

NARSTO Quality Systems Science Center

2007-2008 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

April 8-9 2008

Radisson Paraiso Hotel, Mexico City, Mexico

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QSSC Activities for 2007-2008

Data Management and Archiving

- **Developed a more convenient data search application and implemented on QSSC web site. Example on following slides.**
- **Web Site Reorganized and Restructured**
 - **Site reorganized using style sheets and structured to make updates and maintenance easy.**
- **Increased support for the Mexico City Metropolitan Area Program 2006 including QA of Data Exchange Standard formatted data files from T0 site and working with investigators to make updates to data files.**
- **Completed archiving of Pittsburgh EPA Supersites data.**

Data Management and Archiving, continued

Improved data search application – Search by parameter

Welcome to the NARSTO Quality Systems Science Center

Carbon Dioxide Information Analysis Center (CDIAC)
Oak Ridge National Laboratory

What Would You Like to Do?

Get NARSTO Data

- Access archived atmospheric data [[Data Archive](#)]
- Search for data [[By Parameter](#)] or [[By Data Sets](#)]
- Search Earth measurement sites [[Sites w/links to Data and Information](#)]
- [Data News](#)]

NARSTO Data File Search

Write a comma-separated file containing selected parameters

Search for data by parameter

NARSTO Data File Search

Write a comma-separated file containing selected parameters

[See list of Data Sets included in the search.](#)

Select a parameter category:

- Carbons, Nitrogens, Sulfurs, Isotopes, and Hydrocarbons
- Gases
- Elements
- Ions and Inorganic Acids
- Organic Compounds
- Co-eluting Organics
- Hopanes, Cholestanes, and Sterols
- Pesticides, Herbicides, and Dioxanes
- Light and Radiation
- Meteorological
- Particles
- Sampling Dates, Times, Locations, Conditions, etc

- > Select a 'parameter category' to view parameters for which data are available.
- > Select parameter(s) from the list (examples on next slide) and search.
 - The search will return a list of:
 - the names of the data files containing data for that parameter,
 - the names of the data sets with these data files, and
 - the links to the data files and documentation on the NARSTO archive and FTP site.
- > Create a comma-separated file containing the search results that will conveniently open in Excel.

Data Management and Archiving, continued

Search by parameter

NARSTO Data File Search

Write a comma-separated file containing selected parameters

[See list of Data Sets included in the search.](#)

Select a parameter category:

- Carbons, Nitrogens, Sulfurs, Isotopes, and Hydrocarbons
- Gases
- Elements
- Ions and Inorganic Acids
- Organic Compounds
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- Hopanes, Cholestanes, and Sterols
- Pesticides, Herbicides, and Dioxanes
- Light and Radiation
- Meteorological
- Particles
- Sampling Dates, Times, Locations, Conditions, etc

For the parameter(s) that you select, this search will return a list of

- the names of the **data files** containing data for that parameter,
- the names of the **data sets** with these data files, and
- the **links to the data files** and documentation on the NARSTO archive and FTP site.

Click on 'create' to output a comma-separated file containing the search results that will conveniently open in Excel.

NARSTO parameters

Gases

- Ammonia
- Carbon Disulfide
- Carbon dioxide
- Carbon monoxide
- Ethane, 1,1,2-trichloro-1,2,2-trifluoro-
- Ethane, 1,2-dichloro-1,1,2,2-tetrafluoro-
- Hydrogen peroxide (H2O2)
- Hydrogen sulfide (H2S)
- Hydroperoxo
- Methane
- Methane, dichlorodifluoro-
- Methane, trichlorofluoro-
- NOx (nitric oxide + nitrogen dioxide)
- NOy (total reactive nitrogen species)
- NOz (NOy - (NO+NO2))
- Nitrogen oxide (N2O)
- Nitrogen oxide (NO)
- Nitrogen oxide (NO2)
- Nitrogen oxide (NO3)
- Ozone
- Sulfur dioxide
- Sulfur fluoride (SF6), (OC-6-11)-

Write to output file: .csv
(your file name will have a 4-digit random number)

