OPEN ACCESS
atmosphere
ISSN 2073-4433
www.mdpi.com/journal/atmosphere

Supplemental Information

Temporal Variability of Atmospheric Total Gaseous Mercury in Windsor, ON, Canada. *Atmosphere* 2014, *5*, 536–556

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Received: 25 March 2014; in revised form: 22 May 2014 / Accepted: 23 May 2014 / Published: 12 August 2014

This supplementary supports the main text as follows:

Table S1. Kendall rank correlation coefficients of hourly TGM concentration with other parameters (all significant at $p < 0.05$ except shaded cells).

Parameter	2007–2011 (N = 23,467)	Winter (N = 5303)	Spring (N = 6041)	Summer (N = 5512)	Fall (N = 6612)
SO_2	0.013	0.075	0.063	−0.058	−0.011
NO	0.149	0.261	0.121	0.167	0.173
NO_2	0.214	0.240	0.281	0.239	0.191
NO_x	0.218	0.272	0.268	0.253	0.214
CO	0.172	0.264	0.265	0.309	0.238
O_3	−0.186	−0.200	−0.274	−0.189	−0.156
$PM_{2.5}$	0.124	0.174	0.171	0.020	0.063
Temperature	0.038	−0.090	0.027	−0.076	0.049
Relative humidity	0.145	0.011	0.240	0.176	0.082
Wind speed	−0.128	−0.052	−0.182	−0.128	−0.082
Pressure	−0.093	−0.034	−0.096	−0.115	−0.078

Figure S1. Cross-correlation matrixes of all 12 variables (**a**) 2007–2011; (**b**)Winter; (**c**) Spring; (**d**) Summer; (**e**) Fall.

