

Ground Truthing Instrumentation and Enclosures for Measuring Criteria Pollutants



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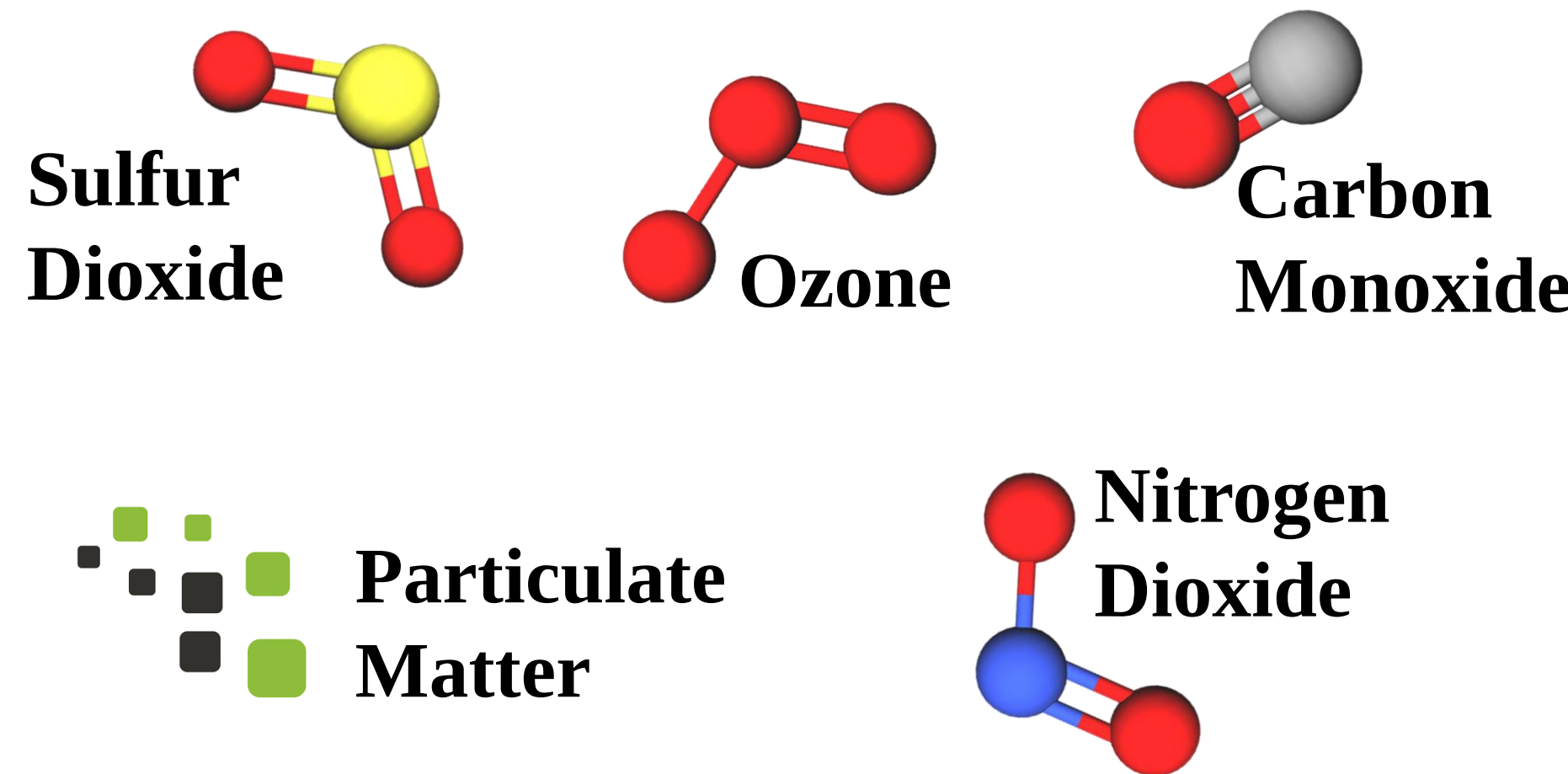
American Ecotech L.C., Warren, Rhode Island
Ambilabs L.L.C., Warren, Rhode Island



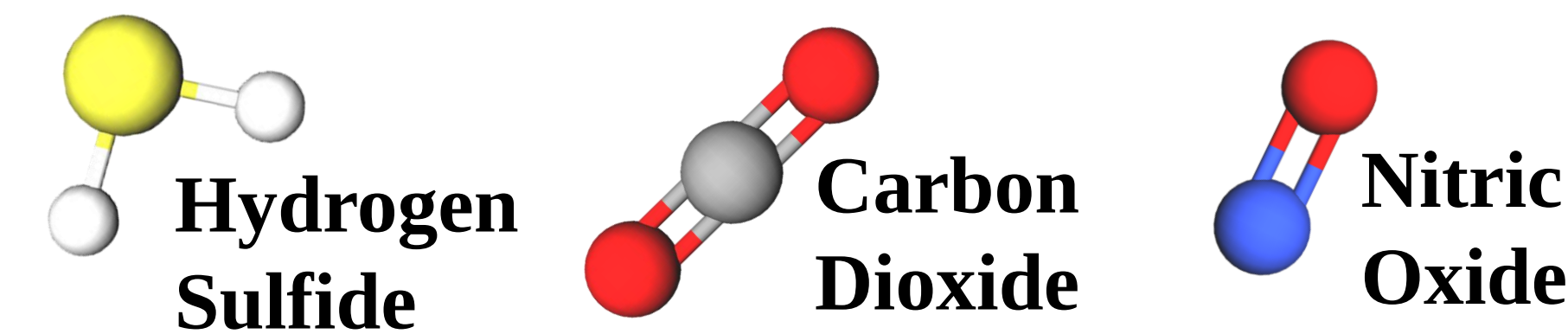
Introduction

Air Quality Monitoring Instrumentation Sales, Technical Support, and Service!

