U.S. Environmental Protection Agency

Technical Support Document

for PM2.5 Designations - Supplemental Notice

April 5, 2005

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SECTION 1. PM2.5 DESIGNATIONS - AREAS DESIGNATED NONATTAINMENT OR UNCLASSIFIABLE IN 1/5/05 FEDERAL REGISTER NOTICI (INCLUDING 2002-2004 DESIGN VALUES)

Area	ST	COU	State	County	Site	2004 Data Certified by State?	PM2.5 Mean 2001	PM2.5 Mean 2002	PM2.5 Mean 2003	PM2.5 Mean 2004	Design Value 2001-3	Status 2001-3	Design Value 2002-4	Status 2002-4
Athens, GA	13	059	Georgia	Clarke	130590001	Y	17.53	14.96	14.31	14.76	**15.6**	NA	**14.7**	A
Atlanta, GA	13	063	Georgia	Clayton	130630091	Y	17.06	15.33	16.02	16.83	**16.1**	NA	**16.1**	NA
Atlanta, GA	13	067	Georgia	Cobb	130670003	Y	17.22	15.11	16.01	15.81	**16.1**	NA	**15.6**	NA
Atlanta, GA	13	067	Georgia	Cobb	130670004	Y			15.21	15.16	**15.2**	na	**15.2**	na
Atlanta, GA	13	089	Georgia	De Kalb	130890002	Y	16.81	15.37	14.97	16.08	**15.7**	NA	**15.5**	NA
Atlanta, GA	13	089	Georgia	De Kalb	130892001	Y	18.05	14.89	15.41	15.49	**16.1**	NA	**15.3**	NA
Atlanta, GA	13	121	Georgia	Fulton	131210032	Y	17.19	15.60	16.07	16.13	**16.3**	NA	**15.9**	NA
Atlanta, GA	13	121	Georgia	Fulton	131210039	Y	19.09	17.35	17.66	17.58	**18.0**	NA	**17.5**	NA
Atlanta, GA	13	121	Georgia	Fulton	131211001	N	15.97				**16.0**	na		
Atlanta, GA	13	135	Georgia	Gwinnett	131350002	Y	15.35	15.26	16.19	16.34	**15.6**	NA	**15.9**	NA
Atlanta, GA	13	139	Georgia	Hall	131390003	Y	15.52	14.60	14.69	13.97	**14.9**	a	**14.4**	A
Atlanta, GA	13	223	Georgia	Paulding	132230003	Y	14.87	13.71	13.76	13.44	**14.1**	A	**13.6**	A
Baltimore, MD	24	003	Maryland	Anne Arundel	240030014	N	12.76	12.41	11.27	12.50	**12.1**	A	**12.1**	A
Baltimore, MD	24	003	Maryland	Anne Arundel	240030019	N	14.02	12.93	12.12	13.23	**13.0**	A	**12.8**	A
Baltimore, MD	24	003	Maryland	Anne Arundel	240031003	N	15.62	15.35	14.79	15.33	**15.3**	NA	**15.2**	NA
Baltimore, MD	24	003	Maryland	Anne Arundel	240032002	N	14.79	14.22	13.59	14.45	**14.2**	A	**14.1**	A
Baltimore, MD	24	005	Maryland	Baltimore	240051007	N	14.85	14.09	13.55	13.67	**14.2**	A	**13.8**	A
Baltimore, MD	24	005	Maryland	Baltimore	240053001	N	16.06	14.52	15.02	15.11	**15.2**	NA	**14.9**	A
Baltimore, MD	24	025	Maryland	Harford	240251001	N	13.62	12.22	12.47	12.90	**12.8**	A	**12.5**	A
Baltimore, MD	24	510	Maryland	Baltimore (City)	245100006	N	14.60	14.10	13.57	14.53	**14.1**	a	**14.1**	a
Baltimore, MD	24	510	Maryland	Baltimore (City)	245100007	N	15.29	14.58	15.10	14.53	**15.0**	A	**14.7**	A
Baltimore, MD	24	510	Maryland	Baltimore (City)	245100008	N	19.35	15.54	14.49	15.93	**16.5**	na	**15.3**	NA
Baltimore, MD	24	510	Maryland	Baltimore (City)	245100035	N	16.24	15.23	16.19	16.00	**15.9**	NA	**15.8**	NA
Baltimore, MD	24	510	Maryland	Baltimore (City)	245100040	N	17.42	15.69	16.81	16.42	**16.6**	NA	**16.3**	NA
Baltimore, MD	24	510	Maryland	Baltimore (City)	245100049	N	15.74	15.09	15.36	15.47	**15.4**	NA	**15.3**	NA
Baltimore, MD	24	510	Maryland	Baltimore (City)	245100052	N	17.37				**17.4**	na		
Birmingham,AL	01	073	Alabama	Jefferson	010730023	N	19.09	17.46	17.38	17.66	**18.0**	NA	**17.5**	NA
Birmingham,AL	01	073	Alabama	Jefferson	010731005	N	14.97	15.02	14.10	14.57	**14.7**	A	**14.6**	A
Birmingham,AL	01	073	Alabama	Jefferson	010731009	N	13.34	12.33	12.21	12.43	**12.6**	A	**12.3**	A
Birmingham,AL	01	073	Alabama	Jefferson	010731010	N				14.74			**14.7**	a
Birmingham,AL	01	073	Alabama	Jefferson	010732003	N	17.93	16.59	15.63	15.86	**16.7**	NA	**16.0**	NA
Birmingham,AL	01	073	Alabama	Jefferson	010732006	N	15.60	14.42	14.12	14.39	**14.7**	A	**14.3**	A
Birmingham,AL	01	073	Alabama	Jefferson	010735002	N	14.31	13.35	13.47	13.52	**13.7**	A	**13.4**	A
Birmingham,AL	01	073	Alabama	Jefferson	010735003	N	14.67	13.33	13.53	13.66	**13.8**	A	**13.5**	A

Area	ST	COU	State	County	Site	2004 Data Certified by State?	PM2.5 Mean 2001	PM2.5 Mean 2002	PM2.5 Mean 2003	PM2.5 Mean 2004	Design Value 2001-3	Status 2001-3	Design Value 2002-4	Status 2002-4
Birmingham,AL	01	117	Alabama	Shelby	011170006	Y	14.70	13.63	14.89	13.82	**14.4**	a	**14.1**	A
Birmingham,AL	01	127	Alabama	Walker	011270002	Y		11.82	13.84	12.75	**12.8**	a	**12.8**	a
Canton-Masillon, OH	39	151	Ohio	Stark	391510017	Y	17.83	17.36	16.75	15.51	**17.3**	NA	**16.5**	NA
Canton-Masillon, OH	39	151	Ohio	Stark	391510020	Y	16.64	15.78	14.97	14.10	**15.8**	NA	**15.0**	a
Charleston, WV	54	039	West Virgin	Kanawha	540390010	Y	16.49	15.39	14.61	14.33	**15.5**	NA	**14.8**	A
Charleston, WV	54	039	West Virgin	Kanawha	540391005	Y	18.07	17.12	16.13	15.90	**17.1**	NA	**16.4**	NA
Chattanooga, TN-GA	13	295	Georgia	Walker	132950002	N	15.55	14.84	16.00	15.86	**15.5**	NA	**15.2**	NA
Chattanooga, TN-GA	47	065	Tennessee	Hamilton	470650031	Y	16.65	15.14	16.46	15.65	**16.1**	NA	**15.7**	NA
Chattanooga, TN-GA	47	065	Tennessee	Hamilton	470650032	N	14.23	14.20			**14.2**	a	**14.2**	a
Chattanooga, TN-GA	47	065	Tennessee	Hamilton	470651011	Y		13.92	14.27	13.29	**14.1**	a	**13.8**	A
Chattanooga, TN-GA	47	065	Tennessee	Hamilton	470654002	Y	16.13	14.73	14.88	14.52	**15.2**	NA	**14.7**	A
Chicago-Gary-Lake County,IL-IN	17	031	Illinois	Cook	170310014	N	17.10	15.50	15.09	12.88	**15.9**	NA	**14.5**	a
Chicago-Gary-Lake County,IL-IN	17	031	Illinois	Cook	170310022	N	17.11	15.31	15.58	13.79	**16.0**	NA	**14.9**	a
Chicago-Gary-Lake County,IL-IN	17	031	Illinois	Cook	170310050	N	18.12	15.47	15.36	13.40	**16.3**	NA	**14.7**	a
Chicago-Gary-Lake County,IL-IN	17	031	Illinois	Cook	170310052	N	19.39	16.51	15.85	14.93	**17.3**	NA	**15.8**	NA
Chicago-Gary-Lake County,IL-IN	17	031	Illinois	Cook	170310057	N	16.24	15.21	15.61	13.31	**15.7**	NA	**14.7**	a
Chicago-Gary-Lake County,IL-IN	17	031	Illinois	Cook	170310076	N	16.53	15.66	14.84	13.87	**15.7**	NA	**14.8**	a
Chicago-Gary-Lake County,IL-IN	17	031	Illinois	Cook	170311016	N	20.85	17.71	16.69	16.47	**18.4**	x	**17.0**	x
Chicago-Gary-Lake County,IL-IN	17	031	Illinois	Cook	170312001	N	17.11	15.18	14.92	13.84	**15.7**	NA	**14.6**	a
Chicago-Gary-Lake County,IL-IN	17	031	Illinois	Cook	170313103	N				15.72			**15.7**	na
Chicago-Gary-Lake County,IL-IN	17	031	Illinois	Cook	170313301	N	16.51	16.12	15.60	13.94	**16.1**	NA	**15.2**	NA
Chicago-Gary-Lake County,IL-IN	17	031	Illinois	Cook	170314007	N	14.82	14.44	13.19	12.03	**14.1**	A	**13.2**	A
Chicago-Gary-Lake County,IL-IN	17	031	Illinois	Cook	170314201	N	14.70	13.17	12.14	10.82	**13.3**	A	**12.0**	A
Chicago-Gary-Lake County,IL-IN	17	031	Illinois	Cook	170316005	N	17.34	15.99	16.77	14.89	**16.7**	NA	**15.9**	NA
Chicago-Gary-Lake County,IL-IN	17	043	Illinois	Du Page	170434002	N	15.54	14.68	13.11	12.11	**14.4**	A	**13.3**	A
Chicago-Gary-Lake County,IL-IN	17	089	Illinois	Kane	170890003	N	15.04	14.24	13.33	11.05	**14.2**	A	**12.9**	A
Chicago-Gary-Lake County,IL-IN	17	097	Illinois	Lake	170971007	N	13.81	13.44	11.26	9.83	**12.8**	A	**11.5**	A
Chicago-Gary-Lake County,IL-IN	17	111	Illinois	Mc Henry	171110001	N	13.70	12.26	12.21	11.24	**12.7**	A	**11.9**	A
Chicago-Gary-Lake County,IL-IN	17	197	Illinois	Will	171971002	N	16.06	14.33	13.76	11.61	**14.7**	A	**13.2**	A
Chicago-Gary-Lake County,IL-IN	17	197	Illinois	Will	171971011	N	12.92	13.47	11.88	10.10	**12.8**	A	**11.8**	A
Chicago-Gary-Lake County,IL-IN	18	089	Indiana	Lake	180890006	Y	16.11	14.92	14.60	13.18	**15.2**	NA	**14.2**	A
Chicago-Gary-Lake County,IL-IN	18	089	Indiana	Lake	180890022	Y	18.11	16.43	16.63	16.11	**17.1**	x	**16.4**	x
Chicago-Gary-Lake County,IL-IN	18	089	Indiana	Lake	180890026	Y	18.19	17.67	17.38	16.53	**17.7**	NA	**17.2**	NA
Chicago-Gary-Lake County,IL-IN	18	089	Indiana	Lake	180890027	Y	15.18	14.60	14.10	12.82	**14.6**	a	**13.8**	A
Chicago-Gary-Lake County,IL-IN	18	089	Indiana	Lake	180891003	Y	14.98	15.22	14.14	12.92	**14.8**	a	**14.1**	A
Chicago-Gary-Lake County,IL-IN	18	089	Indiana	Lake	180891016	N	16.26	15.92			**16.1**	na	**15.9**	na
Chicago-Gary-Lake County,IL-IN	18	089	Indiana	Lake	180892004	Y	15.38	14.70	14.55	13.26	**14.9**	A	**14.2**	A
Chicago-Gary-Lake County,IL-IN	18	089	Indiana	Lake	180892010	Y	15.55	14.88	14.26	12.47	**14.9**	A	**13.9**	A

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Chicago-Gary-Lake County,IL-IN	18	089	Indiana	Lake	180896000	N		13.64			**13.6**	**a**	**13.6**	**a**
Chicago-Gary-Lake County,IL-IN	18	127	Indiana	Porter	181270020	Y	13.62	13.24	13.19	11.84	**13.4**	**A**	**12.8**	**A**
Chicago-Gary-Lake County,IL-IN	18	127	Indiana	Porter	181270024	Y	14.18	14.20	12.95	12.38	**13.8**	**A**	**13.2**	**A**
Cincinnati-Hamilton, OH-KY-IN	21	037	Kentucky	Campbell	210370003	Y	13.44	14.81	13.42	12.77	**13.9**	**A**	**13.7**	**A**
Cincinnati-Hamilton, OH-KY-IN	21	117	Kentucky	Kenton	211170007	Y	15.25	15.06	14.30	13.42	**14.9**	**A**	**14.3**	**A**
Cincinnati-Hamilton, OH-KY-IN	39	017	Ohio	Butler	390170003	Y	16.43	16.83	15.38	14.06	**16.2**	**NA**	**15.4**	**NA**
Cincinnati-Hamilton, OH-KY-IN	39	017	Ohio	Butler	390170016	Y	15.87	15.34	15.83	14.65	**15.7**	**NA**	**15.3**	**NA**
Cincinnati-Hamilton, OH-KY-IN	39	017	Ohio	Butler	390170017	Y	15.79	15.51	14.66	14.20	**15.3**	**NA**	**14.8**	**a**
Cincinnati-Hamilton, OH-KY-IN	39	017	Ohio	Butler	390171004	Y	11.62	13.85	14.99	13.57	**13.5**	**a**	**14.1**	**A**
Cincinnati-Hamilton, OH-KY-IN	39	061	Ohio	Hamilton	390610014	Y	18.57	17.89	16.95	15.91	**17.8**	**NA**	**16.9**	**NA**
Cincinnati-Hamilton, OH-KY-IN	39	061	Ohio	Hamilton	390610040	Y	15.93	15.33	15.50	14.63	**15.6**	**NA**	**15.2**	**NA**
Cincinnati-Hamilton, OH-KY-IN	39	061	Ohio	Hamilton	390610041	Y	16.11	15.10	15.30	14.63	**15.5**	**NA**	**15.0**	**a**
Cincinnati-Hamilton, OH-KY-IN	39	061	Ohio	Hamilton	390610042	Y	17.63	16.83	16.69	15.99	**17.1**	**NA**	**16.5**	**NA**
Cincinnati-Hamilton, OH-KY-IN	39	061	Ohio	Hamilton	390610043	Y	16.07	15.42	15.67	14.92	**15.7**	**NA**	**15.3**	**NA**
Cincinnati-Hamilton, OH-KY-IN	39	061	Ohio	Hamilton	390617001	Y	16.76	16.08	16.01	15.33	**16.3**	**NA**	**15.8**	**NA**
Cincinnati-Hamilton, OH-KY-IN	39	061	Ohio	Hamilton	390618001	Y	17.02	16.98	17.31	16.39	**17.1**	**NA**	**16.9**	**NA**
Cleveland-Akron-Lorain, OH	39	035	Ohio	Cuyahoga	390350013	N	17.65	16.86	16.74		**17.1**	**NA**	**16.8**	**na**
Cleveland-Akron-Lorain, OH	39	035	Ohio	Cuyahoga	390350027	Y	17.81	16.51	15.44	15.63	**16.6**	**NA**	**15.9**	**NA**
Cleveland-Akron-Lorain, OH	39	035	Ohio	Cuyahoga	390350034	Y	14.98	14.29	13.37	12.56	**14.2**	**A**	**13.4**	**A**
Cleveland-Akron-Lorain, OH	39	035	Ohio	Cuyahoga	390350038	Y	19.75	17.69	17.57	17.53	**18.3**	**NA**	**17.6**	**NA**
Cleveland-Akron-Lorain, OH	39	035	Ohio	Cuyahoga	390350045	Y	17.43	16.19	16.35	15.32	**16.7**	**NA**	**16.0**	**NA**
Cleveland-Akron-Lorain, OH	39	035	Ohio	Cuyahoga	390350060	Y	17.65	17.46	17.21	16.36	**17.4**	**NA**	**17.0**	**NA**
Cleveland-Akron-Lorain, OH	39	035	Ohio	Cuyahoga	390350065	Y	16.57	15.81	15.56	15.17	**16.0**	**NA**	**15.5**	**NA**
Cleveland-Akron-Lorain, OH	39	035	Ohio	Cuyahoga	390350066	Y	14.60	14.21	13.91	11.74	**14.2**	**A**	**13.3**	**a**
Cleveland-Akron-Lorain, OH	39	035	Ohio	Cuyahoga	390351002	Y	14.78	15.05	13.93	13.19	**14.6**	**A**	**14.1**	**A**
Cleveland-Akron-Lorain, OH	39	085	Ohio	Lake	390851001	Y	14.04	13.56	12.52	11.56	**13.4**	**A**	**12.5**	**A**
Cleveland-Akron-Lorain, OH	39	093	Ohio	Lorain	390930016	Y	14.58	13.99	13.10	12.88	**13.9**	**A**	**13.3**	**A**
Cleveland-Akron-Lorain, OH	39	093	Ohio	Lorain	390932003	N	14.49				**14.5**	**a**		
Cleveland-Akron-Lorain, OH	39	093	Ohio	Lorain	390933002	Y		14.03	11.82	11.77	**12.9**	**a**	**12.5**	**A**
Cleveland-Akron-Lorain, OH	39	133	Ohio	Portage	391330002	Y	15.24	14.57	12.65	12.50	**14.2**	**A**	**13.2**	**A**
Cleveland-Akron-Lorain, OH	39	153	Ohio	Summit	391530017	Y	17.61	16.72	15.41	15.02	**16.6**	**NA**	**15.7**	**NA**
Cleveland-Akron-Lorain, OH	39	153	Ohio	Summit	391530023	Y	15.89	16.76	14.17	13.85	**15.6**	**NA**	**14.9**	**a**
Columbus, GA-AL	01	113	Alabama	Russell	011130001	Y	15.56	15.27	15.36	16.11	**15.3**	**NA**	**15.6**	**NA**
Columbus, GA-AL	13	215	Georgia	Muscogee	132150001	Y	15.39	14.23	14.49	14.64	**14.7**	**A**	**14.5**	**A**
Columbus, GA-AL	13	215	Georgia	Muscogee	132150008	Y			16.89	14.53	**16.9**	**na**	**15.7**	**na**
Columbus, GA-AL	13	215	Georgia	Muscogee	132150011	Y	15.83	13.81	13.15	15.04	**14.3**	**A**	**14.0**	**A**
Columbus, OH	39	049	Ohio	Franklin	390490024	Y	17.85	15.77	16.44	15.01	**16.7**	**NA**	**15.7**	**NA**
Columbus, OH	39	049	Ohio	Franklin	390490025	Y	16.90	16.06	15.29	14.62	**16.1**	**NA**	**15.3**	**NA**

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Columbus, OH	39	049	Ohio	Franklin	390490081	Y	16.78	16.18	14.85	13.57	**15.9**	NA	**14.9**	A
Dayton-Springfield, OH	39	023	Ohio	Clark	390230005	Y	14.81	15.10	14.12	13.45	**14.7**	A	**14.2**	A
Dayton-Springfield, OH	39	057	Ohio	Greene	390570005	Y			9.52	12.10	**9.5**	a	**10.8**	a
Dayton-Springfield, OH	39	113	Ohio	Montgomery	391130014	N	17.49				**17.5**	na		
Dayton-Springfield, OH	39	113	Ohio	Montgomery	391130031	Y	16.05	15.19	14.42	13.90	**15.2**	NA	**14.5**	a
Dayton-Springfield, OH	39	113	Ohio	Montgomery	391130032	Y	16.00	16.21	15.87	14.54	**16.0**	na	**15.5**	NA
DeKalb county, AL	01	049	Alabama	De Kalb	010491003	Y	14.71	14.39	14.98	14.09	**14.7**	a	**14.5**	A
Detroit-Ann Arbor, MI	26	099	Michigan	Macomb	260990009	Y	13.60	13.35	12.81	11.96	**13.3**	A	**12.7**	A
Detroit-Ann Arbor, MI	26	115	Michigan	Monroe	261150005	Y	15.30	16.25	13.73	12.98	**15.1**	NA	**14.3**	A
Detroit-Ann Arbor, MI	26	125	Michigan	Oakland	261250001	Y	14.73	15.00	14.58	12.76	**14.8**	a	**14.1**	a
Detroit-Ann Arbor, MI	26	147	Michigan	St Clair	261470005	Y	13.82	13.92	14.07	12.10	**13.9**	A	**13.4**	A
Detroit-Ann Arbor, MI	26	161	Michigan	Washtenaw	261610005	Y	13.51	13.57	13.06	10.67	**13.4**	A	**12.4**	A
Detroit-Ann Arbor, MI	26	161	Michigan	Washtenaw	261610008	Y	14.43	14.87	14.57	12.74	**14.6**	A	**14.1**	A
Detroit-Ann Arbor, MI	26	163	Michigan	Wayne	261630001	Y	17.23	15.90	15.20	14.20	**16.1**	NA	**15.1**	NA
Detroit-Ann Arbor, MI	26	163	Michigan	Wayne	261630015	Y	18.28	17.43	16.63	15.39	**17.4**	NA	**16.5**	NA
Detroit-Ann Arbor, MI	26	163	Michigan	Wayne	261630016	Y	15.79	15.59	15.83	13.69	**15.7**	NA	**15.0**	A
Detroit-Ann Arbor, MI	26	163	Michigan	Wayne	261630019	Y	14.50	15.64	14.63	13.23	**14.9**	A	**14.5**	A
Detroit-Ann Arbor, MI	26	163	Michigan	Wayne	261630025	Y	14.59	14.37	14.14	12.57	**14.4**	a	**13.7**	A
Detroit-Ann Arbor, MI	26	163	Michigan	Wayne	261630033	Y	19.61	19.84	19.11	16.83	**19.5**	NA	**18.6**	NA
Detroit-Ann Arbor, MI	26	163	Michigan	Wayne	261630036	Y	18.20	16.28	16.26	13.66	**16.9**	NA	**15.4**	NA
Detroit-Ann Arbor, MI	26	163	Michigan	Wayne	261630038	Y				29.70			**29.7**	NA
Elkhart, IN	18	039	Indiana	Elkhart	180390003	Y	15.70	14.98	14.85	13.27	**15.2**	NA	**14.4**	A
Elkhart, IN	18	141	Indiana	St Joseph	181410014	Y	14.04	14.27	13.82	12.31	**14.0**	A	**13.5**	A
Elkhart, IN	18	141	Indiana	St Joseph	181411008	Y	14.72	14.39	13.81	12.47	**14.3**	A	**13.6**	A
Elkhart, IN	18	141	Indiana	St Joseph	181412004	Y	14.48	13.91	13.49	11.73	**14.0**	A	**13.0**	A
Evansville, IN-KY	18	037	Indiana	Dubois	180372001	Y	16.54	16.34	15.72	14.42	**16.2**	NA	**15.5**	NA
Evansville, IN-KY	18	147	Indiana	Spencer	181470009	Y	14.52	14.06	14.63	12.16	**14.4**	A	**13.6**	A
Evansville, IN-KY	18	163	Indiana	Vanderburgh	181630006	Y	15.45	15.36	14.94	13.26	**15.3**	NA	**14.5**	A
Evansville, IN-KY	18	163	Indiana	Vanderburgh	181630012	Y	15.15	15.27	15.27	13.46	**15.2**	NA	**14.7**	A
Evansville, IN-KY	18	163	Indiana	Vanderburgh	181630016	Y	16.16	15.24	15.09	13.68	**15.5**	NA	**14.7**	A
Floyd county, GA	13	115	Georgia	Floyd	131150005	Y	15.91	14.55	16.23	15.62	**15.6**	NA	**15.5**	NA
Gadsden, AL	01	055	Alabama	Etowah	010550010	Y	15.34	14.79	14.26	14.34	**14.8**	a	**14.5**	A
Greensboro-Winston Salem-High Po	37	057	North Carol	Davidson	370570002	Y	16.45	15.74	15.16	15.17	**15.8**	NA	**15.4**	NA
Greensboro-Winston Salem-High Po	37	057	North Carol	Davidson	370570003	Y				15.69			**15.7**	na

Area	ST	COU	State	County	Site	2004 Data Certified by State?	PM2.5 Mean 2001	PM2.5 Mean 2002	PM2.5 Mean 2003	PM2.5 Mean 2004	Design Value 2001-3	Status 2001-3	Design Value 2002-4	Status 2002-4
Greensboro-Winston Salem-High Pc	37	057	North Carol	Davidson	370570004	Y				14.78			**14.8**	**a**
Greensboro-Winston Salem-High Pc	37	081	North Carol	Guilford	370810013	Y	14.98	13.76	13.40	13.95	**14.0**	**A**	**13.7**	**A**
Greensboro-Winston Salem-High Pc	37	081	North Carol	Guilford	370811005	N	14.11				**14.1**	**a**		
Greenville-Spartanburg, SC	45	045	South Caro	Greenville	450450008	N	17.00	16.08	15.14	17.17	**16.1**	**na**	**16.1**	**NA**
Greenville-Spartanburg, SC	45	045	South Caro	Greenville	450450009	N	14.95	14.19	14.13	15.62	**14.4**	**A**	**14.6**	**a**
Greenville-Spartanburg, SC	45	083	South Caro	Spartanburg	450830010	N	14.11	13.29	13.61	14.98	**13.7**	**A**	**14.0**	**a**
Harrisburg-Lebanon-Carlisle, PA	42	041	Pennsylvar	Cumberland	420410100	N	17.55				**17.6**	**na**		
Harrisburg-Lebanon-Carlisle, PA	42	041	Pennsylvar	Cumberland	420410101	Y	14.30	14.35	15.31	15.13	**14.7**	**a**	**14.9**	**A**
Harrisburg-Lebanon-Carlisle, PA	42	043	Pennsylvar	Dauphin	420430401	Y	16.50	14.50	16.18	15.66	**15.7**	**NA**	**15.4**	**NA**
Hickory-Morganton-Lenoir, NC	37	035	North Carol	Catawba	370350004	Y	15.98	15.35	15.04	15.01	**15.5**	**NA**	**15.1**	**NA**
Hickory-Morganton-Lenoir, NC	37	035	North Carol	Catawba	370350005	N	13.32				**13.3**	**a**		
Hickory-Morganton-Lenoir, NC	37	035	North Carol	Catawba	370350006	N				15.12			**15.1**	**na**
Huntington-Ashland, WV-KY-OH	21	019	Kentucky	Boyd	210190017	Y	15.27	15.54	13.93	13.29	**14.9**	**A**	**14.3**	**A**
Huntington-Ashland, WV-KY-OH	39	087	Ohio	Lawrence	390870010	Y	17.67	15.48	14.25	13.71	**15.8**	**NA**	**14.5**	**A**
Huntington-Ashland, WV-KY-OH	39	145	Ohio	Scioto	391450013	Y	20.32	16.65	14.69	12.95	**17.2**	**NA**	**14.8**	**A**
Huntington-Ashland, WV-KY-OH	54	011	West Virgir	Cabell	540110006	Y	17.50	16.73	15.45	15.18	**16.6**	**NA**	**15.8**	**NA**
Indianapolis, IN	18	097	Indiana	Marion	180970042	Y	14.78	15.22	14.53	12.92	**14.8**	**A**	**14.2**	**A**
Indianapolis, IN	18	097	Indiana	Marion	180970043	Y	17.69	17.02	17.23	15.68	**17.3**	**x**	**16.6**	**x**
Indianapolis, IN	18	097	Indiana	Marion	180970066	Y	18.63	18.35	17.46	16.67	**18.1**	**x**	**17.5**	**x**
Indianapolis, IN	18	097	Indiana	Marion	180970078	Y	16.58	16.55	15.50	14.33	**16.2**	**NA**	**15.5**	**NA**
Indianapolis, IN	18	097	Indiana	Marion	180970079	Y	16.25	15.75	14.67	13.44	**15.6**	**NA**	**14.6**	**A**
Indianapolis, IN	18	097	Indiana	Marion	180970081	Y	17.14	14.24	16.21	14.96	**15.9**	**na**	**15.1**	**na**
Indianapolis, IN	18	097	Indiana	Marion	180970083	Y	17.09	16.72	16.32	14.97	**16.7**	**NA**	**16.0**	**NA**
Johnstown, PA	42	021	Pennsylvar	Cambria	420210011	Y	15.85	16.09	15.46	14.42	**15.8**	**NA**	**15.3**	**NA**
Knoxville, TN	47	009	Tennessee	Blount	470090011	N	14.05	14.42	13.89	12.21	**14.1**	**A**	**13.5**	**a**
Knoxville, TN	47	093	Tennessee	Knox	470930028	N	15.71	15.42	14.35	13.87	**15.2**	**NA**	**14.5**	**a**
Knoxville, TN	47	093	Tennessee	Knox	470931013	N		16.85	16.03	11.75	**16.4**	**na**	**14.9**	**a**
Knoxville, TN	47	093	Tennessee	Knox	470931017	N	17.46	16.37	15.51	15.09	**16.4**	**NA**	**15.7**	**NA**
Knoxville, TN	47	093	Tennessee	Knox	470931020	N	16.97	16.10	14.29	14.89	**15.8**	**NA**	**15.1**	**NA**
Knoxville, TN	47	105	Tennessee	Loudon	471050108	N			15.37	13.62	**15.4**	**na**	**14.5**	**a**
Knoxville, TN	47	145	Tennessee	Roane	471450004	N	15.23	13.63	13.31	12.63	**14.1**	**A**	**13.2**	**a**
Lancaster, PA	42	071	Pennsylvar	Lancaster	420710007	Y	17.24	16.16	17.56	16.64	**17.0**	**NA**	**16.8**	**NA**
Lexington, KY	21	067	Kentucky	Fayette	210670012	Y	15.71	15.08	13.79	13.45	**14.9**	**A**	**14.1**	**A**

