Atlanta SuperSite '99 Study Protocol
(Version 1.0 – June 7, 1999)

prepared by
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Aerosol Dynamics

Overview

In August 1999 many emerging and/or state-of-the-science measurement methods for fine, airborne particles will be deployed at one site in Atlanta GA for a period of four weeks. These measurements are being made as part of the first of the regional "Supersites" being established by the Environmental Protection Agency for advanced investigations of outstanding issues related to $PM_{2.5}$. The Atlanta Supersite is being coordinated by the Southern Oxidants Study (SOS) in collaboration with the numerous universities and agencies that comprise SOS as well as a number of other programs and agencies including the Southeastern Aerosol Research Characterization / Aerosol Research Inhalation Epidemiology Study (SEARCH/ARIES) and the Southern Center for the Integrated Study of Secondary Aerosols (SCISSAP).

The purpose of this document is to provide the pertinent information for participants in the August field operations.

Objectives

Goals of the Atlanta SuperSite study are twofold: first, to provide a platform for testing and contrasting some of the newer particle measurement techniques, and second, to provide data to advance our scientific understanding of atmospheric processes regarding atmospheric particles. Specific objectives are:

1. to characterize the performance of emerging and/or state-of-the-science "PM Measurements[1]."

2. to compare and contrast similar and dissimilar PM Measurements;

3. to evaluate the precision, accuracy, and completeness of information that can be gained from the planned EPA "PM mass and chemical composition" networks;

4. to evaluate the scientific information gained by combining various independent and complementary PM Measurements; and

[1] "PM Measurements" includes methods to determine the physical and chemical characteristics of PM, identify their chemical precursors and meteorological driving forces, and ultimately understand the public-health impacts and visibility-altering properties of airborne PM.

5. to address various scientific issues and their ozone- and PM-related policy implications with this data base.

Study Dates

The measurement program is scheduled for the four week period commencing at 7 am on Wednesday, August 3, and ending 7 am Wednesday September 1, 1999. This is one day earlier than originally planned so as to allow investigators to return home before the labor day weekend. The site will be ready for instrument setup on or about Monday July 19. Systems audits are tentatively yet scheduled for the Friday and Monday preceding the measurements, and during the first week of measurements (Wednesday - Friday July 28-30, Mon Aug 2, Wed Aug 4, Thurs Aug 5). The weekend is not available for audits.

Study Site

Measurements will be made on the grounds of Georgia Power Company at 829 Jefferson Street NW, Atlanta, GA 30318. This site was established for the SEARCH and ARIES programs, and it is being expanded to accommodate the measurements of the Atlanta SuperSite. The SEARCH/ARIES measurements will continue during the August Study. SEARCH is an ongoing, multiyear particle and air quality study with eight paired urban rural sites in southeastern US. The SEARCH Atlanta site is also used for ARIES, which is an ongoing health effects study based on measurements at this site. SEARCH/ARIES are sponsored through EPRI, utility, petroleum and automotive industry concerns. Off-site support facilities will be available through Georgia Tech, as described below.

Organizational Responsibilities

Table 1 lists the individuals with responsibility for various aspects of the Atlanta SuperSite activities.

The Atlanta SuperSite is operated by the Southern Oxidants Study under a Cooperative Agreement between the National Exposure Research Laboratory At Research Triangle Park (NERL-RTP) of the U.S. EPA and the Georgia Institute of Technology. Bill Chameides is SOS' Atlanta SuperSite Project Director and, as such, chairs the Atlanta SuperSite Steering Committee which has responsibility for all decisions relating to the scientific goals of the SuperSite and the methods and approaches to be taken to reach these goals. Members of the Steering Committee include Project Directors/Liaison Officers representing all organizations and agencies supporting the SuperSite Experiment.

The implementation of the overall scientific plan for the **SuperSite is managed by the "Atlanta Supersite Coordination Committee Underpinning Success (ASCC-US).** ASCC-US has responsibility for the logistics and day-to-day operation of the August Field Experiment, as well as the overall synthesis and analysis of the data. ASCC-US is chaired by John Jansen and includes Tina Bahadori, Bill Chameides Elis Cowling, Eric Edgerton, Fred Fehsenfeld, Susanne Hering, C.S. Kiang, Peter McMurry, Jim Meagher, Dennis Mikel, and Paul Solomon

Administration of the Atlanta SuperSite is directed by the SOS Atlanta SuperSite Project Director (Chameides). along with Project Officers in charge of the Jefferson Street Site (Eric Edgerton), the sampling protocol (Susanne Hering), quality assurance (Dennis Mikel), data management (Jim StJohn), and off-site laboratoty facilities (Karsten Baumann).

