

## AIR MONITORING NETWORKS / CAMPAIGNS FOR NON-ROUTINE SPECIAL INTENSIVE STUDIES<sup>3,4</sup>

| Network  | Lead Agency <sup>1</sup> | Number of Sites                              | Initiated | Measurement Parameters   | Location of Information and/or Data   | Notes   |
|--|--------------------------|--|-----------|--|---|---|
| Texas Air Quality Study II (2005 - 2006)   | Texas                    | 17   | 2006      | O3, NOx, NOy, SO2, Haze, Visibility, CO, VOC, Solar Radiation, Surface Meteorology, Upper Air  | <a href="http://www.utexas.edu/research/ceer/texaqsII/PDF/12-12-04_Protected_Surface_Sites_tbl.pdf">http://www.utexas.edu/research/ceer/texaqsII/PDF/12-12-04_Protected_Surface_Sites_tbl.pdf</a> | Researchers from universities, state and federal agencies, private industry, and local governments are joining forces to conduct a major field study to address air quality issues in the eastern half of Texas. The study, planned for a period extending from April 2005 through October 2006, will examine regional ozone formation, transport of ozone and ozone precursors, meteorological and chemical modeling, issues related to ozone formation by highly reactive emissions, and particulate matter formation. It is anticipated that the information from the study will be the scientific basis used for developing State Implementation Plans (SIPs) for ozone (with concentrations averaged over 8 hours), regional haze, and, if necessary, for fine particulate matter (particulate matter less than 2.5 microns in diameter, PM <sub>2.5</sub> ) |
| 2006 Texas Air Quality Study/ Gulf of Mexico Atmospheric Composition and Climate Study (TexAQS/GoMACCS)  | NOAA                     | 1 ship, 2 aircraft                           | 2006      | O3, NO, NO2, NOy, VOCs, CO2, CO, SO2, HNO3, NH3, other reactive pollutants, aerosols, meteorological parameters & upper air                | <a href="http://www.al.noaa.gov/v/2006/2006plan.pdf">http://www.al.noaa.gov/v/2006/2006plan.pdf</a>   | For TexAQS 2006, the NOAA air quality component will investigate, through airborne and sea-based measurements, the sources and processes that are responsible for photochemical pollution and regional haze during the summertime in Texas. The focus of the study will be the transport of ozone and ozone precursors within the state and the impact of the long-range transport of ozone or its precursors.  |
| International Consortium for Atmospheric Research on Transport and Transformation (ICARTT) 2004 -- Intercontinental Chemical Transport Experiment - North America (INTEX-NA) | NOAA                     | aircraft, sondes, satellites                 | 2004      | O3, NO, NO2, NOy, VOCs, CO2, CO, SO2, HNO3, NH3, other reactive pollutants, aerosols, meteorological parameters, altitude -- NOAA aircraft | <a href="http://cloud1.arc.nasa.gov/intex-na/desc.html">http://cloud1.arc.nasa.gov/intex-na/desc.html</a>   | The NASA DC-8 is operated, along with other observational platforms, from bases in California, Illinois, Missouri, and New Hampshire as part of INTEX-NA in order to: (1) quantify the outflow of radiatively and chemically important trace gases and aerosols from North America to the Atlantic; (2) understand the transport and chemical evolution of the North American outflow over the Atlantic, and assess the impact and implications of the intercontinental transport of pollution on the global atmosphere and on regional air quality and climate; and (3) quantify the transpacific transport of Asian pollution to North America and its implications for air quality.  |
| New England Air Quality Study (NEAQS) - Intercontinental Transport and Chemical Transformation (ITCT) 2004   | NOAA                     | 4 site, 1 ship, 2 aircraft, profiler network | 2004      | O3, NO, NO2, NOy, VOCs, CO2, CO, SO2, HNO3, NH3, other reactive pollutants, aerosols, meteorological parameters & upper air                | <a href="http://www.al.noaa.gov/v/2004/">http://www.al.noaa.gov/v/2004/</a>   | NOAA continues a joint regional air quality and climate change study combining elements of the previous NEAQS study and the Intercontinental Transport and Chemical Transformation (ITCT) research activity to focus on air quality along the Eastern Seaboard and transport of North American emissions into the North Atlantic. The major NOAA assets (the two aircraft and the ship) are deployed in a manner that supports the objectives of both components.   |
| East Tennessee Ozone Study (ETOS)  | NOAA                     | 15+  | 2003      | O3, Surface Meteorology  | <a href="http://www.atdd.noaa.gov/etos.htm">http://www.atdd.noaa.gov/etos.htm</a>   | ETOS 2003 developed a regional ozone database to include both mean hourly averages and hourly histograms of individual measurement readings. The 2003 study period (based on scoping studies 1999 - 2002) provides a regional view to supplement Tennessee's regulatory network and serves as a demonstration and evaluation/validation database for various operational and developmental air quality forecast model components. The full scope of ETOS 2000 is continuously under planning and review, and is refined each year using the previous year's analysis and experience to focus on particular issues within the East Tennessee region.   |

