

# Air Quality

BY: T.J. KRAUEL

MENTOR: DR. ABU-AGEEL

COLLABORATORS: CAPITOL TECH. FACULTY, DR.  
WALTERS

# About me

- I am a capitol technology university student
- I major in astronautical engineering
- I am going into my 2<sup>nd</sup> year



**CAPITOL**  
Technology University

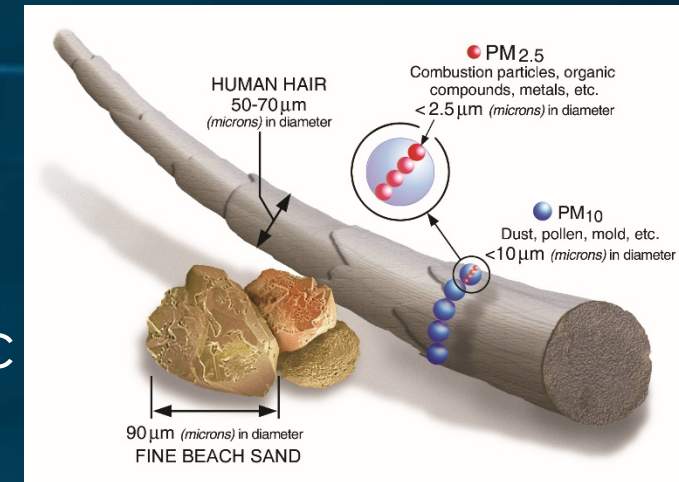
# What is the project about

- This project was assigned to me by Dr. Abu-Ageel
- We aimed to measure the quality of the air in the school by checking a variety of rooms
- The device we used was a aeroqual air meter 500 series
- We used the O3 and the Particulate matter attachment



# What is Particulate Matter

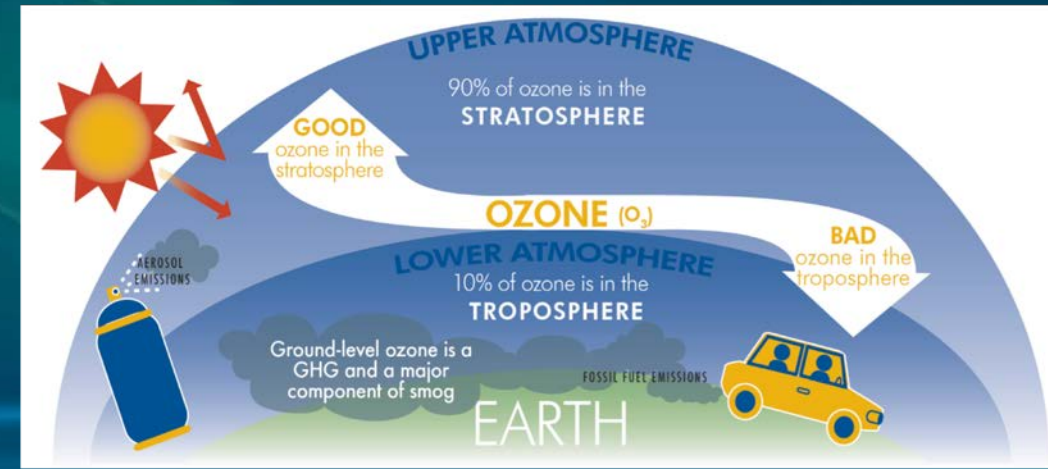
- Particulate matter comes in 2 measured sizes.
- PM 2.5 and PM 10
- PM 2.5 is typically combustion particles, organic compounds and etc.
- PM 10 is typically dust, mold, pollen, etc.
- health effects include non fatal heart attacks, irregular heart beat and decreased lung function