Area	ST	COU	State	County	Site	2004 Data Certified by State?	PM2.5 Mean 2001	PM2.5 Mean 2002	PM2.5 Mean 2003	PM2.5 Mean 2004	Design Value 2001-3	Status 2001-3	Design Value 2002-4	Status 2002-4
Lexington, KY	21	067	Kentucky	Fayette	210670014	Y	16.20	15.56	15.03	14.32	**15.6**	NA	**15.0**	A
Libby, MT	30	053	Montana	Lincoln	300530018	N	16.17	16.02	15.56	11.74	**16.2**	NA	**14.4**	a
Los Angeles-South Coast Air Basin,	06	037	California	Los Angeles	060370002	N	21.68	20.69	19.31	18.29	**20.6**	NA	**19.4**	NA
Los Angeles-South Coast Air Basin,	06	037	California	Los Angeles	060371002	N	24.78	23.97	22.13	19.10	**23.6**	NA	**21.7**	NA
Los Angeles-South Coast Air Basin,	06	037	California	Los Angeles	060371103	N	22.81	21.98	21.33	19.72	**22.0**	NA	**21.0**	NA
Los Angeles-South Coast Air Basin,	06	037	California	Los Angeles	060371201	N	18.36	18.87	16.49	15.70	**17.9**	NA	**17.0**	NA
Los Angeles-South Coast Air Basin,	06	037	California	Los Angeles	060371301	N	24.46	23.31	20.26	18.47	**22.7**	NA	**20.7**	NA
Los Angeles-South Coast Air Basin,	06	037	California	Los Angeles	060371601	N	25.19	24.03	20.55	19.99	**23.3**	NA	**21.5**	NA
Los Angeles-South Coast Air Basin,	06	037	California	Los Angeles	060372005	N	20.85	20.26	18.64	16.63	**19.9**	NA	**18.5**	NA
Los Angeles-South Coast Air Basin,	06	037	California	Los Angeles	060374002	N	21.18	19.51	18.02	17.88	**19.6**	NA	**18.5**	NA
Los Angeles-South Coast Air Basin,	06	037	California	Los Angeles	060374004	N			20.64	16.53	**20.6**	na	**18.6**	na
Los Angeles-South Coast Air Basin,	06	037	California	Los Angeles	060379002	N	10.46				**10.5**	a		
Los Angeles-South Coast Air Basin,	06	037	California	Los Angeles	060379033	N	8.83	10.36	9.39	8.27	**9.5**	a	**9.3**	A
Los Angeles-South Coast Air Basin,	06	059	California	Orange	060590001	N	21.98		15.68		**19.3**	NA	**15.7**	na
Los Angeles-South Coast Air Basin,	06	059	California	Orange	060590007	N		18.62	17.32	16.96			**17.6**	NA
Los Angeles-South Coast Air Basin,	06	059	California	Orange	060592022	N	15.84	15.49	13.09	12.03	**14.8**	A	**13.5**	A
Los Angeles-South Coast Air Basin,	06	065	California	Riverside	060651003	N	28.15	27.07	22.62	20.82	**25.9**	NA	**23.5**	NA
Los Angeles-South Coast Air Basin,	06	065	California	Riverside	060652002	N	12.16	11.93	11.43	10.66	**11.8**	A	**11.3**	A
Los Angeles-South Coast Air Basin,	06	065	California	Riverside	060655001	N	10.72	10.01	8.96	8.93	**9.9**	A	**9.3**	A
Los Angeles-South Coast Air Basin,	06	065	California	Riverside	060658001	N	30.95	27.49	24.81	22.07	**27.8**	NA	**24.8**	NA
Los Angeles-South Coast Air Basin,	06	071	California	San Bernardino	060710025	N	26.47	25.40	23.80	20.89	**25.2**	NA	**23.4**	NA
Los Angeles-South Coast Air Basin,	06	071	California	San Bernardino	060710306	N	11.52	13.87	11.72	10.99	**12.5**	A	**12.2**	A
Los Angeles-South Coast Air Basin,	06	071	California	San Bernardino	060712002	N	25.04	24.30	22.14	19.88	**23.8**	NA	**22.1**	NA
Los Angeles-South Coast Air Basin,	06	071	California	San Bernardino	060718001	N	11.22	11.47	10.62	9.65	**11.1**	A	**10.6**	A
Los Angeles-South Coast Air Basin,	06	071	California	San Bernardino	060719004	N	26.06	25.83	22.17	21.88	**24.7**	NA	**23.3**	NA
Louisville, KY-IN	18	019	Indiana	Clark	180190006	Y	16.85	16.02	15.78	15.07	**16.2**	NA	**15.6**	NA
Louisville, KY-IN	18	043	Indiana	Floyd	180431004	Y	15.73	14.62	14.45	13.69	**14.9**	A	**14.3**	A
Louisville, KY-IN	21	029	Kentucky	Bullitt	210290006	Y	15.55	14.69	14.37	13.62	**14.9**	A	**14.2**	A
Louisville, KY-IN	21	111	Kentucky	Jefferson	211110043	N	17.10	17.16	16.02	15.07	**16.8**	na	**16.1**	NA
Louisville, KY-IN	21	111	Kentucky	Jefferson	211110044	N	17.73	17.45	15.38	14.74	**16.9**	NA	**15.9**	NA
Louisville, KY-IN	21	111	Kentucky	Jefferson	211110048	N	16.90	16.43	15.53	14.16	**16.3**	NA	**15.4**	NA
Louisville, KY-IN	21	111	Kentucky	Jefferson	211110051	N	16.27	15.72	14.92	12.62	**15.6**	NA	**14.4**	a
Louisville, KY-IN	21	111	Kentucky	Jefferson	211111041	N	18.74				**18.7**	na		
Macon, GA	13	021	Georgia	Bibb	130210007	Y	16.11	14.79	14.81	16.79	**15.2**	NA	**15.5**	NA
Macon, GA	13	021	Georgia	Bibb	130210012	Y	13.76	13.16	12.95	14.30	**13.3**	A	**13.5**	A
Marion County, WV (aka Fairmont C	54	033	West Virgin	Harrison	540330003	Y	14.45	14.04	13.40	13.30	**14.0**	A	**13.6**	A
Marion County, WV (aka Fairmont C	54	049	West Virgin	Marion	540490006	Y	15.92	15.35	14.99	14.10	**15.4**	NA	**14.8**	A

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Marion County, WV (aka Fairmont C	54	061	West Virgin	Monongalia	540610003	Y	14.94	15.15	14.56	13.85	**14.9**	A	**14.5**	A
Martinsburg, WV-Hagerstown, MD	24	043	Maryland	Washington	240430009	N	14.17	14.62	13.00	14.58	**13.9**	A	**14.1**	A
Martinsburg, WV-Hagerstown, MD	54	003	West Virgin	Berkeley	540030003	Y	15.89	16.84	16.21	15.38	**16.3**	NA	**16.1**	NA
McMinn county, TN	47	107	Tennessee	Mc Minn	471071002	Y	16.06	14.20	13.60	13.77	**14.6**	a	**13.9**	A
Muncie, IN	18	035	Indiana	Delaware	180350006	Y	14.49	14.51	14.03	12.26	**14.3**	a	**13.6**	A
New York-N.New Jersey-Long Islan	09	001	Connecticu	Fairfield	090010010	N	13.73	12.80	12.79	13.34	**13.3**	A	**13.0**	a
New York-N.New Jersey-Long Islan	09	001	Connecticu	Fairfield	090010113	N	12.74	12.96	12.30		**12.9**	A	**12.6**	a
New York-N.New Jersey-Long Islan	09	001	Connecticu	Fairfield	090011123	N	13.20	12.59	13.35	11.98	**13.2**	A	**12.6**	a
New York-N.New Jersey-Long Islan	09	001	Connecticu	Fairfield	090012124	N	13.00	12.72	13.50	12.52	**13.3**	A	**12.9**	a
New York-N.New Jersey-Long Islan	09	001	Connecticu	Fairfield	090013005	N	13.42	12.61	13.07	13.32	**13.2**	A	**13.0**	a
New York-N.New Jersey-Long Islan	09	001	Connecticu	Fairfield	090019003	N	12.08	11.51	11.71	11.97	**12.0**	A	**11.7**	a
New York-N.New Jersey-Long Islan	09	009	Connecticu	New Haven	090090018	N	16.99	15.91	16.85	15.60	**16.7**	x	**16.1**	x
New York-N.New Jersey-Long Islan	09	009	Connecticu	New Haven	090090026	N			11.91	12.47	**11.9**	a	**12.2**	a
New York-N.New Jersey-Long Islan	09	009	Connecticu	New Haven	090090027	N				12.64			**12.6**	a
New York-N.New Jersey-Long Islan	09	009	Connecticu	New Haven	090091123	N	14.32	13.29	13.99	13.58	**14.1**	A	**13.6**	a
New York-N.New Jersey-Long Islan	09	009	Connecticu	New Haven	090092008	N			11.89	12.00	**11.9**	a	**11.9**	a
New York-N.New Jersey-Long Islan	09	009	Connecticu	New Haven	090092123	N	13.93	13.15	12.63	12.65	**13.4**	A	**12.8**	a
New York-N.New Jersey-Long Islan	09	009	Connecticu	New Haven	090098003	N			12.85	13.74	**12.9**	a	**13.3**	a
New York-N.New Jersey-Long Islan	09	009	Connecticu	New Haven	090099005	N	11.88	11.09	12.30		**11.9**	A	**11.7**	a
New York-N.New Jersey-Long Islan	34	003	New Jersey	Bergen	340030003	N	14.54	13.50	13.33	13.18	**13.8**	a	**13.3**	a
New York-N.New Jersey-Long Islan	34	013	New Jersey	Essex	340130015	N	13.53	13.74	14.06	14.26	**13.8**	a	**14.0**	a
New York-N.New Jersey-Long Islan	34	013	New Jersey	Essex	340130016	N	15.18	14.85	13.54		**14.5**	a	**14.2**	a
New York-N.New Jersey-Long Islan	34	017	New Jersey	Hudson	340171003	N	14.66	14.86	14.98	14.60	**14.8**	A	**14.8**	a
New York-N.New Jersey-Long Islan	34	017	New Jersey	Hudson	340172002	N	15.84	16.78			**16.3**	na	**16.8**	na
New York-N.New Jersey-Long Islan	34	021	New Jersey	Mercer	340210008	N	14.93	13.75	13.47	13.70	**14.0**	A	**13.6**	a
New York-N.New Jersey-Long Islan	34	021	New Jersey	Mercer	340218001	N	12.19	11.97	11.97	11.83	**12.0**	a	**11.9**	a
New York-N.New Jersey-Long Islan	34	023	New Jersey	Middlesex	340230006	N	13.23	11.82	12.96	12.15	**12.7**	A	**12.3**	a
New York-N.New Jersey-Long Islan	34	027	New Jersey	Morris	340270004	N	13.43	12.09	12.18	12.04	**12.6**	a	**12.1**	a
New York-N.New Jersey-Long Islan	34	027	New Jersey	Morris	340273001	N	11.77	11.14	10.74	11.14	**11.2**	a	**11.0**	a
New York-N.New Jersey-Long Islan	34	031	New Jersey	Passaic	340310005	N	13.05	13.41	13.30	13.46	**13.3**	a	**13.4**	a
New York-N.New Jersey-Long Islan	34	039	New Jersey	Union	340390004	N	15.66	15.05	16.26	15.68	**15.7**	NA	**15.7**	na
New York-N.New Jersey-Long Islan	34	039	New Jersey	Union	340390006	N	13.36	13.09	14.04	13.42	**13.5**	a	**13.5**	a
New York-N.New Jersey-Long Islan	34	039	New Jersey	Union	340392003	N	12.83	13.08	13.29	13.60	**13.1**	A	**13.3**	a
New York-N.New Jersey-Long Islan	36	005	New York	Bronx	360050080	N	15.94	15.86	15.73	15.21	**15.8**	NA	**15.6**	na
New York-N.New Jersey-Long Islan	36	005	New York	Bronx	360050083	N	14.37	13.99	13.42	13.38	**13.9**	A	**13.6**	a
New York-N.New Jersey-Long Islan	36	005	New York	Bronx	360050110	N	15.01	14.50	14.80	14.21	**14.8**	a	**14.5**	a
New York-N.New Jersey-Long Islan	36	047	New York	Kings	360470052	N	16.04	14.69	12.85		**14.5**	a	**13.8**	a
New York-N.New Jersey-Long Islan	36	047	New York	Kings	360470076	N	15.09	13.81	14.19		**14.4**	a	**14.0**	a

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New York-N.New Jersey-Long Islan	36	047	New York	Kings	360470122	N	15.35	14.57	14.80	14.95	**14.9**	A	**14.8**	a
New York-N.New Jersey-Long Islan	36	059	New York	Nassau	360590008	N	12.86	11.93	12.41	12.15	**12.4**	A	**12.2**	a
New York-N.New Jersey-Long Islan	36	059	New York	Nassau	360590012	N	12.26	11.84	10.72		**11.6**	a	**11.3**	a
New York-N.New Jersey-Long Islan	36	059	New York	Nassau	360590013	N	12.51	11.78	10.88		**11.7**	a	**11.3**	a
New York-N.New Jersey-Long Islan	36	061	New York	New York	360610010	N	17.13				**17.1**	na		
New York-N.New Jersey-Long Islan	36	061	New York	New York	360610056	N	17.92	16.53	18.54	16.01	**17.7**	NA	**17.0**	na
New York-N.New Jersey-Long Islan	36	061	New York	New York	360610062	N	17.34	15.97	15.78	15.35	**16.4**	NA	**15.7**	na
New York-N.New Jersey-Long Islan	36	061	New York	New York	360610079	N	15.20	14.66	14.51	13.87	**14.8**	A	**14.3**	a
New York-N.New Jersey-Long Islan	36	061	New York	New York	360610128	N	14.80	16.19	15.97	15.78	**15.7**	na	**16.0**	na
New York-N.New Jersey-Long Islan	36	071	New York	Orange	360710002	N	11.58	11.51	11.79	10.97	**11.6**	A	**11.4**	a
New York-N.New Jersey-Long Islan	36	081	New York	Queens	360810094	N	13.79	13.31			**13.5**	a	**13.3**	a
New York-N.New Jersey-Long Islan	36	081	New York	Queens	360810096	N	14.06	13.67	12.36		**13.4**	a	**13.0**	a
New York-N.New Jersey-Long Islan	36	081	New York	Queens	360810124	N	14.18	12.98	13.54	12.78	**13.6**	a	**13.1**	a
New York-N.New Jersey-Long Islan	36	085	New York	Richmond	360850055	N	14.53	14.38	13.17	14.31	**14.0**	a	**14.0**	a
New York-N.New Jersey-Long Islan	36	085	New York	Richmond	360850067	N	13.08	12.09	11.36	12.44	**12.2**	A	**12.0**	a
New York-N.New Jersey-Long Islan	36	103	New York	Suffolk	361030001	N	13.02	11.97	11.87	11.18	**12.3**	A	**11.7**	a
New York-N.New Jersey-Long Islan	36	119	New York	Westchester	361191002	N	12.94	12.29	12.15	11.95	**12.5**	A	**12.1**	a
Parkersburg-Marietta, WV-OH	54	107	West Virgin	Wood	541071002	Y	17.40	15.76	14.93	14.94	**16.0**	NA	**15.2**	NA
Philadelphia-Wilmington, PA-NJ-DE	10	003	Delaware	New Castle	100031003	N	15.58	13.97	14.81	14.17	**15.0**	A	**14.3**	a
Philadelphia-Wilmington, PA-NJ-DE	10	003	Delaware	New Castle	100031007	N	14.54	13.00	13.26	13.97	**13.9**	a	**13.4**	a
Philadelphia-Wilmington, PA-NJ-DE	10	003	Delaware	New Castle	100031012	N	15.81	14.72	14.80	14.95	**15.1**	NA	**14.8**	a
Philadelphia-Wilmington, PA-NJ-DE	10	003	Delaware	New Castle	100032004	N	17.62	15.42	15.45	15.68	**16.2**	NA	**15.5**	na
Philadelphia-Wilmington, PA-NJ-DE	34	007	New Jersey	Camden	340070003	N	13.76	14.07	16.06	14.09	**14.6**	a	**14.7**	a
Philadelphia-Wilmington, PA-NJ-DE	34	007	New Jersey	Camden	340071007	N	14.23	14.62	13.92	14.19	**14.3**	a	**14.2**	a
Philadelphia-Wilmington, PA-NJ-DE	34	015	New Jersey	Gloucester	340155001	N	14.53	13.02	13.76	13.13	**13.8**	a	**13.3**	a
Philadelphia-Wilmington, PA-NJ-DE	42	017	Pennsylvar	Bucks	420170012	Y	14.47	14.15	14.42	12.97	**14.3**	A	**13.8**	A
Philadelphia-Wilmington, PA-NJ-DE	42	029	Pennsylvar	Chester	420290100	Y		14.61	15.57	14.41	**15.1**	na	**14.9**	a
Philadelphia-Wilmington, PA-NJ-DE	42	045	Pennsylvar	Delaware	420450002	Y	15.85	14.67	15.63	14.92	**15.4**	NA	**15.1**	NA
Philadelphia-Wilmington, PA-NJ-DE	42	091	Pennsylvar	Montgomery	420910013	Y	14.88	13.60	13.86	12.00	**14.1**	A	**13.2**	a
Philadelphia-Wilmington, PA-NJ-DE	42	101	Pennsylvar	Philadelphia	421010004	N	16.47	14.38	14.80	14.56	**15.2**	NA	**14.6**	a
Philadelphia-Wilmington, PA-NJ-DE	42	101	Pennsylvar	Philadelphia	421010014	N		14.54	13.25	10.60	**13.9**	a	**12.8**	a
Philadelphia-Wilmington, PA-NJ-DE	42	101	Pennsylvar	Philadelphia	421010020	N	15.39	13.76	13.67	14.45	**14.3**	A	**14.0**	a
Philadelphia-Wilmington, PA-NJ-DE	42	101	Pennsylvar	Philadelphia	421010024	N	14.62	13.66	13.19	13.68	**13.8**	a	**13.5**	a
Philadelphia-Wilmington, PA-NJ-DE	42	101	Pennsylvar	Philadelphia	421010047	N	16.98	15.57	16.13	14.95	**16.2**	NA	**15.6**	na
Philadelphia-Wilmington, PA-NJ-DE	42	101	Pennsylvar	Philadelphia	421010052	N		13.14			**13.1**	a	**13.1**	a
Philadelphia-Wilmington, PA-NJ-DE	42	101	Pennsylvar	Philadelphia	421010136	N	16.69	13.97	14.03	13.46	**14.9**	a	**13.8**	a
Pittsburgh:Liberty-Clairton, PA	42	003	Pennsylvar	Allegheny	420030064	N	23.05	20.30	20.21	21.26	**21.2**	NA	**20.6**	NA
Pittsburgh:Liberty-Clairton, PA	42	003	Pennsylvar	Allegheny	420033007	N	18.65	16.00	17.02	13.97	**17.2**	NA	**15.7**	na

Area	ST	COU	State	County	Site	2004 Data Certified by State?	PM2.5 Mean 2001	PM2.5 Mean 2002	PM2.5 Mean 2003	PM2.5 Mean 2004	Design Value 2001-3	Status 2001-3	Design Value 2002-4	Status 2002-4
Pittsburgh-Beaver Valley, PA	42	003	Pennsylvar	Allegheny	420030008	N	16.58	15.33	15.20	16.43	**15.7**	NA	**15.7**	na
Pittsburgh-Beaver Valley, PA	42	003	Pennsylvar	Allegheny	420030021	N	15.81	14.55	14.56	15.09	**15.0**	a	**14.7**	a
Pittsburgh-Beaver Valley, PA	42	003	Pennsylvar	Allegheny	420030067	N	14.04	12.31	13.23	13.95	**13.2**	a	**13.2**	a
Pittsburgh-Beaver Valley, PA	42	003	Pennsylvar	Allegheny	420030093	N	14.87	13.63	13.96	13.11	**14.2**	a	**13.6**	a
Pittsburgh-Beaver Valley, PA	42	003	Pennsylvar	Allegheny	420030095	N	15.33	13.63	15.71	14.03	**14.9**	a	**14.5**	a
Pittsburgh-Beaver Valley, PA	42	003	Pennsylvar	Allegheny	420030116	N	15.59	14.20	15.28	15.78	**15.0**	a	**15.1**	na
Pittsburgh-Beaver Valley, PA	42	003	Pennsylvar	Allegheny	420030131	N	14.85	13.51	9.98		**12.8**	a	**11.7**	a
Pittsburgh-Beaver Valley, PA	42	003	Pennsylvar	Allegheny	420030133	N			14.44	14.72	**14.4**	a	**14.6**	a
Pittsburgh-Beaver Valley, PA	42	003	Pennsylvar	Allegheny	420031008	N	16.11	16.09	15.50	15.26	**15.9**	NA	**15.6**	na
Pittsburgh-Beaver Valley, PA	42	003	Pennsylvar	Allegheny	420031301	N	17.09	16.92	16.80	16.34	**16.9**	NA	**16.7**	NA
Pittsburgh-Beaver Valley, PA	42	003	Pennsylvar	Allegheny	420039002	N	14.84	13.92	15.95	12.36	**14.9**	a	**14.1**	a
Pittsburgh-Beaver Valley, PA	42	007	Pennsylvar	Beaver	420070014	Y	16.96	15.22	15.67	15.38	**16.0**	NA	**15.4**	NA
Pittsburgh-Beaver Valley, PA	42	125	Pennsylvar	Washington	421250005	Y	15.80	15.88	14.86	13.99	**15.5**	NA	**14.9**	A
Pittsburgh-Beaver Valley, PA	42	125	Pennsylvar	Washington	421250200	Y	15.85	14.49	14.74	14.14	**15.0**	A	**14.5**	A
Pittsburgh-Beaver Valley, PA	42	125	Pennsylvar	Washington	421255001	Y	14.43	13.21	13.40	13.21	**13.7**	a	**13.3**	a
Pittsburgh-Beaver Valley, PA	42	129	Pennsylvar	Westmoreland	421290008	Y	16.11	14.96	15.32	14.92	**15.5**	NA	**15.1**	NA
Reading, PA	42	011	Pennsylvar	Berks	420110009	Y	16.49	16.66	16.14	15.64	**16.4**	NA	**16.1**	NA
San Diego, CA	06	073	California	San Diego	060730001	N	15.46	13.94	12.45	12.23	**14.6**	A	**12.9**	A
San Diego, CA	06	073	California	San Diego	060730003	N	17.67	15.39	13.90	13.20	**15.7**	NA	**14.2**	A
San Diego, CA	06	073	California	San Diego	060730006	N	13.50	12.85	10.52	10.90	**12.8**	A	**11.4**	A
San Diego, CA	06	073	California	San Diego	060731002	N	17.49	15.99	14.05	14.06	**15.9**	NA	**14.7**	a
San Diego, CA	06	073	California	San Diego	060731007	N	16.62	15.54	14.73	13.77	**15.9**	NA	**14.7**	A
San Joaquin Valley, CA	06	019	California	Fresno	060190008	N	19.81	21.55	17.78	13.18	**19.7**	NA	**17.5**	NA
San Joaquin Valley, CA	06	019	California	Fresno	060195001	N	18.03	16.20	18.49	13.33	**17.6**	NA	**16.0**	na
San Joaquin Valley, CA	06	019	California	Fresno	060195025	N	18.60	21.25	17.82	13.90	**19.2**	NA	**17.7**	NA
San Joaquin Valley, CA	06	029	California	Kern	060290010	N	21.83	24.08	19.63	14.96	**21.8**	NA	**19.6**	NA
San Joaquin Valley, CA	06	029	California	Kern	060290011	N	6.08	7.87	6.21	5.57	**6.7**	A	**6.5**	A
San Joaquin Valley, CA	06	029	California	Kern	060290014	N	21.17	22.69	17.11	15.43	**20.3**	NA	**18.4**	NA
San Joaquin Valley, CA	06	029	California	Kern	060290015	N	6.54	8.19	5.91	5.97	**6.9**	A	**6.7**	A
San Joaquin Valley, CA	06	029	California	Kern	060290016	N	20.84	23.53	17.82	15.21	**20.7**	NA	**18.9**	NA
San Joaquin Valley, CA	06	031	California	Kings	060310004	N	19.18	21.45	16.23	14.19	**19.0**	NA	**17.3**	NA
San Joaquin Valley, CA	06	047	California	Merced	060472510	N	16.75	18.74	15.66	12.28	**17.0**	NA	**15.6**	na
San Joaquin Valley, CA	06	077	California	San Joaquin	060771002	N	13.85	16.68	13.58	10.94	**14.7**	A	**13.7**	a
San Joaquin Valley, CA	06	099	California	Stanislaus	060990005	N	15.58	18.67	14.50	10.42	**16.2**	NA	**14.5**	a
San Joaquin Valley, CA	06	107	California	Tulare	061072002	N	22.49	23.22	18.21	14.88	**21.3**	NA	**18.8**	NA
St, Louis, MO-IL	17	119	Illinois	Madison	171190023	N	19.74	19.56	18.08	16.20	**19.1**	x	**17.9**	x
St, Louis, MO-IL	17	119	Illinois	Madison	171191007	N	17.29	17.71	17.51	15.00	**17.5**	NA	**16.7**	NA
St, Louis, MO-IL	17	119	Illinois	Madison	171192009	N	15.80	14.70	14.03	11.12	**14.8**	A	**13.3**	A

Area	ST	COU	State	County	Site	2004 Data Certified by State?	PM2.5 Mean 2001	PM2.5 Mean 2002	PM2.5 Mean 2003	PM2.5 Mean 2004	Design Value 2001-3	Status 2001-3	Design Value 2002-4	Status 2002-4
St, Louis, MO-IL	17	119	Illinois	Madison	171193007	N	14.95	15.12	13.98	13.26	14.7	A	14.1	a
St, Louis, MO-IL	17	157	Illinois	Randolph	171570001	N	12.09	11.56	13.44	10.85	12.4	A	12.0	A
St, Louis, MO-IL	17	163	Illinois	St Clair	171630010	N	17.00	16.65	14.85	14.55	16.2	NA	15.3	NA
St, Louis, MO-IL	17	163	Illinois	St Clair	171634001	N	15.47	15.08	14.26	12.91	14.9	a	14.1	A
St, Louis, MO-IL	29	099	Missouri	Jefferson	290990012	N	14.50	15.05	13.97	12.53	14.5	A	13.9	A
St, Louis, MO-IL	29	183	Missouri	St Charles	291831002	N	14.97	14.04	14.02	11.89	14.3	A	13.3	A
St, Louis, MO-IL	29	189	Missouri	St Louis	291890004	N	12.37	13.04	12.95	11.88	12.8	a	12.6	a
St, Louis, MO-IL	29	189	Missouri	St Louis	291892003	N	13.93	14.57	13.64	12.62	14.0	A	13.6	a
St, Louis, MO-IL	29	189	Missouri	St Louis	291895001	N	13.42	13.44	12.53		13.1	a	13.0	a
St, Louis, MO-IL	29	510	Missouri	St Louis (City)	295100007	N	14.82	15.31	14.41	13.09	14.8	A	14.3	A
St, Louis, MO-IL	29	510	Missouri	St Louis (City)	295100085	N	15.24	15.38	14.12	13.17	14.9	A	14.2	A
St, Louis, MO-IL	29	510	Missouri	St Louis (City)	295100086	N	14.21	14.29	13.46	12.11	14.0	A	13.3	A
St, Louis, MO-IL	29	510	Missouri	St Louis (City)	295100087	N	15.42	15.58	14.67	13.57	15.2	NA	14.6	A
Steubenville-Weirton, OH-WV	39	081	Ohio	Jefferson	390810016	N	18.20	17.57	17.67		17.8	NA	17.6	na
Steubenville-Weirton, OH-WV	39	081	Ohio	Jefferson	390810017	Y			15.17	15.91	15.2	na	15.5	na
Steubenville-Weirton, OH-WV	39	081	Ohio	Jefferson	390811001	Y	18.86	17.14	17.28	16.18	17.8	NA	16.9	NA
Steubenville-Weirton, OH-WV	54	009	West Virgir	Brooke	540090005	Y	17.30	16.57	16.43	16.57	16.8	NA	16.5	NA
Steubenville-Weirton, OH-WV	54	029	West Virgir	Hancock	540290011	Y	16.47	15.41	16.67	15.22	16.2	NA	15.8	NA
Steubenville-Weirton, OH-WV	54	029	West Virgir	Hancock	540291004	Y	17.38	17.41	17.46	16.18	17.4	NA	17.0	NA
Toledo, OH	39	095	Ohio	Lucas	390950024	Y	15.72	14.98	14.53	13.68	15.1	NA	14.4	A
Toledo, OH	39	095	Ohio	Lucas	390950025	Y	14.40	15.30	14.30	13.33	14.7	A	14.3	A
Toledo, OH	39	095	Ohio	Lucas	390950026	Y	15.49	14.90	14.25	12.98	14.9	a	14.0	A
Washington, DC-MD-VA	11	001	District Of (	Washington	110010041	N	17.12	15.53	14.75	15.08	15.8	NA	15.1	NA
Washington, DC-MD-VA	11	001	District Of (	Washington	110010042	N	15.04	15.57	13.38	14.70	14.7	a	14.5	A
Washington, DC-MD-VA	11	001	District Of (	Washington	110010043	N	16.13	15.31	14.27	14.62	15.2	NA	14.7	A
Washington, DC-MD-VA	24	031	Maryland	Montgomery	240313001	N	12.76	13.03	11.94	12.64	12.6	A	12.5	A
Washington, DC-MD-VA	24	033	Maryland	Prince Georges	240330001	N	15.90	18.50			17.2	na	18.5	na
Washington, DC-MD-VA	24	033	Maryland	Prince Georges	240330002	N		12.14	11.46	9.75	11.8	a	11.1	a
Washington, DC-MD-VA	24	033	Maryland	Prince Georges	240330030	N				12.64			12.6	a
Washington, DC-MD-VA	24	033	Maryland	Prince Georges	240338001	N	13.50				13.5	a		
Washington, DC-MD-VA	24	033	Maryland	Prince Georges	240338003	N		15.49	12.61	13.35	14.1	a	13.8	a
Washington, DC-MD-VA	51	013	Virginia	Arlington	510130020	N	14.73	14.85	14.13	14.45	14.6	A	14.5	A
Washington, DC-MD-VA	51	059	Virginia	Fairfax	510590030	N	14.33	13.11	13.22	13.92	13.6	A	13.4	A
Washington, DC-MD-VA	51	059	Virginia	Fairfax	510591004	N	13.94				13.9	a		
Washington, DC-MD-VA	51	059	Virginia	Fairfax	510591005	N		13.66	13.22	13.68	13.4	a	13.5	a
Washington, DC-MD-VA	51	059	Virginia	Fairfax	510595001	N	14.49	14.06	13.55	14.04	14.0	A	13.9	A
Washington, DC-MD-VA	51	107	Virginia	Loudoun	511071005	N	14.11	13.48	13.08	14.07	13.6	A	13.5	A
Wheeling, WV-OH	54	051	West Virgir	Marshall	540511002	Y	16.05	15.62	15.40	14.41	15.7	NA	15.1	NA

Area	ST	COU	State	County	Site	2004 Data Certified by State?	PM2.5 Mean 2001	PM2.5 Mean 2002	PM2.5 Mean 2003	PM2.5 Mean 2004	Design Value 2001-3	Status 2001-3	Design Value 2002-4	Status 2002-4
Wheeling, WV-OH	54	069	West Virgin	Ohio	540690008	Y	15.55	15.02	15.05	14.14	**15.2**	NA	**14.7**	A
York, PA	42	133	Pennsylvar	York	421330008	Y	16.70	17.06	17.36	16.39	**17.0**	NA	**16.9**	NA
Youngstown-Warren-Sharon, OH-P/	39	099	Ohio	Mahoning	390990005	Y	16.41	14.75	14.41	14.16	**15.2**	NA	**14.4**	A
Youngstown-Warren-Sharon, OH-P/	39	099	Ohio	Mahoning	390990014	Y		13.15	15.03	14.70	**14.1**	a	**14.3**	a
Youngstown-Warren-Sharon, OH-P/	39	155	Ohio	Trumbull	391550007	Y	16.15	14.95	14.01	13.78	**15.0**	A	**14.2**	A
Youngstown-Warren-Sharon, OH-P/	42	085	Pennsylvar	Mercer	420850100	Y	15.07	14.02	13.77	13.37	**14.3**	A	**13.7**	A

Notes

1. All means and design values exclude daily samples invalidated by the State and EPA for various reasons (e.g. equipment malfunction, nearby wildfire, etc.).

