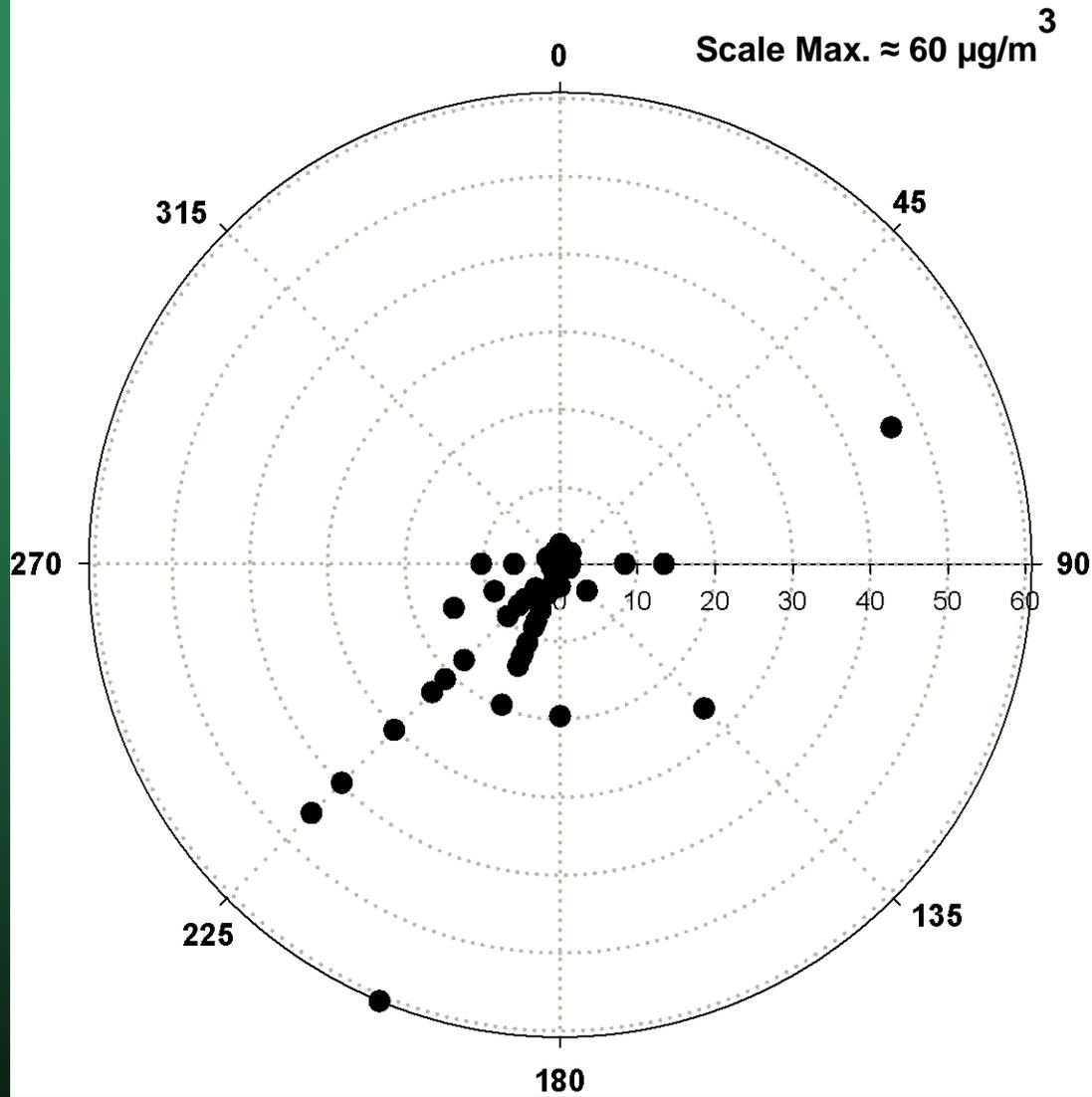
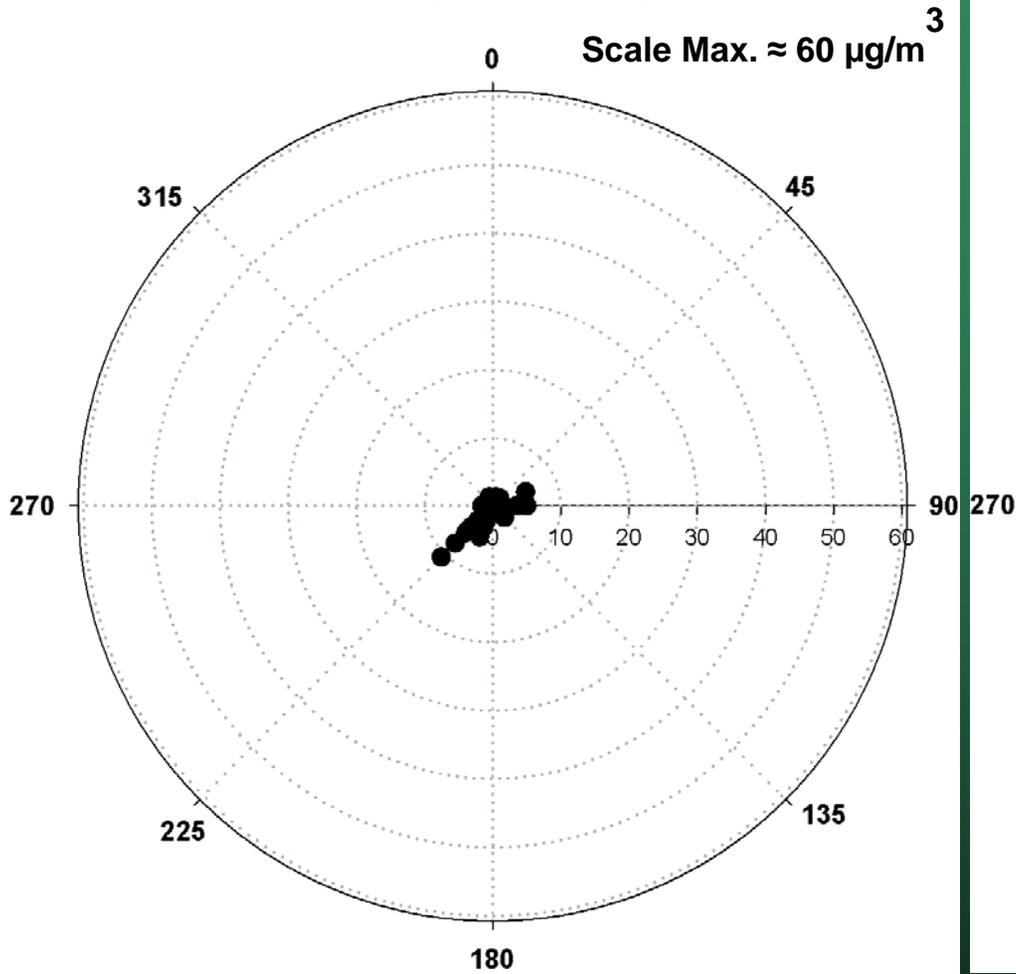