Focused on equipment for all **criteria pollutants**:



Along with Other Airborne Analytes of Interest:

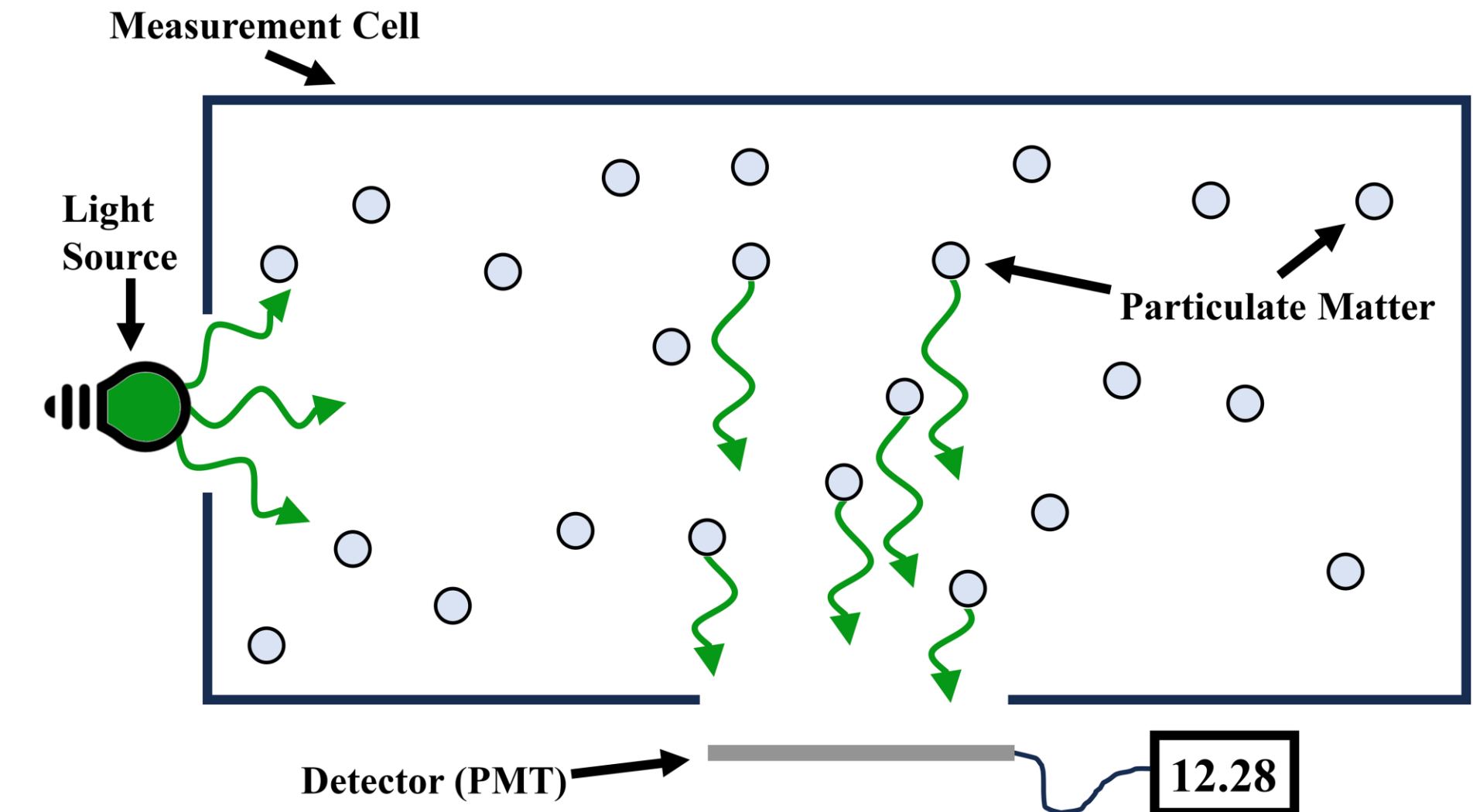


Certified to Service **Ecotech**, **Teledyne**, **Met One**, and **Ambilabs** instrumentation!

PM2.5 Optical Measurements

Purpose: Develop FEM designated PM2.5 measurement with Nephelometer technology.

Why Optical: Noncontact / non-destructive measurement requiring less maintenance time and costs.



Nephelometer's measure light scattered off airborne particulates, with the resulting scattered light (σ) intensity being a function of the sample's **concentration** and average **particle diameter**.

Methods for mitigating particle size variations:

- Calculate the **Scattering Ångström Exponent (SAE)**
- Control **relative humidity (RH)** in the measurement cell.

