

# **NARSTO Quality Systems Science Center**

## **2004-2005 Annual Report**

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**NARSTO QSSC**

**Environmental Sciences Division**

**Oak Ridge National Laboratory**

**U.S. Department of Energy**



**NARSTO Executive Assembly/Executive Steering Committee Meeting**

**Las Vegas, Nevada, April 11-12, 2005**

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# QSSC Activities for 2004-2005

## **Data Management and Archiving // External Interactions // Support for Projects**

### **Data Management and Archiving**

#### **Data and Metadata Reporting Tools**

- Updated Data Exchange Standard (DES) archive file format template (**Version 2.302**) with better instructions and examples, updated picklists, and enhanced quality assurance Read & Verify Code. (available on-line May 1, 2005)
- Maintained reference tables for chemical and physical variable names:
  - 1000+ chemical names and CAS RNs
  - 50+ other chemical constituents
  - 150+ variable names for physical and sampling measurements
- Data and Information Sharing Tool (DIST)
  - Web-based entry of metadata for archive documentation
  - Link data and documents in searchable index (e.g., data sets and special issue papers)
- Public and secure FTP sites for staging and interim data set access
- **New** Compilation of Data Management Guidance Documents for NARSTO Program and Project Use. See following slides.

## **Developing Data Management Policy and Guidance Documents for your NARSTO Program or Project (April 4, 2005)**

**A different approach:** A new compilation of data management guidance documents for program and project use in the NARSTO context.

Select the data management guidance documents needed in your Program or Project from a series of model documents. Adopt, adapt, or refine these documents as appropriate for your needs. See the list of available documents on next slide.

**Scope:** Each finished document should be 1-2 pages in length and contain information that has been adapted to be specific to your Project data management. The model documents incorporate existing NARSTO data management protocols and will often be suitable for use as is. Final guidance should be consistent with the needs of the Project within the NARSTO context.

**Rationale:** Providing this information to Project participants will inform them of their data reporting responsibilities, promote consistency and standardization in data and metadata collection and reporting processes, and greatly facilitate data sharing, integration, synthesis, and analysis.

**Target Audience:** The audience for these guidance documents is the experimentalists, modelers, and data coordinators responsible for generating and submitting data to a Project database, creating other data products, and archiving these data.

## Developing Data Management Policy and Guidance Documents for your NARSTO Program or Project

(April 4, 2005)

<b>Data Management Policy / Guidance Documents</b>	
<b>&gt; Organization</b>	
<b>DM-1</b>	Data Flow Overview
<b>DM-2</b>	Data Policy Considerations
<b>DM-3</b>	Project Name Information
<b>DM-4</b>	Identifying Measurement and Sampling Sites
<b>&gt; Data and Metadata Reporting</b>	
<b>DM-5</b>	Reporting Sampling and Measurement Dates and Times
<b>DM-6</b>	Identifying Chemical and Physical Variables and Descriptive Field Information
<b>DM-7</b>	Reporting Units for Chemical Variables, Particles, and Physical and Descriptive Variables
<b>DM-8</b>	Assigning project-specific and NARSTO Data Quality Flags
<b>DM-9</b>	Reporting and Flagging Values below Detection Limits
<b>DM-10</b>	Reporting Missing Data
<b>DM-11</b>	Reporting Uncertainty Estimates
<b>DM-12</b>	Reporting Conventions for Mass Measurements, Meteorological Data, and Temperature and Pressure Conditions

<b>Data Management Policy / Guidance Documents</b>	
<b>&gt; Data Documentation and Archiving</b>	
<b>DM-13</b>	Planning to Archive Data
<b>DM-14</b>	Creating Archive Documentation for Your Data Sets
<b>DM-15</b>	Creating a Searchable Index of Your Data Sets with Links to the Data Files
<b>DM-16</b>	Capturing Sampling and Analysis Information – Pre- and Post-Measurement
<b>DM-17</b>	Defining the Quality Level of Data
<b>&gt; Data Systems Management</b>	
<b>DM-18</b>	Day-to-Day Operation of Data Management Systems
<b>DM-19</b>	Managing Electronic and Hardcopy Format Project Records
<b>DM-20</b>	Data Management System and Software Configuration Control Guidelines

## **Data Archiving**

Archived additional EPA Supersites data sets and completed archiving the PAC2001 data sets in addition to other Environment Canada data. A complete list is attached.

