Pre-homework

For this and all coding assignments, you must turn in an annotated Markdown notebook (such as a Jupyter notebook) that shows your code, includes inline figures, and has appropriate annotations. Please export your notebook to html with all the cells already run.

The preliminary homework assignment solely focuses on reading in data and plotting, which will be necessary for various assignments and the final project. If this assignment is not straightforward to you, please be aware that you may need to spend additional time throughout the course on coding.

Download time series of daily maximum and minimum temperature in Los Angeles from the course website (Week 1). The time series begins in August 1944; leap days have been removed such that each year has 365 days. Missing data is indicated by -9999.9. The weather station providing this data is named USW00023174, and is located at 33.938N, 118.3888W.

Please make the following plots. Note that each plot should have labeled axes, a title, and a legend as appropriate.

1. The full time series of daily maximum temperature (T_x) from January 2010 to the end of the dataset.
2. A scatter plot of T_x as a function of the day of year.
3. An estimate of the seasonal cycle in T_x and daily minimum temperature (T_n), calculated as the average across years for each day of year.
4. The annual mean T_x and T_n for all available data.
5. A map at appropriate scale that shows a star where the Los Angeles station is located, as well as appropriate boundaries/borders (coastlines, states, counties, etc.)