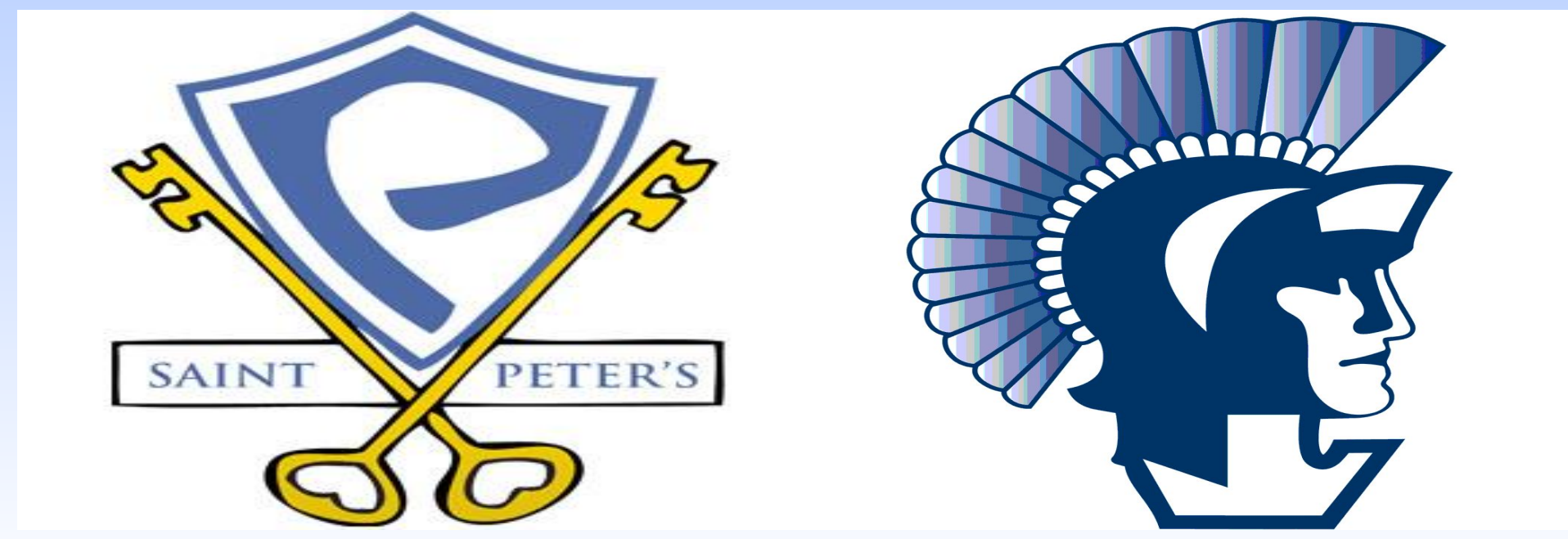


Does the amount of aerosols change throughout the day?



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Abstract

My research is about aerosols and the amounts of aerosol there are throughout a day. I was interested in this topic because they are the problem, they are a great contributor to air pollution and global warming. My research question is: does the amount of aerosols change throughout the day? I used the purple air website to observe the number of aerosols on December seventh, 7 am to 7 pm. The results of my research are that the number of aerosols is above and below the dotted line meaning that the number of aerosols was either below or above fifty aerosols. I concluded that aerosols do indeed change throughout the day. I also concluded that the number of aerosols was very high at the start of the day I was looking at.

Research Methods

Planning Investigations

My plan for investigation is to use the purple air website to look at the data taken at St Peter's Elementary & Montessori School and then find a specific day to investigate. The purple air website is a website that has data on aerosols. It can be used to see the number of aerosols in the air, it also can determine the air quality. The air I was testing is an urban area, the meaning of urban is "related to city." Mansfield is a temperature climate, meaning that the environment has moderate rainfall throughout the year. So mild weather. When I was looking over the website it said that higher levels of aerosols can possibly affect sensitive peoples health but was not likely to affect the general public. I will look at December fifth's data from 7 am to 7 pm. I plan to look at the data collected between 7am and 7pm. I also plan to look up military time, the dAta and time on the website is in military time so knowing what time it is in military time is key information. I also plan to look at what affect the number of aerosols in the air, I want to know what's making the amount of aerosols so high or so low.

