



Supplement of

Air quality in the eastern United States and Eastern Canada for 1990–2015: 25 years of change in response to emission reductions of SO₂ and NO_x in the region

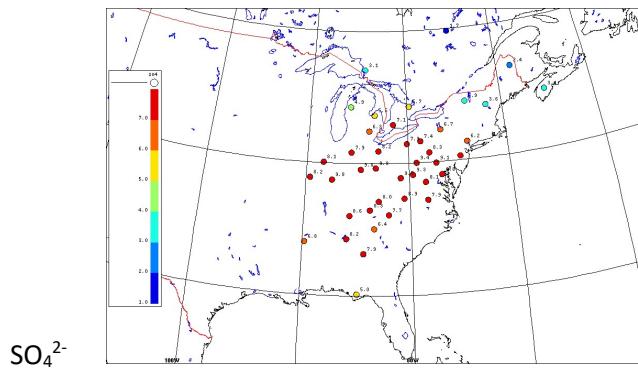
Jian Feng et al.

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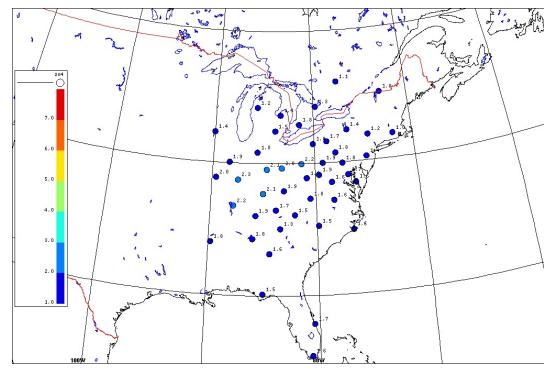
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To have a best view of the graphs, it is recommended to zoom the document to 300-400% within Microsoft Word or Adobe Reader. The graphs inserted into this document are in PNG format. They can be zoomed to a larger size without losing resolution.

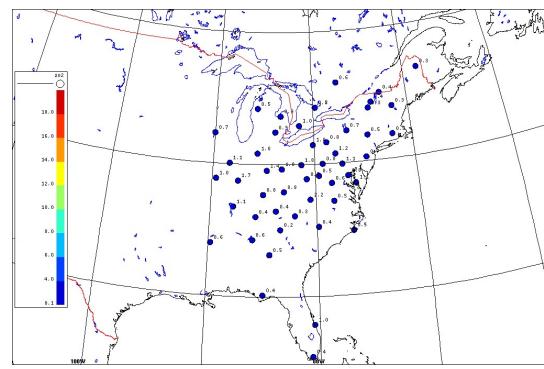
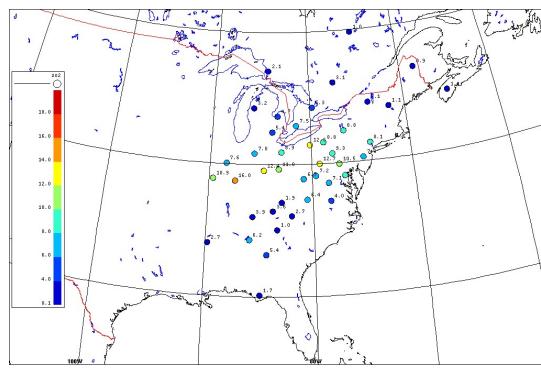
1989-1991



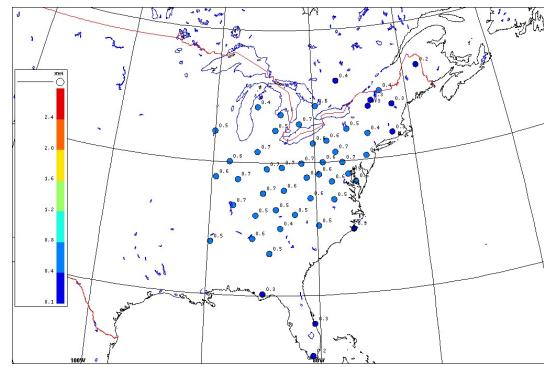
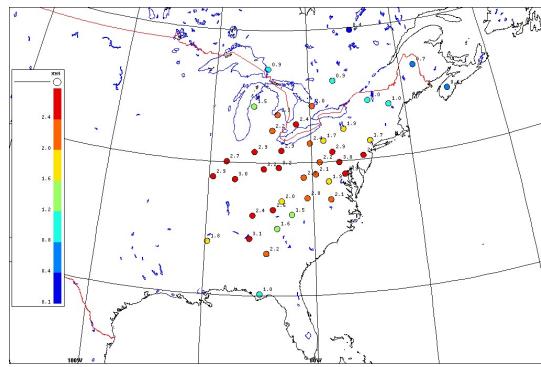
2014-2016



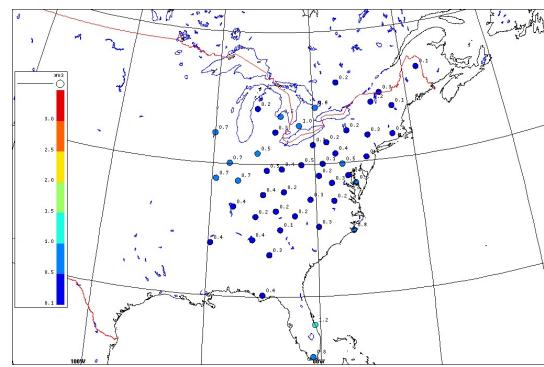
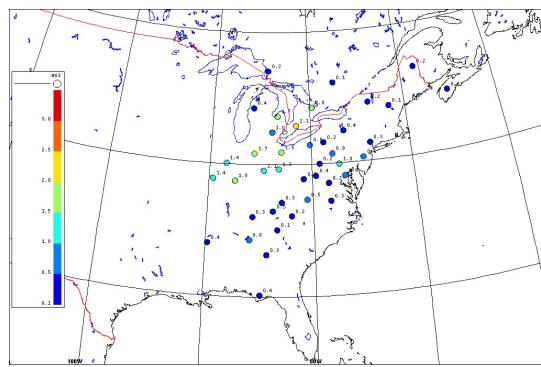
SO_2



NH_4^+



NO_3^-



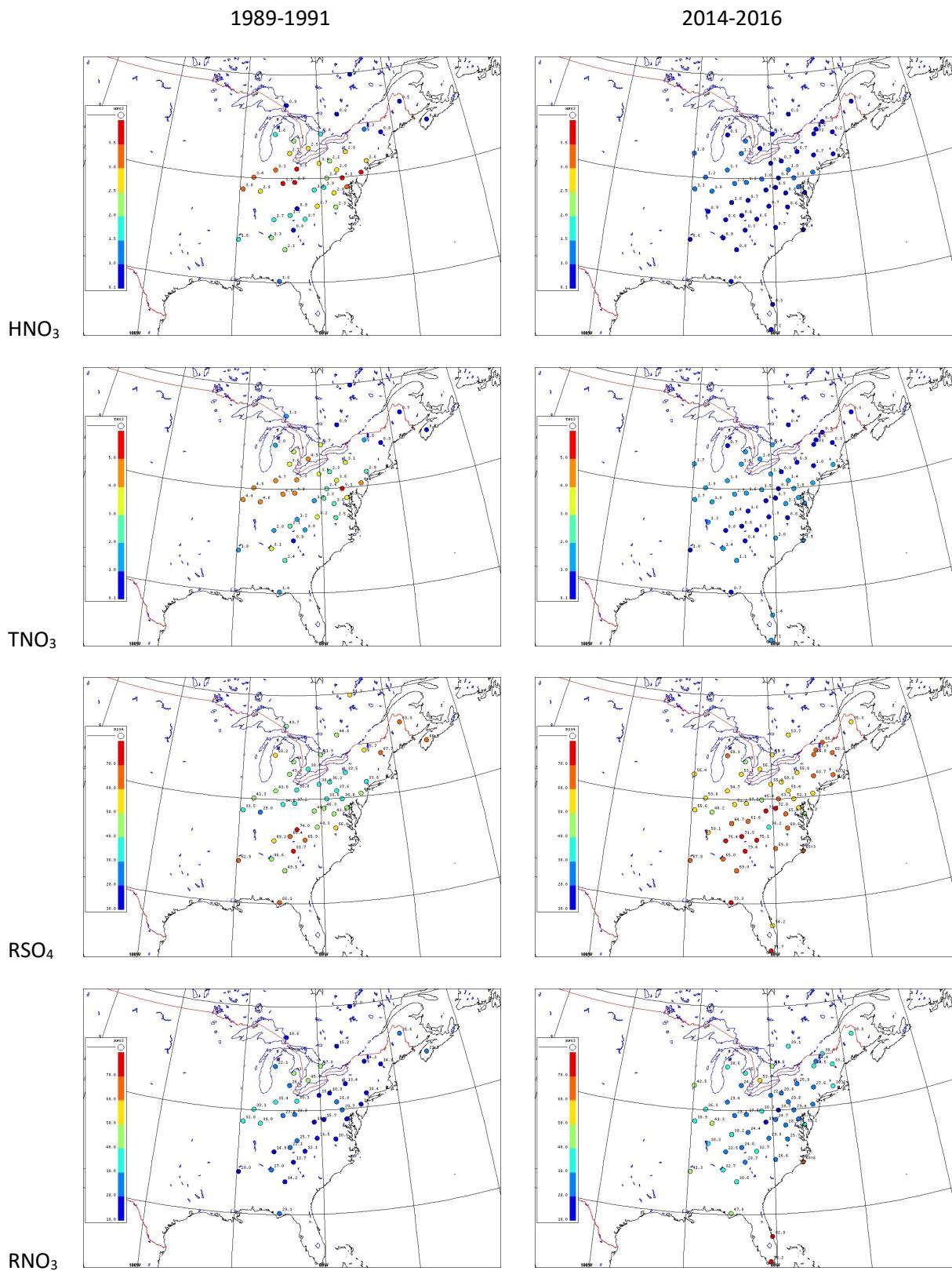
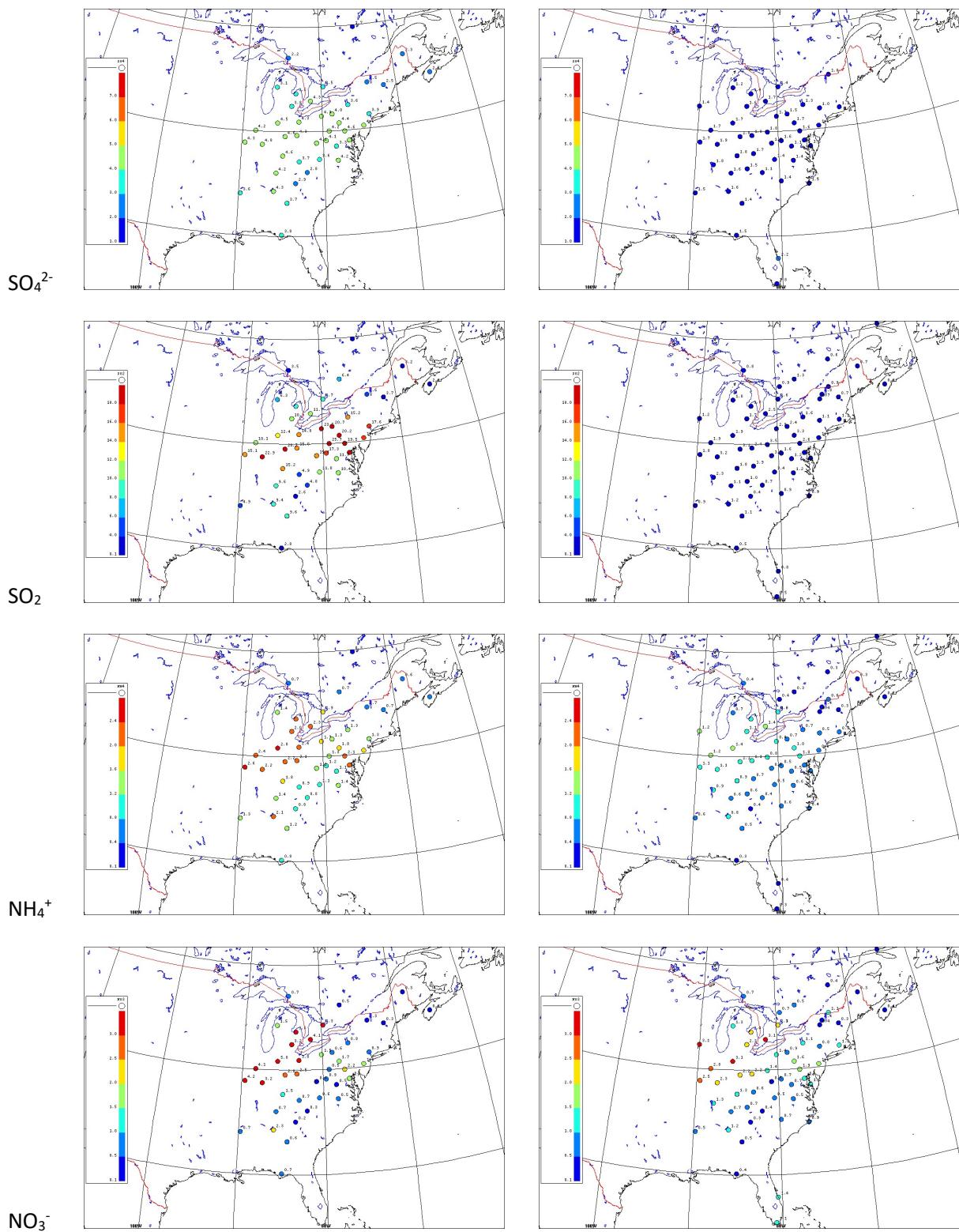


