ENVIRONMENT PROTECTION AUTHORITY

Melbourne Mortality Study

EFFECTS OF AMBIENT AIR POLLUTION ON DAILY MORTALITY IN MELBOURNE 1991-1996

Appendices

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Appendix Glossary

a8hO_3	same day average 8-hour ozone
l1a8hO_3	lag 1 average 8-hour ozone
l2a8hO_3	lag 2 average 8-hour ozone
d3a8hO_3	3 day average, 8-hour ozone
d5a8hO_3	5 day average, 8-hour ozone
a4hO_3	same day average 4-hour ozone
l1a4hO_3	lag 1 average 4-hour ozone
l2a4hO_3	lag 2 average 4-hour ozone
d3a4hO_3	3 day average, 4-hour ozone
d5a4hO_3	5 day average, 4-hour ozone
m1hO_3	same day maximum 1-hour ozone
l1m1hO_3	lag 1 maximum 1-hour ozone
l2m1hO_3	lag 2 maximum 1-hour ozone
d3m1hO_3	3 day average, maximum 1-hour ozone
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a24bsp	same day 24-hour average bsp
l1a24bsp	lag 1 24-hour average bsp
l2a24bsp	lag 2 24-hour average bsp
d3a24bsp	3 day average, 24-hour bsp
d5a24bsp	5 day average, 24-hour bsp
m1bsp	same day maximum 1-hour bsp
l1m1bsp	lag 1 maximum 1-hour bsp
l2m1bsp	lag 2 maximum 1-hour bsp
d3m1bsp	3 day average, maximum 1-hour bsp
d5m1bsp	5 day average, maximum 1-hour bsp
a24NO_2	same day 24-hour average nitrogen dioxide
l1a24NO_2	lag 1 24-hour average nitrogen dioxide
l2a24NO_2	lag 2 24-hour average nitrogen dioxide
d3a24NO_2	3 day average, 24-hour nitrogen dioxide
d5a24NO_2	5 day average, 24-hour nitrogen dioxide
m1NO_2	same day maximum 1-hour nitrogen dioxide
l1m1NO_2	lag 1 maximum 1-hour nitrogen dioxide
l2m1NO_2	lag 2 maximum 1-hour nitrogen dioxide
d3m1no$_2$	3 day average, maximum 1-hour nitrogen dioxide
d5m1NO_2	5 day average, maximum 1-hour nitrogen dioxide
a8hCO	same day average 8-hour carbon monoxide
l1a8hCO	lag 1 average 8-hour carbon monoxide
l2a8hCO	lag 2 average 8-hour carbon monoxide
d3a8hCO	3 day average 8-hour carbon monoxide
d5a8hCO	5 day average 8-hour carbon monoxide
m1hCO	same day maximum 1-hour carbon monoxide
l1m1hCO	lag 1 maximum 1-hour carbon monoxide
l2m1hCO	lag 2 maximum 1-hour carbon monoxide
d3m1hCO	3 day average, maximum 1-hour carbon monoxide
d5m1hCO	5 day average, maximum 1-hour carbon monoxide

Table A1 Site-specific pollutant concentrations, Melbourne Statistical Division, January 1991-August 1996

		Alphington				Dandenong				Footscray				Pt Cook			
		Mean	SD	min	max	mean	SD	min	max	mean	SD	min	max	mean	SD	min	max
O_3	8 hour	18.89	9.31	0.00	74.00	21.72	8.97	0.00	81.00	21.79	8.89	1.00	88.00	25.71	9.75	2.00	95.00
	4 hour	22.17	10.53	0.00	86.00	24.70	10.09	0.00	107.00	24.94	10.60	2.00	121.00	28.17	11.72	3.00	126.00
	1 hour	24.28	11.71	0.00	95.00	26.39	11.26	0.00	124.00	26.83	12.26	1.00	144.00	29.93	13.44	5.00	139.00
NO_2	24 hour	15.36	5.51	1.00	44.00	11.79	5.58	0.00	30.00	13.10	6.13	2.00	51.00	5.99	4.71	0.00	30.00
	1 hour	28.26	10.46	4.00	97.00	23.24	9.27	1.00	77.00	26.07	11.86	4.00	131.00	15.97	11.36	0.00	83.00
bsp	24 hour	0.31	0.30	0.00	2.76	0.29	0.26	0.03	2.57	0.26	0.26	0.02	3.06	0.17	0.21	0.00	2.25
	1 hour	0.75	0.71	0.04	5.68	0.65	0.60	0.05	5.81	0.59	0.56	0.02	6.11	0.38	0.45	0.00	4.20
CO	8 hour	1.12	0.99	0.10	8.90					0.65	0.60	0.00	4.00				
	1 hour	1.76	1.45	0.00	11.50					1.10	1.05	0.00	8.60				

		Paisley				Brighton				Parliament Place			
		mean	SD	min	max	mean	SD	min	max	mean	SD	min	max
O_3	8 hour	23.16	9.92	1.00	94.00	22.47	9.66	2.00	85.00				
	4 hour	26.18	11.77	3.00	125.00	25.53	11.36	1.00	109.00				
	1 hour	28.24	13.51	4.00	137.00	27.52	12.90	1.00	133.00				
NO_2	24 hour	11.16	6.61	0.00	48.00								
	1 hour	23.82	12.18	1.00	108.00								
bsp	24 hour	0.23	0.25	0.00	2.56								
	1 hour	0.56	0.61	0.02	6.40								
CO	8 hour									1.09	0.79	0.00	6.30
	1 hour									1.83	1.45	0.00	13.60

Table A2a Inter-site correlation coefficients: average 8 hour ozone*

	Dandenong	Footscray	Pt Cook	Paisley	Brighton
Alphington	0.86	0.89	0.76	0.80	0.83
Dandenong		0.88	0.86	0.88	0.91
Footscray			0.83	0.89	0.87
Pt Cook				0.90	0.87
Paisley					0.90

* all coefficients significant at p=0.0001

Table A2b Inter-site correlation coefficients: average 4 hour ozone*

	Dandenong	Footscray	Pt Cook	Paisley	Brighton
Alphington	0.85	0.88	0.78	0.82	0.84
Dandenong		0.87	0.85	0.88	0.91
Footscray			0.86	0.92	0.90
Pt Cook				0.91	0.89
Paisley					0.92

* all coefficients significant at p=0.0001

Table A2c Inter-site correlation coefficients: maximum 1 hour ozone*

	Dandenong	Footscray	Pt Cook	Paisley	Brighton
Alphington	0.83	0.86	0.79	0.82	0.84
Dandenong		0.84	0.85	0.87	0.90
Footscray			0.85	0.90	0.89
Pt Cook				0.91	0.90
Paisley					0.91

* all coefficients significant at p=0.0001

Table A2d Inter-site correlation coefficients: average 24 hour bsp*

	Dandenong	Footscray	Pt Cook	Paisley
Alphington	0.90	0.89	0.79	0.86
Dandenong		0.92	0.88	0.92
Footscray			0.92	0.96
Pt Cook				0.94

* all coefficients significant at p=0.0001

Table A2e Inter-site correlation coefficients: maximum 1 hour bsp*

	Dandenong	Footscray	Pt Cook	Paisley
Alphington	0.74	0.75	0.65	0.67
Dandenong		0.74	0.75	0.82
Footscray			0.80	0.79
Pt Cook				0.80

* all coefficients significant at p=0.0001

Table A2f Inter-site correlation coefficients: average 24 hour nitrogen dioxide*

	Dandenong	Footscray	Pt Cook	Paisley
Alphington	0.68	0.73	0.39	0.59
Dandenong		0.79	0.73	0.83
Footscray			0.76	0.85
Pt Cook				0.88

* all coefficients significant at p=0.0001

Table A2g Inter-site correlation coefficients: maximum 1 hour nitrogen dioxide*

	Dandenong	Footscray	Pt Cook	Paisley
Alphington	0.62	0.70	0.54	0.66
Dandenong		0.66	0.67	0.72
Footscray			0.72	0.82
Pt Cook				0.82

* all coefficients significant at p=0.0001

Table A2h Inter-site correlation coefficients: average 8 hour carbon monoxide*

	Parl. Place	Footscray
Alphington	0.84	0.77
Parl. Place		0.81

* all coefficients significant at p=0.0001

Table A2i Inter-site correlation coefficients: maximum 1 hour carbon monoxide*

	Parl. Place	Footscray
Alphington	0.78	0.76
Parl. Place		0.77

* all coefficients significant at p=0.0001

Table A3a - Site-specific correlation coefficients: Alphington*

	4 hr O_3	1 hr O_3	24 hr NO_2	1 hr NO_2	24 hr bsp	1 hr bsp	8 hr CO	1 hr CO
8 hr O_3	0.97	0.93	-0.20	0.06[a]	-0.19	-0.22	-0.26	-0.26
4 hr O_3		0.98	-0.08[c]	0.16	-0.11	-0.14	-0.18	-0.19
1 hr O_3			-0.02[ns]	0.20	-0.07[a]	-0.10	-0.14	-0.15
24 hr NO_2				0.84	0.62	0.58	0.63	0.63
1 hr NO_2					0.58	0.53	0.55	0.55
24 hr bsp						0.90	0.72	0.68
1 hr bsp							0.76	0.73
8 hr CO								0.94

*all coefficients significant at p=0.0001 unless indicated
a significant at p<0.05
b significant at p<0.01
c significant at p<0.001
ns not significant

Table A3b - Site-specific correlation coefficients: Dandenong*

	4 hr O3	1 hr O3	24 hr NO2	1 hr NO2	24 hr bsp	1 hr bsp
8 hr O_3	0.97	0.94	-0.12	0.08[a]	-0.06[a]	-0.09c
4 hr O_3		0.98	-0.01[ns]	0.16	0.03[ns]	-0.002[ns]
1 hr O_3			0.03[ns]	0.19	0.07[a]	0.04[ns]
24 hr NO_2				0.85	0.56	0.56
1 hr NO_2					0.49	0.48
24 hr bsp						0.84

*all coefficients significant at p=0.0001 unless indicated
a significant at p<0.05
b significant at p<0.01
c significant at p<0.001
ns not significant

Table A3c - Site-specific correlation coefficients: Footscray*

	4 hr O_3	1 hr O_3	24 hr NO_2	1 hr NO_2	24 hr bsp	1 hr bsp	8 hr CO	1 hr CO
8 hr O_3	0.97	0.93	-0.008[ns]	0.20	-0.09	-0.09	-0.18	-0.17
4 hr O_3		0.98	0.11	0.29	-0.003[ns]	0.004[ns]	-0.09[c]	-0.08[c]
1 hr O_3			0.15	0.31	0.04[ns]	0.05[a]	-0.04[ns]	-0.04[ns]
24 hr NO_2				0.85	0.67	0.67	0.71	0.71
1 hr NO_2					0.58	0.61	0.60	0.61
24 hr bsp						0.89	0.61	0.54
1 hr bsp							0.69	0.66
8 hr CO								0.94

*all coefficients significant at p=0.0001 unless indicated
a significant at p<0.05
b significant at p<0.01
c significant at p<0.001
ns not significant

Table A3d - Site-specific correlation coefficients: Point Cook*

	4 hr O_3	1 hr O_3	24 hr NO_2	1 hr NO_2	24 hr bsp	1 hr bsp
8 hr O_3	0.98	0.95	0.16	0.31	0.26	0.25
4 hr O_3		0.99	0.24	0.37	0.31	0.31
1 hr O_3			0.26	0.39	0.35	0.35
24 hr NO_2				0.89	0.58	0.63
1 hr NO_2					0.54	0.60
24 hr bsp						0.92

*all coefficients significant at p=0.0001

Table A3e - Site-specific correlation coefficients: Paisley*

	4 hr O_3	1 hr O_3	24 hr NO_2	1 hr NO_2	24 hr bsp	1 hr bsp
8 hr O_3	0.97	0.94	0.02[ns]	0.24	0.09	0.04[ns]
4 hr O_3		0.98	0.12	0.30	0.18	0.12
1 hr O_3			0.15	0.32	0.23	0.17
24 hr NO_2				0.88	0.63	0.59
1 hr NO_2					0.59	0.57
24 hr bsp						0.81

*all coefficients significant at p=0.0001 unless indicated
ns not significant

Table A4a - Mean daily levels of pollutant (network average) and meteorological variables, Melbourne, January 1991- August 1996 (n=2070)

Outcome	Whole study period				Cool season[a]				Warm season[b]			
	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
O_3 (ppb)												
8 hour	22.19	9.04	1.67	86.17	20.06	5.89	1.67	58.00	25.27	11.56	5.67	86.17
4 hour	25.25	10.64	3.33	110.67	22.81	6.12	3.33	65.67	28.77	14.20	8.50	110.67
1 hour	27.22	12.09	4.17	126.83	24.27	6.31	4.17	71.07	31.47	16.41	11.00	126.83
bsp ($10^{-4}m^{-1}$)												
24 hour	0.26	0.25	0.04	2.52	0.29	0.27	0.04	2.52	0.22	0.20	0.04	2.07
1 hour	0.60	0.53	0.08	4.98	0.70	0.56	0.10	4.36	0.46	0.44	0.08	4.98
NO2 (ppb)												
24 hour	11.50	5.23	1.12	33.79	13.26	4.87	1.58	33.79	8.95	4.64	1.12	29.46
1 hour	23.58	9.87	4.52	80.48	25.88	8.51	5.07	80.48	20.27	10.72	4.52	70.68
CO (ppm)												
8 hour	0.95	0.73	0	5.70	1.16	0.83	0.15	5.70	0.64	0.38	0	2.63
1 hour	1.56	1.21	0.10	9.40	1.94	1.37	0.13	9.40	1.02	0.64	0.10	4.20
Min temp °C	10.15	3.96	0.08	27.03	8.00	2.95	0.08	18.60	13.26	3.08	4.63	27.03
Max temp °C	19.28	5.74	7.1	42.36	16.33	3.85	7.10	32.80	23.53	5.33	11.62	42.36
Max DP °C	11.25	3.57	3.0	22.7	9.4	2.51	3.0	18.0	13.92	3.15	4.0	22.7
Rain mm	2.09	2.09	0	91.8	1.9	4.23	0	36.6	2.36	7.55	0	91.8

a Cool season: April-October (n=1223)
b Warm season: November-March (n=847)

Table A4b - Network average correlation coefficients, Melbourne January 1991-August 1996*

	4 h O_3	1 h O_3	24 h NO_2	1 h NO_2	24 h bsp	1 h bsp	8 h CO	1 h CO
8 h O_3	0.9780	0.9573	0.0637[c]	0.2680	0.0271[a]	-0.0131[a]	-0.1560	-0.1672
4 h O_3		0.9911	0.1571	0.3444	0.1150	0.0809[b]	-0.1137	-0.097b
1 h O_3			0.1880	0.3675	0.1590	0.1245	-0.1046	-0.0490[c]
24 h NO_2				0.8998	0.6446	0.6702	0.3281	0.7324
1 h NO_2					0.5990	0.6240	0.2533	0.6486
24 h bsp						0.9132	0.2265	0.5846
1 h bsp							0.2697	0.6741
8 h CO								0.3650

* ALL COEFFICIENTS SIG AT P=0.0001 UNLESS INDICATED
a NOT SIGNIFICANT
b p<0.001
c p<0.05

Table A4c - daily deaths by cause, Melbourne, January 1991- August 1996 (n=2070)

Outcome	Whole study period				Cool season[a]				Warm season[b]			
	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
Cardiovascular												
0-65	2.7	1.7	0	11	2.8	1.7	0	11	2.5	1.5	0	9
65+	21.6	5.1	7	41	22.9	4.9	8	39	19.7	4.7	7	41
Total	24.3	5.4	8	43	25.7	5.3	9	43	22.3	4.8	8	43
Respiratory												
0-65	0.5	0.7	0	4	0.6	0.7	0	4	0.4	0.6	0	3
65+	4.0	2.2	0	15	4.4	2.3	0	15	3.4	1.9	0	10
Total	4.5	2.3	0	16	4.9	2.4	0	16	3.8	2.0	0	11
All deaths												
0-65	10.9	3.4	1	25	11.1	3.3	1	25	10.6	3.4	1	23
65+	44.5	7.9	20	73	46.7	7.6	22	73	41.2	7.0	20	71
Total	55.3	8.6	31	90	57.8	8.4	32	83	51.8	7.6	31	90
Digestive	1.8	1.4	0	7	1.9	1.4	0	7	1.7	1.3	0	7

a Cool season: April-October (n=1223)
b Warm season: November-March (n=847)

Table A4d - Regional daily pollutant and mortality (non-accidental) summary statistics, Melbourne, January 1991-August 1996

		EAST				WEST			
		Mean	SD	Min	Max	Mean	SD	Min	Max
O_3	(ppb)								
	8 hour	21.03	9.00	1.00	80.00	23.62	9.22	2.00	92.33
	4 hour	24.15	10.29	1.67	100.67	26.49	11.09	3.67	120.67
	1 hour	26.10	11.51	2.33	117.33	28.41	12.76	4.67	136.33
NO_2	(ppb)								
	24 hour	13.39	5.37	0.00	35.50	10.05	5.54	0.00	38.25
	1 hour	25.51	9.28	1.21	77.50	21.95	10.96	1.32	96.53
bsp	($10^{-4}m^{-1}$)								
	24 hour	0.30	0.28	0.00	2.67	0.22	0.23	0.02	2.42
	1 hour	0.70	0.61	0.06	5.07	0.51	0.50	0.05	4.92
Total deaths:									
All causes		42.91	7.45	22.00	71.00	12.42	3.68	3.00	27.00
Cardiovascular		19.10	4.08	6.00	38.00	5.22	2.34	0.00	14.00
Respiratory		3.46	2.01	0.00	13.00	1.01	1.06	0.00	7.00

APPENDIX

B

TRIGONOMETRIC FILTERING — SINGLE-POLLUTANT MODELS

Table B1a - Summary of results using trigonometric filtering – single pollutant models: total deaths

Outcome	Pollutant concentration	Parameter estimate	Standard error	P
Total deaths	**a8hO_3**	**0.0013**	**0.0004**	**0.0005**
	l1a8hO_3	**0.0013**	**0.0004**	**0.0004**
	l2a8hO_3	**0.0009**	**0.0004**	**0.0347**
	d3a8hO_3	**0.0023**	**0.0005**	**0.0001**
	d5a8hO_3	**0.0023**	**0.0007**	**0.0010**
	a4hO_3	**0.0011**	**0.0003**	**0.0004**
	l1a4hO_3	**0.0011**	**0.0003**	**0.0003**
	l2a4hO_3	**0.0008**	**0.0004**	**0.0303**
	d3a4hO_3	**0.0020**	**0.0005**	**0.0001**
	d5a4hO_3	**0.0020**	**0.0006**	**0.0009**
	m1hO_3	**0.0010**	**0.0003**	**0.0004**
	l1m1hO_3	**0.0011**	**0.0003**	**0.0001**
	l2m1hO_3	**0.0007**	**0.0003**	**0.0360**
	d3m1hO_3	**0.0018**	**0.0004**	**0.0001**
	d5m1hO_3	**0.0018**	**0.0005**	**0.0007**
	a24hbsp	0.0137	0.0128	0.2809
	l1a24bsp	**0.0283**	**0.0129**	**0.0282**
	l2a24bsp	0.0074	0.0138	0.5936
	d3a24bsp	0.0234	0.0155	0.1302
	d5a24bsp	0.0225	0.0179	0.2075
	m1hbsp	0.0036	0.0061	0.5631
	l1m1bsp	0.0113	0.0062	0.0706
	l2m1bsp	0.0043	0.0066	0.5135
	d3m1bsp	0.0094	0.0077	0.2182
	d5m1bsp	0.0120	0.0089	0.1784
	a24hNO_2	**0.0018**	**0.0007**	**0.0096**
	l1a24NO_2	**0.0031**	**0.0007**	**0.0001**
	l2a24NO_2	0.0002	0.0008	0.8380
	d3a24NO_2	**0.0032**	**0.0009**	**0.0008**
	d5a24NO_2	**0.0024**	**0.0012**	**0.0439**
	m1hNO_2	**0.0009**	**0.0003**	**0.0067**
	l1m1NO_2	**0.0014**	**0.0003**	**0.0001**
	l2m1NO_2	0.0001	0.0004	0.7659
	d3m1NO_2	**0.0016**	**0.0005**	**0.0007**
	d5m1NO_2	0.0012	0.0006	0.0645
	a8hCO	0.0045	0.0046	0.3325
	l1a8hCO	0.0062	0.0046	0.1809
	l2a8hCO	0.0040	0.0046	0.3884
	d3a8hCO	0.0091	0.0063	0.1484
	d5a8hCO	0.0112	0.0076	0.1413
	m1hCO	-0.0009	0.0028	0.7572
	l1m1hCO	**0.0069**	**0.0028**	**0.0158**
	l2m1hCO	0.0010	0.0030	0.7453
	d3m1hCO	0.0048	0.0041	0.2375
	d5m1hCO	0.0066	0.0050	0.1898

Table B1b - Summary of results using trigonometric filtering – single pollutant models: total deaths aged 65+

Outcome	Pollutant concentration	Parameter estimate	Standard error	P
Total 65+	**a8hO_3**	**0.0011**	**0.0005**	**0.0214**
	l1a8hO_3	0.0005	0.0005	0.3069
	l2a8hO_3	0.0000	0.0005	0.9908
	d3a8hO_3	0.0013	0.0008	0.0882
	d5a8hO_3	0.0008	0.0008	0.3269
	a4hO_3	**0.0010**	**0.0004**	**0.0073**
	l1a4hO_3	0.0005	0.0004	0.2472
	l2a4hO_3	0.0000	0.0004	0.9263
	d3a4hO_3	**0.0013**	**0.0006**	**0.0398**
	d5a4hO_3	0.0007	0.0007	0.2988
	m1hO_3	**0.0009**	**0.0003**	**0.0063**
	l1m1hO_3	0.0006	0.0004	0.1494
	l2m1hO_3	0.0000	0.0004	0.9805
	d3m1hO_3	**0.0012**	**0.0006**	**0.0281**
	d5m1hO_3	0.0007	0.0006	0.2706
	a24hbsp	0.0011	0.0155	0.9455
	l1a24bsp	0.0105	0.0159	0.5113
	l2a24bsp	-0.0009	0.0152	0.9504
	d3a24bsp	0.0049	0.0187	0.7915
	d5a24bsp	0.0009	0.0208	0.9663
	m1hbsp	-0.0015	0.0074	0.8388
	l1m1bsp	0.0058	0.0076	0.4459
	l2m1bsp	0.0014	0.0073	0.8527
	d3m1bsp	0.0028	0.0092	0.7621
	d5m1bsp	0.0024	0.0103	0.8129
	a24hNO_2	0.0014	0.0008	0.0856
	l1a24NO_2	**0.0023**	**0.0009**	**0.0067**
	l2a24NO_2	0.0000	0.0008	0.9871
	d3a24NO_2	**0.0024**	**0.0012**	**0.0395**
	d5a24NO_2	0.0012	0.0014	0.3796
	m1hNO_2	0.0006	0.0004	0.1565
	l1m1NO_2	0.0008	0.0004	0.0540
	l2m1NO_2	-0.0000	0.0004	0.9530
	d3m1NO_2	0.0010	0.0006	0.1131
	d5m1NO_2	0.0004	0.0007	0.5906
	a8hCO	0.0010	0.0052	0.8424
	l1a8hCO	0.0028	0.0052	0.5868
	l2a8hCO	0.0032	0.0052	0.5352
	d3a8hCO	0.0044	0.0071	0.5327
	d5a8hCO	0.0068	0.0086	0.4264
	m1hCO	-0.0022	0.0033	0.5085
	l1m1hCO	0.0046	0.0035	0.1811
	l2m1hCO	0.0027	0.0033	0.4173
	d3m1hCO	0.0036	0.0049	0.4655
	d5m1hCO	0.0048	0.0057	0.4006

Table B1c - Summary of results using trigonometric filtering – single pollutant models: total deaths aged <65

Outcome	Pollutant concentration	Parameter estimate	Standard error	P
Total < 65	a8hO_3	0.0006	0.0008	0.4418
	l1a8hO_3	0.0014	0.0008	0.0878
	l2a8hO_3	0.0004	0.0010	0.6905
	d3a8hO_3	0.0016	0.0012	0.1817
	d5a8hO_3	0.0006	0.0016	0.7186
	a4hO_3	0.0003	0.0007	0.6278
	l1a4hO_3	0.0013	0.0007	0.0621
	l2a4hO_3	0.0002	0.0008	0.7659
	d3a4hO_3	0.0013	0.0010	0.2121
	d5a4hO_3	0.0003	0.0013	0.8127
	m1hO_3	0.0003	0.0006	0.6155
	l1m1hO_3	0.0012	0.0006	0.0586
	l2m1hO_3	0.0002	0.0007	0.8261
	d3m1hO_3	0.0011	0.0009	0.2154
	d5m1hO_3	0.0003	0.0012	0.8223
	a24hbsp	0.0289	0.0283	0.3078
	l1a24bsp	0.0469	0.0285	0.1001
	l2a24bsp	0.0170	0.0307	0.5803
	d3a24bsp	0.0437	0.0342	0.2019
	d5a24bsp	0.0403	0.0397	0.3103
	m1hbsp	0.0067	0.0137	0.6260
	l1m1bsp	0.0116	0.0139	0.4065
	l2m1bsp	0.0043	0.0148	0.7738
	d3m1bsp	0.0112	0.0171	0.5137
	d5m1bsp	0.0187	0.0199	0.3476
	a24hNO_2	0.0010	0.0015	0.4927
	l1a24NO_2	**0.0034**	**0.0015**	**0.0273**
	l2a24NO_2	-0.0017	0.0017	0.2996
	d3a24NO_2	0.0019	0.0021	0.3714
	d5a24NO_2	-0.0006	0.0027	0.8099
	m1hNO_2	0.0008	0.0007	0.2932
	l1m1nNO_2	**0.0017**	**0.0007**	**0.0255**
	l2m1NO_2	-0.0009	0.0008	0.2976
	d3m1NO_2	0.0012	0.0011	0.2595
	d5m1NO_2	-0.0006	0.0014	0.6841
	a8hCO	0.0185	0.0104	0.0746
	l1a8hCO	0.0183	0.0104	0.0778
	l2a8hCO	0.0013	0.0105	0.9008
	d3a8hCO	0.0239	0.0142	0.0923
	d5a8hCO	0.0234	0.0172	0.1736
	m1hCO	-0.0041	0.0064	0.5288
	l1m1hCO	0.0122	0.0064	0.0573
	l2m1hCO	-0.0042	0.0069	0.5361
	d3m1hCO	0.0034	0.0092	0.7081
	d5m1hCO	0.0063	0.0114	0.5777

Table B1d - Summary of results using trigonometric filtering – single pollutant models: total respiratory deaths

