

# WEATHER AND CLIMATE

## WEATHER OBSERVATION PROJECT

**Objective:** The Weather Observation Project will constitute the daily acquisition of meteorological conditions from one of four digital weather stations maintained by the Department of Geology/Geography and copy surface maps of the United States for one month. Upon the acquisition of data and surface maps, students will complete graphs displaying resultant temperatures and precipitation amounts for the month and write a 2-page summary of the month's climate to understand how weather evolves over time.

**Materials:** To complete the project, you will need the following items:

- Electronic Weather Observation Sheet (downloaded as a Microsoft® Excel Worksheet from WebCT)
- Hardcopy Weather Observation Sheet (included here)
- Surface Maps of the United States (from WebCT)
- Colored Pencils (blue, red, purple, and orange)

**Overview:** Your instructor will inform you of the following:

- Date the project data acquisition begins.
- Duration of the project (one month is standard).
- Weather station to be used for the project.
- Project due date

**Data Acquisition and Surface Map Instructions:** It is important to follow all instructions carefully for full credit.

Day 1:

1. On the first day of the project, log on to [www.eiu.edu/~weather/wc\\_wxop.html](http://www.eiu.edu/~weather/wc_wxop.html) and select the station assigned for your section.
2. Record only the current conditions as listed on the Weather Observation Sheet. Note: do not record Temperatures or Precipitation data.
3. Copy the surface map onto your Surface Maps of the United States sheet.
  - a. Copy the fronts and pressure cells (H and L).
  - b. Do not copy the isobars.

Day 2, 3, 4....

1. On the second day of the project, log on to [www.eiu.edu/~weather/wc\\_wxop.html](http://www.eiu.edu/~weather/wc_wxop.html) and select the station assigned for your section.
2. Record the current conditions as listed on the Weather Observation Sheet for day 2. Note: do not record Temperatures or Precipitation data.
3. Scroll down the page until you locate Yesterday's Meteorological Data and record the Maximum and Minimum Temperatures and Precipitation amount on the previous day's line.
4. Copy the surface map onto your Surface Maps of the United States sheet.
5. Repeat this portion of the instructions for the remainder of the data acquisition period.

Data are uploaded everyday at 8:00AM. You will have 24 hours to copy the data to

your weather observation sheet. Missed data will not be provided to the student from the instructor. Missed data can be obtained from fellow classmates with their permission. If you cannot get the missed data, you will be required to enter 'M' for each cell that data are not supplied. You are required to acquire data on weekends and holidays. If, for any reason, data are not uploaded due to station shutdown, you will see a link for missed data on the main weather station page.

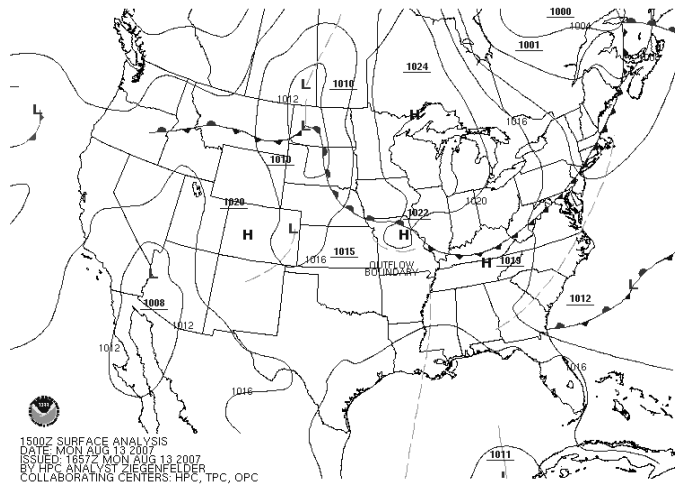
Details about the Variables:

The data in the Weather Observation Sheet are not all provided by the weather station data page. Some columns provided on the sheet require you to observe and record the conditions according to how you see them. The following variables are to be determined by your observation:

