

# THE GLOBAL AEROSOL SYNTHESIS AND SCIENCE PROJECT (GASSP)

## Measurements and Modeling to Reduce Uncertainty

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**TABLE ES1. List of field campaigns and aerosol measurements: particle number concentration  $N$ , particle number size distribution (NSD), cloud condensation nucleus concentration (CCN), speciated mass concentration/composition (Comp), and black carbon mass/number concentration (BC).**

Campaign acronym	Campaign title	Dates	Platform	Location	Measurement
ABLE-2A	Atmospheric Boundary Layer Experiment 2A	12 Jul–13 Aug 1985	Aircraft	East, west Brazil	Comp
ABLE-2B	Atmospheric Boundary Layer Experiment 2B	1 Apr–13 May 1987	Aircraft	East Brazil	Comp
ABLE-3B	Atmospheric Boundary Layer Experiment 3B	6 Jul–15 Aug 1990	Aircraft	Labrador, Ontario, Canada; U.S. East Coast	NSD
PEM West-A	Pacific Exploratory Missions—West A	16 Sep–21 Oct 1991	Aircraft, station	Western tropical Pacific Ocean: China coast; Hawaii; Japan; Philippine Sea	NSD
MAGE	Marine Aerosol and Gas Exchange	21 Feb–25 Mar 1992	Ship	Los Angeles, California	$N$

TABLE ESI. Continued					
Campaign acronym	Campaign title	Dates	Platform	Location	Measurement
TRACE-A	Transport and Atmospheric Chemistry near the Equator—Atlantic	21 Sep–24 Oct 1992	Aircraft	South America; southern Africa; Atlantic Ocean	NSD
RITS93	Radiatively Important Trace Species 1993	20 Mar–7 May 1993	Ship	Pacific Ocean: Punta Arenas, Chile, to Seattle, Washington	N
RITS94	Radiatively Important Trace Species 1994	20 Nov 1993–7 Jan 1994	Ship	Pacific Ocean: Seattle, Washington, to Punta Arenas, Chile	N
PEM West-B	Pacific Exploratory Missions—West B	7 Feb–14 Mar 1994	Aircraft, station	Western tropical Pacific Ocean: China coast; Japan; Philippine Sea	NSD
ACE-I	Aerosol Characterization Experiment-I	12 Oct–13 Dec 1995	Ship, aircraft	Seattle, Washington; Hobart, Australia; Southern Ocean	Ship: N, NSD Aircraft: CCN, N, NSD
PEM tropics-A	Pacific Exploratory Mission—tropics A	30 Aug–5 Oct 1996	Aircraft	Pacific Ocean: Christmas Island; Easter Island; Fiji; Hawaii; Tahiti	N
AOEI996	Arctic Ocean Expedition 1996	13 Jul–23 Sep 1996	Ship	High Arctic	CCN, NSD
ACE-2	Aerosol Characterization Experiment-2	18 Jun–24 Jul 1997	Ship	East Atlantic Ocean: Lisbon, Portugal	N
AEROINDO99	Aerosols99 and Indian Ocean Experiment (INDOEX)	14 Jan–30 Mar 1999	Ship	Atlantic Ocean and Indian Ocean: Norfolk, Virginia, to Male, Maldives	N, NSD
NAURU99	Nauru Island field campaign 1999	15 Jun–19 Jul 1999	Ship	Pacific Ocean: Darwin, Australia, to Kwajalein Atoll	N, NSD
PEM tropics-B	Pacific Exploratory Mission—tropics B	2 Aug–4 Nov 1999	Aircraft	Pacific Ocean: Christmas Island; Easter Island; Fiji; Hawaii; Tahiti	N, NSD
SOS	Southern Oxidants Study	24 Jun–17 Jul 1999	Aircraft, station	Nashville, Tennessee	N
INDOEX	Indian Ocean Experiment	16 Feb–25 Mar 1999	Aircraft	Indian Ocean	N, NSD
TexAQS 2000	Texas Air Quality Study 2000	16 Aug–13 Sep 2000	Aircraft	Houston, Texas	N
SAFARI	Southern African Regional Science Initiative	5–16 Sep 2000	Aircraft	Southern Africa	N, NSD
ACE-ASIA	Asian Pacific Regional Aerosol Characterization Experiment	15 Mar–20 Apr 2001	Ship, aircraft	Pacific Ocean: Honolulu, Hawaii; Yokosuka, Japan	N, NSD
TRACE-P	Transport and Atmospheric Chemistry near the Equator—Pacific	26 Feb–10 Apr 2001	Aircraft	Eastern China; western Pacific Ocean	N
AOE2001	Arctic Ocean Expedition 2001	1 Jul–25 Aug 2001	Ship	High Arctic	CCN, NSD