Figure #1

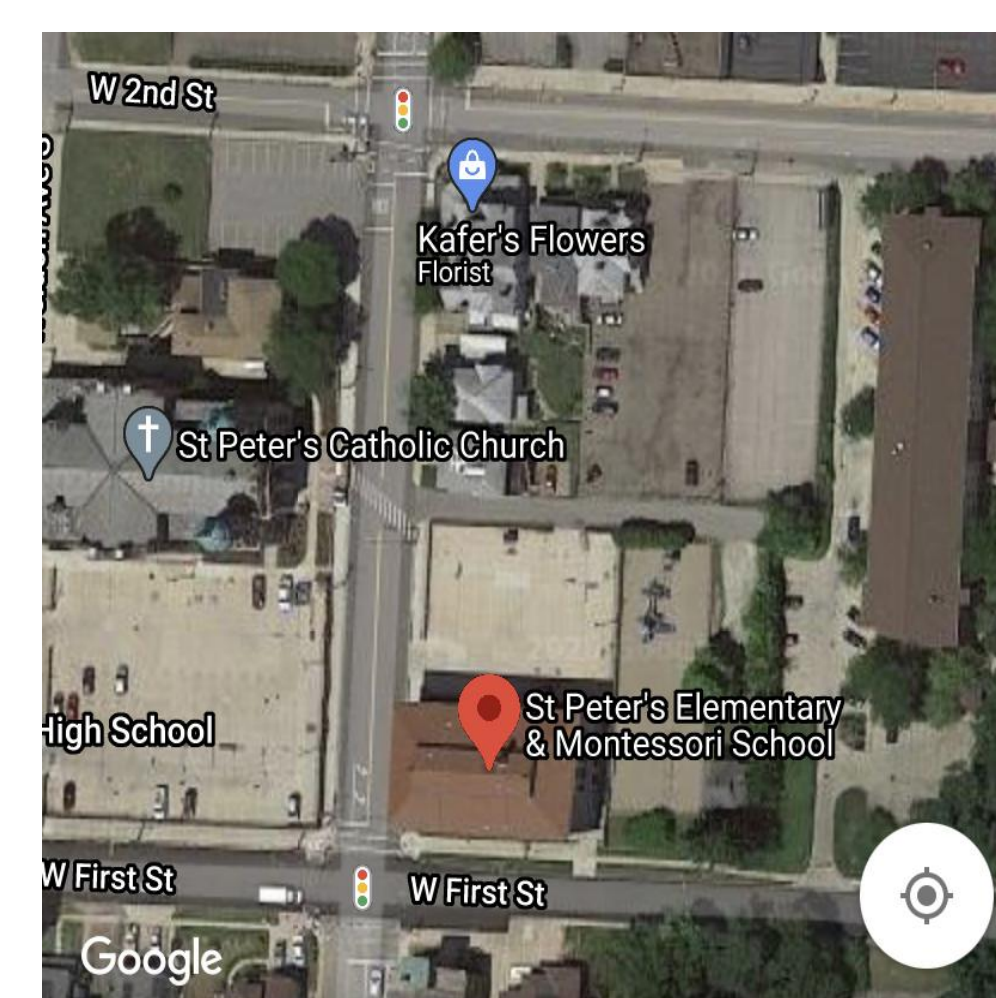
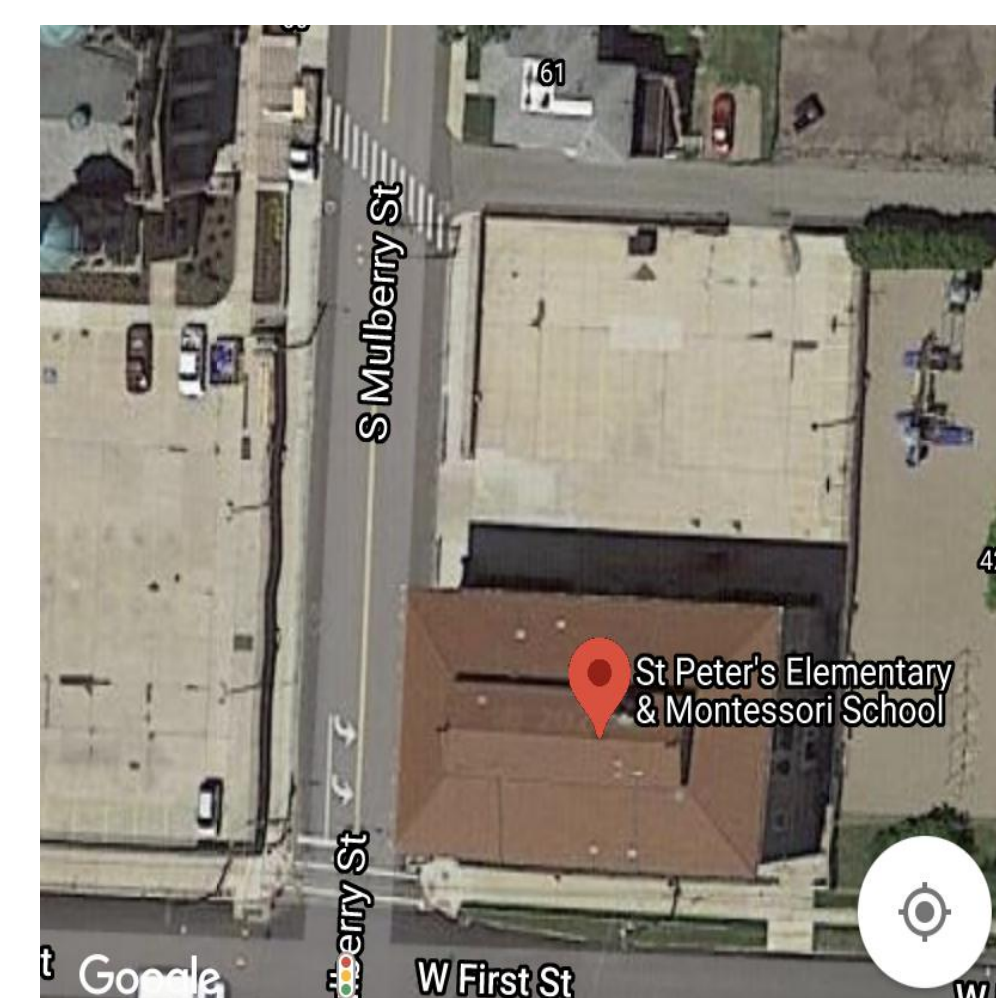