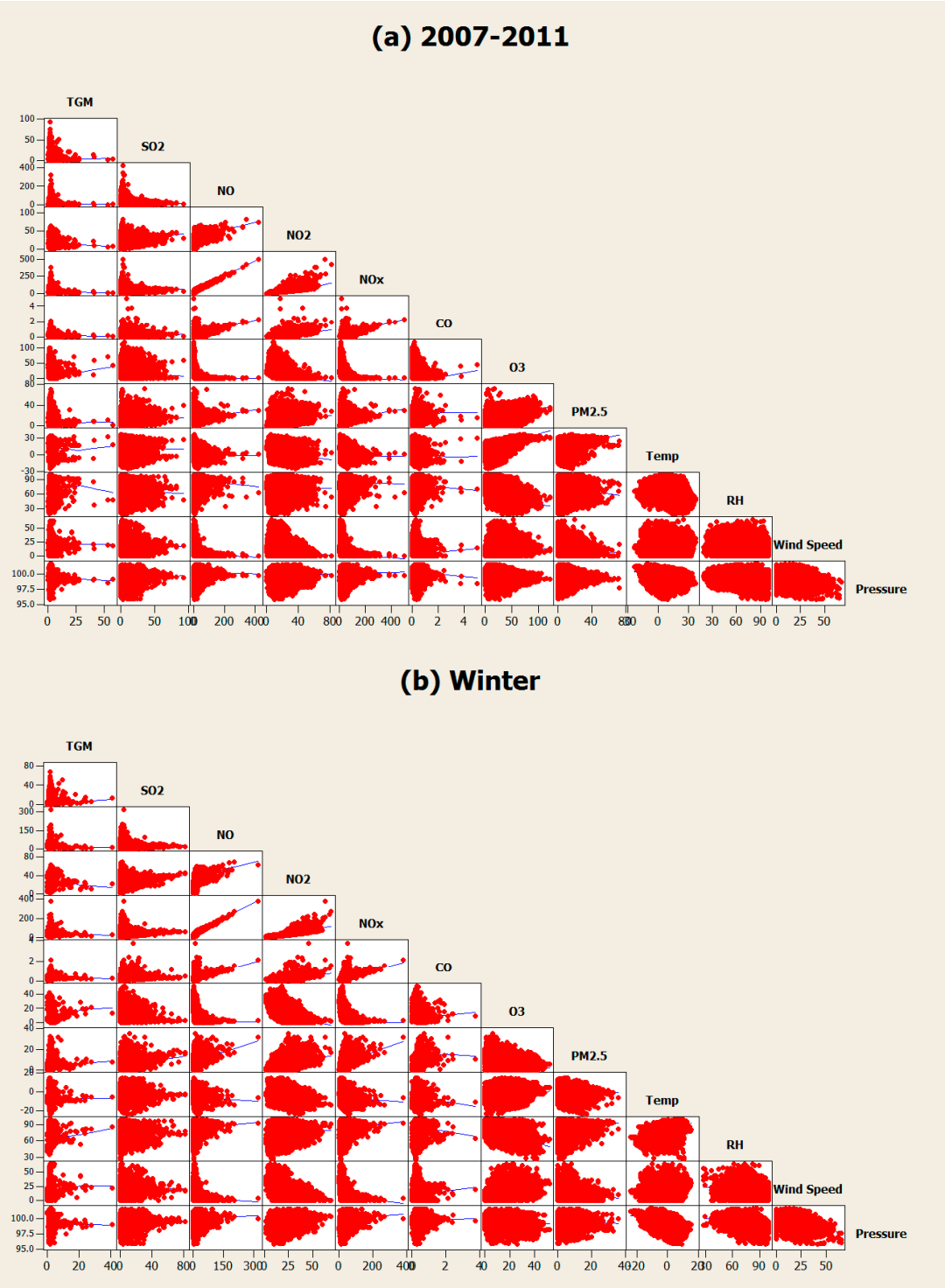

Figure S1. *Cont.*

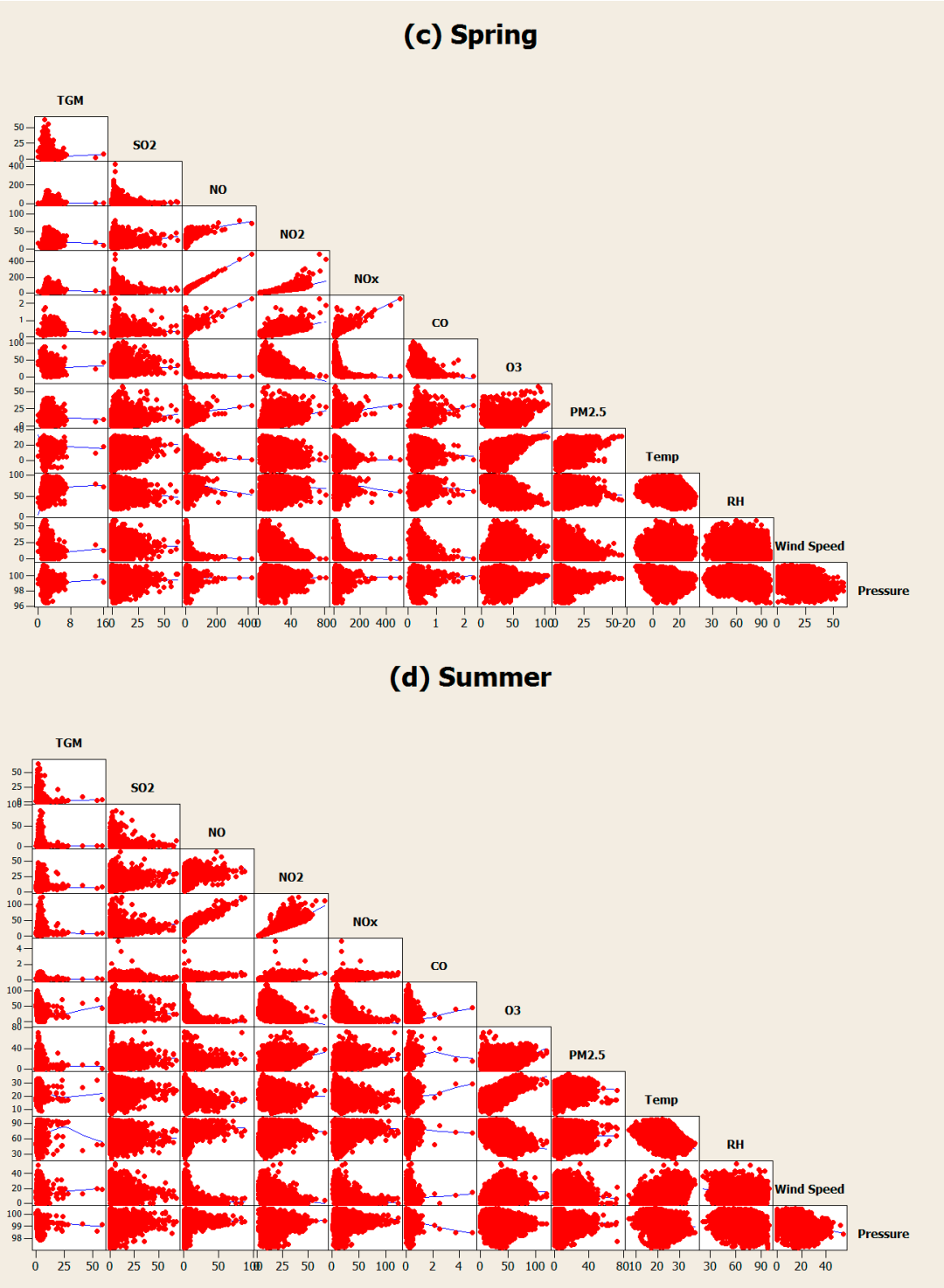

Figure S1. *Cont.*

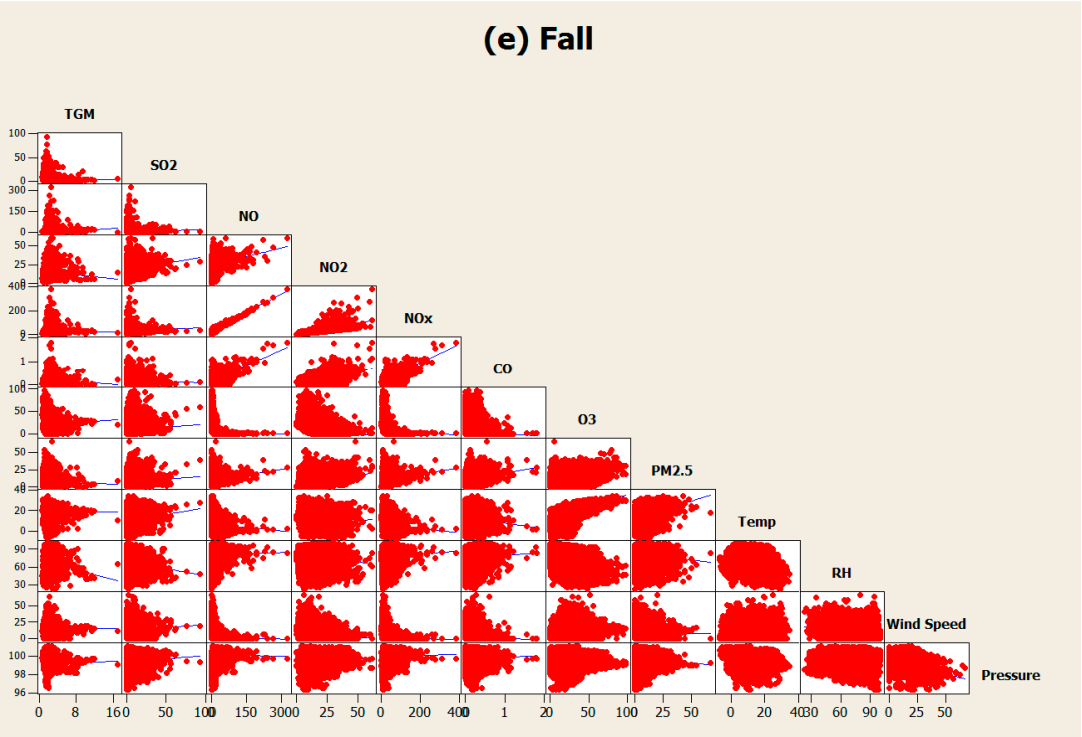

Table S2. PCA factor loadings. (bold numbers indicate loadings > 0.4). (**S2a**) 2007; (**S2b**) 2008; (**S2c**) 2009; (**S2d**) 2010; (**S2e**) 2011.

(**S2a**)

Parameter	Fossil Fuel Combustion	Diurnal Trend&$PM_{2.5}$	Synoptic Systems	Transport &Industrial Sulfur
TGM	0.12	0.08	−0.33	0.02
SO_2	0.26	0.14	−0.13	**−0.51**
NO	**0.42**	−0.02	0.05	0.00
NO_2	**0.45**	0.04	−0.03	0.03
NO_x	**0.49**	0.01	0.02	0.02
CO	0.40	−0.07	−0.14	−0.11
O_3	−0.24	0.30	0.11	−0.35
$PM_{2.5}$	0.17	**0.60**	−0.11	−0.10
Temperature	−0.17	**0.60**	−0.07	0.03
Relative humidity	0.04	0.01	−0.36	**0.58**
Wind speed	−0.12	−0.40	−0.33	**−0.51**
Pressure	0.15	−0.02	**0.76**	0.00
Variance (%)	34.2	15.4	10.9	10.4
Eigen values	4.11	1.85	1.31	1.25

