Urban Community Air Toxics Monitoring Project, Paterson City, NJ

UCAMPP

Linda J. Bonanno, Ph.D.

Division of Science Research & Technology, NJDEP

http://www.state.nj.us/dep/dsr/paterson/

linda.bonanno@dep.state.nj.us

(609) 984-9480

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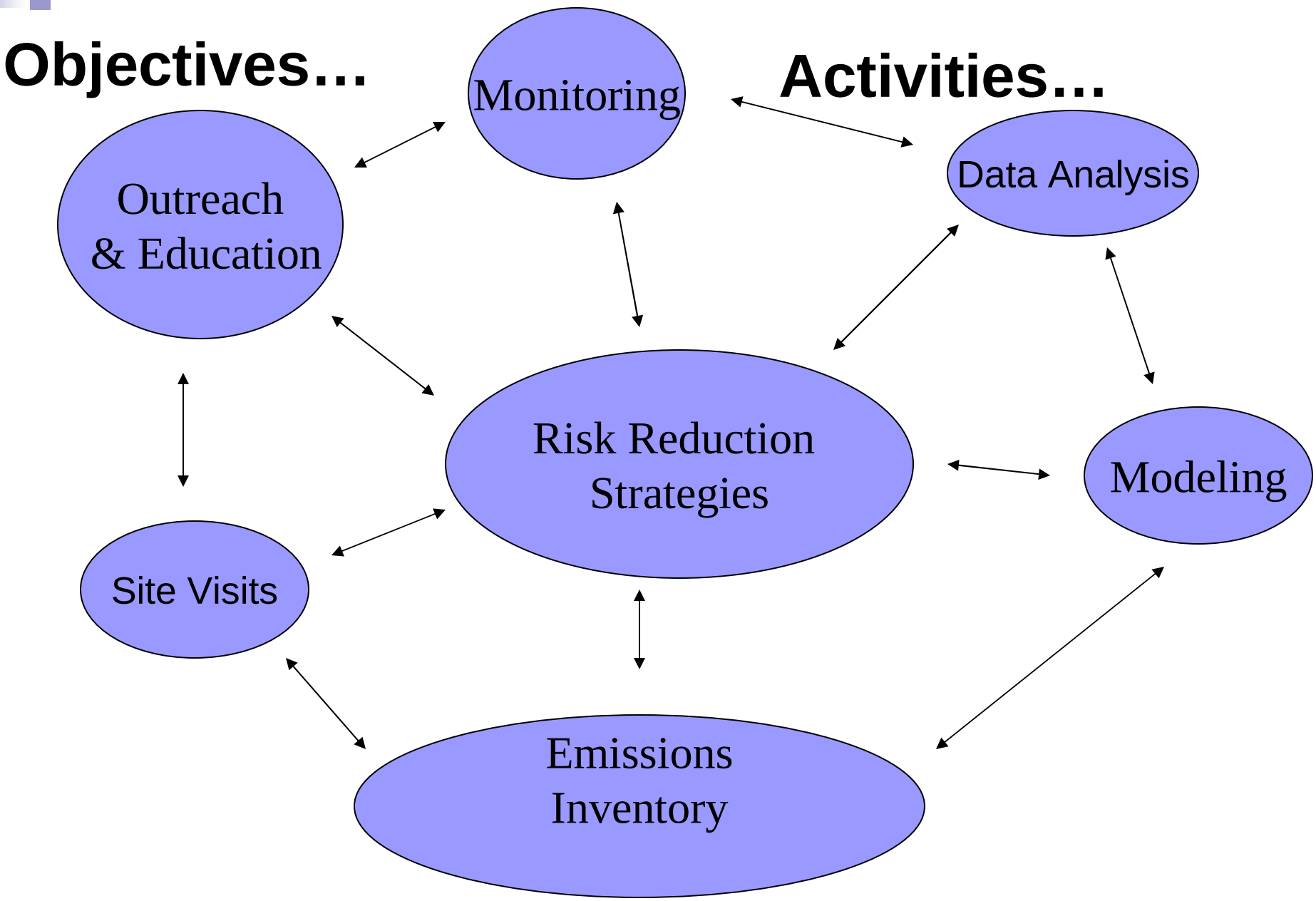
NESCAUM Air Monitoring Annual Mtg

draft: DO Not Cite or Quote


Objectives…
Monitoring
Activities…
Outreach & Education
Data Analysis
Risk Reduction Strategies
Modeling
Site Visits
Emissions Inventory

