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Predicted ultrafine particulate matter source contribution across the continental United States during summertime air pollution events

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Supporting Information

Table S1 Weighted source profile combinations

Source Type	Source Weight
Onroad Gasoline	10% Non-catalyst vehicle + 90% Catalyst Vehicle
Offroad Gasoline	100% Non-catalyst vehicle
Onroad Diesel	100% On-road diesel exhaust
Offroad Diesel	90% Diesel Exhaust from 1970's vehicle + 7% Diesel Exhaust from 1980's vehicle + 3% on-road diesel exhaust
Biomass Burning	90% Residential Wood Combustion + 5% Wildfire + 5% Waste burning
Food Cooking	85% Meat Frying + 15% Charbroiling
Natural Gas	100% Natural Gas Combustion
Distillate Oil	100% Distillate Fuel combustion
Aviation	100% Aircraft Jet Fuel
Cement Manufactures	100% Cement Kiln Gas Combustion
Process Heaters	100% Process Heaters
Coal	100% Coal Combustion
Steel Foundries	50% Steel Electric Arc Furnace + 50% Cast Iron Copper
Pulp and Paper mills	100% Wood Processing
Other	75% construction & demolition + 10% paved road travel + 4% farming ops + 3% brake wear + 2% cattle feedlot + 2% mining ops + 1% solid waste disposal + 1% mineral processing + 1% asphalt production + 1% organic solvent

Fractional Bias (FB) was calculated using S. Eq. (1):

$$\text{FB} = \frac{2}{N}\sum_{i=1}^{N}\frac{(Pred_{x,t}^{i} - Obs_{x,t}^{i})}{(Pred_{x,t}^{i} + Obs_{x,t)}^{i}} \quad \text{(SE.1)}$$

Fractional Error (FE) was calculated using S. Eq. (2):

$$\text{FB} = \frac{2}{N}\sum_{i=1}^{N}\frac{|Pred_{x,t}^{i} - Obs_{x,t}^{i}|}{(Pred_{x,t}^{i} + Obs_{x,t)}^{i}} \quad \text{(SE.1)}$$

Normalized Mean Bias (NMB) was calculated using S. Eq. (3):

$$NMB = \frac{\sum_{i=1}^{N}(Pred_{x,t}^{i} - Obs_{x,t}^{i})}{\sum_{i=1}^{N} Obs_{x,t}^{i}} \quad \text{(SE.3)}$$

Normalized Mean Error (NME) was calculated using S. Eq. (4)

$$NME = \frac{\sum_{i=1}^{N}|Pred_{x,t}^{i} - Obs_{x,t}^{i}|}{\sum_{i=1}^{N} Obs_{x,t}^{i}} \quad \text{(SE.4)}$$

Mean Observation (MO) was calculated using S. Eq. (5)

$$MO = \frac{1}{N}\sum_{i=1}^{N}(Obs_{x,t}^{i}) \quad \text{(SE.5)}$$

Mean Prediction (MP) was calculated using S. Eq. (6)

$$MP = \frac{1}{N}\sum_{i=1}^{N}(Pred_{x,t}^{i}) \quad \text{(SE.6)}$$

Mean Bias (MB) was calculated using S. Eq. (7):

$$MB = \frac{1}{N}\sum_{i=1}^{N}(Pred_{x,t}^{i} - Obs_{x,t}^{i}) \quad \text{(SE.7)}$$

Normalized Mean Error (ME) was calculated using S. Eq. (8)

$$ME = \frac{1}{N}\sum_{i=1}^{N}|Pred_{x,t}^{i} - Obs_{x,t}^{i}| \quad \text{(SE.8)}$$

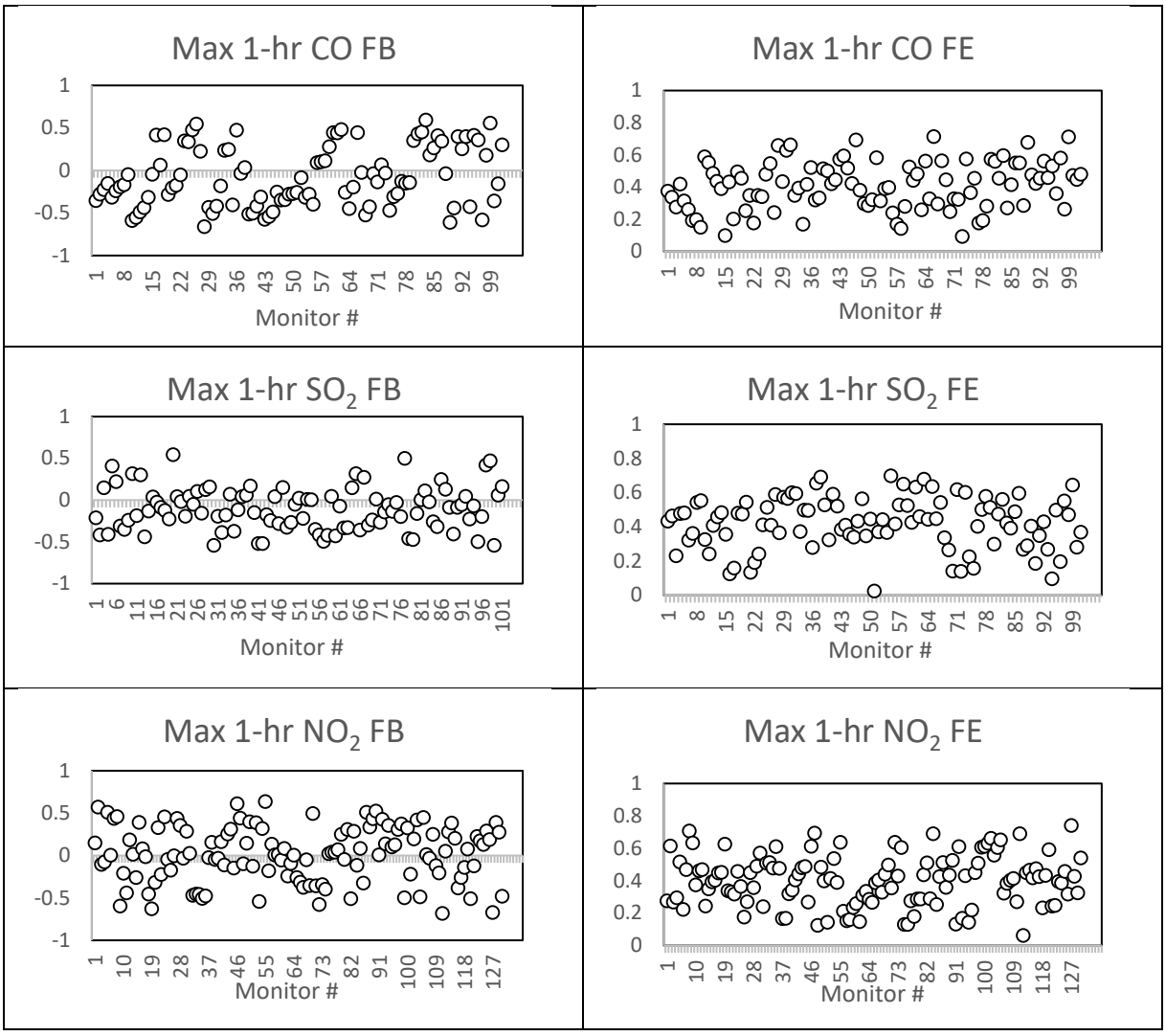

Figure S1. Fractional bias (FB) and fractional error (FE) model performance statistics for gas phase species CO, SO_2 and NO_2 .

Table S2 SO2 Model Performance Statistcs and Monitor Locaiton

Monitor #	CBSA Name	Latitude	Longitude	MO (ppb)	MP (ppb)	MB	ME	FB	FE
1	Atlanta-Sandy Springs-Roswell, GA	33.688	-84.291	5.00	4.08	-0.79	0.79	-0.21	0.43
2	Baltimore-Columbia-Towson, MD	39.3108	-76.474	8.00	5.26	-2.74	2.74	-0.42	0.46
3	Birmingham-Hoover, AL	33.4856	-86.915	5.57	6.10	0.53	0.53	0.15	0.23
4	Boston-Cambridge-Newton, MA-NH	42.3094	-71.056	3.09	1.95	-0.76	0.76	-0.41	0.48
5	Boston-Cambridge-Newton, MA-NH	42.3164	-70.968	1.86	3.11	1.33	1.33	0.41	0.48
6	Boston-Cambridge-Newton, MA-NH	42.3295	-71.083	2.86	3.41	0.63	0.63	0.22	0.32
7	Boston-Cambridge-Newton, MA-NH	42.3403	-71.038	3.57	2.67	-0.85	0.85	-0.31	0.36
8	Boston-Cambridge-Newton, MA-NH	42.3778	-71.027	1.71	1.11	-0.47	0.47	-0.35	0.54
9	Boston-Cambridge-Newton, MA-NH	43.0754	-70.748	25.36	17.77	-7.69	7.69	-0.24	0.55
10	Charlotte-Concord-Gastonia, NC-SC	35.2401	-80.786	2.00	2.89	0.76	0.76	0.32	0.33
11	Cleveland-Elyria, OH	41.4718	-81.657	23.57	17.03	-6.12	6.12	-0.19	0.24
12	Cleveland-Elyria, OH	41.4921	-81.678	5.33	5.94	0.52	0.52	0.30	0.41
13	Cleveland-Elyria, OH	41.673	-81.423	9.57	6.79	-2.03	2.03	-0.44	0.46
14	Cleveland-Elyria, OH	41.7268	-81.242	22.33	6.40	-5.66	5.66	-0.13	0.48
15	Dallas-Fort Worth-Arlington, TX	32.4821	-97.027	0.85	0.77	0.04	0.04	0.04	0.36
16	Dallas-Fort Worth-Arlington, TX	32.8201	-96.86	2.02	1.77	0.04	0.04	-0.02	0.13
17	Denver-Aurora-Lakewood, CO	39.7512	-104.99	10.50	9.90	-0.52	0.52	-0.09	0.16
18	El Paso, TX	31.7585	-106.5	1.10	0.96	-0.12	0.12	-0.12	0.48
19	El Paso, TX	31.7657	-106.46	1.10	0.79	-0.26	0.26	-0.22	0.48
20	El Paso, TX	31.8939	-106.43	0.07	0.28	0.19	0.19	0.55	0.55
21	Fresno, CA	36.7813	-119.77	3.33	3.37	0.03	0.03	0.04	0.13
22	Hartford-West Hartford-East Hartford, CT	41.7847	-72.632	1.36	1.21	0.07	0.07	-0.02	0.19
23	Houston-The Woodlands-Sugar Land, TX	29.5831	-95.016	4.30	3.66	-0.43	0.43	-0.19	0.24
24	Houston-The Woodlands-Sugar Land, TX	29.6239	-95.474	9.46	10.22	-0.17	0.17	0.05	0.41
25	Houston-The Woodlands-Sugar Land, TX	29.6256	-95.267	3.21	3.38	-0.09	0.09	-0.05	0.51

Monitor #	CBSA Name	Latitude	Longitude	MO (ppb)	MP (ppb)	MB	ME	FB	FE
26	Houston-The Woodlands-Sugar Land, TX	29.67	-95.129	4.14	5.83	1.11	1.11	0.11	0.41
27	Houston-The Woodlands-Sugar Land, TX	29.6864	-95.295	13.94	14.36	0.38	0.38	-0.15	0.59
28	Houston-The Woodlands-Sugar Land, TX	29.7351	-95.316	5.99	9.46	2.37	2.37	0.13	0.37
29	Houston-The Woodlands-Sugar Land, TX	29.8281	-95.284	5.54	7.48	1.51	1.51	0.16	0.57
30	Indianapolis-Carmel-Anderson, IN	39.515	-86.392	10.29	8.06	-2.23	2.23	-0.54	0.57
31	Indianapolis-Carmel-Anderson, IN	39.749	-86.186	8.09	6.12	-1.97	1.97	-0.19	0.60
32	Indianapolis-Carmel-Anderson, IN	39.8111	-86.115	9.34	6.56	-2.78	2.78	-0.39	0.60
33	Kansas City, MO-KS	38.1359	-94.732	2.33	0.77	-0.34	0.34	-0.18	0.37
34	Kansas City, MO-KS	39.1172	-94.636	4.40	2.02	-0.98	0.98	0.07	0.50
35	Lake Charles, LA	30.2619	-93.284	12.50	6.07	-5.51	5.51	-0.37	0.50
36	Los Angeles-Long Beach-Anaheim, CA	33.6746	-117.93	3.62	3.05	-0.48	0.48	-0.11	0.28
37	Los Angeles-Long Beach-Anaheim, CA	33.8025	-118.22	0.68	1.58	0.77	0.77	0.04	0.66
38	Los Angeles-Long Beach-Anaheim, CA	33.8238	-118.19	1.32	1.56	0.21	0.21	0.06	0.69
39	Los Angeles-Long Beach-Anaheim, CA	33.9508	-118.43	7.48	8.37	0.76	0.76	0.17	0.53
40	Los Angeles-Long Beach-Anaheim, CA	34.0666	-118.23	2.62	2.41	-0.18	0.18	-0.15	0.32
41	Los Angeles-Long Beach-Anaheim, CA	34.1761	-118.32	3.72	2.57	-0.99	0.99	-0.52	0.59
42	Louisville/Jefferson County, KY-IN	38.0609	-85.898	26.67	20.09	-5.64	5.64	-0.52	0.52
43	Louisville/Jefferson County, KY-IN	38.3081	-85.834	17.00	14.49	-2.15	2.15	-0.17	0.39
44	Memphis, TN-MS-AR	35.2735	-89.961	3.50	3.11	0.11	0.11	-0.25	0.41
45	New York-Newark-Jersey City, NY-NJ-PA	40.5088	-74.268	7.00	7.45	0.45	0.45	0.04	0.36
46	New York-Newark-Jersey City, NY-NJ-PA	40.6414	-74.208	6.71	5.96	-0.75	0.75	-0.28	0.34
47	New York-Newark-Jersey City, NY-NJ-PA	40.6624	-74.215	2.43	1.74	-0.69	0.69	0.15	0.43
48	New York-Newark-Jersey City, NY-NJ-PA	40.6703	-74.126	4.14	2.85	-1.30	1.30	-0.32	0.57
49	New York-Newark-Jersey City, NY-NJ-PA	40.7317	-74.066	9.43	7.67	-1.76	1.76	-0.27	0.35
50	New York-Newark-Jersey City, NY-NJ-PA	40.7361	-73.822	4.57	4.36	-0.21	0.21	-0.05	0.45
51	New York-Newark-Jersey City, NY-NJ-PA	40.7432	-73.586	0.43	1.74	1.31	1.31	0.03	0.03

Monitor #	CBSA Name	Latitude	Longitude	MO (ppb)	MP (ppb)	MB	ME	FB	FE
52	New York-Newark-Jersey City, NY-NJ-PA	40.816	-73.902	7.90	7.17	-0.73	0.73	-0.22	0.37
53	New York-Newark-Jersey City, NY-NJ-PA	40.828	-73.058	5.16	5.54	0.38	0.38	0.01	0.44
54	New York-Newark-Jersey City, NY-NJ-PA	40.8679	-73.878	2.34	2.58	0.23	0.23	0.01	0.37
55	New York-Newark-Jersey City, NY-NJ-PA	40.8824	-74.042	3.71	1.74	-1.97	1.97	-0.35	0.70
56	New York-Newark-Jersey City, NY-NJ-PA	41.4559	-73.71	4.71	3.08	-1.63	1.63	-0.42	0.42
57	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	39.5777	-75.604	4.71	2.32	-2.40	2.40	-0.49	0.53
58	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	39.6843	-74.862	8.67	8.35	-0.32	0.32	-0.42	0.65
59	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	39.7739	-75.496	4.86	5.03	0.17	0.17	0.05	0.53
60	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	39.8003	-75.212	7.57	4.98	-2.59	2.59	-0.43	0.43
61	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	39.8356	-75.373	4.71	5.28	0.57	0.57	-0.07	0.63
62	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	39.9229	-75.187	7.34	5.03	-2.31	2.31	-0.33	0.46
63	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	40.0089	-75.098	10.03	6.93	-3.09	3.09	-0.33	0.68
64	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	40.1072	-74.882	2.43	3.16	0.73	0.73	0.15	0.45
65	Phoenix-Mesa-Scottsdale, AZ	33.4579	-112.05	1.50	3.13	1.84	1.84	0.32	0.64
66	Phoenix-Mesa-Scottsdale, AZ	33.4797	-111.92	2.50	1.43	-0.71	0.71	-0.36	0.45
67	Phoenix-Mesa-Scottsdale, AZ	33.5038	-112.1	2.17	3.99	2.13	2.13	0.27	0.54
68	Portland-Vancouver-Hillsboro, OR-WA	45.4966	-122.6	2.62	2.02	-0.22	0.22	-0.30	0.34
69	Richmond, VA	37.3444	-77.259	13.20	9.53	0.10	0.10	-0.24	0.27
70	Richmond, VA	37.5626	-77.465	5.40	4.31	0.45	0.45	0.01	0.14
71	Sacramento--Roseville--Arden-Arcade, CA	38.6138	-121.37	1.00	0.59	-0.27	0.27	-0.26	0.62
72	Sacramento--Roseville--Arden-Arcade, CA	38.7121	-121.38	0.17	0.37	0.23	0.23	-0.14	0.14

Monitor #	CBSA Name	Latitude	Longitude	MO (ppb)	MP (ppb)	MB	ME	FB	FE
73	Salt Lake City, UT	40.7364	-112.21	7.14	7.84	-0.42	0.42	-0.05	0.60
74	Salt Lake City, UT	40.7364	-111.87	11.71	9.34	-3.71	3.71	-0.13	0.23
75	San Diego-Carlsbad, CA	32.6312	-117.06	2.50	2.37	-0.11	0.11	-0.03	0.16
76	San Diego-Carlsbad, CA	32.7015	-117.15	4.83	2.45	-2.04	2.04	-0.20	0.40
77	San Francisco-Oakland-Hayward, CA	37.8148	-122.28	2.57	7.14	4.57	4.57	0.50	0.50
78	San Francisco-Oakland-Hayward, CA	37.8778	-122.3	2.43	1.56	-0.87	0.87	-0.46	0.58
79	San Francisco-Oakland-Hayward, CA	37.936	-122.03	2.00	1.82	-0.18	0.18	-0.47	0.52
80	San Francisco-Oakland-Hayward, CA	37.9482	-122.37	1.86	1.91	0.05	0.05	-0.16	0.30
81	San Francisco-Oakland-Hayward, CA	38.0128	-122.13	1.43	2.03	0.60	0.60	0.01	0.48
82	San Francisco-Oakland-Hayward, CA	38.0549	-122.23	2.43	2.85	0.42	0.42	0.11	0.56
83	St. Louis, MO-IL	38.2634	-90.379	8.67	8.99	1.56	1.56	-0.02	0.42
84	St. Louis, MO-IL	38.5426	-90.264	30.00	22.74	-2.98	2.98	-0.26	0.39
85	St. Louis, MO-IL	38.612	-90.161	15.17	10.91	-2.09	2.09	-0.32	0.49
86	St. Louis, MO-IL	38.6503	-90.35	9.67	14.62	6.34	6.34	0.25	0.60
87	St. Louis, MO-IL	38.6564	-90.198	15.00	13.33	0.47	0.47	0.13	0.27
88	St. Louis, MO-IL	38.7109	-90.476	7.17	6.16	0.02	0.02	-0.08	0.29
89	Tulsa, OK	36.127	-95.999	2.75	0.55	-1.10	1.10	-0.41	0.41
90	Tulsa, OK	36.1499	-96.012	7.83	6.92	-0.78	0.78	-0.09	0.19
91	Tulsa, OK	36.1618	-96.016	2.00	2.43	0.37	0.37	-0.05	0.35
92	Tulsa, OK	36.2049	-95.977	1.98	1.64	-0.30	0.30	0.05	0.43
93	Washington-Arlington-Alexandria, DC-VA-MD-WV	38.8104	-77.044	4.40	2.64	-0.51	0.51	-0.23	0.27
94	Washington-Arlington-Alexandria, DC-VA-MD-WV	38.8956	-76.958	6.20	4.63	0.20	0.20	-0.07	0.10
95	Washington-Arlington-Alexandria, DC-VA-MD-WV	39.0553	-76.878	4.22	2.28	-0.73	0.73	-0.50	0.50
96	Miami-Fort Lauderdale-West Palm Beach, FL	26.1286	-80.167	2.67	2.40	-0.23	0.23	-0.20	0.20

Monitor #	CBSA Name	Latitude	Longitude	MO (ppb)	MP (ppb)	MB	ME	FB	FE
97	Miami-Fort Lauderdale-West Palm Beach, FL	26.3701	-80.074	3.67	5.85	1.88	1.88	0.42	0.55
98	Jacksonville, FL	30.3091	-81.652	2.83	6.37	3.04	3.04	0.47	0.47
99	Jacksonville, FL	30.3563	-81.635	4.17	2.95	-1.30	1.30	-0.54	0.65
100	Jacksonville, FL	30.3675	-81.594	2.83	3.11	0.24	0.24	0.06	0.28
101	Jacksonville, FL	30.4225	-81.621	3.00	4.14	0.98	0.98	0.16	0.37

Table S3 CO Model Performance Statistcs and Monitor Locaiton

Monitor #	CBSA Name	Latitude	Longitude	MO (ppb)	MP (ppb)	MB	ME	FB	FE
1	Atlanta-Sandy Springs-Roswell, GA	33.93	-85.05	0.46	0.27	-0.16	0.16	-0.35	0.37
2	Atlanta-Sandy Springs-Roswell, GA	33.69	-84.29	1.43	0.89	-0.46	0.46	-0.28	0.34
3	Atlanta-Sandy Springs-Roswell, GA	33.88	-84.38	1.25	0.89	-0.31	0.31	-0.22	0.28
4	Baltimore-Columbia-Towson, MD	39.31	-76.47	1.00	0.45	-0.55	0.55	-0.15	0.42
5	Baltimore-Columbia-Towson, MD	39.30	-76.60	1.00	0.76	-0.24	0.24	-0.31	0.31
6	Boston-Cambridge-Newton, MA-NH	42.33	-71.08	1.06	0.81	-0.22	0.22	-0.24	0.26
7	Boston-Cambridge-Newton, MA-NH	42.35	-71.10	0.97	0.76	-0.18	0.18	-0.19	0.19
8	Boston-Cambridge-Newton, MA-NH	42.65	-71.31	1.08	0.86	-0.19	0.19	-0.16	0.20
9	Boston-Cambridge-Newton, MA-NH	42.47	-70.97	0.51	0.49	-0.02	0.02	-0.05	0.15
10	Charlotte-Concord-Gastonia, NC-SC	35.55	-80.40	0.75	0.36	-0.33	0.33	-0.59	0.59
11	Charlotte-Concord-Gastonia, NC-SC	35.24	-80.79	1.93	0.98	-0.82	0.82	-0.55	0.55
12	Cincinnati, OH-KY-IN	39.10	-84.51	0.91	0.48	-0.36	0.36	-0.49	0.49
13	Cleveland-Elyria, OH	41.67	-81.34	2.26	1.34	-1.10	1.10	-0.44	0.44
14	Cleveland-Elyria, OH	41.50	-81.69	2.41	1.34	-1.26	1.26	-0.31	0.39
15	Dallas-Fort Worth-Arlington, TX	32.81	-97.36	1.07	1.02	-0.05	0.05	-0.04	0.10
16	Denver-Aurora-Lakewood, CO	39.84	-104.95	0.94	1.70	0.76	0.76	0.42	0.43
17	Denver-Aurora-Lakewood, CO	39.75	-105.00	1.04	0.90	-0.14	0.14	0.06	0.20
18	El Paso, TX	31.75	-106.40	0.93	1.41	0.49	0.49	0.42	0.50
19	El Paso, TX	31.89	-106.43	0.27	0.19	-0.11	0.11	-0.28	0.45
20	El Paso, TX	31.67	-106.29	0.20	0.18	-0.04	0.04	-0.20	0.25
21	El Paso, TX	31.77	-106.46	0.64	0.44	-0.27	0.27	-0.17	0.35
22	El Paso, TX	31.77	-106.50	0.47	0.37	-0.15	0.15	-0.05	0.18
23	Fresno, CA	36.84	-119.88	0.74	0.93	0.19	0.19	0.35	0.35
24	Fresno, CA	36.82	-119.72	0.71	0.90	0.18	0.18	0.34	0.34
25	Fresno, CA	36.78	-119.77	0.71	1.03	0.32	0.32	0.48	0.48
26	Fresno, CA	36.71	-119.74	0.84	1.37	0.53	0.53	0.55	0.55
27	Houston-The Woodlands-Sugar Land, TX	29.69	-95.29	1.51	2.22	0.70	0.70	0.23	0.24

Monitor #	CBSA Name	Latitude	Longitude	MO (ppb)	MP (ppb)	MB	ME	FB	FE
28	Houston-The Woodlands-Sugar Land, TX	29.67	-95.13	0.96	0.39	-0.57	0.57	-0.66	0.66
29	Houston-The Woodlands-Sugar Land, TX	29.73	-95.26	1.08	0.53	-0.54	0.54	-0.43	0.43
30	Houston-The Woodlands-Sugar Land, TX	29.90	-95.33	1.41	0.74	-0.67	0.67	-0.51	0.63
31	Houston-The Woodlands-Sugar Land, TX	29.83	-95.49	1.83	1.09	-0.74	0.74	-0.42	0.66
32	Houston-The Woodlands-Sugar Land, TX	29.75	-95.35	1.29	1.01	-0.27	0.27	-0.18	0.35
33	Indianapolis-Carmel-Anderson, IN	39.77	-86.16	2.50	3.28	0.78	0.78	0.24	0.39
34	Indianapolis-Carmel-Anderson, IN	39.79	-86.06	0.92	0.80	0.02	0.02	0.25	0.17
35	Kansas City, MO-KS	39.12	-94.64	1.33	0.73	-0.60	0.60	-0.40	0.42
36	Los Angeles-Long Beach-Anaheim, CA	34.07	-117.75	2.24	4.52	2.28	2.28	0.47	0.52
37	Los Angeles-Long Beach-Anaheim, CA	34.01	-118.07	2.00	1.92	-0.08	0.08	-0.03	0.32
38	Los Angeles-Long Beach-Anaheim, CA	34.14	-117.92	1.40	1.63	0.23	0.23	0.04	0.33
39	Los Angeles-Long Beach-Anaheim, CA	33.93	-117.95	1.91	0.79	-1.13	1.13	-0.51	0.51
40	Los Angeles-Long Beach-Anaheim, CA	33.83	-117.94	1.96	0.80	-1.16	1.16	-0.50	0.50
41	Los Angeles-Long Beach-Anaheim, CA	34.07	-118.23	2.06	0.90	-1.16	1.16	-0.42	0.42
42	Los Angeles-Long Beach-Anaheim, CA	34.20	-118.53	1.80	0.76	-1.04	1.04	-0.31	0.45
43	Los Angeles-Long Beach-Anaheim, CA	34.18	-118.32	1.51	0.63	-0.88	0.88	-0.57	0.57
44	Los Angeles-Long Beach-Anaheim, CA	33.80	-118.22	1.94	0.63	-1.32	1.32	-0.54	0.59
45	Los Angeles-Long Beach-Anaheim, CA	33.82	-118.19	1.74	0.79	-0.95	0.95	-0.49	0.52
46	Los Angeles-Long Beach-Anaheim, CA	34.14	-117.85	1.10	0.72	-0.38	0.38	-0.25	0.42
47	Los Angeles-Long Beach-Anaheim, CA	34.67	-118.13	0.73	0.48	-0.24	0.24	-0.35	0.69
48	Los Angeles-Long Beach-Anaheim, CA	34.13	-118.13	1.69	0.99	-0.70	0.70	-0.34	0.38
49	Los Angeles-Long Beach-Anaheim, CA	33.95	-118.43	1.41	0.83	-0.59	0.59	-0.28	0.30
50	Los Angeles-Long Beach-Anaheim, CA	33.67	-117.93	1.21	0.73	-0.48	0.48	-0.27	0.28
51	Los Angeles-Long Beach-Anaheim, CA	34.05	-118.46	1.69	0.99	-0.70	0.70	-0.26	0.32
52	Los Angeles-Long Beach-Anaheim, CA	34.38	-118.53	0.91	0.70	-0.21	0.21	-0.08	0.58
53	Louisville/Jefferson County, KY-IN	38.23	-85.70	2.17	0.88	-1.30	1.30	-0.31	0.31
54	Memphis, TN-MS-AR	35.15	-90.04	2.26	1.56	-0.70	0.70	-0.28	0.39
55	Nashville-Davidson--Murfreesboro--Franklin, TN	36.16	-86.78	1.61	0.84	-0.78	0.78	-0.40	0.40