Table 1. Atlanta SuperSite Organization(*)

A. Steering Committee	
W.L. Chameides, Chair	SOS SuperSite Project Director
Tina Bahadori	SEARCH/ARIES Project Officer
Ellis Cowling	SOS Study Director
Fred Fehsenfeld	NOAA Liaison Officer
C.S. Kiang	GaTech Liaison Officer
John Jansen	Southern Company Liaison Officer
Jim Meagher	SOS 1999 Field Marshall
Paul Solomon	EPA Project Director/Liaison Officer
B. Coordination Committee (ASCC-US)	
John Jansen, Chair	
Tina Bahadori, Bill Chameides Elis Cowling, Eric Edgerton,	
Fred Fehsenfeld, Susanne Hering, C.S. Kiang, Peter McMurry,	
Jim Meagher, Dennis Mikel, and Paul Solomon	
C. Administration	
W.L. Chameides	SuperSite Project Director
Karsten Baumann	Off-site Laboratory Facilties Officer
Eric Edgerton	Jefferson Street Site Director
Susanne Hering	Sampling Protocol Officer
Dennis Mikel	Qaulity Assurance Officer
Jim StJohn	Data Manager

(*) See Appendix A for listing of entire Science Team

Measurements and Participants

Planned measurements are listed in Table 2. These include filter-based techniques for chemical characterization, single particle composition mass spectrometers, automated methods for high-time resolution particle chemistry, and physical characterization of the particles. The methods are supported by various gaseous and meteorological measurements. In Table 1 the measurements are grouped in accordance with type and the measurement schedule described below. The decision to add measurements is at the discretion of the project leadership, and is dependent on available facilities as well as benefit to the program.

Sampling Schedules

There are five sets of sampling schedules, as outlined in Table 3.

Schedule A, "Alternate Day Schedule" is for the EPA speciation samplers and certain other filter collectors. Samples will be collected for a full 24 hours sample starting at 0700 EDT on alternate days, beginning with the first day of the study. This schedule provides for a total of 15 sampling periods, and allows for full 24-hr sample collection with a single, manual sampler. With an August 3 start date, these sampling days correspond to odd numbered calendar dates (3,5,7,9…). On even calendar study dates, the EPA speciation samplers will not be operated. Other investigators are asked to sample for 12 hour periods, or to select an even divisor of 12 hours (such as two 6-hr samples during the daytime 12-hr period).

Schedule B, or "Base Schedule" is a consistent day/night sampling beginning at 0700 and 1900 EDT every day. It will be used by two of the MOUDI impactors (for ions, organic and elemental carbon (OC/EC) and metals), and one of the ARIES/SEARCH particle composition samplers. These samplers will provide a consistent, uninterrupted measurement throughout the study period. If operators need time to change out their samplers, this time should be taken before the end of the sample period. For example the 0700 sample could be stopped at 1830, changed, and the new sample started at 1900.

Schedule C, "Continuous", is for samplers with high time resolution. These investigators are asked to provide their data in a manner that allows for calculation of one-hour averaged concentrations beginning on the hour. For example, acceptable formats would be 1min, 5min, or 10min averaged data starting on the hour.

Schedule M, or "Multiday" provides for collection of large samples as needed for some trace metal and organic speciation analyses. Schedule S is the SEARCH/ARIES and standard monitoring schedule that has 24-hr sample collection beginning at midnight standard time (0100 EDT).

