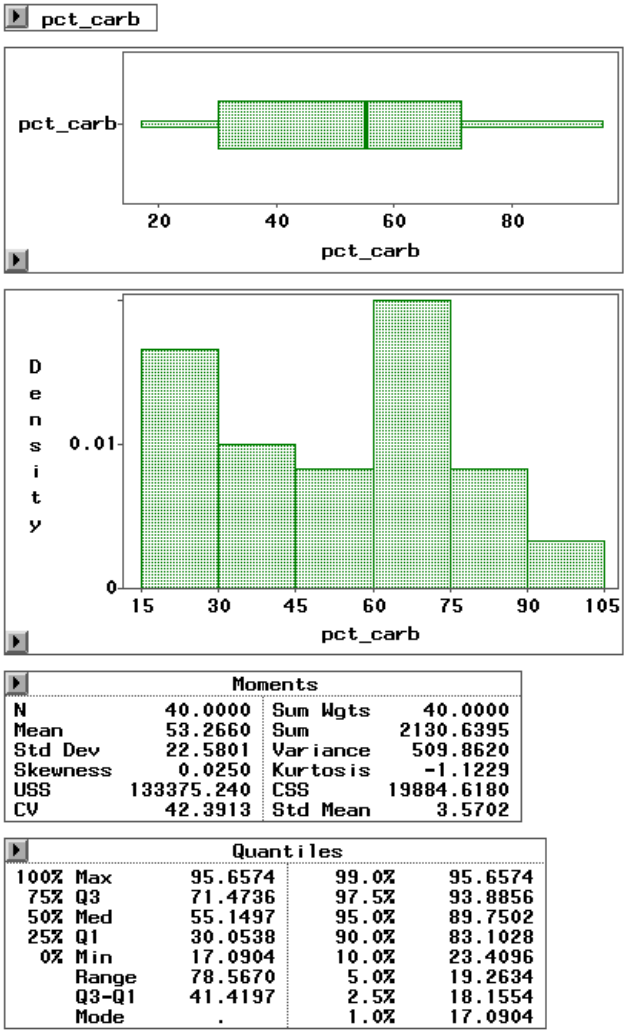
Appendix II

Figures from:

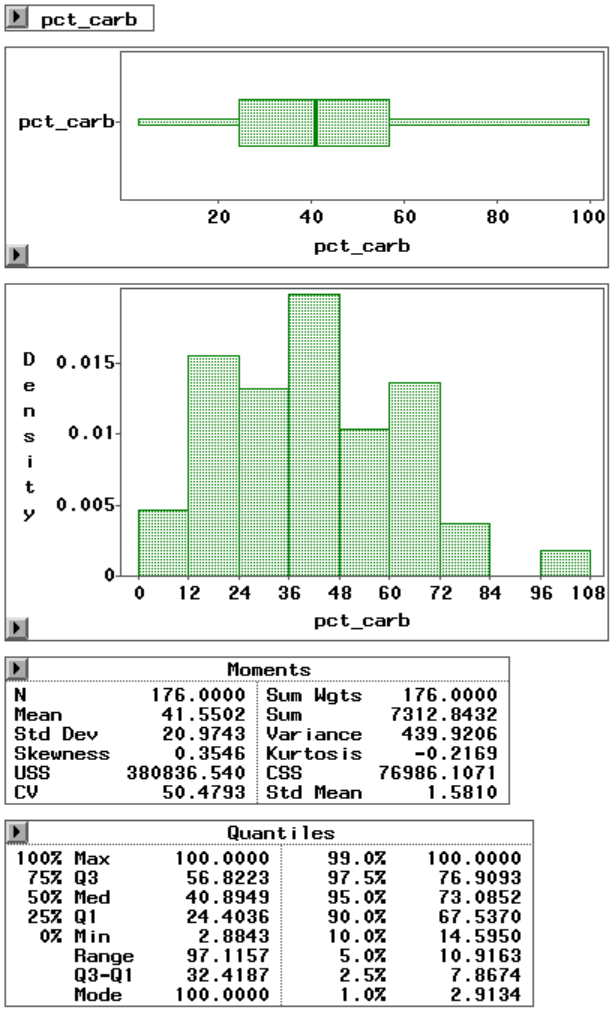
Assessing the Importance of Carbonyl Compounds in Ozone Formation in Houston-Galveston: Relative Reactivities of Carbonyl and Hydrocarbon Species



Moments			
N	40.0000	Sum Wgts	40.0000
Mean	53.2660	Sum	2130.6395
Std Dev	22.5801	Variance	509.8620
Skewness	0.0250	Kurtosis	-1.1229
USS	133375.240	CSS	19884.6180
CV	42.3913	Std Mean	3.5702

Quantiles			
100% Max	95.6574	99.0%	95.6574
75% Q3	71.4736	97.5%	93.8856
50% Med	55.1497	95.0%	89.7502
25% Q1	30.0538	90.0%	83.1028
0% Min	17.0904	10.0%	23.4096
Range	78.5670	5.0%	19.2634
Q3-Q1	41.4197	2.5%	18.1554
Mode	.	1.0%	17.0904

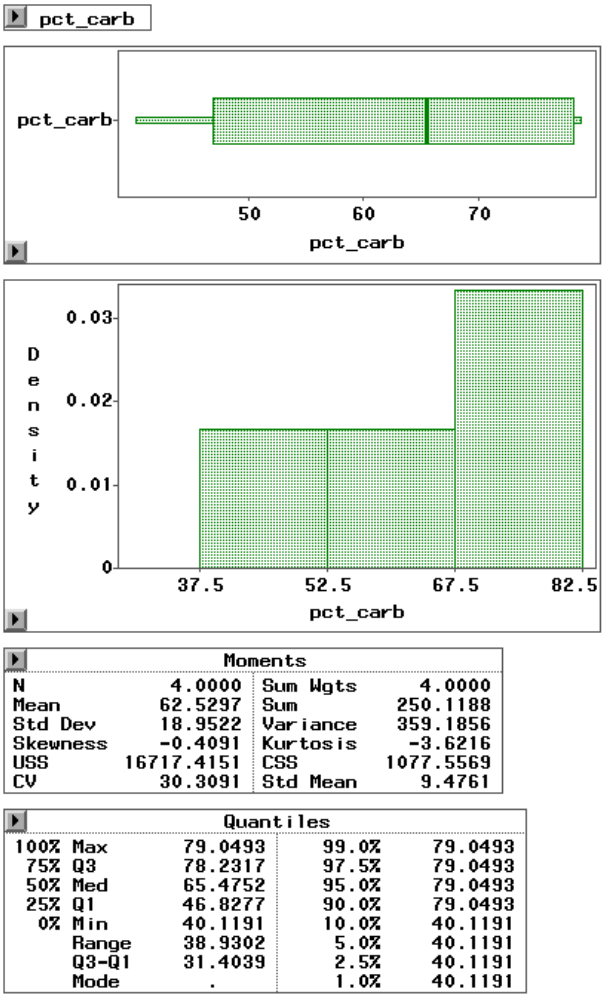
Figure 2 – Percent Reactivity due to Carbonyl Compounds–Bayland Park



Moments			
N	176.0000	Sum Wgts	176.0000
Mean	41.5502	Sum	7312.8432
Std Dev	20.9743	Variance	439.9206
Skewness	0.3546	Kurtosis	-0.2169
USS	380836.540	CSS	76986.1071
CV	50.4793	Std Mean	1.5810

Quantiles			
100% Max	100.0000	99.0%	100.0000
75% Q3	56.8223	97.5%	76.9093
50% Med	40.8949	95.0%	73.0852
25% Q1	24.4036	90.0%	67.5370
0% Min	2.8843	10.0%	14.5950
Range	97.1157	5.0%	10.9163
Q3-Q1	32.4187	2.5%	7.8674
Mode	100.0000	1.0%	2.9134

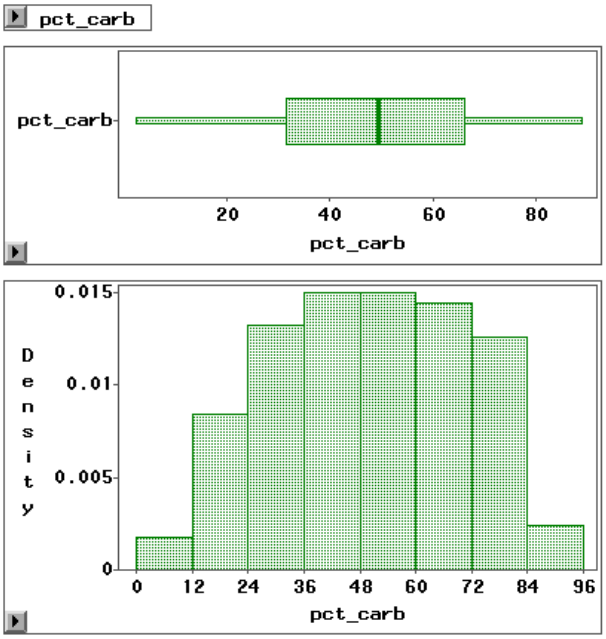
Figure 3 – Percent Reactivity due to Carbonyl Compounds–Clinton



Moments			
N	4.0000	Sum Wgts	4.0000
Mean	62.5297	Sum	250.1188
Std Dev	18.9522	Variance	359.1856
Skewness	-0.4091	Kurtosis	-3.6216
USS	16717.4151	CSS	1077.5569
CV	30.3091	Std Mean	9.4761

Quantiles			
100% Max	79.0493	99.0%	79.0493
75% Q3	78.2317	97.5%	79.0493
50% Med	65.4752	95.0%	79.0493
25% Q1	46.8277	90.0%	79.0493
0% Min	40.1191	10.0%	40.1191
Range	38.9302	5.0%	40.1191
Q3-Q1	31.4039	2.5%	40.1191
Mode	.	1.0%	40.1191

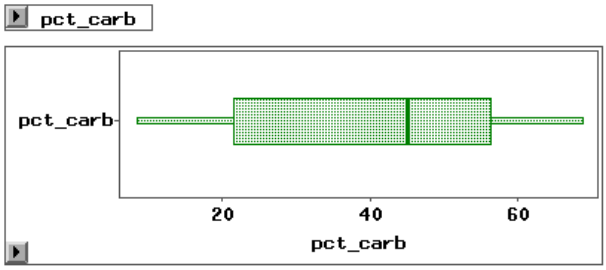
Figure 4 – Percent Reactivity due to Carbonyl Compounds–Channelview

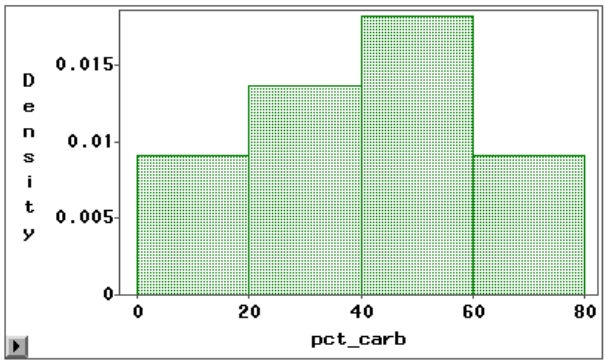


Moments			
N	138.0000	Sum Wgts	138.0000
Mean	49.8142	Sum	6874.3542
Std Dev	20.8007	Variance	432.6689
Skewness	-0.0852	Kurtosis	-0.8986
USS	401715.821	CSS	59275.6333
CV	41.7566	Std Mean	1.7707

Quantiles			
100% Max	89.0634	99.0%	88.6252
75% Q3	66.0863	97.5%	84.6337
50% Med	49.3841	95.0%	82.6126
25% Q1	31.5897	90.0%	77.2628
0% Min	2.3760	10.0%	21.6129
Range	86.6874	5.0%	15.8461
Q3-Q1	34.4966	2.5%	12.2823
Mode	.	1.0%	6.3795

Figure 5 – Percent Reactivity due to Carbonyl Compounds–Deer Park

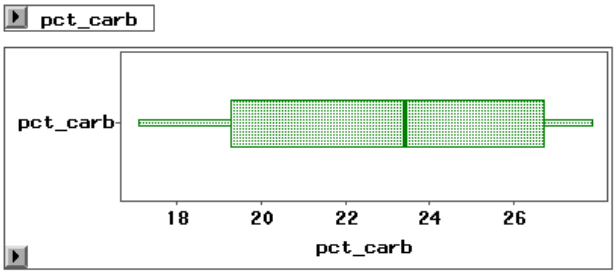


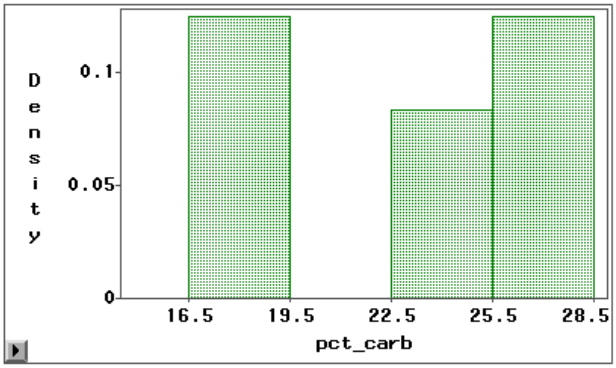


Moments			
N	11.0000	Sum Wgts	11.0000
Mean	37.6407	Sum	414.0480
Std Dev	20.7690	Variance	431.3526
Skewness	-0.0263	Kurtosis	-1.3525
USS	19898.5958	CSS	4313.5257
CV	55.1770	Std Mean	6.2621

Quantiles			
100% Max	68.8684	99.0%	68.8684
75% Q3	56.2052	97.5%	68.8684
50% Med	44.9579	95.0%	68.8684
25% Q1	21.4399	90.0%	61.8367
0% Min	8.4750	10.0%	10.2021
Range	60.3934	5.0%	8.4750
Q3-Q1	34.7653	2.5%	8.4750
Mode	.	1.0%	8.4750

Figure 6 – Percent Reactivity due to Carbonyl Compounds–HRM 3

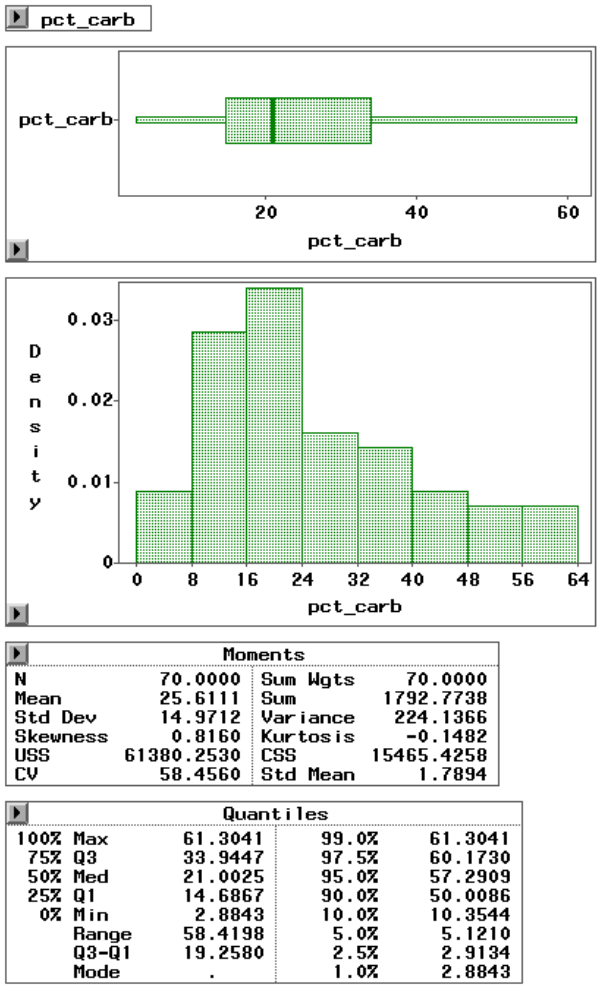




Moments			
N	8.0000	Sum Wgts	8.0000
Mean	22.9705	Sum	183.7640
Std Dev	4.0764	Variance	16.6173
Skewness	-0.2168	Kurtosis	-1.7095
USS	4337.4707	CSS	116.3210
CV	17.7464	Std Mean	1.4412

Quantiles			
100% Max	27.8878	99.0%	27.8878
75% Q3	26.7199	97.5%	27.8878
50% Med	23.4096	95.0%	27.8878
25% Q1	19.2634	90.0%	27.8878
0% Min	17.0904	10.0%	17.0904
Range	10.7974	5.0%	17.0904
Q3-Q1	7.4565	2.5%	17.0904
Mode	.	1.0%	17.0904

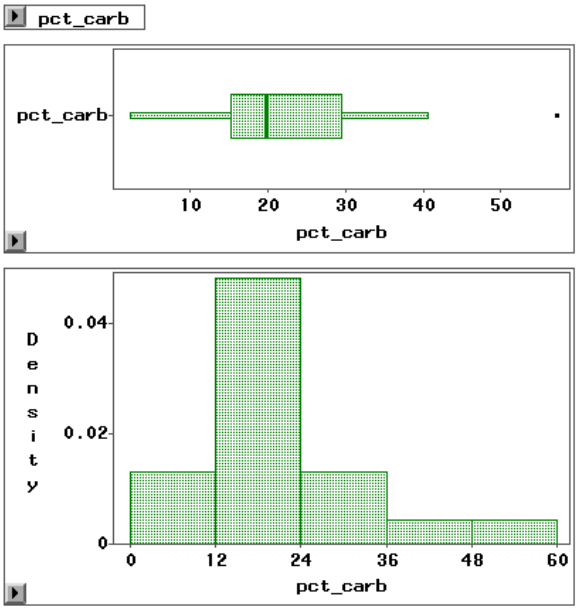
Figure 7 – Bayland Park – Percent Reactivity due to Carbonyl Compounds, where hydrocarbon reactivity >= 166