2. Data completeness: a site is complete for purposes of showing "attainment" if valid samples are obtained for 75% of the scheduled sampling days each quarter for a three-year period; a site is complete for purposes of showing "nonattainment" if 11 valid samples are obtained each quarter for a 3-year period.

3. The design value "status" columns (for 2001-3 and 2002-4) also take into account data substitution tests to show that a site has complete data. For example, if during a particular quarter, a site has 2 samples less than the number needed to have 75% data capture, one approach provides for the substitution of the maximum quarterly value for the two missing samples. If the design value is below the level of the standard after substituting these higher values, then the site can be deemed to have complete data and be in attainment.

The codes used in the design value status columns are:
NA' = complete, violates NAAQS;
'A' = complete, meets NAAQS;
'na' =incomplete, partial DV exceeds NAAQS;
'a'= incomplete, partial DV meets NAAQS,
'x' = microscale / source oriented, not compared to annual NAAQS

Section 2. Additional discussion for areas requesting to change the status of an individual county from nonattainment to attainment.

This section discusses four areas for which states requested to change specific counties from nonattainment to attainment because they now have monitors with 2002-2004 design values below the level of the standards. In all of these cases, EPA finds that the counties in question nevertheless contribute to the overall air quality problem in the area and should remain designated as nonattainment.

2.A. Indiana

Indiana requested that EPA limit the nonattainment designations to only counties with monitors showing a violation of the NAAQS. EPA notes that Section 107(d) of the Clean Air Act requires that a county which violates the National Ambient Air Quality Standards (NAAQS,) or that contributes to a violation in a nearby area, must be included in the nonattainment area. The monitored air quality for each county is just one of the factors that EPA uses to determine which counties are included in the nonattainment area. Indiana objected to EPA's inclusion of counties that were monitoring attainment, or that have no monitor at all, but which EPA found to be contributing to a violating monitor in another county.

EPA evaluated counties near monitors violating the fine particule standard to determine if those counties contribute to the violation. We analyzed counties using nine factors including emissions, commuting patterns, and population. EPA did not designate a county as nonattainment simply because it contained a power plant. We examined emissions data as a first indicator of a county's potential to contribute to violations. However, EPA promulgated nonattainment designations for counties based on an overall weight of evidence analysis of the nine technical factors described in EPA guidance. In a number of cases, when the contribution from a specific county was attributable primarily to a single significant emissions source and the rest of the county showed little contribution, EPA designated a partial county area as nonattainment. Large power plants have significant emissions and are commonly judged to be important contributors not just to regional background concentrations but also to local PM2.5 concentrations.

Indiana suggested that only the counties with violating monitors should be designated as nonattainment. This is contrary to the statutory directive that EPA should designate not only counties with violating monitors, but also those that contribute to violations in nearby counties. In addition, EPA does not support such an approach because it would provide a disincentive for States to monitor air quality. Indiana also noted that the monitoring data continues to show a trend of decreasing fine particulate levels across the state. EPA is glad that Indiana's ambient air quality is improving. However, this is not a basis for limiting nonattainment designations only to those counties with violating monitors. EPA is obligated to include those counties that contribute to violations of the standard in nearby areas based upon the data before the Agency.

Indiana also stated that it feels that a nonattainment designation will impede economic progress and that future rules will control emissions and bring all areas into attainment. We believe that economic progress and attainment of the NAAQS are not mutually exclusive goals. EPA agrees that current or near term regulatory efforts by EPA, such as the Clear Air Interstate Rule, will do much to alleviate regional nonattainment, but there will continue to be a need for local controls in some areas in order to achieve the NAAQS. In addition, future rules and future reductions from current rules are not considered by EPA for making designations because the area analysis uses current emissions and air quality.

Lake and Porter counties, part of Chicago Nonattainment Area

Both northwestern Indiana counties are in the Chicago nonattainment area. Indiana noted that the 2002 to 2004 design values for all sites in Lake and Porter Counties are below the annual $PM_{2.5}$ standard. The 2001 to 2003 design value for Lake County was above the standard. Indiana requested that EPA change the designation for Lake and Porter Counties be changed to attainment/unclassifiable.

EPA included Lake and Porter Counties in the Chicago nonattainment area because of the violation in Lake County and high emissions, populations, and significant commuting in both counties. Although the design value for the monitor in Lake County is now below the level of the standard after consideration of 2004 data, the other factors indicate that Lake County and Porter County both contribute to the overall air quality problem in the metropolitan Chicago area and that these counties should remain in the Chicago nonattainment area. As EPA explained in the January 5, 2005, notice, it believes that it is appropriate to alter the designation for a nonattainment area based upon 2004 data, if all counties within that area are monitoring attainment based on 2002-04 data. When, as in this case, there is a continuing violation of the standard in the area and the counties continue to contribute to that violation, EPA believes that it is inappropriate to alter the designation of such counties.

Evansville

Indiana disagreed with the designations in the Evansville area. Previously, Indiana requested splitting the Southwestern Indiana area into two parts. The State suggested that Vanderburgh, Warrick, and part of Gibson Counties should be one area and that Dubois County and parts of Pike and Spencer Counties should be another area. We have concluded that splitting the area was not appropriate, given the relative geographic proximity of the counties and the regional nature of the PM2.5 problem. For the Evansville Area, EPA designated a single nonattainment area that includes Dubois, Vanderburgh, and Warrick Counties as well as portions of Gibson, Pike, and Spencer Counties. Indiana asked us to reconsider splitting the Evansville area into two parts and to change the designation for Vanderburgh, Warrick, and Gibson Counties to attainment/ unclassified based upon 2004 data. The 2004 monitoring data shows that all monitors in Vanderburgh County are now below the annual $PM_{2.5}$ standard. However, Dubois County continues to have a design value above 15.0 $\mu g/m^3$.

EPA previously concluded that the violations in Vanderburgh and DuBois Counties arise in part from contributions from Gibson, Pike, Spencer, and Warrick Counties. EPA continues to believe that these counties contribute to violations in DuBois County. While EPA's prior inclusion of Vanderburgh County in the nonattainment area reflected both the violation within the county and the contribution to the broader ambient air problem in the area and the violating monitor in DuBois County, EPA believes that the contribution of emissions in Vanderburgh County to violations in DuBois County by itself warrants inclusion of this county in the nonattainment area. Indeed, Vanderburgh County, which includes the core city of Evansville, has well over half of the metropolitan area population, slightly under half of the metropolitan area vehicle miles traveled, and a significant fraction of the area's emissions. EPA continues to believe that a single area with three full counties and three partial counties is appropriate. Since all the counties in the area are not attaining, even after inclusion of 2004 data, and Vanderburgh county contributes to the air quality violation in the metro area, EPA has determined that the entire Evansville area will remain designated as nonattainment for fine particulate. This is consistent with EPA’s position taken with respect to inclusion of 2004 data in the January 5, 2005 notice.

2.B. <u>Michigan</u>

Detroit area

In response to the January 5, 2005, **Federal Register** notice, the Michigan Department of Environmental Quality (MDEQ) requested a change of designation status to attainment for Livingston, Oakland, Macomb, Monroe, St. Clair, and Washtenaw Counties within Southeast Michigan. Michigan worked diligently to have the 2004 monitoring data completed, quality assured, and certified within the time frame indicated in the January 5, 2005 notice. However, EPA explained that it would consider modification of the initial designations only if each county in the area is monitoring attainment based upon inclusion of 2004 data. Because Wayne County is still monitoring violations of the PM2.5 standard, EPA concludes that a change of designation from nonattainment to attainment is not warranted for the counties listed above. Although Monroe County now shows attainment with the 2002-2004 data, EPA has concluded that Monroe County and the other nearby counties contribute to the violation in Wayne County. Indeed, in ranking composite emission scores for counties within the Detroit area, Monroe County has a score that is second only to Wayne County, and the county is generally upwind from violations recorded in Wayne County. Based upon analysis of all of the factors, EPA concluded that Monroe County should remain nonattainment because Monroe County contributes to the violating monitor in Wayne County.

As we have previously stated, once an area has a monitor violating the NAAQS, EPA evaluates emissions data, along with other information for nine technical factors, to help determine which counties in the area are contributing to the violation. The PM2.5 (air quality) weighted emissions scores are considered in the context of all the relevant factors in determining the boundary of a nonattainment area. EPA must follow the Clean Air Act's prescription to include both the violating area and all nearby areas that contribute to the violation, thereby providing for implementation of the full range of Clean Air Act provisions (including but not limited to the attainment planning requirement) that help address nonattainment problems.

2.C. Ohio

Huntington-Ashland, OH-KY-WV

In a letter dated February 14, 2005, the State of Ohio submitted and certified PM2.5 data for 2004. This letter requested that the Toledo and Youngstown areas and Ohio's portion of the Huntington/Ashland area be designated as attainment for the PM2.5 NAAQS based on inclusion of 2004 data.

Based on data submitted by Ohio (and data from Pennsylvania pertinent to the Youngstown area), EPA has determined that all monitors in the Toledo and Youngstown areas now show attainment of the standard. EPA is modifying the designation for these areas to reflect the inclusion of 2004 data.

Ohio's request for the Huntington/Ashland area presents more complicated issues. The Ohio portion of the Huntington/Ashland PM2.5 nonattainment area consists of Lawrence and Scioto Counties and portions of Adams and Gallia Counties. Ohio states that the highest 3-year average PM2.5 concentration in the Ohio portion of this nonattainment area for the years 2002-2004 is 14.80 µg/m3 (the National Ambient Air Quality Standard for PM2.5 is 15 µg/m3). The State recognized that a monitor in Cabell County, West Virginia (which is part of the Huntington/Ashland nonattainment area) is not measuring attainment for 2002-2004, which prevents the entire nonattainment area from being considered as attainment. The State claimed that the Ohio portion of the Huntington/Ashland nonattainment area has demonstrated significant local emission reductions, which have improved the air quality in the Ohio portion of the nonattainment area. The State also claimed that the Cabell County violations result from local sources, including the AK Steel facility and the Marathon/Ashland refinery, rather than from sources elsewhere in the area designated as part of this nonattainment area by EPA. Also at issue is whether Scioto and Adams Counties, which Ohio labels "the Portsmouth area", should be identified as a separate area from the Huntington/Ashland area.

In the January 5, 2005, notice, EPA explained that it would consider changes to the designation of an area only if every county within that area would be deemed in compliance with the NAAQS as a result of inclusion of the data from 2004. Because the Cabell County, West Virginia, monitor continues to show nonattainment, Ohio's submittal does not meet the criteria EPA identified for mofification of the designation based on 2004 data.

Nevertheless, EPA examined Ohio's recommendation to revise the boundaries of the Huntington/Ashland PM2.5 nonattainment area. For Adams and Gallia Counties, Ohio provided no new information to support a revision to the designation. These counties do not have monitoring data, but both have very high emissions levels that EPA judged to contribute to violations in the Huntington area, and EPA has no reason to change that judgment. For Lawrence County, the county is within the main portion of the metropolitan area (MSA), and has sufficient emissions to warrant continued inclusion in the nonattainment area because of its contribution to nonattainment in the area as a whole.

For Scioto County, although the county is outside the presumptive boundaries nonattainment area because it is outside the CMSA for Huntington/Ashland, EPA concludes that the emissions levels within the county and other factors justify inclusion of the county because of its contribution to nonattainment in the area. EPA notes that the emissions from the county are comparable to those of other counties that EPA included in the nonattainment area, thus warranting continued inclusion of this county because it is contributing to nonattainment in the Huntington/Ashland area. Although EPA concurs with Ohio that air quality improvements at the Portsmouth monitor site correlate closely with the shutdown of the New Boston Coke facility, EPA nevertheless believes that emissions in Scioto County continue to contribute to violations elsewhere in the area. In particular, even if the emissions in Scioto County have been reduced by the shutdown of the New Boston coke plant, they have been and will continue to be increased by construction and operation of a new coke plant that is even closer geographically to the monitored violations in this nonattainment area. Therefore, EPA believes that it would be inappropriate to treat Scioto County or Scioto and Adams Counties as a separate air quality planning area. EPA believes that the Huntington/Ashland area should remain nonattainment and retain the same boundaries as published on January 5, 2005.

Section 3. Chattanooga, TN request to invalidate multiple monitoring samples and change status to attainment.

3.A. Summary

In December 2004, EPA designated Hamilton County, TN, and Catoosa and Walker Counties, GA as nonattainment. The monitors in Hamilton and Walker counties had three years (01 - 03) of data showing design values above the standard. Catoosa was included due to its contribution to both Hamilton and Walker Counties. As allowed by EPA's final designations rule, both TN and GA submitted their 2004 quality assured and certified PM air quality data to EPA for the counties in question. The States requested that fifteen days during 2003 and 2004 of data be "flagged" due to influence from agricultural fires and wildfires. Previously, TN had requested that 10 days in 2002 be flagged and Region 4 rejected the flags. This new submittal included a request that the revised monitoring data be considered and the designation of the area changed to attainment or unclassifiable prior to April 5, 2005.

EPA has determined that at least 7 of these fifteen days should not be flagged as exceptional events. The trajectory analyses conducted by OAQPS do not support the contention that these data are affected by the cited agricultural or wildfires. For the remaining seven days, trajectory analyses do not immediately rule out the possibility that agricultural fires and wildfires had an effect on the air quality monitors in the Chattanooga area. However, EPA does not have sufficient supporting data from the State to determine whether the fires on these days affected air quality in Chattanooga and if they did, whether they should be flagged as exceptional events and removed from the data set of air quality considered for designation purposes. Moreover, even if these 7 days were flagged and removed from the air quality data set because EPA agreed that they should qualify as exceptional events that may properly be excluded from designation decisions, the Hamilton County monitor would continue to be nonattainment.

On those seven days that EPA's trajectory analysis indicated that there may have been impacts resulting from a fire event, EPA looked at speciation data that was available. Of the seven days that may have been impacted, only three of those days had speciation data available. The sulfates on those three days ranged from 12 to 15 $\mu g/m^3$ while the organic carbon (a wildfire marker) ranged from 5 to 9 $\mu g/m^3$. Neither of these ranges was unusual as compared to any other summer day with high values. Wildfires are not the only source of organic carbon. Chattanooga also used potassium as a wildfire marker. The use of potassium has been questioned by EPA scientists, but even if it were used, the potassium levels were not any higher on a percentage basis on these alleged event days than other days with high values. Since the speciation data did not support Chattanooga's request, we determined the data to be inconclusive. It is more plausible to believe that these days were typical summer days, high temperatures resulting in the conversion of SO2 to sulfates. If one assumes that the sulfates and nitrates were ammonium sulfates and nitrates, their contribution would be even greater than the ranges given above.

The supporting data provided by Chattanooga to qualify the elevated and/or exceedance measurements as exceptional events is neither sufficient nor conclusive for this determination. The frequency of fires, the distant locations for the fires, and the lack of specific detailed consequence analysis for each fire-measurement event make the provided justification insufficient and/or inconclusive to exempt the measured data as exceptional fire-caused events. Additional, more detailed consequence specific information is needed to make this determination. The new information in the November 4, 2004, Chattanooga-Hamilton County Air Pollution Control Bureau letter does not change the conclusions provided in EPA’s December 1, 2003, memorandum on the original request. The evidence provided is insufficient to conclusively support the request to define the April, June, and August 2003 events as exceptional because of the influence of distant agricultural and wild fires. Additional detailed analyses and information are needed to support this exceptional event request. See EPA’s November 30, 2004, memorandum, and forward and back trajectories, for detailed information.

The information submitted by Chattanooga in support of their request for the June, July, and August 2004 events was inadequate. Among the problems with their request are: the trajectory analyses were done at such high levels of the atmosphere that mixing of fire emissions with ground level air was highly improbable; there was no comprehensive analysis of the speciated air quality data in the Chattanooga area and receptor modeling techniques were not used to try and identify the sources of the PM2.5 mass in the area; and there was no assessment of the impact of regional and local sources of emissions on PM2.5 concentrations in Chattanooga.

EPA includes the following documents in support of the decision for the Chattanooga area:

3.B. Chattanooga design value analysis

SECTION 3.B. OF TECHNICAL SUPPORT DOCUMENT FOR PM2.5 DESIGNATIONS SUPPLEMENTAL NOTICE -- APRIL 5, 2005

CHATTANOOGA DESIGN VALUE ANALYSIS FOR 2002-4

Not including invalidation of any data

Area	ST	COU	State	County	Site	Design Value 2001-3	Status 2001-3	Design Value 2002-4	Status 2002-4	Notes 2002-4
Chattanooga, T	47	065	Tennessee	Hamilton	470650031	16.1	NA	15.7	NA	Meets completeness w/ 'minv' substitution test.
Chattanooga, T	13	295	Georgia	Walker	132950002	15.5	NA	15.2	NA	
Chattanooga, T	47	065	Tennessee	Hamilton	470654002	15.2	NA	14.7	A	
Chattanooga, T	47	065	Tennessee	Hamilton	470650032	14.2	a	14.2	a	Only 1 partial quarter of data
Chattanooga, T	47	065	Tennessee	Hamilton	470651011	14.1	a	13.8	A	Meets completeness w/ 'maxq' substitution test.

After requested flag processing - assuming all requested flags were to be approved

Area	ST	COU	State	County	Site	Design Value 2001-3	Status 2001-3	Design Value 2002-4	Status 2002-4	Notes 2002-4
Chattanooga, T	47	065	Tennessee	Hamilton	470650031	15.5	NA	14.9	a	Does not meet completeness requirements. Fails 'maxq' substitution test; substituting max quarterly value of 32.5 for missing 2002-Q1 samples yields test DV of 15.5.
Chattanooga, T	13	295	Georgia	Walker	132950002	15.0	A	14.5	A	
Chattanooga, T	47	065	Tennessee	Hamilton	470654002	15.0	A	14.2	A	
Chattanooga, T	47	065	Tennessee	Hamilton	470650032	14.2	a	14.2	a	Only 1 partial quarter of data
Chattanooga, T	47	065	Tennessee	Hamilton	470651011	13.6	a	13.3	A	Meets completeness w/ 'maxq' substitution test.

Design values if 8 exclusions were allowed

Area	ST	COU	State	County	Site	Design Value 2001-3	Status 2001-3	Design Value 2002-4	Status 2002-4	Notes 2002-4
Chattanooga, T	47	065	Tennessee	Hamilton	470650031	15.9	NA	15.4	NA	Meets completeness w/ 'minv' substitution test.
Chattanooga, T	13	295	Georgia	Walker	132950002	15.3	NA	14.8	A	
Chattanooga, T	47	065	Tennessee	Hamilton	470654002	15.1	NA	14.4	A	
Chattanooga, T	47	065	Tennessee	Hamilton	470650032	14.2	a	14.2	a	Only 1 partial quarter of data
Chattanooga, T	47	065	Tennessee	Hamilton	470651011	13.9	a	13.6	A	Meets completeness w/ 'maxq' substitution test.

Notes

1. All means and design values exclude daily samples invalidated by the State and EPA for various reasons (e.g. equipment malfunction, nearby wildfire, etc.).

2. Data completeness: a site is complete for purposes of showing "attainment" if valid samples are obtained for 75% of the scheduled sampling days each quarter for a three-year

3. The design value "status" columns (for 2001-3 and 2002-4) also take into account data substitution tests to show that a site has complete data.
For example, if during a particular quarter, a site has 2 samples less than the number needed to have 75% data capture, one approach provides for the substitution of the maximum quarterly value for the two missing samples. If the design value is below the level of the standard after substituting these higher values, then the site can be deemed to have complete data and be in attainment.

The codes used in the design value status columns are:
NA' = complete, violates NAAQS;
'A' = complete, meets NAAQS;
'na' =incomplete, partial DV exceeds NAAQS;
'a'= incomplete, partial DV meets NAAQS,
'x' = microscale / source oriented, not compared to annual NAAQS

3.C. Memorandum from Stanley Krivo, EPA Region 4, to Richard Guillot, EPA Region 4, Regarding Exceptional Events for Exceedances/Elevated Ozone and PM2.5 Measurements, Jefferson County, AL and Chattanooga-Hamilton County, TN; December 1, 2003

Office Memorandum
<u>Air Quality Modeling and Transportation Section</u>

To: Richard Guillot

Information: Scott Davis
Rick Gillam
Brenda Johnson

From: Stan Krivo

Date: 01 December 2003

Subject: Exceptional Events for Exceedances/Elevated Ozone and PM2.5 Measurements (Jefferson County, AL and Chattanooga-Hamilton County, TN)

The following are my review comments on the justification provided to exempt the monitored measurements of ozone and/or PM2.5 because measurements are considered exceptional events.

<u>October 2000 for Jefferson County, AL</u>

1. Time Series Measurements - The provided measurements of PM2.5 for the Wylam and N. Birmingham monitors reveals similar pattern of measurements for 21-28 October 2000. These measurements do not appear to be outliers. If the ozone 8-hour measurements follow the same pattern as the 24-hour PM2.5, the exceedance measurements of concern will also not be outliers.

2. Fire Locations - The surface winds for the dates of concern show very little transport so only local fires could contribute to the concentration measurements. The specific location of the fire and the start/stop dates and times were not provided to relate to the time series measurements. To determine the affect of the fires on the measurements, the total time series of measurements for all Jefferson monitors should be review for the period when the fires were occurring.

Based on the information provided, only local fires could possibly affect the measurements of concern. More specific information on the fire(s) location, start time and end time are needed to relate the fire emissions to measurements of ozone and PM in the Birmingham area. The provided supporting information is not sufficient nor conclusive enough to eliminate the elevated/exceedance measurements.

2002/2003 for Chattanooga-Hamilton County, TN.

1. Number of Exception Events/Region of Concern - It appears that every elevated or exceedance measurement of ozone or PM is being exempted based on the potential that emissions from fires could have contributed to the concentrations. Because the location of the fires range from the local county to northern Canada, Minnesota, to Mexico, it is likely that a fire would have occurred somewhere in this large region during the period of concern. Therefore, it is most important that the transport mechanism exist and the resultant contribution from the fires be large enough to significantly impact the measured values.

2. Back Trajectories - The back trajectory calculations are used to show that the transport mechanism exists during the period of elevated measurement. Given the transport mechanism exists, the fire's emissions could contribute to the measured concentration. Back trajectories calculations were not performed in a consistent manner for each event. It appears that the only justification needed to show that a fire contributed to an observed elevated measurement is that a back trajectory calculation from any atmospheric level must past near the location of a fire during some period near the time of the measurement. The atmospheric levels used in the back trajectory calculations range from the surface to 5,000 meters. It should be noted that even give this broad, liberal criteria, the provided trajectories for some events still do not past close enough to the fire(s) to support the conclusion that transport of fire emissions to the monitor is possible.

3. Concentrations - The back trajectories and the fire maps with the location of possible smoke plumes are not detailed enough to provide conclusive transport information and provide no information of the magnitude of the potential contribution. Given the large distances that the fire emissions must travel to reach the location of concern, the magnitude of the fire plume's concentrations must be small.

4. Routine Fires - The fires in KS and OK that are indicated to have affected the April 2003 measurements in Chattanooga-Hamilton County are annual events. These same fires should have caused problem measurements in the past but the report indicates that since 1990 no other year's measurements were a problem. One exceedance in this period (on 04/25/98) was noted and it was attributed to fires in Mexico. The annual nature of the fires and the lack of past impacts to the measurements, along with the large distances between the fires and Chattanooga-Hamilton County, bring into question the source as well as the magnitude of concentration contributions associated with the KS/OK fires.

5. Time Series Measurements - To support the request for exemption, seasonal time series plots of all measurements should be provided to demonstrate that the requested values are outliers from the rest of the measurements and that their large magnitudes are caused by the noted fires. Should the time series plots show that the requested elevated concentrations or exceedances are within the normal range of measurements, than the events may not exceptional events.

In summary, I believe the supporting data provided to qualify the elevated and/or exceedance measurements as exceptional events is not sufficient nor conclusive for this determination. It appears from the frequency of fires, the distant locations for the fires, and the lack of specific detailed consequence analysis for each fire-measurement event make the provided justification insufficient and/or inconclusive to exempt the measured data as exceptional fire-caused events. Additional, more detailed consequence specific information is needed to make this determination.

Please let me know if you have any questions.

3.D. Memorandum from Stanley Krivo, EPA Region 4, to Richard Guillot, EPA Region 4, Regarding 2003 Exception Events for Exceedances/Elevated Ozone and PM2.5 Measurements, Chattanooga-Hamilton County Air Pollution Control Bureau (APCB) November 4, 2004 Letter; December 2, 2004

Office Memorandum
<u>Air Quality Modeling and Transportation Section</u>

To: Richard Guillot

Information: Joel Hansel
Rick Gillam
Brenda Johnson

From: Stan Krivo

Date: 02 December 2004

Subject: 2003 Exception Events for Exceedances/Elevated Ozone and PM2.5 Measurements
Chattanooga-Hamilton County Air Pollution Control Bureau (APCB)
November 4, 2004 Letter

The following are my review comments on the additional information provided in the referenced APCB letter to justification the exemption of three 2003 periods of monitored ozone and PM2.5 measurements because they are considered exceptional events. The original December 2003 exemption request included additional periods.

1. Exception Events/Region of Concern - Three events during 2003 with elevated or exceedance measurements of ozone or PM2.5 are requested for exemption based on the belief that emissions from distance fires caused or significantly contributed to the measured concentrations. The three periods are:

- Ozone April 12, 14, and 15

PM2.5 April 15

- Ozone June 24, 25, 26
  PM2.5 June 26, 29

- Ozone August 26
  PM2.5 August 19, 22, 25, 28

It appears that the selected days for exemption were based on the elevated magnitude of the measured concentrations (e.g., top 10 measurements during year or values exceeding the standards).

For all the events only distant fires were noted as significant reasons for the elevated measurements. Review of more local causes for these measurements were not indicated to have been performed. To understand and more conclusively attribute the elevated measurements to these distant fires, the following are suggested needed studies or information.

- Dates and locations of the identified controlled Kansas fires and Canadian wildfires to correlate with periods of high measurements in region.
- Identification of any other Kansas and Canadian fires during 2003 and corresponding Chattanooga area ambient ozone and PM2.5 measurements to determine the uniqueness of these events to ambient Chattanooga conditions.
- Duration of the elevated pollutant measurements in Chattanooga area needs to be supported. The start and end dates for the burns were not provided. TOMS aerosol observations during each of these events do not provided conclusive evidence of fire plumes transportation to the Chattanooga area.
- Magnitude of the Kansas and Canadian fires contribution to Chattanooga's measurements should be considered. When comparing the ozone and PM2.5 measurements, provided in the new time series plots, on either side of the requested exemption periods to the maximum values on the requested exception days, the distance fires would have to contribute 20 to 40 ppb to the ozone measurements and 15 to 30 ug/m^3 to the PM2.5 measurements. Considering the large distance, it appears unlikely that this large a contribution would come from such a distant source.
- More local causes for the identified elevated measurements must be investigated and eliminated. For example, the large power plants in NW Georgia and NE Alabama should be eliminated as possible cause for these elevated measurements. [Note: The TOMS visual for April event indicated large aerosol concentrations in an area of NE Alabama/NW Georgia, general location of large power plants - a possible source of pollutants that could be transported to the Chattanooga area causing the April elevated measurements. The TOMS observations should be related to the back trajectory analyses for a more conclusive argument.]
- Synoptic analyses of the weather events during the identified exceptional periods should be provided. The synoptic conditions along the expected transportation pathways during the events would provide additional information that would be of value in evaluating the possibility of long range transport of pollutants from controlled and wildfire burns.

- Other areas of the SE should be reviewed for these same exceptional event days. If plumes from the distant fires affected the Chattanooga area, they should have also affected other measurements in the SE (e.g., Knoxville, Nashville, and Atlanta). Have these areas also requested exceptional events for the identified days?

2. TOMS Observations - Review of the TOMS videos did not conclusively demonstrate transport of burn emissions to the Chattanooga area. This is especially true considering the TOMS observations are at 10,000 feet or more elevation. The analysis appears to assume that high TOMS concentrations on the days of concern over SE TN are representative of surface concentrations. It also assumes that low TOMS concentrations over SE TN on the days of concern just mean that the fire plume is lower than 10,000 feet - a can't lose situation. Left unanswered is the question of magnitude of the fire plume's contribution to the measurements.

3. Back Trajectories - Nothing new was provided on the back trajectory calculations. Our previously provided comments on the bask trajectory analysis are still applicable. Back trajectories calculations were not performed in a consistent manner for each event. It appeared that the only justification needed to show that a fire contributed to an observed elevated measurement is that a back trajectory calculation from any atmospheric level must past near the location of a fire during some period near the time of the measurement.

4. Routine Fires - The fires in KS and OK that are indicated to have affected the April 2003 measurements in Chattanooga-Hamilton County are annual events. These same fires should have caused problem measurements in the past but the report indicates that since 1990, no other year's measurements were a problem. One exceedance in this period (on 04/25/98) was noted and it was attributed to fires in Mexico. The annual nature of the fires and the lack of past impacts to the measurements, along with the large distances between the fires and Chattanooga-Hamilton County, bring into question this source as the cause of the elevated measurement event. This is especially true when more local causes of the elevated concentrations were not eliminated.

5. Speciation Data - Graphs of speciation data were provided for the 2003 ozone season. It was indicated that the biomass markers were provided however there is no discussion indicating support or non-support for the fires causing the elevated measurements on the requested exceptional event days.