Risk Ratios *of interest to EPA

Paterson	cancer	non	Chester	cancer	non
EC for DPM	276			103	
Formaldehyde*	146	4		142	4
Benzene*	139			40	
Propylene	17			4	
Acetaldehyde*	17			17	
1,3-butadiene*	9			1	
Carbon Tet*	9			9	
Chloroform*	8			2	

Risk Ratios

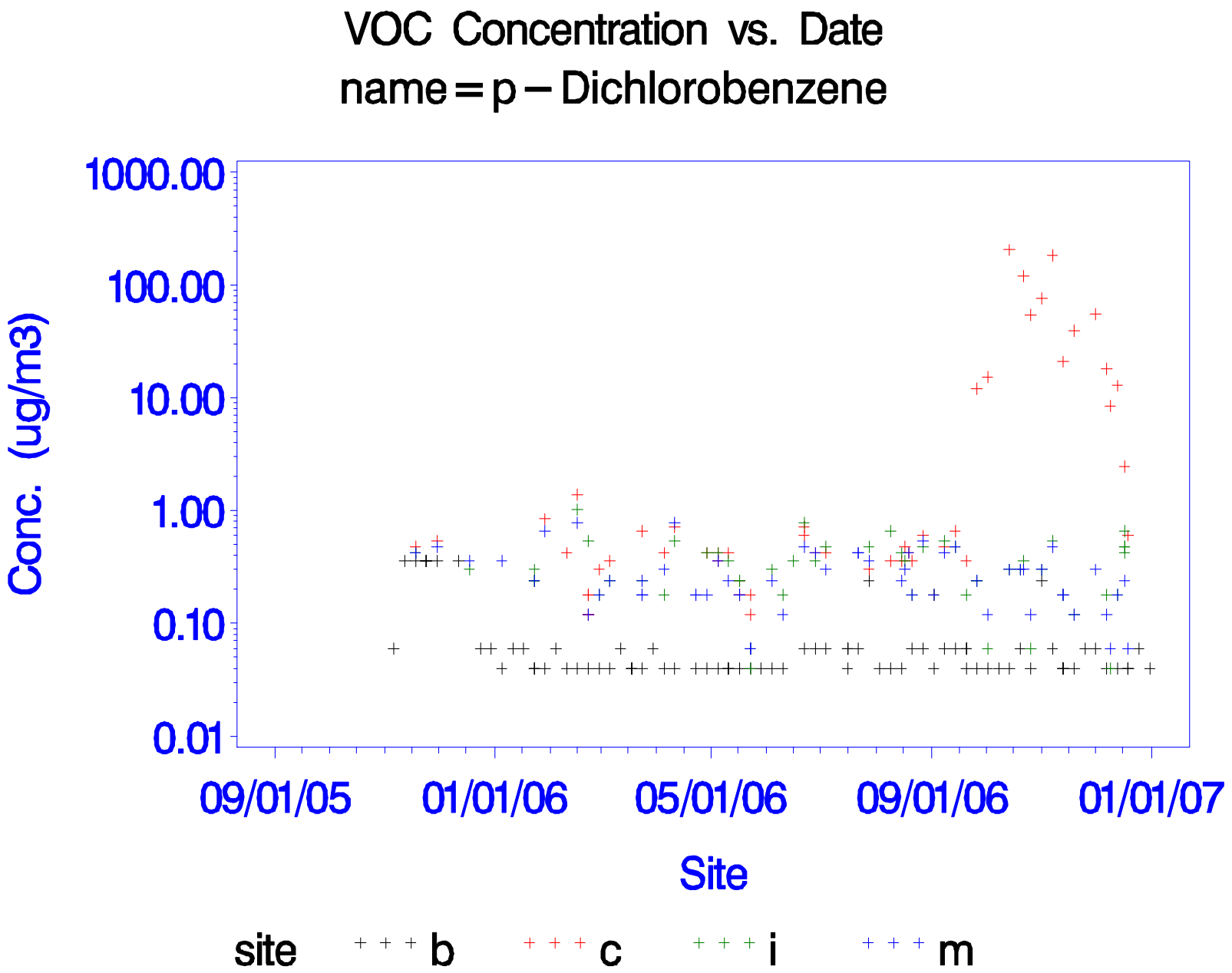
*interest to EPA

	Paterson	cancer	Chester	cancer
Arsenic *		7		4
Cr(VI)*	54%>mdl	3		3

Risk Ratios Cancer	Paterson	Chester
p-Dichlorobenzene	205	
Tetracloroethylene	4	
Ethyl Benzene	3	
Chlorine (noncancer)	2	
Napthalene	1	
Combined Cancer Risk	846	318