## **External Interactions**

Our interactions with Bill Sukloff (Environment Canada, Meteorological Service of Canada) continued with visit of Sig Christensen to the Meteorological Service of Canada offices in Toronto in August 2004. This was the sixth QSSC and Environment Canada work exchange. Bill and Sig outlined the needed updates for the next version of the Data Exchange Standard template, and Read and Verify Program, and accompanying reference tables.

Les Hook presented a poster “Accessing EPA PM Supersites Data in the NARSTO Data Archive.”, [ Les A. Hook, Sigurd W. Christensen, Tammy W. Beaty (ORNL) and Kathleen L. Morris (Atmospheric Sciences Data Center, NASA Langley Research Center) ] at the Particulate Matter Supersites Program and Related Studies, An AAAR International Specialty Conference February 7-11, 2005, Sheraton Atlanta Hotel, Atlanta, GA. A copy is attached.

Continued to serve as a Stakeholder for the DOE-NETL Air Quality Database/Analytical Tool development effort and participated on net conference demonstrations and reviews.

## *Support for Projects*

- Continued data management support to the U.S. Environmental Protection Agency (EPA) Particulate Matter (PM) Supersites Program. In consultation with EPA and the data coordinators of the Supersite projects, the QSSC, is coordinating the following activities: monthly conference calls to discuss data archiving issues, maintenance of FTP Site to support the submission of Supersites Program data to the QSSC, maintains Data and Information Sharing Tool to facilitate entry of metadata and output of archive documentation, and working with project data coordinators to review and archive data sets.
- Continued interactions with the Mexico City Metropolitan Area Program. Most recently we provided assistance with formatting the ARI mobile van data in the DES format and quality assured files through our Read & Verify code.
- Continued interactions with Pacific 2001 Project, Data Coordinator, Bill Sukloff, to add new variable names to reference tables and new sampling and analysis descriptors to the DES template picklists. We compiled the data files and documentation for archiving and they are now publicly accessible.
- Continued interactions with NEOPS data providers to facilitate data and metadata submission to the Permanent Data Archive.
- Initiated interactions with the BRACE (Bay Regional Atmospheric Chemistry Experiment) project. We provided a copy of our Read & Verify code to the data management coordinator.

# **QSSC Plans for 2005**

**Update NARSTO Program quality management and planning documents.**

**Continue “Activities” on previous slides.**

**Sources of Archive Data (1 year timeframe)**

- **EPA PM Supersites project data**

**Future Sources of Archive Data (1-3 year timeframe)**

- **Mexico City Metropolitan Area Program**
- **EPA Supersites Integrated Relational Database**
- **DOE-NETL Air Quality Database**
- **Central California Ozone Study (CCOS)**
- **BRACE**

**As resources permit.**

## **The following pages contain annual summary information.**

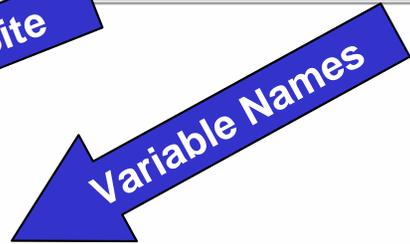
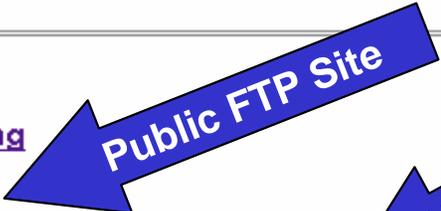
- **An overview of the QSSC Web Site**
- **QSSC Web Site user statistics for past 3 years – through February 2005**
- **QSSC Public FTP Site user statistics for past 3 years  
– through February 2005**
- **NARSTO Permanent Data Archive user statistics for past two years  
– through February 2005**
- **PM Assessment Access**
- **Data sets archived**



# Welcome to the NARSTO Quality Systems Science Center

## WHAT DO YOU WANT TO DO ?

- [Send Data to QSSC for Permanent Archiving](#)
- [Access NARSTO Data](#)
- [Find NARSTO/EPA Supersites Data & Metadata Reporting Guidance](#)
- [Send Data to Limited Access FTP site](#)
- [Learn about NARSTO/QSSC](#)
- [View NARSTO Quality Systems Management Documentation](#)
- [Prepare Project Quality Documentation](#)
- [Software and Data Systems Development Information](#)
- [View the Compendium of Atmospheric Chemistry and Particles Analysis Methods](#)
- [View QSSC Posters/Presentations](#)
- [Links to Other Atmospheric Chemistry data sites](#)



### Direct Links:

[NARSTO Data Policy](#)

