

List of Figures

Figure 4.1-1	Time Series of EC Concentrations in RSP Samples in Hong Kong	1
Figure 4.1-2	Time Series of OC Concentrations in RSP Samples in Hong Kong.....	2
Figure 4.2-1	Comparisons of Elemental Concentrations in RSP Determined by ICP and in FSP Determined by XRF.	3
Figure 4.2-2	Three-month Running Averages of Selected Toxic Elemental Species.	4
Figure 4.3-1	Ambient Dioxin Levels Measured in Urban Areas in Hong Kong and Other Countries	5
Figure 4.3-2	Time Series of Total Dioxin Concentrations at Tsuen Wan, Central/Western, Mongkok Roadside and Hok Tsui.	6
Figure 4.3-3	Time Series of OCDD Concentrations at Central/Western, Tsuen Wan, Mongkok, and Hok Tsui. (a) Linear Scale, (b) Logarithmic Scale.....	7
Figure 4.3-4	Correlation of OCDD Concentrations at Tsuen Wan and Central/Western	8
Figure 4.3-5	Comparison of Average Dioxin Concentrations for the Period of Apr. – Dec. 2001 between the Landfill/Waste Composting Sites and the Urban Sites.....	9
Figure 4.3-6	Correlation of Dioxin Congener Concentrations at Sha Ling and Nim Wan.....	10
Figure 4.3-7	Correlation of Dioxin Congener Concentrations at Tseung Kwan O and Nim Wan.	11
Figure 4.3-8	Correlation of Congener Concentrations between Tsuen Wan and Central/Western on High Dioxins Days.	12
Figure 4.3-9	Correlation of Dioxin Congeners between Yuen Long and four other Sites during two Simultaneous Sampling Events.	13
Figure 4.3-10	Circular Pollution Wind Map for Dioxins at Tsuen Wan.....	14
Figure 4.3-11	Comparison of 2378-TCDD and 2378-TCDF concentrations at Tsuen Wan and Central/Western.	15

Figure 4.4-1	Comparison of PCB Levels in Hong Kong with Other Urban Areas around the World	16
Figure 4.4-2	Time Series of the Total PCB Concentrations at Central/Western, Tsuen Wan, Mongkok, and Hok Tsui.....	17
Figure 4.4-3	Time Series of the Sum of 12 PCB Congeners and the Most Abundant Congener (PCB118) at the Three Landfill / Waste Composting Sites.	18
Figure 4.4-4	Average Total PCB Concentrations for November 2000 to October 2001.....	19
Figure 4.4-5	Circular Pollution Wind Maps for PCBs	20
Figure 4.5-1	Circular Pollution Wind Maps for BaP.....	21
Figure 4.5-2	BaP Monthly Average Concentrations in RSP between January 1997 and March 2000 at Ten Sampling Sites	22
Figure 4.5-3	Comparison of BaP Annual Average Concentrations in Hong Kong with the Three Most Stringent BaP Air Quality Guidelines.....	23
Figure 4.6-1	Trend Analysis for Formaldehyde at Central/Western and Tsuen Wan.....	24
Figure 4.6-2	Three-month Running Average Curves of Eight Carbonyl Compounds.	25
Figure 4.6-3	Three-month Running Average of Major Primary (Benzene and Carbon monoxide) and Secondary (Ozone) Air Pollutants.	26
Figure 4.6-4	Linear Correlations of Carbonyl Concentrations at Tsuen Wan and Central/Western	27
Figure 4.6-5	Molar Percentage of Formaldehyde at Tsuen Wan and Central/Western for the period of July 1998 – December 2001.....	28
Figure 4.6-6	Ratio of Formaldehyde to Acetaldehyde at Central/Western and Tsuen Wan	29
Figure 4.7-1	Comparison of Levels of Benzene, Toluene, and Xylenes in Hong Kong with Other Urban Locations.....	30
Figure 4.7-2	Three-month Running Average Curves of BTEX and 1,3-Butadiene	31

Figure 4.7-3	Three-month Running Averages of Selected Halogenated VOCs.....	32
Figure 5-1	Number of cancer cases per million population calculated using different POP data measured at (a) Tseung Kwan O, (b) Sha Ling and (c) Nim Wan.....	33

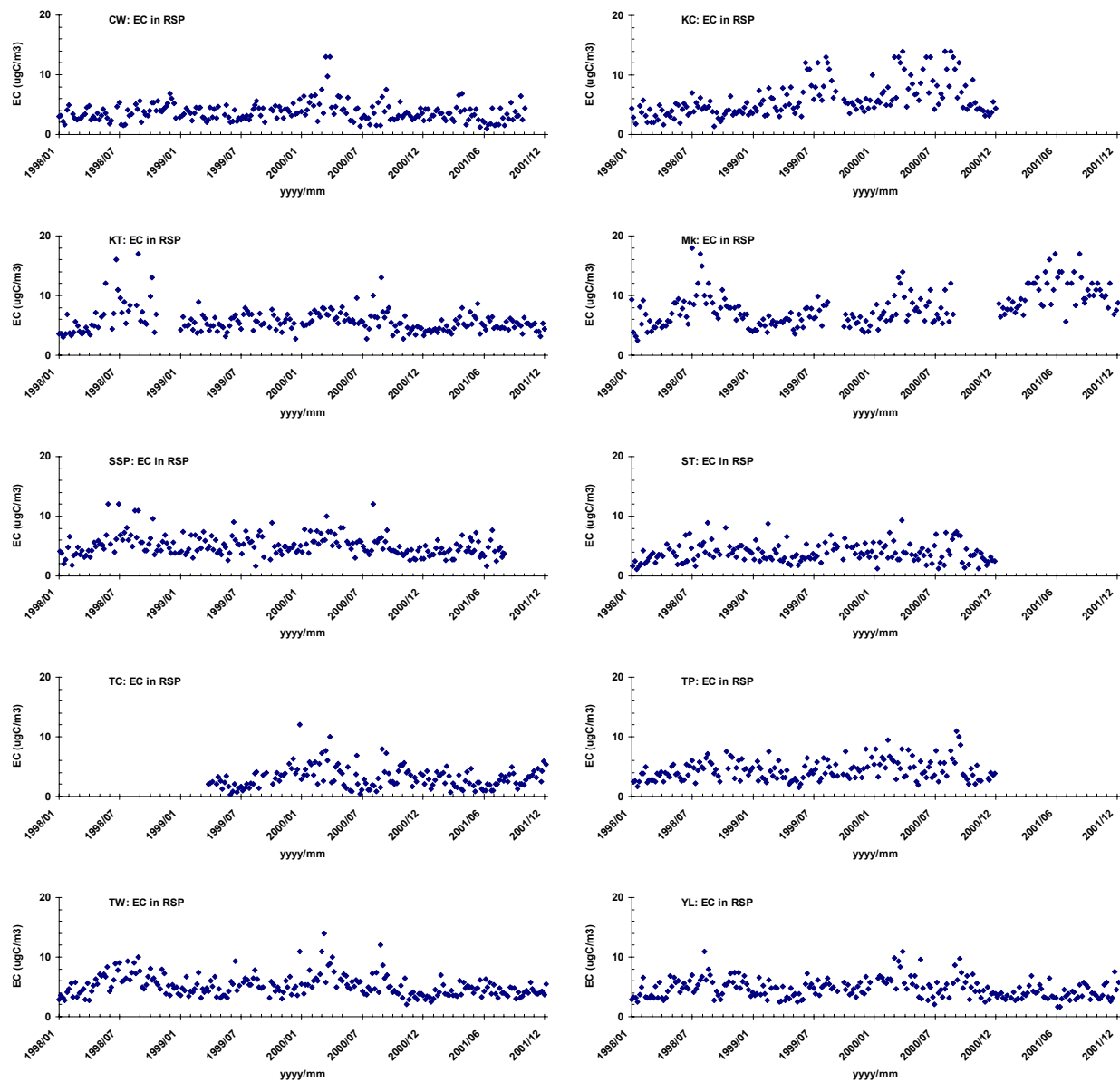


Figure 4.1-1 Time Series of EC in RSP at Ten Monitoring Stations

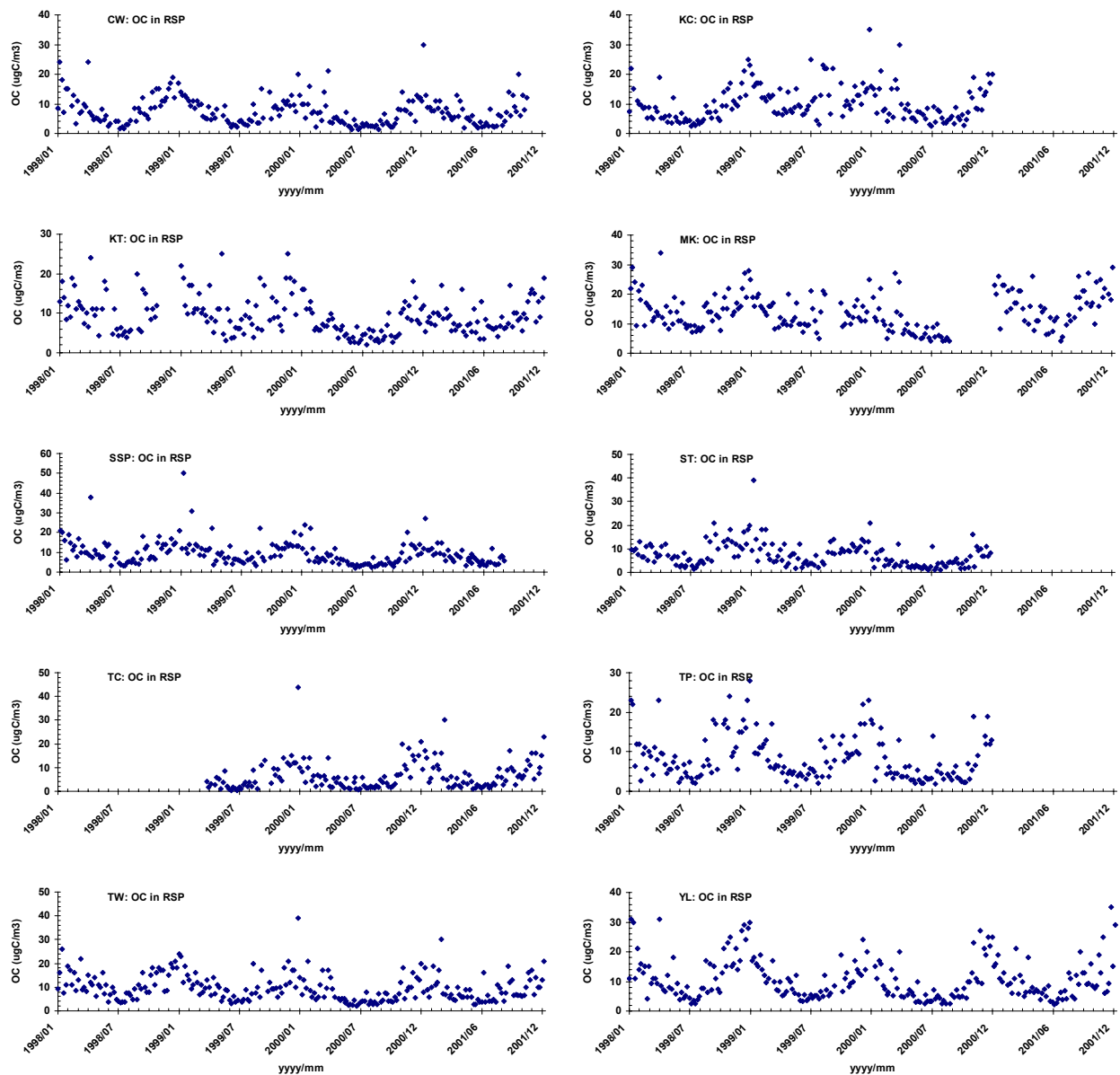


Figure 4.1-2 Time Series of OC in RSP at Ten Monitoring Stations

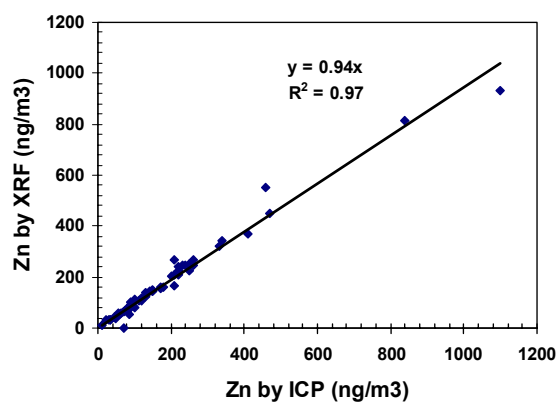
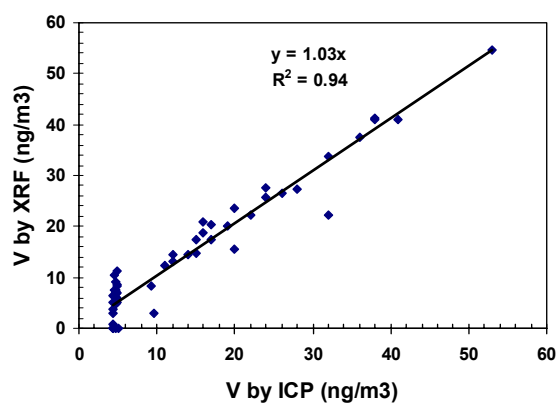
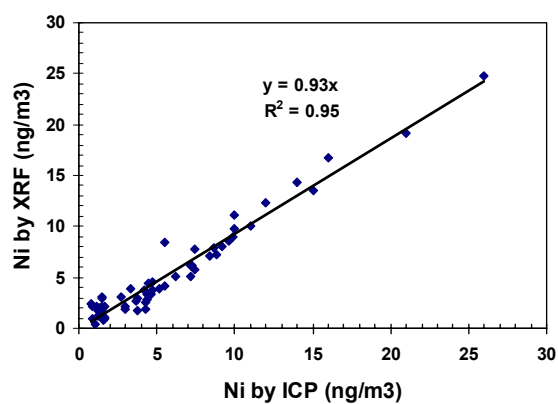
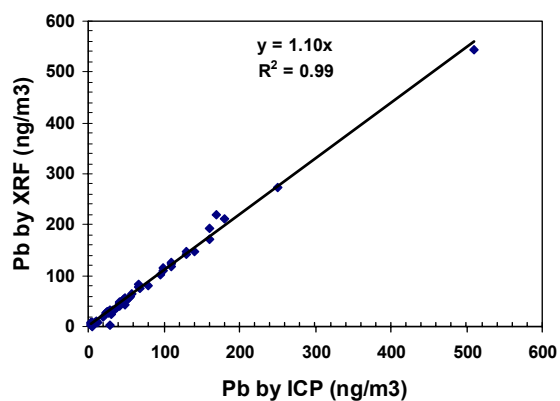
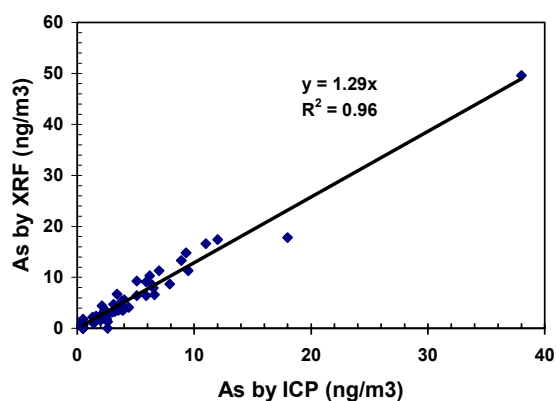
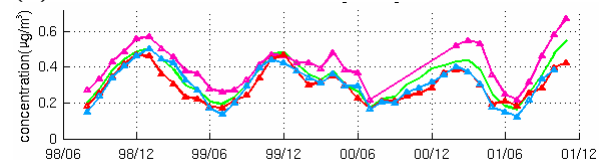
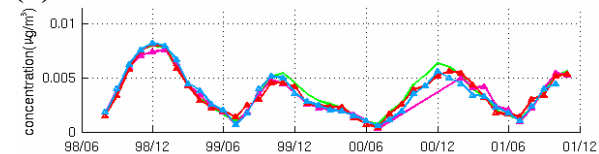


Figure 4.2-1 Comparisons of Elemental Concentrations in RSP Determined by ICP and in FSP Determined by XRF.