In summary, I believe the new information in the 4 November 2004 Chattanooga-Hamilton County Air Pollution Control Bureau letter does not change the conclusions provided in my 1 December 2003 memorandum on the original request. The evidence provided is insufficient to conclusively support the request to define the April, June, and August 2003 events as exceptional because of the influence of distance agricultural and wild fires. Additional detailed consequence specific analyses and information, such as that suggested in item 1 above, are needed to support this exceptional event request.

Please let me know if you have any questions.

3.E. EPA Review of Trajectory Analysis, March 29 2005

April 15, 2003   Kansas Agricultural Fires

Chattanooga Tennessee did not provide any trajectory analyses.

Back trajectory analysis was performed using start heights of 500 m, 1500 m and 2468 m. The trajectories indicate that except at the top of the mixed layer, air within the mixed layer over Chattanooga came from Georgia and circled around back through Tennessee, Kentucky and Illinois but did not originate in Kansas. The top trajectory indicates it could have originated over Kansas 4 to 5 days prior to April 15. Fires over Kansas around April 10, 2003 would need to be shown in order to provide any evidence of an impact upon Chattanooga.

June 26, 2003   Canadian Fires from Western Ontario

Chattanooga did not provide any trajectory analyses.

Back trajectory analysis was performed using start heights of 500 m, 1000 m and 1908 m. The trajectories indicate air within the mixed layer over Chattanooga was rather stagnant and came from the south and southeast around Georgia and Florida coastal areas, not from Canada.

June 29, 2003   Canadian Fires from Western Ontario

Chattanooga did not provide any trajectory analyses.

Back trajectory analysis was performed using start heights of 500 m, 1000 m and 2020 m. The trajectories indicate that air at low levels of the atmosphere was nearly stagnant and meandered around Alabama and Georgia. However, near the top of the mixed layer the air was shown to have come from central Canada. Although only one trajectory supports it, it does indicate that smoke from the fires in Ontario could have transported down to Tennessee and could have entrained into the mixed layer to the surface in Chattanooga.

August 19, 2003   Canadian Fires

Chattanooga did not provide any trajectory analyses.

Back trajectory analysis was performed using start heights of 500 m, 1000 m, and 1679 m. Trajectories do indicate that the air within the mixed layer over Chattanooga may have originated in south central Canada 3 to 5 days prior to August 19. However, there were no satellite photographs in the supporting documentation to indicate whether smoke was over south central Canada or not during that same time period.

August 22, 2003 Canadian Fires

Chattanooga did not provide any trajectory analyses.

Back trajectory analysis was performed using start heights of 500 m, 1000 m and 1697 m. The trajectories do not show any evidence of originating in Canada within the 120 hour run. They remain within the southeast and midwestern regions of the U.S. Although TOMS satellite photographs show smoke from Canada traveling near Tennessee, the trajectory evidence does not support the smoke entraining down into the mixed layer.

August 25, 2003 Canadian Fires

Chattanooga did not provide any trajectory analyses.

Back trajectory analysis was performed using start heights of 500 m, 1000 m and 1294 m. This analysis does provide evidence that smoke from the Canadian fires may have impacted Chattanooga. Trajectories originate in south central Canada 3 to 5 days prior to their potential impact with Tennessee. The TOMS satellite photographs indicate smoke in south central Canada at the same location as the trajectories at the same time 3 to 5 day period prior to the potential impact over Tennessee. It is uncertain whether the smoke over that region was at the same height as the trajectories though.

August 28, 2003 Canadian Fires

Chattanooga did not provide any trajectory analyses.

Back trajectory analysis was performed using start heights of 500 m, 1000 m and 1723 m. The trajectories do not show any evidence of originating in Canada. They remain within the southeast and midwestern regions of the U.S.

June 8, 2004 Arkansas Agricultural Wheat Fires

Chattanooga performed a trajectory analysis using FNL low resolution data which is not the recommended data set for this analysis. They used start heights of 7000 m, 6500 m and 6750 m. These start heights are inappropriate because they are well above the calculated mixed layer.

More appropriate back trajectories were performed using EDAS high resolution data and start heights of 500 m, 1000 m and 1834 m. These trajectories show evidence against any smoke from Arkansas moving over Chattanooga and affecting the mixed layer. The trajectories come from a southeast direction near the Georgia and Florida coasts, not from a westward direction from Arkansas.

June 11, 2004 Arkansas Agricultural Wheat Fires

Chattanooga performed a trajectory analysis using FNL low resolution data which is not the recommended data set for this analysis. They used start heights of 9000 m, 8000 m and 7000 m. These start heights are inappropriate because they are well above the calculated mixed layer.

More appropriate back trajectories were performed using EDAS high resolution data and start heights of 500 m, 1500 m and 2154 m. These trajectories do not show any evidence of originating in Arkansas. They indicate that the air meandered throughout eastern Tennessee, Alabama and Georgia within 3 days prior to June 11.

July 17, 2004   Alaskan Fires

Chattanooga performed a trajectory analysis using FNL low resolution data which is not the recommended data set for this analysis. They used start heights of 4000 m, 5000 m and 7000 m. These start heights are inappropriate because they are well above the calculated mixed layer.

More appropriate back trajectories were performed using EDAS high reolution data and start heights of 500 m, 1000 m and 1484 m. These trajectories originate over south central Canada about 5 days prior to July 17. TOMS satellite data shows smoke from Alaska traveling down into south central Canada about 2 to 3 days prior to July 17. According to the trajectories, the timing appears to be off to provide evidence that the Alaskan smoke impacted Chattanooga.

July 20, 2004   Alaskan Fires

Chattanooga performed a trajectory analysis using FNL low resolution data which is not the recommended data set for this analysis. They also used inappropriate start heights of 3000 m, 7000 m and 9000 m, which are all above the calculated mixed layer height.

Appropriate back trajectory analysis was performed using high resolution EDAS data and start heights of 500 m, 1000 m and 1834 m. This analysis does provide evidence that smoke from the Alaskan fires may have impacted Chattanooga Tennessee. Trajectories originate in south central Canada 5 days prior to their potential impact with Tennessee. The TOMS satellite photographs indicate smoke from Alaska at the same location in south central Canada as the trajectories at the same time 5 days prior to the potential impact over Tennessee. It is uncertain whether the smoke over that region was at the same height as the trajectories though.

August 4, 2004   Alaskan and Canadian Fires

Chattanooga performed a trajectory analysis using FNL low resolution data which is not the recommended data set for this analysis. They also used inappropriate start heights of 2000 m, 3000 m and 4000 m, which are all above the calculated mixed layer height.

Appropriate back trajectory analysis was performed using start heights fo 500 m, 1000 m and 1516 m. Comparing these trajectories with the satellite photographs does indicate that the smoke from the Alaskan and Canadian fires could have impacted Chattanooga. The trajectories intersect the smoke on the photographs. There is some uncertainty about the height of the smoke and whether it was at the same levels as the trajectories.

August 10, 2004   Alaskan and Canadian Fires

Chattanooga performed a trajectory analysis using FNL low resolution data which is not the recommended data set for this analysis. They also used one inappropriate start height of 4000 m, which is above the calculated mixed layer height.

More appropriate back trajectory analysis was performed using start heights of 500 m, 1500 m and 2138 m, all within the calculated mixed layer height. The trajectories do not provide evidence that smoke from the Alaskan and Canadian fires impacted Chattanooga based on the satellite photographs provided. The day before, on August 9, the trajectories meandered to the south and east of Chattanooga when the satellite photographs indicate the smoke was north and west of Chattanooga that day. Satellite photographs show the smoke moving across the state of Tennessee from the northwest to the southeast which appear to be more indicative of the winds at higher heights above the mixed layer. There is some uncertainty that the trajectories could have intersected the smoke several days before since they came from the north, but satellite photographs were not provided for the previous days so it could not be verified.

August 16, 2004   Alaskan and Canadian Fires

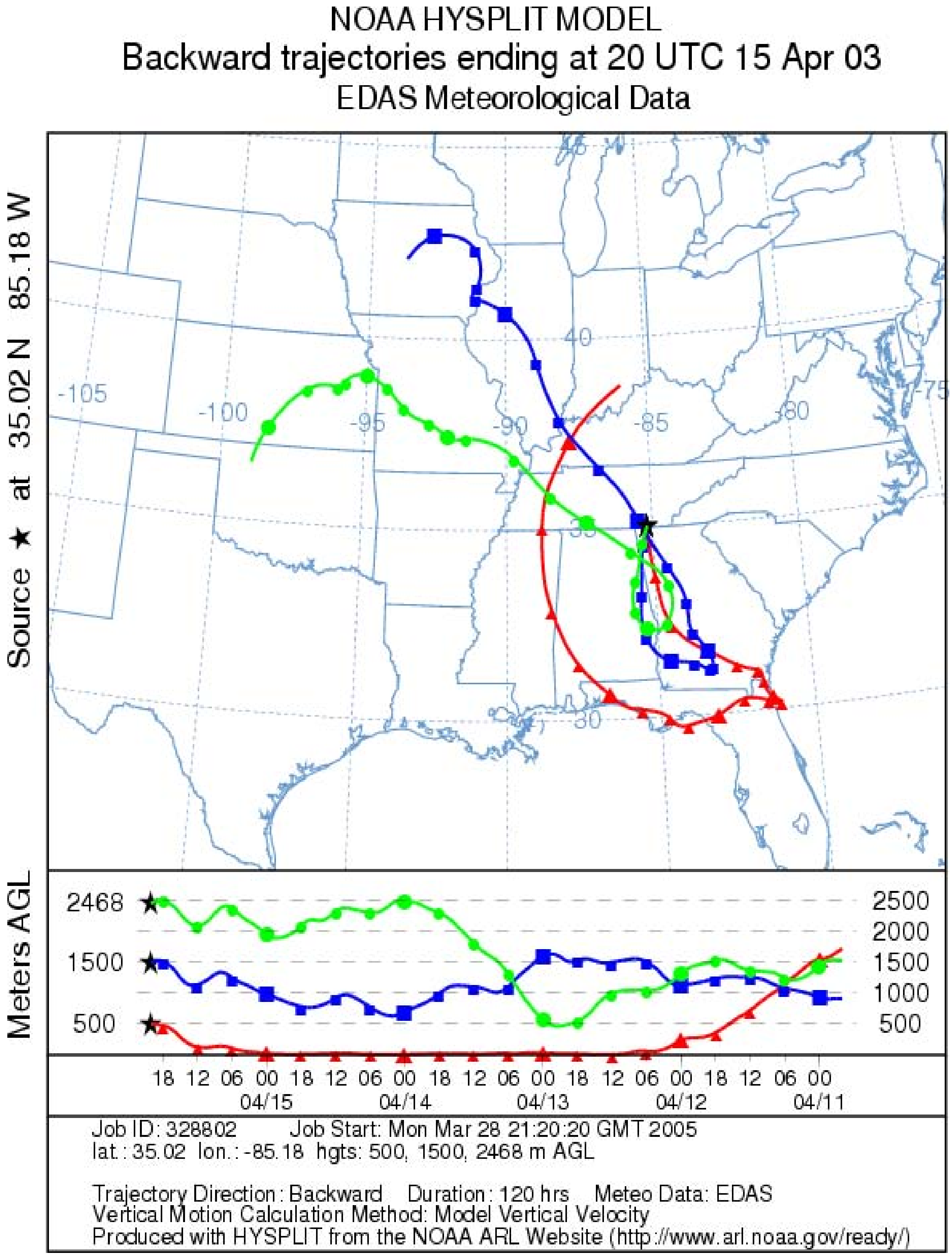
Chattanooga performed a trajectory analysis using high resolution EDAS data. They used an inappropriate start height of 6000 m, well above the mixed layer.

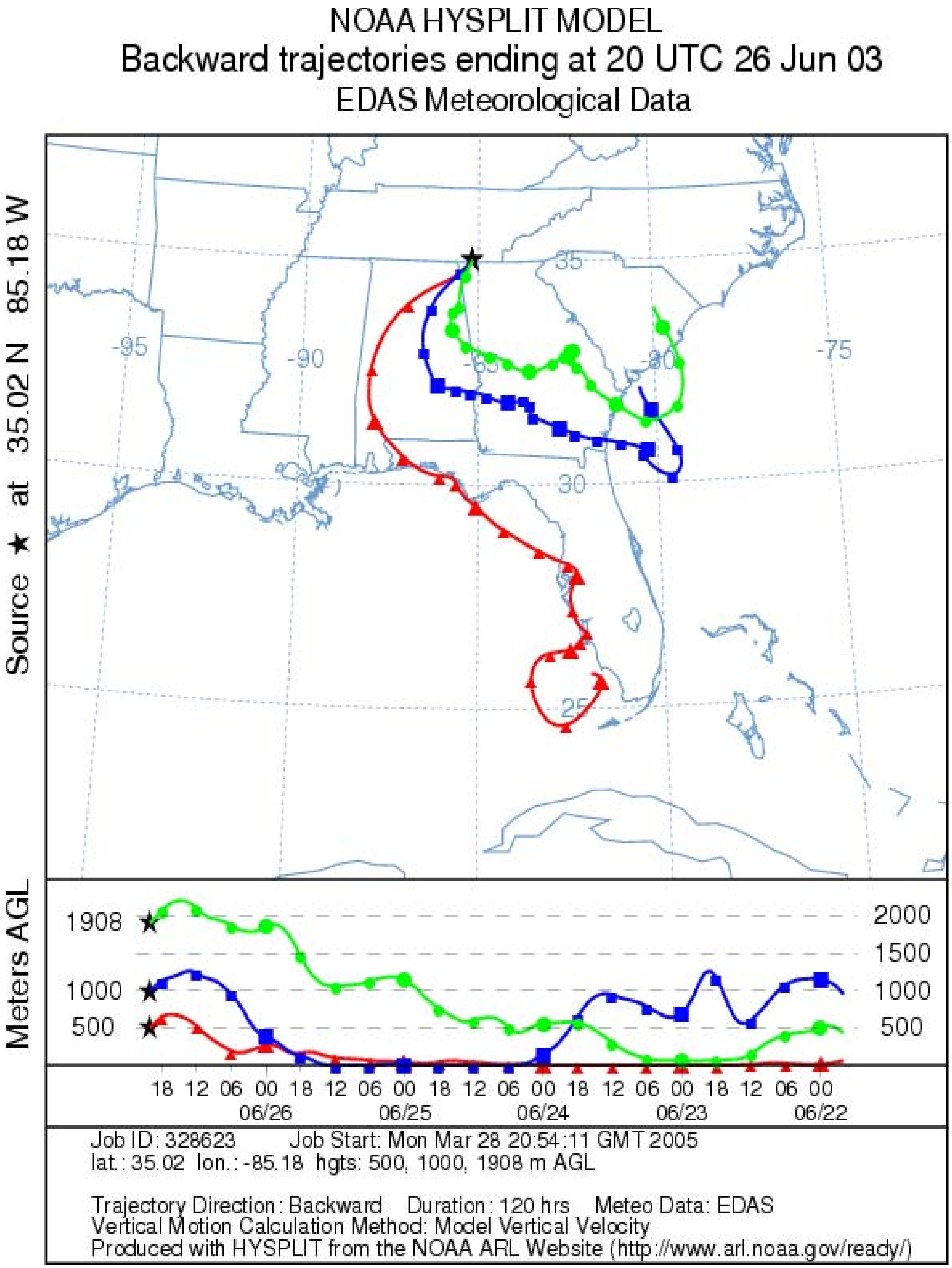
Appropriate back trajectory analysis was performed using start heights of 500 m, 1000 m and 1784 m. One trajectory does originate from south central Canada but two trajectories do not and they remain in the southeast region of the U.S. This indicates that smoke from Canada could have transported south to Tennessee although only one trajectory at one level supports it.

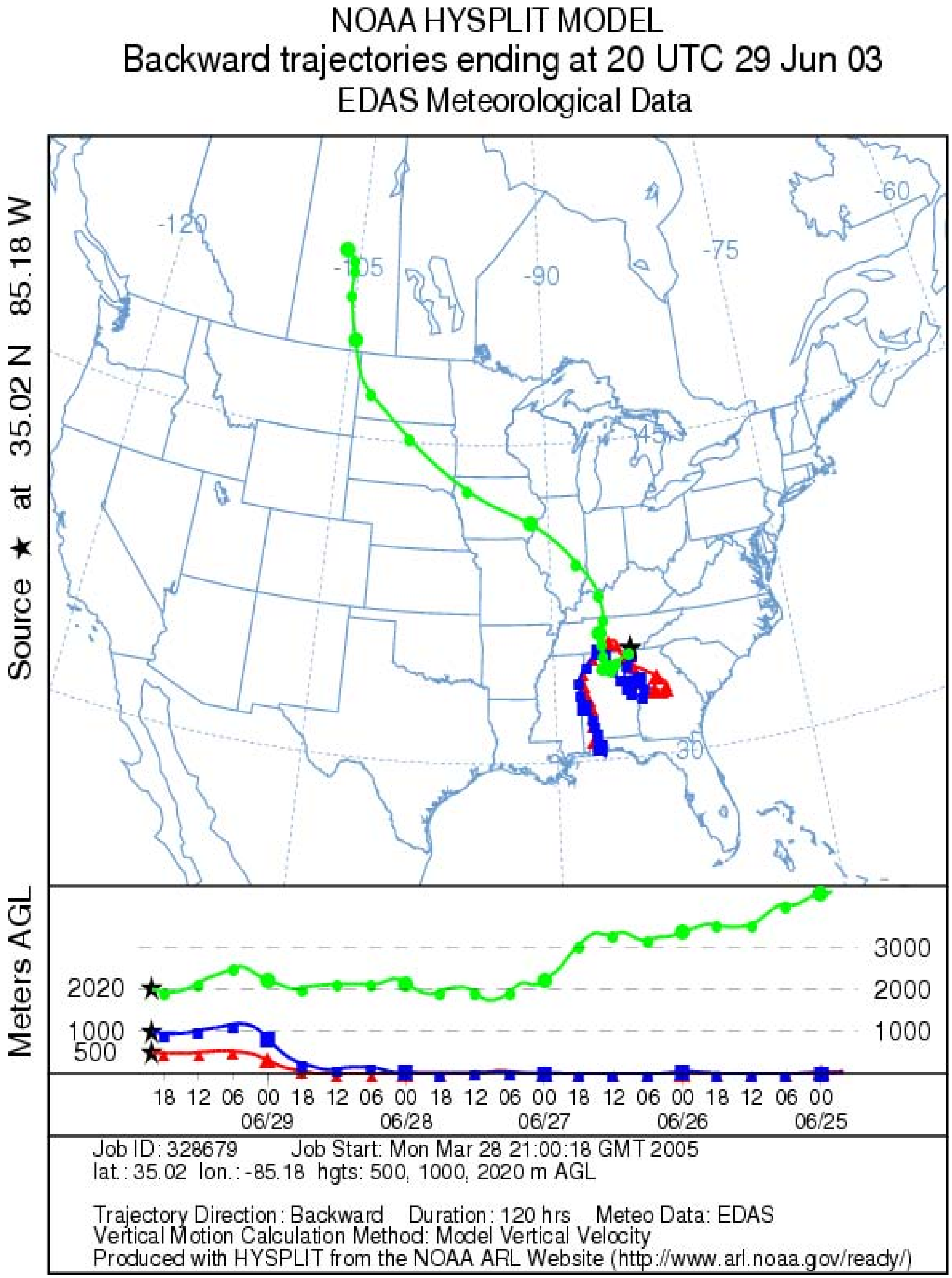
August 19, 2004 Alaskan and Canadian Fires

Chattanooga performed a trajectory analysis using FNL low resolution data which is not the recommended data set for this analysis. They used start heights of 1000 m, 2000 m and 3000 m. The 3000 m start height is inappropriate because it is above the calculated mixed layer. The 3000 m start height trajectory is the only trajectory that originated in Canada. The other lower level trajectories remained in the southern U.S.

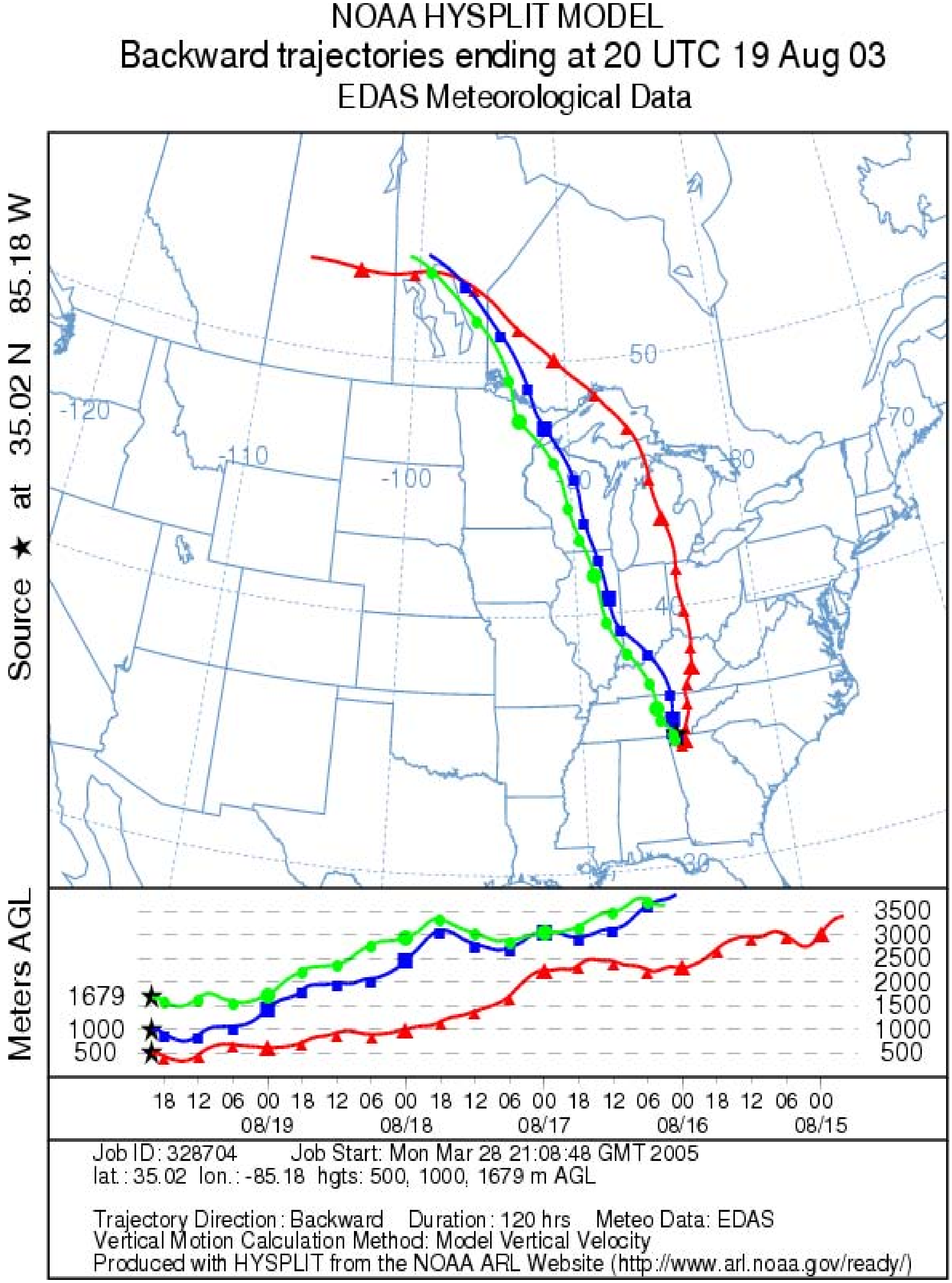
More appropriate back trajectory analysis was performed using start heights of 500 m, 1000 m and 2234 m. These trajectories were also performed using high resolution EDAS data. These trajectories do not provide any evidence of smoke transport from Canada or Alaska and the trajectories remained in the south and central regions of the U.S.

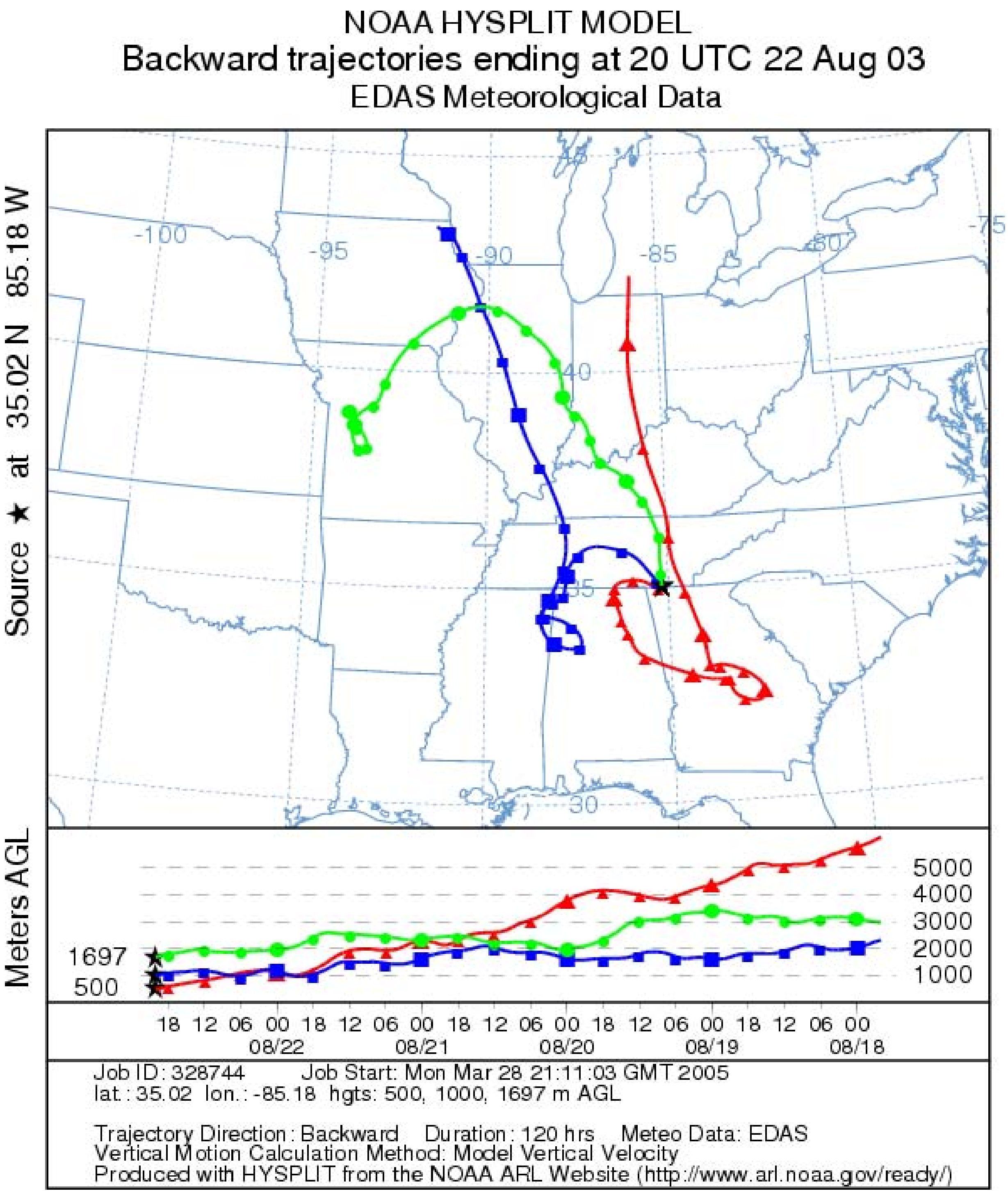

NOAA HYSPLIT MODEL
Backward trajectories ending at 20 UTC 15 Apr 03
EDAS Meteorological Data
Source ★ at 35.02 N 85.18 W
-105
-100
-95
-90
-85
-80
-75
40
35
30
Meters AGL
2468
1500
500
2500
2000
1500
1000
500
18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00
04/15
04/14
04/13
04/12
04/11
Job ID: 328802 Job Start: Mon Mar 28 21:20:20 GMT 2005
lat.: 35.02 lon.: -85.18 hgts: 500, 1500, 2468 m AGL
Trajectory Direction: Backward Duration: 120 hrs Meteo Data: EDAS
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (http://www.arl.noaa.gov/ready/)

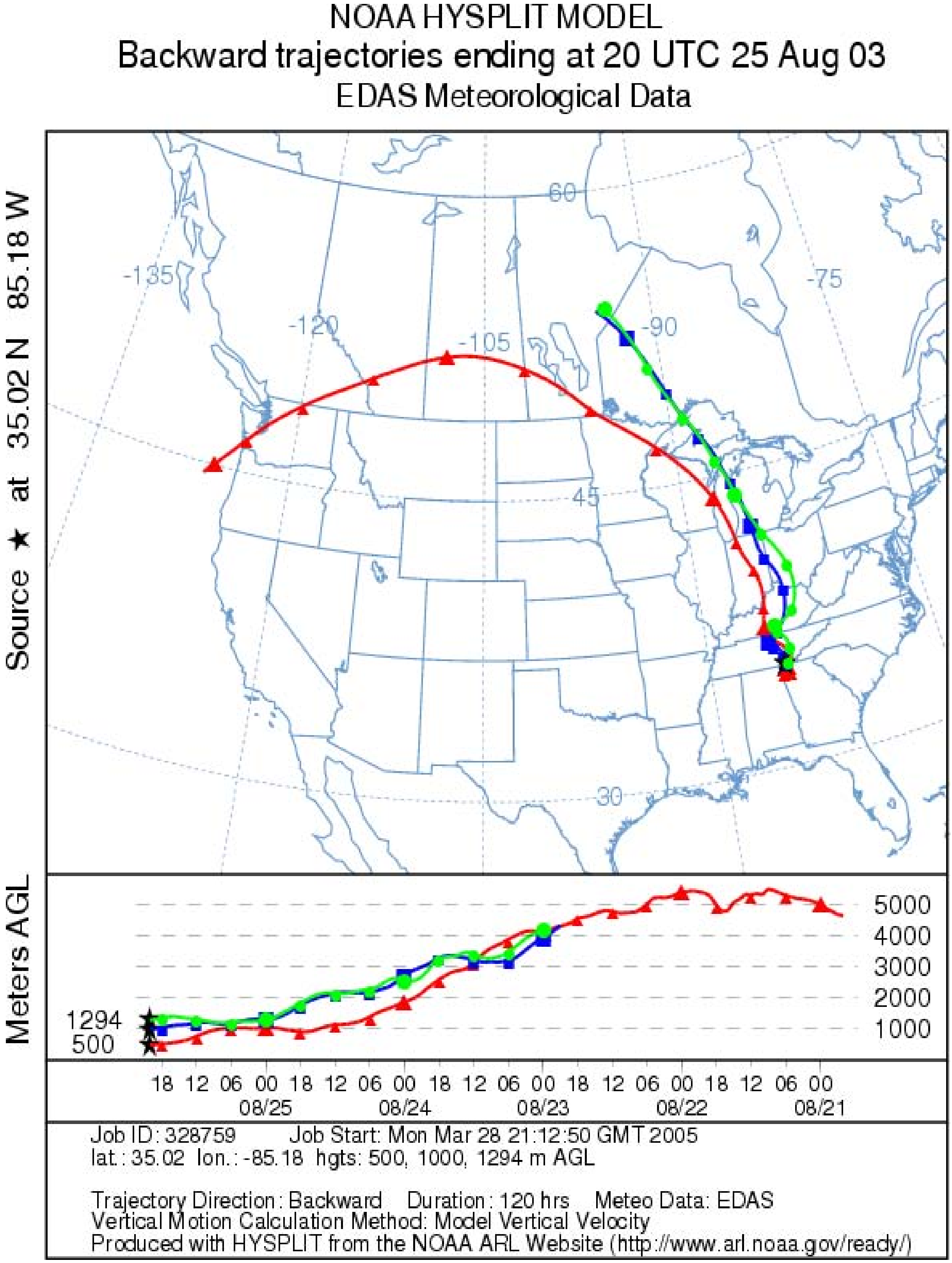

NOAA HYSPLIT MODEL
Backward trajectories ending at 20 UTC 26 Jun 03
EDAS Meteorological Data
Source ★ at 35.02 N 85.18 W
Meters AGL
1908
1000
500
2000
1500
1000
500
18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00
06/26
06/25
06/24
06/23
06/22
Job ID: 328623 Job Start: Mon Mar 28 20:54:11 GMT 2005
lat.: 35.02 lon.: -85.18 hgts: 500, 1000, 1908 m AGL
Trajectory Direction: Backward Duration: 120 hrs Meteo Data: EDAS
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (http://www.arl.noaa.gov/ready/)