# GIBI Benzene



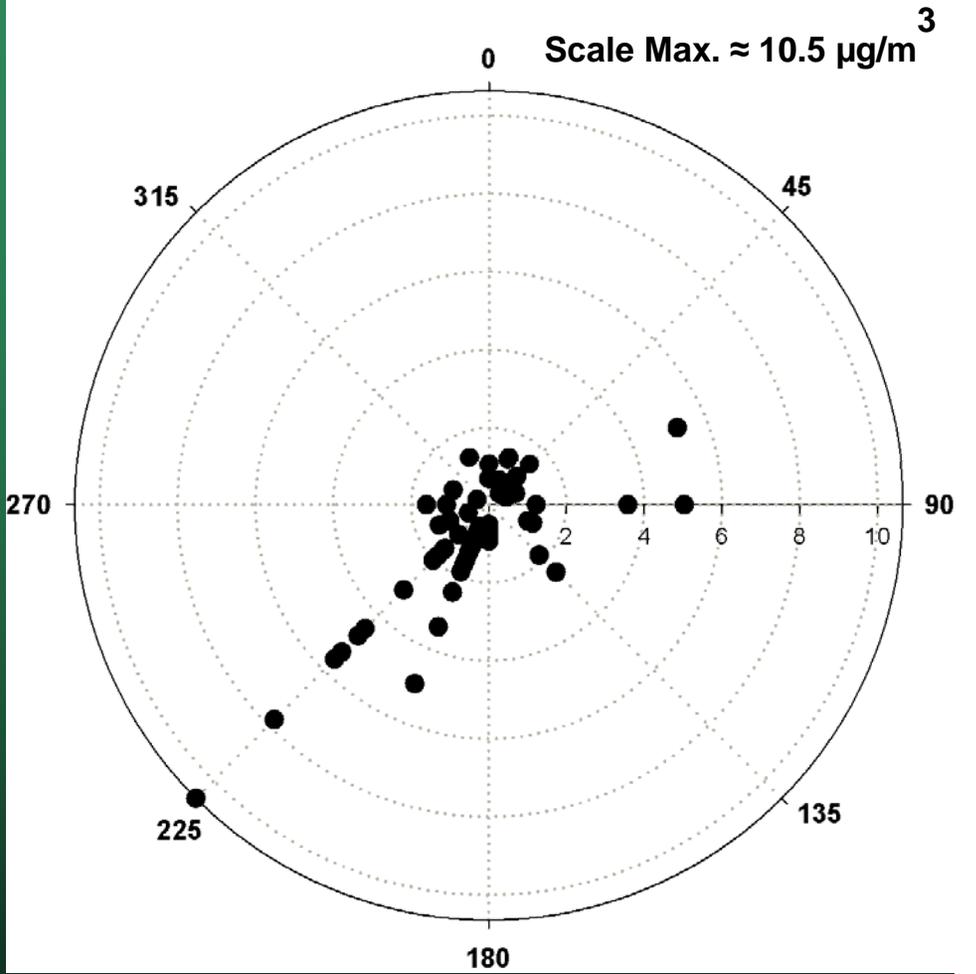
### BTRS Benzene

Scale Max.  $\approx 60 \mu\text{g}/\text{m}^3$



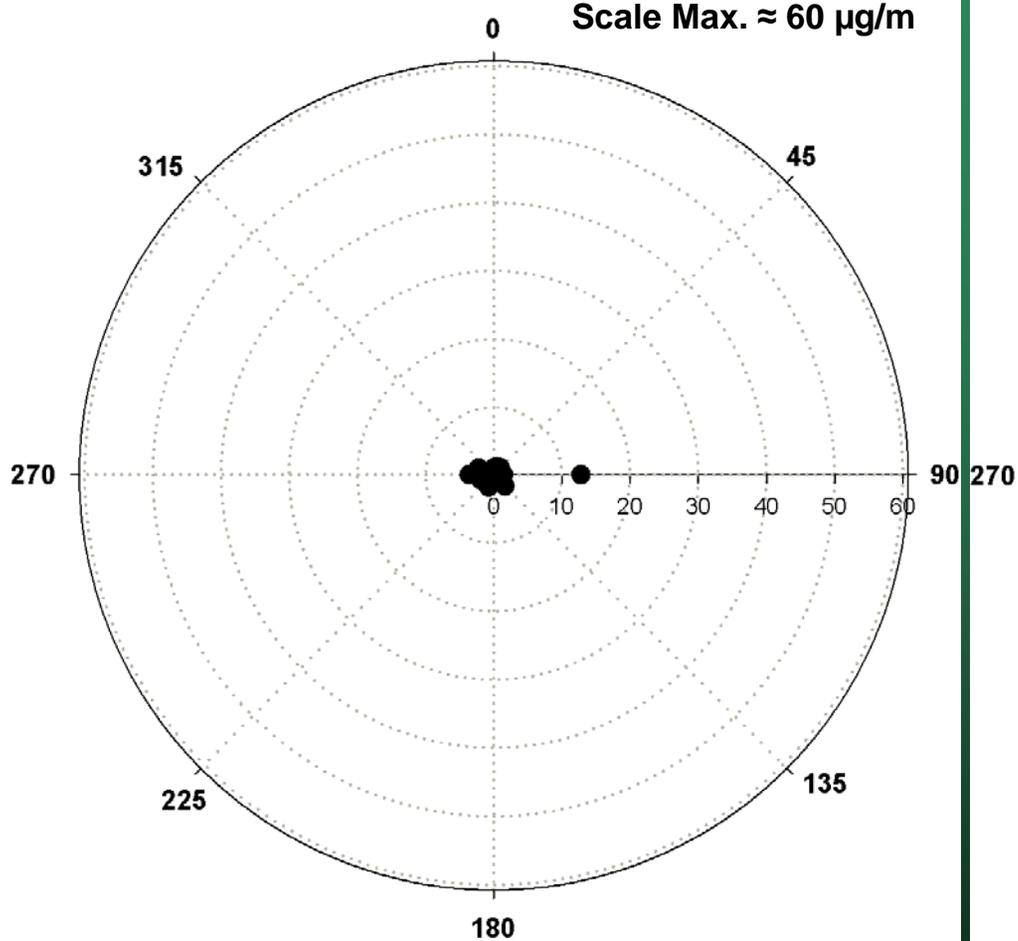
### BTRS Benzene

Scale Max.  $\approx 10.5 \mu\text{g}/\text{m}^3$



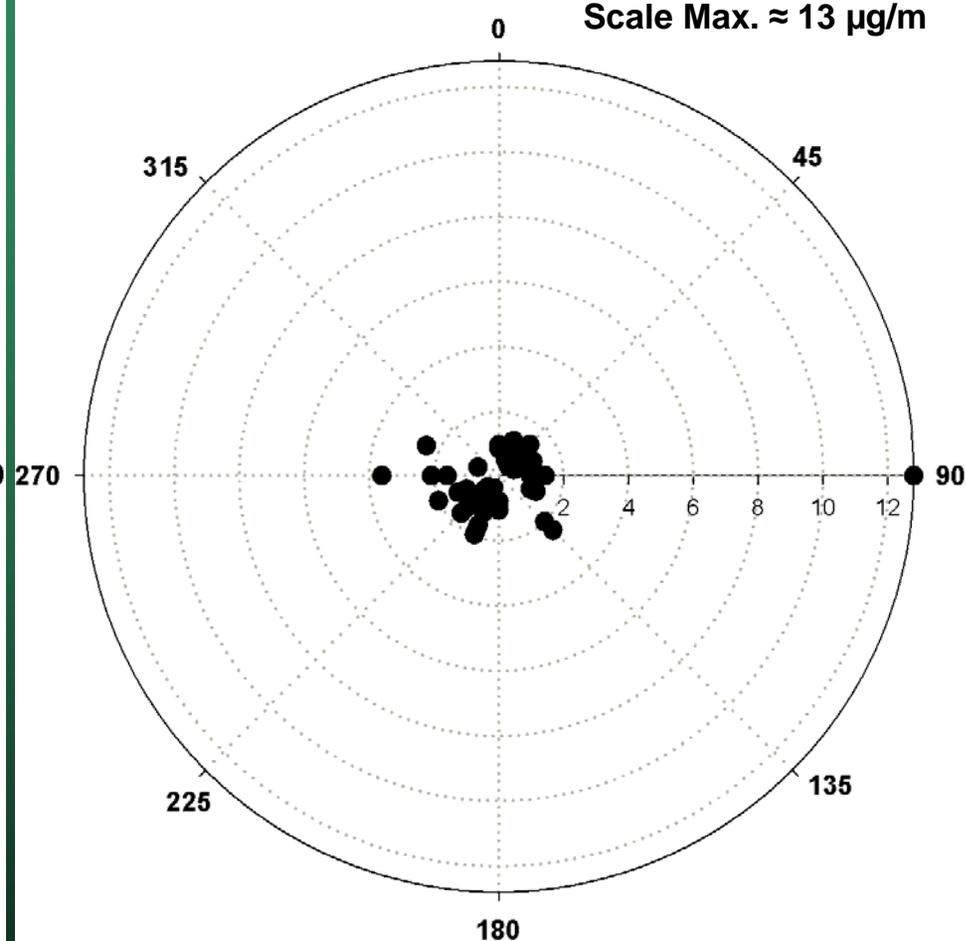
### SPWT Benzene

Scale Max.  $\approx 60 \mu\text{g}/\text{m}^3$