Monitor #	CBSA Name	Latitude	Longitude	MO (ppb)	MP (ppb)	MB	ME	FB	FE
56	New York-Newark-Jersey City, NY-NJ-PA	40.26	-74.27	1.63	1.58	-0.05	0.05	0.09	0.24
57	New York-Newark-Jersey City, NY-NJ-PA	40.73	-74.07	1.60	1.50	-0.10	0.10	0.10	0.17
58	New York-Newark-Jersey City, NY-NJ-PA	40.66	-74.21	1.50	1.48	-0.02	0.02	0.12	0.14
59	New York-Newark-Jersey City, NY-NJ-PA	40.64	-74.21	1.21	1.44	0.22	0.22	0.28	0.28
60	New York-Newark-Jersey City, NY-NJ-PA	40.87	-73.88	1.57	2.69	1.12	1.12	0.45	0.53
61	New York-Newark-Jersey City, NY-NJ-PA	40.80	-74.48	0.90	1.31	0.41	0.41	0.44	0.44
62	New York-Newark-Jersey City, NY-NJ-PA	40.51	-74.27	0.81	1.25	0.43	0.43	0.48	0.48
63	New York-Newark-Jersey City, NY-NJ-PA	40.82	-73.95	1.08	0.70	-0.22	0.22	-0.26	0.26
64	New York-Newark-Jersey City, NY-NJ-PA	40.74	-73.82	1.21	0.69	-0.52	0.52	-0.45	0.56
65	New York-Newark-Jersey City, NY-NJ-PA	40.88	-74.04	0.96	0.78	-0.17	0.17	-0.20	0.33
66	New York-Newark-Jersey City, NY-NJ-PA	40.83	-73.06	0.60	1.12	0.52	0.52	0.45	0.71
67	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	40.11	-74.88	1.16	1.30	0.15	0.15	-0.02	0.29
68	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	39.58	-75.60	0.84	0.47	-0.37	0.37	-0.52	0.56
69	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	40.01	-75.10	0.97	0.64	-0.33	0.33	-0.43	0.45
70	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	39.68	-74.86	0.33	0.30	-0.03	0.03	-0.04	0.25
71	Phoenix-Mesa-Scottsdale, AZ	33.46	-112.12	1.94	1.39	-0.55	0.55	-0.13	0.33
72	Phoenix-Mesa-Scottsdale, AZ	33.49	-112.13	1.61	1.54	-0.07	0.07	0.07	0.32
73	Phoenix-Mesa-Scottsdale, AZ	33.50	-112.10	1.83	1.94	0.11	0.11	-0.03	0.09
74	Phoenix-Mesa-Scottsdale, AZ	33.48	-112.14	1.73	0.77	-0.95	0.95	-0.47	0.58
75	Phoenix-Mesa-Scottsdale, AZ	33.46	-112.05	1.37	0.88	-0.49	0.49	-0.31	0.37
76	Portland-Vancouver-Hillsboro, OR-WA	45.50	-122.60	0.73	0.56	-0.18	0.18	-0.27	0.45
77	Richmond, VA	37.56	-77.40	1.16	1.00	-0.15	0.15	-0.13	0.18
78	Sacramento--Roseville--Arden-Arcade, CA	38.71	-121.38	1.23	1.06	-0.16	0.16	-0.15	0.19
79	Sacramento--Roseville--Arden-Arcade, CA	38.61	-121.38	1.49	1.32	-0.17	0.17	-0.14	0.28
80	Sacramento--Roseville--Arden-Arcade, CA	38.61	-121.37	0.87	1.32	0.45	0.45	0.35	0.57
81	Sacramento--Roseville--Arden-Arcade, CA	38.65	-121.51	0.83	1.41	0.58	0.58	0.43	0.56
82	San Diego-Carlsbad, CA	32.70	-117.15	2.57	3.70	1.13	1.13	0.45	0.45
83	San Diego-Carlsbad, CA	33.13	-117.08	1.94	3.30	1.36	1.36	0.59	0.60

Monitor #	CBSA Name	Latitude	Longitude	MO (ppb)	MP (ppb)	MB	ME	FB	FE
84	San Francisco-Oakland-Hayward, CA	37.48	-122.20	1.40	1.55	0.15	0.15	0.18	0.27
85	San Francisco-Oakland-Hayward, CA	37.96	-122.36	0.90	1.22	0.32	0.32	0.27	0.42
86	San Francisco-Oakland-Hayward, CA	37.94	-122.03	0.64	1.04	0.40	0.40	0.41	0.55
87	San Francisco-Oakland-Hayward, CA	37.74	-122.17	0.86	1.17	0.32	0.32	0.34	0.55
88	San Francisco-Oakland-Hayward, CA	37.88	-122.30	0.83	0.74	-0.09	0.09	-0.04	0.29
89	San Francisco-Oakland-Hayward, CA	37.77	-122.40	0.77	0.30	-0.47	0.47	-0.61	0.68
90	San Francisco-Oakland-Hayward, CA	37.54	-121.96	1.13	0.65	-0.48	0.48	-0.44	0.48
91	San Francisco-Oakland-Hayward, CA	37.81	-122.28	0.53	0.46	-0.06	0.06	0.40	0.42
92	St. Louis, MO-IL	38.61	-90.16	1.47	2.64	1.16	1.16	0.26	0.45
93	St. Louis, MO-IL	38.67	-90.24	1.43	3.08	1.65	1.65	0.40	0.56
94	St. Louis, MO-IL	38.66	-90.20	0.83	0.52	-0.31	0.31	-0.42	0.46
95	St. Louis, MO-IL	38.53	-90.38	0.34	0.52	0.18	0.18	0.41	0.53
96	Tulsa, OK	36.14	-95.98	1.33	1.82	0.49	0.49	0.36	0.36
97	Tulsa, OK	36.20	-95.98	1.04	0.49	-0.55	0.55	-0.58	0.58
98	Washington-Arlington-Alexandria, DC-VA-MD-WV	38.90	-77.05	1.77	2.34	0.57	0.57	0.18	0.26
99	Washington-Arlington-Alexandria, DC-VA-MD-WV	38.90	-76.96	1.64	3.65	2.01	2.01	0.56	0.71
100	Washington-Arlington-Alexandria, DC-VA-MD-WV	39.06	-76.88	0.67	0.43	-0.24	0.24	-0.36	0.47
101	Washington-Arlington-Alexandria, DC-VA-MD-WV	38.81	-77.04	0.61	0.52	-0.09	0.09	-0.16	0.45
102	Washington-Arlington-Alexandria, DC-VA-MD-WV	38.86	-77.06	0.39	0.60	0.22	0.22	0.30	0.48
103	Jacksonville, FL	30.31	-81.71	0.84	0.44	-0.29	0.29	-0.52	0.58
104	Jacksonville, FL	30.31	-81.65	1.61	1.16	-0.39	0.39	-0.31	0.31
105	Jacksonville, FL	30.32	-81.69	0.30	0.89	0.46	0.46	0.38	0.38
106	Miami-Fort Lauderdale-West Palm Beach, FL	25.62	-80.35	1.68	1.09	-0.51	0.51	-0.39	0.39
107	Miami-Fort Lauderdale-West Palm Beach, FL	25.68	-80.40	1.00	0.73	-0.23	0.23	-0.30	0.30
108	Miami-Fort Lauderdale-West Palm Beach, FL	25.77	-80.23	0.28	0.81	0.45	0.45	0.53	0.58
109	Miami-Fort Lauderdale-West Palm Beach, FL	25.80	-80.21	0.12	0.76	0.55	0.55	0.02	0.02
110	Miami-Fort Lauderdale-West Palm Beach, FL	26.13	-80.17	1.48	1.74	0.22	0.22	0.12	0.19

Table S4 NO2 Model Performance Statistics and Monitor Locations

Monitor #	CBSA Name	Latitude	Longitude	MO (ppb)	MP (ppb)	MB	ME	FB	FE
1	Atlanta-Sandy Springs-Roswell, GA	33.69	-84.29	46.57	47.31	1.41	1.41	0.15	0.28
2	Atlanta-Sandy Springs-Roswell, GA	33.93	-85.05	2.86	6.08	2.79	2.79	0.57	0.61
3	Atlanta-Sandy Springs-Roswell, GA	33.59	-84.07	9.00	9.77	-0.20	0.20	-0.10	0.27
4	Austin-Round Rock, TX	30.21	-98.08	7.39	6.49	-0.90	0.90	-0.07	0.30
5	Austin-Round Rock, TX	30.48	-97.87	5.66	10.53	4.88	4.88	0.51	0.52
6	Bakersfield, CA	35.36	-119.04	38.57	38.49	-0.08	0.08	0.01	0.22
7	Bakersfield, CA	35.35	-118.85	20.43	34.20	13.77	13.77	0.44	0.47
8	Bakersfield, CA	35.21	-118.78	18.57	33.20	14.63	14.63	0.46	0.71
9	Bakersfield, CA	35.50	-119.27	31.71	17.23	-14.49	14.49	-0.59	0.63
10	Baltimore-Columbia-Towson, MD	39.31	-76.47	28.00	23.53	-4.47	4.47	-0.21	0.38
11	Baltimore-Columbia-Towson, MD	39.30	-76.60	28.50	21.31	-7.19	7.19	-0.44	0.46
12	Baton Rouge, LA	30.46	-91.18	37.14	49.62	10.53	10.53	0.19	0.47
13	Boston-Cambridge-Newton, MA-NH	42.47	-70.97	15.39	15.68	0.61	0.61	0.02	0.24
14	Boston-Cambridge-Newton, MA-NH	42.77	-71.10	19.63	12.82	-4.48	4.48	-0.26	0.35
15	Boston-Cambridge-Newton, MA-NH	42.33	-71.08	41.00	63.55	19.61	19.61	0.39	0.39
16	Boston-Cambridge-Newton, MA-NH	42.21	-71.11	10.77	12.10	1.15	1.15	0.08	0.40
17	Boston-Cambridge-Newton, MA-NH	42.81	-70.82	18.14	17.17	-1.90	1.90	-0.01	0.45
18	Boston-Cambridge-Newton, MA-NH	42.34	-71.04	24.57	14.12	-8.33	8.33	-0.45	0.45
19	Boston-Cambridge-Newton, MA-NH	42.32	-70.97	27.93	12.24	-14.12	14.12	-0.63	0.63
20	Boston-Cambridge-Newton, MA-NH	42.35	-71.10	40.64	27.45	-11.80	11.80	-0.32	0.34
21	Charlotte-Concord-Gastonia, NC-SC	35.24	-80.79	27.43	40.13	9.25	9.25	0.33	0.33
22	Cincinnati, OH-KY-IN	39.13	-84.50	24.71	20.50	-2.71	2.71	-0.22	0.32
23	Cleveland-Elyria, OH	41.49	-81.68	34.43	56.33	20.29	20.29	0.46	0.46
24	Dallas-Fort Worth-Arlington, TX	32.92	-96.81	20.67	18.89	-1.78	1.78	-0.05	0.37
25	Denver-Aurora-Lakewood, CO	39.75	-104.99	44.43	34.33	-6.29	6.29	-0.17	0.18

Monitor #	CBSA Name	Latitude	Longitude	MO (ppb)	MP (ppb)	MB	ME	FB	FE
26	Denver-Aurora-Lakewood, CO	39.84	-104.95	36.14	34.33	-0.44	0.44	0.00	0.27
27	Detroit-Warren-Dearborn, MI	42.43	-83.00	26.57	42.34	15.29	15.29	0.44	0.45
28	El Paso, TX	31.77	-106.50	24.74	31.60	7.66	7.66	0.36	0.36
29	El Paso, TX	31.75	-106.40	33.16	24.35	-6.93	6.93	-0.03	0.49
30	El Paso, TX	31.77	-106.46	24.86	26.51	2.43	2.43	0.29	0.57
31	Fresno, CA	36.71	-119.74	30.86	29.98	-0.88	0.88	0.03	0.24
32	Fresno, CA	36.60	-119.51	17.57	11.90	-5.67	5.67	-0.47	0.51
33	Fresno, CA	36.78	-119.77	27.43	16.08	-11.35	11.35	-0.45	0.51
34	Fresno, CA	36.84	-119.88	19.71	12.57	-7.15	7.15	-0.46	0.48
35	Fresno, CA	36.82	-119.72	19.71	12.15	-7.57	7.57	-0.51	0.61
36	Hartford-West Hartford-East Hartford, CT	41.78	-72.63	27.14	15.61	-9.76	9.76	-0.48	0.48
37	Houston-The Woodlands-Sugar Land, TX	29.75	-95.35	56.57	60.01	-0.28	0.28	-0.02	0.17
38	Houston-The Woodlands-Sugar Land, TX	29.80	-95.13	37.70	47.16	7.30	7.30	0.16	0.17
39	Houston-The Woodlands-Sugar Land, TX	29.77	-95.22	46.04	50.34	1.44	1.44	-0.05	0.32
40	Houston-The Woodlands-Sugar Land, TX	29.73	-95.26	45.59	51.01	2.43	2.43	-0.03	0.34
41	Houston-The Woodlands-Sugar Land, TX	29.83	-95.49	50.99	65.56	9.84	9.84	0.16	0.41
42	Houston-The Woodlands-Sugar Land, TX	29.69	-95.29	46.07	46.73	-2.22	2.22	-0.11	0.44
43	Houston-The Woodlands-Sugar Land, TX	29.70	-95.50	34.96	52.13	12.88	12.88	0.25	0.48
44	Houston-The Woodlands-Sugar Land, TX	29.90	-95.33	34.54	56.85	17.39	17.39	0.31	0.49
45	Houston-The Woodlands-Sugar Land, TX	29.58	-95.02	24.84	17.85	-7.88	7.88	-0.20	0.50
46	Houston-The Woodlands-Sugar Land, TX	30.35	-95.43	18.73	44.65	21.79	21.79	0.61	0.61
47	Houston-The Woodlands-Sugar Land, TX	29.52	-95.39	23.23	43.60	16.63	16.63	0.45	0.69
48	Houston-The Woodlands-Sugar Land, TX	29.67	-95.13	38.14	39.04	-1.68	1.68	-0.10	0.13
49	Houston-The Woodlands-Sugar Land, TX	29.25	-94.86	15.41	22.53	4.34	4.34	0.15	0.48
50	Houston-The Woodlands-Sugar Land, TX	30.04	-95.67	16.80	26.27	8.00	8.00	0.40	0.40
51	Houston-The Woodlands-Sugar Land, TX	29.04	-95.47	9.63	9.35	-1.00	1.00	-0.13	0.14
52	Indianapolis-Carmel-Anderson, IN	39.79	-86.06	30.62	43.78	17.54	17.54	0.39	0.42
53	Jacksonville, FL	30.36	-81.64	29.57	16.90	-13.08	13.08	-0.54	0.54

Monitor #	CBSA Name	Latitude	Longitude	MO (ppb)	MP (ppb)	MB	ME	FB	FE
54	Kansas City, MO-KS	38.14	-94.73	3.43	6.26	2.36	2.36	0.41	0.48
55	Kansas City, MO-KS	39.12	-94.64	22.71	56.60	26.94	26.94	0.64	0.64
56	Lake Charles, LA	30.26	-93.28	24.71	20.81	-3.31	3.31	-0.18	0.21
57	Los Angeles-Long Beach-Anaheim, CA	34.13	-118.13	47.60	52.69	5.03	5.03	0.14	0.15
58	Los Angeles-Long Beach-Anaheim, CA	34.38	-118.53	36.54	34.44	0.49	0.49	0.01	0.16
59	Los Angeles-Long Beach-Anaheim, CA	33.82	-118.19	53.54	44.85	-1.94	1.94	0.01	0.24
60	Los Angeles-Long Beach-Anaheim, CA	34.14	-117.92	41.60	37.34	-4.52	4.52	-0.05	0.26
61	Los Angeles-Long Beach-Anaheim, CA	34.14	-117.85	28.83	32.07	2.57	2.57	0.09	0.15
62	Los Angeles-Long Beach-Anaheim, CA	34.07	-118.23	58.20	39.45	-13.86	13.86	-0.24	0.31
63	Los Angeles-Long Beach-Anaheim, CA	33.67	-117.93	34.67	27.76	-2.74	2.74	-0.09	0.33
64	Los Angeles-Long Beach-Anaheim, CA	33.83	-117.94	47.43	41.64	-1.92	1.92	0.01	0.29
65	Los Angeles-Long Beach-Anaheim, CA	34.07	-117.75	57.21	37.72	-15.31	15.31	-0.34	0.35
66	Los Angeles-Long Beach-Anaheim, CA	34.20	-118.53	48.34	29.79	-13.62	13.62	-0.31	0.39
67	Los Angeles-Long Beach-Anaheim, CA	34.18	-118.32	52.84	31.20	-17.25	17.25	-0.38	0.41
68	Los Angeles-Long Beach-Anaheim, CA	33.95	-118.43	44.34	31.03	-6.92	6.92	-0.05	0.33
69	Los Angeles-Long Beach-Anaheim, CA	34.01	-118.07	52.34	31.48	-16.11	16.11	-0.35	0.44
70	Los Angeles-Long Beach-Anaheim, CA	34.05	-118.46	46.04	76.93	28.61	28.61	0.50	0.50
71	Los Angeles-Long Beach-Anaheim, CA	33.80	-118.22	58.70	31.71	-14.69	14.69	-0.36	0.36
72	Los Angeles-Long Beach-Anaheim, CA	34.67	-118.13	40.71	20.25	-15.50	15.50	-0.57	0.64
73	Memphis, TN-MS-AR	35.20	-90.19	45.57	33.52	-12.05	12.05	-0.34	0.43
74	Miami-Fort Lauderdale-West Palm Beach, FL	25.73	-80.16	13.00	6.74	-6.51	6.51	-0.40	0.61
75	Miami-Fort Lauderdale-West Palm Beach, FL	25.80	-80.21	23.29	26.54	0.61	0.61	0.02	0.13
76	Miami-Fort Lauderdale-West Palm Beach, FL	26.09	-80.11	27.57	29.70	-0.83	0.83	0.04	0.13
77	Miami-Fort Lauderdale-West Palm Beach, FL	26.27	-80.30	22.29	22.47	-0.88	0.88	0.04	0.28
78	Nashville-Davidson--Murfreesboro--Franklin, TN	36.21	-86.74	44.57	48.95	4.53	4.53	0.07	0.18
79	New York-Newark-Jersey City, NY-NJ-PA	40.46	-74.43	20.00	26.00	6.00	6.00	0.25	0.29
80	New York-Newark-Jersey City, NY-NJ-PA	40.74	-73.82	55.00	51.26	-3.74	3.74	-0.05	0.29
81	New York-Newark-Jersey City, NY-NJ-PA	40.87	-73.99	38.71	56.41	17.69	17.69	0.31	0.44

Monitor #	CBSA Name	Latitude	Longitude	MO (ppb)	MP (ppb)	MB	ME	FB	FE
82	New York-Newark-Jersey City, NY-NJ-PA	40.87	-73.88	44.86	28.01	-16.85	16.85	-0.51	0.51
83	New York-Newark-Jersey City, NY-NJ-PA	40.83	-73.06	29.57	41.15	11.58	11.58	0.29	0.29
84	New York-Newark-Jersey City, NY-NJ-PA	40.79	-74.68	8.57	7.89	-0.68	0.68	-0.11	0.69
85	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	40.01	-75.10	39.14	43.42	4.28	4.28	0.08	0.25
86	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	40.11	-74.88	35.29	26.13	-9.15	9.15	-0.32	0.43
87	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	39.84	-75.37	31.71	53.73	22.01	22.01	0.51	0.51
88	Phoenix-Mesa-Scottsdale, AZ	33.48	-112.14	41.71	58.99	17.28	17.28	0.34	0.36
89	Phoenix-Mesa-Scottsdale, AZ	33.48	-111.92	33.57	52.33	18.76	18.76	0.44	0.44
90	Phoenix-Mesa-Scottsdale, AZ	33.46	-112.05	43.57	74.08	30.51	30.51	0.53	0.53
91	Phoenix-Mesa-Scottsdale, AZ	33.37	-112.62	19.43	19.84	0.41	0.41	0.01	0.13
92	Portland-Vancouver-Hillsboro, OR-WA	45.50	-122.60	17.86	31.06	13.20	13.20	0.43	0.61
93	Richmond, VA	37.56	-77.40	21.50	24.25	2.75	2.75	0.14	0.17
94	Richmond, VA	38.20	-77.38	5.36	9.26	3.90	3.90	0.36	0.43
95	Richmond, VA	37.34	-77.26	17.61	20.67	3.06	3.06	0.10	0.14
96	Sacramento--Roseville--Arden-Arcade, CA	38.53	-121.77	13.14	14.38	1.23	1.23	0.13	0.22
97	Sacramento--Roseville--Arden-Arcade, CA	38.61	-121.37	13.71	17.66	3.94	3.94	0.31	0.45
98	Sacramento--Roseville--Arden-Arcade, CA	38.65	-121.51	20.57	26.70	6.13	6.13	0.38	0.51
99	Sacramento--Roseville--Arden-Arcade, CA	38.30	-121.42	17.86	8.54	-9.32	9.32	-0.50	0.61
100	Sacramento--Roseville--Arden-Arcade, CA	38.56	-121.49	26.57	28.85	2.28	2.28	0.33	0.61
101	Sacramento--Roseville--Arden-Arcade, CA	38.71	-121.38	22.43	13.67	-8.76	8.76	-0.22	0.63
102	Sacramento--Roseville--Arden-Arcade, CA	38.75	-121.27	29.57	27.99	-1.58	1.58	0.20	0.66
103	Sacramento--Roseville--Arden-Arcade, CA	38.68	-121.16	7.29	9.95	2.66	2.66	0.42	0.56
104	San Antonio-New Braunfels, TX	29.28	-98.31	14.84	8.17	-6.67	6.67	-0.48	0.61
105	San Antonio-New Braunfels, TX	29.63	-98.56	4.71	8.07	3.36	3.36	0.45	0.65
106	San Diego-Carlsbad, CA	32.70	-117.15	42.43	33.73	-2.52	2.52	0.01	0.32
107	San Diego-Carlsbad, CA	32.63	-117.06	29.14	25.21	-1.82	1.82	-0.03	0.39
108	San Diego-Carlsbad, CA	32.84	-116.77	13.71	18.30	4.11	4.11	0.25	0.40
109	San Diego-Carlsbad, CA	33.22	-117.40	27.71	21.46	-3.32	3.32	-0.12	0.42

Monitor #	CBSA Name	Latitude	Longitude	MO (ppb)	MP (ppb)	MB	ME	FB	FE
110	San Diego-Carlsbad, CA	32.84	-117.13	41.57	20.37	-13.68	13.68	-0.47	0.47
111	San Diego-Carlsbad, CA	33.13	-117.08	40.14	18.57	-15.08	15.08	-0.68	0.69
112	San Diego-Carlsbad, CA	32.55	-116.94	46.43	44.87	1.75	1.75	0.05	0.06
113	San Francisco-Oakland-Hayward, CA	37.88	-122.30	21.86	25.69	3.83	3.83	0.28	0.45
114	San Francisco-Oakland-Hayward, CA	37.54	-121.96	27.71	35.50	7.79	7.79	0.38	0.47
115	San Francisco-Oakland-Hayward, CA	37.69	-121.78	28.71	30.90	2.19	2.19	0.21	0.42
116	San Francisco-Oakland-Hayward, CA	37.94	-122.03	15.00	8.88	-6.12	6.12	-0.38	0.48
117	San Francisco-Oakland-Hayward, CA	37.48	-122.20	27.00	16.86	-10.14	10.14	-0.32	0.49
118	San Francisco-Oakland-Hayward, CA	37.96	-122.36	21.00	11.27	-9.73	9.73	-0.40	0.49
119	San Francisco-Oakland-Hayward, CA	37.77	-122.40	26.00	25.44	-0.56	0.56	0.08	0.43
120	San Francisco-Oakland-Hayward, CA	37.74	-122.17	28.71	10.40	-18.31	18.31	-0.66	0.74
121	St. Louis, MO-IL	38.61	-90.16	25.14	23.51	-1.63	1.63	-0.12	0.25
122	St. Louis, MO-IL	38.67	-90.24	29.43	35.75	6.32	6.32	0.23	0.25
123	Tulsa, OK	36.20	-95.98	22.57	32.10	6.09	6.09	0.18	0.40
124	Washington-Arlington-Alexandria, DC-VA-MD-WV	38.81	-77.04	25.14	30.32	5.18	5.18	0.13	0.39
125	Washington-Arlington-Alexandria, DC-VA-MD-WV	38.90	-76.96	30.71	43.28	12.57	12.57	0.29	0.46
126	Washington-Arlington-Alexandria, DC-VA-MD-WV	38.92	-77.01	24.00	35.89	11.89	11.89	0.35	0.47
127	Washington-Arlington-Alexandria, DC-VA-MD-WV	38.85	-77.63	8.14	4.15	-3.99	3.99	-0.67	0.74
128	Washington-Arlington-Alexandria, DC-VA-MD-WV	38.86	-77.06	19.43	32.09	12.66	12.66	0.39	0.43
129	Washington-Arlington-Alexandria, DC-VA-MD-WV	39.02	-77.49	9.86	16.57	6.71	6.71	0.47	0.52
130	Washington-Arlington-Alexandria, DC-VA-MD-WV	38.58	-77.12	25.74	14.83	-10.91	10.91	-0.66	0.66

