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# USES OF NATIONAL ATMOSPHERIC DEPOSITION PROGRAM / NATIONAL TRENDS NETWORK DATA, MAY 1998 TO JUNE 1999

U.S. GEOLOGICAL SURVEY

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# Uses of National Atmospheric Deposition Program/National Trends Network Data, May 1998 to June 1999

By Brooke Conley and Mark A. Nilles

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U.S. GEOLOGICAL SURVEY

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Denver, Colorado  
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U.S. DEPARTMENT OF THE INTERIOR  
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# Uses of National Atmospheric Deposition Program/National Trends Network Data, May 1998 to June 1999

By Brooke Conley and Mark A. Nilles

## Abstract

A fundamental objective of the National Atmospheric Deposition Program (NADP) is to provide scientific investigators worldwide with timely access to a long-term, high-quality data base of atmospheric deposition information for research support in such areas as air quality, water quality, effects of deposition on agriculture, forest productivity, effects of deposition on materials, ecosystem studies, watershed studies, and human health. In support of this objective, all data and selected other network products and summaries are made available on the Internet. The purpose of this report is to provide insight to NADP program participants as to the quantity and range of uses for the data collected and to provide information to help them develop better products and services to meet customer needs. For the 13 months included in this report (May 13, 1998, to June 9, 1999), 15,372 data sets were downloaded by 2,835 individual data users, reflecting about a 1,400-percent increase compared to a 13-month period beginning November 27, 1995, and ending February 10, 1997. Federal and State agencies accounted for nearly 30 percent of the data users, whereas educational users (K-12 and higher education) accounted for 55 percent of the total. The private sector, research groups, and others accounted for the

remainder of the data-base retrievals. The greatest number of retrievals was for 2,270 data sets retrieved from sites in New York; this reflects the State's strong interest in acid rain, its large population base, and its greater than average number of NADP stations. The second greatest number of retrievals was for data from sites in North Carolina, which also has an above-average number of NADP sites and where data use reflects a significant and growing research interest in nitrogen deposition and its effects. The commitment the Federal, State, and local governments have made in recent years to improving service to their many customers is borne out to some extent by the depth and breadth of response to the availability of this single data base. The cooperative nature of the NADP bears further witness to a customer-focused effort to ensure that the science information needs of everyone, from environmental consultants to grade school teachers, are being met.

## INTRODUCTION

The National Atmospheric Deposition Program (NADP) monitors wet atmospheric deposition (the chemical constituents deposited from the atmosphere by rain, snow, and other forms of precipitation) using three networks comprising about 270 sites throughout the United

States. The 220 NADP National Trends Network (NTN) sites measure major constituents in precipitation (base cations, acid anions, nutrients). The program was initiated in 1978 under the leadership of State Agricultural Experiment Stations. Starting in 1981, the federally supported National Acid Precipitation Assessment Program significantly expanded NADP monitoring with the addition of about 150 NTN sites. Today the NADP brings together more than 100 participants from Federal, State, local, and private organizations that contribute to this cooperative environmental monitoring program. The NADP/NTN is the only nationwide deposition network and provides coast-to-coast and border-to-border coverage. All participating organizations agree to pool resources and follow identical monitoring protocols to provide a nationally consistent atmospheric-deposition monitoring program. The U.S. Geological Survey (USGS), U.S. Department of the Interior, supports 72 of the 220 NADP/NTN sites and provides external quality-assurance support for the network. Overall network coordination and management are provided by the NADP program office at the Illinois State Water Survey, Illinois State University, in Champaign.

A fundamental NADP objective is to provide scientific investigators worldwide with timely access to a long-term, high-quality data base of atmospheric deposition information for research support of such areas as air quality, water quality, effects of deposition on agriculture, forest productivity, effects of deposition on materials, ecosystem studies, watershed studies, and human health. In support of this objective, all data and other network products and summaries were made globally available on the Internet in November 1995 by the NADP program office, then located at Colorado State University in Fort Collins, Colorado. In May 1998, the program office and data base were relocated to the Illinois State Water Survey. The data and other products

are currently (2000) accessed through the program office's World Wide Web site at <http://nadp.sws.uiuc.edu/>. As part of the data-dissemination process for the NADP/NTN, an on-line information request form is used to document the users of the network's data and track the intended applications for the information that was downloaded. The on-line information form is filled out only when downloading data sets. A number of other products, including U.S. maps showing deposition and precipitation chemistry patterns, site photographs, and summary information, are available without completing the form. The number of deposition maps viewed or downloaded are more than twice the number of data sets downloaded and documented in this report. Therefore, this report documents only a portion of the data and services provided to users by the NADP Internet site. Given the highly automated system of data delivery to customers, the objective of this report is to provide insight to NADP sponsors as to the quantity and range of uses for the data collected and to provide information to help NADP participants develop better products and services to meet customer needs.

## **USES OF NATIONAL ATMOSPHERIC DEPOSITION PROGRAM / NATIONAL TRENDS NETWORK DATA**

In November 1995, NADP data were made available to the public over the Internet (Nilles and others, 1997). In the first 13 months, November 27, 1995, to February 10, 1997, approximately 1,000 data sets were downloaded from the NADP/NTN data base. During the 13 months covered herein, 15,372 data sets were downloaded by 2,835 individual data users; this reflects about a 1,400-percent increase compared to the first 13 months. The more recent 13 months of data-set downloads categorized by general affiliations of the data users are shown in table 1.



**Table 1.** Users of 15,372 National Atmospheric Deposition Program data sets classified, by affiliation (May 13, 1998 to June 9, 1999)

Organization	Percentage of use
Federal	20
State	9
University	37
K-12	18
Research group and consulting firm	9
Private citizen and other	7

Federal and State users accounted for nearly 30 percent of data applications, in support of research on air- and water-quality issues, environmental regulation, research on the effects of deposition on materials, global change, and agriculture.

The predominance of data-use applications for K-12 and college education (55 percent) is somewhat unexpected considering that the program has not made any concerted outreach effort to promote the use of the data by the science education community. Science education applications include uses by students ranging from K-12 through Ph.D. candidates who are using the data to prepare dissertations, papers, projects, science-fair exhibits, and a myriad of other learning-based activities. For these users, the NADP/NTN represents an easily accessible and unique source of data with which to analyze, summarize, and understand environmental measurements and their application. Because of the national scope of the network, educators and students can easily locate data for sites near their community or other areas of interest.

Uses of data by the private sector (16 percent) encompass applications by environmental consulting firms, private research consortiums, manufacturers, and industry and trade associations. One notable and recurring private

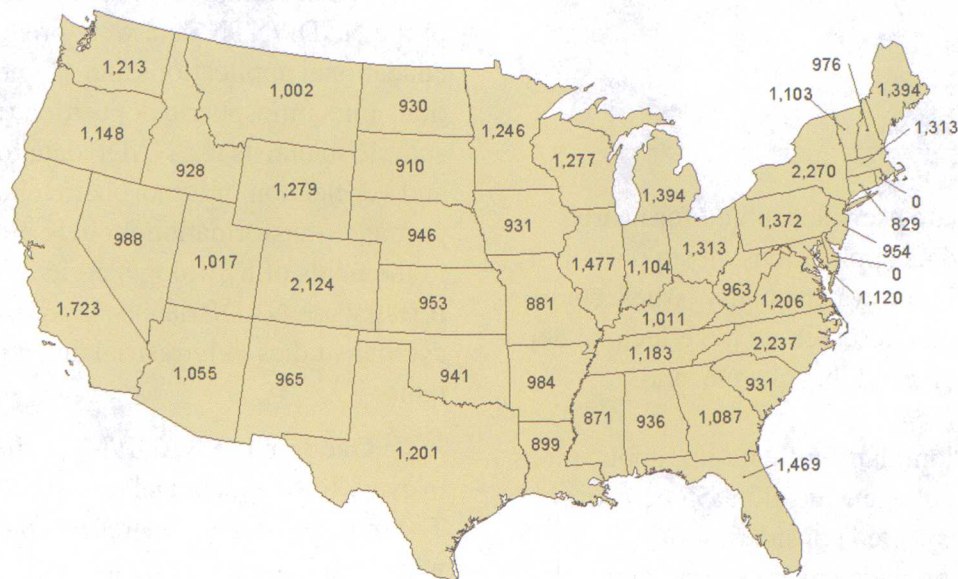
sector application of the data is for the process of developing paints and other coatings to protect against chemicals in precipitation. Another significant use of the data is by private consulting firms in preparing emissions permit applications required by State regulatory agencies.

When classified by discipline, applications of the NADP/NTN data were predominated by educational applications and scientific investigations into atmospheric deposition (table 2). Atmospheric scientists use NADP data for development and verification of atmospheric chemistry transport and transformation models. Earth scientists in the fields of hydrology, agriculture, and forestry use NADP data as input for chemical cycling studies in terrestrial and aquatic ecosystems.

One or more NADP/NTN sites are located in every State except Delaware and Rhode Island. The number of data sets retrieved for NADP sites within each State is shown in figure 1. About 700 users accessed data from all NADP sites. Each of these accesses were counted as a single data-set retrieval in each State that had at least one NADP site. The greatest number of retrievals was 2,270 data sets retrieved for sites in New York;

**Table 2.** Users of 15,372 National Atmospheric Deposition Program data sets classified, by discipline

Discipline	Percentage of use
K-12 education	13
University education	26
Atmospheric deposition	29
Ecosystem processes	5
Watershed studies	11
Aquatic effects	3
Terrestrial effects	2
Materials effects	2
Other	9



this reflects a strong interest in acid rain, a large population base, and a greater than average number of NADP stations in that State. The second greatest number of retrievals was for data from sites in North Carolina, which also has an above-average number of NADP sites and where data use reflects a significant and growing research interest in nitrogen deposition and its effects. The commitment the Federal, State, and local governments have made in recent years to improving service to their many customers is borne out to some extent by the depth and breadth of response to the availability of this single data base. The cooperative nature of the NADP bears

In organizing and categorizing the information for the application tables that follow (tables 3–6), care was taken to eliminate multiple entries from the same user in a 6-month period when the same data application was indicated (see figure 2 for application format). Some apparent duplication in the following tables results from the same data user requesting data for different purposes. In several instances, students from a single school accessed hundreds of data



<b>Data Selection Criteria:</b> <b>Starting month/year:</b> <div>Jan</div> <div>-- start year --</div> <b>Ending month/year:</b> <div>Jan</div> <div>-- end year --</div> <b>Report Format:</b> <div>-- report format --</div>	<b>Intended Use:</b> Please select the category that best describes how you will use this data  <table> <tr> <td> <b>Research/Assessment:</b>  <input type="radio"/> Atmospheric Deposition  <input type="radio"/> Ecosystem Processes  <input type="radio"/> Watershed Studies  <input type="radio"/> Aquatic Effects  <input type="radio"/> Terrestrial Effects  <input type="radio"/> Materials Effects         </td> <td> <b>Education:</b>  <input type="radio"/> College/University  <input type="radio"/> K-12  <input type="radio"/> Individual  <input type="radio"/> NSTA module user  <input type="radio"/> Other         </td> </tr> </table> <b>Brief description of specific application</b> <div></div>	<b>Research/Assessment:</b> <input type="radio"/> Atmospheric Deposition <input type="radio"/> Ecosystem Processes <input type="radio"/> Watershed Studies <input type="radio"/> Aquatic Effects <input type="radio"/> Terrestrial Effects <input type="radio"/> Materials Effects	<b>Education:</b> <input type="radio"/> College/University <input type="radio"/> K-12 <input type="radio"/> Individual <input type="radio"/> NSTA module user <input type="radio"/> Other
<b>Research/Assessment:</b> <input type="radio"/> Atmospheric Deposition <input type="radio"/> Ecosystem Processes <input type="radio"/> Watershed Studies <input type="radio"/> Aquatic Effects <input type="radio"/> Terrestrial Effects <input type="radio"/> Materials Effects	<b>Education:</b> <input type="radio"/> College/University <input type="radio"/> K-12 <input type="radio"/> Individual <input type="radio"/> NSTA module user <input type="radio"/> Other		

Get Data

Reset

**Please Note:**  
 There is approximately a 5-6 month time lag between the time that samples are collected and the time that they are available on the Web page.  
**Data Documentation: Please Download For Later Use with Data Files!**

- [Explanatory Notes](#) contain important information about the data file.
- [Advisory](#) contains important information regarding use of data beginning in 1994.
- Format Descriptions - outlines the data format (useful for input into other software applications)
  - [Fixed-width format](#)
  - [Delimited format](#)

**Figure 2.** Application for National Atmospheric Deposition Program data retrieval.

sets for a single class assignment. In these cases, a single entry was documented for a given assignment. The information in the tables describing the uses of NADP data are direct quotes by users and are minimally edited. The tables are sorted into four different categories and then by State or country to better demonstrate the different uses of the NADP/NTN data.

## REFERENCE CITED

Nilles, M.A., Gordon, J.D., Litteral, C.J., Lear, G., and Copeland, C., 1997, Uses of National Atmospheric Deposition Program/National Trends Network data for science education and environmental problem solving—November 27, 1995, to February 10, 1997: U.S. Geological Survey Open-File Report 97-45, p. 1-45.



**Table 3.** Selected uses of data by Federal agencies

Location	Affiliation	Application
AK	U.S. Department of Agriculture - Forest Service	Characterization of the dry and wet deposition
AL	U.S. Geological Survey	USGS annual data report for Alabama
AL	Tennessee Valley Authority	Comparing deposition trends with particulate sulfate trends
AR	U.S. Geological Survey	To generate nitrogen loads on reservoir pools
AR	National Park Service	Watershed characterization report NPS
Australia	CSIRO	Watershed Studies
AZ	Bureau of Land Management - Safford Field Office	Mapping of pH, EC and Precip. Data for given station
AZ	Bureau of Land Management	Air quality report
AZ	National Park Service	Effects on Water quality
AZ	Organ Pipe Cactus NM	Annual air quality monitoring report
Brazil	CETESB	Comparison with Brazilian data
CA	U.S. Geological Survey	Pedogenesis and water quality in arid regions
CA	U.S. Geological Survey	To delineate recharge waters to Icy Brook and Andrews Creek using chemistry and isotope data
CA	U.S. Geological Survey	Estimating chloride loading to MI lower peninsula
CA	U.S. Department of Agriculture - Forest Service	As manager of the SDEF and operator at CA42, I am curious to see the online data available
CA	U.S. Geological Survey	Watershed research
CA	U.S. Geological Survey	Comparison to ground-water quality data
CA	U.S. Geological Survey	Development of a spatially distributed precipitation map as input to a regional infiltration/recharge map for the desert southwest
CA	U.S. Department of Agriculture - Forest Service Riverside Fire	Site comparisons
Canada	New Brunswick Department of Environmental Protection	Presentation of mercury deposition in NB/NS for Hg conference Fredericton NB Sept 21-23/98
Canada	Environment Canada	Comparison with collocated network data
Canada	Environment Canada	Data integration into National Atmospheric Chemistry Database (NAChem) - Environment Canada
Canada	New Brunswick Department of Environmental Protection	Examining Isopleth trends
CO	U.S. Geological Survey	To check differences between collocated sited and others
CO	U.S. Geological Survey	National Trend Analysis
CO	U.S. Geological Survey	Background information for environmental assessments
CO	U.S. Geological Survey	To compute atmospheric deposition of N and P to Colorado reservoirs
CO	U.S. Geological Survey	NSTA draft
CO	National Park Service	Trend Analysis for GPRA reporting by National Park Service
CO	U.S. Geological Survey	Nitrogen inputs to watersheds especially Loch Vale
CO	U.S. Department of Agriculture, Agricultural Research Service	Survey of wind erosion problems
CO	U.S. Geological Survey	Comparisons to USGS snow pack chemistry data
CO	National Park Service/Air Resources Division	Summarize data collected at selected National Park Service NADP sites

**Table 3.** Selected uses of data by Federal agencies—Continued

Location	Affiliation	Application
CO	National Park Service	Evaluation deposition near Badlands national park
CO	National Park Service	Information will be used to calculate a yearly and monthly average pH of rainfall in Mesa Verde. Information will be further utilized to make determinations on the effect of the rainfall on a new reintroduction species, the leopard frog.
CO	U.S. Geological Survey	Colorado Front Range general characteristics
CO	National Park Service	National Park Service report
CO	Rocky Mountains Research Station	Research report
CO	National Renewable Energy Laboratory	Characterizing environmental data
CO	National Park Service	NADP to snow chem. comparison
CO	National Park Service	Manuscript for AE
CO	U.S. Department of Agriculture Forest Service	Summarize deposition at the WY00 and WY95 sites
CO	U.S. Forest Service	Viewing data for web page use for research project with USFS
CO	U.S. Environmental Protection Agency	Example of air impacts on waters of Region VIII
CO	U.S. Environmental Protection Agency	Report
CO	U.S. Geological Survey	Hydrologic modeling of Loch Vale Watershed
CO	U.S. Geological Survey, CO District	Learning about HTML downloads available/used for data
CO	National Park Service	EIS for Voyageurs National Park general management plan
CO	U.S. Geological Survey	A USGS report describing schwertmannite occurrences in Basin and Cataract Creek drainages
CO	National Park Service	Data to be used to determine annual deposition for silt near Crater Lake NP
CO	U.S. Department of Agriculture, Forest Service	For use in interactions analysis for next RPA National Assessment (USDA Forest Service)
CO	U.S. Geological Survey	U. S. Geological Survey Data Collection
CO	National Park Service	Investigate deposition at Everglades National Park
CO	National Park Service	Comparison of water table fluctuation with precipitation
CO	U.S. Geological Survey	Watershed analysis
DC	U.S. Environmental Protection Agency	NADP/CASTNET comparison
DC	U.S. Environmental Protection Agency	EPA publication
DC	U.S. Environmental Protection Agency	May use site in future study
DC	U.S. Environmental Protection Agency	Review
DC	U.S. Environmental Protection Agency	For an economic analysis
DC	U.S. Environmental Protection Agency	Determining pollutant loading due to atmospheric deposition on a storm water retention basin
DE	U.S. Fish & Wildlife Service	Terrestrial Effects
FL	U.S. Geological Survey	For qw info on surrounding streams we monitor
FL	NASA Kennedy Space Center	Requested from KSC by DRI. Reviewing to see what's available
FL	U.S. Geological Survey	USGS report on chemical loading to the Braden River
FL	U.S. Air Force	For a report
FL	Not Specified	Watershed Studies
FL	U.S. Geological Survey	Comparison of N loading from atmospheric deposition with other sources of N in the watershed