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|  |       |                    |      |   |   |   |
|--|-------|--------------------|------|---|---|---|
| Texas Air Quality Study (TexAQS) 2000                | Texas | ~20                | 2002 | O3, NO <sub>x</sub> , PM2.5/PM10, CO, SO <sub>2</sub> , VOCs, Surface Meteorology   | <a href="http://www.utexas.edu/research/ceer/texaqs/visitors/about.html">http://www.utexas.edu/research/ceer/texaqs/visitors/about.html</a> | The study is designed to improve understanding of the factors that control the formation and transport of air pollutants along the Gulf Coast of southeastern Texas. Six weeks of intensive sampling, including measurements of gaseous, particulate, and hazardous air pollutants, are made at approximately 20 ground stations, located throughout the eastern half of the state. Experts in meteorology, atmospheric chemistry, and other areas of science study the formation, composition, and day-night cycles of ozone and particulate matter, as well as how these pollutants are affected by weather.  |
| Texas Air Quality Study (TexAQS) 2000 Field Campaign | NOAA  | 2 aircraft         | 2002 | O3, CO, CO <sub>2</sub> , SO <sub>2</sub> , NO, NO <sub>2</sub> , NO <sub>y</sub> , PAN, HNO <sub>3</sub> , NH <sub>3</sub> , VOCs, Solar Radiation, Meteorological Parameters, aerosols                  | <a href="http://www.utexas.edu/research/ceer/texaqs/visitors/about.html">http://www.utexas.edu/research/ceer/texaqs/visitors/about.html</a> | Additional sampling in TexAQS 2000 is carried out with specially equipped aircraft that can detect air pollutants very quickly, at very low concentrations.   |
| Bay Region Atmospheric Chemistry Experiment (BRACE)  | NOAA  | 1 aircraft         | 2002 | NO <sub>3</sub> , NH <sub>4</sub> , O <sub>3</sub> , SO <sub>2</sub> , NO <sub>x</sub> , CO, trace metals, particulates   | <a href="http://www.dep.state.fl.us/secretary/news/2002/02-039.htm">http://www.dep.state.fl.us/secretary/news/2002/02-039.htm</a>           | The Florida Department of Environmental Protection (DEP), with the support of a team of federal, state, local, university and private scientists (including NOAA) conducted a month-long series of intensive studies to determine the level of influence of nitrogen deposited into Tampa Bay from local and regional sources of air pollutants on water quality. During the Bay Region Atmospheric Chemistry Experiment (BRACE), NOAA operated a research aircraft over the Tampa Bay region to collect air quality measurements of the many atmospheric forms of nitrogen and related pollutants that may potentially influence the water quality of Tampa Bay.   |
| New England Air Quality Study (NEAQS) 2002 -- AIRMAP | NOAA  | 4                  | 2002 | O3, NO <sub>x</sub> , NO <sub>y</sub> , SO <sub>2</sub> , CO, VOCs, PM2.5, Precipitation Chemistry, Surface Meteorology   | <a href="http://airmap.unh.edu/data/">http://airmap.unh.edu/data/</a>   | AIRMAP is a research program focused on atmospheric chemical and physical observations in rural to semi-remote areas of New Hampshire with the goal of understanding inter-relationships in regional air quality, meteorology, and climatic phenomena. Research goals are to: (1) document and analyze current trends in the regional air quality of New England which is affected by transport from upwind regions of the U.S. and Canada and by local emission sources; (2) document and analyze current and past (the last 100 years) synoptic-to-local meteorological patterns, features, and extreme events in New England; and (3) numerically simulate the coupled evolution of atmospheric transport and chemistry in New England using various modeling tools. |
| New England Air Quality Study (NEAQS) 2002           | NOAA  | 1 ship, 2 aircraft | 2002 | O3, NO, NO <sub>2</sub> , NO <sub>y</sub> , VOCs, CO <sub>2</sub> , CO, SO <sub>2</sub> , HNO <sub>3</sub> , NH <sub>3</sub> , other reactive pollutants, aerosols, meteorological parameters & upper air | <a href="http://www.al.noaa.gov/NEAQS/">http://www.al.noaa.gov/NEAQS/</a>   | The NOAA component of this multi-institutional effort addresses the analysis of existing climate data, and the development of new air quality monitoring programs. A background of information is to be developed that addresses New England's changing climate and air quality so as to improve understanding of the relationship between air quality and weather and determine the causes of climate change in New England  |