NARSTO parameters

Particles

- Organics: mass
- Organics: total mass
- PM1.0: mass
- PM10: mass
- PM2.5-10: mass
- PM2.5: mass
- Particles: aerosol fraction
- Particles: area
- Particles: count
- Particles: density
- Particles: distribution spread factor
- Particles: hygroscopic growth factor
- Particles: lower diameter bound
- Particles: mass
- Particles: material
- Particles: median diameter
- Particles: organic fraction
- Particles: size
- Particles: size distribution
- Particles: upper diameter bound
- Particles: volume

Write to output file: .csv
(your file name will have a 4-digit random number)

Data Management and Archiving, continued

Data and Metadata Reporting Tools Provided on the QSSC Web Site

- Maintained “**Guidelines for Archiving Data in the NARSTO Permanent Data Archive**”
- Maintained “**Guidance for Projects to Develop Data Management Policies and Plans**”
- 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
- Maintained **shorter variable names and units that are friendlier to software** and data systems (i.e., Obtain MILAGRO-ICARTT Variable Names)
- Maintained metadata reference tables for **the Data Exchange Standard** template pick lists.
- Maintained **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)
- Maintained **Public and restricted FTP sites** for staging and interim data set access

Data Archiving

NARSTO EPA_SS_FRESNO Meteorological Data (14 data files with plots)

NARSTO EPA_SS_FRESNO Elemental Carbon in 2.5 um Aerosol Fraction (8 data files added with plots)

NARSTO EPA_SS_FRESNO Aethalometer Multi-Wavelength Carbon Data (8 data files added with plots)

NARSTO EPA_SS_BALTIMORE Metal Conc of and Cytokines Induced by SEAS PM2.5 Samples (3 data files with plots)

NARSTO EPA_SS_PITTSBURGH Particulate Matter Composition Data (29 data files with plots)

NARSTO EPA_SS_PITTSBURGH Gas Conc and PM Physical Properties Data (26 data files with plots)

Completes archiving Pittsburgh data.

NARSTO EPA_SS_LOS_ANGELES Aethalometer Elemental Carbon Data (6 data files with plots)

Southern Appalachian Mountains Initiative (SAMI) Final Reports and Data Products

In the Queue to be Published

Additional data files: NARSTO EPA_SS_FRESNO Particle-bound Polycyclic Aromatic Compound Data

Additional data files: NARSTO EPA_SS_FRESNO TEOM Particulate Mass Concentration Data

In the Working Queue

Mexico City Metropolitan Area Program (MCMA-2006) data

EPA_SS_ST_LOIUS data

EPA_SS_BALTIMORE data

EPA_SS_FRESNO data

EPA_SS_LOS_ANGELES data

NEOPS data

External Interactions

- Sig Christensen and Jeff West participated in the EPA Air Quality Data Summit in February 2008. We are continuing to follow the developments of the Community Air Quality Data System.
- Provided Peter Mueller with some background material on uncertainty for environmental measurements.
- Continued our interactions with Bill Sukloff (Environment Canada, Meteorological Service of Canada) to ensure that the Data Exchange Standard template, the Read and Verify Program, and the accompanying reference tables are up to date and enhanced as needed to accommodate new data types.
 - Of interest is a survey Bill conducted of users of the NatCHEM (National Atmospheric Chemistry Database and Analysis System) and Data Exchange Standard (DES) metadata and format.
 - Positive responses on usefulness of metadata.
 - No negative responses on format.

Support for Projects

- Continued interactions and increased support for the Mexico City Metropolitan Area Program 2006.
 - Initiated QA of Data Exchange Standard formatted data files from T0 site.
 - Included working with investigators to make updates to data files.
- Worked with John Ondov, Baltimore EPA Supersite, to finalize metal concentration and cytokine data from SEAS PM2.5 samples.
- Continued monthly teleconferences with Program and Project Data Coordinators.
- Continued data archiving support to the U.S. Environmental Protection Agency (EPA) Particulate Matter (PM) Supersites investigators. The QSSC will gladly continue to receive and process Supersites Project data and to work with Data Providers to archive these valuable products.
- Continued interactions with the TexAQS II Intensive Field Study Program.