Table S5 Maximum 1-hr O_3 Model Performance Statistics and Monitor Locaitons

Monitor #	CITY	Region	LAT	LONG	MO (ppb)	MP (ppb)	NMB	NME	FB	FE
1	ATLGA	South East	33.4	-84.75	5.88E-02	6.55E-02	1.55E-01	1.55E-01	2.06E-02	2.06E-02
2	ATLGA	South East	33.43	-84.16	6.33E-02	6.95E-02	1.38E-01	1.38E-01	1.84E-02	1.84E-02
3	ATLGA	South East	33.59	-84.07	6.48E-02	6.90E-02	8.57E-02	8.57E-02	1.17E-02	1.17E-02
4	ATLGA	South East	33.69	-84.29	6.48E-02	6.98E-02	1.00E-01	1.00E-01	1.36E-02	1.36E-02
5	ATLGA	South East	33.72	-84.36	6.23E-02	6.80E-02	1.08E-01	1.08E-01	1.47E-02	1.47E-02
6	ATLGA	South East	33.74	-84.78	6.20E-02	6.96E-02	1.45E-01	1.45E-01	1.93E-02	1.93E-02
7	ATLGA	South East	33.93	-85.05	6.00E-02	6.62E-02	1.30E-01	1.30E-01	1.74E-02	1.74E-02
8	ATLGA	South East	33.96	-84.07	6.93E-02	6.90E-02	6.94E-04	2.81E-02	9.91E-05	4.01E-03
9	ATLGA	South East	34.03	-84.62	6.03E-02	7.09E-02	2.18E-01	2.18E-01	2.81E-02	2.81E-02
10	ATLGA	South East	34.38	-84.06	7.23E-02	6.98E-02	1.67E-02	1.06E-01	2.37E-03	1.50E-02
11	JACFL	South East	30.2	-82.44	5.97E-02	6.55E-02	2.99E-02	6.14E-02	4.93E-03	1.01E-02
12	JACFL	South East	30.26	-81.45	6.30E-02	6.79E-02	-4.41E-03	7.01E-02	-7.31E-04	1.16E-02
13	JACFL	South East	30.38	-81.84	6.55E-02	6.94E-02	-1.94E-03	7.27E-02	-3.19E-04	1.20E-02
14	JACFL	South East	30.48	-81.59	6.33E-02	6.67E-02	-1.49E-02	1.06E-01	-2.47E-03	1.77E-02
15	MIAFL	South East	25.59	-80.33	6.33E-02	6.01E-02	-9.43E-02	9.43E-02	-1.83E-02	1.83E-02
16	MIAFL	South East	25.73	-80.16	6.78E-02	5.76E-02	-1.65E-01	1.65E-01	-3.31E-02	3.31E-02
17	MIAFL	South East	26.07	-80.34	5.75E-02	5.96E-02	-5.03E-02	5.03E-02	-9.46E-03	9.46E-03
18	MIAFL	South East	26.09	-80.11	6.18E-02	5.91E-02	-1.09E-01	1.28E-01	-2.12E-02	2.47E-02
19	MIAFL	South East	26.27	-80.29	5.72E-02	5.87E-02	-3.20E-02	4.23E-02	-6.04E-03	7.99E-03
20	MIAFL	South East	26.29	-80.1	5.87E-02	5.72E-02	-7.20E-02	1.05E-01	-1.38E-02	2.01E-02
21	CHANC	South East	34.94	-81.23	5.33E-02	7.33E-02	2.07E-01	2.07E-01	3.09E-02	3.09E-02
22	CHANC	South East	34.97	-80.54	5.83E-02	7.48E-02	1.37E-01	1.41E-01	2.11E-02	2.17E-02
23	CHANC	South East	35.11	-80.92	6.65E-02	7.40E-02	1.63E-01	1.63E-01	7.52E-02	7.52E-02
24	CHANC	South East	35.24	-80.79	5.83E-02	7.47E-02	1.25E-01	1.25E-01	1.93E-02	1.93E-02
25	CHANC	South East	35.35	-80.7	7.65E-02	7.44E-02	7.80E-02	7.80E-02	3.75E-02	3.75E-02
26	CHANC	South East	35.44	-81.28	7.30E-02	7.25E-02	8.53E-02	8.53E-02	4.09E-02	4.09E-02

Monitor #	CITY	Region	LAT	LONG	MO (ppb)	MP (ppb)	NMB	NME	FB	FE
27	PHOAZ	West	32.51	-111.31	6.00E-02	5.84E-02	-1.48E-02	8.83E-02	-2.13E-03	1.27E-02
28	PHOAZ	West	32.95	-111.76	5.93E-02	5.99E-02	3.21E-02	8.68E-02	4.52E-03	1.22E-02
29	PHOAZ	West	33.06	-112.05	5.91E-02	6.09E-02	5.59E-02	6.18E-02	7.77E-03	8.58E-03
30	PHOAZ	West	33.08	-111.74	6.34E-02	6.28E-02	1.41E-02	6.58E-02	2.00E-03	9.33E-03
31	PHOAZ	West	33.22	-111.56	6.03E-02	6.44E-02	9.59E-02	9.59E-02	1.31E-02	1.31E-02
32	PHOAZ	West	33.29	-112.16	7.21E-02	6.21E-02	-1.15E-01	1.23E-01	-1.74E-02	1.87E-02
33	PHOAZ	West	33.29	-111.29	6.81E-02	6.54E-02	-2.14E-02	1.28E-01	-3.08E-03	1.85E-02
34	PHOAZ	West	33.3	-111.88	7.20E-02	6.59E-02	-5.49E-02	8.07E-02	-8.06E-03	1.19E-02
35	PHOAZ	West	33.37	-112.62	6.20E-02	6.27E-02	2.85E-02	6.64E-02	4.01E-03	9.35E-03
36	PHOAZ	West	33.4	-112.08	7.30E-02	6.37E-02	-1.16E-01	1.19E-01	-1.76E-02	1.80E-02
37	PHOAZ	West	33.41	-111.94	6.94E-02	6.53E-02	-3.58E-02	6.25E-02	-5.20E-03	9.09E-03
38	PHOAZ	West	33.42	-111.54	6.91E-02	6.93E-02	2.49E-02	1.26E-01	3.52E-03	1.77E-02
39	PHOAZ	West	33.45	-111.73	6.77E-02	7.00E-02	6.13E-02	1.14E-01	8.49E-03	1.58E-02
40	PHOAZ	West	33.46	-112.05	7.40E-02	6.89E-02	-4.22E-02	6.43E-02	-6.16E-03	9.39E-03
41	PHOAZ	West	33.47	-111.81	6.80E-02	6.96E-02	5.95E-02	1.14E-01	8.26E-03	1.58E-02
42	PHOAZ	West	33.48	-111.92	7.54E-02	6.96E-02	-4.48E-02	5.83E-02	-6.55E-03	8.52E-03
43	PHOAZ	West	33.48	-112.14	7.60E-02	6.62E-02	-1.08E-01	1.15E-01	-1.63E-02	1.74E-02
44	PHOAZ	West	33.49	-111.86	7.17E-02	6.96E-02	4.64E-03	6.77E-02	6.61E-04	9.65E-03
45	PHOAZ	West	33.5	-112.1	7.87E-02	6.62E-02	-1.38E-01	1.38E-01	-2.12E-02	2.12E-02
46	PHOAZ	West	33.51	-111.76	7.56E-02	7.00E-02	-4.91E-02	1.05E-01	-7.19E-03	1.54E-02
47	PHOAZ	West	33.51	-111.84	7.14E-02	6.96E-02	8.66E-03	7.47E-02	1.23E-03	1.06E-02
48	PHOAZ	West	33.55	-111.61	6.69E-02	7.05E-02	9.90E-02	1.30E-01	1.35E-02	1.77E-02
49	PHOAZ	West	33.56	-112.07	8.44E-02	7.67E-02	-7.06E-02	7.06E-02	-1.05E-02	1.05E-02
50	PHOAZ	West	33.57	-112.19	7.31E-02	7.67E-02	7.28E-02	7.57E-02	1.00E-02	1.04E-02
51	PHOAZ	West	33.61	-111.73	7.51E-02	7.19E-02	7.29E-03	1.17E-01	1.04E-03	1.66E-02
52	PHOAZ	West	33.63	-111.68	6.80E-02	7.54E-02	1.53E-01	1.83E-01	2.03E-02	2.43E-02
53	PHOAZ	West	33.64	-112.34	6.89E-02	6.63E-02	-2.30E-02	6.82E-02	-3.33E-03	9.85E-03
54	PHOAZ	West	33.71	-111.86	7.53E-02	7.74E-02	6.59E-02	1.31E-01	9.12E-03	1.81E-02

Monitor #	CITY	Region	LAT	LONG	MO (ppb)	MP (ppb)	NMB	NME	FB	FE
55	PHOAZ	West	33.72	-111.67	7.21E-02	7.54E-02	8.71E-02	1.31E-01	1.19E-02	1.79E-02
56	PHOAZ	West	33.82	-112.02	7.36E-02	7.24E-02	-1.43E-02	6.99E-02	-2.06E-03	1.01E-02
57	PHOAZ	West	33.98	-111.8	6.81E-02	6.96E-02	2.53E-02	9.67E-02	3.57E-03	1.36E-02
58	ELPTX	West	31.89	-106.43	5.76E-02	7.47E-02	-1.33E-02	1.09E-01	-2.13E-03	1.74E-02
59	ELPTX	West	31.67	-106.29	5.78E-02	7.39E-02	2.33E-02	1.45E-01	3.77E-03	2.35E-02
60	ELPTX	West	31.75	-106.4	5.56E-02	7.35E-02	2.02E-02	2.01E-01	3.21E-03	3.21E-02
61	ELPTX	West	31.77	-106.46	6.08E-02	7.83E-02	4.28E-02	9.31E-02	6.90E-03	1.50E-02
62	ELPTX	West	31.77	-106.5	5.06E-02	9.03E-02	2.92E-01	2.92E-01	4.03E-02	4.03E-02
63	ELPTX	West	31.79	-106.32	5.70E-02	6.71E-02	-3.39E-02	1.27E-01	-5.67E-03	2.13E-02
64	DENCO	West	39.42	-105.76	6.32E-02	7.53E-02	4.76E-02	7.45E-02	8.51E-03	1.33E-02
65	DENCO	West	39.53	-105.07	7.37E-02	8.11E-02	-1.09E-02	5.33E-02	-2.00E-03	9.82E-03
66	DENCO	West	39.54	-105.3	6.57E-02	7.34E-02	-9.88E-03	7.45E-02	-1.81E-03	1.37E-02
67	DENCO	West	39.57	-104.96	7.42E-02	8.27E-02	1.29E-04	3.90E-02	2.36E-05	7.15E-03
68	DENCO	West	39.59	-105.64	6.43E-02	6.84E-02	-2.45E-03	8.67E-02	-4.58E-04	1.62E-02
69	DENCO	West	39.64	-104.57	6.83E-02	9.01E-02	1.21E-01	1.21E-01	2.08E-02	2.08E-02
70	DENCO	West	39.64	-105.14	7.05E-02	7.35E-02	-2.03E-02	4.68E-02	-3.81E-03	8.79E-03
71	DENCO	West	39.64	-105.59	8.47E-02	6.90E-02	-1.57E-01	1.57E-01	-3.19E-02	3.19E-02
72	DENCO	West	39.7	-105	5.88E-02	8.18E-02	1.77E-01	1.77E-01	2.98E-02	2.98E-02
73	DENCO	West	39.74	-105.18	7.23E-02	7.31E-02	-5.94E-02	6.77E-02	-1.13E-02	1.29E-02
74	DENCO	West	39.75	-105.03	6.75E-02	8.29E-02	6.12E-02	1.13E-01	1.08E-02	2.01E-02
75	DENCO	West	39.8	-105.1	6.90E-02	7.83E-02	9.62E-03	6.66E-02	1.75E-03	1.21E-02
76	DENCO	West	39.91	-105.19	6.88E-02	7.21E-02	-1.15E-02	1.15E-01	-2.16E-03	2.16E-02
77	LOUKY	MidWest	37.99	-85.71	6.98E-02	6.98E-02	-5.72E-02	1.02E-01	-1.47E-02	2.62E-02
78	LOUKY	MidWest	38.06	-85.9	6.63E-02	6.94E-02	-3.32E-02	7.12E-02	-8.45E-03	1.81E-02
79	LOUKY	MidWest	38.14	-85.58	7.25E-02	7.09E-02	-5.74E-02	1.41E-01	-1.48E-02	3.62E-02
80	LOUKY	MidWest	38.23	-85.65	8.70E-02	1.03E-01	1.55E-01	3.08E-01	3.60E-02	7.15E-02
81	LOUKY	MidWest	38.31	-85.83	8.33E-02	9.76E-02	9.21E-02	1.83E-01	2.20E-02	4.37E-02
82	LOUKY	MidWest	38.39	-85.66	9.00E-02	1.01E-01	5.00E-02	1.46E-01	1.22E-02	3.55E-02

Monitor #	CITY	Region	LAT	LONG	MO (ppb)	MP (ppb)	NMB	NME	FB	FE
83	LOUKY	MidWest	38.4	-85.44	8.68E-02	1.05E-01	1.33E-01	2.87E-01	3.11E-02	6.74E-02
84	BALMD	East	38.9	-76.65	9.43E-02	9.99E-02	5.95E-02	7.60E-02	8.25E-03	1.05E-02
85	BALMD	East	39.31	-76.47	9.20E-02	1.06E-01	1.49E-01	3.61E-01	1.98E-02	4.80E-02
86	BALMD	East	39.33	-76.55	9.10E-02	9.55E-02	4.89E-02	2.13E-01	6.82E-03	2.96E-02
87	BALMD	East	39.41	-76.3	1.03E-01	9.25E-02	-9.90E-02	1.57E-01	-1.49E-02	2.36E-02
88	BALMD	East	39.44	-77.04	8.20E-02	8.98E-02	9.46E-02	1.45E-01	1.29E-02	1.97E-02
89	BALMD	East	39.46	-76.63	9.43E-02	9.66E-02	2.43E-02	9.04E-02	3.42E-03	1.28E-02
90	WASDC	East	38.47	-77.77	6.23E-02	7.57E-02	2.14E-01	2.14E-01	2.76E-02	2.76E-02
91	WASDC	East	38.48	-77.37	7.27E-02	8.32E-02	1.45E-01	1.45E-01	1.93E-02	1.93E-02
92	WASDC	East	38.51	-76.81	8.47E-02	8.05E-02	-4.94E-02	1.48E-01	-7.24E-03	2.16E-02
93	WASDC	East	38.54	-76.62	8.63E-02	7.96E-02	-7.74E-02	1.30E-01	-1.15E-02	1.94E-02
94	WASDC	East	38.58	-77.12	8.73E-02	8.37E-02	-4.20E-02	1.25E-01	-6.13E-03	1.82E-02
95	WASDC	East	38.77	-77.1	8.70E-02	8.61E-02	-9.84E-03	1.04E-01	-1.41E-03	1.49E-02
96	WASDC	East	38.81	-77.04	8.33E-02	8.92E-02	7.01E-02	1.09E-01	9.68E-03	1.50E-02
97	WASDC	East	38.81	-76.74	9.17E-02	9.62E-02	4.96E-02	1.32E-01	6.91E-03	1.84E-02
98	WASDC	East	38.85	-77.63	6.90E-02	8.22E-02	1.91E-01	1.91E-01	2.49E-02	2.49E-02
99	WASDC	East	38.86	-77.06	9.00E-02	9.59E-02	6.54E-02	8.55E-02	9.05E-03	1.18E-02
100	WASDC	East	38.9	-76.96	9.10E-02	1.00E-01	1.01E-01	1.18E-01	1.37E-02	1.61E-02
101	WASDC	East	38.92	-77.01	8.43E-02	1.04E-01	2.35E-01	2.35E-01	3.01E-02	3.01E-02
102	WASDC	East	39.02	-77.49	7.43E-02	8.53E-02	1.47E-01	1.47E-01	1.96E-02	1.96E-02
103	WASDC	East	39.06	-76.88	9.30E-02	1.03E-01	1.12E-01	1.12E-01	1.51E-02	1.51E-02
104	WASDC	East	39.11	-77.11	7.93E-02	9.41E-02	1.87E-01	2.16E-01	2.44E-02	2.82E-02
105	RICVA	East	37.34	-77.26	7.60E-02	7.82E-02	2.86E-02	2.24E-01	4.02E-03	3.15E-02
106	RICVA	East	37.36	-77.59	6.10E-02	7.31E-02	1.98E-01	1.98E-01	2.57E-02	2.57E-02
107	RICVA	East	37.56	-77.4	7.73E-02	7.43E-02	-3.88E-02	4.50E-02	-5.65E-03	6.55E-03
108	RICVA	East	37.61	-77.22	8.53E-02	8.48E-02	-6.03E-03	3.09E-02	-8.64E-04	4.43E-03
109	RICVA	East	38.2	-77.38	7.23E-02	7.59E-02	4.92E-02	4.92E-02	6.86E-03	6.86E-03
110	SLCUT	West	40.54	-112.3	5.92E-02	6.83E-02	1.55E-01	2.06E-01	2.05E-02	2.73E-02

Monitor #	CITY	Region	LAT	LONG	MO (ppb)	MP (ppb)	NMB	NME	FB	FE
111	SLCUT	West	40.74	-112.21	6.20E-02	6.77E-02	9.14E-02	1.45E-01	1.25E-02	1.98E-02
112	SFOCA	West	37.48	-122.2	7.86E-02	7.57E-02	-3.72E-02	1.33E-01	-5.41E-03	1.94E-02
113	SFOCA	West	37.54	-121.96	6.44E-02	5.61E-02	-2.91E-02	1.32E-01	-1.15E-02	5.22E-02
114	SFOCA	West	37.69	-121.78	7.32E-02	6.26E-02	-1.06E-01	1.59E-01	-4.29E-02	6.44E-02
115	SFOCA	West	37.74	-122.17	7.98E-02	7.72E-02	-1.59E-01	2.23E-01	-5.47E-02	7.69E-02
116	SFOCA	West	37.77	-122.4	5.60E-02	4.92E-02	-5.44E-02	1.27E-01	-2.17E-02	5.07E-02
117	SFOCA	West	37.88	-122.3	4.62E-02	3.48E-02	-1.20E-01	1.43E-01	-5.03E-02	5.98E-02
118	SFOCA	West	37.96	-122.36	6.48E-02	6.35E-02	-4.36E-02	1.92E-01	-1.47E-02	6.49E-02
119	SFOCA	West	37.97	-122.52	5.72E-02	5.59E-02	6.34E-02	1.80E-01	2.29E-02	6.49E-02
120	SFOCA	West	38.01	-121.64	4.90E-02	4.12E-02	-5.31E-02	1.49E-01	-2.00E-02	5.62E-02
121	BAKCA	West	35.05	-118.15	5.95E-02	6.24E-02	-1.86E-02	1.86E-02	-3.49E-03	3.49E-03
122	BAKCA	West	35.05	-119.41	7.15E-02	7.09E-02	-7.77E-02	7.77E-02	-1.48E-02	1.48E-02
123	BAKCA	West	35.21	-118.79	1.09E-01	1.32E-01	1.65E-02	2.83E-02	2.94E-03	5.03E-03
124	BAKCA	West	35.24	-118.79	9.22E-02	8.98E-02	-8.06E-02	1.28E-01	-1.55E-02	2.45E-02
125	BAKCA	West	35.35	-118.85	1.03E-01	1.05E-01	-7.67E-02	7.67E-02	-1.45E-02	1.45E-02
126	BAKCA	West	35.36	-119.06	8.37E-02	8.68E-02	-7.47E-02	7.47E-02	-1.40E-02	1.40E-02
127	BAKCA	West	35.44	-119.02	7.92E-02	9.14E-02	1.06E-02	2.70E-02	1.93E-03	4.89E-03
128	BAKCA	West	35.5	-119.27	8.08E-02	8.85E-02	-5.25E-02	5.25E-02	-9.69E-03	9.69E-03
129	FRECA	West	36.6	-119.51	9.58E-02	9.55E-02	-1.12E-01	1.12E-01	-2.14E-02	2.14E-02
130	FRECA	West	36.63	-120.38	7.13E-02	7.91E-02	-4.11E-02	4.11E-02	-7.56E-03	7.56E-03
131	FRECA	West	36.71	-119.74	8.03E-02	9.56E-02	3.48E-03	4.53E-02	6.24E-04	8.11E-03
132	FRECA	West	36.78	-119.77	8.47E-02	8.92E-02	-6.60E-02	6.60E-02	-1.24E-02	1.24E-02
133	FRECA	West	36.82	-119.72	9.17E-02	9.10E-02	-9.25E-02	9.25E-02	-1.77E-02	1.77E-02
134	FRECA	West	36.84	-119.88	8.42E-02	9.07E-02	-5.31E-02	5.31E-02	-9.85E-03	9.85E-03
135	POROR	West	45.26	-122.59	5.00E-02	6.27E-02	1.68E-01	1.76E-01	3.09E-02	3.24E-02
136	POROR	West	45.4	-122.85	4.90E-02	6.31E-02	2.45E-01	3.03E-01	4.37E-02	5.40E-02
137	POROR	West	45.5	-122.6	4.64E-02	5.76E-02	1.57E-01	1.67E-01	2.91E-02	3.10E-02
138	POROR	West	45.77	-122.77	4.72E-02	4.95E-02	3.37E-02	1.56E-01	6.63E-03	3.08E-02

Monitor #	CITY	Region	LAT	LONG	MO (ppb)	MP (ppb)	NMB	NME	FB	FE
139	SACCA	West	38.3	-121.42	7.28E-02	7.24E-02	-6.11E-02	2.33E-01	-1.58E-02	6.02E-02
140	SACCA	West	38.49	-121.21	7.93E-02	7.82E-02	-6.77E-02	8.00E-02	-1.75E-02	2.07E-02
141	SACCA	West	38.53	-121.77	5.93E-02	7.31E-02	1.58E-01	1.58E-01	3.66E-02	3.66E-02
142	SACCA	West	38.56	-121.49	6.38E-02	7.43E-02	8.87E-02	8.87E-02	2.12E-02	2.12E-02
143	SACCA	West	38.61	-121.37	7.00E-02	7.85E-02	4.11E-02	1.53E-01	1.01E-02	3.74E-02
144	SACCA	West	38.65	-121.51	6.10E-02	7.63E-02	1.58E-01	1.58E-01	3.66E-02	3.66E-02
145	SACCA	West	38.66	-121.73	5.80E-02	7.70E-02	2.31E-01	2.31E-01	5.18E-02	5.18E-02
146	SACCA	West	38.68	-121.16	8.50E-02	8.23E-02	-9.89E-02	1.39E-01	-2.60E-02	3.65E-02
147	SACCA	West	38.71	-121.38	7.15E-02	8.08E-02	4.25E-02	7.59E-02	1.04E-02	1.86E-02
148	SACCA	West	38.73	-120.82	8.15E-02	7.38E-02	-1.16E-01	1.27E-01	-3.09E-02	3.38E-02
149	SACCA	West	38.75	-121.27	8.50E-02	8.18E-02	-1.12E-01	2.04E-01	-2.97E-02	5.40E-02
150	SACCA	West	38.94	-121.11	7.85E-02	8.41E-02	2.38E-02	9.99E-02	5.87E-03	2.47E-02
151	SACCA	West	39.1	-120.95	7.75E-02	9.03E-02	8.47E-02	8.90E-02	2.03E-02	2.14E-02
152	AUSTX	South	30.21	-98.08	7.95E-02	9.09E-02	1.81E-01	1.81E-01	4.16E-02	4.16E-02
153	AUSTX	South	30.35	-97.76	7.73E-02	9.06E-02	1.79E-01	1.79E-01	4.11E-02	4.11E-02
154	AUSTX	South	30.48	-97.87	7.38E-02	9.01E-02	2.26E-01	2.26E-01	5.07E-02	5.07E-02
155	SANTX	South	29.28	-98.31	6.25E-02	7.64E-02	1.76E-01	1.76E-01	4.04E-02	4.04E-02
156	SANTX	South	29.52	-98.62	7.06E-02	8.58E-02	2.40E-01	2.40E-01	4.29E-02	4.29E-02
157	SANTX	South	29.63	-98.56	7.80E-02	9.02E-02	1.92E-01	1.92E-01	3.50E-02	3.50E-02
158	DALTX	South	32.92	-96.81	7.06E-02	8.15E-02	1.95E-01	1.95E-01	3.55E-02	3.55E-02
159	DALTX	South	32.48	-97.03	7.60E-02	9.17E-02	2.22E-01	2.22E-01	4.00E-02	4.00E-02
160	DALTX	South	33.41	-96.94	7.70E-02	9.37E-02	2.27E-01	2.27E-01	4.07E-02	4.07E-02
161	TULOK	MidWest	35.95	-96.01	6.20E-02	5.90E-02	-4.76E-02	1.87E-01	-6.96E-03	2.73E-02
162	TULOK	MidWest	36.11	-96.36	6.15E-02	5.65E-02	-8.05E-02	1.67E-01	-1.20E-02	2.48E-02
163	TULOK	MidWest	36.13	-95.76	6.00E-02	5.93E-02	-1.13E-02	1.64E-01	-1.62E-03	2.36E-02
164	TULOK	MidWest	36.2	-95.98	5.73E-02	6.27E-02	9.27E-02	1.48E-01	1.27E-02	2.02E-02
165	TULOK	MidWest	36.36	-96	6.00E-02	6.30E-02	4.97E-02	1.65E-01	6.92E-03	2.30E-02
166	TULOK	MidWest	36.67	-96.34	5.73E-02	5.78E-02	8.86E-03	1.34E-01	1.26E-03	1.91E-02

Monitor #	CITY	Region	LAT	LONG	MO (ppb)	MP (ppb)	NMB	NME	FB	FE
167	CINOH	MidWest	39.02	-84.47	6.28E-02	8.04E-02	1.92E-01	1.92E-01	2.79E-02	2.79E-02
168	CINOH	MidWest	39.08	-84.14	5.80E-02	7.66E-02	2.71E-01	2.71E-01	3.89E-02	3.89E-02
169	CINOH	MidWest	39.13	-84.5	6.53E-02	8.06E-02	1.75E-01	1.75E-01	2.60E-02	2.60E-02
170	CINOH	MidWest	39.21	-84.69	7.10E-02	7.92E-02	7.92E-02	8.82E-02	1.23E-02	1.37E-02
171	CINOH	MidWest	39.28	-84.37	6.55E-02	8.02E-02	2.04E-01	2.04E-01	3.04E-02	3.04E-02
172	CINOH	MidWest	39.38	-84.54	6.93E-02	8.31E-02	1.68E-01	1.68E-01	2.52E-02	2.52E-02
173	CINOH	MidWest	39.43	-84.2	5.63E-02	7.30E-02	2.53E-01	2.53E-01	3.66E-02	3.66E-02
174	CINOH	MidWest	39.53	-84.39	7.13E-02	7.19E-02	2.33E-02	3.22E-02	3.78E-03	5.24E-03
175	INDIN	MidWest	39.42	-86.15	6.25E-02	6.43E-02	-1.17E-02	7.66E-02	-1.68E-03	1.10E-02
176	INDIN	MidWest	39.58	-86.48	5.53E-02	6.45E-02	8.40E-02	1.18E-01	1.15E-02	1.62E-02
177	INDIN	MidWest	39.61	-85.87	5.90E-02	6.83E-02	8.30E-02	1.36E-01	1.14E-02	1.87E-02
178	INDIN	MidWest	39.75	-86.19	6.13E-02	6.27E-02	-1.70E-02	9.62E-02	-2.45E-03	1.39E-02
179	INDIN	MidWest	39.76	-86.4	6.03E-02	6.44E-02	1.21E-02	8.61E-02	1.73E-03	1.22E-02
180	INDIN	MidWest	39.79	-86.06	6.48E-02	6.65E-02	-3.55E-02	1.47E-01	-5.16E-03	2.14E-02
181	INDIN	MidWest	39.81	-86.11	5.08E-02	6.78E-02	2.55E-01	2.55E-01	3.23E-02	3.23E-02
182	INDIN	MidWest	39.86	-86.02	6.45E-02	6.76E-02	-2.44E-04	6.68E-02	-3.49E-05	9.55E-03
183	INDIN	MidWest	39.94	-85.84	6.03E-02	6.56E-02	3.77E-02	5.24E-02	5.29E-03	7.35E-03
184	INDIN	MidWest	40	-86.4	6.65E-02	7.06E-02	-1.84E-02	1.14E-01	-2.66E-03	1.64E-02
185	INDIN	MidWest	40	-85.66	5.65E-02	6.55E-02	1.10E-01	1.10E-01	1.49E-02	1.49E-02
186	INDIN	MidWest	40.07	-85.99	6.45E-02	7.05E-02	3.75E-02	5.73E-02	5.26E-03	8.04E-03
187	KANMO	MidWest	38.14	-94.73	5.80E-02	6.51E-02	1.22E-01	2.19E-01	1.65E-02	2.95E-02
188	KANMO	MidWest	38.76	-94.58	5.60E-02	6.17E-02	1.02E-01	2.61E-01	1.39E-02	3.55E-02
189	KANMO	MidWest	38.84	-94.75	6.00E-02	6.47E-02	7.86E-02	2.07E-01	1.08E-02	2.84E-02
190	KANMO	MidWest	39.12	-94.64	5.20E-02	7.02E-02	3.51E-01	3.51E-01	4.26E-02	4.26E-02
191	KANMO	MidWest	39.3	-94.38	5.97E-02	6.40E-02	7.30E-02	1.02E-01	1.01E-02	1.41E-02
192	KANMO	MidWest	39.33	-94.95	6.20E-02	6.53E-02	5.33E-02	1.18E-01	7.42E-03	1.64E-02
193	KANMO	MidWest	39.33	-94.58	6.60E-02	7.45E-02	1.28E-01	1.82E-01	1.72E-02	2.44E-02
194	KANMO	MidWest	39.41	-94.27	5.63E-02	5.92E-02	5.12E-02	1.63E-01	7.13E-03	2.27E-02