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|  |                   |  |                        |   |  |   |
|--|-------------------|--|------------------------|---|--|---|
| <p>Intercontinental Transport and Chemical Transformation (ITCT) 2002 Activities</p> | <p>NOAA</p>       | <p>1 site,<br/>1 aircraft</p>                    | <p>2002</p>            | <p>CO<sub>2</sub>, CO, CH<sub>4</sub>, SO<sub>2</sub>, O<sub>3</sub>, SF<sub>6</sub>, N<sub>2</sub>O, CFCs, Aerosols, Solar Radiation, Surface Meteorology &amp; Upper Air -- sfc. O<sub>3</sub>, NO, NO<sub>2</sub>, NO<sub>y</sub>, VOCs, CO<sub>2</sub>, CO, SO<sub>2</sub>, HNO<sub>3</sub>, NH<sub>3</sub>, other reactive pollutants, aerosols, meteorological parameters &amp; upper air -- aircraft</p> | <p><a href="http://www.al.noaa.gov/ITCT/">http://www.al.noaa.gov/ITCT/</a></p>   | <p>This field program, scheduled for spring 2002 to investigate the composition of air masses along the Pacific coast of North America, is part of the Intercontinental Transport and Chemical Transformation (ITCT) research activity of the International Global Atmospheric Chemistry Program (IGAC) Program. Goals of this field study are to: characterize the chemical composition of the air masses coming ashore at the West Coast; explore the composition of these air masses as they are transported inland; and investigate the alteration in composition associated with the addition of emissions from U.S. West Coast sources. The NOAA WP-3D aircraft is to deploy a wide array of instrumentation for the in situ measurement of gaseous and aerosol parameters plus radiation and remote aerosol sensing by LIDAR. The Trinidad Head baseline observatory characterizes chemical composition of marine boundary layer at the U.S. West Coast and provide linkage between composition measurements and radiative properties of the aerosols. The NOAA ETL Laboratory network of 915-MHz radar wind profilers deployed in California provide additional meteorological information.</p> |
| <p>TRANsport and Chemical Evolution over the Pacific (TRACE-P)</p>                   | <p>NASA</p>       | <p>2 aircraft</p>                                | <p>2001 (2 months)</p> | <p>O<sub>3</sub>, NO, NO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>, SO<sub>2</sub>, NH<sub>3</sub>, CO, CO<sub>2</sub>, aerosols, PAN, HNO<sub>3</sub>, aldehydes, peroxides, speciated hydrocarbons, other pollutants, meteorological parameters</p>   | <p><a href="http://www-gte.larc.nasa.gov/gte fld.htm#TRACE">http://www-gte.larc.nasa.gov/gte fld.htm#TRACE</a></p>                                   | <p>TRACE-P is part of a series of aircraft missions aimed at better understanding of global tropospheric chemistry, and more specifically in this case, the effects of outflow from the Asian continent on the composition of the global atmosphere. Objectives are to determine: (1) pathways for outflow of chemically and radiatively important gases and aerosols, and their precursors, from eastern Asia to the western Pacific; and (2) the chemical evolution of the Asian outflow over the western Pacific, and the ensemble of processes that control this evolution. Approximately 20 aircraft measurement flights involving horizontal and vertical profiles for a total of over 300 hours were supported by surface based measurements and soundings.</p>  |
| <p>Aerosol Characterization Experiments - Asia (ACE-Asia)</p>                        | <p>NSF</p>        | <p>sites, ships, aircraft, satellites</p>        | <p>2001 (spring)</p>   | <p>aerosol chemical, physical, and radiative properties and radiative fluxes, meteorological parameters</p>   | <p><a href="http://saga.pmel.noaa.gov/Field/aceasia/ACEAsiaDescription.html">http://saga.pmel.noaa.gov/Field/aceasia/ACEAsiaDescription.html</a></p> | <p>The Aerosol Characterization Experiments (ACE) are designed to increase understanding of how atmospheric aerosol particles affect the Earth's climate system. ACE-Asia took place during the spring of 2001 off the coast of China, Japan and Korea which includes many types of aerosol particles of widely varying composition and size. These particles include those emitted by human activities and industrial sources, as well as wind-blown dust. Data from ACE-Asia is improving understanding of how atmospheric aerosols influence the chemical and radiative properties of the Earth's atmosphere.</p>  |
| <p>Central California Ozone Study (CCOS)<sup>2</sup></p>                             | <p>California</p> | <p>100+ sites, 6 aircraft, profilers, sondes</p> | <p>2000</p>            | <p>O<sub>3</sub>, VOC, NO<sub>x</sub>, NO, NO<sub>y</sub>, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, solar radiation, surface meteorology, upper air</p>   | <p><a href="http://www.bayareamonitor.org/may00/air3.html">http://www.bayareamonitor.org/may00/air3.html</a></p>                                     | <p>For the summer season, this study collected meteorological and air quality data for the central section of California in 2000. Planes and weather balloons collected data at ground level and aloft. The data collected is used to improve the understanding of the role of meteorology on the formation and behavior of air pollutants and their precursors and emission sources and patterns. The information gathered will be used to develop an improved modeling system that will be used in preparing plans to attain the new federal 8-hour ozone standard, as well as to update the Clean Air Plan to attain the state ozone standard.</p>   |