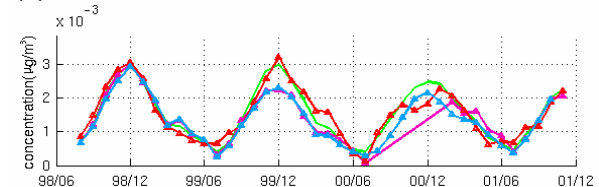
(a) Aluminum



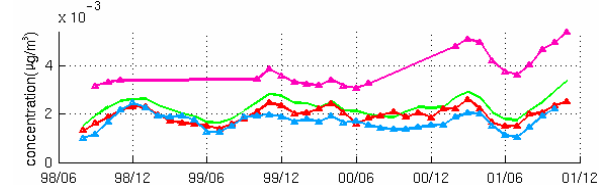
(b) Arsenic



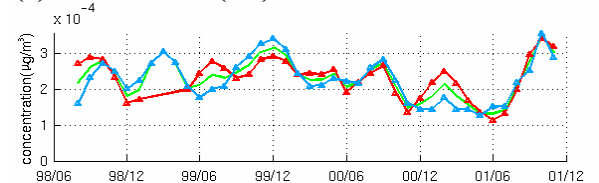
(c) Cadmium



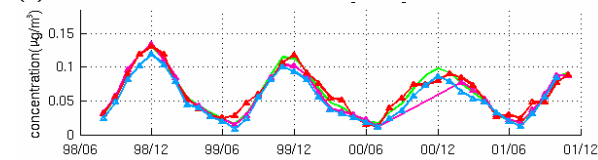
(d) Chromium



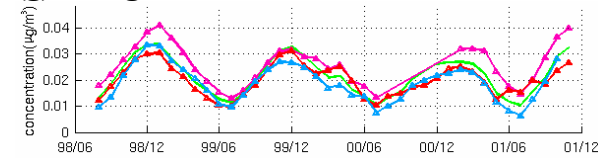
(e) Chromium (VI)



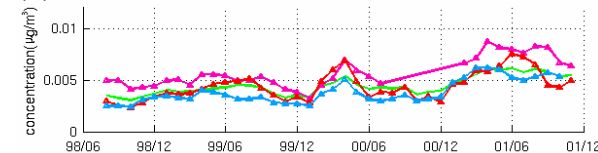
(f) Lead



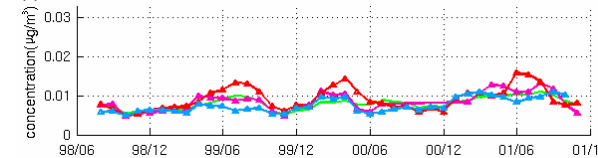
(g) Manganese



(h) Nickel



(i) Vanadium



(j) Zinc

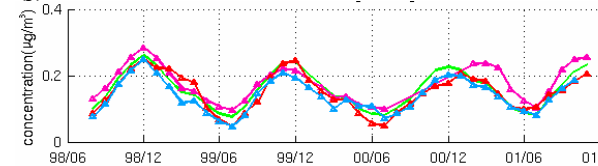


Figure 4.2-2 Three-month Running Average of Selected Toxic Elemental Substances
(Color codes: Red for Tsuen Wan, Blue for Central/Western, Pink for Mong Kok, Green for Average over Hong Kong)

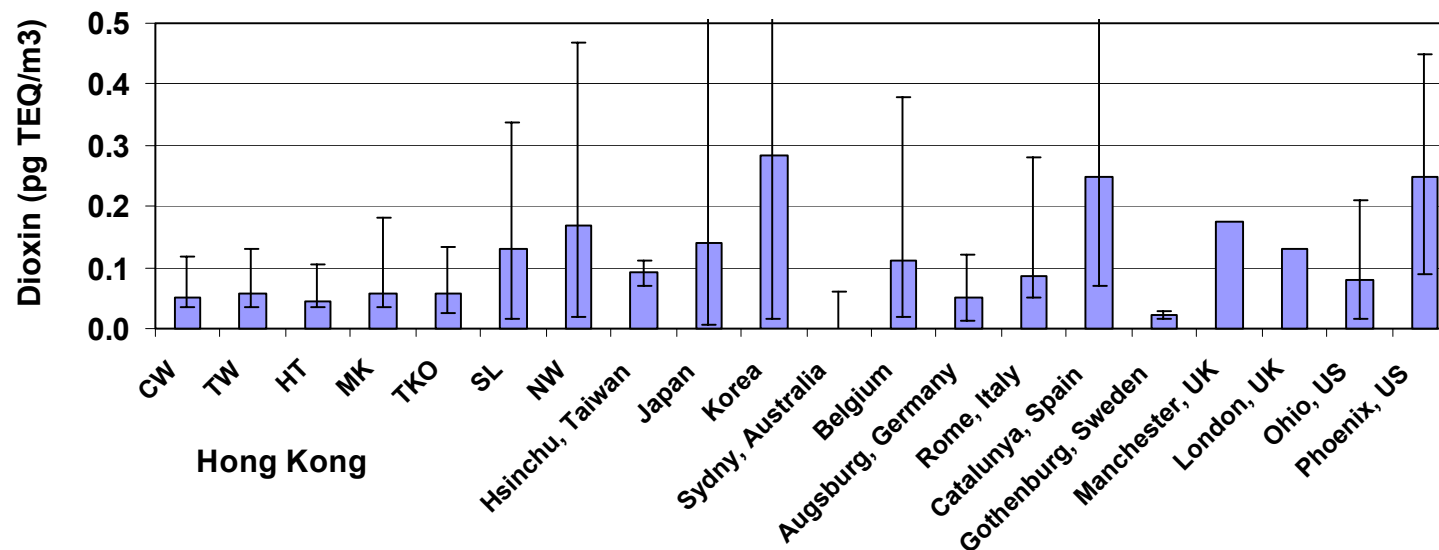


Figure 4.3-1 Ambient Dioxins Levels Measured at Urban Areas in Hong Kong and Other Countries.
 (Note: The upper and low error bars represent the maximum and minimum values in each study.)

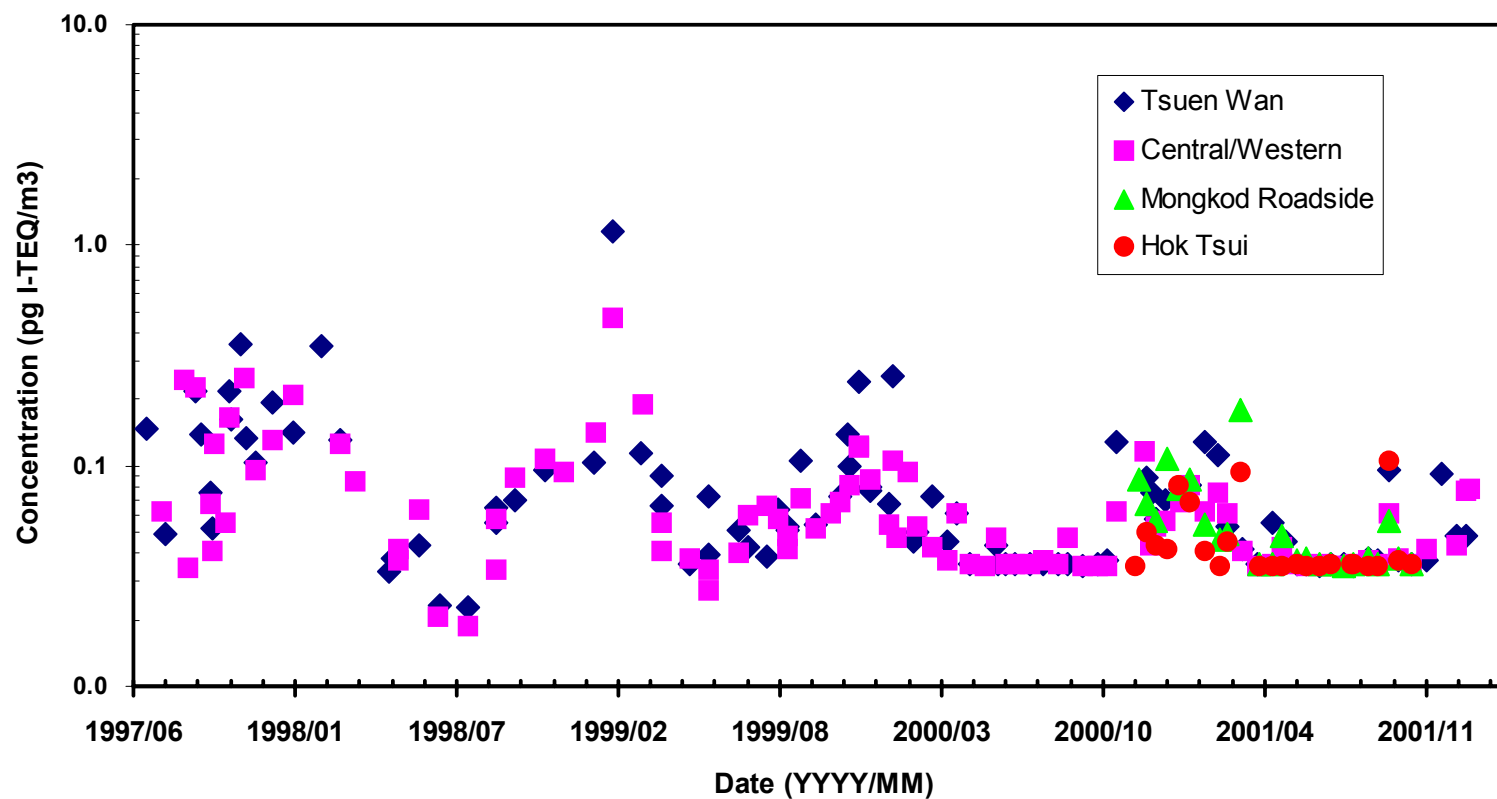


Figure 4.3-2. Time Series of Total Dioxin Concentrations at Tsuen Wan, Central/Western, Mongkok Roadside, and Hok Tsui.

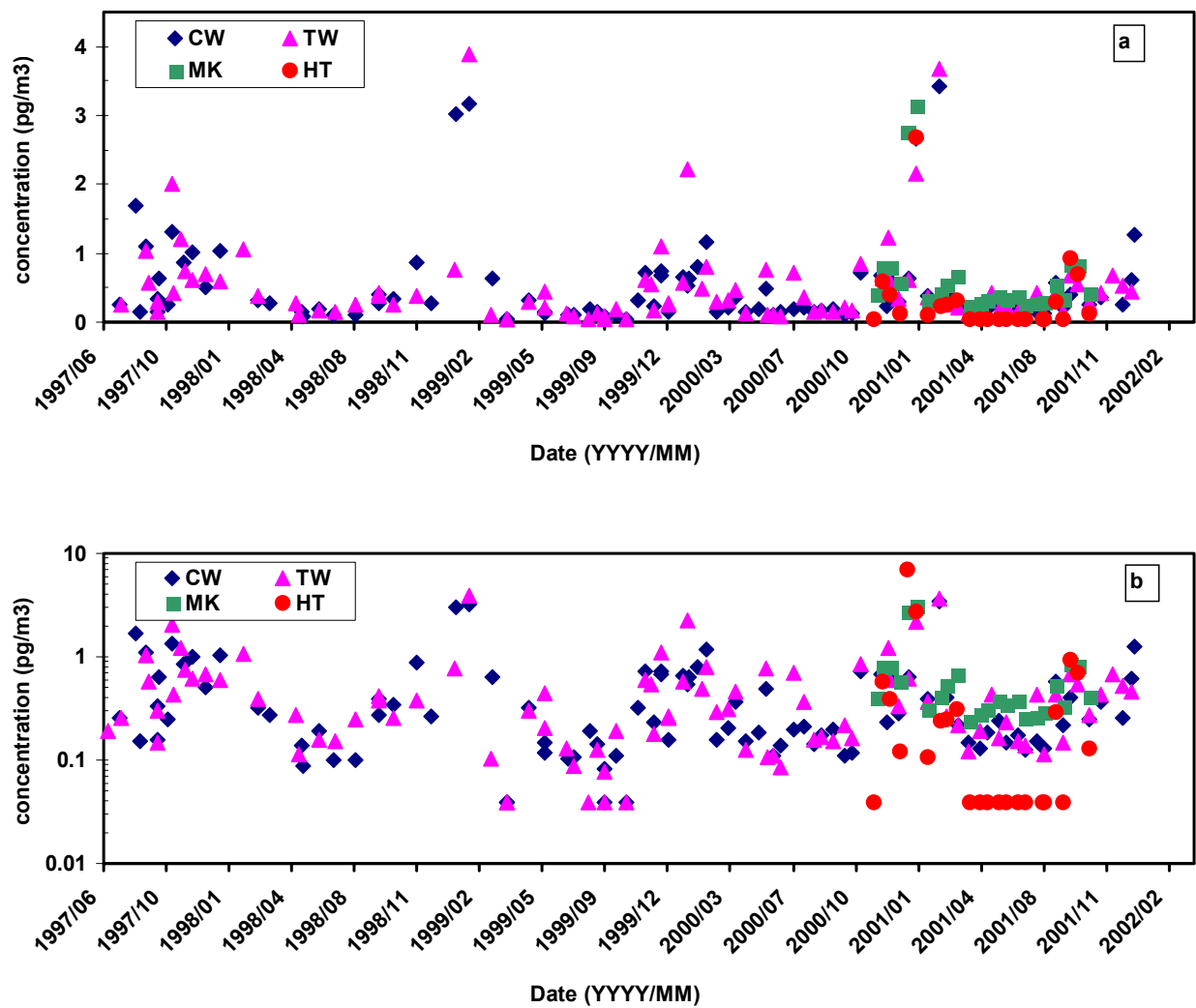


Figure 4.3-3 Time Series of OCDD Concentrations at CW, TW, MK, and HT. (a) Linear Scale, (b) Logarithmic Scale.

