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.

Current Actions

- Increased compliance inspections of all air pollution sources in the area;
- April 2009 – Comprehensive inspection of Tonawanda Coke by EPA and DEC;
- Comprehensive inspections of petroleum distribution sources by DEC;
- Gathering of complaint information in community by DEC;

Current Actions

- Continuation of sampling at Grand Island Boulevard (GIBI) and Brookside Terrace Sites (BRTS);
- The addition of a continuous automated benzene, toluene, ethylbenzene and xylene (BTEX) monitor at the GIBI site – measurements every 15 minutes;
- The addition of a high volume sampler for polyaromatic hydrocarbon (PaH) compounds at the GIBI site.

Future Actions

- Continue compliance inspections of major and area sources;
- Use the inspection and monitoring results to make decisions about revising current NY State source category specific regulations;
- Use the inspection and monitoring results to make decisions about requiring a greater degree of air pollution control at specific sources using current NY State regulations.

Future Actions

- Continue to provide study information to the New York State Department of Health (NYSDOH) to investigate feasibility of a community health study;
- Continue our dialog with the community and industry representatives to achieve air pollution reductions for clean air.

Recent Air Pollution Reduction Projects

- 3M O-Cell-O
  - Air pollution equipment installation resulted in significant Carbon Disulfide emissions reduction (50%).
- Huntley Power
  - Air pollution equipment installation and switch to cleaner coal resulted in significant reductions in Sulfur Dioxide, Nitrogen Oxides, Particulates, and Mercury.

Future Air Pollution Reduction Projects

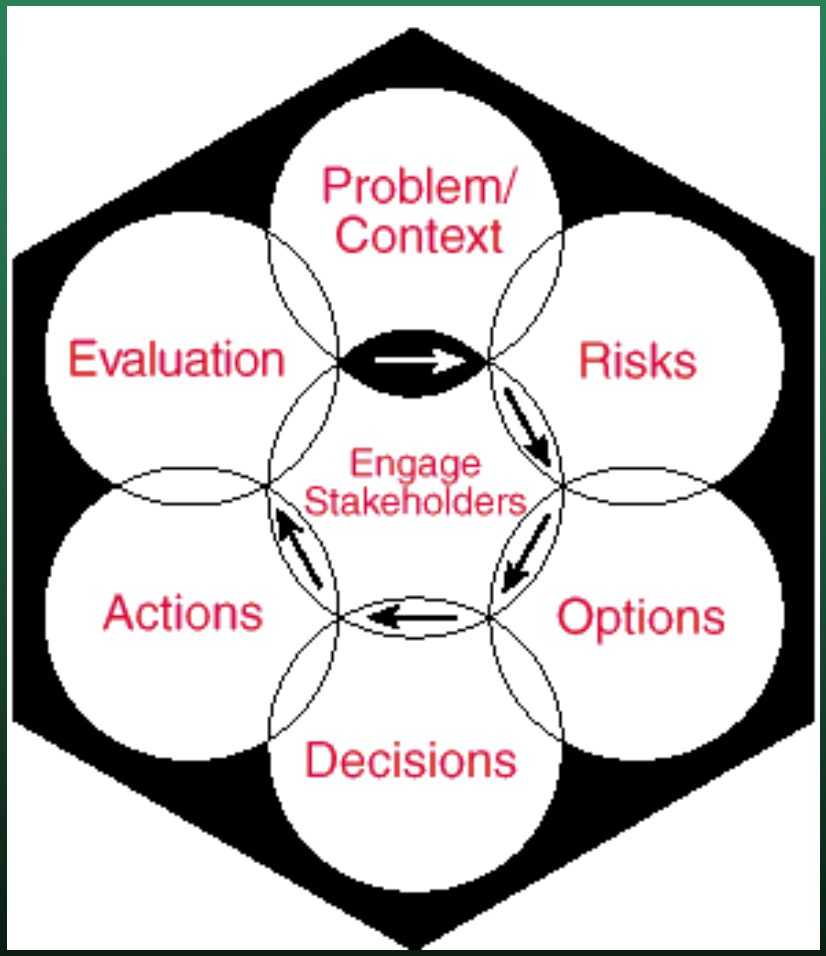
- Tonawanda Coke Corporation

-Tonawanda Coke has agreed to control emissions from the “ammonia still” by the Fall of this year;

-This project will reduce ammonia emissions by approximately 800,000 pounds per year and smaller but significant amounts of benzene, toluene, xylene, and naphthalene;

- Require increased work-practice oversight responsibility as a permit condition in renewed Title V permit.

Framework of Risk Management for Community Air Quality Decisions



Tonawanda Community Air Quality Study

Results of Air Toxics Data Analysis

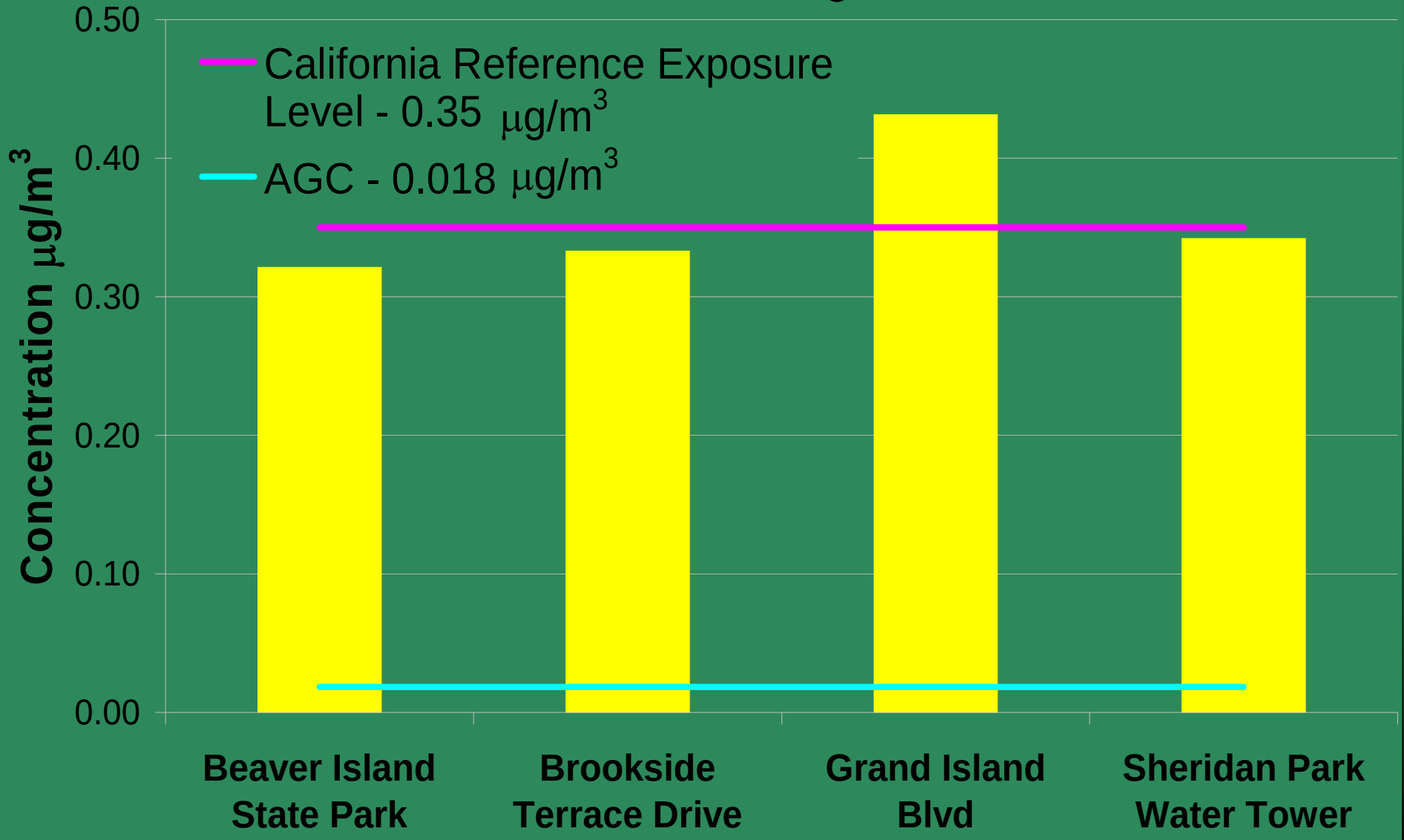

0
0.5
1
2 Miles
I190
BTRS
I290
GIBI
River Road
SPWT
Sheridan Parkside Community Center
BISP
N