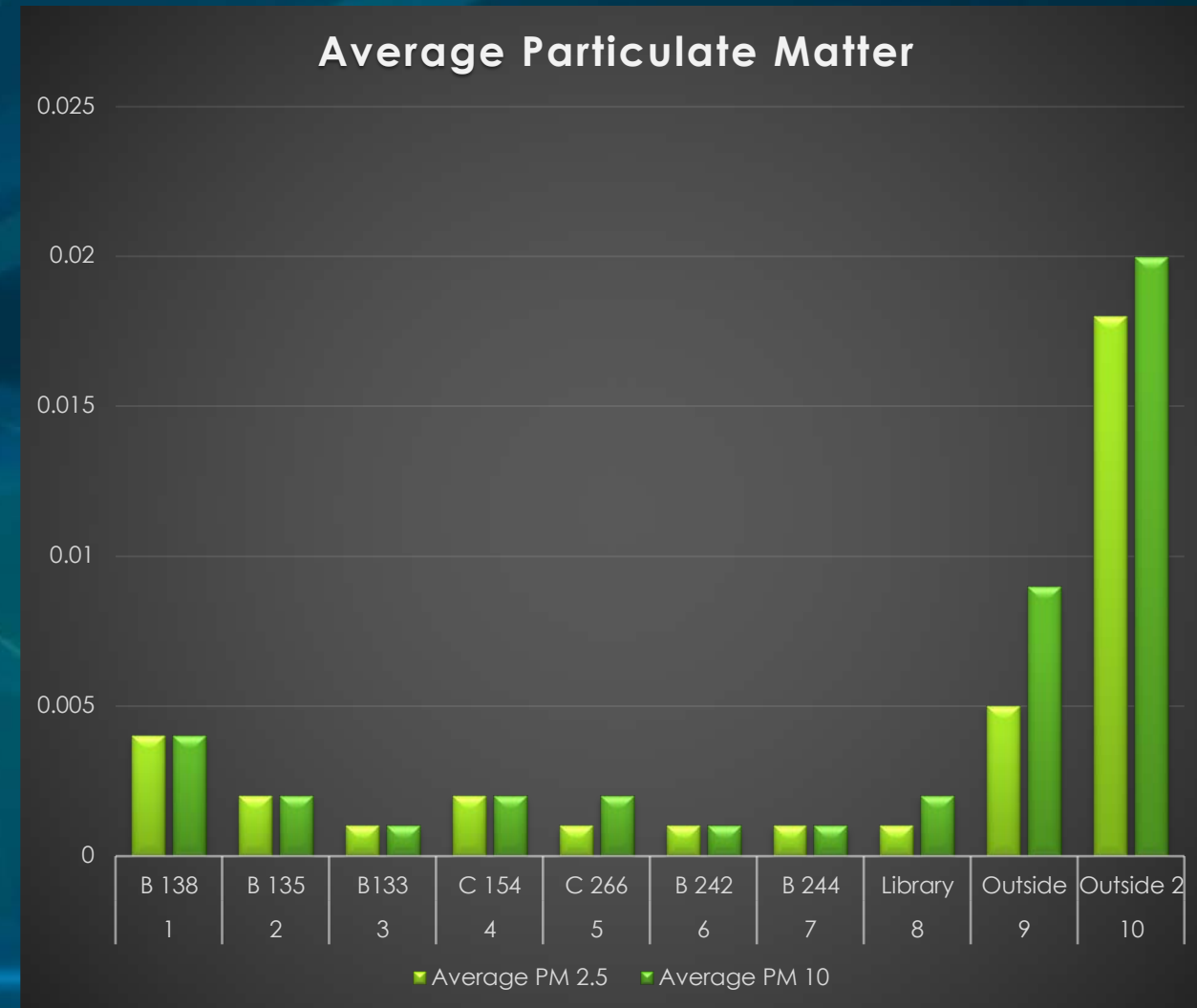
# What is Ozone

- There are 2 types of ozone, good and bad
- Good ozone is the ozone in the upper atmosphere that protects us.
- Bad ozone is in the lower atmosphere, or where we are at.
- This is typically caused by burning fossil fuels, which create hydrocarbons and nitric oxide, which create  $\text{NO}_2$  that is combined with sunlight to make  $\text{O}_3$
- Health effects include cause copd
- increase asthma attacks