QSSC Plans for 2008-2009

- We will continue to follow developments and participate in discussions regarding the Community Air Quality Data System (EPA Air Quality Data Summit, February 2008)
- Continue development of more convenient data search applications including, spatial and temporal searching and data file subsetting, and implement on QSSC web site.
- Seek feedback from users of QSSC products and applications (e.g., data archive, FTP site, web site, documentation, DES template and format, reference tables, etc.).
- Continue “Activities” on previous slides.
- Provide more “hands-on” support to MCMA 2006 as needed.
- Sources of Archive Data (1 year timeframe)
 - Mexico City Metropolitan Area Program (2006)
 - EPA PM Supersites project data
- Future Sources of Archive Data (1-3 year timeframe)
 - Mexico City Metropolitan Area Program (MCMA-2003, MAX-Mex, MILAGRO)
 - EPA Supersites Integrated Relational Database
 - TexAQS II

As resources permit.

**The following pages contain annual summary information through
February 2008.**

An overview of the QSSC Web Site

- NARSTO Permanent Data Archive user statistics:
 - The number of data sets archived and data files ordered continues to increase over the past 5 years.
 - QSSC Web Site user statistics:
 - Web site usage was generally stable over last year.
 - QSSC Public FTP Site user statistics:
 - FTP site usage remains strong, with both the addition of new products and popularity of historical data, over the past 5 years.
 - Emission Inventory Assessment Access on FTP Site
 - PM Assessment Access on FTP Site
 - Ozone Assessment Access on FTP Site
- >> Interest in EI and PM Assessments was strong during their first full year on FTP site. Interest in Ozone Assessment remains at consistent level.

Web Site Reorganized and Restructured
Using style sheets and structured to make update and maintenance easy.

Science Center - Mozilla Firefox

marks Tools Help

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- Access archived atmospheric data [[FTP](#)] or [[Data Archive](#)]
- Search for data [[By Parameter](#)] or [[By Data Sets](#)]
- Google Earth measurement sites [[Sites w/links to Data and Information](#)]
- Latest additions [[Data Publication News](#)]

Archive Data

- Guidance for archiving data [[Archive NARSTO Data](#)]
- Data file format template [[Excel Workbook](#)]
- Guidance on data & metadata reporting [[Variables, CAS, RNs, Flags](#)]
- MILAGRO-ICARTT variable names [[System-friendly Short Names](#)]

Plan Data Management

- Guidance for data policies and plans [[Data Management Plans](#)]
- NARSTO quality systems documentation [[QA Plans and Templates](#)]
- QSSC posters and presentations [[Annual Reports and Posters](#)]

Find Additional Resources

- NARSTO Science Assessments [[Ozone](#), [PM](#), [Emissions](#)]
- Compendium of [Chemistry and Particle Analysis Methods](#)
- Link to other [Atmospheric Chemistry Data Sites](#)
- [Send Data to QSSC for Permanent Archiving](#)
- [Send Data to Limited Access FTP Site](#)
- [View NARSTO Quality Systems Management Documentation](#)
- [Prepare Project Quality Documentation](#)
- [Software and Data Systems Development Information](#)
- [Template News](#)

For more information, please contact [Les Hook](#).

Public FTP Site

Google Earth Sites

Variable Names

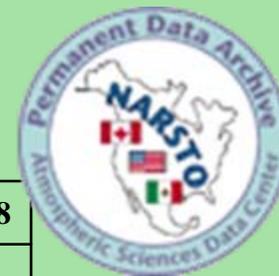
Contact me

Data Template

Data Access

- QSSC Home**
- About NARSTO**
 - NARSTO Web Site
 - Data Policy
 - About QSSC
 - Contact QSSC
- QSSC Guidance**
 - Archiving Data
 - Data Exchange Template
 - Variable Names
 - Data Reporting
 - Data Policy and Plans
 - Provide Feedback
- Data Access**
 - QSSC FTP Site
 - NARSTO Data Archive
 - Archive Status
 - Search
- Key Resources**
 - Emission Assessment
 - PM Assessment
 - Ozone Assessment

Permanent Data Archive User Statistics:



Period of Interest:		2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
Total <u>Data Sets</u> Requested (Data Files Requested)		26	28 (230)	42 (656)	129 (1640)	48 (2550)
<u>Projects:</u>		<u>Number of Data Sets (data files)</u>				
EPA Supersites—	Atlanta	2	3	1 (3)	5 (122)	6 (199)
	Baltimore		2	1 (18)	6 (72)	6 (69)
	Fresno	1	1	1 (11)	24 (221)	21 (177)
	Houston	10	26	24 (248)	27 (332)	26 (288)
	Los Angeles	3	1	5 (22)	21 (66)	14 (53)
	New York					6 (813)
	Pittsburgh		1	1 (4)	7 (66)	21 (407)
Env Canada —	PAC2001		1	8 (288)	17 (601)	13 (428)
	STIFS/SHEMP			1 (12)	5 (71)	4 (60)
SOS—	Nashville 1999	11	1	3 (5)	2 (12)	2 (2)
DOE G-1—	ICARTT_NEAX_2004			1 (33)	1(30)	2 (53)



**These orders
add up to
2550
individual
data files.**

QSSC Web Site User Statistics:

	Period of Interest					
	2002 – 2003	2003- 2004	2004- 2005	2005- 2006	2006- 2007	2007- 2008
Unique Visitors	~3,647	~3,364	~3,060	~4,073	~4,588	~3,891
Total Visits	~ 4,358	~3,982	~3,685	~4,981	~6,060	~5,971
Visits / Month	~360	~330	~310	~414	~505	~498

Domains Represented in June and October 2007

- .edu, .gov, .org, .mil, .state (.us) 12 %
- .com, .net 31 %
- unidentified 35%
- identified (other than .us) 22 %

[Includes 40+ foreign countries]

QSSC Home Page



The QSSC web site is hosted by CDIAC

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

QSSC Web Site

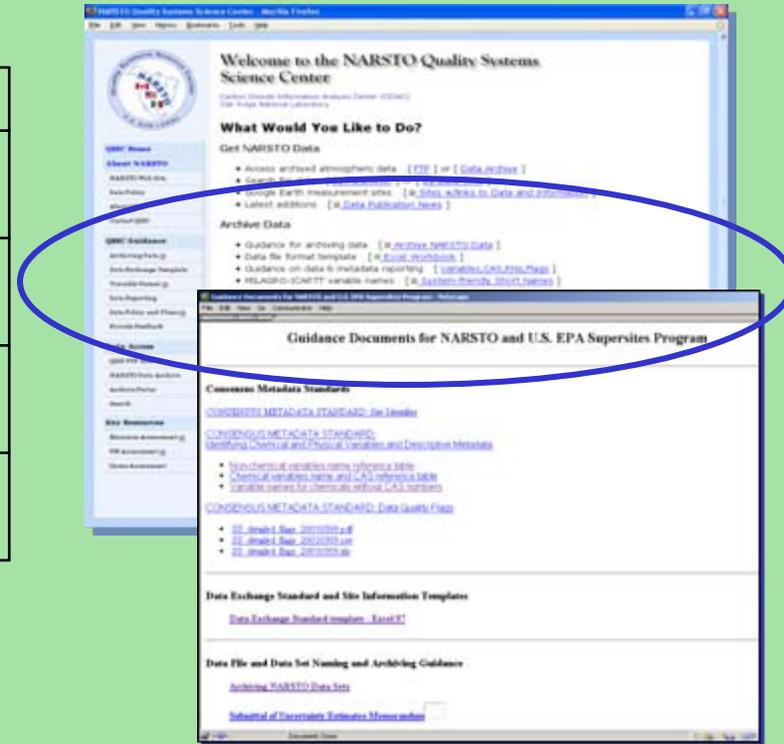
User Statistics:

	Period of Interest					
	2002 – 2003	2003- 2004	2004- 2005	2005- 2006	2006- 2007	2007- 2008
Unique Visitors	~388	~329	~299	~361	~319	~119
Total Visits	~445	~374	~341	~399	~364	~131
Visits / Month	~ 37	~ 31	~ 28	~ 33	~ 30	~16**

** Web Site Reorganization

Data & Metadata Reporting Guidance

Page



<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.