Fig. S1 Mean air concentrations ($\mu\text{g m}^{-3}$) of SO_4^{2-} , SO_2 , NH_4^+ , NO_3^- , HNO_3 and TNO_3 , and mean ratios of RSO_4 (%) and RNO_3 (%) during 1989-1991 and 2014-2016 for the warm season.

1989-1991

2014-2016



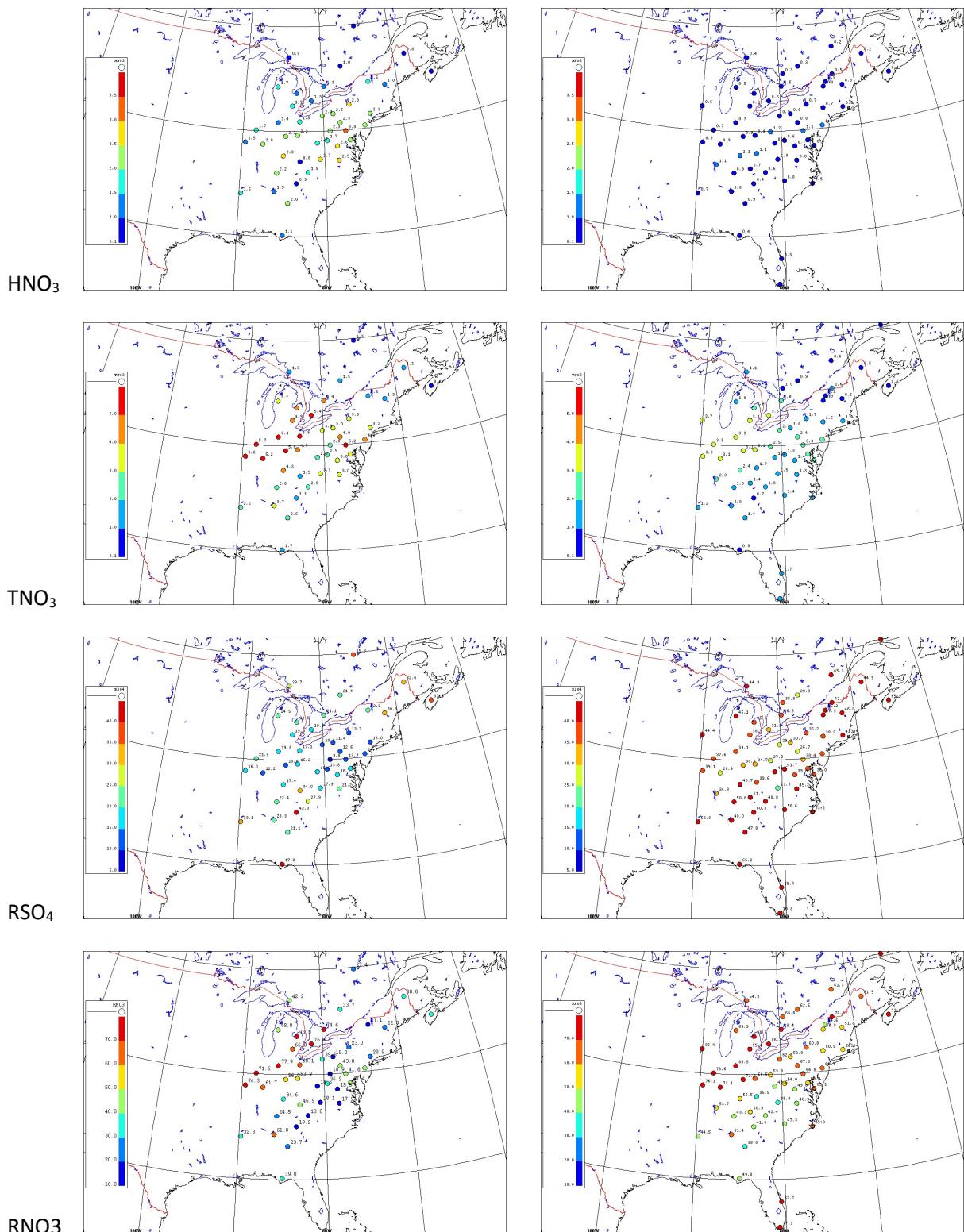
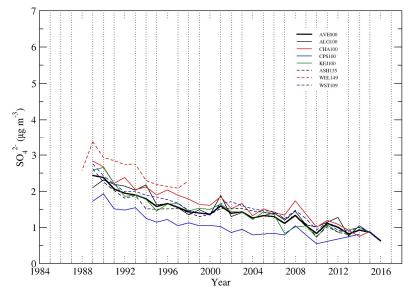
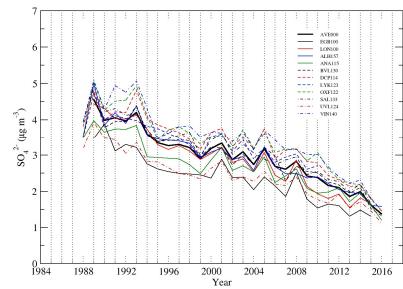


Fig. S2 Same as Fig. S1, but for the cold season.