Moments			
N	70.0000	Sum Wgts	70.0000
Mean	25.6111	Sum	1792.7738
Std Dev	14.9712	Variance	224.1366
Skewness	0.8160	Kurtosis	-0.1482
USS	61380.2530	CSS	15465.4258
CV	58.4560	Std Mean	1.7894

Quantiles			
100% Max	61.3041	99.0%	61.3041
75% Q3	33.9447	97.5%	60.1730
50% Med	21.0025	95.0%	57.2909
25% Q1	14.6867	90.0%	50.0086
0% Min	2.8843	10.0%	10.3544
Range	58.4198	5.0%	5.1210
Q3-Q1	19.2580	2.5%	2.9134
Mode	.	1.0%	2.8843

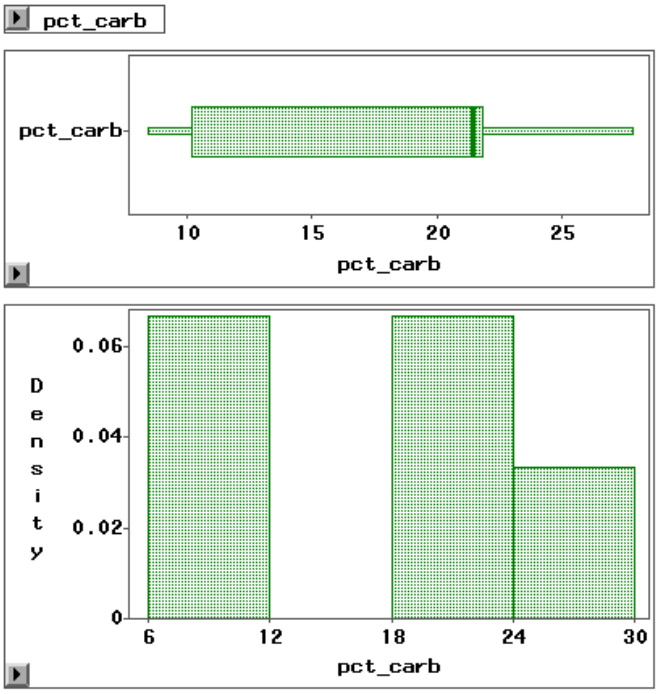
Figure 8 – Clinton C403 – Percent Reactivity due to Carbonyl Compounds, where hydrocarbon reactivity >= 166 (Concurrent 1-hr Carbonyl and Auto-GC Samples)



Moments			
N	19.0000	Sum Wgts	19.0000
Mean	21.5056	Sum	408.6060
Std Dev	12.7337	Variance	162.1479
Skewness	1.2204	Kurtosis	2.4107
USS	11705.9691	CSS	2918.6622
CV	59.2113	Std Mean	2.9213

Quantiles			
100% Max	57.2531	99.0%	57.2531
75% Q3	29.5222	97.5%	57.2531
50% Med	19.9453	95.0%	57.2531
25% Q1	15.2470	90.0%	40.5596
0% Min	2.3760	10.0%	6.3795
Range	54.8772	5.0%	2.3760
Q3-Q1	14.2752	2.5%	2.3760
Mode	.	1.0%	2.3760

Figure 9 – Deer Park – Percent Reactivity due to Carbonyl Compounds, where hydrocarbon reactivity >= 166



Moments			
N	5.0000	Sum Wgts	5.0000
Mean	17.9759	Sum	89.8797
Std Dev	8.3111	Variance	69.0739
Skewness	-0.1812	Kurtosis	-2.2695
USS	1891.9660	CSS	276.2955
CV	46.2344	Std Mean	3.7168

Quantiles			
100% Max	27.9003	99.0%	27.9003
75% Q3	21.8623	97.5%	27.9003
50% Med	21.4399	95.0%	27.9003
25% Q1	10.2021	90.0%	27.9003
0% Min	8.4750	10.0%	8.4750
Range	19.4253	5.0%	8.4750
Q3-Q1	11.6602	2.5%	8.4750
Mode	.	1.0%	8.4750

Figure 10 – HRM 3–Percent Reactivity due to Carbonyl Compounds, where hydrocarbon reactivity >= 166