**Table 3.** Selected uses of data by Federal agencies—Continued

Location	Affiliation	Application
FL	U.S. Geological Survey	Aquifer recharge estimation
France	Laboratoire des Sciences	Validation of a 3D sea-salt simulation
GA	U.S. Environmental Protection Agency	Review information for SE US
GA	U.S. Department of Agriculture – Agricultural Research Service	Evaluation of nitrogen deposition
GA	Federal Highways Administration	Watershed computations
GA	U.S. Department of Agriculture	Agriculture - modeling
GA	Not Specified	Program overview at the Okefenokee NWR
GA	U.S. Department of Agriculture	Research
IA	U.S. Geological Survey	General information article for the public describing the NADP/NTN program and providing examples of the type of data collected
IA	U.S. Geological Survey	To calculate amount of nitrogen coming from atmospheric deposition
ID	U.S. Department of Agriculture	Research relating rainfall to water quality
ID	U.S. Department of Agriculture – Agricultural Research Service	As a member of the "team" for the collection of data at ID11, for informational purposes
ID	National Park Service	Checking possible ways to display data for park staff
ID	U.S. Geological Survey	These data are being used to determine the long-term average chloride concentration in precipitation
ID	National Park Service	Site operator
ID	U.S. Geological Survey	Estimate nitrogen input
IL	U.S. Geological Survey	Summary data will be used to describe the environmental setting of the upper Illinois River Basin
IL	U.S. Department of Energy, Argonne National Laboratory	Request from Science Fair participant
IL	U.S. Department of Energy, Argonne National Laboratory	Comparison with CORE data at ANL
IL	U.S. Environmental Protection Agency	Would like to look at total atmospheric deposition data and its potential impact on lakes in the area
IL	U.S. Geological Survey	Nutrient budget for Lower Illinois Basin
IL	U.S. Environmental Protection Agency Region 5	We have compiled a library of critical ecosystems in Region 5 and are investigating deposition as a stressor
IN	U.S. Geological Survey	Precipitation quality section of an environmental settings report for Great and Little Miami Watersheds
IN	National Park Service	Just want to see the trends
IN	U.S. Geological Survey	Report
IN	U.S. Geological Survey	Comparing data to an urban wet-deposition site in Gary, IN
India	Pakriti	This data is required for research purpose only
Japan	Hokkaido Inst. of Environment	Comparison with Asian data
KS	U.S. Environmental Protection Agency	As part of an environmental assessment of EPA region 7
KY	U.S. Geological Survey	The data is published as a part of the USGS-WRD Kentucky District Annual data Report
KY	U.S. Department of Energy	Runoff Toxicity
LA	U.S. Geological Survey	Eastern Iowa study of total nutrient inputs into basins
MA	U.S. Environmental Protection Agency	Presentation at Coastal Society Conference 7/14/98

**Table 3.** Selected uses of data by Federal agencies—Continued

Location	Affiliation	Application
MA	U.S. Environmental Protection Agency	These data will go into the EPA Region I annual report on air quality for New England
MA	U.S. Environmental Protection Agency	Paper topic for geochemistry course
MA	U.S. Geological Survey	Need constituent concentrations in precipitation to construct budgets for nearby drinking-water supply reservoirs
MA	Not Specified	Soil development
MA	NESCAUM	Comparison of MDN and MIC samples
MA	U.S. Environmental Protection Agency	Comparison with MDN data
MA	National Park Service	Precip. inputs for research project
MA	U.S. Geological Survey	Mass balance studies and trend analyses
MA	U.S. Department of Agriculture - Forest Service	Provide to agency that hosts the site
MA	U.S. Geological Survey	I'm trying to determine atmospheric loading of major ions to the Walden Pond ground-water contributing area
MD	U.S. Army Corps of Engineers	To examine if data is applicable to present study
MD	National Oceanic and Atmospheric Administration Air Resources Laboratory	Compare with dry deposition at Argonne
MD	National Oceanic and Atmospheric Administration /NAPAP	Arctic studies
MD	National Oceanic and Atmospheric Administration /Air Resources Laboratory	Climatic research
MD	U.S. Army	Researching effects of acid rain on the Adirondacks
MD	National Oceanic and Atmospheric Administration /DOC	Research
MD	National Acidic Precipitation Assessment Program	Congressional request of NAPAP
ME	Acadia National Park	Report writing for Acadia National Park; we don't have these values yet.
ME	Acadia National Park	Management document
Mexico	Gaciones Electricas	Correlation between Mexican and US data
MI	U.S. Geological Survey	Not sure yet
MN	U.S. Department of Agriculture - Forest Service	Comparison with lake water chemistry
MN	Fond du Lac Reservation	Reporting to USEPA -OAR
MN	U.S. Geological Survey	Annual report for Minnesota
MN	U.S. Geological Survey	Use in USGS UMIS NAWQA interpretive report
MO	U.S. Geological Survey	Wetland nutrient budget
MT	U.S. Geological Survey	USGS 1998 Data Book
MT	U.S. Geological Survey	Nitrogen deposition in the Gallatin Valley of Montana
NC	U.S. Geological Survey	Interpretation of stream flow data at several USGS gaging stations
NC	U.S. Geological Survey	Water-quality study of Lake Hickory, NC
NC	U.S. Environmental Protection Agency	Look at total dep. in the U.S.
NC	U.S. Geological Survey	Comparison with atmospheric data from Charlotte area

**Table 3.** Selected uses of data by Federal agencies—Continued

Location	Affiliation	Application
NC	U.S. Department of Agriculture - Forest Service	Look at forest ecosystems at risk across the U.S. for deposition of different ions. Need annual data to look at trends for specific ions
NC	National Oceanic and Atmospheric Administration /National Climactic Data Center	I have a student inquiry for this type of data
NC	Emissions Characterization	NH <sub>4</sub> deposition
NC	U.S. Geological Survey	Loads calculation
NC	U.S. Geological Survey	Watershed study in Charlotte NC
NC	U.S. Geological Survey	Chemical input to ground water
NC	U.S. Department of Agriculture	Hydrogeomorphic modeling of wetland ecosystems. Looking for supporting reference data.
NE	Air Force Weather Agency	Orientation of data information
NE	U.S. Geological Survey	Possible use in estimating ground-water recharge in the Upper Republican River Basin using the chloride-mass balance method
NH	U.S. Department of Agriculture - Forest Service	Calculate Nitrogen budget for a research paper and deposition model
NJ	U.S. Environmental Protection Agency	Graph viewing
NJ	U.S. Geological Survey	Data on nutrient wet atmospheric deposition used for watershed study to determine approximate input during rain events.
NJ	U.S. Geological Survey	Relationship to GW data
NJ	U.S. Geological Survey	Nutrient loading evaluation for the Barnegat Bay, NJ
NM	Los Alamos National Laboratory	Estimate infiltration rates based on chloride mass balance method
NM	Los Alamos National Laboratory	Vadose-Zone water composition
NM	U.S. Geological Survey	To help determine chemistry of water recharging the Santa Fe aquifer of the Middle Rio Grande Basin
NM	U.S. Army Corps of Engineering	Review deposition as affects aquatic environment within context of Section 404 Permit program
NM	U.S. Department of Agriculture - Forest Service	Need mercury data only
NM	Lincoln National Forest	Working on a report to the Lincoln NF to justify continued funding of the Mayhill site
NM	Sandia National Laboratory	Estimate aquifer recharge from precipitation chemistry vs. soil chemistry or aquifer chemistry
NV	Department of Energy	Determine soil leaching effects
NV	Department of Energy	Site Description Document for the Yucca Mountain Project
NV	U.S. Geological Survey	Describe precipitation chemistry for a report
NV	U.S. Geological Survey	Yucca Mt. site characterization comparison
NV	Landscape Ecology Branch	Savannah River Basin landscape assessment
NV	U.S. Geological Survey	Comparison to data collected elsewhere
NV	U.S. Environmental Protection Agency	Ecological Assessment of New York watersheds
NY	U.S. Environmental Protection Agency Region 2	Vulnerability using acid precipitation vs. soil type
NY	U.S. Environmental Protection Agency Region 2	Wetlands assessment

Table 3

**Table 3.** Selected uses of data by Federal agencies—Continued

Location	Affiliation	Application
NY	Goddard Institute for Space Studies	Data will be compared with output from Goddard Institute for Space Studies sulfur GCM calculations
NY	U.S. Environmental Protection Agency	Analyze for spatial and temporal patterns
NY	U.S. Geological Survey	To perform water balance for a watershed
NY	Stony Brook	For a geology laboratory
NY	National Park Service	Preparing an air quality monitoring plan for Nation Park Service area
NY	U.S. Geological Survey	Data is needed for the NY district's 1998 annual data report
NY	Ecologist or Planner	Forest research
NY	Biologist	Presentation
OH	U.S. Geological Survey	Compare precipitation concentrations to concentrations in shallow ground water
OH	U.S. Environmental Protection Agency / National Energy Renewal Laboratories	Evaluation of web site
OH	U.S. Department of Agriculture - Forest Service	I'm the site supervisor and I've never checked this out before
OH	U.S. Environmental Protection Agency	GRSM water quality work
OK	U.S. Geological Survey	Reference for publication comparing with ground water geochemistry
OK	U.S. Geological Survey	Looking at rainfall chemistry in Oklahoma
OK	U.S. Environmental Protection Agency	To determine baseline N deposition levels for a N pollution simulation study
OK	U.S. Environmental Protection Agency	Determine sampling frequency for field site
OR	U.S. Department of Agriculture - Forest Service	Attempting to correlate deposition rates with accumulation of sulfur and nitrogen in lichen tissues
OR	U.S. Geological Survey	Data Report
OR	U.S. Environmental Protection Agency	Will use data to drive simulation model of ecosystem C and N dynamics (GEM)
OR	U.S. Environmental Protection Agency	Risk assessment of impact of ozone on forest ecosystems
OR	Albany Research Center	Compare with own data at Newport and Albany
OR	U.S. Department of Agriculture - Forest Service	General review of output tables
OR	U.S. Environmental Protection Agency Research Lab	Looking at soil N availability
PA	U.S. Environmental Protection Agency	Strategic planning
PA	U.S. Department of Agriculture - Forest Service	USDA Forest Service Global Change Program. The modeling study for Chesapeake Bay region.
PA	U.S. Environmental Protection Agency	Information only
PA	U.S. Environmental Protection Agency	Assess acid rain program in Region 3
PA	U.S. Environmental Protection Agency	Citizen Request for Acid Rain Data
PA	U.S. Geological Survey	Comparison to atmospheric deposition data collected in southern New Jersey
PA	U.S. Geological Survey	To estimate depositional contribution of sulfate to streams as part of total sulfate measured
PA	NRCS- U.S. Department of Agriculture	Design of Ag conservation practices
PA	U.S. Fish and Wildlife Services	To assess the effects of rainfall patterns on marshes in PA

**Table 3.** Selected uses of data by Federal agencies—Continued

Location	Affiliation	Application
RI	U.S. Environmental Protection Agency NHEERL Atlantic Ecology	Watershed loading and fluxes in the U.S. Northeast
Romania	Statiunea Icas	Comparison with data obtain in the framework of ICP Forest in Romania
Russia	Laboratory of Neutron Physics	To compare scientific data obtained by us with data from your database
SC	U.S. Geological Survey	Information for water budget
SC	Dept of Interior; U.S. Geological Survey	SANT NAWQA WRIR data analysis
SC	Westinghouse Savannah River Corporation	Federal Facility Mercury Studies
SC	U.S. Geological Survey	To compare with GW concentrations of constituents at an agricultural research site
SD	U.S. Geological Survey EROS Data Center	Impact of N deposition on C cycle
SD	U.S. Geological Survey	USGS, WRD Water Resources Data South Dakota Water Year 1998
TN	U.S. Geological Survey	NAWQA Nutrient analysis
TN	U.S. Geological Survey	Watershed modeling
TN	U.S. Environmental Protection Agency	Data will be used in conjunction with water quality monitoring at the Great Smoky Mountains National Park
TN	Oak Ridge National Laboratory	Fisheries study
TN	Oak Ridge National Lab	Modeling deposition to Neuse river basin
TN	Oak Ridge National Lab	Examination of local rain composition to be used in determining stability of new materials to be used in outdoor applications.
TX	U.S. Department of Agriculture - Natural Resources	Determine effects of drought on vegetation in southwestern LA
TX	U.S. Department of Agriculture - NRCS	Waste Utilization Project
UT	National Park Service	Checking on my site
UT	U.S. Geological Survey	To be used as part of a USGS study for evaluation of atmospheric chloride input to ground-water in the Navajo Aquifer of Washington County
VA	NASA Langley Research Center	Assess deposition for Virginia State Advisory Board on Air Pollution
VA	U.S. Geological Survey NWIS	Testing your retrieval methodology
VA	U.S. Geological Survey	NAWQA Mass Balance study
VA	U.S. Geological Survey	Comparison with open deposition collected at the same site
VA	U.S. Geological Survey	Comparison with isotope data
VA	U.S. Geological Survey	Data used in conjunction with USGS study of age of discharge from springs in SHEN
VA	U.S. Geological Survey	Need deposition chemistry in study of ground-water chemistry in the Upper Santa Fe aquifer. Part of USGS Middle Rio Grande Basin Study.
VA	U.S. Geological Survey	Graphing daily precipitation
VA	U.S. Department of Agriculture - Forest Service	I am an air specialist for the USDA Forest Service and I am looking for the deposition data for Virginia.
VA	U.S. Geological Survey	Potential effects of precipitation on nutrient concentrations in VA rivers
VA	U.S. Geological Survey	To compare with USGS data
VA	Shenandoah National Park	Hemlock Wooly Adelgid research
VA	PTO	Used to do a statistical study for a research report

**Table 3.** Selected uses of data by Federal agencies—Continued

<b>Location</b>	<b>Affiliation</b>	<b>Application</b>
VA	CEQ Environmental Protection Agency	Reported in CEQ's annual Environmental Quality report to Congress
VT	U.S. Geological Survey	Site selection in study of mercury in fish tissue, bed sediment and river water column
VT	U.S. Forest Service	H+ deposition
WA	U.S. Geological Survey	Curious to see how much nutrient loads in streams are atmospheric
WA	U.S. Environmental Protection Agency	Test application
WA	U.S. Geological Survey	Terrestrial Effects
WA	National Oceanic and Atmospheric Administration	Assess aerosol chemistry data collected at Bondville
WA	U.S. Environmental Protection Agency	For San Juan NEP
WI	U.S. Geological Survey	For comparison to our USGS data
WI	U.S. Department of Agriculture - Forest Service	Correlate insect populations to weather data
WI	U.S. Department of Agriculture Chequamegon-Nicolet National Forest	General assessment of current conditions in National Forests in WI. Double check air quality model (data used) for PSD permit which could affect Rainbow Lake Wilderness Class I air quality area
WV	U.S. Geological Survey	Want to summarize data for WV04 which my agency collects
WV	U.S. Geological Survey	Looking for max-min pH for site WV04
WY	U.S. Department of Agriculture - Bridger-Teton National Forest	Seeing what data is available for air quality analysis
WY	U.S. Geological Survey	Environmental setting report for Yellowstone River Basin NAWQA.
WY	Bureau of Land Management	Federal land management
WY	US Forest Service	Retrieving data for use with the US Forest Service's Natural Resource Information System Air Module
WY	U.S. Department of Agriculture - Natural Resource Conservation Service	Use in developing nutrient management plans



**Table 4.** Selected uses of data by State agencies

Location	Affiliation	Application
AL	Alabama Department of Environmental Protection	Estimating Nutrient loads to reservoirs
AR	Arkansas Game & Fish	For input into GIS data model.
AZ	Ariz. Department of Environmental Quality.	I am writing an EPA grant proposal
CA	PADOT	Researching
CA	Los Angeles County Sanita	Plot precipitation vs. day and compare to rainfall
CA	Jasper Ridge Bio. Preservation	Need info on nutrient inputs in precip.
Canada	New Brunswick Dept of Environment	For mapping, to be used with data from New Brunswick network
CO	Colorado Dept of Public Health	State of Colorado review of air impacts
CO	Colorado Air Pollution	Summary of atmospheric deposition for the Colorado 1997 Air Quality Data Report
CO	Colorado State	Discussion of general trends in deposition in this area
CO	Colorado Air Pollution Control Division	Annual Report 1997
CT	Connecticut	Research
DE	Delaware DNREC	Comparison with other data
FL	South Florida Water Management	South Florida Mercury Science Program Meeting
FL	Florida Department of Environmental Protection	Test
FL	Florida Department of Environmental Protection	Trial of this site assessing usefulness of similar application of Access database elsewhere
FL	Florida Department of Environmental Protection	Leachate production at Landfills
FL	South Florida Water Management District	Input to landscape/ecosystem process models
FL	Florida Department of Environmental Protection	TMDL study in Deep Creek of Suwannee River Watershed
FL	Florida Department of Environmental Protection	Comparison with mercury deposition data
FL	Florida Department of Environmental Protection	Curiosity - The Tampa Bay Estuary Program recently sponsored a Wet/Dry Deposition Study to look at effects of deposition on storm water runoff into Tampa Bay. Want to see how your data compares to their study.
FL	Florida Department of Environmental Protection	Storm water runoff discussion
FL	Florida Department of Environmental Protection	Florida Bay nutrient budget
FL	Florida Department of Environmental Protection	Comparative data for lead deposition
FL	Florida Department of Environmental Protection	To show impact of Florida's environment on the nation.
FL	Florida Department of Environmental Protection	Research on atmospheric deposition of nitrogen for review of an air permit application.
FL	Florida Department of Environmental Protection	Estimate atmospheric contributions to watershed
FL	Florida Department of Environmental Protection	I will use this data to research watershed total maximum daily loads