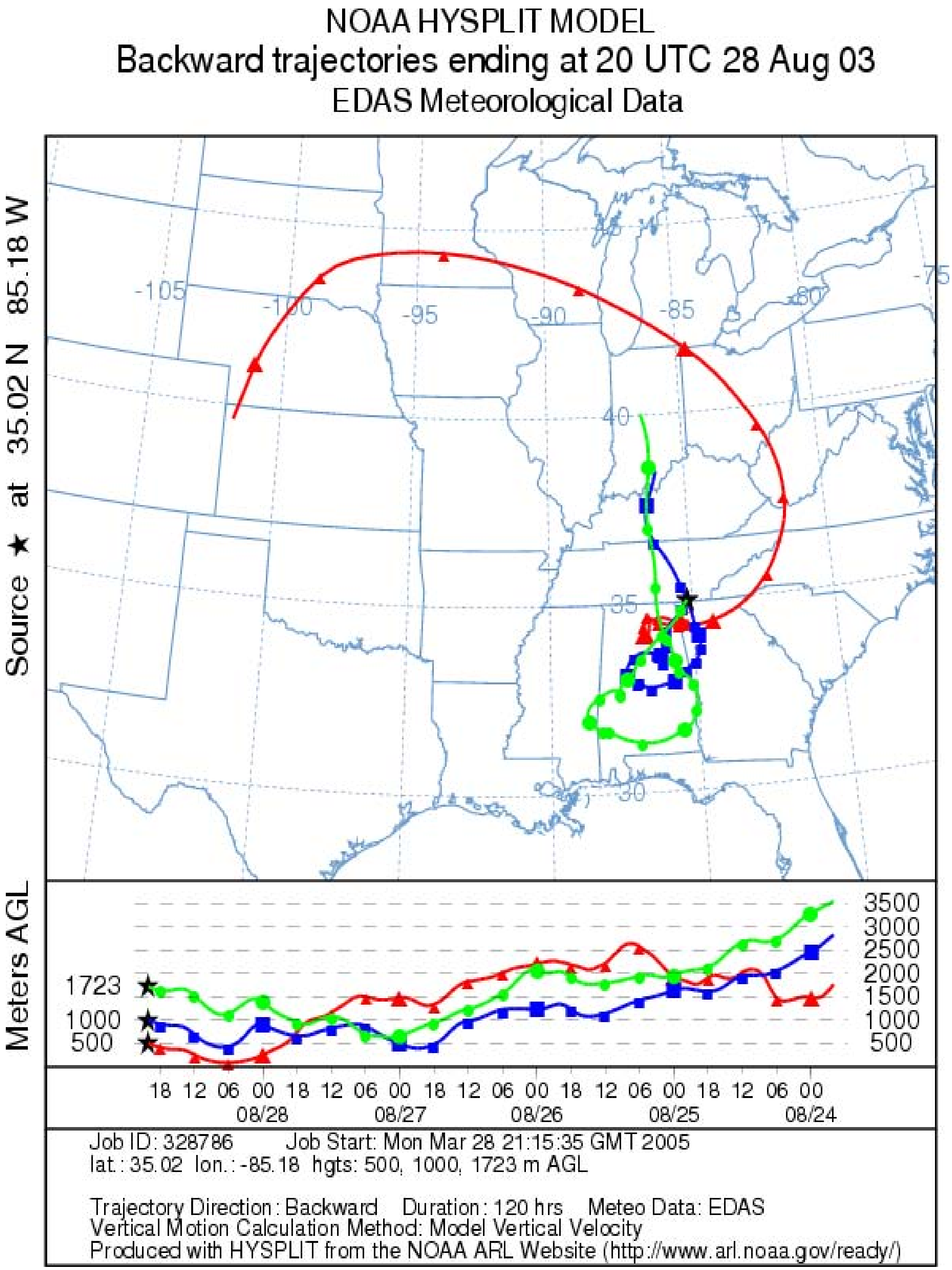


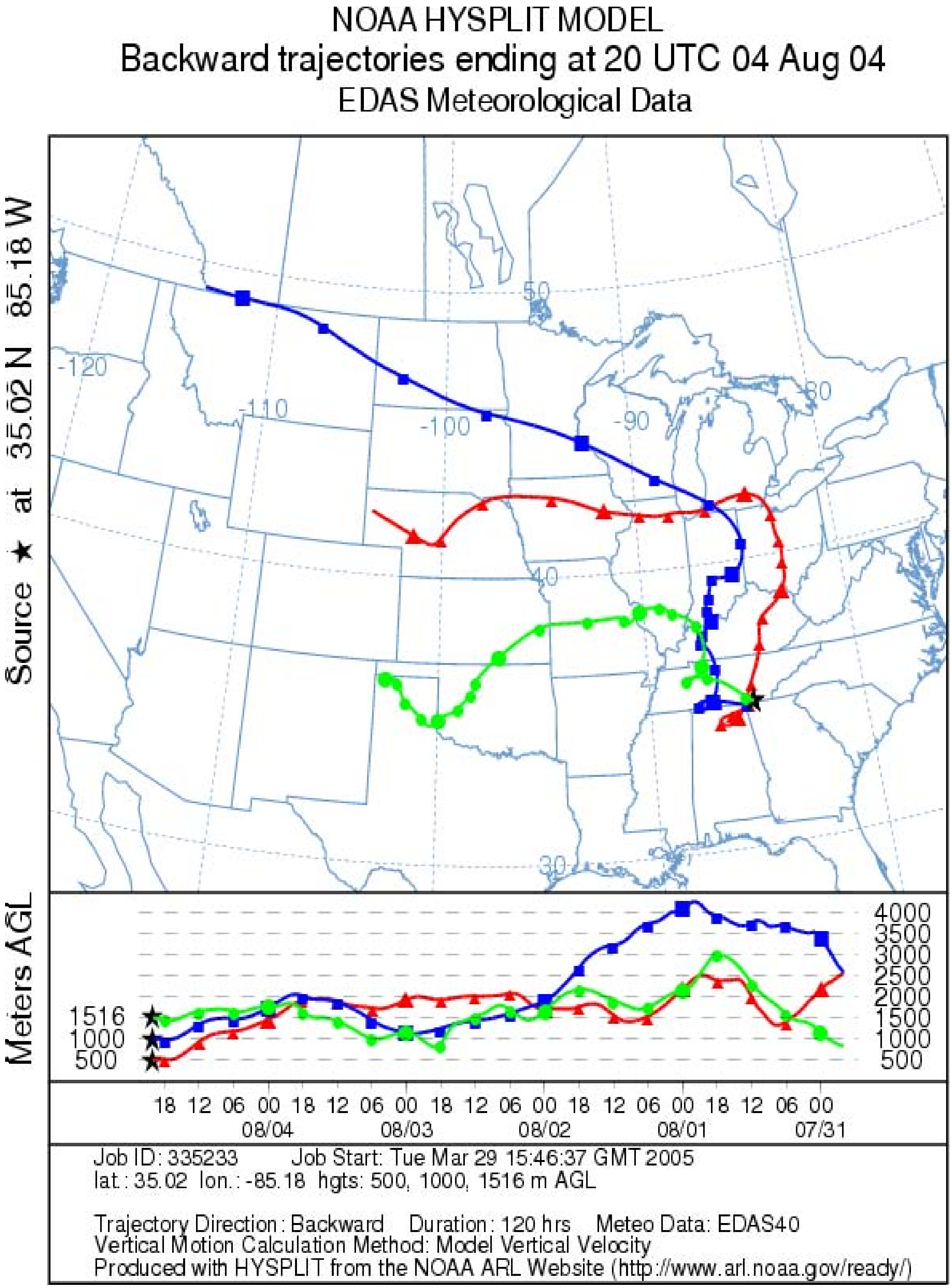
NOAA HYSPLIT MODEL
Backward trajectories ending at 20 UTC 29 Jun 03
EDAS Meteorological Data
Source ★ at 35.02 N 85.18 W
Meters AGL
2020
1000
500
3000
2000
1000
18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00
06/29
06/28
06/27
06/26
06/25
Job ID: 328679 Job Start: Mon Mar 28 21:00:18 GMT 2005
lat.: 35.02 lon.: -85.18 hgts: 500, 1000, 2020 m AGL
Trajectory Direction: Backward Duration: 120 hrs Meteo Data: EDAS
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (http://www.arl.noaa.gov/ready/)

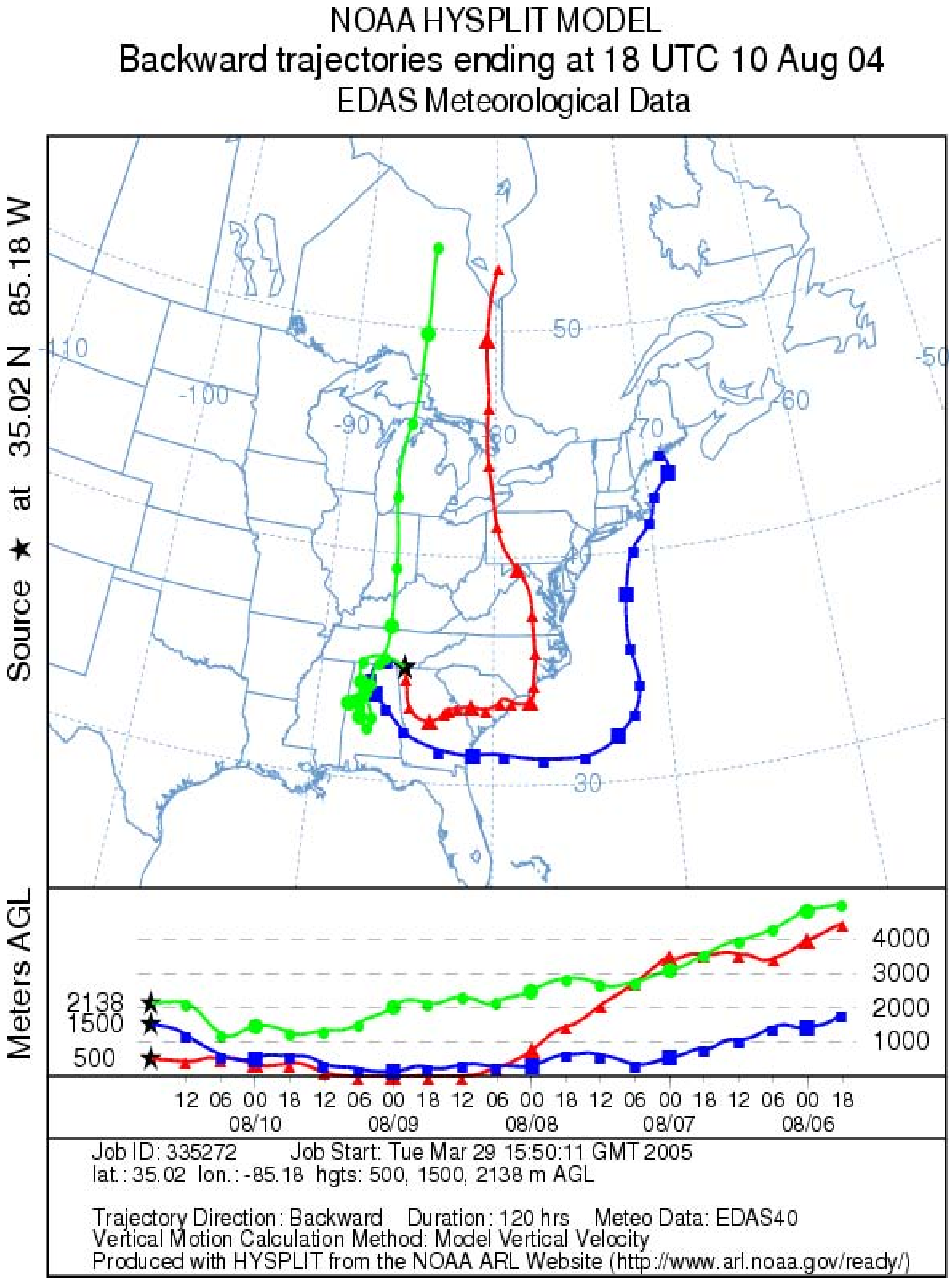

NOAA HYSPLIT MODEL
Backward trajectories ending at 20 UTC 19 Aug 03
EDAS Meteorological Data
Source ★ at 35.02 N 85.18 W
Meters AGL
1679
1000
500
3500
3000
2500
2000
1500
1000
500
18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00
08/19
08/18
08/17
08/16
08/15
Job ID: 328704 Job Start: Mon Mar 28 21:08:48 GMT 2005
lat.: 35.02 lon.: -85.18 hgts: 500, 1000, 1679 m AGL
Trajectory Direction: Backward Duration: 120 hrs Meteo Data: EDAS
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (http://www.arl.noaa.gov/ready/)

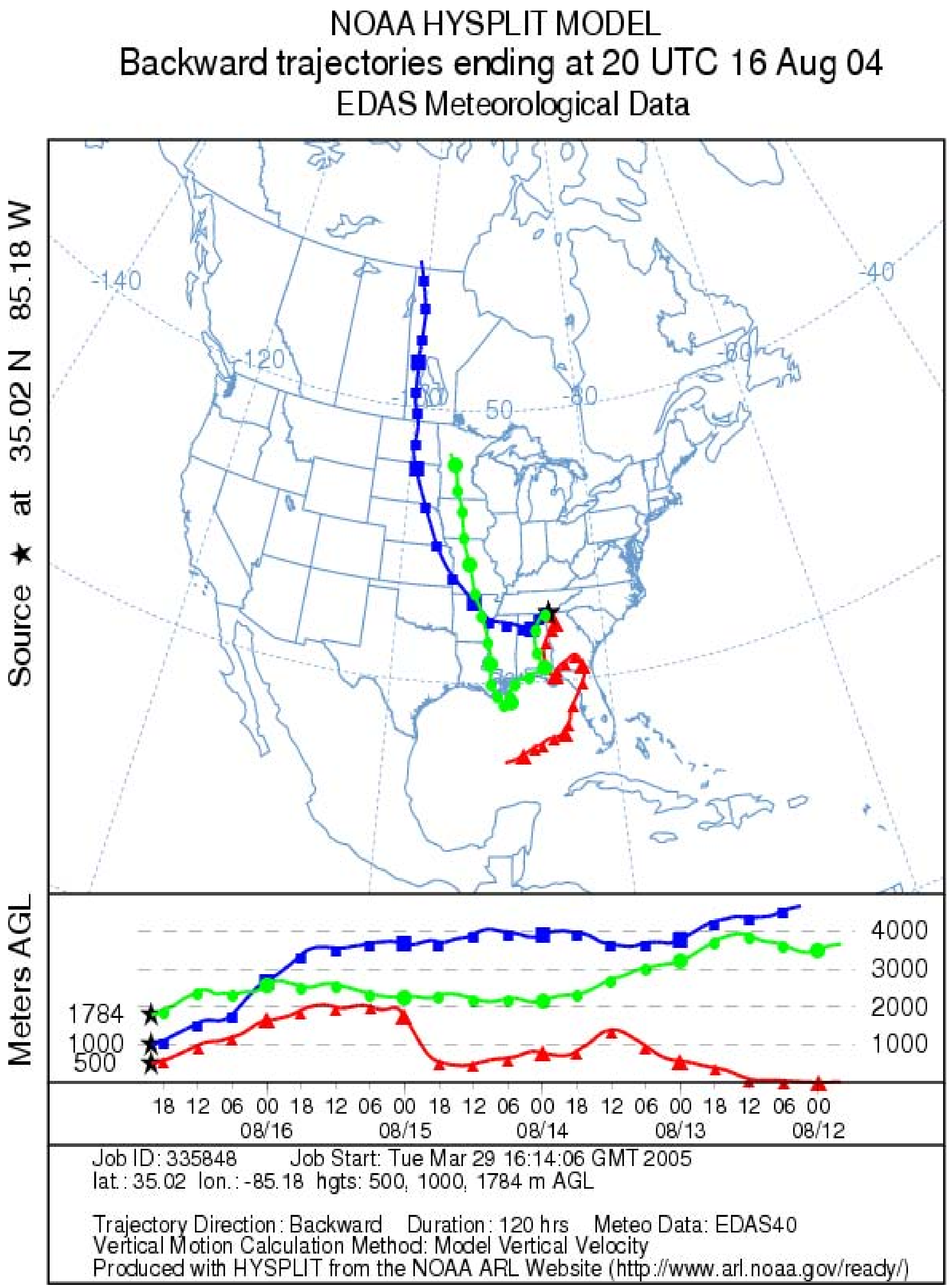

NOAA HYSPLIT MODEL
Backward trajectories ending at 20 UTC 22 Aug 03
EDAS Meteorological Data
Source ★ at 35.02 N 85.18 W
-100
-95
-90
-85
-80
-75
45
40
35
30
Meters AGL
1697
500
5000
4000
3000
2000
1000
18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00
08/22
08/21
08/20
08/19
08/18
Job ID: 328744 Job Start: Mon Mar 28 21:11:03 GMT 2005
lat.: 35.02 lon.: -85.18 hgts: 500, 1000, 1697 m AGL
Trajectory Direction: Backward Duration: 120 hrs Meteo Data: EDAS
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (http://www.arl.noaa.gov/ready/)

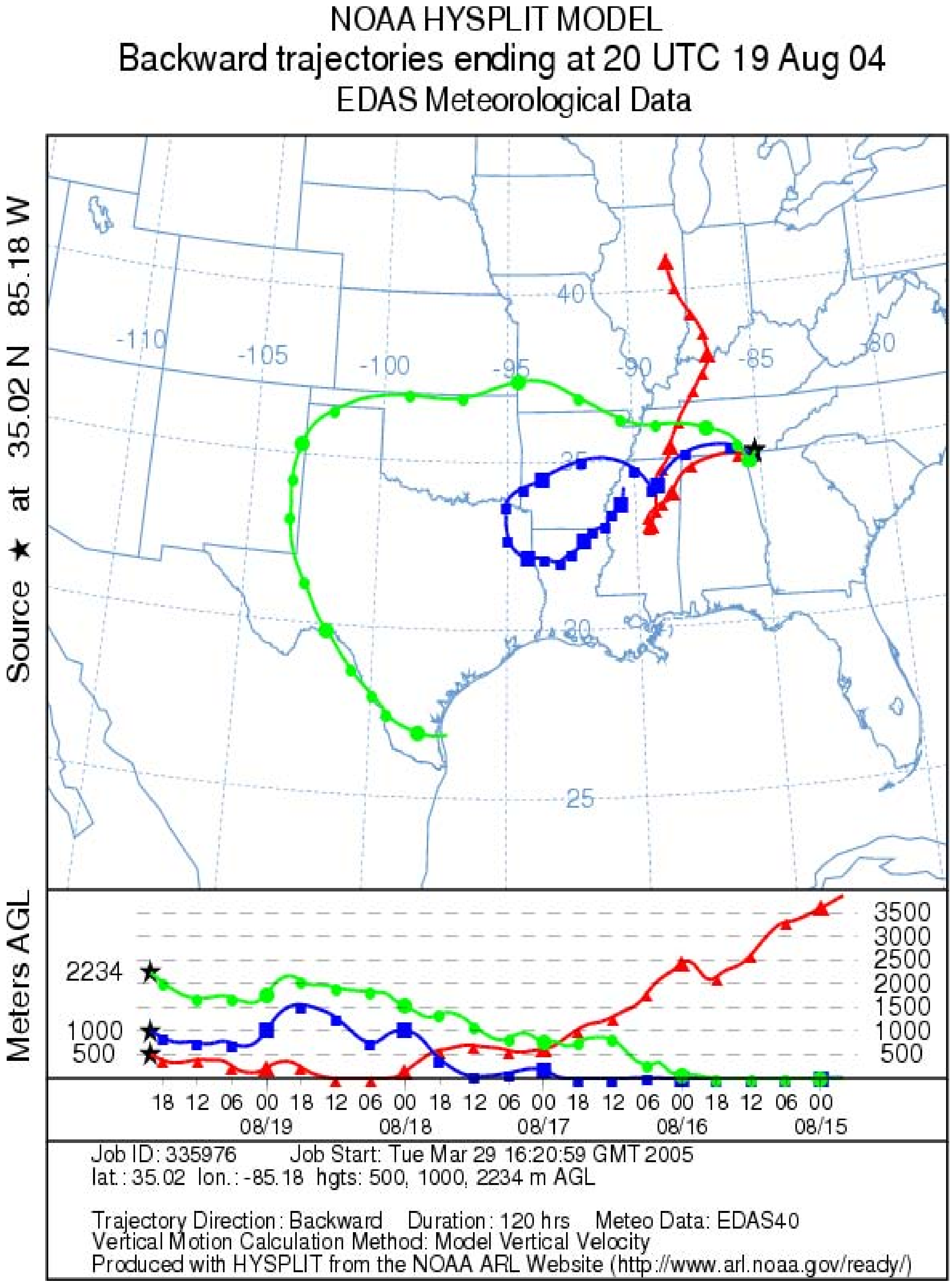

NOAA HYSPLIT MODEL
Backward trajectories ending at 20 UTC 25 Aug 03
EDAS Meteorological Data
Source ★ at 35.02 N 85.18 W
Meters AGL
1294
500
5000
4000
3000
2000
1000
18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00
08/25 08/24 08/23 08/22 08/21
Job ID: 328759 Job Start: Mon Mar 28 21:12:50 GMT 2005
lat.: 35.02 lon.: -85.18 hgts: 500, 1000, 1294 m AGL
Trajectory Direction: Backward Duration: 120 hrs Meteo Data: EDAS
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (http://www.arl.noaa.gov/ready/)


NOAA HYSPLIT MODEL
Backward trajectories ending at 20 UTC 28 Aug 03
EDAS Meteorological Data
Source ★ at 35.02 N 85.18 W
-105
-100
-95
-90
-85
-80
-75
40
35
30
Meters AGL
1723
1000
500
3500
3000
2500
2000
1500
1000
500
18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00
08/28
08/27
08/26
08/25
08/24
Job ID: 328786 Job Start: Mon Mar 28 21:15:35 GMT 2005
lat.: 35.02 lon.: -85.18 hgts: 500, 1000, 1723 m AGL
Trajectory Direction: Backward Duration: 120 hrs Meteo Data: EDAS
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (http://www.arl.noaa.gov/ready/)


NOAA HYSPLIT MODEL
Backward trajectories ending at 20 UTC 04 Aug 04
EDAS Meteorological Data
Source ★ at 35.02 N 85.18 W
-120
-110
-100
-90
-80
50
40
30
Meters AGL
1516
1000
500
4000
3500
3000
2500
2000
1500
1000
500
18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00
08/04 08/03 08/02 08/01 07/31
Job ID: 335233 Job Start: Tue Mar 29 15:46:37 GMT 2005
lat.: 35.02 lon.: -85.18 hgts: 500, 1000, 1516 m AGL
Trajectory Direction: Backward Duration: 120 hrs Meteo Data: EDAS40
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (http://www.arl.noaa.gov/ready/)


NOAA HYSPLIT MODEL
Backward trajectories ending at 18 UTC 10 Aug 04
EDAS Meteorological Data
Source ★ at 35.02 N 85.18 W
-110
-100
-90
-80
-70
-60
-50
50
40
30
Meters AGL
2138
1500
500
4000
3000
2000
1000
12 06 00 18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00 18
08/10
08/09
08/08
08/07
08/06
Job ID: 335272 Job Start: Tue Mar 29 15:50:11 GMT 2005
lat.: 35.02 lon.: -85.18 hgts: 500, 1500, 2138 m AGL
Trajectory Direction: Backward Duration: 120 hrs Meteo Data: EDAS40
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (http://www.arl.noaa.gov/ready/)


NOAA HYSPLIT MODEL
Backward trajectories ending at 20 UTC 16 Aug 04
EDAS Meteorological Data
Source ★ at 35.02 N 85.18 W
-140
-120
50
-80
-40
Meters AGL
1784
1000
500
4000
3000
2000
1000
18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00
08/16
08/15
08/14
08/13
08/12
Job ID: 335848 Job Start: Tue Mar 29 16:14:06 GMT 2005
lat.: 35.02 lon.: -85.18 hgts: 500, 1000, 1784 m AGL
Trajectory Direction: Backward Duration: 120 hrs Meteo Data: EDAS40
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (http://www.arl.noaa.gov/ready/)


NOAA HYSPLIT MODEL
Backward trajectories ending at 20 UTC 19 Aug 04
EDAS Meteorological Data
Source ★ at 35.02 N 85.18 W
Meters AGL
2234
1000
500
3500
3000
2500
2000
1500
1000
500
18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00 18 12 06 00
08/19
08/18
08/17
08/16
08/15
Job ID: 335976 Job Start: Tue Mar 29 16:20:59 GMT 2005
lat.: 35.02 lon.: -85.18 hgts: 500, 1000, 2234 m AGL
Trajectory Direction: Backward Duration: 120 hrs Meteo Data: EDAS40
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (http://www.arl.noaa.gov/ready/)

SECTION 3.E. ANALYSES OF CHEMICAL COMPOSITION DATA FOR CHATTANOOGA.

Analysis of Speciation Data in Chattanooga, TN for Flagged Days in 2003 and 2004

U.S. EPA

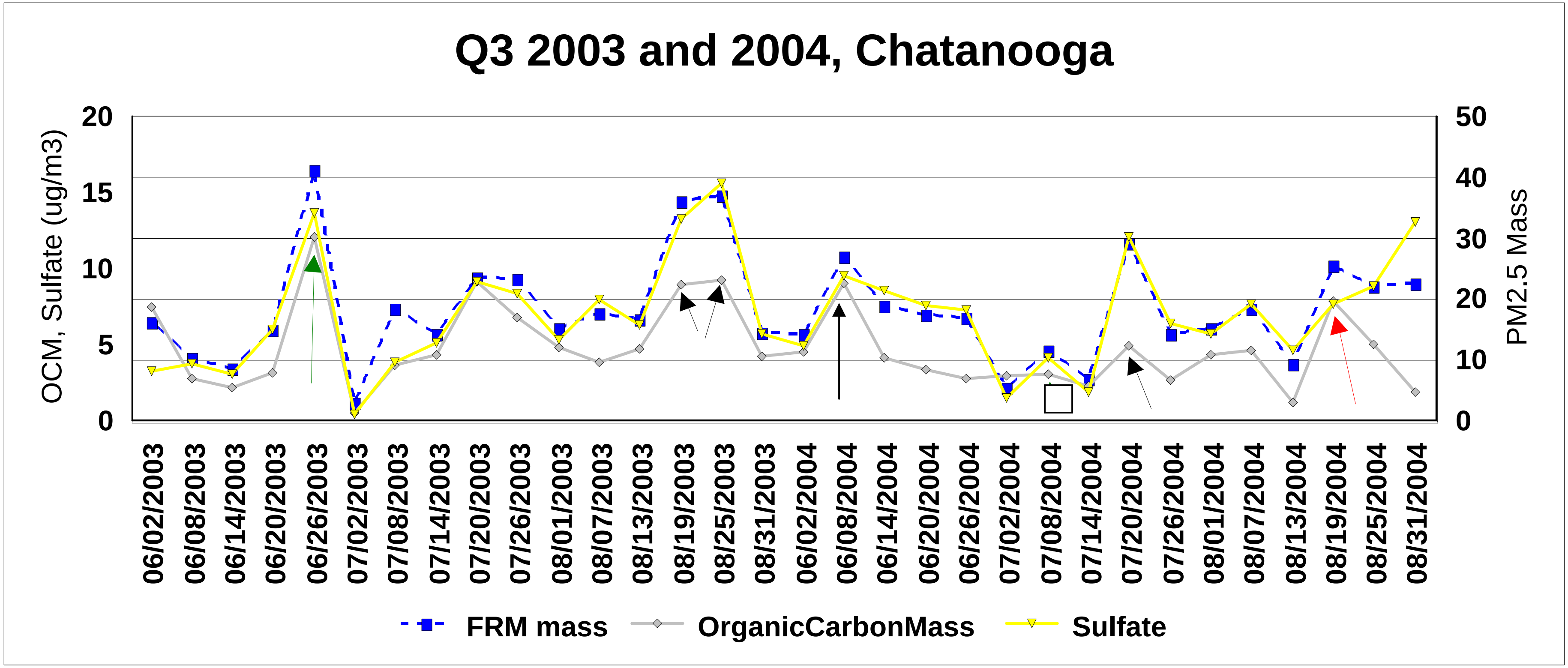
April 5, 2005

Dates

- Fifteen dates in 2003 and 2004 identified by Chattanooga for possible fire impacts:
  - 4/15/03; 6/26/03; 6/29/03; 8/19/03; 8/22/03; 8/25/03; 8/28/03; 6/8/04; 6/11/04; 7/17/04; 7/20/04; 8/4/04; 8/10/04; 8/16/04; and 8/19/04.
- Out of these fifteen, we have identified 8 days as being more possible fire days than the other 7:
  - 4/15/03; 6/2903; 8/19/03; 8/25/03; 7/20/04; 8/4/04; 8/10/04; and 8/16/04.