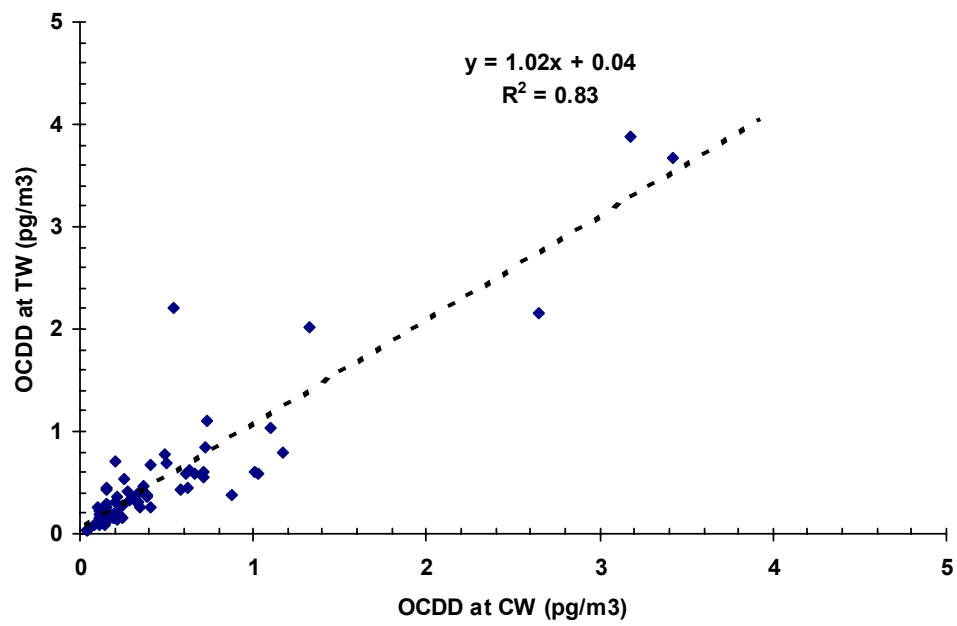


Figure 4.3-4 Correlation of OCDD concentrations at TW and CW

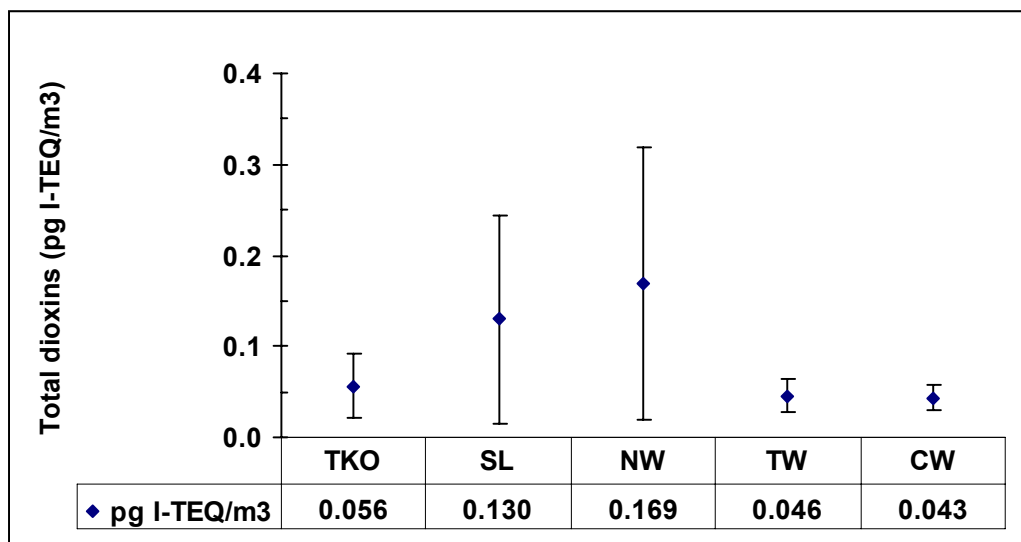


Figure 4.3-5 Comparison of Average Dioxin Concentrations for the Period of Apr. – Dec. 2001 between the Landfill/Waste Composting Sites and the Urban Sites.

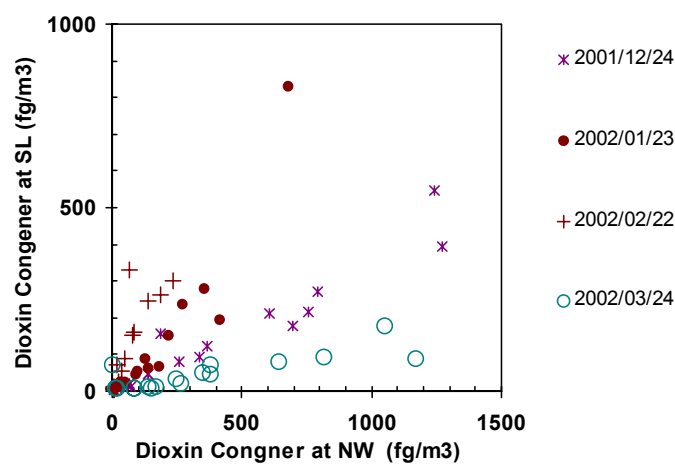
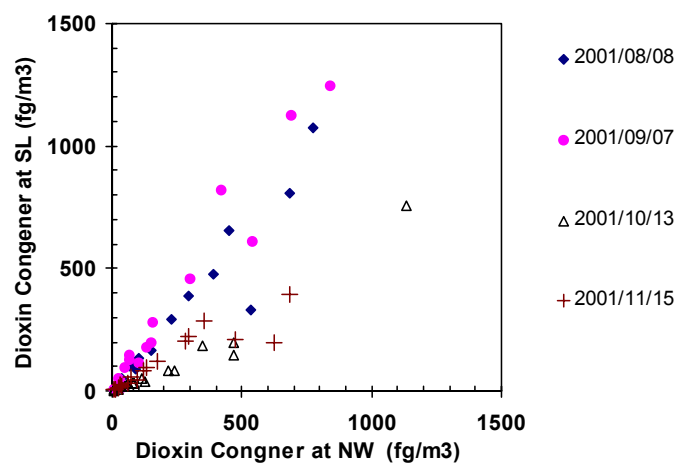
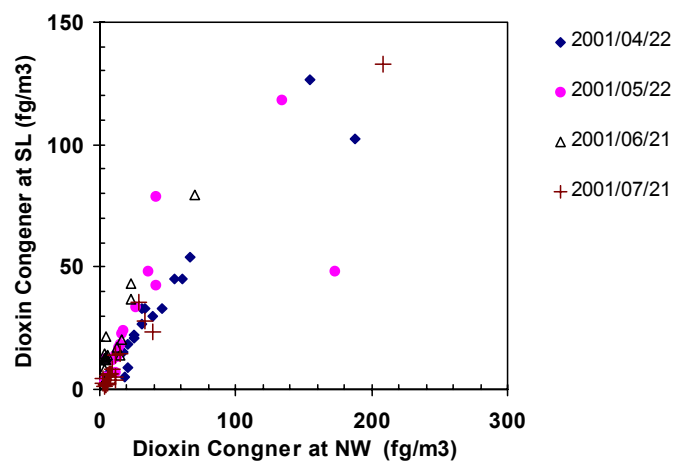


Figure 4.3-6 Correlation of Dioxin Congener Concentrations at Sha Ling (SL) and Nim Wan (NW)

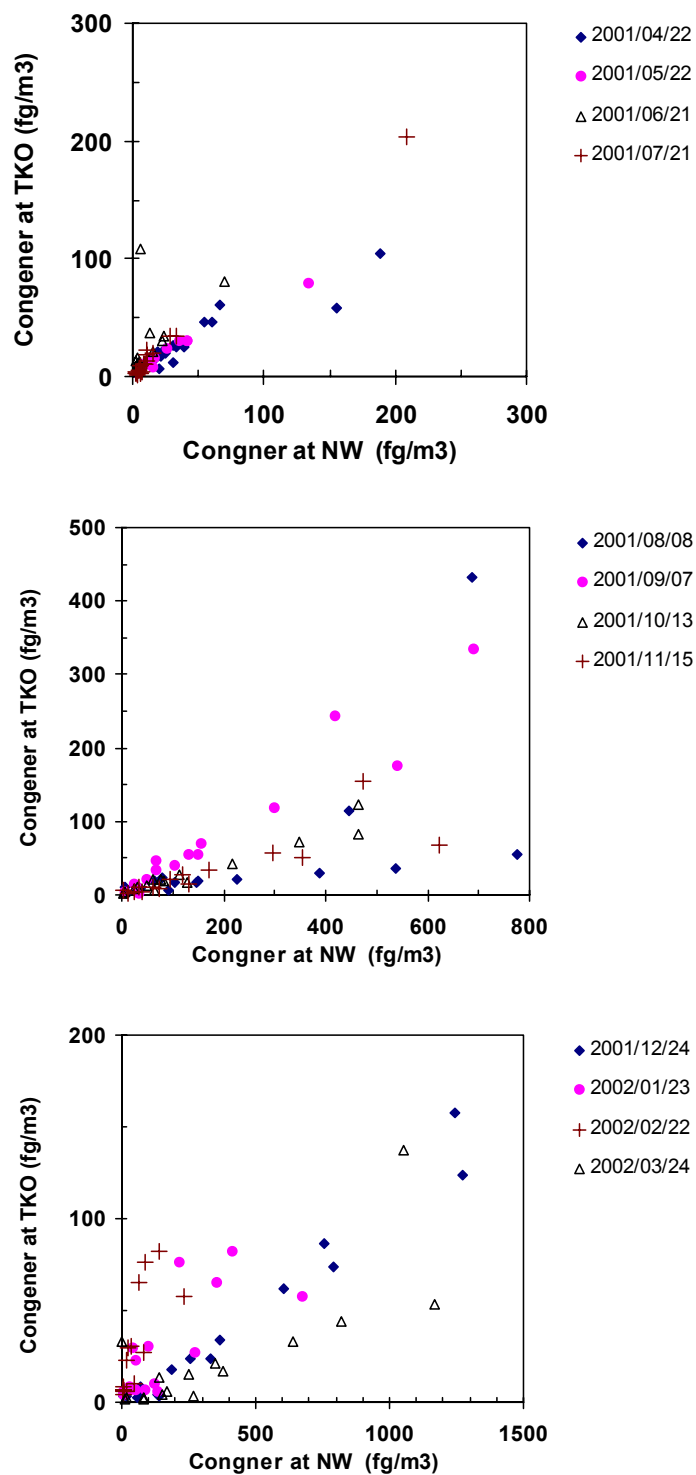


Figure 4.3-7 Correlation of Dioxin Congener Concentrations at Tseung Kwan O (TKO) and Nim Wan (NW)

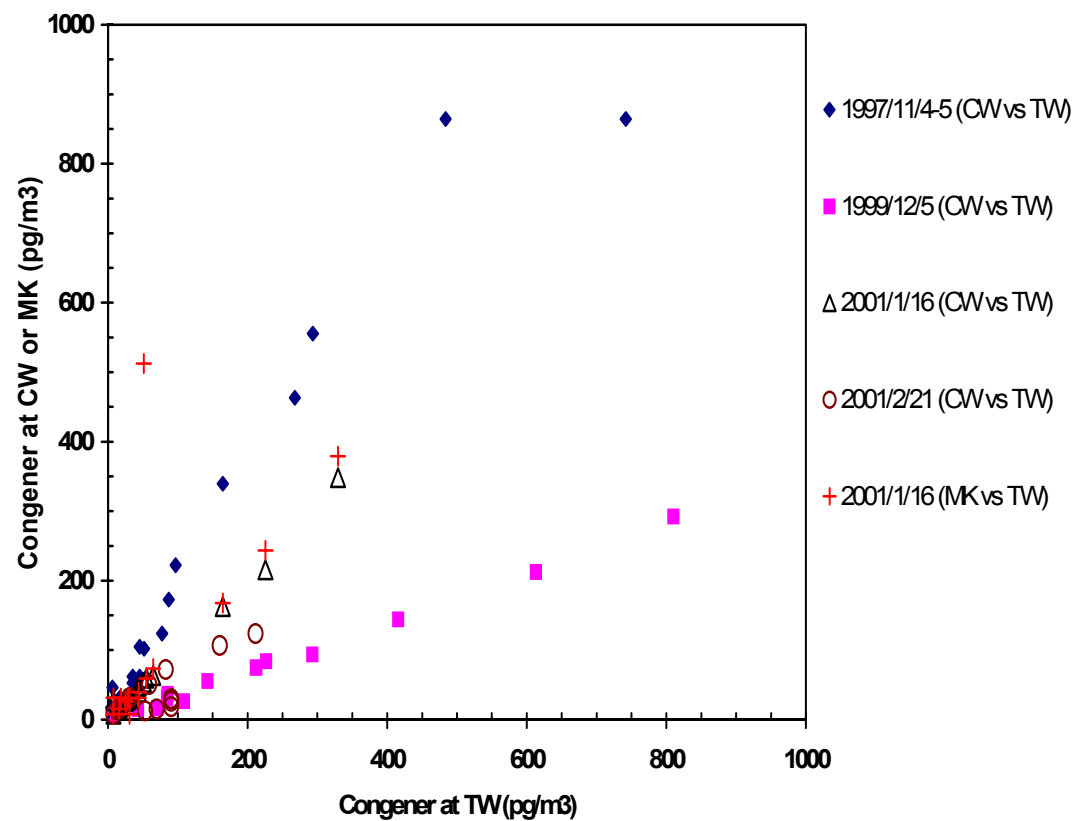
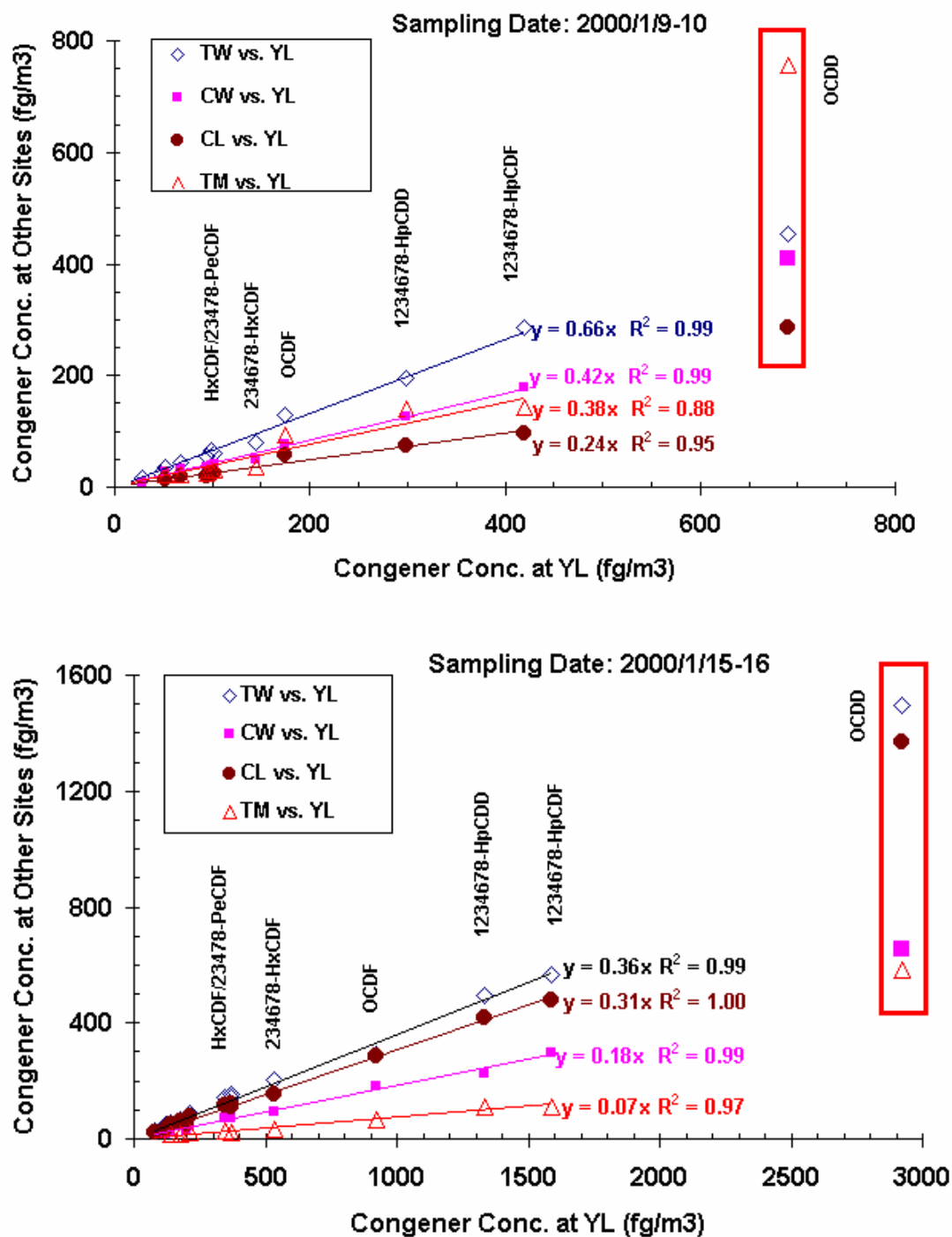


