**Finding and Preparing Local Climate Data**

This is a long and involved process that requires some familiarity with Excel. If there is an available dataset that might work for your location, I would recommend using that. If there is not a dataset that is close to your location (same state or region), locate a weather station using the following process, and be prepared for a data-prep time commitment. Climate data is available for free for anyone to request from: <https://www.ncdc.noaa.gov/cdo-web/>.

Finding all available stations for an area:

1. Select the “Search Tool” link.
2. From the “Select Weather Observation Type/Dataset” dropdown menu, choose Daily Summaries.
3. For the “Date Range” I would select the previous month to ensure that the data you are requesting includes recent information. (The current month is often uploaded at the end of the month as a single data upload, so if you select a partially complete month you may be eliminating high quality data stations.) When you select the data you are downloading you can change the date range to include all available data.
4. Search for “Stations.”
5. Enter a search term, here I would type your two-letter state abbreviation.
6. Select “Search”

Determining which station(s) to request:

1. When searching for stations, it is important to keep in mind the length of time that the station has been collecting data, and the proportion of data that was collected. After selecting a station on the map, the date range and proportion are visible.
2. If a station looks promising, click on “view full details” either on the list to the left, or on the station’s icon. From the “full details” webpage, you can see what data is available, and what data is missing.
3. If you think a station includes a) a long data history, b) the type of information you are looking for (in this case maximum and minimum temperatures, and c) the data coverage has a high percentage, then click on “add to cart.”
4. You can add multiple stations to the cart in the same request, but they will come as a single data file.
5. Once you have added all of the stations you are interested in, select CSV as the file type, and then on the next page, select metric as the data units, and select temperature and precipitation (or whatever data you are interested in) as the data to include.
6. Once you obtain this data, there is a lot of cleaning and reorganizing that needs to be done to prep the data.

Data Prep/Cleaning:

1. First, separate the stations, which all came in a single file, into multiple workbooks.
2. I find it is easier to interpret and analyze the data when the data is separated into one row per month (this is how the pre-analyzed data is organized), with one decade per sheet. This will require copying and pasting the values and transforming them into rows from columns.
3. There will be some missing data tags “-9999” that need to be replaced with either an absent value, or you could use a letter based missing data value. This numerical value will get averaged into your analysis if not replaced.