**Table 4**

**Table 4.** Selected uses of data by State agencies—Continued

Location	Affiliation	Application
FL	Florida Department of Environmental Protection	I want to study the concentrations of rainfall chemical constituents, and their effects on Miami Dade County Canals.
GA	Georgia Environmental Protection Agency	Trying to determine the pH of water that is infiltrating soil.
GA	Department of Human Resources	I am on the State DHR Ozone Committee (PSG) for Georgia. Need this report for biology study/report. Thanks
IA	Iowa Department of Natural Resources	Nitrogen trends
IL	Illinois State Water Survey	Help site supervisor with completeness question
IL	Illinois Environmental Protection Agency	Air Quality Modeling for Biogenic VOCs
IL	Illinois State Water Survey	Will be used in report of air quality in the Thorn Creek basin of Cook and Will counties, IL.
IL	Illinois State Water Survey	Illinois Critical Trends Assessment Program
IL	Illinois State Water Survey	Summary of atmospheric deposition for statewide series of watershed assessments.
IL	Illinois State Water Survey	Does the altitude make any difference in the analysis of the wet deposition
IL	Illinois Dept. of Natural History	Preparation of nutrient budgets for farming systems in central IL
IL	Illinois Environmental Protection Agency	Discussion of acid rain program
IL	Illinois Environmental Protection Agency	Effects of phosphorus and phenol deposition of in Lake Michigan
IN	Indiana/Office of Pollution	Evaluate environmental consequences from deposition of toxins
IN	IDEM	Gain understanding of status in Indiana
IN	IDEM	Atmospheric Deposition
KS	Kansas Department of Health and Environment	Effect on car paint
KS	Kansas Geological Survey	We wish to look at how the chemistry of recharge changes from the surface to the water table
KY	Kentucky Environmental Quality	In a chart of the State of Kentucky's Environment Report
LA	Louisiana Department of Environmental Quality	I am retrieving data simply because I am interested in the results of the testing.
MA	Massachusetts Department of Environmental Protection	N loads from watersheds
MA	Massachusetts Department of Environmental Protection	Effects of precipitation chemistry on surface and groundwater chemistry. Hawaii data to be used as "background" to be compared with eastern USA.
MA	Massachusetts Department of Environmental Protection	Trends analysis
MA	MWRA	Watershed management concerns
MA	MA CZM	Government watershed evaluation
MA	NESCAUM	Urban/rural comparison
MA	NESCAUM	Comparison of Hg and Ion Concentrations
MD	Maryland Department of Natural Resources	Looking for trends in Cl-
MD	Anne Arundel County Dept.	General inquiry
MD	Maryland Geological Survey	Use it for comparison to ground-water quality data in Maryland

**Table 4.** Selected uses of data by State agencies—Continued

Location	Affiliation	Application
MD	Chesapeake Biological Lab	Data used to determine fluxes to the Chesapeake Bay.
ME	Maine Department of Environmental Protection	MTBE Study
ME	Maine Department of Environmental Protection	Maine DEP data assessment; this time period is missing from our files
ME	Maine Department of Environmental Protection	Comparing Maine sites to each other for precipitation capture
ME	Maine Department of Environmental Protection	To become familiar with electronic data format and retrieval
ME	Maine Department of Environmental Protection	Data completeness check
MI	Hunt Creek Fisheries Research	Watershed assessment for Au Sable River Watershed
MI	Michigan Department of Environmental Quality	Michigan Department of Environmental Quality air quality report publication
MI	Red Lake Watershed District	To complete loading computations on an impoundment study.
MN	Minnesota Pollution Control Agency	Answer question by high school student.
MN	Minnesota Pollution Control Agency	Comparison to MPCA data, Trends, and Quarterly Report to Special Interest Group
MN	Minnesota Pollution Control Agency	Calculation of N <sub>2</sub> O emission potential per ton of nitrogen deposition
MN	Minnesota Pollution Control Agency	Data reduction for state sulfate standard
MN	Minnesota Pollution Control Agency	Watershed non-point source pollutant transport modeling
MN	Minnesota Pollution Control Agency	Indicator development for atmospheric deposition within Minnesota
MT	Department of Environment	ANC of lake
NC	North Carolina Division of Air Quality	In a meeting w/ scientists, 28 May 1998, State Sen. Foxx asked how much nitrogen comes down in the rain in a pristine area versus the city.
NC	North Carolina Division of Air Quality	To fulfill a data request by the NC Museum of Art pertaining to plans to borrow a bronze sculpture for outdoor display for an extended period of time.
NC	North Carolina Division of Air Quality	Extension of data study of ammonia deposition (hog farm study)
NC	North Carolina Division of Air Quality	Further work on Western NC Trends study (I need to update my local copy of all NC site data)
NC	North Carolina Division of Air Quality	Guidance on wet deposition chemical analysis
NC	North Carolina Division of Air Quality	Studies of ammonium deposition
NC	North Carolina Division of Air Quality	ArcView application for high school AP environmental science class
NC	North Carolina Department of Environmental Protection	Presentation to local citizens, MD's in Asheville.
NC	DENR	State of Environment Report
NC	DENR	Trends analysis
NC	DENR-Div of Water Quality	Estimate ammonia deposition near tar-pam watershed in NC
NC	North Carolina Division of Air Quality	Better understanding of deposition for the Bertie County area
NC	Center for Environmental Protection	Measure NH <sub>4</sub>
NC	Center for Environmental Protection	Review of air quality in Western NC
NC	Center for Environmental Protection	Nitrogen in Eastern NC
NC	North Carolina Office of Environmental Protection	Import into GIS project

Table 4

**Table 4. Selected uses of data by State agencies—Continued**

<b>Location</b>	<b>Affiliation</b>	<b>Application</b>
NC	State Climate Office	Looking at transport in eastern NC
NH	New Hampshire Department of Environmental Protection	To be used for updating New Hampshire's Clean Air Strategy
NJ	New Jersey Department of Environmental Protection	Watershed assessment
NJ	New Jersey Department of Environmental Protection	To assess available data
NJ	New Jersey Geological Survey	Analysis of nitrate in ground waters down gradient of septic tanks. Want background values in rainfall.
NY	New York State Museum	We are examining the establishment of mosses on mortar in the Adirondacks.
NY	New York State Department of Environmental Conservation	To evaluate recent deposition levels
NY	New York State Department of Environmental Conservation	Examine precipitation
NY	New York State Energy	Development of project scope of work
NY	New York State Department of Environmental Conservation	Data availability assessment
NY	New York State Department of Environmental Conservation	Comparison with New York State deposition monitoring network
NY	Adirondack Lakes Survey	Desire information as part of the Adirondack Lakes Survey Corporation Long-Term Monitoring Project which is currently collecting and analyzing water samples monthly from 52 lakes and weekly from three low order streams. We are looking for relationships
NY	Adirondack Lakes Survey	Acid Dep. Research
NY	New York State	Litigation support
OH	ODNR Division of Mines and Rec.	Separating mine drainage impacts from low pH depositional impacts to soils and surface water.
OH	Ohio Department of Health	Grant application for ctsdr
OH	City and Regional Planning	To study
PA	Pennsylvania Department of Environmental Protection	Determine lowest pH value at this site.
SC	South Carolina DHEC/Office of Ocean	The Charleston Harbor Project is doing preliminary research for establishing and maintaining a National Atmospheric Deposition sampling site(s) in Charleston to collect air and rain inputs of pollutants from storm events.
SD	South Dakota Department	Trying it out
TX	Texas Natural Resource Co.	Check for trends and review pH ranges
TX	Texas Water Development	Computing N loading to Corpus Christi Bay
TX	Texas Natural Resource Co.	TNRCC TMDL assessment of mercury sources in watersheds
TX	Texas Natural Resource Co.	State regulatory assessment of impact of regulation violation
UT	Office of planning	Background for pH wetland groundwater and surface water
VA	Virginia Department of Environmental Protection	Comparison with state data.
VT	Vermont Forest Ecosystem Monitoring	Integrated data reports
VT	Dept. of Environmental Conservation	Testing units

**Table 4.** Selected uses of data by State agencies—Continued

Location	Affiliation	Application
WA	Washington State Department	I wish to evaluate stream chemistry measurements relative to atmospheric inputs.
WA	Not Specified	Review of deposition info
WA	Washington State Department	For use in the Hoh Watershed Analysis conducted by the Washington Department of Natural Resources, Hoh Indian Tribe and Olympic National Park
WI	Department of Natural Resources	Regional comparison
WI	Department of Natural Resources	For possible inclusion in Wisconsin's Environmental Studies Report
WI	Wisconsin Department of Natural Resources	Pollution study in northern WI
WI	Wisconsin Department of Natural Resources	Relate deposition to trends in lake chemistry in northern Wisconsin
WY	Wyoming Department of Environmental Protection	Wyoming Visibility and AQRV analysis

**Table 4**





**Table 5.** Selected uses of data by the private sector, research groups, and others

Location	Affiliation	Application
AK	Private citizen	Personal research
AL	Private citizen	Asthma related
Australia	BHP Steel Products	Correlation between atmospheric conditions and corrosion performance of prepainted sheet steel
AZ	Dames & Moore	Use for assessing impacts in class I areas in AZ
AZ	Avionics Reliability	Effects of contaminants on electronic circuitry (corrosion, shorting, dendritic growth, etc...)
AZ	Center for Environmental Studies	Compare with rates being measured in a study of dry deposition/washoff from urban surface in Phoenix as part of the CAP LTER project.
CA	Environmental Defense Fund	Testing system
CA	San Francisco Estuary Institute	Browse precipitation data for planning our pilot study in the San Francisco Bay Area
CA	Not Specified	Determine the effect of atmospheric deposition on surface water levels of nutrients
CA	City of Palo Alto	Evaluate metals sources to SF Bay
CA	Private citizen	Interest in sodium, calcium, and potassium concentrations in rainwater. Also interested in pH.
CA	Computer Curriculum Corp.	Educational research for K-12 student collaboration
CA	CCC	Educational research
CA	U.S. Filter Corp	Determination of metal concentrations in atmosphere
CA	City of San Jose	For reference to set up a pilot study
CA	Private citizen	Effect on structural materials
CA	Masco Research and Development	Correlation studies, air vs. test samples
CA	Private citizen	Relocation evaluation
CA	Private citizen	I wish to show my brother-in-law about environmental conditions in the western US.
CA	Koelzer Engineering Service	Interested in geotechnical applications of data
CA	Wildermuth Environmental	Comparison of rain chemistry data with groundwater quality data with respect to reclaimed water systems.
CA	Bechtel	Compare rain chemistry to quarterly water quality samples taken in streams in the San Bernardino mountains.
CA	Bioscape Incorporated	Effects of acidic precipitation on Coastal Live oaks and Tanbark oaks declining in Marin County on large scale.
CA	Atmospheric Scientist	Data to be used to develop baseline air quality study
CA	Ecologist or Planner	Environmental assessment
CA	Atmospheric Scientist	To be used in the development of a baseline air quality study
CA	SAIC	To be used as baseline deposition values in Environmental Impact Statement in southern Florida
CA	Tetra Tech, Incorporated	Watershed total loads to Chesapeake Bay
CA	Systech Engineering Incorporated	Watershed model of many different sites
CA	Atmospheric Scientist	Assess change in deposition
CA	ICF Consulting Group	Model evaluation
CA	Toll Brothers, Incorporated	Report analyzing delays in construction due to weather
CA	Environmental Engineering	Air quality studies in Wyoming - focus on visibility

**Table 5.** Selected uses of data by the private sector, research groups, and others—Continued

Location	Affiliation	Application
China	LASG	Compare the trends with that of Europe and Asia
China	Not Specified	Analysis and compare with those of EMEP, Japan, China etc.
CO	City of Aurora	Possible use in a water quality database for a municipal water supplier
CO	Environmental Defense Fund	Education
CO	Preston, Reynolds & Company	To determine groundwater recharge due to precipitation
CO	Elsevier Science Incorporated	Research for environmental journal article
CO	ENSR Corporation	PSD Construction Permit Application, discussion of AQRVs addressing the facilities potential impact on nearest Class I area.
CO	RDI	Comparing with emissions data
CO	Not Specified	Groundwater recharge estimation for groundwater modeling project
CO	Camp Dresser & McKee	Estimate for total deposition rates for LA County for comparison with possible future mobile source releases.
CO	RETEC	Acid rain study
CO	Shepherd Miller, Incorporated	The data will be used to assess the atmospheric component of mineral weathering in a catchment study.
CO	HRS Water Consultants, Incorporated	Water budget studies
CO	Mcvehil-monnett Associates	Air dispersion modeling
CO	Radian International	As input to the CALPUFF model for modeling source contributions to deposition
CO	Air Sciences Incorporated	Deposition estimates
CO	Statistical Advisor	Basic stats education
CO	Rocky Mountain Research	Comparison to previous dep. rates
CT	UTRC	For corrosion study
CT	Champion Int.	Information
CT	ACG	Research on the area for relocation
DC	RAND	Assessment
DC	RAND	EPA handbook
DC	Environmental Defense Fund	Presentation
DC	Natural Resources Defense	Test
DC	Learning Bench	Develop interactive data exploration via the web using user collected and archive (this) data
DC	HSMM	Benthic Macroinvertebrate studies
DE	Delaware River Basin	Aquatic plant biomass studies in the Delaware River
DE	Environmental Consulting	Herring Management
DE	Biologist	Pond Management
FL	Mote Marine Laboratory	Comparison with bulk deposition samples collected by FDOT-funded project
FL	Kookler & Associates	Deposition research
FL	Sarasota Bay	Comparison
FL	Home/ North Miami Senior	Science project
FL	Brevard County Environmental Protection	Brevard County Environmental Endangered Lands program management plan

**Table 5.** Selected uses of data by the private sector, research groups, and others—Continued

Location	Affiliation	Application
FL	Polk County Utilities	Research project for a graduate air quality course at the University of South Florida
FL	Not Specified	For use in report on rainfall in area
FL	Not Specified	Model effects on soil contaminants
FL	BCI Engineers & Scientist	TBNEP study participant. Wish to compare our data with other available data.
FL	BCI	Atmospheric Deposition Research
FL	Tetra Tech, Incorporated	Will use data in conjunction with MDN data to examine deposition patterns of contaminants in Florida
FL	Not Specified	Estimate water budget
FL	Not Specified	To determine the effect on manpower calculations relative to construction duration on projects near this area
FL	Janicki Environmental, Incorporated	Tampa Bay National Estuary Program
FL	Tetra Tech, Incorporated	Evaluate long-term trends
FL	Tetra Tech, Incorporated	Compare data as part of a journal manuscript peer review
FL	Tetra Tech, Incorporated	Comparison with FAMS data
FL	Tetra Tech, Incorporated	Evaluate spatial and temporal trends in NO <sub>3</sub> deposition and possible influences on lake water chemistry
France	ORSTOM	Model application
GA	Not Specified	Need historical rainfall data
GA	Private Citizen	Water Conservation
GA	Not Specified	Possible relocation
GA	Trinity consultants	Visibility studies
GA	KHAFRA Engineering	To determine precipitation trends for the Anniston area.
GA	Not Specified	Use in ground water model
GA	Applied Tech & Mgmt	Determine relative contribution of nitrogen atmospheric deposition on the overall nitrogen budget of Charleston Harbor Estuary
GA	Parsons ES	Will use for water quality modeling in Atlanta area
Germany	FIS	Effects on monocote and dicote plants
Germany	Not Specified	Research project on effects of acid rain
Germany	Atmospheric Scientist	For a literature review
Hong Kong	Environmental Protection	For Reference
ID	Environmental Science and Engineering	Nitrate deposition related to operation of the ICPP at INEEL.
ID	Lockheed Martin Idaho Tech Corporation	Employee of INEEL, cross-checking precipitation data
IL	American Farm Bureau Federation	Review to see what trends are
IL	McLean County	We will use this data as part of a regional comprehensive plan. The plan will formulate goals and policies regarding growth in our region and how to minimize our impact on the environment, including air quality.
IL	Ecologist or Planner	Correlation between precipitation and telephone usage
IL	The Field Museum	Looking at values for total Nitrogen deposition in relation to other sites around Chicago. Data will be used in relation to our study on diversity and distribution of fungi.
IL	Illinois Power Company	Client Requested Data