Figure 4.3-8 Correlations of Congener Concentrations between TW and CW on High Dioxin Days



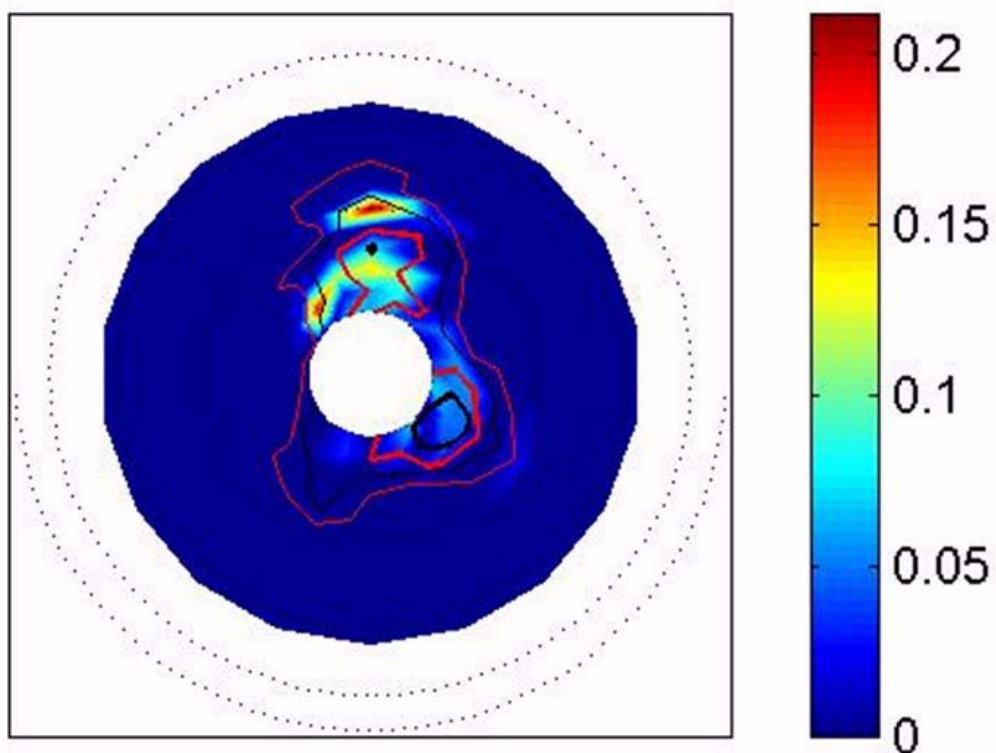


Figure 4.3-10 Circular Pollution Wind Map for Dioxin at Tsuen Wan. The color shading shows the concentration in pg I-TEQ/m³, the direction and radius on the plot shows the direction and magnitude of the measurements.

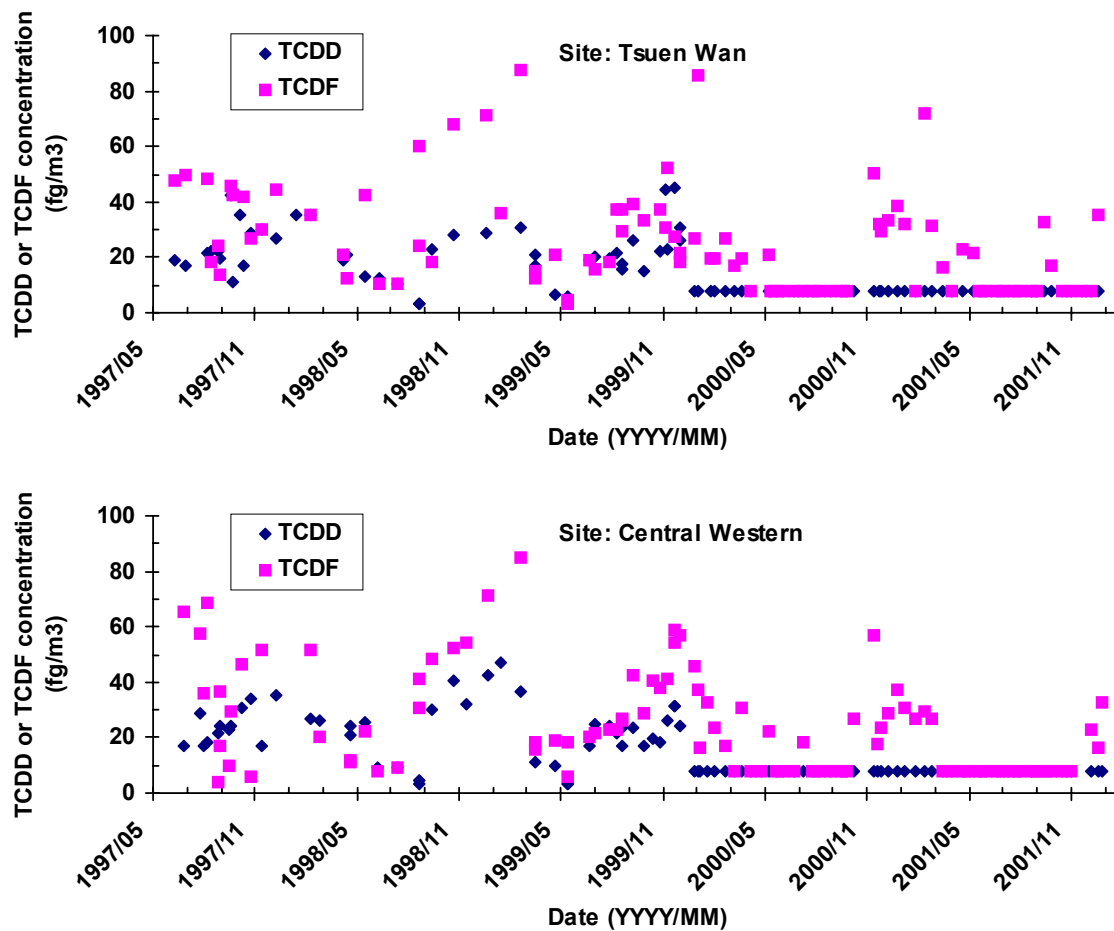


Figure 4.3-11 Comparison of 2378-TCDD and 2378-TCDF concentrations at Tsuen Wan and Central Western

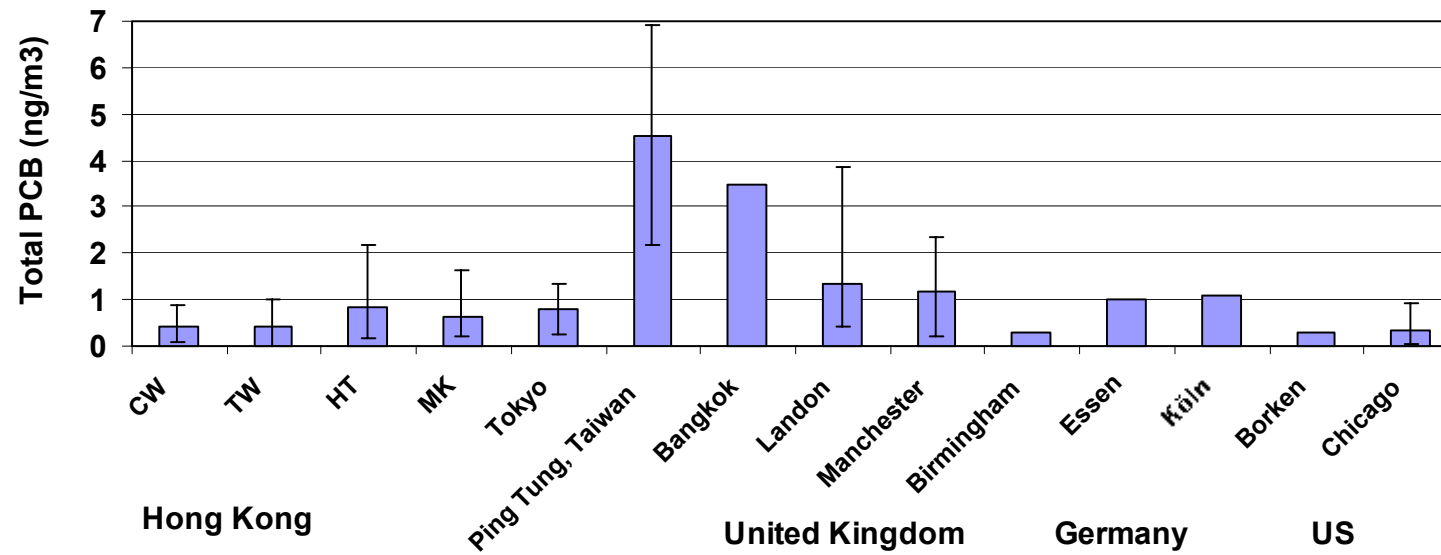


Figure 4.4-1 Comparison of PCB Levels in Hong Kong with Other Urban Areas around the World.

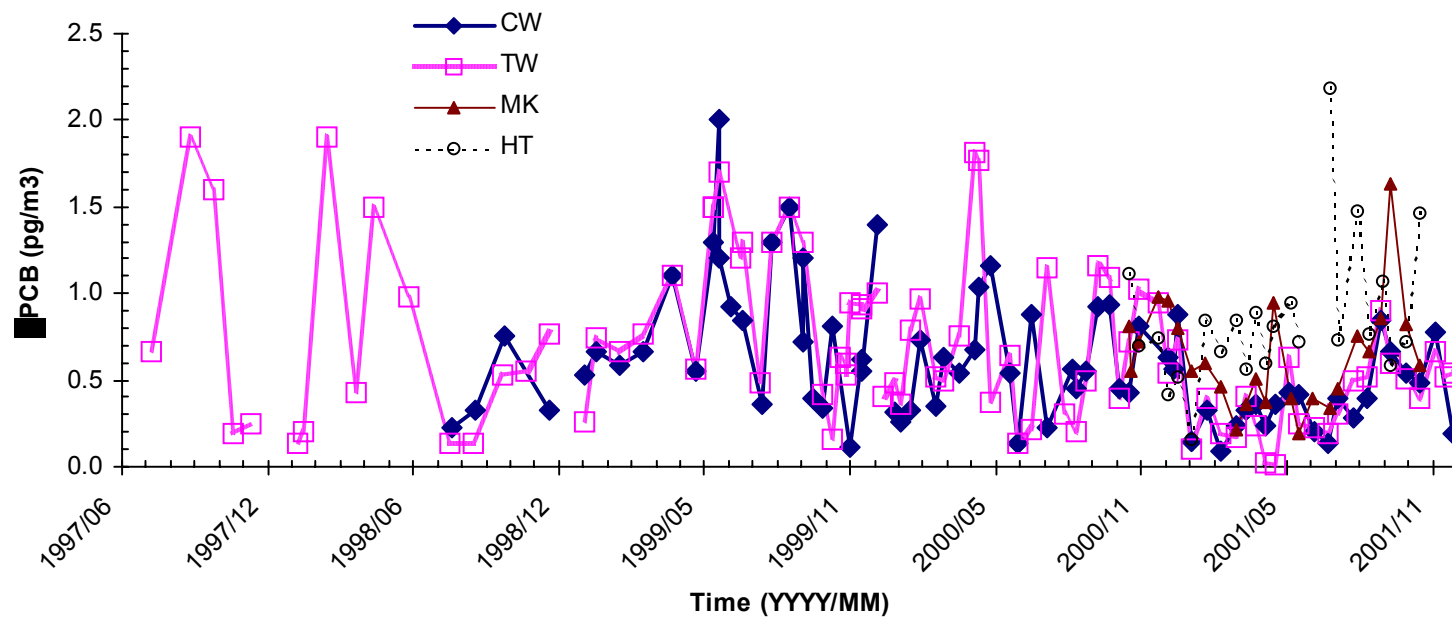


Figure 4.4-2. Time Series of the Total PCB Concentrations at CW, TW, MK, and HT.