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|   |            |                                     |              |  |   |  |
|---|------------|-------------------------------------|--------------|--|---|--|
| California Regional Particulate Air Quality Study (CRPAQS) <sup>2</sup> | California | ~60                                 | 1999 to 2001 | PM2.5, PM10, nephelometer, with some sites adding SO4/NO3, OC/EC, NO2, NOy, PAN, SO2, surface meteorology  | <a href="http://www.narsto.com">http://www.narsto.com</a><br>/  | The California Regional PM10/PM2.5 Air Quality Study is a comprehensive public/private sector collaborative program to provide an improved understanding of particulate matter and visibility in central California. It is intended to evaluate both the national and State air quality standards for PM10 and PM2.5. The field programs consisted of 14 months of monitoring throughout the San Joaquin Valley (SJV) and surrounding regions, as well as intensive monitoring during summer, fall, and winter seasonal periods.   |
| Southern Oxidant Study (SOS) 1999 Field Campaign -- Nashville           | NOAA       | 3 sites, 4 aircraft                 | 1999         | O3, NO, NO2, NOy, VOCs, aerosols, Surface Meteorology & Upper Air (profiler), ozonesonde -- surface<br>O3, NO, NO2, NOy, VOCs, CO2, CO, SO2, HNO3, NH3, other reactive pollutants, aerosols, meteorological parameters, altitude -- aircraft | <a href="http://www.al.noaa.gov/v/SOS99/">http://www.al.noaa.gov/v/SOS99/</a>                                 | The Southern Oxidants Study (SOS), in collaboration with other organizations and programs, conducted this major Field Campaign during June/July 1999. The Nashville/Middle Tennessee region measurements focused on an improved understanding of the processes that control the formation and distribution of fine particles and ozone. Three study themes were: Local vs. regional contrasts, Ozone and PM formation in plumes, and diurnal cycle in chemistry and meteorology. These themes were addressed through a series of coordinated measurements involving instrumented aircraft and a ground-based network of chemistry and meteorological measurements.   |
| PM Supersite Program  | EPA        | 2 Phase I Sites<br>7 Phase II Sites | 1999         | Measurement may include: PM2.5, PM10, TSP, SO4, NO3, EC, OC, light absorption & extinction, O3, CO, NOx, NO, NO2, NOy, HNO3, NH3, VOCs, Carbonyls, PAH, major ions and elements, surface and upper air meteorology                           | <a href="http://www.epa.gov/ttn/amtic/supersites.htm">http://www.epa.gov/ttn/amtic/supersites.htm</a><br>1    | In response to Executive and Congressional mandates and recommendations from the National Research Council a "Supersites Conceptual Plan" was developed and implemented. Atlanta and Fresno were selected as initial Phase I sites and as a result of a competitive process Baltimore, Fresno, Houston, Los Angeles, New York, Pittsburgh, and St. Louis were selected for Phase II. Goals generally were to characterize particulate matter, support health effects and exposure research, and conduct methods testing. Extensive monitoring, data analysis, and publication continued to 2005 with the preparation of a Final Report for each city.  |
| Big Bend Regional Aerosol and Visibility Observational (BRAVO) Study    | NPS/EPA    | 38 fixed, 6 tracer sites            | 1999         | SO2, SO4, PM2.5, NO3, NH4, major ions and elements, nephelometer, transmissometer, meteorological parameters & upper air, PFC tracer   | <a href="http://www.dri.edu/Home/Features/text/BRAVO.htm">http://www.dri.edu/Home/Features/text/BRAVO.htm</a> | The BRAVO study was conducted for four months during 1999 with the primary objective of identifying the causes of haze in the Big Bend National Park located in West Texas. This very large, collaborative study enlisted numerous participants with sponsorship from federal/State agencies, private industry, and research organizations. The BRAVO study utilized data from a 38-site network to characterize spatial and temporal aerosol patterns in the atmosphere. In addition, upper-air measurements and extensive optical measurements of light scattering and absorption were made. Because monitoring and source characterization activities were conducted only in the United States, the study design included additional monitoring and tracer studies along the U.S./Mexican border. |