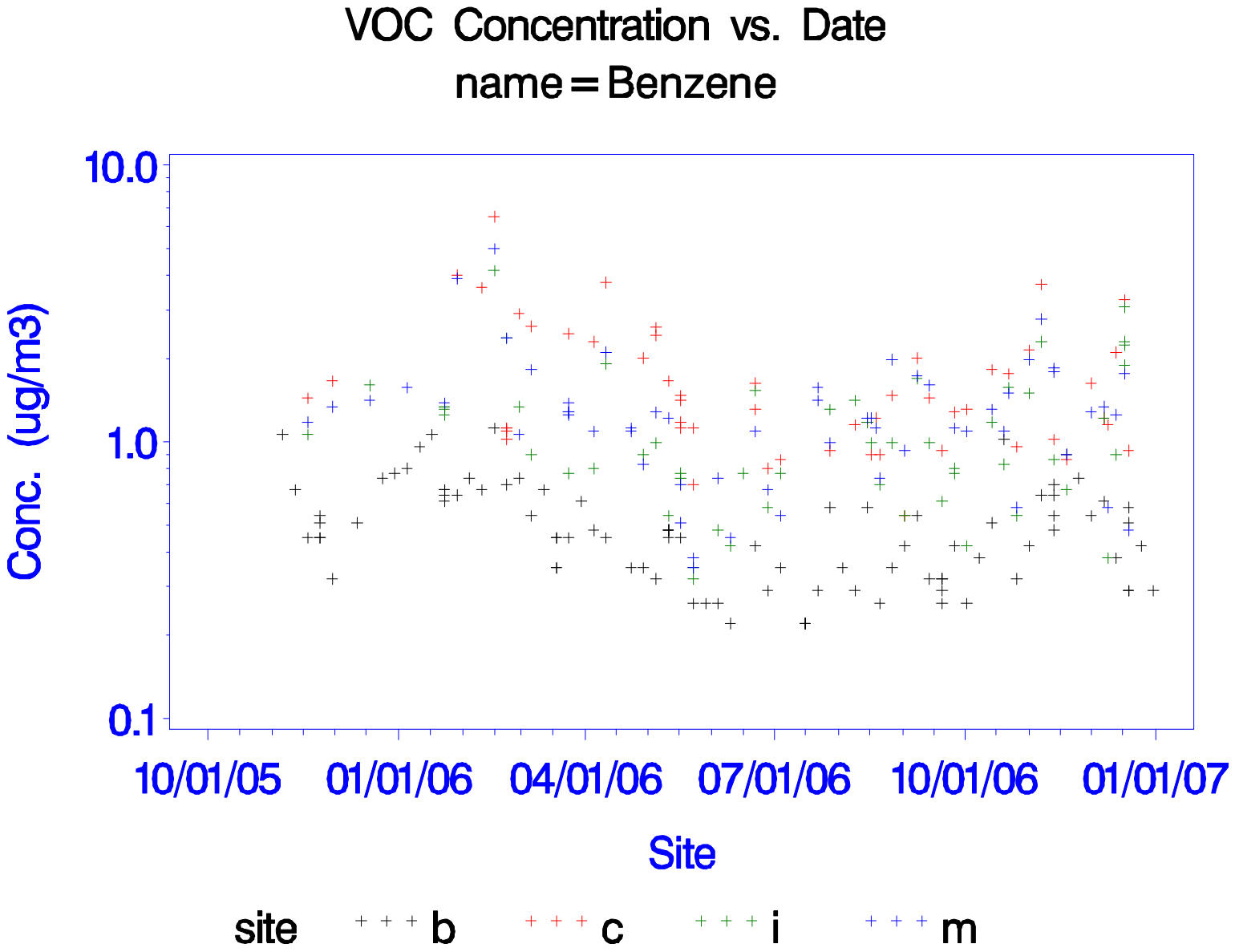
Noncancer Risk Acrolein

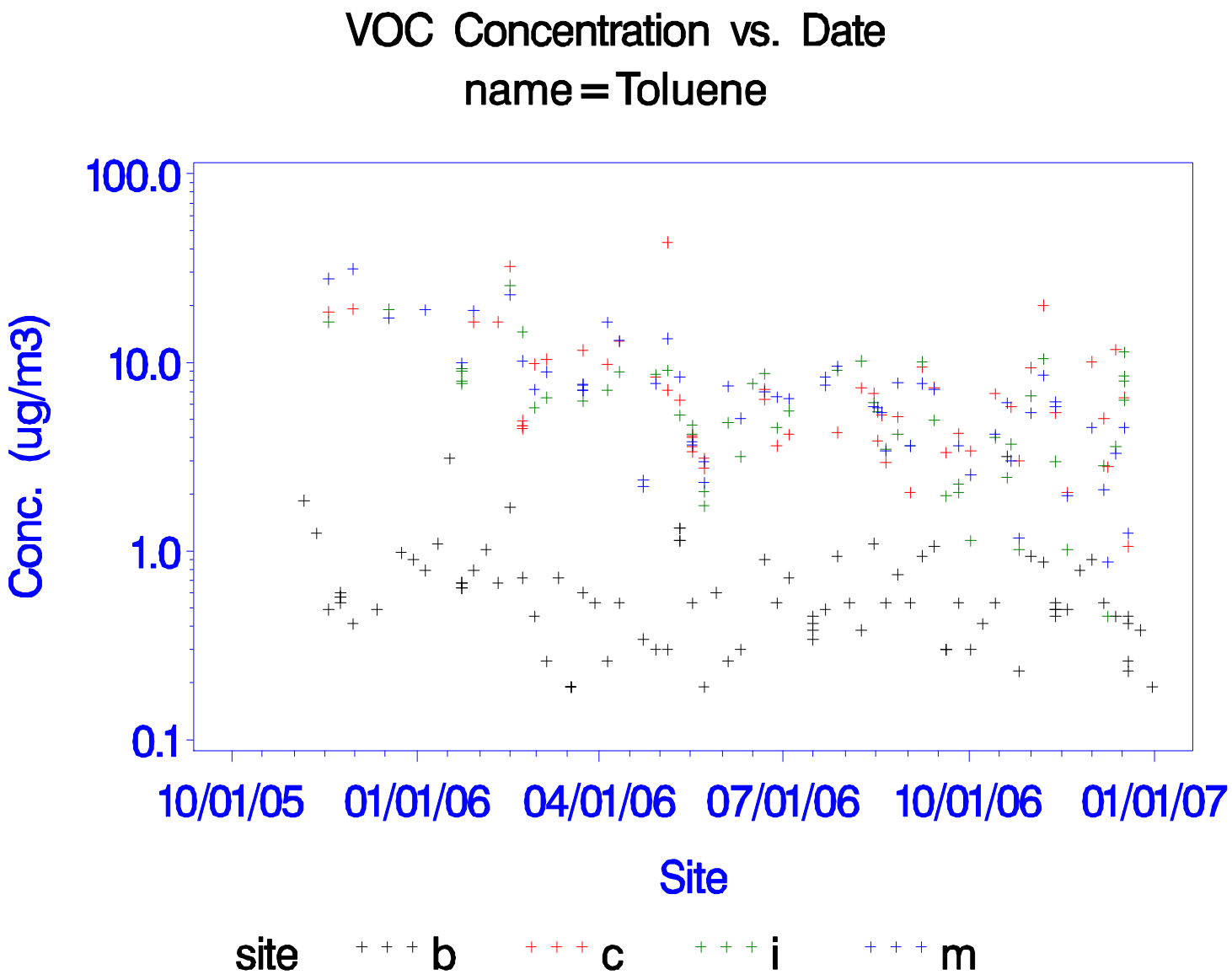
	Paterson µg/m³	Chester µg/m³
TO-15 mean	0.8	0.6
EOSHI	0.3	0.3
Risk Ratio $_{TO-15}$	40	30
Risk Ratio $_{EOHSI}$	15	15
RR for Formaldehyde	4	4
TOTAL	19-44	19-34