Outcome	Pollutant concentration	Parameter estimate	Standard error	p
Total Respiratory	**a8hO_3**	**0.0045**	**0.0014**	**0.0019**
	l1a8hO_3	0.0015	0.0016	0.3671
	l2a8hO_3	-0.0012	0.0017	0.4608
	d3a8hO_3	0.0043	0.0024	0.0760
	d5a8hO_3	0.0030	0.0029	0.2941
	a4hO_3	**0.0040**	**0.0012**	**0.0009**
	l1a4hO_3	0.0008	0.0014	0.5544
	l2a4hO_3	-0.0011	0.0014	0.4459
	d3a4hO_3	0.0035	0.0020	0.0803
	d5a4hO_3	0.0022	0.0025	0.3632
	m1hO_3	**0.0035**	**0.0010**	**0.0008**
	l1m1hO_3	0.0009	0.0012	0.4511
	l2m1hO_3	-0.0010	0.0012	0.4146
	d3m1hO_3	0.0032	0.0018	0.0682
	d5m1hO_3	0.0021	0.0022	0.3304
	a24hbsp	-0.0031	0.0493	0.9496
	l1a24bsp	-0.0230	0.0517	0.6568
	l2a24bsp	-0.0591	0.0519	0.2549
	d3a24bsp	-0.0412	0.0623	0.5082
	d5a24bsp	-0.0237	0.0694	0.7328
	m1hbsp	-0.0001	0.0233	0.9968
	l1m1bsp	-0.0081	0.0244	0.7397
	l2m1bsp	-0.0158	0.0243	0.5140
	d3m1bsp	-0.0124	0.0302	0.6822
	d5m1bsp	0.0005	0.0339	0.9878
	a24hNO_2	0.0035	0.0025	0.1707
	l1a24NO_2	0.0028	0.0027	0.2893
	l2a24NO_2	-0.0037	0.0027	0.1724
	d3a24NO_2	0.0020	0.0037	0.5952
	d5a24NO_2	0.0024	0.0046	0.6035
	m1hNO_2	0.0013	0.0013	0.3097
	l1m1NO_2	0.0012	0.0013	0.3592
	l2m1NO_2	-0.0016	0.0013	0.2485
	d3m1NO_2	0.0008	0.0020	0.6833
	d5m1NO_2	0.0014	0.0024	0.5521
	a8hCO	0.0157	0.0163	0.3373
	l1a8hCO	0.0023	0.0164	0.8872
	l2a8hCO	-0.0019	0.0165	0.9069
	d3a8hCO	0.0093	0.0224	0.6771
	d5a8hCO	0.0283	0.0270	0.2950
	m1hCO	-0.0050	0.0104	0.6346
	l1m1hCO	-0.0086	0.0108	0.4253
	l2m1hCO	-0.0028	0.0106	0.7911
	d3m1hCO	-0.0131	0.0156	0.4002
	d5m1hCO	0.0038	0.0184	0.8371

Table B1e - Summary of results using trigonometric filtering – single pollutant models: total respiratory deaths aged 65+

Outcome	Pollutant concentration	Parameter estimate	Standard error	p
Respiratory 65+	**a8hO_3**	**0.0051**	**0.0015**	**0.0005**
	l1a8hO_3	0.0024	0.0015	0.1090
	l2a8hO_3	0.0016	0.0017	0.3713
	d3a8hO_3	**0.0058**	**0.0021**	**0.0058**
	d5a8hO_3	0.0051	0.0027	0.0592
	a4hO_3	**0.0045**	**0.0012**	**0.0002**
	l1a4hO_3	0.0016	0.0013	0.2029
	l2a4hO_3	0.0013	0.0014	0.3639
	d3a4hO_3	**0.0049**	**0.0018**	**0.0056**
	d5a4hO_3	0.0042	0.0023	0.0735
	m1hO_3	**0.0040**	**0.0011**	**0.0002**
	l1m1hO_3	0.0016	0.0011	0.1468
	l2m1hO_3	0.0011	0.0012	0.3931
	d3m1hO3	**0.0044**	**0.0016**	**0.0043**
	d5m1hO_3	0.0039	0.0021	0.0583
	a24hbsp	0.0046	0.0490	0.9257
	l1a24bsp	0.0345	0.0492	0.4829
	l2a24bsp	-0.0214	0.0539	0.6917
	d3a24bsp	0.0102	0.0599	0.8642
	d5a24bsp	0.0048	0.0694	0.9443
	m1hbsp	0.0105	0.0233	0.6516
	l1m1bsp	0.0186	0.0236	0.4295
	l2m1bsp	0.0043	0.0252	0.8638
	d3m1bsp	0.0168	0.0291	0.5628
	d5m1bsp	0.0176	0.0340	0.6047
	a24hNO_2	0.0042	0.0026	0.1032
	l1a24NO_2	**0.0059**	**0.0026**	**0.0249**
	l2a24NO_2	-0.0001	0.0029	0.9649
	d3a24NO_2	0.0064	0.0036	0.0767
	d5a24NO_2	0.0068	0.0046	0.1354
	m1hNO_2	0.0016	0.0013	0.2203
	l1m1NO_2	**0.0026**	**0.0013**	**0.0477**
	l2m1NO_2	0.0002	0.0014	0.8644
	d3m1NO_2	0.0030	0.0019	0.1068
	d5m1NO_2	0.0036	0.0024	0.1371
	a8hCO	0.0181	0.0173	0.2952
	l1a8hCO	0.0110	0.0174	0.5290
	l2a8hCO	0.0066	0.0174	0.7065
	d3a8hCO	0.0213	0.0237	0.3678
	d5a8hCO	0.0409	0.0287	0.1537
	m1hCO	-0.0024	0.0106	0.8180
	l1m1hCO	-0.0026	0.0107	0.8058
	l2m1hCO	0.0039	0.0113	0.7336
	d3m1hCO	-0.0028	0.0152	0.8529
	d5m1hCO	0.0104	0.0188	0.5800

Table B1f - Summary of results using trigonometric filtering – single pollutant models: total cardiovascular deaths

Outcome	Pollutant concentration	Parameter estimate	Standard error	P
Total	a8hO_3	-0.0004	0.0006	0.5180
Cardiovascular	l1a8hO_3	0.0006	0.0007	0.4012
	l2a8hO_3	-0.0004	0.0007	0.5210
	d3a8hO_3	-0.0003	0.0010	0.7981
	d5a8hO_3	-0.0002	0.0012	0.8809
	a4hO_3	-0.0003	0.0005	0.5910
	l1a4hO_3	0.0007	0.0006	0.2018
	l2a4hO_3	-0.0003	0.0006	0.5715
	d3a4hO_3	0.0001	0.0008	0.9516
	d5a4hO_3	0.0001	0.0010	0.9242
	m1hO_3	-0.0002	0.0004	0.6667
	l1m1hO_3	0.0007	0.0005	0.1358
	l2m1hO_3	-0.0003	0.0005	0.6084
	d3m1hO_3	0.0002	0.0007	0.7981
	d5m1hO_3	0.0002	0.0009	0.8032
	a24hbsp	0.0035	0.0202	0.8612
	l1a24bsp	0.0355	0.0208	0.0880
	l2a24bsp	0.0222	0.0209	0.2866
	d3a24bsp	0.0293	0.0249	0.2395
	d5a24bsp	0.0365	0.0280	0.1920
	m1hbsp	-0.0043	0.0097	0.6551
	l1m1bsp	0.0106	0.0100	0.2901
	l2m1bsp	0.0051	0.0100	0.6069
	d3m1bsp	0.0056	0.0124	0.6491
	d5m1bsp	0.0093	0.0140	0.5067
	a24hNO_2	0.0001	0.0011	0.9031
	l1a24NO_2	**0.0025**	**0.0011**	**0.0248**
	l2a24NO_2	-0.0005	0.0011	0.6272
	d3a24NO_2	0.0014	0.0016	0.3781
	d5a24NO_2	0.0017	0.0019	0.3806
	m1hNO_2	0.0003	0.0005	0.6106
	l1m1NO_2	0.0010	0.0006	0.0724
	l2m1NO_2	-0.0005	0.0006	0.4036
	d3m1NO_2	0.0006	0.0008	0.4328
	d5m1NO_2	0.0006	0.0010	0.5782
	a8hCO	-0.0025	0.0070	0.7170
	l1a8hCO	0.0057	0.0069	0.4125
	l2a8hCO	0.0052	0.0069	0.4525
	d3a8hCO	0.0054	0.0094	0.5678
	d5a8hCO	0.0152	0.0114	0.1810
	m1hCO	-0.0067	0.0044	0.1298
	l1m1hCO	0.0065	0.0045	0.1517
	l2m1hCO	0.0015	0.0045	0.7386
	d3m1hCO	0.0011	0.0065	0.8606
	d5m1hCO	0.0063	0.0078	0.4175

Table B1g - Summary of results using trigonometric filtering – single pollutant models: total respiratory deaths aged 65+

Outcome	Pollutant concentration	Parameter estimate	Standard error	P
Cardiovascular	a8hO_3	-0.0005	0.0007	0.4896
65+	l1a8hO_3	0.0003	0.0007	0.7012
	l2a8hO_3	-0.0004	0.0007	0.6027
	d3a8hO_3	-0.0005	0.0011	0.6563
	d5a8hO_3	-0.0002	0.0013	0.8463
	a4hO_3	-0.0003	0.0005	0.5783
	l1a4hO_3	0.0004	0.0006	0.4638
	l2a4hO_3	-0.0002	0.0006	0.7130
	d3a4hO_3	-0.0001	0.0009	0.9018
	d5a4hO_3	0.0001	0.0011	0.9561
	m1hO_3	-0.0002	0.0005	0.6429
	l1m1hO_3	0.0005	0.0005	0.3395
	l2m1hO_3	-0.0002	0.0005	0.7252
	d3m1hO_3	0.0000	0.0008	0.9616
	d5m1hO_3	0.0002	0.0010	0.8610
	a24hbsp	-0.0038	0.0217	0.8603
	l1a24bsp	0.0236	0.0224	0.2914
	l2a24bsp	0.0205	0.0224	0.3607
	d3a24bsp	0.0191	0.0268	0.4770
	d5a24bsp	0.0306	0.0301	0.3090
	m1hbsp	-0.0065	0.0104	0.5335
	l1m1bsp	0.0077	0.0108	0.4727
	l2m1bsp	0.0055	0.0107	0.6106
	d3m1bsp	0.0032	0.0133	0.8117
	d5m1bsp	0.0078	0.0150	0.6037
	a24hNO_2	-0.0003	0.0011	0.7644
	l1a24NO_2	0.0019	0.0012	0.1078
	l2a24NO_2	-0.0002	0.0012	0.8505
	d3a24NO_2	0.0009	0.0017	0.6061
	d5a24NO_2	0.0019	0.0020	0.3590
	m1hNO_2	0.0001	0.0006	0.8734
	l1m1NO_2	0.0006	0.0006	0.3357
	l2m1NO_2	-0.0003	0.0006	0.5827
	d3m1NO_2	0.0003	0.0009	0.7766
	d5m1NO_2	0.0005	0.0011	0.6263
	a8hCO	-0.0034	0.0074	0.6498
	l1a8hCO	0.0024	0.0074	0.7458
	l2a8hCO	0.0005	0.0074	0.9435
	d3a8hCO	-0.0001	0.0101	0.9936
	d5a8hCO	0.0079	0.0122	0.5151
	m1hCO	-0.0070	0.0047	0.1365
	l1m1hCO	0.0039	0.0048	0.4221
	l2m1hCO	0.0015	0.0048	0.7567
	d3m1hCO	-0.0009	0.0070	0.9026
	d5m1hCO	0.0051	0.0083	0.5379

Table B1h - Summary of results using trigonometric filtering – single pollutant models: total other deaths

Outcome	Pollutant concentration	Parameter estimate	Standard error	P
Total other	**a8hO_3**	**0.0017**	**0.0006**	**0.0016**
	l1a8hO_3	**0.0012**	**0.0006**	**0.0320**
	l2a8hO_3	**0.0013**	**0.0007**	**0.0417**
	d3a8hO_3	**0.0027**	**0.0008**	**0.0008**
	d5a8hO_3	**0.0025**	**0.0010**	**0.0151**
	a4hO_3	**0.0015**	**0.0005**	**0.0013**
	l1a4hO_3	**0.0010**	**0.0005**	**0.0403**
	l2a4hO_3	**0.0011**	**0.0005**	**0.0373**
	d3a4hO_3	**0.0023**	**0.0007**	**0.0007**
	d5a4hO_3	**0.0021**	**0.0009**	**0.0165**
	m1hO_3	**0.0013**	**0.0004**	**0.0017**
	l1m1hO_3	**0.0009**	**0.0004**	**0.0309**
	l2m1hO_3	0.0009	0.0005	0.0544
	d3m1hO_3	**0.0020**	**0.0006**	**0.0008**
	d5m1hO_3	**0.0019**	**0.0008**	**0.0154**
	a24hbsp	0.0195	0.0188	0.2999
	l1a24bsp	0.0236	0.0191	0.2153
	l2a24bsp	0.0077	0.0205	0.7079
	d3a24bsp	0.0241	0.0228	0.2919
	d5a24bsp	0.0280	0.0264	0.2884
	m1hbsp	0.0099	0.0091	0.2735
	l1m1bsp	0.0116	0.0092	0.2066
	l2m1bsp	0.0092	0.0098	0.3498
	d3m1bsp	0.0150	0.0113	0.1833
	d5m1bsp	0.0223	0.0131	0.0899
	a24hNO_2	**0.0021**	**0.0010**	**0.0402**
	l1a24NO_2	**0.0025**	**0.0010**	**0.0144**
	l2a24NO_2	0.0006	0.0011	0.5693
	d3a24NO_2	**0.0033**	**0.0014**	**0.0204**
	d5a24NO_2	0.0018	0.0018	0.3136
	m1hNO_2	**0.0010**	**0.0005**	**0.0461**
	l1m1NO_2	**0.0010**	**0.0005**	**0.0493**
	l2m1NO_2	0.0004	0.0006	0.4342
	d3m1NO_2	**0.0016**	**0.0007**	**0.0251**
	d5m1NO_2	0.0007	0.0009	0.4512
	a8hCO	0.0082	0.0069	0.2350
	l1a8hCO	0.0064	0.0069	0.3486
	l2a8hCO	0.0048	0.0069	0.4882
	d3a8hCO	0.0120	0.0094	0.1998
	d5a8hCO	0.0050	0.0114	0.6577
	m1hCO	0.0029	0.0042	0.4912
	l1m1hCO	0.0076	0.0042	0.0738
	l2m1hCO	0.0018	0.0045	0.6963
	d3m1hCO	0.0083	0.0060	0.1666
	d5m1hCO	0.0068	0.0075	0.3621

Table B1i - Summary of results using trigonometric filtering – single pollutant models: total deaths due to digestive disorders

Outcome	Pollutant concentration	Parameter estimate	Standard error	P
Digestive disorders	a8hO_3	0.0033	0.0022	0.1387
	l1a8hO_3	0.0017	0.0026	0.5067
	l2a8hO_3	-0.0024	0.0023	0.3008
	d3a8hO_3	0.0020	0.0036	0.5830
	d5a8hO_3	0.0007	0.0040	0.8520
	a4hO_3	0.0028	0.0018	0.1199
	l1a4hO_3	0.0021	0.0021	0.3093
	l2a4hO_3	-0.0016	0.0019	0.4000
	d3a4hO_3	0.0027	0.0030	0.3763
	d5a4hO_3	0.0003	0.0034	0.9274
	m1hO_3	0.0027	0.0016	0.0942
	l1m1hO_3	0.0020	0.0018	0.2683
	l2m1hO_3	-0.0010	0.0017	0.5413
	d3m1hO_3	0.0030	0.0027	0.2595
	d5m1hO_3	-0.0000	0.0030	0.9981
	a24hbsp	-0.0780	0.0771	0.3120
	l1a24bsp	-0.0879	0.0802	0.2728
	l2a24bsp	**-0.1579**	**0.0784**	**0.0441**
	d3a24bsp	-0.1602	0.0962	0.0960
	d5a24bsp	**-0.3636**	**0.1124**	**0.0012**
	m1hbsp	-0.0573	0.0370	0.1222
	l1m1bsp	-0.0325	0.0379	0.3922
	l2m1bsp	**-0.0818**	**0.0371**	**0.0272**
	d3m1bsp	-0.0911	0.0472	0.0536
	d5m1bsp	**-0.1725**	**0.0543**	**0.0015**
	a24hNO_2	0.0041	0.0039	0.2890
	l1a24NO_2	0.0076	0.0041	0.0657
	l2a24NO_2	-0.0012	0.0040	0.7609
	d3a24NO_2	0.0068	0.0057	0.2286
	d5a24NO_2	-0.0046	0.0068	0.4999
	m1hNO_2	0.0005	0.0020	0.7929
	l1m1NO_2	**0.0040**	**0.0020**	**0.0499**
	l2m1NO_2	-0.0018	0.0019	0.3512
	d3m1NO_2	0.0017	0.0030	0.5625
	d5m1NO_2	-0.0031	0.0035	0.3860
	a8hCO	0.0271	0.0249	0.2764
	l1a8hCO	0.0232	0.0250	0.3545
	l2a8hCO	-0.0253	0.0257	0.3252
	d3a8hCO	0.0159	0.0342	0.6424
	d5a8hCO	-0.0121	0.0420	0.7731
	m1hCO	-0.0150	0.0164	0.3584
	l1m1hCO	-0.0029	0.0169	0.8615
	l2m1hCO	**-0.0345**	**0.0164**	**0.0350**
	d3m1hCO	-0.0385	0.0239	0.1073
	d5m1hCO	**-0.0563**	**0.0280**	**0.0446**

TRIGONOMETRIC FILTERING - SEASONAL RESULTS

Table B2a - Summary of results using trigonometric filtering – single pollutant models by season: total deaths

Pollutant Concentration	Cool Season[a]			Warm Season[b]		
	Parameter Estimate	Standard Error	P	Parameter Estimate	Standard Error	P
a8hO_3	0.0007	0.0008	0.3830	0.0009	0.0006	0.1027
l1a8hO_3	-0.0010	0.0008	0.8725	0.0009	0.0006	0.1005
l2a8hO_3	0.0010	0.0008	0.2160	-0.0003	0.0005	0.5486
d3a8hO_3	0.0009	0.0011	0.3939	0.0011	0.0008	0.2040
d5a8hO_3	0.0009	0.0013	0.4944	-0.0003	0.0009	0.7747
a4hO_3	0.0005	0.0008	0.5265	**0.0009**	**0.0004**	**0.0498**
l1a4hO_3	0.0001	0.0008	0.8456	0.0006	0.0005	0.1515
l2a4hO_3	0.0009	0.0008	0.2401	-0.0002	0.0004	0.6233
d3a4hO_3	0.0009	0.0010	0.3717	0.0010	0.0007	0.1496
d5a4hO_3	0.0007	0.0012	0.5911	-0.0002	0.0008	0.7928
m1hO_3	0.0004	0.0007	0.6099	**0.0007**	**0.0004**	**0.0459**
l1m1hO_3	0.0007	0.0007	0.3639	0.0005	0.0004	0.1979
l2m1hO_3	0.0006	0.0007	0.4369	-0.0001	0.0003	0.6580
d3m1hO_3	0.0010	0.0010	0.3234	0.0008	0.0006	0.1541
d5m1hO_3	0.0008	0.0012	0.5179	-0.0002	0.0007	0.7397
a24hbsp	0.0017	0.0149	0.9095	0.0491	0.0288	0.0884
l1a24bsp	**0.0304**	**0.0149**	**0.0420**	-0.0104	0.0303	0.7311
l2a24bsp	0.0105	0.0159	0.5100	-0.0368	0.0303	0.2241
d3a24bsp	0.0207	0.0184	0.2590	0.0033	0.0350	0.9245
d5a24bsp	0.0280	0.0213	0.1880	-0.0324	0.0395	0.4121
m1hbsp	-0.0039	0.0073	0.5906	0.0193	0.0131	0.1425
l1m1bsp	0.0111	0.0073	0.1294	-0.0073	0.0137	0.5947
l2m1bsp	0.0063	0.0078	0.4153	-0.0202	0.0133	0.1306
d3m1bsp	0.0066	0.0091	0.4716	-0.0041	0.0168	0.8084
d5m1bsp	0.0123	0.0107	0.2494	-0.0155	0.0190	0.4164
a24hNO_2	-0.0003	0.0009	0.7345	**0.0048**	**0.0014**	**0.0006**
l1a24NO_2	**0.0020**	**0.0009**	**0.0191**	**0.0038**	**0.0014**	**0.0065**
l2a24NO_2	-0.0005	0.0009	0.6186	-0.0004	0.0012	0.7431
d3a24NO_2	0.0008	0.0012	0.4866	**0.0059**	**0.0021**	**0.0047**
d5a24NO_2	0.0001	0.0015	0.9268	0.0018	0.0024	0.4528
m1hNO_2	-0.0003	0.0005	0.5642	**0.0018**	**0.0006**	**0.0020**
l1m1NO_2	**0.0009**	**0.0005**	**0.0500**	**0.0012**	**0.0006**	**0.0338**
l2m1NO_2	-0.0000	0.0005	0.9739	-0.0003	0.0005	0.5152
d3m1NO_2	0.0004	0.0007	0.5283	**0.0019**	**0.0009**	**0.0318**
d5m1NO_2	-0.0002	0.0008	0.7983	0.0006	0.0010	0.5612
a8hCO	0.0015	0.0048	0.7627	0.0243	0.0149	0.1021
l1a8hCO	0.0044	0.0048	0.3579	0.0135	0.0150	0.3673
l2a8hCO	0.0046	0.0049	0.3424	-0.0062	0.0151	0.6790
d3a8hCO	0.0066	0.0066	0.3136	0.0236	0.0221	0.2865
d5a8hCO	0.0086	0.0080	0.2824	0.0303	0.0280	0.2787
m1hCO	-0.0046	0.0030	0.1266	**0.0242**	**0.0089**	**0.0068**
l1m1hCO	0.0044	0.0030	0.1383	**0.0249**	**0.0091**	**0.0064**
l2m1hCO	0.0006	0.0032	0.8417	0.0053	0.0088	0.5451
d3m1hCO	0.0005	0.0043	0.9111	**0.0450**	**0.0142**	**0.0016**
d5m1hCO	0.0038	0.0054	0.4762	0.0303	0.0177	0.0861

a Cool season: April-October (n=1223)
b Warm season: November-March (n=847)

Table B2b - Summary of results using trigonometric filtering – single pollutant models by season: Total respiratory deaths

Pollutant Concentration	Cool Season[a]			Warm Season[b]		
	Parameter Estimate	Standard Error	P	Parameter Estimate	Standard Error	P
a8hO_3	0.0043	0.0030	0.1476	**0.0045**	**0.0017**	**0.0067**
l1a8hO_3	0.0037	0.0031	0.2411	-0.0000	0.0020	0.9841
l2a8hO_3	0.0015	0.0030	0.6069	-0.0036	0.0021	0.0851
d3a8hO_3	0.0057	0.0041	0.1614	0.0026	0.0032	0.4257
d5a8hO_3	0.0028	0.0048	0.5518	0.0012	0.0041	0.7599
a4hO_3	0.0039	0.0028	0.1573	**0.0039**	**0.0013**	**0.0033**
l1a4hO_3	0.0030	0.0029	0.3020	-0.0004	0.0016	0.7848
l2a4hO_3	0.0012	0.0027	0.6629	-0.0027	0.0017	0.1124
d3a4hO_3	0.0050	0.0038	0.1915	0.0022	0.0026	0.3939
d5a4hO_3	0.0017	0.0045	0.7047	0.0010	0.0033	0.7674
m1hO_3	0.0033	0.0026	0.2173	**0.0035**	**0.0011**	**0.0025**
l1m1hO_3	0.0033	0.0027	0.2256	-0.0002	0.0014	0.9070
l2m1hO_3	0.0007	0.0026	0.7989	-0.0021	0.0015	0.1420
d3m1hO_3	0.0045	0.0037	0.2207	0.0023	0.0022	0.2985
d5m1hO_3	0.0017	0.0044	0.7033	0.0012	0.0029	0.6865
a24hbsp	-0.0467	0.0564	0.4079	**0.2408**	**0.0993**	**0.0153**
l1a24bsp	-0.0346	0.0610	0.5711	0.1276	0.1081	0.2380
l2a24bsp	-0.0204	0.0563	0.7179	-0.0602	0.1205	0.6171
d3a24bsp	-0.0514	0.0173	0.4710	0.1647	0.1271	0.1949
d5a24bsp	0.0113	0.0787	0.8862	0.1149	0.1496	0.4424
m1hbsp	-0.0322	0.0271	0.2339	**0.1295**	**0.0434**	**0.0028**
l1m1bsp	-0.0242	0.0289	0.4029	0.0796	0.0474	0.0927
l2m1bsp	-0.0010	0.0273	0.9705	-0.0096	0.0520	0.8529
d3m1bsp	-0.0301	0.0348	0.3880	0.1134	0.0584	0.0521
d5m1bsp	0.0060	0.0388	0.8772	0.0970	0.0700	0.1659
a24hNO_2	-0.0030	0.0032	0.3454	**0.0166**	**0.0043**	**0.0001**
l1a24NO_2	0.0018	0.0033	0.5891	0.0055	0.0049	0.2610
l2a24NO_2	-0.0025	0.0033	0.4392	-0.0050	0.0051	0.3256
d3a24NO_2	-0.0025	0.0045	0.5782	**0.0171**	**0.0075**	**0.0221**
d5a24NO_2	-0.0018	0.0054	0.7444	**0.0215**	**0.0096**	**0.0250**
m1hNO_2	-0.0028	0.0017	0.1020	**0.0066**	**0.0018**	**0.0003**
l1m1NO_2	0.0011	0.0018	0.5314	0.0015	0.0021	0.4872
l2m1NO_2	-0.0008	0.0018	0.6653	-0.0024	0.0021	0.2650
d3m1NO_2	-0.0018	0.0025	0.4784	0.0063	0.0034	0.0589
d5m1NO_2	-0.0018	0.0030	0.5501	**0.0094**	**0.0041**	**0.0227**
a8hCO	0.0146	0.0174	0.4009	0.0090	0.0540	0.8675
l1a8hCO	-0.0026	0.0175	0.8828	0.0007	0.0545	0.9895
l2a8hCO	-0.0083	0.0176	0.6380	0.0392	0.0546	0.4723
d3a8hCO	0.0016	0.0239	0.9471	0.0375	0.0800	0.6391
d5a8hCO	0.0230	0.0290	0.4275	0.0489	0.1019	0.6312
m1hCO	-0.0122	0.0109	0.2630	**0.0754**	**0.0310**	**0.0149**
l1m1hCO	-0.0118	0.0116	0.3097	0.0412	0.0323	0.2013
l2m1hCO	0.0007	0.0113	0.9489	0.0155	0.0331	0.6397
d3m1hCO	-0.0171	0.0160	0.2854	**0.1126**	**0.0504**	**0.0256**
d5m1hCO	0.0032	0.0189	0.8643	**0.1433**	**0.0643**	**0.0258**

a Cool season: April-October (n=1223)
b Warm season: November-March (n=847)

