Overview of ASRC Air Quality Programs, Research Goals, Sites, and Measurement Capabilities

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Programs
(supported primarily by NYSERDA and USEPA)

- Baseline Regional Measurements of Trace Gases and PM-2.5 at Whiteface Mountain (WFM) and Pinnacle State Park (PSP)
- Laboratory Studies of Aerosol Generation, Characterization, and Measurement Instrumentation
- New York City EPA PM-2.5 “Supersite” – PMTACSNY; web site http://www.asrc.cestm.albany.edu/pmtacsny
- Air Quality Forecast Modeling System (AQFMS) for the Northeast United States

Major Research Goals

- Quality Assured Research Measurements for Air Quality Assessment, Analysis, and Model Evaluation
- Studies of Oxidant Production and Transport, with the Goal of Improving Regional Air Quality
- Studies of PM-2.5 Production and Transport, with the Goal of Improving Regional Air Quality
- Assess Linkages between Oxidant and PM-2.5 Production, Transport and Concentrations
- Development of Real-Time 18-hour Air Quality Forecasts

Measurement Sites

- Whiteface Mountain (WFM), Wilmington, NY (44.4°N, 73.9°W) – Summit (~1500 m elevation); Lodge (~600 m elevation) – measurement record begins 1970's
- Pinnacle State Park (PSP), Addison, NY (42.1°N, 77.2°W) – elevation 515 m – measurement record begins 1995
- Various sites in New York City area in collaboration with New York State Department of Environmental Conservation (NYSDEC) – Summer 2001 PMTACSNY Intensive at Queens College (40.7°N, 73.8°W)

Measurement Capabilities - short list
(For expanded list see PMTACSNY web site)

Regional Sites (WFM and PSP):

Continuous Gases: O_3, NO, NO_2, NO_y, SO_2, and CO. (PSP only – HNO_3 by denuder difference.) Non-polar hydrocarbons – WFM via canister samples; PSP via Perkin-Elmer AutoGC.

Particulate Matter: PM-2.5 mass via FRM (daily) and TEOM (continuous), Chemical Speciation via filters, semi-continuous carbon particulate measurements. (PSP only – IMPROVE sampler.)

New York City Sites:

Continuous Gases: varies by site – most have O_3, NO, "NO_x", SO_2. PAMS sites at Bronx Botanical Gardens and Queens College also have hydrocarbons and will have photolytic NO_2.

Particulate Matter: PM-2.5 mass via FRM (daily) and TEOM (continuous), Chemical Speciation via filters. Coming soon: semi-continuous sulfate, nitrate, and carbon particulate measurements to one or two sites.

Special Studies

PMTACSNY New York City 2001 Summer Intensive: (involving 10+ organizations)

Particle Measurements: 3-4 particle mass spectrometers, 5 semi-continuous chemical speciation monitors, particle number and size, filters, mass.

Gas Measurements: O_3, NO, NO_y, SO_2, and CO; canister samples for HC's and toxics; CH_4 and NMHC; HCHO, HONO and HNO_3; OH and HO_2.

PMTACSNY WFM 2002 Summer Mini-Intensive: (tentatively scheduled for mid-July to mid-August)

Particle Measurements: one particle mass spectrometer, 4 semi-continuous chemical speciation monitors, particle number and size, filters, mass.

Gas Measurements: O_3, NO, NO_2, NO_y, SO_2, and CO; canister samples for HC's; HCHO; OH and HO_2.

PMTACSNY New York City 2003 Winter Intensive: (TBD)