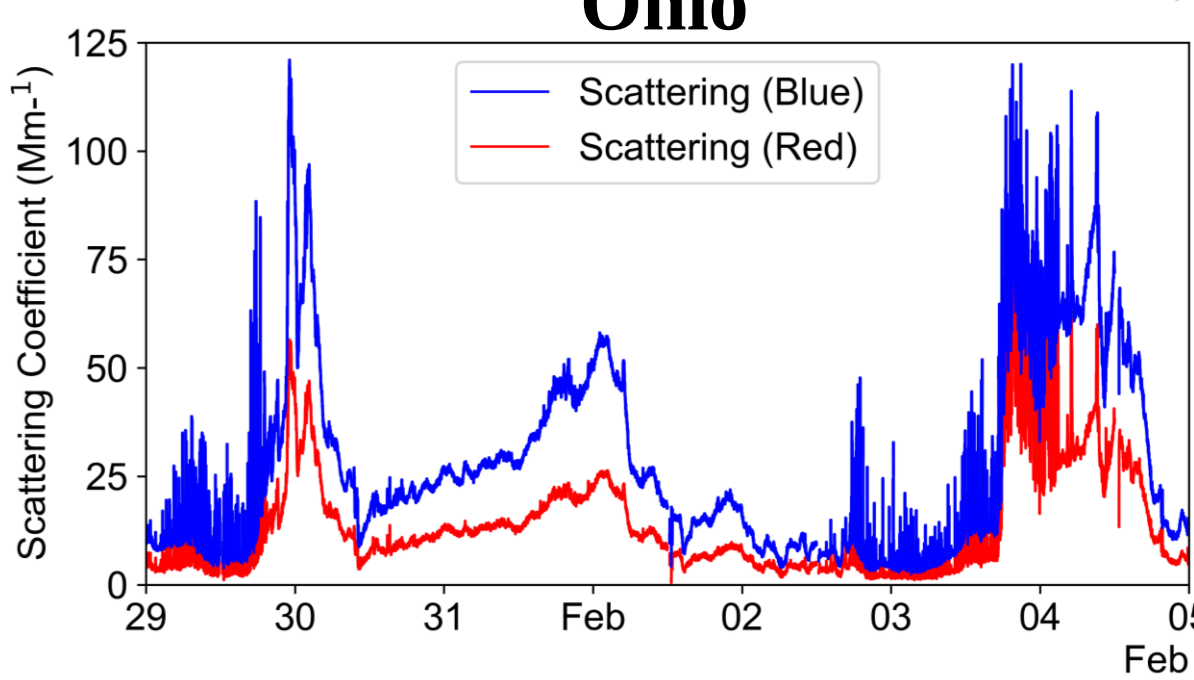
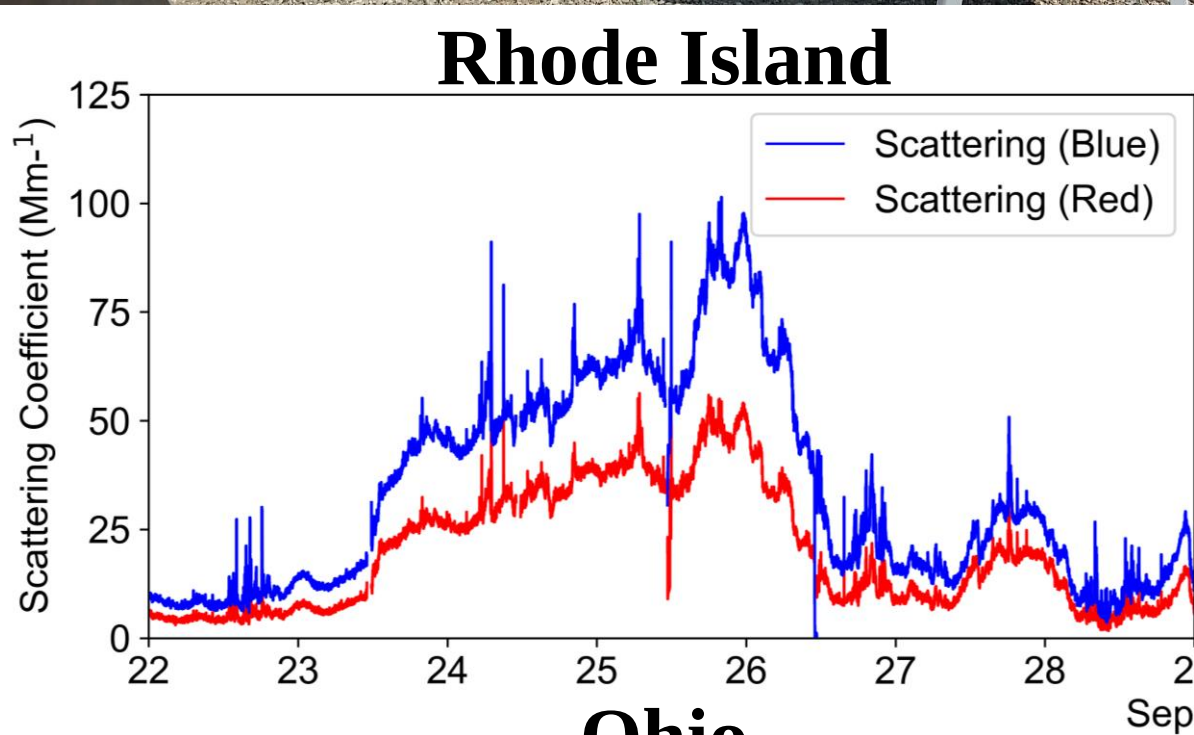
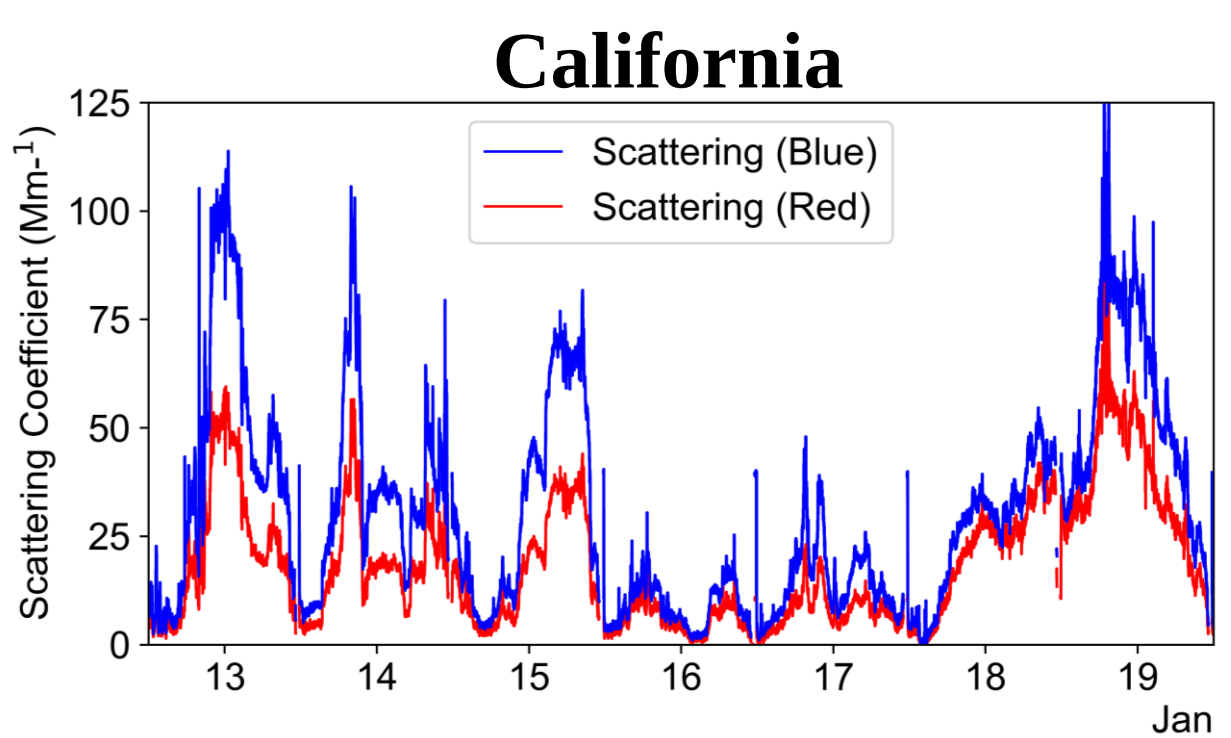
$$SAE = -\frac{\ln(\sigma_{\lambda_1}) - \ln(\sigma_{\lambda_2})}{\ln(\lambda_1) - \ln(\lambda_2)}$$

