Air Quality 2025: Particular Matter Observations

Question 1: Does Particular Matter less than 10 um (PM_{10}) correlate temperature?
Write a python code that is well documented to determining the answer to this questions. Determine the correlation for both 1 hr and 24 hr data points. Steps you would likely want to follow to complete this task are listed below.

- Download data from CHORDS site for measurements of PM_{10} at Clifford Hall in Grand Forks, North Dakota.
- Download temperature data for a similar period from Clifford Hall, Gorman Field the Meteorological Trailer, or any other local source for the period with PM_{10} measurements.
- Conduct quality assurance of the data.

Question 2: What is the seasonal cycle of Particular Matter less than 10 um (PM_{10}) in Fargo, North Dakota?
Write a python code that is well documented to determining the answer to this questions. Use Monthly average data over at least 4 years. Steps you would likely want to follow to complete this task are listed below.

- Download data from the Cass County, North Dakota site (Latitude 46.933754 and Longitude -96.85535 (Site Number 1004) for measurements of PM_{10} in Fargo, North Dakota. See https://www.epa.gov/outdoor-air-quality-data. Try to use the Air Quality System (AQS) API – https://aqs.epa.gov/aqsweb/documents/data_api.html. Should use parameter code for PM 10 (85101) and site code (1004) for Fargo.
- Conduct quality assurance of the data.

For both of the above questions. Create a document with a text paragraph, follow the style discussion in Dr. Delene's Article Guide. Below the paragraph include a figure with caption. One paragraph, figure and caption for each question.