**Table 5.** Selected uses of data by the private sector, research groups, and others—Continued

Location	Affiliation	Application
IL	Not Specified	Landfill leachate study
IL	OJC	Atmospheric Deposition
IL	Not Specified	Just curious what day of the year, on average has lowest rainfall (Looking for a good wedding date)
IL	ELM Consulting	Investigating trends of the atmospheric deposition of mercury in the Upper Peninsula.
IN	David W.H. Swenson	Study background for research on effect of acid precipitation on amphibians in Indiana.
IN	SECOR	Scientific study
Italy	IBM ITALIA	Analysis with numeric algorithms
Japan	Kyoso Corp., Tokyo	To know more about Georgia
KS	Sustainable Environmental	Study of nutrient loading to watersheds
KS	Tetra Tech EM Incorporated	Conducting a nutrient loading study
KY	Not Specified	Correlate rainfall with acid rain levels
LA	Geographer	The data will be used to assess the effectiveness of a limestone cap on acid mine drainage
LA	Professional Engineering & Environmental Consultants	Prepare Facility Plan to obtain funding from Louisiana Department of Environmental Quality for wastewater collection and discharge system upgrade.
MA	Northeast States	Assess trends in SO <sub>2</sub> emissions and sulfate deposition
MA	Woods Hole Research Center	Interested in effects of atmospheric deposition on Cape Cod ponds
MA	EcoPurpose	Ecosystem survey
MA	Municipal Water Supplier	Watershed Protection/Monitoring/Rainfall record
MA	Microcal Software, Incorporated	Sample data for software testing
MA	General Electric Corp.	Comparison to data measured locally and looking for background data for pH.
MA	Cambridge Water Department	Water budget estimate for a public water supply
MA	Not Specified	I'm trying to better understand the atmospheric deposition process
MA	Biologist	Lichens
MA	Massart	Personal study
MA	Not Specified	To determine how much Na and Cl are being deposited in a watershed
MA	Not Specified	Rain Analysis
MA	Mashpee Environmental	Estuarine eutrophic contributors in Mashpee MA
MA	Consultant to Everglades	Water Quality Studies Everglades National Park
MA	Jacobs Engineering Group	Nutrient budget for ponds on cape cod
MA	Earth Tech	Comparison with model results
MA	Ogden Environmental Services	Determine atmospheric mercury deposition in Maine
MA	ThermoRetec	To determine how trench size correlates with rainfall amounts and water collection amounts
MA	TRC	Salt deposition - inland vs. coastal locations
MA	Epsilon Associates Inc.	Interest in ammonium content of rain
MA	IT CORP	To check NPDES excursion vs. acidic rain
MA	Camp Dresser & McKee	Determine atmospheric loads to drinking water reservoirs

**Table 5.** Selected uses of data by the private sector, research groups, and others—Continued

Location	Affiliation	Application
MA	TRC Environmental	Power plant impact assessment
MA	ENSR	Calculate runoff coefficients and Watershed Investigation
MD	American Geological Institute	Demonstration of the use of scientific data in a K-12 class
MD	Izaak Walton League	Study on deposition rates in Virginia during fall, winter and spring months
MD	Science Applications Int.	Exposure assessment
MD	Baltimore Gas & Electric	Atmospheric Deposition
MD	Black & Veatch	Look at Lake water quality and rainfall
ME	BioDiversity Research Institute	Client reports
ME	Northeast Clean Power	Aquatic Effects and Ecosystem Processes
ME	Aroostook Band of Micmacs	Monitoring Tribal Lands
ME	Clean Air Task Force	To see trends in acid precipitation in Florida over past 20 years
ME	Biologist	To support USGS BRD BEST CAP
ME	Earth Tech	Atmospheric Deposition
ME	OEES	Educational purposes
MI	Michigan Land Use Institute	Determining non-point/point source air deposition from Michigan
MI	Whirlpool Corporation	Create data charts supporting DSM program creation in mid-western states
MI	Ford Motor Company	Possible effects on paint durability
MI	Visteon Automotive System	Vehicle coating effects
MI	Inkling, Incorporated	Personal analysis
MI	Not Specified	Personal Curiosity
MI	Kieser and Associates	Water Quality Study
MI	Not Specified	Research
MI	Great Lakes Environmental	Analysis of wet deposition in Northern Lower Michigan
MN	Olmsted County	Nutrient budget for Olmsted County
MN	Center of the American Experiment	To discover any trends in precipitation chemistry
MN	Timberjay newspapers	Newspaper report
MN	Fond-du-Lac Reservation	I plan to keep a hard copy of the data for our NADP files here at FDL.
MN	Private Citizen	To satisfy my curiosity
MN	Not Specified	Will use to get idea about water quality in McDonald Gold mine pit lake
MN	Radian International	Atmospheric deposition study for long range transport
MN	Sebesta Blomberg and Associates	Rainfall amounts to calculate leachate generation in landfill
MO	Mid-Continent Council	Girl Scout project on acid rain
MO	Golder Associates, Incorporated	Hydrologic study
MT	Thermoretec	College environmental chemistry class
MT	Lorenzen Engineering, Incorporated	Lake Acidification analyses
NC	Research Triangle Institute	USEPA IWI Project
NC	RTI	Comparison to specific watersheds
NC	The News & Observer	Research for newspaper article
NC	Not Specified	I just stumbled upon this spot when searching for National Association of Dental Plans. I am interested in the research.
NC	Forsyth County Environmental	Compare with local data

**Table 5.** Selected uses of data by the private sector, research groups, and others—Continued

Location	Affiliation	Application
NC	SAS Institute Incorporated	Creation of a lesson in which students will compare acid deposition and volcanic eruptions
NC	City of Durham	Factors affecting storm water runoff quality
NC	Forsyth Co. Environmental Affairs	Compare with local agency data
NC	Capitol Broadcasting	Answering a web visitor's question data sources for rain pH
NC	EC/R Incorporated	Assess trends in ammonia deposition
NC	ManTech Environmental Technology	Checking newspaper's data
NC	Analytical Sciences, Incorporated	Compare observed concentrations & depositions with atmospheric model results
NC	Technology Planning and Management	Just curious
NC	Tetra Tech, Incorporated	Comparison of sulfate deposition in SW to other areas of US
NC	Tetra Tech, Incorporated	Studying Hg deposition, and whether patterns of acid deposition may be used to predict patterns of Hg bioaccumulation
NC	Suverkrubbe Planning Group	Reviewing EA and PSD Application for proposed Nucor Steel Mill in Hertford County, NC.
NC	SAIC	Comparison with ambient particulate measurements
NC	EC/R Incorporated	Compare deposition with local emissions of ammonia
NC	Energy & Environmental Research	Regional haze study
NC	Leake Farms	Agricultural crop data
NE	BIO/WEST Incorporated	Will be used to describe precipitation region for Carlsbad RMP Grazing Management Plan
NJ	Lacey Municipal Utilities	Governmental analysis of sewer flows
NJ	News 12 New Jersey	Research about atmospheric deposition
NJ	Corrpro / Ocean City Research	FHWA sponsored work for the effects of environmental variables on the corrosion of bridge components.
NJ	Earlab, Incorporated	Building environmental profile of New York
NJ	Envirogen, Incorporated	Comparison
NJ	Ocean City Research Corporation	Corrosion research for paint and steel samples currently located at the IN-34 research site
NJ	Ecologist or Planner	Environmental permit background information
NJ	Kratzer Environmental Services	Rooted aquatic-plant study on Delaware River
NJ	Environmental Liability	Environmental consulting firm, using data in an evaluation of possible source of apparently natural low ground water pH.
NM	Carpenter & Chavez	Accident reconstruction
NM	Johnson Controls Northern	Baseline for comparison purposes
NM	Ecologist or Planner	Statistical analysis of precipitation data
NM	Not Specified	Possible relocation
NM	Not Specified	Statistical
NV	Private	Curious
NV	Mining Company	General information
NV	MI L.L.C.	Data for reporting mining acid generation in Reese Valley Basin
NV	Environmental Management	Regulatory/Acid Rain Analysis in the Medicine Lake Area
NV	MONTGOMERY WATSON	Reservoir Calculations



**Table 5.** Selected uses of data by the private sector, research groups, and others—Continued

Location	Affiliation	Application
NV	Brown and Caldwell	Comparison to values measured at a nearby site
NY	Institute of Ecosystem Studies	Research effort on Cl deposition
NY	The Nature Conservancy	Assessing ecological stresses in Adirondacks
NY	Institute of Ecosystem Studies	Obtain estimates of total anion deposition for design of ion-exchange resin throughfall collector
NY	Black Rock Forest	Compare to records at Black Rock Forest
NY	Institute of Ecosystem Studies	EPA project to model deposition in GSMNP and ANP
NY	Atmospheric Sciences	Examining interannual variability in reflectance measurements at Havard Forest
NY	IES	Comparison
NY	RPI	Research on nutrient balances of Hudson River watershed
NY	Atmospheric Sciences Research	WMO/GAW Assessments
NY	The Moschovitis Group	Consider for use in Science Almanac
NY	Adirondack Council	Wondering about local acidity
NY	NYC DEP	Work on a Distributed Water Balance Model in Neversink watershed
NY	St. Regis Mohawk Tribe	Comparison to other sites and normal values
NY	IES	Interested in comparing rain inputs to fog inputs in N. California.
NY	New York City Dept. Environmental Protection	Watershed nutrient budget
NY	United Methodist Church	For personal interest. I am a landowner in northern VT.
NY	Carrier Corporation	Heat exchanger corrosion durability
NY	News media	Research for possible newspaper article
NY	Mount Sinai Medical Center	I am looking for a house in orange, NY. I want to know how the air quality is in that region.
NY	Putnam County Environment	Natural Resources Inventory of Putnam County, NY
NY	The Tyree organization	Research info on rainfall amount to design collection, treatment system
NY	URS Greiner	Assessment of flooding in a nearby community
NY	Moffa And Associates	Determine cso discharge values
NY	Contemporary Computer Services	Staff Development Lesson Plan
NY	Blasland Bouck & Lee	Looking for concentrations of specific contaminants from acid rain or urban runoff
NY	ART, Incorporated	Relationship to worker exposure monitoring
NY	The Chazen Companies	Comparing data to pH levels taken from local surface water bodies
NY	QST Environmental	For inclusion in CASTNet 1998 Annual Report
NY	Exponent	To gain further insight to the region
NY	Adirondack Council	Will use information in formulating opinions on certain environmental legislation
NY	Environmental Defense Fund	Correlating emissions with deposition
OH	Pilkington Technology	Research for auto industry
OH	Not Specified	Compare with data collected from my property in Dayton, OH
OH	Henshaw Associates	Rainfall data for Mendocino County
OK	Not Specified	To find the pH of acid rain closest to where I live

**Table 5.** Selected uses of data by the private sector, research groups, and others—Continued

Location	Affiliation	Application
Ontario	RWDI	To connect to air pollution material damage
Ontario	The Cadmus Group Incorporated	Mercury GIS Layer (Effects of Hg Air Deposition on Fish Tissue Concentrations in the US)
OR	Not Specified	Individual
OR	East Earth Herb, Incorporated	Background research for environmental permitting
OR	E&S Environmental chemistry	Atmospheric Deposition in S Washington Cascades
OR	EPA contractor	Research
OR	E&S Environmental Chemistry	NPS Critical Loads
PA	NIER	Watershed assessment
PA	CertainTeed	Acid rain effects on materials
PA	Not Specified	Impacts on building materials
PA	National Institute for Environmental Protection	USEPA funded watershed study by the National Institute for Environmental Renewal, Mayfield, PA
PA	Amtrak	NPDES Permit
PA	Private Industry	Information on pH
PA	Clean Air Council	For use in a proposal
PA	Geographer	Individual
PA	Not Specified	Effects of acidity on nitrogen fixation in fresh water wetlands
PA	Not Specified	Need info on PA site 29
PA	Summit Bank	Checking on vendor invoices for snow removal
PA	KTA	Effect on painted roof panels
PA	Environmental Resources	Evaluation of CALPUFF Model
PA	Camp Dresser & McKee	Analysis of storm water EMC runoff concentrations compared with precip. Concentrations
PA	ARCADIS Geraghty & Miller	Assessing groundwater levels in relation to precipitation
PA	Environmental Resources	Evaluation of CALPUFF model
PA	National Institute for Environmental Research	Watershed study
PR	Colegio San Jose Rio Pie	Feria Cientifica Colegio San Jose, Rio Piedras, Puerto Rico Fernando C Rivera
PR	Aqua Alliance, Incorporated	Really just need inches of rain/month to evaluate organic loading of surface water as a function of rainfall & sediment deposition
RI	Ecologist or Planner	Find a place to breathe freely
South Africa	Agricultural Research	I plan to conduct a field experiment with maize and am interested to quantify the amount of atmospheric deposits. I am therefore looking at other studies and methods.
TN	National Parks and Conservation	For the National Parks and Conservation Association
TN	ABB Environmental Systems	Plant site selection
TN	Knox County	Response to nuisance complaint
TN	Bowens	Going camping and need to know hazards
TN	Tetra Tech, Incorporated	Will use these data in conjunction with contemporaneous FAMS and MDN data to look at interparameter relationships.
TX	City of Fort Worth	Storm Water Quality Assessments

**Table 5.** Selected uses of data by the private sector, research groups, and others—Continued

Location	Affiliation	Application
TX	TU Services	Evaluate impacts of local sources.
TX	AquaSource, Incorporated	I am the manager of public affairs for an investor owned utility in Texas and this sort of data will be extremely helpful in assessing the atmospheric effects on our water supplies.
TX	Reliant Energy	General knowledge
TX	City of Austin Watershed	Use in data analysis of local urban area watershed
TX	Atmospheric Scientist	Air quality trend analysis
TX	Not Specified	Research paper for TAMU RPTS
TX	RMT, Incorporated	Ecological Risk Assessment
TX	Atmospheric Scientist	To model rainwater in South Carolina
TX	ERM	Surface runoff study
VA	American Geological Institute	Data set for educational use in class and activities
VA	Inside Washington Publishing	Journalist testing EPA web-site
VA	Trout Unlimited	Information for conservation nonprofit
VA	National Science Teachers Association	NADP First Look
VA	PEER	Collection of data on acid rain content
VA	Private Citizen	Personal information
VA	Corrpro	Assess corrosivity of local environment and fhwa program on materials research
VA	Tetra Tech, Incorporated	Compare REMSAD output for atmospheric deposition of mercury and use for watershed modeling
VA	Tetra Tech	NPS assessment
VA	ICF Kaiser	EPA study
VA	ICF	Looking at historic NOX deposition/emission
VA	Not Specified	Flow modeling
VA	Versar, Incorporated	A study of dioxin concentrations in the ambient air
VA	Dewberry & Davis	Rainfall data will be used to perform a 201 study for the Town of Wilkesboro, N.C.
VA	Corrpro	Study of the environment across the country to see the effects on paint materials
VA	ICF Kaiser	Report to Congress
VA	Versar, Incorporated	Data will supplement data collected for EPA NDAMN
VA	Tetra Tech, Incorporated	Risk assessment project for the EPA
VA	DynCorp	Management of abandoned coal mines
VA	PCCI, Incorporated	Environmental status of Ohio
VT	Hoffer & Associates	Groundwater study
WA	NCASI	Long-term monitoring river quality studies on the McKenzie and Willamette rivers
WA	The Wilderness Society	To be used as a component in a national wild lands network model
WA	Pierce County Water Program	Literature search for regulatory needs
WA	Citizen	Research
WA	Earthreach	Educational purposes only
WA	SCCC	Project on the impact of tourist activities on the park (Cars in this case)

**Table 5.** Selected uses of data by the private sector, research groups, and others—Continued

<b>Location</b>	<b>Affiliation</b>	<b>Application</b>
WA	Not Specified	Information
WA	Northwest HydroGeo Consultants	Wellhead protection report
WA	Corrpro Companies	Selection of coatings and materials exposed to the atmosphere
WA	McCulley, Frick & Gilman	PSD permit
WA	AGI Technologies	Air Fall Particulate Matter
WA	Environmental Information	Nisqually and Puyallup River Watershed monitoring programs
WA	Associated Earth Sciences	Using for precipitation chemistry
WA	Not Specified	We are generating gridded estimates of deposition time series using a new multivariate kriging approach. Estimates will be used for evaluating atmospheric models and as input to a terrestrial model.
WI	Wisconsin Electric Power Company	As reference material for regular staff briefings
WI	La Crosse Tribune	Newspaper article
WI	Paper Machine Oil Systems	Information only
WI	Applied Ecological Service	Monitoring report
WI	Applied Environmental Science	Air pollution permitting
WI	Tetra Tech EM Incorporated	Will use for EPA SITE program quality assurance project plan

**Table 6.** Selected uses of data by university and K–12 students and educators

Location	Affiliation	Application
AK	University of Alaska	This data is being used to look at precipitation data across the Caribou Poker Creeks Watershed
AK	University of Alaska Fairbanks	Comparison with stream data
AK	Institute of Arctic Biology	N deposition inputs for ecosystem model.
AK	University of Alaska	Soil moisture studies of CPRW
AK	Water and Environmental	Estimate weathering rates
AK	University of Alaska	Plan to do a watershed delineation project in the park this summer.
AL	Auburn University	Publication
AL	Student	Architecture student designing a museum in Opelika Alabama
AL	University of Alabama	Educational investigation--student at UAB
AL	Williams Technology Middle School	A weather project for my computer class
AL	Student	To use with science project
AL	Greater Latrobe Sr. High	To show my students what is in the precipitation that falls in our area
AR	University of Arkansas	Comparison of atmospheric inputs with stream water quality in the Buffalo National River vicinity.
AR	Arkansas State University	Comparison of the average acid rain deposition in the state of AR.
AR	Arkansas State University	Average acid rainfall in AR.
AR	University of Arkansas	Examine N deposition
AR	Shirley High School	School
Australia	Educator	For preparing a class assignment on acid rain by investigating what information is available
Austria	University of Klagenfurt	Ph.D.
Austria	Institute of Forest Ecology	Comparison European vs. North American Situation of N-Deposition, Trend, Studies
AZ	Student	Verifying previously retrieved data.
AZ	University of Arizona	Thesis research
AZ	University of Arizona	Monitoring Cl-36 fallout and subsequent deposition in groundwater.
AZ	University of Arizona	GIS
AZ	Student	Geography stats class
AZ	University of Arizona	Atm. dep. Research
AZ	University of Arizona	Looking for data to do a geostatistics project.
AZ	Not Specified	Web Hunt
AZ	University of Arizona	I am doing a detailed hydrologic investigation of Topock Marsh, AZ, and I am curious if dust deposition is significantly contributing to nutrient load or any other chemistry... in final write-up now for dissertation at UA.
AZ	University of Arizona	Chlorine 36 deposition
AZ	University of Phoenix	I am writing a paper for my life sciences class.
BC	Kwantlen College	A report on acid rain for geography at Kwantlen College
CA	University of California	A report on precipitation chemistry
CA	California Institute of Technology	Effects of pollution on antenna systems
CA	University of California Santa Barbara	Compare bulk snow pack chemistry with wet-only winter deposition at NADP stations