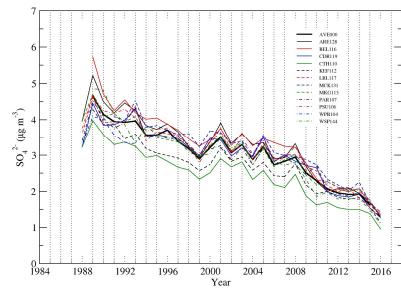
Region 1



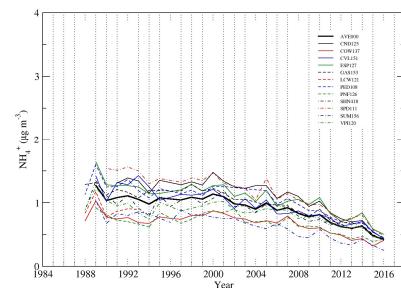
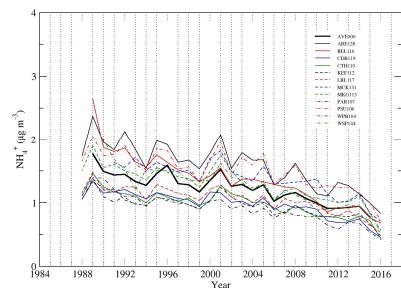
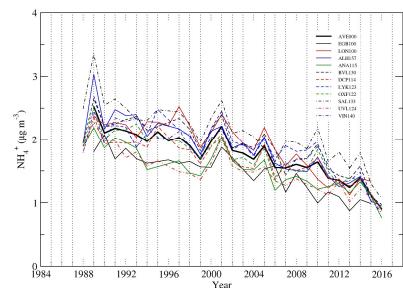
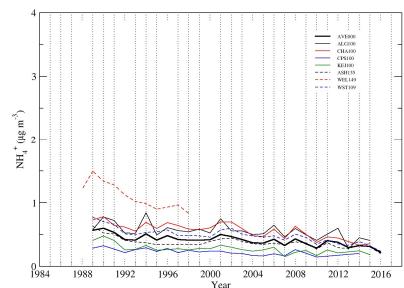
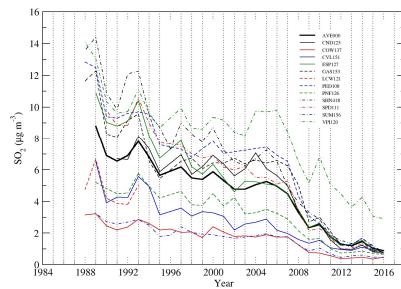
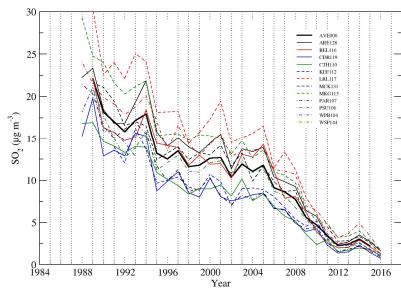
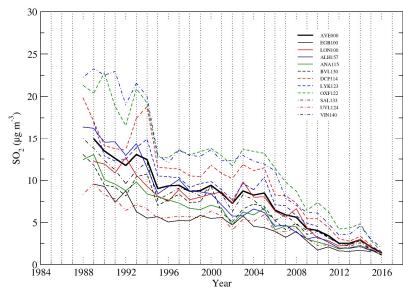
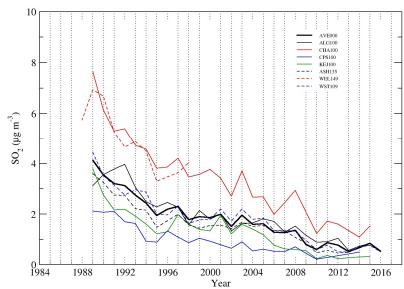
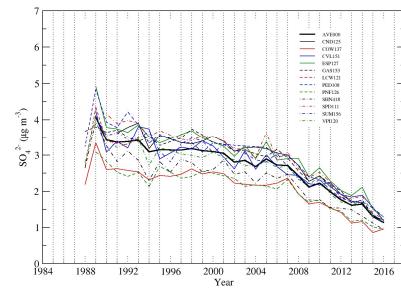
Region 2