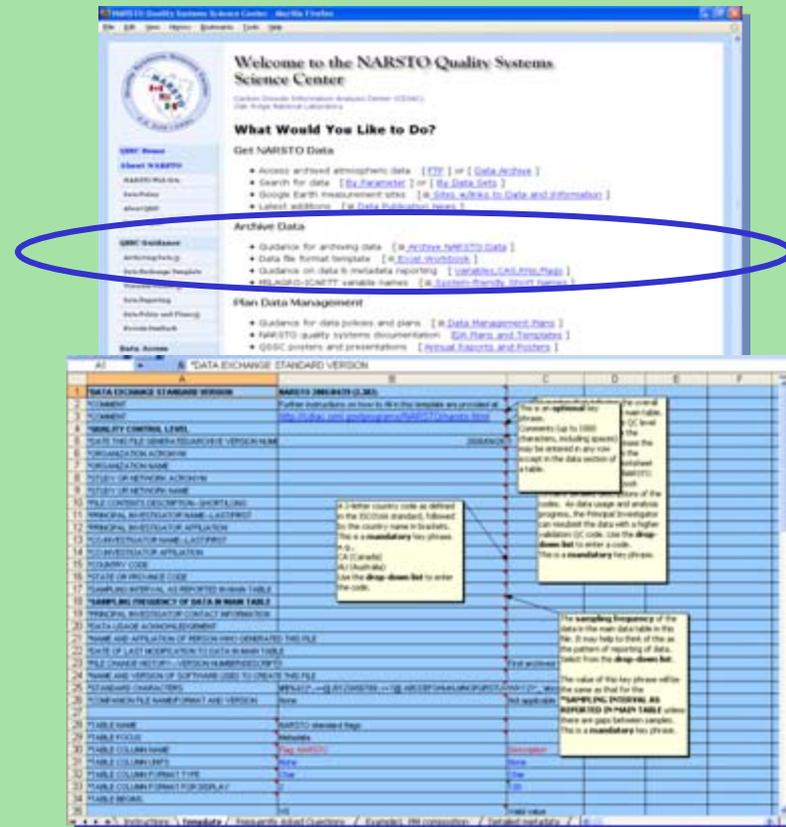
All visits by a visitor in a 24 hour period are counted as 1 visit.

QSSC Web Site

User Statistics:

Data Exchange Standard Template

	Period of Interest					
	2002 – 2003	2003- 2004	2004- 2005	2005- 2006	2006- 2007	2007- 2008
Unique Visitors	~366	~434	~361	~497	~1066	~404
Total Visits	~560	~624	~510	~703	~1305	~750
Visits / Month	~ 47	~ 52	~ 43	~ 59	~ 109	~ 63



http://cdiac.esd.ornl.gov/programs/NARSTO/NARSTO_template_atmospheric_measurements.xls

QSSC FTP Site User Statistics:

Emission Inventory Assessment Access

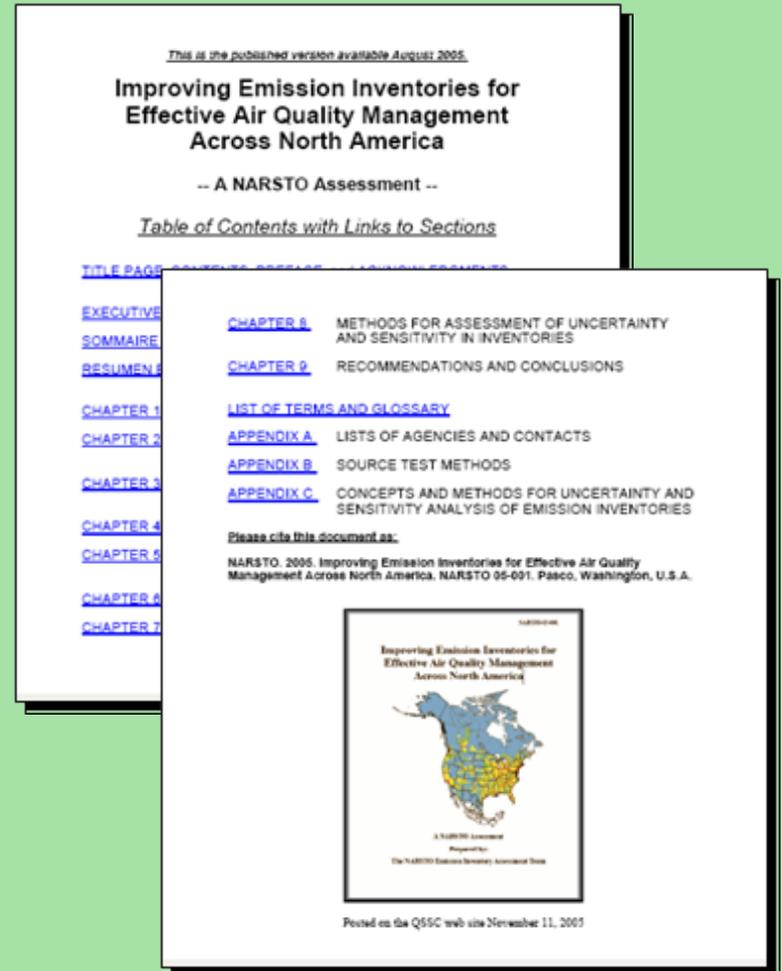
Period: 2007 – 2008

Total Files: ~ 1350

Exec Sum 40

Chapters 1 – 9 40 to 50 of each

Appendices and Glossary equally popular.



QSSC FTP Site User Statistics:

PM Assessment Access

Period: 2007 – 2008

Total Files: ~ 1200

Exec Sum 38
Synthesis 66

Chapters 1 – 11 30 to 100 of each

Ozone Assessment Access

Period: 2007 – 2008

Total Files: ~ 800

Exec Sum 33
Complete 32

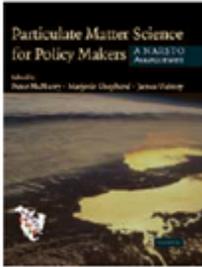
Chapters 1 -6 50 to 100 of each

Particulate Matter Science
for Policy Makers
-- A NARSTO Assessment --
Second Printing, April 2004
Table of contents with links to sections.

[TITLE PAGE, TOC, LIST OF FIGURES, and LIST OF TABLES](#)
[PREFACE, AUTHORS, and ACKNOWLEDGEMENTS](#)
[EXECUTIVE SUMMARY](#)
[SYNTHESIS](#) PARTICULATE MATTER SCIENCE FOR POLICY MAKERS (10 MB file)
[CHAPTER 1](#) PERSPECTIVE FOR MANAGING PM
[CHAPTER 2](#) HEALTH AND PARTICULATE MATTER
[CHAPTER 3](#) ATMOSPHERIC PARTICULATE MATTER
[CHAPTER 4](#) EMISSIONS OF PARTICULATE MATTER
[CHAPTER 5](#) PARTICULATE MATTER AND CLIMATE
[CHAPTER 6](#) SPATIAL AND TEMPORAL VARIATION OF PARTICULATE MATTER
[CHAPTER 7](#) RECEPTION OF PARTICULATE MATTER
[CHAPTER 8](#) CHEMISTRY OF PARTICULATE MATTER
[CHAPTER 9](#) VISIBILITY IMPACTS OF PARTICULATE MATTER
[CHAPTER 10](#) CONCEPTS OF PARTICULATE MATTER ASSESSMENT
[CHAPTER 11](#) RECOMMENDATIONS FOR PARTICULATE MATTER POLICY

[GLOSSARY](#)
[APPENDIX A](#) EMISSION CALCULATIONS AND INVENTORY LISTINGS
[APPENDIX B](#) MEASUREMENTS
[APPENDIX C](#) MONITORING DATA: AVAILABILITY, LIMITATIONS, AND NETWORK ISSUES
[APPENDIX D](#) GLOBAL AEROSOL TRANSPORT (11 MB file)
[APPENDIX E](#) PREPARATION OF THIS ASSESSMENT
(Volume of all files is 85 MB.)

Please cite this document as:
NARSTO. 2004. Particulate Matter Assessment for Policy Makers: A NARSTO Assessment. P. McMurry, M. Shepherd, and J. Vicky, eds. Cambridge University Press, Cambridge, England. ISBN 0 52 184287 5.



The PM Assessment, published by Cambridge University Press, is available for purchase in bookstores or online at <http://www.cambridge.org/9780521842875>.

Posted on the QSSC web site November 11, 2005