

# Evaluation of Hydrogen Sulfide Concentrations at Liberty Borough Monitoring Station in Allegheny County

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# Objective

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- This study examined the frequency and intensity of H<sub>2</sub>S concentrations from 2013 to 2017, and related the concentrations to various factors, such as weather conditions and other air pollutants.



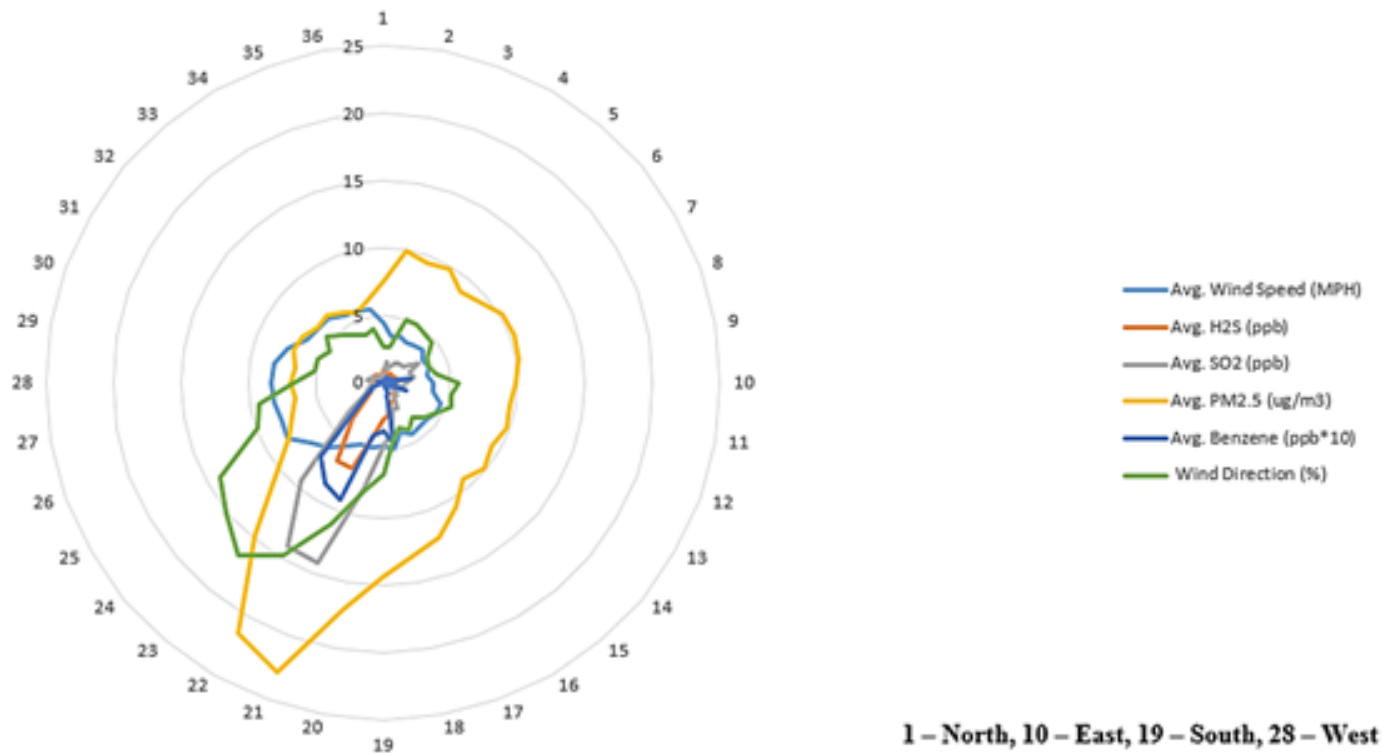
# Results

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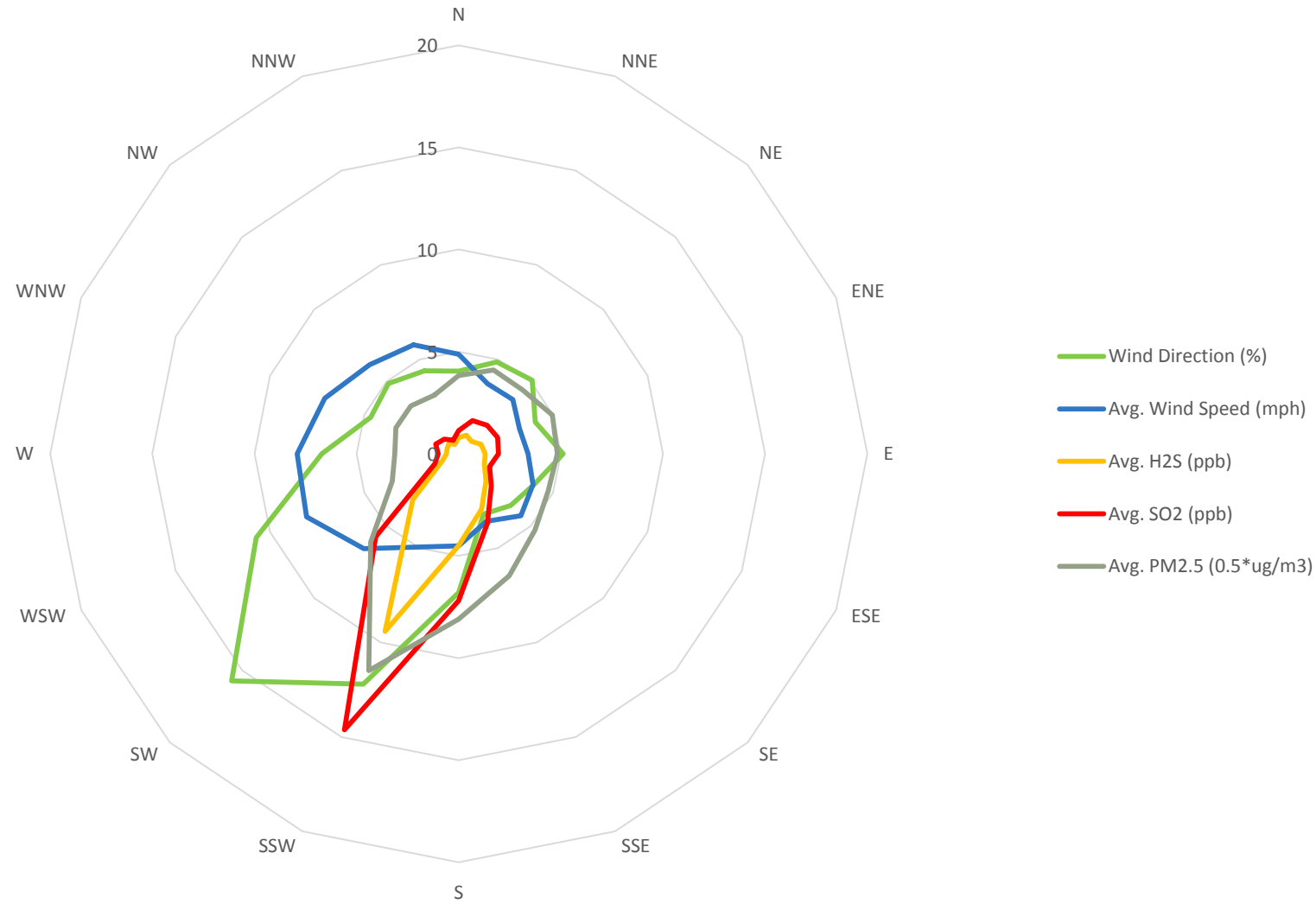
1. There were **no seasonal** trends but there was a **daily** trend in the occurrence of high H<sub>2</sub>S concentrations. Most of the highest H<sub>2</sub>S readings appeared during night and morning, from 8 pm to 10 am.
2. Most of the highest hourly H<sub>2</sub>S, SO<sub>2</sub>, benzene, and PM<sub>2.5</sub> readings typically came from **S**, **SSW**, and **SW**.
3. SO<sub>2</sub>, benzene, and PM<sub>2.5</sub> appeared to **increase with** H<sub>2</sub>S.
4. The average H<sub>2</sub>S concentration when a temperature inversion existed was significantly **higher** than the average H<sub>2</sub>S concentration when a temperature inversion did not exist.