Method: Deploy instrumentation in the field alongside FRM Instrumentation! Measure, validate, repeat!



Scattering measurements collected in several different climates at two wavelengths:

- **Blue (450 nm)**
- **Red (635 nm)**



Universal Enclosures

Weatherproof Enclosures for any **Environmental Monitoring Needs!**

Can be configured with any combination of instrumentation!



DETECT Micro

- 3 Analyzers
- Vacuum Pumps
- Integrated Power

Dimensions

Height - 39.5 in
Width - 27.5 in
Depth - 31.0 in



NEW – DETECT MAX

- 10 Analyzers
- 4 Gas Cylinders
- Vacuum Pumps
- Integrated Power

Dimensions

Height - 40.0 in
Width - 49.0 in
Depth - 52.5 in

DETECT Mini (Short / Tall)

- 4 Analyzers
- 2 Gas Cylinders
- Vacuum Pumps
- Integrated Power

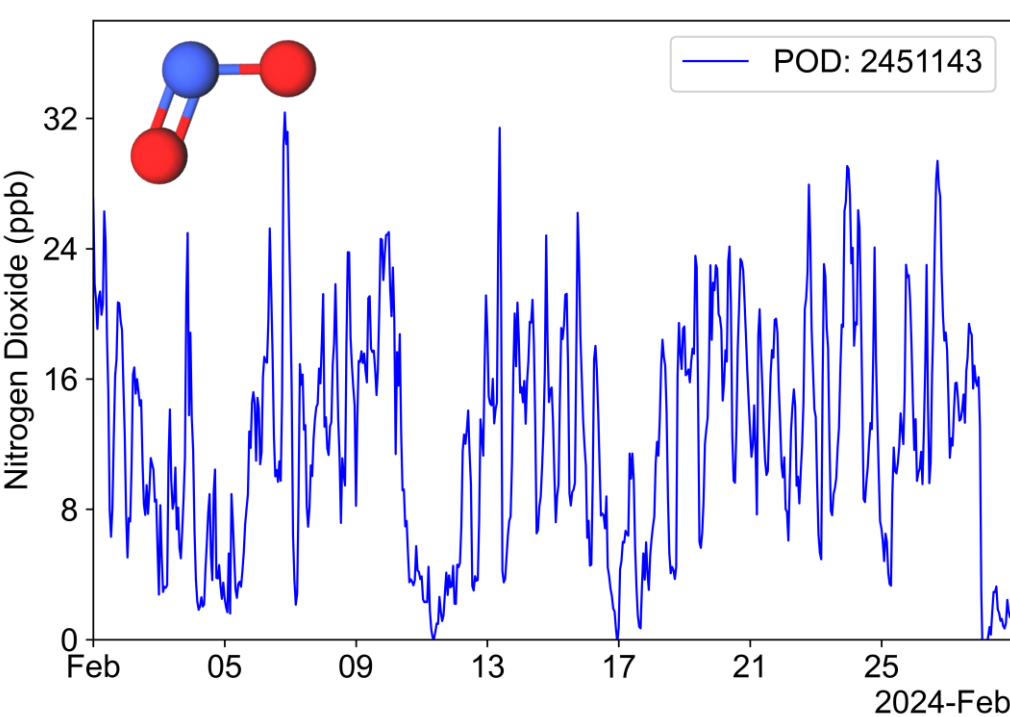
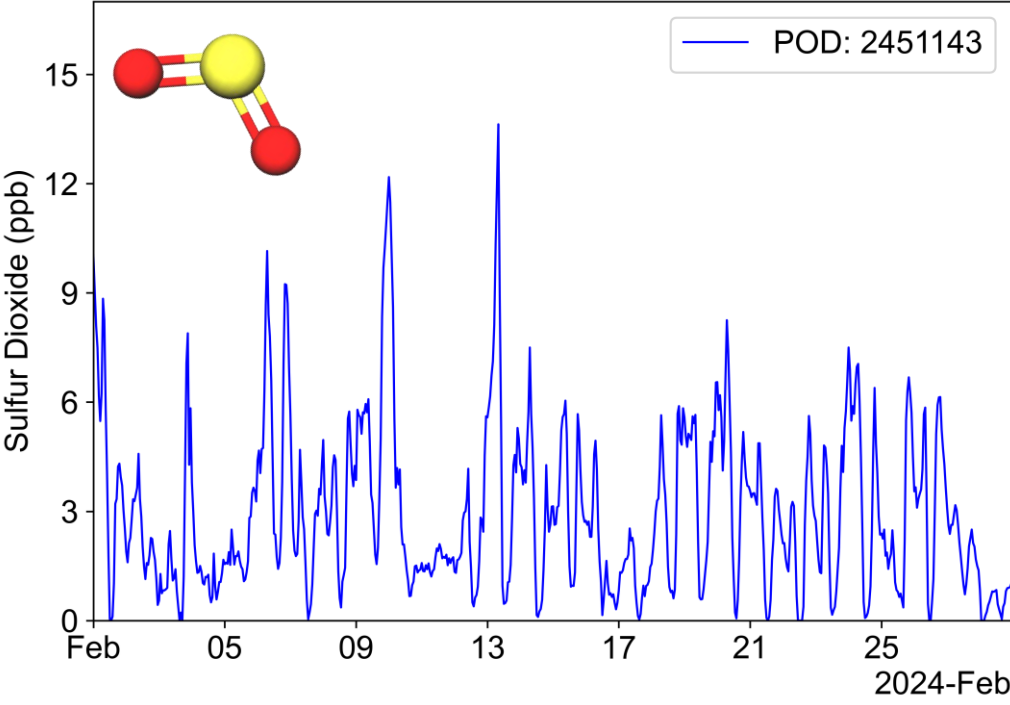
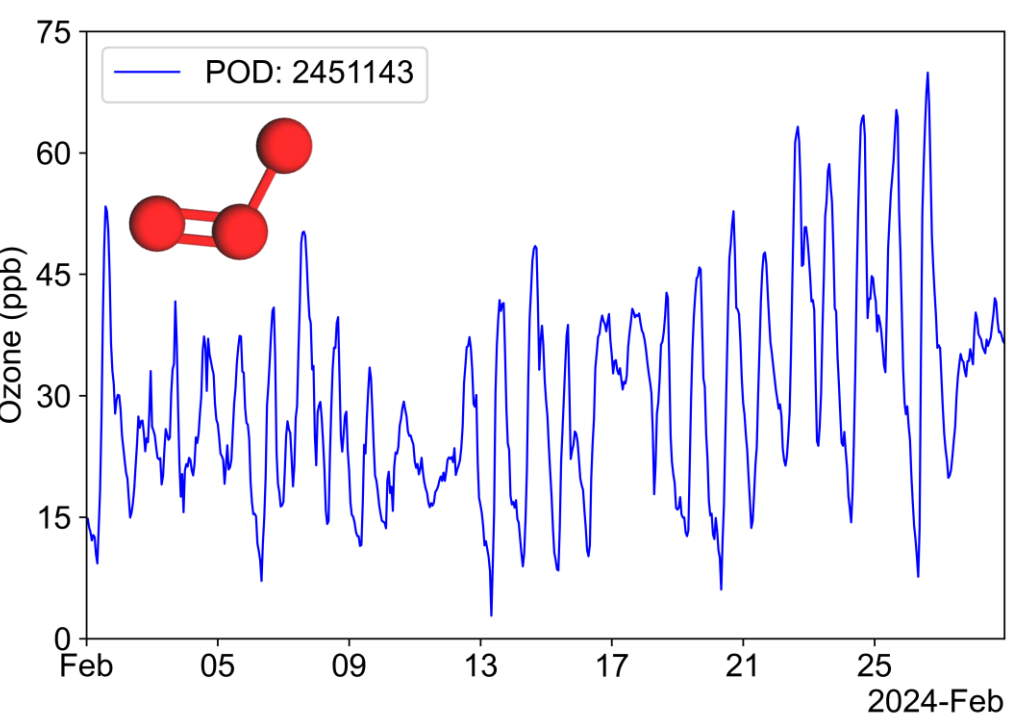
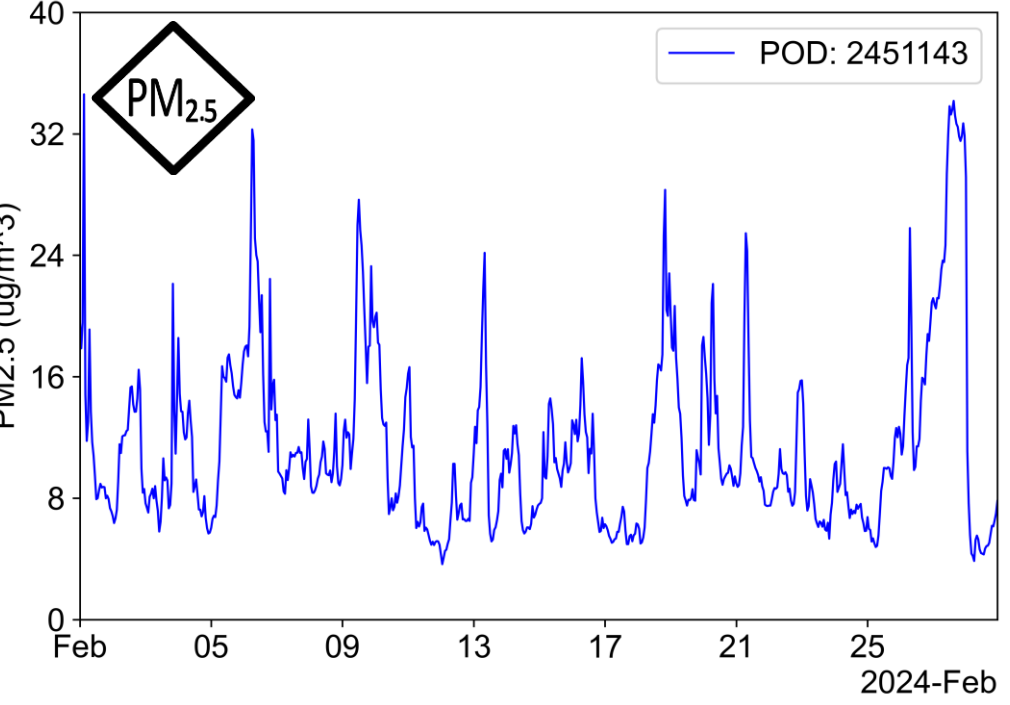
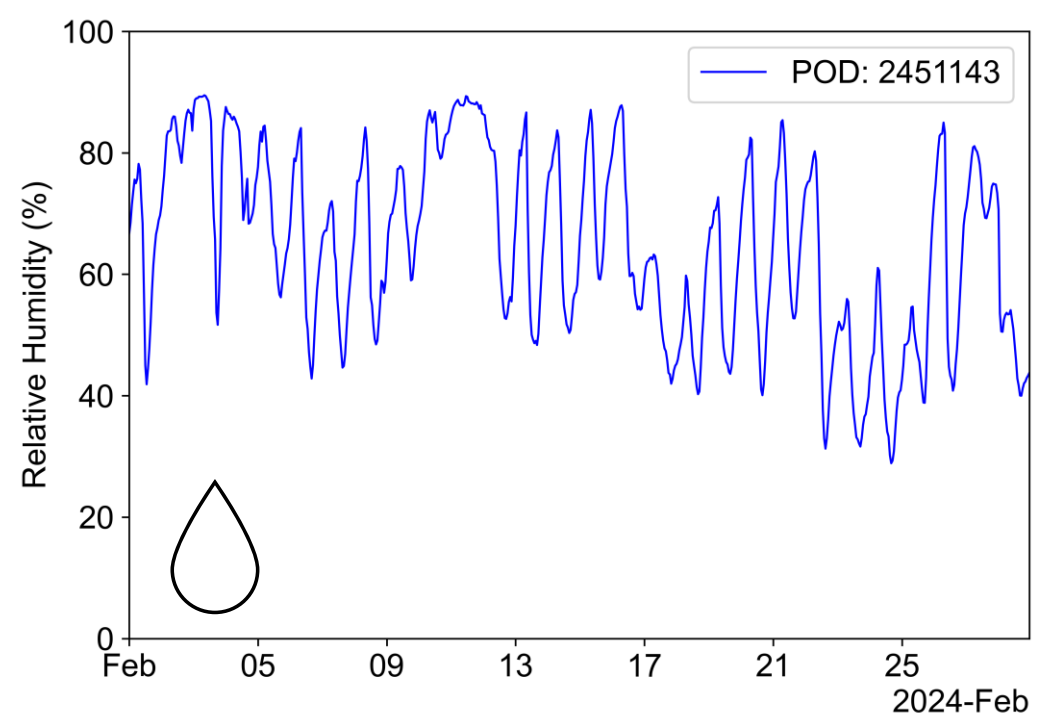
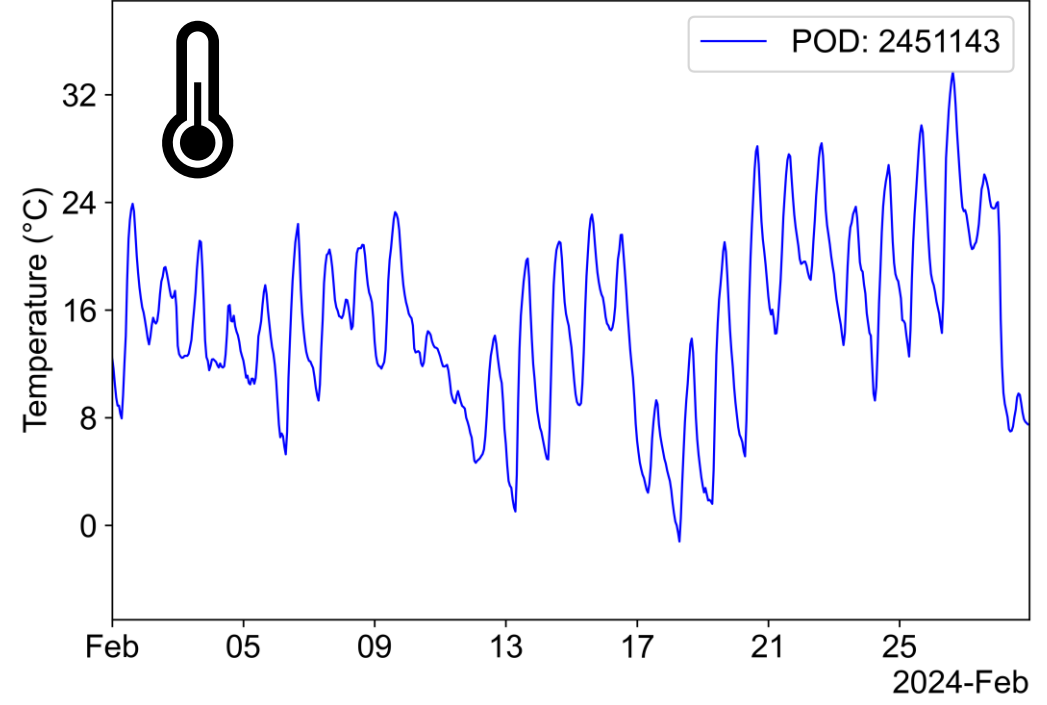
Dimensions