Figure #2

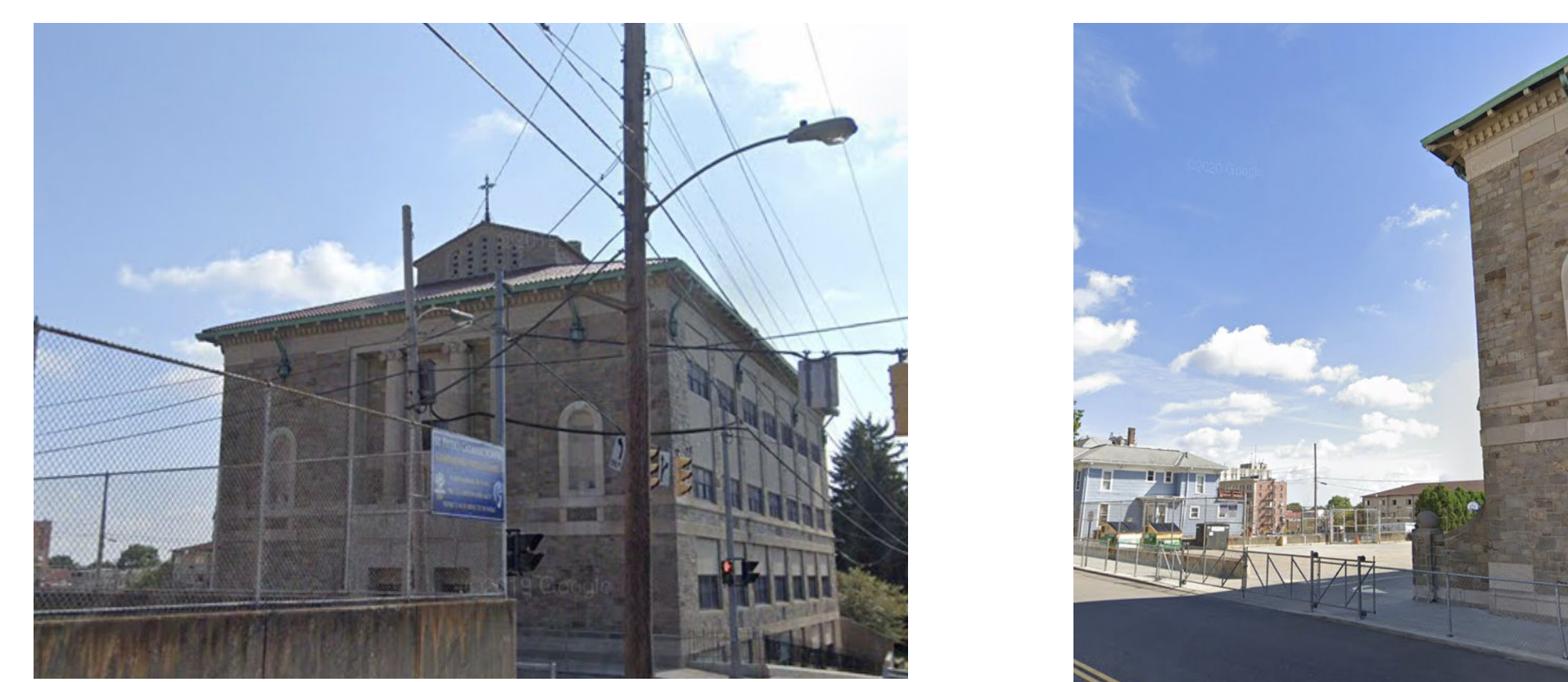


Question/Hypothesis

My research question asks: does the amount of are sold changes throughout the day? My hypothesis is I think that the number of aerosols changed throughout the day. The amount of aerosols is affected by people driving cars. 60% of United States citizens drive. (Source; bullet point #7 in resources) since aerosols numbers fluctuate because of cars that means the number of aerosols shouldn't remain the same throughout the day. I am interested in researching this topic because they are an interesting part of the environment I live in. You can use the data GLOBE and the information GLOBE provides to answer my question. Knowing the amount of are sold in the air and knowing whether or not the amount of are sold can damage your health is very helpful. Knowing what aerosols affect and why they are a problem helps a dress the problem, which is aerosols. Aerosols are the reason why global warming has happened they both warm and cool the earth so they are both the problem and the solution.

Introduction

Researching this topic is important because aerosols are important. They are an important part of the earth's climate. Aerosols are a great contributor to global warming. Some aerosols can cool the earth by reflecting sunlight to space. Darker aerosols can absorb large amounts of light, this can affect the temperature and climate of the earth. Some aerosols cool the earth's and some warm the earth so they balance each other out. Scientists study aerosols because it helps scientists understand and study air quality and climate. This topic addresses the problem of aerosols, they are both the problem and the solution. People don't know much about aerosols and that's a problem my research provides more information on this problem. It lets you know that there may have been a lot of not a lot of aerosols that day. I used purple air data to figure out the number of aerosols in the area I was investigating.