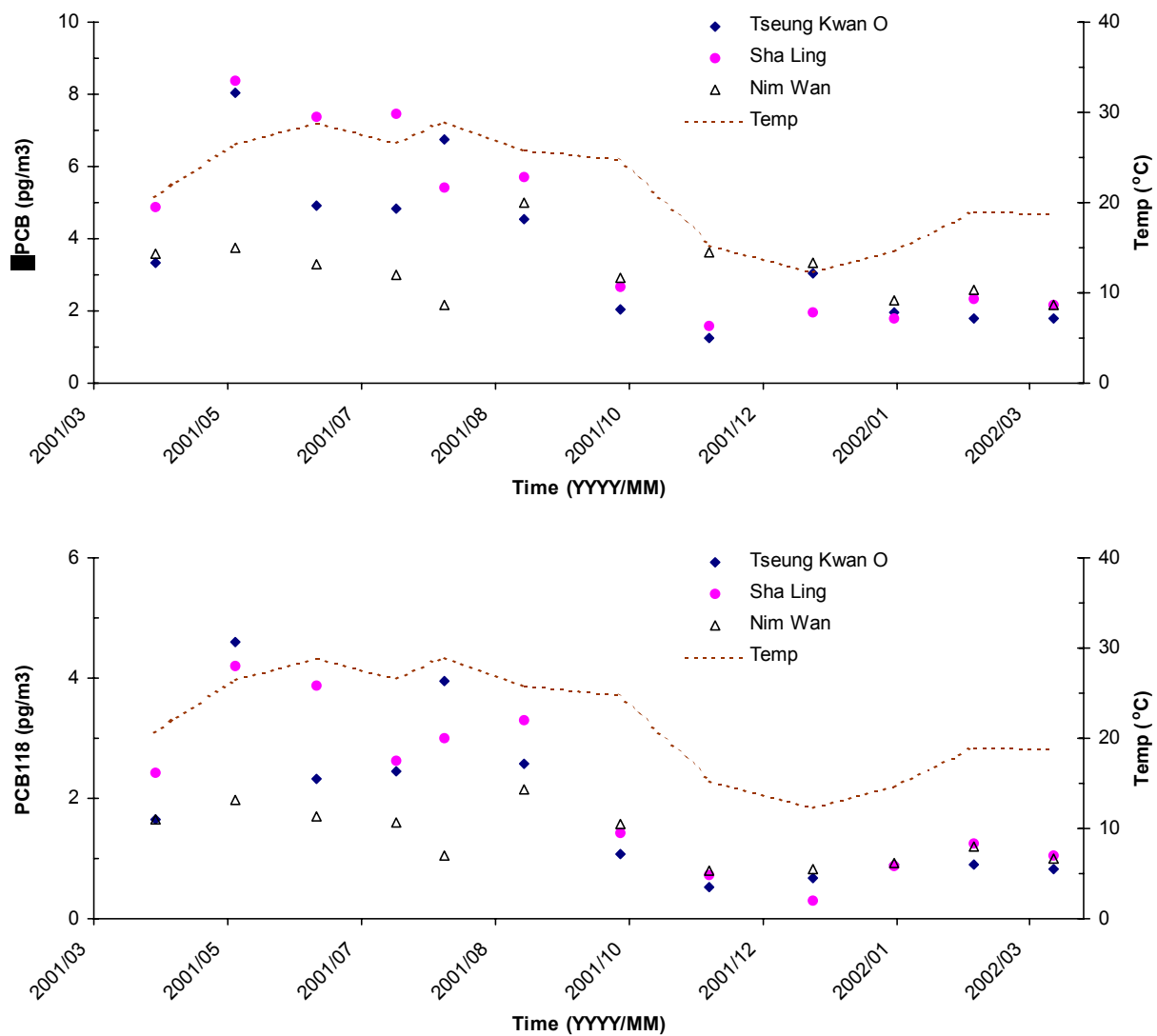


Figure 4.4-3 Time Series of the Sum of 12 PCB Congeners and the Most Abundant Congener (PCB118) at the Three Landfill / Waste Composting Sites.

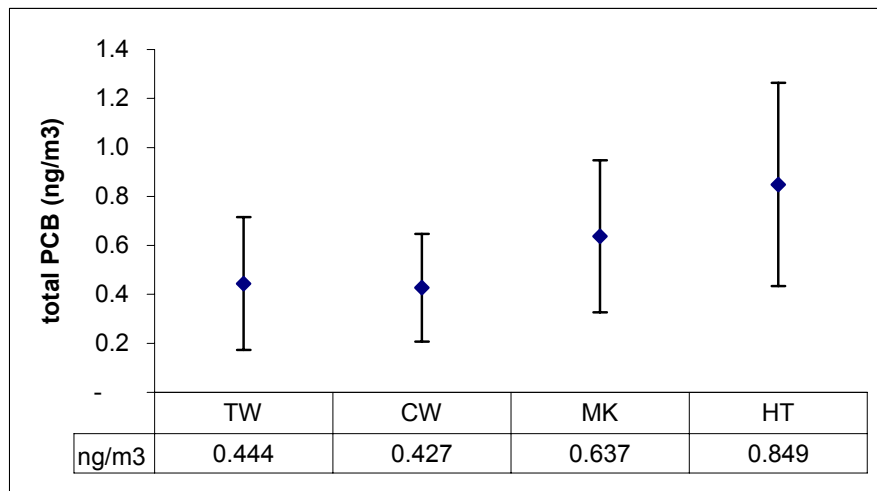


Figure 4.4-4 Average Total PCB Concentrations for November 2000 to October 2001.

(The error bars represent 1σ of the all measurement data.)

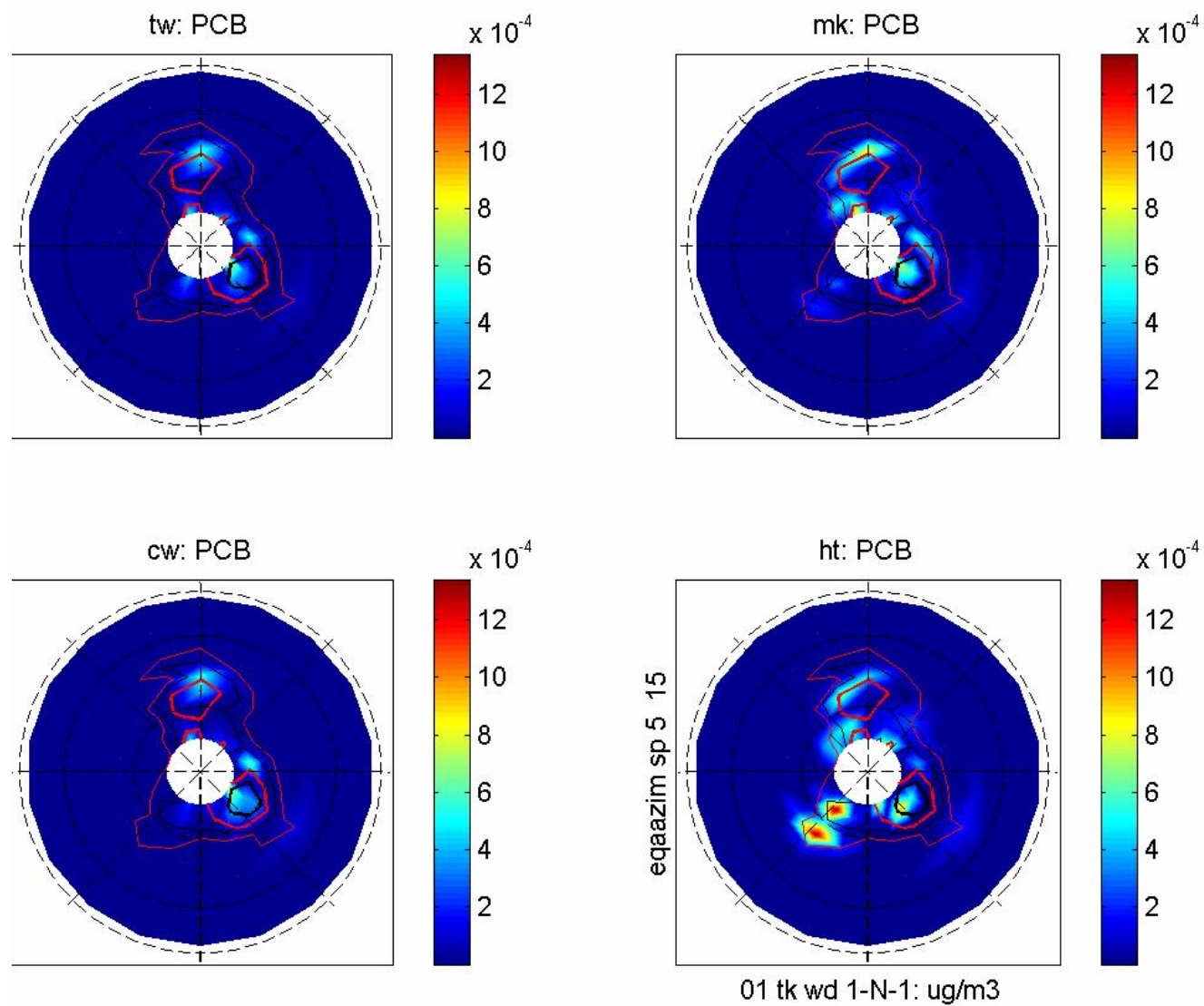


Figure 4.4-5 Circular Pollution Wind Maps for PCBs

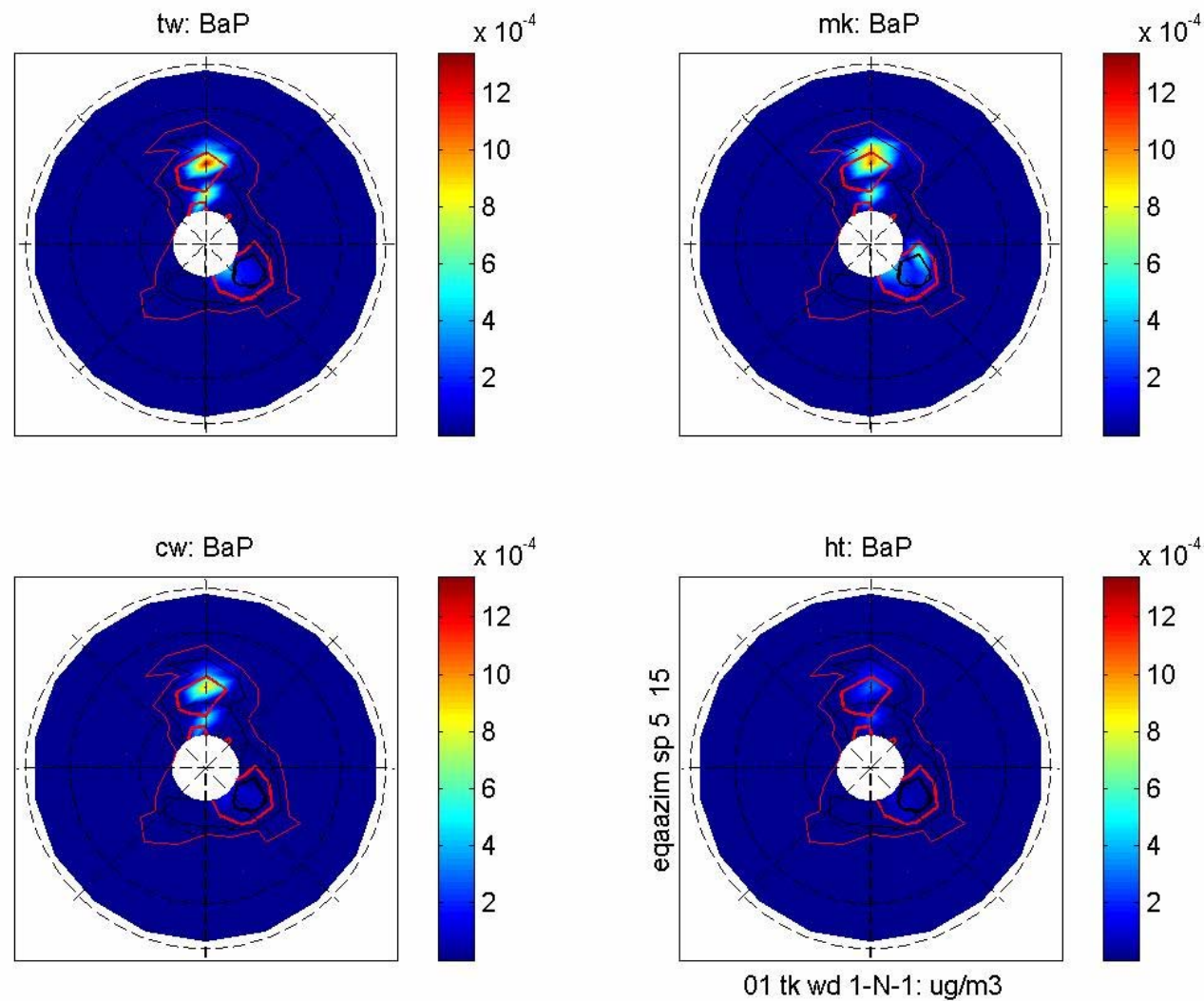


Figure 4.5-1 Circular Pollution Wind Maps for BaP

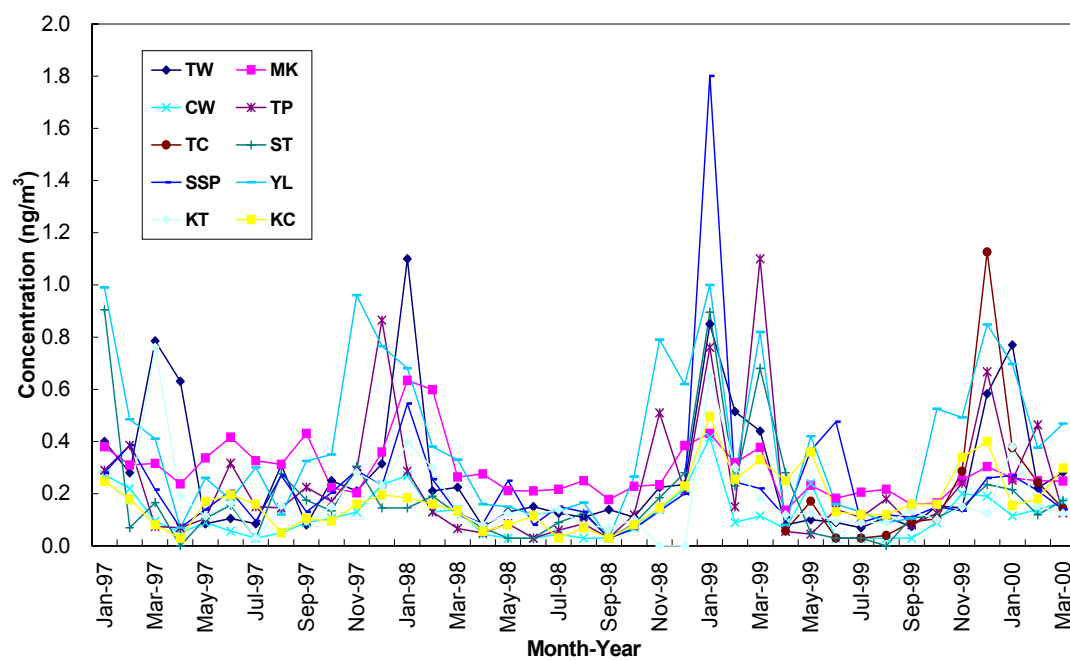


Figure 4.5-2. BaP Monthly Average Concentrations in RSP between January 1997 and March 2000 at Ten Sampling Sites.