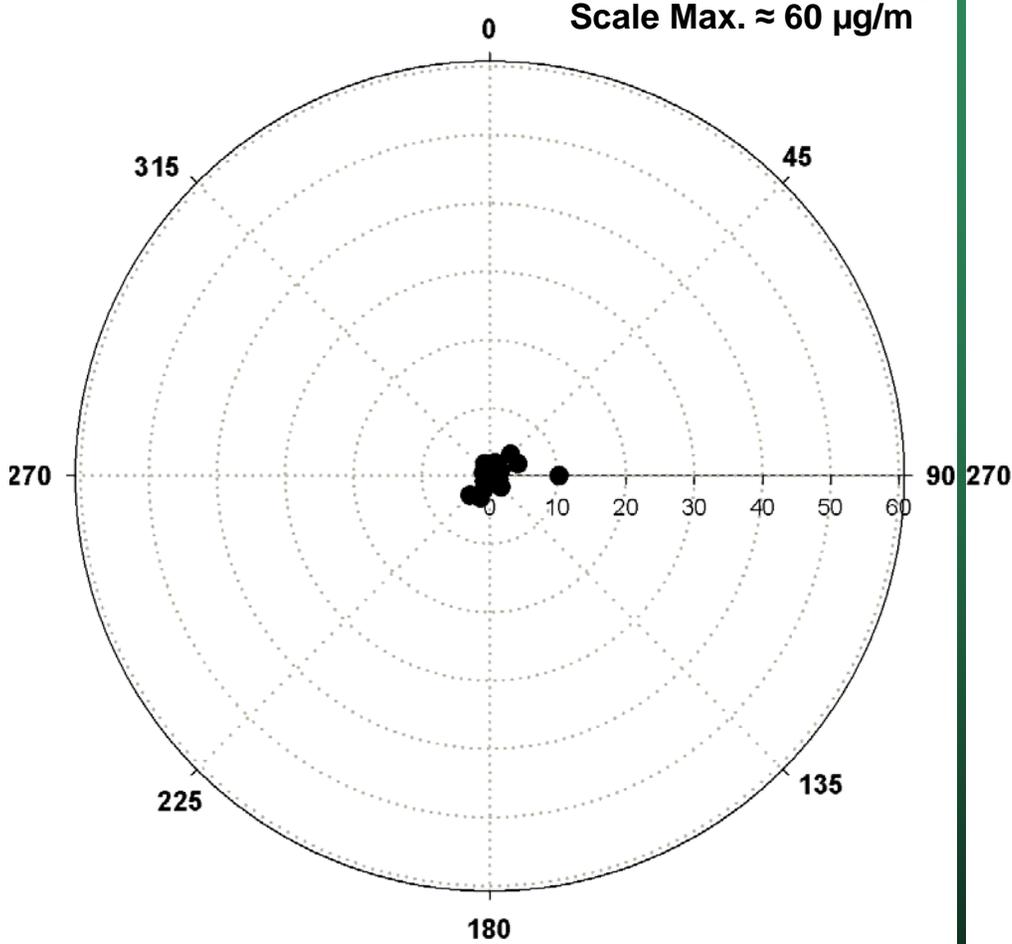
### SPWT Benzene

Scale Max.  $\approx 13 \mu\text{g}/\text{m}^3$



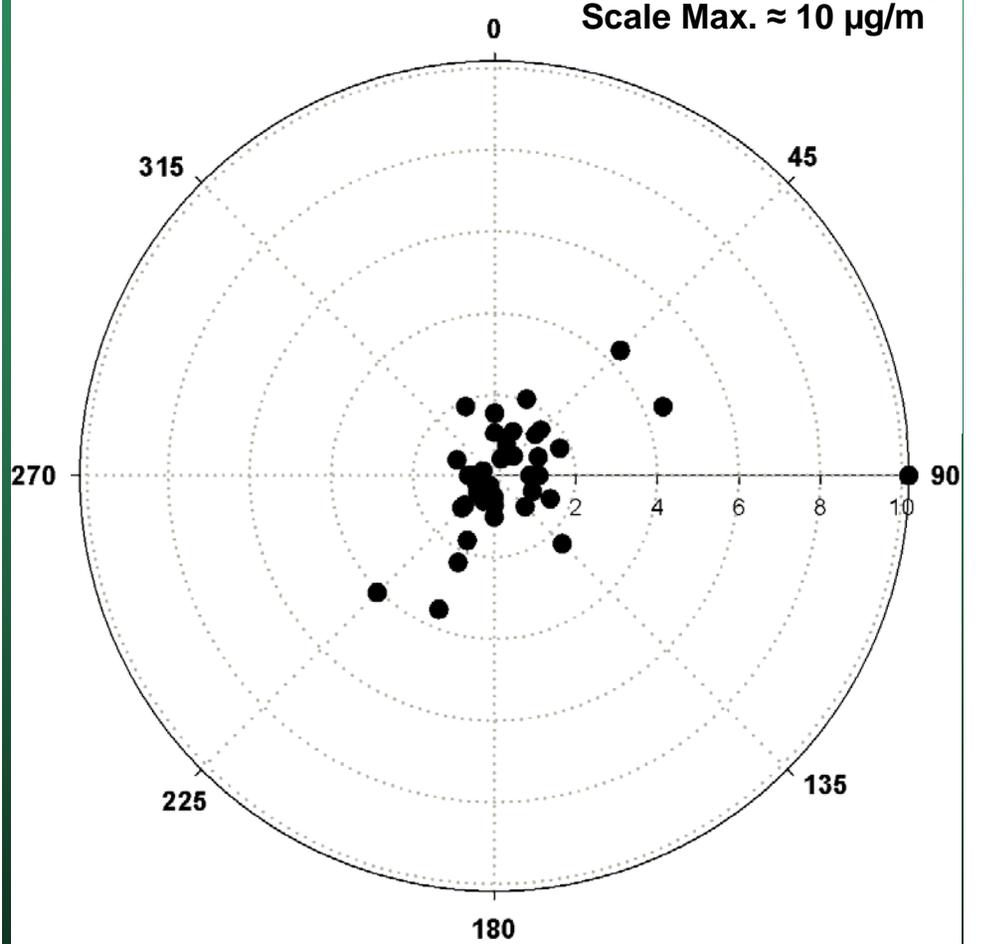
### BISP Benzene

Scale Max.  $\approx 60 \mu\text{g}/\text{m}^3$

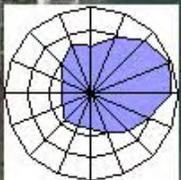
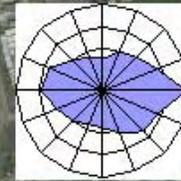
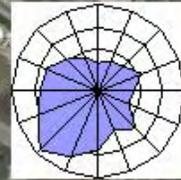
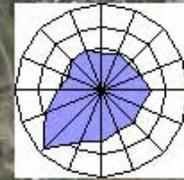