Field Photos

Carrying Out Investigations

I collected my data using the purple air website. The data was collected all on the same day and in the same area which so that there would be controlled variables. The number of aerosols is a dependent variable, the different times throughout the day is the independent variable. I wasn't exactly sure if I needed to look at both of the sets of data. In the picture above it shows where the data was taken and what area. I looked at the data from December fifth, 2020, from 7am to 7pm. Figure #3 it shows that the data taken between those two times was mostly located below the dotted line. Meaning that the number of aerosols was below fifty. I wasn't sure if I needed to look at both sets of data. I ended up choosing 1 set of data but in figure # 3 you will see that there is two different lines. I came to realize that it didn't matter which line I chose, I used the blue line for this project. The two lines provide different perspectives and different lines. I looked at a 10-minute average which didn't make a whole lot of sense but the average changed when I put the average on a different time. For example, if I put the settings on a thirty minute average it would look a lot different than a ten minute average because you would be looking at two different things. I believe that my method did indeed help answer my question because I was able to determine the different variables and able to tell how many aerosols there was in the day I was testing.

Results

My results show the 10 minute average of st. Peter's Elementary school B. If you look at figure #5 you will notice that the data is not in a straight line, concluding that the amount of are sold do indeed change through the day. In figure #5 it shows that December third through the seventh. In figure #3 you should notice that the amount of aerosols is mostly below 50 aerosols. My analysis I conducted addressed the research question because you can clearly see the day and the amount of aerosols in the line chart. As shown in my line chart, the amount of aerosols were collected and all the data was added to purple air. In figures #3-5 you can see the movement of the line throughout the graph. According to my data the amount of aerosols do change throughout the day.