[Data <sup>NEW</sup>  
Exchange  
Standard  
Template](#)



[Template News <sup>NEW</sup>](#)

[Search for  
NARSTO  
Data](#)

[Data Set <sup>UPDATED</sup>  
Archiving  
Status](#)



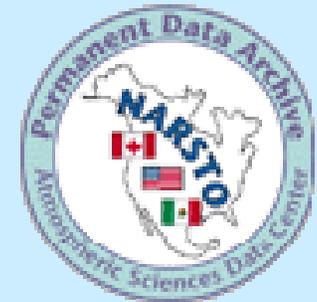
[NARSTO  
Permanent  
Data Archive](#)



[Contact  
QSSC](#)

# Permanent Data Archive

# User Statistics:



<b>Period:</b>	<b>2003/ 2004</b>	<b>2004/ 2005</b>
<b>Total <u>Data Sets</u> Requested:</b>	<b>26</b>	<b>48</b>

[ Please note that these are “data sets” not “data files”. There are 1 to many data files in a data set. ]

## Projects: EPA Supersites—

Atlanta	2	3
Baltimore	*	2
Fresno	1	1
Houston	10	26
Los Angeles	3	1
Pittsburgh	*	1
Env Canada —		
PAC2001	*	1
STIFS	*	1
SOS—		
Nashville 1999	4	11
SOS_SC	*	1

**These orders add up  
to 230 individual  
data files.**

# QSSC Web Site User Statistics:

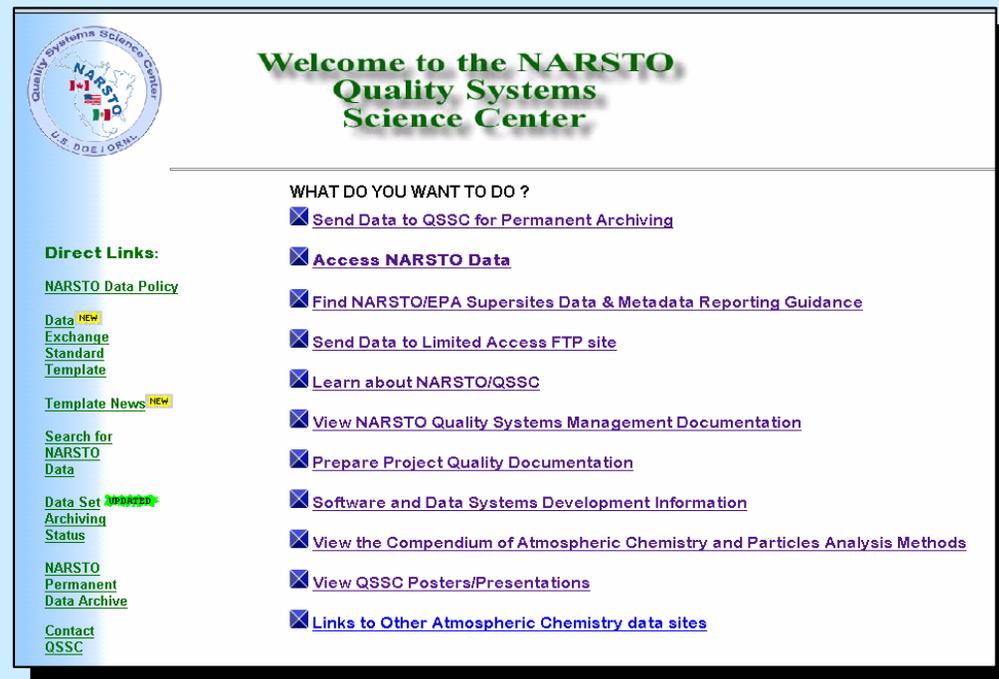
# QSSC Home Page

	Period of Interest		
	2002 – 2003	2003-2004	2004-2005
<b>Unique Visitors</b>	~ 7,767	~ 2,750	~ 5900
<b>Total Visits</b>	~ 12,000	~ 5,000	~10,000
<b>Visits / Month</b>	~ 1,000	~ 425	~ 825

## Domains Represented 2004-2005

- .edu, .gov, .org (.us) 13 %
- .com, .net 30 %
- unidentified 33 %
- identified (other than .us) 24 %

[ Includes 60-plus foreign countries]



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**Direct Links:**

- [NARSTO Data Policy](#)
- [Data Exchange Standard Template](#)
- [Template News](#)
- [Search for NARSTO Data](#)
- [Data Set Archiving Status](#)
- [NARSTO Permanent Data Archive](#)
- [Contact QSSC](#)