<b>TABLE ESI. Continued</b>					
<b>Campaign acronym</b>	<b>Campaign title</b>	<b>Dates</b>	<b>Platform</b>	<b>Location</b>	<b>Measurement</b>
NEAQS 2002	New England Air Quality Study 2002	9 Jul–11 Aug 2002	Aircraft, ship	New York State; north-west Atlantic Ocean: Charleston, South Carolina, to Portsmouth, New Hampshire	N, NSD, Comp
ITCT2002	Intercontinental Transport and Chemical Transformation 2002	22 Apr–19 May 2002	Aircraft	Eastern North Pacific Ocean, near North American west coast	N
CRYSTAL-FACE	Cirrus Regional Study of Tropical Anvils and Cirrus Layers—Florida Area Cirrus Experiment	26 Jun–1 Aug 2002	Aircraft	Southern Florida and surrounding waters	CCN, N, NSD, Comp
Aerosol IOP	Aerosol Intensive Observation Period	1–31 May 2003	Station, aircraft	Southern Great Plains, north-central Oklahoma	CCN, NSD
IMPACT	Integrated Measurement Program for Aerosol and Oxidant Chemistry in Tokyo	1 Apr 2003–14 Aug 2004 (with breaks)	Station	University of Tokyo, Komaba and Kisai (50 km north of Tokyo), Japan	BC, Comp
NEAQS 2004	New England Air Quality Study 2004	5 Jul–12 Aug 2004	Ship	Northwest Atlantic Ocean; Portsmouth, New Hampshire	N, NSD, Comp
ITCT2004	Intercontinental Transport and Chemical Transformation 2004	5 Jul–15 Aug 2004	Aircraft	Northeastern United States	N
INTEX-A	Intercontinental Chemical Transport Experiment—A	1 Jul–14 Aug 2004	Aircraft	Northeast coast, United States	N, NSD
CIFEX	Cloud Indirect Effects Experiments	1–21 Apr 2004	Aircraft	Eureka, California	CCN
NEAX	Northeast Aerosol Experiment	20 Jul–15 Aug 2004	Aircraft	Latrobe, Pennsylvania	NSD
CARIBIC	Civil Aircraft for the Regular Investigation of the Atmosphere Based on an Instrument Container Project	2005–15	Aircraft	Global free-troposphere measurements	N, NSD
MASE	Marine Stratus Experiment	July 2005	Aircraft	Pacific coastal regions; near Point Reyes and Saramento, California	CCN, NSD
MASRAD	Marine Stratus Radiation Aerosol and Drizzle	14 Mar–14 Sep 2005	Station	Point Reyes National Seashore, California	CCN, NSD, Comp
TexAQS-GoMACCS	Texas Air Quality Study—Gulf of Mexico Atmospheric Composition and Climate Study	27 Jul–11 Sep 2006	Ship	Gulf of Mexico: Charleston, South Carolina, to Galveston, Texas	N, CCN, NSD, Comp
INTEX-B	Intercontinental Chemical Transport Experiment—B	1 Mar–15 Mar 2006	Aircraft	Houston, Texas; Hawaii; Anchorage, Alaska; Boulder, Colorado; Veracruz, Mexico; Seattle, Washington	CCN, N, NSD, Comp, BC
TexAQS 2006	Texas Air Quality Study 2006	31 Aug–15 Oct 2006	Aircraft	Houston, Texas	CCN, N, NSD, Comp, BC