Monitor #	CITY	Region	LAT	LONG	MO (ppb)	MP (ppb)	NMB	NME	FB	FE
195	KANMO	MidWest	39.53	-94.56	7.03E-02	7.58E-02	7.80E-02	1.35E-01	1.07E-02	1.85E-02
196	STLMO	MidWest	38.45	-90.4	6.30E-02	7.11E-02	1.29E-01	1.29E-01	4.03E-02	4.03E-02
197	STLMO	MidWest	38.49	-90.71	6.27E-02	6.31E-02	7.49E-03	1.58E-01	2.49E-03	5.24E-02
198	STLMO	MidWest	38.61	-90.16	5.93E-02	6.70E-02	1.29E-01	1.73E-01	4.05E-02	5.42E-02
199	STLMO	MidWest	38.66	-90.2	5.90E-02	6.17E-02	4.51E-02	1.02E-01	1.47E-02	3.31E-02
200	STLMO	MidWest	38.71	-90.48	6.60E-02	7.16E-02	8.52E-02	1.10E-01	2.72E-02	3.51E-02
201	STLMO	MidWest	38.86	-90.11	5.10E-02	6.32E-02	2.39E-01	2.39E-01	7.13E-02	7.13E-02
202	STLMO	MidWest	38.87	-90.23	6.30E-02	7.14E-02	1.33E-01	1.96E-01	4.16E-02	6.11E-02
203	STLMO	MidWest	38.89	-90.15	6.00E-02	7.03E-02	1.71E-01	1.86E-01	5.25E-02	5.72E-02
204	STLMO	MidWest	38.9	-90.45	6.53E-02	7.91E-02	2.11E-01	2.11E-01	6.36E-02	6.36E-02
205	STLMO	MidWest	39.05	-90.87	7.60E-02	8.05E-02	5.91E-02	2.72E-01	1.91E-02	8.82E-02
206	STLMO	MidWest	39.11	-90.32	6.30E-02	6.97E-02	1.06E-01	1.88E-01	3.36E-02	5.95E-02
207	STLMO	MidWest	39.4	-89.81	5.63E-02	6.29E-02	1.17E-01	1.17E-01	3.69E-02	3.69E-02
208	DETMI	MidWest	42.23	-83.21	6.73E-02	8.71E-02	2.68E-01	2.68E-01	3.89E-02	3.89E-02
209	DETMI	MidWest	42.43	-83	7.35E-02	8.11E-02	1.20E-01	1.20E-01	1.87E-02	1.87E-02
210	DETMI	MidWest	42.46	-83.18	6.95E-02	8.07E-02	1.47E-01	1.47E-01	2.25E-02	2.25E-02
211	DETMI	MidWest	42.73	-82.79	8.73E-02	8.37E-02	1.99E-02	4.45E-02	3.31E-03	7.40E-03
212	DETMI	MidWest	42.95	-82.46	7.43E-02	8.61E-02	1.46E-01	1.47E-01	2.23E-02	2.25E-02
213	CLEOH	MidWest	41.1	-81.91	5.98E-02	7.09E-02	1.91E-01	1.91E-01	2.89E-02	2.89E-02
214	CLEOH	MidWest	41.36	-81.86	6.15E-02	6.99E-02	1.58E-01	1.58E-01	2.43E-02	2.43E-02
215	CLEOH	MidWest	41.42	-82.1	6.25E-02	6.98E-02	1.50E-01	1.50E-01	2.33E-02	2.33E-02
216	CLEOH	MidWest	41.49	-81.68	6.23E-02	6.53E-02	9.63E-02	9.63E-02	1.54E-02	1.54E-02
217	CLEOH	MidWest	41.52	-81.25	6.13E-02	6.75E-02	1.41E-01	1.41E-01	2.21E-02	2.21E-02
218	CLEOH	MidWest	41.54	-81.46	6.13E-02	6.52E-02	1.17E-01	1.21E-01	1.86E-02	1.93E-02
219	CLEOH	MidWest	41.56	-81.58	6.63E-02	6.51E-02	4.29E-02	4.29E-02	7.06E-03	7.06E-03
220	CLEOH	MidWest	41.67	-81.42	6.73E-02	6.30E-02	1.85E-02	6.10E-02	3.11E-03	1.02E-02
221	CLEOH	MidWest	41.73	-81.24	5.73E-02	6.27E-02	1.44E-01	1.44E-01	2.26E-02	2.26E-02
222	BOSMA	East	42.63	-71.36	7.30E-02	7.94E-02	8.70E-02	1.21E-01	1.67E-02	2.32E-02

Monitor #	CITY	Region	LAT	LONG	MO (ppb)	MP (ppb)	NMB	NME	FB	FE
223	BOSMA	East	43.08	-70.75	7.77E-02	7.94E-02	2.25E-02	8.24E-02	4.45E-03	1.63E-02
224	BOSMA	East	42.33	-71.08	6.23E-02	7.48E-02	2.00E-01	2.10E-01	3.64E-02	3.82E-02
225	BOSMA	East	43.05	-70.71	5.93E-02	6.86E-02	1.55E-01	1.65E-01	2.88E-02	3.05E-02
226	BOSMA	East	42.81	-70.82	7.53E-02	8.78E-02	1.65E-01	1.65E-01	3.05E-02	3.05E-02
227	BOSMA	East	42.77	-71.1	6.27E-02	7.75E-02	2.37E-01	2.37E-01	4.23E-02	4.23E-02
228	BOSMA	East	42.32	-70.97	6.73E-02	8.44E-02	2.54E-01	2.54E-01	4.50E-02	4.50E-02
229	BOSMA	East	42.21	-71.11	7.33E-02	8.23E-02	1.23E-01	1.26E-01	2.31E-02	2.38E-02
230	BOSMA	East	42.41	-71.48	6.67E-02	7.98E-02	1.97E-01	2.19E-01	3.59E-02	4.00E-02
231	BOSMA	East	42.47	-70.97	7.03E-02	7.81E-02	1.11E-01	2.36E-01	2.11E-02	4.48E-02
232	HARCT	East	41.55	-72.63	7.38E-02	7.41E-02	5.22E-02	5.96E-02	8.50E-03	9.71E-03
233	HARCT	East	41.78	-72.63	6.55E-02	7.06E-02	1.17E-01	1.17E-01	1.86E-02	1.86E-02
234	HARCT	East	41.98	-72.39	8.10E-02	7.31E-02	4.73E-02	5.46E-02	8.07E-03	9.30E-03
235	NYCNY	East	40.06	-74.44	8.80E-02	9.80E-02	6.44E-02	1.58E-01	1.56E-02	3.83E-02
236	NYCNY	East	40.28	-74.01	9.13E-02	1.02E-01	5.58E-02	9.47E-02	1.36E-02	2.30E-02
237	NYCNY	East	40.46	-74.43	8.68E-02	8.93E-02	1.14E-01	1.59E-01	2.70E-02	3.76E-02
238	NYCNY	East	40.52	-74.81	8.78E-02	8.83E-02	7.30E-02	1.32E-01	1.76E-02	3.18E-02
239	NYCNY	East	40.6	-74.13	8.60E-02	9.10E-02	1.44E-01	2.08E-01	3.36E-02	4.86E-02
240	NYCNY	East	40.72	-74.19	8.33E-02	8.53E-02	1.13E-01	1.13E-01	2.67E-02	2.67E-02
241	NYCNY	East	40.74	-73.82	8.33E-02	8.89E-02	5.33E-02	8.71E-02	1.30E-02	2.12E-02
242	NYCNY	East	40.75	-73.42	7.93E-02	9.08E-02	-5.52E-02	1.36E-01	-1.89E-02	4.67E-02
243	NYCNY	East	40.79	-74.68	7.97E-02	8.23E-02	3.34E-02	5.38E-02	1.10E-02	1.77E-02
244	NYCNY	East	40.82	-73.95	8.33E-02	8.63E-02	1.25E-01	1.25E-01	3.92E-02	3.92E-02
245	NYCNY	East	40.83	-73.06	8.10E-02	8.41E-02	-1.43E-02	4.89E-02	-3.60E-03	1.23E-02
246	NYCNY	East	40.87	-73.88	8.40E-02	8.29E-02	6.74E-02	1.05E-01	1.63E-02	2.53E-02
247	NYCNY	East	40.87	-73.99	9.15E-02	8.42E-02	-8.03E-04	7.95E-02	-2.01E-04	1.99E-02
248	NYCNY	East	40.96	-72.71	7.60E-02	9.15E-02	1.38E-01	1.71E-01	3.23E-02	4.00E-02
249	NYCNY	East	41.05	-73.76	8.68E-02	8.49E-02	1.21E-01	1.70E-01	2.86E-02	4.00E-02
250	NYCNY	East	41.06	-74.26	7.83E-02	7.93E-02	8.89E-02	8.89E-02	2.13E-02	2.13E-02

Monitor #	CITY	Region	LAT	LONG	MO (ppb)	MP (ppb)	NMB	NME	FB	FE
251	NYCNY	East	41.18	-74.03	7.83E-02	8.07E-02	1.16E-01	1.16E-01	2.74E-02	2.74E-02
252	PHIPA	East	39.55	-75.73	7.20E-02	8.29E-02	1.07E-01	1.07E-01	1.45E-02	1.45E-02
253	PHIPA	East	39.68	-74.86	8.75E-02	8.29E-02	-8.93E-02	8.96E-02	-1.33E-02	1.34E-02
254	PHIPA	East	39.7	-75.86	7.78E-02	7.95E-02	6.11E-03	6.65E-02	8.70E-04	9.47E-03
255	PHIPA	East	39.77	-75.5	8.23E-02	8.26E-02	-1.56E-02	8.58E-02	-2.24E-03	1.24E-02
256	PHIPA	East	39.8	-75.21	8.40E-02	9.39E-02	5.91E-02	1.21E-01	8.21E-03	1.68E-02
257	PHIPA	East	39.82	-75.56	7.88E-02	8.11E-02	4.42E-02	9.24E-02	6.18E-03	1.29E-02
258	PHIPA	East	39.83	-75.77	8.05E-02	7.63E-02	-4.32E-02	7.33E-02	-6.31E-03	1.07E-02
259	PHIPA	East	39.84	-75.37	8.18E-02	8.03E-02	-2.47E-02	1.04E-01	-3.58E-03	1.51E-02
260	PHIPA	East	40.01	-75.1	7.93E-02	8.64E-02	1.22E-01	1.50E-01	1.64E-02	2.01E-02
261	PHIPA	East	40.08	-75.01	8.98E-02	8.89E-02	3.04E-02	1.54E-01	4.28E-03	2.16E-02
262	PHIPA	East	40.11	-74.88	8.93E-02	8.95E-02	4.40E-02	1.52E-01	6.15E-03	2.13E-02
263	PHIPA	East	40.11	-75.31	8.58E-02	8.20E-02	4.35E-03	1.12E-01	6.21E-04	1.60E-02
264	LOSCA	West	33.67	-117.93	6.50E-02	7.76E-02	1.94E-01	1.94E-01	1.77E-01	1.77E-01
265	LOSCA	West	33.8	-118.22	6.83E-02	5.57E-02	-1.85E-01	1.85E-01	-6.81E-02	6.81E-02
266	LOSCA	West	33.82	-118.19	8.37E-02	7.27E-02	-1.31E-01	1.55E-01	-4.66E-02	5.51E-02
267	LOSCA	West	33.83	-117.94	7.90E-02	6.60E-02	-1.65E-01	1.65E-01	-5.98E-02	5.98E-02
268	LOSCA	West	33.93	-117.95	7.97E-02	7.00E-02	-1.21E-01	1.21E-01	-4.29E-02	4.29E-02
269	LOSCA	West	33.95	-118.43	5.70E-02	5.53E-02	-2.96E-02	2.96E-02	-3.00E-02	3.00E-02
270	LOSCA	West	34.01	-118.07	8.83E-02	7.69E-02	-1.29E-01	2.23E-01	-4.61E-02	7.95E-02
271	LOSCA	West	34.05	-118.46	7.07E-02	6.95E-02	-1.71E-02	4.03E-02	-5.76E-03	1.35E-02
272	LOSCA	West	34.07	-118.23	8.50E-02	6.76E-02	-2.04E-01	2.04E-01	-7.58E-02	7.58E-02
273	LOSCA	West	34.07	-117.75	8.73E-02	7.23E-02	-1.72E-01	1.72E-01	-6.27E-02	6.27E-02
274	LOSCA	West	34.13	-118.13	8.40E-02	7.73E-02	-7.98E-02	7.98E-02	-2.77E-02	2.77E-02
275	LOSCA	West	34.14	-117.92	9.63E-02	8.00E-02	-1.70E-01	1.70E-01	-6.17E-02	6.17E-02
276	LOSCA	West	34.14	-117.85	8.30E-02	8.04E-02	-3.17E-02	7.08E-02	-1.07E-02	2.40E-02
277	LOSCA	West	34.18	-118.32	8.33E-02	8.22E-02	-1.42E-02	1.17E-01	-4.76E-03	3.94E-02
278	LOSCA	West	34.2	-118.53	9.57E-02	8.73E-02	-8.79E-02	8.79E-02	-3.07E-02	3.07E-02

Monitor #	CITY	Region	LAT	LONG	MO (ppb)	MP (ppb)	NMB	NME	FB	FE
279	LOSCA	West	34.38	-118.53	9.13E-02	8.43E-02	-7.74E-02	7.77E-02	-2.68E-02	2.69E-02
280	LOSCA	West	34.67	-118.13	8.77E-02	8.19E-02	-6.56E-02	6.56E-02	-2.26E-02	2.26E-02
281	SDOCA	West	32.55	-116.94	8.00E-02	9.59E-02	2.09E-01	2.09E-01	3.79E-02	3.79E-02
282	SDOCA	West	32.63	-117.06	5.84E-02	6.27E-02	7.39E-02	7.39E-02	1.02E-02	1.02E-02
283	SDOCA	West	32.7	-117.15	6.50E-02	5.41E-02	-1.68E-01	1.68E-01	-2.62E-02	2.62E-02
284	SDOCA	West	32.79	-116.94	6.02E-02	6.38E-02	6.06E-02	9.38E-02	8.40E-03	1.30E-02
285	SDOCA	West	32.84	-117.13	6.88E-02	7.21E-02	4.82E-02	9.16E-02	6.73E-03	1.28E-02
286	SDOCA	West	32.84	-116.77	6.82E-02	6.49E-02	-4.81E-02	1.62E-01	-7.04E-03	2.38E-02
287	SDOCA	West	32.95	-117.26	6.96E-02	7.67E-02	1.02E-01	1.13E-01	1.39E-02	1.54E-02
288	SDOCA	West	33.13	-117.08	5.92E-02	5.72E-02	-3.42E-02	6.80E-02	-4.98E-03	9.89E-03
289	SDOCA	West	33.22	-117.4	7.50E-02	7.03E-02	-6.23E-02	1.14E-01	-9.19E-03	1.68E-02
290	SDOCA	West	33.36	-117.09	5.90E-02	6.37E-02	8.00E-02	1.03E-01	1.10E-02	1.41E-02
291	BIRAL	South	33.32	-86.83	9.17E-02	8.27E-02	-9.75E-02	1.95E-01	-1.46E-02	2.93E-02
292	BIRAL	South	33.33	-87	7.93E-02	8.32E-02	4.82E-02	1.85E-01	6.72E-03	2.59E-02
293	BIRAL	South	33.39	-86.82	9.13E-02	8.42E-02	-7.81E-02	1.46E-01	-1.16E-02	2.17E-02
294	BIRAL	South	33.46	-87.31	7.83E-02	7.83E-02	-4.56E-04	9.52E-02	-6.51E-05	1.36E-02
295	BIRAL	South	33.49	-86.92	7.67E-02	8.18E-02	6.76E-02	1.16E-01	9.34E-03	1.60E-02
296	BIRAL	South	33.55	-86.55	7.73E-02	8.29E-02	7.14E-02	7.14E-02	9.85E-03	9.85E-03
297	BIRAL	South	33.55	-86.82	7.47E-02	7.84E-02	5.04E-02	8.75E-02	7.02E-03	1.22E-02
298	BIRAL	South	33.58	-86.77	7.20E-02	7.78E-02	8.04E-02	1.23E-01	1.10E-02	1.69E-02
299	BIRAL	South	33.7	-86.67	7.07E-02	8.10E-02	1.47E-01	1.47E-01	1.95E-02	1.95E-02
300	BIRAL	South	33.8	-86.94	7.10E-02	7.57E-02	6.58E-02	8.91E-02	9.10E-03	1.23E-02
301	HOUTX	South	29.04	-95.47	7.13E-02	9.22E-02	2.94E-01	2.94E-01	3.66E-02	3.66E-02
302	HOUTX	South	29.25	-94.86	7.28E-02	9.15E-02	2.57E-01	2.57E-01	3.26E-02	3.26E-02
303	HOUTX	South	29.52	-95.39	6.33E-02	9.66E-02	5.27E-01	5.27E-01	5.96E-02	5.96E-02
304	HOUTX	South	29.58	-95.02	7.18E-02	8.32E-02	1.59E-01	1.59E-01	2.11E-02	2.11E-02
305	HOUTX	South	29.62	-95.47	8.35E-02	8.92E-02	6.80E-02	2.42E-01	9.40E-03	3.35E-02
306	HOUTX	South	29.63	-95.27	8.28E-02	9.15E-02	1.06E-01	2.09E-01	1.44E-02	2.84E-02

Monitor #	CITY	Region	LAT	LONG	MO (ppb)	MP (ppb)	NMB	NME	FB	FE
307	HOUTX	South	29.67	-95.13	7.13E-02	7.80E-02	9.48E-02	1.23E-01	1.29E-02	1.67E-02
308	HOUTX	South	29.69	-95.29	7.18E-02	8.18E-02	1.40E-01	1.40E-01	1.87E-02	1.87E-02
309	HOUTX	South	29.7	-95.5	9.00E-02	8.97E-02	-2.92E-03	5.19E-02	-4.18E-04	7.42E-03
310	HOUTX	South	29.72	-95.64	7.48E-02	6.99E-02	-6.47E-02	1.29E-01	-9.55E-03	1.90E-02
311	HOUTX	South	29.73	-95.26	7.50E-02	9.23E-02	2.30E-01	2.30E-01	2.95E-02	2.95E-02
312	HOUTX	South	29.74	-95.32	6.85E-02	9.13E-02	3.33E-01	3.33E-01	4.08E-02	4.08E-02
313	HOUTX	South	29.75	-95.35	7.45E-02	9.27E-02	2.44E-01	2.44E-01	3.10E-02	3.10E-02
314	HOUTX	South	29.76	-95.08	7.58E-02	8.67E-02	1.45E-01	1.45E-01	1.93E-02	1.93E-02
315	HOUTX	South	29.77	-95.22	7.35E-02	9.02E-02	2.28E-01	2.28E-01	2.92E-02	2.92E-02
316	HOUTX	South	29.8	-95.13	9.18E-02	9.54E-02	4.01E-02	1.79E-01	5.62E-03	2.50E-02
317	HOUTX	South	29.83	-95.28	8.13E-02	9.19E-02	1.31E-01	1.31E-01	1.76E-02	1.76E-02
318	HOUTX	South	29.83	-95.49	6.33E-02	9.06E-02	4.33E-01	4.33E-01	5.08E-02	5.08E-02
319	HOUTX	South	29.9	-95.33	7.08E-02	9.21E-02	3.02E-01	3.02E-01	3.74E-02	3.74E-02
320	HOUTX	South	30.04	-95.67	7.60E-02	9.14E-02	2.03E-01	2.12E-01	2.63E-02	2.74E-02
321	HOUTX	South	30.35	-95.43	7.18E-02	9.04E-02	2.60E-01	2.60E-01	3.29E-02	3.29E-02
322	NASTN	South	35.73	-86.6	6.60E-02	7.03E-02	6.58E-02	6.72E-02	9.10E-03	9.29E-03
323	NASTN	South	35.95	-87.14	5.57E-02	6.99E-02	2.55E-01	2.92E-01	3.23E-02	3.70E-02
324	NASTN	South	36.06	-86.29	6.93E-02	7.21E-02	3.94E-02	5.63E-02	5.52E-03	7.89E-03
325	NASTN	South	36.15	-86.62	6.33E-02	7.11E-02	1.23E-01	1.23E-01	1.65E-02	1.65E-02
326	NASTN	South	36.21	-86.74	5.97E-02	6.94E-02	1.64E-01	1.64E-01	2.16E-02	2.16E-02
327	NASTN	South	36.3	-86.65	6.97E-02	7.15E-02	2.65E-02	8.52E-02	3.73E-03	1.20E-02
328	NASTN	South	36.45	-86.56	6.58E-02	7.23E-02	9.89E-02	9.97E-02	1.35E-02	1.36E-02
329	BATLA	South	30.2	-91.12	7.40E-02	9.22E-02	2.45E-01	2.45E-01	4.37E-02	4.37E-02
330	BATLA	South	30.22	-91.32	7.65E-02	8.59E-02	1.22E-01	2.34E-01	2.30E-02	4.41E-02
331	BATLA	South	30.4	-91.43	7.30E-02	8.49E-02	1.63E-01	1.63E-01	3.02E-02	3.02E-02
332	BATLA	South	30.42	-91.18	7.05E-02	8.30E-02	1.77E-01	1.77E-01	3.25E-02	3.25E-02
333	BATLA	South	30.46	-91.18	6.93E-02	7.92E-02	1.43E-01	1.43E-01	2.68E-02	2.68E-02
334	BATLA	South	30.5	-91.21	7.18E-02	8.23E-02	1.47E-01	1.47E-01	2.74E-02	2.74E-02

Monitor #	CITY	Region	LAT	LONG	MO (ppb)	MP (ppb)	NMB	NME	FB	FE
335	BATLA	South	30.59	-91.25	7.15E-02	7.94E-02	1.10E-01	1.25E-01	2.09E-02	2.37E-02
336	BATLA	South	30.68	-91.37	7.03E-02	7.69E-02	9.48E-02	9.48E-02	1.81E-02	1.81E-02
337	BATLA	South	30.7	-91.06	6.93E-02	7.65E-02	1.04E-01	1.09E-01	1.98E-02	2.07E-02
338	LAKLA	South	30.14	-93.37	8.35E-02	7.94E-02	-4.88E-02	1.47E-01	-7.14E-03	2.15E-02
339	LAKLA	South	30.23	-93.58	7.28E-02	7.72E-02	6.12E-02	1.08E-01	8.49E-03	1.50E-02
340	LAKLA	South	30.26	-93.29	7.50E-02	7.49E-02	-1.39E-03	1.23E-01	-1.99E-04	1.76E-02
341	MEMTN	South	34.82	-89.99	7.20E-02	7.14E-02	1.08E-02	1.37E-01	1.54E-03	1.95E-02
342	MEMTN	South	35.2	-90.19	6.83E-02	7.11E-02	7.56E-02	1.08E-01	1.04E-02	1.48E-02
343	MEMTN	South	35.22	-90.02	6.71E-02	7.20E-02	1.15E-01	1.37E-01	1.56E-02	1.85E-02
344	MEMTN	South	35.38	-89.83	6.53E-02	7.36E-02	1.82E-01	1.82E-01	2.38E-02	2.38E-02

Table S6 PM2.5 Model Performance Statistics and Monitor Locations

Monitor #	CITY	LAT	LONG	MO (µg/m3)	MP (µg/m3)	NMB	NME	FB	FE
1	ATLGA1	34.03	-84.62	17.15	16.63	-0.44	0.44	-0.04	0.04
2	ATLGA2	33.82	-84.39	12.2	10.22	-0.08	0.09	-0.15	0.16
3	ATLGA3	33.69	-84.29	17.45	16.18	-0.50	0.50	-0.01	0.16
4	ATLGA4	33.9	-84.28	11.57	10.29	-0.12	0.12	-0.16	0.22
5	ATLGA5	33.93	-85.05	7.4	4.7	-0.24	0.24	-0.44	0.44
6	ATLGA6	33.8	-84.44	13.25	11.38	-0.14	0.14	-0.21	0.21
7	ATLGA7	33.61	-84.39	17	11.8	-0.45	0.45	-0.29	0.29
8	ATLGA8	33.96	-84.07	11.02	8.95	-0.07	0.07	-0.22	0.22
9	AUSTX1	30.26	-97.71	17.8	15.13	-0.71	0.71	-0.08	0.08
10	AUSTX2	30.48	-97.87	15	13.75	-0.75	0.75	-0.04	0.04
11	BAKCA1	35.36	-119.06	8.64	6.49	-0.12	0.12	-0.34	0.34
12	BAKCA2	35.32	-119	11.25	7.3	-0.48	0.48	-0.42	0.42
13	BAKCA3	35.05	-118.15	5.3	5.91	0.11	0.11	0.05	0.05
14	BAKCA4	35.62	-117.67	4.4	4.12	-0.06	0.06	-0.03	0.03
15	BALMD1	39.3	-76.6	16.8	14.23	-0.05	0.14	-0.1	0.47
16	BALMD2	39.29	-76.55	17.95	11.57	-0.12	0.13	-0.47	0.53
17	BALMD3	39.17	-76.63	18.7	13.25	-0.08	0.10	-0.36	0.42
18	BALMD4	39.34	-76.58	18.3	16.61	-0.09	0.13	-0.08	0.12
19	BALMD5	39.46	-76.63	18.5	15.18	-0.18	0.18	-0.19	0.19
20	BALMD6	39.31	-76.47	17	16.05	-0.06	0.06	-0.03	0.03
21	BALMD7	39.34	-76.69	16.7	15.39	-0.08	0.08	-0.04	0.04
22	BALMD8	39.41	-76.3	16.15	11.3	-0.30	0.30	-0.53	0.53
23	BATLA1	30.5	-91.21	14.98	15.32	0.01	0.04	0.02	0.13
24	BATLA2	30.46	-91.18	14.68	23.07	0.19	0.19	0.5	0.5
25	BATLA3	30.59	-91.25	7.3	3.76	-0.48	0.48	-0.32	0.32