Figure #3

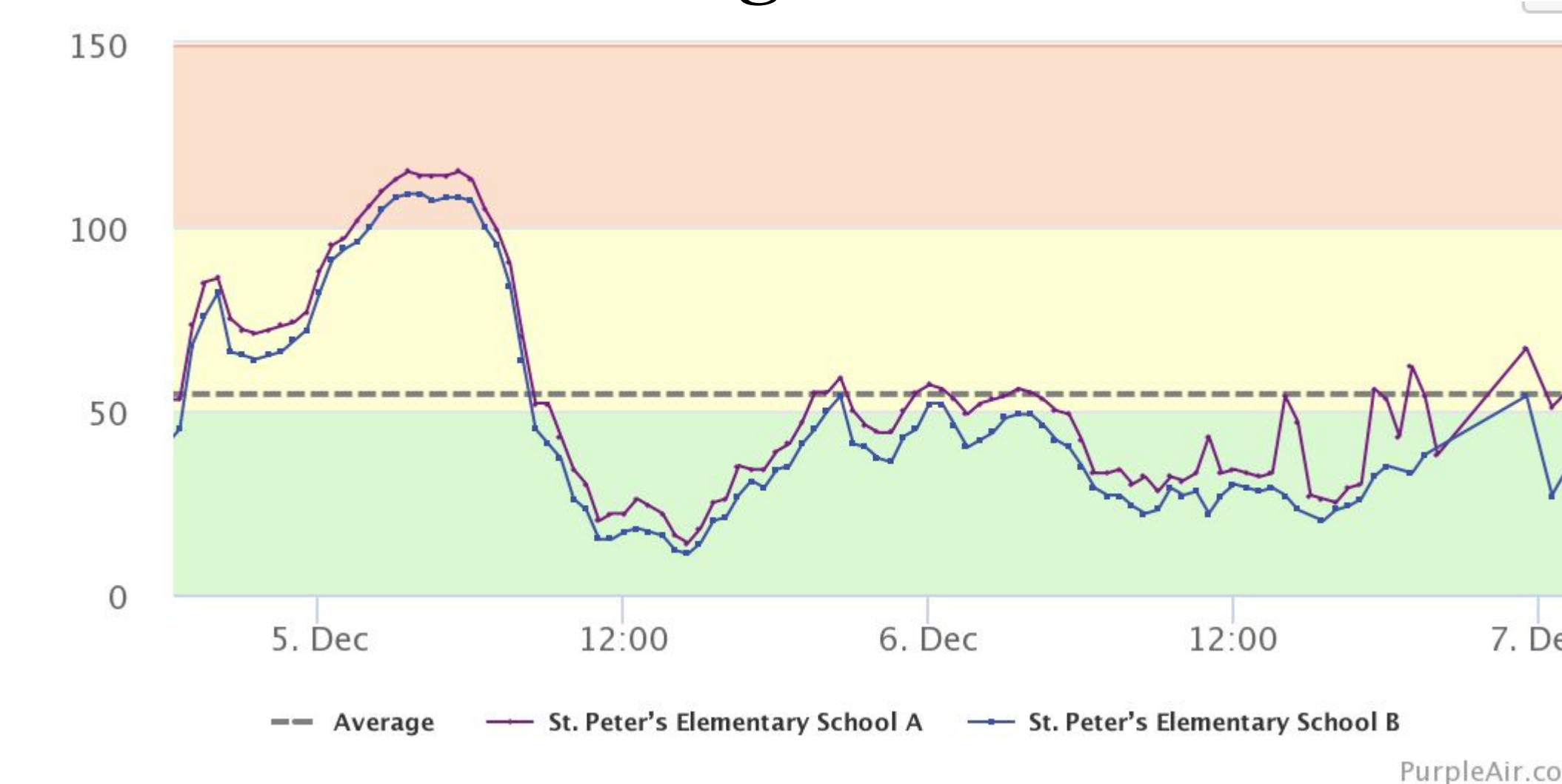