Table 2. List of measurements

Sch[1]	Investigator[2]	Organization		Instrument & Measured Parameters
Integrated Particle Samplers with alternate 24-hr and 12-hr Collection beginning @ 0700 EDT				
A	Baumann	GaTech	1	MCFP: Multichannel denuder filter pack system for PM2.5 mass, ions, trace elements, OC/EC, and gaseous ammonia, nitric acid and sulfur dioxide.
A	Gundel	LBL	2	IOGAPS: integrated gas and particle sampler for organic speciation
			1	Low vol IOGAPS: OC/EC, selected PAH analysis
			1	High flow filter-PUFF for organic speciation method development
A	Tanner	TVA		PC-BOSS sampler
A	Solomon-Eatough	EPA,BYU		PC-BOSS sampler
A	Solomon	EPA	5	5 types of Speciation Samplers: Andersen, Met One, URG, Improve, VAPS
			3	FRM PM2.5 samplers with teflon filters
			1	FRM PM2.5 sampler with quartz filter
			1	Auto Dichotomous sampler with electron microscopy and XRF analysis of fine and coarse PM.
A	Kiang/Bayor	GaTech	1	Personal exposure monitors
A	Koutrakis	Harvard	1	Personal exposure monitors
Integrated Particle Samplers with daily 12-hr Collection beginning @ 0700 EDT				
B	Maring	U Miami	1	MOUDI for ions (RH controlled)
B			1	MOUDI for OC,EC, mass (RH controlled)
B	Edgerton	ARA		PCM particle composition monitor for PM2.5 mass, trace elements, water soluble metals, ions, OC/EC.
On-Line Particle Mass Spectrometry				
C	Middlebrook	NOAA		PALMS: particle mass spectrometer
C	Prather	UC Riverside		ATOFMS: aerosol time of flight mass spectrometer
C	Warsnop	Aerodyne		AMS: aerosol mass spectrometer
C	Wexler	U Delaware		RSMS2: second generation rapid single particle mass spectrometer
Continuous and Semi-Continuous Particle Chemistry				
C	Dasgupta	Texas Tech		Automated IC with water vapor condensation collection system for sulfate and nitrate Automated IC with non-water collection system for sulfate and nitrate
C	Edgerton	ARA		Automated catalytic reduction system for ammonium, nitrate, and sulfate. Commercial (R&P) for OC/EC.
C	Hering	ADI		ICVC: Integrated collection and vaporization cell for automated nitrate, sulfate and particulate carbon
C	Slanina	ECN		SJAC: Steam jet aerosol collector for nitrate, sulfate and ammonium ion
C	Ondov			GFAA for continuous metals
C	Turpin	Rutgers		In situ carbon analyzer for organic and elemental carbon
C	Weber/Lee	GaTech,BLN		CPCIC: CNC-based collection for aerosol ion chromatography

Continuous and Semi-Continuous Particle Mass

C	Koutrakis	Harvard		CAMMS: pressure drop mass measurement
C	Russell	GaTech		TEOM [3]: tapered element oscillating microbalance for particle mass, with RH control.
C	Solomon	EPA/BYU		RAMS for continuous particle mass

Continuous and Semi-Continuous Particle Physical Characterization

C	McMurry	U Minn		Double size spectrometry for particle density
C	"	"		DMPS [3]: Particle size distributions 3 nm-3 um
C	Savoie	U Miami		TSI nephelometer for particle light scattering at three wavelengths

Continuous and Semi-Continuous Supporting Measurements

C	Edgerton	ARA		Met [3]: meteorology station at 10 m for wind speed, wind direction, temperature, barometric pressure, solar radiation and relative humidity.
C	Edgerton	ARA		Criteria and reactive gases [3] (O3, NOx, NO, NO2, SO2, CO, NOy, HNO3, NH3)
C	Baumann	GaTech		Met and criteria gases (T, RH, WS/ WD, global radiation, uv radiation, NO, NOy, O3, CO, SO2.
C	Bergin	GaTech		Aerosol optical depth, spectral radiometer, sun photometers
C	Hardesty	NOAA		LIDAR: boundary layer O3 and aerosol backscatter
C	Dasgupta	Texas Tech		Semi-continuous HCHO and H2O2 (gas)
C	McNider	UAH		Wind profilers for winds aloft
C	Zika	U Miami		On-line GC for volatile organics and oxygenates

Multiday Sample Collectors

M	Maring	U Miami	1	MOUDI for organic speciation
M	"	"	1	MOUDI for heavy molecular weight compounds
M	Ondov		1	Mega Vol for trace metals
M	Koutrakis	Harvard SPH	1	High volume sampler for sample archiving

Particle and Vapor Collection through SEARCH/ARIES (24-hr beginning at 0100 EDT) [3]

S	Rasmussen	OGI	Whole air canisters for volatile organic hydrocarbons and oxygenates [3]
S	Burge	Harvard	Burkard Sampler for Pollen and Molds [3]
S	Edgerton	ARA	PM2.5 FRM mass [3] PM10 FRM mass (dichot) [3] PCM particle composition monitor for PM2.5 mass, trace elements, water soluble metals, ions and OC/EC [3]
S	Koutrakis	Harvard	HEADS for gaseous ammonia, particle acidity and sulfate [3]
S	Zielinska	DRI	Particle Organics Collector [3]

Supporting Laboratory Analyses

	Jahren	GaTech	Isotope analysis of PM2.5 (C13 and N15)
	Bayor	GaTech	Trace element and heavy organics analysis of MOUDI samples

1 Sch: Schedule code, as given in Table 2.
2 Investigators and Organizations listed in Appendix A.
3 SEARCH/ARIES instrumentation operating under different protocol and Quality Assurance.