2013 Pollution Rose (includes benzene)

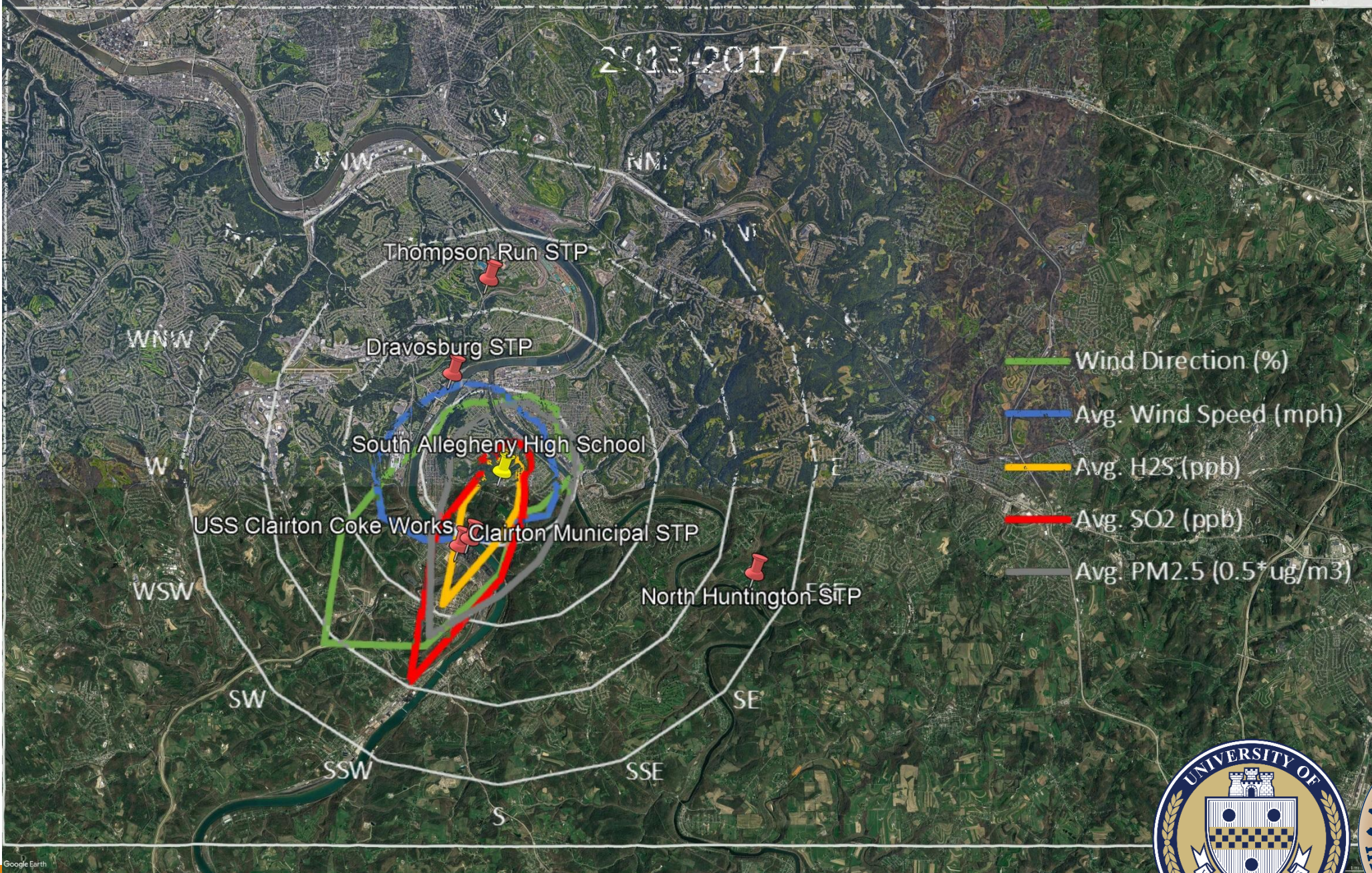


# 2013-2017 Pollution Rose





2013-2017





# Conclusion

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- Wind direction and temperature inversions are strongly related to frequency and intensity of high air pollutant concentrations at the Liberty Borough monitors.
- Based on location and amount of reported emissions from USS Clairton, it is likely a substantial contributor to the  $\text{H}_2\text{S}$ ,  $\text{SO}_2$ , benzene, and  $\text{PM}_{2.5}$  concentrations.