Monitor #	CITY	LAT	LONG	MO (μg/m3)	MP (μg/m3)	NMB	NME	FB	FE
26	BATLA4	30.22	-91.06	14.2	11.29	-0.21	0.25	-0.14	0.22
27	BATLA5	30.22	-91.32	12.35	11.29	-0.09	0.11	-0.06	0.09
28	BIRAL1	33.5	-86.92	14.1	13.37	-0.02	0.05	-0.06	0.21
29	BIRAL2	33.55	-86.82	18.63	16.7	-0.03	0.10	-0.12	0.3
30	BIRAL3	33.83	-87.27	11.95	10.84	-0.09	0.09	-0.11	0.11
31	BIRAL4	33.31	-86.82	11.45	14.03	0.23	0.23	0.24	0.24
32	BIRAL5	33.8	-86.94	9.2	5.17	-0.44	0.44	-0.67	0.67
33	BIRAL6	33.39	-86.82	10.75	9.38	-0.13	0.13	-0.13	0.13
34	BIRAL7	33.7	-86.67	10.05	7.76	-0.23	0.23	-0.29	0.29
35	BIRAL8	33.33	-87	16.15	15.51	-0.04	0.10	0.01	0.1
36	BIRAL9	33.46	-87.31	9.65	7.35	-0.24	0.25	-0.54	0.55
37	BIRAL10	33.55	-86.55	9.2	14.98	0.63	0.63	0.24	0.24
38	BOSMA1	42.36	-71.05	16.48	9.25	-0.15	0.15	-0.47	0.52
39	BOSMA2	42.33	-71.08	8.85	9.21	0.61	0.61	0	0.08
40	BOSMA3	42.35	-71.1	7.8	4.17	0.82	0.82	-0.3	0.3
41	BOSMA4	42.08	-71.01	8.25	7.99	-0.03	0.23	-0.19	0.33
42	BOSMA5	42.7	-71.16	10.3	9.08	-0.60	0.60	-0.16	0.16
43	BOSMA6	42.77	-71.1	8	7.66	-0.04	0.04	-0.11	0.11
44	BOSMA7	42.47	-70.97	7.3	9.05	0.24	0.24	0.27	0.27
45	BOSMA8	42.37	-71.06	8.5	9.34	0.10	0.52	0.19	0.53
46	BOSMA9	43.08	-70.75	13.5	12.46	-0.08	0.08	-0.04	0.04
47	BOSMA10	42.63	-71.36	13.5	12.48	-0.08	0.08	-0.04	0.04
48	CHANC1	35.24	-80.79	8.88	11.05	0.08	0.12	0.3	0.35
49	CHANC2	35.3	-80.89	8.85	12.34	0.13	0.13	0.39	0.39
50	CHANC3	35.25	-81.15	12.4	11.42	-0.08	0.15	-0.01	0.15
51	CHANC4	35.15	-80.87	21.2	25.74	0.21	0.21	0.1	0.1
52	CHANC5	35.55	-80.4	18.6	17.13	-0.08	0.08	-0.04	0.04
53	CINOH1	39.19	-84.48	12.54	7.07	-0.17	0.17	-0.49	0.49

Monitor #	CITY	LAT	LONG	MO (µg/m3)	MP (µg/m3)	NMB	NME	FB	FE
54	CINOH2	39.49	-84.35	8.45	9.82	0.16	0.52	0.06	0.47
55	CINOH3	39.43	-84.2	7.4	5.19	-0.30	0.39	-0.39	0.49
56	CINOH4	39.08	-84.14	7.15	4.02	-0.44	0.44	-0.56	0.56
57	CINOH5	39.28	-84.37	7.75	7.35	-0.05	0.44	-0.09	0.46
58	CINOH6	39.34	-84.57	9.55	6.12	-0.36	0.36	-0.46	0.46
59	CINOH7	39.13	-84.5	8.1	7.58	-0.06	0.28	-0.09	0.3
60	CINOH8	39.1	-84.55	9.1	8.05	-0.12	0.25	-0.14	0.27
61	CINOH9	39.16	-84.46	7.9	6.75	-0.15	0.26	-0.18	0.29
62	CINOH10	39.02	-84.47	7.15	6.5	-0.09	0.25	-0.11	0.27
63	CLEOH1	41.46	-82.11	7.75	5.87	-0.24	0.24	-0.28	0.28
64	CLEOH2	41.56	-81.58	6.35	4.4	-0.31	0.31	-0.36	0.36
65	CLEOH3	41.73	-81.24	5.9	3.53	-0.40	0.40	-0.55	0.55
66	CLEOH4	41.1	-81.91	7.75	4.17	-0.46	0.46	-0.59	0.59
67	CLEOH5	41.4	-81.82	9.35	7.62	-0.19	0.19	-0.17	0.17
68	CLEOH6	41.45	-81.66	10.65	6.71	-0.37	0.37	-0.35	0.35
69	CLEOH7	41.49	-81.68	10.15	10.34	0.02	0.29	0.13	0.33
70	CLEOH8	41.47	-81.66	8.7	6.71	-0.23	0.31	-0.18	0.3
71	CLEOH9	41.48	-81.68	11.4	6.71	-0.41	0.41	-0.42	0.42
72	DALTX1	32.82	-96.86	13.79	7.15	-0.14	0.14	-0.57	0.57
73	DALTX2	32.76	-97.34	15.55	8.54	-0.45	0.45	-0.61	0.61
74	DALTX3	32.81	-97.36	11.25	8.53	-0.24	0.41	-0.09	0.43
75	DALTX4	32.77	-96.8	15.15	9.05	-0.40	0.40	-0.51	0.51
76	DALTX5	32.68	-96.87	14.7	6.17	-0.58	0.58	-0.41	0.41
77	DENCO1	39.75	-104.99	7.8	5.74	-0.09	0.09	-0.29	0.31
78	DENCO2	39.23	-104.64	5.8	2.19	-0.62	0.62	-0.45	0.45
79	DENCO3	39.83	-104.94	8.95	6.63	-0.43	0.43	-0.3	0.3
80	DENCO4	39.6	-105.02	7.5	5.73	-0.57	0.57	-0.29	0.29
81	DENCO5	39.53	-105.07	6.7	5.9	-0.34	0.42	-0.13	0.21

Monitor #	CITY	LAT	LONG	MO (µg/m3)	MP (µg/m3)	NMB	NME	FB	FE
82	DENCO6	39.7	-105	8.6	6.68	-0.40	0.40	-0.25	0.25
83	DENCO7	39.78	-104.96	9.25	6.35	-0.48	0.48	-0.37	0.37
84	DETMI1	42.32	-83.07	13.6	7.41	-0.15	0.17	-0.36	0.54
85	DETMI2	42.23	-83.21	14.68	6.42	-0.23	0.24	-0.59	0.68
86	DETMI3	42.31	-83.15	17.5	18.36	-0.52	0.52	-0.02	0.12
87	DETMI4	42.34	-83.11	17.55	7.37	-0.58	0.58	-0.71	0.71
88	DETMI5	42.19	-83.15	15.75	10.42	-0.66	0.66	-0.31	0.31
89	DETMI6	42.42	-83.43	15.45	10.09	-0.35	0.35	-0.47	0.47
90	DETMI7	42.43	-83	15.7	10.81	-0.31	0.31	-0.39	0.39
91	DETMI8	42.36	-83.1	17.8	16.39	-0.08	0.11	-0.23	0.26
92	DETMI9	42.3	-83.11	17.7	11.94	-0.47	0.47	-0.3	0.3
93	DETMI10	42.46	-83.18	15.25	15.42	-0.64	0.64	-0.12	0.2
94	DETMI11	42.73	-82.79	16.6	14.62	-0.72	0.72	-0.27	0.27
95	ELPTX1	31.76	-106.5	10.9	3.08	-0.72	0.72	-0.56	0.56
96	ELPTX2	31.77	-106.46	7.3	3.15	-0.57	0.57	-0.4	0.4
97	ELPTX3	31.77	-106.5	8	3.12	-0.61	0.61	-0.44	0.44
98	FRECA1	36.78	-119.77	10.5	6.86	-0.12	0.12	-0.42	0.43
99	FRECA2	36.73	-119.73	12.7	12.64	-0.48	0.48	0	0
100	HARCT1	41.78	-72.63	13.83	10.96	-0.04	0.05	-0.37	0.42
101	HARCT2	29.9	-95.33	11.07	9.83	-0.07	0.40	-0.12	0.73
102	HARCT3	29.77	-95.03	12.8	4.5	-0.65	0.65	-0.48	0.48
103	INDIN1	39.79	-86.21	12.74	11.94	-0.11	0.16	-0.05	0.32
104	INDIN2	39.81	-86.11	12.3	10.74	-0.14	0.16	-0.13	0.29
105	INDIN3	39.74	-86.17	13.31	12.69	-0.07	0.14	-0.01	0.34
106	INDIN4	40.13	-85.65	14.03	13.11	-0.36	0.45	-0.12	0.36
107	INDIN5	39.77	-86.12	12.43	13.37	-0.31	0.35	0.11	0.25
108	INDIN6	39.76	-86.12	12.47	10.3	-0.29	0.34	-0.19	0.28
109	JACFL1	30.14	-81.63	11.5	9.36	-0.06	0.09	-0.14	0.32

Monitor #	CITY	LAT	LONG	MO (μg/m3)	MP (μg/m3)	NMB	NME	FB	FE
110	JACFL2	30.35	-81.55	11.97	12.82	0.02	0.05	0.14	0.2
111	JACFL3	30.36	-81.64	12.92	18.7	0.15	0.15	0.44	0.44
112	KANMO1	39.1	-94.57	11.6	13.28	0.05	0.06	0.14	0.17
113	KANMO2	39.12	-94.64	9.15	10.38	0.13	0.13	0.13	0.13
114	KANMO3	38.97	-94.69	9.4	7.22	-0.23	0.23	-0.13	0.13
115	KANMO4	38.84	-94.75	8.6	4.64	-0.46	0.46	-0.6	0.6
116	KANMO5	39.05	-94.69	8.6	7.66	-0.11	0.11	-0.12	0.12
117	KANMO6	38.14	-94.73	10.45	8.57	-0.66	0.66	-0.3	0.4
118	LAKLA1	30.18	-93.21	12.75	16.42	0.29	0.29	0.24	0.24
119	LAKLA2	30.23	-93.58	18	5.12	-0.72	0.72	-0.56	0.56
120	LOSCA1	33.9	-118.21	14.4	13.58	-0.06	0.09	-0.09	0.11
121	LOSCA2	33.63	-117.68	9.65	8.84	-0.08	0.08	-0.1	0.1
122	LOSCA3	34.2	-118.53	9.95	5.92	-0.40	0.40	-0.51	0.51
123	LOSCA4	34.01	-118.07	13.15	7.38	-0.44	0.44	-0.58	0.58
124	LOSCA5	33.83	-117.94	12.48	7.2	-0.17	0.17	-0.58	0.58
125	LOSCA6	33.79	-118.18	10.55	9.55	-0.03	0.06	-0.14	0.21
126	LOSCA7	33.82	-118.19	10.43	7.54	-0.09	0.09	-0.34	0.34
127	LOSCA8	34.18	-118.32	12.8	7.81	-0.13	0.13	-0.47	0.47
128	LOSCA9	34.07	-118.23	13.37	14.52	0.03	0.03	0.07	0.08
129	LOSCA10	34.67	-118.13	6	3.28	-0.45	0.45	-0.29	0.29
130	LOSCA11	34.13	-118.13	9.75	8.51	-0.13	0.17	-0.15	0.2
131	LOSCA12	34.14	-117.92	10.9	4.63	-0.57	0.57	-0.4	0.4
132	LOUKY1	38.28	-85.74	25.3	20.45	-0.08	0.08	-0.18	0.2
133	LOUKY2	37.99	-85.71	21.2	15.25	-0.28	0.28	-0.32	0.32
134	LOUKY3	38.39	-85.66	19.65	15.14	-0.23	0.23	-0.25	0.25
135	LOUKY4	38.31	-85.83	24.8	13.87	-0.44	0.44	-0.55	0.55
136	MEMTN1	35.2	-90.19	19.15	10.6	-0.45	0.45	-0.64	0.64
137	MEMTN2	34.82	-89.99	12.55	11.85	-0.06	0.13	0.01	0.13

Monitor #	CITY	LAT	LONG	MO (μg/m3)	MP (μg/m3)	NMB	NME	FB	FE
138	MIAFL1	25.47	-80.48	8.03	4.89	-0.13	0.13	-0.56	0.56
139	MIAFL2	25.79	-80.22	9.53	12.1	0.32	0.32	0.17	0.36
140	MIAFL3	26.08	-80.24	8.57	10.14	0.39	0.39	0.15	0.26
141	MIAFL4	26.29	-80.18	9.23	14.72	0.20	0.22	0.4	0.5
142	MIAFL5	26.46	-80.09	9.15	7.97	0.02	0.16	-0.2	0.38
143	NASTN1	36.18	-86.74	7.1	6.66	-0.06	0.06	-0.03	0.03
144	NYCNY1	40.74	-73.82	15.34	11.1	-0.08	0.13	-0.16	0.51
145	NYCNY2	40.84	-73.92	17.1	15.97	-0.02	0.09	0.03	0.37
146	NYCNY3	40.64	-74.21	16.4	12	-0.08	0.12	-0.15	0.47
147	NYCNY4	39.99	-74.17	14.29	10.27	-0.08	0.09	-0.35	0.41
148	NYCNY5	40.73	-74.05	16.11	19.13	0.05	0.10	0.29	0.43
149	NYCNY6	40.6	-74.28	14.2	7.66	-0.31	0.36	-0.41	0.62
150	NYCNY7	40.67	-74.21	12.87	10.86	-0.10	0.29	0.01	0.54
151	NYCNY8	40.79	-74.68	12.77	9.96	-0.15	0.15	-0.16	0.16
152	NYCNY9	40.8	-74.48	13.43	10.73	-0.13	0.13	-0.15	0.15
153	NYCNY10	40.47	-74.42	11.83	6.18	-0.32	0.38	-0.42	0.68
154	NYCNY11	40.77	-74.03	16.47	15.37	-0.04	0.26	0.12	0.49
155	NYCNY12	40.85	-73.97	14.53	10.92	-0.17	0.28	-0.09	0.56
156	NYCNY13	40.92	-74.17	14.43	8.97	-0.25	0.27	-0.3	0.4
157	NYCNY14	40.72	-74.19	14.1	9.71	-0.21	0.34	-0.15	0.63
158	NYCNY15	40.87	-73.88	14.07	11.95	-0.10	0.22	-0.03	0.49
159	NYCNY16	40.71	-74	15.9	26.35	0.44	0.44	0.57	0.57
160	NYCNY17	40.75	-73.42	13.03	5.89	-0.37	0.41	-0.52	0.75
161	NYCNY18	40.8	-73.93	15.07	19.87	0.21	0.22	0.45	0.46
162	NYCNY19	40.73	-73.98	15.27	25.7	0.46	0.46	0.37	0.37
163	NYCNY20	40.93	-73.77	14.57	8.22	-0.29	0.31	-0.41	0.57
164	NYCNY21	40.6	-74.13	13.67	10.5	-0.15	0.30	-0.09	0.52
165	NYCNY22	40.63	-74.14	14.63	11.12	-0.16	0.35	-0.05	0.65

Monitor #	CITY	LAT	LONG	MO (μg/m3)	MP (μg/m3)	NMB	NME	FB	FE
166	NYCNY24	40.63	-73.73	10.2	7.46	-0.27	0.41	-0.1	0.42
167	NYCNY25	40.72	-73.95	14.8	18.76	0.18	0.38	0.42	0.63
168	PHIPA1	40.11	-75.31	14.87	6.48	-0.16	0.17	-0.68	0.74
169	PHIPA2	39.74	-75.56	17.22	13.04	-0.08	0.08	-0.33	0.33
170	PHIPA3	39.92	-75.19	17.14	21.91	0.08	0.10	0.31	0.37
171	PHIPA4	39.96	-75.14	17.14	17.42	0.00	0.07	0.08	0.27
172	PHIPA5	39.94	-75.17	16.83	17.42	0.01	0.07	0.11	0.29
173	PHIPA6	40.08	-75.01	16	8.61	-0.13	0.13	-0.54	0.54
174	PHIPA7	40.01	-75.1	17.17	12.42	-0.08	0.09	-0.26	0.34
175	PHIPA8	39.99	-75.05	15.13	9.22	-0.26	0.30	-0.35	0.49
176	PHIPA9	39.83	-75.28	13.73	15.91	0.11	0.23	0.24	0.4
177	PHIPA10	39.69	-75.76	14.97	10.93	-0.18	0.18	-0.44	0.44
178	PHIPA11	39.55	-75.73	15.13	12.09	-0.43	0.43	-0.28	0.28
179	PHIPA12	39.76	-75.49	14.53	12.8	-0.39	0.39	-0.11	0.11
180	PHIPA13	40.11	-74.88	16.64	13.38	-0.17	0.17	-0.22	0.36
181	PHIPA14	39.84	-75.37	16.8	10.17	-0.39	0.39	-0.25	0.25
182	PHOAZ1	32.88	-111.75	5.5	3.08	-0.44	0.44	-0.28	0.28
183	PHOAZ2	33.01	-111.97	11.5	8.35	-0.27	0.27	-0.16	0.16
184	PHOAZ3	33.4	-112.08	6.7	5.32	-0.21	0.22	-0.26	0.27
185	PHOAZ4	33.41	-112.14	7.15	3.58	-0.50	0.50	-0.64	0.64
186	PHOAZ5	33.41	-111.87	5.55	3.58	-0.35	0.35	-0.42	0.42
187	PHOAZ6	33.42	-111.5	6.45	3.82	-0.41	0.41	-0.55	0.55
188	PHOAZ7	33.48	-112.14	5.85	5.81	-0.01	0.10	0	0.1
189	PHOAZ8	33.49	-111.86	5.5	2.64	-0.52	0.52	-0.35	0.35
190	PHOAZ9	33.5	-112.1	5.3	5.81	0.10	0.13	0.1	0.14
191	POROR1	45.65	-122.59	4.77	4.02	-0.04	0.05	-0.14	0.18
192	POROR2	45.53	-122.97	4.1	6	0.31	0.40	0.34	0.45
193	POROR3	45.5	-122.6	4.37	4.19	0.94	0.94	-0.08	0.17

Monitor #	CITY	LAT	LONG	MO (μg/m3)	MP (μg/m3)	NMB	NME	FB	FE
194	POROR4	45.56	-122.67	6.3	5	-0.21	0.21	-0.11	0.11
195	RICVA1	37.56	-77.4	17.44	14.44	-0.21	0.21	-0.17	0.23
196	RICVA2	37.34	-77.26	17	13.98	-0.18	0.18	-0.19	0.19
197	RICVA3	37.67	-77.57	18	13.58	-0.25	0.25	-0.27	0.27
198	RICVA4	37.43	-77.45	17.25	11.44	-0.34	0.34	-0.45	0.45
199	SACCA1	38.56	-121.49	8.5	7.23	-0.20	0.24	-0.1	0.2
200	SACCA2	38.61	-121.37	8.3	5.77	-0.34	0.34	-0.44	0.44
201	SACCA3	38.56	-121.46	8.03	5.9	-0.18	0.18	-0.26	0.27
202	SACCA4	38.75	-121.27	7.5	4.56	-0.39	0.39	-0.24	0.24
203	SACCA5	38.66	-121.73	7.7	4.91	-0.36	0.36	-0.22	0.22
204	SALUT1	40.78	-111.93	7.95	6.65	-0.15	0.15	-0.27	0.36
205	SALUT2	40.54	-112.3	3.85	4.06	0.05	0.05	0.06	0.06
206	SALUT3	40.71	-112.1	3.9	1.14	-0.71	0.71	-1.02	1.02
207	SANTX1	29.52	-98.62	15.7	17.46	-0.52	0.52	0.05	0.05
208	SANTX2	29.28	-98.31	15.7	17.09	-0.55	0.55	0.04	0.04
209	SDOCA1	33.13	-117.08	11.15	7.8	-0.43	0.43	-0.35	0.35
210	SDOCA2	32.84	-117.13	8.45	6.85	-0.19	0.22	-0.31	0.33
211	SDOCA3	32.79	-116.94	13.1	11.44	-0.51	0.51	-0.16	0.16
212	SDOCA4	32.63	-117.06	12.45	12.42	-0.40	0.40	-0.14	0.38
213	SDOCA5	32.7	-117.15	12.35	12.04	0.04	0.10	-0.04	0.22
214	SFOCA1	37.94	-122.03	7.87	5.91	-0.17	0.18	-0.24	0.27
215	SFOCA2	37.48	-122.2	11.8	11.67	1.68	1.68	-0.01	0.01
216	SFOCA3	37.69	-121.78	8.7	3.9	-0.55	0.55	-0.38	0.38
217	STLMO1	38.66	-90.2	13	10.39	-0.03	0.22	-0.21	0.21
218	STLMO2	38.7	-90.14	15.28	14.55	0.25	0.30	-0.04	0.14
219	STLMO3	38.9	-90.14	12.6	10.6	-0.56	0.56	-0.22	0.29
220	STLMO4	38.61	-90.16	13.37	12.84	-0.19	0.25	-0.05	0.15
221	STLMO5	39.11	-90.32	10.3	4.64	-0.55	0.55	-0.73	0.73

Monitor #	CITY	LAT	LONG	MO (μg/m3)	MP (μg/m3)	NMB	NME	FB	FE
222	STLMO6	38.7	-90.14	13.07	15.09	0.61	0.61	0.14	0.2
223	STLMO7	38.53	-89.99	13.75	9.58	-0.30	0.45	-0.34	0.52
224	STLMO8	38.86	-90.11	10.6	10.45	-0.22	0.22	-0.04	0.16
225	STLMO9	38.66	-90.19	11.84	10.85	-0.02	0.03	-0.11	0.14
226	STLMO10	38.54	-90.26	13.27	11.53	-0.15	0.15	-0.18	0.18
227	TULOK1	36.2	-95.98	11.08	7.47	-0.11	0.13	-0.4	0.49
228	WASDC1	38.77	-77.1	18.41	12.55	-0.09	0.09	-0.42	0.43
229	WASDC2	38.9	-76.96	19.77	10.53	-0.13	0.14	-0.64	0.66
230	WASDC3	38.92	-77.01	19.26	14.58	-0.15	0.15	-0.24	0.27
231	WASDC4	39.02	-77.49	20.8	14.03	-0.33	0.33	-0.38	0.38
232	WASDC5	38.86	-77.06	18.4	16.17	-0.39	0.39	-0.11	0.18
233	WASDC6	38.88	-77.03	19.6	16.41	-0.42	0.42	-0.17	0.17
234	WASDC8	38.81	-77.04	22.2	14.11	-0.36	0.36	-0.22	0.22

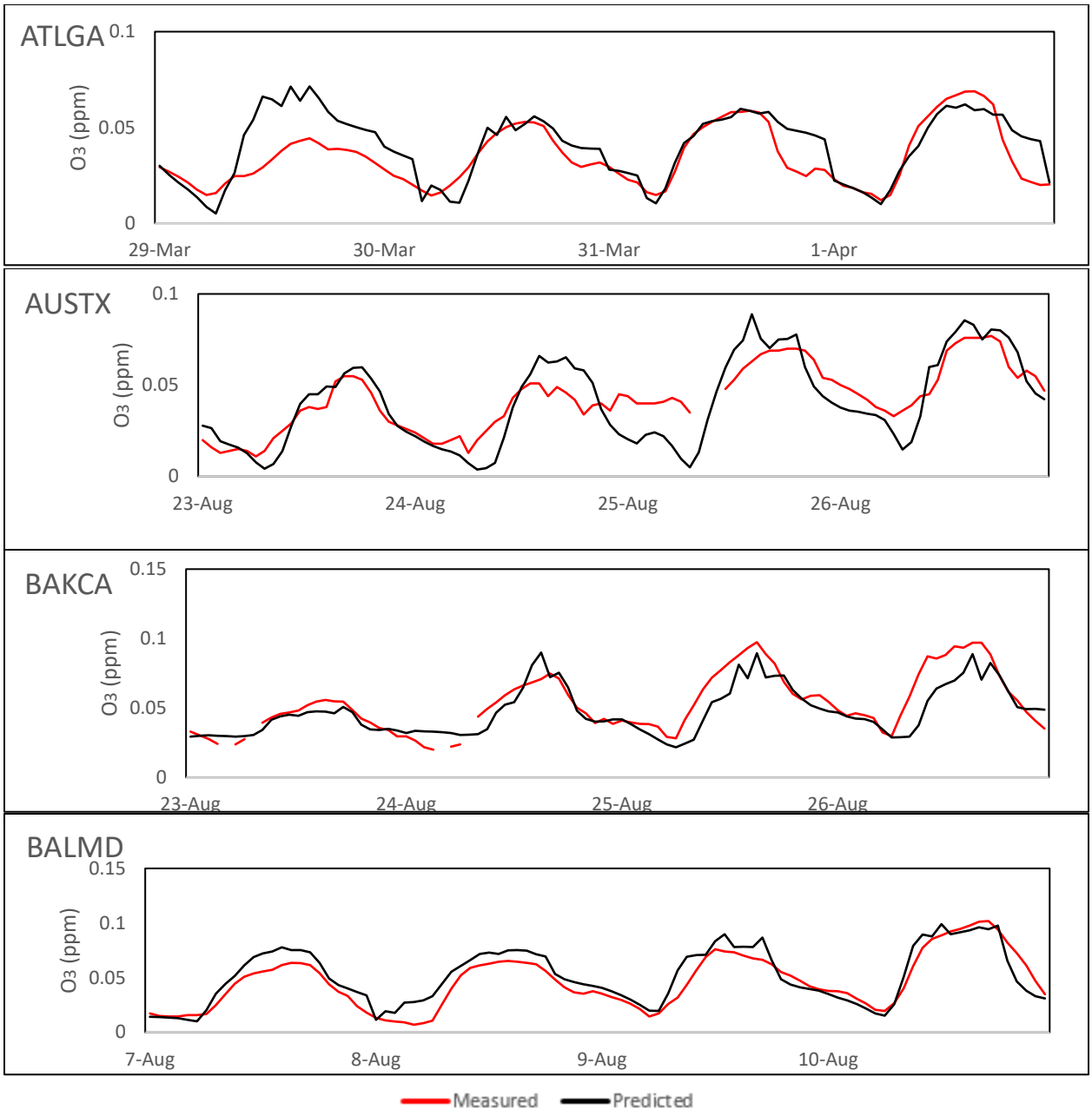

Figure S2. Time series plots of averaged Measured (Red) vs Predicted (black) 1-hr ozone for each city scenario throughout the U.S.