## AIR MONITORING NETWORKS / CAMPAIGNS FOR NON-ROUTINE SPECIAL INTENSIVE STUDIES (continued)

|   |          |   |                    |   |   |  |
|---|----------|---|--------------------|---|---|--|
| Indian Ocean Experiment (INDOEX)              | UCSD     | 6 sites,<br>2 ships,<br>5 aircraft,<br>satellites | 1999<br>(4 months) | O <sub>3</sub> , NO, NO <sub>2</sub> , VOCs, CO <sub>2</sub> , CO, SO <sub>2</sub> , HNO <sub>3</sub> , NH <sub>3</sub> , other reactive pollutants, trace gases, aerosols, meteorological parameters & upper air                           | <a href="http://www-indoex.ucsd.edu/">http://www-indoex.ucsd.edu/</a>   | The Indian Ocean Experiment (INDOEX) addresses questions of climate change through collection of in-situ data on the regional cooling effect of sulfate and other aerosols. The project's goal is to study natural and anthropogenic climate forcing by aerosols and feedbacks on regional and global climate. INDOEX field studies occur where pristine air masses from the southern Indian Ocean including Antarctica and not-so-clean air from the Indian subcontinent meet over the tropical Indian Ocean to provide a unique natural laboratory for studying aerosols. Scientists collect data from the water surface through the lower stratosphere, on the aerosol composition, reactive atmospheric gases, solar radiation fluxes, wind and water vapor distribution. To this end, investigators use multiple aircraft, ships and island stations over the Arabian Sea and the Indian Ocean. |
| Eulerian Model Evaluation Field Study (EMEFS) | Canada   | ~135  | 1998               | O <sub>3</sub> , NO <sub>2</sub> , SO <sub>2</sub> , NH <sub>3</sub> , HNO <sub>3</sub> , major ions,   | <a href="http://www.msc-smc.ec.gc.ca/natchem/particles/n_emefs_e.html">http://www.msc-smc.ec.gc.ca/natchem/particles/n_emefs_e.html</a> | Under EMEFS, air and precipitation chemistry data were collected daily for two years over much of the eastern United States and Canada to provide data for assessing the performance of acid deposition and other regional scale models.   |
| NARSTO-Northeast 1995                         | Multiple | 559   | 1995               | O <sub>3</sub> , NO, NO <sub>x</sub>  | <a href="http://www.narsto.com/">http://www.narsto.com/</a>   | Measurements were made during the NARSTO-Northeast 1995 intensive field campaign during the period May through September. One-hour average O <sub>3</sub> , NO, and NO <sub>x</sub> measurement results are reported for ground surface monitoring stations operated by various agencies including EPA AIRS, Castnet, ESE, Harvard University, NYSEG, PEPCO, and the University of Maryland.   |
