

EASTERN USA WINTER 2022 PROJECT: CLIMATE LAB

The laboratory for this course is the weather across the world over long periods of time. Each pair or trio will study the weather in a particular eastern US city from January 2 through April 16, 2022 (4/17-4/23 E.C.). You are expected to

A) Watch the weather in your city through an online newspaper or TV station and a weather app on a phone or computer so you keep up with what's going on there.

B) Seek out and file pdf's articles from local newspapers, TV stations or weather blogs in your city about significant weather events in your city.

C) Download hourly weather data from www.ncei.noaa.gov for your city

1) Request the csv file, save it as `City_NCEI_mmmdd-mmmdd.csv`

2) Open `City_NCEI_Jan03-Jan08.xlsx` and **save it with the new dates in dates folder.**

3) Copy all the data from the csv file into the "Original" tab (2nd)

4) Copy all the data from the "Original" to "Selected Columns" tab (3rd)

- Replace "Hourly" with blank (use Replace All)

- Replace "|" (copied from a weather cell) with blank (use Replace All)

- Delete columns (right click, select delete column) other than (end up with A - K)

Date	= Date and Time (yyyy-mm-ddThh:mm:ss)
HourlyDewPointTemperature	= Dew Point (°F)
HourlyDryBulbTemperature	= Temperature (°F)
HourlyPrecipitation	= Precipitation (inches)
HourlyPresentWeatherType	= Weather (code)
HourlyRelativeHumidity	= Relative Humidity (%)
HourlySeaLevelPressure	= Pressure (Inches of Hg)
HourlySkyConditions	= Sky (code)
HourlyWindDirection	= Direction (degrees of azimuth)
HourlyWindGustSpeed	= Gust (mph)
HourlyWindSpeed	= Speed (mph)

5) Carefully copy columns to "Local Time" tab (group by group into white columns, skip pink!)

a) Date to column A

b) Dew Point, Dry Bulb, Precip, to columns E - G

c) Present Weather, to column I

e) Relative Humidity, Pressure, Sky to columns K - M

f) Direction, Gusts, Speed into columns O - Q

6) Extend pink columns to bottom of data (last Date in column A)

- Highlight last cell(s), grab black square at bottom right and drag to bottom of data

7) Sort all data by color in "Date and Time" column (pink on top)

- "My data has headers" must be checked

- Delete all pink rows, keep yellow rows at the standard observation time :5X

8) Sort all data by value in "Eastern Time" or "Central Time"

- "My data has headers" must be checked

9) Delete first Saturday data before the 11:5X row (the "midnight" data)

10) Delete last Saturday data after the 10:5X row (the "11 pm" data)

- should have data in rows 2 - 169! (If more, check for multiple rows at same time)

D) Copy weekly data into semester spreadsheet, City_2022.xlsx

- 1) Carefully copy columns to appropriate white columns in the appropriate week's tab
 - columns in different order in NCEI and City_2022 files ... pay attention
 - **PASTE AS TEXT! (don't just use ^V or ⌘V!)**
 - if it complains about merged cells, make sure you have 168 lines of data in NCEI
 - First row = first Saturday 11:5X data, Excel row 2
 - Last row = last Saturday 10:5X data, Excel row 169
- 2) CHECK YOUR DATA ... do the numbers, comments in colored columns make sense?
 - If not, is there an error (type?), if puzzled ask Aileen
- 3) Check the plots
 - Vertical scales accommodate all data (no lines go off the charts)
 - Change scales if necessary (double click on number on the axis to change)
 - Top: Lines for Temperature (°F), Humidity (%), Wind Speed (mph), SLP (hPa, mb)

— Temperature — Humidity — Wind Speed — S.L. Pressure
 - Bottom Plot: Lines for Temperature (°C), Wind Speed (kmh), Wind Direction (Az. °)

— Temperature — Speed ■ Direction

D) For each Sunday - Saturday week,

- 1) Complete **Weekly Weather Notes Word document** (no Pages!) about the week's weather in your city, including the summaries from your spreadsheet,
- 2) Create a **Weekly Weather Analysis Word document** (no Pages!) with color images of each plot from the weekly Excel tab with analysis in reference to the provided weather maps in the Maps folder for each week.

E) Keep data, Notes, and Analysis for each week in its T-drive folder in your city folder for your city that includes all of the above for each week**F) Research the Geography and Climate of your city to create****1) Presentation due on Wednesday, April 6, 2022**

Each city's climate depends on its position on the Earth (primarily latitude) and its location on the North American continent relative to oceans, mountains and plains. In this presentation you should describe the climate of your city and explain what physical factors cause it to be what it is.

2) Summary of Winter 2022 in your city (Due with data on 4/29/22)

This will summarize the winter of 2022 in your city and **analyze this year relative to your city's normals and the rest of the nation** according to the data on the climatology tab, analyses available from the NOAA National Centers for Environmental Information (www.ncdc.noaa.gov) and other print and on-line sources.

The project folder with all plots, weather notes, analyses, Power Point, and paper is due on April 29, 2022.

