



**EPA Vapor Intrusion Workshop**  
***Measurement-Based Methods for Protective &  
Defensible Chlorinated VI Exposure Determinations***

**Review of the North Island Site, San Diego, CA**  
**IECC Zone 3(C)**

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# References

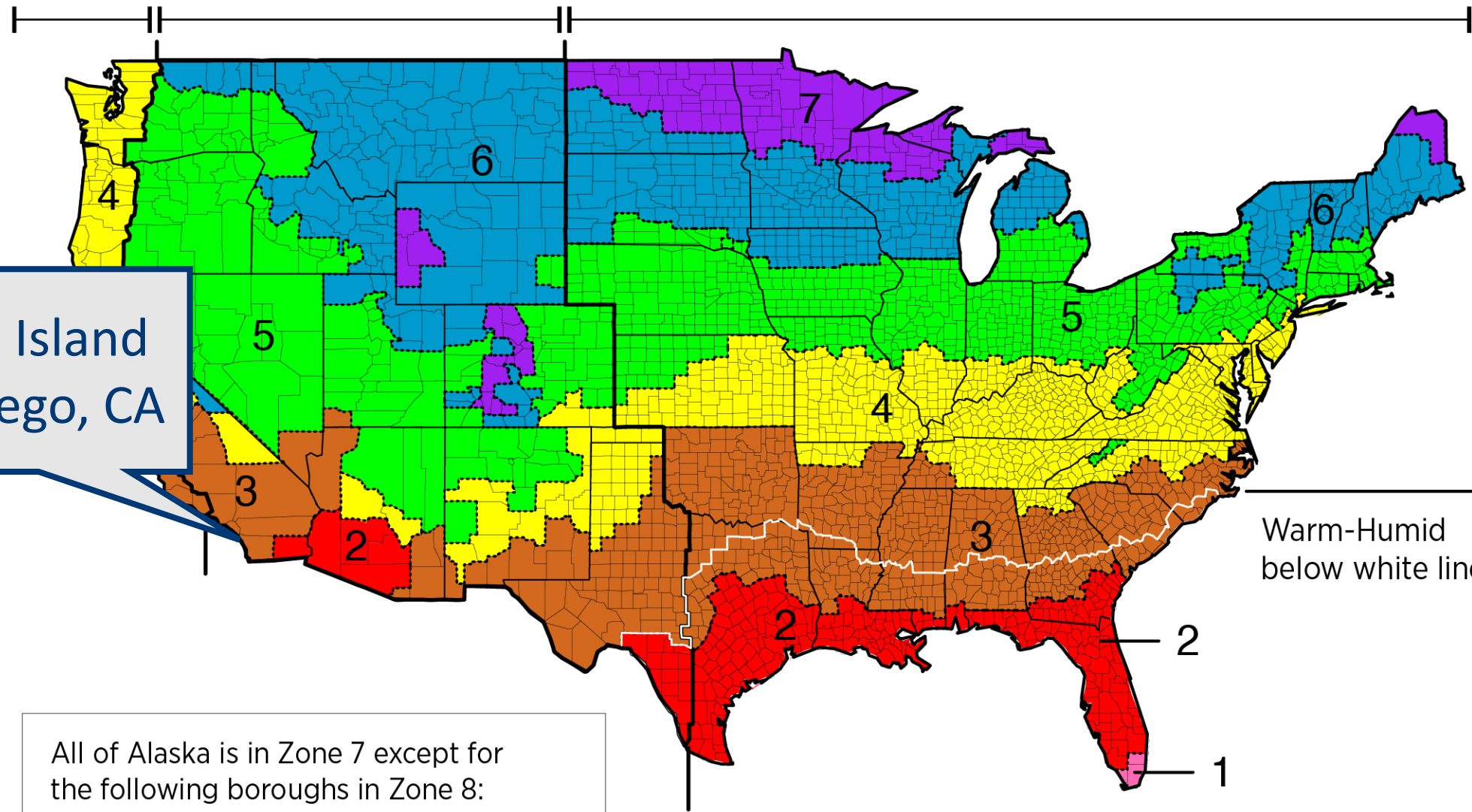
- Hosangadi, V., B. Shaver, B. Hartman, M. Pound, M. L. Kram, and C. Frescura. 2017. High-Frequency Continuous Monitoring to Track Vapor Intrusion Resulting from Naturally Occurring Pressure Dynamics. *Remediation*, 27(2), 9-25.