| SOS Nashville/Middle Tennessee Ozone Study    | TVA      | 116   | 1994-1995          | O <sub>3</sub> , SO <sub>2</sub> , NO, NO <sub>y</sub> , and CO, VOC, Surface Meteorology, rawinsonde and ozonesonde releases, and a radar profiler/radar acoustic sounding system. -- surface Airborne ozone and aerosol lidar -- aircraft | <a href="http://www.ncsu.edu/sos/pubs/sos2/State_of_SOS_2.pdf">http://www.ncsu.edu/sos/pubs/sos2/State_of_SOS_2.pdf</a>                 | This ozone-focused field study was carried out in the 11-state region surrounding Nashville/Middle Tennessee, beginning with a 3-week exploratory study during the summer of 1994 and culminating in a six-week field measurement campaign June/July 1995. Measurements were taken at 116 ground-based and tallbuilding and tower-based chemical and meteorological measurement sites and a series of six airborne chemical measurement platforms. The most significant feature of the Nashville/Middle Tennessee Ozone Study was a coordinated series of 40+ aircraft studies to measure physical and chemical characteristics of urban and industrial plumes.<br>(Note: an earlier ozone-focused set of field studies was also conducted in the Atlanta, GA area during the summers of 1990 - 1992.)   |
| North Atlantic Regional Experiment (NARE)     | NOAA     | various sites,<br>1 ship                          | 1993               | O <sub>3</sub> , NO, NO <sub>2</sub> , NO <sub>x</sub> , NO <sub>y</sub> , VOC, Surface Meteorology   | <a href="http://www.igac.noaa.gov/newsletter/24/introduction.php">http://www.igac.noaa.gov/newsletter/24/introduction.php</a>           | The NARE program measured the type and amount of air pollutants being transported from the North American continent to the Northern Atlantic Ocean. Since the Northeast United States and Nova Scotia, Canada are the last land locations as air masses move out over the ocean, measurements were made a number of land and island sites in Maine, Nova Scotia, and Sable Island. Acadia National Park participated in this study   |

### Footnotes:

1. EPA -- Environmental Protection Agency  
NASA -- National Aeronautics and Space Administration  
NOAA -- National Oceanic and Atmospheric Administration  
NPS -- National Park Service

NSF -- National Science Foundation  
UCSD -- University of California San Diego (Scripps Institution of Oceanography)

2. This study is part of the Central California Air Quality Studies (CCAQS) which comprise the California Regional Particulate Air Quality Study (CRPAQS) and the Central California Ozone Study (CCOS). CCAQS is a multi-year effort of meteorological and air quality monitoring, emission inventory development, data analysis, and air quality simulation modeling. Prior studies in California included: Southern California Ozone Study (SCOS97) -- 1997; Integrated Monitoring Study (IMS95) -- 1995; San Joaquin Valley Air Quality Study (SJVAQS) -- 1990; SARMAP Ozone Study -- 1990; Southern California Air Quality Study (SCAQS) -- 1987.