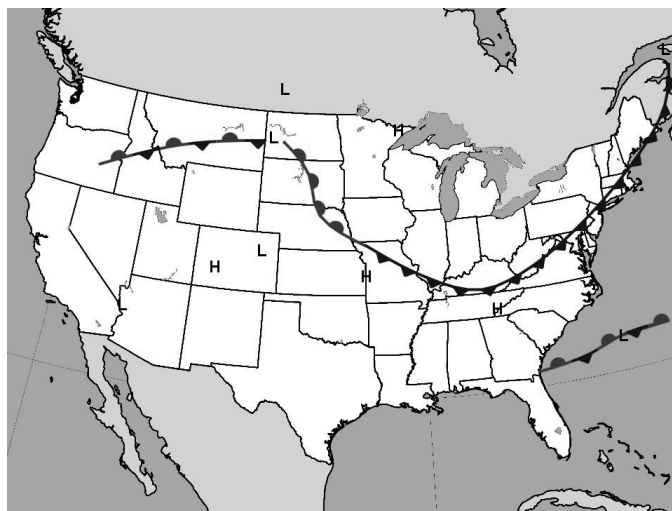
- Cloud Type: Based on the 10 basic clouds learned in the lecture.
- Cloud Cover: 0%, 25%, 50%, 75%, or 100%
- Remarks: Additional information about the conditions for the day such as cold front passed, thunderstorms, gusty winds, etcetera.

Surface Maps:

Below is the method you will copy the fronts and pressure cell labels using your colored pencils. Do not draw the isobars.



Surface map supplied on the website.



Resultant surface map you copied from the website.

Data Resolution: Data resolution is very important for this project. If you do not follow the specific resolution rules, your data will not be accurate. Failure to follow these rules will result in a reduced project grade. When entering in the data into the weather observation sheet, do not provide the units. This will not allow the graphs to be created automatically. The summary should have units provided.

Variable	Resolution	Data Sheet	Summary
Temperature	XX.X	73.1	73.1°F
Precipitation	X.XX	0.35	0.35"
Dew Point	XX.X	73.1	73.1°F
Pressure	XXXX.X	1004.5	1004.5mb
Wind Direction	X or XX	NW	Northwest
Wind Speed	X.X	1.7	1.7mph
Humidity	XX	85	85%
Cloud Percent	XX	50	50%

Written Project: The following is the required method for putting your project together. You will hand in your project on the date due in the following order (Title Page, Summary, Temperatures Graph, Precipitation Graph, Weather Observation Sheet, and Surface Maps). Your instructor may have additional or different requirements from what is provided here.

- **Title Page:** Centered horizontally and vertically. Provide on separate lines:
  - Month and Year of Data
  - Name
  - Department (Department of Geology/Geography)
  - University (Eastern Illinois University)
  - Due Date
- **Summary:** 2 pages. 1-inch margins. 12 point font. Double-spaced. Page numbers. Start the summary on the first line of the project after the title page. The following describes the basic outline of the summary.
  - Paragraph 1:
    - Short description of the overall weather conditions.
    - Month and year of analysis.
    - Station location and identification number.
    - Brief statement of the type of data acquired.
  - Paragraph 2:
    - Presentation of overall meteorological data (i.e. what was the maximum, minimum, mean temperature for the month. What was the total precipitation for the month, etc).
  - Paragraph 3:
    - Describe the evolution of significant weather events using the combination of data and surface maps.
  - Paragraph 4:
    - Summarize the month as a whole.
- **Graphs:** The weather observation sheet and Microsoft® Excel will be necessary to complete the required graphs.
  - The graphs that you will need to present in your project include the following (charts have been created for you in the Excel file):
    - Graph 1: Maximum, Minimum and Mean Temperature
    - Graph 2: Precipitation.
- **Weather Observation Sheet:** Download the weather observation sheet from the course website. This sheet is a Microsoft® Excel file where the data are inserted and printed. Do not use any other format. Type in the

data you provided on the hard copy to complete the sheet.

- Surface Maps of the United States: Staple all surface map sheets to the back of your project.