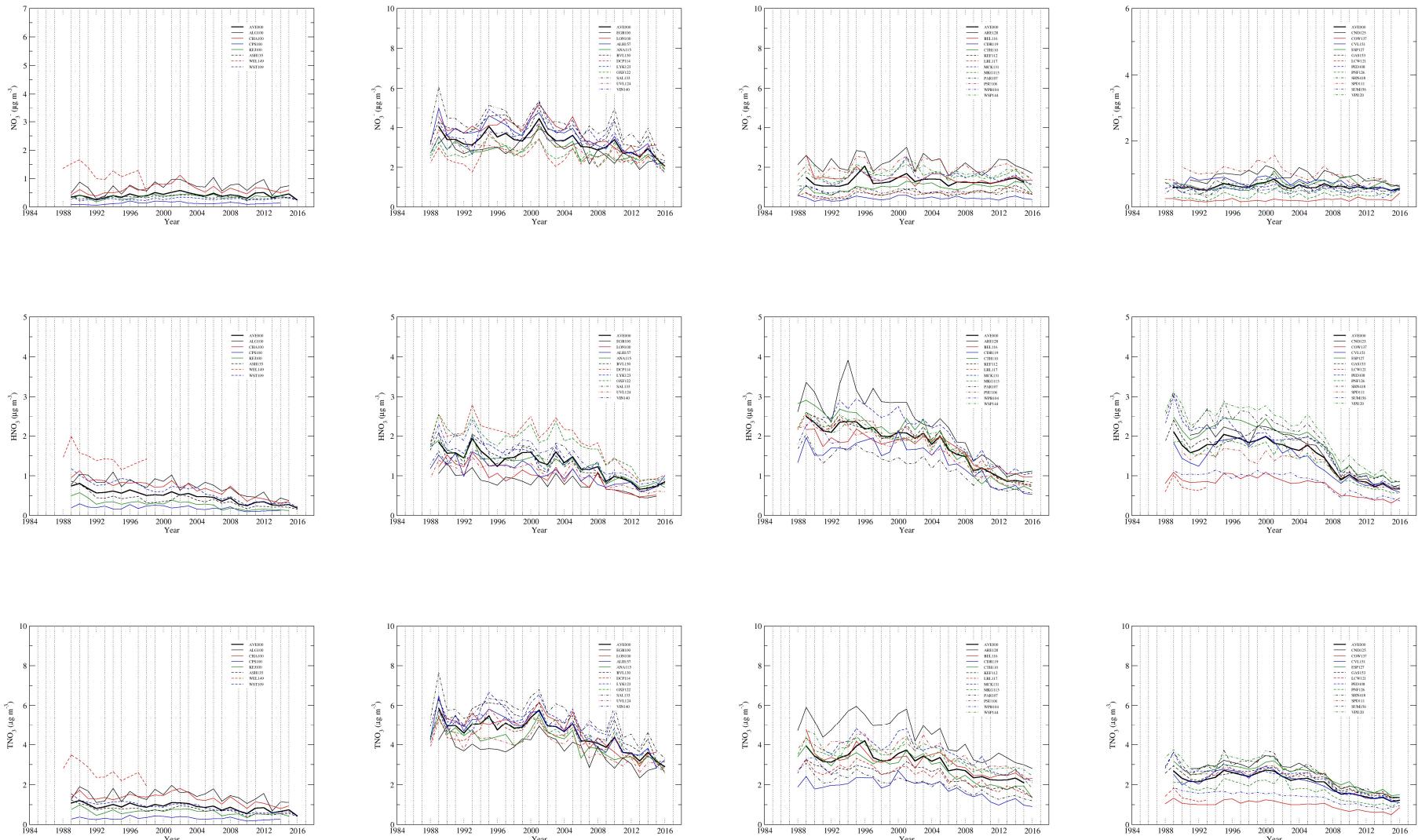


Region 3



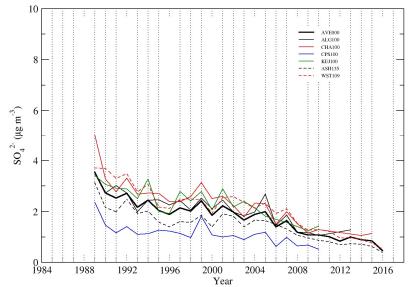
Region 4



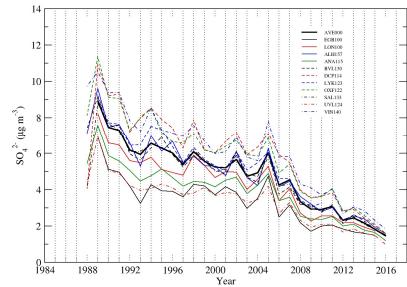


(a) Cold Season

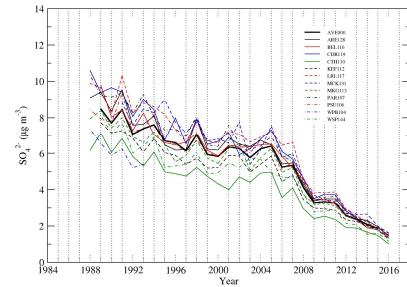
Region 1



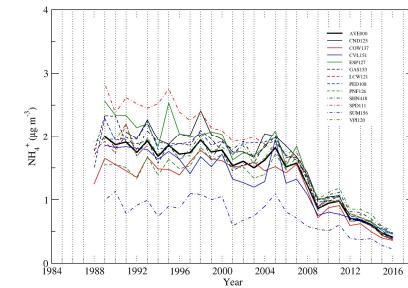
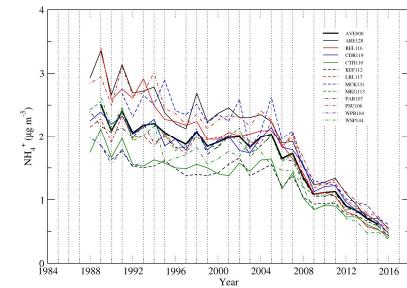
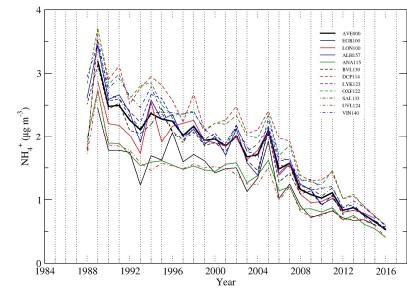
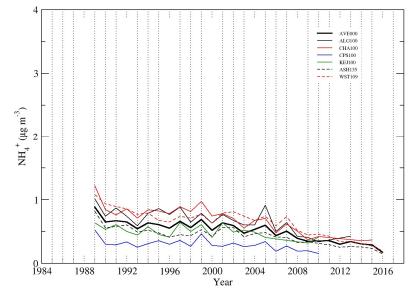
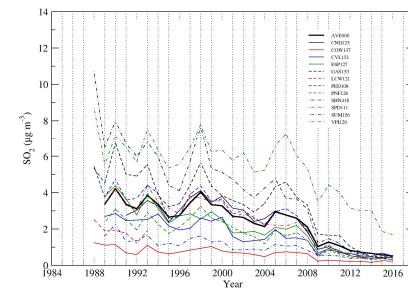
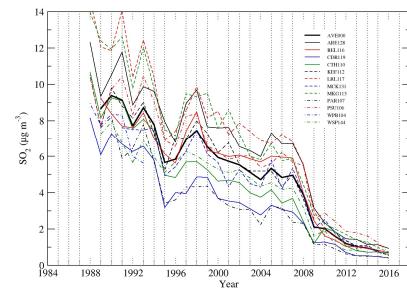
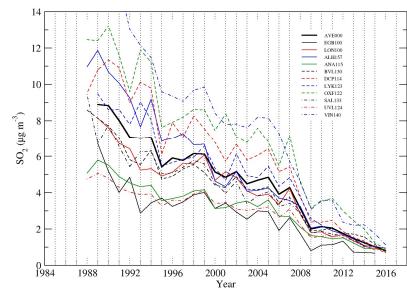
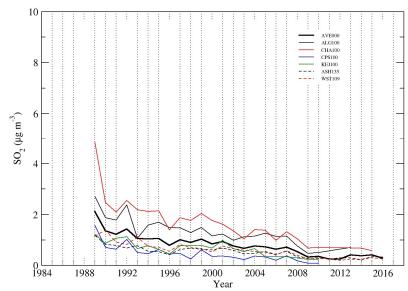
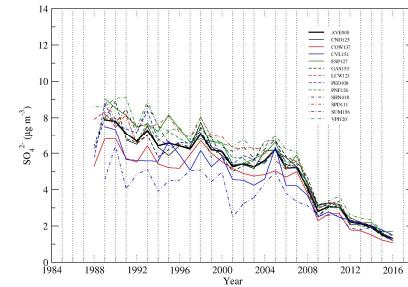
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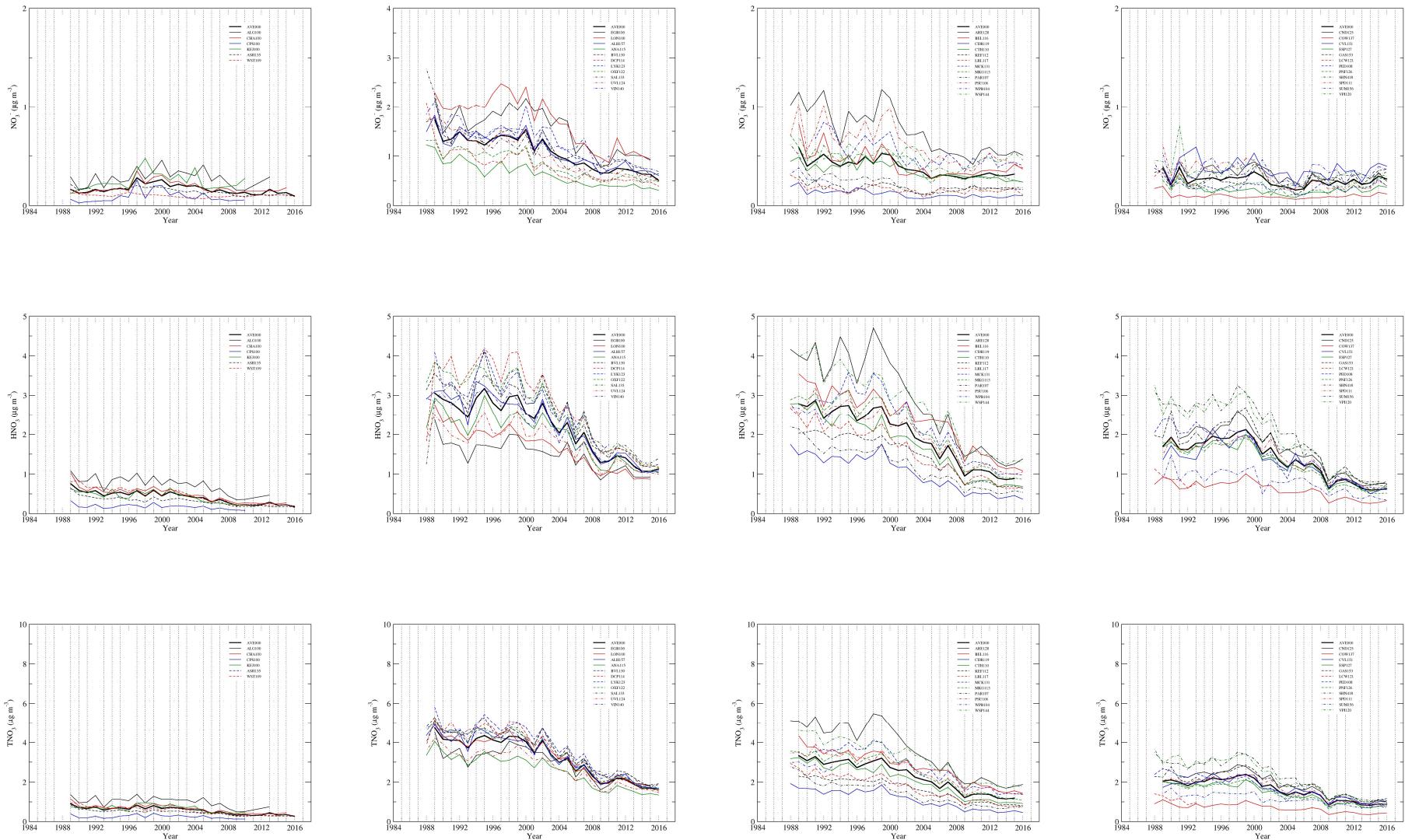


Region 3



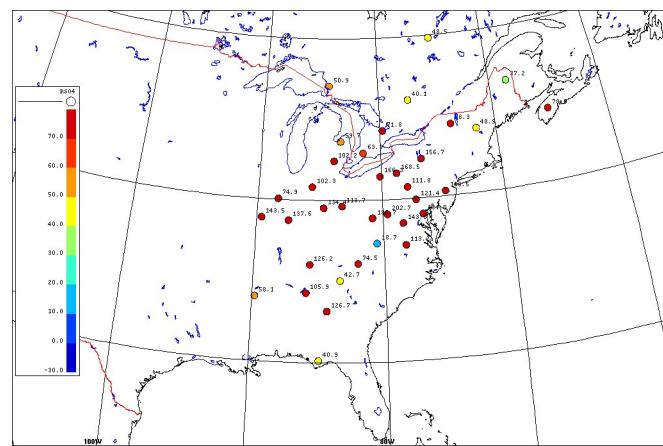
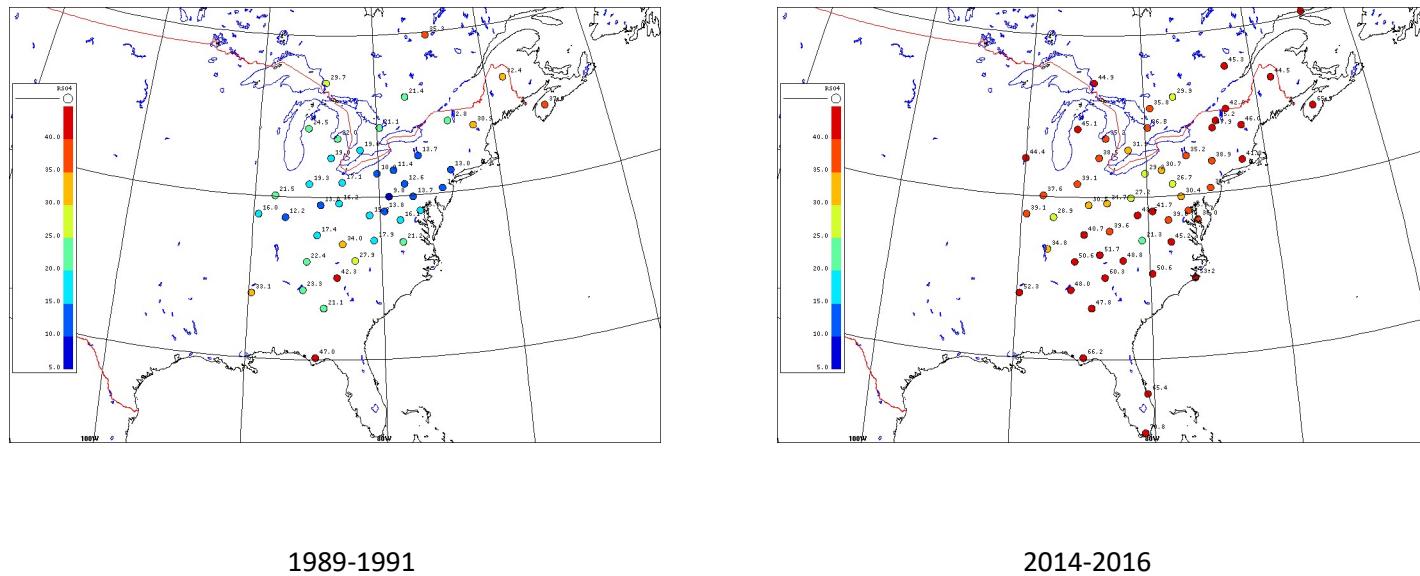
Region 4





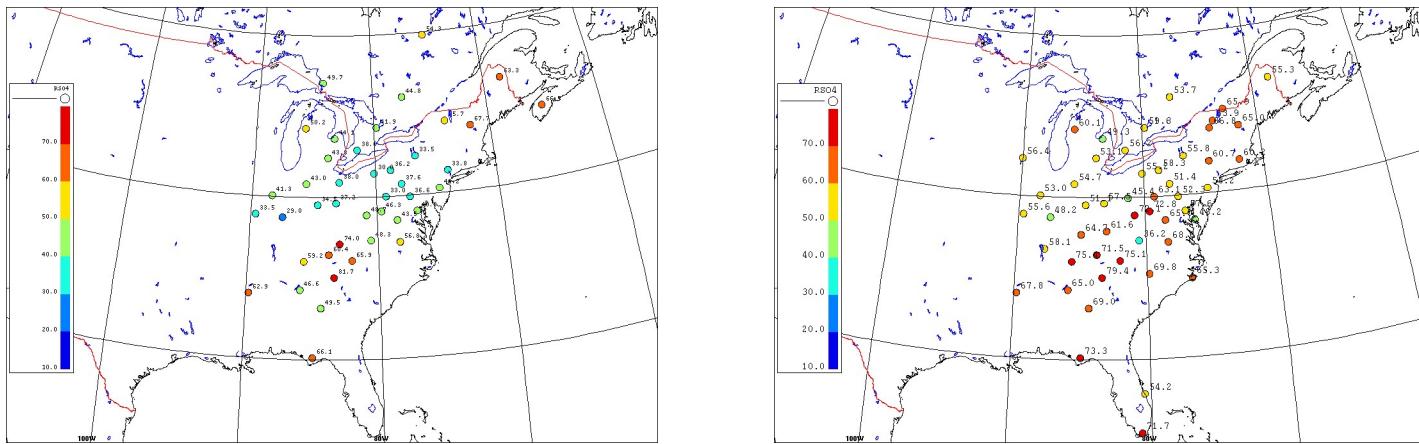
(b) Warm season

Fig. S3 Time series of seasonal mean concentrations during the cold (a) and the warm (b) seasons for each species and each site in regions 1-4.