When are speciation data available?

- At the Chattanooga speciation site (AIRS ID: 470654002), data are available (during summers of 2003 and 2004) for the following subset of days that were identified in the previous slide as fire days:
  - 6/26/03; 8/19/03; 8/25/03; 6/8/04, 7/20/04, and 8/19/04
  - Though not in the summer of 2003, speciation data is also available on 4/15/03, which was previously identified as a possible fire date by Chattanooga.
- The Chattanooga speciation site monitors on a 1-in-6 day schedule.



Q3 2003 and 2004, Chatanooga
OCM, Sulfate (ug/m3)
PM2.5 Mass
20
15
10
5
0
50
40
30
20
10
0
06/02/2003
06/08/2003
06/14/2003
06/20/2003
06/26/2003
07/02/2003
07/08/2003
07/14/2003
07/20/2003
07/26/2003
08/01/2003
08/07/2003
08/13/2003
08/19/2003
08/25/2003
08/31/2003
06/02/2004
06/08/2004
06/14/2004
06/20/2004
06/26/2004
07/02/2004
07/08/2004
07/14/2004
07/20/2004
07/26/2004
08/01/2004
08/07/2004
08/13/2004
08/19/2004
08/25/2004
08/31/2004
FRM mass
OrganicCarbonMass
Sulfate

Chattanooga Summary

Summary of Fire Dates	FRM Mass	OCM	EC	Potassium	Sulfate
06/26/2003	41.4	12.138	0.8	0.112	13.7
08/19/2003	36.1	8.974	0.69	0.0693	13.3
08/25/2003	37.2	9.226	0.97	0.0767	15.6
06/08/2004	27	9.058	0.67	0.102	9.59
07/20/2004	29.2	4.97	0.51	0.061	12.1
08/19/2004	25.6	7.882	0.74	0.0852	7.69
04/15/2003	31	14.8	1.58	0.173	7.81

Note: Mass shown in yellow for 8/19/03 is gravimetric mass not FRM mass.

Some Summary Stats	Q3 2003 and 2004				
	FRM Mass	OCM	EC	Potassium	Sulfate
Fire Days (n=6)	32.75	8.71	0.73	0.08	12.00
Non Fire Days (n=26)	15.08	3.90	0.51	0.06	5.82

Max on nonFire Days	23.70	9.21	0.82	0.22	13.10
Min on nonFire Days	3	0.588	0.12	0.0207	0.47

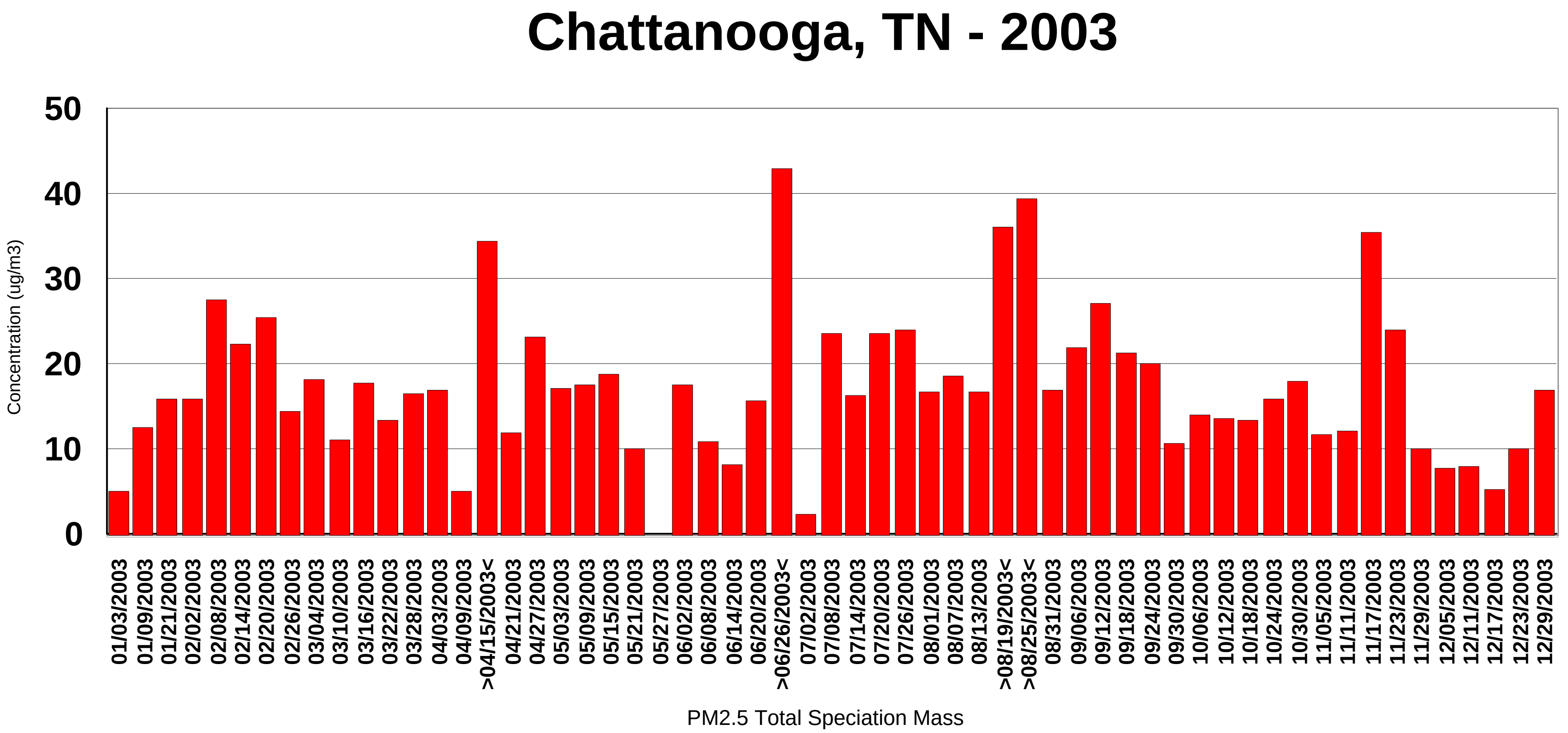
Observations

- 1. Comparison of Chattanooga data to historical fire events (like the Quebec fires) indicates the impacts are rather small and inconclusive.
- 2. Analyses of past fire events haven't shown high values for sulfates. For the days analyzed here, we do see high sulfate values.
- 3. Potassium is slightly higher on some flagged dates, but not conclusively so, as some non-flagged dates also have high potassium levels. There is also some uncertainty about the use of potassium measurements as a marker for fire. Elevated organic carbon levels is the most accepted marker of fire events.
- 4. There appears to be enough evidence to say that on these dates the elevated PM2.5 seems to be caused by the combination of higher sulfate levels driven by regional emissions and high temperatures, and by increases in organic carbon levels (potentially from fire events, but not conclusively from such events).
- 5. Comparison of Chattanooga speciation data to nearby Nashville speciation data shows similar patterns for these flagged days compared to non-flagged days during the same period of time.

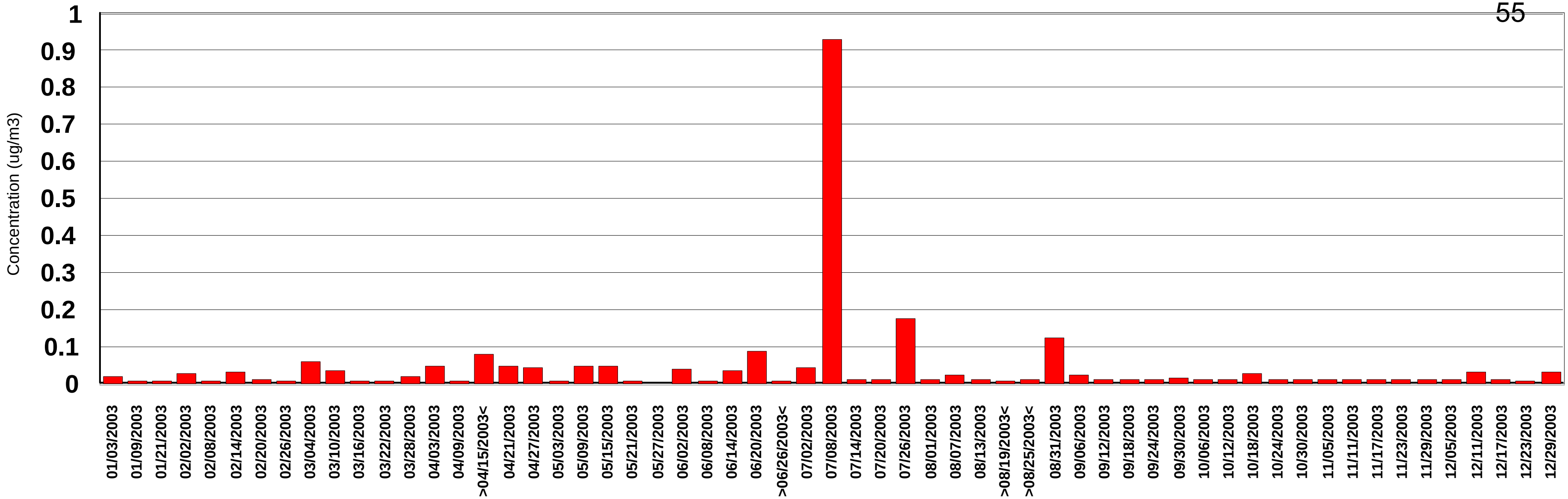
Additional Analysis of Chattanooga PM2.5 Chemical Composition Data for 2003-2004

U.S. EPA

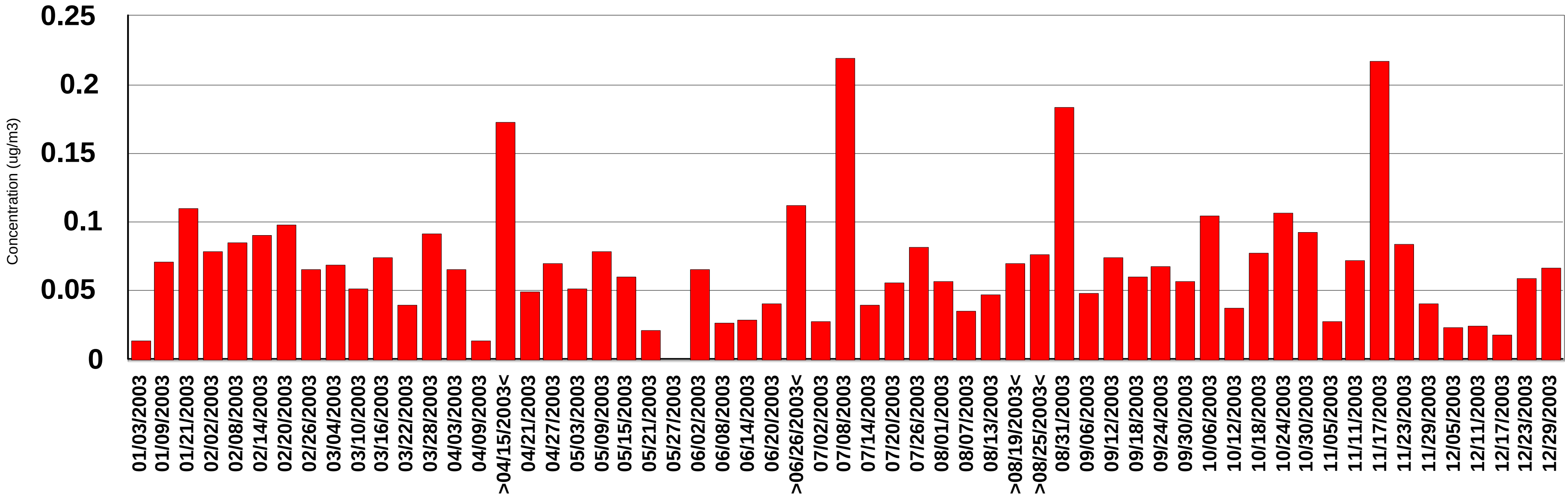
Chattanooga PM2.5 Chemical Composition Data for 2003


Chattanooga, TN - 2003
Concentration (ug/m3)
50
40
30
20
10
0
01/03/2003
01/09/2003
01/21/2003
02/02/2003
02/08/2003
02/14/2003
02/20/2003
02/26/2003
03/04/2003
03/10/2003
03/16/2003
03/22/2003
03/28/2003
04/03/2003
04/09/2003
>04/15/2003<
04/21/2003
04/27/2003
05/03/2003
05/09/2003
05/15/2003
05/21/2003
05/27/2003
06/02/2003
06/08/2003
06/14/2003
06/20/2003
>06/26/2003<
07/02/2003
07/08/2003
07/14/2003
07/20/2003
07/26/2003
08/01/2003
08/07/2003
08/13/2003
>08/19/2003<
>08/25/2003<
08/31/2003
09/06/2003
09/12/2003
09/18/2003
09/24/2003
09/30/2003
10/06/2003
10/12/2003
10/18/2003
10/24/2003
10/30/2003
11/05/2003
11/11/2003
11/17/2003
11/23/2003
11/29/2003
12/05/2003
12/11/2003
12/17/2003
12/23/2003
12/29/2003
PM2.5 Total Speciation Mass

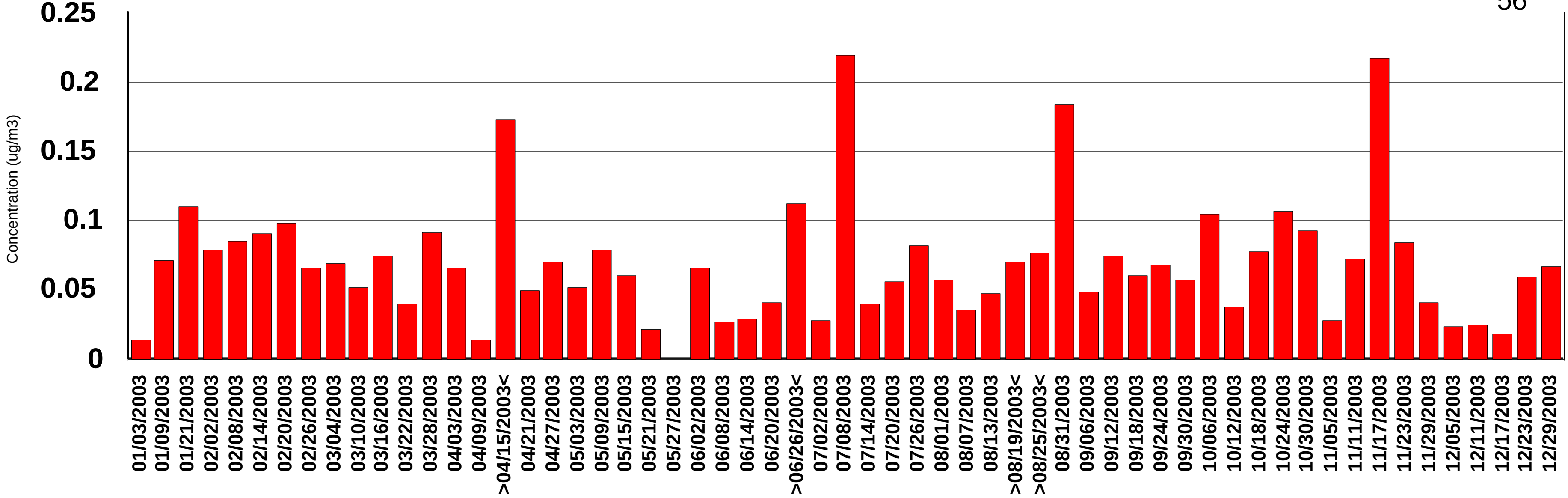
Aluminium - 2003 - Chattanooga



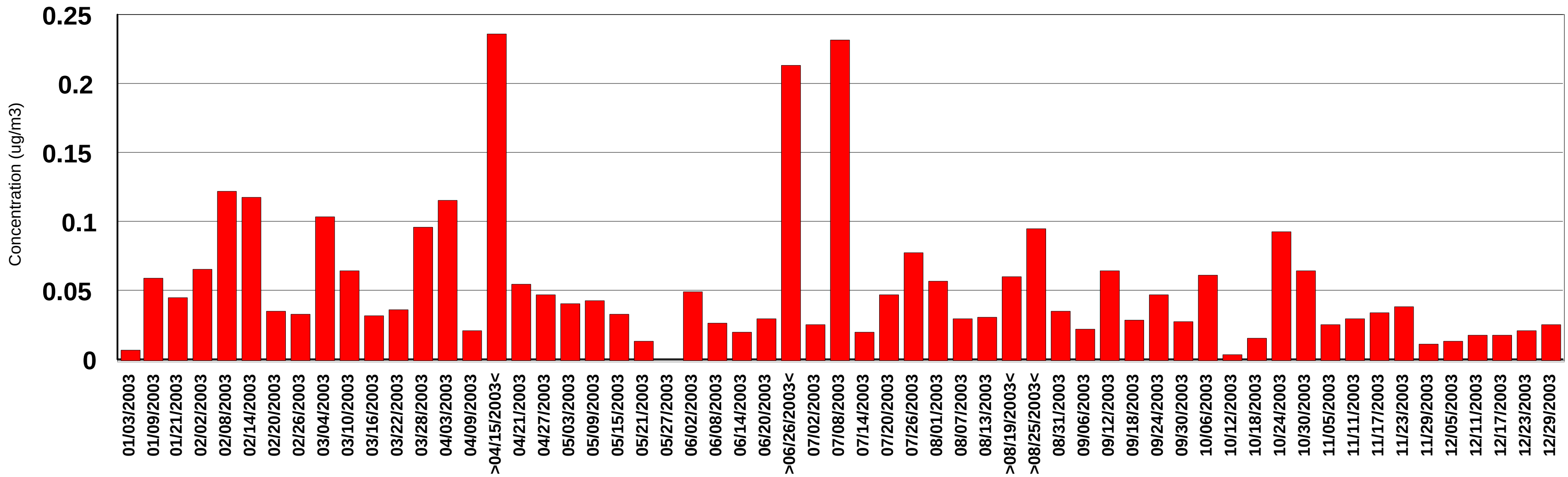
Chattanooga, TN - Potassium 2003

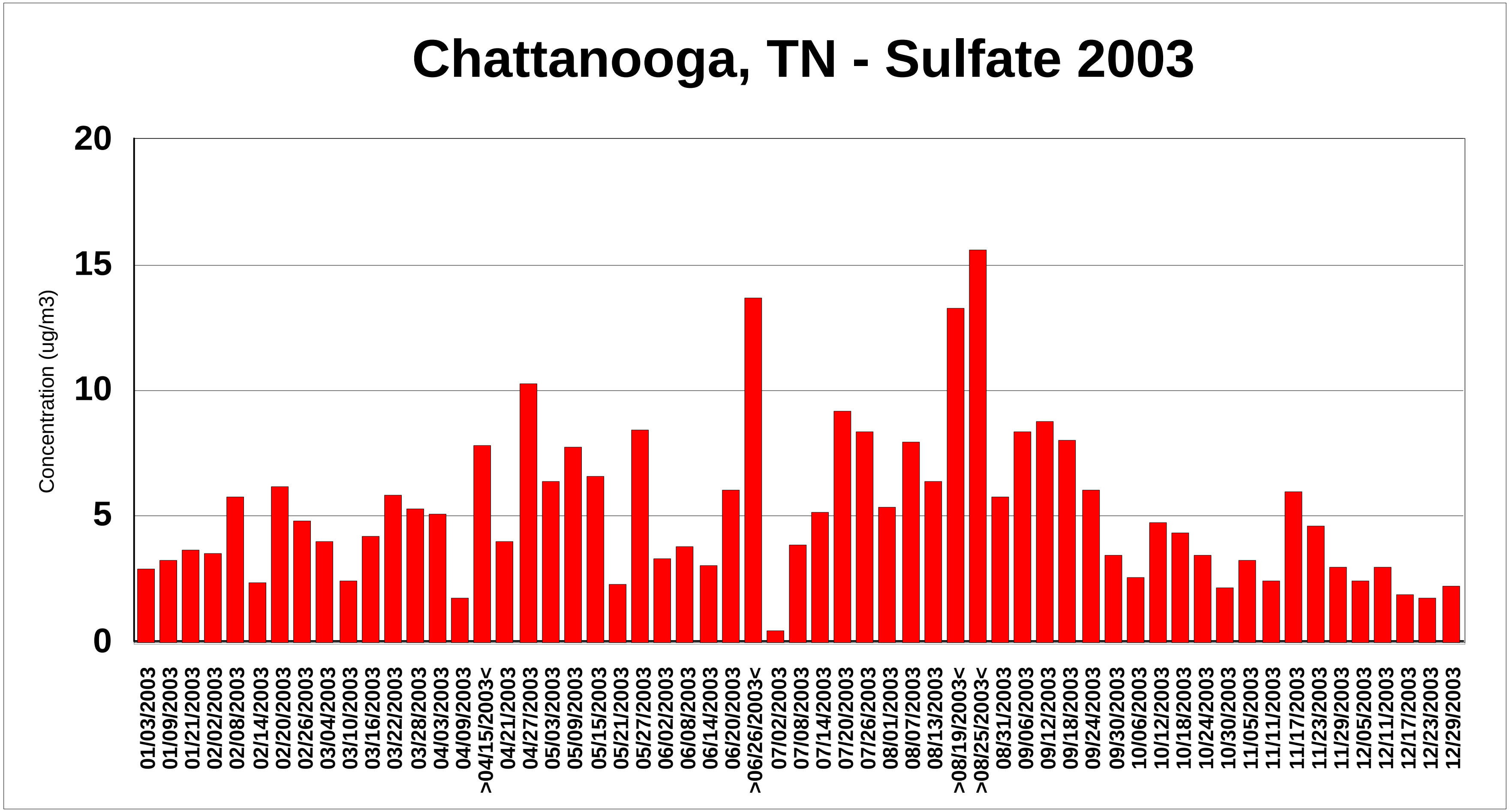


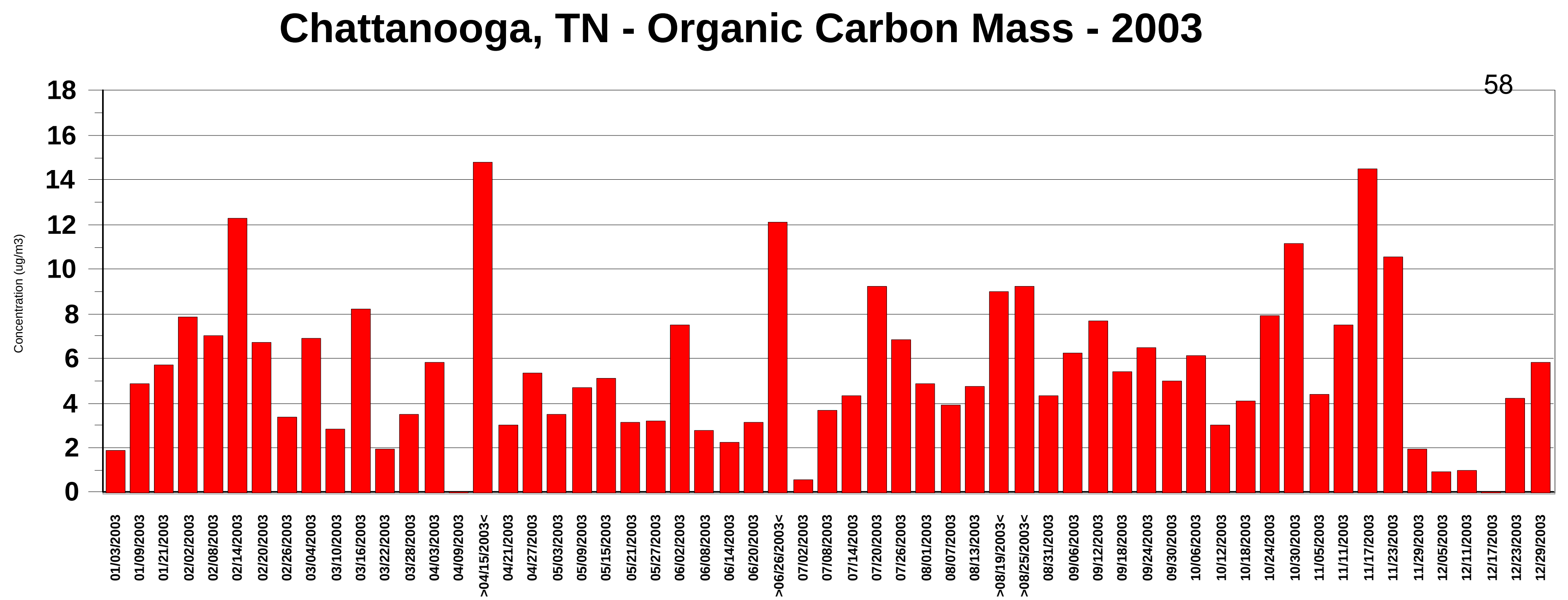
Chattanooga, TN - Potassium 2003

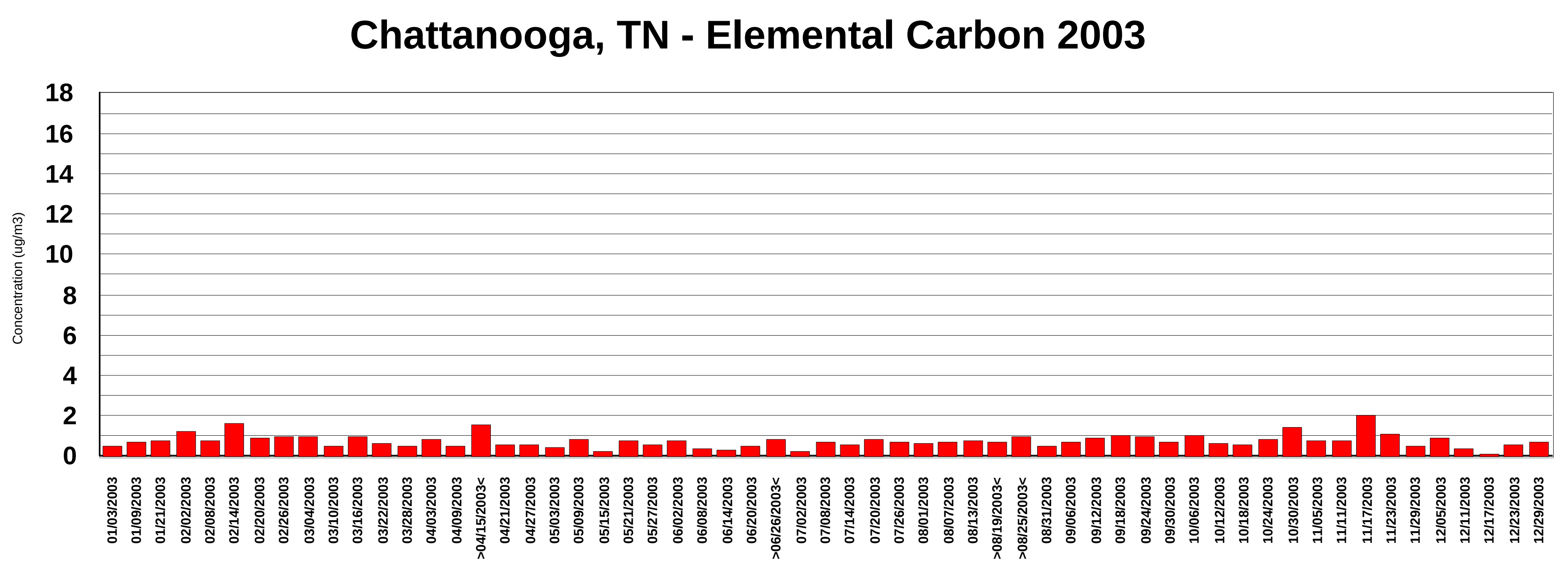


Chattanooga, TN - Calcium 2003

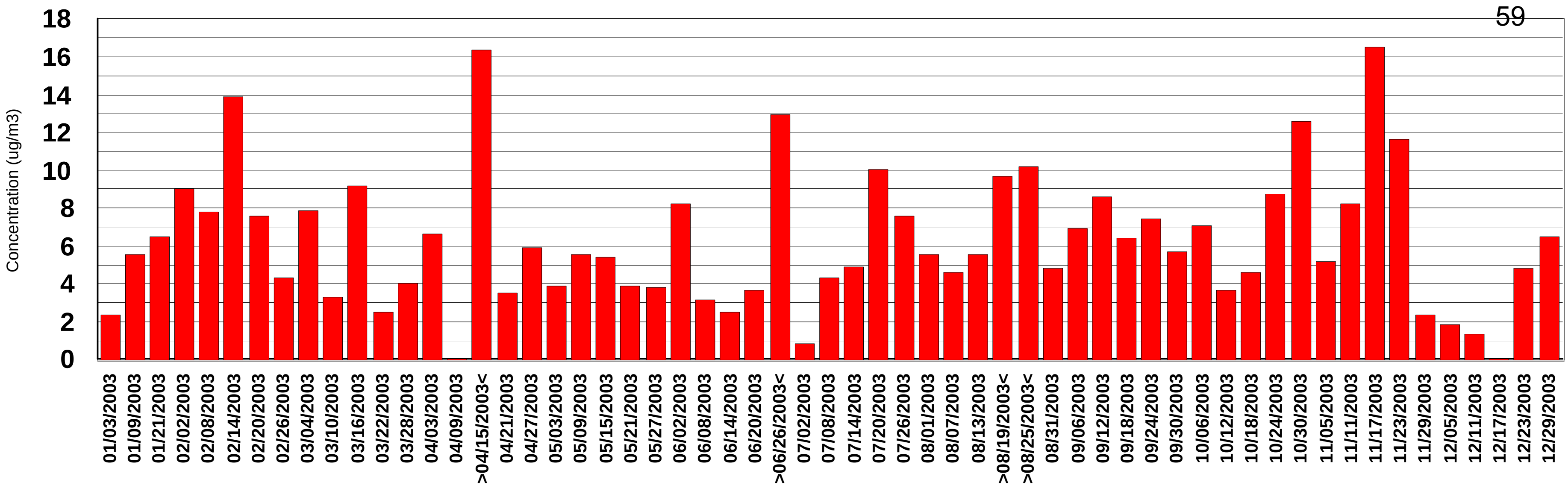



Chattanooga, TN - Sulfate 2003
Concentration (ug/m3)
0
5
10
15
20

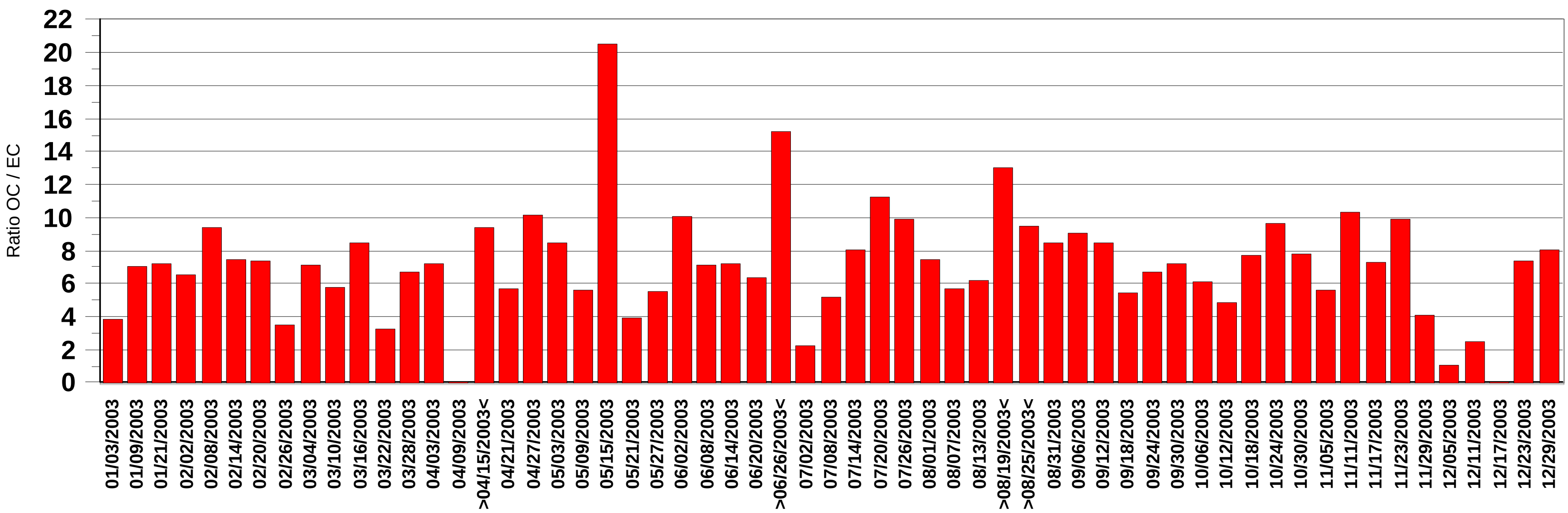

Chattanooga, TN - Organic Carbon Mass - 2003
Concentration (ug/m3)
0
2
4
6
8
10
12
14
16
18