Compounds greater than the Annual Guideline Concentration (AGC)

- Volatile Organic Compounds
  - Benzene
  - Acrolein
  - Carbon tetrachloride
- Carbonyls
  - Formaldehyde
  - Acetaldehyde

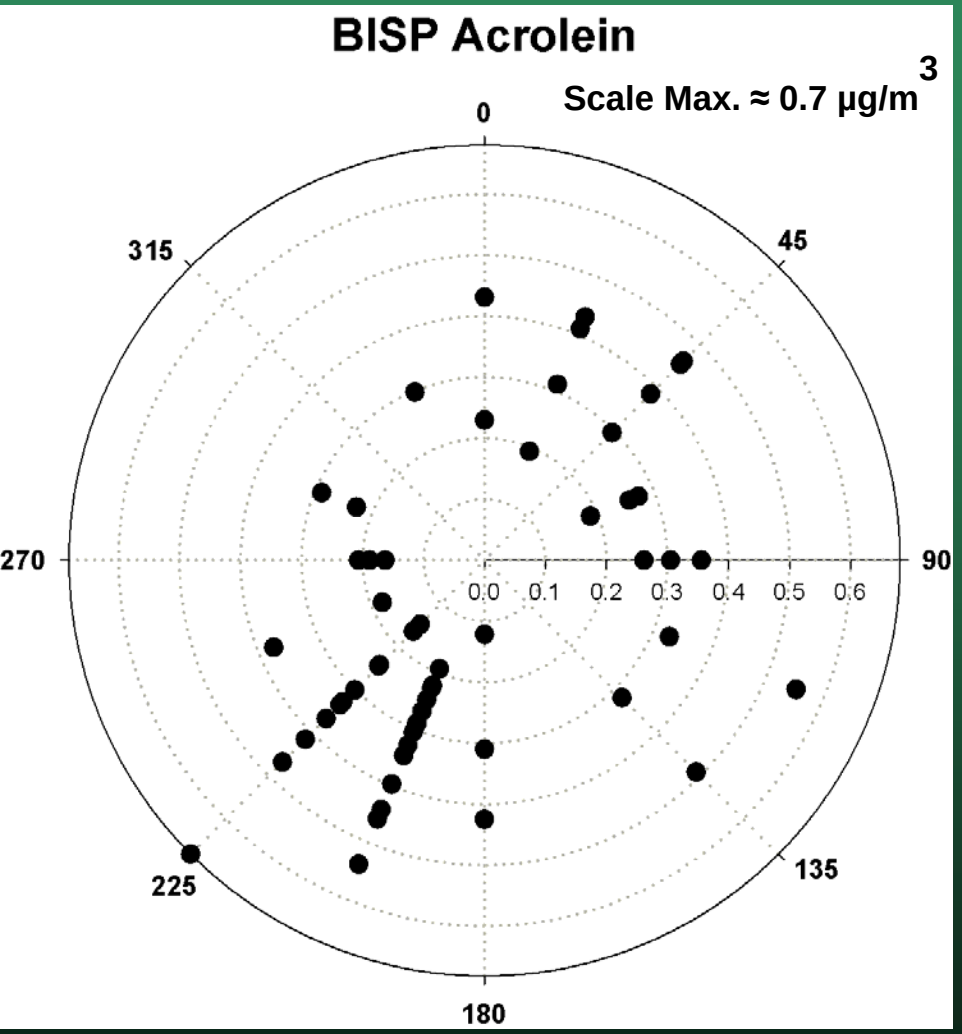
Acrolein

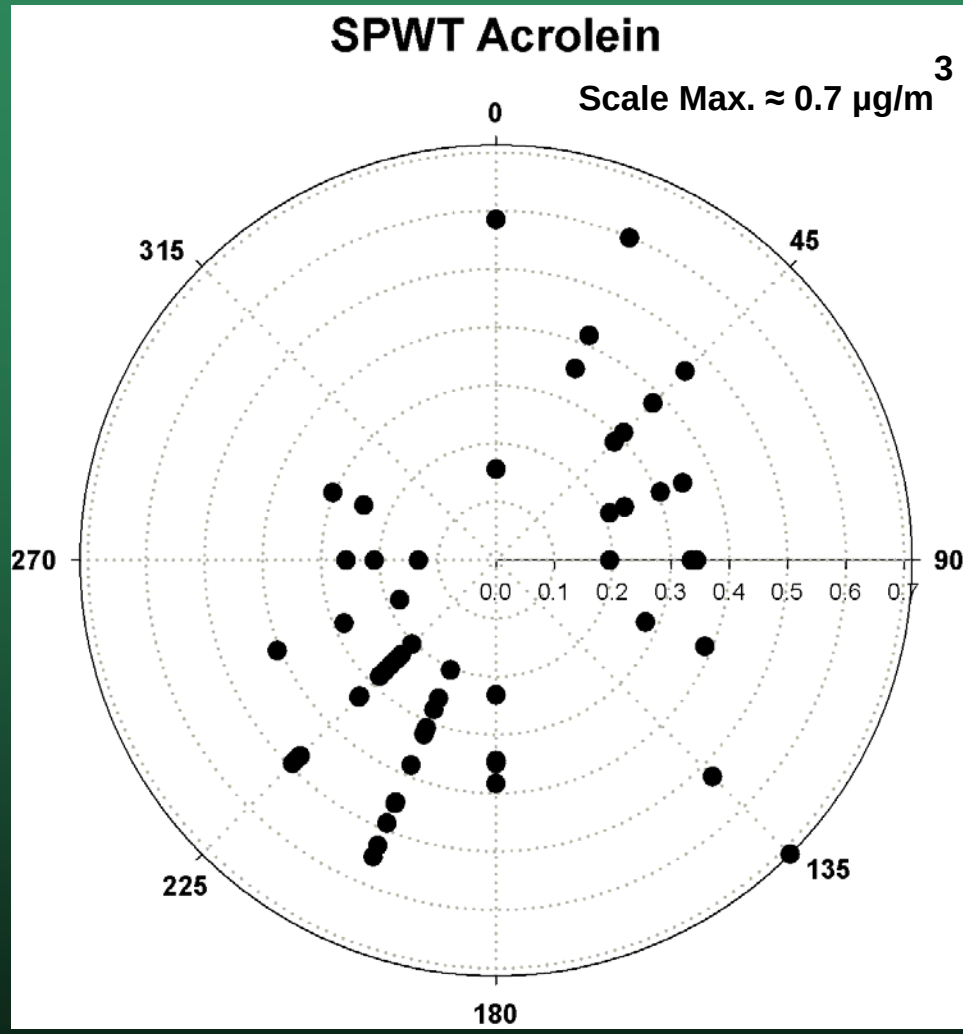
12 month average

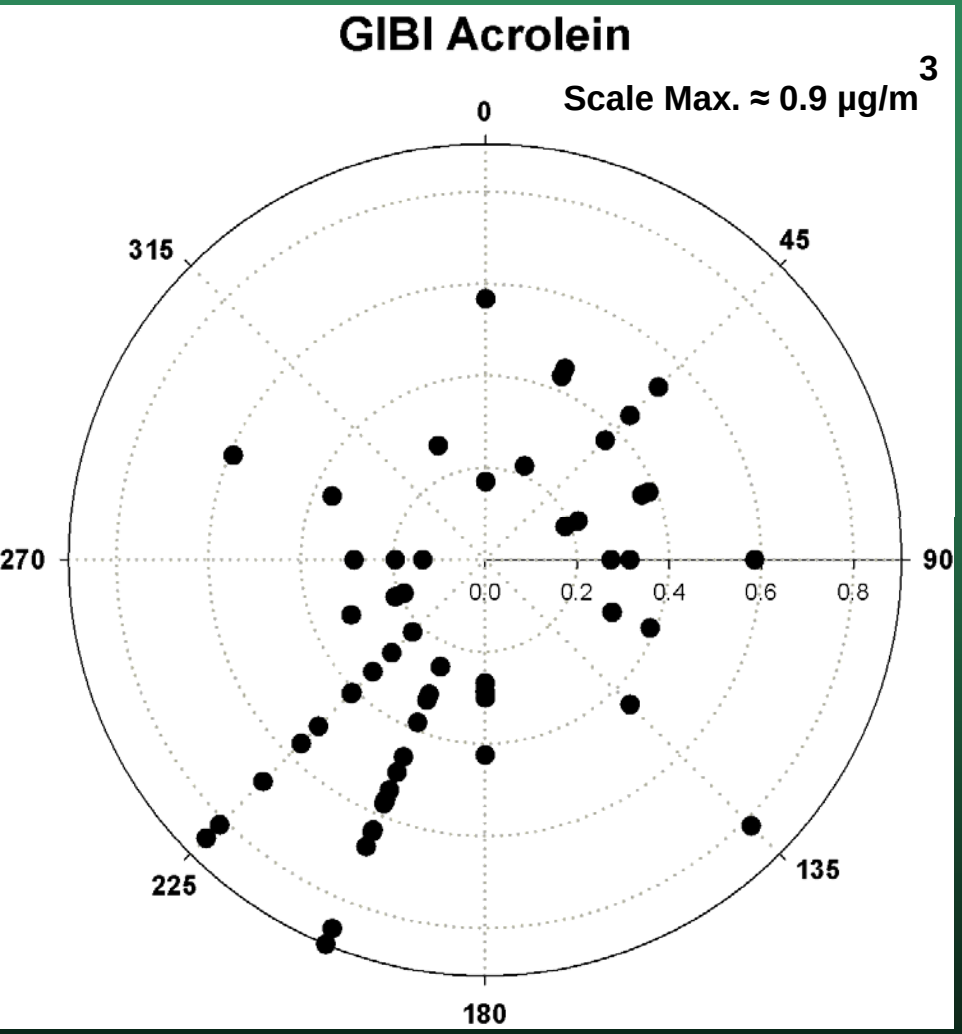


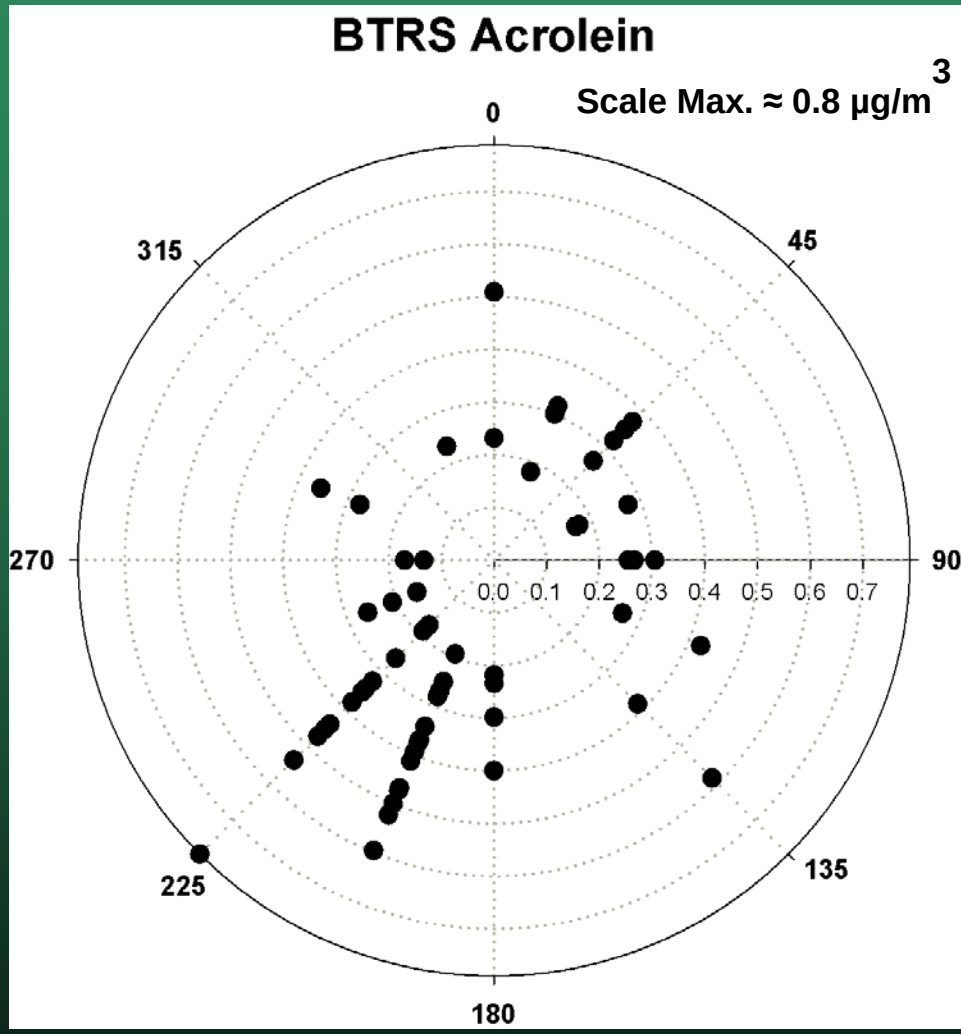
Acrolein

- Manmade sources
  - Tobacco smoke
  - Chemical manufacturing (acrylic acid)
  - Combustion of petrochemical fuels and coal