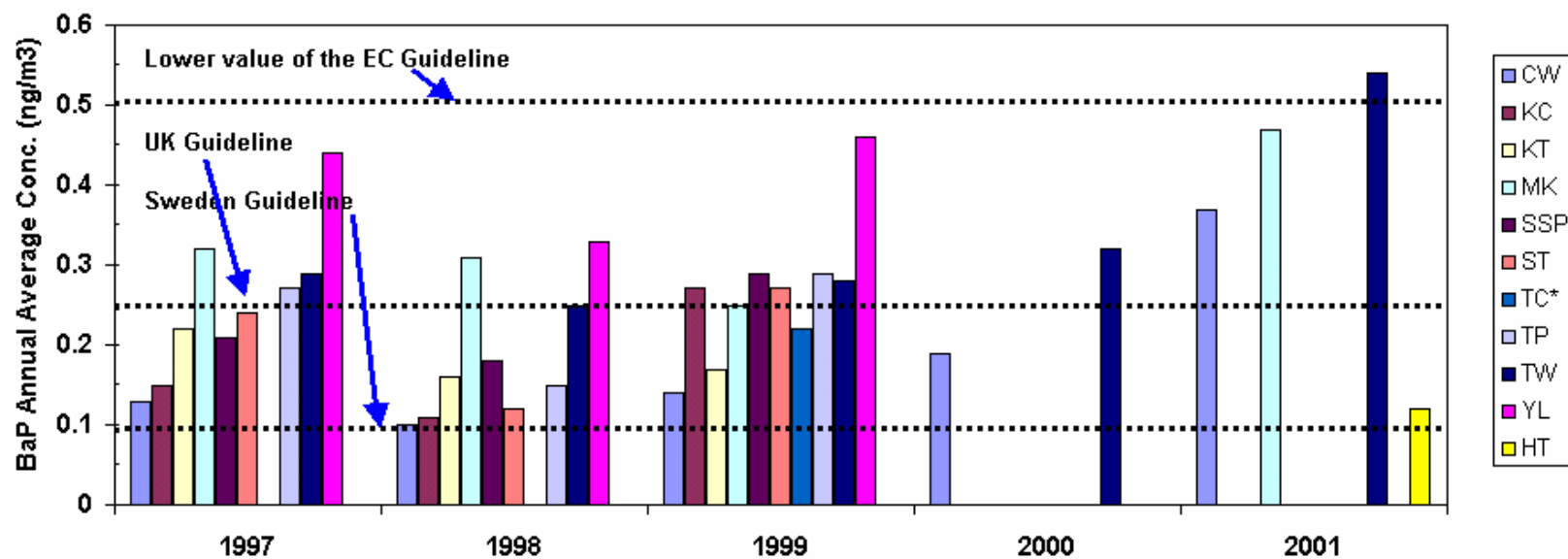


Figure 4.5-3 Comparison of BaP Annual Average Concentrations in Hong Kong with the Three Most Stringent BaP Air Quality Guidelines.

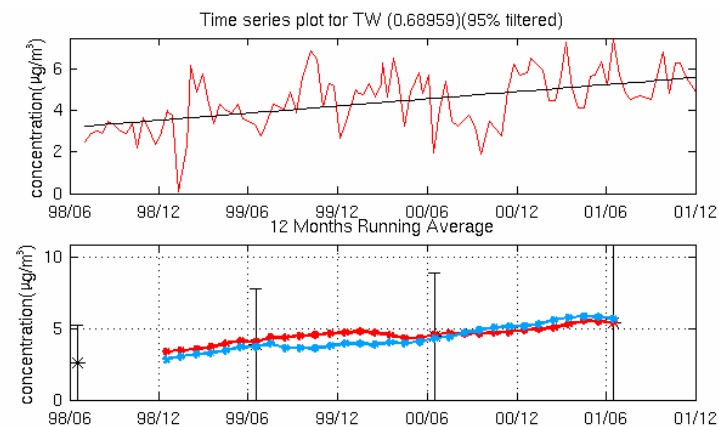
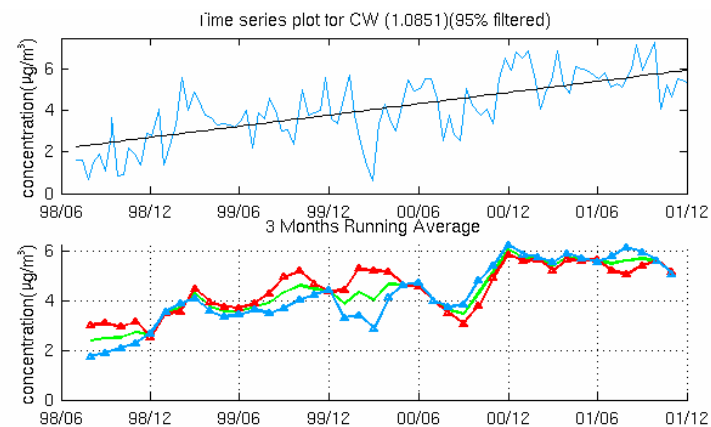


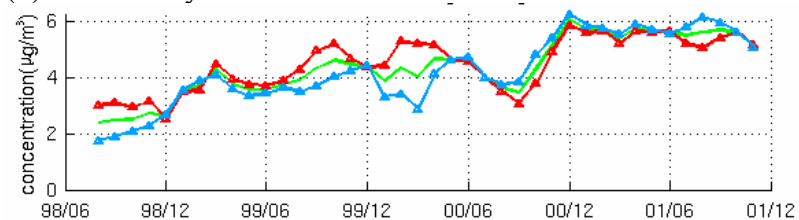
Figure 4.6-1 Trend Analysis for Formaldehyde (Blue: Central/Western, Red: Tsuen Wan, Green: Average of the two sites).

Upper panels : Plot of Individual data time-series at Central/Western (Left) and Tsuen Wan (Right).

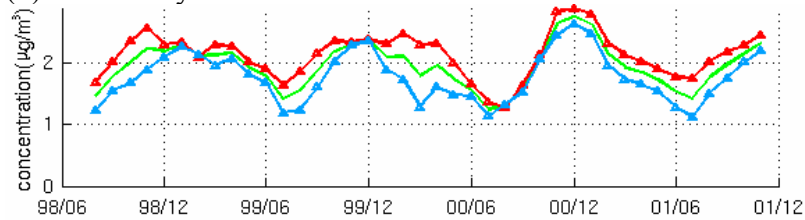
Lower Left Panel : Plot of Three-month Running Averages

Lower Right Panel panel: Plot of Twelve-month Running Averages

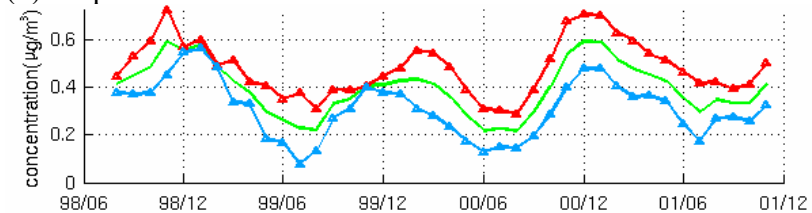
(1) Formaldehyde



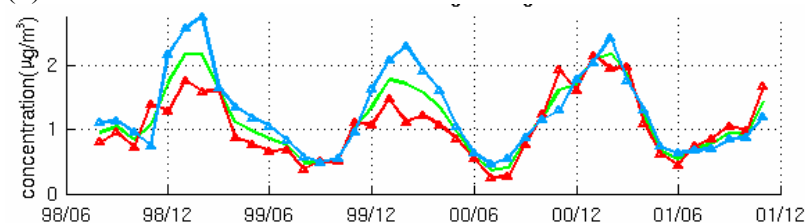
(2) Acetaldehyde



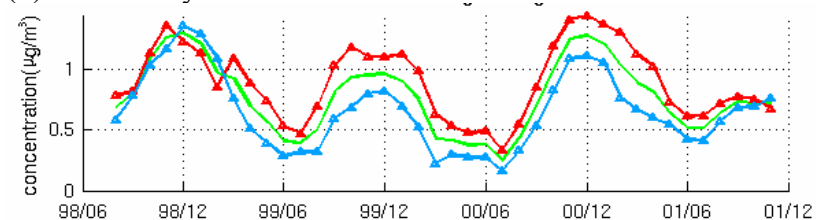
(3) Propanal



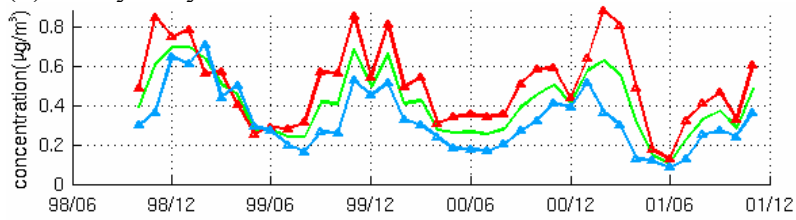
(4) Acetone



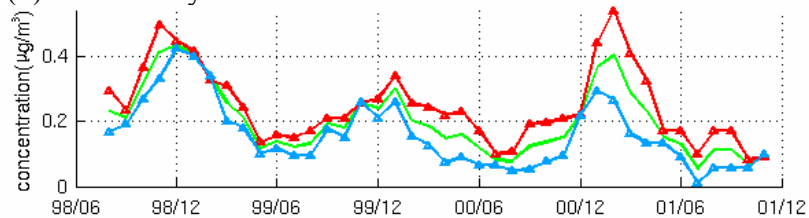
(5) Benzaldehyde



(6) Methyl ethyl ketone



(7) Valeraldehyde



(8) Butylaldehyde+isobutyraldehyde

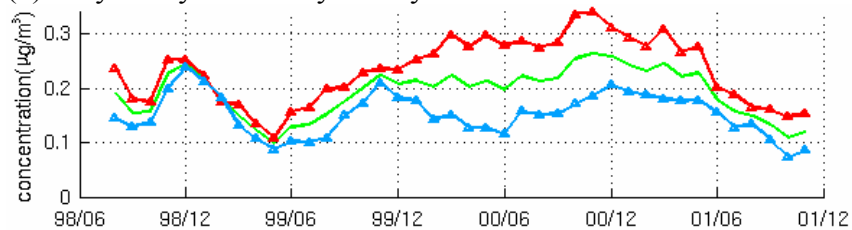
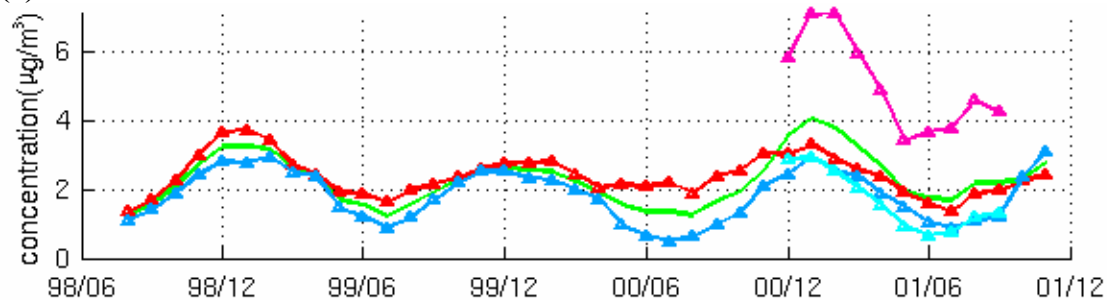


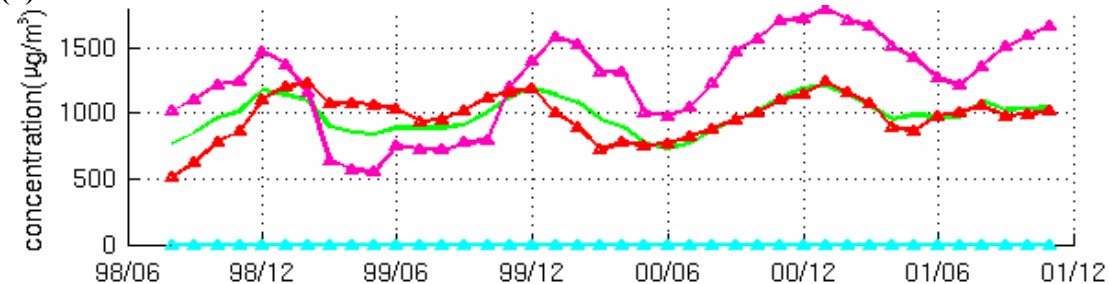
Figure 4.6-2 Three-month Running Average Curves for Eight Carbonyl Compounds.