<http://cdiac.ornl.gov/programs/NARSTO/>

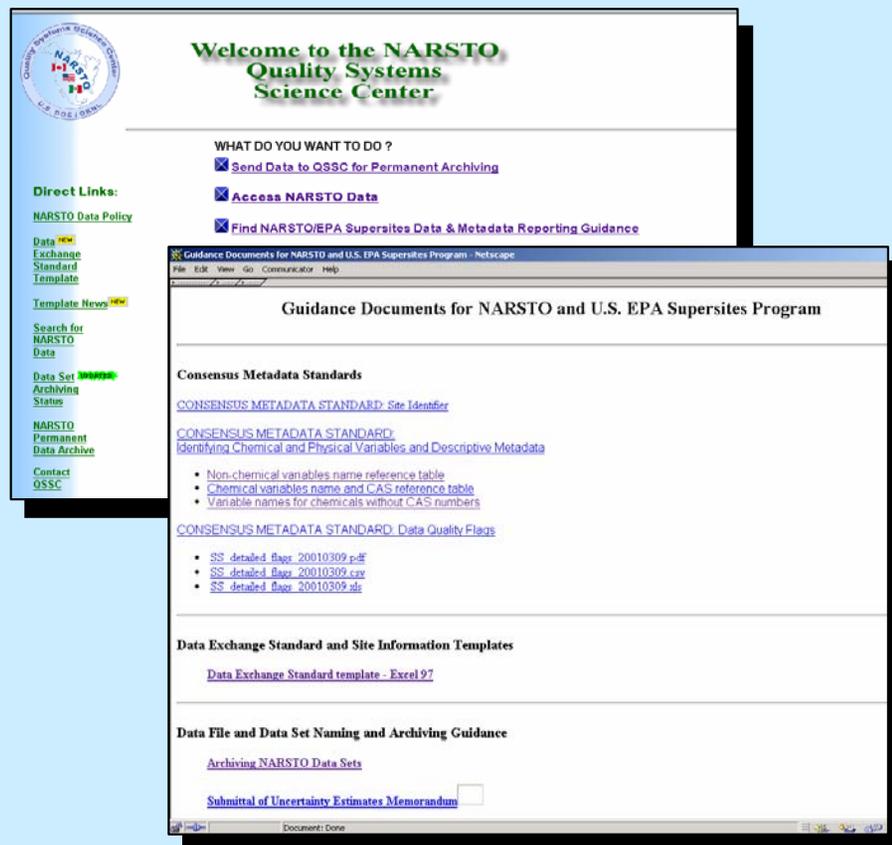
# QSSC Web Site

# Data & Metadata Reporting Guidance

## Page

### User Statistics:

	Period of Interest		
	2002 – 2003	2003-2004	2004-2005
<b>Unique Visitors</b>	~ 450	~350	~310
<b>Total Visits</b>	~ 715	~450	~675
<b>Visits / Month</b>	~ 65	~37	~56



<http://cdiac.ornl.gov/programs/NARSTO/epasupersites.htm>

**Unique visitor** = host = an IP address

A **visit** is defined as a series of consecutive views of a web site by the same visitor.

All visits by a visitor in a 1 hour period are counted as 1 visit.

# QSSC Web Site User Statistics:

# Data Exchange Standard Template

	Period of Interest		
	2002 – 2003	2003- 2004	2004- 2005
Unique Visitors	~ 365	~350	~ 360
Total Visits	~ 750	~425	~ 475
Visits / Month	~ 65	~ 35	~ 40

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**Direct Links:**

- [NARSTO Data Policy](#)
- [Data Exchange Standard Template](#)
- [Template News](#)
- [Search for NARSTO Data](#)
- [Data Set](#)