### BISP Benzene

Scale Max.  $\approx 10 \mu\text{g}/\text{m}^3$

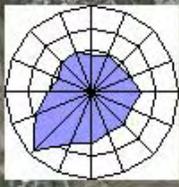
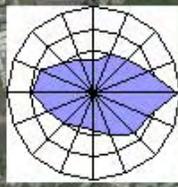
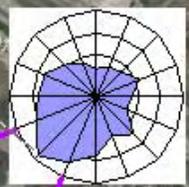
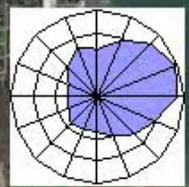


# Benzene Pollution Roses



# Benzene Pollution Roses

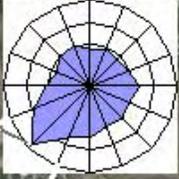
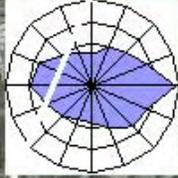
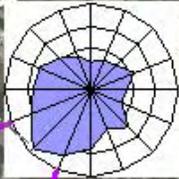
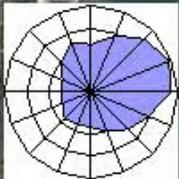
TWA CONC. = 15.4  $\mu\text{g}/\text{m}^3$



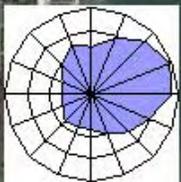
# Benzene Pollution Roses

TWA CONC. = 3.3  $\mu\text{g}/\text{m}^3$

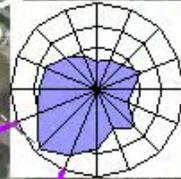
TWA CONC. = 15.4  $\mu\text{g}/\text{m}^3$