Table 3 Sample Schedules

Code	Schedule
A	Alternate Day Schedule: 24 hour sample beginning at 0700 on Aug 3, 5 (odd calendar dates) 12 hour sampling beginning at 0700 on Aug 4, 6.(even calendar dates)
B	Base Schedule: 12-hour sample beginning at 0700 and 1900 every day.
C	Continuous and near-continuous 5 min – 60 min average concentrations, beginning on the hour
M	Multiday Sampling (for large sample collection purposes) beginning at 0700 EDT, at discretion of investigator
S	SEARCH schedule for existing SEARCH sampling program 24 hour samples beginning at midnight standard time.

Study Schedule

Important milestones for the project are listed in Table 4. Please note dates during the study for audits and meetings.

Quality Assurance

All participants are asked to submit a Standard Operating Procedure by May 17, 1999. These should be sent directly to Bill Chameides at Georgia Tech. He will distribute copies to George Momberger, who is preparing the Quality Assurance Plan for the project, and to Dennis Mikel of US EPA Region IV who will handle the field audits.

Field audits will be conducted on weekdays. These will focus on flows, and will be conducted by the EPA Region IV audit team in Athens. Those with particle samplers should be prepared for audits by the week prior to the beginning of the study. The tentative schedule is:

Week of July 19	Audits of continuous gas monitors
Wed-Thurs July 28-29	EPA speciation sampler audits
Fri, July 30	Audits of other particle filter samplers
Monday Aug 2	Audits of continuous monitors
Wed-Thur Aug 4 - 5	Continued audits as needed.

Systems audits, that is an on-site review of the operations of each system, are under discussion. To the extent possible this will be done through Dennis Mikel, but it may not cover all experiments.

Table 4. Study Schedule

Pre-study	
2/7-9/99	Planning Workshop, Atlanta Georgia
Feb-Mar 99	Logistics questionnaire circulated, site plan drafted
5/12	Draft protocol, site layout and occupancy agreement circulated.
5/17	Participants submit Standard Operating Procedures to Bill Chameides
5/30	Site layout finalized and circulated
6/15/99	Protocol completed and submitted
6/25/99	Quality Assurance Plan distributed for comment
7/10/99	Quality Assurance Program Plan completed and submitted
During Study	
7/19	Site ready for setup, audits for gaseous instruments this week
7/27-7/30	Check-in at Headquarters
7/30, 6:30	Social gathering at Headquarters with goodies
8/1, 8 pm	Kick-off Science Team Meeting at Headquarters
7/28-30, 8/2, 8/4, 8/5	On-site audits
8/3, 0700 EDT	**Measurements begin**
8/7, 8/13, 8/19, 8/25, 8/31, 8 pm	Investigator meeting and/or social gathering (at Headquarters unless otherwise designated)
9/1, 0700 EDT	**Measurements end**
9/7	Site demobilization complete
Post-Experiment	
3/1/00	SOS Data Analysis Workshop
3/1/00	Quality Assurance Report completed and submitted
3/15/00	Submission of preliminary data to central website
6/1/00	Submission of Interim Report to U.S. EPA
6/1/00	Joint Health Effects/Atmospheric Sciences Workshop
7/1/00	Submission of Report on Recommended Future Studies To Further Investigate the Link Between PM and Human Health
12/20/00	Special SOS Session at Winter AGU Meeting
01/01/01	Submission of all quality assured data to the NARSTO Archive, and, where appropriate, AIRS.
01/15/01	Submission of papers for peer-review and publication in as Special Issue in a technical journal
02/15/01	Submission of Final & QA Reports on the 1999 SuperSite Experiment

Protocol for Continuous and Near-Continuous Measurements

Most of the continuous, near-continuous and mass spectrometer particle measurements will be housed inside trailers. Each investigator is asked to arrange for their own inlet, which will extend out of a window and above the roof of the trailer. Recommended sample height is 2 m above the roof top. The inlet should have a size cut at 2.5 µm at ambient relative humidity, unless the system otherwise sizes or excludes coarse particles. Cyclones that provide these cutpoints can be obtained from URG, BGI or Met One. Additionally, investigators should avoid inlets of ¼" (6 mm) diameter because these are attractive to nesting insects prevalent to Atlanta this time of year.

The relative humidity for the particle measurements is left to the discretion of the individual investigators, but should be known. The trailer that houses the instrumentation will be air conditioned, but temperatures will be maintained at or above 78 F to avoid water condensation in the sampling lines.

Protocol for Integrated Samplers

Most of the integrated sample collectors will be housed on an outdoor platform, 0.5 m in height. General inlet and sampling considerations for the PM2.5 samplers are the same as for the continuous instruments, as listed in Table 5. Note that all carbon vane pump exhausts must be filtered to avoid contamination.