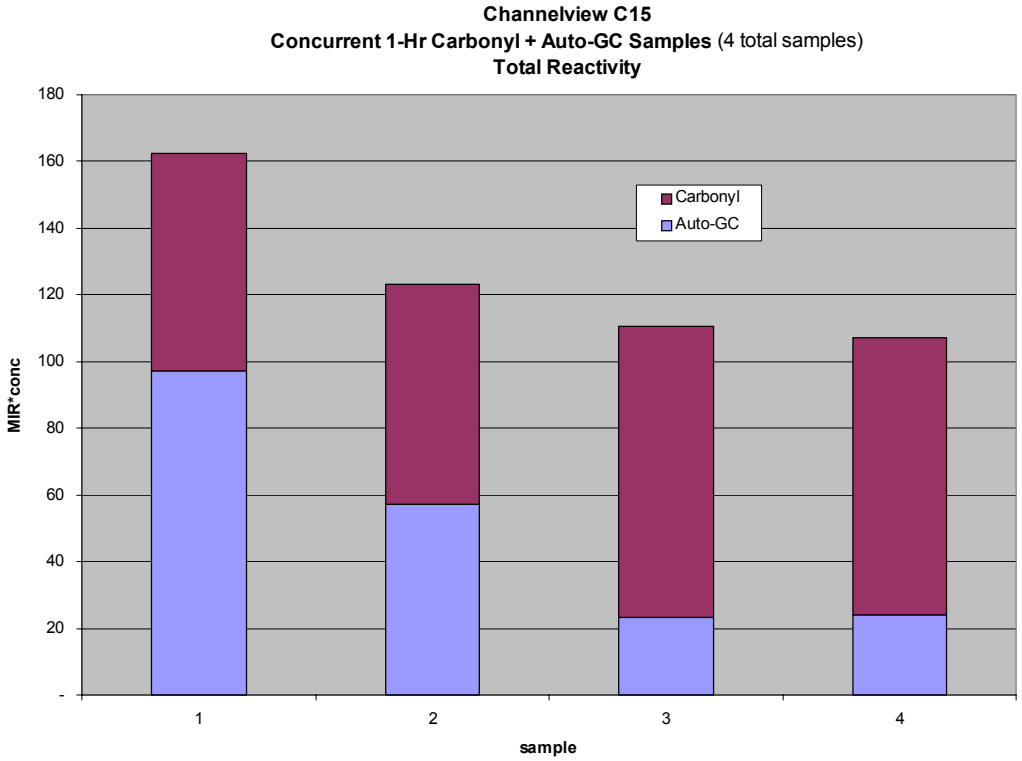


Figure 11

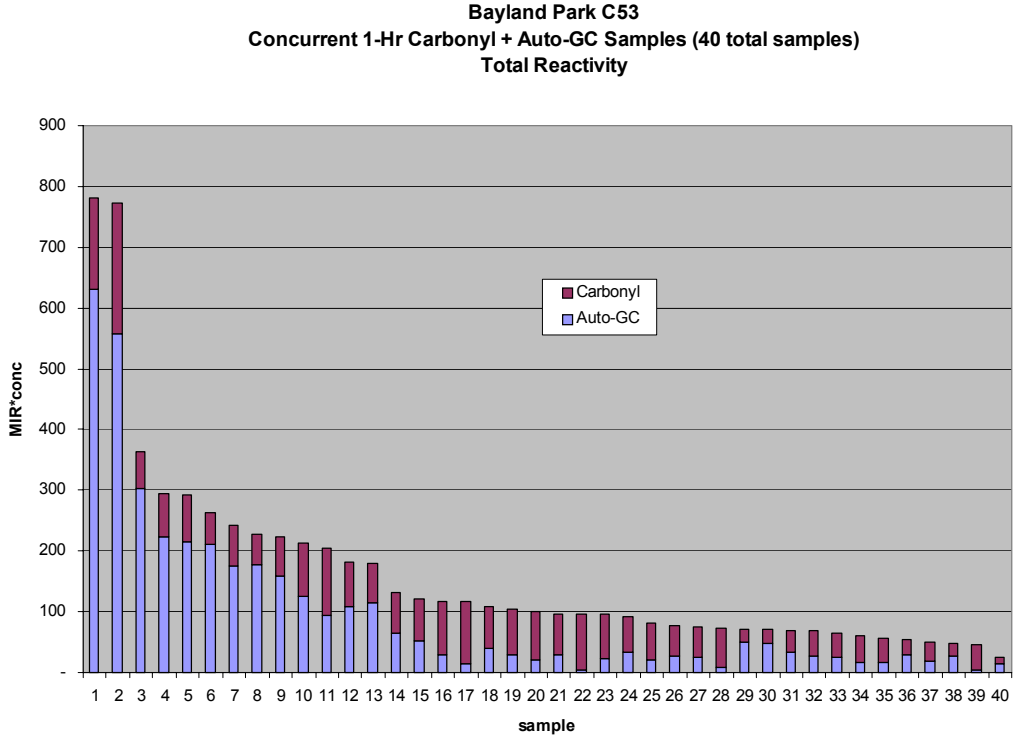


Figure 12

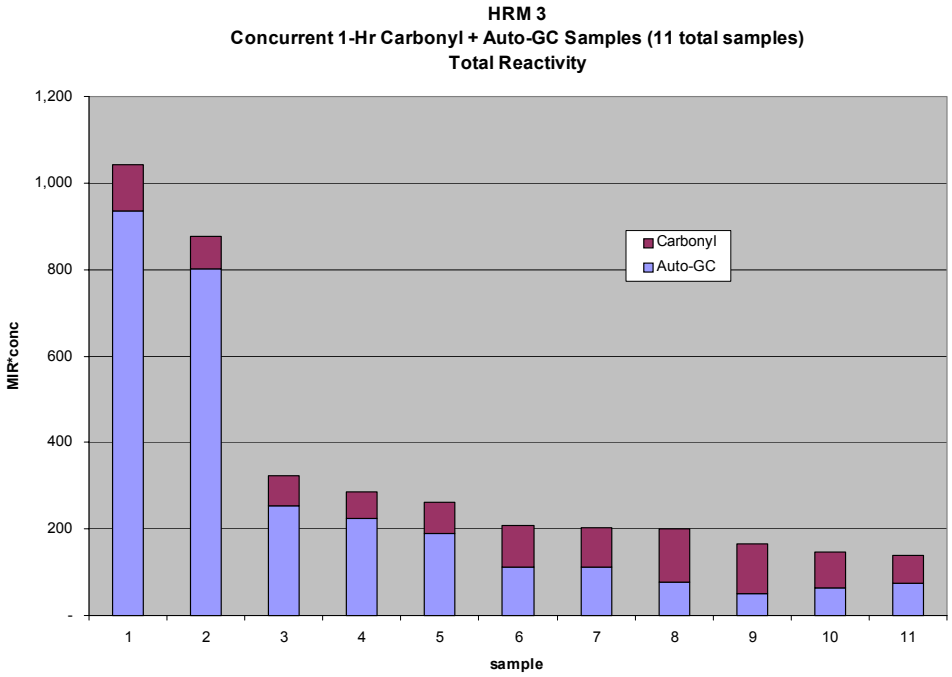


Figure 13

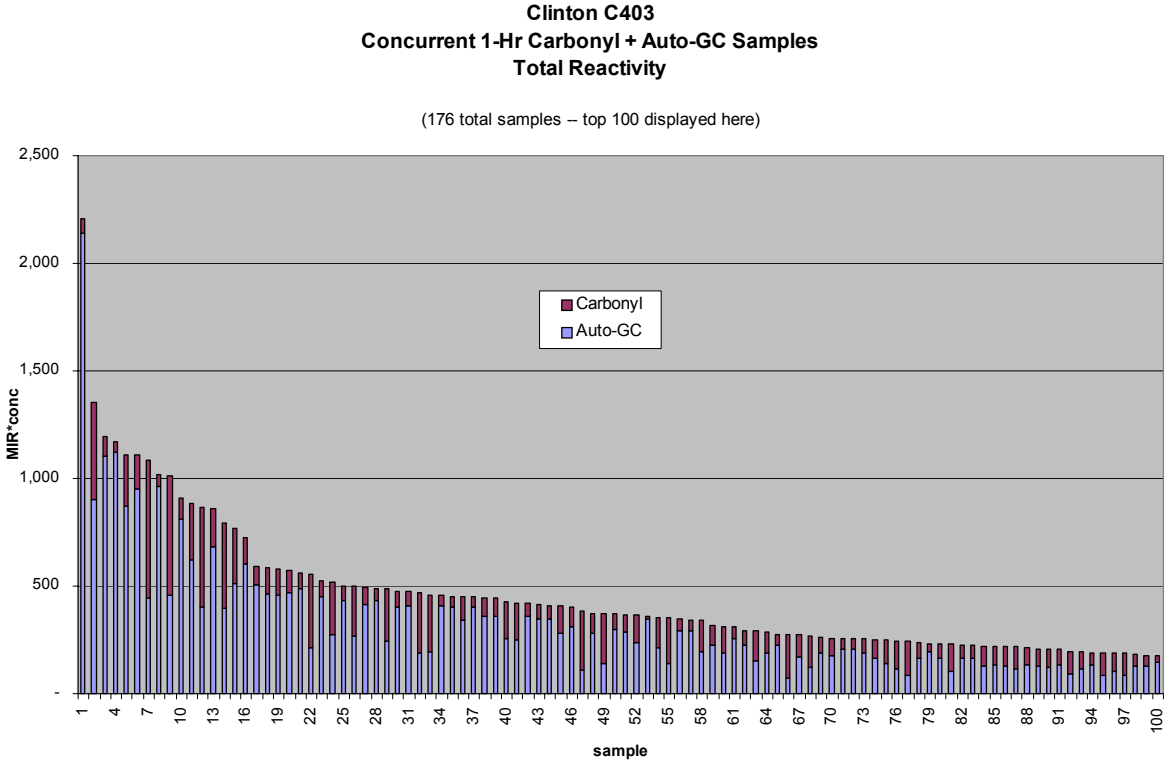


Figure 14

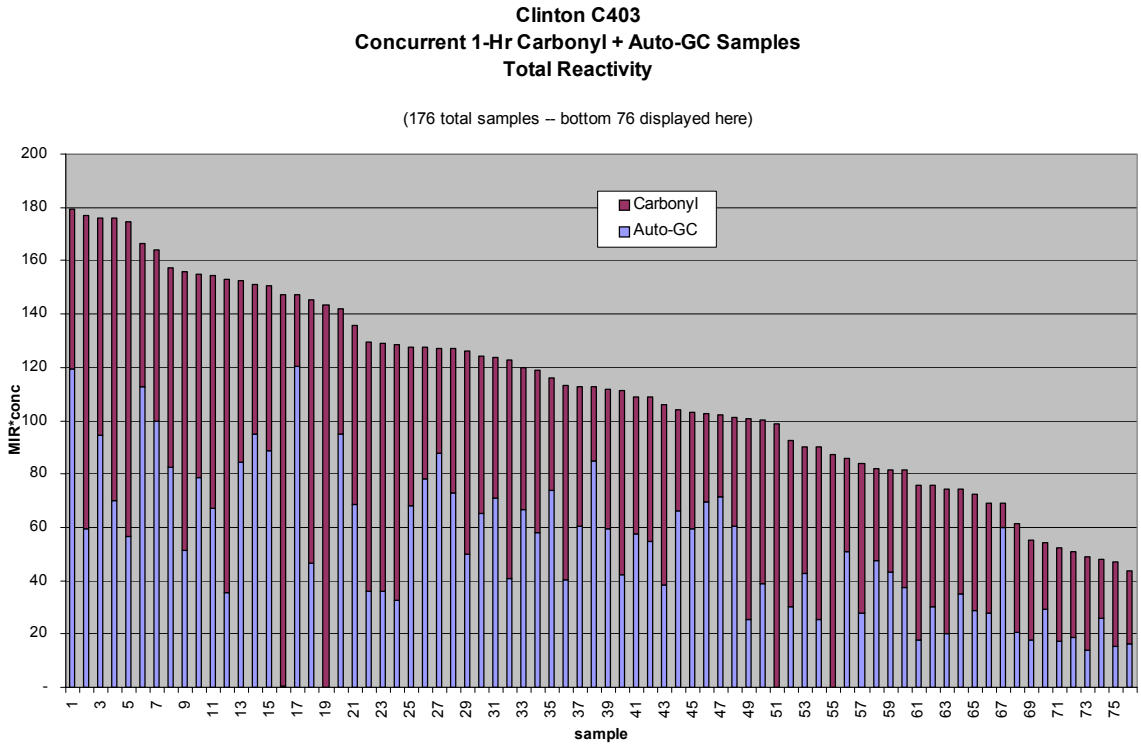


Figure 15

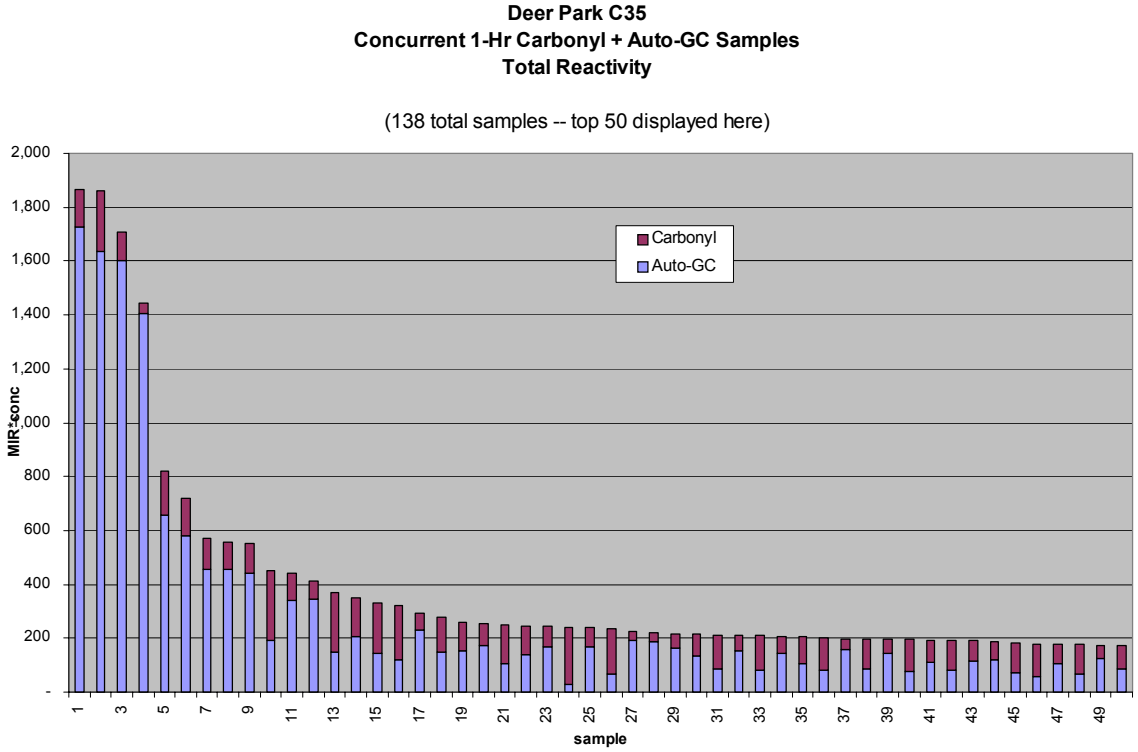


Figure 16

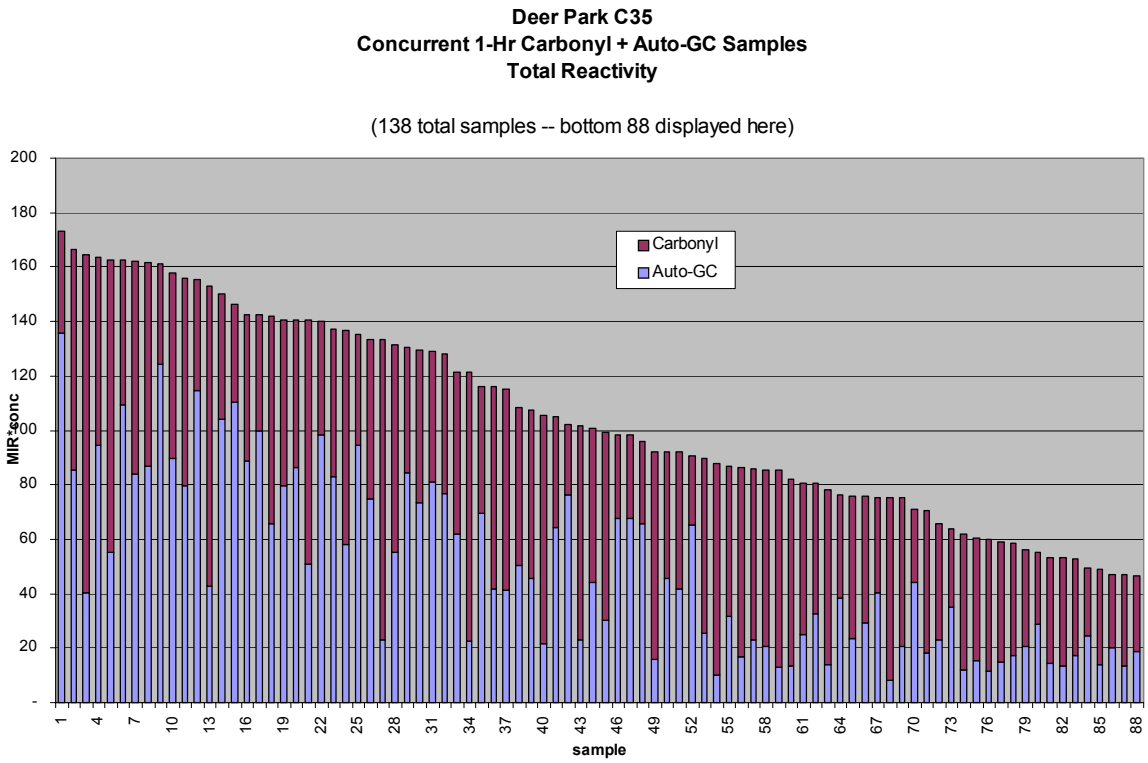
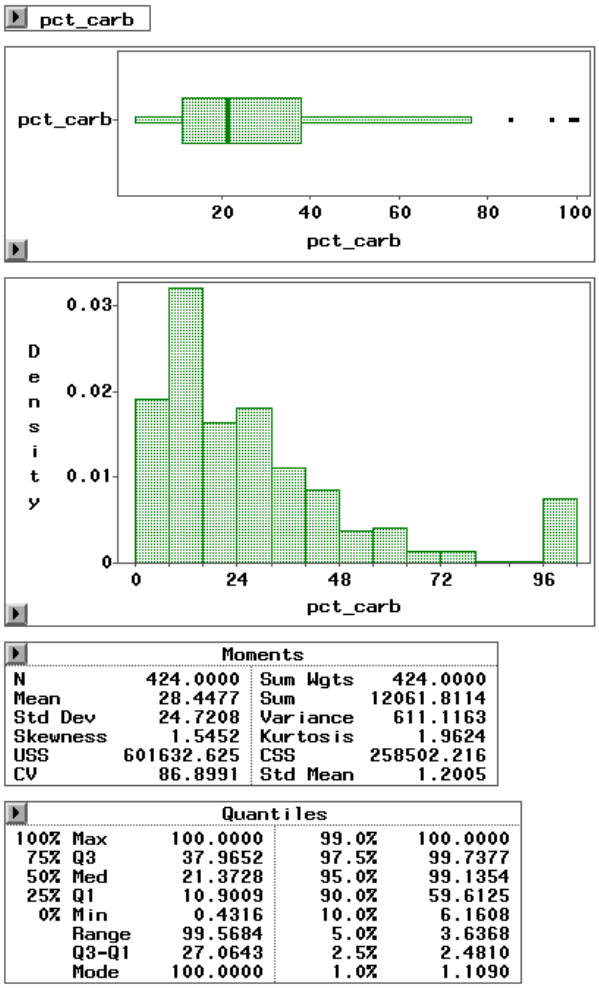

Deer Park C35
Concurrent 1-Hr Carbonyl + Auto-GC Samples
Total Reactivity
(138 total samples -- bottom 88 displayed here)
Carbonyl
Auto-GC
MIR*conc
sample

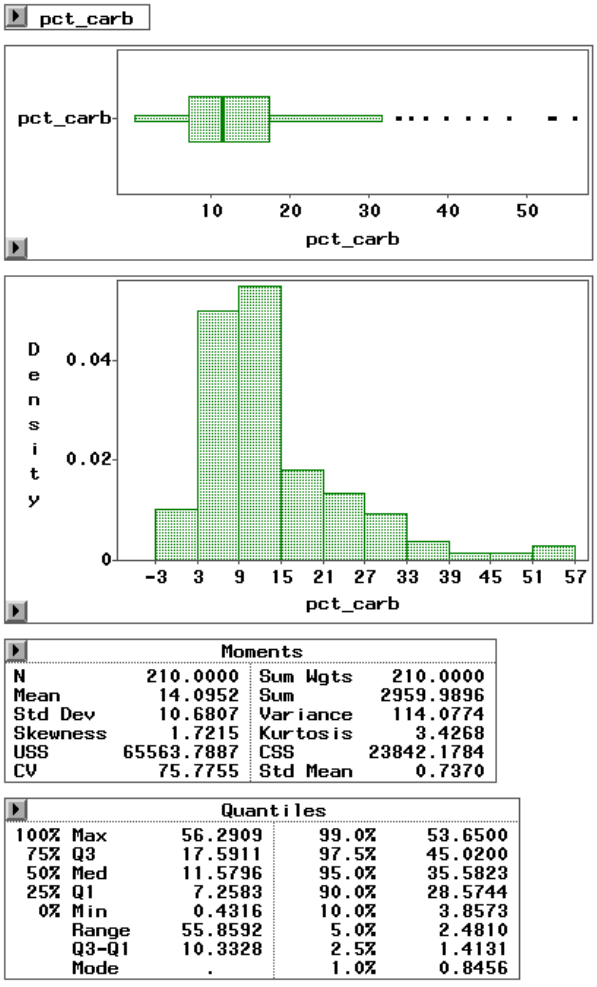
Figure 17



Moments			
N	424.0000	Sum Wgts	424.0000
Mean	28.4477	Sum	12061.8114
Std Dev	24.7208	Variance	611.1163
Skewness	1.5452	Kurtosis	1.9624
USS	601632.625	CSS	258502.216
CV	86.8991	Std Mean	1.2005

Quantiles			
100% Max	100.0000	99.0%	100.0000
75% Q3	37.9652	97.5%	99.7377
50% Med	21.3728	95.0%	99.1354
25% Q1	10.9009	90.0%	59.6125
0% Min	0.4316	10.0%	6.1608
Range	99.5684	5.0%	3.6368
Q3-Q1	27.0643	2.5%	2.4810
Mode	100.0000	1.0%	1.1090

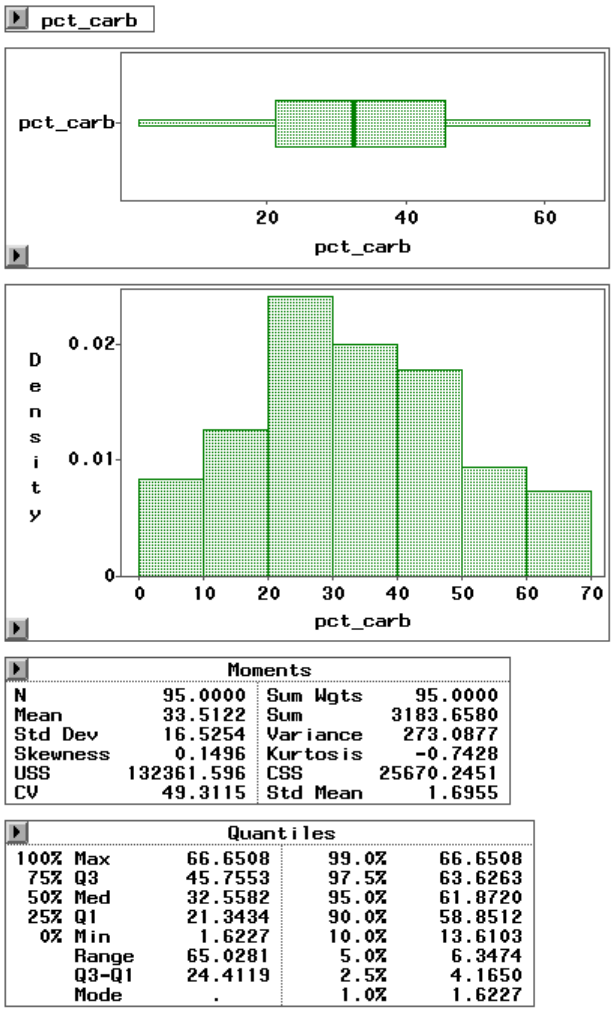
Figure 18 – Clinton 3-Hour Samples – Percent Reactivity due to Carbonyl Compounds



Moments			
N	210.0000	Sum Wgts	210.0000
Mean	14.0952	Sum	2959.9896
Std Dev	10.6807	Variance	114.0774
Skewness	1.7215	Kurtosis	3.4268
USS	65563.7887	CSS	23842.1784
CV	75.7755	Std Mean	0.7370

Quantiles			
100% Max	56.2909	99.0%	53.6500
75% Q3	17.5911	97.5%	45.0200
50% Med	11.5796	95.0%	35.5823
25% Q1	7.2583	90.0%	28.5744
0% Min	0.4316	10.0%	3.8573
Range	55.8592	5.0%	2.4810
Q3-Q1	10.3328	2.5%	1.4131
Mode	.	1.0%	0.8456

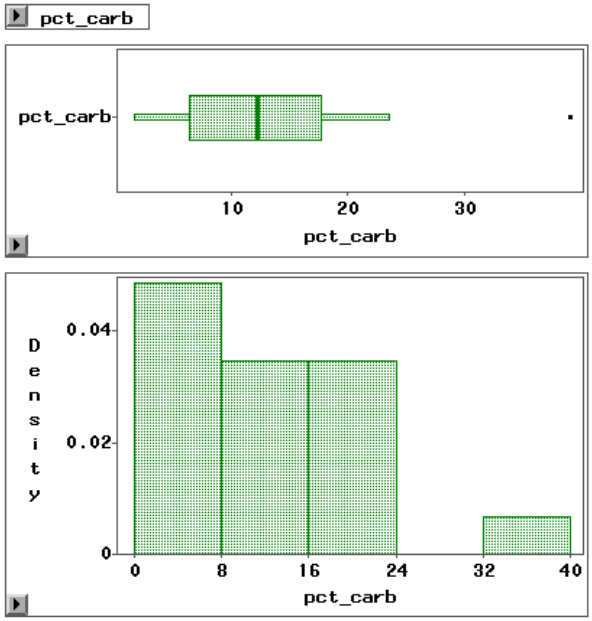
Figure 19 – Clinton 3-Hour Samples – Percent Reactivity due to Carbonyl Compounds, where hydrocarbon reactivity >= 166



Moments			
N	95.0000	Sum Wgts	95.0000
Mean	33.5122	Sum	3183.6580
Std Dev	16.5254	Variance	273.0877
Skewness	0.1496	Kurtosis	-0.7428
USS	132361.596	CSS	25670.2451
CV	49.3115	Std Mean	1.6955

Quantiles			
100% Max	66.6508	99.0%	66.6508
75% Q3	45.7553	97.5%	63.6263
50% Med	32.5582	95.0%	61.8720
25% Q1	21.3434	90.0%	58.8512
0% Min	1.6227	10.0%	13.6103
Range	65.0281	5.0%	6.3474
Q3-Q1	24.4119	2.5%	4.1650
Mode	.	1.0%	1.6227

Figure 20 – Deer Park 3-Hour Samples – Percent Reactivity due to Carbonyl Compounds



Moments			
N	18.0000	Sum Wgts	18.0000
Mean	13.0916	Sum	235.6482
Std Dev	9.2316	Variance	85.2231
Skewness	1.2524	Kurtosis	2.4040
USS	4533.7971	CSS	1448.7923
CV	70.5159	Std Mean	2.1759

Quantiles			
100% Max	39.1235	99.0%	39.1235
75% Q3	17.7321	97.5%	39.1235
50% Med	12.2534	95.0%	39.1235
25% Q1	6.3474	90.0%	23.5907
0% Min	1.6227	10.0%	2.6763
Range	37.5008	5.0%	1.6227
Q3-Q1	11.3847	2.5%	1.6227
Mode	.	1.0%	1.6227

Figure 21 – Deer Park 3-Hour Samples – Percent Reactivity due to Carbonyl Compounds, where hydrocarbon reactivity >= 166