# Benzene Pollution Roses



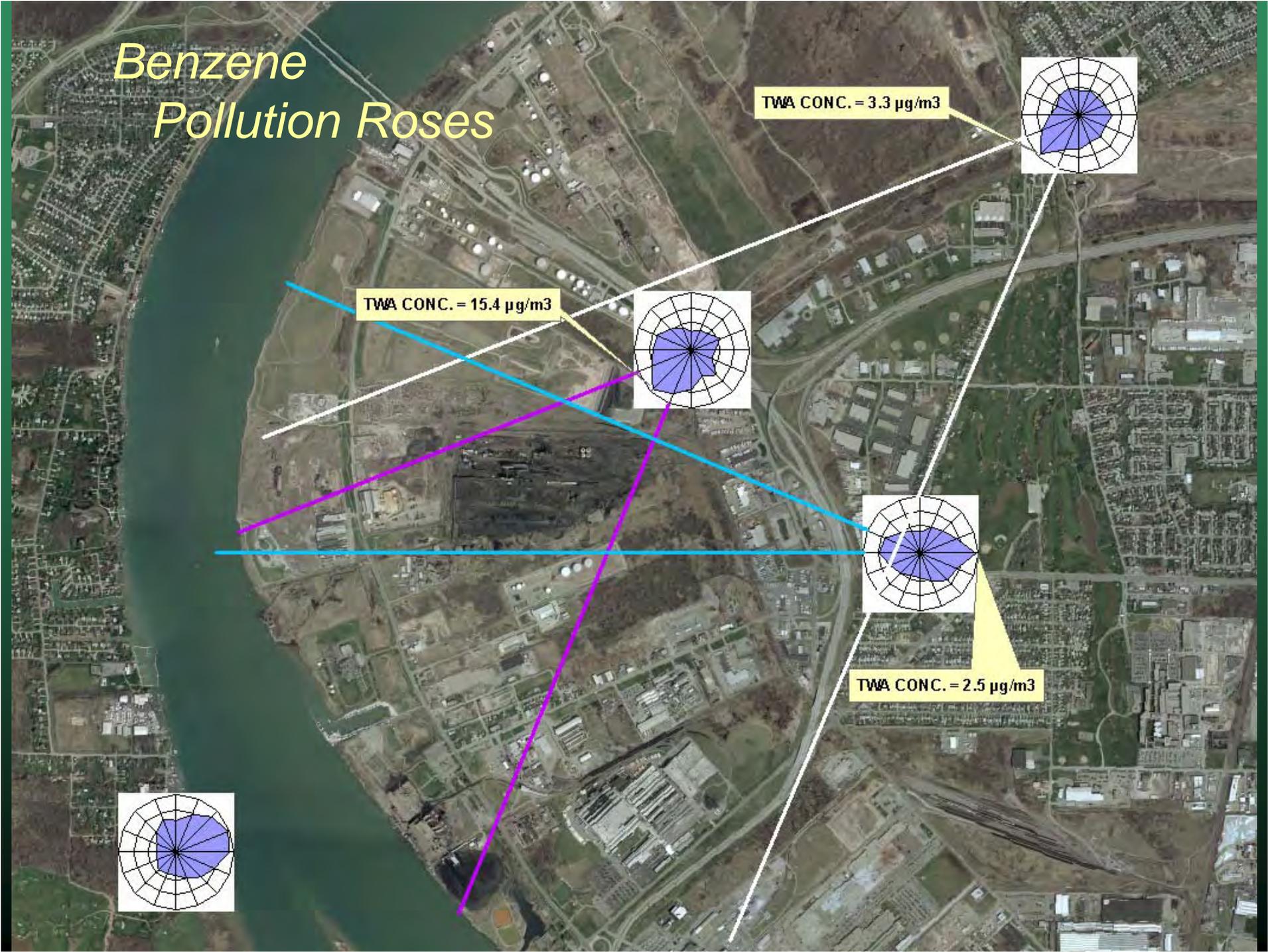
TWA CONC. = 15.4 µg/m<sup>3</sup>



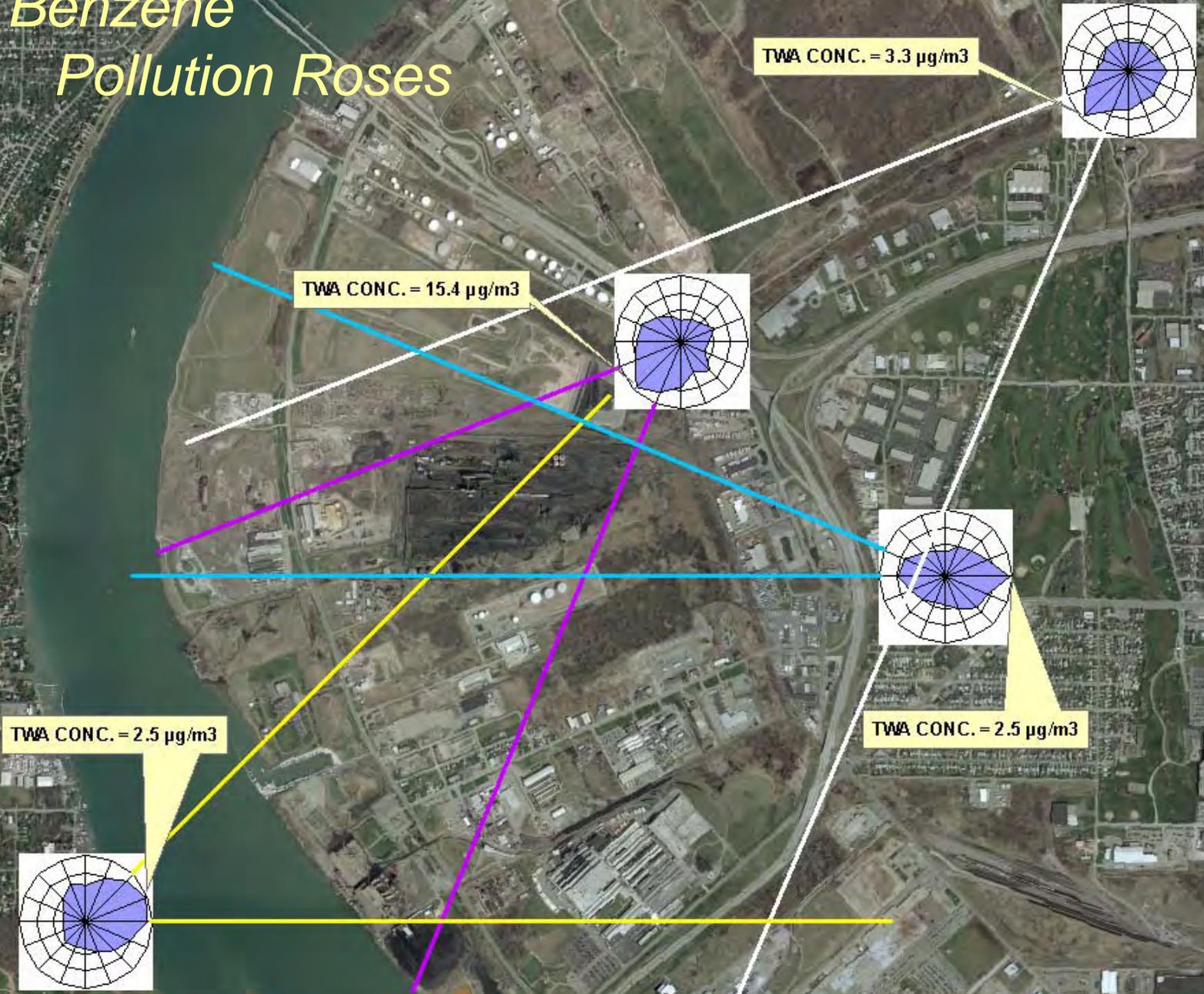
TWA CONC. = 3.3 µg/m<sup>3</sup>



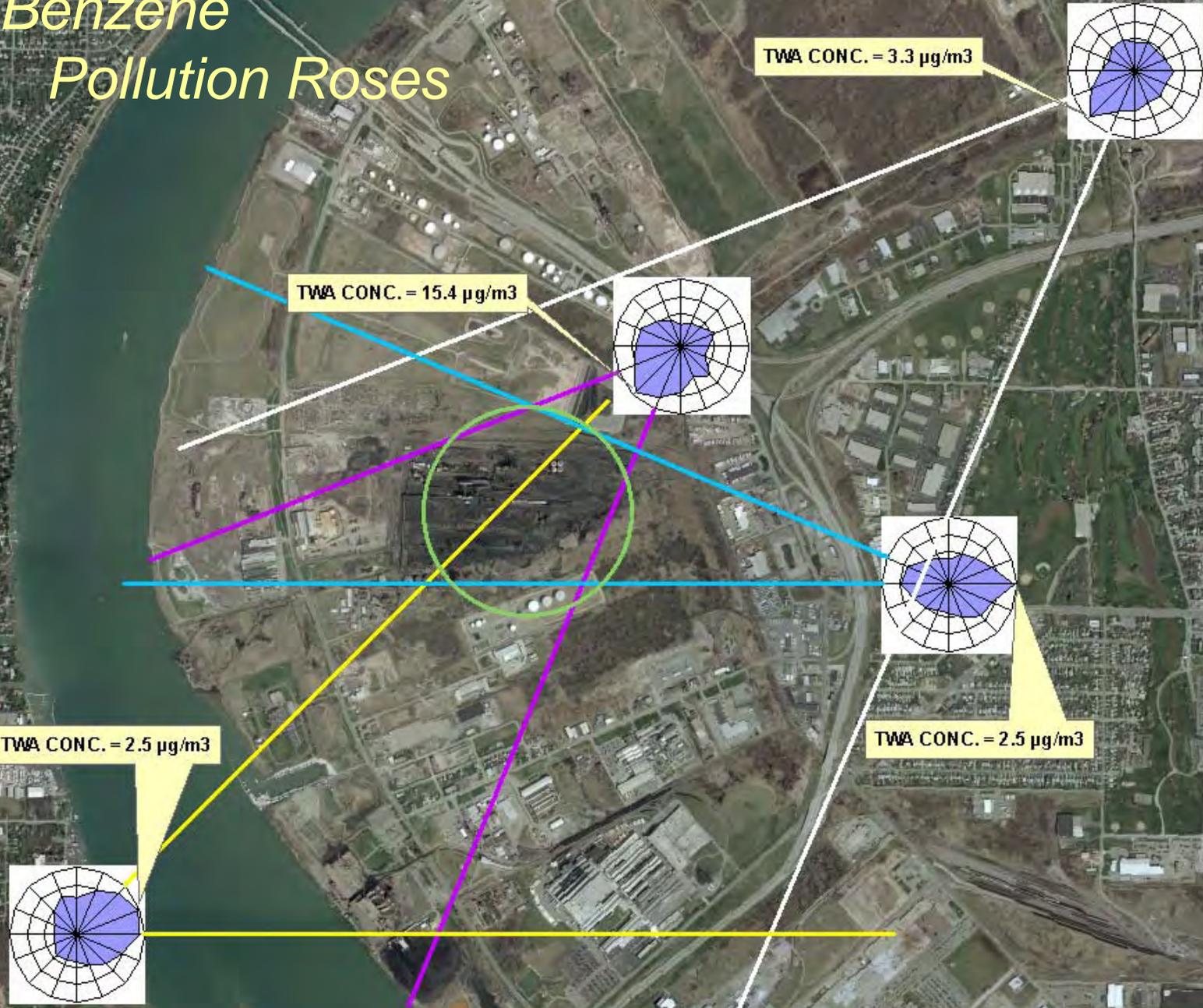
TWA CONC. = 2.5 µg/m<sup>3</sup>



# Benzene Pollution Roses



# Benzene Pollution Roses



# Tonawanda Community Air Quality Study

Division of Air Resources  
Community Presentation

June 12, 2009

Sheridan Parkside Community  
Center

Tonawanda, NY



# Conclusion

The results of the community air quality monitoring study and data analysis indicates there is a need for a focused effort to reduce the burden of air toxics in the Tonawanda area.