TABLE ESI. Continued					
Campaign acronym	Campaign title	Dates	Platform	Location	Measurement
MILAGRO/ MIRAGE	Megacity Initiative: Local and Global Research Observations	4–29 Mar 2006	Aircraft	Mexico City, Mexico	CCN, N, NSD, Comp, BC
MAC	Maldives AUV Campaign	1 Jan–1 Apr 2006	Aircraft	Hanimaadhoo, Maldives	N, NSD
CARE Beijing	Campaigns of Air Quality Research in Beijing and Surrounding Regions	31 Jul–16 Sep 2006	Station	Peking University, Beijing, China; YUFA (~50 km south of Beijing), China	CCN, NSD, Comp
PRD campaign	Pearl River Delta field campaign	4–31 Jul 2006	Station	Backgarden, Pearl River Delta, southern China	Comp
—	Holme Moss	7 Nov–4 Dec 2006	Station	Holme Moss, United Kingdom	N, NSD, Comp, BC
AMMA	African Monsoon Multidisciplinary Analysis	20 Jul–15 Aug 2006	Aircraft	West Africa	Comp
RADAGAST	Radiative Divergence Using AMF, GERB and AMMA Stations	1 Jan 2006–7 Jan 2007	Station	Niamey, Niger, Africa AMF	CCN, CCN, CPC
PASE	Pacific Atmosphere Sulfur Experiment	8 Aug–6 Sep 2007	Aircraft	Equatorial Pacific Ocean	CCN, N, NSD, Comp
PACDEX	Pacific Dust Experiment	1 Apr–24 May 2007	Aircraft	Boulder, Colorado	CCN
CLACE-6	Cloud and Aerosol Characterization Experiment 6	3–13 Mar 2007	Station	Jungfrauoch, Switzerland	CCN, N, NSD
COPS	Convective and Orographically-induced Precipitation Study	23 Jun–27 Jul 2007	Station	Hornisgrinde mountain site, Black Forest, southwest Germany, and Black Forest AMF site	CCN, NSD, Comp
RHaMBLe	Reactive Halogens in the Marine Boundary Layer	18 May–8 Jun 2007	Ship	Lisbon, Portugal, to Mindelo, Cape Verde	CCN, NSD, Comp
ICEALOT	International Chemistry Experiment in the Arctic Lower Troposphere	19 Mar–24 Apr 2008	Ship	Woods Hole, Massachusetts, to Reykjavik, Iceland	N, CCN, NSD, Comp
VOCALS-Rex	VAMOS Ocean–Cloud–Atmosphere–Land Study Regional Experiment	13 Oct–2 Dec 2008	Ship, aircraft	Panama City, Panama, to Arica, Chile	Ship: N, NSD, Comp Aircraft: CCN, N, NSD, Comp, BC
ARCPAC	Aerosol, Radiation, and Cloud Processes affecting Arctic Climate	29 Mar–23 Apr 2008	Aircraft	Florida, Colorado, Alaska	CCN, N, Comp, BC
ARCTAS	Arctic Research of the Composition of the Troposphere from Aircraft and Satellites	18 Mar–19 Apr, 18 Jun–13 Jul 2008	Aircraft	Arctic region	CCN, N, NSD, Comp, BC
EUCAARI– IMPACT	EUCAARI–Intensive Observation Period at Cabauw Tower	1–31 May 2008	Aircraft, station	Cabauw, Netherlands	CCN
AMAZE-08	Amazonian Aerosol Characterization Experiment 2008	14 Feb–12 Mar 2008	Station	Reserva Biologica do Cuieiras near Manaus, Brazil	CCN, N, NSD