To assess spatial uniformity over the sampling area, three FRM PM2.5 samplers will be operated, one at each end of the platform and one on top of the platform between the continuous instrumentation shelters. These will be run with Teflon filters and analyzed for mass, metals (by XRF) and possibly ions.

The exact protocol for operations, beyond those indicated above, has not been defined ands is left to the discretion of the PI's. Comprehensive documentation of sampling operating procedures will facilitate post-experiment analysis.

Table 5. Summary of Sampling and Inlet Recommendations

Item	Recommendation
Provision of inlets.	Each investigator is responsible for their own inlet, tubing and hardware.
Inlet Height:	2 m above platform, or 2 m above the top of the trailer.
Inlet Cutpoints:	If needed, particle cutpoints should be at 2.5 µm at ambient RH
Inlet Size:	¼" inlet diameter not recommended because they are attractive to nesting insects.
Relative humidity:	The relative humidity at the point of measurement is at the discretion of each investigator, but should be reported.
Trailer temperature:	Trailers will be kept 78-80 F to avoid water condensation in lines
Pumps:	To be placed outside or underneath the trailer
Pump exhaust:	All carbon vane pump exhausts must be filtered.
NOx monitors:	All NOx monitor exhausts should be scrubbed to remove ozone.
Solvent use:	Solvents, other than water, are strongly discouraged. Notify S. Hering or E. Edgerton of plans to use organic solvents.
Other emissions:	In all cases please avoid contamination at the site

Documentation and Data Exchange

The data will be submitted to James St. John of Georgia Tech. Guidelines regarding data submission will be forthcoming. Expect to report particle composition concentrations (such as sulfate, carbon etc.) in units of $\mu g/m^3$, where the volume is evaluated at ambient conditions. As appropriate, an uncertainty should be assigned to each data value.

Although we have used daylight time in describing the sampling schedules, the data base will employ standard time, consistent with the NARSTO format. To avoid confusion, expect to report your data in standard time. This means that sampling begins at 0600 EST (=0700 EDT).

It is understood that investigators are free to exchange data among themselves, but that no one's data is to be used in a publication without their permission, and without including that person's name on the paper (unless the individual specifically indicates a preference not to be a coauthor)

Communications / Weather Updates

Supersite Web Address: http://www-wlc.eas.gatech.edu/supersite
This address will house updates about the study, weather and air quality forecasts, and major parts of this protocol.

Check-in: When you arrive, please "check-in" with the GaTech staff person at the headquarters at 575 Fourtheenth St NW. This person will have a information sheet with the latest updates regarding audits, and the first Kick-off meeting. They will ask you where you are staying, so that we can compile of list of "how-to-reach" investigators during the study. If you do not already have a key card, this will be handed to you.

July 30 Social: For those on site by Friday, July 30, there will be am evening social gathering. Check in at Headquarters to learn the details!

Kick-off Meeting on Sunday August 1, 8 pm: This will be the first of the Science Team meetings, to keep us posted during the progress of the project. At the first meeting everyone will be asked to complete a field contact list, so that people can be reached if necessary during the study.

Science Team Meetings: Communications will be handled through investigator (Science Team) meetings held at 8 pm every sixth day, beginning with a Kick-off meeting on Sunday August 1. Dates are Aug 1, 7, 13, 19, 25, 31. Location: Headquarters, unless otherwise stated. Investigators are encouraged to share their data through postings on the board as the study progresses.

Weather/AQ Updates: Daily weather and air quality updates and messages will be maintained on a web site, and posted on the bulletin board at headquarters and at the sampling site. Data will be displayed in graphical format and will be accessible via the internet. Weekly briefings will be given at each of the Science Team Meetings. Special requests for meteorological data should be submitted to Jim St. John at (404) 894-1754, or email: stjohn@eas.gatech.edu.

Headquarters Facilities

The Study Headquarters and general meeting space will be located in the building of the Institute for Paper Science and Technology (IPST) located approximately 2.5 miles north of campus, 2.5 miles from Jefferson St. site. There will be desk and meeting space, telephones for local and credit card long distance calls, bulletin board and internet access via an on-site Workstation as well as direct connections using internet-capable laptops. There is ample parking at the front of the building, as well as secure, fenced parking in back. (See attached figures and maps.)

You will need a keycard to gain off-hours access, and for parking. C.S.Kiang will be issuing these, and has e-mailed all of you asking for names, social security nos, hotel where you are staying and duration of stay. The plan is to have the keycards waiting for you at your hotel when you arrive. If it is not there, you will need to get your card from headquarters during regular business hours (9:00 - 5:00, M-F).