Marine (C)

Dry (B)

Moist (A)



North Island  
San Diego, CA

Warm-Humid  
below white line

All of Alaska is in Zone 7 except for the following boroughs in Zone 8:  
Bethel, Northwest Arctic, Dellingham, Southeast Fairbanks, Fairbanks N. Star, Wade Hampton, Nome, Yukon-Koyukuk, North Slope

Zone 1 includes Hawaii, Guam, Puerto Rico, and the Virgin Islands

Image:  
<https://basc.pnnl.gov/images/iecc-climate-zone-map>

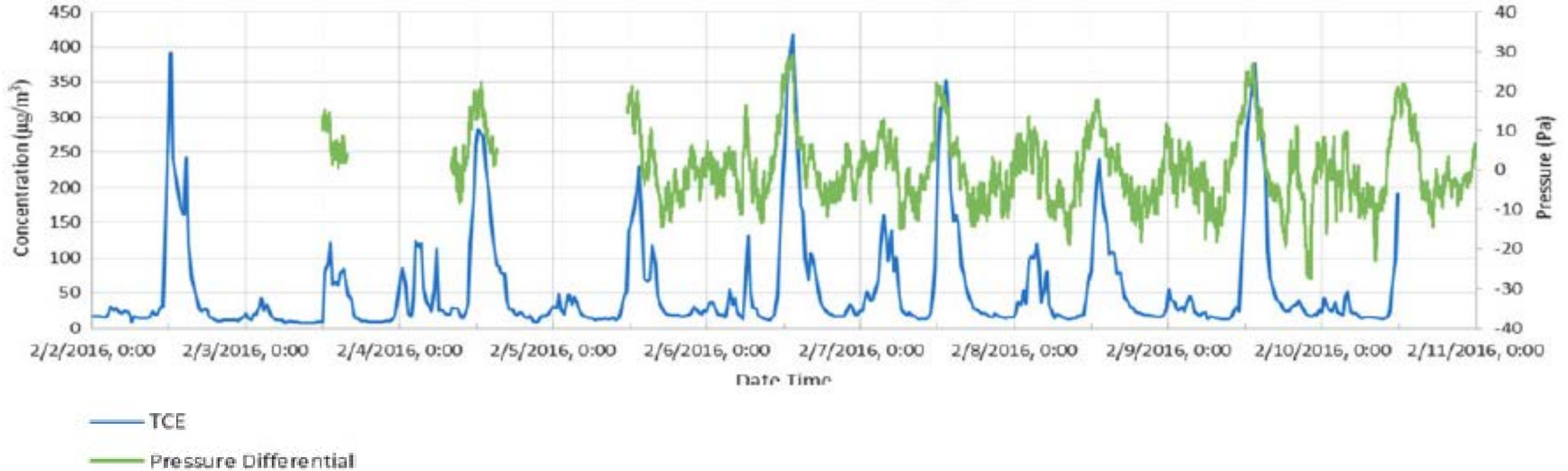
# Case Study: *Hosangadi et al., 2017*

- Southern California site, adjacent to San Diego Bay
- Depth to water ~24 feet below ground surface
- TCE release below Building 379, Naval Air Station, North Island
  - Groundwater concentrations as high as 100 mg/L
  - Subslab soil gas concentrations as high as 6,000,000  $\mu\text{g}/\text{m}^3$