  - Mobile source exhaust (cars, trucks, airplanes)
  - Formed when cooking fats are overheated
  - Breakdown by sunlight of various hydrocarbon pollutants (such as 1,3-butadiene)
  - Used as an herbicide and algaecide
- Natural sources
  - Product of fermentation and ripening processes
  - Released when organic matter such as trees and other plants, including tobacco, are burned

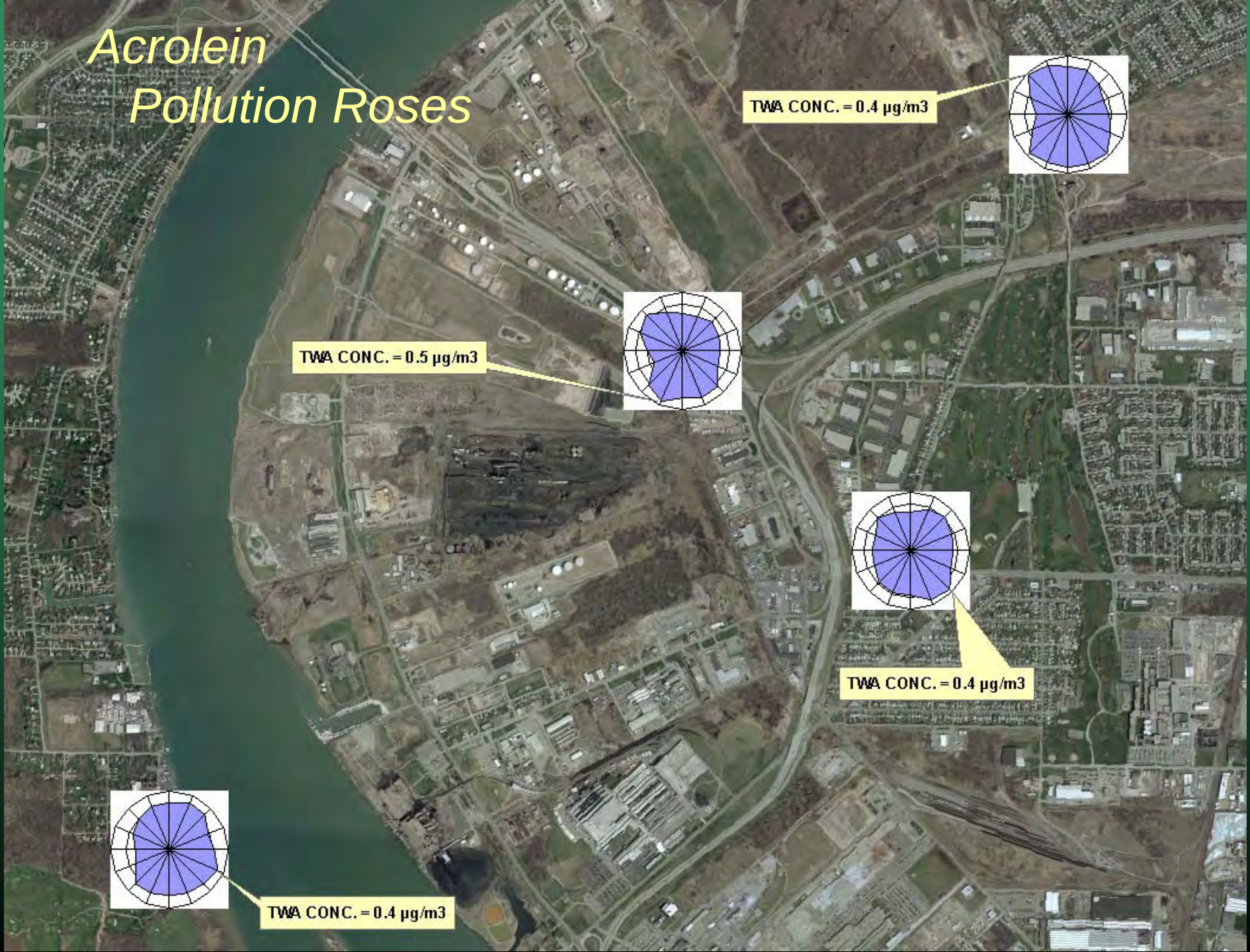

BISP Acrolein
Scale Max. ≈ 0.7 µg/m3
0
45
90
135
180
225
270
315
0.0
0.1
0.2
0.3
0.4
0.5
0.6