Figure #4

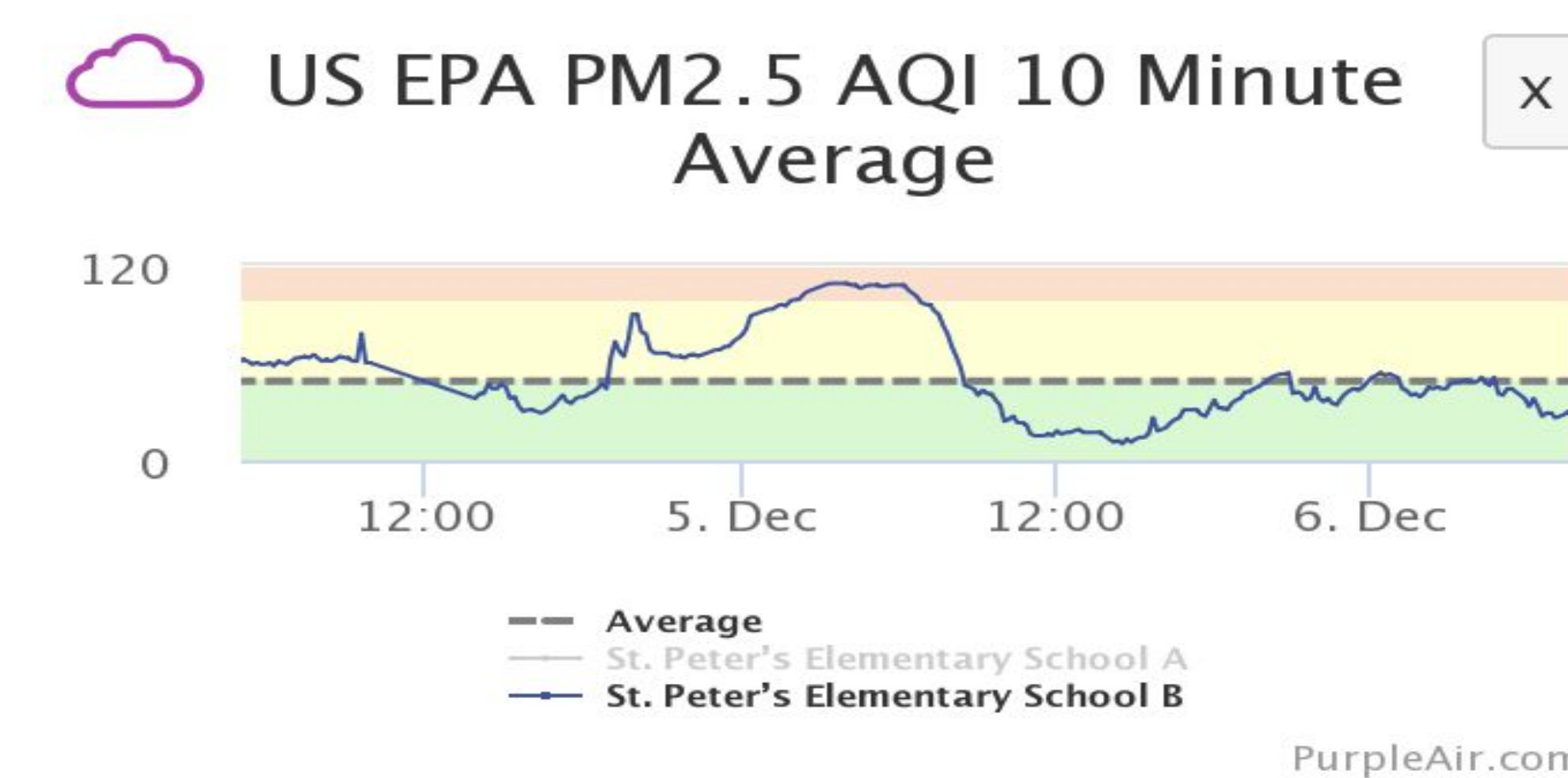