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
CA	University of California Santa Barbara	Compare to chemistry of streams in the USGS Hydrologic Benchmark Network
CA	University of California Santa Barbara	Comparison of data from a site within the dairy industry to a site outside dairy industry
CA	University of California Santa Barbara	Calculating deposition of nutrients to states.
CA	University of California Santa Barbara	Compare changes in precipitation over ten year period from 1983 to 1992
CA	University of California	Data will be used to compare deposition rates of four NADP stations in separate states across the U.S.
CA	University of California	Snow accumulation at Niwot Ridge
CA	University of California	I am doing a precipitation chemistry project for a class in hydrology
CA	University of California	Course in Biological Conservation
CA	University of California Santa Barbara	Rainfall determination
CA	Department of EEMB, University of California Santa Barbara	Interested in sodium chloride deposition
CA	University of California Los Angeles Atmospheric Science	Class report
CA	University of California, Berkeley	I have the archived precipitation samples and would like info on nitrogen content.
CA	San Diego State University	To check N deposition rates at San Dimas Experimental Forest, where I am conducting a dissertation project on the effects of N deposition on N cycling and ectomycorrhizae associated with coast live oak.
CA	California State University	Proposal Prep.
CA	Fresno State University	I am writing a research paper on atmospheric pollution and its effects on Yosemite National Park.
CA	HSU	Semester monitoring project
CA	HSU	Stats project
CA	Biologist	Use for data concerning an ecology project on acid rain
CA	University of California	Intended use for a GIS application to illustrate annual watershed fluctuations and the consequences to aquatic invertebrates.
CA	University of California	Determine inputs of Ca, K, Na to serpentinitic watershed via precipitation.
CA	University of California	Research background on acid rain
CA	Caltech	Research
CA	Department of Geology	I would like to look at this data so I will have a means of comparison.
CA	Educator	To assess ground water chemistry
CA	Department of Land, Air, and Water	To look at rainfall stream flow relationships
CA	University of California	Research of impacts of atmospheric nitrogen deposition at Mountain Lake, Virginia.
CA	Student	Statistics paper
CA	University of California Berkeley	For use in an acid rain lecture
CA	University of California	Comparison with model results
CA	University of California Santa Barbara	University study
CA	UCCS	Air quality, CO emissions
CA	University of California Santa Barbara	Study atmospheric deposition rates for several tracer elements across Washington state and while also looking at pH levels.

**Table 6.** Selected uses of data by university and K-12 students and educators—Continued

Location	Affiliation	Application
CA	ITT Technical Institute	Presentation for report on the effects of the acid rain levels
CA	Cal Poly	Assignment on seasonal forecasting
CA	Crocker Nuclear Lab	Comparison to IMPROVE
CA	Parkmead School	My class will be participating in a National Geographic Kids Network research project on acid rain. I am looking for data which they can access on the Internet as part of this study.
CA	Modesto Junior College	To show students the amounts of various pollutants in the soil
CA	Chamlan Armenian School	Class report
CA	Encanto Elementary	Classroom study - comparisons of various locations
CA	Educator	Science study with sixth grade classes
CA	Harvest Valley School	Science report in 8th grade
CA	Edison High School	Examine with students
CA	Educator	Exploration of acid rain
CA	Student	Submit to instructor as part of homework assignment
CA	Amador Valley High School	A report on the disappearance of frog species from the Arroyo del Valle in Pleasanton.
CA	Stone Valley Middle School	Educational research
CA	Student	This is for a precipitation chemistry project
CA	San Diego State University	Educational Research
CA	University of California Santa Barbara	Report
CA	Student	Research for precipitation in San Gabriel foothills. Specifically, Claremont Hills wilderness park.
CA	Student	K-12 student studying atmospheric deposition
CA	Student	Science fair project
CA	Student	For use in a paper analyzing raw environmental data for a Physical Geography of the City course at Cal State Fullerton
CA	Chico, CSU	College research on deposition for Redding CA
CA	Merced High	Need precipitation map
CA	University of California Santa Barbara	I am a student at UCSB. We are doing papers on Atmospheric Dep. on different sites.
Canada	University of Alberta	For use in preparing manuscripts based on research conducted within the Marcell Experimental Forest.
Canada	Student - Alberta	Amount of acid rain in the last 10 years
Canada	University of New Brunswick	Long-term study of forest harvesting impacts
Canada	Student - New Brunswick	For report
Canada	COGS Center of Geography	Create a map showing emissions and deposition
Canada	Cabot High School - Nova Scotia	In a biology report for class
Canada	University of Toronto, Ontario	Project
Canada	University of Toronto, Ontario	Compare to Mexico and Canada data
Canada	York University, Ontario	Correlate with acid rain data
Canada	Hammarckjold, Ontario	OAC Canada comparison to Thunder Bay stats
Canada	Student, Ontario	Masters paper - environmental engineering
Canada	McGill University, Quebec	For use in university study on rainwater catchment systems

**Table 6.** Selected uses of data by university and K-12 students and educators—Continued

Location	Affiliation	Application
CO	Colorado State University	Will compare NADP data with snow pack samples collected during the same time period.
CO	Colorado State University	I am comparing precipitation data from coastal NH with two NADP coastal sites, one in ME, the other in MA.
CO	University of Colorado Boulder	Annual N deposition to Niwot Ridge
CO	University of Colorado	Comparison with CO94.
CO	National Renewable Energy Laboratories	Stats
CO	University of Northern Colorado	Summer school research project
CO	Mountain Research Station	Assess the change in the concentration of N in ppt. through time
CO	INSTAAR University of Colorado	Comparing temporal and spatial trends at 2 Colorado Sites.
CO	Colorado State	Data to support master's thesis
CO	Educator	Teaching example
CO	UCMRS	MRS project
CO	Natural Resource Ecology	Flux calcs
CO	Colorado State University	Proposed study on effects of auto emissions on roadside flora in RMNP
CO	Colorado State University	Estimating nitrogen deposition at adjoining area and comparing with other sites. Thanks!
CO	University of Colorado	To get an idea about deposition in Colorado to pick a site for further study
CO	INSTAAR	Class example
CO	University of Denver	Data needed to determine N application rates for an experimental manipulation of N and P availability to bristlecone pine ( <i>Pinus aristata</i> )
CO	Colorado State University	I am an atmospheric science graduate student doing a small study of the dry deposition of nitrogen in Rocky Mt National park and would like reference the wet deposition of nitrogen as well.
CO	Colorado State University	For a comparison to other watersheds
CO	University of Colorado	As examples for teaching about acid precipitation in an environmental economics class
CO	University of Colorado	Obtaining data from this site which is the nearest site to Lake Tear of the Clouds which is my actual study site for this class project
CO	University of Colorado	I am writing a paper for a class (arctic and alpine ecology) on the acid deposition on Niwot ridge and at Sugarloaf.
CO	Department Chemistry & Biological Engineering	Determining annual precipitation for the Big Thompson Watershed. Use in watershed rainfall - runoff model.
CO	University of Northern Colorado	Research on acid rain and algal blooms
CO	Colorado State University	I am writing a proposal for class. It concerns O3 deposition in the park.
CO	CSU, Natural resource ecology laboratory	Will compare N deposition data to other potential exogenous N inputs to decomposing surface residues in wheat fields in eastern Colorado
CO	Student	Effect of deposition on nitrate in surface waters
CO	Student	High elevation watershed research
CO	Mesa State	In a report for my Environmental Science class
CO	Not Specified	I am using it to do spatial analysis for a university class in that subject
CO	Colorado State University	Ecosystem modeling
CO	University of Denver	Cryptobiotic soil crust research



**Table 6.** Selected uses of data by university and K-12 students and educators—Continued

Location	Affiliation	Application
CO	Not Specified	Personal interest
CO	Fort Lewis College	Graph of annual acid rain detected in southwest Colo. for an Ecological Issues class at F.L.C.
CO	Student	I will use this data for a water quality assignment.
CO	Educator	Water Quality class assignment
CO	Colorado State University	Thesis
CO	Institute of Arctic	Compare to talus water hydrology
CO	MRS- University of Colorado	Estimate temporal trends
CO	CSES/CIRES	The data will be used as an input parameter for the PnET model. The work is part of a class project.
CO	University of Colorado	An undergraduate research paper on the concentrations of solutes in snow and spring melts.
CO	University of Denver	Using NPS AQUIMS system
CO	University of Denver	Natural Resource management class
CO	Colorado State University	Data for Master's Thesis on elevated CO <sub>2</sub> and climate change
CO	Mesa State College	Use in report
CO	Pine Creek	Student Report
CO	Casey Middle School	Teaching a 7th grade River Ecology class at Casey Middle School in Boulder, CO
CO	Mesa State College	Show water quality
CO	Sterling High School	I will use this data for an experiment that I am doing.
CO	Colorado State University	Precipitation chemistry
CO	Plateau Valley High School	Mock bill proposal for political studies class
CO	University of Colorado	Background data for an ecosystem process study/model
CO	University of Denver	Research for Graduate level college course
CO	Rampart High School	Acid rain
CO	University of Colorado	Compare to Mt. Zirkel wilderness Ph.D. dissertation
CO	Metro State College of Denver	Teaching enviro-stats at Metro State College of Denver
CO	University of Southern Colorado	Research
CO	Educator	School Report
CO	Colorado State University	Homework Assignment
CO	Educator	To be compiled in a community health index for Region 9 in southwest Colorado
CO	U.S. Geological Survey	High school class project
CO	Not Specified	Example of data available, to show to head technician at lab that analyzes this data (RMF&RES)
CT	Wesleyan University	Precip. and water flow studies for the CT River Watershed for class at Wesleyan University
CT	Yale University	Hubbard Brook Sandbox Expts
CT	University of Connecticut	For research purpose
CT	Yale University	General interest in acid rain
CT	Yale University	Yale University Pine box experiment: the role of plants in rock weathering
CT	Connecticut College	Independent study of acid deposition on CT

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
CT	University of Connecticut	For a class assignment
CT	West Rocks Middle School	School Project
DC	Educator	To write a class paper on acid rain
DC	Howard University	Research on effects on plant growth
DE	Center for Marine Science	Examine atmospheric deposition in Cape Fear River watershed
DE	University of Delaware	Assess spatial variability in atmospheric wet flux of N to local coastal waters
Egypt	Cairo University	Speciation using Wateq4 of Netpath in order to compare results with ground-water chemistry for samples from the Great Sahara, Egypt.
Finland	Mikkeli Polytechnic	Education
FL	University of South Florida	I am preparing an Encyclopedia article on acid deposition.
FL	University of South Florida	Student exam problem -- data trends
FL	University of South Florida	Modeling atmospheric deposition
FL	University of Central Florida	Comparison of NADP site data with Orlando site.
FL	Educator	Masters thesis research
FL	University of South Florida	Nitrogen Deposition to Sarasota Bay
FL	University of Central Florida	I am writing a Master of Science thesis at University of Central Florida Department of Biology. My title is Spatio-temporal dynamics of Spanish moss biogeochemistry. I am repeating a study that was done 25 years ago to see how the nutrient concentrations have changed
FL	Educator	Masters thesis
FL	Food and Env. Toxicol Lab	Data comparison
FL	Florida Tech	Project for a graduate statistics course.
FL	Florida State University Oceanography Dept	Plan on measuring N-15 in rainwater. Want to know approx. concentrations of DIN
FL	Florida State University	For research
FL	Student	Research project for a graduate air quality course at the University of South Florida, professor Dr. Noreen Poor.
FL	University of South Florida	Part of a graduate school homework assignment
FL	Student	Information on the effects of acid rain on the ecosystem
FL	Santa Rosa School Board	Utilized in report on acid rain effects
FL	Madear Beach Middle School	Information
FL	Academy at the Lakes Day	Science project- grade 6
FL	Student	I am doing a research paper on acid rain. I would like to add some information on acid rain in Florida because that is where I live.
FL	Village Elementary	Student research at Village Elementary school
FL	New River middle school	For project graph
FL	Miami Country Day School	Data source for AP Environmental Class
FL	Student	Science Project for high school
FL	Student	7th grade science fair project
FL	Educator	Looking for trends over the years for use in a homework assignment in an air pollution class
FL	University of Central Florida	Master's Thesis on the Limnology of Ponds on the Kissimmee Prairie
FL	Educator	Industrial review

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
FL	Student	Science project
FL	Not Specified	Science fair project
FL	Student	Measure changes in acid concentration in rains
FL	Student	Use in school project
FL	Not Specified	Comparison of N deposition with denitrification rates in Indian River Lagoon
France	Savon de mars	Volatile organic compounds
GA	State University of West	Research in conjunction with the University of Tenn.
GA	University of Georgia	Summary of Georgia data
GA	Georgia Tech	SAMI
GA	Atmospheric Scientist	Atmospheric Deposition
GA	Kennesaw State College	School Project
GA	University of Georgia	Evaluate time trend of acidic deposition
GA	Georgia Institute of Technology	Watershed studies GA Tech.
GA	Piedmont College	Research of amphibian habitat
GA	Georgia State University	Effect on tree growth.
GA	Georgia Southern University	Need some numeric data for an environmental report on the effects of acid rain.
GA	Georgia State University	Term paper
GA	Student	I will use this data for a sas program
GA	Kennesaw State University	Project on acid rain in Georgia and its variations through U.S.A.
GA	Student	A chemistry report on acid rain and its' effects on soil
GA	Lowndes Middle School	Researching appropriateness for grade-level studies by students grades 4 - 8
GA	Educator	Determine pH of rainwater to see the effect on migration of contaminants in soil.
GA	Educator	Science fair project
GA	Not Specified	Son's 5th grade project on acid rain
GA	Student	Find the state with the lowest pH range and lowest pH recorded for acid rain in any state or country.
Germany	University of Augsburg	Data analysis for seminar
Germany	Student	I am writing a term paper on Yosemite
HI	University of Hawaii	Analysis of suitability of potentially acidic catchment water for fish culture.
HI	HPU	We will experiment in biology class about how pollution affects water and growing plants.
IA	Iowa State University	Calculation of site N budgets for central Iowa.
IA	Iowa State University	I'm using your precipitation data to construct a simple watershed mass balance model. Thank you!! :)
IA	Student	Report for a chem. class
IA	Educator	College/University Use
IA	Iowa State University	Soils class project
ID	Idaho State University	Data will be used to characterize N deposition in a General Ecology class.
ID	Eagle Rock Junior High School	A school project to help with Acid Rain

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
IL	Illinois State University	Research and teaching
IL	Department of Natural Resources	Develop nitrogen budget to predict nitrate concentrations in river water
IL	Student	Rain water study
IL	Illinois State University	Creating water budget for groundwater analysis
IL	Illinois Institute of Tech.	Research for a presentation
IL	Geology Dept. in Northern Illinois University	I am studying Geochemistry in Northern University and I am doing a report about the chemicals and characteristics in rainwater in Dekalb area.
IL	University of Illinois at Chicago	personal and small group presentation for graduate school class
IL	University of Illinois	Mycorrhizal regulation of ecosystem response to chronic N deposition
IL	University of Illinois Chicago	Will use this data in a proposal preparation
IL	University of Illinois	Nutrient budgets for Illinois
IL	University of Illinois	For Ph.D. research thesis
IL	Minnesota State University	Trying to find phosphorus deposition data for a class
IL	Illinois State Water Survey	Not Specified
IL	University of Illinois	Hope to find ionic strength of precipitation to replicate in experimental irrigation
IL	Douglas Community Academy	Science Fair Project on Acid Rain levels
IL	New Trier High School	School project
IL	Bethnay High School	For a Persuasive Speech
IL	Ridgewood High School	I am a teacher and I am looking to develop a lab activity for historic data
IL	NEIU	To find a model for change in pollution in Chicago Area
IL	Tefft Middle School	Educational Research
IL	Kishwaukee Intermediate	Used as model for college class on integrating technology into classroom teaching using spreadsheets.
IL	Student	For chemistry
IL	District u-46	Educational research on acid rain
IL	Illinois Math and Science	Geophysics class
IL	Southern Illinois University	For classroom analysis
IL	University of Illinois	Used to help assess my data for a thesis project of mercury contamination in a constructed wetland site.
IN	Earlham College	Class
IN	Purdue University	I was given a set of questions to answer about the deposition of nitrates and other pollutants and how they affect watersheds.
IN	Student	Nitrate deposition
IN	Purdue	For a project in my class
IN	Purdue University	Calculation of average concentration of nitrate in stream water for 1997
IN	Student	School
IN	Indiana University	For a readings class with a senior undergraduate who is interested in the effects of acid deposition on forest health.
IN	Indiana University	I will be using this data to characterize a watershed
IN	Indiana University	To get rainwater chemistry data in southern Indiana for a graduate research project.
IN	University of Notre Dame	Seminar