SPWT Acrolein
Scale Max. ≈ 0.7 µg/m3
0
45
90
135
180
225
270
315
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7


GIBI Acrolein
Scale Max. ≈ 0.9 µg/m3
0
45
90
135
180
225
270
315
0.0
0.2
0.4
0.6
0.8

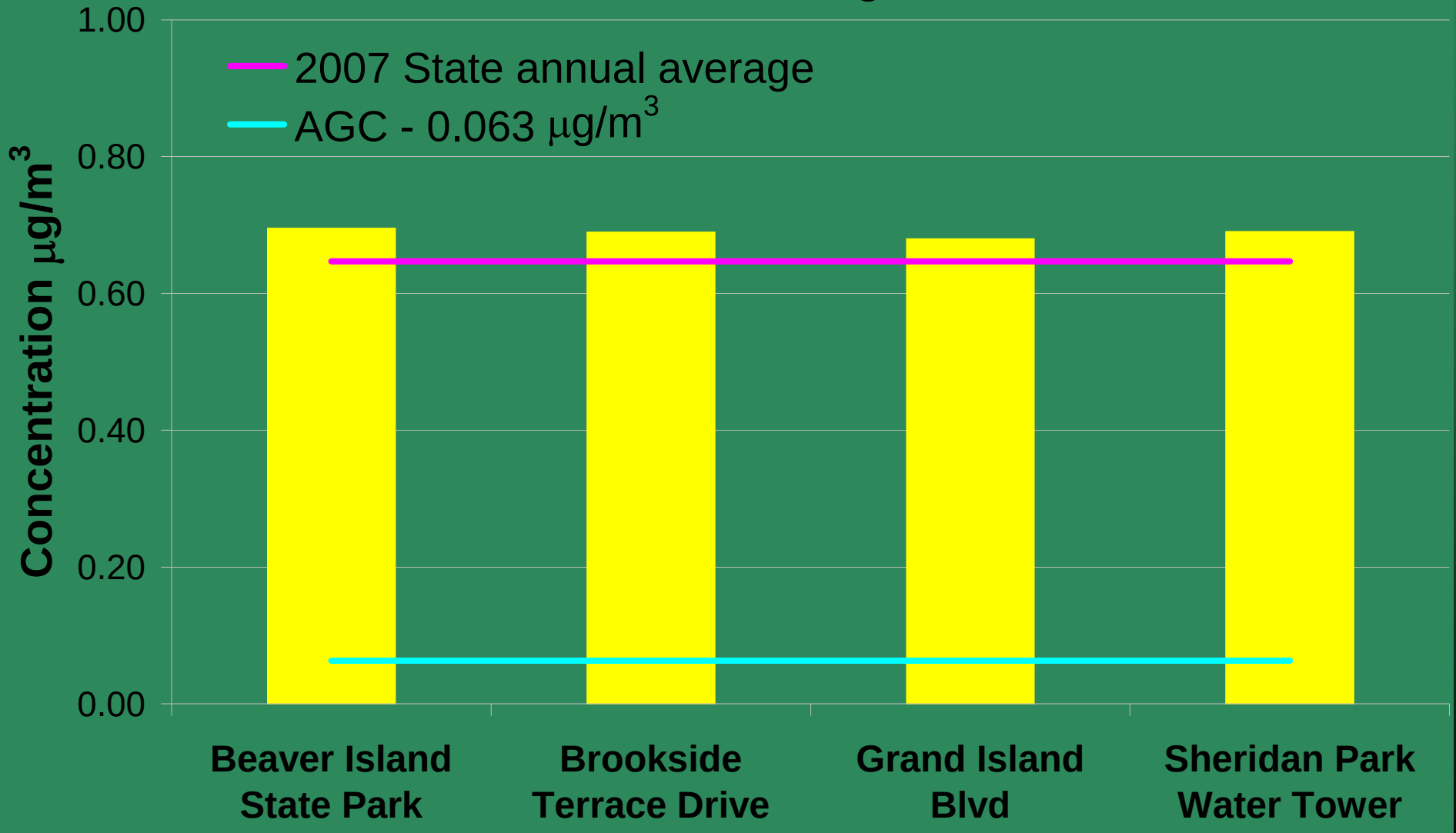

BTRS Acrolein
Scale Max. ≈ 0.8 µg/m3
0
45
90
135
180
225
270
315
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7