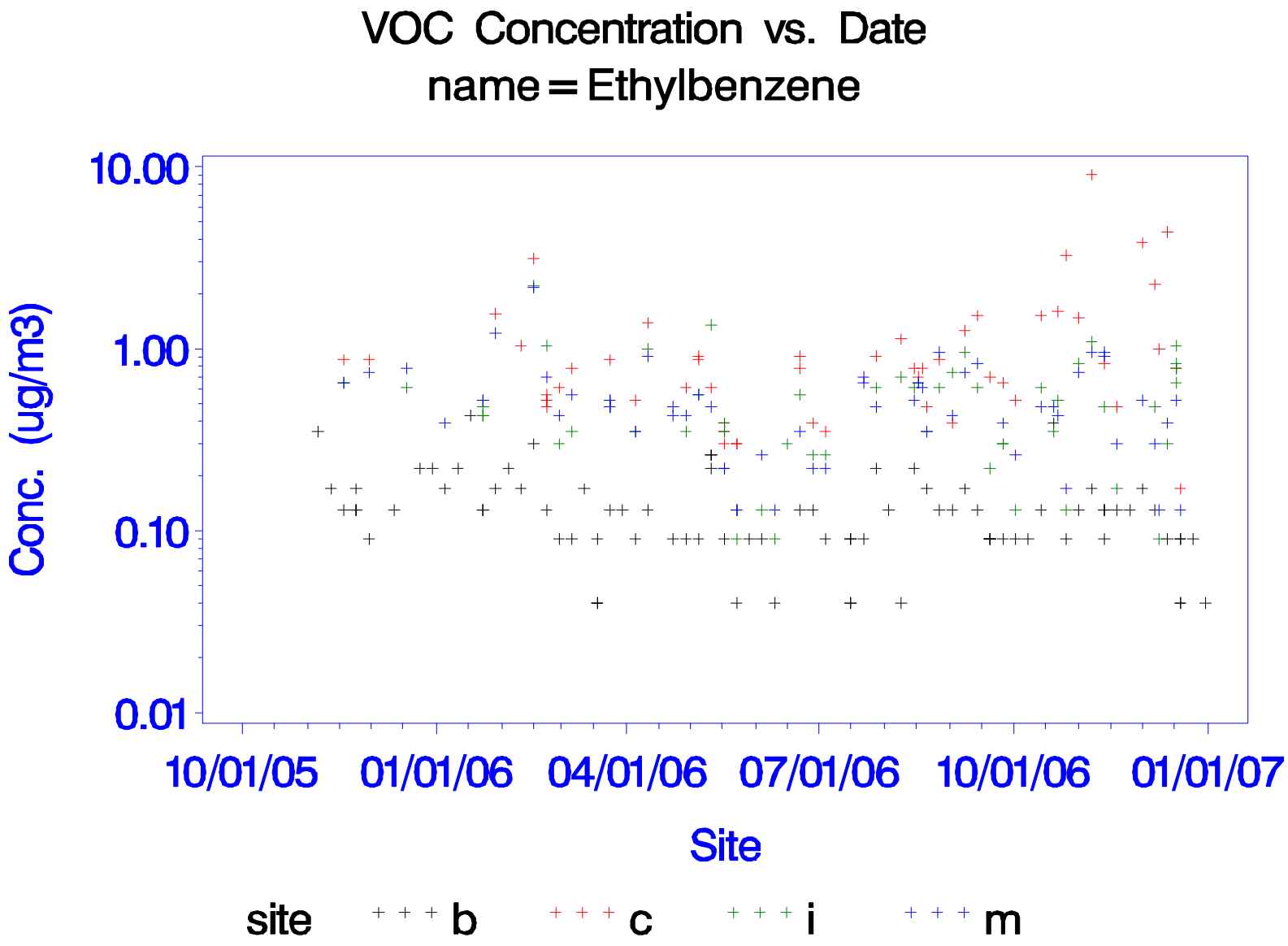

VOC Concentration vs. Date
name = p – Dichlorobenzene
Conc. (ug/m3)
1000.00
100.00
10.00
1.00
0.10
0.01
09/01/05
01/01/06
05/01/06
09/01/06
01/01/07
Site
site
b
c
i
m