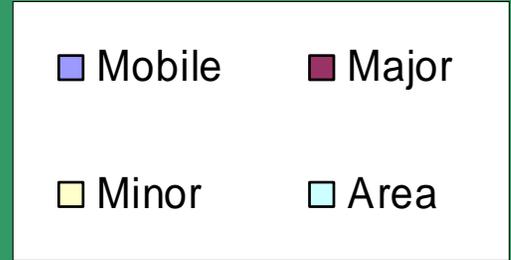
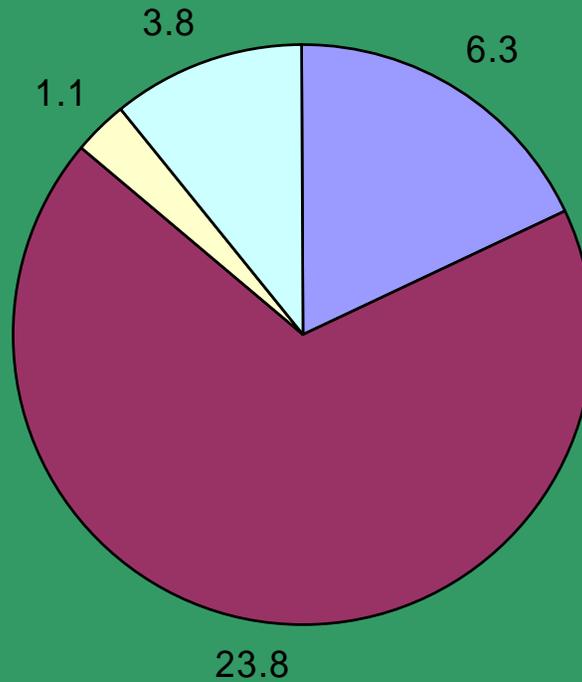


# Future Air Pollution Reduction Project Goals

- Reduce odor complaints in community;
- Reduce the emissions of chemicals associated with acute irritation effects;
- Reduce cancer risk in the community.



## Benzene Emissions - Tons per year Tonawanda Community Area



Mobile emissions calculated from air pollution model, Mobile6  
Major includes Title V permitted point sources  
Minor includes State Facility and Registered point sources  
Area includes landfills, sewage treatment plants and gas stations

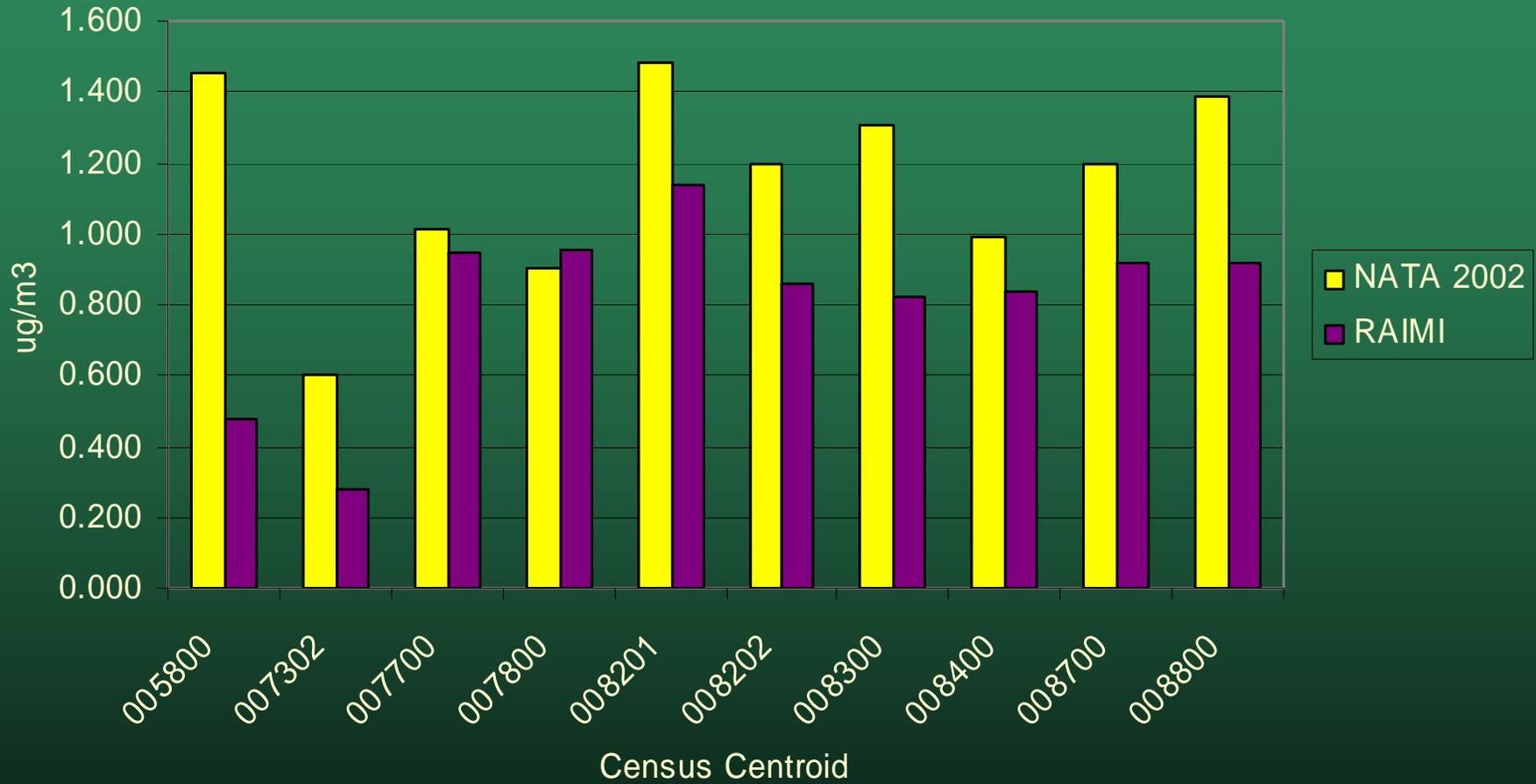


# Model to Measured Comparisons

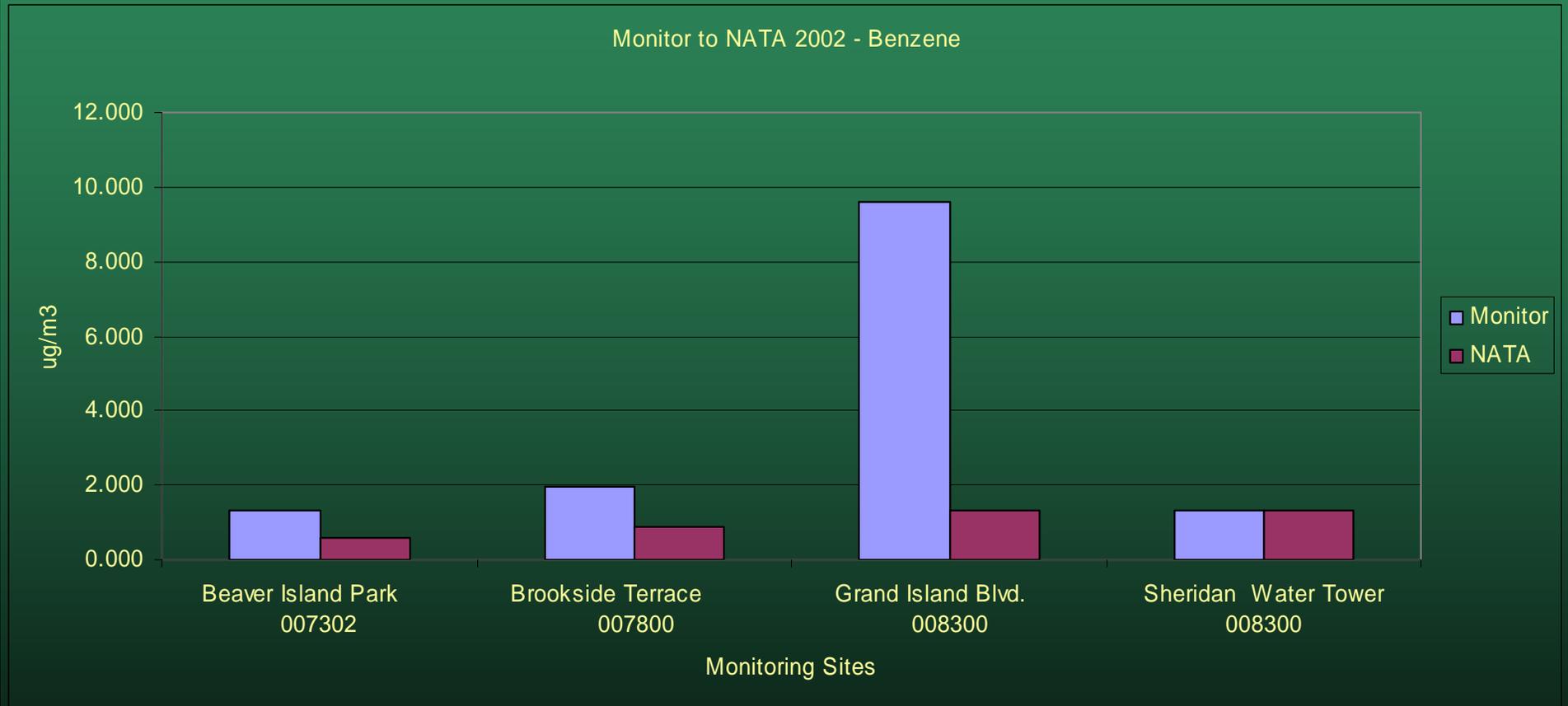
- NATA 2002 – ASPEN
- Human Exposure Model 3 (HEM3) – AERMOD
- Regional Air Impact Modeling Initiative – ISCST3