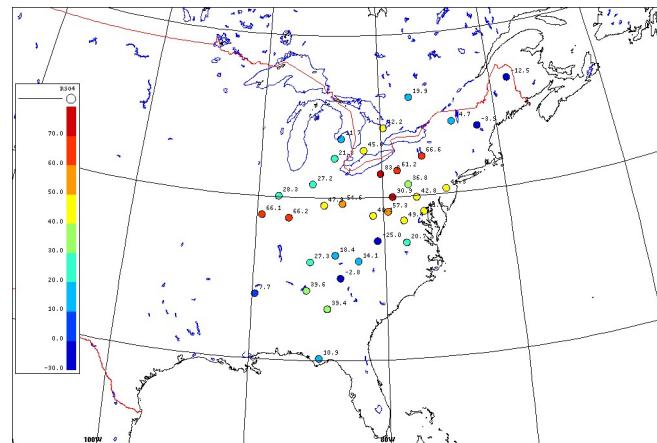
Change of RSO₄ (%): 2014-2016 vs. 1989-1991

(a) Cold season



1989-1991

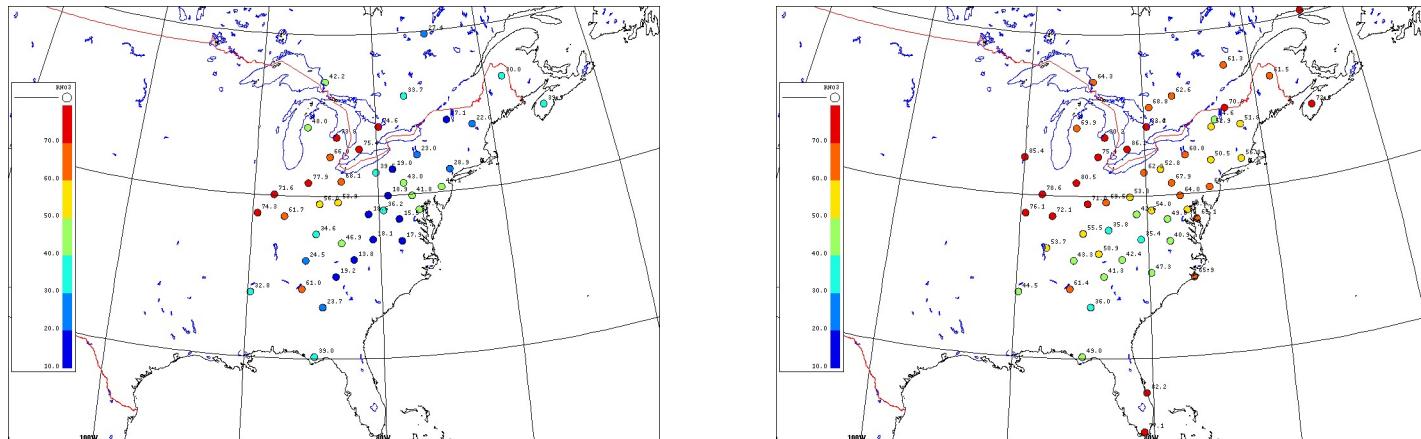
2014-2016



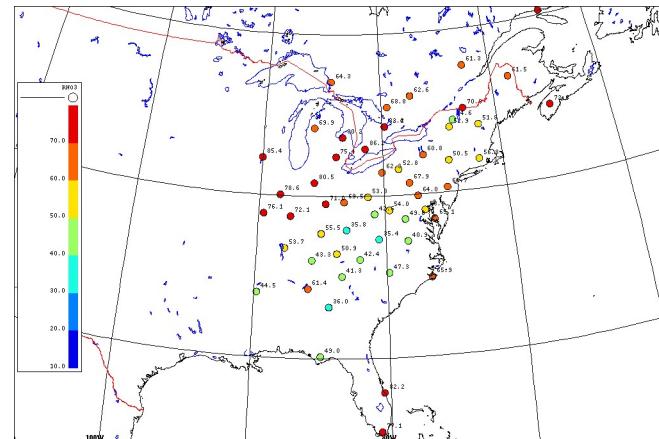
Change of RSO₄ (%): 2014-2016 vs. 1989-1991

(b) Warm season

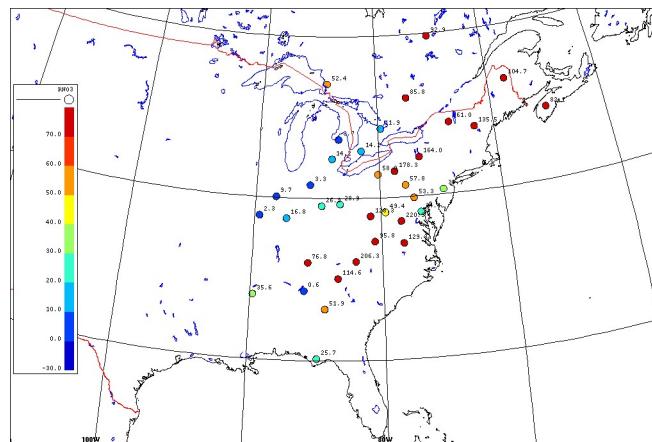
Fig. S4 RSO₄ in 1989-1991 and 2014-2016, and the change of RSO₄: 2014-2016 vs. 1989-1991.



1989-1991

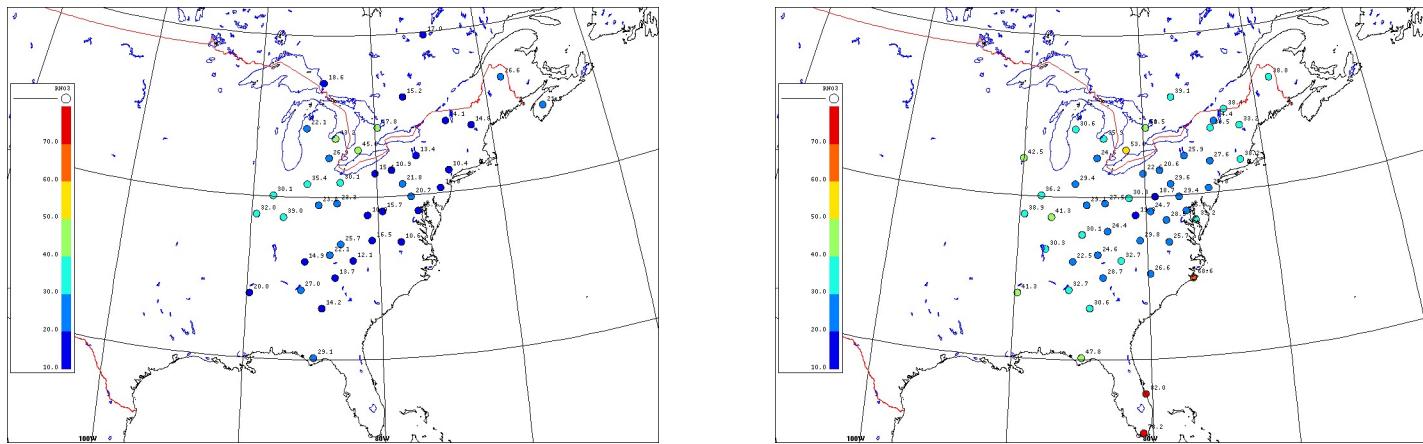


2014-2016



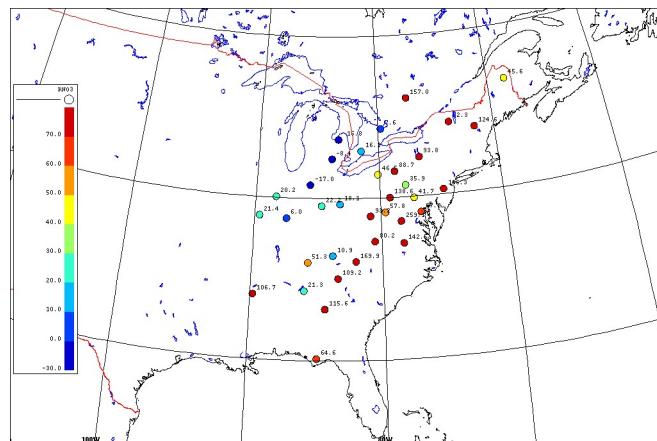
Change of RNO₃: 2014-2016 vs. 1989-1991

(a) Cold season



1989-1991

2014-2016



Change of RNO₃: 2014-2016 vs. 1989-1991

(b) Warm season

Fig. S5 RNO₃ in 1989-1991 and 2014-2016, and the change of RNO₃: 2014-2016 vs. 1989-1991