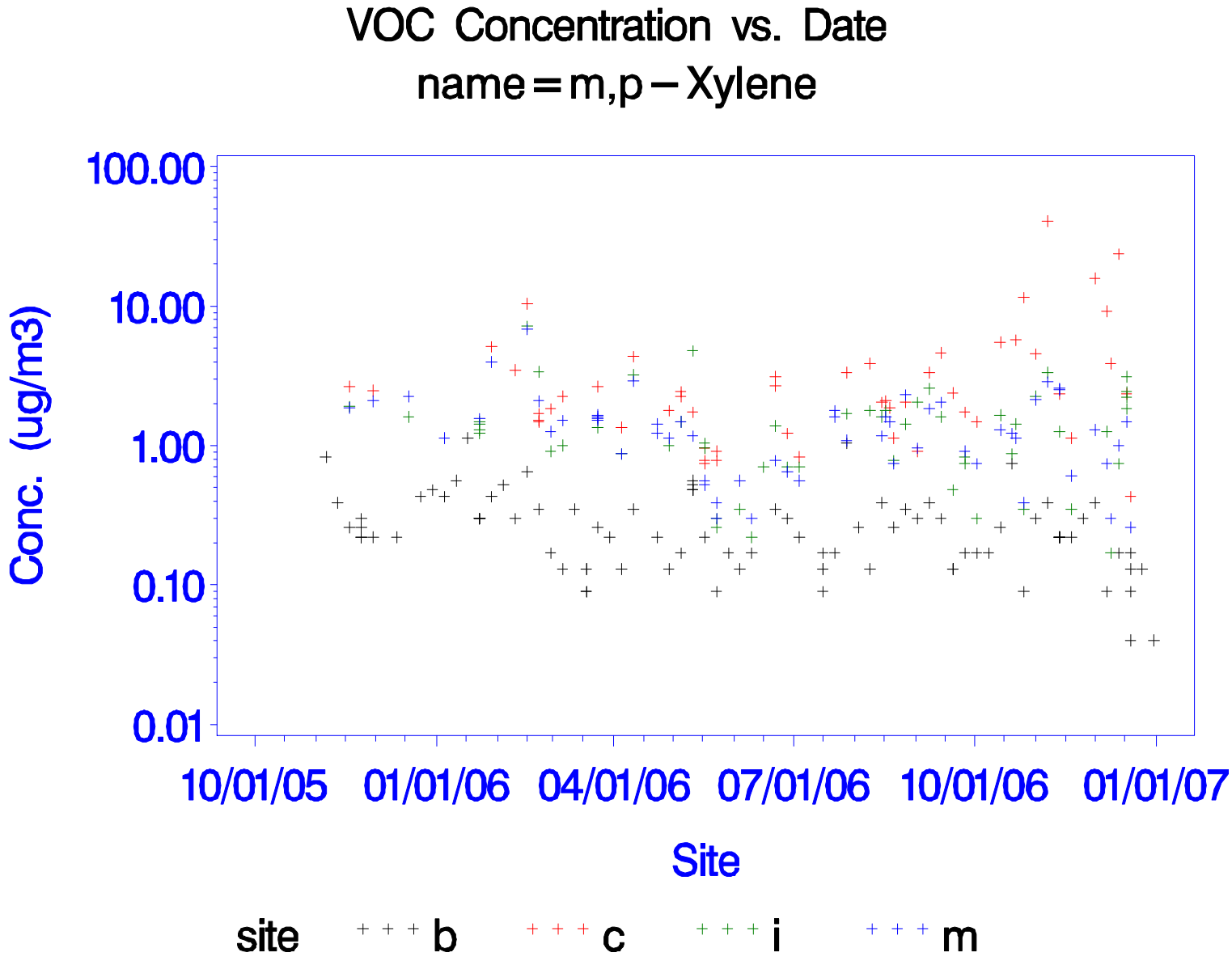
P-dichlorobenzene

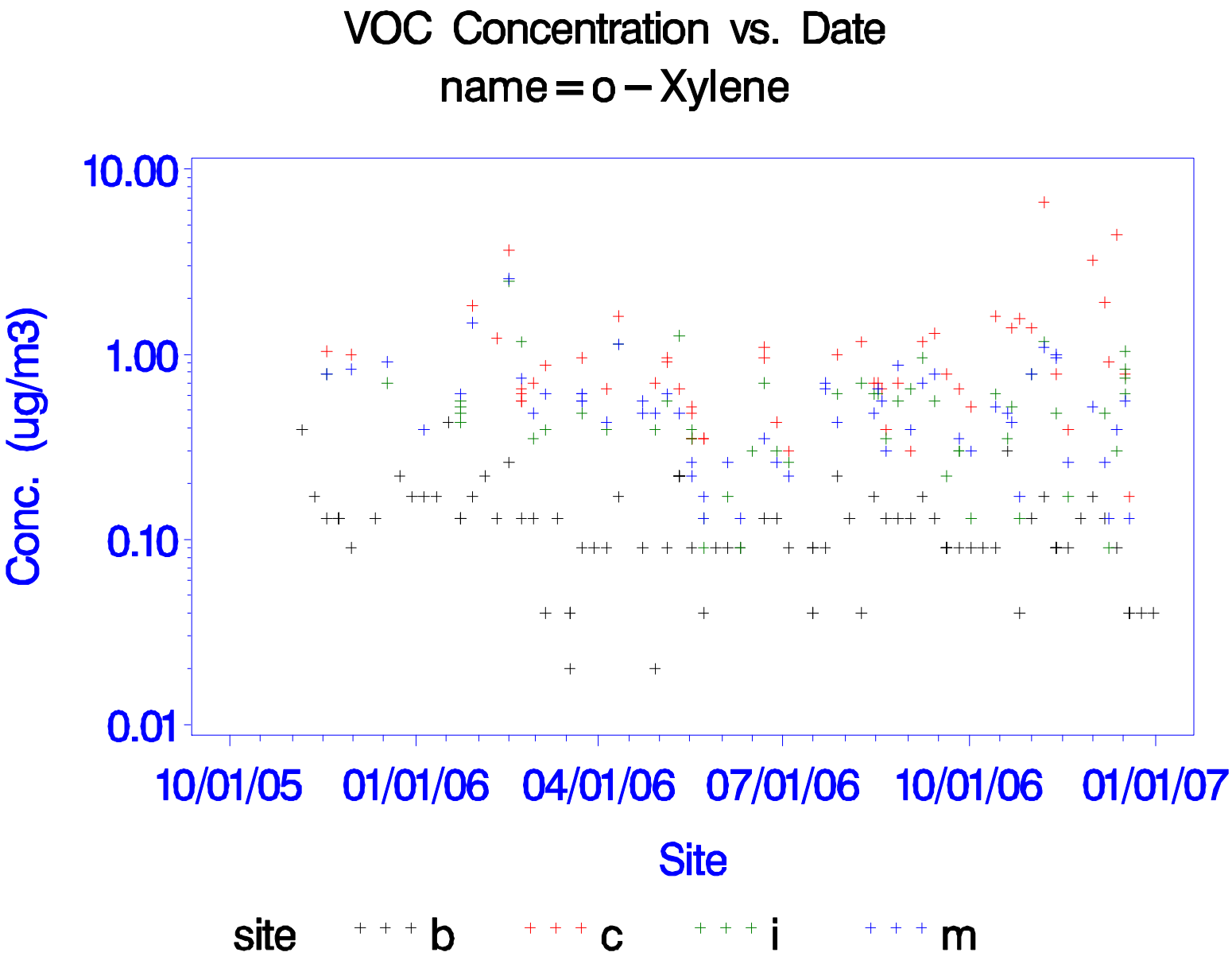
- Potential Sources???
  - Chemical Co
  - Waste Transfer Station Odor Masking Agent