# Building 379

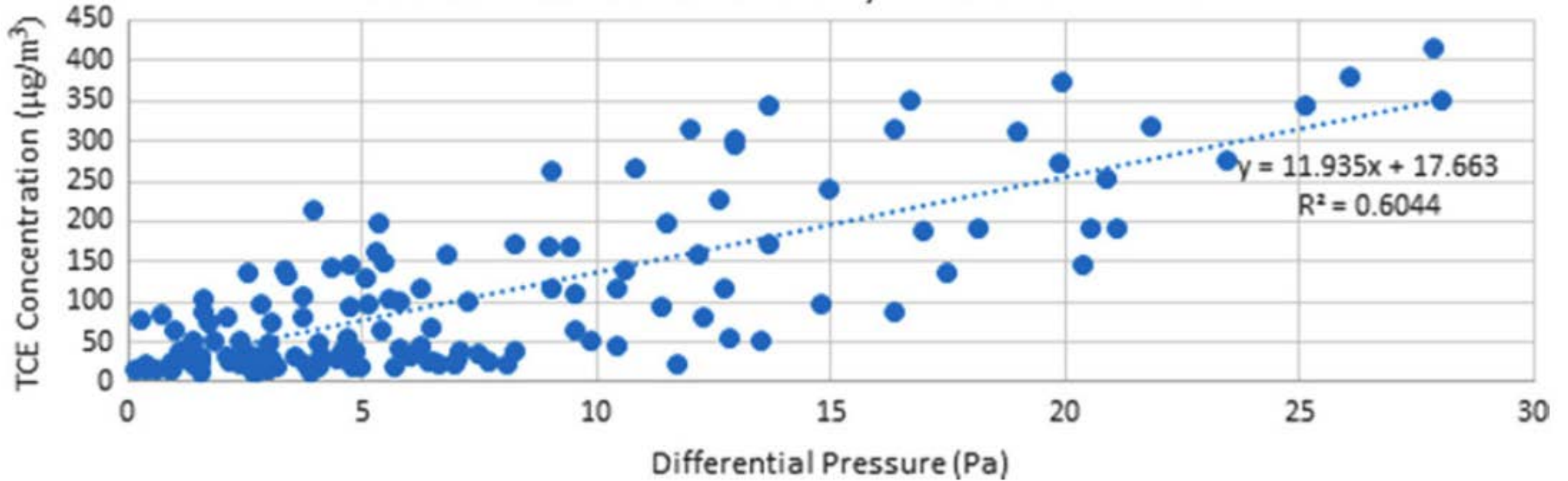
- Built in 1940s
- 172,000 ft<sup>2</sup>, two levels, 60 ft high
- Industrial use, including machining and carpentry
- Slab in poor condition, numerous floor drains present
- Older ventilation systems; some permanently open windows and other wall openings
- No TCE used in the building