The headquarters address, phone and fax numbers are:

575 Fourteenth St. NW, Atlanta GA 30318
Phone: 404 385 0520 (with message service)
Fax: 404 385 0795

Off-Site Laboratory Space

Karsten Baumann has graciously offered to share his laboratory space with study participants. The expectation is to provide space for those who need to coat denuders, clean filter holders and so forth. Karsten's lab is located in the same building as the Study Headquarters. His lab has a fume hood, ultrasonic bath in the fume hood, laminar flow hood, a clean room and a walk-in refrigerator. There is an ample supply of 18.3 MegaOhm distilled water, which has been purified using resin canisters. But space and facilities are not unlimited, so coordination among investigators will be necessary.

Those planning regular use of the laboratory should make arrangements directly with Karsten in advance of the study. He may be reached at 404-385-0583.

Lab address, phone and fax are:
575 Fourteenth St. NW, Room 1374, Atlanta
Phone: 404-385-0438
Fax: 404-385-0795

The emergency lab contact, should all other contacts fail is Karsten's cell phone at 404-401-9222. Karsten's students / assistants in the lab are Danny Dipasquale, Jing Zhao and Wes Younger at 385-0438. They may help with small questions during the study.

Site Layout and Power

Arrangements for site access, logistics and support are being handled by Eric Edgerton of ARA. Access to the site will be through the western gate on Jefferson Street via a unique key code to be given to all study participants by Eric Edgerton. The attached figures show the general layout for the experiment.

New equipment will be accommodated in one of three ways, as shown in Figure A: 1) mounted outdoors on platforms; 2) housed in shelters provided by ARA; and 3) housed in trailers owned by the researchers. Two new shelters (14'x45') will be installed inside the fenced compound and connected by a 5' wide elevated walkway. The walkway will provide access to sampler inlets, which should extend about 2 m above platform level (7-8 m above ground level). Auxiliary power (1500 amps) will be installed at a junction box in the southwest corner of the compound, from which it will be distributed to shelters, platforms and trailers. A restroom facility and a dedicated parking area will be located adjacent to the Jefferson Street entrance.

Four research trailers will be parked to the north, east and south of the fenced compound. The dimensions of these trailers are approximately 40' long by 10' wide by 12' tall. Trailers to the north and south will have roof-mounted equipment extending about 8 m above ground level. Trailers to the south will have sample towers extending about 10 m above ground level (same as existing towers). Two low wooden platforms (5' long x 65' wide) on the north side of the compound will support integrated samplers installed and operated by EPA. Figure B shows space assignments inside the two new shelters. We have attempted to provide the floor space requested by individual PIs; however, working room inside each shelter will be tight. PIs are asked to economize their use of space to the extent possible. Each PI will have one or more 3' wide x 6' long table(s) for installatioin of analyzers, data systems, etc. Sample lines will go through a window and up to their respective inlets along the walkway. Space for storage of pumps, gas cylinders and other material will be available underneath the walkway and below the shelters. Each shelter will have telephone service, chairs and extra tables (space permitting) for sample preparation, etc. Refrigerators (freezers) for food and samples will also be provided. Electrical receptacles will be installed at each station in the voltage/amperage/phase requested by PIs.

Figure C shows platform assignments for the discrete samplers. Each location will have a receptacle and a dedicated 20-amp circuit.

Off-site storage will also be available. ARA will provide a rental truck for transport of material to/from the storage facility during installation and demobilization.

Courtesy Rules

At the site we are the guests of Georgia Power, and we must be careful not to hinder their activities. Courtesy towards our hosts is especially important during setup. First impressions are lasting, and deployment activities tend to be a bit chaotic. Eric Edgerton

will be sending an E-mail with the gate access code, and with special precautions to assure that we do not interfere with Georgia Power during setup.

As noted above, access to the site will be through a security gate. Dedicated parking will be located near the gate and approximately 75 meters south of the site. All visitors to the site must use the designated gate and parking area to avoid interference with Georgia Power Company activities. There is limited parking, and carpooling is encourgaged.

Some specifics :

* Carpooling to the site is encouraged.
* Eating will be allowed in the shelters, but eating areas must be kept clean. A designated bin will be provided for food trash, and this will be disposed of each evening.
* There will be no smoking or consumption of alcoholic beverages on site.
* All carbon vane pumps must have exhaust filters. Any pump found to be operating without an exhaust filter will be turned off until a filter is installed.

Shipping Addresses

Shipments to the site should be sent to

Attn: Larry Guest/Eric Edgerton
829 Jefferson Street NW
Atlanta, GA 30318
Tel: 404-506-4483

Please use this address for boxes that will be retrieved immediately, as storage space at Georgia Power is limited.