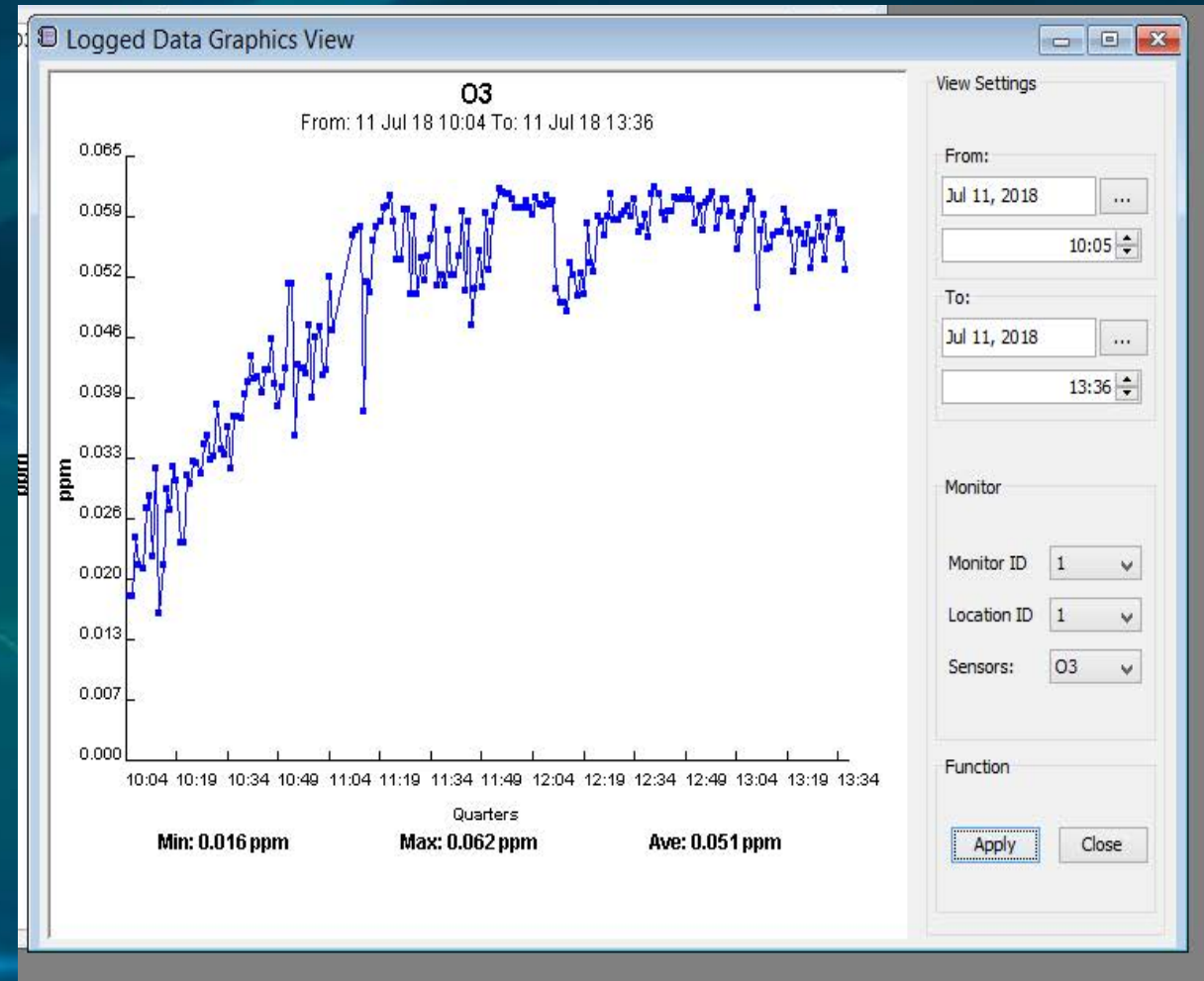
# Particulate matter

- For room B 138, the room is at the end of the hallway, this caused the higher PM level
- For the three lowest rooms, they were so lower because they were in the middle of the building