Height - 55.0 in
Width - 35.0 in
Depth - 33.0 in

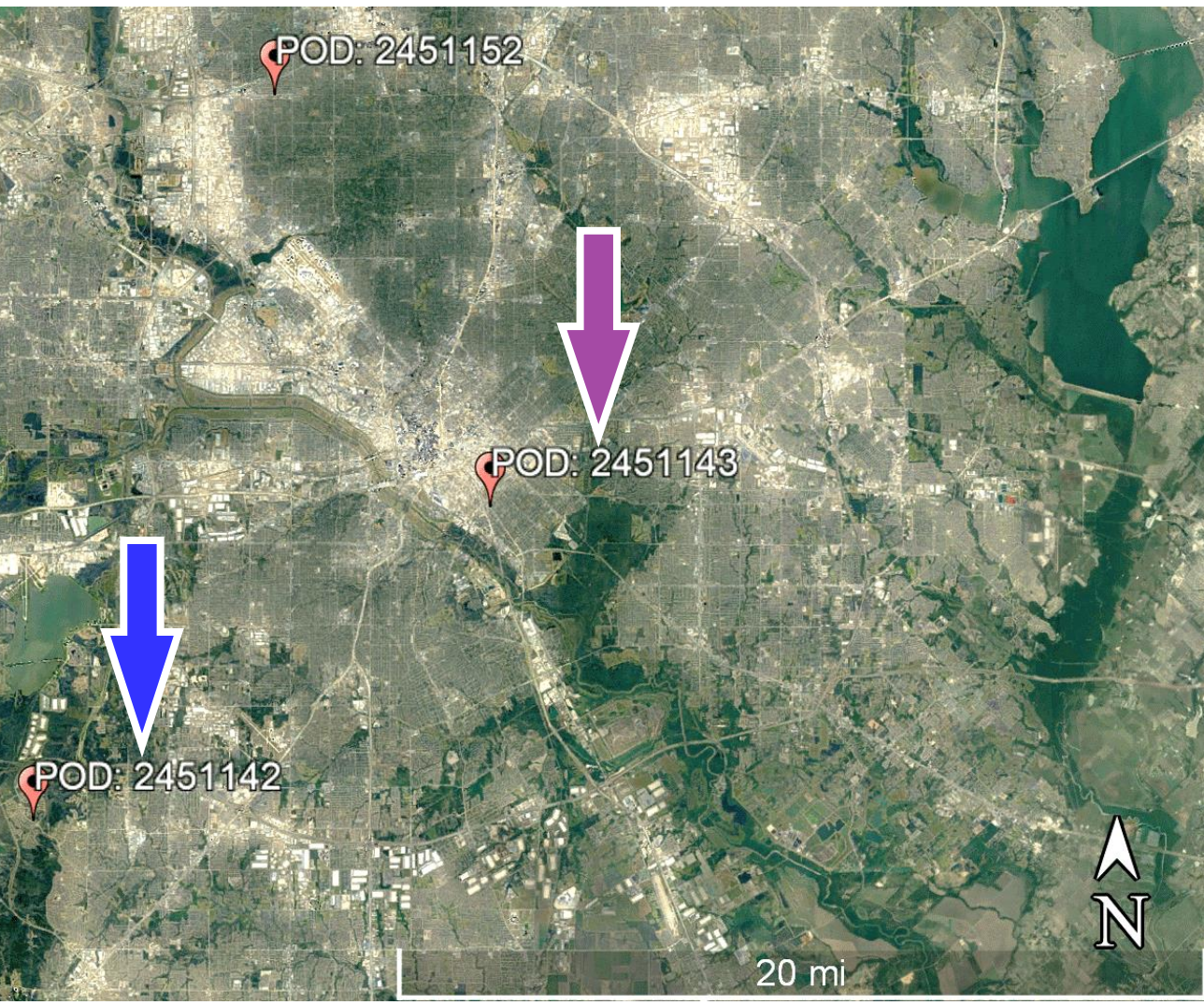


Small Sensors – Large Datasets!