Mailing Addresses

Personal mail should be sent to the hotel where you are staying. If this is not possible, you may send it in care of Carol Thomas, EAS, GaTech, and it will be held for you at the Headquarters (although this will cause some delay).

Housing

The “official” SuperSite hotel is:

Regency Suites Hotel
975 West Peachtree Street, Atlanta, GA 30309
Telephone 404-876-5003 or 800-642-3629
FAX 404-817-7511

The Regency will hold rooms for us at a rate of $65 per night plus tax, until the cut off date on JUNE 26. The price includes breakfast each day and dinner Monday-Thursday. There is an additional flat parking fee of $30 for the duration of your stay. Each room is equipped with a microwave, refrigerator and coffee maker, and coffee supplies are provided in the rooms each day. The hotel has a 24 hour exercise room and is very secure. It is located next door to the Midtown Marta Station (Atlanta's rapid rail system

which runs directly from the airport approximately every 15 minutes at a cost of $1.50 per ride). The hotel also provides local transportation between 7:30 a.m. and 5:30 p.m.

You should make your own reservations directly with the hotel. Please quote group number #1202 SUPERSITE FIELD EXPERIMENT. Please note that after June 26, if there is space available it will be at a rate of $89 per night. If you cancel 24 hours prior to arrival and the hotel is able to resell the room then a refund for the first nights room and tax will be issued.

Directions from the Airport & Public Transportation

The easiest way to the Regency Suites Hotel or Georgia Tech is by the Atlanta rapid rail system, which is called MARTA. MARTA leaves from baggage claim, and stops next to the Regency Suites at the "Midtown Stop". Cost is $1.50. MARTA operates from 5 am to 1 am Monday - Sat, and until 12:30 am Sundays and Holidays. Departures are every 8-10 min Mon-Fri, 10-15 min weekends and holidays.

If you rent a car at the airport: Travel northbound on I-75/I-85. Take exit #101 for 10th/14th St. Turn right at first traffic light onto 10th St headed east. The Regency Suites will be on the SE corner facing you at the 3rd traffic light. (remember there is a fee for parking at the hotel, see above)

If you are coming southbound on I-75: Take exit #102, 14th/10th St. Stay in left land. Turn left at the second traffic light onto 10th. Go east, bearing to right lane. The Regency Suites will be on the SE corner facing you at the 3rd traffic light.

If you are coming southbound on I-85: Take exit #26, 14th/10th St. Turn left at second traffic light onto 10th ST. Go east to third traffic light. The Regency Suites will be facing you on the SE corner.

Atlanta Contacts

Supply houses

McMaster-Carr, 6100 Fulton Industrial Boulevard, Atlanta, GA 30336-2852
Ph: (404) 346-7000

Matheson Gas, 6874 S. Main St., Morrow, GA 30260
Ph: (770) 961-7891

Grainger, 1721 Marietta Blvd. Atlanta GA 30318
Ph: 404-355-1984

Georgia Valve and Fitting, 3361 W. Hospital Ave, Atlanta, GA 30341
Ph: (404) 458-8045, Fx: (404) 454-7930

Emergency -- Hospitals

Piedmont Hospital (near the Regency Suite Hotel)
1968 Peachtree Road, N.W., Atlanta, GA 30309
24-Emergency (404) 605 3297

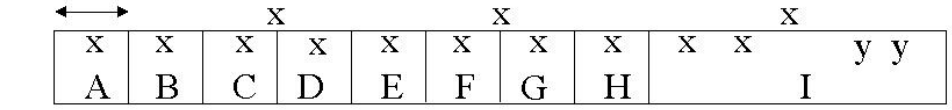
Grady Memorial Hospital (near the Jefferson Site)
80 Butler Street SE, Atlanta, GA
404 616 4307

Emergency Contacts

Bill Chameides: Office: (404) 894-1749, Cell Phone: (404) 229-8346
Eric Edgerton, Office: (919) 402-9381, Home: (919) 490-5171
Lab emergency: Karsten Baumann, Office: 404-385-0583, Cell: 404-401-9222.