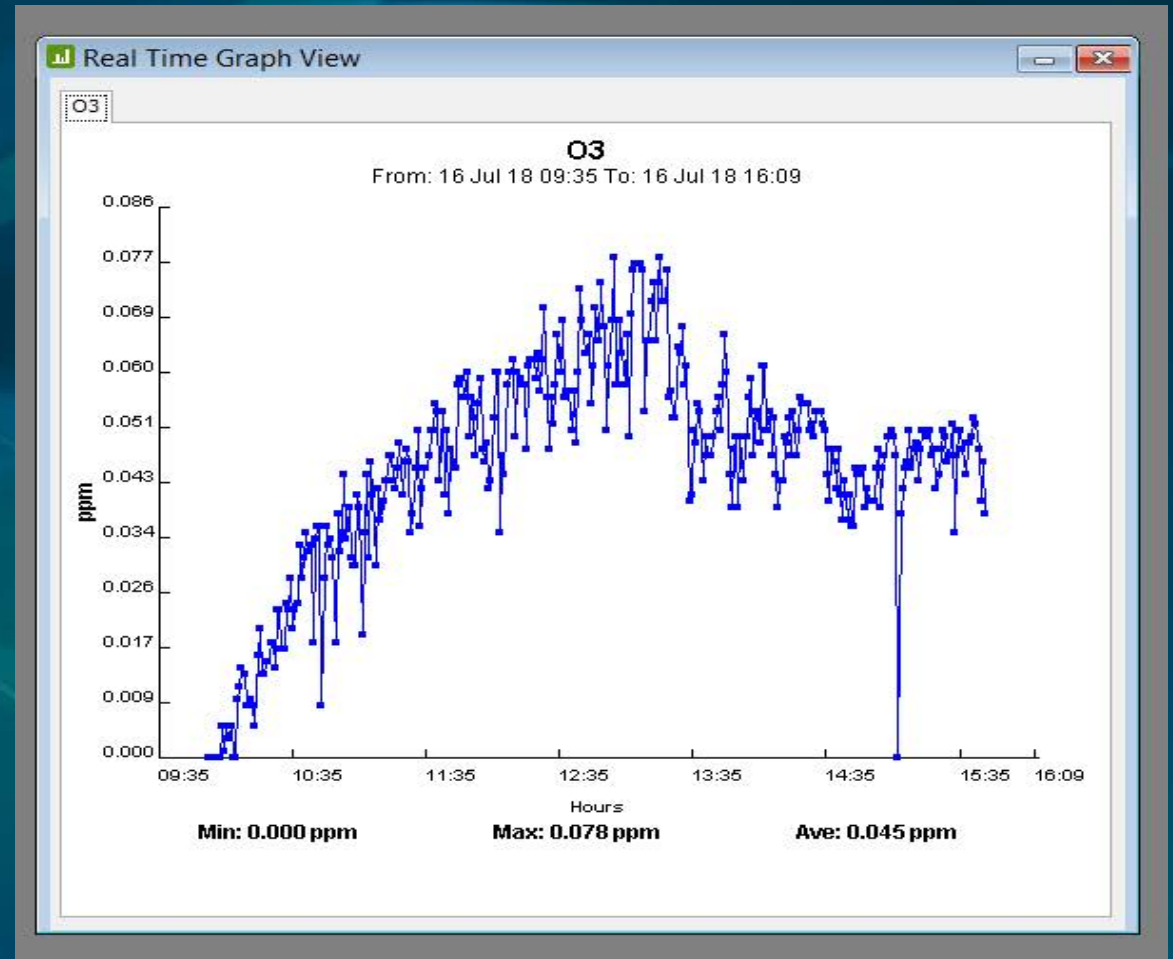
# Ozone levels outside

- The temperature for this day was 93 degrees.
- This day was shorter than the others
- This graph shows that during midday the O<sub>3</sub> went up