Table B2c - Summary of results using trigonometric filtering – single pollutant models by season: Total cardiovascular

Pollutant Concentration	Cool Season[a]			Warm Season[b]		
	Parameter Estimate	Standard Error	P	Parameter Estimate	Standard Error	P
a8hO_3	-0.0003	0.0012	0.7823	-0.0005	0.0007	0.4511
l1a8hO_3	-0.0008	0.0012	0.5217	0.0009	0.0008	0.2839
l2a8hO_3	0.0009	0.0013	0.4753	-0.0011	0.0009	0.1957
d3a8hO_3	-0.0002	0.0016	0.9205	-0.0008	0.0014	0.5669
d5a8hO_3	-0.0005	0.0020	0.7836	-0.0003	0.0017	0.8737
a4hO_3	-0.0008	0.0001	0.4681	-0.0002	0.0006	0.6771
l1a4hO_3	0.0001	0.0011	0.9172	0.0007	0.0007	0.2924
l2a4hO_3	0.0005	0.0012	0.6657	-0.0007	0.0007	0.2930
d3a4hO_3	-0.0001	0.0015	0.9305	-0.0003	0.0011	0.8174
d5a4hO_3	-0.0004	0.0019	0.8271	-0.0000	0.0014	0.9922
m1hO_3	-0.0007	0.0011	0.4976	-0.0002	0.0005	0.7291
l1m1hO_3	0.0008	0.0011	0.4416	0.0005	0.0006	0.3524
l2m1hO_3	0.0001	0.0011	0.9043	-0.0005	0.0006	0.3882
d3m1hO_3	0.0001	0.0015	0.9228	-0.0001	0.0009	0.8752
d5m1hO_3	-0.0000	0.0018	0.9989	-0.0000	0.0012	0.9680
a24hbsp	0.0116	0.0222	0.5999	0.0109	0.0430	0.8009
l1a24bsp	**0.0472**	**0.0222**	**0.0334**	0.0034	0.0452	0.9403
l2a24bsp	0.0317	0.0236	0.1799	-0.0175	0.0483	0.7174
d3a24bsp	0.0437	0.0273	0.1092	-0.0000	0.0533	0.9997
d5a24bsp	0.0548	0.0317	0.0834	-0.0007	0.0607	0.9904
m1hbsp	-0.0053	0.0109	0.6226	0.0071	0.0195	0.7146
l1m1bsp	0.0121	0.0109	0.2672	0.0078	0.0204	0.7017
l2m1bsp	0.0089	0.0116	0.4445	-0.0132	0.0213	0.5352
d3m1bsp	0.0075	0.0137	0.5807	0.0018	0.0255	0.9453
d5m1bsp	0.0106	0.0160	0.5073	0.0047	0.0294	0.8741
a24hNO_2	-0.0004	0.0013	0.7819	0.0014	0.0019	0.4588
l1a24NO_2	0.0019	0.0013	0.1413	0.0039	0.0021	0.0569
l2a24NO_2	-0.0007	0.0014	0.6202	-0.0013	0.0021	0.5415
d3a24NO_2	0.0006	0.0018	0.7417	0.0036	0.0032	0.2694
d5a24NO_2	0.0013	0.0022	0.5423	0.0027	0.0041	0.5077
m1hNO_2	-0.0001	0.0007	0.9203	0.0007	0.0008	0.3775
l1m1NO_2	0.0009	0.0007	0.2183	0.0011	0.0009	0.1959
l2m1NO_2	0.0000	0.0007	0.9951	-0.0012	0.0009	0.1695
d3m1NO_2	0.0005	0.0010	0.5945	0.0007	0.0014	0.6327
d5m1NO_2	0.0005	0.0012	0.6656	0.0008	0.0017	0.6343
a8hCO	-0.0084	0.0073	0.2491	0.0408	0.0222	0.0665
l1a8hCO	0.0005	0.0073	0.9473	0.0399	0.0224	0.0745
l2a8hCO	0.0086	0.0072	0.2355	-0.0290	0.0228	0.2043
d3a8hCO	0.0007	0.0099	0.9402	0.0392	0.0331	0.2356
d5a8hCO	0.0113	0.0120	0.3465	0.0286	0.0420	0.4962
m1hCO	-0.0062	0.0045	0.1647	0.0116	0.0131	0.3745
l1m1hCO	0.0066	0.0045	0.1404	0.0196	0.0134	0.1443
l2m1hCO	0.0032	0.0048	0.5073	-0.0053	0.0138	0.7022
d3m1hCO	0.0027	0.0064	0.6772	0.0220	0.0212	0.3005
d5m1hCO	0.0100	0.0080	0.2104	0.0038	0.0269	0.8868

a Cool season: April-October (n=1223)
b Warm season: November-March (n=847)

TRIGONOMETRIC FILTERING - MULTI-POLLUTANT MODELS

Table B3a - Summary of results using trigonometric filtering – multi-pollutant models: O3 controlling for other pollutants - Total deaths*

Controlling for:	Pollutant concentration	Parameter estimate	Standard error	P
l1a24bsp	**a8hO_3**	**0.0519**	**0.0182**	**0.0043**
	l1a8hO_3	**0.0509**	**0.0181**	**0.0051**
	l2a8hO_3	0.0261	0.0182	0.1501
	d3a8hO_3	**0.0691**	**0.0230**	**0.0027**
	d5a8hO_3	**0.0524**	**0.0264**	**0.0474**
	m1hO_3	**0.0395**	**0.0136**	**0.0037**
	l1m1hO_3	**0.0389**	**0.0136**	**0.0041**
	l2m1hO_3	0.0183	0.0136	0.1767
	d3m1hO_3	**0.0546**	**0.0176**	**0.0020**
	d5m1hO_3	0.0394	0.0205	**0.0541**
l124hNO_2	**a8hO_3**	**0.0449**	**0.0181**	**0.0132**
	l1a8hO_3	0.0346	0.0181	0.0557
	l2a8hO_3	0.0185	0.0181	0.3067
	d3a8hO_3	**0.0525**	**0.0229**	**0.0222**
	d5a8hO_3	0.0401	0.0263	0.1283
	m1hO_3	**0.0335**	**0.0135**	**0.0133**
	l1m1hO_3	0.0226	0.0135	0.0944
	l2m1hO_3	0.0107	0.0135	0.4313
	d3m1hO_3	**0.0377**	**0.0176**	**0.0323**
	d5m1hO_3	0.0264	0.0204	0.1967
l1m1hCO	**a8hO_3**	**0.0561**	**0.0182**	**0.0021**
	l1a8hO_3	**0.0567**	**0.0182**	**0.0018**
	l2a8hO_3	0.0276	0.0182	0.1306
	d3a8hO_3	**0.0754**	**0.0231**	**0.0011**
	d5a8hO_3	**0.0577**	**0.0265**	**0.0297**
	m1hO_3	**0.0427**	**0.0136**	**0.0017**
	l1m1hO_3	**0.0427**	**0.0136**	**0.0017**
	l2m1hO_3	0.0202	0.0136	0.1381
	d3m1hO_3	**0.0596**	**0.0018**	**0.0007**
	d5m1hO_3	**0.0445**	**0.0205**	**0.0302**

Note: As the parameter estimates presented in this table were generated using residuals from a Poisson model, the units are in "number of deaths"

Table B3b Summary of results using trigonometric filtering – multi-pollutant models: NO_2 controlling for other pollutants - Total deaths*

Controlling for:	Pollutant concentration	Parameter estimate	Standard error	p
d3a8hO_3	a24hNO_2	0.0418	0.0313	0.1820
	l1a24hNO_2	**0.0888**	**0.0313**	**0.0046**
	l2a24hNO_2	-0.0093	0.0313	0.7664
	d3a24hNO_2	0.0609	0.0384	0.1132
	d5a24hNO_2	0.0362	0.0430	0.4001
	m1hNO_2	0.0188	0.0166	0.2575
	l1m1hNO_2	**0.0378**	**0.0166**	**0.0228**
	l2m1hNO_2	-0.0071	0.0166	0.6688
	d3m1hNO_2	0.0280	0.0216	0.1952
	d5m1hNO_2	0.0110	0.0251	0.6609
l1a24bsp	la24hNO_2	0.0471	0.0314	0.1335
	l1a24hNO_2	**0.0814**	**0.0314**	**0.0095**
	l2a24hNO_2	-0.0147	0.0314	0.6398
	d3a24hNO_2	0.0571	0.0385	0.1383
	d5a24hNO_2	0.0251	0.0431	0.5601
	m1hNO_2	0.0302	0.0166	0.0693
	l1m1hNO_2	**0.0415**	**0.0166**	**0.0125**
	l2m1hNO_2	-0.0060	0.0166	0.7180
	d3m1hNO_2	0.0372	0.0217	0.0859
	d5m1hNO_2	0.0136	0.0252	0.5901
ll1m1hC0	a24hNO_2	0.0501	0.0317	0.1140
	l1a24hNO_2	**0.0791**	**0.0317**	**0.0127**
	l2a24hNO_2	-0.0014	0.0318	0.9660
	d3a24hNO_2	0.0642	0.0389	0.0995
	d5a24hNO_2	0.0371	0.0437	0.3960
	m1hNO_2	0.0323	0.0168	0.0547
	l1m1hNO_2	**0.0393**	**0.0168**	**0.0194**
	l2m1hNO_2	0.0010	0.0168	0.9539
	d3m1hNO_2	0.0411	0.0219	0.0609
	d5m1hNO_2	0.0205	0.0255	0.4210

Note: As the parameter estimates presented in this table were generated using residuals from a Poisson model, the units are in "number of deaths"

Table B3c - Summary of results using trigonometric filtering – multi-pollutant models: CO controlling for other pollutants - Total deaths*

Controlling for:	Pollutant concentration	Parameter estimate	Standard error	p
d3a8hO_3	a8hCO	0.2002	0.2259	0.3754
	l1a8hCO	0.2747	0.2256	0.2234
	l2a8hCO	0.1786	0.2261	0.4296
	d3a8hCO	0.3309	0.2822	0.2412
	d5a8hCO	0.3817	0.3174	0.2293
	m1hCO	-0.0220	0.1365	0.8718
	l1m1hCO	**0.2975**	**0.1359**	**0.0288**
	l2m1hCO	0.0397	0.1364	0.7709
	d3m1hCO	0.1649	0.1713	0.3357
	d5m1hCO	0.2050	0.1922	0.2861
l1a24bsp	a8hCO	0.1810	0.2264	0.4242
	l1a8hCO	0.2201	0.2262	0.3295
	l2a8hCO	0.1315	0.2268	0.5621
	d3a8hCO	0.2692	0.2830	0.3417
	d5a8hCO	0.2987	0.3182	0.3480
	m1hCO	-0.1112	0.1369	0.4164
	l1m1hCO	0.1461	0.1365	0.2846
	l2m1hCO	-0.0599	0.1368	0.6614
	d3m1hCO	-0.0137	0.1718	0.9364
	d5m1hCO	0.0258	0.1927	0.8935
l124hnNO_2	a8hCO	0.1807	0.2257	0.4232
	l1a8hCO	0.1600	0.2255	0.4779
	l2a8hCO	0.1206	0.2260	0.5937
	d3a8hCO	0.2327	0.2821	0.4096
	d5a8hCO	0.3027	0.3171	0.3400
	m1hCO	-0.1689	0.1363	0.2154
	l1m1hCO	-0.0591	0.1360	0.6641
	l2m1hCO	-0.1397	0.1363	0.3054
	d3m1hCO	-0.1934	0.1711	0.2585
	d5m1hCO	-0.1060	0.1920	0.5809

Note: As the parameter estimates presented in this table were generated using residuals from a Poisson model, the units are in "number of deaths"

Table B3d Summary of results using trigonometric filtering – multi-pollutant models: bsp controlling for other pollutants - Total deaths*

Controlling for:	Pollutant concentration	Parameter estimate	Standard error	p
d3a8hCO	a24hbsp	0.3809	0.6555	0.5612
	l1a24bsp	1.0024	0.6551	0.1261
	l2a24bsp	0.0357	0.6601	0.9569
	d3a24bsp	0.6280	0.7553	0.4058
	d5a24bsp	0.5769	0.8401	0.4923
	m1hbsp	0.0531	0.3099	0.8640
	l1m1bsp	0.3746	0.3098	0.2268
	l2m1bsp	0.0620	0.3109	0.8420
	d3m1bsp	0.2225	0.3619	0.5388
	d5m1bsp	0.3129	0.4022	0.4368
l1a24hNO_2	a24hbsp	-0.4208	0.6550	0.5206
	l1a24bsp	-0.4268	0.6550	0.5147
	l2a24bsp	-0.6305	0.6595	0.3392
	d3a24bsp	-0.6505	0.7548	0.3888
	d5a24bsp	-0.4868	0.8393	0.5620
	m1hbsp	-0.3064	0.3096	0.3223
	l1m1bsp	-0.3000	0.3096	0.3327
	l2m1bsp	-0.2422	0.3107	0.4356
	d3m1bsp	-0.3853	0.3616	0.2868
	d5m1bsp	-0.1893	0.4019	0.6376
l1m1hCO	a24hbsp	0.1233	0.6604	0.8619
	l1a24bsp	0.5539	0.6612	0.4023
	l2a24bsp	0.0842	0.6662	0.8994
	d3a24bsp	0.3348	0.7599	0.6596
	d5a24bsp	0.3893	0.8442	0.6447
	m1hbsp	-0.1073	0.3127	0.7316
	l1m1bsp	0.0891	0.3135	0.7764
	l2m1bsp	0.0561	0.3146	0.8584
	d3m1bsp	0.0167	0.3651	0.9635
	d5m1bsp	0.1704	0.4053	0.6742

Note: As the parameter estimates presented in this table were generated using residuals from a Poisson model, the units are in "number of deaths"

Table B3e - Summary of results using trigonometric filtering – multi-pollutant models: O_3 controlling for other pollutants - Total respiratory deaths*

Controlling for:	Pollutant concentration	Parameter estimate	Standard error	p
	a8hO_3	**0.0131**	**0.0052**	**0.0125**
l2a24bsp	l1a8hO_3	0.0035	0.0052	0.5050
	l2a8hO_3	-0.0026	0.0053	0.6170
	d3a8hO_3	0.0075	0.0067	0.2583
	d5a8hO_3	0.0040	0.0077	0.5979
	m1hO_3	**0.0108**	**0.0039**	**0.0058**
	l1m1hO_3	0.0024	0.0039	0.5430
	l2m1hO_3	-0.0018	0.0039	0.6563
	d3m1hO_3	0.0065	0.0051	0.2029
	d5m1hO_3	0.0034	0.0059	0.5625
a24hNO_2	**a8hO_3**	**0.0116**	**0.0052**	**0.0266**
	l1a8hO_3	0.0029	0.0052	0.5836
	l2a8hO_3	-0.0025	0.0053	0.6355
	d3a8hO_3	0.0065	0.0068	0.3306
	d5a8hO_3	0.0034	0.0077	0.6611
	m1hO_3	**0.0090**	**0.0039**	**0.0214**
	l1m1hO_3	0.0014	0.0039	0.7124
	l2m1hO_3	-0.0022	0.0039	0.5761
	d3m1hO_3	0.0047	0.0051	0.3576
	d5m1hO_3	0.0018	0.0059	0.7565
d5ma8C0	**a8hO_3**	**0.0130**	**0.0052**	**0.0134**
	l1a8hO_3	0.0048	0.0053	0.3577
	l2a8hO_3	-0.0024	0.0053	0.6480
	d3a8hO_3	0.0084	0.0067	0.2110
	d5a8hO_3	0.0058	0.0077	0.4521
	m1ho$_3$	**0.0107**	**0.0039**	**0.0061**
	l1m1hO_3	0.0029	0.0039	0.4561
	l2m1hO_3	-0.0022	0.0039	0.5846
	d3m1hO_3	0.0066	0.0051	0.1992
	d5m1hO_3	0.0038	0.0060	0.5183

Note: As the parameter estimates presented in this table were generated using residuals from a Poisson model, the units are in "number of deaths"

Table B3f - Summary of results using trigonometric filtering – multi-pollutant models: NO_2 controlling for other pollutants - Total cardiovascular deaths*

Controlling for:	Pollutant concentration	Parameter estimate	Standard error	p
l1m1hO_3	a24hNO_2	-0.0026	0.0207	0.8983
	l1a24NO_2	0.0278	0.0207	0.1781
	l2a24NO_2	-0.0084	0.0207	0.6853
	d3a24NO_2	0.0084	0.0254	0.7394
	d5a24NO_2	0.0104	0.0284	0.7143
	m1hNO_2	0.0017	0.0109	0.8749
	l1m1NO_2	0.0105	0.0109	0.3393
	l2m1NO_2	-0.0078	0.0109	0.4761
	d3m1NO_2	0.0025	0.0143	0.8619
	d5m1NO_2	0.0004	0.0166	0.9791
ll1a24bsp	a24hNO_2	-0.0071	0.0201	0.7302
	l1a24NO_2	0.0193	0.0207	0.3497
	l2a24NO_2	-0.0162	0.0207	0.4330
	d3a24NO_2	-0.0020	0.0254	0.9369
	d5a24NO_2	-0.0011	0.0284	0.9688
	m1hNO_2	0.0003	0.0109	0.9765
	l1m1NO_2	0.0075	0.0109	0.4910
	l2m1NO_2	-0.0116	0.0109	0.2885
	d3m1NO_2	-0.0021	0.0143	0.8815
	d5m1NO_2	-0.0055	0.0166	0.7406
m1hCO	a24hNO_2	0.0201	0.0209	0.3364
	l1a24NO_2	**0.0443**	**0.0209**	**0.0340**
	l2a24NO_2	-0.0065	0.0209	0.7571
	d3a24NO_2	0.0290	0.0256	0.2570
	d5a24NO_2	0.0261	0.0287	0.3633
	m1hNO_2	0.0138	0.0111	0.2114
	l1m1NO_2	0.0210	0.0110	0.0578
	l2m1NO_2	-0.0070	0.0111	0.5241
	d3m1NO_2	0.0157	0.0144	0.2759
	d5m1NO_2	0.0105	0.0168	0.5314

Note: As the parameter estimates presented in this table were generated using residuals from a Poisson model, the units are in "number of deaths"

PRELIMINARY ANALYSIS OF AVAILABLE PM10 AND PM2.5 DATA

Table B4a - Descriptive statistics for particle mass data (ug/m^3)

Outcome	Whole study period				Cool season[a]				Warm season[b]			
	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
24-hour PM_{10}	18.97	6.99	11.31	79.59	18.53	7.43	11.31	79.59	19.60	6.24	12.55	76.81
24-hour $PM_{2.5}$	9.42	3.65	6.15	42.58	9.85	4.00	6.18	42.58	8.79	2.97	6.15	35.33
24-hour PM_{10} (6 day measure)	20.29	8.92	4.55	62.44	20.36	9.19	4.54	57.13	20.18	8.50	6.71	62.44

a Cool season: April-October (n=1223)
b Warm season: November-March (n=847)

Table B4b - Correlations between particle measures*

	24 hour PM_{10}	24 hour $PM_{2.5}$	24 hour PM_{10} (6 day measure)
24 hour b_{sp}	0.9507	0.9991	0.7617 (n=332)
24 hour PM_{10}		0.9503	0.7465 (n=332)
24 hour $PM_{2.5}$			0.7641 (n=332)

* All relationships significant at p=0.0001

Table B4c - Summary of results using trigonometric filtering – PM_{10} and $PM_{2.5}$ data - Total deaths

	Pollutant concentration	Parameter estimate	Standard error	p
PM_{10} (measured every 6th day)	$PM_{10}D6$	-0.0008	0.0009	0.3983
	$L1PM_{10}D6$	0.0011	0.0009	0.1957
	$L2PM_{10}D6$	0.0004	0.0010	0.6672
PM_{10}	$A24PM_{10}$	0.0006	0.0004	0.2161
	$L124PM_{10}$	**0.0009**	**0.0005**	**0.0375**
	$L224PM_{10}$	0.0001	0.0005	0.7582
	$D324PM_{10}$	0.0008	0.0005	0.1486
	$D524PM_{10}$	0.0006	0.0006	0.3111
$PM_{2.5}$	$A24PM_{2.5}$	0.0010	0.0009	0.2744
	$L124PM_{2.5}$	**0.0019**	**0.0009**	**0.0286**
	$L224PM_{2.5}$	0.0005	0.0009	0.6250
	$D324PM_{2.5}$	0.0016	0.0011	0.1333
	$D524PM_{2.5}$	0.0015	0.0012	0.2224

Table B4d Summary of results using trigonometric filtering – PM_{10} and $PM_{2.5}$ data - Total respiratory deaths

	Pollutant concentration	Parameter estimate	Standard error	p
PM_{10} (measured every 6th day)	$PM_{10}D6$	0.0050	0.0036	0.1709
	$L1PM_{10}D6$	-0.0034	0.0035	0.3328
	$L2PM_{10}D6$	-0.0038	0.0038	0.3215
PM_{10}	$A24PM_{10}$	0.0001	0.0017	0.9651
	$L124PM_{10}$	-0.0009	0.0018	0.6071
	$L224PM_{10}$	-0.0024	0.0018	0.1951
	$D324PM_{10}$	-0.0015	0.0022	0.4802
	$D524PM_{10}$	-0.0011	0.0024	0.6608
$PM_{2.5}$	$A24PM_{2.5}$	-0.0003	0.0034	0.9236
	$L124PM_{2.5}$	-0.0016	0.0035	0.6555
	$L224PM_{2.5}$	-0.0040	0.0035	0.2610
	$D324PM_{2.5}$	-0.0029	0.7261	0.5023
	$D524PM_{2.5}$	-0.0015	0.0047	0.7474

Table B4e - Summary of results using trigonometric filtering – PM_{10} and $PM_{2.5}$ data - Total cardiovascular deaths

	Pollutant concentration	Parameter estimate	Standard error	p
PM_{10} (measured every 6th day)	$PM_{10}D6$	-0.0006	0.0014	0.6606
	$L1PM_{10}D6$	0.0019	0.0015	0.2200
	$L2PM_{10}D6$	0.0012	0.0015	0.4084
PM_{10}	$A24PM_{10}$	0.0001	0.0007	0.8343
	$L124PM_{10}$	0.0011	0.0007	0.1306
	$L224PM_{10}$	0.0006	0.0007	0.4337
	$D324PM_{10}$	0.0009	0.0009	0.3177
	$D524PM_{10}$	0.0009	0.0010	0.3330
$PM_{2.5}$	$A24PM_{2.5}$	0.0003	0.0014	0.8276
	$L124PM_{2.5}$	0.0025	0.0014	0.0840
	$L224PM_{2.5}$	0.0015	0.0014	0.2928
	$D324PM_{2.5}$	0.0020	0.0017	0.2307
	$D524PM_{2.5}$	0.0025	0.0019	0.1916

Table B4f - Summary of results using trigonometric filtering – PM_{10} and $PM_{2.5}$ data - Total deaths by season

Pollutant Concentration	Cool Season[a]			Warm Season[b]		
	Parameter Estimate	Standard Error	t	Parameter Estimate	Standard Error	P
$a24pm_{10}$	0.0001	0.0005	0.8049	**0.0023**	**0.0009**	**0.0001**
$L124pm_{10}$	0.0010	0.0005	0.0630	0.0016	0.0009	0.0732
$L224pm_{10}$	0.0002	0.0006	0.6865	0.0008	0.0010	0.4182
$D324pm_{10}$	0.0007	0.0007	0.3109	**0.0022**	**0.0011**	**0.0385**
$D524pm_{10}$	0.0008	0.0008	0.2711	0.0015	0.0012	0.2339
$A24pm_{2.5}$	0.0001	0.0010	0.9129	**0.0050**	**0.0019**	**0.0074**
$L124pm_{2.5}$	**0.0020**	**0.0010**	**0.0483**	0.0033	0.0019	0.0854
$L224pm_{2.5}$	0.0007	0.0011	0.5448	0.0016	0.0021	0.4615
$D324pm_{2.5}$	0.0014	0.0013	0.2788	**0.0046**	**0.0023**	**0.0439**
$D524pm_{2.5}$	0.0018	0.0015	0.2099	0.0032	0.0027	0.2366

a Cool season: April-October (n=1223)
b Warm season: November-March (n=847)

Table B4g - Summary of results using trigonometric filtering – PM_{10} and $PM_{2.5}$ data - Total respiratory deaths by season

Pollutant Concentration	Cool Season[a]			Warm Season[b]		
	Parameter Estimate	Standard Error	t	Parameter Estimate	Standard Error	P
$a24pm_{10}$	-0.0024	0.0022	0.2823	**0.0076**	**0.0032**	**0.0169**
$L124pm_{10}$	-0.0018	0.0023	0.4329	0.0039	0.0034	0.2585
$L224pm_{10}$	-0.0013	0.0022	0.5404	-0.0020	0.0038	0.6095
$D324pm_{10}$	-0.0029	0.0028	0.3023	0.0052	0.0041	0.2051
$D524pm_{10}$	-0.0006	0.0030	0.8377	0.0038	0.0048	0.4303
$A24pm_{2.5}$	-0.0047	0.0041	0.2505	**0.0169**	**0.0068**	**0.0132**
$L124pm_{2.5}$	-0.0031	0.0043	0.4680	0.0092	0.0074	0.2158
$L224pm_{2.5}$	-0.0021	0.0041	0.6118	-0.0037	0.0083	0.6578
$D324pm_{2.5}$	-0.0052	0.0052	0.3180	0.0119	0.0087	0.1731
$D524pm_{2.5}$	-0.0005	0.0057	0.9240	0.0085	0.0102	0.4049

a Cool season: April-October (n=1223)
b Warm season: November-March (n=847)

Table B4h Summary of results using trigonometric filtering – PM_{10} and $PM_{2.5}$ data - Total cardiovascular deaths by season