(Red: Tsuen Wan, Blue: Central/Western, Green: Average of the two sites)

(1) Benzene



(2) Carbon monoxide



(3) Ozone

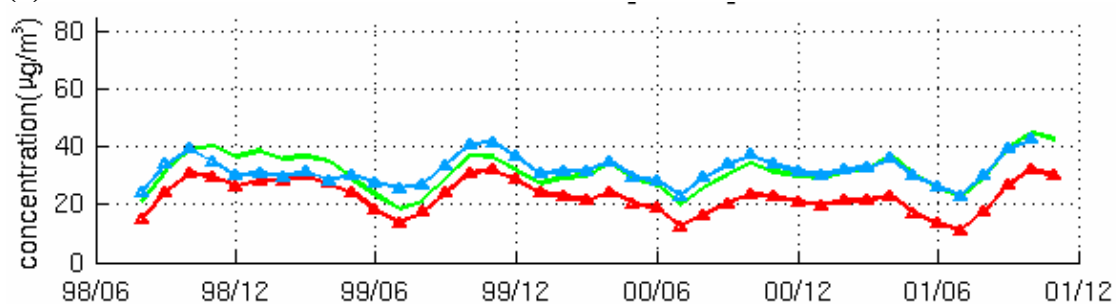


Figure 4.6-3 Three-month Running Average of Known Primary (benzene and carbon monoxide) and Secondary (ozone) Air Pollutants (Red: Tsuen Wan, Blue: Central/Western, Pink: Mong Kok, Light blue: Hok Tsui, Green: Average for all available sites over Hong Kong)

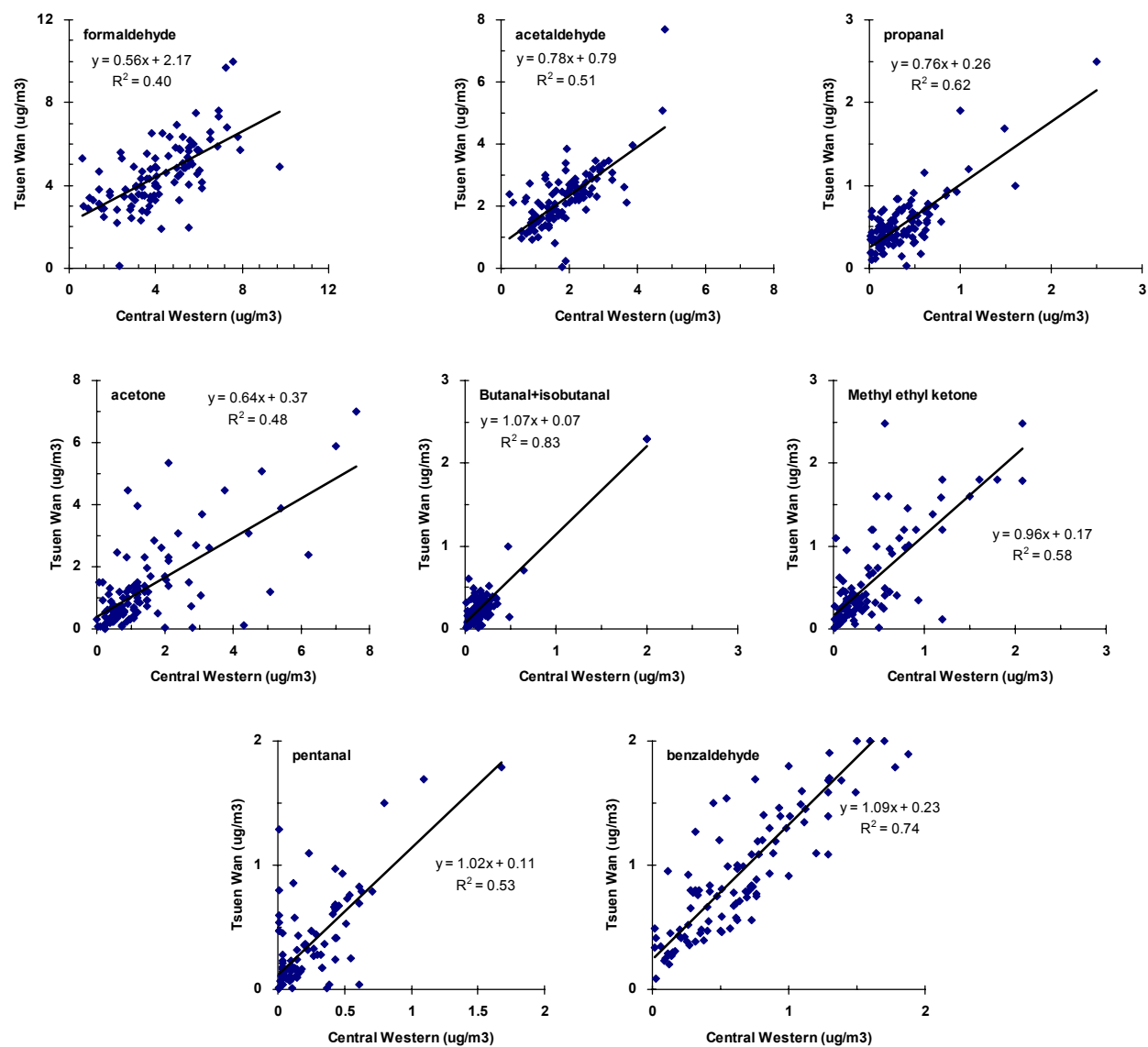


Figure 4.6-4 Linear Correlations of Carbonyl Concentrations at Tsuen Wan and Central/Western

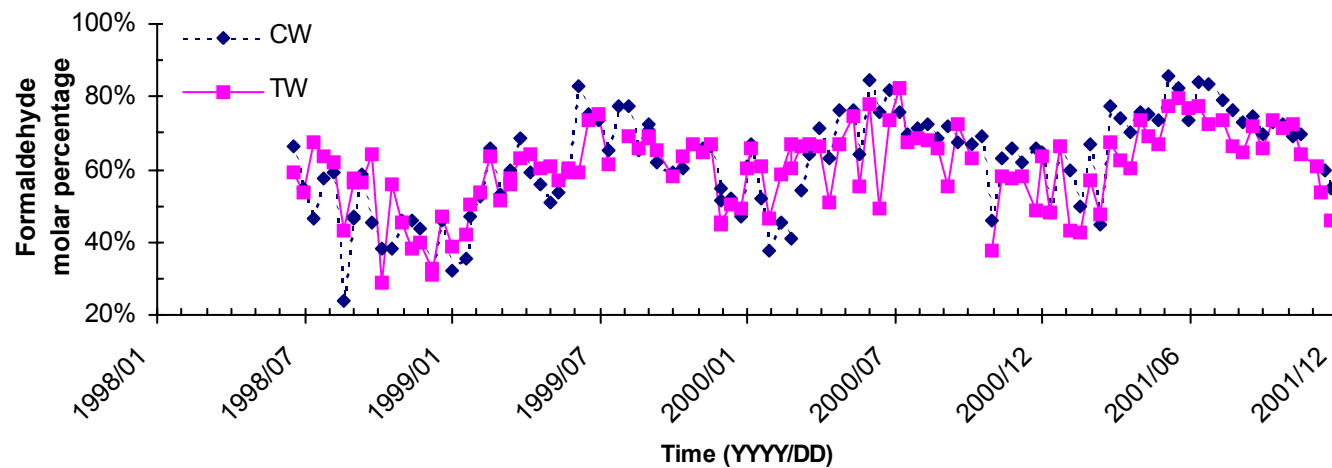


Figure 4.6-5 Molar Percentage of Formaldehyde at Tsuen Wan and Central/Western for the Period of 7/1998 – 12/2001.

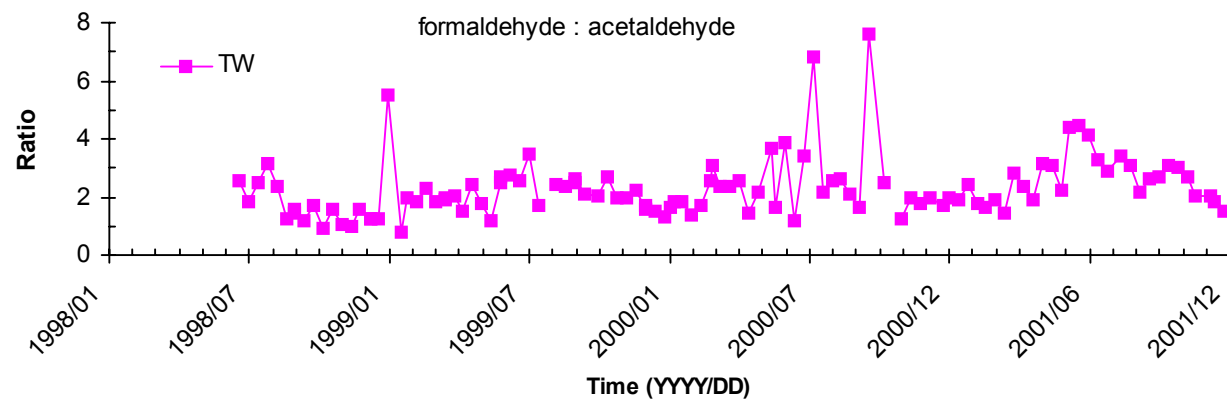
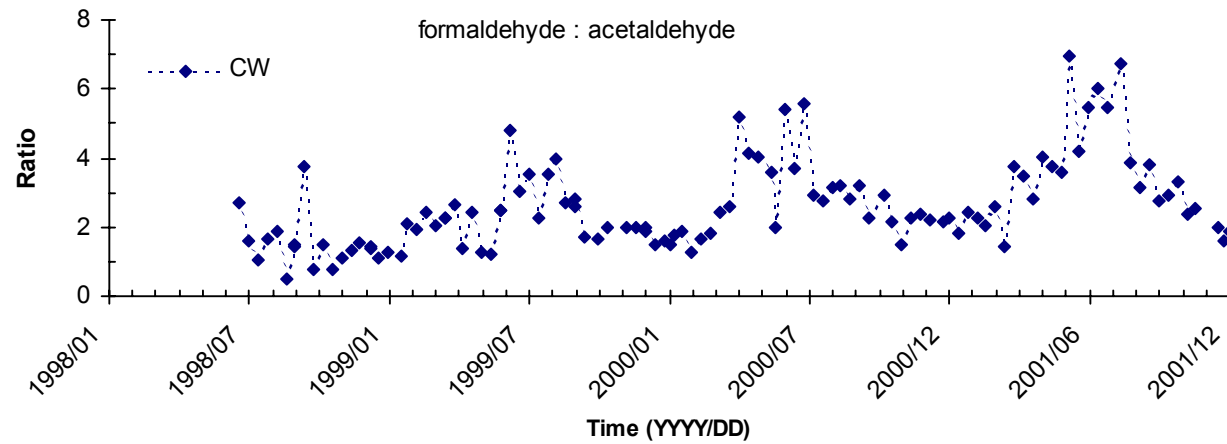


Figure 4.6-6 Ratio of Formaldehyde to Acetaldehyde at Central/Western and Tsuen Wan

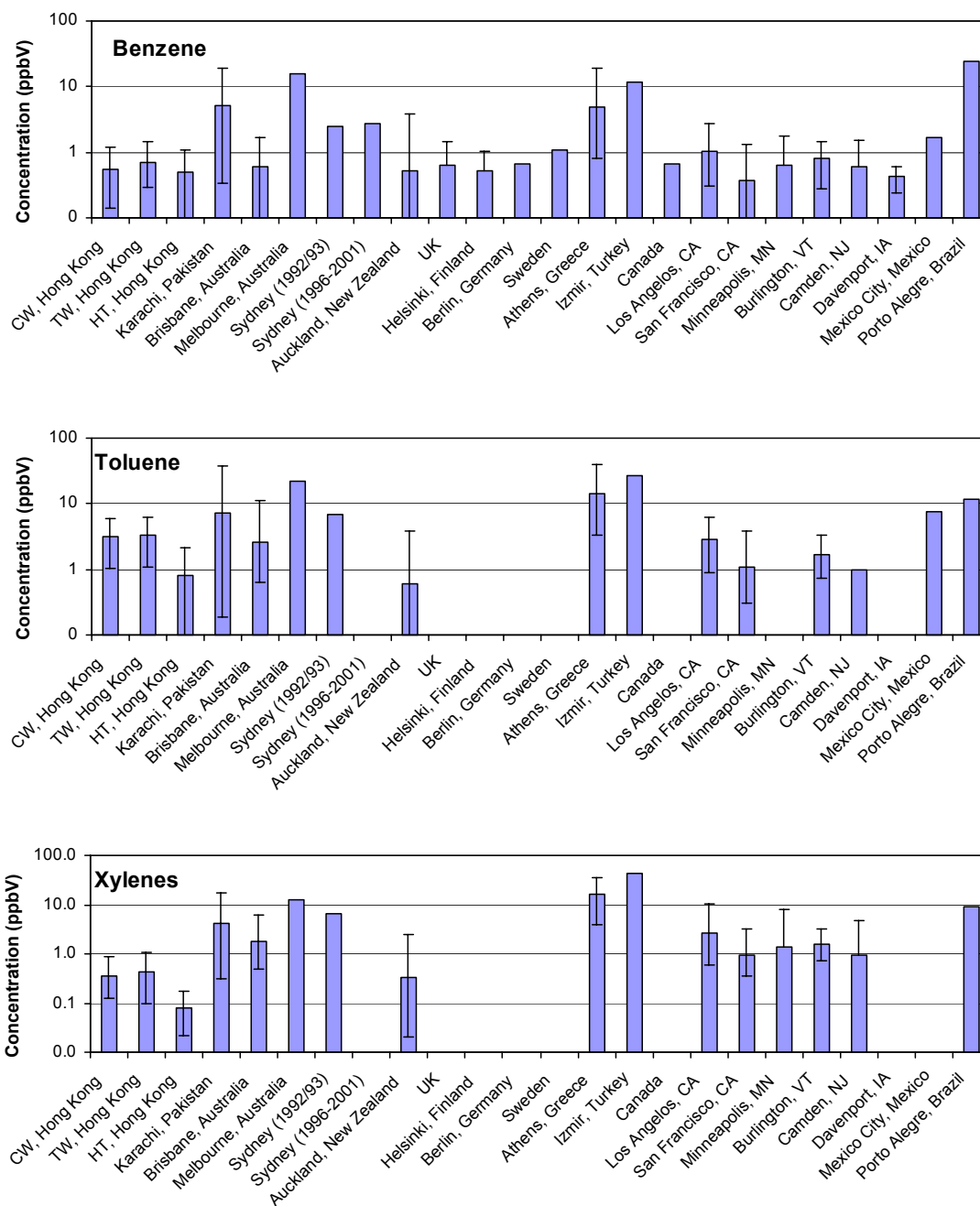


Figure 4.7-1 Comparison of Levels of Benzene, Toluene, and Xylenes in Hong Kong with other Urban Locations. (See Table 4.7-5 for data sources.)