Acrolein Pollution Roses



Carbon tetrachloride

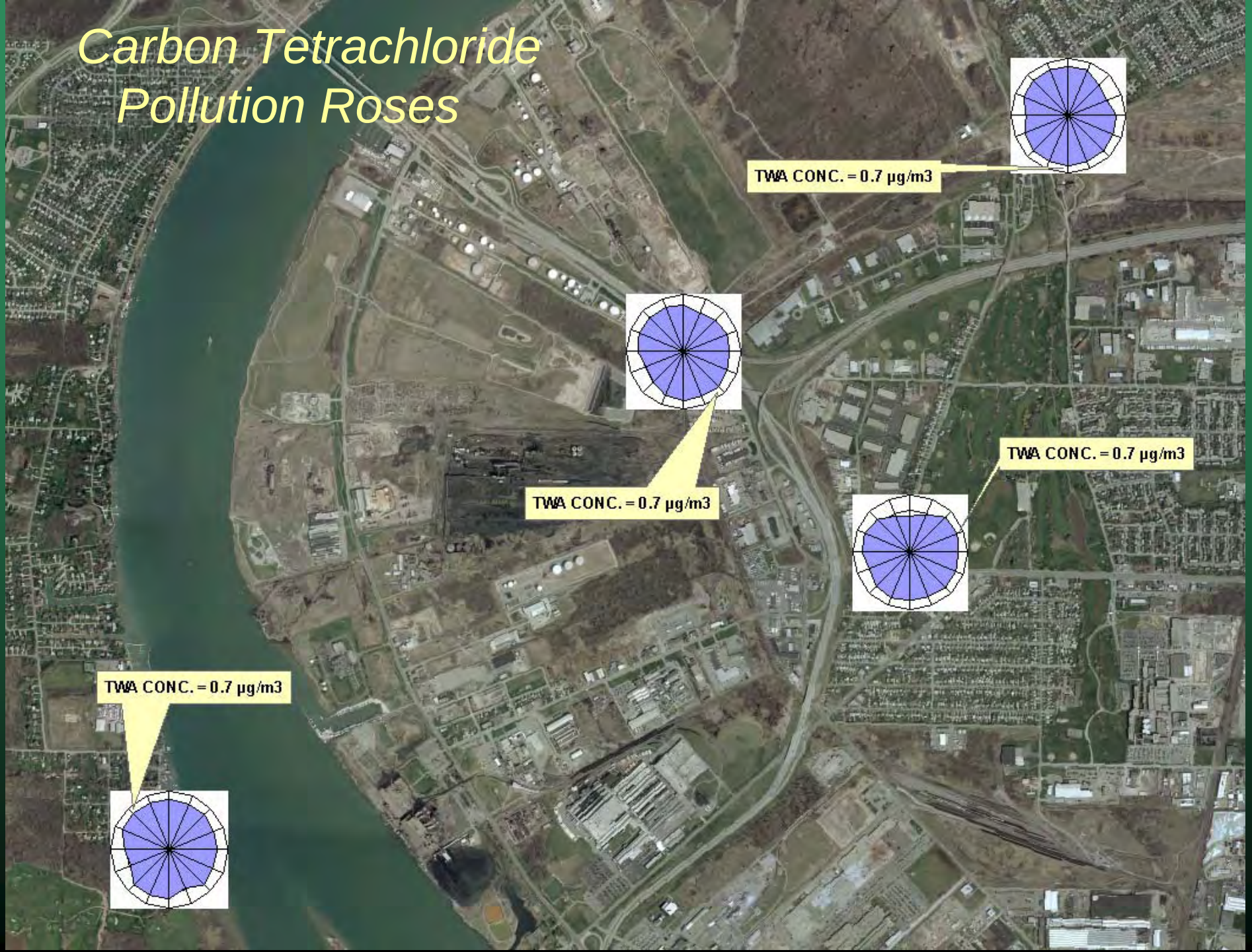
12 month average



Carbon tetrachloride

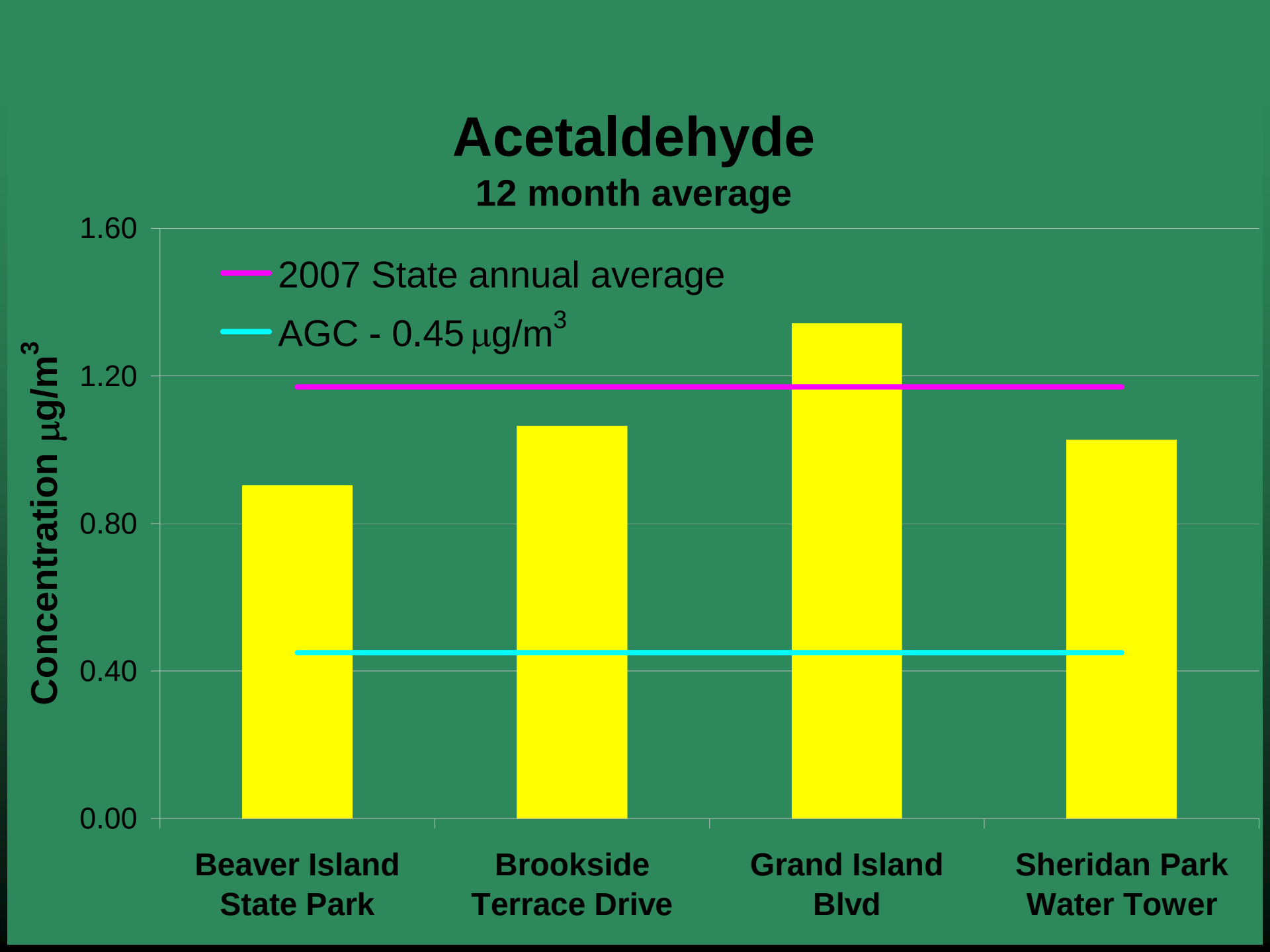
- Manmade sources
  - Manufacturing agent for refrigerants and propellants for aerosol cans
  - Solvent for oils, fats, lacquers, varnishes, and resins
  - Grain fumigant
  - Dry cleaning agent
  - Consumer and fumigant uses have been discontinued
  - Production and consumption phased out in U.S in 1999
  - New York Emissions 2001 (1,928 lbs/year), Now Zero
- Natural Sources
  - No natural sources

Carbon Tetrachloride Pollution Roses



Acetaldehyde

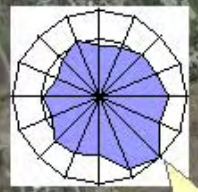
12 month average



Acetaldehyde

- Manmade
  - intermediate in the synthesis of other chemicals, perfumes, polyester resins, and basic dyes.
  - solvent in the rubber, tanning, and paper industries
  - product of incomplete combustion
  - Mobile source exhaust (cars & trucks)
- Natural Sources
  - Wildfires