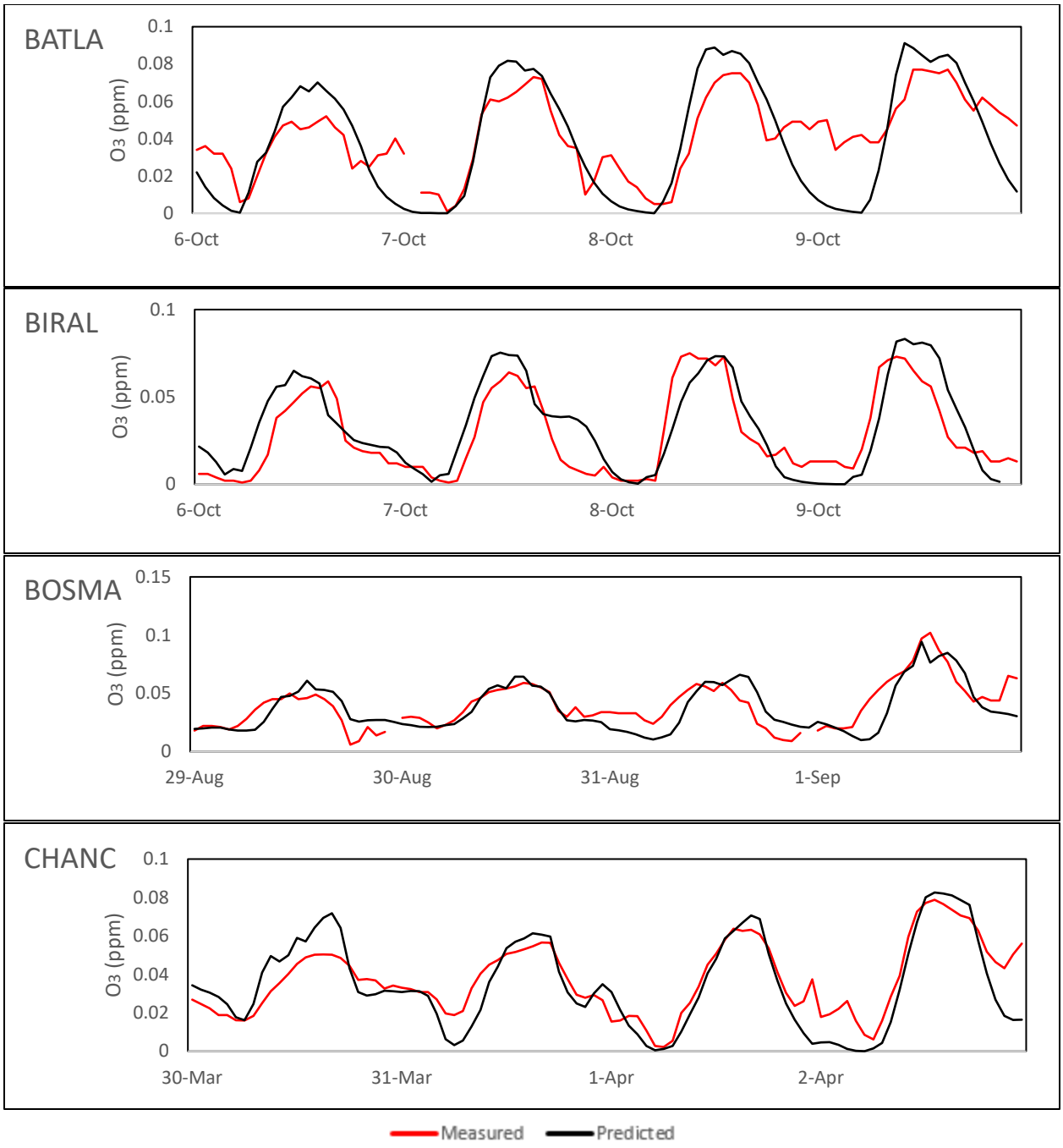

Figure S2. Time series plots of averaged Measured (Red) vs Predicted (black) 1-hr ozone for each city scenario throughout the U.S. - CONTINUED

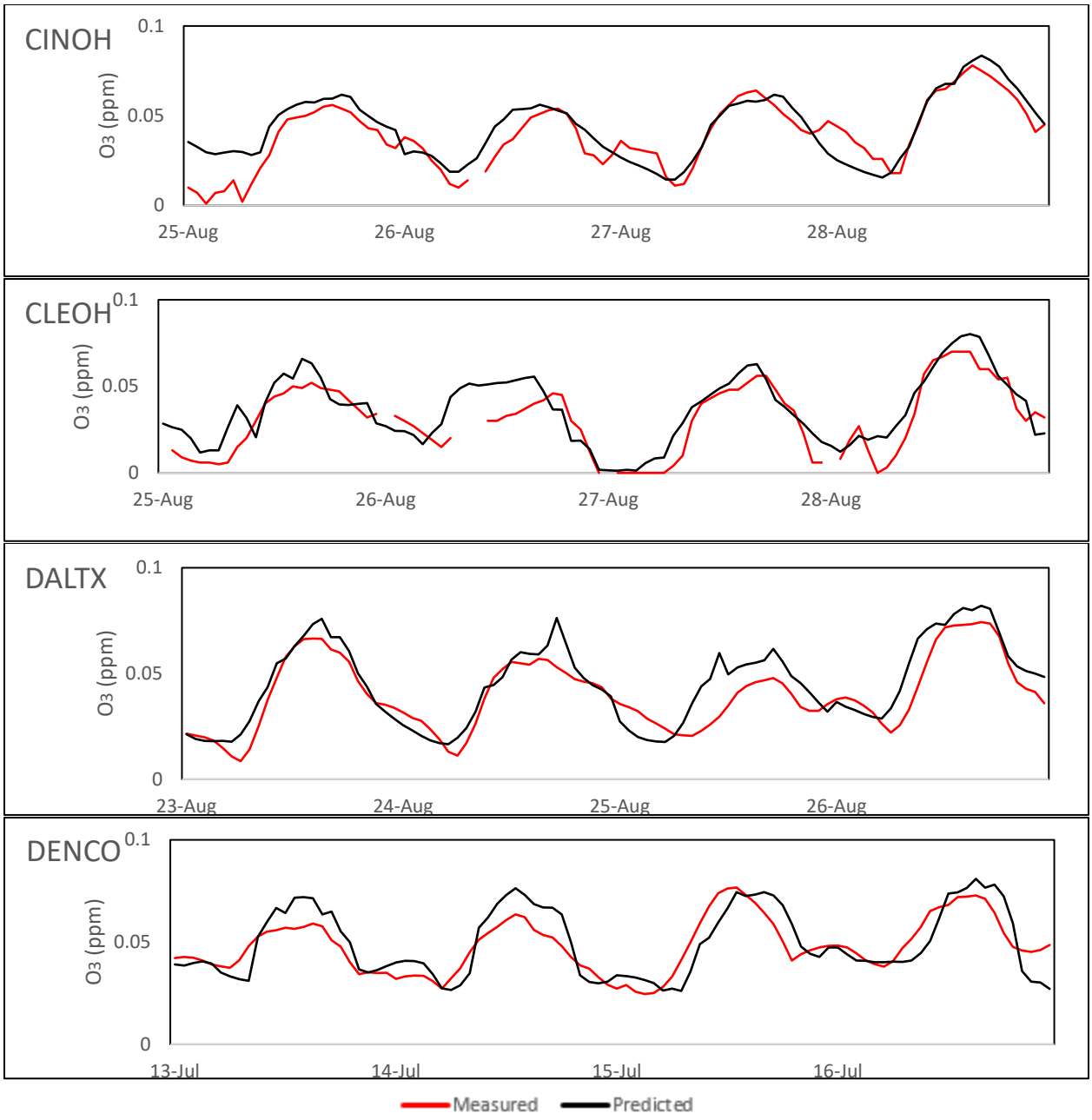

Figure S2. Time series plots of averaged Measured (Red) vs Predicted (black) 1-hr ozone for each city scenario throughout the U.S.- CONTINUED

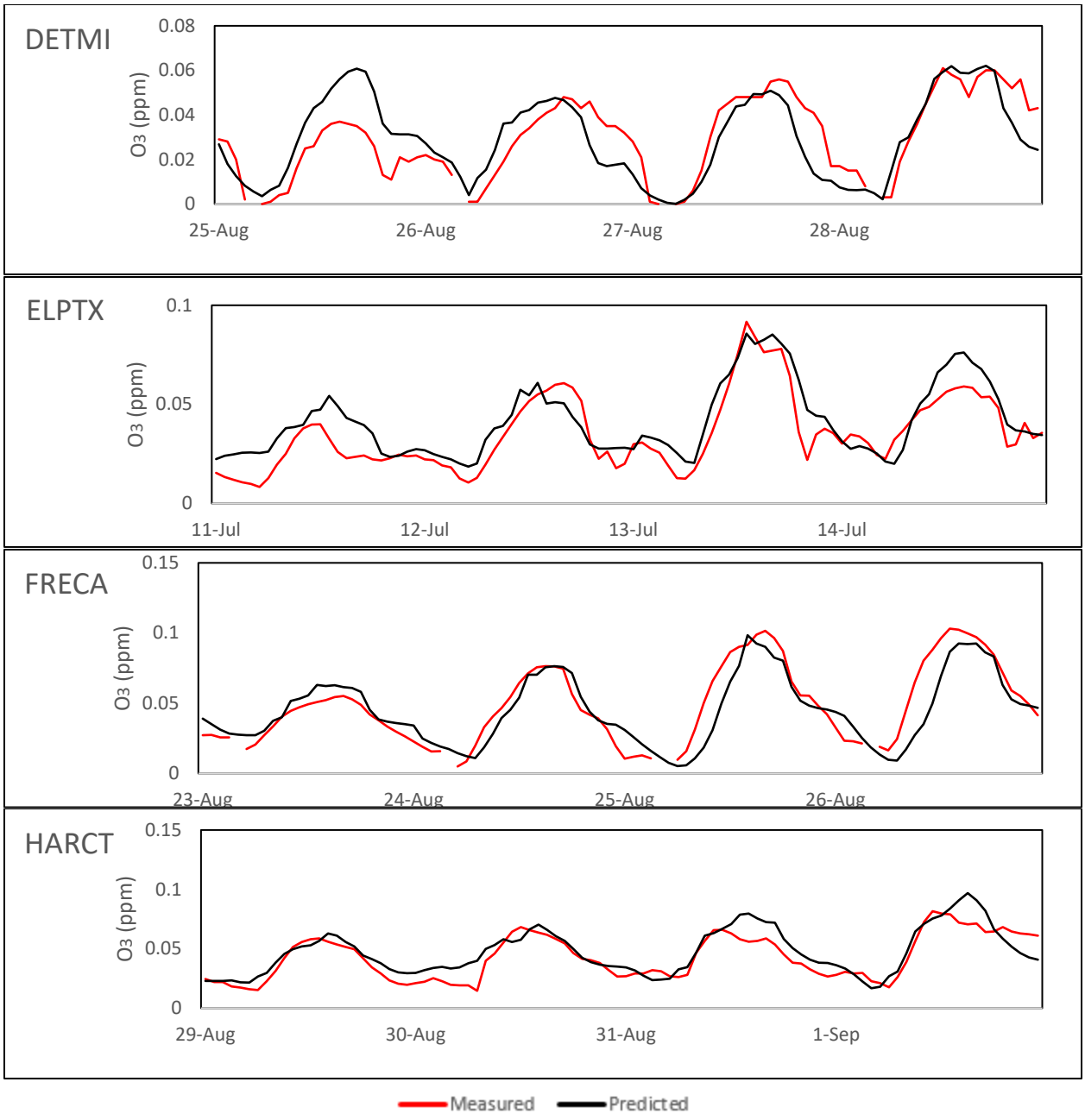

Figure S2. Time series plots of averaged Measured (Red) vs Predicted (black) 1-hr ozone for each city scenario throughout the U.S. - CONTINUED

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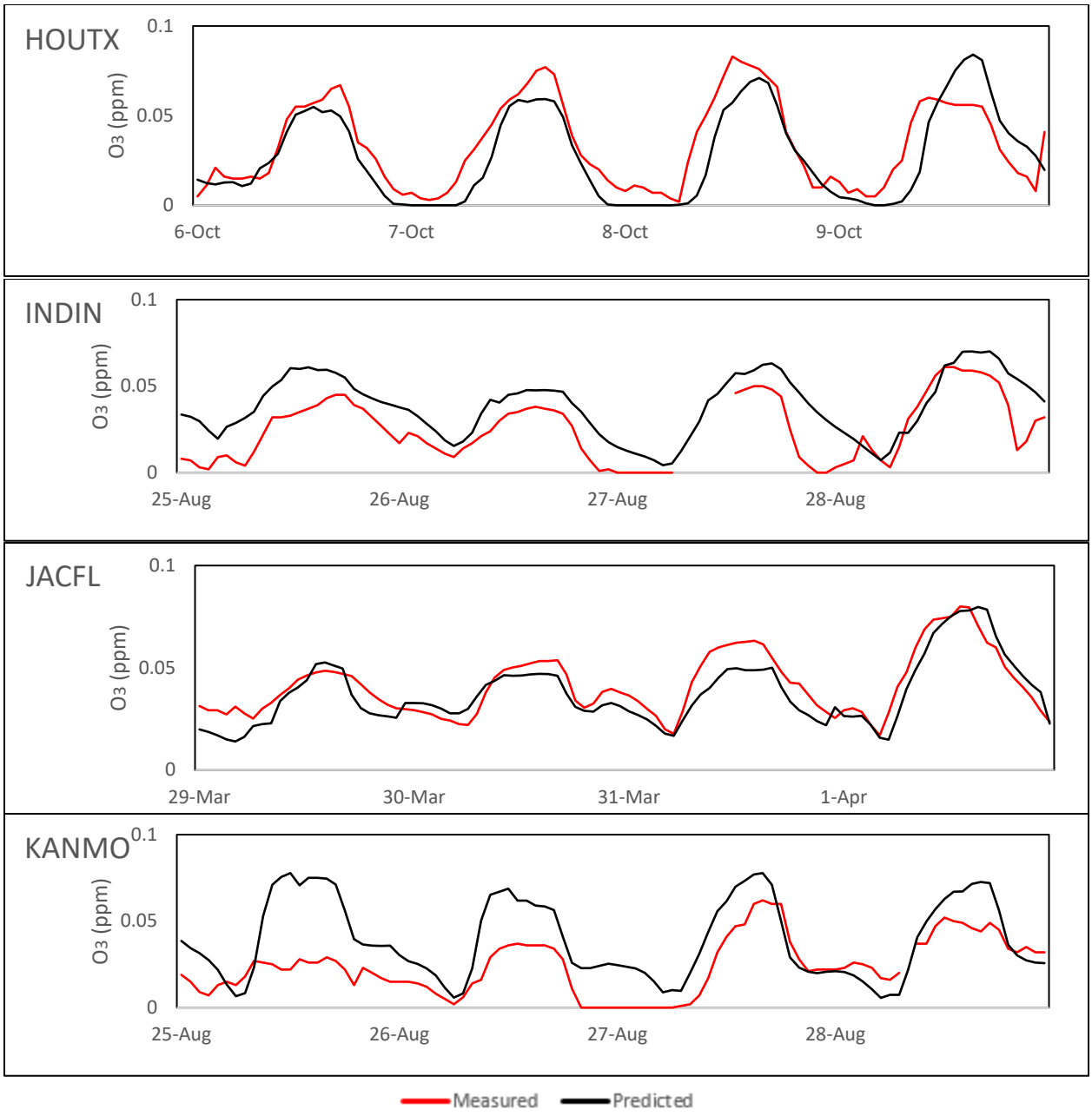

Figure S2. Time series plots of averaged Measured (Red) vs Predicted (black) 1-hr ozone for each city scenario throughout the U.S. - CONTINUED

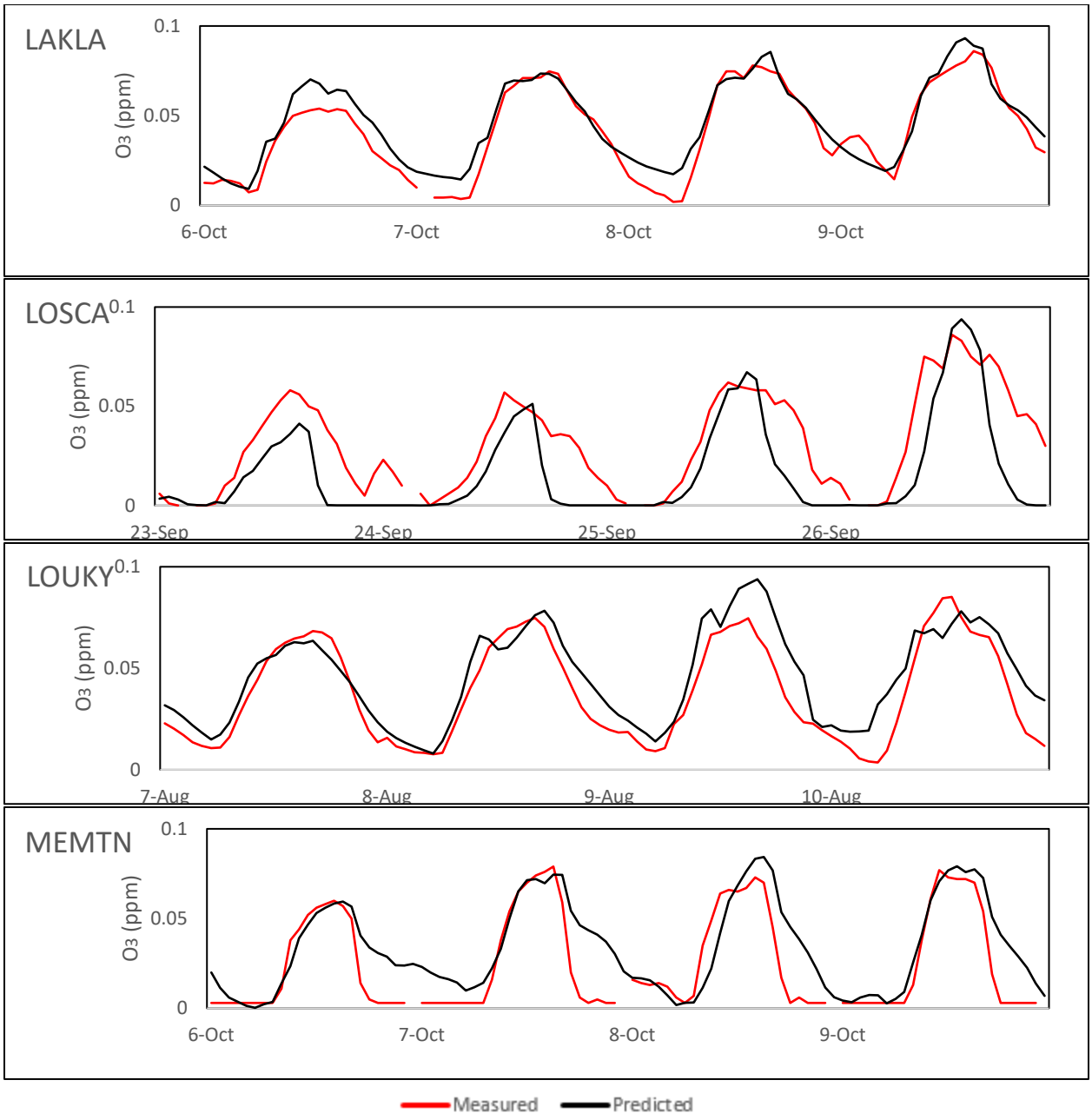

Figure S2. Time series plots of averaged Measured (Red) vs Predicted (black) 1-hr ozone for each city scenario throughout the U.S. - CONTINUED

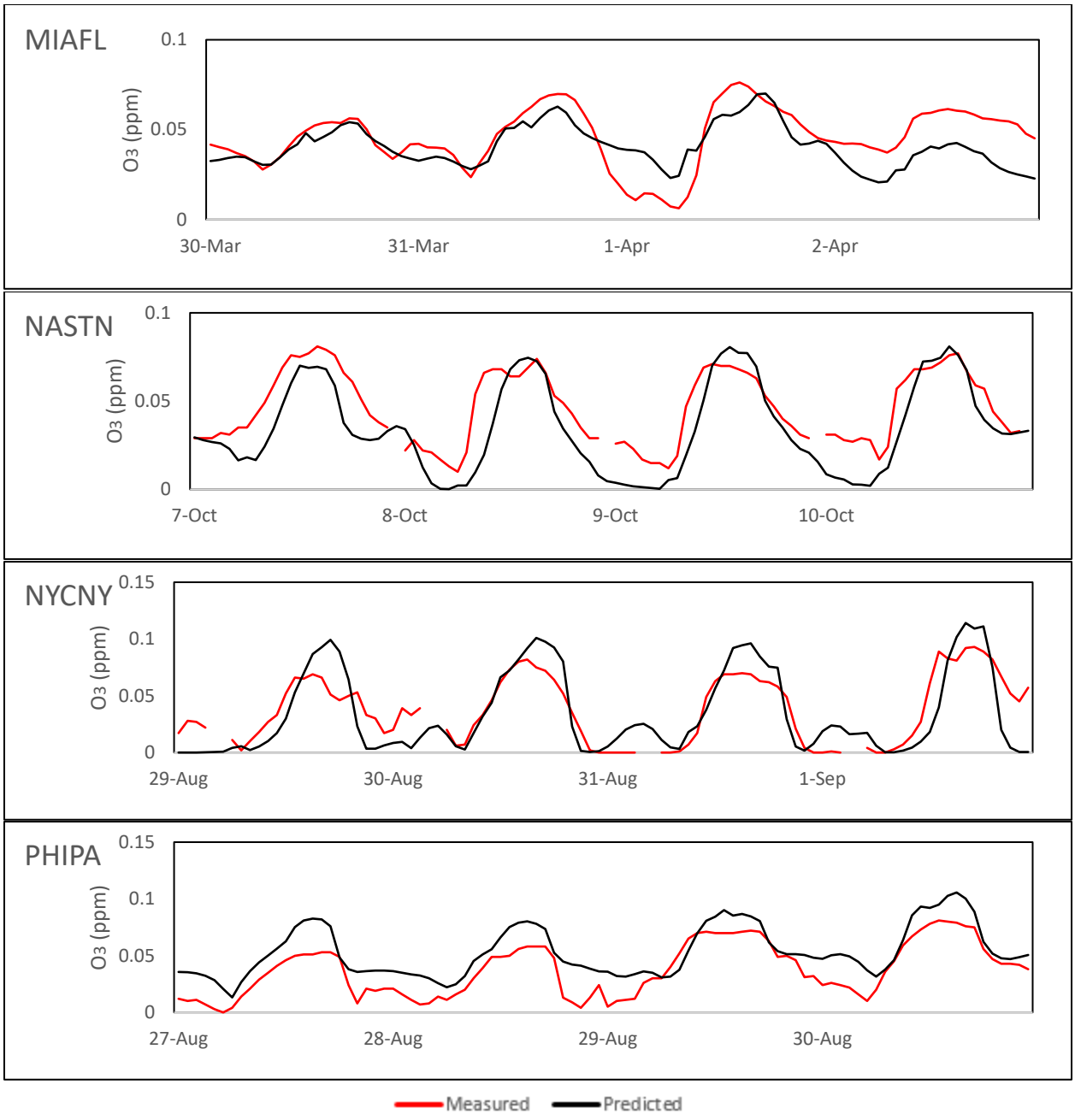

Figure S2. Time series plots of averaged Measured (Red) vs Predicted (black) 1-hr ozone for each city scenario throughout the U.S. - CONTINUED

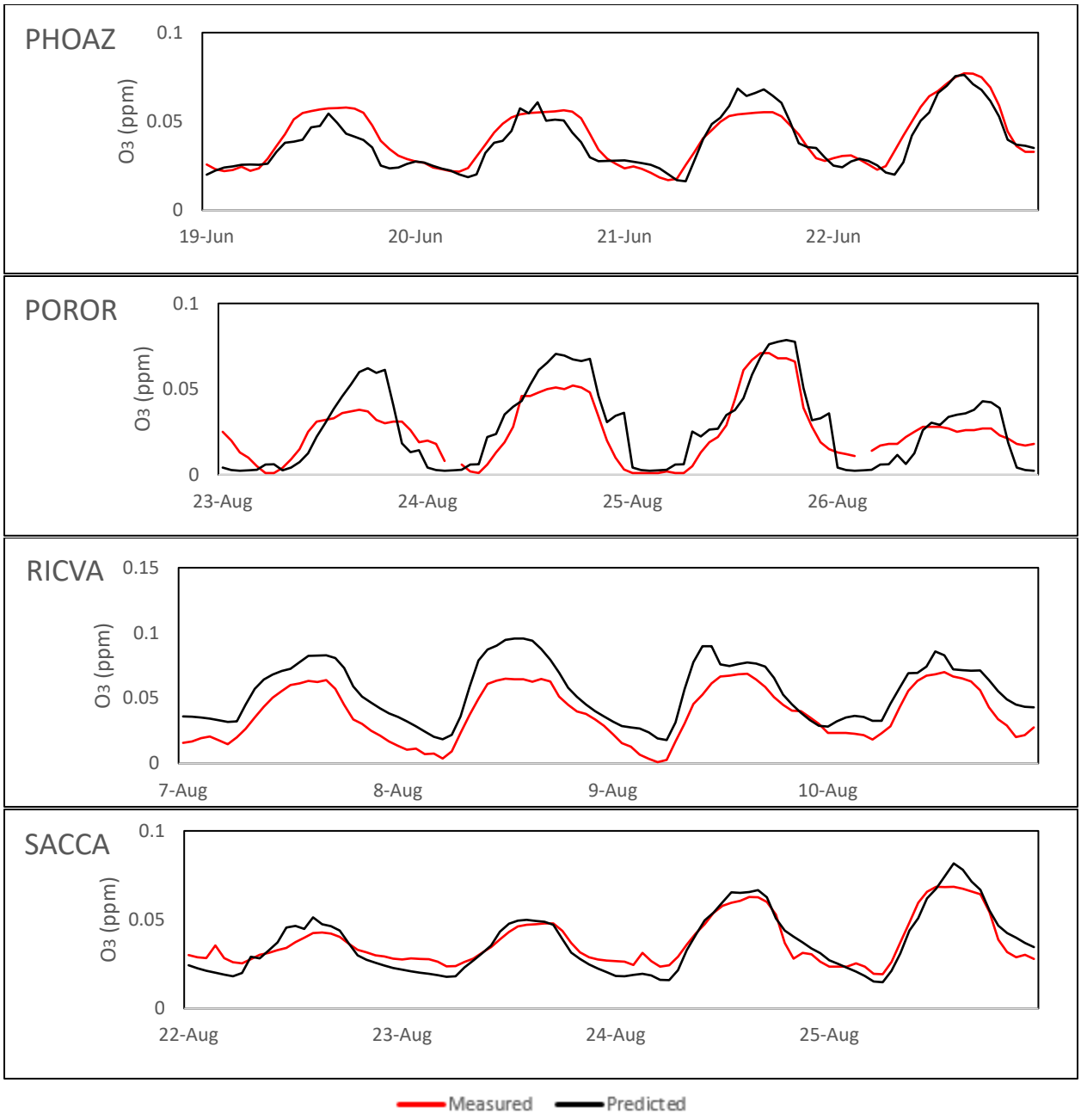

Figure S2. Time series plots of averaged Measured (Red) vs Predicted (black) 1-hr ozone for each city scenario throughout the U.S. - CONTINUED

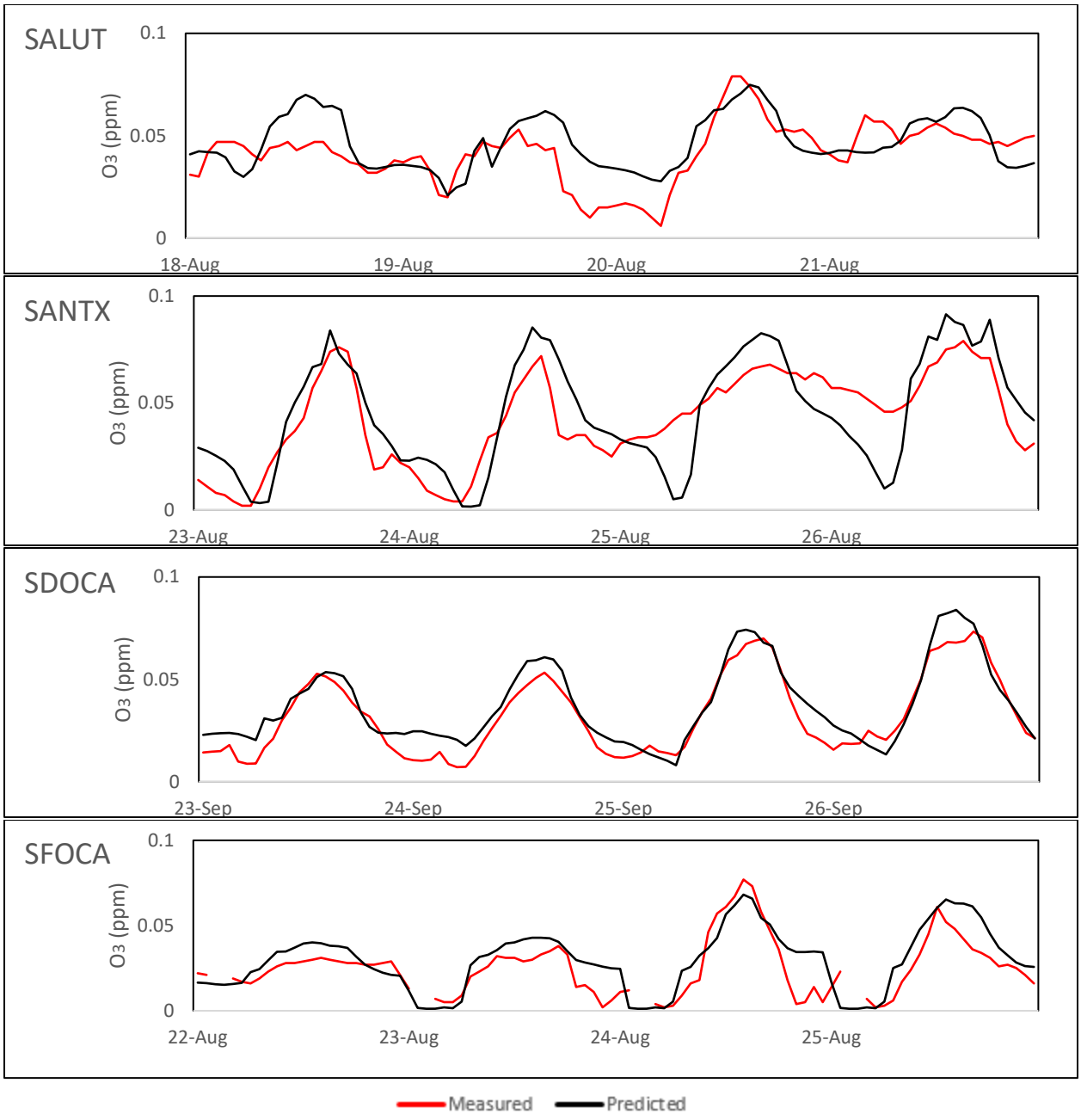

Figure S2. Time series plots of averaged Measured (Red) vs Predicted (black) 1-hr ozone for each city scenario throughout the U.S. - CONTINUED