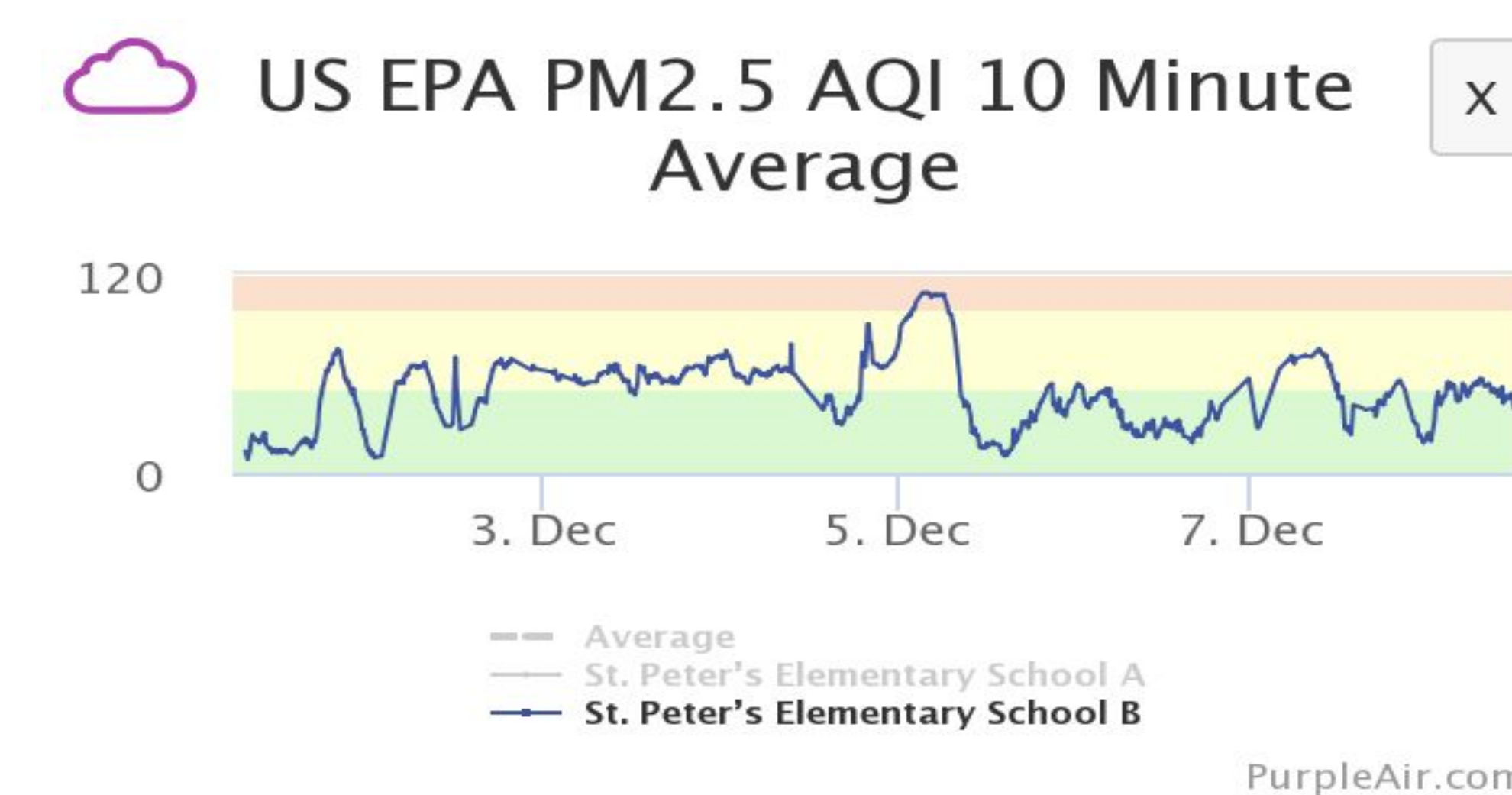