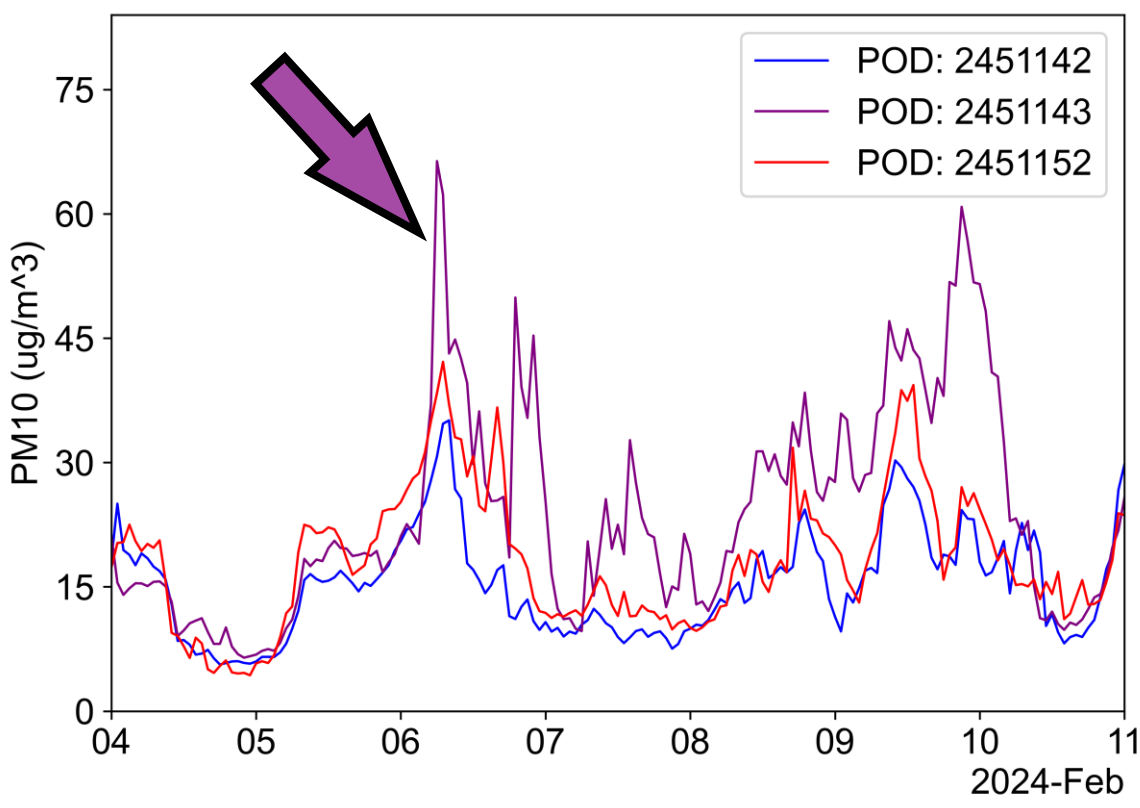
Measured from a single AQMesh system! Integrated electrochemical sensors and particle counter.



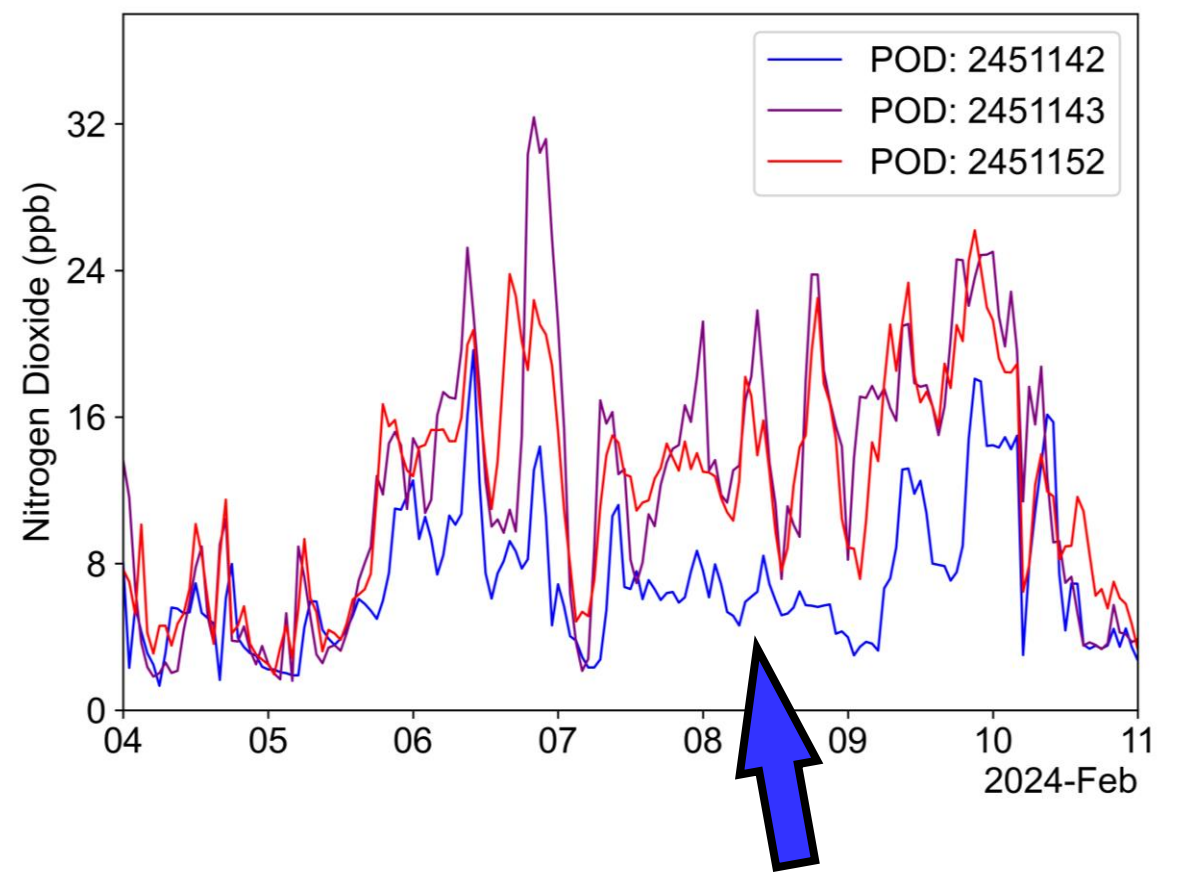
Network of AQMesh Sensors can correlate source of contaminants.



Pod 2451143: Unique PM10 events



Pod 2451142: NO2 Sink



Acknowledgements and Contact Information

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