Pollutant Concentration	Cool Season[a]			Warm Season[b]		
	Parameter Estimate	Standard Error	P	Parameter Estimate	Standard Error	P
a24pm$_{10}$	0.0001	0.0009	0.9031	0.0003	0.0014	0.8506
L124pm$_{10}$	0.0016	0.0009	0.0746	0.0001	0.0014	0.9501
L224pm$_{10}$	0.0011	0.0009	0.2191	-0.0006	0.0015	0.6787
D324pm$_{10}$	0.0014	0.0011	0.1972	-0.0001	0.0017	0.9589
D524pm$_{10}$	0.0017	0.0012	0.1589	-0.0002	0.0020	0.9361
A24pm$_{2.5}$	-0.0000	0.0016	0.9920	0.0009	0.0030	0.7603
L124pm$_{2.5}$	0.0031	0.0017	0.5692	0.0004	0.0031	0.9095
L224pm$_{2.5}$	0.0023	0.0016	0.1566	-0.0014	0.0033	0.6747
D324pm$_{2.5}$	0.0028	0.0020	0.1763	0.0001	0.0037	0.9878
D524pm$_{2.5}$	0.0038	0.0023	0.1027	-0.0001	0.0042	0.9761

a Cool season: April-October (n=1223)
b Warm season: November-March (n=847)

PRELIMINARY REGIONAL ANALYSIS

Table B5a - Summary of results using trigonometric filtering – single pollutant models: total deaths, west region

Outcome	Pollutant concentration	Parameter estimate	Standard error	p
Total deaths	**a8hO_3**	**0.0022**	**0.0008**	**0.0041**
	l1a8hO_3	**0.0020**	**0.0008**	**0.0087**
	l2a8hO_3	0.0008	0.0009	0.3431
	d3a8hO_3	**0.0033**	**0.0011**	**0.0025**
	d5a8hO_3	**0.0035**	**0.0014**	**0.0127**
	a4hO_3	**0.0018**	**0.0006**	**0.0032**
	l1a4hO_3	**0.0015**	**0.0006**	**0.0127**
	l2a4hO_3	0.0006	0.0007	0.3603
	d3a4hO_3	**0.0027**	**0.0009**	**0.0025**
	d5a4ho$_3$	**0.0031**	**0.0012**	**0.0096**
	m1hO_3	**0.0017**	**0.0005**	**0.0001**
	l1m1hO_3	**0.0013**	**0.0005**	**0.0179**
	l2m1hO_3	0.0005	0.0006	0.3721
	d3m1hO_3	**0.0023**	**0.0008**	**0.0024**
	d5m1hO_3	**0.0027**	**0.0010**	**0.0084**
	a24hbsp	0.0321	0.0274	0.2413
	l1a24bsp	0.0468	0.0276	0.0905
	l2a24bsp	0.0417	0.0292	0.1527
	d3a24bsp	0.0566	0.0333	0.0889
	d5a24bsp	0.0678	0.0386	0.0788
	m1hbsp	0.0091	0.0130	0.4860
	l1m1bsp	0.0203	0.0131	0.1218
	l2m1bsp	0.0149	0.0139	0.2830
	d3m1bsp	0.0222	0.0163	0.1750
	d5m1bsp	0.0278	0.0191	0.1450
	a24hNO_2	0.0014	0.0013	0.2666
	l1a24NO_2	0.0020	0.0013	0.1266
	l2a24NO_2	0.0006	0.0014	0.6609
	d3a24NO_2	0.0026	0.0018	0.1489
	d5a24NO_2	0.0021	0.0023	0.3727
	m1hNO_2	0.0004	0.0006	0.5407
	l1m1NO_2	0.0008	0.0006	0.1928
	l2m1NO_2	0.0003	0.0007	0.6396
	d3m1NO_2	0.0010	0.0009	0.2687
	d5m1NO_2	0.0006	0.0012	0.5880

Table B5b - Summary of results using trigonometric filtering – single pollutant models: total cardiovascular deaths, west region

Outcome	Pollutant concentration	Parameter estimate	Standard error	p
Cardiovascular deaths	a8hO_3	0.0003	0.0012	0.7744
	l1a8hO_3	0.0018	0.0012	0.1337
	l2a8hO_3	-0.0011	0.0014	0.4188
	d3a8hO_3	0.0009	0.0017	0.6079
	d5a8hO_3	0.0017	0.0022	0.4338
	a4hO_3	0.0003	0.0010	0.7478
	l1a4hO_3	0.0015	0.0010	0.1079
	l2a4hO_3	-0.0011	0.0011	0.3118
	d3a4hO_3	0.0007	0.0014	0.6220
	d5a4hO_3	0.0012	0.0018	0.5112
	m1hO_3	0.0003	0.0008	0.7132
	l1m1hO_3	0.0011	0.0008	0.1910
	l2m1hO_3	-0.0009	0.0010	0.3274
	d3m1hO_3	0.0005	0.0012	0.7037
	d5m1hO_3	0.0008	0.0016	0.6101
	a24hbsp	0.0352	0.0420	0.4010
	l1a24bsp	0.0643	0.0420	0.1259
	l2a24bsp	0.0562	0.0444	0.2057
	d3a24bsp	0.0732	0.0507	0.1491
	d5a24bsp	0.0880	0.0588	0.1348
	m1hbsp	-0.0015	0.0201	0.9404
	l1m1bsp	0.0242	0.0201	0.2286
	l2m1bsp	0.0208	0.0212	0.3265
	d3m1bsp	0.0214	0.0251	0.3928
	d5m1bsp	0.0235	0.0293	0.4228
	a24hNO_2	0.0026	0.0020	0.1938
	l1a24NO_2	0.0012	0.0020	0.5518
	l2a24NO_2	-0.0007	0.0022	0.7363
	d3a24NO_2	0.0020	0.0028	0.4859
	d5a24NO_2	0.0002	0.0036	0.9509
	m1hNO_2	0.0008	0.0009	0.3859
	l1m1NO_2	0.0008	0.0010	0.4136
	l2m1NO_2	0.0003	0.0011	0.7504
	d3m1NO_2	0.0014	0.0014	0.3340
	d5m1NO_2	0.0010	0.0018	0.5890

Table B5c Summary of results using trigonometric filtering – single pollutant models: total deaths, east region

Outcome	Pollutant concentration	Parameter estimate	Standard error	p
Total deaths	a8hO_3	0.0009	0.0005	0.0683
	l1a8hO_3	0.0006	0.0005	0.2520
	l2a8hO_3	0.0000	0.0005	0.9600
	d3a8hO_3	0.0012	0.0008	0.1126
	d5a8hO_3	0.0006	0.0009	0.5012
	a4hO_3	**0.0008**	**0.0004**	**0.0374**
	l1a4hO_3	0.0006	0.0004	0.1452
	l2a4hO_3	0.0001	0.0004	0.7751
	d3a4hO_3	**0.0013**	**0.0007**	**0.0439**
	d5a4hO_3	0.0006	0.0008	0.4123
	m1hO_3	**0.0008**	**0.0004**	**0.0284**
	l1m1hO_3	0.0007	0.0004	0.0802
	l2m1hO_3	0.0001	0.0004	0.8029
	d3m1hO_3	**0.0013**	**0.0006**	**0.0269**
	d5m1hO_3	0.0007	0.0007	0.3294
	a24hbsp	-0.0048	0.0142	0.7379
	l1a24bsp	0.0055	0.0150	0.7114
	l2a24bsp	-0.0072	0.0149	0.6291
	d3a24bsp	-0.0037	0.0180	0.8394
	d5a24bsp	-0.0062	0.0202	0.7603
	m1hbsp	-0.0057	0.0066	0.3873
	l1m1bsp	0.0006	0.0069	0.9295
	l2m1bsp	0.0011	0.0068	0.8717
	d3m1bsp	-0.0025	0.0087	0.7693
	d5m1bsp	0.0010	0.0010	0.9189
	a24hNO_2	0.0009	0.0008	0.2780
	l1a24NO_2	**0.0024**	**0.0009**	**0.0066**
	l2a24NO_2	-0.0006	0.0009	0.5058
	d3a24NO_2	0.0020	0.0023	0.1153
	d5a24NO_2	0.0015	0.0015	0.3199
	m1hNO_2	0.0004	0.0005	0.4056
	l1m1NO_2	0.0008	0.0005	0.1107
	l2m1NO_2	-0.0005	0.0005	0.2936
	d3m1NO_2	0.0006	0.0007	0.4211
	d5m1NO_2	0.0002	0.0008	0.7902

Table B5d - Summary of results using trigonometric filtering – single pollutant models: total cardiovascular deaths, east region

Outcome	Pollutant concentration	Parameter estimate	Standard error	p
Cardiovascular deaths	a8hO_3	-0.0005	0.0007	0.5058
	l1a8hO_3	-0.0002	0.0008	0.8468
	l2a8hO_3	-0.0006	0.0008	0.4719
	d3a8hO_3	-0.0009	0.0012	0.4197
	d5a8hO_3	-0.0010	0.0014	0.4539
	a4hO_3	-0.0003	0.0006	0.6154
	l1a4hO_3	0.0001	0.0007	0.8665
	l2a4hO_3	-0.0003	0.0007	0.6571
	d3a4hO_3	-0.0004	0.0010	0.6800
	d5a4hO_3	0.0012	0.0012	0.7114
	m1hO_3	-0.0001	0.0005	0.8047
	l1m1hO_3	0.0003	0.0006	0.6661
	l2m1hO_3	-0.0002	0.0006	0.7596
	d3m1hO_3	-0.0001	0.0009	0.9428
	d5m1hO_3	-0.0000	0.0011	0.9701
	a24hbsp	-0.0033	0.0215	0.8789
	l1a24bsp	0.0169	0.0226	0.4545
	l2a24bsp	0.0101	0.0224	0.6518
	d3a24bsp	0.0109	0.0271	0.8675
	d5a24bsp	0.0120	0.0304	0.6943
	m1hbsp	-0.0038	0.0100	0.7032
	l1m1bsp	0.0040	0.0104	0.7022
	l2m1bsp	-0.0003	0.0103	0.9758
	d3m1bsp	-0.0003	0.0131	0.9831
	d5m1bsp	0.0013	0.0149	0.9309
	a24hNO_2	-0.0010	0.0013	0.4396
	l1a24NO_2	0.0021	0.0013	0.1086
	l2a24NO_2	0.0003	0.0013	0.7995
	d3a24NO_2	0.0008	0.0019	0.6647
	d5a24NO_2	0.0024	0.0023	0.3007
	m1hNO_2	-0.0005	0.0007	0.4854
	l1m1NO_2	0.0003	0.0007	0.6960
	l2m1NO_2	-0.0002	0.0007	0.7921
	d3m1NO_2	-0.0003	0.0011	0.7563
	d5m1NO_2	0.0000	0.0013	0.9716

Table B5e - Summary of results using trigonometric filtering – single pollutant models: total respiratory deaths, east region

Outcome	Pollutant concentration	Parameter estimate	Standard error	p
Respiratory deaths	**a8hO_3**	**0.0033**	**0.0016**	**0.0367**
	l1a8hO_3	0.0002	0.0016	0.9031
	l2a8hO_3	-0.0007	0.0019	0.6911
	d3a8hO_3	0.0020	0.0022	0.3794
	d5a8hO_3	0.0007	0.0029	0.8001
	a4hO_3	**0.0031**	**0.0013**	**0.0193**
	l1a4hO_3	-0.0001	0.0014	0.9409
	l2a4hO_3	-0.0004	0.0016	0.7811
	d3a4hO_3	0.0019	0.0019	0.3359
	d5a4hO_3	0.0004	0.0025	0.8756
	m1hO_3	**0.0028**	**0.0012**	**0.0209**
	l1m1hO_3	0.0000	0.0012	0.9893
	l2m1hO_3	-0.0007	0.0014	0.6356
	d3m1hO_3	0.0016	0.0017	0.3628
	d5m1hO_3	0.0001	0.0023	0.9628
	a24hbsp	-0.0458	0.0476	0.3364
	l1a24bsp	0.0015	0.0477	0.9753
	l2a24bsp	0.0037	0.0514	0.9434
	d3a24bsp	-0.0185	0.0583	0.7509
	d5a24bsp	0.0042	0.0675	0.9507
	m1hbsp	-0.0169	0.0219	0.4401
	l1m1bsp	-0.0057	0.0222	0.7959
	l2m1bsp	0.0063	0.0233	0.7858
	d3m1bsp	-0.0075	0.0279	0.7877
	d5m1bsp	0.0121	0.0327	0.7126
	a24hNO_2	0.0016	0.0029	0.5888
	l1a24NO_2	0.0018	0.0029	0.5318
	l2a24NO_2	-0.0039	0.0031	0.1989
	d3a24NO_2	-0.0006	0.0041	0.8867
	d5a24NO_2	-0.0022	0.0052	0.6741
	m1hNO_2	-0.0005	0.0016	0.7351
	l1m1NO_2	0.0004	0.0016	0.7803
	l2m1NO_2	-0.0021	0.0017	0.2141
	d3m1NO_2	-0.0015	0.0023	0.5067
	d5m1NO_2	-0.0016	0.0029	0.5710

APPENDIX

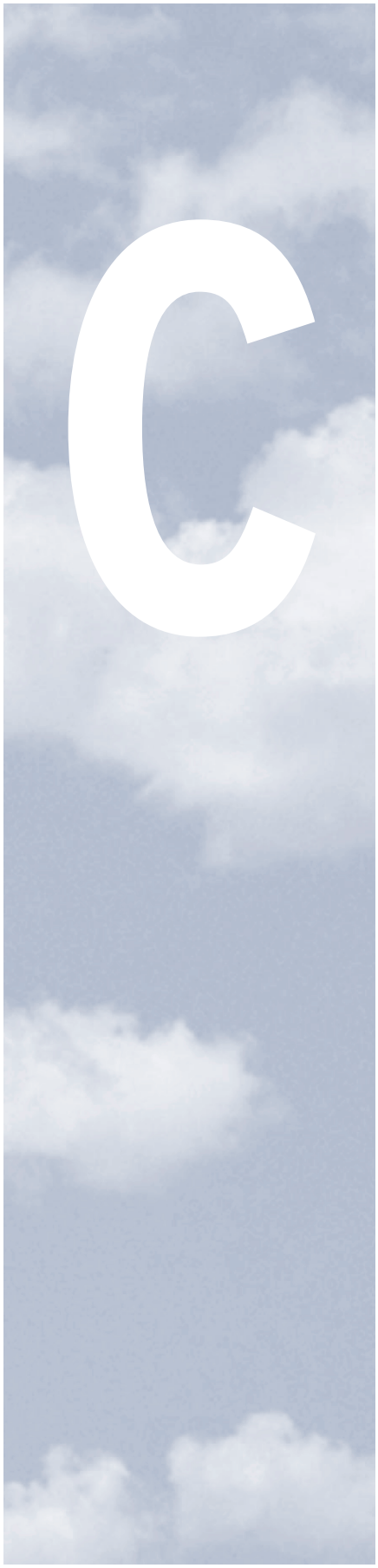

Table C1a - Summary of results using Generalised Additive Models (optimal model) – single pollutant models: total deaths

GENERALISED ADDITIVE MODELS

Outcome	Pollutant concentration	Parameter estimate	Standard error	t
Total deaths	a8hO_3	0.0006	0.0004	1.50
	l1a8hO_3	0.0004	0.0004	0.91
	l2a8hO_3	-0.0000	0.0004	-0.02
	d3a8hO_3	0.0007	0.0006	1.27
	d5a8hO_3	0.0006	0.0006	0.92
	a4hO_3	0.0006	0.0003	1.64
	l1a4hO_3	0.0003	0.0004	0.95
	l2a4hO_3	-0.0000	0.0003	-0.08
	d3a4hO_3	0.0007	0.0005	1.35
	d5a4hO_3	0.0004	0.0006	0.73
	m1hO_3	0.0005	0.0003	1.66
	l1m1hO_3	0.0004	0.0003	1.21
	l2m1hO_3	-0.0000	0.0003	-0.12
	d3m1hO_3	0.0007	0.0005	1.48
	d5m1hO_3	0.0004	0.0005	0.75
	a24hbsp	0.0010	0.0124	0.08
	l1a24bsp	0.0043	0.0126	0.34
	l2a24bsp	-0.0090	0.0125	-0.72
	d3a24bsp	-0.0017	0.0144	-0.12
	d5a24bsp	0.0004	0.0159	0.03
	m1hbsp	-0.0027	0.0060	-0.45
	l1m1bsp	0.0002	0.0060	0.03
	l2m1bsp	-0.0032	0.0060	-0.54
	d3m1bsp	-0.0028	0.0071	-0.40
	d5m1bsp	0.0013	0.0077	0.16
	a24hNO_2	0.0010	0.0006	1.64
	l1a24NO_2	**0.0016**	**0.0006**	**2.58**
	l2a24NO_2	-0.0004	0.0006	-0.66
	d3a24NO_2	**0.0016**	**0.0008**	**2.01**
	d5a24NO_2	0.0010	0.0009	1.16
	m1hNO_2	0.0004	0.0003	1.30
	l1m1NO_2	0.0006	0.0003	1.68
	l2m1NO_2	-0.0002	0.0003	-0.74
	d3m1NO_2	0.0006	0.0004	1.33
	d5m1NO_2	0.0001	0.0005	0.15
	a8hCO	0.0037	0.0042	0.87
	l1a8hCO	0.0045	0.0042	1.08
	l2a8hCO	0.0032	0.0042	0.76
	d3a8hCO	0.0072	0.0053	1.36
	d5a8hCO	0.0102	0.0061	1.67
	m1hCO	-0.0018	0.0027	-0.67
	l1m1hCO	0.0031	0.0027	1.13
	l2m1hCO	-0.0013	0.0027	-0.49
	d3m1hCO	0.0001	0.0036	0.03
	d5m1hCO	0.0026	0.0039	0.66

Table C1b - Summary of results using Generalised Additive Models (optimal model) – single pollutant models: total deaths aged 65+

Outcome	Pollutant concentration	Parameter estimate	Standard error	t
Total 65+	**a8hO_3**	**0.0009**	**0.0004**	**2.14**
	l1a8hO_3	0.0007	0.0005	1.48
	l2a8hO_3	0.0008	0.0005	1.60
	d3a8hO_3	**0.0018**	**0.0007**	**2.74**
	d5a8hO_3	**0.0020**	**0.0007**	**2.65**
	a4hO_3	**0.0009**	**0.0004**	**2.49**
	l1a4hO_3	0.0006	0.0004	1.47
	l2a4hO_3	0.0006	0.0004	1.61
	d3a4hO_3	**0.0017**	**0.0006**	**2.92**
	d5a4hO_3	**0.0018**	**0.0007**	**2.65**
	m1hO_3	**0.0008**	**0.0003**	**2.49**
	l1m1hO_3	0.0006	0.0004	1.70
	l2m1hO_3	0.0005	0.0004	1.50
	d3m1hO_3	**0.0015**	**0.0005**	**2.99**
	d5m1hO_3	**0.0016**	**0.0006**	**2.63**
	a24hbsp	-0.0031	0.0136	-0.23
	l1a24bsp	0.0008	0.0136	0.06
	l2a24bsp	-0.0069	0.0136	-0.51
	d3a24bsp	-0.0040	0.0156	-0.26
	d5a24bsp	0.0049	0.0173	0.28
	m1hbsp	-0.0041	0.0065	-0.63
	l1m1bsp	0.0010	0.0065	0.15
	l2m1bsp	-0.0012	0.0065	-0.18
	d3m1bsp	-0.0020	0.0076	-0.26
	d5m1bsp	0.0032	0.0084	0.39
	a24hNO_2	**0.0014**	**0.0007**	**2.00**
	l1a24NO_2	**0.0019**	**0.0007**	**2.65**
	l2a24NO_2	0.0005	0.0007	0.82
	d3a24NO_2	**0.0025**	**0.0009**	**2.90**
	d5a24NO_2	**0.0031**	**0.0009**	**3.26**
	m1hNO_2	0.0006	0.0004	1.55
	l1m1NO_2	0.0007	0.0004	1.94
	l2m1NO_2	0.0004	0.0003	1.24
	d3m1NO_2	**0.0012**	**0.0005**	**2.46**
	d5m1NO_2	**0.0014**	**0.0005**	**2.64**
	a8hCO	0.0010	0.0047	0.22
	l1a8hCO	0.0029	0.0047	0.62
	l2a8hCO	0.0038	0.0047	0.82
	d3a8hCO	0.0050	0.0059	0.85
	d5a8hCO	0.0092	0.0068	1.37
	m1hCO	-0.0016	0.0029	-0.55
	l1m1hCO	0.0022	0.0029	0.74
	l2m1hCO	0.0002	0.0029	0.07
	d3m1hCO	0.0007	0.0038	0.19
	d5m1hCO	0.0036	0.0042	0.85

Table C1c - Summary of results using Generalised Additive Models (optimal model) – single pollutant models: total deaths aged <65

Outcome	Pollutant concentration	Parameter estimate	Standard error	t
Total < 65	a8hO_3	-0.0003	0.0008	-0.32
	l1a8hO_3	0.0006	0.0008	0.72
	l2a8hO_3	0.0003	0.0009	0.31
	d3a8hO_3	0.0003	0.0011	0.31
	d5a8hO_3	-0.0011	0.0014	-0.80
	a4hO_3	-0.0004	0.0007	-0.65
	l1a4hO_3	0.0005	0.0007	0.76
	l2a4hO_3	0.0001	0.0008	0.16
	d3a4hO_3	0.0001	0.0010	0.11
	d5a4hO_3	-0.0013	0.0012	-1.04
	m1hO_3	-0.0004	0.0006	-0.63
	l1m1hO_3	0.0005	0.0006	0.77
	l2m1hO_3	-0.0000	0.0007	-0.01
	d3m1hO_3	0.0000	0.0009	0.06
	d5m1hO_3	-0.0013	0.0011	-1.14
	a24hbsp	0.0231	0.0273	0.85
	l1a24bsp	0.0361	0.0281	1.28
	l2a24bsp	0.0091	0.0277	0.33
	d3a24bsp	0.0315	0.0320	0.98
	d5a24bsp	0.0319	0.0349	0.91
	m1hbsp	0.0045	0.0132	0.34
	l1m1bsp	0.0052	0.0136	0.38
	l2m1bsp	0.0007	0.0133	0.05
	d3m1bsp	0.0052	0.0158	0.33
	d5m1bsp	0.0162	0.0171	0.95
	a24hNO_2	0.0004	0.0014	0.26
	l1a24NO_2	0.0023	0.0014	1.64
	l2a24NO_2	-0.0011	0.0013	-0.82
	d3a24NO_2	0.0009	0.0017	0.52
	d5a24NO_2	-0.0004	0.0019	-0.21
	m1hNO_2	0.0002	0.0007	0.35
	l1m1NO_2	0.0012	0.0007	1.62
	l2m1NO_2	-0.0007	0.0007	-1.01
	d3m1NO_2	0.0005	0.0009	0.53
	d5m1NO_2	-0.0007	0.0011	-0.69
	a8hCO	0.0150	0.0094	1.60
	l1a8hCO	0.0135	0.0096	1.43
	l2a8hCO	0.0040	0.0095	0.42
	d3a8hCO	0.0192	0.0120	1.60
	d5a8hCO	0.0220	0.0137	1.61
	m1hCO	-0.0040	0.0059	-0.67
	l1m1hCO	0.0088	0.0062	1.43
	l2m1hCO	-0.0039	0.0060	-0.65
	d3m1hCO	0.0003	0.0080	0.04
	d5m1hCO	0.0073	0.0087	0.84

Table C1d Summary of results using Generalised Additive Models (optimal model) – single pollutant models: total respiratory deaths

Outcome	Pollutant concentration	Parameter estimate	Standard error	t
Total Respiratory	a8hO_3	0.0029	0.0015	1.95
	l1a8hO_3	0.0002	0.0015	0.14
	l2a8hO_3	-0.0013	0.0015	-0.86
	d3a8hO_3	0.0015	0.0021	0.73
	d5a8hO_3	-0.0005	0.0023	-0.20
	a4hO_3	**0.0027**	**0.0012**	**2.16**
	l1a4hO_3	-0.0004	0.0013	-0.31
	l2a4hO_3	-0.0013	0.0013	-1.01
	d3a4hO_3	0.0010	0.0019	0.53
	d5a4hO_3	-0.0011	0.0021	-0.52
	m1hO_3	**0.0023**	**0.0011**	**2.12**
	l1m1hO_3	-0.0001	0.0012	-0.12
	l2m1hO_3	-0.0013	0.0011	-1.12
	d3m1hO_3	0.0010	0.0017	0.57
	d5m1hO_3	-0.0010	0.0019	-0.53
	a24hbsp	-0.0164	0.0439	-0.37
	l1a24bsp	-0.0601	0.0452	-1.33
	l2a24bsp	-0.0785	0.0475	-1.65
	d3a24bsp	-0.0699	0.0525	-1.33
	d5a24bsp	-0.0554	0.0581	-0.95
	m1hbsp	-0.0016	0.0207	-0.08
	l1m1bsp	-0.0190	0.0210	-0.91
	l2m1bsp	-0.0254	0.0220	-1.15
	d3m1bsp	-0.0214	0.0259	-0.86
	d5m1bsp	-0.0094	0.0277	-0.34
	a24hNO_2	0.0027	0.0022	1.26
	l1a24NO_2	0.0017	0.0022	0.77
	l2a24NO_2	-0.0020	0.0023	-0.90
	d3a24NO_2	0.0021	0.0027	0.76
	d5a24NO_2	0.0032	0.0031	1.04
	m1hNO_2	0.0007	0.0012	0.65
	l1m1NO_2	0.0006	0.0012	0.49
	l2m1NO_2	-0.0011	0.0012	-0.90
	d3m1NO_2	0.0004	0.0016	0.26
	d5m1NO_2	0.0009	0.0018	0.50
	a8hCO	0.0155	0.0146	1.06
	l1a8hCO	-0.0016	0.0148	-0.11
	l2a8hCO	-0.0009	0.0148	-0.06
	d3a8hCO	0.0089	0.0188	0.48
	d5a8hCO	0.0293	0.0215	1.36
	m1hCO	-0.0030	0.0092	-0.33
	l1m1hCO	-0.0100	0.0092	-1.08
	l2m1hCO	-0.0061	0.0096	-0.64
	d3m1hCO	-0.0119	0.0121	-0.98
	d5m1hCO	0.0067	0.0139	0.49

Table C1e - Summary of results using Generalised Additive Models (optimal model) – single pollutant models: total respiratory deaths aged 65+