<b>TABLE ESI. Continued</b>					
<b>Campaign acronym</b>	<b>Campaign title</b>	<b>Dates</b>	<b>Platform</b>	<b>Location</b>	<b>Measurement</b>
EUCAARI–LongRex	EUCAARI Long-range Experiment	2–22 May 2008	Aircraft	Continental Europe	Comp, BC
OP3	Oxidant and Particulate Photochemical Processes Above a South East Asian Rainforest	10–23 Jul 2008	Station, aircraft	Sabah, Malaysian Borneo	Station: NSD, CCN Aircraft: Comp
AMF-China/AIE-China	ARM Mobile Facility / Aerosol Indirect Effect China	15 May–29 Dec 2008	Station	Yangtze delta region, southeast China; AMF Shouxian, China	N, CCN
ISDAC	Indirect and Semi-Direct Aerosol Campaign	1–30 Apr 2008	Station, aircraft	ARM Climate Research Facility, North Slope of Alaska, Barrow, Alaska	CCN, NSD, N
SOLAS	Surface–Ocean Lower Atmosphere Study	1 Feb–1 Dec 2008, 1 Jan–1 Jun 2009	Station	Cape Verde, eastern North Atlantic Ocean region	NSD
ACCRONIM	Activation of Continental Chloride by Reactive Oxides of Nitrogen in Wintertime	11–25 Feb 2009	Station	Boulder, Colorado	N
A-FORCE	Aerosol Radiative Forcing in East Asia	18 Mar–25 Apr 2009	Aircraft	Yellow Sea, East China Sea, western Pacific Ocean	N, BC
—	Chilbolton	7 Jan–19 Mar 2009	Station	Chilbolton, United Kingdom	CCN, Comp, BC
CAP-MBL	Clouds, Aerosol, and Precipitation in the Marine Boundary Layer	1 May–31 Dec 2009	Station	Graciosa Island in the Azores AMF, Atlantic Ocean	CCN, CCN, CPC
HIPPO Phase 1, 2	HIAPER Pole-to-Pole Observations	28 Jan–22 Nov 2009	Aircraft	Pacific Ocean	BC
APPRAISE	Aerosol Properties, Processes and Influences on the Earth's Climate	15 Jan–3 Mar 2009	Aircraft	United Kingdom	CCN, N
EM25	Emissions around the M25 motorway	16–25 Jun 2009	Aircraft	London, United Kingdom	CCN, N
TROMPEX	Trade Wind Ozone Photochemistry Experiment	7–11 Sep 2009	Aircraft	Cape Verde Islands	CCN, N
CAVIAR	Continuum Absorption by Visible and Infrared Radiation and its Atmospheric Relevance	16 Jul–4 Aug 2009	Aircraft	Jungfrauoch, Switzerland	N
CALNEX	California Nexus	27 Apr–22 Jun 2010	Aircraft	California and eastern Pacific coastal region	CCN, N, Comp, BC
CALNEX	California Nexus	14 May–8 Jun 2010	Ship, station	San Diego to San Francisco, California	Ship: N, CCN, NSD, Comp Station: NSD, Comp, BC
ParisFOG	Paris fog field campaign	1 Jul–1 Dec 2010	Station	Paris, France	CCN