*DATA EXCHANGE STANDARD VERSION	NARSTO 2002/05/28 (2.301)
*COMMENT	Detailed instructions on how to fill in this template are provided at: <a href="http://cdiac.ornl.gov/programs/NARSTO/narsto.html">http://cdiac.ornl.gov/programs/NARSTO/narsto.html</a>
*QUALITY CONTROL LEVEL	
*DATE THIS FILE GENERATED/ARCHIVE VERSION NUMBER	2003/03/24 1
*ORGANIZATION ACRONYM	
*ORGANIZATION NAME	
*STUDY OR NETWORK ACRONYM	
*STUDY OR NETWORK NAME	
*FILE CONTENTS DESCRIPTION--SHORT/LONG	
*PRINCIPAL INVESTIGATOR NAME--LAST/FIRST	
*PRINCIPAL INVESTIGATOR AFFILIATION	
*CO-INVESTIGATOR NAME--LAST/FIRST	
*CO-INVESTIGATOR AFFILIATION	
*COUNTRY CODE	
*STATE OR PROVINCE CODE	
*SAMPLING INTERVAL AS REPORTED IN MAIN TABLE	
*SAMPLING FREQUENCY OF DATA IN MAIN TABLE	
*PRINCIPAL INVESTIGATOR CONTACT INFORMATION	
*DATA USAGE ACKNOWLEDGEMENT	
*NAME AND AFFILIATION OF PERSON WHO GENERATED THIS FILE	
*DATE OF LAST MODIFICATION TO DATA IN MAIN TABLE	
*FILE CHANGE HISTORY--VERSION NUMBER/DESCRIPTION	
*NAME AND VERSION OF SOFTWARE USED TO CREATE THIS FILE	
*STANDARD CHARACTERS	##\$%&'()*+,-./:0123456789;=<?@ABCDEFGHIJKLmnopqrstuvwxyz{ }~
*COMPANION FILE NAME/FORMAT AND VERSION	
*TABLE NAME	NARSTO standard flags
*TABLE FOCUS	Metadata
*TABLE COLUMN NAME	Flag: NARSTO Description
*TABLE COLUMN UNITS	None None

A 2-letter country code as defined in the ISO3166 standard, followed by the country name in brackets. This is a **mandatory** key phrase. e.g., CA (Canada) AU (Australia) Use the **drop-down list** to enter the code.

The **sampling frequency** of the data in the main data table in this file. It may help to think of this as the pattern of reporting of data. Select from the **drop-down list**.

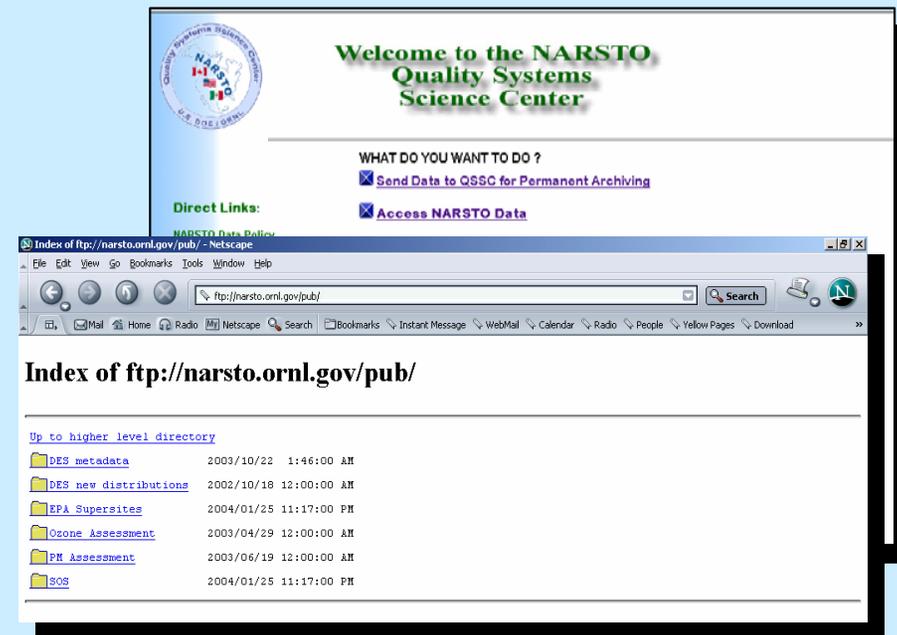
The value of this key phrase will be the same as that for the **\*SAMPLING INTERVAL AS REPORTED IN MAIN TABLE** unless there are gaps between samples. This is a **mandatory** key phrase.