Outcome	Pollutant concentration	Parameter estimate	Standard error	t
Respiratory 65 +	a8hO_3	0.0027	0.0016	1.73
	l1a8hO_3	0.0001	0.0016	0.08
	l2a8hO_3	-0.0001	0.0016	-0.09
	d3a8hO_3	0.0022	0.0023	0.98
	d5a8hO_3	-0.0001	0.0025	-0.04
	a4hO_3	**0.0027**	**0.0013**	**2.07**
	l1a4hO_3	-0.0005	0.0014	-0.39
	l2a4hO_3	-0.0001	0.0014	-0.11
	d3a4hO_3	0.0019	0.0020	0.94
	d5a4hO_3	-0.0005	0.0022	-0.24
	m1hO_3	**0.0024**	**0.0012**	**2.07**
	l1m1hO_3	-0.0002	0.0012	-0.19
	l2m1hO_3	-0.0002	0.0012	-0.16
	d3m1hO_3	0.0018	0.0018	1.03
	d5m1hO_3	-0.0003	0.0020	-0.13
	a24hbsp	-0.0179	0.0466	-0.38
	l1a24bsp	-0.0270	0.0467	-0.58
	l2a24bsp	-0.0285	0.0470	-0.61
	d3a24bsp	-0.0338	0.0540	-0.63
	d5a24bsp	-0.0166	0.0598	-0.28
	m1hbsp	0.0033	0.0218	0.15
	l1m1bsp	-0.0012	0.0217	-0.05
	l2m1bsp	0.0022	0.0217	0.10
	d3m1bsp	0.0026	0.0254	0.10
	d5m1bsp	0.0124	0.0282	0.44
	a24hNO_2	0.0024	0.0023	1.02
	l1a24NO_2	0.0036	0.0023	1.54
	l2a24NO_2	0.0012	0.0023	0.52
	d3a24NO_2	0.0047	0.0029	0.61
	d5a24NO_3	**0.0071**	**0.0033**	**2.16**
	m1hNO_2	0.0005	0.0012	0.37
	l1m1NO_2	0.0013	0.0012	1.05
	l2m1NO_2	0.0005	0.0013	0.43
	d3m1NO_2	0.0017	0.0017	1.04
	d5m1NO_2	0.0030	0.0019	1.57
	a8hCO	0.0181	0.0155	1.17
	l1a8hCO	0.0039	0.0157	0.25
	l2a8hCO	0.0048	0.0157	0.31
	d3a8hCO	0.0165	0.0199	0.83
	d5a8hCO	0.0342	0.0228	1.50
	m1hCO	-0.0009	0.0097	-0.09
	l1m1hCO	-0.0072	0.0097	-0.74
	l2m1hCO	0.0029	0.0095	0.30
	d3m1hCO	-0.0029	0.0125	-0.23
	d5m1hCO	0.0156	0.0141	1.10

Table C1f - Summary of results using Generalised Additive Models (optimal model) – single pollutant models: total cardiovascular deaths

Outcome	Pollutant concentration	Parameter estimate	Standard error	t
Total Cardiovascular	a8hO_3	-0.0004	0.0005	-0.68
	l1a8hO_3	0.0002	0.0006	0.32
	l2a8hO_3	0.0005	0.0007	0.75
	d3a8hO_3	0.0000	0.0008	0.06
	d5a8hO_3	0.0005	0.0010	0.48
	a4hO_3	-0.0003	0.0005	-0.58
	l1a4hO_3	0.0004	0.0005	0.78
	l2a4hO_3	0.0004	0.0006	0.66
	d3a4hO_3	0.0002	0.0007	0.31
	d5a4hO_3	0.0007	0.0009	0.75
	m1hO_3	-0.0002	0.0004	-0.50
	l1m1hO_3	0.0005	0.0005	1.01
	l2m1hO_3	0.0003	0.0005	0.66
	d3m1hO_3	0.0003	0.0006	0.48
	d5m1hO_3	0.0006	0.0008	0.82
	a24hbsp	-0.0001	0.0182	-0.01
	l1a24bsp	0.0241	0.0181	1.33
	l2a24bsp	0.0092	0.0182	0.51
	d3a24bsp	0.0154	0.0209	0.74
	d5a24bsp	0.0331	0.0231	1.43
	m1hbsp	-0.0052	0.0087	-0.59
	l1m1bsp	0.0060	0.0087	0.69
	l2m1bsp	0.0008	0.0087	0.10
	d3m1bsp	0.0008	0.0102	0.08
	d5m1bsp	0.0099	0.0112	0.88
	a24hno_2	0.0006	0.0009	0.61
	l1a24nNO_2	**0.0021**	**0.0009**	**2.17**
	l2a24NO_2	0.0002	0.0009	0.27
	d3a24NO_2	0.0017	0.0012	1.50
	d5a24NO_2	**0.0033**	**0.0013**	**2.59**
	m1hNO_2	0.0004	0.0005	0.86
	l1m1NO_2	0.0009	0.0005	1.86
	l2m1NO_2	0.0001	0.0005	0.30
	d3m1NO_2	0.0010	0.0006	1.51
	d5m1NO_2	**0.0015**	**0.0007**	**2.08**
	a8hCO	-0.0027	0.0063	-0.42
	l1a8hCO	0.0052	0.0063	0.82
	l2a8hCO	0.0070	0.0063	1.12
	d3a8hCO	0.0061	0.0080	0.76
	d5a8hCO	**0.0191**	**0.0091**	**2.10**
	m1hCO	-0.0042	0.0039	-1.07
	l1m1hCO	0.0042	0.0039	1.08
	l2m1hCO	0.0008	0.0039	0.20
	d3m1hCO	0.0006	0.0051	0.12
	d5m1hCO	0.0065	0.0057	1.13

Table C1g - Summary of results using Generalised Additive Models (optimal model) – single pollutant models: total cardiovascular deaths aged 65+

Outcome	Pollutant concentration	Parameter estimate	Standard error	t
Cardiovascular 65 +	a8hO_3	-0.0008	0.0006	-1.29
	l1a8hO_3	0.0003	0.0007	0.40
	l2a8hO_3	0.0006	0.0007	0.93
	d3a8hO_3	-0.0001	0.0009	-0.12
	d5a8hO_3	0.0006	0.0011	0.56
	a4hO_3	-0.0005	0.0005	-0.98
	l1a4hO_3	0.0005	0.0006	0.82
	l2a4hO_3	0.0006	0.0006	1.02
	d3a4hO_3	0.0003	0.0008	0.32
	d5a4hO_3	0.0009	0.0010	0.95
	m1hO_3	-0.0004	0.0005	-0.84
	l1m1hO_3	0.0005	0.0005	1.03
	l2m1hO_3	0.0005	0.0005	1.00
	d3m1hO_3	0.0004	0.0007	0.50
	d5m1hO_3	0.0009	0.0009	1.00
	a24hbsp	0.0023	0.0195	0.12
	l1a24bsp	0.0248	0.0195	1.28
	l2a24bsp	0.0146	0.0193	0.76
	d3a24bsp	0.0193	0.0223	0.86
	d5a24bsp	0.0403	0.0246	1.64
	m1hbsp	-0.0040	0.0093	-0.43
	l1m1bsp	0.0088	0.0093	0.95
	l2m1bsp	0.0052	0.0092	0.56
	d3m1bsp	0.0049	0.0109	0.45
	d5m1bsp	0.0150	0.0119	1.25
	a24hNO_2	0.0004	0.0010	0.36
	l1a24NO_2	**0.0023**	**0.0010**	**2.29**
	l2a24NO_2	0.0009	0.0009	0.97
	d3a24NO_2	0.0022	0.0012	1.81
	d5a24NO_2	**0.0043**	**0.0014**	**3.20**
	m1hNO_2	0.0003	0.0005	0.59
	l1m1NO_2	0.0009	0.0005	1.72
	l2m1NO_2	0.0005	0.0005	0.95
	d3m1NO_2	0.0012	0.0007	1.69
	d5m1NO_2	**0.0020**	**0.0008**	**2.59**
	a8hCO	-0.0024	0.0067	-0.36
	l1a8hCO	0.0038	0.0067	0.56
	l2a8hCO	0.0038	0.0067	0.56
	d3a8hCO	0.0034	0.0085	0.40
	d5a8hCO	0.0149	0.0097	1.54
	m1hCO	-0.0039	0.0042	-0.94
	l1m1hCO	0.0043	0.0042	1.03
	l2m1hCO	0.0029	0.0041	0.70
	d3m1hCO	0.0021	0.0054	0.39
	d5m1hCO	0.0091	0.0061	1.51

Table C1h - Summary of results using Generalised Additive Models (optimal model) – single pollutant models: total deaths due to digestive disorders

Outcome	Pollutant concentration	Parameter estimate	Standard error	t
Digestive disorders	a8hO_3	0.0016	0.0020	0.83
	l1a8hO_3	0.0015	0.0022	0.66
	l2a8hO_3	0.0005	0.0024	0.20
	d3a8hO_3	0.0026	0.0031	0.84
	d5a8hO_3	0.0037	0.0036	1.04
	a4hO_3	0.0016	0.0017	0.99
	l1a4hO_3	0.0018	0.0019	0.97
	l2a4hO_3	0.0008	0.0020	0.40
	d3a4hO_3	0.0032	0.0027	1.21
	d5a4hO_3	0.0034	0.0032	1.05
	m1hO_3	0.0017	0.0015	1.15
	l1m1hO_3	0.0017	0.0016	1.04
	l2m1hO_3	0.0011	0.0018	0.61
	d3m1hO_3	0.0034	0.0024	0.45
	d5m1hO_3	0.0029	0.0029	0.99
	a24hbsp	-0.0696	0.0686	-1.02
	l1a24bsp	-0.0858	0.0694	-1.24
	l2a24bsp	**-0.1457**	**0.0710**	**-2.05**
	d3a24bsp	-0.1334	0.0806	-1.65
	d5a24bsp	**-0.2511**	**0.0926**	**-2.71**
	m1hbsp	-0.0469	0.0329	-1.42
	l1m1bsp	-0.0296	0.0327	-0.90
	l2m1bsp	-0.0625	0.0332	-1.88
	d3m1bsp	-0.0640	0.0389	-1.65
	d5m1bsp	**-0.1083**	**0.0438**	**-2.47**
	a24hNO_2	0.0031	0.0034	0.92
	l1a24NO_2	0.0044	0.0034	1.29
	l2a24NO_2	0.0004	0.0033	0.12
	d3a24NO_2	0.0041	0.0043	0.96
	d5a24NO_2	-0.0002	0.0047	-0.04
	m1hNO_2	-0.0000	0.0018	-0.00
	l1m1NO_2	0.0028	0.0018	1.57
	l2m1NO_2	-0.0004	0.0017	-0.22
	d3m1NO_2	0.0014	0.0024	0.58
	d5m1NO_2	-0.0003	0.0027	-0.11
	a8hCO	0.0265	0.0227	1.17
	l1a8hCO	0.0287	0.0228	1.26
	l2a8hCO	-0.0182	0.0236	-0.77
	d3a8hCO	0.0204	0.0292	0.70
	d5a8hCO	0.0017	0.0336	0.06
	m1hCO	-0.0117	0.0145	-0.81
	l1m1hCO	-0.0049	0.0146	-0.33
	l2m1hCO	**-0.0306**	**0.0147**	**-2.09**
	d3m1hCO	-0.0265	0.0190	-1.40
	d5m1hCO	-0.0329	0.0213	-0.54

GENERALISED ADDITIVE MODELS: SEASONAL RESULTS

Table C2a - Summary of results using Generalised Additive Models (optimal model) – single pollutant models by season: total deaths

Pollutant Concentration	Cool Season[a]			Warm Season[b]		
	Parameter Estimate	Standard Error	t	Parameter Estimate	Standard Error	t
a8hO_3	-0.0000	0.0007	-0.03	0.0008	0.0005	1.77
l1a8hO_3	-0.0005	0.0007	-0.68	0.0008	0.0005	1.47
l2a8hO_3	-0.0000	0.0007	-0.31	-0.0000	0.0005	-0.01
d3a8hO_3	-0.0003	0.0008	-0.34	0.0013	0.0007	1.71
d5a8hO_3	-0.0009	0.0009	-0.99	0.0013	0.0008	1.54
a4hO_3	-0.0002	0.0007	-0.27	**0.0008**	**0.0004**	**2.00**
l1a4hO_3	-0.0003	0.0007	-0.46	0.0006	0.0004	1.37
l2a4hO_3	-0.0003	0.0006	-0.52	0.0001	0.0004	0.19
d3a4hO_3	-0.0004	0.0008	-0.52	0.0011	0.0006	1.88
d5a4hO_3	-0.0012	0.0009	-1.41	0.0011	0.0007	1.53
m1hO_3	-0.0002	0.0006	-0.37	**0.0007**	**0.0003**	**2.03**
l1m1hO_3	0.0001	0.0006	0.20	0.0005	0.0003	1.38
l2m1hO_3	-0.0006	0.0006	-0.94	0.0001	0.0003	0.33
d3m1hO_3	-0.0004	0.0008	-0.45	**0.0010**	**0.0005**	**1.96**
d5m1hO_3	-0.0011	0.0009	-1.33	0.0009	0.0006	1.48
a24hbsp	-0.0131	0.0148	-0.89	0.0446	0.0236	1.89
l1a24bsp	0.0055	0.0150	0.37	0.0117	0.0241	0.49
l2a24bsp	-0.0093	0.0147	-0.63	-0.0000	0.0254	-0.00
d3a24bsp	-0.0080	0.0175	-0.46	0.0258	0.0270	0.96
d5a24bsp	-0.0005	0.0192	-0.03	0.0179	0.0303	0.59
m1hbsp	-0.0104	0.0073	-1.43	0.0180	0.0110	1.63
l1m1bsp	0.0007	0.0074	0.09	0.0037	0.0112	0.34
l2m1bsp	-0.0023	0.0072	-0.32	-0.0022	0.0116	-0.19
d3m1bsp	-0.0059	0.0087	-0.68	0.0100	0.0132	0.76
d5m1bsp	0.0004	0.0095	0.05	0.0104	0.0148	0.70
a24hNO_2	-0.0002	0.0008	-0.26	**0.0038**	**0.0011**	**3.48**
l1a24hNO_2	0.0010	0.0008	1.25	**0.0034**	**0.0012**	**2.96**
l2a24hNO_2	-0.0012	0.0008	-1.48	0.0015	0.0011	1.32
d3a24hNO_2	-0.0000	0.0011	-0.02	**0.0060**	**0.0015**	**4.06**
d5a24hNO_2	-0.0005	0.0012	-0.43	**0.0055**	**0.0017**	**3.25**
m1hNO_2	-0.0003	0.0005	-0.72	**0.0015**	**0.0005**	**3.04**
l1m1hNO_2	0.0003	0.0005	0.66	**0.0010**	**0.0005**	**1.98**
l2m1hNO_2	-0.0006	0.0005	-1.33	0.0003	0.0005	0.53
d3m1hNO_2	-0.0003	0.0006	-0.48	**0.0021**	**0.0007**	**2.97**
d5m1hNO_2	-0.0010	0.0008	-1.37	**0.0018**	**0.0008**	**2.33**
a8hCO	0.0018	0.0046	0.40	0.0229	0.0128	1.79
l1a8hCO	0.0039	0.0046	0.84	0.0135	0.0130	1.04
l2a8hCO	0.0036	0.0046	0.79	0.0032	0.0131	0.24
d3a8hCO	0.0059	0.0060	0.99	0.0280	0.0173	1.62
d5a8hCO	0.0083	0.0070	0.19	**0.0418**	**0.0202**	**2.06**
m1hCO	-0.0045	0.0030	-1.51	**0.0205**	**0.0078**	**2.64**
l1m1hCO	0.0017	0.0030	0.58	**0.0172**	**0.0078**	**2.20**
l2m1hCO	-0.0022	0.0030	-0.72	0.0093	0.0077	1.21
d3m1hCO	-0.0029	0.0041	-0.71	**0.0372**	**0.0108**	**3.44**
d5m1hCO	0.0005	0.0046	0.11	**0.0372**	**0.0126**	**2.96**

a Cool season: April-October (n=1223)

b Warm season: November-March (n=847)

Table C2b - Summary of results using Generalised Additive Models (optimal model) – single pollutant models by season: total deaths aged 65+

Pollutant Concentration	Cool Season[a]			Warm Season[b]		
	Parameter Estimate	Standard Error	t	Parameter Estimate	Standard Error	t
a8hO_3	0.0005	0.0007	0.72	**0.0010**	**0.0005**	**1.97**
l1a8hO_3	0.0000	0.0008	0.01	0.0010	0.0006	1.68
l2a8hO_3	0.0011	0.0008	1.48	0.0006	0.0006	1.13
d3a8hO_3	0.0011	0.0009	1.18	**0.0022**	**0.0008**	**2.53**
d5a8hO_3	0.0006	0.0010	0.61	**0.0028**	**0.0010**	**2.81**
a4hO_3	0.0005	0.0007	0.67	**0.0010**	**0.0004**	**2.40**
l1a4hO_3	0.0002	0.0007	0.33	0.0007	0.0005	1.53
l2a4hO_3	0.0009	0.0007	1.20	0.0006	0.0005	1.34
d3a4hO_3	0.0011	0.0009	1.20	**0.0019**	**0.0007**	**2.80**
d5a4hO_3	0.0004	0.0010	0.36	**0.0024**	**0.0008**	**2.99**
m1hO_3	0.0004	0.0007	0.53	**0.0009**	**0.0004**	**2.47**
l1m1hO_3	0.0007	0.0007	1.03	0.0006	0.0004	1.50
l2m1hO_3	0.0005	0.0007	0.71	0.0006	0.0004	1.46
d3m1hO_3	0.0011	0.0009	1.22	**0.0017**	**0.0006**	**2.89**
d5m1hO_3	0.0005	0.0010	0.53	**0.0020**	**0.0007**	**2.87**
a24hbsp	-0.0192	0.0161	-1.19	0.0473	0.0259	1.83
l1a24bsp	0.0028	0.0160	0.18	0.0018	0.0268	0.07
l2a24bsp	-0.0058	0.0158	-0.37	-0.0052	0.0284	-0.18
d3a24bsp	-0.0107	0.0186	-0.57	0.0208	0.0300	0.69
d5a24bsp	0.0032	0.0207	0.16	0.0163	0.0338	0.48
m1hbsp	-0.0134	0.0078	-1.17	0.0206	0.0121	1.71
l1m1bsp	0.0020	0.0078	0.26	0.0013	0.0125	0.10
l2m1bsp	-0.0011	0.0077	-0.14	0.0006	0.0129	0.05
d3m1bsp	-0.0062	0.0091	-0.69	0.0115	0.0146	0.79
d5m1bsp	0.0005	0.0101	0.05	0.0126	0.0165	0.77
a24hNO_2	-0.0000	0.0009	-0.03	**0.0046**	**0.0012**	**3.74**
l1a24hNO_2	0.0012	0.0009	1.37	**0.0037**	**0.0013**	**2.86**
l2a24hNO_2	-0.0003	0.0009	-0.28	**0.0031**	**0.0013**	**2.44**
d3a24hNO_2	0.0006	0.0012	0.52	**0.0074**	**0.0017**	**4.45**
d5a24hNO_2	0.0010	0.0013	0.72	**0.0080**	**0.0019**	**4.22**
m1hNO_2	-0.0003	0.0005	-0.65	**0.0017**	**0.0005**	**3.17**
l1m1hNO_2	0.0005	0.0005	1.02	0.0011	0.0006	1.87
l2m1hNO_2	0.0000	0.0005	0.06	0.0011	0.0006	1.93
d3m1hNO_2	0.0002	0.0007	0.29	**0.0029**	**0.0008**	**3.72**
d5m1hNO_2	0.0001	0.0008	0.11	**0.0035**	**0.0009**	**3.87**
a8hCO	-0.0010	0.0051	-0.19	0.0187	0.0144	1.30
l1a8hCO	0.0025	0.0051	0.49	0.0059	0.0146	0.41
l2a8hCO	0.0043	0.0051	0.84	-0.0004	0.0148	-0.02
d3a8hCO	0.0037	0.0067	0.55	0.0172	0.0195	0.88
d5a8hCO	0.0072	0.0077	0.94	0.0321	0.0227	1.41
m1hCO	-0.0046	0.0032	-1.45	**0.0267**	**0.0085**	**3.13**
l1m1hCO	0.0006	0.0032	0.20	**0.0174**	**0.0087**	**2.00**
l2m1hCO	-0.0013	0.0032	-0.42	0.0154	0.0087	1.77
d3m1hCO	-0.0032	0.0042	-0.77	**0.0459**	**0.0120**	**3.82**
d5m1hCO	0.0003	0.0048	0.07	**0.0457**	**0.0141**	**3.25**

a Cool season: April-October (n=1223)

b Warm season: November-March (n=847)

Table C2c - Summary of results using Generalised Additive Models (optimal model) – single pollutant models by season: total deaths < 65

Pollutant Concentration	Cool Season[a]			Warm Season[b]		
	Parameter Estimate	Standard Error	t	Parameter Estimate	Standard Error	t
a8hO_3	-0.0015	0.0015	-1.02	0.0002	0.0009	0.16
l1a8hO_3	-0.0005	0.0016	-0.30	0.0009	0.0010	0.93
l2a8hO_3	-0.0014	0.0016	-0.93	0.0010	0.0010	0.93
d3a8hO_3	-0.0018	0.0018	-1.01	0.0012	0.0014	0.91
d5a8hO_3	-0.0029	0.0020	-1.42	-0.0001	0.0017	-0.06
a4hO_3	-0.0021	0.0015	-1.42	-0.0001	0.0008	-0.07
l1a4hO_3	-0.0005	0.0015	-0.31	0.0008	0.0008	0.96
l2a4hO_3	-0.0019	0.0015	-1.26	0.0007	0.0008	0.81
d3a4hO_3	-0.0024	0.0018	-1.35	0.0009	0.0011	0.77
d5a4hO_3	-0.0034	0.0020	-1.71	-0.0004	0.0014	-0.29
m1hO_3	-0.0020	0.0014	-1.39	-0.0001	0.0007	-0.11
l1m1hO_3	-0.0004	0.0014	-0.31	0.0006	0.0007	0.96
l2m1hO_3	-0.0021	0.0014	-1.51	0.0005	0.0007	0.66
d3m1hO_3	-0.0025	0.0017	-1.45	0.0007	0.0010	0.70
d5m1hO_3	-0.0036	0.0020	-1.84	-0.0005	0.0012	-0.42
a24hbsp	0.0130	0.0321	0.41	0.0492	0.0526	0.94
l1a24bsp	0.0209	0.0334	0.63	0.0739	0.0528	1.40
l2a24bsp	-0.0183	0.0328	-0.56	0.0893	0.0549	1.63
d3a24bsp	0.0077	0.0384	0.20	0.0889	0.0594	1.50
d5a24bsp	0.0157	0.0422	0.37	0.0699	0.0672	1.04
m1hbsp	0.0018	0.0158	0.11	0.0103	0.0247	0.42
l1m1bsp	-0.0031	0.0166	-0.19	0.0228	0.0247	0.92
l2m1bsp	-0.0066	0.0162	-0.41	0.0175	0.0254	0.69
d3m1bsp	-0.0035	0.0193	-0.18	0.0239	0.0294	0.81
d5m1bsp	0.0132	0.0211	0.62	0.0217	0.0332	0.65
a24hNO_2	-0.0001	0.0018	-0.07	0.0010	0.0023	0.43
l1a24hNO_2	0.0010	0.0019	0.54	0.0042	0.0024	1.79
l2a24hNO_2	-0.0034	0.0019	-1.82	0.0027	0.0024	1.09
d3a24hNO_2	-0.0014	0.0024	-0.59	0.0045	0.0031	1.45
d5a24hNO_2	-0.0026	0.0028	-0.93	0.0026	0.0037	0.70
m1hNO_2	0.0000	0.0010	0.04	0.0004	0.0010	0.39
l1m1hNO_2	0.0004	0.0011	0.34	0.0019	0.0010	1.83
l2m1hNO_2	-0.0020	0.0011	-1.84	0.0005	0.0011	0.51
d3m1hNO_2	-0.0009	0.0014	-0.64	0.0018	0.0014	1.28
d5m1hNO_2	-0.0020	0.0017	-1.17	0.0001	0.0017	0.08
a8hCO	0.0137	0.0104	1.31	0.0247	0.0283	0.87
l1a8hCO	0.0116	0.0105	1.10	0.0281	0.0286	0.98
l2a8hCO	0.0012	0.0105	0.11	0.0237	0.0287	0.82
d3a8hCO	0.0160	0.0136	1.17	0.0498	0.0382	1.30
d5a8hCO	0.0179	0.0158	1.13	0.0637	0.0444	1.43
m1hCO	-0.0038	0.0065	-0.58	-0.0073	0.0170	-0.43
l1m1hCO	0.0058	0.0068	0.85	0.0285	0.0170	1.68
l2m1hCO	-0.0077	0.0068	-1.13	0.0187	0.0170	1.10
d3m1hCO	-0.0035	0.0090	-0.38	0.0267	0.0237	1.13
d5m1hCO	0.0041	0.0102	0.40	0.0326	0.0278	1.17

a Cool season: April-October (n=1223)

b Warm season: November-March (n=847)

Table C2d Summary of results using Generalised Additive Models (optimal model) – single pollutant models by season: total respiratory deaths

Pollutant Concentration	Cool Season[a]			Warm Season[b]		
	Parameter Estimate	Standard Error	t	Parameter Estimate	Standard Error	t
a8hO_3	0.0016	0.0024	0.67	0.0033	0.0017	1.92
l1a8hO_3	0.0020	0.0024	0.86	-0.0006	0.0019	-0.30
l2a8hO_3	-0.0002	0.0023	-0.07	-0.0020	0.0019	-1.02
d3a8hO_3	0.0018	0.0028	0.65	0.0012	0.0028	0.42
d5a8hO_3	-0.0118	0.0030	-0.60	0.0001	0.0033	0.02
a4hO_3	0.0018	0.0023	0.79	**0.0029**	**0.0014**	**2.13**
l1a4hO_3	0.0013	0.0023	0.56	-0.0009	0.0015	-0.57
l2a4hO_3	-0.0009	0.0022	-0.39	-0.0015	0.0016	-0.98
d3a4hO_3	0.0012	0.0028	0.43	0.0009	0.0023	0.41
d5a4hO_3	-0.0034	0.0030	-1.10	-0.0000	0.0027	-0.02
m1hO_3	0.0012	0.0022	0.55	**0.0026**	**0.0012**	**2.19**
l1m1hO_3	0.0015	0.0022	0.68	-0.0005	0.0013	-0.35
l2m1hO_3	-0.0015	0.0022	-0.70	-0.0012	0.0013	-0.90
d3m1hO_3	0.0008	0.0028	0.27	0.0011	0.0020	0.58
d5m1hO_3	-0.0036	0.0030	-1.21	0.0001	0.0023	0.03
a24hbsp	-0.0696	0.0518	-1.34	0.1411	0.0835	1.69
l1a24bsp	-0.0968	0.0529	-1.83	0.0662	0.0874	0.76
l2a24bsp	-0.0795	0.0550	-1.44	-0.0680	0.0975	-0.70
d3a24bsp	-0.1149	0.0622	-1.85	0.0701	0.0986	0.71
d5a24bsp	-0.0772	0.0690	-1.12	0.0210	0.1121	0.19
m1hbsp	-0.0356	0.0248	-1.43	**0.0885**	**0.0381**	**2.32**
l1m1bsp	-0.0433	0.0249	-1.74	0.0568	0.0399	1.42
l2m1bsp	-0.0285	0.0261	-1.09	-0.0123	0.0438	-0.28
d3m1bsp	-0.0515	0.0298	-1.73	0.0677	0.0466	1.45
d5m1bsp	-0.0250	0.0333	-0.75	0.0442	0.0535	0.83
a24hNO_2	-0.0023	0.0028	-0.84	**0.0141**	**0.0040**	**3.57**
l1a24hNO_2	-0.0001	0.0028	-0.03	0.0059	0.0041	1.43
l2a24hNO_2	-0.0039	0.0029	-1.31	0.0012	0.0042	0.29
d3a24hNO_2	-0.0030	0.0037	-0.81	**0.0153**	**0.0054**	**2.81**
d5a24hNO_2	-0.0031	0.0043	-0.72	**0.0170**	**0.0061**	**2.78**
m1hNO_2	-0.0028	0.0016	-1.68	**0.0054**	**0.0018**	**3.03**
l1m1hNO_2	-0.0001	0.0016	-0.05	0.0016	0.0019	0.83
l2m1hNO_2	-0.0018	0.0017	-1.05	-0.0003	0.0019	-0.17
d3m1hNO_2	-0.0026	0.0022	-1.18	**0.0052**	**0.0026**	**1.98**
d5m1hNO_2	-0.0035	0.0027	-1.31	**0.0066**	**0.0029**	**2.26**
a8hCO	0.0152	0.0158	0.96	0.0075	0.0479	0.16
l1a8hCO	-0.0029	0.0161	-0.18	0.0050	0.0485	0.10
l2a8hCO	-0.0062	0.0161	-0.39	0.0482	0.0484	1.00
d3a8hCO	0.0039	0.0208	0.19	0.0399	0.0645	0.62
d5a8hCO	0.0226	0.0242	0.93	0.0729	0.0751	0.97
m1hCO	-0.0089	0.0010	-0.89	0.0491	0.0284	1.73
l1m1hCO	-0.0131	0.0100	-1.31	0.0233	0.0288	0.81
l2m1hCO	-0.0082	0.0105	-0.78	0.0178	0.0290	0.61
d3m1hCO	-0.0183	0.0135	-1.36	0.0676	0.0400	1.69
d5m1hCO	0.0009	0.0157	0.06	**0.0936**	**0.0464**	**2.02**

a Cool season: April-October (n=1223)

b Warm season: November-March (n=847)