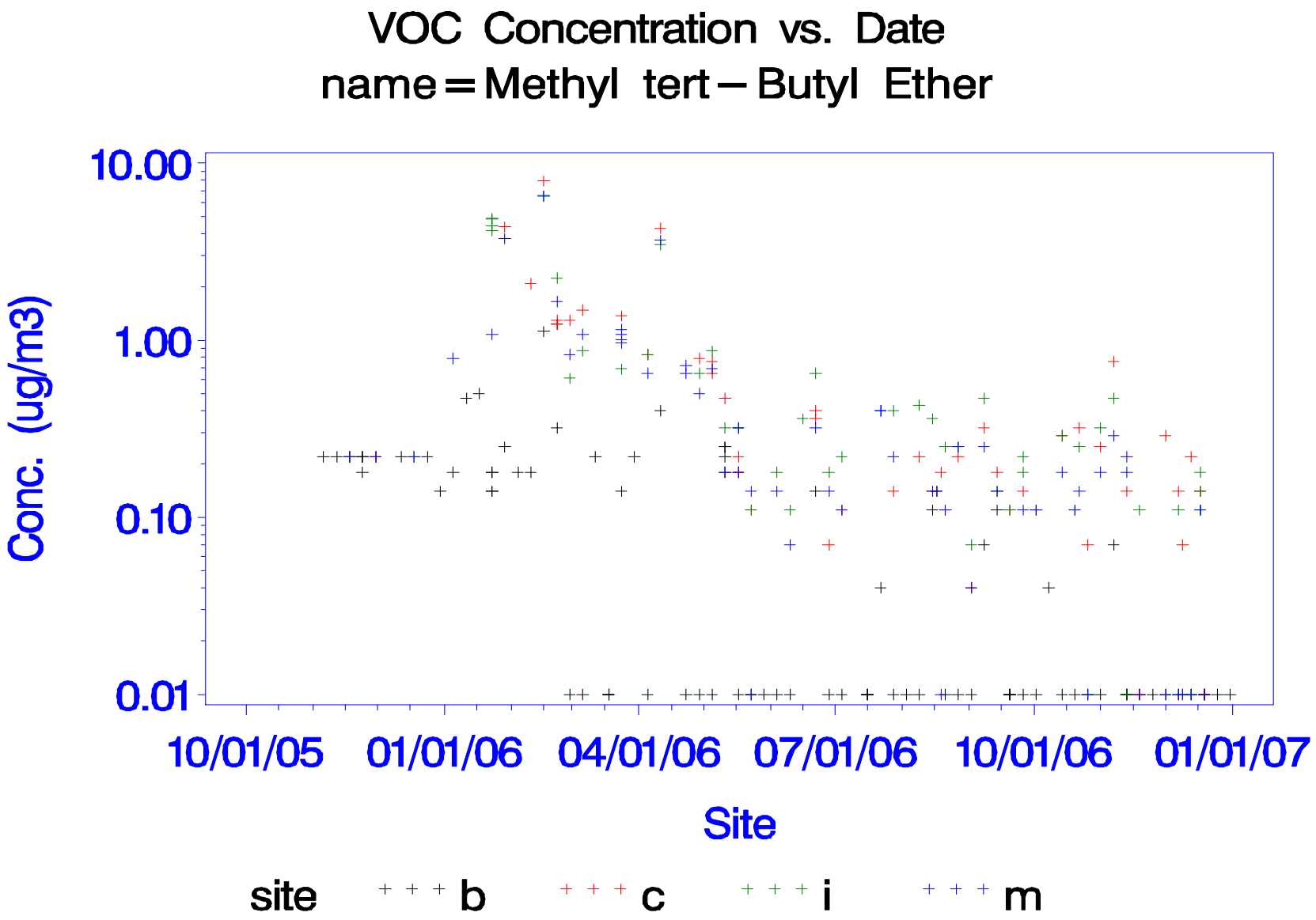

VOC Concentration vs. Date
name = Benzene
10.0
1.0
0.1
Conc. (ug/m3)
10/01/05
01/01/06
04/01/06
07/01/06
10/01/06
01/01/07
Site
site
b
c
i
m


VOC Concentration vs. Date
name = Toluene
100.0
10.0
1.0
0.1
Conc. (ug/m3)
10/01/05
01/01/06
04/01/06
07/01/06
10/01/06
01/01/07
Site
site
b
c
i
m


VOC Concentration vs. Date
name = Ethylbenzene
Conc. (ug/m3)
10.00
1.00
0.10
0.01
10/01/05
01/01/06
04/01/06
07/01/06
10/01/06
01/01/07
Site
site
b
c
i
m


VOC Concentration vs. Date
name = m,p – Xylene
Conc. (ug/m3)
100.00
10.00
1.00
0.10
0.01
10/01/05
01/01/06
04/01/06
07/01/06
10/01/06
01/01/07
Site
site
b
c
i
m


VOC Concentration vs. Date
name = o – Xylene
Conc. (ug/m3)
10.00
1.00
0.10
0.01
10/01/05
01/01/06
04/01/06
07/01/06
10/01/06
01/01/07
Site
site
b
c
i
m


VOC Concentration vs. Date
name = Methyl tert – Butyl Ether
10.00
1.00
0.10
0.01
Conc. (ug/m3)
10/01/05
01/01/06
04/01/06
07/01/06
10/01/06
01/01/07
Site
site
b
c
i
m

Site Differences

- When there was a difference, the annual average concentrations were highest at the C site.

Statistically Significantly Higher Conc in Paterson vs. Chester

EC, OC, PM_{10}, Al, Br, Ca, Cl, Cu, Fe, Ni, Pb, Mg, Mn, K, Si, Na, Sr, Ti, V, Zn, Zr, all PAHs except benzo(b)fluoranthene, B(a)P, benzo(k)fluoranthene, benzo(ghi)perylene, Indeno(1,2,3-cd)pyrene

1,2,4-trimethylbenzene,

1,3,5- trimethylbenzene,

benzene, toluene, ethylbenzene,

xylenes, n-octane 1,3-butadiene, MTBE,

Statistically Significantly Higher Concentration Measured in Paterson vs. Chester

- **acetylene, propylene, styrene, tetrachloroethylene, toluene, chloroform, p-dichlorobenzene, dichloromethane**

Higher Annual Average in Chester vs. Paterson

- **Acetonitrile**
- **Carbon Disulfide**

LOU
COSTELLO
1906 * 1959
"LOU'S ON FIRST"

Acknowledgements

- USEPA: Marlon Gonzales / US Taxpayers
- EOHSI- Dr Tina Fan, Dr. Brian Buckley, Dr. Jim Zhang, Dr. Xianlei Zhu, Dr. Jaymin Kwon, Dr. Qingyu Meng, Dr. Robert Stiles, Dr. Kathy Black, and Marta Hernandez
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- NJDEP
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