Acetaldehyde Pollution Roses



TWA CONC. = 1.5 µg/m3

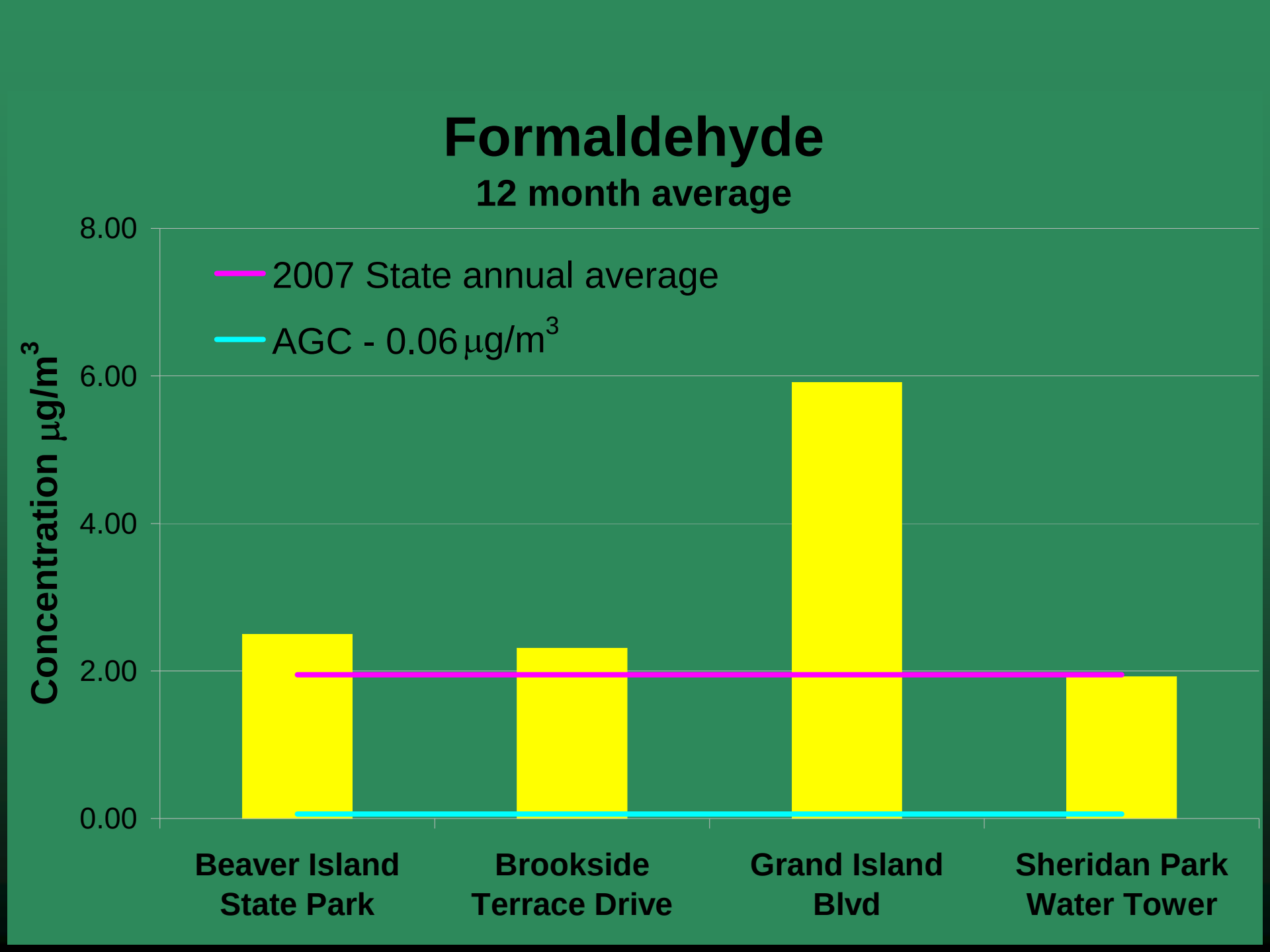
TWA CONC. = 1.7 µg/m3

TWA CONC. = 1.4 µg/m3

TWA CONC. = 1.2 µg/m3

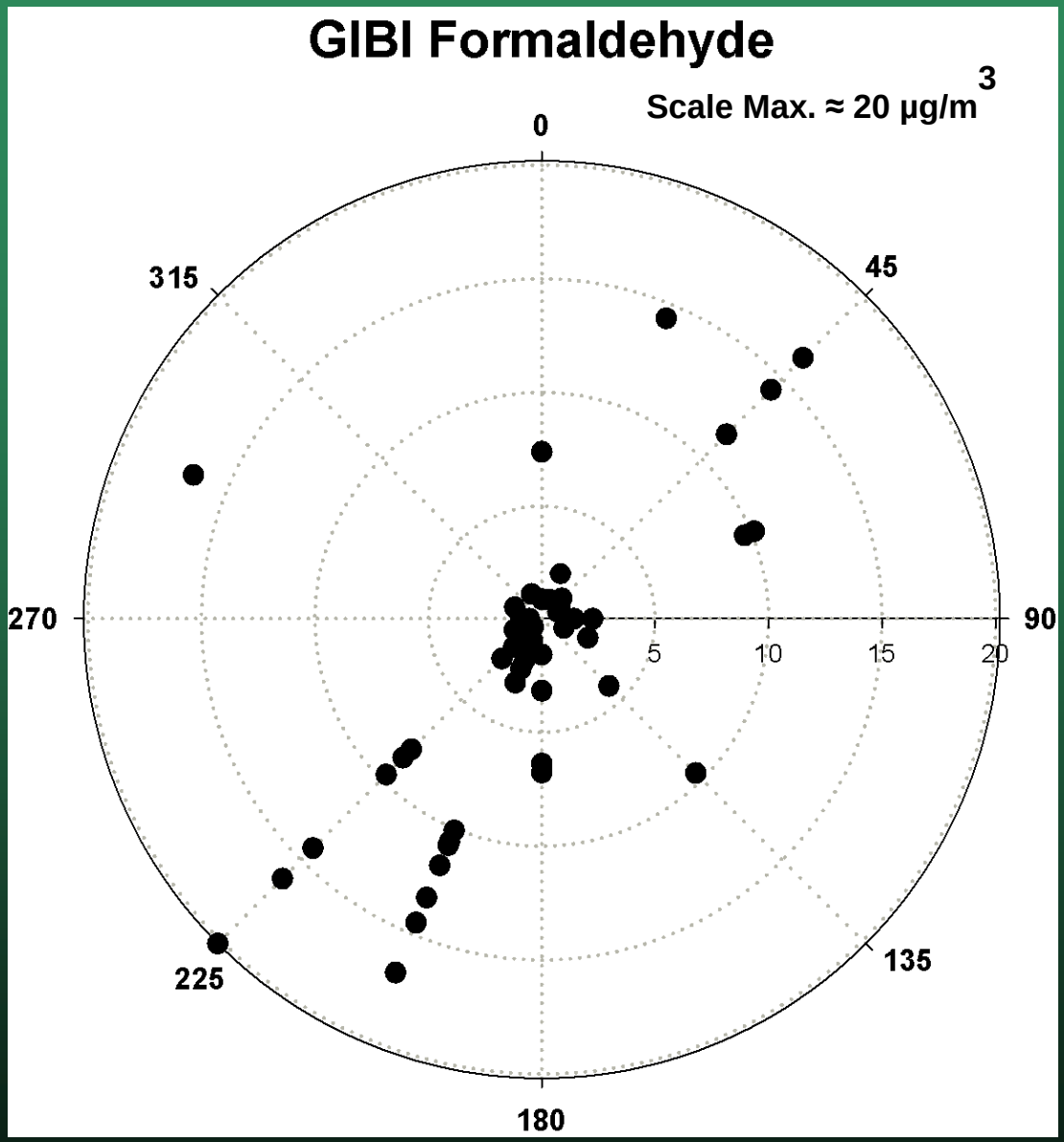
Formaldehyde

12 month average

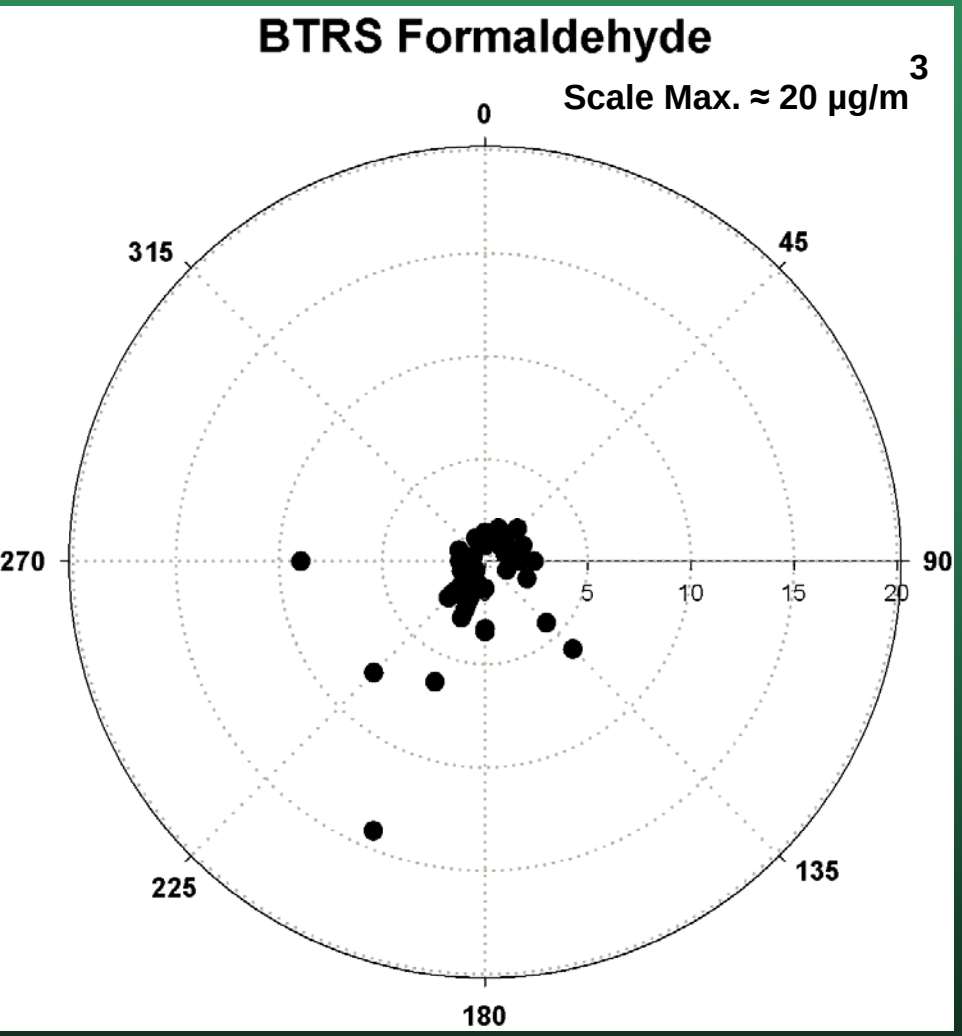


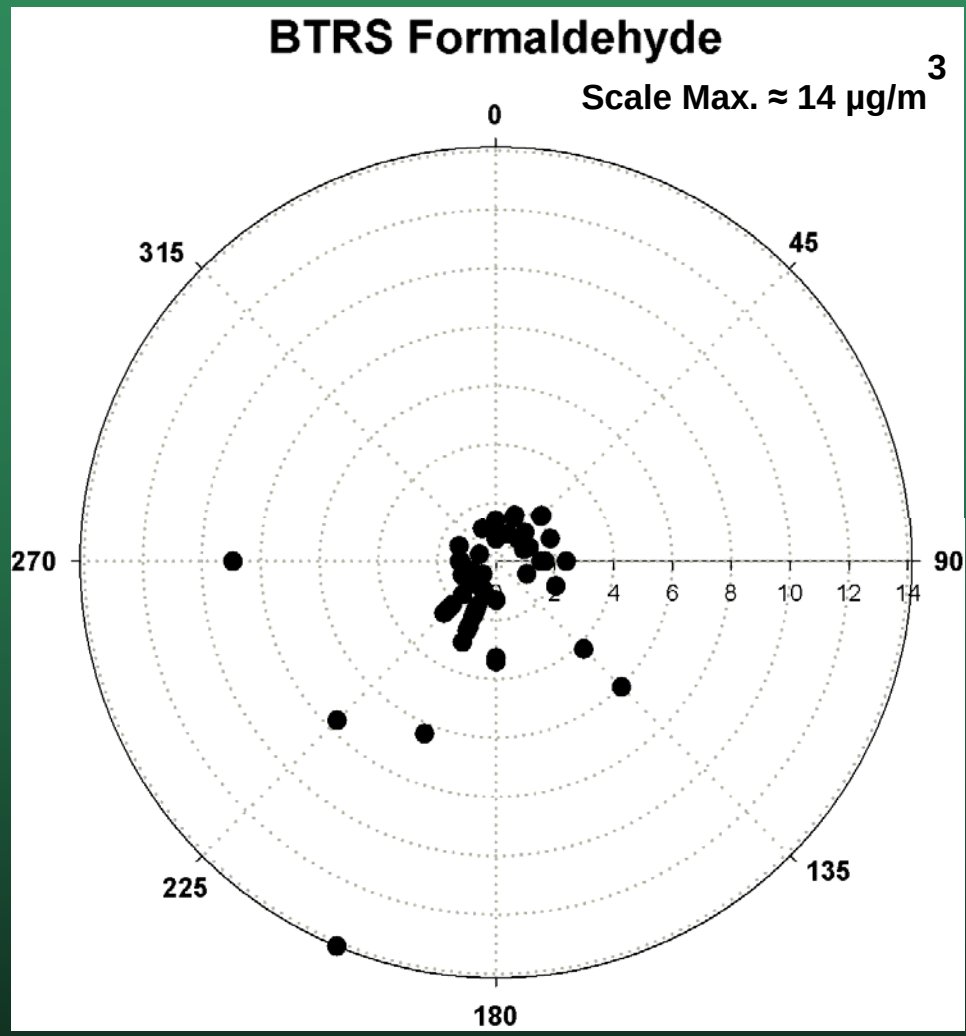
Formaldehyde