Table C2e - Summary of results using Generalised Additive Models (optimal model) – single pollutant models by season respiratory deaths 65+

Pollutant Concentration	Cool Season[a]			Warm Season[b]		
	Parameter Estimate	Standard Error	t	Parameter Estimate	Standard Error	t
a8hO_3	0.0004	0.0026	0.18	0.0035	0.0018	1.90
l1a8hO_3	0.0014	0.0025	0.54	-0.0005	0.0020	-0.24
l2a8hO_3	0.0006	0.0025	0.26	-0.0007	0.0021	-0.36
d3a8hO_3	0.0013	0.0030	0.44	0.0025	0.0030	0.82
d5a8hO_3	-0.0025	0.0032	-0.78	0.0010	0.0035	0.29
a4hO_3	0.0007	0.0025	0.28	**0.0032**	**0.0015**	**2.22**
l1a4hO_3	0.0008	0.0025	0.34	-0.0010	0.0016	-0.60
l2a4hO_3	0.0005	0.0024	0.20	-0.0005	0.0016	-0.30
d3a4hO_3	0.0012	0.0030	0.40	0.0021	0.0024	0.86
d5a4hO_3	-0.0033	0.0033	-1.00	0.0006	0.0029	0.20
m1hO_3	-0.0002	0.0024	-0.62	**0.0029**	**0.0012**	**2.33**
l1m1hO_3	0.0012	0.0024	0.50	-0.0006	0.0014	-0.40
l2m1hO_3	0.0001	0.0023	0.04	-0.0003	0.0014	-0.23
d3m1hO_3	0.0008	0.0029	0.27	0.0022	0.0021	1.07
d5m1hO_3	-0.0034	0.0032	-1.04	0.0008	0.0025	0.33
a24hbsp	-0.0742	0.0558	-1.33	0.1423	0.0879	1.62
l1a24bsp	-0.0643	0.0552	-1.17	0.0920	0.0910	1.01
l2a24bsp	-0.0291	0.0541	-0.54	-0.0303	0.1010	-0.30
d3a24bsp	-0.0771	0.0644	-1.20	0.0931	0.1027	0.91
d5a24bsp	-0.0354	0.0713	-0.50	0.0344	0.1176	0.29
m1hbsp	-0.0336	0.0264	-1.27	**0.0968**	**0.0398**	**2.43**
l1m1bsp	-0.0257	0.0259	-0.99	0.0697	0.0414	1.68
l2m1bsp	0.0005	0.0255	0.02	0.0071	0.0453	0.16
d3m1bsp	-0.0270	0.0305	-0.88	0.0852	0.0482	1.77
d5m1bsp	-0.0021	0.0339	-0.06	0.0532	0.0560	0.95
a24hNO_2	-0.0026	0.0030	-0.86	**0.0130**	**0.0042**	**3.07**
l1a24hNO_2	0.0013	0.0030	0.44	0.0081	0.0044	1.85
l2a24hNO_2	-0.0010	0.0030	-0.35	0.0055	0.0045	1.24
d3a24hNO_2	-0.0008	0.0038	-0.21	**0.0183**	**0.0058**	**3.16**
d5a24hNO_2	0.0009	0.0045	0.19	**0.0198**	**0.0066**	**3.01**
m1hnNO_2	-0.0030	0.0017	-1.73	**0.0049**	**0.0019**	**2.61**
l1m1hNO_2	0.0006	0.0017	0.32	0.0022	0.0020	1.10
l2m1hNO_2	-0.0004	0.0017	-0.25	0.0016	0.0020	0.80
d3m1hNO_2	-0.0014	0.0023	-0.62	**0.0068**	**0.0028**	**2.45**
d5m1hNO_2	-0.0011	0.0028	-0.41	**0.0085**	**0.0031**	**2.69**
a8hCO	0.0205	0.0168	1.22	-0.0129	0.0513	-0.25
l1a8hCO	0.0038	0.0170	0.22	-0.0034	0.0517	-0.07
l2a8hCO	-0.0022	0.0171	-0.13	0.0694	0.0511	1.36
d3a8hCO	0.0135	0.0220	0.61	0.0354	0.0687	0.52
d5a8hCO	0.0291	0.0257	1.13	0.0784	0.0799	0.98
m1hCO	-0.0071	0.0107	-0.67	0.0507	0.0302	1.67
l1m1hCO	-0.0113	0.0105	-1.08	0.0312	0.0307	1.02
l2m1hCO	-0.0011	0.0104	-0.11	0.0409	0.0307	1.33
d3m1hCO	-0.0108	0.0138	-0.78	**0.0940**	**0.0425**	**2.21**
d5m1hCO	0.0084	0.0159	0.53	**0.1082**	**0.0495**	**2.19**

a Cool season: April-October (n=1223)

b Warm season: November-March (n=847)

Table C2f Summary of results using Generalised Additive Models (optimal model) – single pollutant models by season: total cardiovascular deaths

Pollutant Concentration	Cool Season[a]			Warm Season[b]		
	Parameter Estimate	Standard Error	t	Parameter Estimate	Standard Error	t
a8hO_3	-0.0004	0.0010	-0.35	-0.0003	0.0007	-0.53
l1a8hO_3	-0.0005	0.0010	-0.51	0.0005	0.0008	0.62
l2a8hO_3	0.0006	0.0010	0.53	0.0004	0.0008	0.55
d3a8hO_3	-0.0003	0.0012	-0.24	0.0002	0.0011	0.17
d5a8hO_3	-0.0012	0.0013	-0.88	0.0014	0.0013	1.07
a4hO_3	-0.0007	0.0010	-0.72	-0.0001	0.0005	-0.26
l1a4hO_3	0.0003	0.0010	0.33	0.0004	0.0006	0.74
l2a4hO_3	0.0000	0.0010	0.03	0.0005	0.0006	0.74
d3a4hO_3	-0.0003	0.0012	-0.23	0.0004	0.0008	0.48
d5a4hO_3	-0.0010	0.0013	-0.71	0.0013	0.0010	1.27
m1hO_3	-0.0006	0.0009	-0.63	-0.0001	0.0005	-0.20
l1m1hO_3	0.0009	0.0010	0.98	0.0004	0.0005	0.77
l2m1hO_3	-0.0004	0.0009	0.38	0.0005	0.0005	0.94
d3m1hO_3	-0.0001	0.0012	-0.08	0.0005	0.0007	0.63
d5m1hO_3	-0.0007	0.0013	-0.54	0.0012	0.0009	1.28
a24hbsp	-0.0006	0.0213	-0.03	0.0067	0.0359	0.19
l1a24bsp	0.0289	0.0211	1.37	0.0137	0.0363	0.38
l2a24bsp	0.0046	0.0210	0.22	0.0238	0.0385	0.62
d3a24bsp	0.0155	0.0247	0.63	0.0183	0.0411	0.45
d5a24bsp	0.0303	0.0275	1.10	0.0398	0.0457	0.87
m1hbsp	-0.0078	0.0104	-0.75	0.0040	0.0167	0.24
l1m1bsp	0.0049	0.0104	0.47	0.0108	0.0169	0.64
l2m1bsp	-0.0015	0.0103	-0.14	0.0072	0.0176	0.41
d3m1bsp	-0.0022	0.0122	-0.18	0.0104	0.0199	0.52
d5m1bsp	0.0055	0.0136	0.40	0.0214	0.0224	0.96
a24hNO_2	0.0001	0.0012	0.05	0.0015	0.0016	0.92
l1a24NO_2	0.0014	0.0012	1.17	0.0032	0.0017	1.88
l2a24NO_2	-0.0011	0.0012	-0.88	0.0026	0.0017	1.49
d3a24NO_2	0.0003	0.0015	0.17	**0.0044**	**0.0022**	**1.96**
d5a24NO_2	0.0017	0.0018	0.94	**0.0053**	**0.0026**	**2.06**
m1hNO_2	0.0001	0.0007	0.11	0.0008	0.0007	1.12
l1m1NO_2	0.0007	0.0007	1.09	0.0011	0.0008	1.44
l2m1NO_2	-0.0036	0.0007	-0.52	0.0006	0.0008	0.84
d3m1NO_2	0.0003	0.0009	0.34	0.0017	0.0010	1.65
d5m1NO_2	0.0006	0.0011	0.58	0.0022	0.0012	1.84
a8hCO	-0.0069	0.0070	-1.00	0.0280	0.0195	1.44
l1a8hCO	0.0022	0.0069	0.32	0.0243	0.0198	1.23
l2a8hCO	0.0090	0.0069	1.31	-0.0190	0.0202	-0.94
d3a8hCO	0.0028	0.0090	0.31	0.0231	0.0265	0.87
d5a8hCO	0.0162	0.0104	1.55	0.0258	0.0309	0.83
m1hCO	-0.0061	0.0043	-1.43	0.0108	0.0116	0.94
l1m1hCO	0.0031	0.0043	0.72	0.0133	0.0118	1.13
l2m1hCO	-0.0003	0.0043	-0.08	0.0082	0.0119	0.69
d3m1hCO	-0.0021	0.0056	-0.38	0.0233	0.0163	1.43
d5m1hCO	0.0046	0.0065	0.71	0.0162	0.0192	0.85

a Cool season: April-October (n=1223)

b Warm season: November-March (n=847)

Table C2g - Summary of results using Generalised Additive Models (optimal model) – single pollutant models by season: cardiovascular deaths 65+

Pollutant Concentration	Cool Season[a]			Warm Season[b]		
	Parameter Estimate	Standard Error	t	Parameter Estimate	Standard Error	t
a8hO_3	-0.0001	0.0011	-0.14	-0.0010	0.0008	-1.29
l1a8hO_3	-0.0003	0.0011	-0.23	0.0005	0.0009	0.58
l2a8hO_3	0.0008	0.0011	0.77	0.0005	0.0008	0.65
d3a8hO_3	0.0001	0.0013	0.07	-0.0003	0.0012	-0.21
d5a8hO_3	-0.0006	0.0014	-0.43	0.0013	0.0014	0.94
a4hO_3	-0.0004	0.0010	-0.37	-0.0005	0.0006	-0.83
l1a4hO_3	0.0006	0.0010	0.53	0.0005	0.0007	0.70
l2a4hO_3	0.0006	0.0011	0.57	0.0006	0.0007	0.89
d3a4hO_3	0.0004	0.0013	0.28	0.0003	0.0010	0.25
d5a4hO_3	-0.0002	0.0014	-0.15	0.0014	0.0012	1.22
m1hO_3	-0.0003	0.0010	-0.27	-0.0004	0.0005	-0.69
l1m1hO_3	0.0012	0.0010	1.20	0.0004	0.0006	0.70
l2m1hO_3	0.0002	0.0010	0.16	0.0006	0.0006	1.06
d3m1hO_3	0.0006	0.0012	0.45	0.0004	0.0009	0.44
d5m1hO_3	0.0001	0.0014	0.06	0.0012	0.0010	1.23
a24hbsp	0.0011	0.0228	0.05	0.0109	0.0383	0.28
l1a24bsp	0.0349	0.0226	1.55	-0.0014	0.0391	-0.04
l2a24bsp	0.0142	0.0224	0.64	0.0139	0.0410	0.34
d3a24bsp	0.0238	0.0264	0.90	0.0098	0.0440	0.22
d5a24bsp	0.0404	0.0293	1.38	0.0467	0.0487	0.75
m1hbsp	-0.0067	0.0111	-0.60	0.0051	0.0178	0.29
l1m1bsp	0.0099	0.0110	0.90	0.0073	0.0181	0.40
l2m1bsp	0.0037	0.0110	0.34	0.0084	0.0186	0.45
d3m1bsp	0.0033	0.0131	0.25	0.0098	0.0213	0.46
d5m1bsp	0.0101	0.0145	0.70	0.0254	0.0237	1.07
a24hNO_2	-0.0003	0.0013	-0.21	0.0015	0.0018	0.83
l1a24hNO_2	0.0017	0.0013	1.31	0.0033	0.0018	1.76
l2a24hNO_2	-0.0003	0.0013	-0.22	0.0028	0.0018	1.56
d3a24hNO_2	0.0007	0.0016	0.42	0.0047	0.0024	1.95
d5a24hNO_2	0.0025	0.0019	1.31	**0.0063**	**0.0027**	**2.30**
m1hNO_2	-0.0001	0.0007	-0.14	0.0008	0.0008	0.99
l1m1hNO_2	0.0007	0.0007	1.00	0.0011	0.0008	1.27
l2m1hNO_2	0.0001	0.0007	0.14	0.0007	0.0008	0.91
d3m1hNO_2	0.0005	0.0010	0.50	0.0018	0.0011	1.59
d5m1hNO_2	0.0010	0.0012	0.89	**0.0026**	**0.0013**	**2.05**
a8hCO	-0.0071	0.0074	-0.96	0.0298	0.0207	1.44
l1a8hCO	0.0001	0.0074	0.02	0.0268	0.0211	1.27
l2a8hCO	0.0068	0.0073	0.93	-0.0347	0.0215	-1.61
d3a8hCO	-0.0000	0.0096	-0.00	0.0156	0.0282	0.55
d5a8hCO	0.0120	0.0111	1.08	0.0118	0.0329	0.36
m1hCO	-0.0061	0.0045	-1.34	0.0124	0.0124	1.00
l1m1hCO	0.0031	0.0045	0.68	0.0131	0.0127	1.04
l2m1hCO	0.0016	0.0045	0.35	0.0098	0.0126	0.78
d3m1hCO	-0.0010	0.0060	-0.16	0.0258	0.0175	1.47
d5m1hCO	0.0062	0.0070	0.90	0.0225	0.0204	1.10

a Cool season: April-October (n=1223)

b Warm season: November-March (n=847)

GENERALISED ADDITIVE MODELS:
MULTI-POLLUTANT MODELS

Table B3a - Summary of results using generalised Additive models – multi-pollutant models: NO_2 controlling for other pollutants - Total deaths*

Controlling for:	Pollutant concentration	Parameter estimate	Standard error	t
m1hO_3	a24hNO_2	0.0114	0.0312	0.36
	l1a24hNO_2	0.0385	0.0312	1.24
	l2a24hNO_2	-0.0226	0.0312	-0.72
	d3a24hNO_2	0.0137	0.0383	0.36
	d5a24hNO_2	-0.0022	0.0431	-0.05
	m1hNO_2	0.0032	0.0165	0.19
	l1m1hNO_2	0.0149	0.0165	0.91
	l2m1hNO_2	-0.0118	0.0165	-0.72
	d3m1hNO_2	0.0036	0.0215	0.17
	d5m1hNO_2	-0.0097	0.0251	-0.39
d5a8CO	a24hNO_2	0.0249	0.0312	0.80
	l1a24hNO_2	0.0375	0.0312	1.20
	l2a24hNO_2	-0.0265	0.0312	-0.85
	d3a24hNO_2	0.0180	0.0383	0.47
	d5a24hNO_2	-0.0015	0.0431	-0.03
	m1hNO_2	0.0127	0.0165	0.77
	l1m1hNO_2	0.0151	0.0165	0.91
	l2m1hNO_2	-0.0137	0.0165	-0.83
	d3m1hNO_2	0.0080	0.0215	0.37
	d5m1hNO_2	-0.0077	0.0251	-0.31
l2a24bsp	a24hNO_2	0.0274	0.0312	0.88
	l1a24hNO_2	0.0436	0.0312	1.40
	l2a24hNO_2	-0.0148	0.0312	-0.48
	d3a24hNO_2	0.0283	0.0383	0.74
	d5a24NO2	0.0108	0.0431	0.25
	m1hNO_2	0.0139	0.0165	0.84
	l1m1hNO_2	0.0180	0.0165	1.09
	l2m1hNO_2	-0.0077	0.0165	-0.47
	d3m1hNO_2	0.0137	0.0215	0.63
	d5m1hNO_2	-0.0004	0.0251	-0.02

Note: As the parameter estimates presented in this table were generated using residuals from a Poisson model, the units are in "number of deaths"

Table C3b - Summary of results using Generalised Additive Models – multi-pollutant models: NO_2 controlling for other pollutants - Total deaths aged 65+*

Controlling for:	Pollutant concentration	Parameter estimate	Standard error	t
d3m1hO_3	a24hNO_2	0.0124	0.0280	0.44
	l1a24hNO_2	0.0253	0.0280	0.90
	l2a24hNO_2	-0.0030	0.0280	-0.11
	d3a24hNO_2	0.0174	0.0344	0.51
	d5a24hNO_2	0.0199	0.0397	0.52
	m1hNO_2	0.0028	0.0148	0.19
	l1m1NO_2	0.0076	0.0148	0.51
	l2m1NO_2	0.0010	0.0148	0.07
	d3m1NO_2	0.0065	0.0194	0.34
	d5m1NO_2	0.0091	0.0226	0.40
d5a8CO	a24hNO_2	0.0302	0.0281	1.07
	l1a24hNO_2	0.0418	0.0281	1.49
	l2a24hNO_2	0.0057	0.0281	0.20
	d3a24hNO_2	0.0390	0.0345	1.13
	d5a24hNO_2	0.0343	0.0388	0.89
	m1hNO_2	0.0148	0.0149	0.10
	l1m1NO_2	0.0186	0.0149	1.25
	l2m1NO_2	0.0076	0.0149	0.51
	d3m1NO_2	0.0232	0.0194	1.20
	d5m1NO_2	0.0220	0.0226	0.97
l2a24bsp	a24hNO_2	0.0393	0.0281	1.40
	l1a24hNO_2	0.0476	0.0280	1.70
	l2a24hNO_2	0.0089	0.0281	0.31
	d3a24hNO_2	0.0481	0.0345	1.40
	d5a24hNO_2	0.0427	0.0388	1.10
	m1hNO_2	0.0195	0.0149	1.31
	l1m1NO_2	0.0214	0.0149	1.44
	l2m1NO_2	0.0091	0.0149	0.62
	d3m1NO_2	0.0284	0.0194	1.46
	d5m1NO_2	0.0268	0.0226	1.19

Note: As the parameter estimates presented in this table were generated using residuals from a Poisson model, the units are in "number of deaths"

Table C3c - Summary of results using Generalised Additive Models – multi-pollutant models: O\ controlling for other pollutants - Total deaths aged 65+*

Controlling for:	Pollutant concentration	Parameter estimate	Standard error	t
d5a8hcO_3	a8hO_3	0.0287	0.0160	1.79
	l1a8hO_3	0.0199	0.0161	1.24
	l2a8hO_3	0.0195	0.0162	1.20
	d3a8hO_3	0.0368	0.0205	1.79
	d5a8hO_3	0.0387	0.0236	1.64
	a4hO_3	**0.0289**	**0.0136**	**2.12**
	l1a4hO_3	0.0176	0.0137	1.29
	l2a4hO_3	0.0172	0.0137	1.25
	d3a4hO_3	**0.0359**	**0.0178**	**2.02**
	d5a4hO_3	0.0356	0.0206	1.72
	m1hO_3	**0.0260**	**0.0120**	**2.17**
	l1m1hO_3	0.0178	0.0120	1.48
	l2m1hO_3	0.0147	0.0121	1.21
	d3m1hO_3	**0.0332**	**0.0157**	**2.11**
	d5m1hO_3	0.0322	0.0182	1.77
d5a25NO_2	a8hO_3	0.0269	0.0161	1.67
	l1a8hO_3	0.0180	0.0162	1.11
	l2a8hO_3	0.0191	0.0162	1.17
	d3a8hO_3	0.0345	0.0205	1.68
	d5a8hO_3	0.0348	0.0236	1.48
	a4hO_3	0.0262	0.0136	1.92
	l1a4hO_3	0.0141	0.0137	1.04
	l2a4hO_3	0.0151	0.0138	1.10
	d3a4hO_3	0.0313	0.0178	1.76
	d5a4hO_3	0.0287	0.0206	1.39
	m1hO_3	0.0223	0.0120	1.92
	l1m1hO_3	0.0141	0.0120	1.17
	l2m1hO_3	0.0122	0.0121	1.01
	d3m1hO_3	0.0280	0.0157	1.79
	d5m1hO_3	0.0247	0.0183	1.35
l2a24bsp	a8hO_3	0.0290	0.0161	1.81
	l1a8hO_3	0.0198	0.0161	1.22
	l2a8hO_3	0.0191	0.0162	1.18
	d3a8hO_3	0.0367	0.0205	1.79
	d5a8hO_3	0.0382	0.0236	1.62
	a4hO_3	**0.0299**	**0.0136**	**2.19**
	l1a4hO_3	0.0180	0.0137	1.32
	l2a4hO_3	0.0172	0.0137	1.25
	d3a4hO_3	**0.0367**	**0.0178**	**2.06**
	d5a4hO_3	0.0361	0.0206	1.75
	m1hO_3	**0.0271**	**0.0120**	**2.27**
	l1m1hO_3	0.0184	0.0120	1.53
	l2m1hO_3	0.0145	0.0121	1.23
	d3m1hO_3	**0.0343**	**0.0157**	**2.19**
	d5m1hO_3	0.0331	0.0182	1.81

Note: As the parameter estimates presented in this table were generated using residuals from a Poisson model, the units are in "number of deaths"

Table C3d - Summary of results using Generalised Additive Models – multi-pollutant models: O_3 controlling for other pollutants - Total respiratory deaths*

Controlling for:	Pollutant concentration	Parameter estimate	Standard error	t
d5a8hCO	a8hO_3	0.0077	0.0052	1.49
	l1a8hO_3	0.0016	0.0052	0.31
	l2a8hO_3	-0.0018	0.0052	-0.35
	d3a8hO_3	0.0041	0.0066	0.62
	d5a8hO_3	0.0014	0.0076	0.19
	a4hO_3	0.0074	0.0044	1.70
	l1a4hO_3	0.0000	0.0044	0.01
	l2a4hO_3	-0.0021	0.0044	-0.48
	d3a4hO_3	0.0031	0.0057	0.53
	d5a4hO_3	0.0000	0.0066	0.00
	m1hO_3	0.0066	0.0039	1.72
	l1m1hO_3	0.0005	0.0039	0.14
	l2m1hO_3	-0.0022	0.0039	-0.56
	d3m1hO_3	0.0029	0.0050	0.57
	d5m1hO_3	0.0000	0.0059	0.01
a24hNO_2	a8hO_3	0.0066	0.0052	1.28
	l1a8hO_3	0.0010	0.0052	0.20
	l2a8hO_3	-0.0019	0.0052	-0.37
	d3a8hO_3	0.0031	0.0066	0.47
	d5a8hO_3	0.0006	0.0076	0.08
	a4hO_3	0.0061	0.0044	1.40
	l1a4hO_3	-0.0007	0.0044	-0.16
	l2a4hO_3	-0.0022	0.0044	-0.51
	d3a4hO_3	0.0018	0.0057	0.32
	d5a4hO_3	-0.0010	0.0066	-0.15
	m1hO_3	0.0053	0.0039	1.38
	l1m1hO_3	-0.0001	0.0039	-0.04
	l2m1hO_3	-0.0023	0.0039	-0.58
	d3m1hO_3	0.0017	0.0050	0.33
	d5m1hO_3	-0.0010	0.0059	-0.16
l2a24bsp	a8hO_3	0.0071	0.0051	1.37
	l1a8hO_3	0.0012	0.0052	0.23
	l2a8hO_3	-0.0018	0.0052	-0.34
	d3a8hO_3	0.0035	0.0066	0.54
	d5a8hO_3	0.0009	0.0076	0.13
	a4hO_3	0.0071	0.0044	1.61
	l1a4hO_3	-0.0002	0.0044	-0.04
	l2a4hO_3	-0.0016	0.0044	-0.37
	d3a4hO_3	0.0030	0.0057	0.53
	d5a4hO_3	0.0002	0.0066	0.03
	m1hO_3	0.0063	0.0038	1.65
	l1m1hO_3	0.0005	0.0039	0.12
	l2m1hO_3	-0.0015	0.0039	-0.38
	d3m1hO_3	0.0031	0.0050	0.61
	d5m1hO_3	0.0005	0.0059	0.09

Note: As the parameter estimates presented in this table were generated using residuals from a Poisson model, the units are in "number of deaths"

Table C3e - Summary of results using Generalised Additive Models – multi-pollutant models: O_3 controlling for other pollutants - Respiratory deaths aged 65+*