TABLE ESI. Continued					
Campaign acronym	Campaign title	Dates	Platform	Location	Measurement
CARRIBA I	Clouds, Aerosol, Radiation, and Turbulence in the Trade Wind Regime over Barbados I	1–30 Nov 2010	Aircraft, station	Ragged Point, Barbados	CCN
CARES	Carbonaceous Aerosol and Radiative Effects Study	2–28 Jun 2010	Station, aircraft	Sacramento, California	CCN, NSD, N, Comp, BC
—	Bird Island	2 Nov–27 Dec 2010	Station	Bird Island, southern Atlantic Ocean	NSD, Comp
HIPPO Phase 3	HIAPER Pole-to-Pole Observations	18 Mar–13 Apr 2010	Aircraft	Pacific Ocean	BC
VOLCANO	Dust Radiation, Electrification and Alignment (DREAM)	20 Apr–4 May 2010	Aircraft	Sampling Eyjafjallajökull volcanic ash cloud over United Kingdom	N
STORMVEX	Storm Peak Laboratory Cloud Property Validation Experiment	15 Nov 2010–25 Apr 2011	Station	Storm Peak Laboratory and Christy Peak, Colorado	NSD, N, CCN, BC
RONOCO	Role of Nighttime Chemistry in Controlling the Oxidising Capacity of the Atmosphere	12–29 Jul 2010, 10–23 Jan 2011	Aircraft	United Kingdom	CCN, Comp
DYNAMO	Dynamics of the Madden–Julian Oscillation	29 Sep–8 Dec 2011	Ship	Phuket, Thailand	N, NSD, Comp
DISCOVERAQ	Deriving Information on Surface conditions from Column and Vertically Resolved Observations Relevant to Air Quality	28 Jun–29 Jul 2011	Aircraft	Northeast Maryland, Baltimore, Washington, D.C.	N, NSD, BC
NACHTT	Nitrogen, Aerosol Composition, and Halogens on a Tall Tower	17 Feb–13 Mar 2011	Station	Boulder Atmospheric Observatory, Colorado	N, Comp
CARRIBA II	Clouds, Aerosol, Radiation, and Turbulence in the Trade Wind Regime over Barbados 2	1–30 Apr 2011	Aircraft, station	Ragged Point, Barbados	CCN
—	<i>Polarstern</i> cruise 1	25 Apr–17 Mat 2011	Ship	Cape Town, South Africa, to Bremerhaven, Germany	CCN
—	<i>Polarstern</i> cruise 2	31 Oct–27 Nov 2011	Ship	Bremerhaven, Germany, to Cape Town, South Africa	CCN
BORTAS	Boreal forest fires on Tropospheric oxidants over the Atlantic using Aircraft and Satellite	12 Jul–2 Aug 2011	Aircraft	Nova Scotia, Canada	NSD, Comp, BC
—	Weybourne	8 Jun–7 Jul 2011	Station	Weybourne, United Kingdom	CCN, Comp, BC
—	Aerosol Life Cycle IOP	1 Jun–31 Aug 2011	Station	Brookhaven National Laboratory, Upton, New York	NSD, Comp, BC

<b>TABLE ESI. Continued</b>					
<b>Campaign acronym</b>	<b>Campaign title</b>	<b>Dates</b>	<b>Platform</b>	<b>Location</b>	<b>Measurement</b>
Aegean-GAME	Aegean Pollution: Gaseous and Aerosol airborne Measurements	31 Aug–4 Sep 2011	Aircraft	Eastern Aegean Sea; Chania, Crete	NSD, Comp
HIPPO Phase 4, 5	HIAPER Pole-to-Pole Observations	9 Jun–6 Jul, 9 Aug–9 Sep 2011	Aircraft	Pacific Ocean	BC
PACE	Pajarito Aerosol Couplings to Ecosystems	16 Dec 2011–29 Apr 2012	Station	Pajarito, Los Alamos National Laboratory, New Mexico	N, NSD, CCN, BC
GVAX	Ganges Valley Aerosol Experiment	13 Jun 2011–31 Mar 2012	Station	Ganges Valley, India	CPC, CCN
WACS2012	Western Atlantic Climate Study 2012	19–27 Aug 2012	Ship	Boston, Massachusetts, to St. George's, Bermuda	N, NSD, Comp
UBWOS 2012	Uintah basin Winter Ozone Study 2012	15 Jan–29 Feb 2012	Station	Horsepool, Utah	N, NSD
DC3	Deep Convective Clouds and Chemistry Project	18 May–22 Jun 2012	Aircraft	Northeastern Colorado, West Texas, central Oklahoma, northern Alabama	N, NSD, CCN, Comp, BC
VESSAER	Vertical Structure and Sources of Aerosols in the Mediterranean Region	16 Jun–7 Jul 2012	Aircraft	Corsica, France	CCN
ParisFOG	Paris fog field campaign	1 Dec 2012–7 Jan 2013	Station	Paris, France	CCN
—	<i>Polarstern</i> cruise 3	16 Apr–13 May 2012	Ship	Punta Arenas, Chile, to Bremerhaven, Germany	CCN
—	Melpitz	17 Aug 2012–16 Jun 2013	Station	Melpitz, Germany	CCN, NSD
CBCMS	Characterization of Black Carbon Mixing State	1 Nov 2012–14 Jun 2013	Station	Indian Institute of Science, Challakere, Karnataka, India	BC
TCAP	Two-Column Aerosol Project	1 Jul 2012–30 Jun 2013	Station, aircraft	Cape Cod, Massachusetts	CCN, NSD, N, Comp, BC
MAGIC	Marine ARM GCSS Pacific Cross-Section Intercomparison Investigation of Clouds	1 Oct 2012–30 Sep 2013	Ship	East Pacific Ocean: Los Angeles, California, to Honolulu, Hawaii	CCN, N, NSD
UBWOS 2013	Uintah basin Winter Ozone Study 2013	26 Jan–21 Feb 2013	Station	Horsepool, Utah	N, NSD
SEAC4RS	Studies of Emissions and Atmospheric Composition, Clouds and Climate Coupling by Regional Surveys	6 Aug–23 Sep 2013	Aircraft	Southeastern United States	CCN, N, NSD, Comp