Chattanooga, TN - Elemental Carbon 2003
Concentration (ug/m3)
0
2
4
6
8
10
12
14
16
18

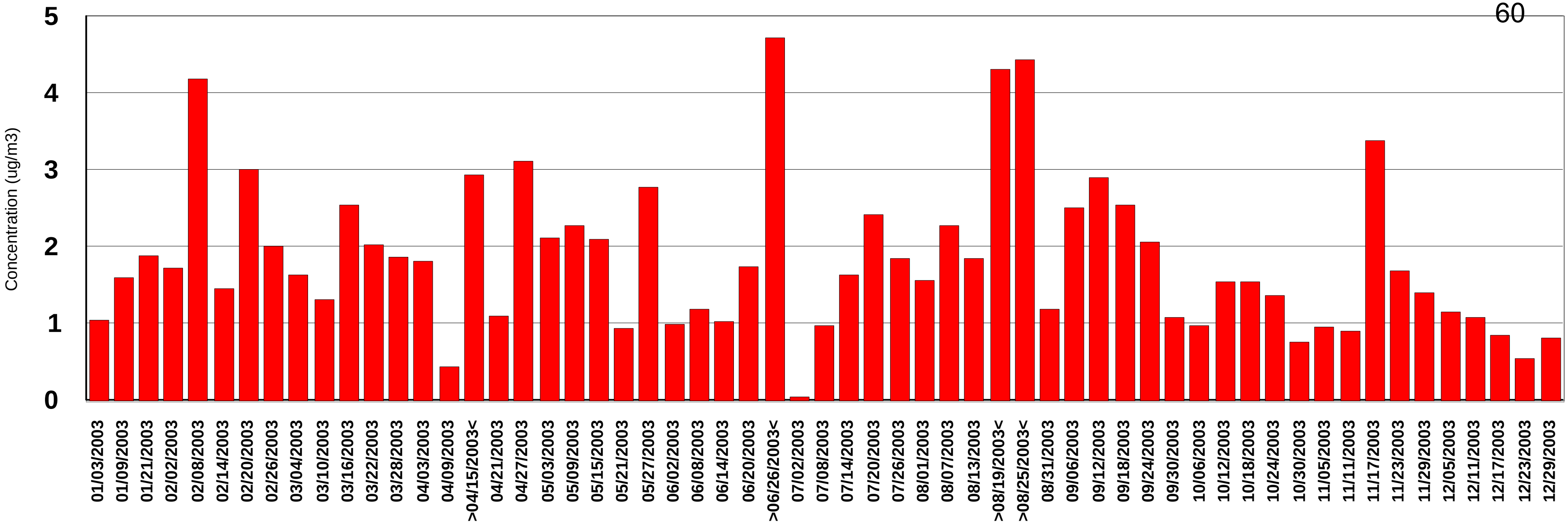
Chattanooga, TN - Total Carbon 2003



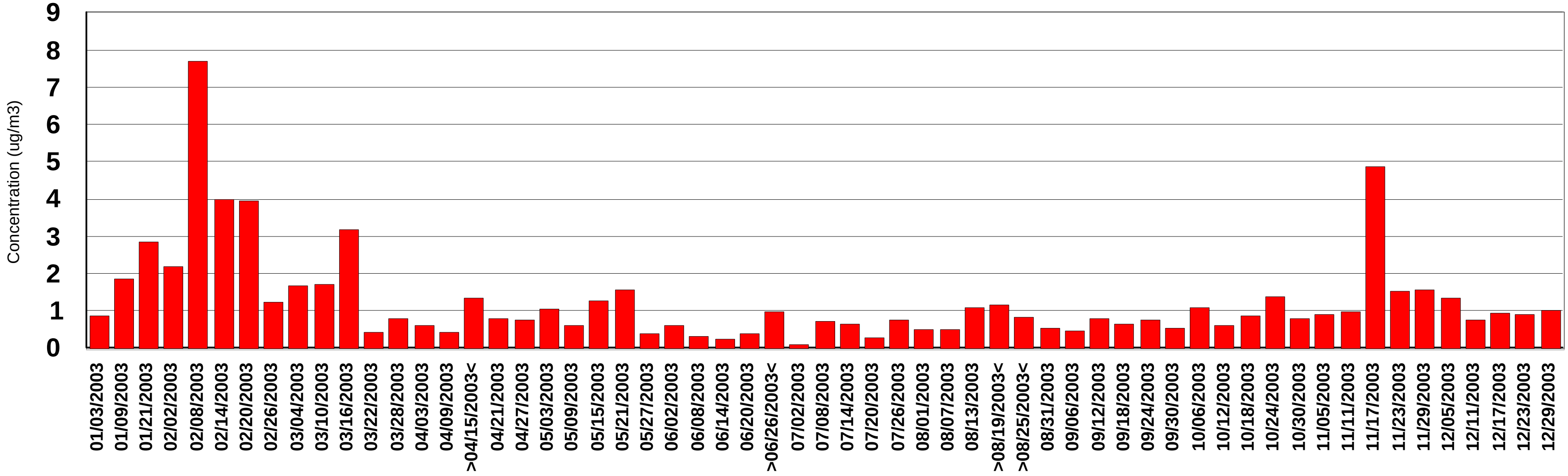
Chattanooga, TN - OC / EC Ratio 2003



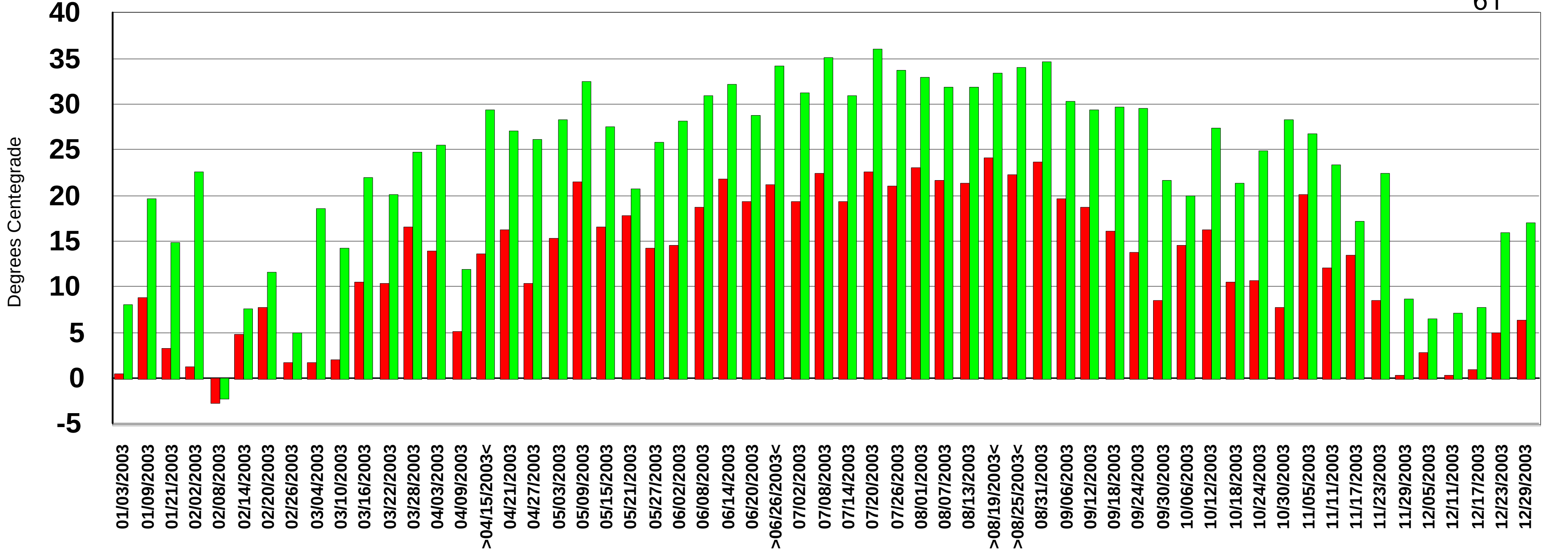
Ammonium



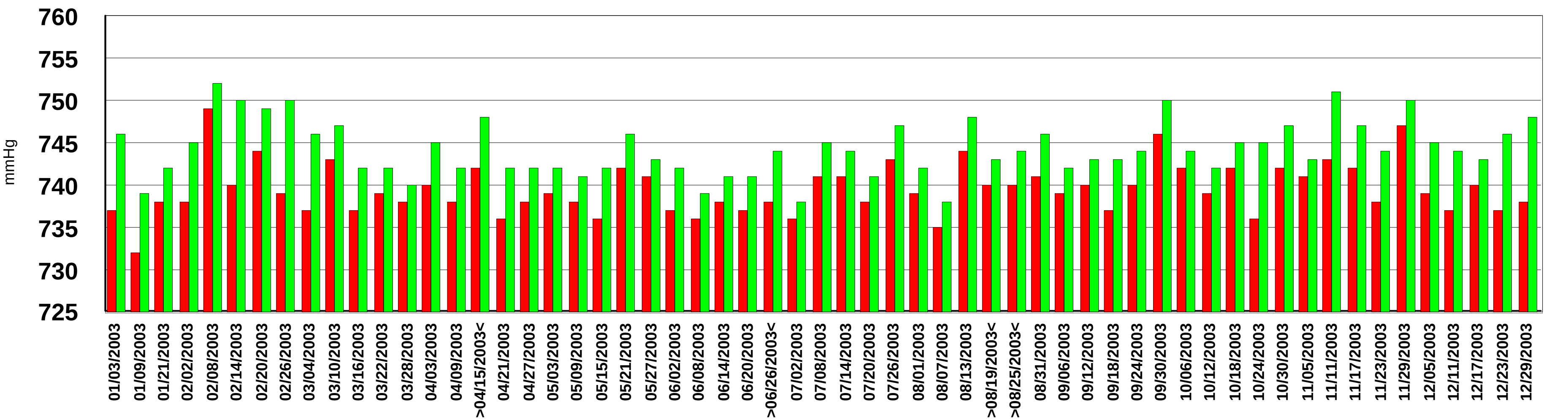
Chattanooga, TN - Nitrate 2003



Chattanooga, TN - Min / Max Ambient Temperature

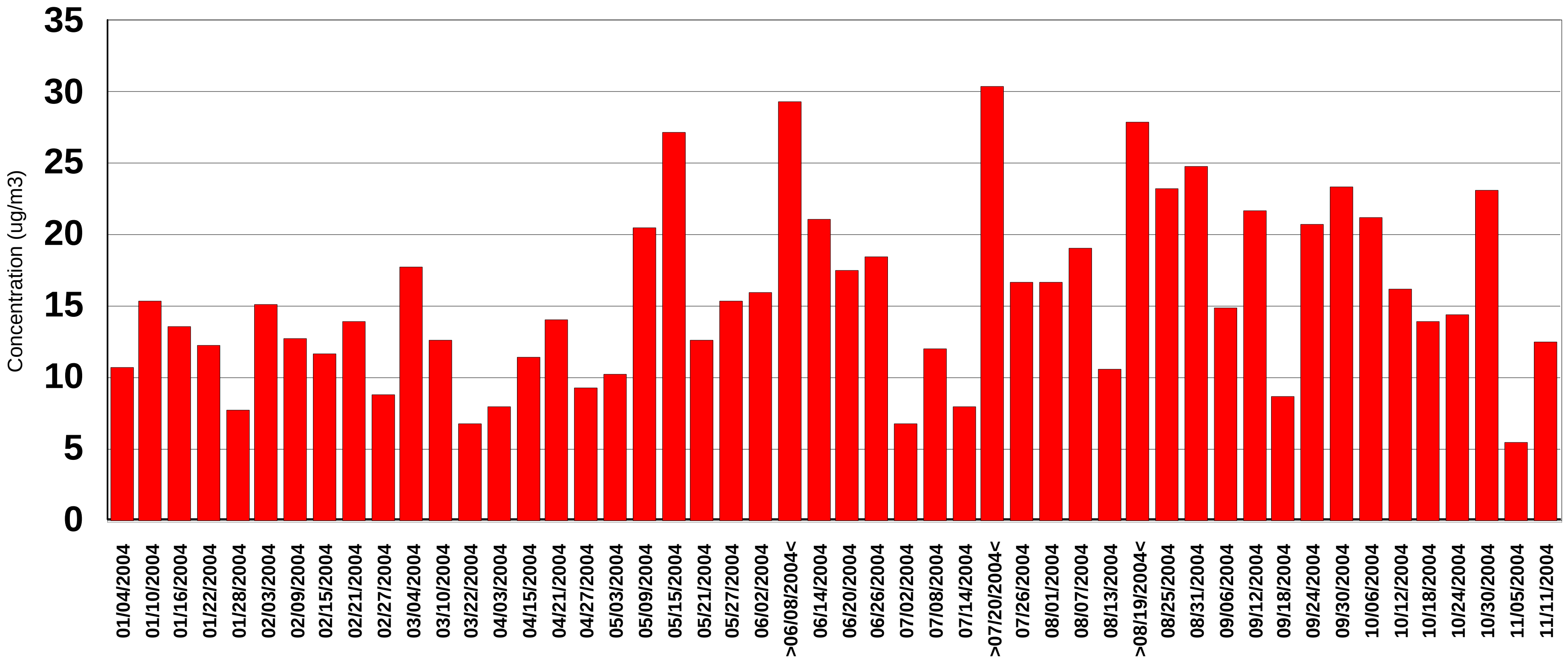


Chattanooga, TN - Min / Max Barometric Pressure



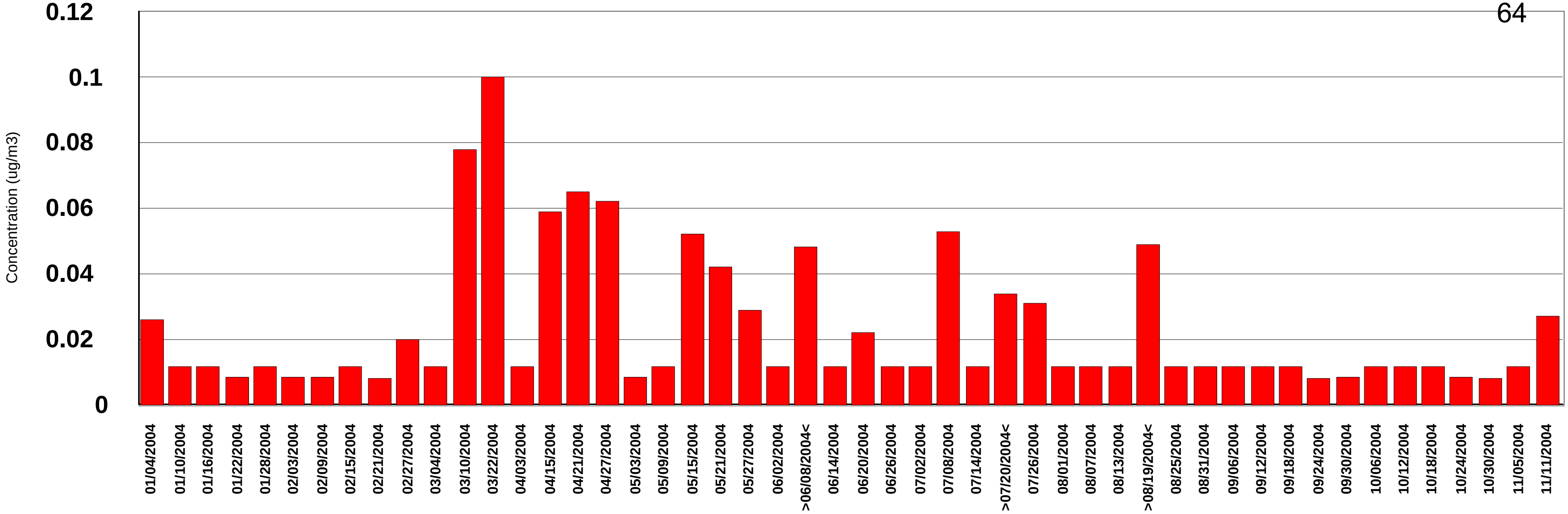
Chattanooga PM2.5 Chemical Composition Data for 2004

Chattanooga, TN - 2004

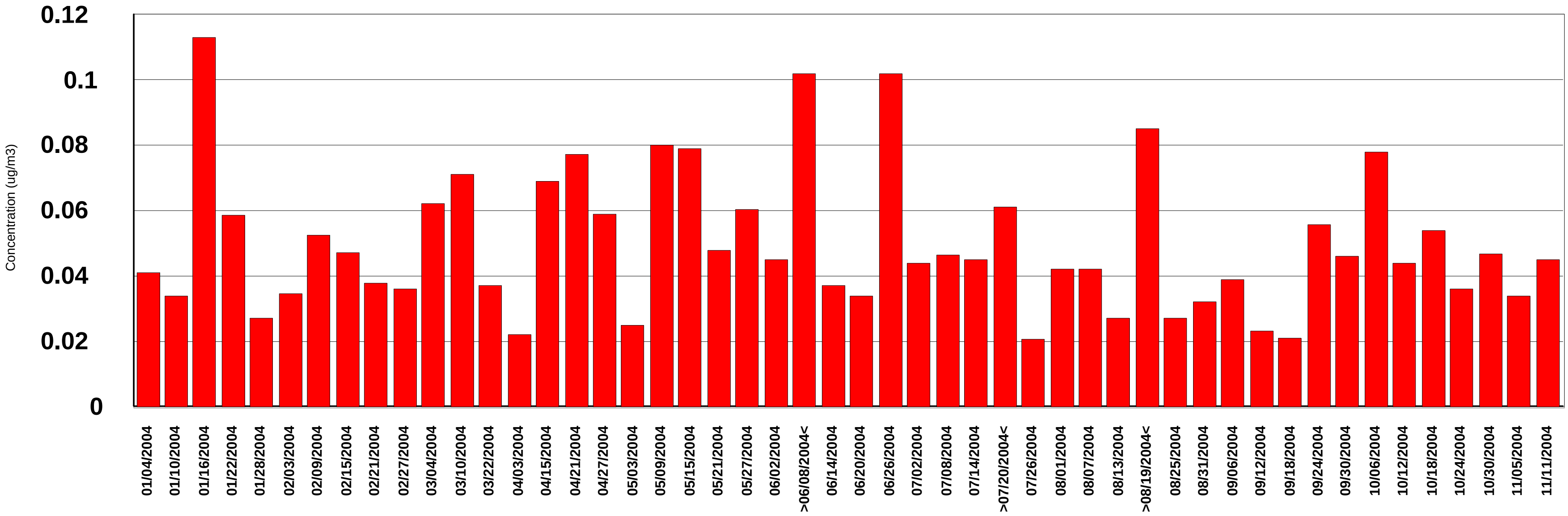


PM2.5 Speciation Mass

Chattanooga, TN - Aluminum 2004



Chattanooga, TN - Potassium 2004



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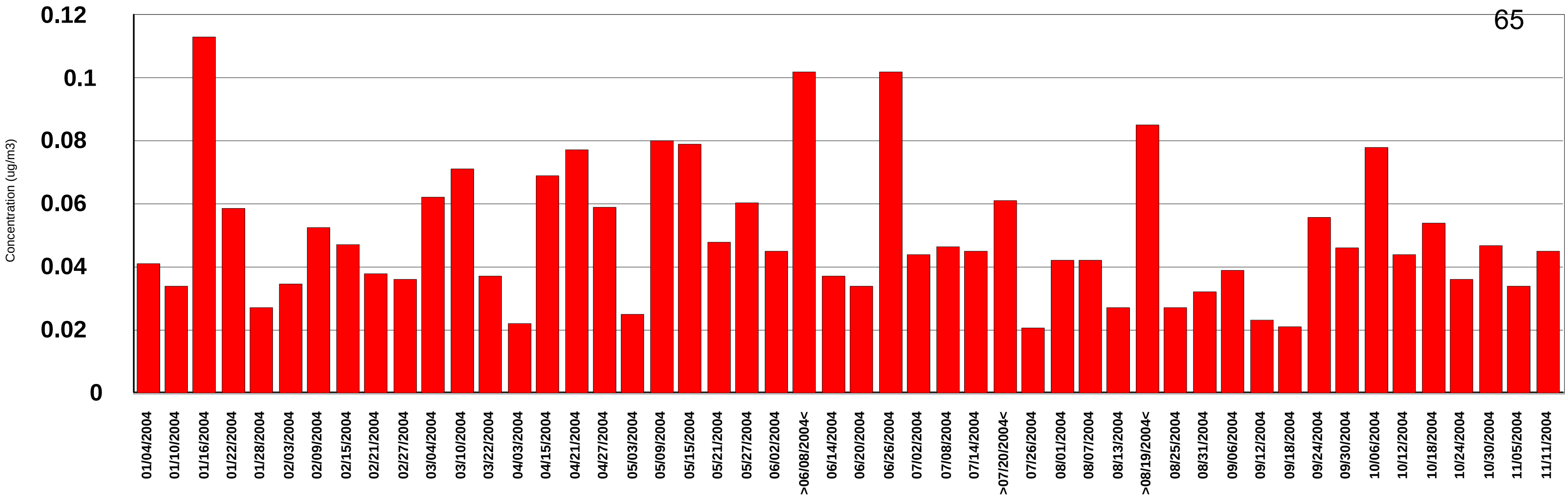
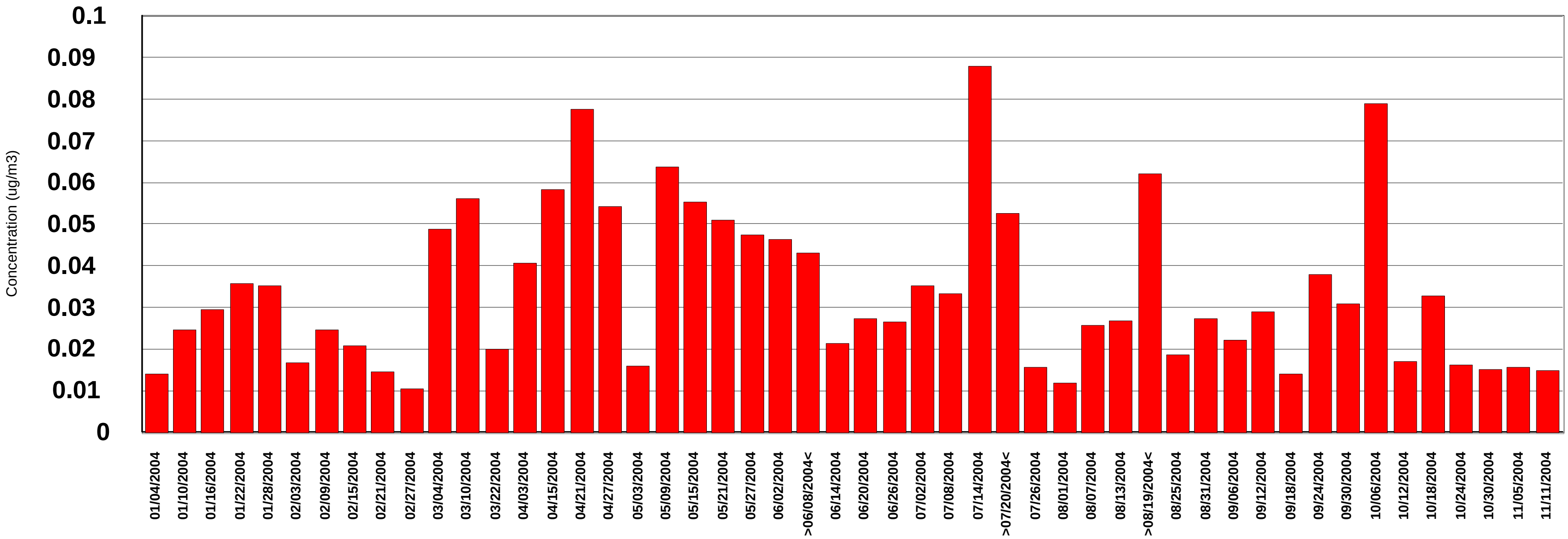
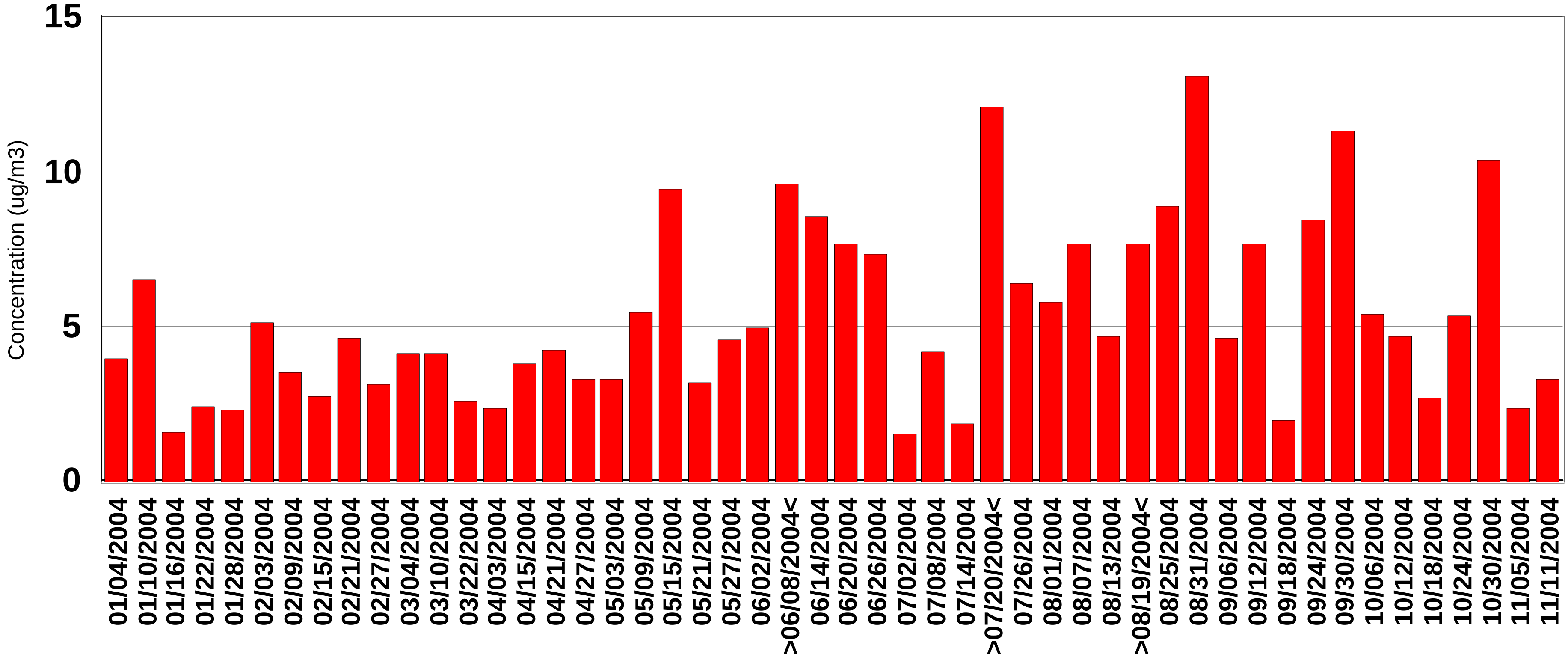