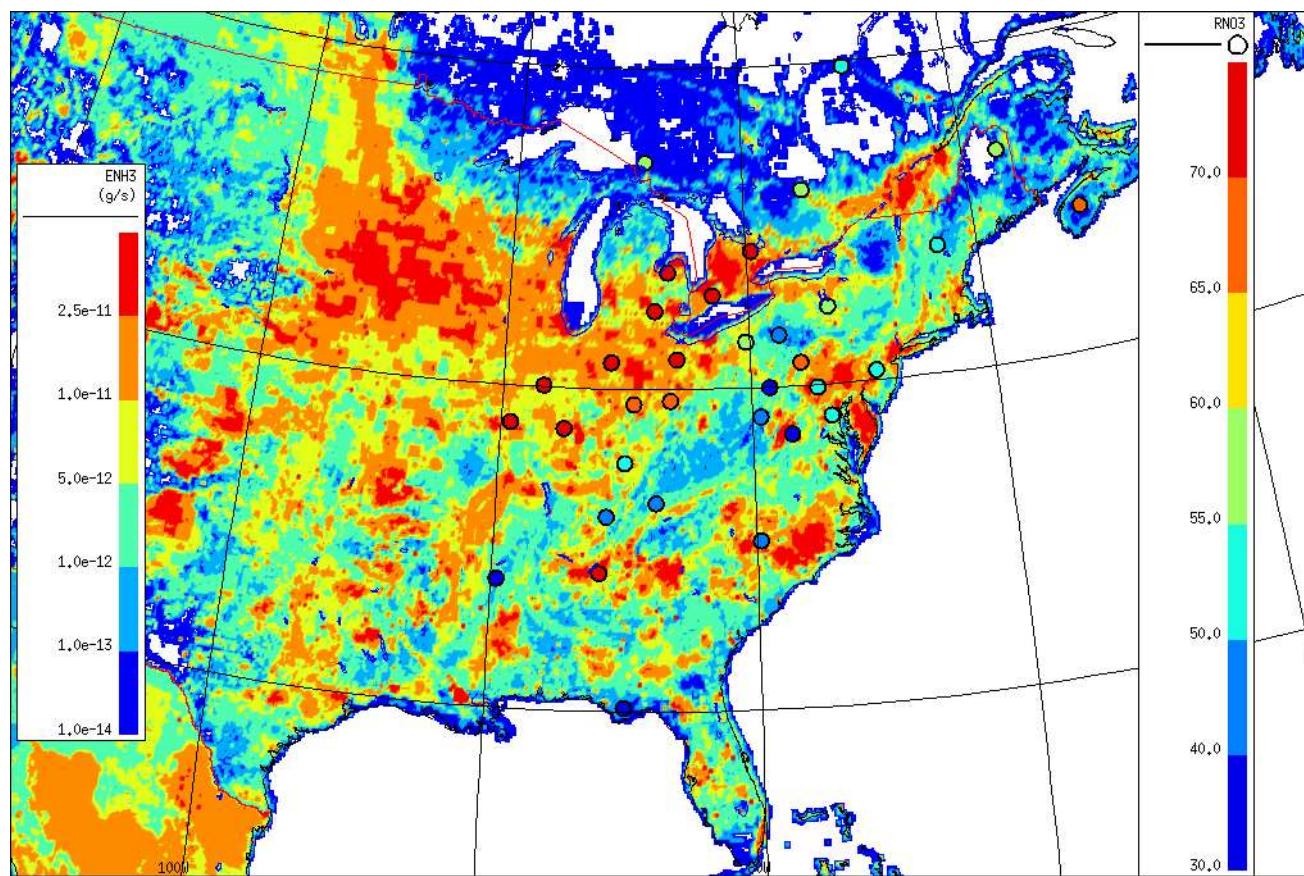


Fig. S6 Overlap of NH_3 emission rate for December 2010 from Hemispheric Transport of Air Pollution (HTAP) with RNO_3 (%) for the cold season of 2010.

Table S1. 3-year averages of air concentrations ($\mu\text{g m}^{-3}$), RSO₄ (%) and RNO₃ (%) for 1989-1991 (a) Warm season

Region	STN	SO ₄ ²⁻	NO ₃ ⁻	NH ₄ ⁺	HNO ₃	SO ₂	TNO ₃	RSO ₄	RNO ₃
1	ALG100	3.11	0.21	0.87	0.90	2.12	1.10	49.73	18.59
	CHA100	3.68	0.13	0.94	0.76	3.14	0.87	44.84	15.22
	CPS100	1.66	0.04	0.37	0.22	0.97	0.26	54.27	17.02
	KEJ100	3.13	0.16	0.59	0.58	1.06	0.72	66.52	21.75
	ASH135	2.42	0.18	0.65	0.52	0.94	0.69	63.27	26.63
	WST109	3.56	0.13	0.97	0.76	1.15	0.88	67.65	14.79
	AVE	2.93	0.14	0.73	0.62	1.56	0.75	57.71	19.00
	STD	0.76	0.06	0.24	0.24	0.89	0.28	9.47	4.51
2	EGB100	5.67	1.78	2.00	1.97	5.29	3.72	41.94	47.85
	LON100	7.09	2.07	2.42	2.50	7.49	4.53	38.63	45.63
	ALH157	8.23	1.43	2.90	3.04	10.87	4.42	33.47	32.01
	ANA115	6.34	0.96	2.17	2.65	5.39	3.57	43.80	26.86
	BVL130	8.07	1.45	2.70	3.37	7.63	4.77	41.29	30.15
	DCP114	9.82	1.15	3.23	3.83	11.02	4.91	37.22	23.30
	LYK123	8.19	1.51	2.86	3.55	8.90	5.00	37.96	30.10
	OXF122	9.85	1.14	3.17	3.67	12.41	4.75	34.55	23.83
	SAL133	7.92	1.70	2.94	3.09	7.01	4.74	42.99	35.43
	SND152	8.19	0.83	3.06	2.33	6.25	3.13	46.60	26.95
	UVL124	5.63	1.67	2.15	2.24	4.71	3.87	44.11	43.15
	VIN140	9.77	1.81	3.05	2.87	15.99	4.64	29.00	38.95
	AVE	7.90	1.46	2.72	2.93	8.58	4.34	39.30	33.68
	STD	1.49	0.37	0.43	0.60	3.39	0.61	5.14	8.47
3	ARE128	9.10	1.05	3.05	4.08	10.55	5.06	36.62	20.73
	BEL116	8.75	0.61	2.91	3.40	8.45	3.96	40.83	15.11
	CDR119	9.49	0.17	2.31	1.52	6.68	1.67	48.71	10.01
	CTH110	6.67	0.42	1.92	2.75	8.84	3.13	33.50	13.39
	KEF112	7.39	0.25	1.75	2.07	8.76	2.28	36.17	10.93
	LRL117	9.38	0.20	2.18	2.40	12.66	2.57	33.05	7.83
	MKG113	7.94	0.54	2.35	2.98	12.32	3.47	30.05	15.43
	PAR107	9.25	0.36	2.13	1.93	7.23	2.26	46.30	15.68
	PSU106	8.34	0.77	2.85	2.82	9.30	3.55	37.56	21.76
	WPB104	6.23	0.30	1.74	2.62	8.14	2.88	33.79	10.40
	WSP144	7.67	0.54	2.42	4.11	7.31	4.59	41.21	11.76
	AVE	8.20	0.47	2.33	2.79	9.11	3.22	37.98	13.91
	STD	1.12	0.27	0.45	0.83	1.98	1.04	5.77	4.40
4	COW137	6.44	0.13	1.55	0.80	0.98	0.91	81.66	13.70
	CVL151	6.83	0.37	1.84	1.51	2.66	1.85	62.93	19.98
	ESP127	8.57	0.29	2.41	1.70	3.94	1.97	59.23	14.89
	GAS153	7.90	0.32	2.19	2.09	5.42	2.38	49.50	14.17
	LCW121	7.99	0.31	1.95	0.89	1.87	1.18	74.01	25.71
	PED108	7.93	0.26	2.07	2.27	4.03	2.49	56.83	10.61
	PNF126	7.69	0.23	1.53	1.72	2.66	1.93	65.88	12.10
	SHN418	8.12	0.24	1.94	2.77	7.06	2.96	43.53	7.95
	SPD111	8.32	0.46	2.61	1.66	3.65	2.10	60.40	22.15
	SUM156	5.01	0.40	0.97	1.06	1.72	1.45	66.06	29.06
	VPI120	8.92	0.53	2.04	2.69	6.39	3.17	48.34	16.55
	AVE	7.61	0.32	1.92	1.74	3.67	2.04	60.76	16.99
	STD	1.12	0.11	0.45	0.67	1.96	0.70	11.26	6.53

(b) Cold season

Region	STN	SO_4^{2-}	NO_3^-	NH_4^+	HNO_3	SO_2	TNO_3	RSO_4	RNO_3
1	ALG100	2.20	0.69	0.69	0.94	3.48	1.61	29.74	42.19
	CHA100	2.58	0.50	0.72	0.98	6.36	1.46	21.38	33.69
	CPS100	1.72	0.09	0.29	0.23	2.10	0.31	35.32	27.43
	KEJ100	2.49	0.33	0.43	0.51	2.90	0.83	37.04	39.86
	ASH135	2.30	0.32	0.56	0.77	3.20	1.08	32.41	30.04
	WST109	2.46	0.29	0.71	1.02	3.70	1.29	30.90	21.98
	AVE	2.29	0.37	0.57	0.74	3.62	1.10	31.13	32.53
	STD	0.31	0.20	0.17	0.31	1.45	0.47	5.50	7.64
2	EGB100	3.49	3.25	1.86	1.13	8.73	4.36	21.12	74.57
	LON100	4.26	4.10	2.30	1.35	11.68	5.43	19.56	75.44
	ALH157	4.35	4.18	2.56	1.45	15.11	5.61	16.05	74.35
	ANA115	3.79	3.25	2.03	1.70	10.88	4.92	19.04	66.00
	BVL130	4.16	4.07	2.37	1.66	10.14	5.71	21.50	71.61
	DCP114	4.34	2.53	2.09	2.20	14.96	4.70	16.24	53.90
	LYK123	4.29	3.77	2.37	1.80	14.02	5.54	17.07	68.08
	OXF122	4.60	2.81	2.23	2.25	20.69	5.02	12.99	55.96
	SAL133	4.47	4.99	2.85	1.43	12.45	6.40	19.34	77.92
	UVL124	3.62	3.59	2.08	1.29	8.55	4.86	22.05	73.84
	VIN140	4.77	3.22	2.25	2.03	22.91	5.22	12.18	61.72
	AVE	4.19	3.62	2.27	1.66	13.65	5.25	17.92	68.49
	STD	0.40	0.70	0.27	0.37	4.64	0.56	3.32	8.18
3	ARE128	4.63	2.16	2.06	3.04	19.54	5.16	13.73	41.75
	BEL116	4.89	1.85	2.11	2.02	18.09	3.84	15.34	47.36
	CDR119	4.05	0.38	1.22	1.66	15.41	2.02	15.20	18.65
	CTH110	3.62	0.83	1.29	2.77	15.20	3.56	13.70	23.04
	KEF112	4.01	0.58	1.27	2.50	20.71	3.04	11.44	18.96
	LRL117	4.17	0.54	1.28	2.30	25.73	2.80	9.81	18.93
	MKG113	4.32	1.54	1.68	2.38	23.46	3.88	10.95	39.45
	PAR107	4.11	0.91	1.16	1.66	17.28	2.54	13.77	36.15
	PSU106	4.37	1.73	1.85	2.31	20.17	4.00	12.62	43.03
	WPB104	3.89	0.92	1.33	2.28	17.62	3.17	12.96	28.91
	WSP144	4.61	1.92	1.90	2.46	17.95	4.34	14.73	44.07
	AVE	4.24	1.21	1.56	2.31	19.20	3.49	13.11	32.76
	STD	0.37	0.64	0.36	0.42	3.22	0.89	1.78	11.28
4	COW137	2.86	0.22	0.85	0.94	2.62	1.14	42.27	19.25
	CVL151	3.57	0.73	1.25	1.53	4.90	2.24	33.09	32.83
	ESP127	4.15	0.69	1.40	2.17	9.58	2.83	22.36	24.51
	GAS153	3.72	0.61	1.22	2.03	9.56	2.60	21.07	23.69
	LCW121	3.69	0.69	0.94	0.80	4.91	1.47	33.96	46.89
	PED108	4.18	0.54	1.37	2.51	10.40	3.01	21.21	17.86
	PNF126	2.82	0.28	0.82	1.76	4.83	2.01	27.94	13.83
	SHN418	3.35	0.47	1.14	2.61	11.71	3.04	16.07	15.51
	SUM156	3.77	0.67	0.85	1.07	2.84	1.72	47.02	39.01
	VPI120	3.59	0.59	1.07	2.73	11.01	3.27	17.91	18.06
	AVE	3.57	0.55	1.09	1.81	7.24	2.33	28.29	25.14
	STD	0.46	0.18	0.22	0.71	3.54	0.73	10.52	10.98