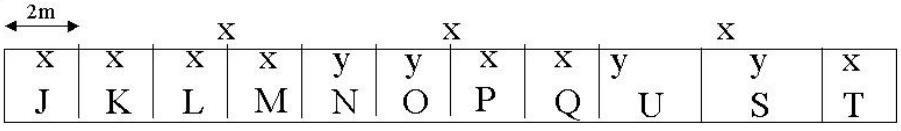
Sampling Platform Layout for Aerosol Samplers

(Each platform is 23m long, x 1.6m wide with one 20 amp breaker (x) or 30 amp breaker (y) and 2 outlets per station, plus 3 extra 20 amp breakers with 2 outlets each per platform)



3m

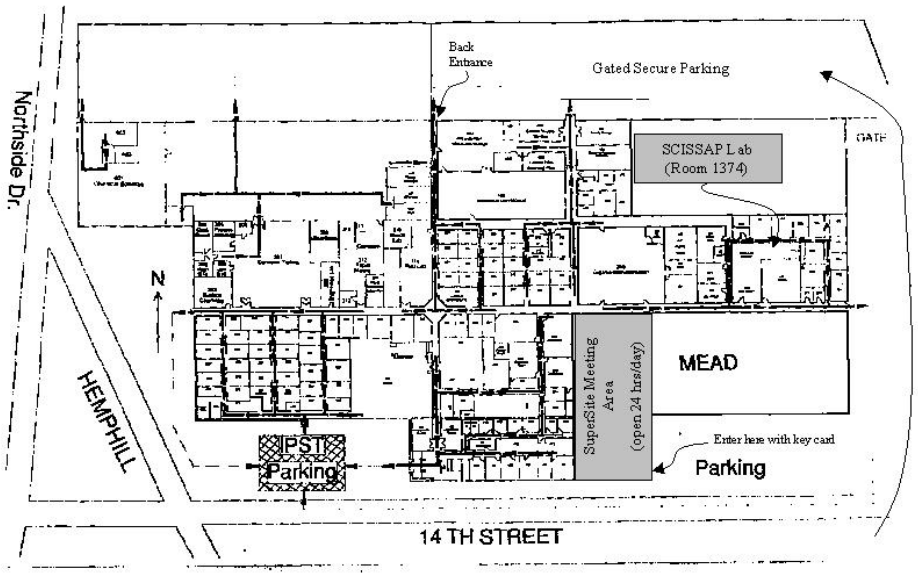
A= FRM(T); B= FRM(Q); C=IMPROVE; D=SASS; E=RASS; F=MASS400;
G=MASS450; H=VAPS; I=IOGPS/MSP/HiCapIOGAPS



J=Personal Exposure Monitors ; K=Autodichot; L= ARIES/SEARCH; M = R&P Chem Monitor
N= PC-BOSS(TVA); O=PC-BOSS(BYU); P= RAMS; Q= CAMM; U= unassigned;
S=HVOPS; T= FRM-T1; FRM-T2 located on roof of trailer

1999 Atlanta SuperSite Experiment:Central Facility

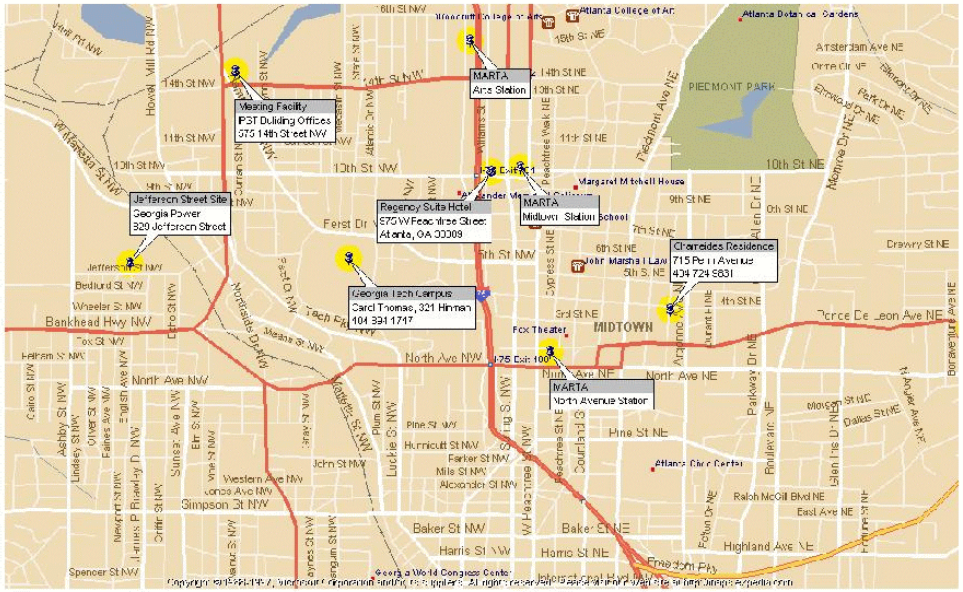
IPST Building Offices, 575 14th Street



To site ◄——— ———► To hotel

1999 Atlanta SuperSite Experiment

Measurement Site, Meeting Facility, Hotel, and environs



Appendix A. Study Participants

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