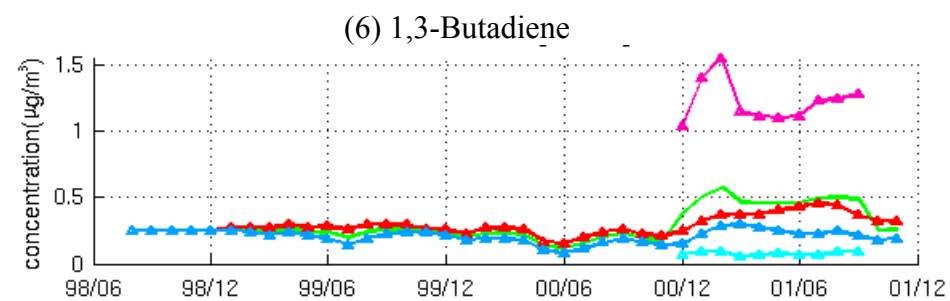
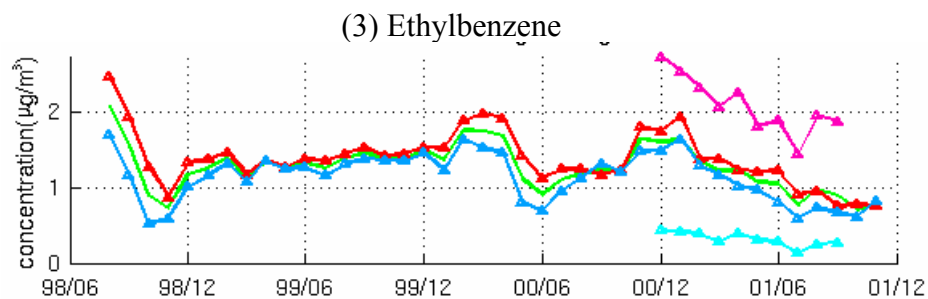
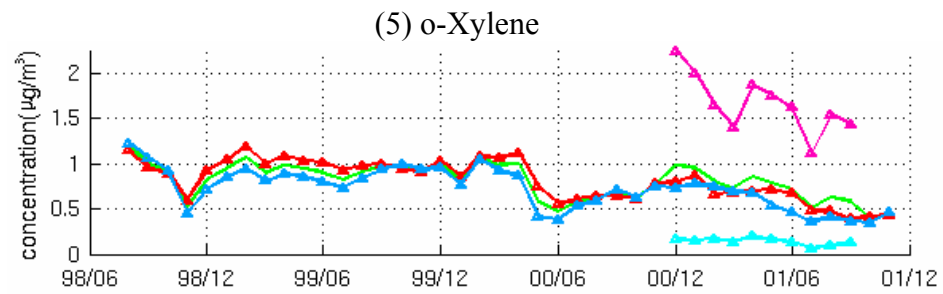
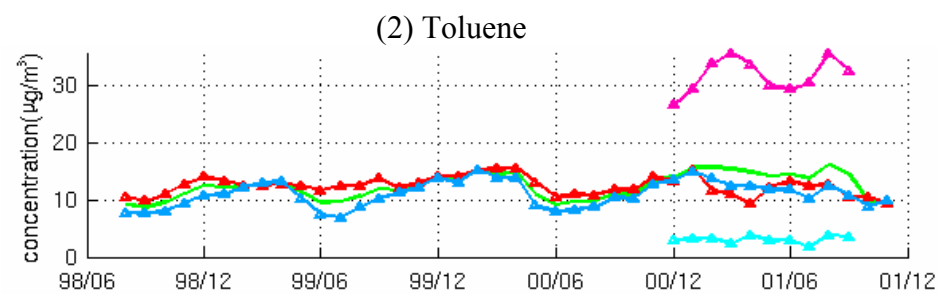
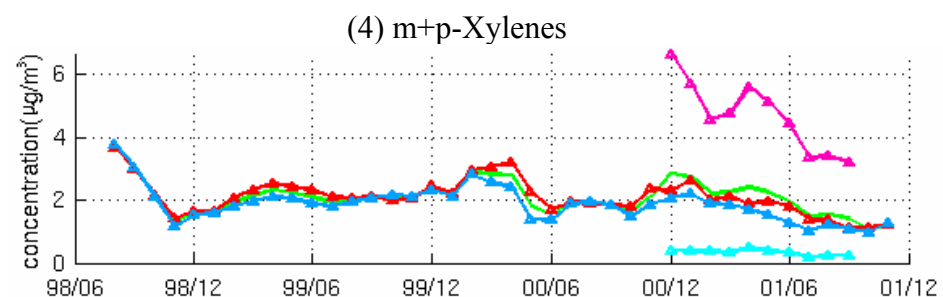
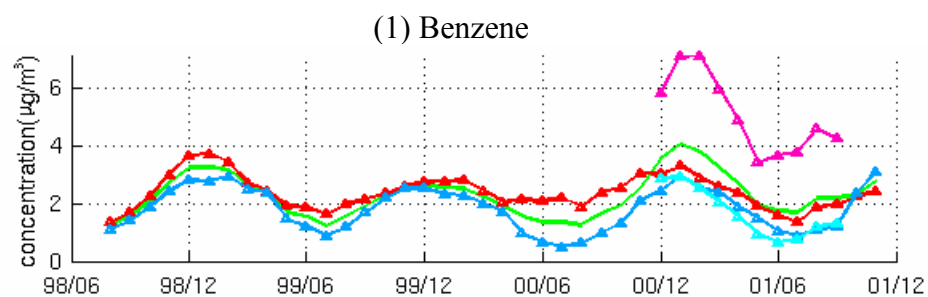


Figure 4.7-2 Three-month Running Average Curves of BTEX and 1,3-Butadiene
(Red: Tsuen Wan, blue: Central/Western, Pink: Mong Kok, and light blue: Hok Tsui Green: Average of all available sites)

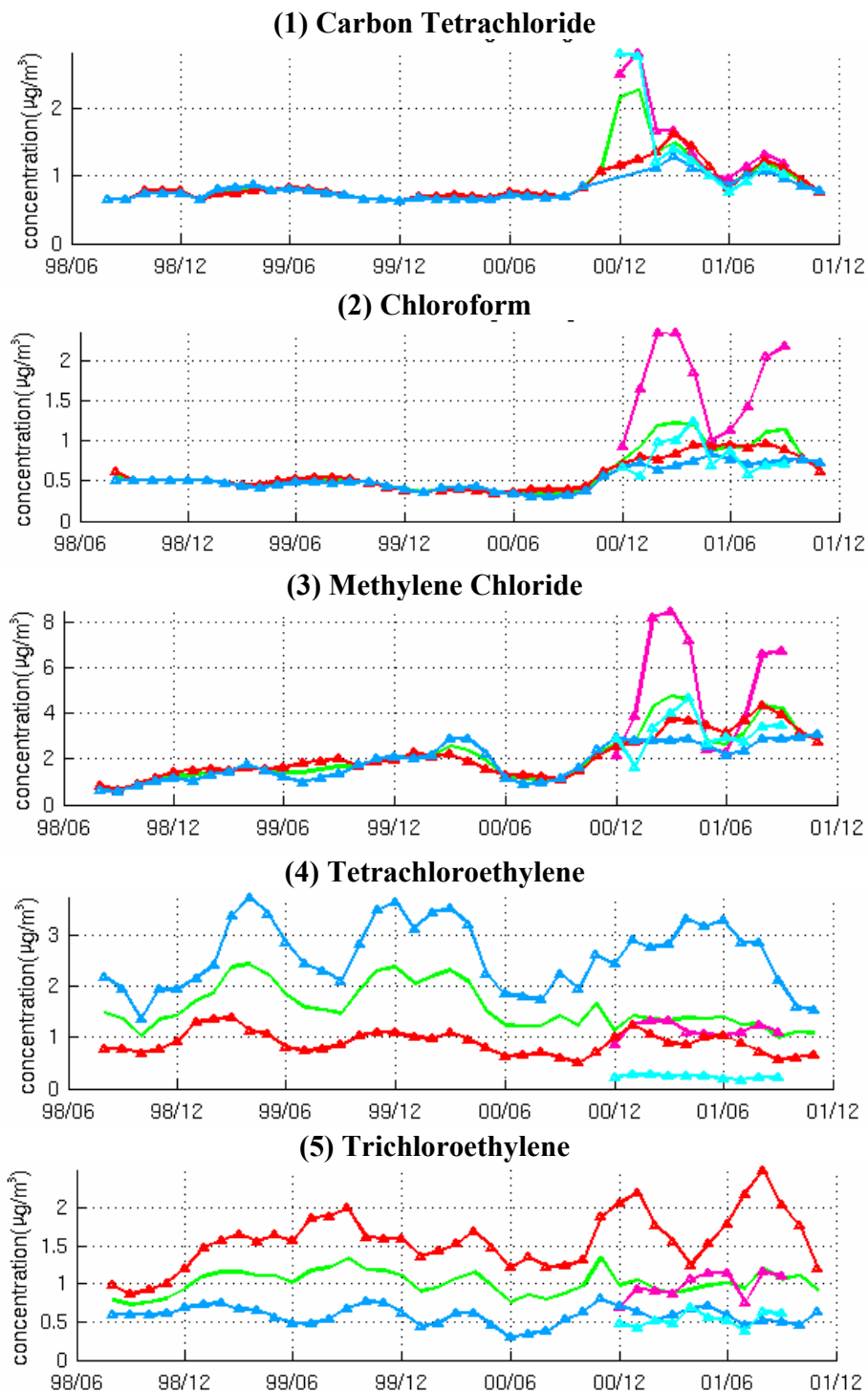
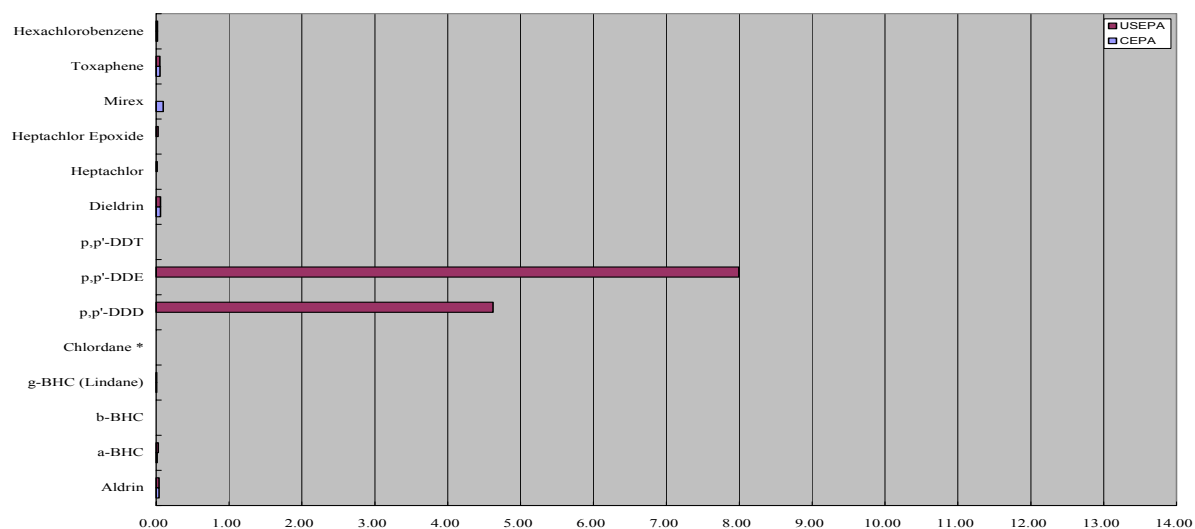
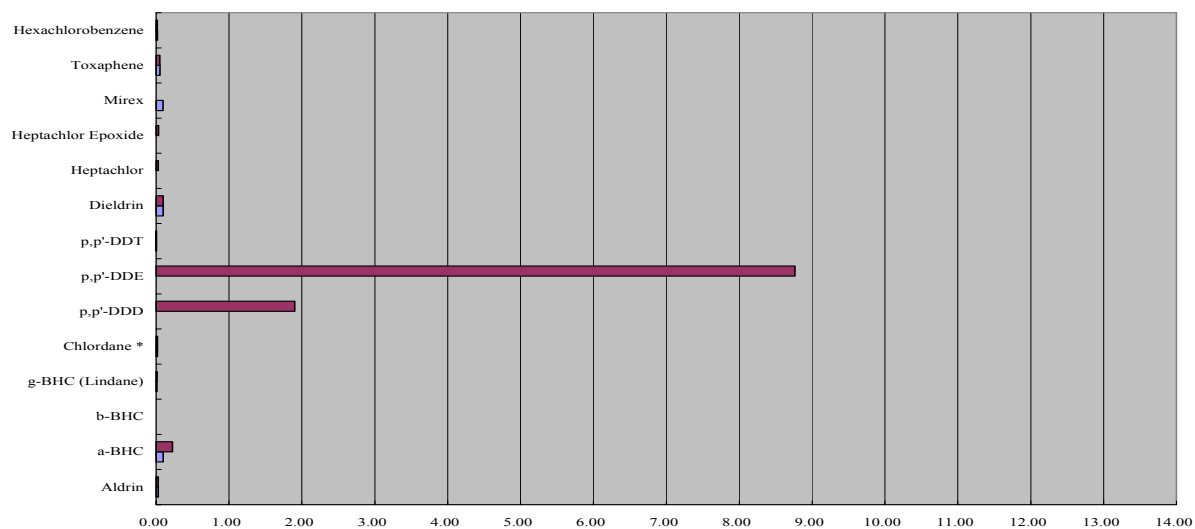


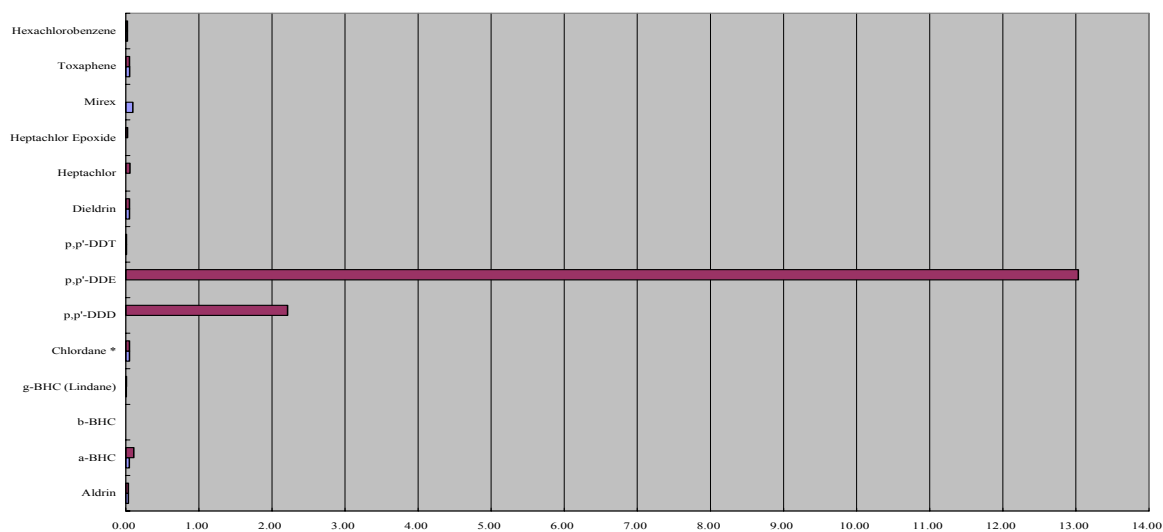
Figure 4.7-3 Three-month Running Average Curves of Selected Halogenated VOCs
 (Red: Tsuen Wan, Dark blue: Central/Western, Pink: Mong Kok, Pale Blue: Hok Tsui, Green: Average for all available sites).



(a) Tseung Kwan O



(b) Sha Ling



(c) Nim Wan

Figure 5-1 Number of cancer cases per million population calculated using different POP data measured at (a) Tseung Kwan O, (b) Sha Ling and (c) Nim Wan.