# Ozone levels outside

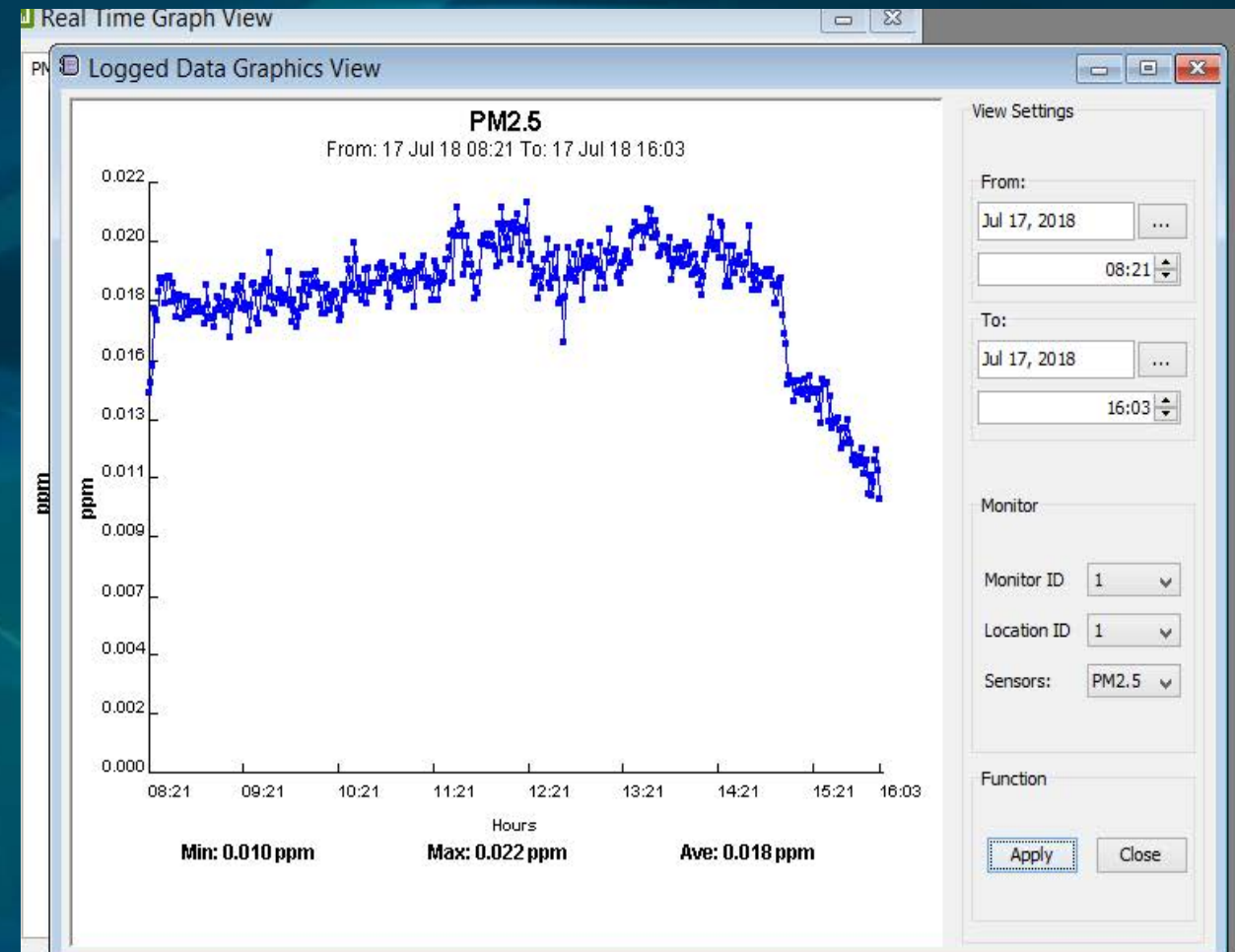
- Today it was 97 degrees,
- This resulted in a higher O<sub>3</sub> average than the previous day





# Ozone levels outside

- On this day it was raining and the temperature was 90 degrees
- This resulted in a lower average in the  $O_3$ .



# Summary

- Overall the purpose of this project was achieved, by seeing what the quality of air was in the various rooms
- The overall PM and O<sub>3</sub> were within the levels that were safe for exposure
- For O<sub>3</sub> the levels that are safe are between 0.1 ppm for 8 hours per day exposure doing light work, 0.08 ppm for 8 hours per day exposure doing moderate work and 0.05 ppm for 8 hours per day exposure doing heavy work

# Questions



ANY  
QUESTIONS  
?