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
IN	Indiana University	In a report discussing issues within GSMNP
IN	Indiana University	For a risk assessment project
IN	Student	College/University
IN	University of Notre Dame	Nutrient budgets of successional sequences
IN	ITT	In research on Acid Rain for college final
IN	Pioneer High School	To make a graph and report
IN	Not Specified	Indian Pine watersheds at Purdue
Italy	Geographer	Educational purpose in secondary school
Japan	Kyoto University	Evaluation of a chemistry transport model
KS	University of Kansas	Correlation of recharge events to nitrate plume in alluvial aquifer near Lawrence, Kansas
KS	The University of Kansas	M.S. research.
KS	Kansas State University	Calculation of nutrient budgets for graduate Biogeochemistry class
KS	Kansas State University	LTER study
KS	ITAM	Will be used to compare with Ft. Riley's weather station data.
KY	Western Kentucky University	To write a speech I am to give regarding my interests in marine biology
KY	University of Kentucky	Considering using data for a forest hydrology course at UK.
KY	University of Louisville	Will compare data to my own thesis data.
KY	University Station	Hydrology Project
KY	University of Louisville	Analyses of Adirondack Long-term Monitoring data collected by ALSC.
KY	University of Louisville	Data will be used to estimate the effects of atmospheric deposition on stream water quality.
KY	Murray State University	Just checking out data format
KY	University of Kentucky	Looking at trends in N deposition
KY	University of Kentucky	Modeling hydrochemical evolution during recharge of the Ogallala aquifer.
KY	Heath High School	I plan to use the data to give a presentation to my Ecology class.
KY	Educator	Educational purposes
KY	University of Kentucky	Overview of N input to Cumberland Plateau in comparison to other US regions
KY	Student	I am preparing a presentation on the materials gathered.
KY	Murray State University	Compare pH of rainfall with surface water pH
KY	University of Louisville	Assignment
KY	PCC	I am a college student in need of info for a group project.
LA	Louisiana State University Agronomy Dept	For Comparison with Iberia Precipitation for my Masters Thesis
LA	Dept Oceanography & Coast	Research about nutrient budget for Louisiana estuaries - comparison of Louisiana data with more inland stations
LA	Louisiana State University WBI	Testing page capabilities
LA	Coastal Ecology Institute	Using for nutrient budget of Taylor Slough
LA	Louisiana State University	Rough estimate of deposition at site within area bounded by lines between the chosen locations.
LA	Sam Houston High School	Classroom graphing activities

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
LA	Louisiana State University	Classroom use of data. Have students interpret data.
LA	Louisiana State University	For study purposes
Lebanon	Student	Research paper on acid rain and its effects on lakes and ponds
MA	Boston University Marine	For graduate research on the historical changes in nitrogen loading to Waquoit bay, MA
MA	Yale	Waquoit Bay nitrogen cycling model
MA	University of Massachusetts	Water Resources Management Plan
MA	Smith College	Inputs for analysis of stream water chemistry
MA	Student	ENVIRONMENTAL ECONOMICS TERM PAPER
MA	Private Citizen	College environmental paper on Smoky Mountains Region
MA	University of Massachusetts	I am doing a study on road salt influence into a wetland and would like to compare the water chemistry that I have collected to a background of precipitation concentrations.
MA	Mount Holyoke College	Effects of deposition on ecosystem dynamics in bogs
MA	University of Massachusetts	Use in my watershed course
MA	Merrimack College Urban	Assessing water quality
MA	Harvard University	Comparison with dry deposition measurements at a nearby site Harvard Forest
MA	Tufts University	I am going to do a regression analysis of this data.
MA	Tufts University	Evaluation of traffic patterns
MA	Student	The class is looking at the chemistry of various groundwater and well samples to correlate the rock chemistry to that of the water
MA	Holbrook Jr. Sr. High School	A study for my 7th grade students on annual rain fall in Massachusetts
MA	Snowden International High School	I would like to use this site to train my ninth grade science students in data base searches
MA	Student	Science fair project
MA	Hampshire College	Class lecture on acid rain at Hampshire College, Amherst, MA
MA	Bayer Corporation	5th grade science fair project background data. Helping classroom science teacher ...
MA	Gloucester High School	Investigating use for education purposes
MA	Bentley College	Paper on water quality and the effects of acid rain
MA	Lexington High School	Earth Science Project
MA	Masconomet Regional	To create spreadsheet
MA	Smith College	This data will be used in a college thesis comparing bulk precipitation with river geochemistry.
MA	Oakmont Regional High School	Comparison of Acid Deposition Data with European Data
MA	Framingham High School	I am a chemistry instructor and will share the data with my students. They will be examining trends in precipitation for May and June in 1997-1998.
MA	CHS	For my science report on Acid rain
MA	Student	Science fair project about how/if the pH of normal ponds and brooks in suburban area change from week to week
MA	Student	I will use the data to help determine how precipitation affects the water chemistry of a small watershed in central Massachusetts.
MA	Newton Public Schools	I am using this data for an earth science research project for the 8th grade.

**Table 6.** Selected uses of data by university and K-12 students and educators—Continued

Location	Affiliation	Application
MA	Harvard University	Project presentation on acid rain in the Adirondacks for an environmental science class
MA	Mass Education Department	School project
MD	University of Maryland	Compare with concurrent air quality data
MD	UMCES	For fellowship paper
MD	University of Maryland	Urban runoff literature review
MD	University of Maryland	Comparison to Galveston Bay atmos. dep. data.
MD	University of Maryland	Updating data file on MD13
MD	University of Maryland	Estimation of impact of atmospheric deposition relative to terrestrial point and diffuse sources.
MD	University of Maryland	Checking availability of recent precipitation measurements
MD	Johns Hopkins	Grad school paper
MD	University of Maryland	Compare with data collected in western Maryland
MD	Towson University	Technical poster on the effect of acid rain on fisheries.
MD	University of Maryland	Compare between Watersheds
MD	University of Maryland	Calibration of the Patuxent landscape model
MD	University of Maryland	Looking at sulfate deposition trends and the possible effect on mercury methylation in lakes
MD	University of Maryland	For use in calculating state greenhouse gas emissions from agricultural soils
MD	University of Maryland	I will use this for a report in my college environmental studies class
MD	Howard University	Effects of Acid Rain on Plants
MD	Horn Point Laboratory	Ph.D. thesis
MD	University of Maryland, Center	Construct a nutrient project for the Choptank River Basin in an EPA funded CIS-NET project.
MD	Johns Hopkins University	Research
MD	Patuxen High School	Environmental Class (NSTA manual)
MD	Student	A school statistical project and this is something I'm interested in.
ME	University of Maine	Look at time trends in N and S
ME	Water Research Institute	Publication for the BBWM research project in Maine
ME	Water Research Institute	Trend assessment for talk at ESA meeting in D.C. March 1-3
ME	University of Maine	Comparing with BBWM trends.
ME	College of the Atlantic	Environmental chemistry class
ME	Bates College	Thesis on SO2 program
ME	University of New England	Research on N deposition effects on below ground C and N cycling
ME	Colby College	Student project
ME	University of Maine	Looking for precip. and temp data for Brook90 model
ME	University of Maine	College lecture
ME	University of Maine	Relating precipitation amount and timing to mercury concentration
ME	Student	Writing a paper evaluating different methods of estimating evapotranspiration.
ME	University of Maine, Orono	Writing a paper on ET estimation methods
ME	University of Maine	Effects of acid deposition on pollen germination

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
ME	Water Research Institute	DISPro study at Acadia National park - thesis project
ME	University of Maine	Research project for class
ME	Edward Little High school	I am doing a report on the effects of Acid Rain on Lakes and Trees of Maine
ME	University of Maine	Collating data from our field sites in Maine
Mexico	National University	Research on Mayan monuments
MI	University of Michigan	Calculation water yield for estimation of N leaching from a nearby research site
MI	University of Michigan	Study of herbaceous plant effects on N cycling in sugar maple forest
MI	Michigan State University	I am compiling a water budget for a watershed study of the Grand Traverse Bay
MI	Michigan Technical University	The deposition of ions to Lake Superior will be examined to aid in the KITES research program.
MI	Michigan Technical University	The data will be used for the ongoing assessment of ecological changes in Little Rock Lake. These changes included those induced by the experimental acidification, and those induced by climatic variability and atmospheric deposition.
MI	Northern Michigan University	Modeling
MI	Michigan State University	Trying to predict sulfur needs for Ag. production.
MI	Michigan State University	Using the data to calibrate an emission deposition model
MI	University of Michigan	Global weathering budgets
MI	University of Michigan	Estimate Hq deposition
MI	Michigan State University	Using as example for internet data transfer
MI	University of Michigan	I need to know atmospheric inputs of N external to experimental aspen chambers at the University of Michigan Biological Station, to be used in a publication of my research.
MI	Michigan State University	Basic Soil Science class I teach
MI	Michigan State University	Mass balance of chemicals
MI	Department of Geological Engineering	To apply the precipitation inputs and determine the chemical erosion of the bedrock.
MI	Department of Geological Engineering	Comparison of precipitation and discharge for watersheds in Michigan and Minnesota
MI	Department of Geological Engineering	The data is used to look at difference in precipitation chemistry across the southern portion of the Lake Superior Basin
MI	Michigan State University	Used in Hydrological Modeling
MI	Northern Michigan University	Class project on modeling
MI	Michigan State University	Stable isotopic composition of nitrate and ammonium in Grand Traverse Bay, MI: examination of NO <sub>3</sub> and NH <sub>4</sub> sources
MI	Michigan Tech	Testing for class use.
MI	Wayne State University	Example of evaluating atmospheric deposition
MI	Michigan State University	Used in Ph.D. dissertation and Journal article.
MI	Michigan State University	Compute N budget for corn fields in SW Michigan (Michigan State University)
MI	Northern Michigan	Linear modeling course
MI	Student	See the nitrate in the snow



**Table 6.** Selected uses of data by university and K-12 students and educators—Continued

Location	Affiliation	Application
MI	The University of Michigan	Part of post-doctoral research project on the isotopic composition of precipitation in the Great Lakes Region
MI	Student	Comparison of data obtained in determination of nitrates in precipitation U of M-D
MI	University of Michigan	Chemical weathering study of Cheboygan watershed
MI	Michigan State University	Discussion of N-budget for KBS LTER
MI	Michigan State University	Farm nutrient management
MI	Michigan State University	Assessing atmospheric deposition of N and P to Grand Traverse Bay
MI	Student	Related to environmental chemistry class, analysis of nitrates in rain and snow
MI	Northern Michigan University	Chemistry course to discuss acid rain
MI	Michigan Technological University	Comparison of PM2.5 at Pellston MI field site with the rest of Central US
MI	Central Michigan University	I will be using this data to create a dot density map
MI	University of Michigan	A brief look at changes over time
MI	University of Michigan	To be used for comparison with data collected as part of a field study.
MI	Eastern Michigan University	pH study
MI	Michigan Technological	I am doing a Trap Rock River watershed study for a class.
MI	Michigan Tech	Planning for snow chemistry experiment
MI	John Glenn High School	Project in math class
MI	Student	Educational Research
MI	Student	I will need data on habitats
MI	Rockford High School	To determine acidic effects on concrete
MI	Seymour Christian School	To present to 3rd grade class
MI	Michigan Technological University	Water budgeting project - Senior Design Project
MI	University of Michigan	Analytical analysis
MI	Lake Superior State University	Research on acid rain and its effects on aquatic environments
MI	Michigan State University	I would like to add the annual precipitation total for 1997 to an earlier data set for 1979-1996 that I obtained from NADP/NTN
MI	Student	Research for term paper at Lansing Eastern High School, May 16th, 1999
MN	University of Minnesota	Determine loading to sites
MN	University of Minnesota	Acid Deposition
MN	University of Minnesota	Application to a Generic Environmental Impact Statement of Animal Agriculture in Minnesota
MN	Wolf Ridge ELC	For wolf ridge chart
MN	Educator	I need to find how much acid rain falls globally in the span of one year.
MN	Pine City High School	Physics research on environmental problems
MN	Belle Creek Institute	Checking out current acid rain data in USA for possible use in elementary schools
MN	Educator	I have no use for this data except to understand what is happening to my outdoor furniture and ALL my plants and trees and perhaps to understand what if anything seems to be happening to the change in amount of birds and wildlife that has seemingly disappeared.
MN	Student	How acid rain affects human's skin

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
MO	Educator	Database experimental study
MO	University of Missouri-Co	Answer questions from public
MO	Not Specified	Using in junior high classroom to talk about problem of acid rain in United States
MO	Notre Dame High School	Classroom teaching
MO	Waynesville High School	I need a table of the acid rain
MO	Not Specified	Use in the classroom for acid precipitation study
MO	Cor Jesu Academy	Have students make a graph and determine function using data points
MO	Compton Drew Middle School	Completion of homework assignment on pH Levels
MO	R-3 schools	School report for science fair project
MS	Mississippi State University	Use in Extension soils education program.
MS	University	Speech on atmospheric NOx and SO2 and the pollution.
MT	Flathead Lake Biological	To relate to hydrograph of MF Flathead
MT	Bozeman High School	Speech and debate evidence for debate in Bozeman MT High School
MT	Student	Just a Montana geology major looking around. Do not plan on using the information now.
NC	North Carolina State University	Estimation of atmospheric deposition in area
NC	North Carolina State University	Compare to throughfall measurements near NC35
NC	University of North Carolina	Comparison of weekly ADN values with HYSPLIT (NOAA) model results
NC	University of North Carolina	Atmospheric Nitrogen budget for the Neuse River Watershed
NC	Duke University	Observation of the most recent acid precip. data
NC	University of North Carolina - Wilmington	Class discussion
NC	North Carolina State University	Use in graduate soil and environmental chemistry course
NC	University of North Carolina	Effects of NH <sub>4</sub> <sup>+</sup> on CH <sub>4</sub> oxidation
NC	North Carolina State University	Eventwise precip. records needed.
NC	North Carolina State University	Presentation of trends in ammonium concentration data
NC	University of North Carolina	NH <sub>4</sub> <sup>+</sup> deposition
NC	North Carolina State University	Compare record for N dep. to river basins report
NC	University of North Carolina	Evaluate data available
NC	University of North Carolina	For student projects in CHM 230 "Basic Environmental Chemistry"
NC	Western Carolina University	For class use in Hydrology course
NC	Wake Forest University	In a research paper
NC	Duke University	Compare with throughfall chemistry
NC	Duke University	Master's Project
NC	University of North Carolina Greensboro	GIS project
NC	Student	Measurement of the dry deposition of Ammonia in Eastern North Carolina
NC	University of North Carolina Wilmington	Using for a seminar presentation
NC	NC State University	For statistical analysis
NC	University of North Carolina	Environmental chemistry project

**Table 6.** Selected uses of data by university and K-12 students and educators—Continued

Location	Affiliation	Application
NC	North Carolina State University	Continued analysis to throughfall data compared to long term trends in wet deposition.
NC	North Carolina State University	8th grade science project, need to know a reasonable concentration of H <sub>2</sub> SO <sub>4</sub> in acid rain
NC	Appalachian State University	Reporting on geologic/ecologic factors
NC	North Carolina State University	Comparison in trends in loading between seasons.
NC	Baltimore LTER	Baltimore LTER study - watershed biogeochemistry
NC	University of North Carolina Wilmington	To assess impact of confined animal operations on atmospheric loading of N
NC	Student	I am writing a research paper on the effects of acid rain in the Appalachian Mountains of NC.
NC	University of North Carolina -Chapel Hill	Ecology project at UNC. To see how bad the acid rain in western North Carolina is and what it's doing to the environment. What people are doing about it and who's concerned.
NC	North Carolina State University	For studying cross-media effects
NC	University of North Carolina at Wilmington	Environmental chemistry class assignment
NC	North Carolina State University	Cross-Media effects
NC	Duke University Nicholas	For my Limnology class I am collecting data on precipitation to determine how a 1 unit increase in rain pH would affect the pH of a lake in the region.
NC	North Carolina State University	Cross-media
NC	University of North Carolina at Wilmington	Chemistry class assignment.
NC	Duke University	As an estimate of atmospheric inputs in a watershed nutrient budget for the Jornada Basin LTER site near Las Cruces
NC	Duke University	For mention in discussion section of manuscript on test of soil microbial N limitation.
NC	Mars Hill College	High school earth science class
NC	Blue Ridge Assembly	Education for students
NC	Student	The data will be used to research acid rain deposition and its effects
NC	Student	For an honors chemistry project on the effects of acid rain in North Carolina, specifically the high elevations.
NC	University of North Carolina Greensboro	To use in a GIS database design project
NC	Student	Research Paper on acid rain. 5-6 pages typed. Grade 12, A.P. Biology
NC	Student	Annual deposition for chemistry project
NC	Home school	Report on acid rain
NC	Roanoke Rapids High	Report on acid rain
NC	Mount Tabor High School	Acid Rain project
NC	Educator	Will be used to analyze annual rainfall
NC	Pitt County Schools	Use for teaching AP Environmental Science class to high school seniors
NC	Student	Chemistry lab assignment and ammonium deposition
NC	Enka High School	For acid rain studies in environmental science class
NC	North Carolina School	Class on acid/base properties and acid rain in NC
NC	Student	College/University

