

NARSTO Quality Systems Science Center

2007-2008 Annual Report



Presented by
Jeffrey West

Prepared by
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NARSTO QSSC

NARSTO Executive Assembly/Executive Steering Committee Meeting
April 8-9 2008
Radisson Paraiso Hotel, Mexico City, Mexico

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](#)]

[Sites w/links to Data and Information](#)]
[on News](#)]

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:

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- 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.
- 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.).
- 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

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
 - 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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What Would You Like to Do?

Get NARSTO Data

- ◆ 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 (arrow pointing to [FTP](#))

Google Earth Sites (arrow pointing to [Sites w/links to Data and Information](#))

Variable Names (arrow pointing to [System-friendly Short Names](#))

Contact me (arrow pointing to [Les Hook](#))

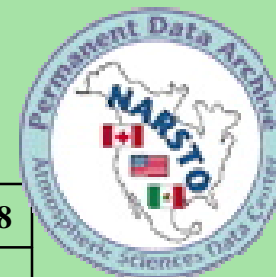
Data Template (arrow pointing to [Data Exchange Template](#))

Data Access (arrow pointing to [Data Access](#))

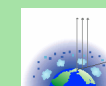
Data Template

Data Access

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)



ATMOSPHERIC
SCIENCES
DATA CENTER

Processing, archiving, and distributing Earth science data
at NASA Langley Research Center
• RADIATION BUDGET • CLOUDS • AEROSOLS
• TROPOSPHERIC CHEMISTRY

These orders
add up to
2550
individual
data files.

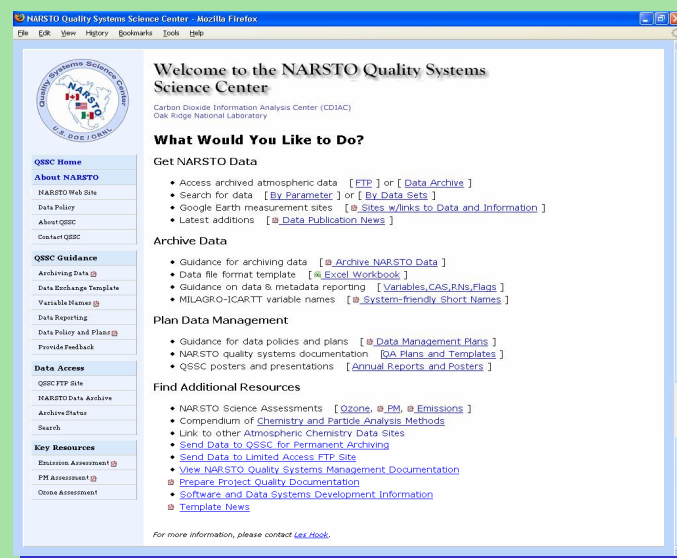
QSSC Web Site User Statistics:

	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 FTP Site

User Statistics for Data Files Downloaded

Period:	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
Unique Users:		~ 142	~ 300	~ 190	~ 235	~ 500
Total Data Files:		~ 3,100	~ 1350	~ 2300	~ 2500	~ 2600
<u>Projects:</u>						
EPA Supersites — Atlanta	150	225	99	305	173	55
Baltimore		5	79	62	40	40
Fresno		220	158	108	77	23
Houston	225	425	560	786	245	300
Los Angeles	135	120	139	63	15	27
New York					15	375
Pittsburgh				22	40	6
Environment Canada — PAC2001			15	448	PDA	PDA
SHEMP				34		16
STIFS				54		22
DOE G-1 ICARTT NEAX 2004					30	65
MAX-Mex					12	36
SOS Nashville 1995	1,300	350	397	459	979	1250
Nashville 1999	950	15	145	200	192	321
DES Metadata Tables	300		350	310	100	600
Google Earth Site Files					165	170
SAMI						20,000



Index of ftp://narsto.esd.ornl.gov/pub/

Up to higher level directory

DES metadata	2008/02/19 23:57:00
DES new distributions	2002/10/18 00:00:00
EI Assessment	2008/02/20 00:15:00
ENV CANADA	2008/02/19 23:57:00
EPA Supersites	2008/02/19 23:57:00
Google Earth Site Files	2008/02/20 00:20:00
ICARTT NEAX 2004	2008/02/20 00:04:00
MILAGRO	2008/02/20 00:04:00
MILAGRO Names	2008/02/20 00:21:00
Ozone Assessment	2008/02/20 00:21:00
PM Assessment	2008/02/20 00:21:00
SAMI	2008/02/20 00:21:00
SOS	2008/02/20 00:04:00

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.

This is the published version available August 2005.

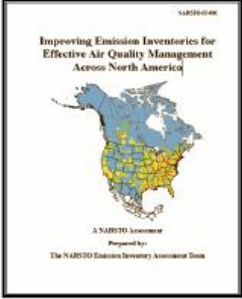
Improving Emission Inventories for Effective Air Quality Management Across North America

-- A NARSTO Assessment --

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Please cite this document as:
NARSTO. 2005. Improving Emission Inventories for Effective Air Quality Management Across North America. NARSTO 05-001. Pasco, Washington, U.S.A.



Posted on the QSSC web site November 11, 2005

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

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[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. Vickery, 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://us.cambridge.org/files/catalogue.asp?isbn=0521842875>.

Posted on the QSSC web site November 11, 2005