

PM2.5 VS. PRECIPITATION IN NYC

INTRODUCTION

- Airborne particulate matter (PM) is a mixture of many chemical species, including aerosols made of small droplets of liquid, fine solid particles, and combinations of solid cores with liquid coatings
- Researchers found that during the period of quarantine in the COVID-19 pandemic, there was a reduction both in pollutants in the air as well as in the precipitation observed during that period of time
- A study done in China (2020), in three different regions that are known to have heavy concentrations of pollutants, shows that there is a "removal effect" that occurs when there are varying concentrations of precipitation and PM2.5 mass concentration conditions.
- Several factors contribute to the amount of precipitation observed in a given period of time, such as region, prevailing winds, and seasons.

RESEARCH QUESTION

What is the correlation between PM2.5 particles and average precipitation (in.) amount in NYC?

HYPOTHESIS

If there is an increase in pm 2.5 particles, there will also be an increase in rainfall.

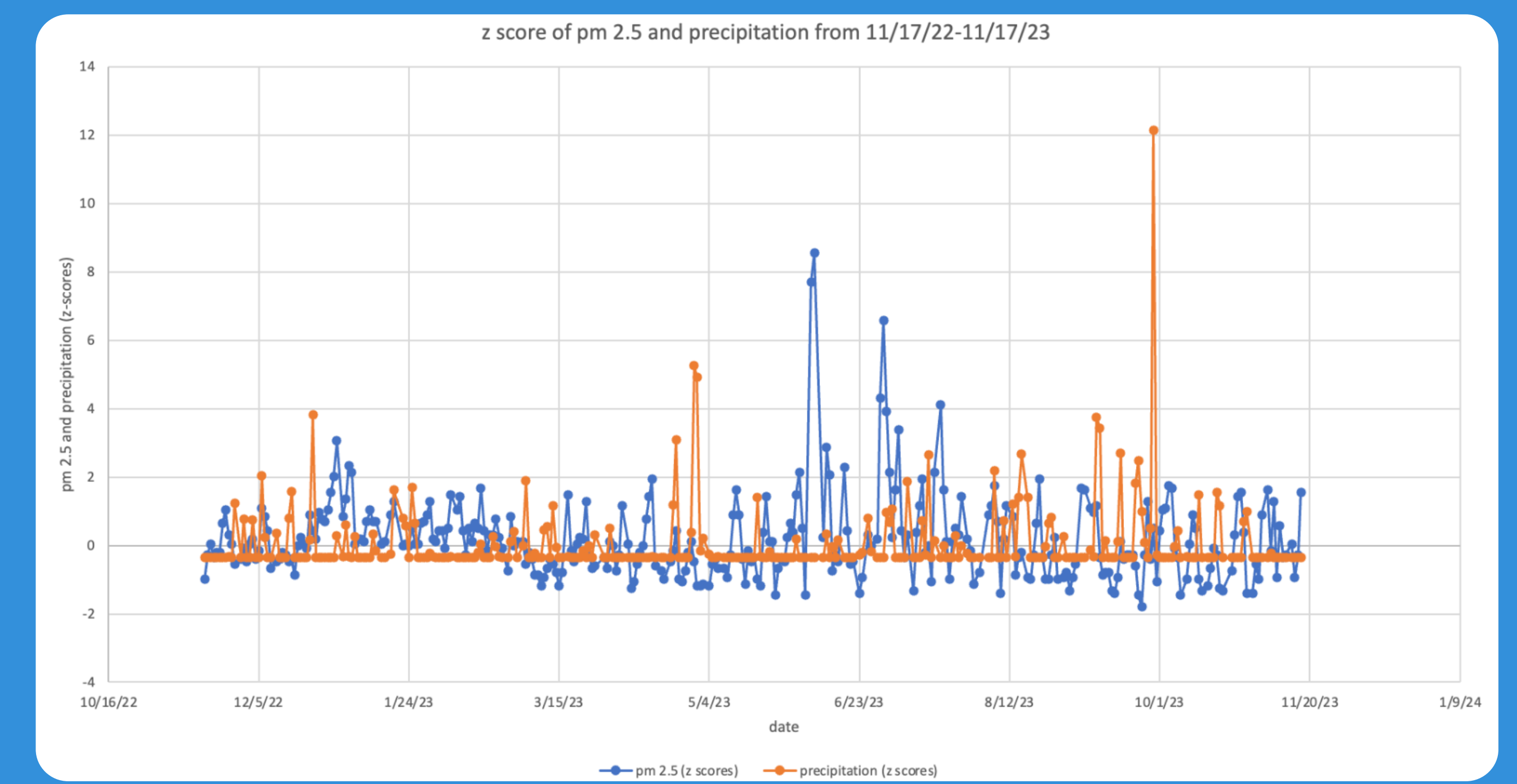
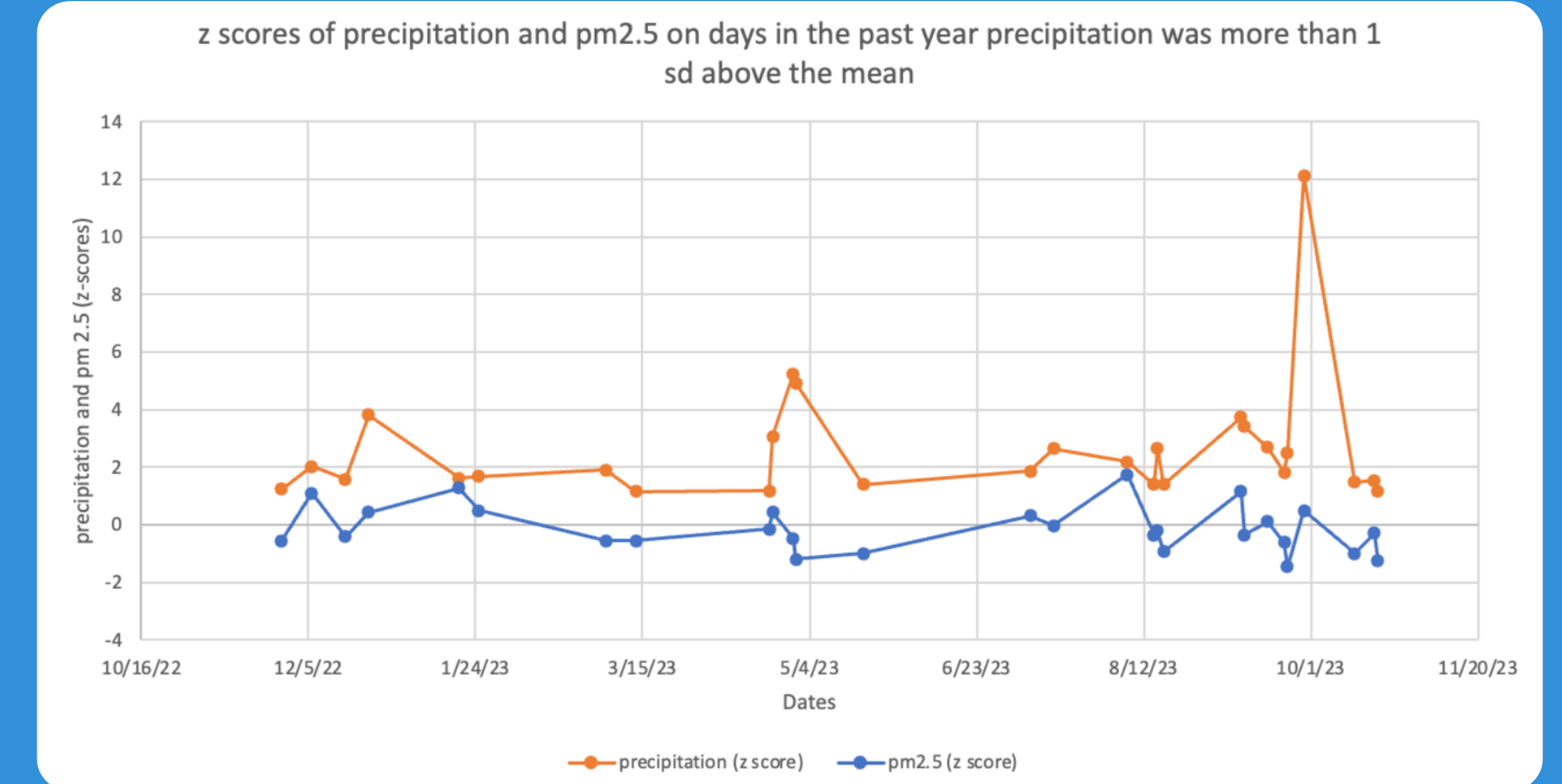
METHODS

- Rainfall and pm 2.5 data was collected for the past year (from 11/17/22 to 11/17/23) from Central Park's weather station and CCNY's pm2.5 station.
- These were placed on their own individual graphs
- Z scores were found for each value so precipitation and pm 2.5 could be measured on the same scale
- These were initially graphed against each other, however, to make the data analyzable, it became necessary to look at a smaller data set
- The data was organized into two graphs: one in which the z scores were compared for the data points where the precipitation was more than one standard deviation above the mean, and another where the pm 2.5 values was more than one standard deviation above the mean.

REFERENCES

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DATA



CONCLUSION

- There is some correlation between the amount of PM 2.5 in the air and the average precipitation
- Our graphs show that sudden spikes in PM 2.5 were often followed by spikes in precipitation
- It is still unclear whether there is a fixed ratio between changes in PM 2.5 and precipitation

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