Figure #5



Discussion

The most important results are that on the day I examined the number of aerosols was below and above the dotted line. the results mean that there were more or less than fifty aerosols. The data is important because knowing about the number of aerosols is important. Aerosols are the problem they affect humans, plants, and animals. They affect the climate, knowing this can help us better understand global warming and the reason why our temperatures are irregularly warming. My results are precise. To determine if my results are accurate someone would have to look at the purple weather website and look at December fifth, 7 am to 7 pm. These results do indeed help answer the research question because in figure #3 you can see that the number of aerosols did decrease and increase throughout the day I examined. The results do support my hypothesis because my hypothesis was "I think that the number of aerosols changed throughout the day." it supports my hypothesis because it proves that my hypothesis was indeed correct the amount of aerosols did change throughout that day. I had some problems collecting data, and the purple air website was very touchy so it was hard to see the data at first. I was able to fix that problem by using a different device. Uncertainties and limitations in my research process mean that I needed to study and check over my data.

Conclusions

My conclusion is that aerosols do indeed change throughout the day. I also concluded that the number of aerosols was very high at the start of the day I was looking at. My conclusion is supposed by the results because my conclusion says that the number of aerosols does change throughout the day, in the results you can see that the line isn't straight. If the line was straight that would mean that then the number of aerosols would have been the same throughout that day. If you look at figure #3 you can see that the line goes up and down and is no way near straight. Improvements to my research could be to collect more information and to find more pictures related to my topic. I would like to find a better picture for figure #4 instead of having three pictures of almost the same thing. I appreciate doing this research for GLOBE and NASA because I was able to study aerosols and to answer previous questions I have had about aerosols. I also came up with more questions along the way, like do salt trucks affect the number of aerosols in the air? It allowed me to investigate aerosols.

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