**TABLE ESI. Continued**

<b>Campaign acronym</b>	<b>Campaign title</b>	<b>Dates</b>	<b>Platform</b>	<b>Location</b>	<b>Measurement</b>
DISCOVERAQ-California	Deriving Information on Surface conditions from Column and Vertically Resolved Observations Relevant to Air Quality—California	16 Jan–6 Feb 2013	Aircraft	California	N, NSD, BC, Comp
DISCOVERAQ-Texas	Deriving Information on Surface conditions from Column and Vertically Resolved Observations Relevant to Air Quality—Texas	4–29 Sep 2013	Aircraft	Houston, Texas	N, NSD, BC, Comp
COPE	Convective Precipitation Experiment	4–29 Jul 2013	Aircraft	Exeter, United Kingdom	NSD, Comp
ACCACIA-Spring	Aerosol–Cloud Coupling and Climate Interactions in the Arctic–Spring	15–30 Mar 2013	Ship, aircraft	Arctic	NSD, Comp, BC
ACCACIA-Summer	Aerosol–Cloud Coupling and Climate Interactions in the Arctic–Summer	14 Jul–15 Aug 2013	Ship	Arctic	NSD, Comp
MAMM	Methane and other Greenhouse Gases in the Arctic: Measurements, Process Studies and Modelling	15–17 Aug 2013	Aircraft	Arctic	BC
BBOP	Biomass Burning Observation Project	15 Jul–22 Oct 2013	Aircraft	Pasco, Washington; Memphis, Tennessee	CCN, N, NSD, Comp, BC
SENEX	Southeast Nexus	3 Jun–10 Jul 2013	Aircraft	Southeastern United States	N, CCN, Comp, BC
ACRIDICON-CHUVA	Aerosol, Cloud, Precipitation, and Radiation Interactions and Dynamics of Convective Cloud Systems—Cloud Processes of the Main Precipitation Systems in Brazil: A Contribution to Cloud Resolving Modeling and to the Global Precipitation Measurement	1 Sep–4 Oct 2014	Aircraft	Amazon basin, Brazil	N, CCN, BC, NSD, Comp, BC
WACS2014	Western Atlantic Climate Study 2014	20 May–5 Jun 2014	Ship	Woods Hole, Massachusetts; northwest Atlantic Ocean	N, NSD, Comp
DISCOVERAQ-Colorado	Deriving Information on Surface conditions from Column and Vertically Resolved Observations Relevant to Air Quality—Colorado	17 Jul–12 Aug 2014	Aircraft	Colorado	N, NSD, CCN, BC, Comp
CAST	Co-ordinated Airborne Studies in the Tropics	18 Jan–15 Feb 2014	Aircraft	Western Pacific Ocean	BC
Go Amazon	Green Ocean Amazon	22 Feb–4 Oct 2014	Aircraft	Manaus, Brazil; Amazonia	N, NSD, CCN