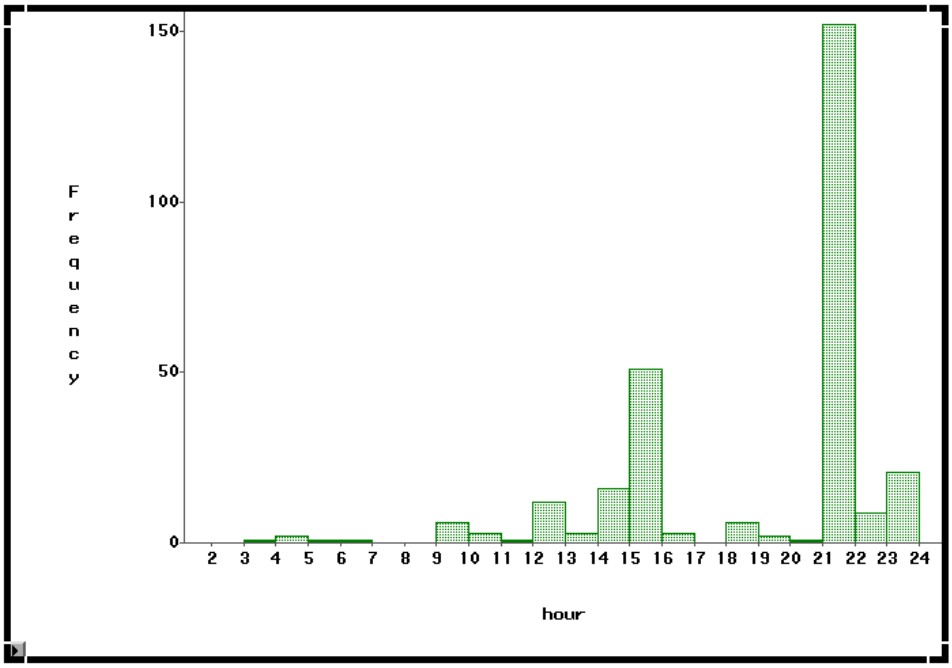


Figure 22 – Distribution of Start Hour of 3-Hour Carbonyl Samples

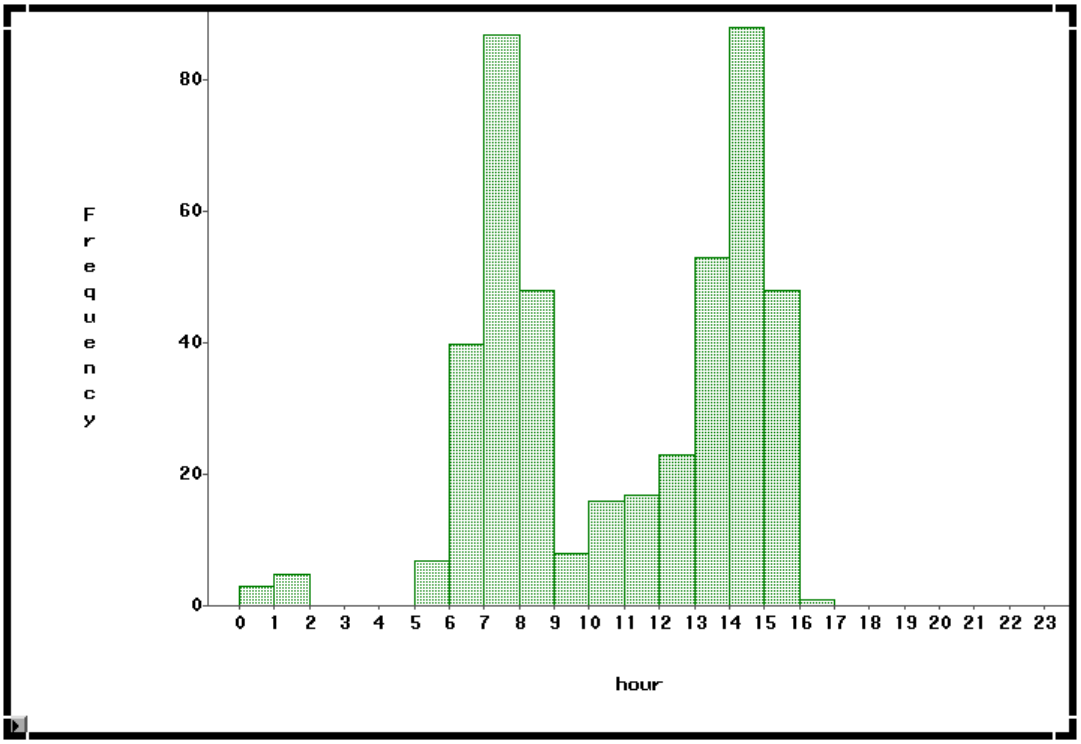
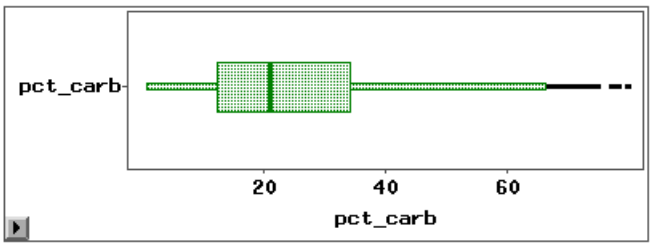
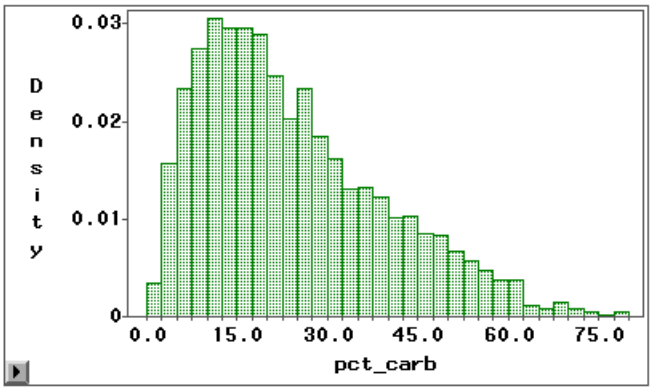


Figure 23 – Distribution of Start Hour of 1-Hour Carbonyl Samples

airs = 482011035

pct_carb





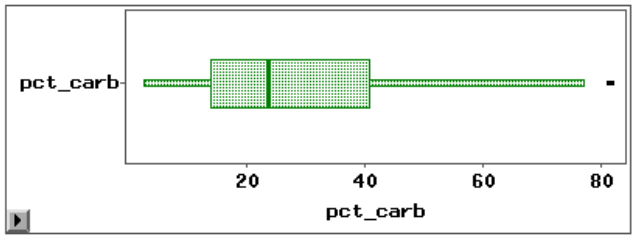
Moments			
N	3880.0000	Sum Wgts	3880.0000
Mean	24.4460	Sum	94850.3949
Std Dev	15.3465	Variance	235.5144
Skewness	0.8190	Kurtosis	0.0947
USS	3232271.18	CSS	913560.505
CV	62.7771	Std Mean	0.2464

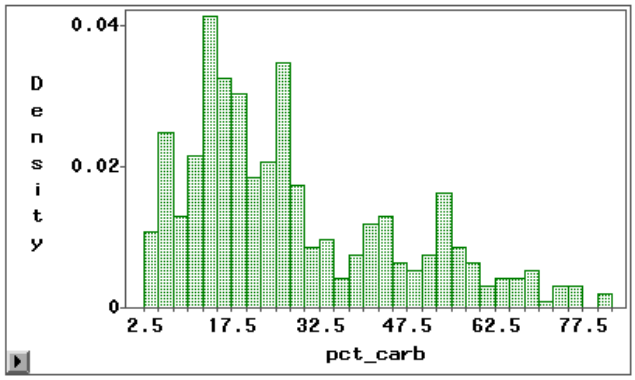
Quantiles			
100% Max	79.9560	99.0%	66.8654
75% Q3	34.0229	97.5%	59.9555
50% Med	21.0801	95.0%	54.2585
25% Q1	12.3955	90.0%	47.2571
0% Min	0.6925	10.0%	7.2765
Range	79.2636	5.0%	5.0420
Q3-Q1	21.6274	2.5%	3.7629
Mode	.	1.0%	2.6643

Figure 24 – Clinton 24-Hour Samples – Percent Reactivity due to Carbonyl Compounds

airs = 482010024

pct_carb

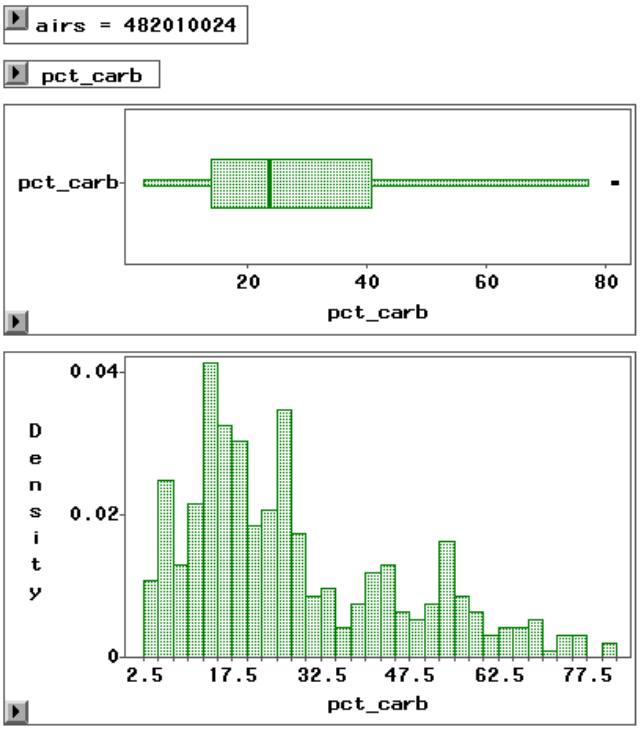




Moments			
N	368.0000	Sum Wgts	368.0000
Mean	28.0850	Sum	10335.2635
Std Dev	18.1997	Variance	331.2284
Skewness	0.8895	Kurtosis	-0.0761
USS	411826.220	CSS	121560.809
CV	64.8022	Std Mean	0.9487

Quantiles			
100% Max	81.7810	99.0%	76.0648
75% Q3	40.7388	97.5%	69.6117
50% Med	23.6800	95.0%	64.7588
25% Q1	14.0339	90.0%	56.0041
0% Min	2.6676	10.0%	8.8219
Range	79.1134	5.0%	6.1711
Q3-Q1	26.7049	2.5%	4.5099
Mode	.	1.0%	3.3892

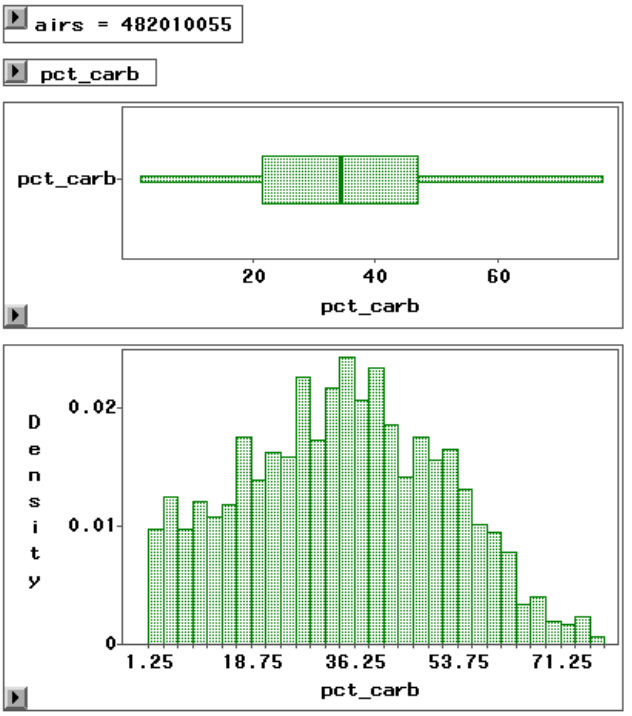
Figure 25 – Aldine 24-Hour Samples – Percent Reactivity due to Carbonyl Compounds



Moments			
N	368.0000	Sum Wgts	368.0000
Mean	28.0850	Sum	10335.2635
Std Dev	18.1997	Variance	331.2284
Skewness	0.8895	Kurtosis	-0.0761
USS	411826.220	CSS	121560.809
CV	64.8022	Std Mean	0.9487

Quantiles			
100% Max	81.7810	99.0%	76.0648
75% Q3	40.7388	97.5%	69.6117
50% Med	23.6800	95.0%	64.7588
25% Q1	14.0339	90.0%	56.0041
0% Min	2.6676	10.0%	8.8219
Range	79.1134	5.0%	6.1711
Q3-Q1	26.7049	2.5%	4.5099
Mode	.	1.0%	3.3892

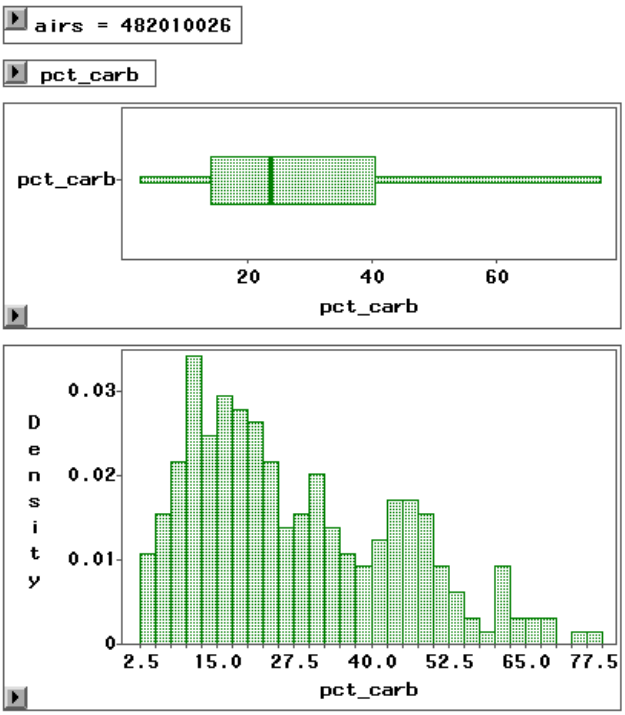
Figure 26 – Aldine 24-Hour Samples – Percent Reactivity due to Carbonyl Compounds



Moments			
N	1176.0000	Sum Wgts	1176.0000
Mean	34.1862	Sum	40202.9457
Std Dev	16.9651	Variance	287.8150
Skewness	0.0710	Kurtosis	-0.6875
USS	1712567.73	CSS	338182.657
CV	49.6256	Std Mean	0.4947

Quantiles			
100% Max	77.3899	99.0%	72.6375
75% Q3	46.9100	97.5%	66.5324
50% Med	34.2927	95.0%	61.9032
25% Q1	21.3650	90.0%	56.4707
0% Min	1.5136	10.0%	9.9973
Range	75.8763	5.0%	5.7759
Q3-Q1	25.5450	2.5%	3.8248
Mode	.	1.0%	2.9648

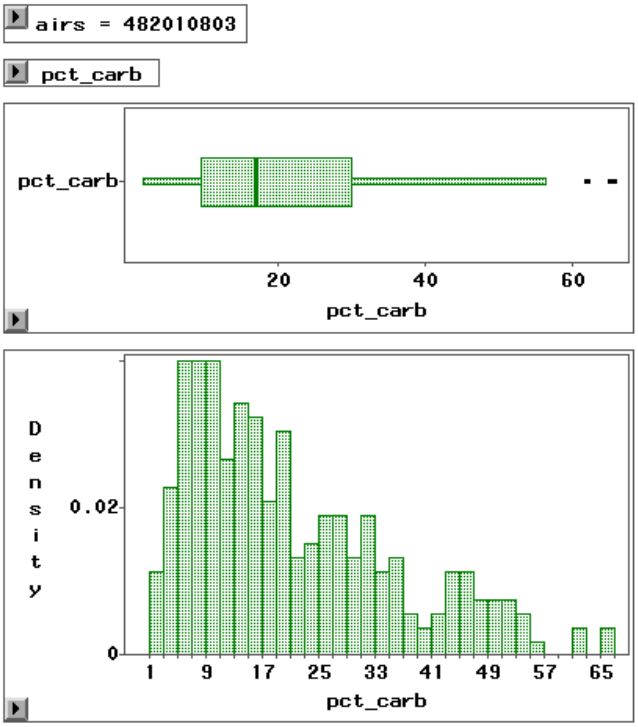
Figure 27 – Bayland Park 24-Hour Samples – Percent Reactivity due to Carbonyl Compounds



Moments			
N	258.0000	Sum Wgts	258.0000
Mean	27.8069	Sum	7174.1747
Std Dev	16.5339	Variance	273.3697
Skewness	0.6486	Kurtosis	-0.4150
USS	269747.425	CSS	70256.0203
CV	59.4597	Std Mean	1.0294

Quantiles			
100% Max	76.9714	99.0%	69.3349
75% Q3	40.4426	97.5%	62.7934
50% Med	23.7196	95.0%	60.2657
25% Q1	14.2040	90.0%	50.7854
0% Min	2.8045	10.0%	9.0764
Range	74.1669	5.0%	6.3951
Q3-Q1	26.2386	2.5%	4.6658
Mode	.	1.0%	3.8197

Figure 28 – Channelview 24-Hour Samples – Percent Reactivity due to Carbonyl Compounds



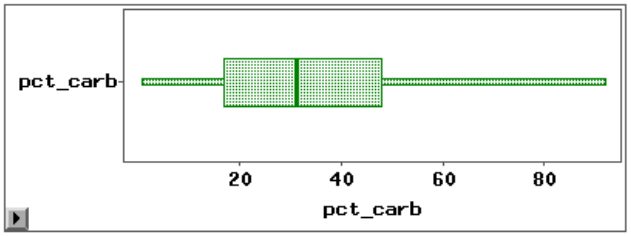
Moments			
N	262.0000	Sum Wgts	262.0000
Mean	21.3107	Sum	5583.3921
Std Dev	14.6157	Variance	213.6198
Skewness	0.8972	Kurtosis	0.0319
USS	174740.526	CSS	55754.7728
CV	68.5842	Std Mean	0.9030

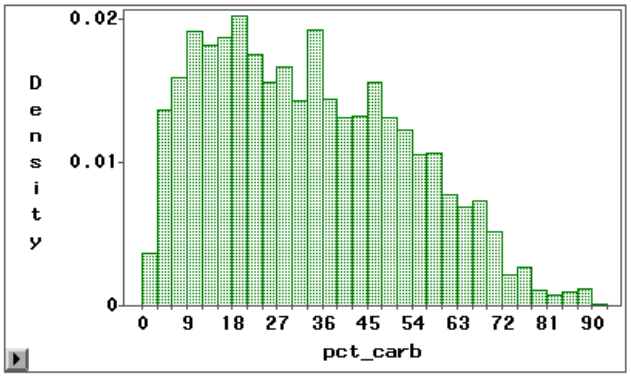
Quantiles			
100% Max	65.8219	99.0%	62.2514
75% Q3	30.0655	97.5%	53.2828
50% Med	17.1797	95.0%	50.2246
25% Q1	9.7225	90.0%	44.7788
0% Min	1.7962	10.0%	5.6054
Range	64.0257	5.0%	4.2835
Q3-Q1	20.3430	2.5%	3.1612
Mode	.	1.0%	2.7532