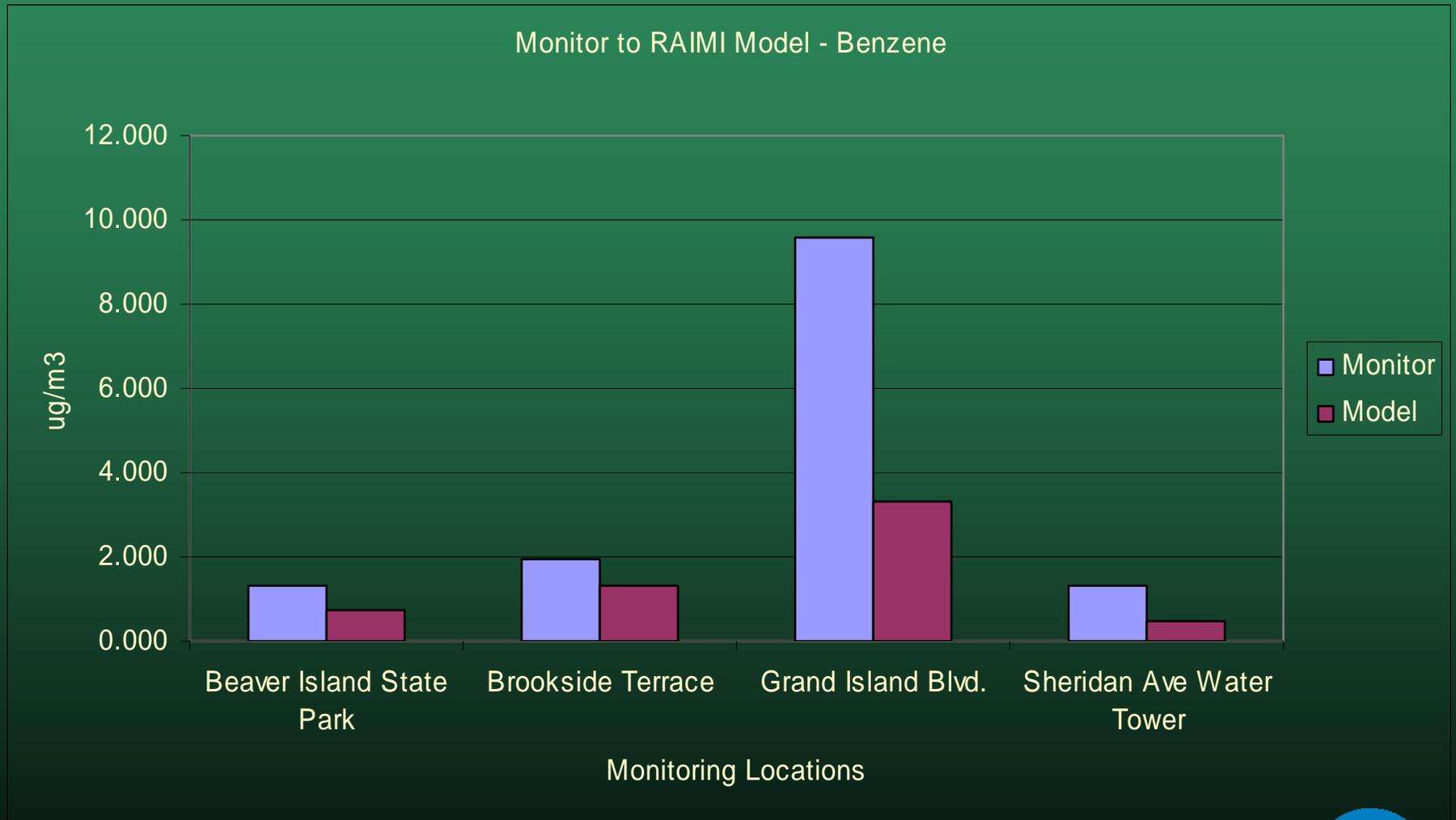
### Model vs Model - NATA 2002 to RAIMI - Benzene