Table S2. 3-year averages of air concentrations ($\mu\text{g m}^{-3}$), RSO₄ (%) and RNO₃ (%) for 2014-2016. (a) Warm season

Region	STN	SO ₄ ²⁻	NO ₃ ⁻	NH ₄ ⁺	HNO ₃	SO ₂	TNO ₃	RSO ₄	RNO ₃
1	CHA100	1.10	0.16	0.36	0.26	0.63	0.42	53.74	39.11
	ASH135	0.57	0.11	0.21	0.17	0.30	0.27	55.34	38.77
	WST109	0.73	0.10	0.26	0.21	0.26	0.31	65.00	33.23
	AVE	0.80	0.12	0.28	0.21	0.40	0.33	58.03	37.04
	STD	0.27	0.03	0.07	0.05	0.20	0.08	6.09	3.30
2	EGB100	1.54	0.96	0.64	0.92	0.70	1.87	59.64	51.49
	LON100	1.84	0.97	0.75	0.88	0.96	1.84	56.23	53.00
	ALH157	1.96	0.67	0.65	1.07	1.03	1.72	55.60	38.87
	ANA115	1.54	0.34	0.52	1.05	0.90	1.37	53.13	24.60
	BVL130	1.88	0.68	0.64	1.21	1.15	1.87	52.98	36.25
	DCP114	2.00	0.45	0.74	1.19	1.00	1.62	57.54	27.52
	OXF122	2.09	0.49	0.75	1.21	1.38	1.68	51.10	29.12
	SAL133	1.78	0.54	0.65	1.32	0.98	1.84	54.66	29.41
	SND152	1.80	0.45	0.62	0.94	0.64	1.37	65.04	32.68
	UVL124	1.35	0.56	0.56	1.02	0.92	1.57	49.25	35.88
	VIN140	2.33	0.73	0.73	1.05	1.70	1.76	48.21	41.31
	AVE	1.83	0.62	0.66	1.08	1.03	1.68	54.85	36.38
	STD	0.28	0.21	0.08	0.14	0.30	0.18	4.82	9.31
3	ARE128	1.77	0.52	0.66	1.28	1.07	1.78	52.30	29.38
	BEL116	1.67	0.37	0.52	1.13	0.82	1.48	57.64	25.26
	CDR119	1.89	0.10	0.63	0.41	0.48	0.50	72.12	19.34
	CTH110	1.38	0.25	0.52	0.71	0.72	0.94	55.80	25.94
	KEF112	1.68	0.17	0.56	0.67	0.82	0.84	58.33	20.62
	LRL117	1.94	0.15	0.65	0.65	0.77	0.78	63.09	18.69
	MCK131	2.09	0.42	0.74	1.00	0.77	1.40	64.69	30.15
	MKG113	1.81	0.26	0.61	0.89	0.99	1.13	55.22	22.61
	PAR107	1.92	0.18	0.60	0.55	0.47	0.71	72.83	24.74
	PSU106	1.83	0.42	0.68	1.02	1.20	1.42	51.39	29.56
	WSP144	1.43	0.49	0.45	1.29	0.68	1.76	58.25	27.79
	AVE	1.77	0.30	0.60	0.87	0.80	1.16	60.15	24.92
	STD	0.21	0.15	0.08	0.30	0.22	0.44	7.27	4.15
4	CND125	1.55	0.27	0.47	0.74	0.43	1.00	69.82	26.63
	COW137	1.27	0.12	0.42	0.29	0.22	0.40	79.35	28.66
	CVL151	1.77	0.40	0.53	0.58	0.56	0.97	67.76	41.29
	ESP127	1.86	0.18	0.53	0.63	0.40	0.80	75.41	22.53
	GAS153	1.57	0.33	0.48	0.76	0.46	1.08	68.98	30.56
	PED108	1.62	0.22	0.53	0.64	0.48	0.84	68.60	25.73
	PNF126	1.52	0.25	0.55	0.51	0.33	0.75	75.14	32.66
	SHN418	1.65	0.31	0.58	0.78	0.59	1.08	65.04	28.54
	SPD111	1.65	0.21	0.49	0.65	0.43	0.85	71.54	24.58
	SUM156	1.53	0.35	0.30	0.39	0.37	0.74	73.26	47.84
	VPI120	1.84	0.30	0.62	0.71	2.20	1.00	36.24	29.82
	AVE	1.62	0.27	0.50	0.61	0.59	0.86	68.29	30.80
	STD	0.17	0.08	0.09	0.16	0.54	0.20	11.39	7.51

(b) Cold season

Region	STN	SO_4^{2-}	NO_3^-	NH_4^+	HNO_3	SO_2	TNO_3	RSO_4	RNO_3
1	ALG100	0.95	0.72	0.43	0.41	0.78	1.12	44.89	64.29
	CHA100	0.83	0.55	0.35	0.33	1.30	0.87	29.95	62.60
	KEJ100	0.93	0.35	0.21	0.13	0.32	0.48	65.95	72.58
	ASH135	0.81	0.31	0.28	0.20	0.67	0.51	44.45	61.49
	WST109	0.84	0.30	0.32	0.28	0.66	0.57	46.02	51.77
	AVE	0.87	0.44	0.32	0.27	0.75	0.71	46.25	62.54
	STD	0.06	0.18	0.08	0.11	0.36	0.28	12.83	7.43
2	EGB100	1.40	2.31	1.02	0.47	1.63	2.77	36.28	83.41
	LON100	1.73	3.08	1.36	0.50	2.51	3.58	31.94	86.17
	ALH157	1.71	2.53	1.13	0.79	1.79	3.30	39.09	76.09
	ANA115	1.59	2.34	1.07	0.77	1.73	3.09	38.51	75.40
	BVL130	1.65	2.79	1.22	0.75	1.93	3.53	37.60	78.57
	DCP114	1.81	2.16	1.13	0.95	2.38	3.09	34.69	69.48
	OXF122	1.81	2.23	1.13	0.91	3.08	3.13	30.45	70.99
	SAL133	1.74	3.14	1.38	0.75	1.86	3.88	39.13	80.47
	UVL124	1.43	2.37	1.05	0.59	1.76	2.95	35.22	80.24
	VIN140	1.86	2.27	1.12	0.86	3.20	3.12	28.93	72.06
	AVE	1.67	2.52	1.16	0.73	2.19	3.24	35.18	77.29
	STD	0.16	0.36	0.12	0.16	0.58	0.33	3.67	5.47
3	ARE128	1.65	1.90	0.99	1.08	2.63	2.97	30.40	64.03
	BEL116	1.70	1.41	0.80	1.00	2.12	2.39	35.90	58.90
	CDR119	1.58	0.45	0.59	0.62	1.50	1.06	43.58	42.59
	CTH110	1.28	1.07	0.65	0.68	1.61	1.74	35.16	60.83
	KEF112	1.50	0.87	0.66	0.78	2.40	1.64	30.72	52.76
	MCK131	1.78	1.35	0.89	1.09	1.81	2.42	40.68	55.45
	MKG113	1.70	1.44	0.84	0.85	2.87	2.28	29.15	62.32
	PAR107	1.61	0.71	0.55	0.61	1.58	1.31	41.67	54.01
	PSU106	1.68	1.65	0.96	0.78	3.35	2.41	26.74	67.91
	WSP144	1.45	1.63	0.76	1.07	1.85	2.68	35.14	60.68
	AVE	1.59	1.25	0.77	0.86	2.17	2.09	34.91	57.95
	STD	0.15	0.46	0.15	0.19	0.62	0.62	5.71	7.12
4	CND125	1.40	0.68	0.57	0.77	0.92	1.44	50.62	47.32
	COW137	0.99	0.28	0.39	0.39	0.44	0.66	60.31	41.31
	CVL151	1.55	0.54	0.56	0.69	0.93	1.22	52.31	44.51
	ESP127	1.63	0.68	0.64	0.90	1.09	1.57	50.56	43.32
	GAS153	1.42	0.50	0.52	0.90	1.06	1.38	47.77	35.99
	PED108	1.40	0.53	0.56	0.77	1.18	1.29	45.22	40.94
	PNF126	1.06	0.44	0.43	0.60	0.74	1.03	48.76	42.37
	SHN418	1.12	0.70	0.50	0.71	1.21	1.40	39.05	49.77
	SPD111	1.50	0.73	0.62	0.71	0.96	1.43	51.72	50.86
	SUM156	1.52	0.43	0.34	0.43	0.52	0.85	66.24	49.03
	VPI120	1.38	0.52	0.52	0.97	3.41	1.47	21.26	35.37
	AVE	1.36	0.55	0.51	0.71	1.13	1.25	48.53	43.71
	STD	0.21	0.14	0.10	0.18	0.80	0.29	11.53	5.24

Table S3. Correlation coefficients of annual and seasonal mean concentrations of SO_4^{2-} , NO_3^- , NH_4^+ , HNO_3 , SO_2 , and TNO_3 from each site in regions 1-4 and the averaged values for the regions. The column “AVERAGE” of the tables is the average of each row.