Figure 29 – HRM 3 – 24-Hour Samples – Percent Reactivity due to Carbonyl Compounds

airs = 482011039

pct_carb





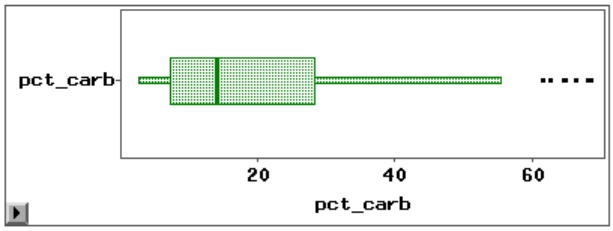
Moments			
N	3414.0000	Sum Wgts	3414.0000
Mean	33.4662	Sum	114253.543
Std Dev	19.7210	Variance	388.9183
Skewness	0.4236	Kurtosis	-0.6412
USS	5151008.05	CSS	1327378.30
CV	58.9282	Std Mean	0.3375

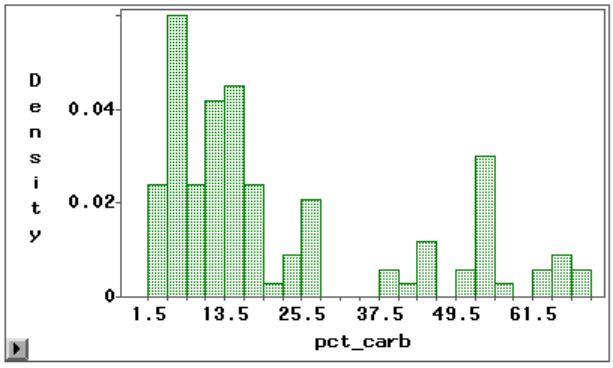
Quantiles			
100% Max	92.3645	99.0%	80.8061
75% Q3	48.0288	97.5%	74.0431
50% Med	31.4253	95.0%	68.0920
25% Q1	16.9619	90.0%	61.2220
0% Min	0.8994	10.0%	8.9830
Range	91.4651	5.0%	5.7764
Q3-Q1	31.0669	2.5%	4.0977
Mode	.	1.0%	2.9360

Figure 30 – Deer Park 24-Hour Samples – Percent Reactivity due to Carbonyl Compounds

airs = 482010024

pct_carb

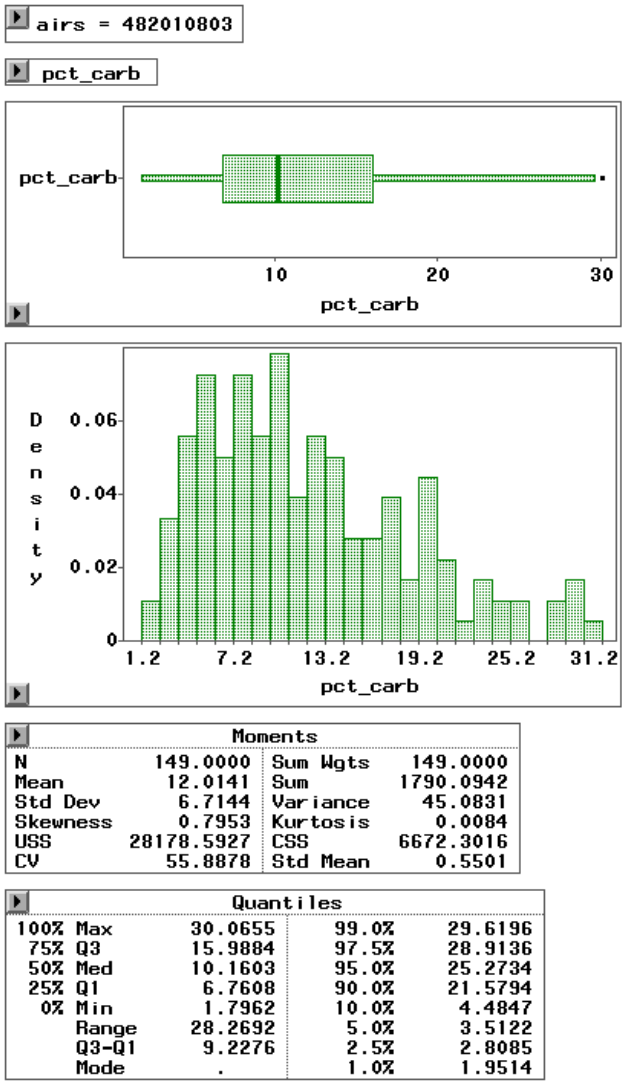




Moments			
N	111.0000	Sum Wgts	111.0000
Mean	22.4347	Sum	2490.2492
Std Dev	19.3171	Variance	373.1506
Skewness	1.0811	Kurtosis	-0.2442
USS	96914.5037	CSS	41046.5657
CV	86.1038	Std Mean	1.8335

Quantiles			
100% Max	68.5865	99.0%	68.1362
75% Q3	28.3315	97.5%	66.3956
50% Med	13.9713	95.0%	62.6811
25% Q1	7.3167	90.0%	54.6316
0% Min	2.6676	10.0%	5.7052
Range	65.9189	5.0%	3.5243
Q3-Q1	21.0148	2.5%	3.1381
Mode	.	1.0%	3.0504

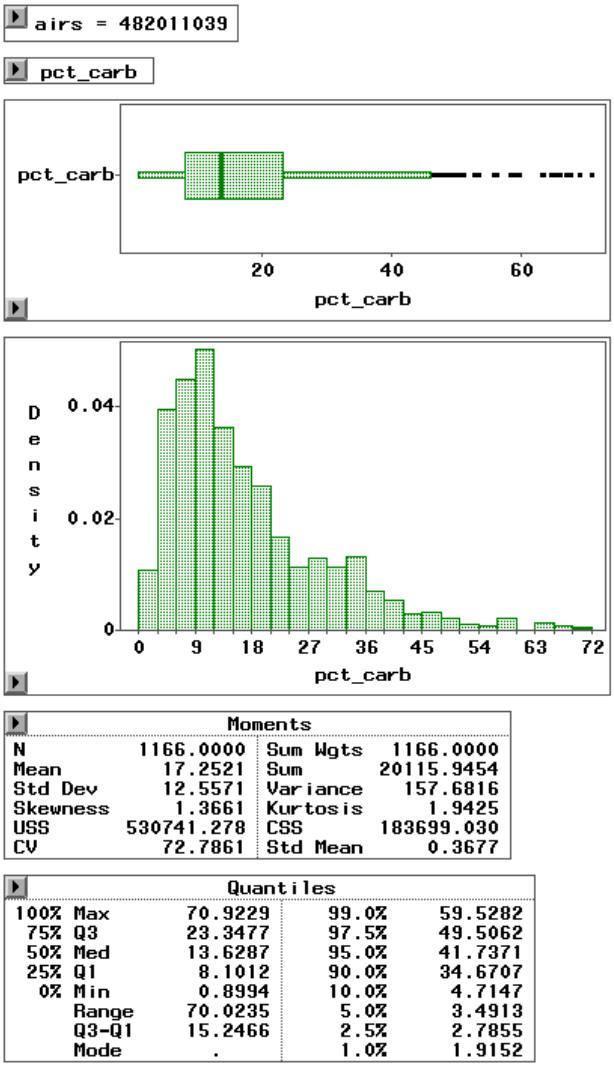
Figure 31 – Aldine 24-Hour Samples – Percent Reactivity due to Carbonyl Compounds, where hydrocarbon reactivity >= 166



Moments			
N	149.0000	Sum Wgts	149.0000
Mean	12.0141	Sum	1790.0942
Std Dev	6.7144	Variance	45.0831
Skewness	0.7953	Kurtosis	0.0084
USS	28178.5927	CSS	6672.3016
CV	55.8878	Std Mean	0.5501

Quantiles			
100% Max	30.0655	99.0%	29.6196
75% Q3	15.9884	97.5%	28.9136
50% Med	10.1603	95.0%	25.2734
25% Q1	6.7608	90.0%	21.5794
0% Min	1.7962	10.0%	4.4847
Range	28.2692	5.0%	3.5122
Q3-Q1	9.2276	2.5%	2.8085
Mode	.	1.0%	1.9514

Figure 32 – HRM 3 – 24-Hour Samples – Percent Reactivity due to Carbonyl Compounds, where hydrocarbon reactivity >= 166



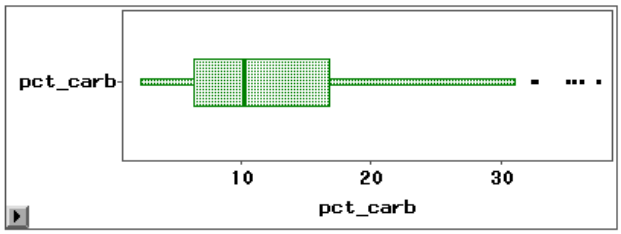
Moments			
N	1166.0000	Sum Wgts	1166.0000
Mean	17.2521	Sum	20115.9454
Std Dev	12.5571	Variance	157.6816
Skewness	1.3661	Kurtosis	1.9425
USS	530741.278	CSS	183699.030
CV	72.7861	Std Mean	0.3677

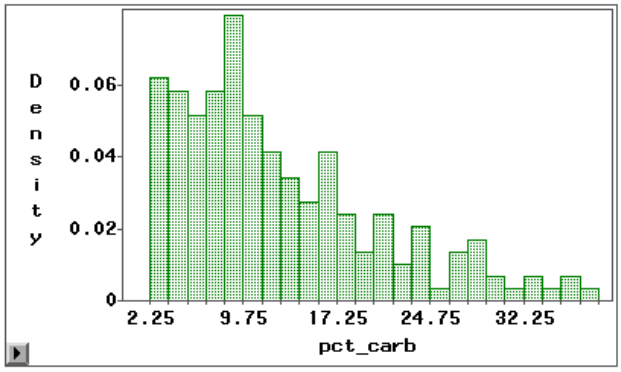
Quantiles			
100% Max	70.9229	99.0%	59.5282
75% Q3	23.3477	97.5%	49.5062
50% Med	13.6287	95.0%	41.7371
25% Q1	8.1012	90.0%	34.6707
0% Min	0.8994	10.0%	4.7147
Range	70.0235	5.0%	3.4913
Q3-Q1	15.2466	2.5%	2.7855
Mode	.	1.0%	1.9152

Figure 33 – Deer Park 24-Hour Samples – Percent Reactivity due to Carbonyl Compounds, where hydrocarbon reactivity >= 166

airs = 482010055

pct_carb





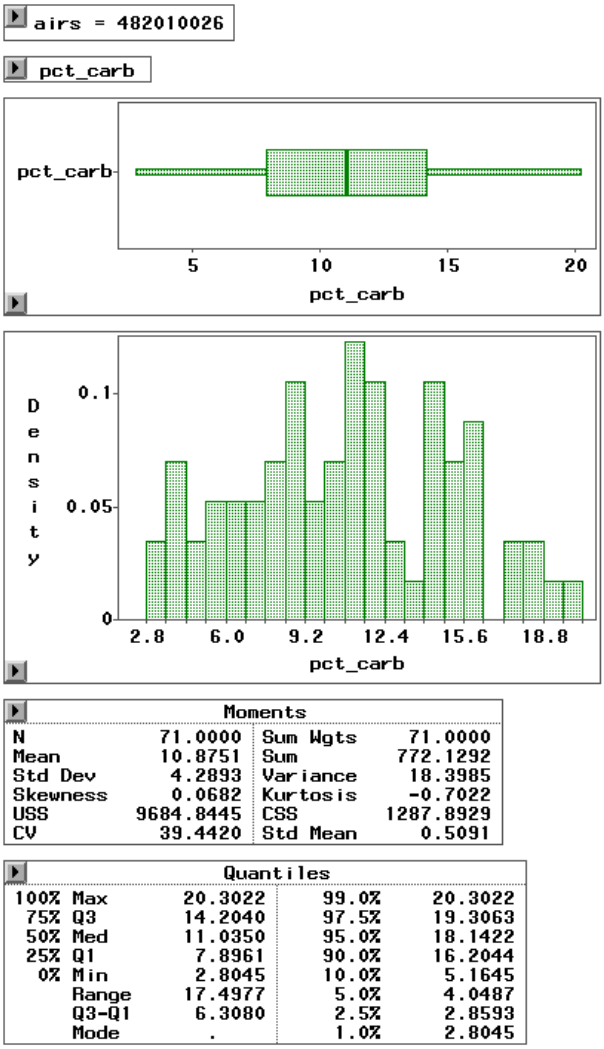
Moments

N	193.0000	Sum Wgts	193.0000
Mean	12.6937	Sum	2449.8935
Std Dev	8.0949	Variance	65.5280
Skewness	1.0335	Kurtosis	0.4636
USS	43679.7111	CSS	12581.3797
CV	63.7711	Std Mean	0.5827

Quantiles

100% Max	37.5679	99.0%	36.2511
75% Q3	16.8061	97.5%	32.7559
50% Med	10.2248	95.0%	28.9175
25% Q1	6.3826	90.0%	24.4097
0% Min	2.2766	10.0%	3.9083
Range	35.2913	5.0%	3.3064
Q3-Q1	10.4234	2.5%	2.8542
Mode	.	1.0%	2.3035

Figure 34 – Bayland Park 24-Hour Samples – Percent Reactivity due to Carbonyl Compounds, where hydrocarbon reactivity >= 166



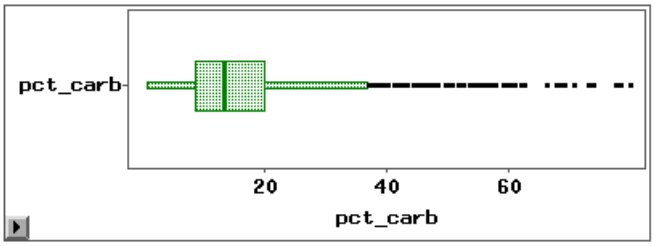
Moments			
N	71.0000	Sum Wgts	71.0000
Mean	10.8751	Sum	772.1292
Std Dev	4.2893	Variance	18.3985
Skewness	0.0682	Kurtosis	-0.7022
USS	9684.8445	CSS	1287.8929
CV	39.4420	Std Mean	0.5091

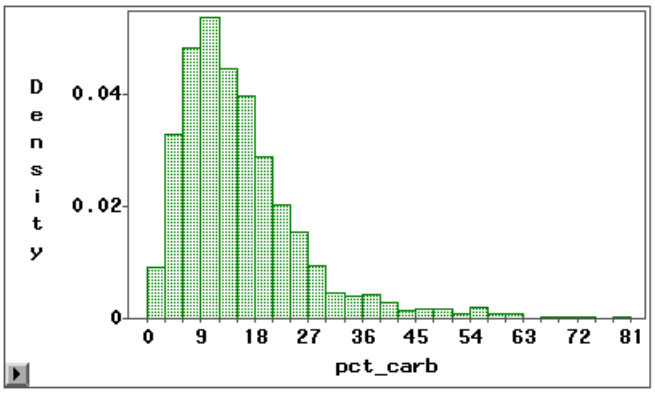
Quantiles			
100% Max	20.3022	99.0%	20.3022
75% Q3	14.2040	97.5%	19.3063
50% Med	11.0350	95.0%	18.1422
25% Q1	7.8961	90.0%	16.2044
0% Min	2.8045	10.0%	5.1645
Range	17.4977	5.0%	4.0487
Q3-Q1	6.3080	2.5%	2.8593
Mode	.	1.0%	2.8045

Figure 35–Channelview 24-Hour Samples–Percent Reactivity due to Carbonyl Compounds, where hydrocarbon reactivity >= 166

airs = 482011035

pct_carb





Moments			
N	2073.0000	Sum Wgts	2073.0000
Mean	15.9277	Sum	33018.1367
Std Dev	11.1426	Variance	124.1584
Skewness	1.9245	Kurtosis	5.1896
USS	783159.339	CSS	257256.130
CV	69.9576	Std Mean	0.2447

Quantiles			
100% Max	79.9560	99.0%	59.1974
75% Q3	19.8913	97.5%	49.7243
50% Med	13.4039	95.0%	37.8466
25% Q1	8.5586	90.0%	28.7281
0% Min	0.6925	10.0%	5.2912
Range	79.2636	5.0%	3.8497
Q3-Q1	11.3327	2.5%	2.8847
Mode	.	1.0%	2.0192

Figure 36 – Clinton 24-Hour Samples – Percent Reactivity due to Carbonyl Compounds, where hydrocarbon reactivity >= 166

