

SUMMARY OF MEASUREMENT SITES FOR PARTICULATE MATTER (PM_{2.5}) SPECIATION⁰

Numbers of Measurement Sites for Each PM Species

Network	Total Number of Sites	Major Ions (SO ₄ ,NO ₃ ,NH ₄)	OC	EC	Trace Elements ⁹	Sampling Frequency	Location of Information and/or Data
State / Local / Federal Networks							
NCore ¹	—	—	—	—	—		http://www.epa.gov/ttn/amtic/mo-nstratdoc.html
SLAMS -- EPA ^{2,5}	~150	207	207	207	207		http://www.epa.gov/ttn/airs/airsaq/s/aqsweb/aqswebhome.htm
STN --EPA ^{3,5}	54	54	54	54	54	3-day schedule 24-hr average	http://www.epa.gov/ttn/airs/airsaq/s/aqsweb/aqswebhome.htm
IMPROVE -- Class I ⁸	110	110	110	110	110		http://vista.cira.colostate.edu/improve/
IMPROVE -- Protocol ^{4,8}	67	67	67	67	67		http://vista.cira.colostate.edu/improve/
CASTNet ⁶	80+	88				weekly average	http://www.epa.gov/castnet/
Industry Networks							
ARIES/SEARCH ⁷	8	8	8	8	8		http://www.atmospheric-research.com/studies/SEARCH/index.html

0. Methods Discussion (Rich).

1. NCore is a network proposed to replace NAMS, as a component of SLAMS; NAMS are designated as national trends sites. To avoid double counting, the NCore sites are incorporated in STN and SLAMS totals.
2. Based on EPA samplers; does not include IMPROVE protocol.
3. Based in National Park Class 1 areas; also includes 2 sites.
4. Includes ~10 CASTNET located sites, and other RPO and EPA -- SLAMS funded sites.
5. Counts of sites for which selected PM species are measured are based on a search of air quality measurements in AQS that was made on 04/19/06. Monitor type, pollutant or "parameter" code, and the last sampling date for a given monitoring site were the primary search factors considered. Last sampling dates encompassed 2004 to the present. Parameter codes unique to each pollutant were chosen. The following monitor types were selected for inclusion with the indicated types of networks:
 SLAMS -- EPA network includes: SLAMS speciation types
 STN -- EPA network includes: Trends speciation, PAMS, and unofficial PAMS monitoring types.
6. Counts of sites for which selected PM species are measured are based on a "Quick Report" for 2004 from the CASTNet website made on 04/19/06. Measurements at CASTNet sites utilize an open inlet (all particle sizes) and Filter Pack providing weekly integrated averages for sulfate and total nitrate (particles and nitric acid).
7. Counts of sites for which selected PM species are measured are based on information from the SEARCH website taken on 04/19/06.
8. IMPROVE does not report NH₄ due to concerns regarding NH₃ offgases from filters.
9. Elements include Na to Pb on the periodic table measured through typical XRF scans and other analysis techniques. Major differences between IMPROVE and EPA networks are analysis respectively of 24 versus 48 elements; differences in elements considered are currently being reassessed since many are rarely detected. A listing of elements is provided in the following table:

XRF Species	Species Name	XRF Species Reported in IMPROVE Databases	XRF Species Reported in STN Databases
Na	Sodium	X	X
Mg	Magnesium	X	X
Al	Aluminum	X	X
Si	Silicon	X	X
P	Phosphorus	X	X
S	Sulfur	X	X
Cl	Chlorine	X	X
K	Potassium	X	X
Ca	Calcium	X	X
Sc	Scandium		X
Ti	Titanium	X	X
V	Vanadium	X	X
Cr	Chromium	X	X
Mn	Manganese	X	X
Fe	Iron	X	X
Co	Cobalt		X
Ni	Nickel	X	X
Cu	Copper	X	X
Zn	Zinc	X	X
Ga	Gallium		X
As	Arsenic	X	X
Se	Selenium	X	X
Br	Bromine	X	X
Rb	Rubidium	X	X
Sr	Strontium	X	X
Y	Yttrium		X
Zr	Zirconium	X	X
Nb	Niobium		X
Mo	Molybdenum		X
Ag	Silver		X
Cd	Cadmium		X
In	Indium		X
Sn	Tin		X
Sb	Antimony		X
Cs	Cesium		X
Ba	Barium		X
La	Lanthanum		X
Hf	Hafnium		X
Ta	Tantalum		X
W	Tungsten		X
Ir	Iridium		X
Au	Gold		X
Hg	Mercury		X
Pb	Lead	X	X
Ce	Cerium		X
Sm	Samarium		X
Eu	Europium		X
Tb	Terbium		X