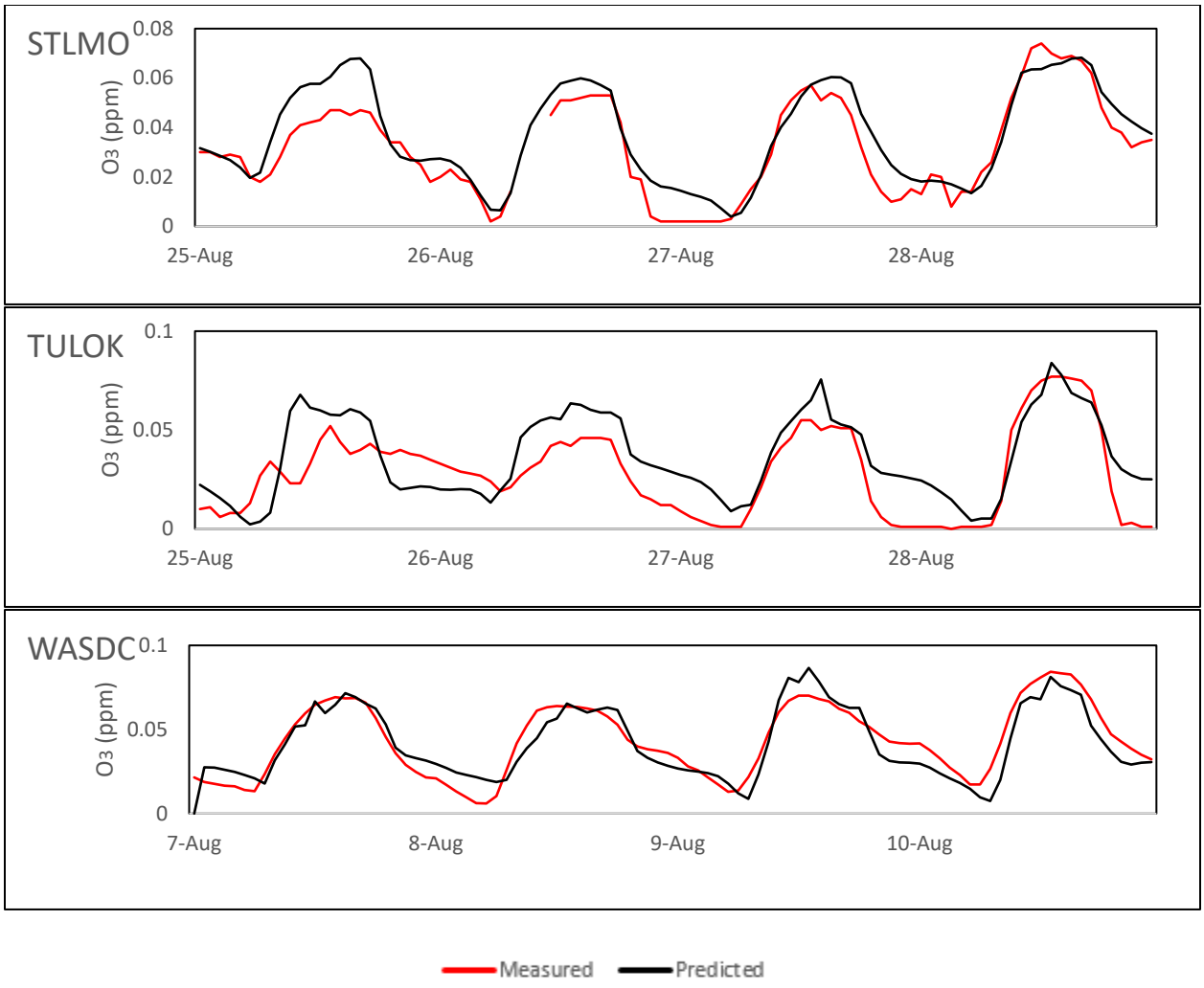

Figure S2. Time series plots of averaged Measured (Red) vs Predicted (black) 1-hr ozone for each city scenario throughout the U.S. - CONTINUED

Figure S3 through Figure S6 compares $PM_{2.5}$and $PM_{0.1}$ mass contributions from the explicitly tracked sources. In many cases, hot-spots were predicted that over-whelmed contributions in other areas. The concentration scales in Figure S3 through Figure S6 were adjusted to better view the broad impacts from all sources throughout the 12km-continental US grid. On road diesel, on road gasoline and food cooking sources result in hotspots that highlight the metropolitan areas of the United States. Aviation sources highlight both metropolitan airports and Naval / Air Force bases. Various industrial sources such as cement manufacturing and wood/paper mills highlight industrial plants in the South East United states. Natural gas fueled emissions highlight metropolitan areas that utilize large quantities of natural gas and industrial areas that consume natural gas. Coal combustion emissions highlight many metropolitan areas in the Midwest that generate a large percentage of their electricity from coal-fired power stations.

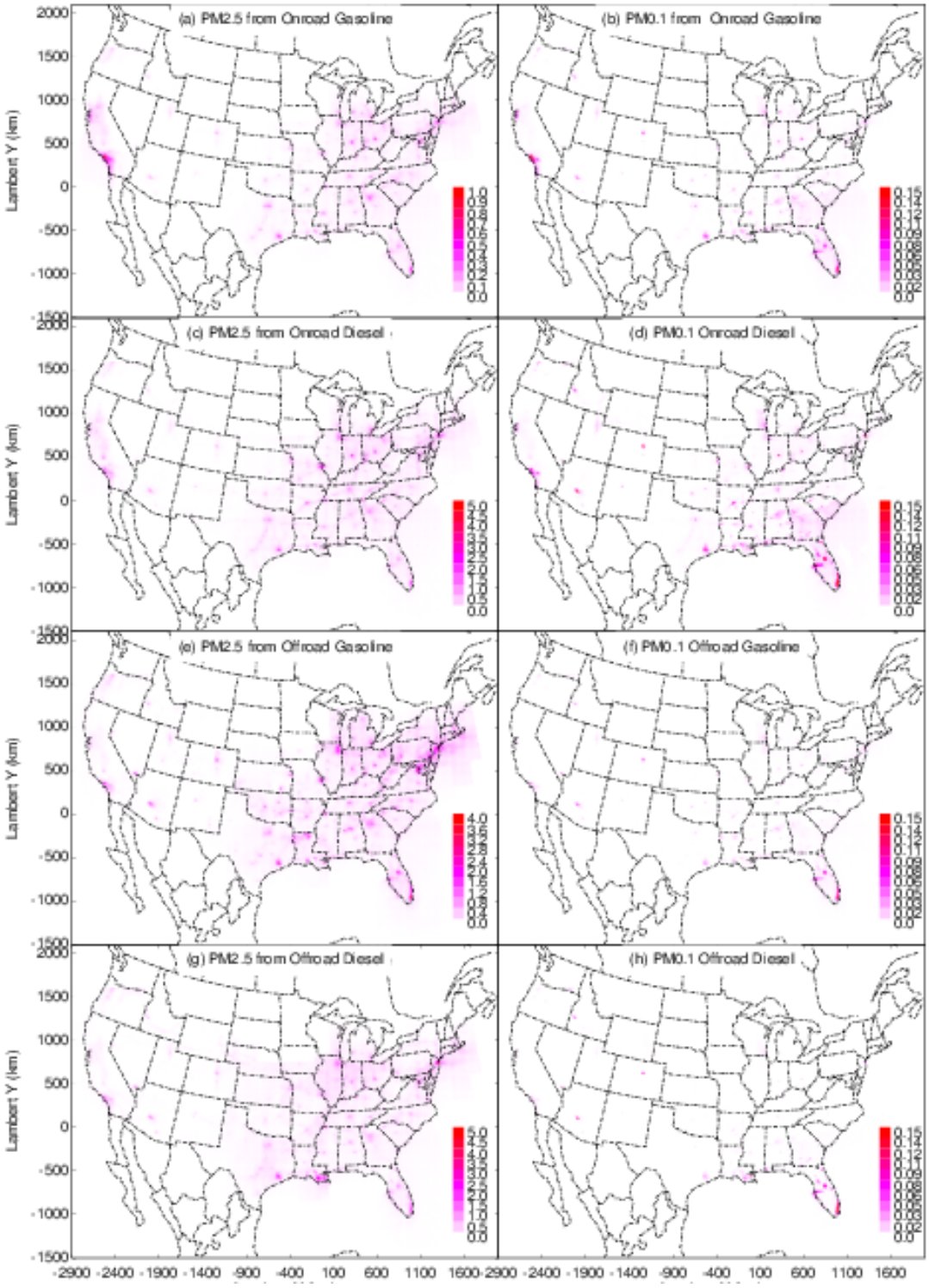

Figure S3. Field plot "snap shot" of Continental US PM2.5 and PM0.1 24-hr average mass (µg/m3) for gasoline and diesel. Scale drawn to highlight all areas of US. Actual max for (a) 1.12 µg/m3 (b) 0.189 µg/m3 (c) 3.81 µg/m3 (d) 0.291 µg/m3 (e) 6.88 µg/m3 (f) 0.298 µg/m^3 (g) 8.20 µg/m^3 (h) 0.182 µg/m^3

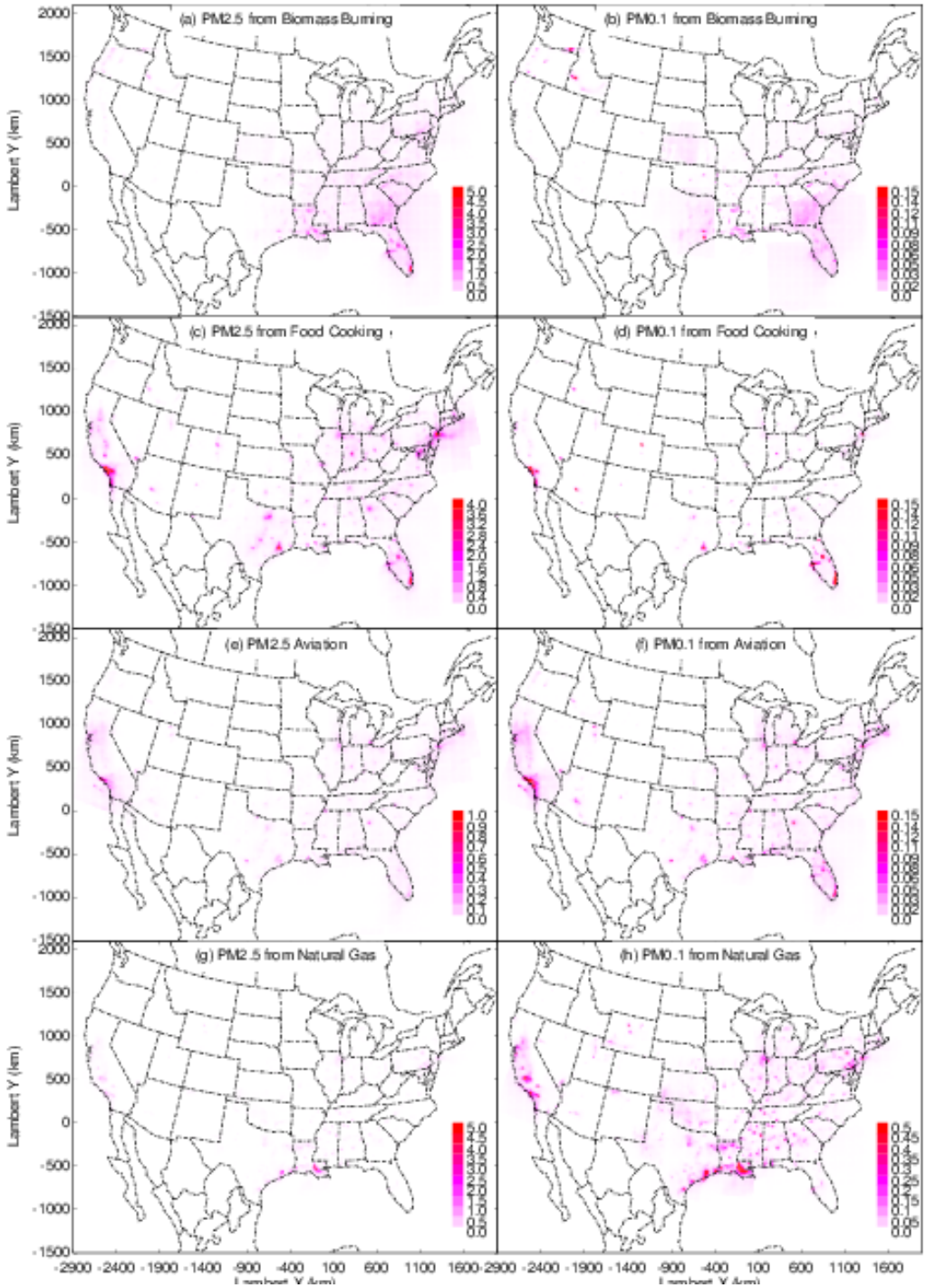

Figure S4. Field plot "snap shot" of Continental US PM2.5 and PM0.1 24-hr average mass (µg/m3) for biomass burning, food cooking, aviation, and natural gas. Scale drawn to highlight all areas of US. Actual max for (a) 7.02 µg/m3 (b) 0.388 µg/m3 (c) 12.48 µg/m^3 (d) 0.502 µg/m^3 (e) 1.83 µg/m^3 (f) 0.780 µg/m^3 (g) 7.75 µg/m^3 (h) 3.02 µg/m^3

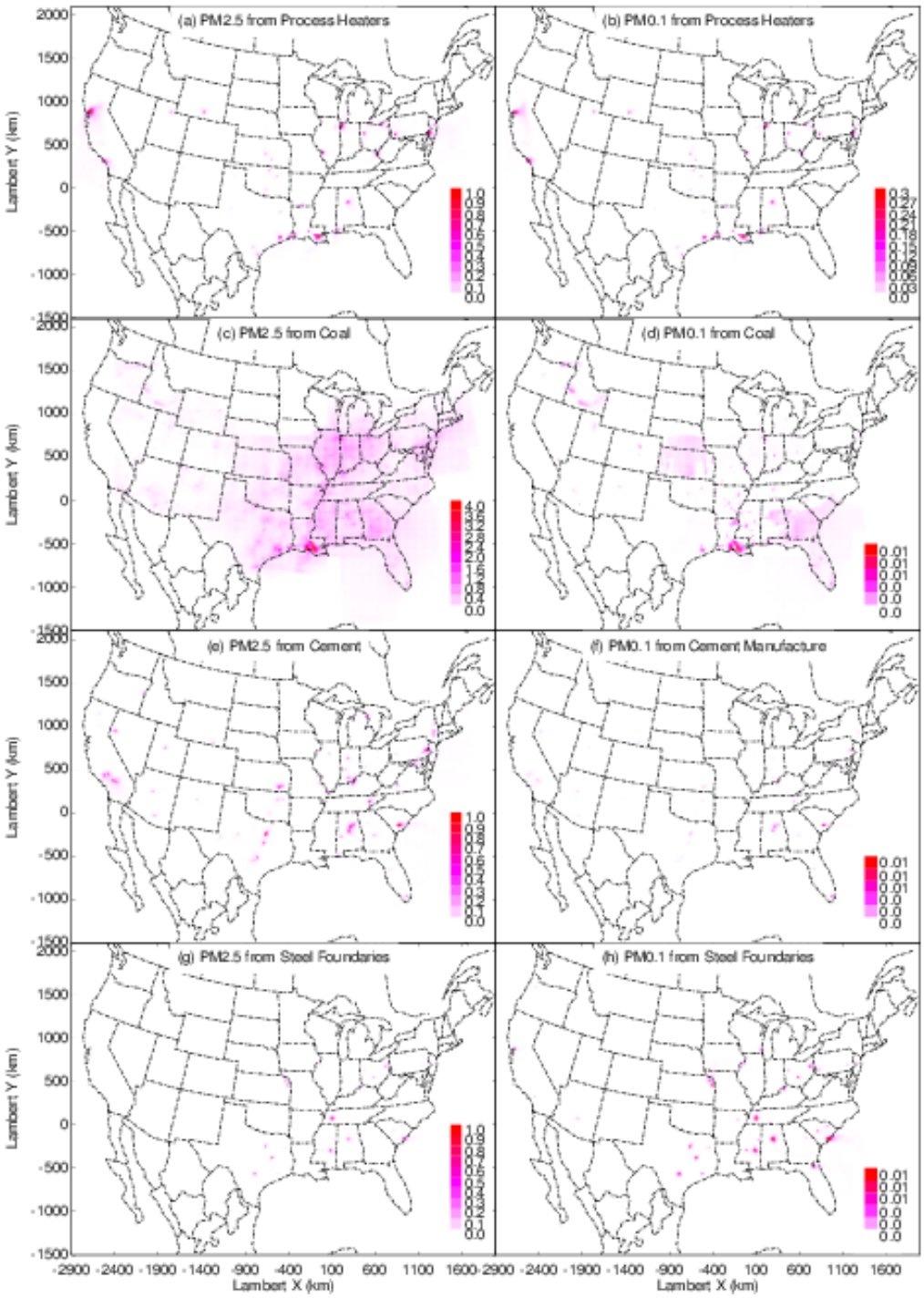

Figure S5 Field plot "snap shot" of Continental US PM2.5 and PM0.1 24-hr average mass (µg/m3) for process heaters, coal, cement, and steel foundries. Scale drawn to highlight all areas of US. Actual max for (a) 4.07 µg/m3 (b) 1.141 µg/m3 (c) 20.254 µg/m3 (d) 0.040 µg/m^3 (e) 3.627 µg/m^3 (f) 0.009 µg/m^3 (g) 1.32 µg/m^3 (h) 0.0452 µg/m^3

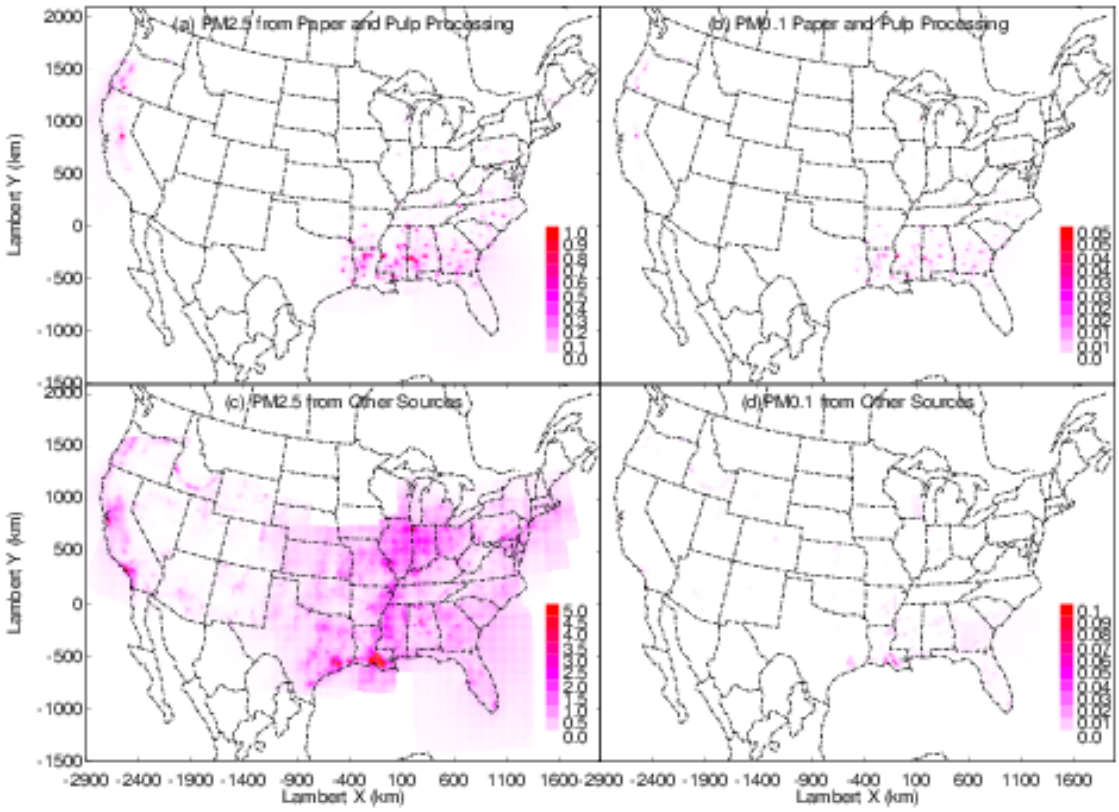

Figure S6. Field plot "snap shot" of Continental US PM2.5 and PM0.1 24-hr average mass (µg/m3) for paper and wood pulp products and "other sources". Scale drawn to highlight all areas of US. Actual max for (a) 3.98 µg/m3 (b) 0.151 µg/m3 (c) 67.78 µg/m3 (d) 0.125 µg

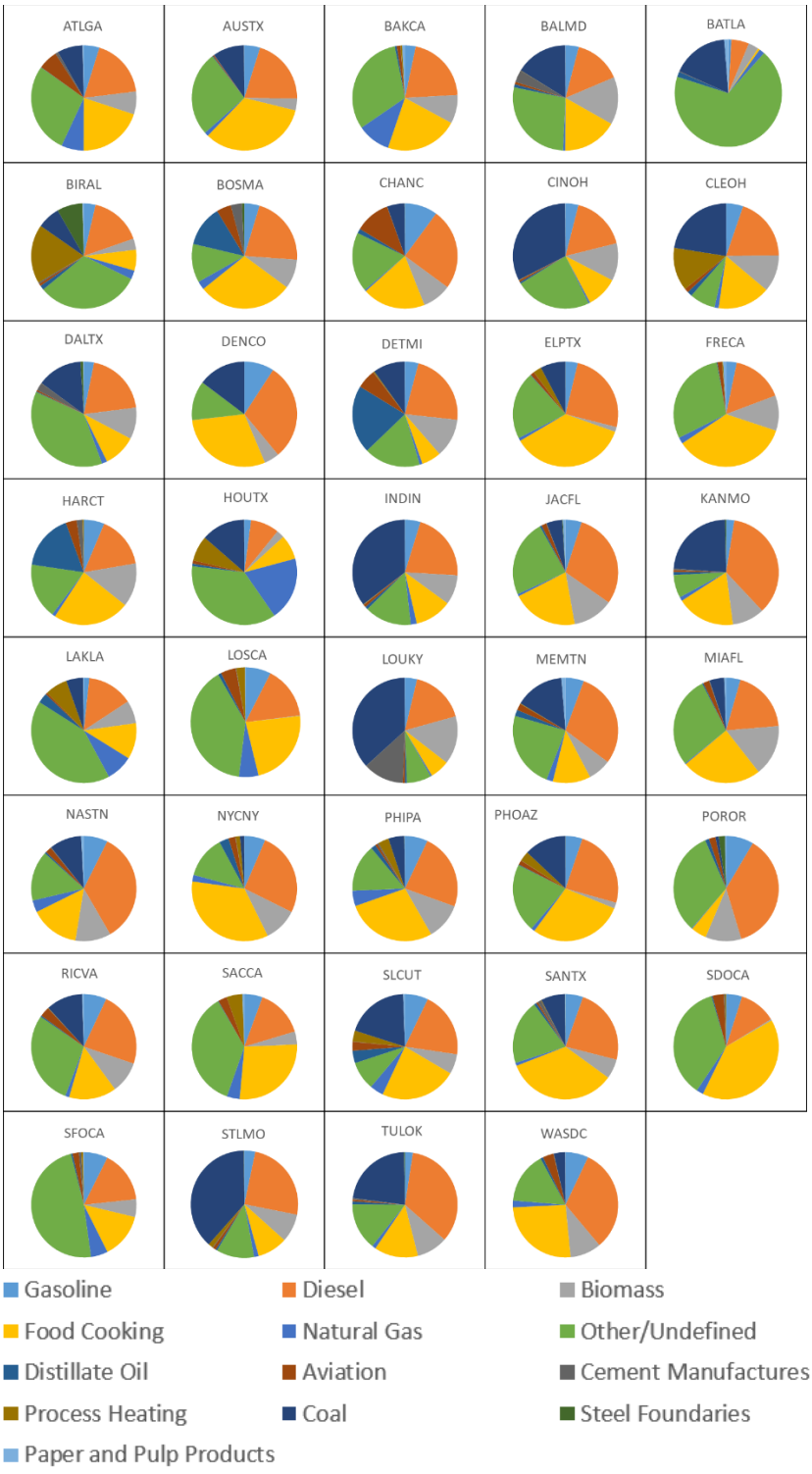

Figure S7. PM2.5 source contribution for 39 cities across the continental US

Table S7. Source contribution for $PM_{2.5}$ (µg/m3) for the EAST and % of Primary Component

	HARCT	BOSMA	NEWNY	PHIPA	BALMD	RICVA	WASDC
Gasoline (onroad + offroad)	1.78E-01	2.32E-01	4.99E-01	3.41E-01	2.12E-01	1.72E-01	3.75E-01
Diesel (onroad + offroad)	4.49E-01	1.07E+00	2.01E+00	1.14E+00	7.58E-01	5.69E-01	1.70E+00
Biomass	3.78E-01	4.49E-01	8.03E-01	5.45E-01	7.59E-01	2.38E-01	5.11E-01
Food Cooking	6.63E-01	1.45E+00	2.67E+00	1.36E+00	8.79E-01	3.58E-01	1.37E+00
Natural Gas	2.82E-02	1.30E-01	1.56E-01	2.30E-01	3.79E-02	2.96E-02	1.10E-01
Other/Undefined	4.80E-01	5.91E-01	1.00E+00	7.11E-01	1.43E+00	7.08E-01	8.43E-01
Distillate Oil	4.80E-01	6.29E-01	2.29E-01	7.27E-02	4.95E-02	9.93E-03	4.33E-02
Aviation	9.55E-02	2.23E-01	1.63E-01	3.33E-02	4.01E-02	7.29E-02	1.78E-01
Cement Manufactures	5.04E-02	1.70E-01	8.62E-03	2.23E-02	1.94E-01	1.98E-03	4.53E-03
Process Heating	1.03E-02	1.06E-03	1.02E-01	1.62E-01	4.86E-03	2.51E-03	2.74E-03
Coal	5.75E-04	3.06E-04	1.00E-01	2.37E-01	8.40E-01	2.75E-01	1.85E-01
Steel Foundries	1.17E-04	3.77E-02	1.21E-03	2.15E-03	3.55E-04	3.74E-04	4.09E-04
Paper and Pulp Products	1.30E-04	6.27E-05	3.42E-03	7.82E-03	5.09E-03	1.28E-02	5.57E-03
% Primary	6.77E-01	9.34E-01	8.57E-01	5.41E-01	5.97E-01	4.88E-01	7.16E-01

Table S8. Source contribution for $PM_{0.1}$ (µg/m3) for the EAST and % of Primary Component