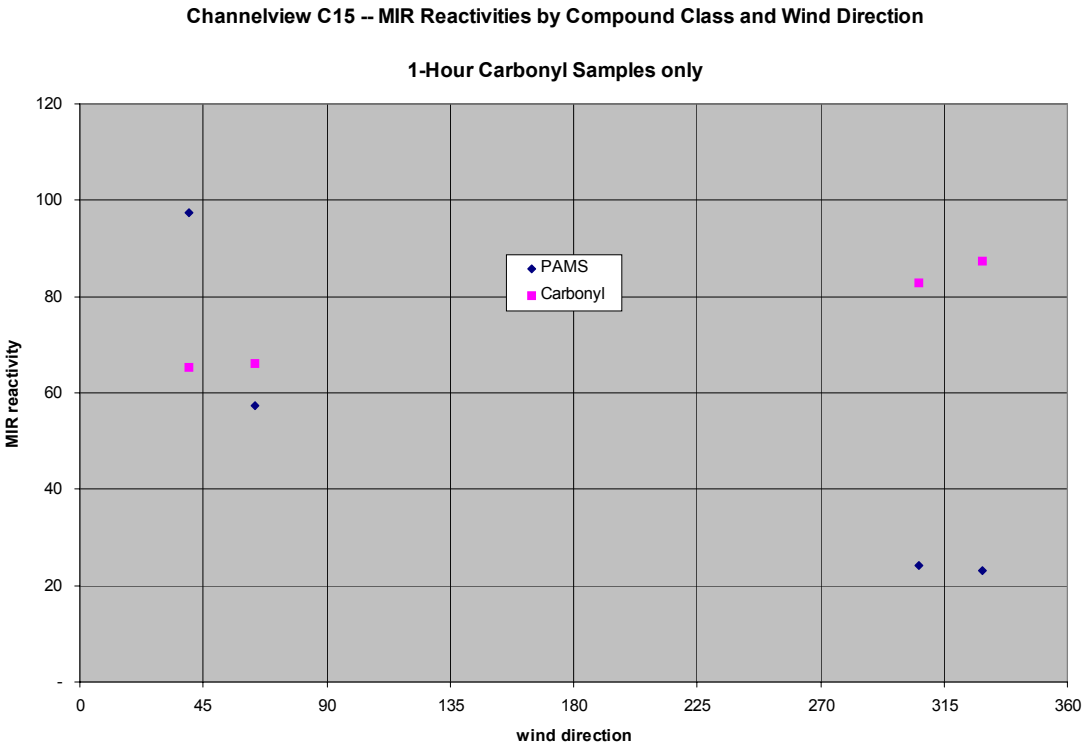


Figure 37

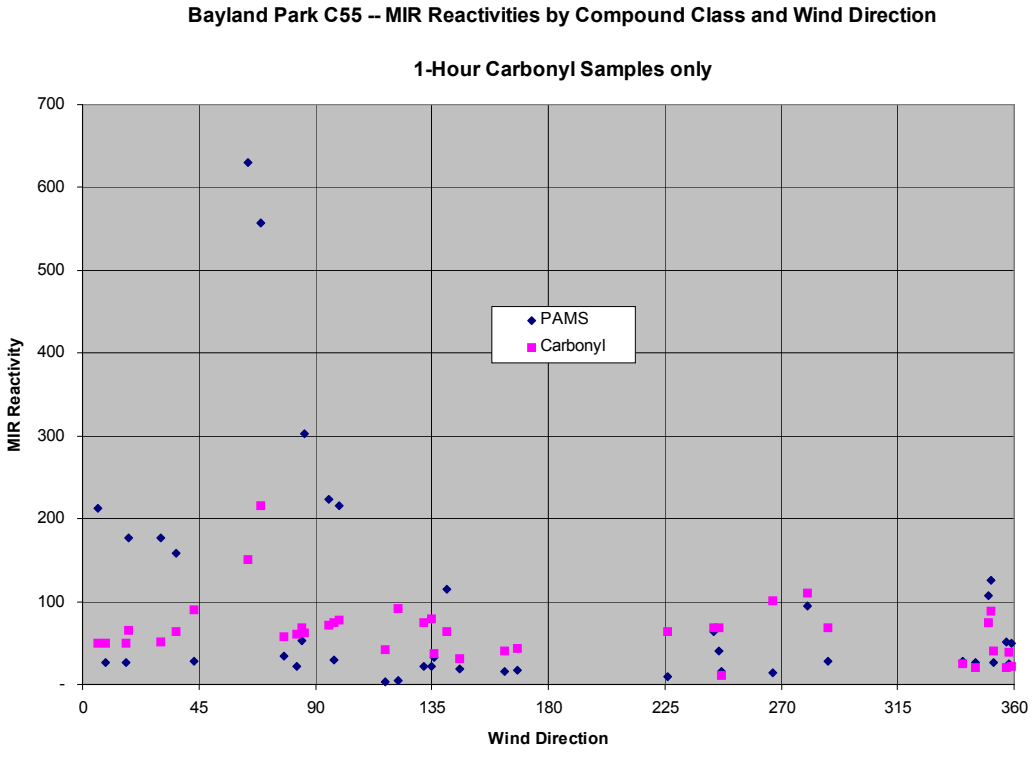


Figure 38

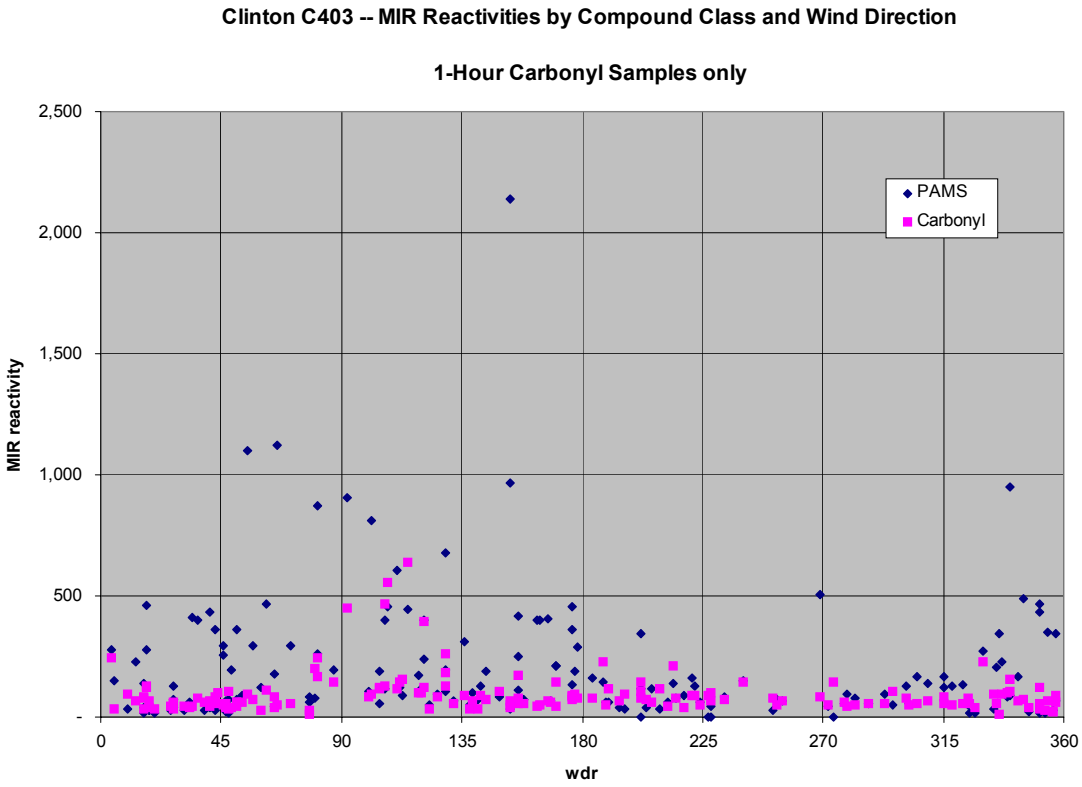


Figure 39

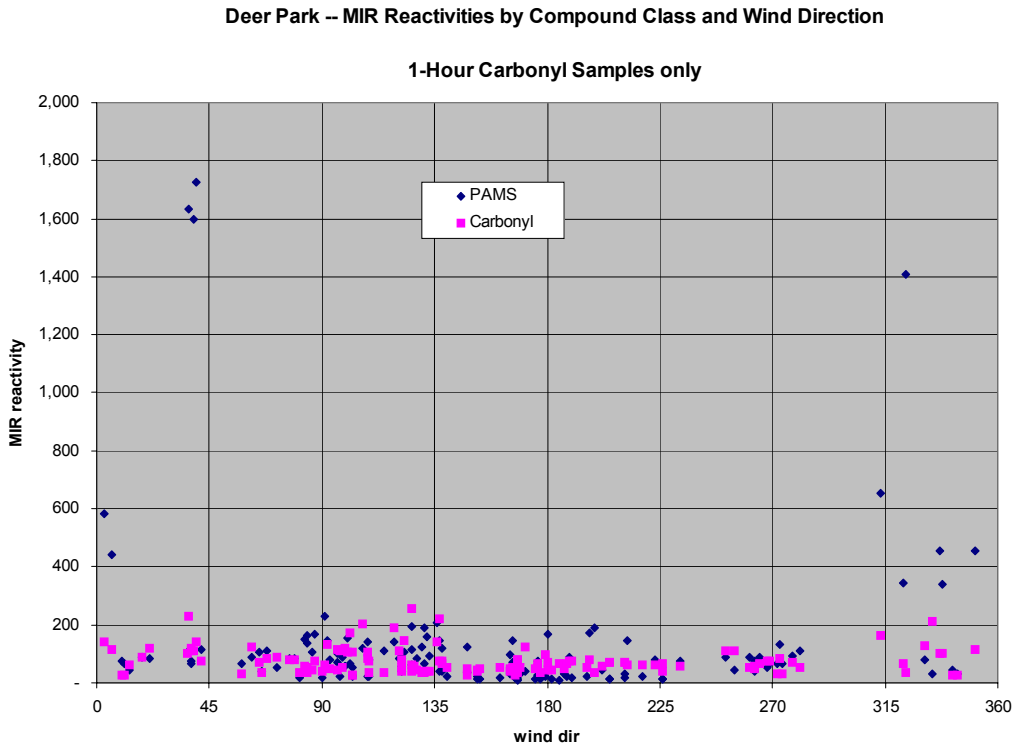
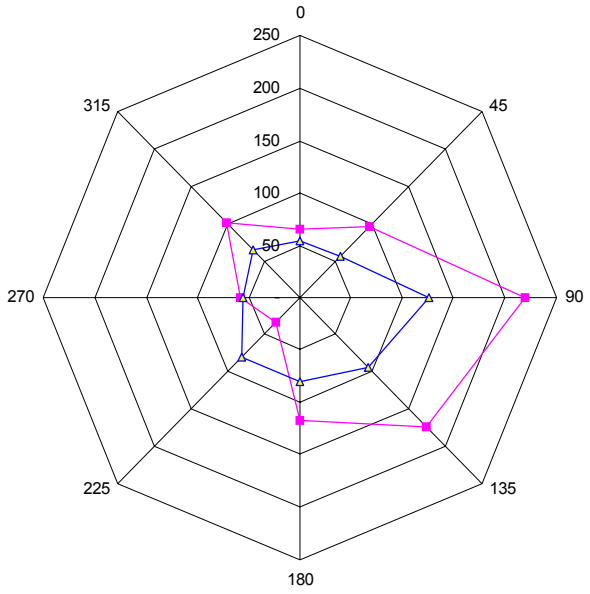