**TABLE ES2. Summary of existing databases and data collections used in GASSP. (column 1) Acronyms include Aerosols, Clouds and Trace Gases Research Infrastructure (ACTRIS), Global Atmosphere Watch (GAW), Pacific Marine Environmental Laboratory (PMEL), Interagency Monitoring of Protected Visual Environments (IMPROVE), European Monitoring and Evaluation Programme (EMEP), Earth Science Project Office (ESPO), British Atmospheric Data Centre (BADC), Civil Aircraft for the Regular Investigation of the Atmosphere Based on an Instrument Container (CARIBIC), and Earth Observing System Data and Information System (EOSDIS). (column 4) Acronyms include International Consortium for Atmospheric Research on Transport and Transformation (ICARTT); Global Tropospheric Experiment (GTE); IGOR, a scientific graphing and data analysis program produced by WaveMetrics; Atmospheric Chemistry Format (ACF) from PMEL; Common Data Format (CDF); Network Common Data Form (netCDF); and NASA Ames, <https://badc.nerc.ac.uk/help/formats/NASA-Ames/>.**

Database/data collection name	URL	Platform	File formats
ACTRIS	<a href="http://actris.nilu.no/">http://actris.nilu.no/</a>	Station	EBASI.I (NASA Ames)
EBAS	<a href="http://ebas.nilu.no">http://ebas.nilu.no</a>	Station	EBASI.I (NASA Ames)
GAW	<a href="http://www.wmo.int/pages/prog/arep/gaw/gaw_home_en.html">www.wmo.int/pages/prog/arep/gaw/gaw_home_en.html</a> (hosted by EBAS)	Station	—
NASA LaRC Airborne Science Data for Atmospheric Composition	<a href="https://www-air.larc.nasa.gov/">https://www-air.larc.nasa.gov/</a> , <a href="ftp://ftp-air.larc.nasa.gov/pub/">ftp://ftp-air.larc.nasa.gov/pub/</a> [see also Toolsets for Airborne Data (TAD), <a href="https://tad.larc.nasa.gov/">https://tad.larc.nasa.gov/</a> ]	Aircraft	ICARTT, GTE, nonstandard
AMS Global Database	<a href="https://sites.google.com/site/amsglobaldatabase/">https://sites.google.com/site/amsglobaldatabase/</a>	Station, aircraft	Igor text (.itx)
NOAA Earth System Research Laboratory	<a href="http://esrl.noaa.gov/csd/groups/csd7/measurements/">http://esrl.noaa.gov/csd/groups/csd7/measurements/</a>	Aircraft, station	ICARTT, IGOR
PMEL Atmospheric Chemistry Data Server	<a href="http://saga.pmel.noaa.gov/data/">http://saga.pmel.noaa.gov/data/</a>	Ship, station	ACF, IGOR, CDF, ICARTT, nonstandard
NOAA/Regional Aerosol Sampling Stations	<a href="http://www.esrl.noaa.gov/gmd/aero/net/">www.esrl.noaa.gov/gmd/aero/net/</a>	Station	EBASI.I (NASA Ames)
Atmospheric Radiation Measurement (ARM) Archive	<a href="http://www.archive.arm.gov">www.archive.arm.gov</a>	Station, aircraft, ship	netCDF, nonstandard, ICARTT
Federal Land Manager Environmental Database (IMPROVE)	<a href="http://views.cira.colostate.edu/fed/DataWizard/Default.aspx">http://views.cira.colostate.edu/fed/DataWizard/Default.aspx</a>	Station	Text file
EMEP	<a href="http://www.emep.int/">www.emep.int/</a> (hosted by EBAS)	Station	—
ESPO	<a href="https://espoarchive.nasa.gov/archive/browse">https://espoarchive.nasa.gov/archive/browse</a>	Aircraft	Various
BADC	<a href="http://badc.nerc.ac.uk/home/index.html">http://badc.nerc.ac.uk/home/index.html</a>	Aircraft, station	netCDF, NASA Ames
CARIBIC	<a href="http://www.caribic-atmospheric.com/">www.caribic-atmospheric.com/</a>	Aircraft	netCDF
NASA EOSDIS	<a href="https://eosweb.larc.nasa.gov/field-campaigns">https://eosweb.larc.nasa.gov/field-campaigns</a> , <a href="http://reverb.echo.nasa.gov/reverb">http://reverb.echo.nasa.gov/reverb</a>	Aircraft	Various