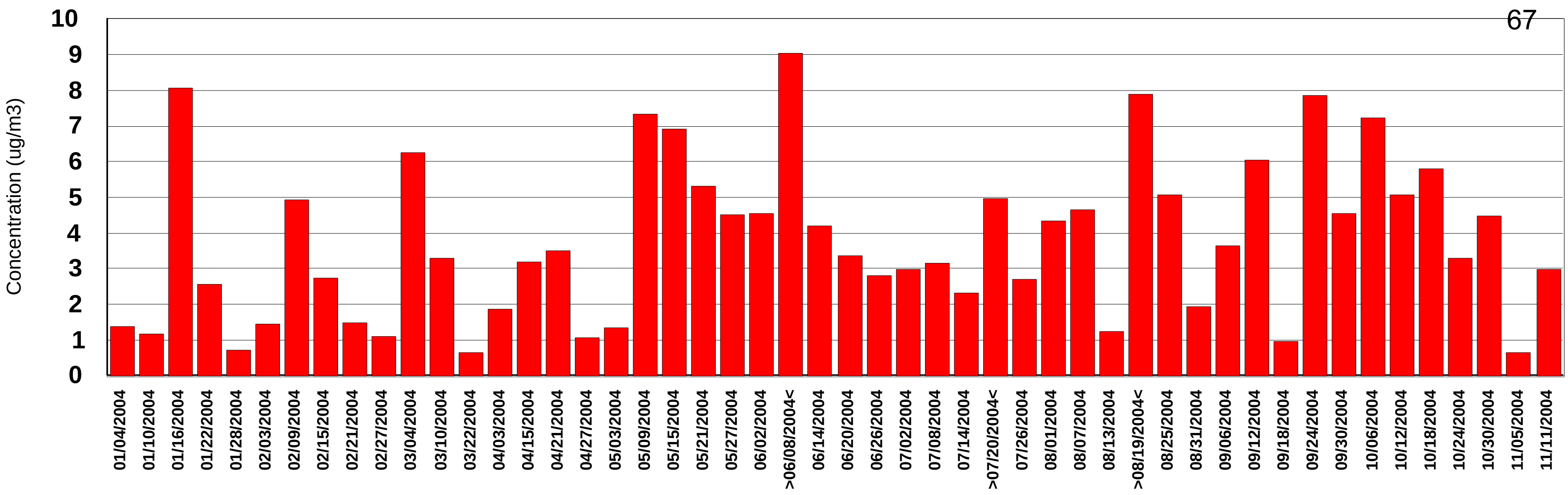
Chattanooga, TN - Calcium 2004



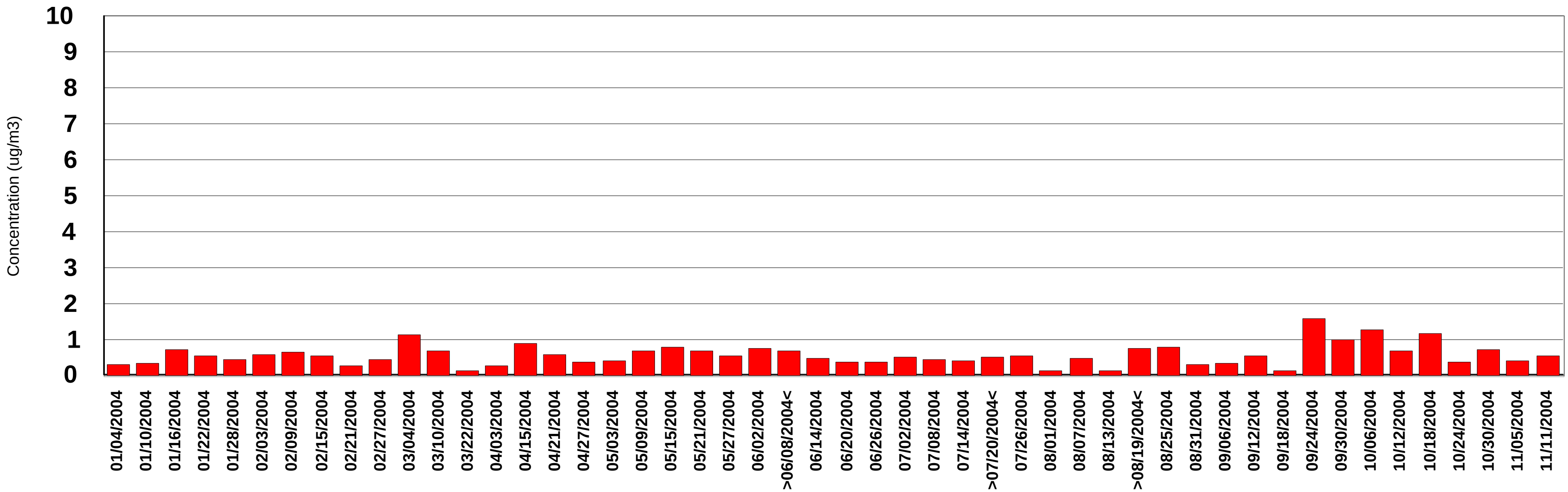
Chattanooga, TN - Sulfate 2004



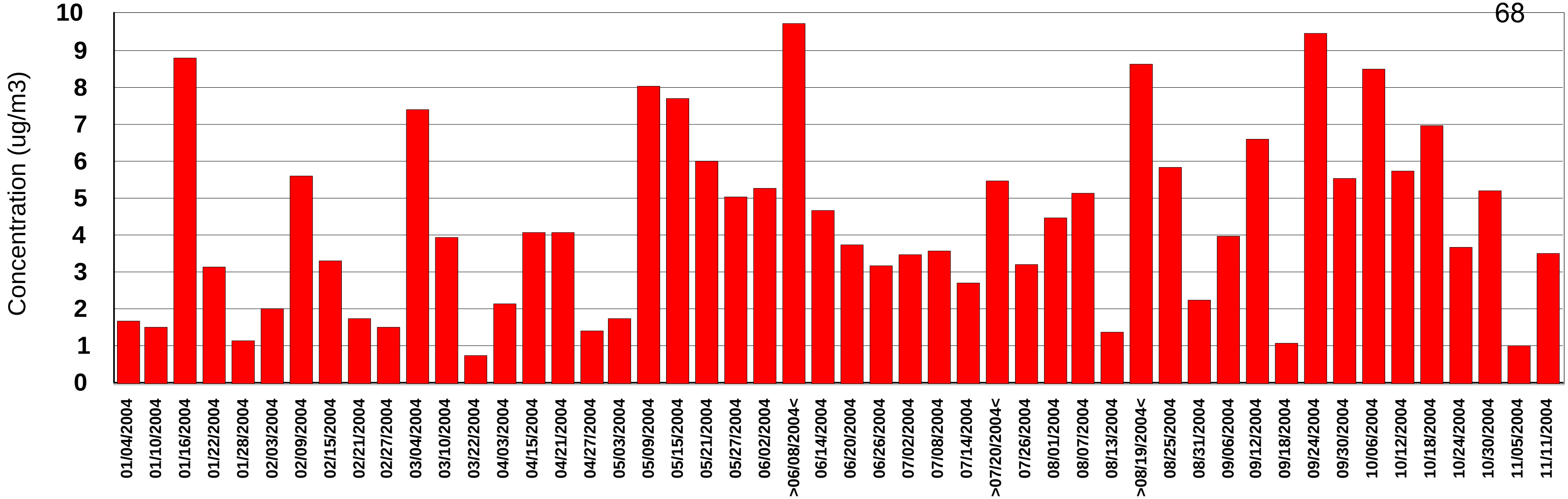
Chattanooga, TN - Organic Carbon Mass



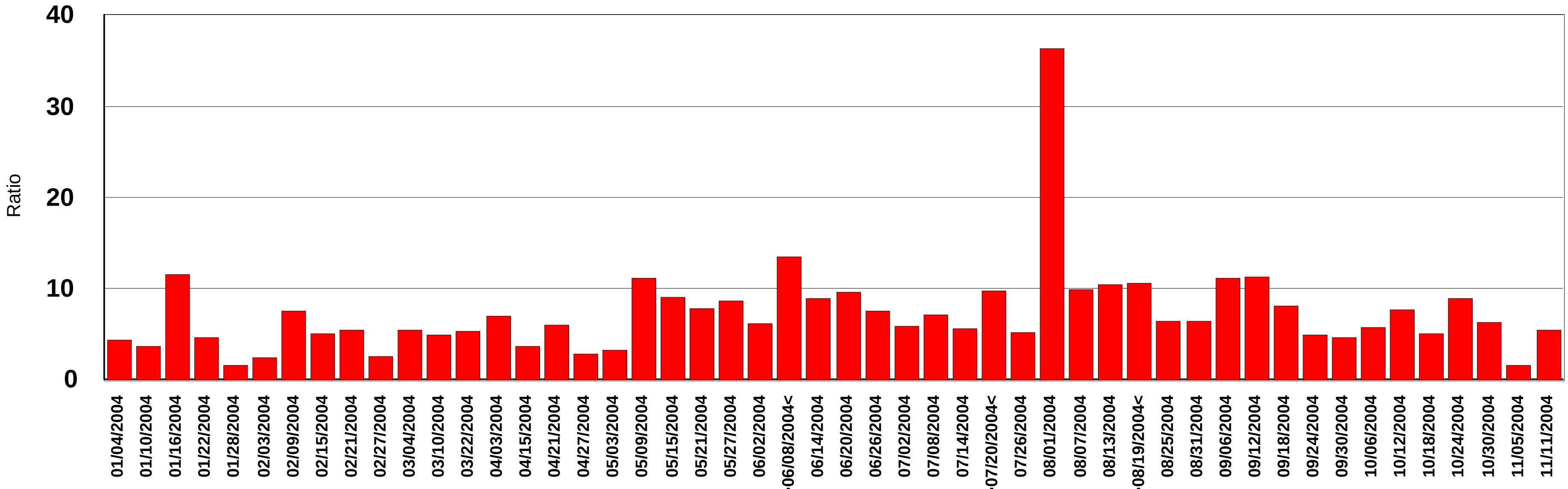
Chattanooga, TN - Elemental Carbon



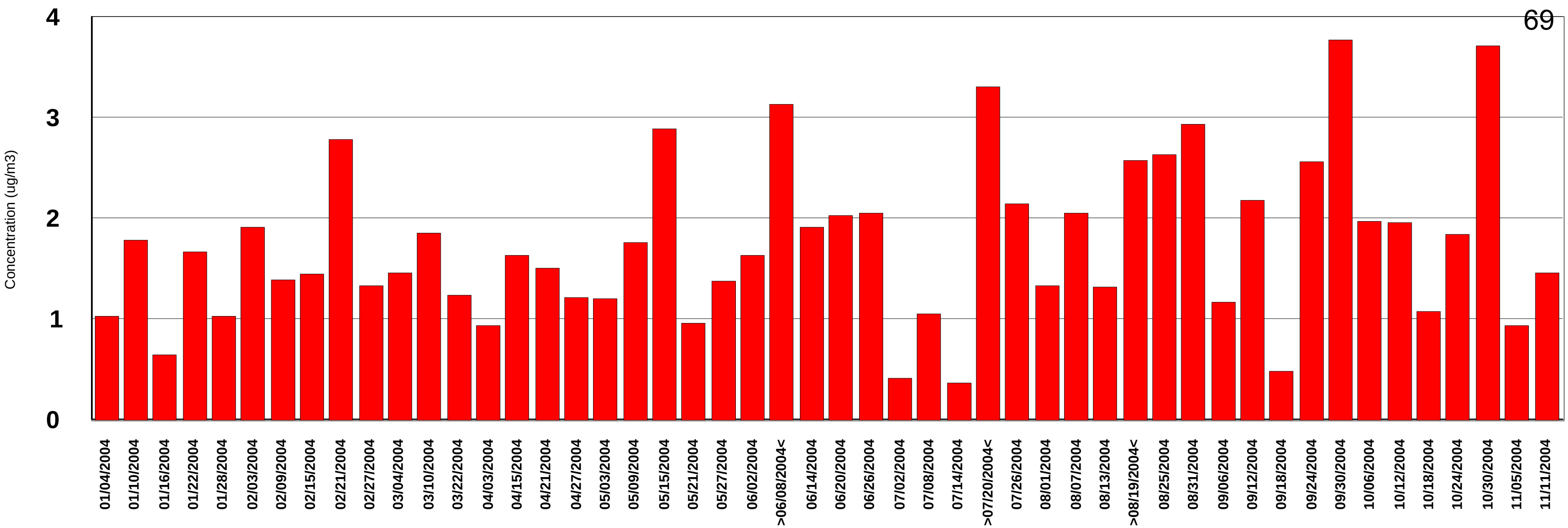
Chattanooga, TN - Total Carbon 2004



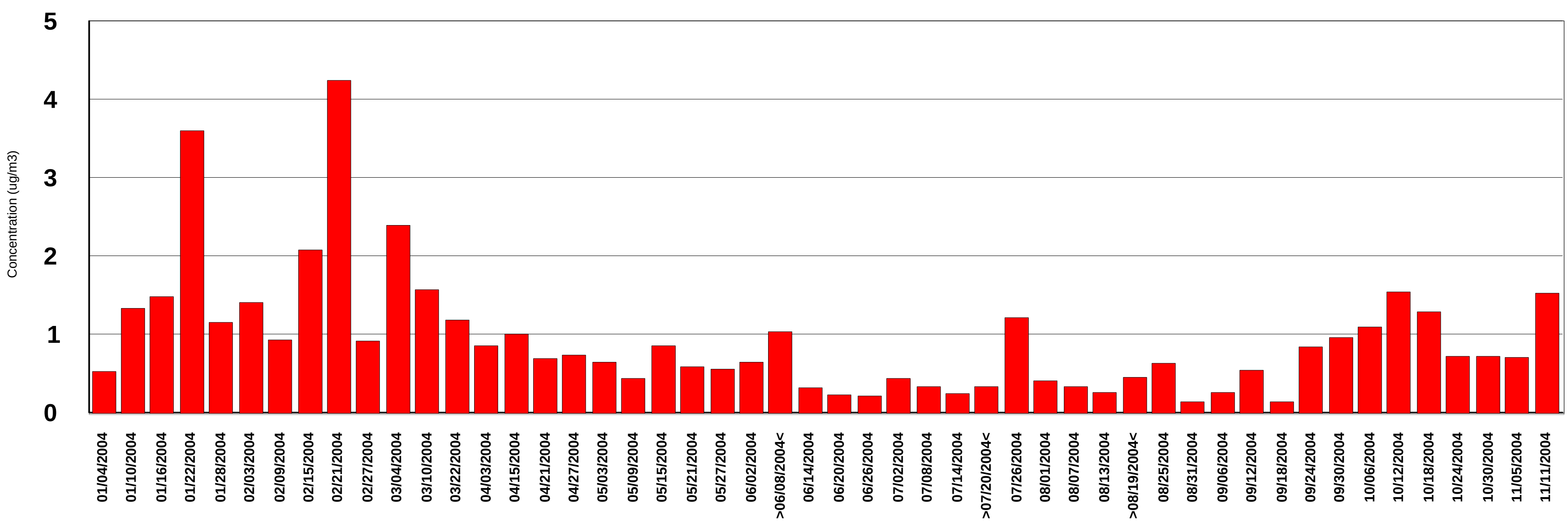
Chattanooga, TN OC / EC Ratio 2004



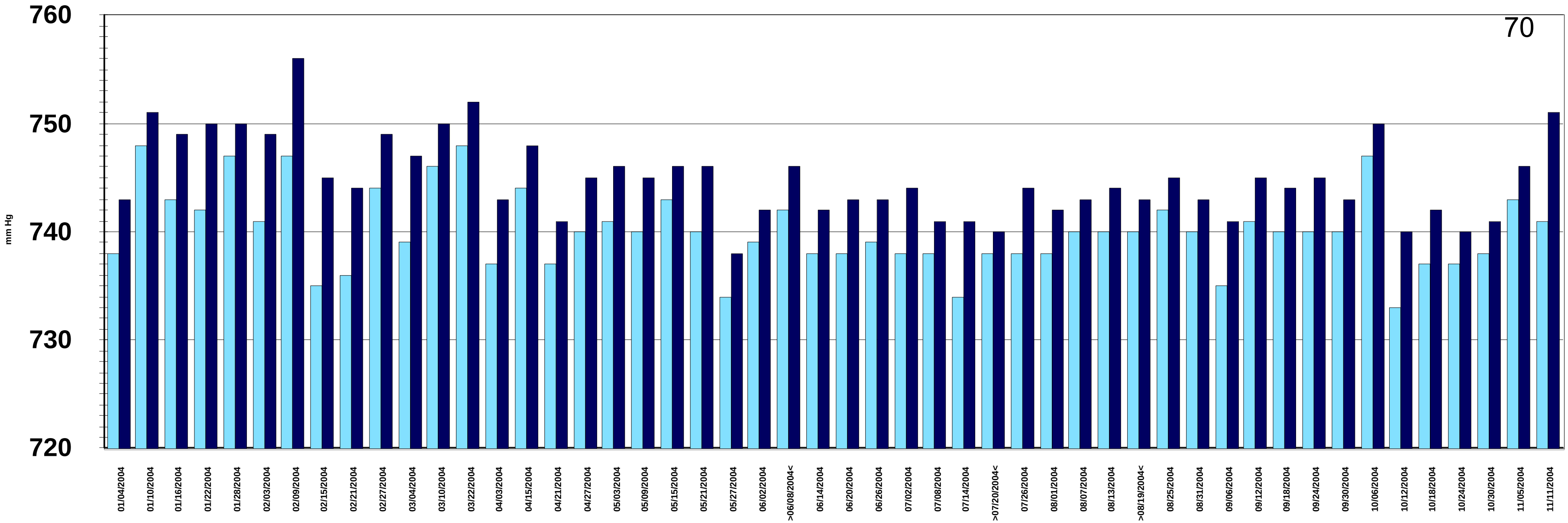
Chattanooga, TN - Ammonium 2004



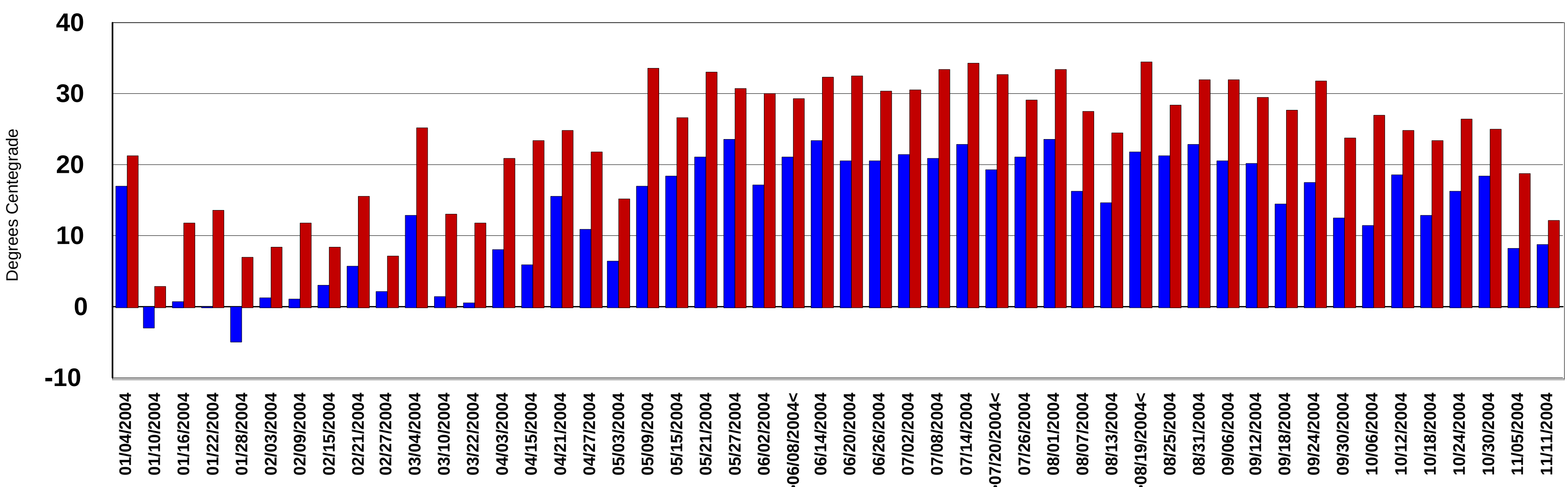
Chattanooga, TN - Nitrates 2004



Chattanooga, TN - Min Max Barometric Pressure



Chattanooga, TN - Min & Max Ambient Temp



Section 4. Columbus, GA-AL spatial averaging proposal and request to change status to attainment.

EPA evaluates requests for spatial averaging on a case by case basis, in light of the particular facts and circumstances in each area. The general regulatory requirements for spatial averaging are set forth in 40 CFR Part 58 Appendix D. There are three basic technical requirements for spatial averaging, all of which must be met for spatial averaging to be appropriate and approvable for a given geographic area:

1. Monitor site annual means need to be +/- 20% of spatial annual mean
2. Monitor sites should show "similar day-to-day variability" e.g. 0.60 correlation)
3. Monitor sites should reflect impacts by the same types of emissions sources.

The purpose for these requirements is to insure that the monitor network is appropriate for consideration for spatial averaging and properly reflects the ambient conditions within the area. More specific guidance concerning spatial averaging is provided in *Evaluating Network Adequacy for Spatial Averaging*, *Guidance For Network Design and Optimum Site Exposure For PM2.5 And PM10, December 1997*; and Attachment C of the *Guideline on Data Handling Conventions for the PM NAAQS,EPA-454/R-99-008, April 1999*.

In accordance with 40 CFR Part 58 and applicable monitoring guidance, EPA has performed a detailed review of the GA and AL spatial averaging plans submitted by the States and the data submitted to EPA's Air Quality System (AQS)for the Columbus GA-AL area. Based upon consideration of a number of factors, EPA has decided to approve spatial averaging for this area. Using spatial averaging and data from the three year period from 2002-2004, EPA has also determined that this area is in attainment with the PM NAAQS. The factors considered by EPA are discussed below.

Network Design

- In July 2004, the States of AL and GA submitted to EPA a spatial averaging plan covering three monitors in the Columbus GA-AL area. Agencies from both States held a joint public hearing to meet the public hearing requirements of the applicable EPA regulations and received no adverse comments on that spatial averaging plan. The states received supportive comments from the US Fish and Wildlife Service and a private citizen. EPA denied the July 2004 spatial averaging request because EPA concluded that one of the three monitors, located outside the city center, did not properly represent the same emission sources as the other two monitors.

- In December 2004, the States submitted a revised spatial averaging plan that includes only the two urban core monitors. The States conducted a public hearing on the revised spatial averaging plan on March 17, 2005 and no comments were received.

- Additional data from monitors in Muscogee County(the GA portion of Columbus), which consists of an additional FRM, a speciation and a continuous monitor, all provide data that meet the NAAQS and therefore tend to support an attainment classification for the area.

- The two monitors included in the December 2004 spatial averaging plan are both located in the urban core of the city and are separated by a distance of only 1.7 km (1.1 miles). The monitors are part of a multi-state PM2.5 network, with one monitor located in Alabama and the other located in Georgia. In accordance with the applicable PM2.5 regulations, PM2.5 monitors which are used to make comparisons to the annual PM2.5 NAAQS must be of a neighborhood scale, which typically represent areas from 0.5 - 4 km in diameter. Given the close proximity of the two monitors in the spatial averaging plan, EPA believes that the two monitors in the December 2004 plan represent the same neighborhood. Consideration of the location of the two monitors thus tends to support a spatial averaging approach.

Annual average concentrations at the monitors located in Phenix City, AL and Columbus, GA for 2002-2004

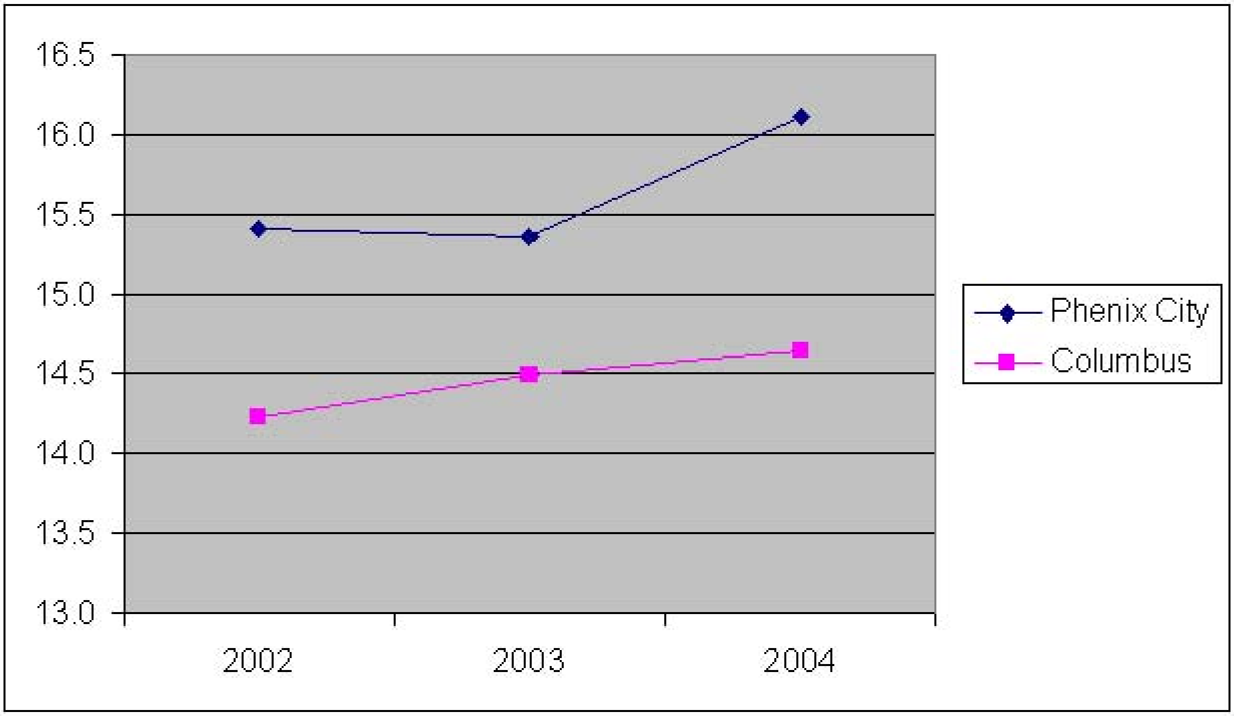
As part of evaluating the December 2004 spatial averaging plan for this area, EPA examined the data from the two monitors to determine whether they meet the applicable criteria.

The table below presents the two sets of data. It should be noted that the second set excludes one reported data value of 0.8ug/m3 for June 22, 2002 at the Phenix City site. EPA has determined that the data value for this day erroneous and must be invalidated, because it is plainly inconsistent with other ambient readings in the region for this date. The annual average results are the same after rounding concentrations to the nearest tenth. On the day of this Federal Register notice, the June 22 data value was in EPA's Air Qualilty Subsystem.

EPA notes that the annual average concentrations at Phenix City during 2002-04 are consistently higher than Columbus. The concentrations are also higher in 2004 at both locations. (See graphics below.) However, EPA believes that these variations in the monitor data may be a consequence of better monitoring performance during 2004 after sampler problems were corrected as discussed below. Thus the 2004 data particularly at Phenix City may be more representative of current conditions than the previous 2 years.

EPA's evaluation of the data from these monitors for 2002-2004 indicates that spatial averaging is appropriate. The annual monitored concentrations at the sites in Phenix City AL and Columbus GA are within +/-5 % of the annual spatial average. The 3-year design value is within +/- 2%. Both of these relationships are well within the regulatory requirement of +/- 20%. EPA does not believe that the malfunctions at one of the monitors or the variations reflected in the data affect this conclusion.

Figure 1. Quarterly and annual average concentrations, 2002-2004 at Phenix City AL and Columbus GA monitor sites.



<u>Review of Monitoring changes and reported concentrations</u>

During 2001-2002, the Phenix City, AL monitor had operational problems. At this monitor, 28 of 92 potential samples were missing or had very low values during 2001 Q4, 2002 Q1 and 2002 Q2. Consequently, the PM2.5 sampler was replaced 4 times during this period.

After state certification and submission of the data to EPA, the State deleted 7 measurements (with abnormally low readings ranging from 0 to 1.8 ug/m3) which it determined to be invalid. As indicated above, there is still one data value (June 22, 2002) in the Phenix City data set on AQS with concentration of 0.8 ug/m3. This measured value is highly unlikely to occur during the summer when PM 2.5 concentrations are regionally homogeneous throughout large areas of the southeastern U.S. at far higher levels. Such an abnormally low reading is indicative of an invalid measurement and should likewise be excluded.

EPA believes that the remaining readings from these monitors are adequate to evaluate the spatial averaging plan, and tend to support approval of the plan.

Day-to-day variability

As required by the monitoring regulations, EPA also evaluated whether the data for the two monitors in the December 2004 spatial averaging plan exhibit similar day-to-day variability. Based on the data, EPA has concluded that the correlation between the monitors for the three years of data from 2002-2004 is 0.85, which is greater than the correlation of 0.6 suggested in EPA's regulations. However, EPA notes that when the data are examined on a quarterly basis, rather than an annual basis, there were 2 calendar quarters during the past 4 years when the quarterly correlation was less than 0.6. Both of these instances occurred during the first calendar quarter. (See table below.)

year	quarter	Quarterly Correlation
2001	1	0.50
2001	2	0.93
2001	3	0.84
2001	4	0.83
2002	1	0.89
2002	2	0.98
2002	3	0.95
2002	4	0.81
2003	1	0.49
2003	2	0.69
2003	3	0.96
2003	4	0.93
2004	1	0.89
2004	2	0.98
2004	3	0.99
2004	4	0.91

EPA believes that evaluation of the data on a quarterly basis, rather than an annual basis, is appropriate because ambient PM2.5 levels are typically dominated by regional emission sources during the summer season (contributing to uniformly high urban concentrations of sulfates and high upwind concentrations of carbon). As a result, summer-time concentrations are very similar throughout urban areas, making an annual evaluation of the correlation between monitors less indicative of local emissions impacts. This regional impact is less pervasive during winter periods, making winter readings potentially more reflective of local source impacts in this area, and hence more reflective of the correlation between the monitors. EPA believes that it is appropriate to consider quarterly correlations as part of evaluating spatial homogeneity of monitors in evaluating spatial averaging plans. In this area, EPA notes that the annual correlation between the monitors is high and meets the suggested degree of correlation that is appropriate for spatial monitoring. The quarterly correlation, at least in two winter quarters, is less than the degree suggested in the regulations. Nevertheless, EPA has concluded that the degree of correlation between the two monitors in the December 2004 spatial averaging plan is acceptable, in light of EPA's conclusions with respect to the other factors considered in this analysis.

Influencing Emissions

EPA has also examined whether the two monitors in the December 2004 spatial averaging plan are affected by comparable sources. EPA notes that the two monitors are only 1.7 km (1.1 miles) apart, and this tends to suggest that they are probably affected by comparable sources. Information provided to the Agency by the States and otherwise available to the Agency indicates that the predominant local sources of emissions in this area are related to transportation (gas and diesel mobile sources), and related to commercial/residential fuel combustion, which is predominantly natural gas. Electricity is the remaining energy source for commercial and home heating/cooling. There is very little wood, oil or coal combustion in the area. There are few large local stationary sources of emissions. Based on this universe of sources, and the proximity of the monitors, EPA believes that the impacts on both monitors probably result from comparable sources.

Conclusion

EPA is approving the December 2004 spatial averaging plan for the Columbus GA-AL area, based upon consideration of all of the factors discussed above. EPA has concluded that the plan meets the basic regulatory requirements for such plans with respect to important factors such as the relationship of the annual means between the monitors, the days to day variability between the monitors, and the impacts from comparable sources. Most significantly, EPA believes that the particularly close geographic relationship of the two monitors confirms that the monitors are suitable for spatial averaging because this proximity tends to support the conclusions with respect to the suitability of the network design and the impacts of comparable sources. EPA notes that the evaluation of spatial averaging plans must be conducted on a case by case basis, on the facts and circumstances of each situation. In this instance, EPA has concluded that spatial averaging is appropriate.