Figure 40

Clinton C403 -- Geometric Mean of MIR Reactivity by 45-deg Windbin

Includes 1-Hr Carbonyl Samples
Low Winds Removed



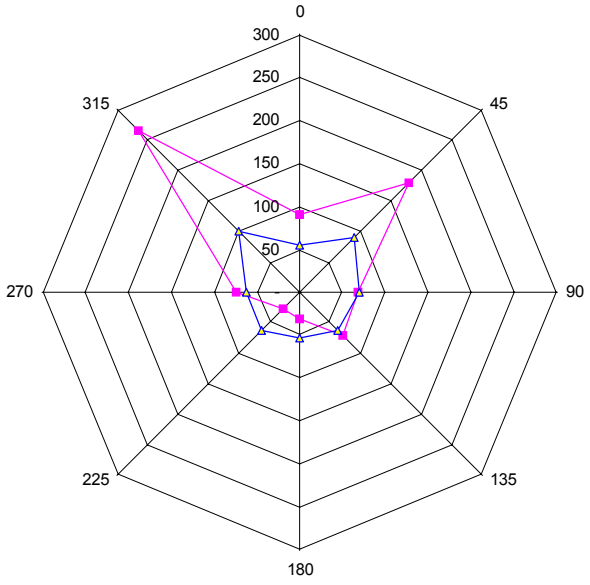
Number of Samples by Windbin

windbin	_FREQ_
0	22
45	29
90	17
135	24
180	19
225	15
270	8
315	14

Figure 41

Deer Park C35 -- Geometric Mean of MIR Reactivity by 45-deg Windbin

Includes 1-Hr Carbonyl Samples
Low Winds Removed

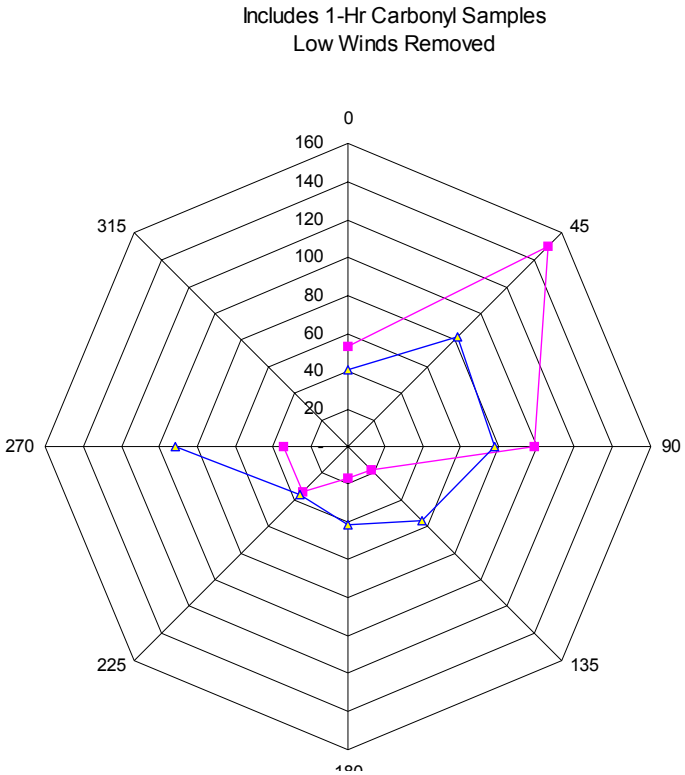


Number of Samples by Windbin

windbin	_FREQ_
0	9
45	11
90	28
135	27
180	28
225	10
270	11
315	6

Figure 42

Bayland Park -- Geometric Mean of MIR Reactivity by 45-deg Windbin



Number of Samples by Windbin

windbin	_FREQ_
0	12
45	4
90	8
135	7
180	2
225	3
270	3
315	0

Figure 43

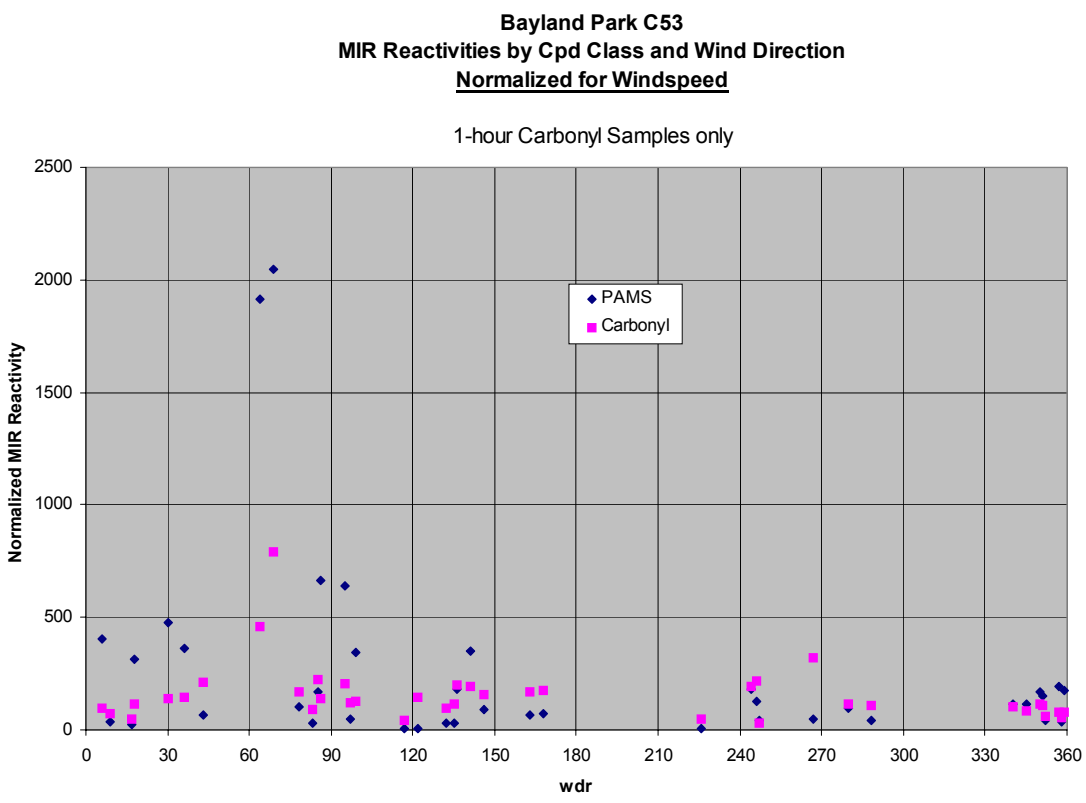


Figure 44

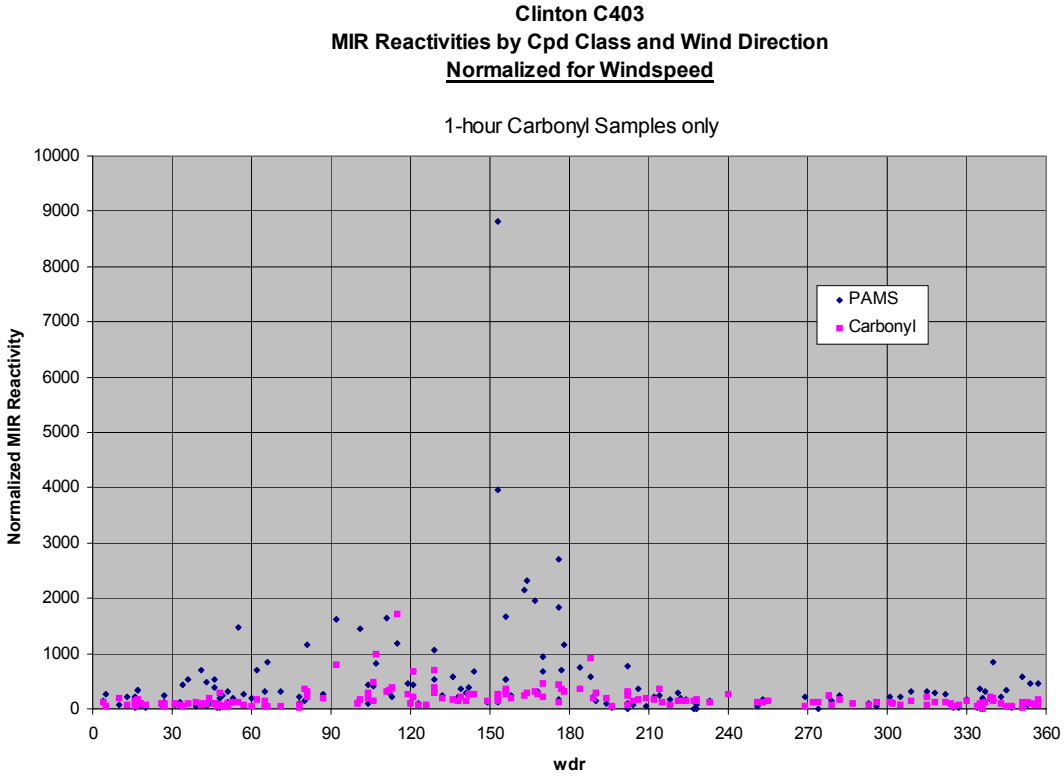


Figure 45

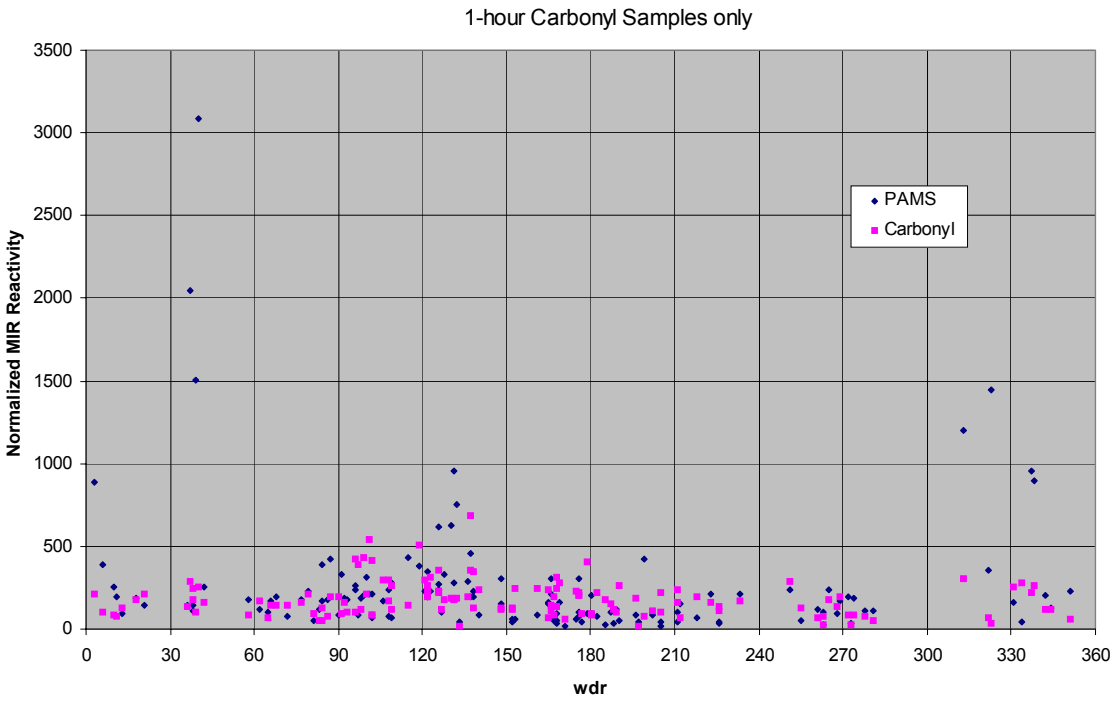


Figure 46

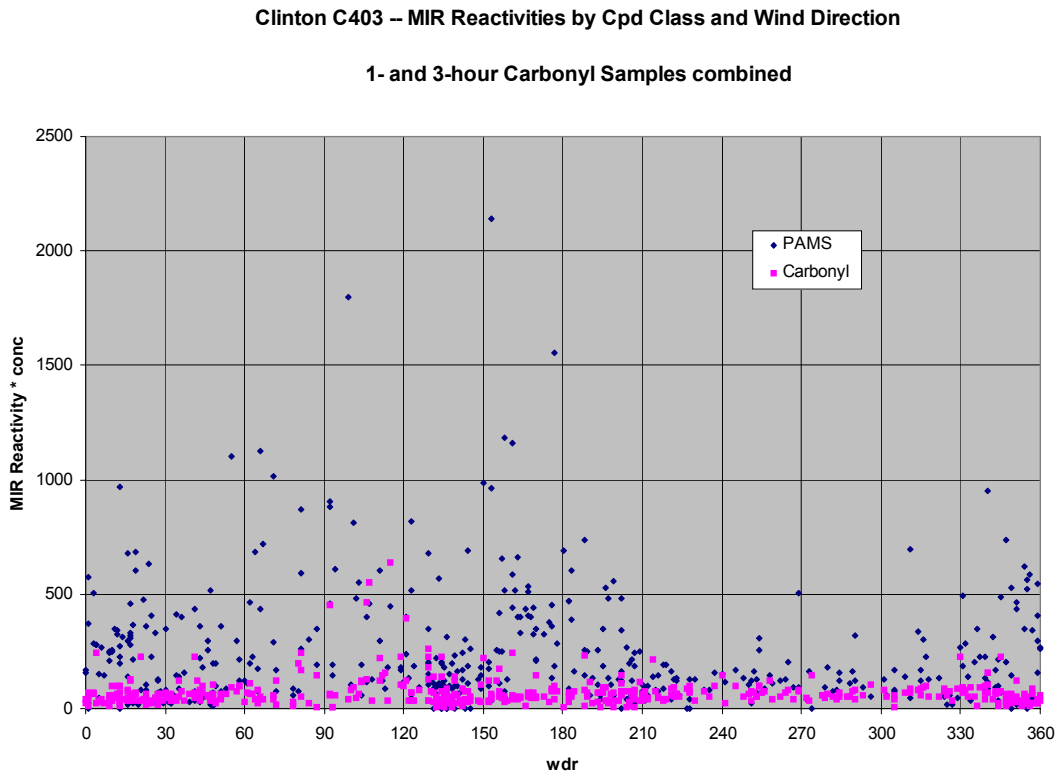


Figure 47

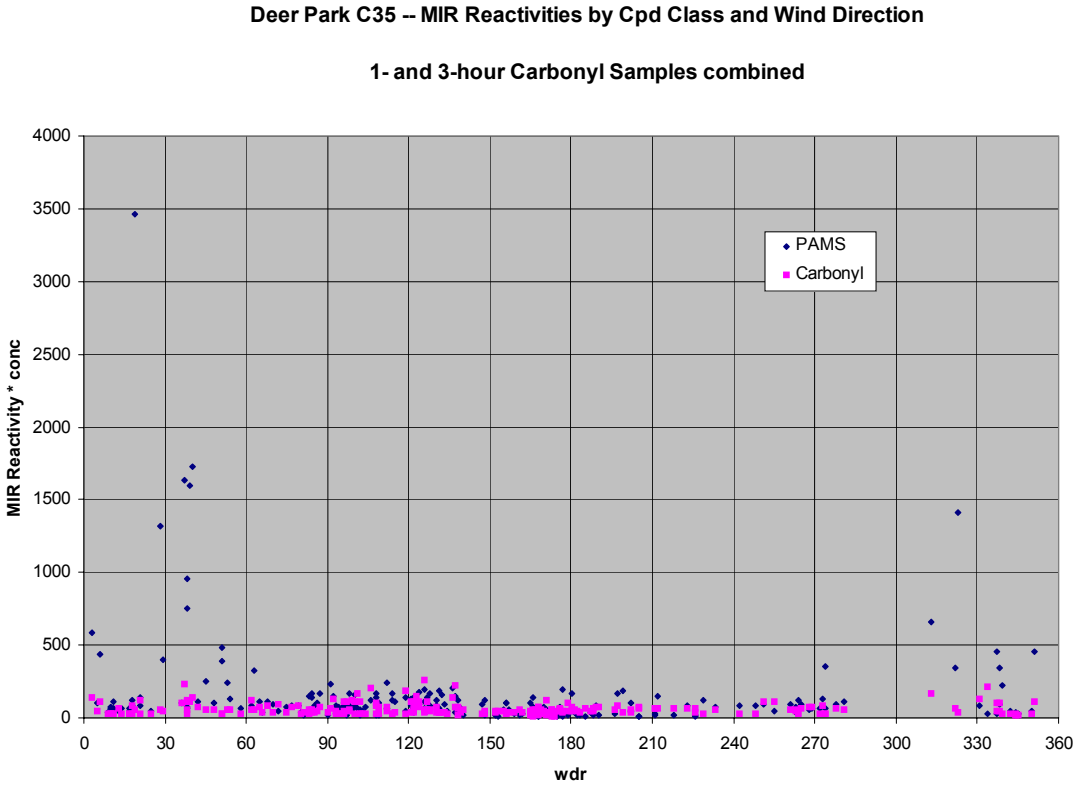

Deer Park C35 -- MIR Reactivities by Cpd Class and Wind Direction
1- and 3-hour Carbonyl Samples combined
MIR Reactivity * conc
wdr
PAMS
Carbonyl
4000
3500
3000
2500
2000
1500
1000
500
0
0
30
60
90
120
150
180
210
240
270
300
330
360

Figure 48

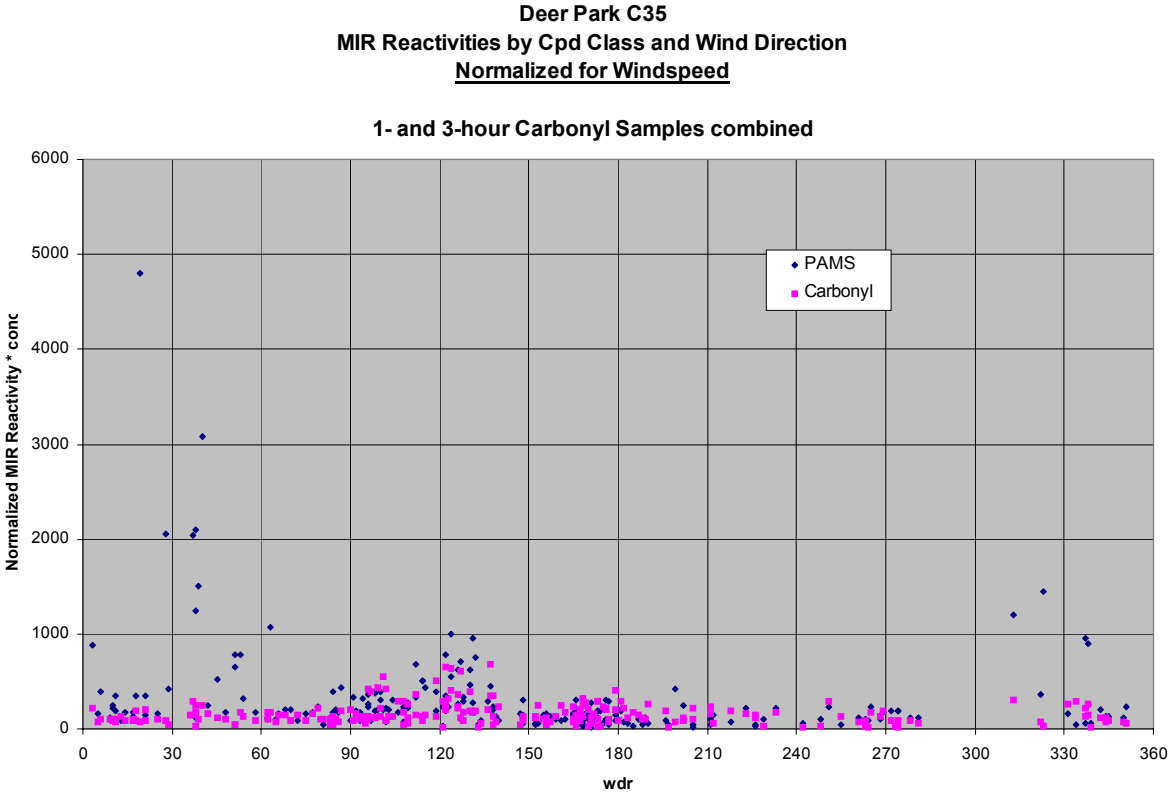


Figure 50

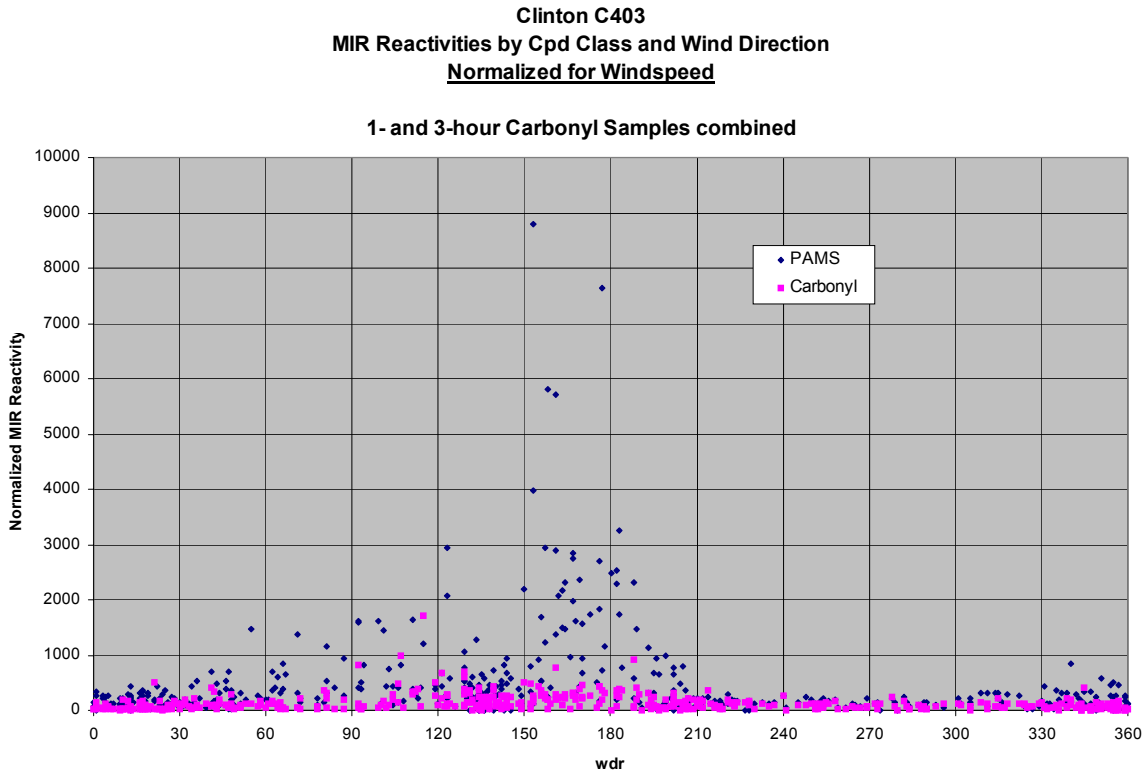
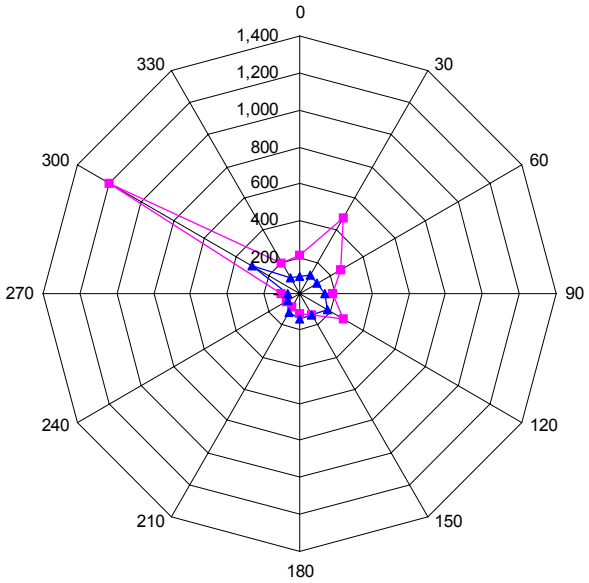