TCE vs. Pressure Differential, Women's Restroom

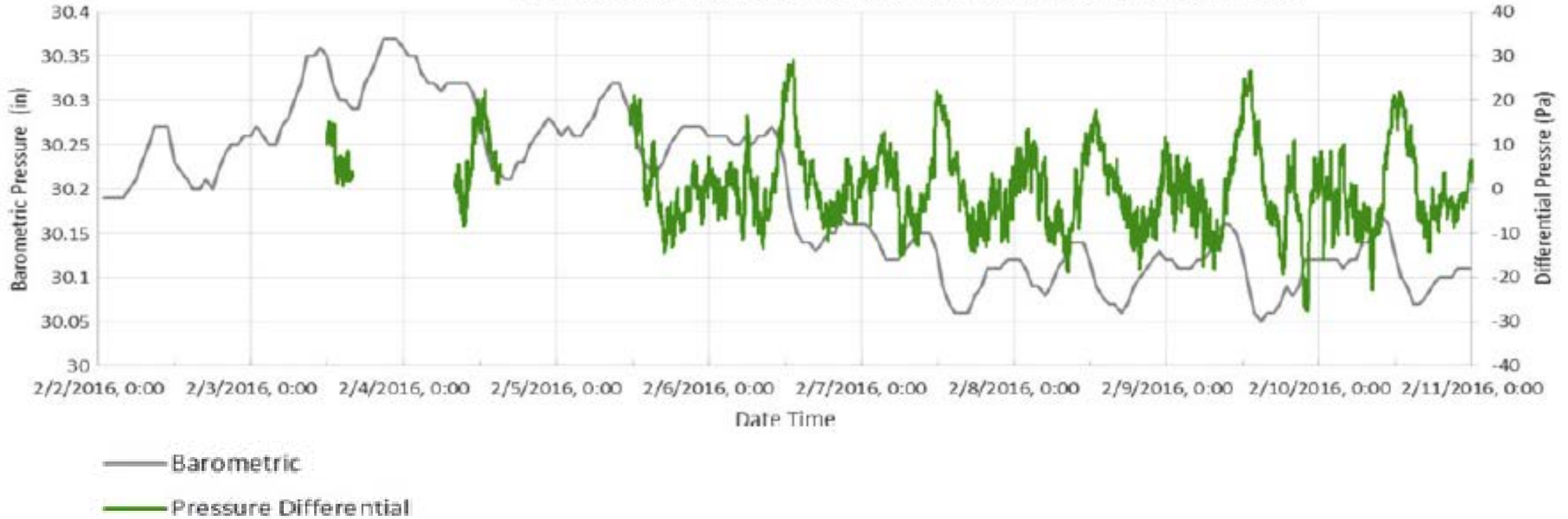




TCE vs. Pressure Differential, Women's Restroom

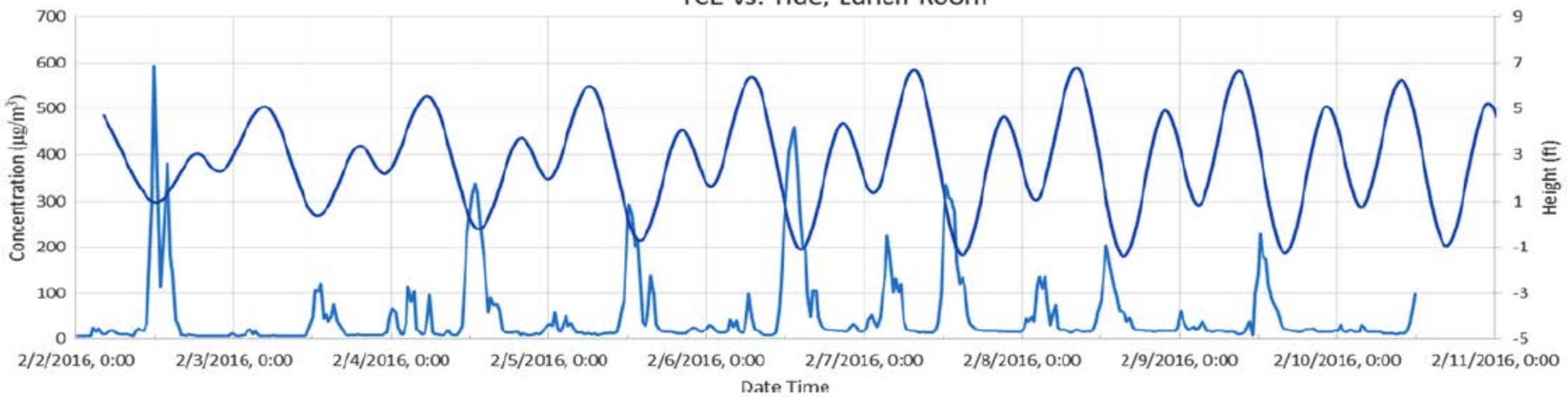


Barometric Pressure vs. Pressure Differential, Lunch Room



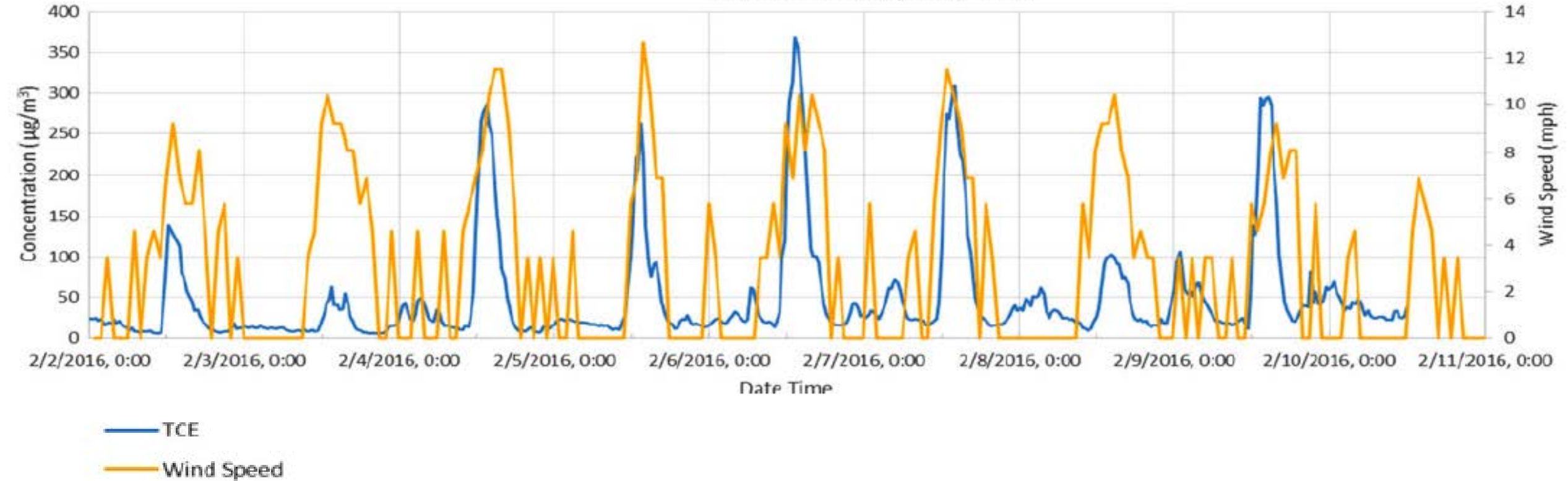


TCE vs. Tide, Lunch Room

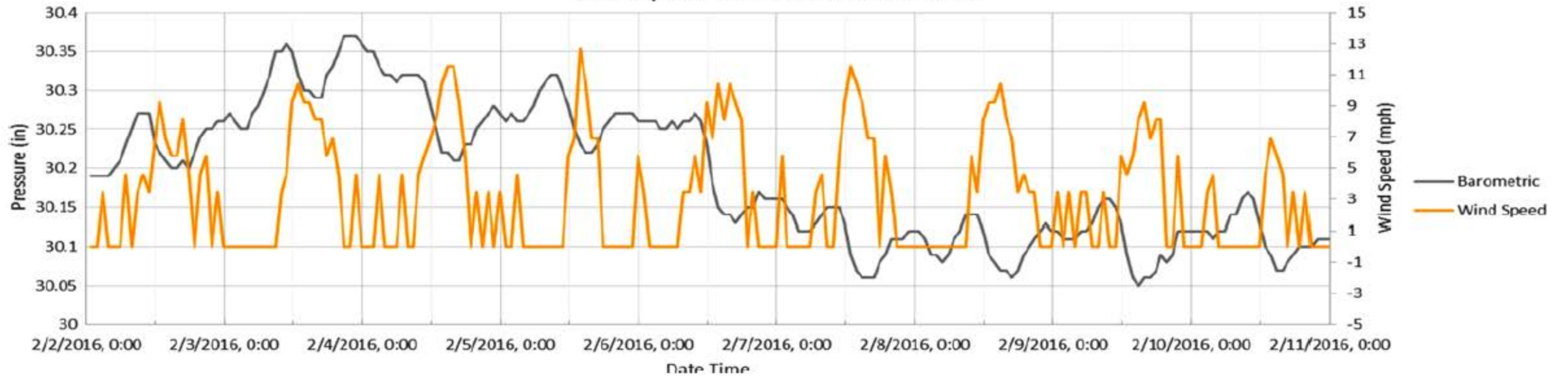


— TCE  
— Tide

TCE vs. Wind Speed, Wall



Wind Speed vs. Barometric Pressure



# Summary and Conclusions

- Real-time indoor air concentration monitoring in Building 379 allowed for evaluation of temporal trends
- Observed correlation between indoor air TCE concentrations and trends with differential pressures, barometric pressures, wind speeds, and tides

# Questions?

*Need more information?*

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