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
NC	Educator	Watershed
NC	Warren County High School	Acid rain report
NC	North Carolina Central University	For training in a geography class for undergraduate students
NC	Duke University	Jordan Lake Trophic Assessment Study for Water Quality Management Class
NC	Student	School science fair project
NC	North Carolina State University	Nitrogen deposition study
NC	Student	Science fair project, checking the pH levels of a local lake and how the level affects the inhabitants of the lake
NE	School of Natural Resources	I have analyzed these samples for stable oxygen and deuterium. I want to compare these values to the chemistry.
NE	University of Nebraska	Yearly summary
NE	Conservation and Survey	Interpret soil chemistry
NE	University of Nebraska-Lincoln	Summarize yearly data
NE	Atmospheric Scientist	To use in relation to research sites near Ponca City, OK.
NE	Creighton University	Independent research project for botany class: modeling nitrogen deposition on a grassland due to acid rain
NE	University of Nebraska	Model input for ecosystem model
NH	University of New Hampshire	Comparison to aerosol data
NH	Dartmouth College	<sup>87</sup> Sr/ <sup>86</sup> Sr tree ring analysis
NH	University of New Hampshire	Long-term patterns in precipitation chemistry, influence of volcanic eruptions on precipitation chemistry
NH	University of New Hampshire	For production of gridded total N deposition flux fields for the US
NH	University of New Hampshire	I teach a course in spatio-temporal statistics. I will use one or two of the variables in the data as an illustration for examining spatial and temporal patterns.
NH	Dartmouth College	Report analyzing incinerator-caused airborne heavy metal pollution in New Hampshire.
NH	CSRC	Watershed snow deposition estimation
NH	Dartmouth College	Research concerning ancient climate in the Yellowstone region
NH	Dartmouth College	Estimate nutrient inputs to forests
NH	Dartmouth College	Research project for a course in geographical statistics
NH	Harvard University	Deposition trends for illustrative public policy purpose
NH	Portsmouth High School	Basic math applications
NH	Henniker Middle School	For a science investigation
NJ	Student	Trying to find data on correlation between SO <sub>2</sub> and sulfate. Not sure if this is the right place to look
NJ	Rutgers University	Atmospheric deposition report
NJ	Student	Class assignment in environmental management
NJ	Educator	High school research paper
NJ	North Warren Regional School	Student learning activity
NJ	GCC	Student project
NJ	The Lawrenceville School	The effect of Acid Rain on plants

**Table 6.** Selected uses of data by university and K-12 students and educators—Continued

Location	Affiliation	Application
NJ	Jonas Salk Middle School	Comparative reference for data collected by students
NJ	The Lawrenceville School	Year long watershed study in Lawrenceville, NJ
NM	Yale University	Research on weathering fluxes from basaltic terrains (use for stream water correction)
NM	New Mexico Institute	Spatial and Temporal Distribution of chloride deposition in New Mexico. Chloride Mass Balance Studies...
NM	NMIMT	Flow path modeling of cave water
NM	WERC	For use in a class project
NM	Bernalillo Public Schools	Research on watershed studies
NM	A student at Navajo Prep.	I am doing a project of the water usage and effects on Cuba
NV	Desert Research Institute	Use for application of nutrient cycling model
NV	University of Nevada	Proposal to study nitrogen and phosphorus accretion at the Mt. Shasta mudflow sites I also need Cl data to access the feasibility of using the chloride mass balance method for soil water flux below the root zone.
NV	University of Nevada LV	Proposal development for whole watershed studies in southern Nevada
NV	Douglas High	Report on Acid Rain
NV	Academy for Mathematics	Characterization of watershed in Red Rock Canyon National Conservation Area
NV	Desert Research Institute	I am seeking to apply the chloride mass balance method to some cores from the NTS. To do this I need greater control on precipitation over time.
NV	University and Community	Data are used for modeling the impacts of climate change on natural vegetation. Experimental results from a CO2 enrichment study at Kennedy Space Center will be used.
NY	Cornell University	I will use this data as background data for a study on the effects of nitrogen deposition on ecosystem processes in peat lands
NY	Adirondack Fisheries Research	Aquatic Effects
NY	State University of New York	Demonstration of Accountability in air quality management
NY	Department of Geosciences	I would like to compare groundwater and rainwater chemistry
NY	Boricua College	Illustration to East Coast students
NY	State University of New York College of Environment	Data to be used as part of EPA funded project on "Analysis of Patterns of Nitrate Leaching..." under advisement of Dr. Myron Mitchell.
NY	Cornell University	Compare N deposition to estimates of N leaching from forest ecosystems
NY	Paul Smith's College	Research of acid deposition in the Adirondacks
NY	Paul Smith's College	Atmospheric deposition relative to the effects of water composition of Long Pond in Franklin County
NY	State University of New York College Of Environment	As reference information for study of springtime ecosystem nutrient input/loss
NY	Binghamton University	Statistics class
NY	State University of New York	Biogeochemistry Final Exam information
NY	State University of New York	Monitoring of deposition and analysis of trends
NY	State University of New York	Information for poster for ESA annual meeting in August 1999
NY	Cornell University	Estimate water budget for forest ecosystem study
NY	State University of New York ESF	Site description for study at Frost Valley
NY	Forest Hydrology Laboratory	SUNY ESF Research paper

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
NY	State University of New York at Buffalo	Geostatistical analysis
NY	Rochester Institute of Tech.	Acid rain map
NY	State University of New York College of Environment	Reference data for forest herb nutrient retention experiment
NY	State University of New York	Reference information for forest herbaceous nutrient uptake
NY	Student	A report on acid rain in New York
NY	St. Bonaventure University	Augment local precipitation data from 1997-98 / study rainfall patterns and effects on flow of headwater streams in Catt. Co, NY
NY	University at Albany	Report on New York state acid rain
NY	Educator	Temporal trend analysis
NY	Research Foundation	Masters thesis on nitrate flushing
NY	Research Foundation	Relate NO <sub>3</sub> - at Dry Creek in Catskills (across valley from Biscuit Brook) to topography
NY	Colgate University	Use on an exam in geological instrumental methods
NY	State University of New York Oswego	Teaching
NY	State University of New York Stony Brook	Class Work
NY	State University of New York, Department of Geoscience	College/University
NY	Lamont-Doherty Earth Observatory	Forest chemical cycling study
NY	RPI	Presentation on deposition effects
NY	RPI	Data for a project of Watershed Biogeochemistry at RPI taught by USGS staff
NY	Rensselaer Polytechnic	Analysis of a watershed for a class project
NY	Clarkson University	Making a report on how Los Angeles might meet ozone standards by 2010
NY	Cornell	For a public policy class
NY	Student	To characterize the risks to monuments and outdoor sculptures in New York city
NY	Rensselaer Polytechnic	To compare with our own data
NY	Cornell University	I will be conducting research on the effects of N and S deposition on the plant communities at Big Bend Nat'l Park.
NY	Syracuse University	Masters thesis
NY	Educator	I would like to look at seasonal trends in precipitation.
NY	State University of New York Stony Brook	Compare data with that for Long Island
NY	United States Military Academy	Doing a study on the effects on microbial contamination of lakes due to rainfall
NY	Oneonta State College	Research Project
NY	LDEO	Hydrology model
NY	Adirondack Aquatic Institute	Wish to examine deposition rates in relationship to lake pH and TOC concentrations
NY	Environmental Science	Research for geographic modeling project
NY	Syracuse University	For a research paper
NY	State University of New York -Oswego	For educational purposes

**Table 6.** Selected uses of data by university and K-12 students and educators—Continued

Location	Affiliation	Application
NY	Columbia University	Background precip. data for black rock forest
NY	Student	Research for acid rain project for my Global Environment science class.
NY	Adelphi University	Paper for school
NY	State University of New York	Environmental science laboratory class database on acid deposition
NY	State University of New York Stony Brook	This is for a class related project
NY	Syracuse University Earth	For my Masters' thesis research on a wetland in Putnam County
NY	Cornell Lab of Ornithology	Testing to see how your data system works
NY	State University of New York	This is for a class related project
NY	State University of New York Stony Brook	These data will be used to compare the characteristics of the water during that time
NY	Cornell University	NSF funded project on atmospheric deposition and forest ecosystems in Hawaii
NY	Cornell University	Will use to write a research paper for a hydrology course at Cornell University
NY	State University of New York - Binghamton	Lectures in environmental geology class
NY	Student	For class
NY	Student	Project for college looking at water consumption and use
NY	State University of New York ESF	Include N deposition data in peer reviewed publication about N <sub>2</sub> -fixation in alder wetlands
NY	State University of New York	Research
NY	Hobart College	Rainwater pH
NY	Student	Research paper; class this summer on acid rain deposition in the Adirondacks of New York. Paper focus on mercury deposition in soil, how it is measured and what sources it is attributed to.
NY	JHS 240	Preliminary research for a monitoring project in the '98-'99 school year
NY	Student	Need to know different pH and acidity levels of the area for a paper for a class
NY	Cooperstown Central School	To use with students on a project
NY	Lansing High School	Earth Science class
NY	Syracuse City Schools	Environmental analysis for earth science students-graphing practice
NY	East Aurora Schools	It will be for a science project
NY	State University of New York ESF	Paper on legislative success/failure in controlling air pollution
NY	Student	Research & Analysis for an environmental pollution course
NY	Petrova Middle School	Earth science project
NY	Crispell Middle School	My special education students are doing a research report on acid rain in Orange County.
NY	Byram Hills high school	To create an acid rain activity
NY	Student	I am investigating nitrate loss from the Arbutus watershed at Huntington Wildlife Forest. I need precipitation inputs during the Spring of 1996.
NY	New Paltz High School	Science Fair project comparing acid rain levels in large metropolitan areas
NY	Marie Curie M.S. 158Q	Graduate seminar on acid rain
NY	Robert Moses Junior High	To be used in an ongoing science project at junior high level

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
NY	Student	Research to assist a scientist
NY	Hunter College High School	I need this data to complete a project on biomes. I need the data to construct a climograph of this region.
NY	Ithaca City School District	School assignment
NY	The Brearley School	High School Acid Rain Lesson
NY	UCCC	Ecology assessment
NY	Student	Book Report
NY	Fox Lane High School	AP Environmental Science Class
NY	Buffalo Traditional School	Earth science project on local effects of Mt. St. Helens eruption
NY	Educator	I will be using the data for an earth science project on acid rain
NY	Educator	I will try to plot them in an Arc View program
NY	Student	We will be using this data for an extensive report on the effects of acid rain in NYS
NY	Student	Middle school earth science project on acid rain
NY	Student	Acid rain student project
NY	Student	Senior thesis: how winter's at Black Rock Forest affect the over-wintering deer herd
NY	State University of New York Brockport	For Teaching
NY	Student	School Report on The Effects of Acid Rain
NY	Educator	I am looking to write a paper on the effects of atmospheric deposition to further educate people of New York.
NY	Student	Effects of acid rain on the ecosystem
NY	Student	Comparison of effect of pH of lakes based on bedrock lithology
NY	Student	Interested in changes brought about by Title IV
NY	Student	In chemistry we are researching watersheds. This project is our mid term grade and half of our final. It is very crucial to get all the information I can.
NY	Student	Boy scout merit badge support
NY	State University of New York -CESF	Use of Cl- in deposition as an end member in a mixing analysis of stream water and groundwater
NY	Not Specified	To Update the WMO/GAW Precipitation Database
OH	Student	Undergraduate independent study on water chemistry of four mile buried valley aquifer, oxford Ohio.
OH	The Ohio State University	Apply these data to a hydrologic model for a watershed study
OH	Student	Geochem Project
OH	Ohio State University	Plant ecology research
OH	Miami University of Ohio	I am looking for rainwater compositions in order to do some river water reconstruction models for my Aqueous Geochemistry class.
OH	Ohio State University	My Thesis is on Environment
OH	Wittenberg University	Demonstration of how to graph environmental data
OH	Wittenberg University	Precipitation data
OH	University of Toledo	Preliminary data to determine the relative importance of N deposition at our research site
OH	University of Toledo	Evaluate role of microbiotic crusts in N cycling in Oak Openings, Ohio



**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
OH	University of Akron	Educational Research
OH	Ohio State University	Class project at Ohio State University Studying air quality in surrounding states
OH	Ohio State University	For hydrologic modeling input requirement
OH	The Ohio State University	Statistical analysis in an introductory statistics course taught in Natural Resources at Ohio State University
OH	Miami (OH) University	For an aquatic geochemistry class
OH	Lake Ridge Academy	Research acid rain
OH	Educator	Impact of acid rain from Ohio on the NE water systems of North America
OH	Westerville North H.S.	Hopefully I will be able to use this data for my earthvision project, from this we hope to create a graph in mathmatica. Thanx!
OH	Wittenberg University	Analysis
OH	University of Toledo	Research Paper
OH	Wittenberg University	Class assignment
OH	Indian Valley Middle School	Tech class learning to use MS Excel
OH	Chardon Middle School	A report on acid rain for 7th grade social studies for State of Ohio
OH	Toledo Public Schools	Educational Research
OH	Educator	Drinking water for human consumption
OH	Student	Looking for recorded pH levels for Delaware and central Ohio
OH	Not Specified	Need NOX deposition for Ohio as input for ecosystem model.
OK	Atmospheric Scientist	Assessment of the amount of nitrate deposition occurring
OK	Student	Term Project for Climatology
OK	Oklahoma State University	To check on high nitrates in stream flow
OK	Student	For air quality management class
OK	Student	Science project
OK	Oklahoma State University	Research for environmental geology class
OK	Student	Site analysis for environmental data used in College of Architecture, Division of Interior Design, University of Oklahoma.
OR	Oregon State University	I want to compare NADP nitrogen deposition data with data collected by the Andrews LTER program.
OR	Oregon State University	For a report
OR	Oregon State University	Data for implementation analysis method -Ph.D. dissertation in Statistics
OR	Oregon State University	I am researching nitrogen availability in vineyards in the Willamette Valley -- considering how much nitrogen is provided to soil by rainfall.
OR	Oregon State University	Atmospheric Deposition
OR	SSHS	Semester Report Source
OR	Scappoose High School	Study
OR	Educator	Presentation to a second grade class which is currently studying weather. As a former site operator I wanted to brag a bit!
OR	Student	Report on acid rain using data from rain samples collected around Portland area.
OR	COCC	College Chemistry Project
OR	Lake Oswego High School	I will be giving a speech on this topic

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
OR	Educator	Research for a class project
PA	Drexel University	N deposition effects on phytoplankton
PA	Agronomy	Interested in N loading in PA for background information/knowledge for discussions at PA acid deposition conference
PA	Penn State University	I plan to analyze climate effects on acidic deposition (i.e. precipitation and temperature)
PA	Penn State University	Research on effects of NO <sub>x</sub> reductions on sulfate wet deposition
PA	Saint Vincent College	Senior thesis research
PA	Penn State	Data to be used in a laboratory report for a graduate level water chemistry class
PA	Lycoming college	Research paper in ecology class
PA	Student	To look at carbon dioxide concentrations
PA	West Chester University	Assignment for a class in geometrics
PA	Penn State University	Watershed research
PA	Messiah College	IN an environmental economics presentation.
PA	Student	For a biology lab
PA	Saint Vincent College	Senior thesis research
PA	West Chester University	This data will be used for a Senior thesis.
PA	Gannon University	Presentation for Environmental Chemistry course.
PA	Villanova university	Term paper on acid rain
PA	Dickinson College	Design of a model to predict the effect of acid deposition on soil aluminum ion concentrations and the impact on plants
PA	Student	I will use this data in speech presentations to persuade individuals to work towards an ecologically sound Earth.
PA	Kutztown University	I am using the data in a research paper to see the effects of acid rain on the erosion of limestone in Pennsylvania.
PA	Susquehanna University	I am interested in the amount of nitrate-nitrogen deposited from precipitation for use in senior research project.
PA	Student	I am doing a report on acid rain
PA	Penn State	Watershed management problem sets
PA	Student	I need to use this data for an assignment in a forestry course
PA	Penn State	Compare two states parameters
PA	Penn State	Data for leading ridge study
PA	Altoona Area School District	Rain gauge water collection each student is collecting data at home. We'll compare to real time.
PA	Indian Valley Middle School	Acid rain study for 7th grade science class
PA	Lebanon Catholic High School	Science Report
PA	Student	Find the S, N, Ca, Mg, NH <sub>4</sub> , Cl, and H <sup>+</sup> concentrations
PA	Towson University	Writing a term paper about acid rain for an environmental economics course at Towson University
PA	Educator	Report for 7th grade class
PA	Southern Fulton Jr./Sr. High	I will use this data to back up a report I am doing for school
PA	Student	Water monitoring

**Table 6.** Selected uses of data by university and K-12 students and educators—Continued

Location	Affiliation	Application
PA	Student	Research project on water quality in PA
PA	Student	Assignment
PA	Dickinson College	Data in the designing of a model to predict aluminum ion mobility due to acid deposition and the resulting effect on plants
PA	Not Specified	Report for environmental science 003
Pakistan	Educator	Try to establish relationship between acidic rain and location of industry, population, industry emissions etc.
PR	Student	For an environmental project
PR	University of Puerto Rico	I am working on a manuscript summarizing all NADP data from this site (Doug Schaefer, site mgr.)
PR	Polytechnic University	For a final graduate project
PR	Student	Sulfur dioxide emissions
PR	Educator	I want to compare acid deposition in P.R. with what is deposited in Florida
RI	University of Rhode Island	Using ppt. chemistry data to account for differences in mass-balance calculations. For thesis research on the natural ground water chemistry of a bedrock aquifer.
RI	Coventry High School	For a project
Russia	St. Petersburg State University	I am just trying to understand how such databases are functioning in the U.S. Maybe some time later we'll make something similar in our university. Thank you
SC	University of South Carolina	Watershed nutrient modeling of South Carolina coast
SC	University of Georgia	Estimation of atmospheric deposition inputs to forested watersheds in the Allegheny National Forest, PA
SC	Clemson	Report on Nutrient Loadings
SC	Furman University	Look at acidity of precipitation
SC	Furman University	Enoree Watershed
SC	University of South Carolina	Data analysis for thesis
SC	University of South Carolina - Spartanburg	Just to look at
SC	Student	Ninth grade science fair project research
SC	Not Specified	To write an essay
SC	Educator	Information needed for research of the effects of acid rain on fir trees
Scotland	University of Edinburgh	Research
SD	Student	In a science fair project
SD	Educator	Data may be used in report
SD	South Dakota School of Mines	Graduate class project
Singapore	Singapore American School	Line graph
Sweden	Stockholm University	Looking for P data. Exam exercise for undergraduate
TN	Not Specified	Research paper
TN	University of Tennessee	Looking for data to calibrate (come up with reasonable parameters) for a computer model of terrestrial prairie restoration
TN	Student	Investigation of pollution from inside park sources, resultant acid rain deposition, possible solutions to eliminate internal pollution sources
TN	University School	I will use the data for a science project on acid rain.