Controlling for:	Pollutant concentration	Parameter estimate	Standard error	t
d5a8hCO	a8hO_3	0.0063	0.0049	1.28
	l1a8hO_3	0.0009	0.0049	0.19
	l2a8hO_3	0.0004	0.0049	0.08
	d3a8hO_3	0.0041	0.0063	0.66
	d5a8hO_3	0.0013	0.0072	0.19
	a4hO_3	0.0066	0.0041	1.58
	l1a4hO_3	-0.0006	0.0042	-0.13
	l2a4hO_3	0.0002	0.0042	0.05
	d3a4hO_3	0.0035	0.0054	0.65
	d5a4hO_3	0.0004	0.0063	0.07
	m1hO_3	0.0059	0.0036	1.61
	l1m1hO_3	-0.0000	0.0037	-0.00
	l2m1hO_3	0.0001	0.0037	0.02
	d3m1hO_3	0.0034	0.0048	0.71
	d5m1hO_3	0.0007	0.0056	0.12
d5a24NO_2	a8hO_3	0.0067	0.0049	1.37
	l1a8hO_3	0.0012	0.0049	0.24
	l2a8hO_3	0.0003	0.0049	0.06
	d3a8hO_3	0.0045	0.0062	0.72
	d5a8hO_3	0.0011	0.0072	0.15
	a4hO_3	0.0067	0.0041	1.61
	l1a4hO_3	-0.0006	0.0042	-0.15
	l2a4hO_3	-0.0001	0.0042	-0.03
	d3a4hO_3	0.0034	0.0054	0.62
	d5a4hO_3	-0.0004	0.0062	-0.06
	m1hO_3	0.0059	0.0036	1.61
	l1m1hO_3	-0.0002	0.0037	-0.05
	l2m1hO_3	-0.0003	0.0037	-0.09
	d3m1hO_3	0.0031	0.0048	0.64
	d5m1hO_3	-0.0003	0.0056	-0.05
d3a24bsp	a8hO_3	0.0063	0.0049	1.29
	l1a8hO_3	0.0010	0.0049	0.20
	l2a8hO_3	0.0003	0.0049	0.07
	d3a8hO_3	0.0041	0.0063	0.66
	d5a8hO_3	0.0012	0.0072	0.17
	a4hO_3	0.0067	0.0042	1.62
	l1a4hO_3	-0.0003	0.0042	-0.08
	l2a4hO_3	0.0004	0.0042	0.09
	d3a4hO_3	0.0038	0.0054	0.71
	d5a4hO_3	0.0007	0.0063	0.11
	m1hO_3	0.0061	0.0036	1.68
	l1m1hO_3	0.0003	0.0037	0.08
	l2m1hO_3	0.0003	0.0068	0.08
	d3m1hO_3	0.0038	0.0048	0.80
	d5m1hO_3	0.0011	0.0056	0.20

Note: As the parameter estimates presented in this table were generated using residuals from a Poisson model, the units are in "number of deaths"

Table C3f - Summary of results using Generalised Additive Models – multi-pollutant models: NO_2 controlling for other pollutants - Respiratory deaths aged 65+*

Controlling for:	Pollutant concentration	Parameter estimate	Standard error	t
d5a8hCO	a24hNO_2	0.0043	0.0086	0.50
	l1a24NO_2	0.0062	0.0086	0.72
	l2a24NO_2	0.0001	0.0086	0.01
	d3a24NO_2	0.0053	0.0105	0.50
	d5a24NO_2	0.0069	0.0112	0.58
	m1hNO_2	0.0005	0.0045	0.12
	l1m1NO_2	0.0025	0.0045	0.56
	l2m1NO_2	0.0004	0.0045	0.09
	d3m1NO_2	0.0020	0.0059	0.33
	d5m1NO_2	0.0037	0.0069	0.54
d3a24hbsp	a24hNO_2	0.0066	0.0086	0.78
	l1a24NO_2	0.0090	0.0054	1.06
	l2a24NO_2	0.0026	0.0086	0.31
	d3a24NO_2	0.0092	0.0105	0.88
	d5a24NO_2	0.0120	0.0118	0.93
	m1hNO_2	0.0017	0.0045	0.37
	l1m1NO_2	0.0039	0.0045	0.86
	l2m1NO_2	0.0017	0.0045	0.37
	d3m1NO_2	0.0041	0.0059	0.70
	d5m1NO_2	0.0061	0.0069	0.88
a4hO_3	a24hNO_2	0.0007	0.0085	0.09
	l1a24NO_2	0.0071	0.0085	0.83
	l2a24NO_2	0.0018	0.0086	0.21
	d3a24NO_2	0.0048	0.0105	0.46
	d5a24NO_2	0.0075	0.0118	0.64
	m1hNO_2	-0.0021	0.0045	-0.47
	l1m1NO_2	0.0028	0.0045	0.61
	l2m1NO_2	0.0013	0.0045	0.28
	d3m1NO_2	0.0011	0.0059	0.18
	d5m1NO_2	0.0035	0.0069	0.51

Note: As the parameter estimates presented in this table were generated using residuals from a Poisson model, the units are in "number of deaths"

Table C3g - Summary of results using Generalised Additive Models – multi-pollutant models: CO controlling for other pollutants – Total cardiovascular deaths*

Controlling for:	Pollutant concentration	Parameter estimate	Standard error	t
l1m1hO_3	a8hCO	-0.0795	0.1465	-0.54
	l1a8hCO	0.0687	0.1466	0.47
	l2a8hCO	0.1106	0.1466	0.75
	d3a8hCO	0.0517	0.1829	0.28
	d5a8hCO	0.2126	0.2057	1.03
	m1hCO	-0.1031	0.0884	-1.17
	l1m1hCO	0.0508	0.0885	0.57
	l2m1hCO	-0.0084	0.0887	-0.10
	d3m1hCO	-0.0320	0.1111	-0.29
	d5m1hCO	0.0315	0.1249	0.25
d5a24NO_2	a8hCO	-0.0942	0.1466	-0.64
	l1a8hCO	0.0516	0.1467	0.35
	l2a8hCO	0.0914	0.1467	0.62
	d3a8hCO	0.0253	0.1830	0.14
	d5a8hCO	0.1759	0.2059	0.85
	m1hCO	-0.1534	0.0883	-1.74
	l1m1hCO	-0.0115	0.0886	-0.13
	l2m1hCO	-0.0775	0.0888	-0.87
	d3m1hCO	-0.1274	0.1112	-1.15
	d5m1hCO	-0.0941	0.1249	-0.75
d5a24bsp	a8hCO	-0.0864	0.1465	-0.59
	l1a8hCO	0.0600	0.1466	0.41
	l2a8hCO	0.0958	0.1466	0.65
	d3a8hCO	0.0360	0.1829	0.20
	d5a8hCO	0.1848	0.2058	0.90
	m1hCO	-0.1257	0.0884	-1.42
	l1m1hCO	0.0216	0.0885	0.24
	l2m1hCO	-0.0470	0.0887	-0.53
	d3m1hCO	-0.0795	0.1112	-0.71
	d5m1hCO	-0.0363	0.1249	-0.29

Note: As the parameter estimates presented in this table were generated using residuals from a Poisson model, the units are in "number of deaths"

Table C3h - Summary of results using Generalised Additive Models – multi-pollutant models: NO_2 controlling for other pollutants – Total cardiovascular deaths*

Controlling for:	Pollutant concentration	Parameter estimate	Standard error	t
l1m1hO_3	a24hNO_2	0.0005	0.0206	0.02
	l1a24hNO_2	0.0218	0.0205	1.06
	l2a24hNO_2	-0.0050	0.0206	-0.24
	d3a24hNO_2	0.0087	0.0252	0.34
	d5a24hNO_2	0.0205	0.0284	0.72
	m1hNO_2	0.0037	0.0109	0.34
	l1m1hNO_2	0.0105	0.0109	0.96
	l2m1hNO_2	-0.0012	0.0109	-0.11
	d3m1hNO_2	0.0074	0.0142	0.52
	d5m1hNO_2	0.0116	0.0166	0.70
d5a8hCO	a24hNO_2	0.0029	0.0206	0.14
	l1a24hNO_2	0.0251	0.0205	1.22
	l2a24hNO_2	-0.0064	0.0205	-0.31
	d3a24hNO_2	0.0108	0.0252	0.43
	d5a24hNO_2	0.0204	0.0238	0.72
	m1hNO_2	0.0057	0.0109	0.53
	l1m1hNO_2	0.0132	0.0109	1.21
	l2m1hNO_2	-0.0016	0.0109	-0.15
	d3m1hNO_2	0.0098	0.0142	0.69
	d5m1hNO_2	0.0128	0.0166	0.77
d5a24bsp	a24hNO_2	-0.0029	0.0206	-0.14
	l1a24hNO_2	0.0179	0.0206	0.87
	l2a24hNO_2	-0.0133	0.0206	-0.65
	d3a24hNO_2	0.0009	0.0252	0.03
	d5a24hNO_2	0.0077	0.0284	0.27
	m1hNO_2	0.0026	0.0109	0.24
	l1m1hNO_2	0.0094	0.0109	0.87
	l2m1hNO_2	-0.0051	0.0109	-0.47
	d3m1hNO_2	0.0039	0.0142	0.28
	d5m1hNO_2	0.0046	0.0165	0.28

Note: As the parameter estimates presented in this table were generated using residuals from a Poisson model, the units are in "number of deaths"

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Table C3i - Summary of results using Generalised Additive Models – multi-pollutant models: NO_2 controlling for other pollutants – Cardiovascular deaths aged 65+*

Controlling for:	Pollutant concentration	Parameter estimate	Standard error	t
a8hO_3	a24hNO_2	0.0037	0.0194	0.19
	l1a24hNO_2	0.0250	0.0194	1.29
	l2a24hNO_2	0.0041	0.0194	0.21
	d3a24hNO_2	0.0165	0.0238	0.69
	d5a24hNO_2	0.0301	0.0268	1.12
	m1hNO_2	0.0066	0.0102	0.64
	l1m1hNO_2	0.0116	0.0103	1.13
	l2m1hNO_2	0.0038	0.0102	0.37
	d3m1hNO_2	0.0125	0.0134	0.93
	d5m1hNO_2	0.0186	0.0156	1.19
d5a8CO	a24hNO_2	-0.0014	0.0194	-0.07
	l1a24hNO_2	0.0237	0.0194	1.22
	l2a24hNO_2	0.0035	0.0194	0.18
	d3a24hNO_2	0.0130	0.0238	0.55
	d5a24hNO_2	0.0270	0.0268	1.01
	m1hNO_2	0.0026	0.0103	0.25
	l1m1hNO_2	0.0110	0.0103	1.07
	l2m1hNO_2	0.0035	0.0103	0.34
	d3m1hNO_2	0.0097	0.0134	0.72
	d5m1hNO_2	0.0162	0.0156	1.04
d5a24bsp	a24hNO_2	-0.0076	0.0194	-0.39
	l1a24hNO_2	0.0158	0.0194	0.82
	l2a24hNO_2	-0.0046	0.0194	-0.24
	d3a24hNO_2	0.0018	0.0238	0.08
	d5a24hNO_2	0.0123	0.0268	0.46
	m1hNO_2	-0.0006	0.0103	-0.06
	l1m1hNO_2	0.0069	0.0103	0.67
	l2m1hNO_2	-0.0007	0.0103	-0.07
	d3m1hNO_2	0.0032	0.0134	0.24
	d5m1hNO_2	0.0069	0.0156	0.44

Note: As the parameter estimates presented in this table were generated using residuals from a Poisson model, the units are in "number of deaths"

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Mortality Study Report

APPENDIX

D

TRIGONOMETRIC MODELS

Table D1a - Base trigonometric model for total deaths*

Parameter	Estimate	Standard Error	p
INTERCEPT	4.1852	0.1988	0.0001
COS0_5	-0.0049	0.0046	0.2900
SIN0_5	-0.0169	0.0101	0.0934
COS1	-0.0574	0.0058	0.0001
SIN1	-0.0319	0.0125	0.0108
COS2	0.0164	0.0044	0.0002
SIN2	0.0053	0.0072	0.4585
COS3	0.0065	0.0043	0.1290
SIN3	-0.0046	0.0057	0.4186
COS4	0.0047	0.0043	0.2815
SIN4	-0.0078	0.0052	0.1312
COS5	0.0034	0.0043	0.4307
SIN5	-0.0027	0.0049	0.5790
COS6	-0.0001	0.0043	0.9824
SIN6	-0.0011	0.0046	0.8162
OBS	-0.0001	0.0001	0.6209
OBS2	0.0000	0.0000	0.7211
WEEKD1	-0.0165	0.0112	0.1403
WEEKD2	-0.0211	0.0112	0.0609
WEEKD3	-0.0220	0.0112	0.0505
WEEKD4	-0.0116	0.0112	0.3028
WEEKD5	0.0056	0.0112	0.6164
WEEKD6	0.0046	0.0112	0.6835
WEEKD7	0.0000	0.0000	.
YEAR 1991	-0.0978	0.1800	0.5871
YEAR 1992	-0.0819	0.1455	0.5736
YEAR 1993	-0.0534	0.1108	0.6298
YEAR 1994	-0.0249	0.0760	0.7432
YEAR 1995	0.0131	0.0409	0.7487
YEAR 1996	0.0000	0.0000	.
HOLIDAY	0.0439	0.0375	0.2418
L2UTMIN	0.0176	0.0052	0.0007
L2UTMAX	0.0014	0.0022	0.5210
L2DTMAX	-0.0073	0.0014	0.5210
L2RAIN	0.0001	0.0005	0.0001
SCALE	1.0136	0.0000	0.8728

*Amount of variation explained: approx. 24%

Meteorological variables used for cool season models: lag 2
Meteorological variables used for warm season models: same day

Table D1b - Base trigonometric model for total deaths aged 65+*

Parameter	Estimate	Standard Error	p
INTERCEPT	3.7855	0.2249	0.0001
COS0_5	-0.0134	0.0052	0.0099
SIN0_5	-0.0181	0.113	0.1101
COS1	-0.0920	0.0071	0.0001
SIN1	-0.0497	0.0142	0.0005
COS2	0.142	0.0049	0.0039
SIN2	0.0080	0.0081	0.3218
COS3	0.0085	0.0049	0.0809
SIN3	-0.0082	0.0065	0.2051
COS4	0.0014	0.0049	0.7791
SIN4	-0.0017	0.0058	0.7656
COS5	-0.0019	0.0049	0.7026
SIN5	-0.0049	0.0055	0.3725
COS6	0.0010	0.0048	0.8399
SIN6	-0.0019	0.0052	0.7129
OBS	0.0000	0.0001	0.8740
OBS2	0.0000	0.0000	0.9074
WEEKD1	-0.0189	0.0127	0.1346
WEEKD2	-0.0177	0.0127	0.1612
WEEKD3	-0.0236	0.0127	0.0622
WEEKD4	-0.0123	0.0126	0.3309
WEEKD5	0.0041	0.0126	0.7434
WEEKD6	0.0053	0.0125	0.6744
WEEKD7	0.0000	0.0000	.
YEAR 1991	-0.0276	0.2035	0.8923
YEAR 1992	-0.0198	0.1645	0.9043
YEAR 1993	-0.0127	0.1253	0.9192
YEAR 1994	0.0121	0.0859	0.8881
YEAR 1995	0.0235	0.0462	0.6110
YEAR 1996	0.0000	0.0000	.
HOLIDAY	0.0490	0.0423	0.2465
A2UTMIN	0.0130	0.0071	0.0659
A2UTMAX	0.0131	0.0030	0.0001
A2DTMAX	-0.0016	0.0018	0.3836
A2RAIN	0.0009	0.0008	0.2402
SCALE	1.0218	0.0000	.

*Amount of variation explained: approx. 25%

Table D1c - Base trigonometric model for total deaths aged < 65*

Parameter	Estimate	Standard Error	p
INTERCEPT	2.4497	0.4356	0.0001
COS0_5	0.0100	0.0102	0.3256
SIN0_5	-0.0064	0.0224	0.7749
COS1	-0.0173	0.0129	0.1803
SIN1	0.0087	0.0275	0.7529
COS2	0.0155	0.0097	0.1116
SIN2	-0.0048	0.0159	0.7605
COS3	-0.0005	0.0097	0.9576
SIN3	0.0110	0.0128	0.3896
COS4	0.0131	0.0097	0.1742
SIN4	-0.0217	0.0115	0.0588
COS5	0.0192	0.0097	0.0474
SIN5	0.0167	0.0108	0.1232
COS6	-0.0035	0.0096	0.7165
SIN6	0.0068	0.0104	0.5158
OBS	-0.0001	0.0002	0.7976
OBS2	0.0000	0.0001	0.8516
WEEKD1	-0.0018	0.0251	0.9422
WEEKD2	-0.0409	0.0254	0.1066
WEEKD3	-0.0148	0.0252	0.5569
WEEKD4	-0.0079	0.0252	0.7544
WEEKD5	0.0201	0.0250	0.4202
WEEKD6	0.0053	0.0251	0.8338
WEEKD7	0.0000	0.0000	.
YEAR 1991	0.0933	0.3948	0.8133
YEAR 1992	0.0604	0.3195	0.8502
YEAR 1993	0.0408	0.2440	0.8672
YEAR 1994	0.0100	0.1674	0.9522
YEAR 1995	0.0577	0.0907	0.5245
YEAR 1996	0.0000	0.0000	.
HOLIDAY	0.0383	0.0824	0.6420
L2UTMIN	0.0363	0.0119	0.0022
L2UTMAX	-0.0036	0.0048	0.4530
L2DTMAX	-0.0054	0.0030	0.0773
L2RAIN	-0.0007	0.0012	0.5769
SCALE	1.0075	0.0000	.

*Amount of variation explained: approx. 5%

Table D1d - Base trigonometric model for total respiratory deaths*

Parameter	Estimate	Standard Error	p
INTERCEPT	2.5624	0.7256	0.0004
COS0_5	-0.0165	0.0168	0.3264
SIN0_5	-0.078	0.0360	0.2944
COS1	-0.1890	0.0240	0.0001
SIN1	-0.2370	0.0463	0.0001
COS2	0.0409	0.0156	0.0087
SIN2	-0.0114	0.0260	0.6619
COS3	0.0073	0.0156	0.6385
SIN3	-0.0541	0.0208	0.0092
COS4	0.0311	0.0155	0.0454
SIN4	-0.0446	0.0187	0.0169
COS5	-0.0257	0.0155	0.0984
SIN5	-0.0139	0.0176	0.4311
COS6	-0.0118	0.0154	0.4430
SIN6	-0.0026	0.0166	0.8777
OBS	-0.0010	0.0004	0.0194
OBS2	0.0002	0.0001	0.0271
WEEKD1	-0.0369	0.0401	0.3579
WEEKD2	-0.0251	0.0400	0.5299
WEEKD3	-0.0140	0.399	0.7259
WEEKD4	0.0288	0.0395	0.4660
WEEKD5	0.0071	0.0396	0.8578
WEEKD6	0.0009	0.0396	0.9824
WEEKD7	0.0000	0.0000	.
YEAR 1991	-1.0259	0.6561	0.1179
YEAR 1992	-0.6687	0.5310	0.2079
YEAR 1993	-0.4660	0.4036	0.2482
YEAR 1994	-0.2711	0.2773	0.3282
YEAR 1995	-0.1569	0.1484	0.2904
YEAR 1996	0.0000	0.0000	.
HOLIDAY	0.2335	0.1274	0.0669
A3UTMIN	0.0142	0.0242	0.5567
A3UTMAX	0.0190	0.0114	0.0948
A3DTMAX	0.0040	0.0066	0.5443
A3RAIN	0.0045	0.0030	0.1372
SCALE	0.0000	1.0198	.

*Amount of variation explained: approx. 12%

Meteorological variables used for cool season models: lag 1
Meteorological variables used for warm season models: 3-day cumulative average

Table D1e - Base trigonometric model for total respiratory deaths aged 65+*

Parameter	Estimate	Standard Error	p
INTERCEPT	2.6961	0.7704	0.0005
COS0_5	-0.0161	0.0178	0.3669
SIN0_5	-0.0366	0.0383	0.3401
COS1	-0.1791	0.0222	0.0001
SIN1	-0.2369	0.0484	0.001
COS2	0.0401	0.0166	0.0155
SIN2	-0.0102	0.0276	0.7105
COS3	0.0027	0.0166	0.8689
SIN3	-0.0589	0.0221	0.0075
COS4	0.0311	0.0165	0.0598
SIN4	-0.0408	0.0198	0.0396
COS5	-0.0310	0.0165	0.0609
SIN5	-0.0102	0.0187	0.5845
COS6	-0.0122	0.0163	0.4533
SIN6	0.0011	0.0176	0.9511
OBS	-0.0012	0.0004	0.0075
OBS2	0.0003	0.0001	0.0093
WEEKD1	-0.0473	0.0426	0.2672
WEEKD2	-0.0154	0.0423	0.7149
WEEKD3	-0.0111	0.0423	0.7924
WEEKD4	0.0020	0.0421	0.9615
WEEKD5	-0.0095	0.0422	0.8220
WEEKD6	0.0002	0.0421	0.9962
WEEKD7	0.0000	0.0000	.
YEAR 1991	-1.2369	0.6977	0.0763
YEAR 1992	-0.7858	0.5645	0.1639
YEAR 1993	-0.5571	0.4292	0.1943
YEAR 1994	-0.3016	0.2947	0.3062
YEAR 1995	-0.1788	0.1576	0.2567
YEAR 1996	0.0000	0.0000	.
HOLIDAY	0.2789	0.1352	0.0392
L2UTMIN	0.0231	0.0183	0.2081
L2UTMAX	0.0044	0.0085	0.6033
L2DTMAX	0.0018	0.0052	0.7337
L2RAIN	0.0049	0.0019	0.0115
SCALE	1.0247	0.0000	.

*Amount of variation explained: approx. 12%

Table D1f - Base trigonometric model for total cardiovascular deaths*

Parameter	Estimate	Standard Error	p
INTERCEPT	3.7725	0.3030	0.0001
COS0_5	-0.0117	0.0070	0.0929
SIN0_5	-0.0161	0.0151	0.2865
COS1	-0.836	0.0100	0.0001
SIN1	-0.0557	0.0193	0.0039
COS2	0.0102	0.0065	0.1195
SIN2	-0.0122	0.0108	0.2623
COS3	0.0108	0.0065	0.0952
SIN3	-0.0107	0.0087	0.2183
COS4	0.0050	0.0065	0.4447
SIN4	-0.0104	0.0078	0.1799
COS5	0.0037	0.0065	0.5704
SIN5	-0.0112	0.0073	0.1249
COS6	-0.0020	0.0064	0.7559
SIN6	-0.0129	0.0070	0.0641
OBS	-0.0002	0.0002	0.2920
OBS2	-0.0000	0.0000	0.3539
WEEKD1	-0.0007	0.0167	0.9682
WEEKD2	0.0017	0.0167	0.9210
WEEKD3	-0.0099	0.0168	0.5561
WEEKD4	-0.0286	0.0168	0.0896
WEEKD5	-0.0055	0.0167	0.7417
WEEKD6	-0.0197	0.0168	0.2398
WEEKD7	0.0000	0.0000	.
YEAR 1991	-0.4428	0.2740	0.1061
YEAR 1992	-0.3517	0.2217	0.1126
YEAR 1993	-0.3040	0.1687	0.0716
YEAR 1994	-0.1900	0.1158	0.1008
YEAR 1995	-0.0686	0.0622	0.2706
YEAR 1996	0.0000	0.0000	.
HOLIDAY	0.0240	0.0573	0.6759
A3UTMIN	0.0247	0.0107	0.0204
A3UTMAX	0.0197	0.0046	0.0001
A3DTMAX	-0.0096	0.0028	0.0005
A3RAIN	0.0012	0.0013	0.3528
SCALE	1.0030	0.0000	.

*Amount of variation explained: approx. 16%

Meteorological variables used for cool season models: lag 2
Meteorological variables used for warm season models: 3-day cumulative average

Table D1g Base trigonometric model for total cardiovascular deaths aged 65+*

Parameter	Estimate	Standard Error	p
INTERCEPT	3.5090	0.3252	0.0001
COS0_5	-0.0124	0.0075	0.0948
SIN0_5	-0.0195	0.0162	0.2288
COS1	-0.0881	0.0107	0.0001
SIN1	-0.0494	0.0207	0.0172
COS2	0.0075	0.0070	0.2864
SIN2	-0.0052	0.0116	0.6560
COS3	0.0119	0.0069	0.0862
SIN3	-0.0101	0.0093	0.2785
COS4	0.0048	0.0070	0.4939
SIN4	-0.0101	0.0083	0.2240
COS5	0.0038	0.0069	0.5846
SIN5	-0.0130	0.0078	0.0969
COS6	-0.0005	0.0069	0.9375
SIN6	-0.0125	0.0075	0.0926
OBS	-0.0001	0.0002	0.6435
OBS2	-0.000	0.0000	0.2715
WEEKD1	0.0006	0.0180	0.9712
WEEKD2	0.0121	0.0179	0.4985
WEEKD3	-0.0040	0.0180	0.8227
WEEKD4	-0.0154	0.0180	0.3948
WEEKD5	0.0088	0.0179	0.6247
WEEKD6	-0.0187	0.0180	0.2997
WEEKD7	0.0000	0.0000	.
YEAR 1991	-0.3315	0.2941	0.2597
YEAR 1992	-0.2678	0.2379	0.2602
YEAR 1993	-0.2362	0.1810	0.1919
YEAR 1994	-0.1409	0.1242	0.2563
YEAR 1995	-0.0465	0.0668	0.4863
YEAR 1996	0.0000	0.0000	.
HOLIDAY	0.0191	0.0616	0.7562
A3UTMIN	0.0195	0.0114	0.0875
A3UTMAX	0.0218	0.0050	0.0001
A3DTMAX	-0.0099	0.0030	0.0008
A3RAIN	0.0012	0.0014	0.3721
SCALE	1.0131	0.0000	.

*Amount of variation explained: approx. 16%

Table D1h Base trigonometric model for total digestive deaths*

Parameter	Estimate	Standard error	p
INTERCEPT	-0.5160	1.0766	0.6318
COS0_5	0.0221	0.0251	0.3792
SIN0_5	-0.0850	0.0550	0.1219
COS1	-0.0499	0.0344	0.1465
SIN1	0.0620	0.0681	0.3633
COS2	-0.0006	0.0238	0.9798
SIN2	0.0295	0.0387	0.4456
COS3	0.0302	0.0233	0.1962
SIN3	-0.0001	0.0312	0.9966
COS4	0.0004	0.0236	0.9867
SIN4	-0.0100	0.0281	0.7214
COS5	-0.0130	0.0235	0.5802
SIN5	-0.0110	0.0265	0.6789
COS6	0.0222	0.0234	0.3432
SIN6	0.0030	0.0253	0.9049
OBS	0.0005	0.0006	0.4472
OBS2	0.0000	0.0001	0.7520
WEEKD1	0.0009	0.0629	0.9880
WEEKD2	0.0204	0.0625	0.7437
WEEKD3	0.0551	0.0619	0.3736
WEEKD4	0.0634	0.0617	0.3044
WEEKD5	0.1447	0.0605	0.0169
WEEKD6	0.0620	0.0617	0.3149
WEEKD7	0.0000	0.0000	.
YEAR 1991	1.2350	0.9757	0.2056
YEAR 1992	0.9279	0.7890	0.2396
YEAR 1993	0.7518	0.6029	0.2124
YEAR 1994	0.4207	0.4131	0.3084
YEAR 1995	0.3811	0.2244	0.0894
YEAR 1996	0.0000	0.0000	.
HOLIDAY	-0.0039	0.2066	0.9851
A2UTMIN	0.0292	0.0343	0.3944
A2UTMAX	0.0391	0.0132	0.0030
A2DTMAX	-0.0155	0.0089	0.0808
A2RAIN	0.0036	0.0038	0.3423
SCALE	0.9986	0.0000	.