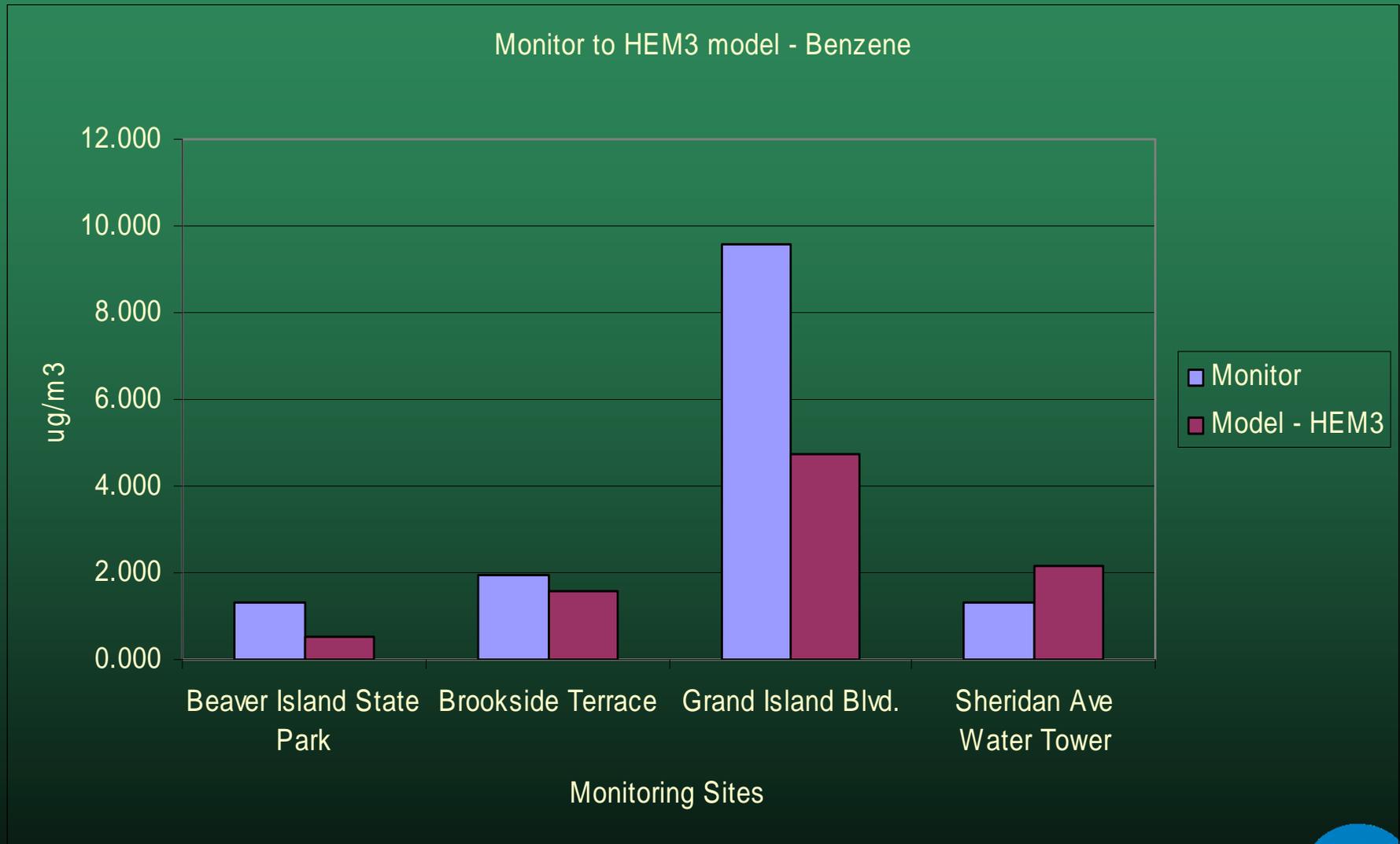
# Measured to Modeled NATA



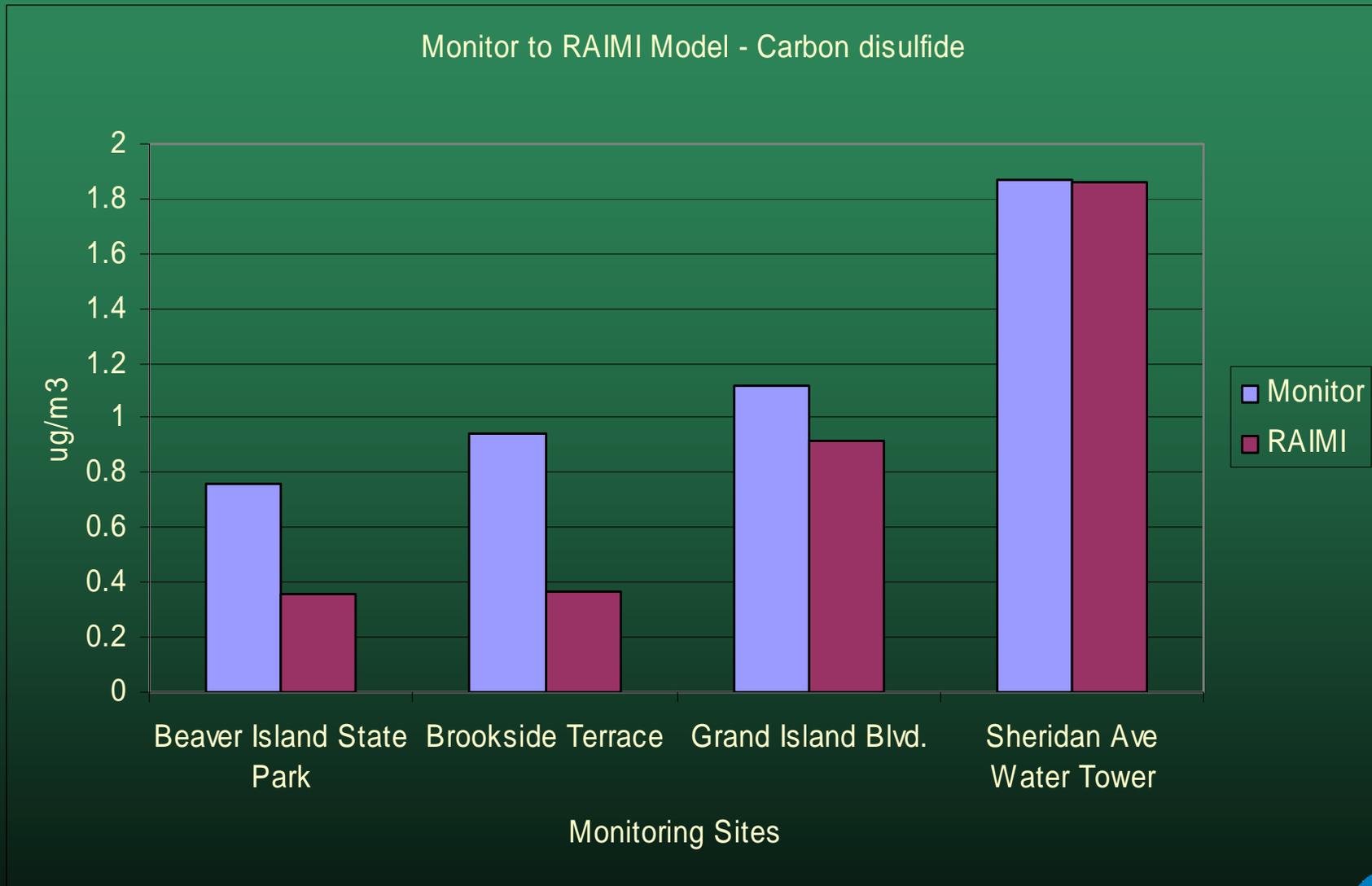
# Measured to Modeled - RAIMI



# Measured to Modeled – HEM3



# Measured to Modeled - RAIMI



# EPA Coke Oven Residual Risk Assessment (2005)

- Assessed non-cancer and cancer risk of emissions from all operations (battery emissions, by-product plant, pushing fugitives and quenching) at Tonawanda Coke Corporation;
- Part 63 NESHAP Subpart L for Coke Oven Batteries (1993) addressed emissions from charging, and leaks from doors, lids and off-takes.



# EPA Coke Oven Residual Risk Assessment (2005)

- Part 63 NESHAP Subpart CCCCC for Coke Ovens: Pushing, Quenching and Battery Stacks (2003);
- Part 61 NESHAP Subpart L for Benzene from Coke Oven By-Product Recovery Plants (1989).



# EPA Coke Oven Residual Risk Assessment (2005)

- No non-cancer risk identified in community;
- Identified maximum cancer risk of  $100 \times 10^{-6}$  in community around Tonawanda Coke;
- Cancer risk drivers were benzene and benzene soluble organics (BSO) – coke oven emissions;
- Modeled Emissions - 15.3 tons of benzene, 4.98 tons of BSO;
- Identified limitation about the lack of monitoring data around any of the 4 facilities.
- End Result – adoption of lowest achievable emission rate for coke oven batteries.



# EPA Coke Oven Residual Risk Assessment (2005) Check

- **Non-cancer** inhalation risk screen for benzene (hazard quotient (HQ) = 0.2)
- GIBI monitor (HQ = 0.3)
- Other monitoring sites (HQ < 0.1)



# EPA Coke Oven Residual Risk Assessment (2005) Check

- Maximum benzene cancer risk predicted from Tonawanda Coke was  $50 \times 10^{-6}$
- GIBI benzene cancer risk measured  $75 \times 10^{-6}$
- BTRS benzene cancer risk measured  $16 \times 10^{-6}$



# Thank You

- Questions about facilities and emissions
  - Larry Sitzman (716) 851-7130  
lbsitzma@gw.dec.state.ny.us
- Questions about Tonawanda Study Report
  - Tom Gentile (518) 402-8402  
tjgentil@gw.dec.state.ny.us
  - Paul Sierzenga (518) 402-8508  
pmsierze@gw.dec.state.ny.us