	HARCT	BOSMA	NEWNY	PHIPA	BALMD	RICVA	WASDC
Gasoline (onroad + offroad)	1.62E-02	3.44E-02	8.05E-02	3.18E-02	9.49E-03	5.84E-03	1.40E-02
Diesel (onroad + offroad)	2.32E-02	1.13E-01	1.29E-01	7.20E-02	2.56E-02	2.37E-02	1.09E-02
Biomass	1.03E-02	4.55E-02	6.26E-02	4.73E-02	6.04E-03	1.07E-02	1.17E-02
Food Cooking	2.36E-02	8.30E-02	1.69E-01	1.09E-01	2.20E-02	3.87E-03	2.20E-02
Natural Gas	1.98E-02	4.03E-02	8.41E-02	9.91E-02	9.98E-03	1.00E-02	1.94E-02
Other/Undefined	1.32E-03	2.39E-03	3.33E-03	2.15E-03	8.86E-04	3.09E-04	5.59E-04
Distillate Oil	1.04E-09	1.00E-08	1.65E-10	7.77E-10	1.07E-09	1.13E-10	2.20E-10
Aviation	1.67E-02	8.89E-02	8.13E-02	1.69E-02	1.09E-02	2.33E-02	4.20E-02
Cement Manufactures	3.80E-05	7.84E-06	3.57E-05	3.57E-05	4.57E-04	1.84E-06	5.83E-06
Process Heating	9.10E-05	1.16E-04	6.14E-02	1.57E-01	8.64E-04	1.38E-04	2.11E-04
Coal	1.59E-11	1.44E-10	4.75E-12	2.33E-11	2.31E-12	5.44E-13	3.51E-13
Steel Foundries	4.89E-06	6.65E-06	1.32E-04	7.45E-05	5.60E-06	4.04E-06	4.45E-06
Paper and Pulp Products	8.10E-06	5.25E-05	9.94E-05	2.06E-04	4.74E-05	1.71E-04	6.19E-05
% Primary	9.01E-01	9.78E-01	9.27E-01	8.90E-01	8.12E-01	8.96E-01	8.51E-01

Table S9. Source contribution for $PM_{2.5}$ (μg/m3) for the SOUTH EAST and % of Primary Component

	ATLGA	MIAFL	JACFL	CHANC	BIRAL
Gasoline (onroad + offroad)	5.61E-01	5.29E-02	1.58E-01	8.01E-01	4.32E-01
Diesel (onroad + offroad)	2.14E+00	2.31E-01	9.47E-01	1.99E+00	1.92E+00
Biomass	8.21E-01	1.89E-01	3.98E-01	7.09E-01	4.11E-01
Food Cooking	2.34E+00	2.94E-01	6.46E-01	1.54E+00	7.69E-01
Natural Gas	8.10E-01	3.97E-03	2.28E-02	3.82E-02	3.23E-01
Other/Undefined	3.26E+00	3.39E-01	7.54E-01	1.46E+00	3.81E+00
Distillate Oil	1.32E-02	4.41E-03	1.86E-02	1.12E-01	1.64E-01
Aviation	6.98E-01	2.23E-02	4.84E-02	8.63E-01	8.85E-02
Cement Manufactures	1.00E-01	1.99E-03	2.29E-03	3.11E-03	5.37E-02
Process Heating	3.28E-03	2.97E-04	1.58E-03	1.55E-03	2.17E+00
Coal	9.14E-01	5.40E-02	1.54E-01	4.23E-01	8.38E-01
Steel Foundries	1.27E-03	2.86E-04	6.15E-03	7.30E-03	9.44E-01
Paper and Pulp Products	4.51E-02	6.82E-03	2.69E-02	5.56E-03	4.83E-02
% Primary	7.98E-01	1.72E-01	2.94E-01	3.43E-01	6.27E-01

Table S10. Source contribution for $PM_{0.1}$ (µg/m3) for the SOUTH EAST and % of Primary Component

	ATLGA	MIAFL	JACFL	CHANC	BIRAL
Gasoline (onroad + offroad)	8.49E-02	3.58E-03	2.18E-02	1.14E-01	4.38E-02
Diesel (onroad + offroad)	9.23E-02	3.69E-03	4.58E-02	2.84E-01	6.70E-02
Biomass	5.11E-02	1.89E-03	2.51E-02	2.05E-01	2.00E-02
Food Cooking	6.17E-02	2.58E-03	3.07E-02	3.75E-01	2.55E-02
Natural Gas	1.34E-01	5.00E-03	9.53E-02	1.80E-02	2.18E-01
Other/Undefined	6.40E-03	2.35E-04	2.10E-03	5.21E-03	8.06E-03
Distillate Oil	3.07E-10	7.64E-13	5.00E-12	9.72E-08	1.26E-10
Aviation	1.17E-01	5.66E-03	1.78E-02	2.52E-01	3.33E-02
Cement Manufactures	4.31E-04	3.96E-06	1.59E-05	2.17E-05	2.89E-04
Process Heating	5.16E-04	4.07E-05	2.87E-04	4.76E-04	5.96E-01
Coal	1.79E-03	4.82E-05	3.56E-04	1.73E-09	1.90E-12
Steel Foundries	9.63E-05	3.82E-06	3.88E-04	5.36E-04	7.17E-02
Paper and Pulp Products	5.69E-04	5.89E-05	4.85E-04	6.53E-18	1.22E-03
% Primary	9.82E-01	6.48E-01	7.61E-01	9.11E-01	9.23E-01

Table S11. Source contribution for $PM_{2.5}$ (µg/m3) for the SOUTH and % of Primary Component

	HOUTX	LAKLA	BATLA	SANTX	DALTX	AUSTX
Gasoline (onroad + offroad)	4.26E-01	2.92E-01	1.66E-01	2.14E-01	5.24E-02	2.26E-01
Diesel (onroad + offroad)	1.83E+00	2.45E+00	9.41E-01	9.36E-01	3.32E-01	9.55E-01
Biomass	5.07E-01	1.23E+00	5.53E-01	2.39E-01	1.62E-01	1.71E-01
Food Cooking	1.58E+00	1.93E+00	1.06E-01	1.35E+00	1.68E-01	1.57E+00
Natural Gas	4.08E+00	1.43E+00	2.91E-01	3.70E-02	2.74E-02	5.72E-02
Other/Undefined	7.63E+00	7.30E+00	1.21E+01	7.86E-01	6.27E-01	1.22E+00
Distillate Oil	1.65E-01	5.38E-01	2.86E-01	3.05E-02	3.82E-03	1.02E-02
Aviation	2.01E-01	9.97E-02	1.52E-02	2.22E-02	7.74E-03	1.64E-02
Cement Manufactures	2.66E-04	1.28E-03	5.62E-04	4.25E-02	4.02E-02	4.00E-03
Process Heating	1.63E+00	1.20E+00	4.72E-03	7.48E-03	7.85E-04	6.16E-04
Coal	2.82E+00	9.03E-01	3.03E+00	2.91E-01	2.32E-01	4.53E-01
Steel Foundries	2.55E-03	1.68E-03	8.58E-04	4.49E-03	1.39E-02	9.66E-04
Paper and Pulp Products	1.30E-02	3.83E-02	2.20E-01	6.04E-03	3.48E-03	4.85E-03
% Primary	8.52E-01	7.22E-01	7.61E-01	7.70E-01	6.10E-01	6.78E-01

Table S12. Source contribution for $PM_{0.1}$ (µg/m3) for the SOUTH and % of Primary Component

	HOUTX	LAKLA	BATLA	SANTX	DALTX	AUSTX
Gasoline (onroad + offroad)	4.61E-02	2.00E-02	1.87E-02	2.90E-02	3.21E-03	2.82E-02
Diesel (onroad + offroad)	6.06E-02	1.40E-01	1.32E-01	4.44E-02	8.64E-03	4.07E-02
Biomass	2.22E-02	4.71E-02	3.51E-02	1.09E-02	4.99E-03	7.10E-03
Food Cooking	4.34E-02	6.61E-03	3.89E-03	5.72E-02	5.47E-03	5.74E-02
Natural Gas	2.23E+00	2.20E-01	1.58E-01	1.90E-02	1.16E-02	2.34E-02
Other/Undefined	1.32E-02	1.32E-02	1.32E-02	3.41E-03	8.97E-04	4.71E-03
Distillate Oil	1.90E-09	2.06E-07	6.76E-11	3.35E-13	6.73E-14	3.10E-13
Aviation	6.66E-02	3.07E-02	4.03E-03	9.00E-03	2.77E-03	5.34E-03
Cement Manufactures	7.88E-07	3.54E-06	2.02E-06	3.26E-04	1.15E-04	3.36E-05
Process Heating	5.28E-01	1.76E-01	9.86E-04	2.33E-03	2.11E-04	1.03E-04
Coal	4.87E-03	1.28E-03	6.12E-03	1.06E-15	2.39E-16	9.44E-16
Steel Foundries	1.30E-04	6.01E-05	3.73E-05	1.06E-03	6.30E-04	5.20E-05
Paper and Pulp Products	2.39E-04	6.21E-04	7.22E-03	1.52E-04	4.15E-05	6.31E-05
% Primary	9.83E-01	8.18E-01	9.08E-01	8.61E-01	9.07E-01	8.88E-01

Table S13. Source contribution for $PM_{2.5}$ (µg/m3) for the MIDWEST and % of Primary Component

	CLEOH	CINOH	INDIN	LOUKY	MEMTN	NASTN	DETMI	STLMO	KANMO	TULOK
Gasoline (onroad + offroad)	2.70E-01	8.87E-02	1.95E-01	8.36E-02	3.97E-01	4.61E-01	2.20E-01	1.84E-01	1.44E-01	1.09E-01
Diesel (onroad + offroad)	9.98E-01	3.84E-01	8.68E-01	3.83E-01	2.08E+00	2.16E+00	1.20E+00	1.40E+00	2.02E+00	1.53E+00
Biomass	5.82E-01	2.58E-01	3.73E-01	3.34E-01	4.96E-01	6.85E-01	6.32E-01	4.76E-01	5.65E-01	4.29E-01
Food Cooking	8.29E-01	2.16E-01	4.66E-01	1.35E-01	8.17E-01	9.49E-01	3.18E-01	5.10E-01	1.02E+00	6.06E-01
Natural Gas	6.49E-02	1.14E-02	7.64E-02	1.05E-02	1.38E-01	2.30E-01	4.66E-02	7.68E-02	6.90E-02	5.24E-02
Other/Undefined	4.04E-01	5.25E-01	5.91E-01	1.69E-01	1.66E+00	9.66E-01	9.20E-01	6.41E-01	4.00E-01	6.52E-01
Distillate Oil	7.72E-02	1.19E-02	3.62E-02	1.38E-02	1.36E-01	3.36E-02	1.11E+00	2.76E-02	5.31E-02	4.03E-02
Aviation	6.52E-02	1.27E-02	3.26E-02	1.46E-02	1.41E-01	1.17E-01	3.15E-01	5.28E-02	3.27E-02	2.48E-02
Cement Manufactures	7.79E-04	1.24E-03	3.33E-03	2.82E-01	1.63E-03	1.27E-02	4.94E-03	1.07E-02	2.67E-02	2.03E-02
Process Heating	6.78E-01	2.34E-03	6.76E-03	9.41E-04	1.37E-02	1.33E-03	1.72E-02	8.11E-02	1.28E-04	9.70E-05
Coal	1.15E+00	7.24E-01	1.45E+00	8.27E-01	1.06E+00	6.17E-01	5.17E-01	2.15E+00	1.34E+00	1.02E+00
Steel Foundries	3.49E-04	7.00E-04	1.25E-03	2.42E-04	4.24E-04	2.71E-04	1.74E-03	4.87E-03	1.54E-02	1.17E-02
Paper and Pulp Products	1.97E-03	2.58E-03	2.17E-03	2.55E-03	9.03E-02	5.19E-02	5.96E-03	4.89E-03	7.39E-04	5.61E-04
% Primary	7.09E-01	6.31E-01	6.52E-01	1.79E-01	5.60E-01	4.56E-01	7.39E-01	5.36E-01	6.59E-01	6.86E-01

Table S14. Source contribution for $PM_{0.1}$ (µg/m3) for the MIDWEST and % of Primary Component

	CLEOH	CINOH	INDIN	LOUKY	MEMTN	NASTN	DETMI	STLMO	KANMO	TULOK
Gasoline (onroad + offroad)	3.79E-02	4.50E-03	4.51E-03	4.13E-03	4.30E-02	7.03E-02	2.08E-02	1.37E-02	3.67E-02	8.73E-02
Diesel (onroad + offroad)	6.12E-02	5.52E-03	8.83E-03	5.31E-03	6.76E-02	1.13E-01	3.72E-02	3.50E-02	2.45E-01	1.70E-01
Biomass	5.23E-02	3.70E-03	4.43E-03	2.30E-03	2.50E-02	6.16E-02	2.03E-02	1.52E-02	3.93E-02	4.04E-02
Food Cooking	8.97E-02	9.80E-03	3.55E-03	4.81E-03	7.97E-02	5.23E-02	8.01E-03	4.06E-02	7.55E-02	1.33E-01
Natural Gas	3.56E-02	1.86E-03	4.26E-02	4.01E-03	5.96E-02	2.28E-01	1.89E-02	1.79E-02	4.19E-02	8.35E-02
Other/Undefined	4.78E-03	1.39E-03	8.77E-04	6.44E-04	9.93E-03	6.45E-03	1.63E-03	4.57E-03	8.51E-03	5.98E-03
Distillate Oil	1.69E-08	6.99E-09	7.50E-08	3.30E-12	1.94E-13	3.45E-10	4.23E-09	5.53E-10	3.40E-13	1.02E-11
Aviation	2.77E-02	1.86E-03	5.43E-03	5.14E-03	9.91E-02	8.23E-02	1.37E-01	1.48E-02	1.82E-02	3.11E-02
Cement Manufactures	4.02E-06	2.23E-06	5.52E-06	1.74E-03	5.41E-06	1.33E-04	1.37E-05	2.52E-05	2.35E-04	1.68E-03
Process Heating	2.85E-01	2.65E-04	2.95E-04	3.56E-05	3.21E-03	1.59E-04	3.45E-03	1.26E-02	1.81E-06	1.10E-01
Coal	8.70E-08	5.37E-10	9.05E-11	4.35E-12	4.45E-16	3.67E-12	9.16E-04	1.14E-12	6.93E-15	3.29E-03
Steel Foundries	2.04E-05	8.02E-06	1.70E-05	7.36E-06	1.89E-05	2.95E-05	4.09E-05	1.54E-04	1.91E-03	9.16E-05
Paper and Pulp Products	4.25E-05	1.74E-05	1.26E-05	7.46E-05	3.67E-03	2.54E-03	1.12E-04	8.44E-05	2.43E-05	4.45E-05
% Primary	9.18E-01	9.60E-01	9.12E-01	8.87E-01	9.70E-01	9.91E-01	9.15E-01	8.89E-01	7.79E-01	8.38E-01

Table S15. Source contribution for PM2.5 (µg/m3) for the WEST and % of Primary Component

	BAKCA	FRECA	LOSCA	SDOCA	SACCA	SFOCA
Gasoline (onroad + offroad)	7.36E-02	9.68E-02	7.69E-01	4.26E-01	1.58E-01	3.23E-01
Diesel (onroad + offroad)	4.63E-01	4.73E-01	1.59E+00	9.79E-01	4.20E-01	6.97E-01
Biomass	1.96E-01	3.21E-01	1.62E-02	3.59E-02	1.14E-01	2.39E-01
Food Cooking	4.98E-01	1.05E+00	2.36E+00	3.51E+00	7.70E-01	6.06E-01
Natural Gas	2.27E-01	5.78E-02	5.89E-01	1.82E-01	1.12E-01	2.29E-01
Other/Undefined	7.00E-01	8.74E-01	4.08E+00	3.12E+00	1.03E+00	2.11E+00
Distillate Oil	1.36E-02	5.85E-03	1.00E-01	2.88E-02	5.23E-03	2.20E-02
Aviation	2.45E-02	4.06E-02	4.59E-01	3.02E-01	7.75E-02	8.56E-02
Cement Manufactures	1.22E-03	9.19E-04	1.67E-02	2.96E-02	6.41E-04	3.18E-02
Process Heating	1.07E-02	8.62E-03	2.59E-01	2.51E-02	1.36E-01	2.35E-02
Coal	4.34E-07	3.23E-07	2.72E-06	6.02E-06	4.67E-07	2.84E-06
Steel Foundries	1.81E-04	2.38E-04	5.35E-03	3.17E-04	2.63E-03	1.20E-03
Paper and Pulp Products	1.90E-02	2.80E-02	1.30E-02	3.83E-03	1.66E-02	8.89E-03
% Primary	7.83E-01	7.97E-01	6.23E-01	6.20E-01	6.80E-01	5.62E-01

	POROR	PHOAZ	SLCUT	ELPTX	DENCO
Gasoline (onroad + offroad)	1.72E-01	1.17E-01	1.72E-01	6.70E-02	3.57E-01
Diesel (onroad + offroad)	7.45E-01	5.41E-01	4.87E-01	4.48E-01	1.16E+00
Biomass	2.24E-01	3.98E-02	1.47E-01	2.65E-02	1.82E-01
Food Cooking	9.69E-02	6.49E-01	5.68E-01	6.43E-01	1.15E+00
Natural Gas	4.72E-03	2.54E-02	1.02E-01	1.69E-02	1.86E-03
Other/Undefined	6.50E-01	4.72E-01	2.11E-01	3.71E-01	4.69E-01
Distillate Oil	2.38E-02	4.87E-03	9.20E-02	3.24E-03	4.65E-04
Aviation	4.13E-02	3.05E-02	6.64E-02	2.03E-02	4.78E-04
Cement Manufactures	7.50E-05	1.08E-03	1.93E-03	7.19E-04	8.19E-05
Process Heating	2.34E-05	6.78E-02	8.11E-02	4.52E-02	6.46E-05
Coal	2.01E-02	2.90E-01	4.70E-01	1.37E-01	5.73E-01
Steel Foundries	3.89E-02	9.80E-04	4.78E-06	6.53E-04	2.66E-08
Paper and Pulp Products	7.04E-03	3.05E-04	1.33E-02	2.03E-04	2.43E-05
% Primary	3.48E-01	5.41E-01	7.44E-01	6.45E-01	6.85E-01

Table S16. Source contribution for $PM_{0.1}$ (µg/m3) for the WEST and % of Primary Component

	SACCA	SFOCA	BAKCA	FRECA	LOSCA	SDOCA
Gasoline (onroad + offroad)	1.24E-02	3.60E-02	4.31E-03	8.46E-03	3.60E-01	5.17E-02
Diesel (onroad + offroad)	8.30E-03	2.00E-02	1.11E-02	1.44E-02	2.89E-01	2.75E-02
Biomass	3.20E-03	1.13E-02	5.21E-03	1.09E-02	3.06E-03	1.44E-03
Food Cooking	1.41E-02	1.57E-02	9.27E-03	2.75E-02	5.84E-01	8.61E-02
Natural Gas	6.83E-02	9.83E-02	2.44E-01	4.68E-02	6.32E-01	1.19E-01
Other/Undefined	6.76E-04	2.72E-03	3.58E-04	5.30E-04	1.39E-02	3.72E-03
Distillate Oil	3.20E-09	1.33E-07	8.12E-10	1.28E-09	3.54E-06	5.82E-06
Aviation	2.67E-02	2.77E-02	6.47E-03	1.53E-02	3.53E-01	1.07E-01
Cement Manufactures	1.37E-06	1.10E-04	5.46E-06	2.98E-06	1.45E-04	8.43E-05
Process Heating	2.62E-02	4.67E-03	2.49E-03	2.48E-03	1.47E-01	4.65E-03
Coal	1.87E-13	3.63E-12	1.10E-14	1.28E-14	2.19E-11	4.41E-11
Steel Foundries	7.46E-05	4.12E-05	5.01E-06	1.28E-05	8.79E-04	1.09E-05
Paper and Pulp Products	3.05E-04	1.07E-04	1.40E-04	3.58E-04	6.15E-04	3.66E-05
% Primary	9.03E-01	8.68E-01	9.40E-01	9.30E-01	9.74E-01	8.74E-01

	PAROR	PHOAZ	SLCUT	ELPTX	DENCO
Gasoline (onroad + offroad)	5.88E-02	2.82E-02	3.39E-02	6.37E-03	1.01E-01
Diesel (onroad + offroad)	1.20E-01	4.07E-02	4.95E-02	1.25E-02	1.62E-01
Biomass	2.00E-02	7.10E-03	1.87E-02	4.41E-04	3.33E-02
Food Cooking	5.50E-02	5.74E-02	4.09E-02	2.09E-02	1.18E-01
Natural Gas	1.80E-02	4.02E-02	6.15E-02	1.40E-02	1.09E-03
Other/Undefined	3.34E-03	4.71E-03	3.73E-03	8.00E-04	8.18E-03
Distillate Oil	3.74E-09	3.10E-13	2.44E-08	1.38E-13	3.59E-14
Aviation	3.42E-02	5.34E-03	3.55E-02	9.02E-03	2.72E-04
Cement Manufactures	1.84E-06	3.36E-05	1.43E-05	9.86E-07	1.32E-06
Process Heating	1.89E-05	1.03E-04	3.43E-02	1.69E-02	5.16E-05
Coal	1.38E-15	9.44E-16	1.33E-11	3.45E-17	1.02E-16
Steel Foundries	7.17E-03	5.20E-05	2.66E-07	1.65E-05	7.49E-09
Paper and Pulp Products	9.05E-04	6.31E-05	6.58E-04	4.99E-06	7.84E-07
% Primary	6.74E-01	9.62E-01	9.09E-01	9.14E-01	9.03E-01

Future epidemiological studies may also be able to use the contrast in $PM_{0.1}$ source contributions between different cities to separately identify health effects. In the current study, the similarity in $PM_{0.1}$ source contributions between cities was calculated as a dot product. The source contribution for PM0.1 and PM2.5, represented in the supporting information tables S7-16, were used as source contribution vectors for each city with 13 elements set equal to the normalized percent contribution from each source. The dot product of each city source-vector with other city source-vectors was then calculated using eq. (SE9)

$$\vec{a} \cdot \vec{b} = \|\vec{a}\|\|\vec{b}\|\cos(\theta) \qquad \text{(SE9)}$$

where $\vec{a}$ is the vector of city *i*, $\vec{b}$ is the vector of source for city *j*, $\|\vec{a}\|$ is the magnitude of city *i*, $\|\vec{b}\|$ is the magnitude of the vector for city *j* and θ is the angle between the two vectors ranging from 0 to 90º. *cos(θ)* quantifies the similarity in source contributions between the two cities. Rearranging Eq. (2) *cos(θ)* can be solved using Eq. (10)

$$\cos(\theta) = \left(\frac{\vec{a} \cdot \vec{b}}{\|\vec{a}\|\|\vec{b}\|}\right) \qquad \text{(SE10)}$$

cos(*θ)* ranges between zero (0) for no correlation to one (1) for perfect correlation between the source vectors. Figure S8 illustrates the value of *cos(θ)* calculated for city comparisons for $PM_{0.1}$ (lower left) and $PM_{2.5}$ (upper right) source-vectors. The cities were arranged by region, labeled by corresponding city code defined in Table 1 in the main manuscript and starting from East, South East, South, Midwest and West in order to observe any geographical patterns. $PM_{2.5}$ source-vectors were found to be slightly more homogenous across all U.S. cities than $PM_{0.1}$ source vectors. Regional clusters with similar source contributions are apparent, especially on the East Coast where cities are closer in proximity to one another. Few regional clusters were observed for $PM_{0.1}$ source vectors, suggesting that emissions control programs may need to be tailored to each specific city. Natural gas combustion is prevalent in many locations, but the remaining sources of ultrafine particles vary strongly with location.

The primary % component for each of the 39 cities is also represented in tables S7-16 in the supporting information. $PM_{2.5}$ averaged across the U.S. was found to be composed of approximately 62% primary aerosol while the rest was from secondary formation. $PM_{0.1}$, on the other hand, was found to have approximately 87% of its total mass from primary aerosol emissions. This will aid in the analysis of future emission control programs that can form strategies based on primary vs secondary component of fine and ultrafine particles.

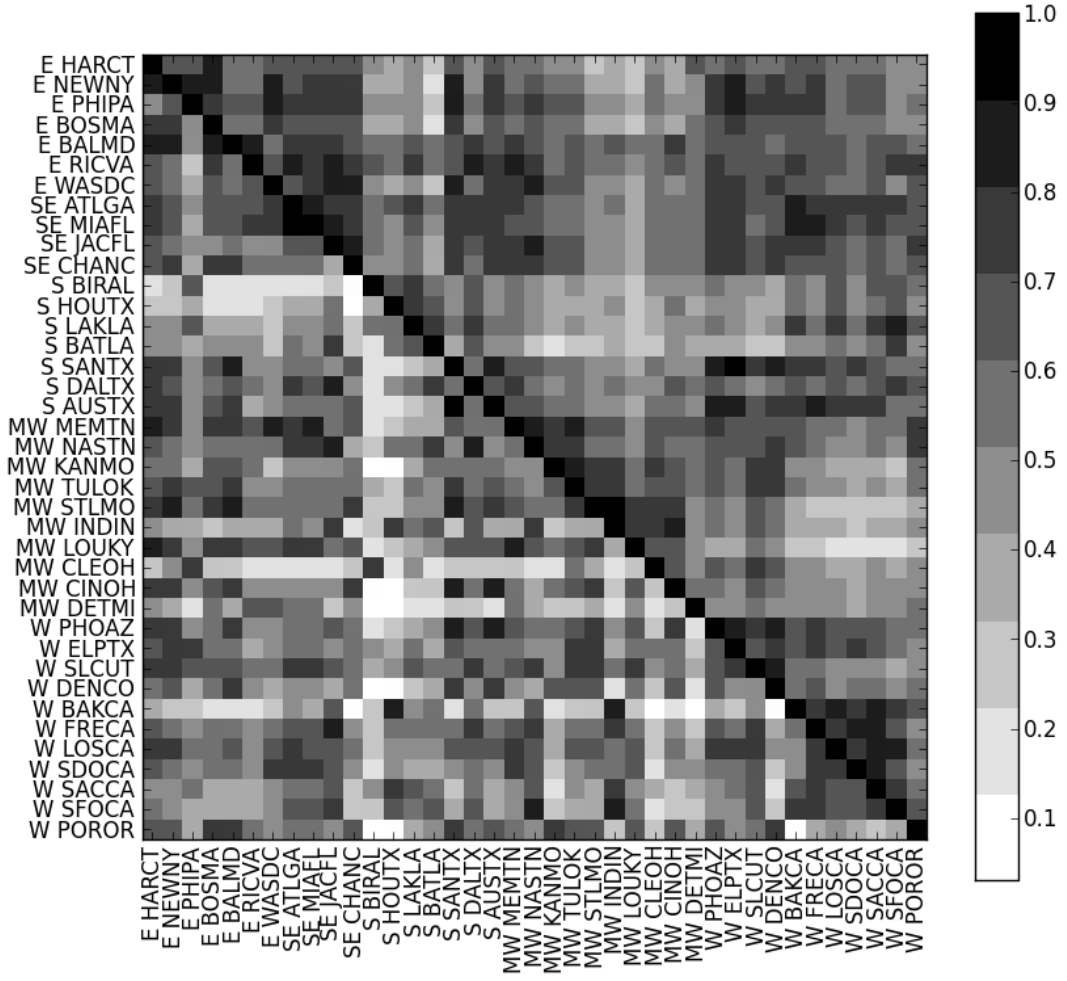

Figure S8 Normalized dot product between the 13 source types and each city code for PM2.5 (upper right) and PM0.1 (lower left). The scale represents 100% (black) to 0% (white) correlation. Cities are organized by region in the following order: (E) East, (SE) South East, (S) South, (MW) MidWest, (W) West