Region 1, all seasons

	ALG100	CHA100	CPS100	KEJ100	ASH135	WEL149	WST109	AVERAGE
SO4	0.976	0.986	0.928	0.965	0.981	0.953	0.984	0.967
NO3	0.892	0.934	0.663	0.719	0.495	0.499	0.178	0.625
NH4	0.932	0.969	0.850	0.910	0.951	0.912	0.971	0.927
HNO3	0.939	0.977	0.834	0.940	0.938	0.946	0.980	0.936
SO2	0.962	0.985	0.955	0.964	0.986	0.891	0.977	0.960
TNO3	0.875	0.953	0.599	0.846	0.890	0.960	0.884	0.858

Region 1, cold season

	ALG100	CHA100	CPS100	KEJ100	ASH135	WEL149	WST109	AVERAGE
SO4	0.947	0.976	0.958	0.973	0.973	0.928	0.982	0.962
NO3	0.888	0.889	0.738	0.753	0.501	0.274	0.273	0.616
NH4	0.841	0.917	0.844	0.915	0.892	0.840	0.939	0.884
HNO3	0.868	0.954	0.688	0.957	0.916	0.688	0.960	0.861
SO2	0.939	0.989	0.951	0.960	0.987	0.922	0.983	0.961
TNO3	0.801	0.895	0.631	0.882	0.853	0.850	0.811	0.817

Region 1, warm season

	ALG100	CHA100	CPS100	KEJ100	ASH135	WEL149	WST109	AVERAGE
SO4	0.950	0.972	0.896	0.889	0.979	0.908	0.969	0.937
NO3	0.808	0.932	0.882	0.692	0.662	0.249	0.060	0.612
NH4	0.924	0.971	0.895	0.765	0.961	0.919	0.963	0.914
HNO3	0.938	0.966	0.860	0.850	0.959	0.845	0.953	0.910
SO2	0.946	0.979	0.962	0.869	0.948	0.844	0.893	0.920
TNO3	0.908	0.969	0.805	0.713	0.934	0.743	0.903	0.853

Region 2, all seasons

	EGB100	LON100	ALH157	ANA115	BVL130	DCP114	LYK123	OXF122	SAL133	SND152	UVL124	VIN140	AVERAGE
SO4	0.981	0.992	0.992	0.991	0.996	0.994	0.990	0.995	0.998	0.935	0.988	0.991	0.986
NO3	0.866	0.949	0.980	0.911	0.945	0.904	0.807	0.909	0.917	0.926	0.916	0.943	0.914
NH4	0.963	0.957	0.995	0.979	0.994	0.994	0.986	0.988	0.992	0.943	0.978	0.986	0.979
HNO3	0.954	0.974	0.970	0.981	0.992	0.989	0.981	0.994	0.958	0.931	0.977	0.983	0.973
SO2	0.953	0.977	0.977	0.994	0.990	0.986	0.979	0.986	0.992	0.975	0.986	0.987	0.981
TNO3	0.941	0.982	0.990	0.974	0.987	0.992	0.962	0.985	0.990	0.948	0.980	0.985	0.976

Region 2, cold season

	EGB100	LON100	ALH157	ANA115	BVL130	DCP114	LYK123	OXF122	SAL133	SND152	UVL124	VIN140	AVERAGE
SO4	0.956	0.986	0.985	0.984	0.986	0.985	0.971	0.986	0.992	0.920	0.983	0.982	0.976
NO3	0.682	0.878	0.959	0.881	0.934	0.772	0.828	0.842	0.928	0.811	0.849	0.911	0.856
NH4	0.870	0.911	0.980	0.952	0.974	0.973	0.877	0.963	0.971	0.922	0.941	0.960	0.941
HNO3	0.854	0.914	0.902	0.961	0.956	0.967	0.940	0.976	0.889	0.873	0.962	0.976	0.930
SO2	0.948	0.964	0.971	0.987	0.976	0.973	0.976	0.988	0.991	0.978	0.981	0.988	0.976
TNO3	0.796	0.929	0.973	0.931	0.962	0.959	0.829	0.965	0.959	0.943	0.940	0.967	0.929

Region 2, warm season

	EGB100	LON100	ALH157	ANA115	BVL130	DCP114	LYK123	OXF122	SAL133	SND152	UVL124	VIN140	AVERAGE
SO4	0.967	0.990	0.986	0.991	0.991	0.991	0.984	0.990	0.997	0.939	0.985	0.991	0.983
NO3	0.913	0.957	0.975	0.942	0.970	0.950	0.933	0.966	0.929	0.949	0.946	0.945	0.947
NH4	0.957	0.971	0.987	0.984	0.991	0.990	0.987	0.989	0.990	0.946	0.974	0.990	0.979
HNO3	0.915	0.955	0.980	0.977	0.986	0.989	0.968	0.989	0.976	0.927	0.969	0.981	0.967
SO2	0.942	0.981	0.973	0.992	0.994	0.993	0.970	0.985	0.988	0.951	0.985	0.985	0.978
TNO3	0.937	0.985	0.986	0.986	0.990	0.988	0.987	0.990	0.995	0.942	0.984	0.988	0.979

Region 3, all seasons

	ARE128	BEL116	CDR119	CTH110	KEF112	LRL117	MCK131	MKG113	PAR107	PSU106	WSP144	AVERAGE
SO4	0.994	0.991	0.994	0.989	0.994	0.995	0.988	0.996	0.989	0.994	0.991	0.992
NO3	0.733	0.549	0.712	0.717	0.444	0.394	0.730	0.793	0.483	0.787	0.749	0.644
NH4	0.984	0.970	0.988	0.987	0.980	0.970	0.981	0.989	0.981	0.989	0.975	0.981
HNO3	0.979	0.984	0.977	0.990	0.990	0.990	0.987	0.998	0.980	0.988	0.987	0.986
SO2	0.989	0.986	0.988	0.990	0.992	0.994	0.993	0.997	0.967	0.983	0.988	0.987
TNO3	0.975	0.967	0.977	0.989	0.989	0.982	0.981	0.987	0.953	0.980	0.976	0.977

Region 3, cold season

	ARE128	BEL116	CDR119	CTH110	KEF112	LRL117	MCK131	MKG113	PAR107	PSU106	WSP144	AVERAGE
SO4	0.992	0.989	0.978	0.990	0.987	0.983	0.980	0.993	0.980	0.992	0.972	0.985
NO3	0.754	0.493	0.797	0.693	0.641	0.660	0.764	0.846	0.563	0.790	0.736	0.703
NH4	0.967	0.948	0.963	0.966	0.961	0.959	0.938	0.977	0.974	0.944	0.936	0.957
HNO3	0.961	0.952	0.932	0.984	0.985	0.981	0.982	0.983	0.969	0.973	0.974	0.970
SO2	0.989	0.982	0.979	0.991	0.985	0.991	0.979	0.993	0.976	0.988	0.987	0.985
TNO3	0.964	0.910	0.928	0.961	0.968	0.954	0.952	0.976	0.946	0.946	0.934	0.949

Region 3, warm season

	ARE128	BEL116	CDR119	CTH110	KEF112	LRL117	MCK131	MKG113	PAR107	PSU106	WSP144	AVERAGE
SO4	0.991	0.987	0.985	0.985	0.991	0.992	0.972	0.991	0.990	0.990	0.986	0.987
NO3	0.947	0.902	0.777	0.810	0.606	0.636	0.849	0.867	0.839	0.970	0.708	0.810
NH4	0.986	0.971	0.982	0.981	0.984	0.962	0.968	0.990	0.984	0.987	0.967	0.978
HNO3	0.981	0.981	0.975	0.984	0.988	0.985	0.977	0.995	0.969	0.983	0.986	0.982
SO2	0.985	0.976	0.981	0.978	0.985	0.989	0.982	0.990	0.953	0.979	0.986	0.980
TNO3	0.987	0.981	0.977	0.989	0.993	0.986	0.982	0.994	0.957	0.986	0.984	0.983

Region 4, all seasons

	CND125	COW137	CVL151	ESP127	GAS153	PED108	PNF126	SHN418	SPD111	SUM156	VPI120	AVERAGE
SO4	0.995	0.988	0.985	0.994	0.987	0.996	0.996	0.988	0.987	0.967	0.992	0.988
NO3	0.725	0.081	0.587	0.519	0.781	0.710	0.560	0.443	0.712	0.531	0.819	0.588
NH4	0.994	0.968	0.970	0.988	0.987	0.997	0.955	0.980	0.975	0.959	0.980	0.977
HNO3	0.987	0.961	0.978	0.994	0.977	0.950	0.991	0.985	0.979	0.955	0.993	0.977
SO2	0.976	0.970	0.957	0.973	0.976	0.995	0.988	0.984	0.979	0.977	0.958	0.975
TNO3	0.988	0.932	0.980	0.988	0.982	0.940	0.986	0.984	0.985	0.948	0.988	0.972

Region 4, cold season

	CND125	COW137	CVL151	ESP127	GAS153	PED108	PNF126	SHN418	SPD111	SUM156	VPI120	AVERAGE
SO4	0.991	0.987	0.953	0.985	0.974	0.987	0.976	0.976	0.989	0.979	0.989	0.980
NO3	0.746	0.066	0.588	0.560	0.625	0.564	0.592	0.561	0.767	0.191	0.791	0.550
NH4	0.986	0.958	0.922	0.968	0.977	0.985	0.896	0.947	0.972	0.945	0.946	0.954
HNO3	0.972	0.980	0.955	0.996	0.968	0.951	0.976	0.985	0.943	0.969	0.991	0.971
SO2	0.979	0.989	0.953	0.981	0.969	0.993	0.981	0.987	0.988	0.990	0.969	0.979
TNO3	0.988	0.947	0.970	0.988	0.982	0.932	0.949	0.977	0.975	0.938	0.983	0.966

Region 4, warm season

	CND125	COW137	CVL151	ESP127	GAS153	PED108	PNF126	SHN418	SPD111	SUM156	VPI120	AVERAGE
SO4	0.989	0.985	0.971	0.987	0.980	0.992	0.996	0.982	0.990	0.925	0.991	0.980
NO3	0.785	0.619	0.657	0.756	0.810	0.766	0.757	0.461	0.778	0.778	0.828	0.726
NH4	0.988	0.967	0.968	0.980	0.978	0.991	0.962	0.982	0.973	0.922	0.981	0.972
HNO3	0.984	0.952	0.963	0.982	0.974	0.937	0.991	0.986	0.980	0.877	0.992	0.965
SO2	0.976	0.945	0.951	0.941	0.971	0.993	0.986	0.983	0.982	0.947	0.940	0.965
TNO3	0.985	0.944	0.966	0.974	0.973	0.934	0.992	0.991	0.992	0.934	0.988	0.970