Figure 49

Deer Park C35
Geometric Mean of Normalized MIR Reactivity by Compound Class
by 30-degree Windbin

Includes all 1- and 3-hr Carbonyl Samples, with Concurrent PAMS samples



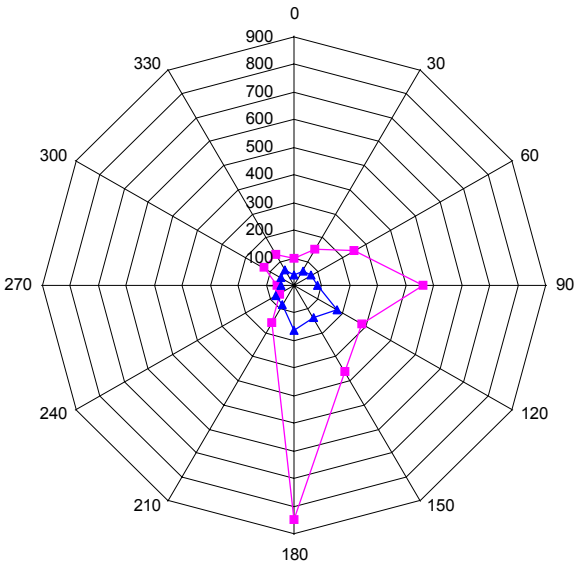
Number of Samples by Windbin

windbin	_freq_
0	13
30	19
60	15
90	35
120	37
150	23
180	44
210	12
240	7
270	14
300	1
330	13

Figure 52

Clinton C403
Geometric Mean of Normalized MIR Reactivity by Compound Class
by 30-degree Windbin

Includes all 1- and 3-hr Carbonyl Samples, with Concurrent PAMS samples



Number of Samples by Windbin

windbin	_freq_
0	67
30	57
60	34
90	22
120	44
150	58
180	37
210	51
240	20
270	20
300	16
330	33

Figure 51

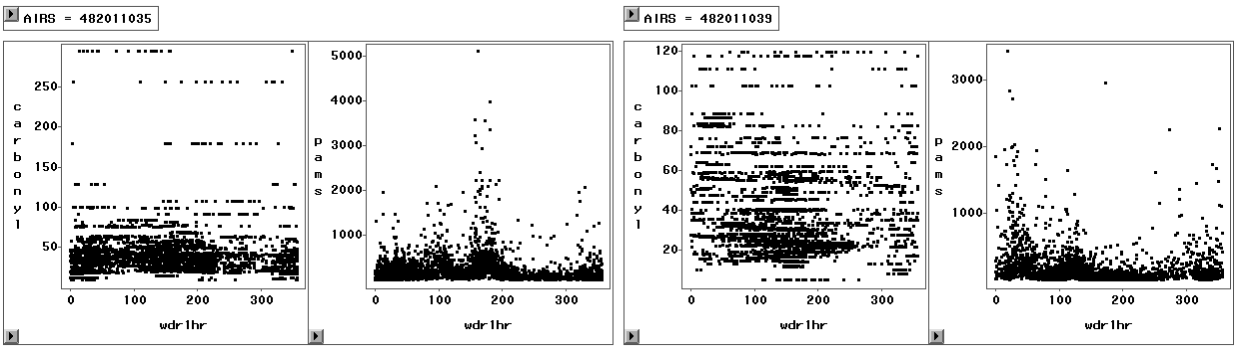
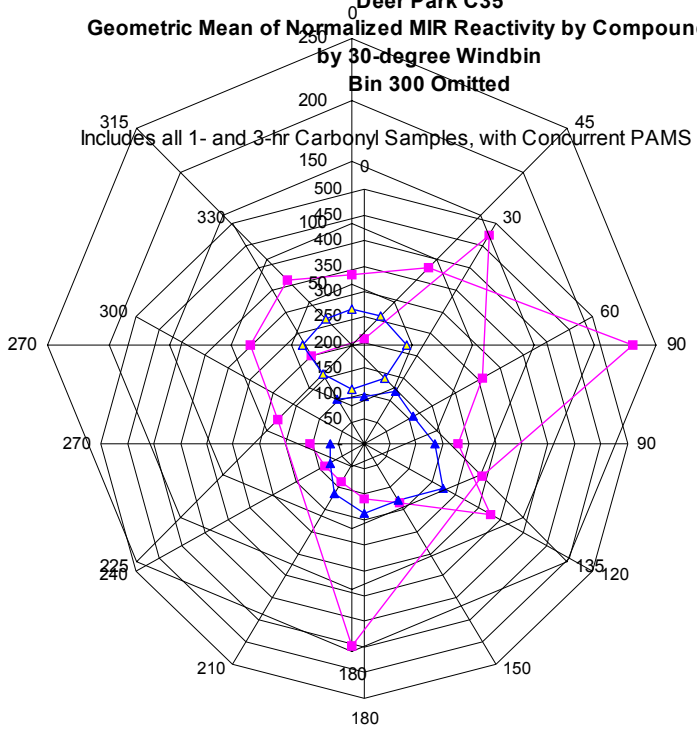


Figure 54 – Clinton C403 (left two) and Deer Park C35 (right two)
Carbonyl and Hydrocarbon MIR Reactivity by WDR (24-hr Carbonyl Samples)

Clinton C403
Geometric Mean of Hydrocarbon and Carbonyl Species Reactivity, by 45-degree windbin
24-hr Carbonyl Samples
Deer Park C35
Geometric Mean of Normalized MIR Reactivity by Compound Class
by 30-degree Windbin
Bin 300 Omitted
Includes all 1- and 3-hr Carbonyl Samples, with Concurrent PAMS samples



Number of Hours by Windbin

Number of Samples by

windbin	_FREQ_
0	408
45	479
90	290
135	687
180	821
225	405
270	167
315	174

210	12
240	7
270	14
300	

Figure 55
Figure 53

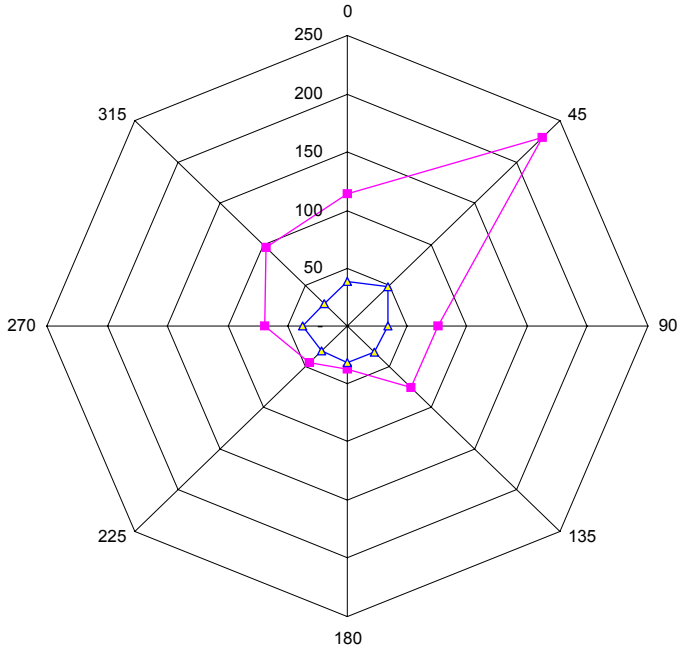
Bayland Park C55
Geometric Mean of Hydrocarbon and Carbonyl Species Reactivity, by 45-degree windbin
24-hr Carbonyl Samples

Number of Hours by Windbin

windbin	_FREQ_
0	91
45	98
90	140
135	273
180	190
225	65
270	38
315	75

Figure 57

Deer Park C35
Geometric Mean of Hydrocarbon and Carbonyl Species Reactivity, by 45-degree windbin
24-hr Carbonyl Samples



Number of Hours by Windbin

windbin	_FREQ_
0	232
45	337
90	471
135	782
180	692
225	248
270	101
315	154

Figure 56

Channelview C15
Geometric Mean of Hydrocarbon and Carbonyl Species Reactivity, by 45-degree windbin
24-hr Carbonyl Samples

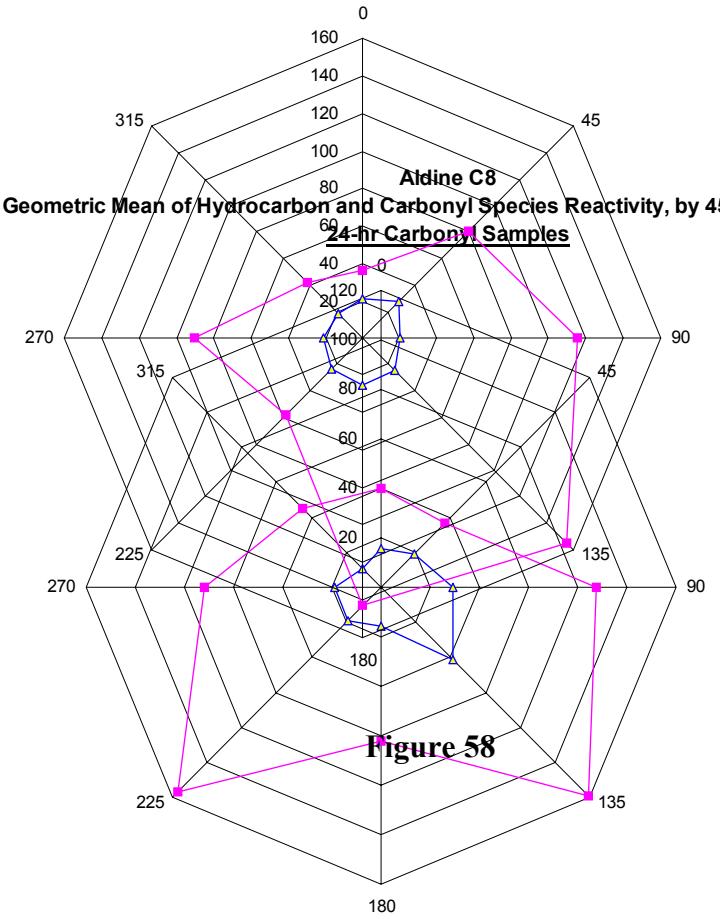


Figure 58

Aldine C8
Geometric Mean of Hydrocarbon and Carbonyl Species Reactivity, by 45-degree windbin
24-hr Carbonyl Samples

Number of Hours by Windbin

windbin	_FREQ_
0	95
45	24
90	33
135	24
180	18
225	7
270	12
315	28

windbin	_FREQ_
0	49
45	80
90	63
135	62
180	18
225	3
270	3
315	34

Figure 59

(See Appendix II-A1)
(See Appendix II-A2)

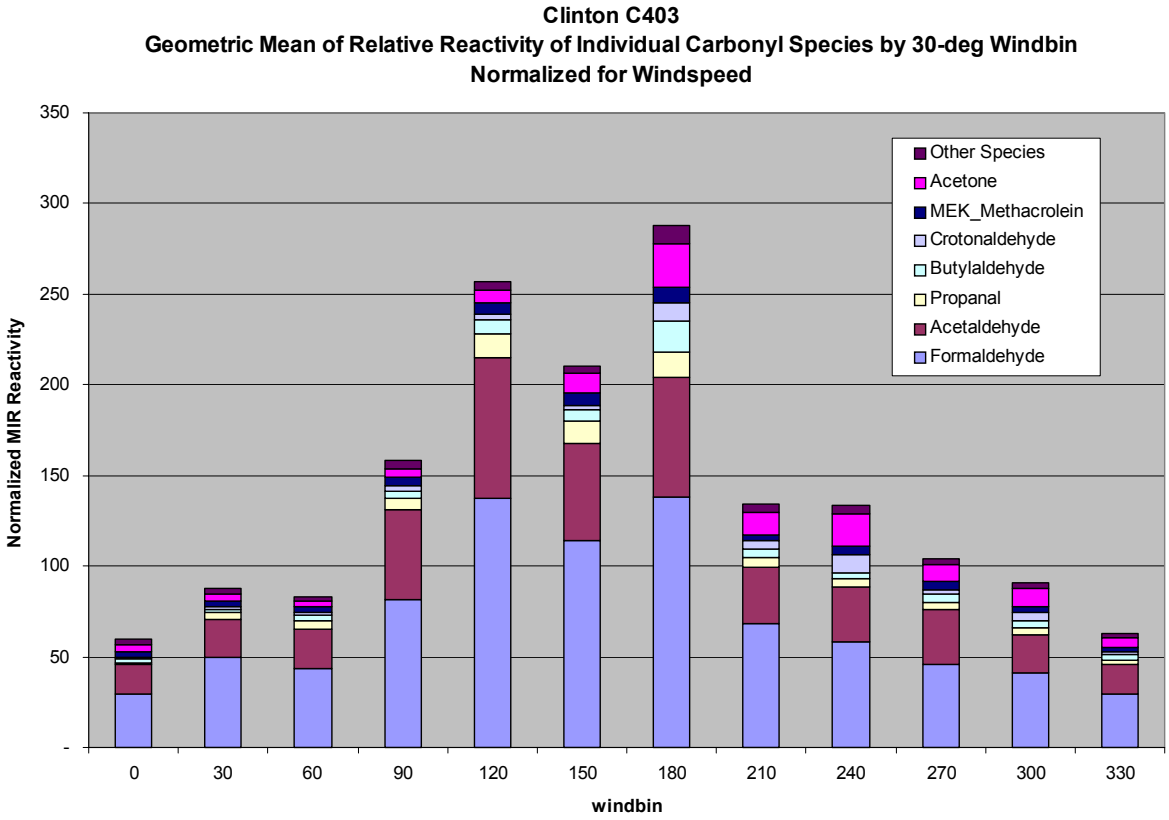

Clinton C403
Geometric Mean of Relative Reactivity of Individual Carbonyl Species by 30-deg Windbin
Normalized for Windspeed
Normalized MIR Reactivity
350
300
250
200
150
100
50
-
0
30
60
90
120
150
180
210
240
270
300
330
windbin
Other Species
Acetone
MEK_Methacrolein
Crotonaldehyde
Butylaldehyde
Propanal
Acetaldehyde
Formaldehyde

Figure 60

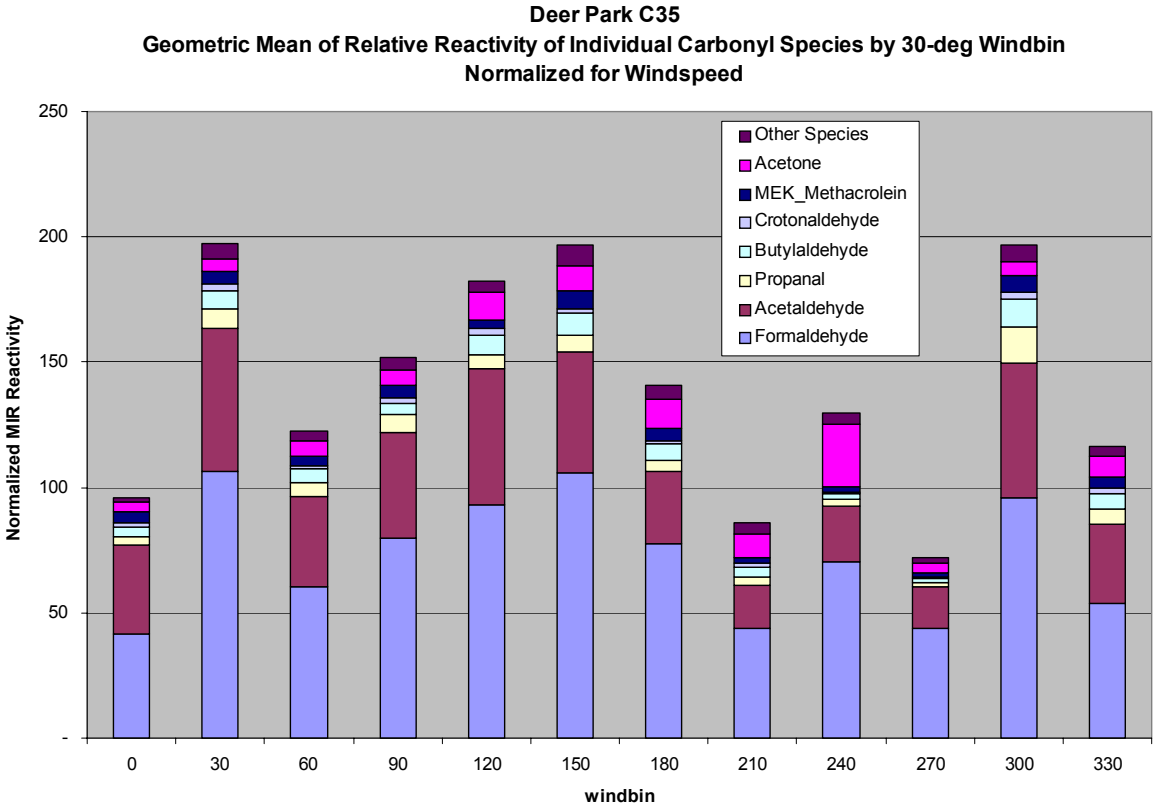

Deer Park C35
Geometric Mean of Relative Reactivity of Individual Carbonyl Species by 30-deg Windbin
Normalized for Windspeed
Normalized MIR Reactivity
250
200
150
100
50
-
0
30
60
90
120
150
180
210
240
270
300
330
windbin
Other Species
Acetone
MEK_Methacrolein
Crotonaldehyde
Butylaldehyde
Propanal
Acetaldehyde
Formaldehyde

Figure 61