG (Cincinnati-NKY International Arpt.) and LOU (Louisville, Bowman Field).

The data:

Time of Day
CVG, LOU Temp F
CVG, LOU T_d F
CVG, LOU e mb
CVG, LOU e_s mb

Calculations you will make (easy to do in Excel - demo in class)

Relative Humidity, each hour both stations
 $T - T_d$, each hour both stations

Graphs You will create, scatter plots, no data points, smoothed:

Time of day vs. Relative Humidity, both stations
Temperature-Dew Point Difference vs. Relative Humidity

As before your graphs are not complete until you make aesthetic adjustments to enhance communication. Including axis titles, curve legends. Then answer the questions.

Materials:

This pdf document (lab2.pdf) and the Excel spreadsheet (lab2.xls)

Complete the graphs, answer the questions and email the pdf form and 4 graphs as attachments as we did in lab #1 to:

steve@shorstmeyer.com

SUBJECT LINE !!! MUST HAVE !!! **geo165**

NAME _____

We will have an open discussion in class to help answer the questions.

1. What are the trends in e and T_d at both stations through the day?
2. What does the trend of moisture and the trend of relative humidity at CVG tell you about the relationship between RH and the energy available to do the work of evaporation.
3. The dew point and e (actual vapor pressure) were both steady at CVG for the entire data set. Why does the relative humidity change?

4. Why is the graph of relative humidity at LOU more complicated than the graph of RH at CVG?

5. Define dew point temperature.

6. What is the approximate relative humidity for dew point depressions ($T - T_d$) of

1°F,

3°F,

5°F,

7°F,

9°F

7. Below is a section of a weather map. Go to the class website >> lab info page >> the surface synoptic chart page >> station model page and list the relative humidity at CVG, LUK, DAY and CMH (Columbus) using the dew point depression and the station model.