[http://cdiac.esd.ornl.gov/programs/NARSTO/NARSTO\\_template\\_atmospheric\\_measurements.xls](http://cdiac.esd.ornl.gov/programs/NARSTO/NARSTO_template_atmospheric_measurements.xls)

# QSSC FTP Site

# User Statistics for Data Files Downloaded

Period:	<u>2002/</u> <u>2003</u>	<u>2003/</u> <u>2004</u>	<u>2004/</u> <u>2005</u>
Unique Users:	~ 142	~ 300	~ 190
Total Data Files:	~ 3,100	~ 1350	~ 2300
Projects:			
EPA Supersites—			
Atlanta	150	225	99
Baltimore		5	79
Fresno		220	158
Houston	225	425	560
Los Angeles	135	120	139
Env Canada			
PAC2001			15
SOS Nashville 1995	1,300	350	397
Nashville 1999	950	15	145
DES Metadata Tables	300	na	350



## QSSC FTP Site User Statistics:

Period: 2004 – 2005 (partial year)

Unique Users: ~ 200

Total Files: ~ 680

Eng Exec Sum 55

Eng Synthesis 67

Fr Exec Sum 5

Fr Synthesis 8

Sp Synthesis 1

Part 1 - Eng 27

Part 2

Chapters 1 – 11 25 to 50 each

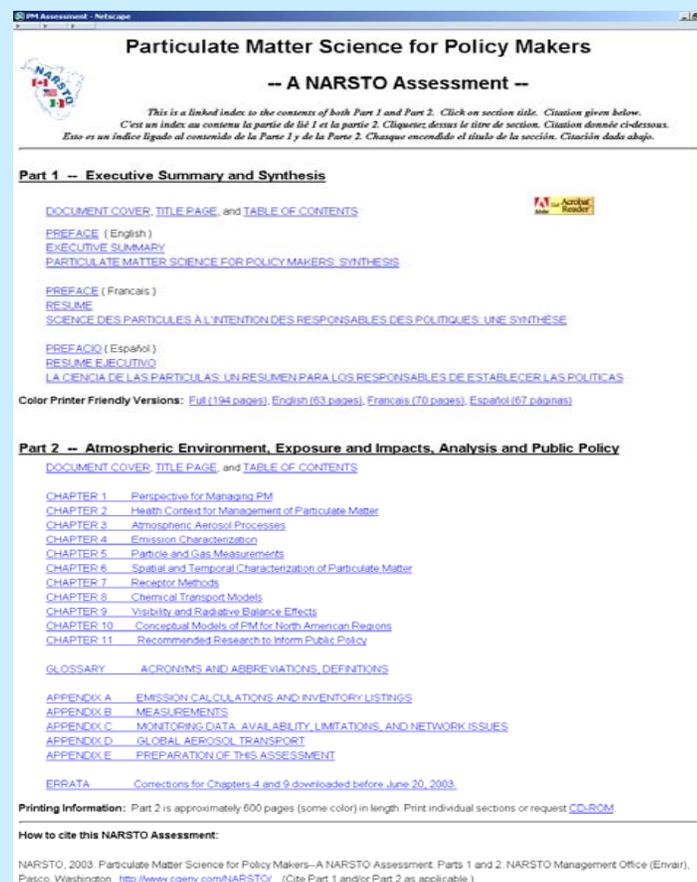
## Ozone Assessment Access

Unique Users: 120

Exec Sum 6

Complete 12

## PM Assessment Access



The screenshot displays the 'Particulate Matter Science for Policy Makers -- A NARSTO Assessment' website. It features a navigation menu for Part 1 (Executive Summary and Synthesis) and Part 2 (Atmospheric Environment, Exposure and Impacts, Analysis and Public Policy). Part 1 includes links for document cover, title page, and table of contents, as well as preface and executive summary sections in English, French, and Spanish. Part 2 includes links for document cover, title page, and table of contents, and a list of 11 chapters covering topics like PM management, aerosol processes, emissions, measurements, transport models, and radiative effects. The website also provides color printer friendly versions and printing information.

# **Archived Data Sets for March 2004-February 2005**

## **EPA Supersites**

EPA\_SS\_BALTIMORE JHU Meteorological Data

EPA\_SS\_HOUSTON TEXAQS2000 TNRCC CAMS Air Quality Data

## **Environment Canada**

Supersite Transboundary Intensive Field Study Data, Canada, 2001-2002

SHEMP Particulate Matter Composition Data, Canada, 2000-2002

PAC2001 CFS Cessna VOC, Particle Count, Ozone, and Meteorological Data

PAC2001 NRC-IAR Convair 580 Particle Count, Ozone, Meteorological Data

PAC2001 Cassiar Tunnel Gaseous and Particle Mass and Composition Data

PAC2001 Golden Ears Provincial Park Gaseous and Particle Data

PAC2001 Langley Site Gaseous, Particle, and Meteorological Data

PAC2001 Slocan Park Site Gaseous, Particle, and Meteorological Data

PAC2001 Sumas Eagle Ridge Gaseous, Particle, and Meteorological Data

PAC2001 GVRD and CAPMoN Supplemental Air Quality Data