3. Historically, there have been many other field studies in the 1960's - 1990's that are not reflected in this table that involve both fixed monitoring sites and aircraft; well known examples include Regional Air Pollution Study (RAPS), Large Power Plant Effluent Study (LAPPES), Northeast Corridor Regional Modeling Program (NECRMP), Northeast Regional Oxidant Study (NEROS), Persistent Elevated Pollutant Episode (PEPE), and Lake Michigan Ozone Study (LMOS).

4. In addition to the air monitoring networks and related studies detailed in this table that are primarily concerned with lower tropospheric air pollution, there are a large number of observations and studies conducted by NASA, NOAA and others that address such topics as (1) upper tropospheric and stratospheric ozone and aerosols, (2) cloud processes, and (3) validation experiments for satellite observations. These studies include but are not limited to:

- Stratospheric Tropospheric Exchange Project (STEP) -- 1987
- Airborne Antarctic Ozone Experiment (AAOE) -- 1987
- Airborne Arctic Stratospheric Experiment (AASE) -- 1989
- Airborne Arctic Stratospheric Experiment II (AASE2) -- 1992
- Stratospheric Photochemistry Aerosols and Dynamics Experiment (SPADE) -- 1993
- Airborne Southern Hemisphere Ozone Experiment / Measurements for Assessing the Effects of Stratospheric Aircraft (ASHOE/MAESA) -- 1994
- Stratospheric Tracers of Atmospheric Transport (STRAT) -- 1995-1996
- Tropical Ozone Transport Experiment (TOTE) and Vortex Ozone Transport Experiment (VOTE) -- 1995-1996
- Subsonic Aircraft: Contrail and Clouds Effects Special Study (SUCCESS) -- 1996
- Photochemistry and Ozone Loss in the Arctic Region in Summer (POLARIS) -- 1997
- Subsonic Assessment: Ozone and Nitrogen Oxide Experiment (SONEX) -- 1997
- Texas Florida Underflights A (TEFLUN) -- 1998
- The Third Convection and Moisture Experiment (CAMEX 3) -- 1998
- TRMM Brazil Validation Experiment (TRMM-LBA) -- 1999
- TRMM Kwajalein Validation Experiment (KWAJEX) -- 1999
- Nauru 1999 Field Campaign -- 1999
- South African Fire-Atmosphere Research Initiative 2000 (SAFARI) -- 2000
- SAGE III Ozone Loss and Validation Experiment (SOLVE) -- 1999-2000
- ERAST Predator-B RPV Homepage (ERAST) -- 2000
- CAMEX 4 The Fourth Convection and Moisture Experiment (CAMEX 4) -- 2001
- East Pacific Investigation of Climate (EPIC) 2001 Field Program -- 2001
- The Cirrus Regional Study of Tropical Anvils and Cirrus Layers-Florida Area Cirrus Experiment (CRYSTAL FACE) -- 2002
- The SAGE III Ozone Loss and Validation Experiment (SOLVE II) -- 2003
- The Aura Validation Experiment (AVE) -- 2004
- The Intercontinental Chemical Transport Experiment -- North America (INTEX-NA) -- 2004
- The Aura Validation Experiment Houston (AVE Houston) -- 2004
- North American Monsoon Experiment (NAME) -- 2004
- Winter Storms Reconnaissance Program 2004 (WSR2004) -- 2004
- Polar Aura Validation Experiment (PAVE) -- 2005
- The Tropical Cloud Systems and Processes Mission (TCSP) -- 2005
- UAS Flight Demonstration Project 2005 -- 2005