(S2b)

Parameter	Fossil Fuel Combustion	Diurnal Trend&$PM_{2.5}$	Synoptic Systems	Industrial Sulfur	Photo-Chemistry
TGM	**0.47**	0.22	−0.38	**−0.50**	0.13
SO_2	0.08	0.07	−0.07	**0.63**	0.20
NO	**0.51**	−0.07	0.02	−0.04	0.10
NO_2	0.35	0.04	0.09	0.21	−0.19
NO_x	**0.50**	−0.02	0.06	0.09	−0.04
CO	0.25	−0.04	−0.19	0.35	−0.15
O_3	−0.20	0.23	−0.03	0.10	**0.42**
$PM_{2.5}$	0.05	**0.60**	0.02	0.35	−0.06
Temperature	−0.09	**0.59**	−0.06	−0.16	0.14
Relative humidity	−0.12	0.05	−0.11	0.01	**−0.74**
Wind speed	−0.07	−0.39	**−0.55**	0.18	0.28
Pressure	0.13	−0.15	**0.70**	−0.02	0.21
Variance (%)	34.6	14.8	11.5	10.3	7.9
Eigen values	4.15	1.78	1.38	1.24	0.95

(S2c)

Parameter	Fossil Fuel Combustion	Diurnal Trend&$PM_{2.5}$	Photo-Chemistry	Synoptic Systems
TGM	0.01	0.39	0.28	0.10
SO_2	0.27	0.20	−0.38	−0.36
NO	**0.41**	−0.01	−0.04	0.04
NO_2	**0.42**	0.04	0.09	0.06
NO_x	**0.47**	0.02	0.02	0.06
CO	**0.42**	−0.05	0.01	−0.14
O_3	−0.19	0.15	**−0.48**	−0.06
$PM_{2.5}$	0.23	**0.57**	−0.10	−0.09
Temperature	−0.27	**0.56**	−0.14	0.02
Relative humidity	−0.02	0.09	**0.63**	−0.15
Wind speed	−0.03	−0.34	−0.17	**−0.58**
Pressure	0.13	−0.16	−0.30	**0.68**
Variance (%)	37.0	12.3	11.8	10.4
Eigen values	4.44	1.48	1.41	1.24

(S2d)

Parameter	Fossil Fuel Combustion	Diurnal Trend&$PM_{2.5}$	Industrial Sulfur	Synoptic Systems	Photo-Chemistry
TGM	0.23	0.23	**−0.58**	−0.13	0.18
SO_2	0.10	0.16	**0.70**	−0.06	0.17
NO	**0.50**	−0.12	−0.18	0.04	0.10
NO_2	0.36	0.03	0.18	0.00	−0.17
NO_x	**0.51**	−0.07	−0.05	0.03	0.00
CO	**0.45**	0.14	0.05	−0.04	−0.02
O_3	−0.16	0.22	−0.06	−0.07	**0.42**
$PM_{2.5}$	0.21	**0.53**	0.25	−0.08	−0.09
Temperature	−0.16	**0.66**	−0.13	0.06	0.14
Relative humidity	−0.09	0.06	−0.06	−0.15	**−0.71**
Wind speed	0.01	−0.32	0.12	**−0.52**	0.40
Pressure	0.03	−0.11	0.07	**0.82**	0.18
Variance (%)	38.2	15.1	9.6	9.0	8.3
Eigen values	4.58	1.81	1.16	1.09	0.99

(S2e)

Parameter	Fossil Fuel Combustion	Diurnal Trend&$PM_{2.5}$	Synoptic Systems	Transport& Industrial Sulfur
TGM	0.03	0.26	−0.19	**−0.49**
SO_2	0.21	0.29	−0.07	**0.65**
NO	0.40	−0.08	0.12	−0.02
NO_2	**0.45**	−0.01	−0.04	0.03
NO_x	**0.49**	−0.05	0.04	0.00
CO	**0.44**	0.12	−0.05	−0.09
O_3	−0.21	**0.43**	0.26	0.05
$PM_{2.5}$	0.20	**0.50**	−0.20	0.07
Temperature	−0.08	**0.58**	0.08	−0.14
Relative humidity	0.05	−0.18	**−0.63**	−0.02
Wind speed	−0.18	−0.06	−0.06	**0.55**
Pressure	0.17	−0.14	**0.66**	−0.02
Variance (%)	34.4	17.4	14.3	8.2
Eigen values	4.13	2.09	1.72	0.98