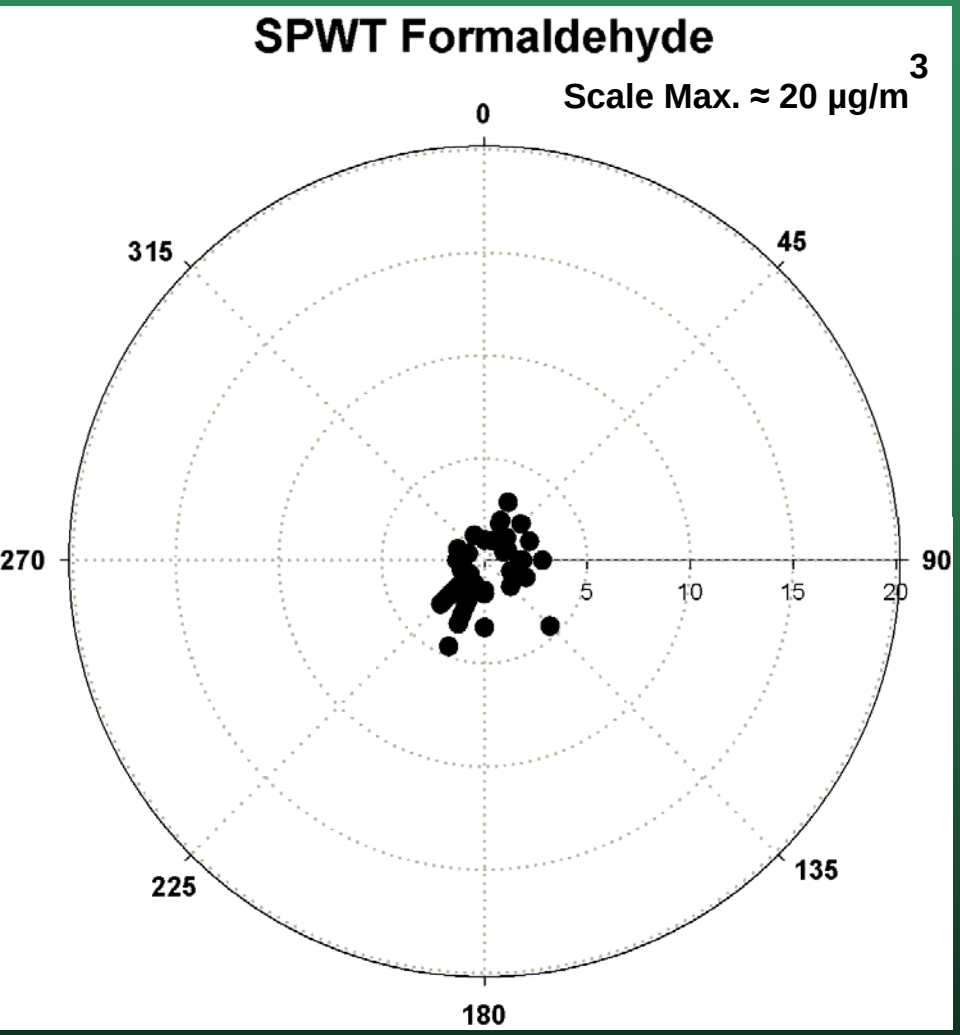
- Manmade Sources
  - Predominantly used as a chemical intermediate
  - Manufacturing of urea-formaldehyde resins, used in particleboard products
  - Combustion sources, smoking
  - Mobile source exhaust (cars & trucks)
  - Breakdown of other compounds
- Natural Sources
  - Wildfires, animal wastes, plant volatiles