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
TN	Middle Tennessee State University	Watershed assessment study of Lytle Creek in Murfreesboro, TN for Middle Tennessee State University
TN	Student	For a speech on water quality
TN	Student	College course
TN	ETSU	To provide regional information about acid rain to students
TN	University of Tennessee	Determine what information is available on atmospheric deposition in the TN Valley
TN	Baylor School	School project
TN	ORNL	School paper
TN	Student	College report
TN	Not Specified	Calculation of input/output budgets for Walker Branch Watershed
Turkey	Yildiz Technical University	Establish a study in TURKEY in Istanbul (educational purpose)
TX	Tarleton State University	To be used in association with local vegetation monitoring data.
TX	The University of Texas	Evaluation of ground and surface water chemistry at the Pine River Ranches methane seep area
TX	Texas A&M University	To support doctoral research into the relationship between ecosystem processes and geologic framework
TX	Texas A&M University	Modeling geochemical evolution of groundwater about 20 miles north of this monitoring station. Need rainwater chemistry data
TX	Student	Research paper
TX	University of Texas Geography	For use in teaching GIS applications to upper-division Geography students at UT.
TX	Texas Tech University	Need precipitation data to use in a litter decomposition study
TX	University of Texas at Austin	For a class project in environmental organic geochemistry at UT-Austin
TX	University of Texas at Austin	For a graduate school assignment, I need precipitation and water quality data for a risk assessment.
TX	Kilgore College	I plan to use this in a brief report in my Chemistry class at Kilgore College.
TX	Texas Tech University	Deposition models for mercury movement into fish
TX	The University of Texas	Evaluation of ground water chemistry, USGS Bemidji Site
TX	LeTourneau University	Class exercise
TX	University of St. Thomas	Instructional use
TX	Sul Ross State University	Thesis project effects of acid precipitation on desert aquatic ecosystems
TX	Educator	To model the evolution of the background ground water from the rain composition
TX	Baylor University	Understanding deposition effect on aquatic productivity
TX	Student	Geochemistry class final project
TX	University of Denver	For college class in air quality management at University of Denver
TX	Educator	Compare with groundwater chemistry
TX	Rice University	Assembling an ecological guide to the campus of Rice University
TX	Houston Community College	Student research project - Environmental Science Class
TX	Clear Lake High School	I'm going to use the data to construct multiple linear regression models.
TX	University of Texas at Austin	Environmental Impact study
TX	Booker T. Washington	Science fair

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
TX	University of Houston	Research paper for chemistry class
TX	Texas A&M University	Personal information
TX	Student	Obtain information on the chemical formation of nitrogen-containing acid rain
TX	Kinkaid school	8th grade school project in science class
UT	Student	I will use it for term project for GIS class.
UT	Utah State University	To use it in the GIS Project
UT	Utah State University	Examination data
UT	BYU	Class research project on Acid Rain and its effect on watersheds
VA	University of Virginia	Comparisons of N deposition at regional watershed study sites.
VA	University of Virginia	NOAA N input assessment
VA	University of Virginia	I intend to utilize the data for a watershed study in Shenandoah National Park for the University of Virginia
VA	Department of Environment	I intend to use this data for a watershed study leading to my masters thesis
VA	University of Virginia	I am currently researching the effects of acid rain on stream chemistry
VA	University of Virginia	For study of geochemical fluxes in a catchment
VA	Georgia Institute of Technology	Relationship with fish advisories
VA	University of Virginia	MS Thesis
VA	James Madison University	To get an idea of precipitation data in the area for my water class
VA	College of William and Mary	In classroom work with students
VA	James Madison University	This data will be used to compare with government policies to find a correlation between the two.
VA	University of Virginia	Graduate level atmospheric class proposal idea
VA	University of Virginia	Status concentration of nitrogen species for isotope analysis prep.
VA	Department of Environment	Compare collected precip. data at Old Rag Mountain to those at Big Meadows
VA	James Madison University	Used for analysis in a college level environmental science course.
VA	Virginia Tech	Trend testing for atmospheric deposition in Virginia
VA	Department of Environment	The data are compared to collected data in SNP
VA	University of Virginia	Calculate Nitrogen Budget
VA	University of Virginia	I am participating in a watershed study for a course and need precipitation data for the area.
VA	Educator	Use for catchment hydrology lab course at UVA
VA	James Madison University	I will use this data in an acid rain air project with data from big meadows
VA	University of Virginia	Trend analysis
VA	Old Dominion University	Research
VA	James Madison University	Data is going to be analyzed in order to determine seasonal effects of pH on the park.
VA	South Lakes High School	Atmospheric Deposition
VA	Mathematics and Science	For an interdisciplinary project at school
VA	Centreville High School	Science fair project
VA	Thomas Jefferson High School	10th grade chem. project on acid rain

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

Location	Affiliation	Application
VA	Chesterfield County Math	High school research project on HCl and its effects on environment as a result of industrial emissions
VA	Sherando High School	To prove that acid rain is present in certain rural areas
VA	Wakefield School	We are using the data in conjunction with Wakefield School's Watershed Study and the AP Environmental class.
VA	Blacksburg Middle School	Science fair project
VA	Centreville high school	Science fair project
VA	Educator	I will use this information in my classroom
VA	Visitation High School	High School Science Project
VA	Educator	6th Grade Science Project
VA	Princess Anne Middle School	Acidity of rain
VT	University of Vermont	For a keynote speech on Air Quality in the Lake Champlain Basin
VT	University of Vermont	The data will be used for an environmental science class assignment at the University of Vermont.
VT	Middlebury College	This will be used for GG254 Weather and Climate Term Paper at Middlebury College
VT	Student	Used in project to report deposition trends in Northern Vermont
VT	University of Vermont	Master's thesis work
VT	University of Vermont	Soil chem. project on Ca budgets
VT	Middlebury College	Report on acid deposition in Vermont
VT	University of Vermont	To observe trends in deposition at our site
VT	Not Specified	Research project
VT	Middlebury College	Class project for an environmental science lab at Middlebury College in Vermont
VT	Middlebury College	For my edification about Vermont's levels of acid deposition
VT	Williston Central School	Educational Research
VT	Student	For an environmental science course I am taking
VT	Student	Pollution in National Parks
VT	University of Vermont	For class use
WA	Gonzaga University	Doing a research project on the chaotic structure of data.
WA	Western Washington University	Statistics project at Western Washington University by math department
WA	Western Washington University	Statistics project
WA	University of Washington	To compare to our data at Hoh site
WA	Central Washington University	Generating a report showing precipitation chemistry at sites near Mount Rainier
WA	The University of Western Washington	Modeling water quality of LTER lake sites
WA	University of Washington	To compare to our data in Olympic NP
WA	The Evergreen State College	Classroom water chemistry workshop.
WA	The Evergreen State College	Teaching in an Environmental Analysis Class
WA	University of Washington	Compare to our data collected in Hoh river valley
WA	Washington State University	NPS pollution study
WA	The Evergreen State College	Research for college paper, beginning chemistry, for effects of acid rain on aquatic environments.

**Table 6.** Selected uses of data by university and K-12 students and educators—Continued

Location	Affiliation	Application
WA	Washington State University	Coursework at WSU
WA	Central Washington University	Comparing precipitation contaminant trends in the state with Data collected at Mt Rainier (Paradise)
WA	University of Washington	Develop a phosphorus balance for the Lake Washington watershed
WA	University of Washington	Compare against our measurements in Hoh River valley
WA	NSCC	Use in conjunction with a project that monitors the environment around a watershed
WA	Kentlake High School	Chemistry assignment
WA	Not Specified	Evaluating long-term trends for EPA
WA	Mt. View High School	I am going to write a short report on the environmental state of La Grande, WA.
WA	Vashon High School	Educational Research
WA	Olympic Middle School	For a report
WA	Educator	Poster for ecology class
WA	Educator	Education research
WA	Student	For my report in my science fair project
WA	Student	I would like to learn more about atmospheric studies
WA	Walla Walla Community College	Information gathered will possibly be used in a report on Acid Rain in my Hydrology class
WA	Washington State University	Effect on forests
WI	University of Wisconsin -Superior	Linear modeling
WI	University of Wisconsin -Superior	Observation
WI	River Studies Center	Helping high school teachers create interactive science web pages.
WI	University of Wisconsin	For a report dealing with the amount of precip. in that area within 1998
WI	University of Wisconsin	Comparing atmospheric deposition of N and P to nutrient deposition by birds
WI	University Wisconsin	pH levels for precipitation for statistical analysis
WI	University of Wisconsin - Stevens P	Research project- rate of deposition/input with respect to available N and plant use in urban settings
WI	University of Wisconsin Superior	Acid rain project U.W. Superior
WI	Logan High School	Graph
WI	Educator	As part of our own acid rain study. It will be comparison data.
WI	University of Wisconsin	Curiosity at this point - but am in the initial stages of planning a college course in environmental chemistry.
WI	St. Dominic School	Science project
WI	Beloit College	For my senior thesis: studying water chemistry of a forested ecosystem located in West Watly, MA
WI	Educator	I am developing a project to gather statistics from the Internet and use the data in my science classes.
WV	West Virginia University	Contribution of atmospheric precipitation to solutes in ground water
WV	Salem-Teikyo University	Looking at possible inclusion in environmental science classes
WV	West Virginia University	Regional climate change assessment
WV	Student	Answer questions

**Table 6.** Selected uses of data by university and K–12 students and educators—Continued

<b>Location</b>	<b>Affiliation</b>	<b>Application</b>
WV	Student	Class project using the web as a tool for locating current information concerning global atmospheric changes
WV	Biology	Biology homework
WV	West Virginia University	This data is being used to answer questions for a Global Ecology course
WV	West Virginia University	Student information
WV	Student	For a scout project
WV	Covenant School	Educational Research
WV	Educator	Comparing atmospheric deposition to ground water
WV	Student	Comparing this data to data gathered at WV Wesleyan College for an Environmental Science project
WY	University of Wyoming	I will use this data to predict and calculate impacts on the environment in SW Wyoming. This is for a class we are learning to write EIS's.
WY	University of Wyoming	Comparison of basement flooding in house between owners, for possible litigation.
WY	Carey Junior High School	Have students use to graph and analyze
WY	University of Wyoming	Studying air quality in SW WY





# NADP cooperators

## United States Government Agencies

U.S. Dept. of the Interior (*U.S. Geological Survey, National Park Service, Bureau of Land Management, U.S. Fish & Wildlife Service, Bureau of Reclamation*); U.S. Environmental Protection Agency; U.S. Dept. of Agriculture (*Ag. Research Service, Cooperative State Research, Education & Extension Service, Forest Service*); U.S. Dept. of Commerce/National Oceanic & Atmospheric Administration; National Aeronautics & Space Administration; Tennessee Valley Authority; U.S. Dept. of Energy; National Science Foundation-Long Term Ecological Research Network; U.S. Dept. of Defense/U.S. Military Academy

## State & Local Government Agencies

Casco Bay Estuary Program, ME; City of Bennington, VT; City of Portland, OR; Geneva Lake Environmental Agency, WI; Green River High School, UT; Illinois State Water Survey; Iowa Conservation Commission; Kansas Dept. of Wildlife & Parks; Kentucky-Clark State Fish Hatchery; Louisiana Dept. of Environmental Quality; Maine Dept. of Environmental Protection; Minnesota Pollution Control Agency; New Hampshire Dept. of Environmental Services; New Jersey Dept. of Environmental Protection; New Mexico Environment Dept.; North Carolina Dept. of Environment, Health, & Natural Resources; North Dakota State Parks & Recreation-Icelandic State Park; Northeast States for Coordinated Air Use Management; Pennsylvania Dept. of Conservation & Natural Resources; Pennsylvania Dept. of Environmental Resources; Siskiyou County, CA-Air Pollution Control District; South Carolina Dept. of Health and Environmental Quality; South Florida Water Management District; St. Johns River Water Management District; Tampa Bay Estuary Program, FL; Texas Natural Resource Conservation Commission; West Virginia State Parks & Forests; Wisconsin Dept. of Natural Resources; Wolf Ridge Environmental Learning Ctr., MN

## State Agricultural Experiment Stations

Auburn Univ.-Black Belt Substa.; Auburn Univ.-Sand Mtn. Substa.; Colorado State Univ.-Central Plains Experimental Range; Cornell Univ.-Aurora Research Farm; Iowa State Univ.-McNay Research & Demonstration Farm; Kansas State Univ.; Louisiana State Univ.-Iberia Research Sta.; Louisiana State Univ.-Southeast Research Sta.; Montana State Univ.-Northern Ag. Research Ctr.; North Carolina State Univ.-Finley Farm; North Carolina State Univ.-Horticultural Crops Research Sta.; North Carolina State Univ.-Peanut Belt Research Sta.; North Carolina State Univ.-Piedmont Research Sta.; Ohio State Univ.-Ohio Ag. Research & Development Ctr.; Oklahoma State Univ.-Panhandle Research Sta.; Oregon State Univ.-Hyslop Farm; Pennsylvania State Univ.; Pennsylvania State Univ.-Fruit Research & Extension Ctr.; Purdue Univ.-Purdue Ag. Research Ctr.; Purdue Univ.-Southwest-Purdue Ag. Ctr.; South Dakota State Univ.-Cottonwood Range & Livestock Research Sta.; Texas A & M Univ.-Texas A&M Ag. Research Sta.-Beeville; Texas A & M Univ.-Texas A&M Ag. Research Sta.-Sonora; Univ. of Arkansas-Ag. Research & Extension Ctr.; Univ. of California-Davis; Univ. of California-Hopland Field Sta.; Univ. of Florida; Univ. of Georgia-Coastal Plain Experiment Sta.; Univ. of Georgia-Georgia Experiment Sta.; Univ. of Illinois-Dixon Springs Ag. Ctr.; Univ. of Illinois-Northern Illinois Agronomy Ctr.; Univ. of Illinois-Northwestern Illinois Ag. Research & Demonstration Ctr.; Univ. of Maine-Greenville Sta.; Univ. of Maryland-Wye Research & Education Ctr.; Univ. of Massachusetts-Suburban Experiment Sta.; Univ. of Michigan-Biological Sta.; Univ. of Michigan-Kellogg Biological Sta.; Univ. of Minnesota-Southwest Experiment Sta.; Univ. of Missouri-Basket Wildlife Area; Univ. of Missouri-Univ. Forest; Univ. of Nebraska-Ag. & Research Development Ctr.; Univ. of Vermont-Proctor Maple Research Ctr.; Univ. of Wisconsin-Spooner Ag. Research Sta.; Utah State Univ.-Utah Ag. Experiment Sta.; Virginia Polytechnic Inst. & State Univ.-Horton Ctr.

## Universities

Alfred Univ.; Cornell Univ.; Eastern Kentucky Univ.; Miami Univ.-Dept. of Geography; Michigan Tech Univ.-Dept. of Biological Sciences; Murray State Univ.; New Mexico State Univ.; North Carolina State Univ.-Southern Oxidant Study; Pennsylvania State Univ.-Meteorology Dept.; State Univ. of New York-Albany; State Univ. of New York-Fredonia; State Univ. of New York-Oswego; State Univ. of New York-Syracuse/Adirondack Ecological Ctr.; Univ. of Arkansas-Monticello; Univ. of Colorado-Inst. of Alpine & Arctic Research; Univ. of Delaware-Graduate College of Marine Studies; Univ. of Kentucky-Ctr. for Applied Energy Research; Univ. of Massachusetts-Dept. of Forestry & Wildlife Management; Univ. of Minnesota-Cedar Creek Natural History Area; Univ. of Nebraska-Conservation & Survey Div.; Univ. of New Hampshire; Univ. of Puerto Rico-Ctr. for Energy & Environmental Research; Univ. of Southern Maine; Univ. of Vermont-School of Natural Resources; Univ. of Virginia-Environmental Sciences Dept.; Univ. of Washington-Pack Forest

## Industry

BP Amoco; Baltimore Gas & Electric Co.; Boise Cascade Corp.; Consolidated Papers, Inc.; Exxon Co., USA; Frontier Geosciences Environmental Research Corp.; International Paper Co.; Niagara Mohawk Power Corp.; SF Phosphates Limited Co.; Union Camp Corp.

## Native American

Fond du Lac Reservation; Fort Peck Assiniboine & Sioux Tribes; Grand Traverse Band; Penobscot Nation; Round Valley Indian Tribes; St. Regis Mohawk Tribe

## Other Research Organizations

Black Rock Forest Consortium; Electric Power Research Inst.; Environment Canada-Atmospheric Environment Service; Gulf of Maine Council on the Marine Environment; Huntsman Marine Science Centre, Canada; Inst. of Ecosystem Studies; Parks Canada; Quebec Ministry of Environment & Wildlife



