

Project title: Monitor Ozone Concentration at University of New Haven

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Abstract:

High exposure of ground level ozone could trigger or worsen health conditions. Ground level ozone is created by chemical reactions between nitrogen oxides and volatile organic compound in the presence of sunlight. The most common sources of the reactants that produces ozone include but not limited to industrial facilities, motor vehicle exhaust and chemical solvent.

This project investigated different factors affecting the ground level indoor and outdoor ozone concentration at University of New Haven. Data were collected using an Aeroqual Series 200 portable ozone monitor at various locations, including university campuses, local trails and coastal areas. Periodical measurements were conducted at the West Haven campus to study the ozone concentration trend throughout the day. For each measurement, the local weather condition was also recorded for the analysis of weather effect. Indoor ozone concentration was determined alongside with outdoor measurements. All data collected were processed and compared to identify key factors influencing ambient ozone concentrations. Indoor and outdoor ozone concentration were compared side-by-side to study their relationship.

Periodical outdoor ozone measurements on campus revealed a diurnal trend, and the peak of ozone concentration was one-hour later than that of the UV index. Indoor ozone concentration is positively correlated with the outdoor ozone level. The impact of human activities on ozone concentration requires additional data collection during the fall and spring semesters with more students on campus. This research serves as a foundation of further studies on ozone concentrations in other seasons and locations.

Reference:

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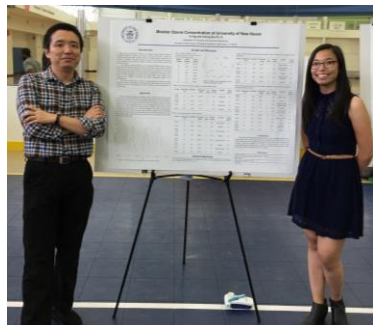
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Acknowledgments:

The authors acknowledge funding from the University of New Haven Summer Undergraduate Research Fellowship (SURF) program and additional support from the Department of Chemistry and Chemical Engineering and the National Science Foundation (Award # NSF-AGS 1463703).



Yo joined the University of New Haven in Fall 2015 as a Forensic Science and Chemistry double major. She has been working with her research advisor Dr. Qiu since November 2016, they worked on projects related to air quality and environmental impacts of aerosol. Her interest in environmental issues led to this SURF project. In addition, she is also actively involved in the American Chemical Society (ACS) Student Chapter as the president. She hopes to further her research and career in STEM fields.