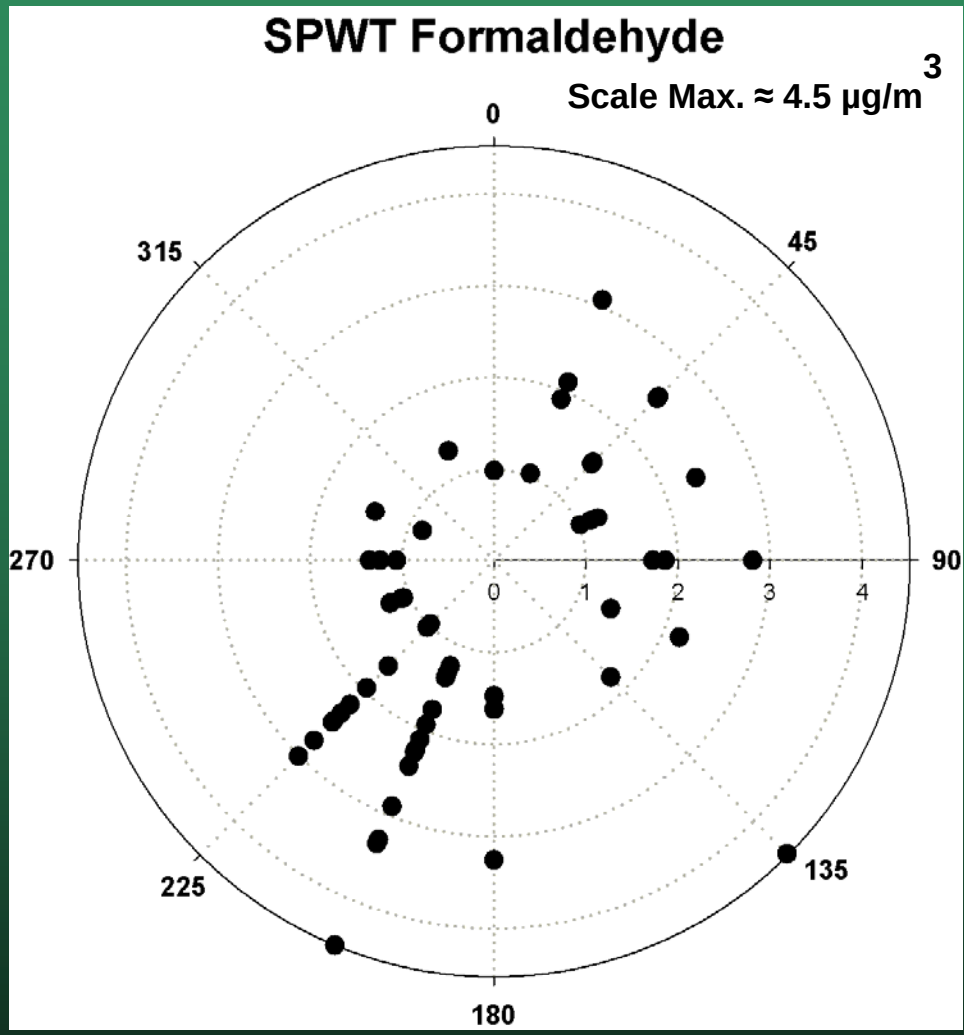


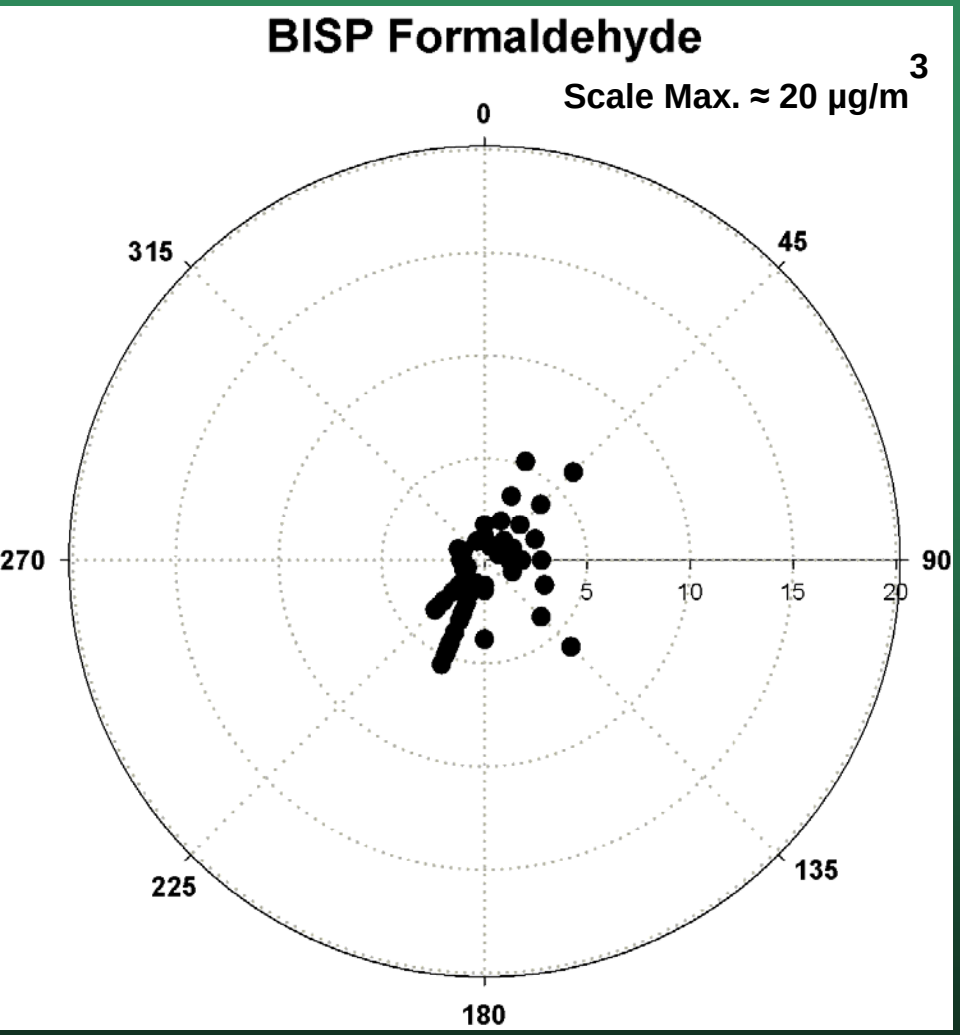
NYS Department of Environmental Conservation

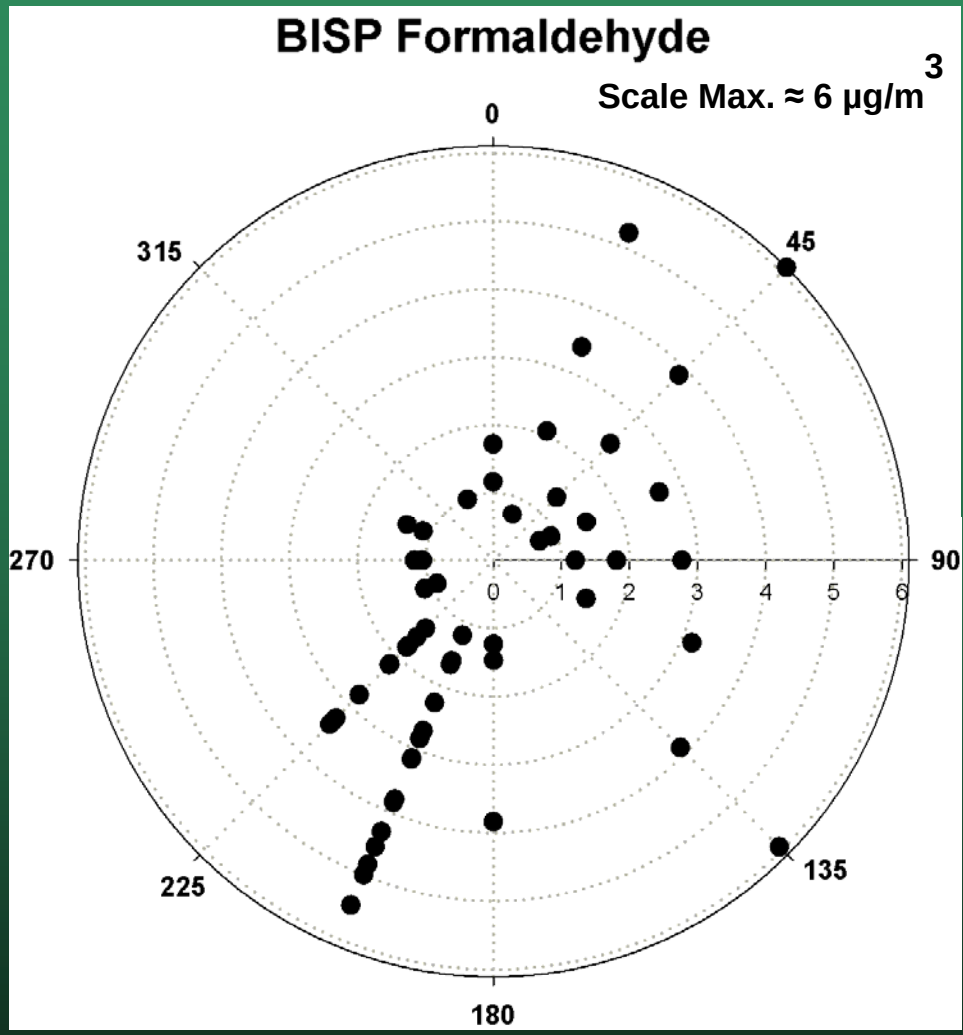

BTRS Formaldehyde
Scale Max. ≈ 20 µg/m3
0
45
90
135
180
225
270
315
5
10
15
20


BTRS Formaldehyde
Scale Max. ≈ 14 µg/m3
0
45
90
135
180
225
270
315
2
4
6
8
10
12
14

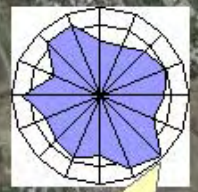

SPWT Formaldehyde
Scale Max. ≈ 20 µg/m3
0
45
90
135
180
225
270
315
5
10
15
20


SPWT Formaldehyde
Scale Max. ≈ 4.5 µg/m3
0
45
90
135
180
225
270
315
0
1
2
3
4


BISP Formaldehyde
Scale Max. ≈ 20 µg/m3
0
45
90
135
180
225
270
315
5
10
15
20


BISP Formaldehyde
Scale Max. ≈ 6 µg/m3
0
45
90
135
180
225
270
315
0
1
2
3
4
5
6

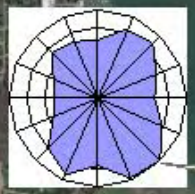
Formaldehyde Pollution Roses



TWA CONC. = 2.9 µg/m3

TWA CONC. = 9.5 µg/m3

TWA CONC. = 2.5 µg/m3



TWA CONC. = 3.2 µg/m3