*Amount of variation explained: approx. 2%

GENERALISED ADDITIVE MODELS

Note: The effect sizes of non-linear parameters in each model are indicative of the general direction of association only (ie. they should not be interpreted as the effect sizes of the non-linear relationships).

Table D2a - Base generalised additive model for total deaths*

	Parameter Estimate	Standard Error	t
Intercept	3.9788	0.0160	249.05
sOBS, df=36	0.0000	0.0000	8.97
sWEEKD, df=6	0.0045	0.0015	2.97
L2DTMAX	-0.0091	0.0011	-8.28
TAV	0.0041	0.0010	4.30
L1UTMAX	0.0051	0.0022	2.29
sA3UTMIN, df=2	0.0245	0.0070	3.51
RAIN	0.0017	0.0005	3.23

*AIC=2016.3

Table D2b - Base generalised additive model for total deaths aged 65+*

	Parameter Estimate	Standard Error	t
Intercept	3.8343	0.0160	239.88
sOBS, df=35	0.0001	0.0000	12.26
sWEEKD, df=6	0.0043	0.0017	2.56
sL2TAV, df=7	-0.0037	0.0013	-2.76
A2UTMAX	0.0116	0.0029	4.04
L2DTMAX	-0.0078	0.0016	-5.00
sRAIN, df=5	0.0014	0.0006	2.40

*AIC=2048.2

Table D2c - Base generalised additive model for total deaths aged <65*

	Parameter Estimate	Standard Error	t
Intercept	2.5171	0.0331	75.98
sOBS, df=18	-0.0001	0.0000	-7.78
sWEEKD, df=6	0.0048	0.0034	1.41
sL2TAV, df=7	-0.0110	0.0023	-4.86
L1UTMIN, df=3	0.0134	0.0121	1.11
DTMAX	0.0090	0.0027	3.34

*AIC=2069.7

Table D2d - Base generalised additive model for total respiratory deaths*

	Parameter Estimate	Standard Error	t
Intercept	1.2756	0.0556	22.94
sOBS, df=30	0.0001	0.0000	5.94
sWEEKD, df=6	0.0050	0.0053	0.94
sL2RAIN, df=2	0.0049	0.0017	2.88
TAV	0.0117	0.0037	3.17
sL1DTMAX, df=4	-0.0076	0.0042	-1.79
sA3UTMAX, df=2	-0.0027	0.0117	-0.23
sL2UTMIN, df=2	0.0139	0.0168	0.83

*AIC=2199.1

Table D2e - Base generalised additive model for total respiratory deaths aged 65+*

	Parameter Estimate	Standard Error	t
Intercept	1.1853	0.0578	20.50
sOBS, df=28	0.0001	0.0000	6.53
sWEEKD, df=6	0.0049	0.0057	0.86
HOLIDAY	0.2520	0.1288	1.96
sL2RAIN, df=2	0.0059	0.0018	3.27
TAV	0.0138	0.0044	3.13
sA3UTMAX, df=2	0.0005	0.0123	0.04
sA3DTMAX, df=5	-0.0148	0.0056	-2.65

*AIC=2233.6

Table D2f - Base generalised additive model for total cardiovascular deaths*

	Parameter Estimate	Standard Error	t
Intercept	3.3767	0.0216	156.34
sOBS, df=29	-0.0000	0.0000	-0.24
sWEEKD, df=6	-0.0018	0.0023	-0.81
sL2TAV, df=6	-0.0077	0.0018	-4.24
L2DTMAX	-0.0064	0.0021	-3.05
sL1UTMAX, df=2	0.0114	0.0033	3.44

*AIC=1985.1

Table D2g - Base generalised additive model for total cardiovascular deaths aged 65+*

	Parameter Estimate	Standard Error	t
Intercept	3.2306	0.0228	141.59
sOBS, df=31	0.0000	0.0000	1.82
sWEEKD, df=6	-0.0021	0.0024	-0.87
sL2TAV, df=6	-0.0060	0.0019	-3.17
A2UTMAX	0.0148	0.0041	3.58
L2DTMAX	-0.0076	0.0022	-3.40
sL1RAIN, df=9	0.0006	0.0009	0.72

*AIC=2016.2

Table D2h - Base generalised additive model for total digestive deaths*

	Parameter Estimate	Standard Error	t
Intercept	1.0043	0.0823	12.20
sOBS, df=11	-0.0001	0.0000	-2.41
sWEEKD, df=6	0.0040	0.0085	0.47
L2TAV	-0.0258	0.0047	-5.54
sA3UTMAX, df=5	0.0466	0.0167	2.78

*AIC=2016.3

APPENDIX

Mortality outcome variables

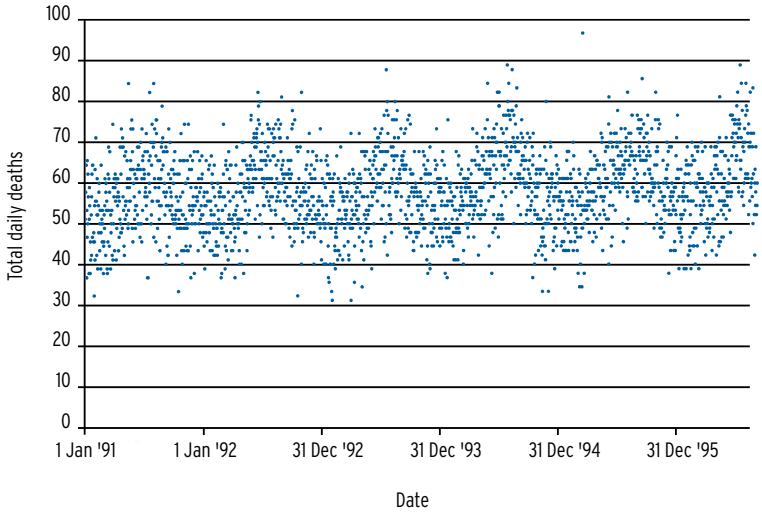

Figure E1 - Times series, total deaths, all ages, Melbourne Statistical Division, January 1, 1991-August 31, 1996

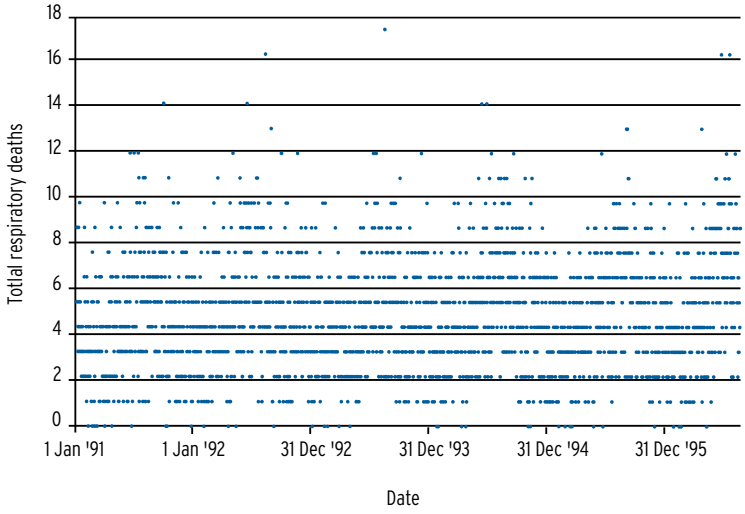

Figure E2 - Times series, total respiratory deaths, all ages, Melbourne Statistical Division, January 1, 1991-August 31, 1996

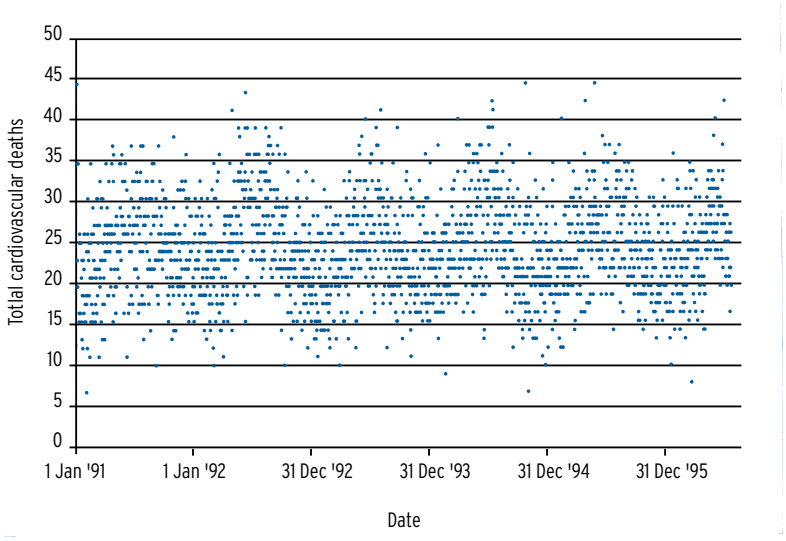

Figure E3 - Times series, total cardiovascular deaths, all ages, Melbourne Statistical Division, January 1, 1991-August 31, 1996

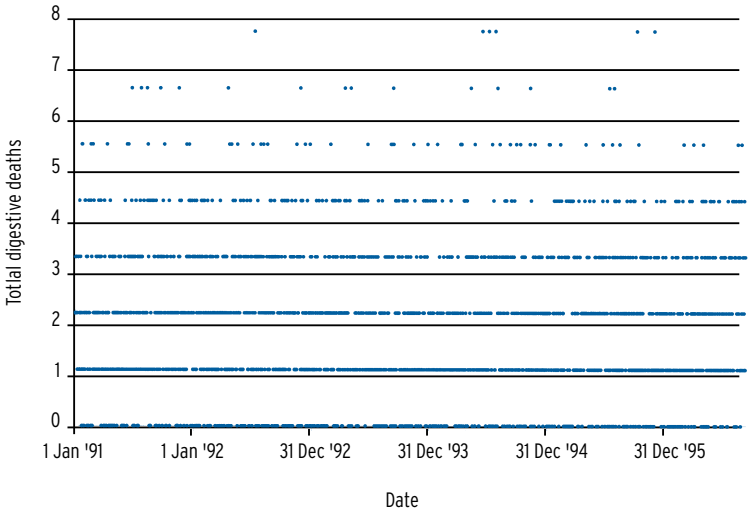

Figure E4 - Times series, total deaths due to digestive disorders, all ages, Melbourne Statistical Division, January 1, 1991-August 31, 1996

Pollutants

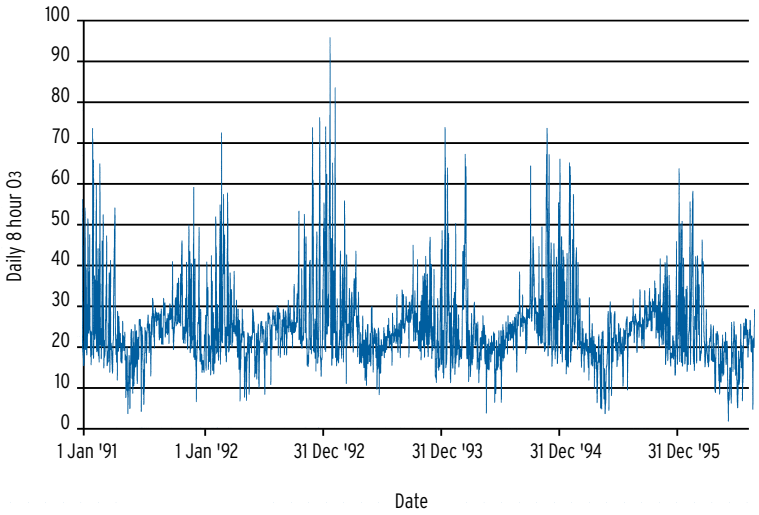

Figure E5 - Times series, daily average 8-hour O_2 (ppb), Melbourne Statistical Division, January 1, 1991-August 31, 1996

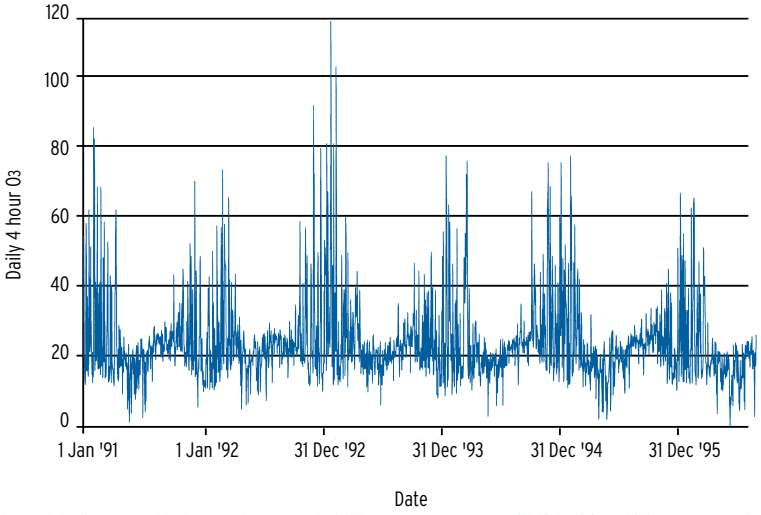

Figure E6 - Times series, daily average 4-hour O_2 (ppb), Melbourne Statistical Division, January 1, 1991-August 31, 1996

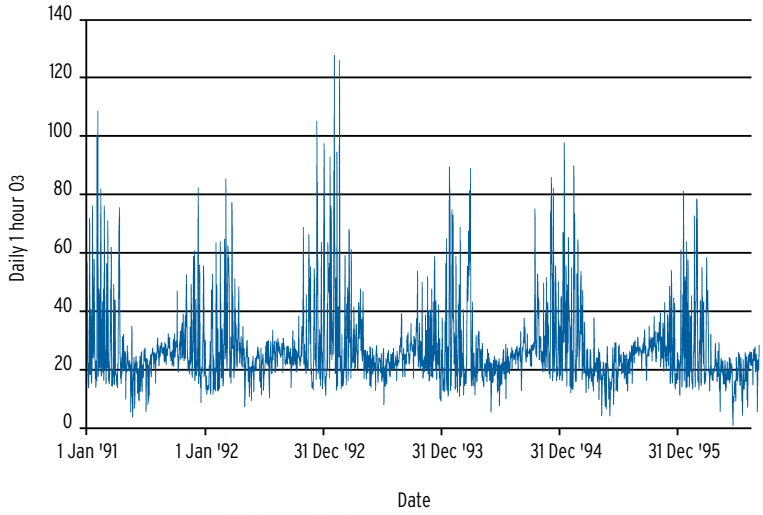

Figure E7 - Times series, daily maximum 1-hour O_3 (ppb), Melbourne Statistical Division, January 1, 1991-August 31, 1996

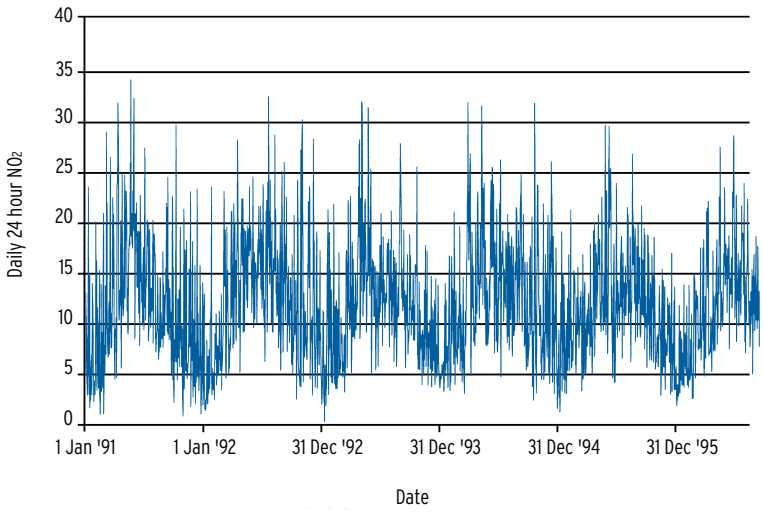

Figure E8 - Times series, daily average 24-hour NO_2 (ppb), Melbourne Statistical Division, January 1, 1991-August 31, 1996

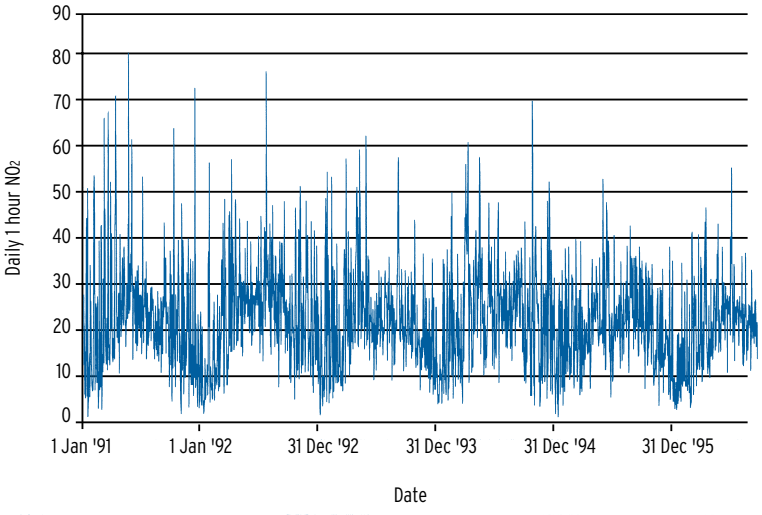

Figure E9 - Times series, daily maximum 1-hour NO_2 (ppb), Melbourne Statistical Division, January 1, 1991-August 31, 1996

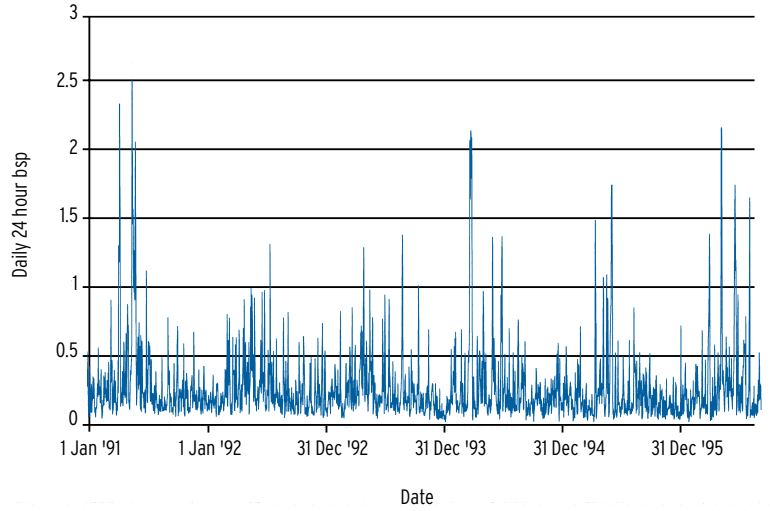

Figure E10 - Times series, daily average 24-hour bsp ($10^{-4}m^{-1}$), Melbourne Statistical Division, January 1, 1991-August 31, 1996

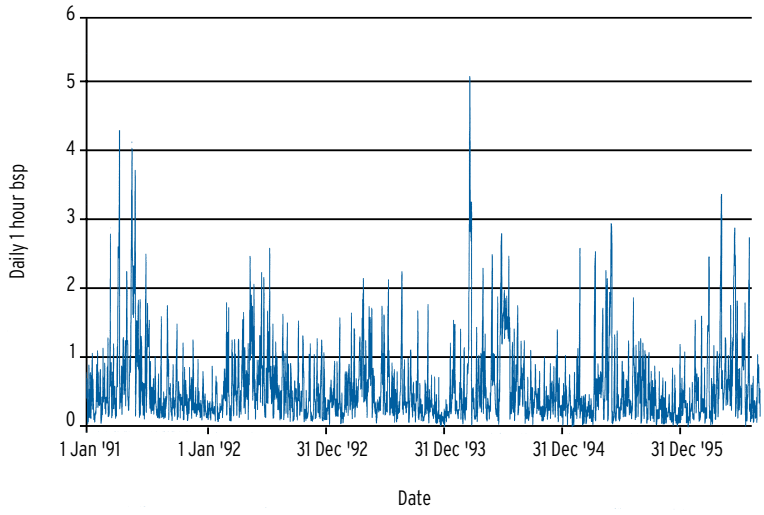

Figure E11 - Times series, daily maximum 1-hour bsp ($10^{-4}m^{-1}$), Melbourne Statistical Division, January 1, 1991-August 31, 1996

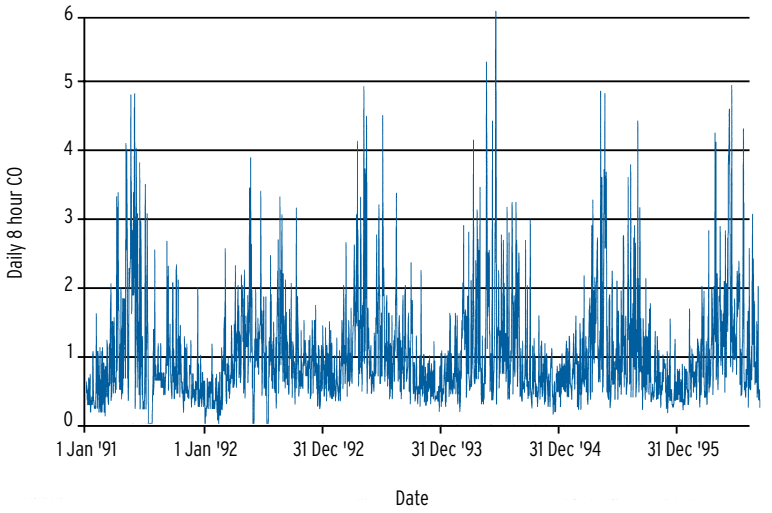

Figure E12 Times series, daily average 8-hour CO (ppm), Melbourne Statistical Division, January 1, 1991-August 31, 1996

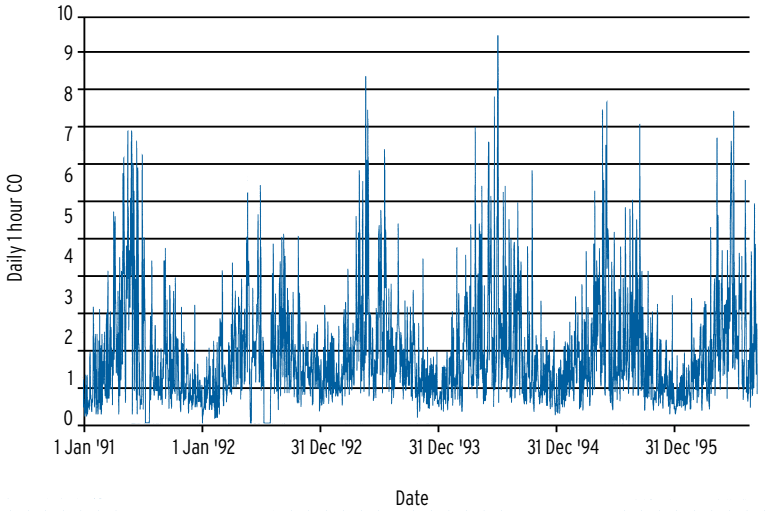

Figure E13 - Times series, daily maximum 1-hour CO (ppm), Melbourne Statistical Division, January 1, 1991-August 31, 1996

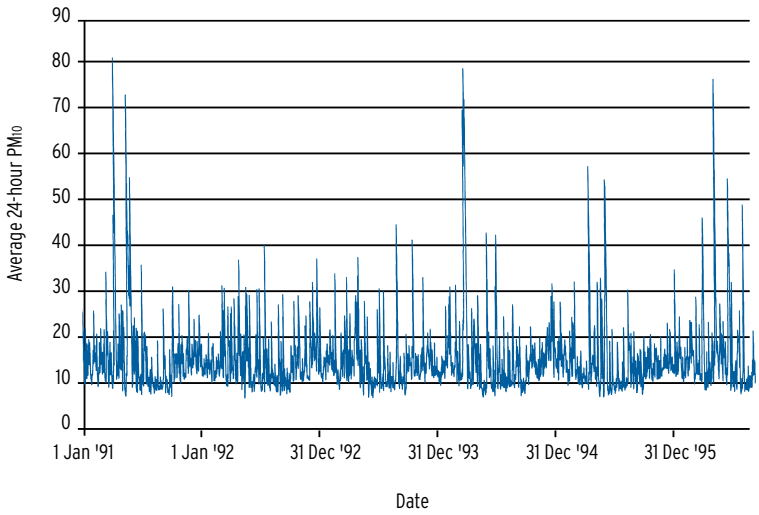

Figure E14 - Times series, daily average 24-hour PM_{10} (ugm^{-3}), Melbourne Statistical Division, January 1, 1991-August 31, 1996

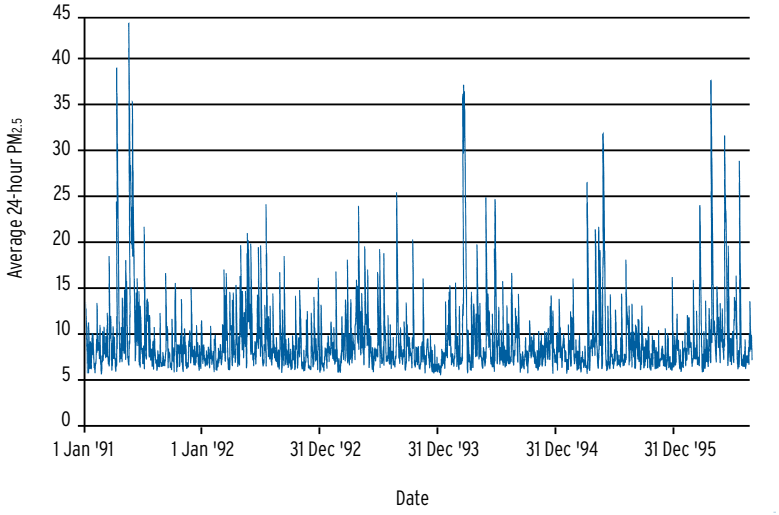

Figure E15 - Times series, daily maximum 1-hour $PM_{2.5}$ (ugm^{-3}), Melbourne Statistical Division, January 1, 1991-August 31, 1996